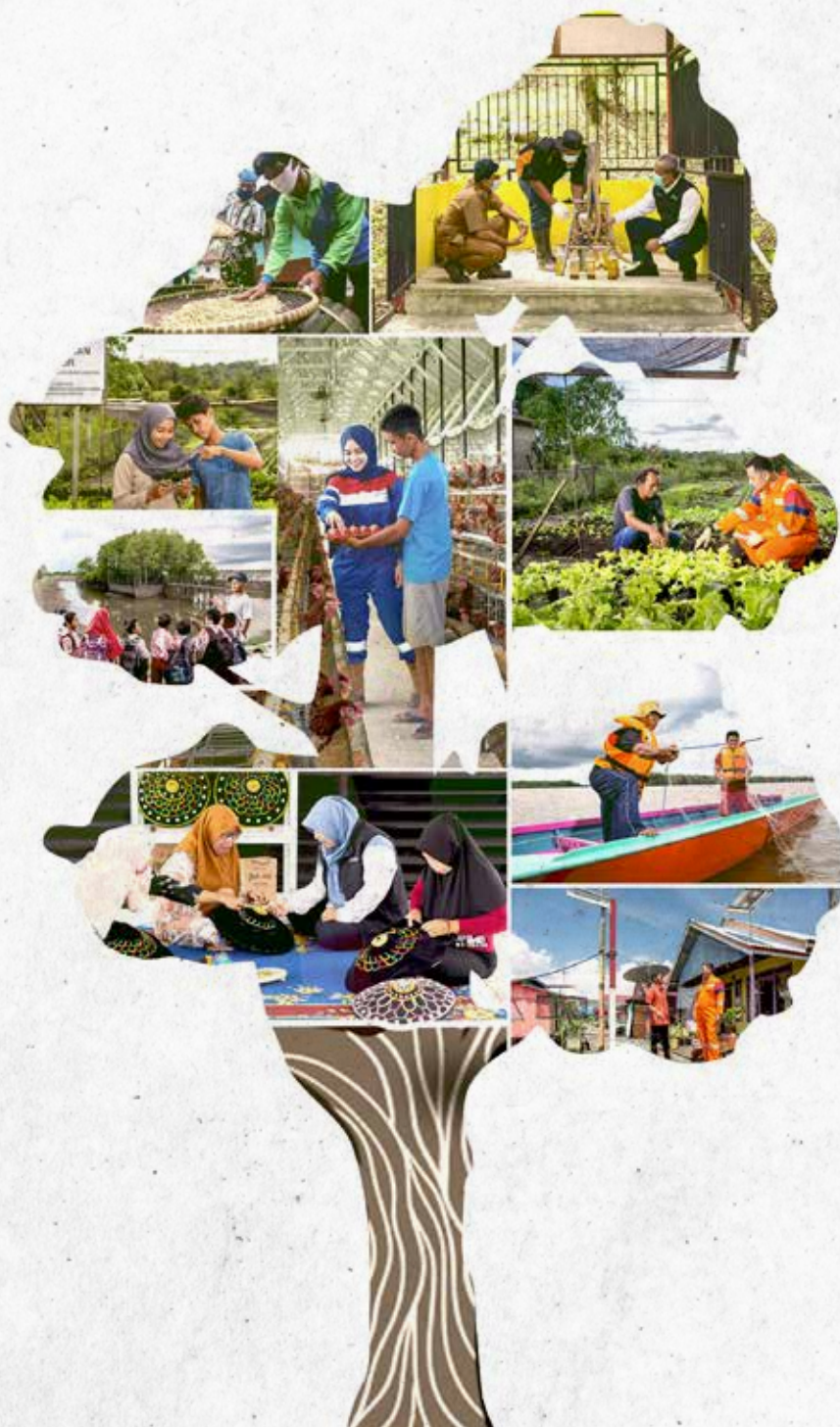


Laporan Keberlanjutan
Sustainability Report



Bertumbuh dalam Kebersamaan,
Bersinergi dalam Kesatuan

Sanggahan Disclaimer

Laporan Keberlanjutan ini berisikan pernyataan-pernyataan kinerja ekonomi, lingkungan, sosial, dan tata kelola, serta strategi Perusahaan, yang digolongkan sebagai pernyataan ke depan dalam pengertian perundang-undangan yang berlaku, kecuali hal-hal yang bersifat historis. Pernyataan-pernyataan tersebut bersifat prospektif yang memiliki risiko dan ketidakpastian, serta dapat mengakibatkan perkembangan aktual secara material berbeda dari yang tertulis dalam pernyataan-pernyataan tersebut. Pernyataan prospektif dalam Laporan Keberlanjutan ini dibuat berdasarkan berbagai asumsi mengenai kondisi terkini dan kondisi mendatang dari Perusahaan, serta lingkungan bisnis, tempat Perusahaan menjalankan kegiatan usaha. Perusahaan tidak menjamin bahwa segala tindakan yang telah diambil untuk memastikan keabsahan dokumen ini akan membawa hasil-hasil tertentu sesuai harapan. Penulisan angka-angka pada seluruh tabel dan grafik menggunakan notasi bahasa Indonesia.

Untuk diketahui bersama, pada tanggal 1 September 2021 telah diselesaikan proses korporasi implementasi pembentukan PT Pertamina Hulu Energi sebagai Subholding Upstream, yang ditandai dengan diterbitkannya Keputusan Pemegang Saham secara Sirkuler PT Pertamina Hulu Energi tentang Implementasi Pembentukan (*Legal End-State*) Subholding Upstream tanggal 1 September 2021 dalam rangka pengambilalihan maupun pengalihan seluruh saham milik PT Pertamina (Persero) di Anak Perusahaan PT Pertamina (Persero) kepada PT Pertamina Hulu Energi sebagai Subholding Upstream.

Secara operasional, PT Pertamina Hulu Energi ("PHE") sebagai Subholding Upstream mengelola 8 (delapan) Anak Perusahaan di sektor hulu migas, 2 (dua) Anak Perusahaan sektor jasa penunjang migas (selanjutnya disebut "AP Services"), dan PT Badak NGL.

Penyebutan PHE dalam Laporan ini menekankan bahwa PHE sebagai entitas tunggal, sedangkan penyebutan PHE Subholding Upstream merujuk pada PHE dan seluruh Anak Perusahaan sektor hulu migas yang terbagi menjadi 5 (lima) regional, 2 (dua) AP Services, PT Badak NGL, serta perusahaan afiliasi.

Dengan demikian, pengungkapan informasi kinerja Perusahaan tahun 2021 pada Laporan ini mencakup PHE selaku Subholding Upstream sehingga memiliki cakupan yang berbeda dengan Laporan Perusahaan Tahun 2019 dan Tahun 2020 yang mengungkapkan informasi kinerja PHE sebagai entitas tunggal.

This Sustainability Report contains statements about the Company's economic, environmental, social, and governance performance and its strategy, which are classified as forward-looking statements under applicable laws and regulations, except for historical information. These are forward-looking statements that involve risks and uncertainties and may result in actual developments that differ materially from those stated in the statements. The forward-looking statements in this Sustainability Report are based on a variety of assumptions regarding the Company's current and future operating conditions, as well as the business environment in which the Company operates. The Company makes no guarantee that any action taken to ensure the validity of this document will result in the expected results. All tables and graphs presenting numerical data use the Indonesian standard.

On September 1, 2021, the corporate process of implementing the establishment of PT Pertamina Hulu Energi as Subholding Upstream was completed, which was marked by the issuance of a Circular Decree of the Shareholders of PT Pertamina Hulu Energi concerning the Implementation of the Establishment (Legal End-State) of the Upstream Subholding on 1 September 2021 in the context of the takeover or transfer of all shares owned by PT Pertamina (Persero) is a subsidiary of PT Pertamina (Persero) to PT Pertamina Hulu Energi as the Upstream Subholding.

Operationally, PT Pertamina Hulu Energi ("PHE") as Upstream Subholding manages 8 (eight) Subsidiaries in the upstream oil and gas sector, 2 (two) Subsidiaries in the oil and gas supporting services sector (hereinafter referred to as "AP Services"), and PT Badak NGL.

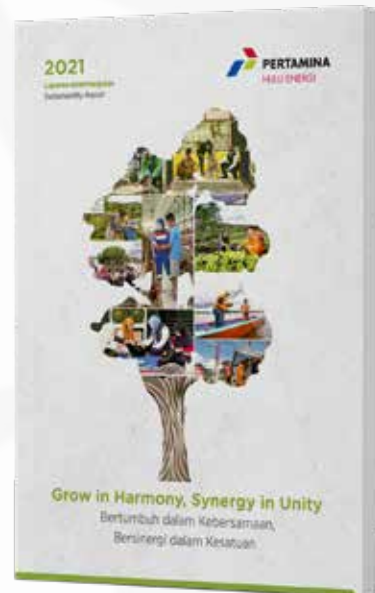
The mention of PHE in this Report emphasizes that PHE is a single entity, while the mention of PHE Subholding Upstream refers to PHE and all Subsidiaries of the upstream oil and gas sector, which are divided into 5 (five) regionals, 2 (two) AP Services, PT Badak NGL, and affiliated companies.

Thus, the disclosure of information on the Company's performance in 2021 in this Report includes PHE as Subholding Upstream, having a different scope from the Company Reports for 2019 and 2020 which discloses information on PHE's performance as a single entity.

► **TEMA**
Theme

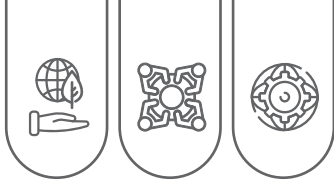
Grow in Harmony, Synergy in Unity

Bertumbuh dalam
Kebersamaan,
Bersinergi dalam Kesatuan



Tema ini menggambarkan pertumbuhan Perseroan melalui penyesuaian tata kelola dan peningkatan jalinan kebersamaan dengan semua pemangku kepentingannya, terutama Anak Perusahaan. Kebersamaan ini menjadi dasar pelibatan yang penting untuk membangun sinergi dalam kesatuan menuju keberlanjutan. Di sinilah, PHE Subholding Upstream akan meneruskan semangat membangun dasar keberlanjutan dengan mengembangkan peta jalan dan memperkuat aspek lingkungan, sosial, tata kelola (LST) serta ekonomi yang berkelanjutan.

This theme illustrates the Company's growth through improved governance and relationships with all stakeholders, mainly its Subsidiaries. This togetherness serves as the foundation for significant involvement to foster synergy in the unified pursuit of sustainability. This is where PHE Subholding Upstream will continue to lay the groundwork for sustainability by developing a roadmap and strengthening sustainable environmental, social, and governance (ESG) also economic aspects.



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Motif Batik 'Telaga Patra', produksi kelompok difabel 'Kubedistik' Program Unggulan TJSL PEP Tarakan Field, Zona 10, Regional Kalimantan
Batik motifs produced by the 'Kubedistik' disabled group assisted by PEP Tarakan Field, Zone 10, Kalimantan Regional



► IKHTISAR KINERJA KEBERLANJUTAN

Sustainability Performance Highlights

Bersama Mencegah Perubahan Iklim

Together Preventing Climate Change



PHE Subholding Upstream meningkatkan upaya bersama dalam menurunkan emisi gas rumah kaca (GRK) sebagai bentuk dukungan untuk pencegahan perubahan iklim. Tahun 2021, kami berhasil menurunkan emisi GRK sebesar 870.539,74 ton CO₂eq.



PHE Subholding Upstream enhanced joint efforts to reduce greenhouse gas (GHG) emissions to support climate change prevention. In 2021, we succeeded in reducing GHG emissions by 870,539.74 tons CO₂eq.

Bersama Menjaga Kinerja Keselamatan dan Kesehatan Kerja (K3)

Together Maintaining Occupational Safety and Health (OHS) Performance



PHE Subholding Upstream telah melaksanakan vaksinasi untuk mencegah virus COVID-19 terhadap seluruh (100%) pekerja, yang berjumlah 85.747 orang. Kami terus meningkatkan pengelolaan K3 dan mencatat 18,8 juta jam kerja selamat.



PHE Subholding Upstream has carried out vaccinations to prevent the COVID-19 virus for all (100%) workers, totaling 85,747 people. We continued to improve our OHS management and recorded 18.8 million safe working hours.

Komitmen Kami pada Tata Kelola Keberlanjutan

Our Commitment to Sustainability Governance



PHE Subholding Upstream berhasil mempertahankan Sertifikasi Sistem Manajemen Anti Penyuapan (SMAP) SNI ISO 37001:2016 berdasarkan hasil *Audit Surveillance* oleh Badan Sertifikasi Mutu Internasional. Konsistensi penerapan SMAP merupakan salah satu bentuk upaya Perseroan dalam pemenuhan Tata Kelola Perusahaan yang Baik (GCG). PHE Subholding Upstream successfully maintained the SNI ISO 37001:2016 Anti-Bribery Management System Certification (SMAP) based on the Surveillance Audit results of the International Quality Certification Agency. Consistency in the implementation of SMAP is one of the Company's efforts to adhere to Good Corporate Governance (GCG).

Bersama Membangun Masyarakat Berdaya

Together Building Empowered Communities



PHE Subholding Upstream, melalui Dynamite Program – *Project to Community* berhasil mengembangkan dua web digital, yaitu Eduvisit Pertakultur untuk Program Petani Maju 4.0 binaan Pertamina Hulu Mahakam (PHM) dan aplikasi digital berbasis web sebagai media pemasaran produk UMKM mitra binaan PT Pertamina Hulu Energi West Madura Offshore (PHE WMO). Eduvisit pertakultur PHM dapat diakses melalui <https://dynamitemahakam.phi.pertamina.com/> dan aplikasi digital berbasis web untuk binaan PHE WMO bisa diakses melalui <https://bakaoo.id/>. Pengembangan kedua aplikasi ini dilakukan bersama sembilan pekerja dari lintas fungsi dan lintas regional secara sukarela (*employee volunteerism*) bersama para Project Leader dan Project Mentor dalam Dynamite Program. Total jam kesukarelawanan pekerja mencapai 1.800 jam.

PHE Subholding Upstream, through the Dynamite Program – Project to Community, successfully developed two digital websites: the Eduvisit Pertaculture for the Advanced Farmers 4.0 Program, under the guidance of Pertamina Hulu Mahakam (PHM) and a web-based digital application as a marketing medium for partner MSME products under the guidance of PT Pertamina Hulu Energi West Madura Offshore (PHE WMO). The PHM pertaculture eduvisit can be accessed via <https://dynamitemahakam.phi.pertamina.com>. In contrast, web-based digital applications under the guidance of PHE WMO can be accessed via <https://bakaoo.id/>. The development of these two applications was carried out voluntarily (*employee volunteerism*) by nine employees from cross-functional and regional lines together with Project Leaders and Project Mentors in the Dynamite Program. Employee volunteering totaled 1,800 hours.



Waste to Energy for Community (Wasteco) merupakan bagian dari Desa Energi Berdikari PERTAMINA berupa program pengolahan sampah menjadi gas metana untuk penyediaan kebutuhan gas rumah tangga dan UMKM di Kelurahan Manggar, Balikpapan, telah melakukan reduksi emisi sebesar 181.145 ton CO₂eq/tahun dan memberikan dampak 1:10,08 terhadap masyarakat melalui perhitungan *Social Return on Investment* (SROI). Hasil perhitungan menunjukkan adanya manfaat sosial sebesar Rp10,08 bagi masyarakat dan para pemangku kepentingan terkait.



Waste to Energy for Community (Wasteco) is a component of PERTAMINA's Independent Energy Village, in the form of a program for processing waste into methane gas to provide household gas and MSMEs in Manggar Village, Balikpapan, that has reduced emissions by 181,145 tons CO₂eq/year and has a community impact of 1:10.08 based on the calculated Social Return on Investment (SROI). The calculation results indicate that the community and related stakeholders benefitted by Rp10.08.

ASPEK LINGKUNGAN ENVIRONMENTAL ASPECTS



2021

Total pengukuran emisi GRK (Cakupan 1 dan 2) (Ton CO₂eq)
Total GHG emission measurement (Scope 1 and 2) (Tons CO₂eq)

9.751.899,12**

2020 : 7.853.549,94***

2019 : 2.816.723,56*



2021

Realisasi penurunan emisi (Ton CO₂eq)
Realization of emission reduction (Tons CO₂eq)

870.539,74***

2020 :-

2019 :-



2021

Pemanfaatan energi dari sumber EBT (GJ)
Energy utilization from NRE sources (GJ)

2.625.017,73**

2020 : 1.957.253,33*

2019 : 3.040.589,86*

* Cakupan PHE sebelum menjadi Subholding Upstream
PHE before becoming Subholding Upstream

** Cakupan PHE Subholding Upstream
as PHE Subholding Upstream

*** Cakupan PHE Subholding Upstream tanpa memperhitungkan sumber emisi dari WK Rokan dan PT Badak NGL
Includes PHE Subholding Upstream without taking into account emission sources from the Rokan WK and PT Badak NGL



2021

**Pelestarian keanekaragaman hayati
(kritis atau sangat terancam punah)**
Biodiversity conservation (critical or
critically endangered)

4**

2020 : -

2019 : -



2021

Intensitas emisi (Ton CO₂eq/BOE)****
Emission Intensity (Ton CO₂eq/BOE)****

0,0339**

2020 : 0,0333***

2019 : 0,0356*



2021

PROPER Emas
Gold PROPER

9**

2020 : 6**

2019 : 3*



2021

PROPER Hijau
Green PROPER

24**

2020 : 23**

2019 : 4*

* Cakupan PHE sebelum menjadi Subholding Upstream
PHE before becoming Subholding Upstream

** Cakupan PHE Subholding Upstream
as PHE Subholding Upstream

*** Cakupan PHE Subholding Upstream tanpa memperhitungkan sumber emisi dari WK Rokan dan PT Badak NGL
Includes PHE Subholding Upstream without taking into account emission sources from the Rokan WK and PT Badak NGL

**** Emisi dihitung berdasarkan GCG control approach protocol
Emissions are calculated according to the GHG control approach protocol

ASPEK SOSIAL SOCIAL ASPECTS



Investasi Sosial (Juta USD)
Social Investment (Million USD)

11,96*

2021

2020 : 1,77

2019 : 2,04



Lost time injury rate (LTIR)
Lost time injury rate (LTIR)

4/0,02**

2021

2020 : 6/0,03

2019 : 3/0,01



Total recordable injury rate (TRIR)
Total recordable injury rate (TRIR)

0,13

2021

2020 : 0,17

2019 : 0,21



Jumlah jam pelatihan
Total training hours

3.939.125***

2021

2020 : 453.499

2019 : 414.810

Catatan | Note:

Cakupan data tahun 2019 dan 2020 adalah PHE sebelum menjadi Subholding Upstream
The data coverage for 2019 and 2020 is PHE before becoming Subholding Upstream

Cakupan data tahun 2021 setelah menjadi PHE Subholding Upstream
2021 data after becoming PHE as Subholding Upstream

* Terdapat perbedaan metode perhitungan berdasarkan ruang lingkup mengacu pada panduan GRI 201 dan ISO 26000
There are different calculation methods based on the scope of reference to the GRI 201 and ISO 26000 guidelines

** Termasuk WK Rokan dan PT Badak NGL semenjak bergabung dengan Subholding Upstream
Including the Rokan WK and PT Badak NGL since joining Subholding Upstream

*** Termasuk pendidikan *class room*, sosialisasi, webinar, dan kegiatan pelatihan internal lainnya
Including class rooms, socialization, webinars, and other internal training activities

ASPEK TATA KELOLA GOVERNANCE ASPECTS



Jumlah Laporan Whistleblowing System (WBS)

Total Whistleblowing System Reports (WBS)

2021

46

2020 : 2

2019 : 3



Jumlah Laporan WBS yang diselesaikan

Total completed WBS Reports

2021

15

2020 : 2

2019 : 3



Jumlah yang telah melaporkan e-LHKPN ke KPK Periodik

Total people who have reported e-LHKPN to KPK Periodically

2021

607

2020 : 196

2019 : 191



Asesmen GCG

GCG Assessment

2021

89,45*

2020 : 88,08

2019 : 87,50

Catatan | Note:

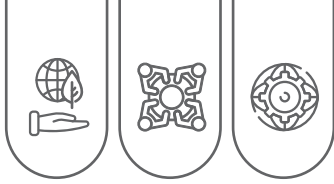
Cakupan data tahun 2019 dan 2020 adalah PHE sebelum menjadi Subholding Upstream
The data coverage for 2019 and 2020 is PHE before becoming Subholding Upstream

Cakupan data tahun 2021 setelah menjadi PHE Subholding Upstream
2021 data after becoming PHE Subholding Upstream

* Nilai peluang

Value of opportunity





► PESAN DIREKTUR UTAMA [2-22] [POJK51-4]

Message from the President Director



PHE Subholding Upstream mengembangkan strategi LST sebagai komitmen mendukung TPB dan sepanjang 2021 kami berhasil menurunkan emisi GRK Cakupan 1 dan Cakupan 2 sebesar 870.539,74 ton CO₂eq atau 11% terhadap *baseline* emisi GRK tahun 2020.

As part of our commitment to the SDGs, PHE Subholding Upstream developed an ESG strategy, and throughout 2021 we succeeded in reducing Scope 1 and Scope 2 GHG emissions by 870,539.74 tons CO₂eq or 11% compared to the 2020 GHG emissions baseline.

Budiman Parhusip

Direktur Utama

President Director

Para pemangku kepentingan yang terhormat,

Dear respected stakeholders,

Kita patut bersyukur karena dengan kebersamaan yang terbangun, PT Pertamina Hulu Energi sebagai Subholding Upstream mampu melewati tahun 2021 yang penuh tantangan. Pandemi COVID-19 yang masih berlanjut telah memberikan tantangan untuk menjaga kesinambungan eksplorasi dan produksi dengan tetap mengutamakan keselamatan bersama.

Melalui Laporan ini, PHE Subholding Upstream menyampaikan pengungkapan informasi pelaksanaan prinsip-prinsip keberlanjutan. Kami berharap Laporan ini dapat menjadi sumber informasi terkait komitmen Perseroan untuk memperkuat penerapan lingkungan, sosial, dan tata kelola (LST) yang menjadi perhatian investor global, serta dukungan pada pencapaian Tujuan Pembangunan Berkelanjutan (TPB).

We are grateful PT Pertamina Hulu Energi (PHE) as Subholding Upstream was able to navigate the challenging year of 2021, thanks to our established cooperation. The ongoing COVID-19 pandemic posed difficulties in ensuring exploration and production continuity while prioritizing mutual safety.

Through this Report, PHE Subholding Upstream discloses information regarding its implementation of sustainability principles. We hope that this Report will serve as a source of information regarding the Company's commitment to strengthening environmental, social, and governance (ESG) implementation, which is a source of concern for global investors, as well as our support for the Sustainable Development Goals (SDGs).

Respons terhadap Tantangan dan Peluang Keberlanjutan

Kebijakan Keberlanjutan PHE Subholding Upstream mengacu pada Kebijakan Keberlanjutan PT Pertamina (Persero) yang bertujuan untuk mendorong kepatuhan kepada peraturan perundang-undangan dan menciptakan nilai jangka panjang bagi pemangku kepentingan. Kebijakan Keberlanjutan mengintegrasikan strategi dan aktivitas Perseroan dengan lebih baik dalam konteks LST, terutama untuk berkontribusi terhadap TPB. PHE Subholding Upstream mengelola LST agar dapat mendukung pencapaian PERTAMINA sebagai perusahaan energi global terkemuka, bereputasi baik, serta diakui sebagai perusahaan ramah lingkungan, bertanggung jawab sosial perusahaan, dan memiliki tata kelola perusahaan yang baik.

Upaya kami untuk menjadi perusahaan ramah lingkungan, diwujudkan dengan pengembangan energi baru dan terbarukan (EBT) melalui dukungan transisi energi. Kami juga berkomitmen mengurangi emisi gas rumah kaca (GRK) yang berfokus pada pengendalian *combustion* dan gas suar bakar (*flare*) dengan mengintegrasikannya dalam strategi dan operasi termasuk pengembangan teknologi *carbon captures, utilization, and storage* (CCUS) dan penghijauan. Perseroan juga memastikan kegiatan eksplorasi dan produksi dijalankan secara efisien dan bertanggung jawab sehingga secara berkelanjutan dapat mengurangi jejak lingkungan, serta mendukung perlindungan keanekaragaman hayati.

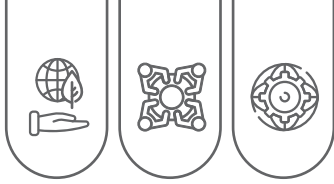
Kesungguhan dalam menjunjung tanggung jawab sosial, dilaksanakan PHE Subholding Upstream melalui penerapan standar tertinggi Kesehatan, Keselamatan, Keamanan dan Lingkungan (K3L) guna melindungi pekerja, aset, serta lingkungan termasuk pencegahan tumpahan minyak. Kami juga mengelola dampak sosial dengan memberdayakan dan mengembangkan masyarakat, serta mendukung hak-hak asasi manusia (HAM) termasuk hak-hak komunitas lokal/masyarakat adat di sekitar wilayah operasi. Perseroan juga mendorong pengembangan pekerja dan meningkatkan penggunaan tenaga kerja serta kontraktor lokal.

Response to Sustainability Challenges and Opportunities

The PHE Subholding Upstream Sustainability Policy refers to the Sustainability Policy of PT Pertamina (Persero), which aims to promote compliance with applicable laws and regulations while also creating long-term value for stakeholders. The Sustainability Policy integrates the Company's strategies and activities into the broader ESG context, emphasizing the SDGs. PHE Subholding Upstream manages ESG to assist PERTAMINA in becoming a leading global energy company with a good reputation recognized as an environmentally friendly company and known for its corporate social responsibility and good corporate governance.

Our efforts to become an environmentally-friendly company are accomplished by developing new renewable energies (NRE) and supporting the energy transition. We are also committed to reducing greenhouse gas (GHG) emissions, focusing on lowering combustion and flares through strategic and operational integration and developing carbon capture, utilization, and storage (CCUS) technology and greening. Furthermore, the Company ensures that exploration and production activities are conducted efficiently and responsibly to reduce their environmental footprint and contribute to biodiversity protection.

PHE Subholding Upstream takes a serious approach to social responsibility by applying the highest Health, Safety, Security, and Environment (HSSE) standards to protect employees, assets, and the environment, including preventing oil spills. Likewise, we manage social impacts by empowering and developing communities and advocating for human rights, including those of the communities/indigenous communities' operational areas. Furthermore, the Company promotes employee development and increases its use of local labor and contractors.



Terkait penerapan tata kelola keberlanjutan, Perseroan memastikan komitmen untuk menjunjung tinggi etika dan integritas dengan mematuhi peraturan hukum yang berlaku, serta meniadakan segala kecurangan, korupsi, maupun pelanggaran etika dalam berbisnis. Kami terus membangun Kerangka Kerja Tata Kelola Keamanan Informasi dan Ketahanan Keamanan Siber yang baik guna mendukung pemanfaatan teknologi digital dalam proses bisnis Perseroan, untuk membangun kepercayaan para pemangku kepentingan serta mencegah kebocoran informasi digital.

Capaian Kinerja Keberlanjutan

Kinerja unggul yang terjaga tahun 2021 menjadikan Perseroan mampu meningkatkan perolehan Nilai Ekonomi yang Dihasilkan, berupa Total Pendapatan Usaha sebesar USD11.822,10 juta atau 44% dari tahun 2020 yang mencapai USD8.184,22 juta. Realisasi Total Pendapatan Usaha pada periode pelaporan mencapai 99% dari RKAP Revisi 2021 sebesar USD11.996,85 juta. Sebagian dari Nilai Ekonomi yang Dihasilkan distribusikan kepada para pemangku kepentingan, termasuk sebagai investasi sosial dalam bentuk, di antaranya pembiayaan program tanggung jawab sosial dan lingkungan (TJSL), dengan realisasi pembiayaan investasi sosial disampaikan dalam bagian lain dari bahasan ini.

Pada kinerja lingkungan, selama periode pelaporan emisi GRK yang dihasilkan PHE Subholding Upstream untuk Cakupan 1 dan Cakupan 2 sebesar 6.983.010,2 ton CO₂eq yakni menurun sebanyak 870.439,74 ton CO₂eq atau 11% dari *baseline* tahun 2020 sebesar 7.853.549,94 ton CO₂eq. Data jumlah emisi PHE Subholding Upstream tidak termasuk WK Rokan dan PT Badak NGL. Penghitungan reduksi emisi GRK diperoleh dari kegiatan sumber emisi Regional 1-Sumatra hingga Regional 5-Internasional dan AP Services, tanpa memperhitungkan sumber emisi dari wilayah kerja baru (WK Rokan dan PT Badak NGL). Lebih lanjut kami belum melakukan penghitungan emisi GRK dari Cakupan 3 yang berasal dari kegiatan rantai pasok.

Komitmen kami pada pengelolaan lingkungan secara menyeluruh termasuk perlindungan keanekaragaman hayati telah mendapatkan pengakuan dari Kementerian Lingkungan Hidup dan Kehutanan (KLHK), melalui 9 (sembilan) Penghargaan PROPER Emas yang diberikan kepada PHE Subholding Upstream. Penghargaan PROPER dapat menegaskan pengelolaan lingkungan Perseroan telah dilakukan sesuai standar global ISO 14001:2015 Sistem Manajemen Lingkungan.

With regard to the implementation of sustainability governance, the Company ensures a commitment to uphold ethics and integrity by adhering to all applicable legal regulations and eliminating all business fraud, corruption, and ethical violations. We continue to develop a robust Information Security Governance and Cyber Security Resilience Framework to support the use of digital technology in the Company's business processes, to foster stakeholder confidence, and to prevent the loss of digital information.

Sustainability Performance Achievements

The Company's continued excellent performance in 2021 enabled it to acquire 44% more Economic Value Generated through USD11,822.10 million in Total Operating Revenues, higher than the USD8,184.22 million generated in 2020. During the reporting period, Total Operating Revenues reached 99% of the 2021 Revised RKAP of USD11,996.85 million. A portion of the Generated Economic Value was distributed to stakeholders, including as financing for corporate social responsibility (CSR) programs, with the realization of social investment financing presented in another section of this discussion.

Regarding environmental performance, PHE Subholding Upstream's Scope 1 and Scope 2 GHG emissions totaled 6,983,010,2 tons CO₂eq during the reporting period, a decrease of 870,439.74 tons CO₂eq, or 11%, compared to the 2020 baseline of 7,853,549.94 tons CO₂eq. PHE Subholding Upstream's total emissions data excludes the Rokan WK and PT Badak NGL. The calculation of GHG emissions reduction was performed using emission sources from Regional 1-Sumatra until Regional 5-International and AP Services, excluding new work areas (Rokan WK and PT Badak NGL). In addition, we have not yet calculated the Scope 3 GHG emissions resulting from supply chain activities.

PHE Subholding Upstream has been awarded 9 Gold PROPER Awards by the Ministry of Environment and Forestry (KLHK) in recognition of its commitment to its holistic environmental management, including biodiversity protection. The PROPER Award demonstrates that the Company's environmental management has been conducted in accordance with the international ISO 14001:2015 Environmental Management System standard.

Dalam penerapan K3, selama tahun 2021 PHE Subholding Upstream mencatat total 258.495.099 jam kerja, dan *Total Recordable Incident Rate* (TRIR) sebesar 0,13. Namun demikian, Perseroan juga mencatat satu kasus kecelakaan kerja yang menyebabkan satu pekerja meninggal dunia. Oleh karena itu, kami terus memperketat implementasi K3 untuk mencegah kecelakaan kerja di kemudian hari, baik untuk semua pekerja internal maupun mitra kerja kami.

Program sosial kemasyarakatan telah kami lakukan secara berkelanjutan melalui program tanggung jawab sosial dan lingkungan (TJSL). Secara berkesinambungan, kami melakukan pemantauan dan evaluasi untuk mengetahui dampak investasi sosial atas nilai sosial dan ekonomi yang dihasilkan dari suatu program, melalui pengukuran *social return of investment* (SROI). Sampai dengan akhir tahun 2021, Perseroan telah melaksanakan SROI untuk 22 program unggulan, dengan hasil rata-rata SROI 1:6,08.

Kami terus mendorong pelibatan pemasok lokal dalam rantai pasok dan penggunaan tenaga kerja lokal. Pelibatan pemasok lokal didukung kebijakan pemenuhan Tingkat Kandungan Dalam Negeri (TKDN), dan memberi dampak berganda (*multiplier effect*) bagi pertumbuhan ekonomi nasional yang akan membuka peluang lapangan kerja. Selama tahun 2021, Perseroan melibatkan 1.723 perusahaan lokal yang menjadi bagian rantai pasok atau 49,70% dari total jumlah vendor/pemasok. Adapun capaian TKDN di PHE Subholding Upstream selama tahun 2021 sebesar 58,81%, lebih tinggi dari target yang ditentukan Pemerintah sebesar 57%.

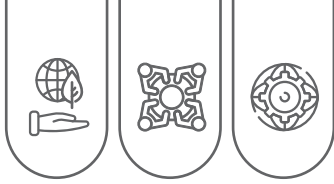
Terkait pengembangan sumber daya manusia, selama tahun 2021 PHE Subholding Upstream menyelenggarakan 3.939.125 jam pelatihan untuk para pekerja, meliputi teknis dan kepemimpinan, serta sertifikasi teknis. Kami berkomitmen mengedepankan penghormatan pada HAM dan kesetaraan bagi seluruh pekerja untuk mendorong produktivitas kerja, di antaranya mencanangkan *Respectful Workplace Policy* pada 31 Agustus 2021 yang dideklarasikan PT Pertamina (Persero), dan menjadi pedoman dalam menghilangkan segala bentuk diskriminasi, pelecehan, dan kekerasan di lingkungan kerja.

In our implementation of OHS, PHE Subholding Upstream recorded a total of 258,495,099 work hours and a Total Recordable Incident Rate (TRIR) of 0.13 in 2021. However, the Company also recorded one case of work accident which led to the passing of one worker. For this reason, we continue to tighten the implementation of OHS to prevent future workplace accidents for both our workers and our working partners.

Through our corporate social responsibility (CSR) program, we have consistently carried out social and community programs. Through measuring social return on investment (SROI), we continuously monitor and evaluate the impact of social investment on the social and economic value generated by a program or activity. The Company had implemented SROI for 22 flagship programs as of the end of 2021, with an average SROI of 1:6.08.

We continue to promote the involvement of local suppliers in the supply chain and employ the local workforce. Local supplier participation is made possible by a policy to achieve Local Content (TKDN) and has a multiplier effect on national economic growth, thereby creating job opportunities. In 2021, the Company worked with 1,723 local companies as part of its supply chain, accounting for 49.70% of total vendors/suppliers. The achievement of TKDN at PHE Subholding Upstream during 2021 was 58.81%, higher than the target set by the Government of 57%.

In terms of human resource development, PHE Subholding Upstream provided 3,939,125 hours of training to employees in 2021, including technical and leadership training, as well as technical certification. We are committed to prioritizing human rights and equality for all workers to promote workplace productivity, including the launch of the Respectful Workplace Policy on 31 August 2021, as declared by PT Pertamina (Persero), serving as a guideline for eliminating discrimination, harassment, and violence in the workplace.



Pada penerapan tata kelola, Perseroan memastikan seluruh kegiatan yang dijalankan telah mematuhi regulasi yang berlaku, termasuk implementasi antikorupsi. Kami telah memiliki GCG Management System yang lebih dikenal dengan Compliance Online System sebagai sarana pengawasan dan evaluasi pelaksanaan *Code of Conduct*, dan realisasi kepatuhan pekerja atas GCG Management System tersebut sebesar 90,24%, melebihi target 88%. Perseroan juga membangun tata kelola keamanan informasi sesuai *best practice* sebagaimana dipersyaratkan dalam standar internasional ISO 27001:2013 (information security management system).

Tantangan Kinerja Keberlanjutan

Tantangan yang dihadapi Perseroan dalam menerapkan kinerja keberlanjutan dan pengelolaan LST selama periode pelaporan adalah perubahan struktur PHE sebagai Subholding Upstream Pertamina. Hal ini menjadikan Perseroan memiliki tugas dan tanggung jawab lebih besar, seiring bertambah luasnya cakupan wilayah kerja dan penambahan jumlah Anak Perusahaan.

Selain itu, tantangan kinerja keberlanjutan Perseroan yakni upaya untuk meminimalisir emisi yang dihasilkan dari peningkatan capaian produksi.

Kami juga menyadari penerapan keberlanjutan dan pengelolaan LST dihadapkan pada tantangan kondisi eksternal. Salah satunya adalah berlanjutnya pandemi COVID-19 selama tahun 2021 dan pemberlakuan pembatasan kegiatan masyarakat (PPKM) di beberapa wilayah yang diprediksi masih berpotensi menciptakan ketidakpastian sehingga Perusahaan terus melakukan adaptasi sesuai pemberlakuan regulasi oleh Pemerintah.

Strategi Pencapaian Target dan Peluang Keberlanjutan

Menyadari tantangan yang dihadapi, Perseroan membentuk Tim Environmental, Social, & Governance (ESG) untuk memperkuat pengelolaan LST. Pembentukan Tim ESG didasarkan Surat Perintah Direktur Utama No. Prin-035/PHE00000/2021-S0 Tentang Tim ESG Management Subholding Upstream. Tim beranggotakan dari berbagai fungsi, dan bertanggung jawab kepada Direktur Utama, serta bertugas membantu Direksi dalam mengelola keberlanjutan Perusahaan.

In our implementation of governance, the Company ensures that all activities carried out comply with applicable regulations, including anti-corruption implementation. Our GCG Management System, better known as Compliance Online System monitors and evaluates the Code of Conduct's implementation, and realization of employee compliance with the GCG Management System resulting in 90.24%, exceeding the target of 88%. The Company also builds governance to manage information security according to best practices as required in the international ISO 27001:2013 (information security management system) standard.

Sustainability Performance Challenges

The change in the structure of PHE as the Upstream Subholding of Pertamina posed a challenge for the Company in implementing sustainability performance and ESG management during the reporting period. Along with a broader scope of work areas and an increase in the number of Subsidiaries with diverse business activities, this resulted in the Company having greater duties and responsibilities.

In addition, the challenge for the Company's sustainability performance is efforts to minimize emissions resulting from increased production achievements.

We are also aware that the implementation of sustainability and ESG management faced external challenges. This includes the continuation of the COVID-19 pandemic in 2021, as well as the imposition of restrictions on community activities (PPKM) in several areas that are expected to continue to create uncertainty, requiring the Company to adapt in accordance with the implementation of regulations by the Government.

Strategy for Achieving Sustainability Targets and Opportunities

Recognizing the challenges, Company established an Environmental, Social, & Governance (ESG) Team to strengthen its ESG management. The ESG Team was established pursuant to President Director Order No. Prin-035/PHE00000/2021-S0 concerning the Upstream Subholding ESG Management Team. The team comprises various functions and is responsible to the President Director. Its mission is to assist the Board of Directors in managing the Company's sustainability.

Guna mencapai keberhasilan penerapan inisiatif keberlanjutan, kami menyadari bahwa aspek risiko perlu dikelola dengan baik. Perseroan telah melaksanakan manajemen risiko secara berkesinambungan sesuai dengan kaidah *Enterprise Risk Management* (ERM), merujuk pada ISO 31000:2018.

Kami berkeyakinan penerapan keberlanjutan dan pengelolaan LST akan turut mendukung operasi dan bisnis PHE Subholding Upstream yang berkelanjutan. Komitmen pada keberlanjutan dan pengelolaan LST juga akan menempatkan PHE Subholding Upstream dalam peran strategis untuk mendukung transisi energi.

Penutup

Mengakhiri Laporan singkat ini, izinkan kami atas nama Perusahaan menyampaikan ucapan terima kasih dan apresiasi setinggi-tingginya kepada seluruh pemangku kepentingan. Kami percaya bahwa dengan melangkah bersama dan bersinergi, kita dapat terus menciptakan kinerja yang berdampak positif serta terus berinovasi sehingga dapat mendatangkan lebih banyak nilai demi keberlanjutan bagi segenap pemangku kepentingan.

To successfully implement sustainability initiatives, we recognize the importance of adequately managing economic, environmental, and social risks. The Company manages risk on an ongoing basis accordance with Enterprise Risk Management (ERM) principles and references ISO 31000:2018 Risk Management.

We believe that sustainability and ESG management and implementation will also contribute to the sustainability of PHE Subholding Upstream's operations and business. PHE Subholding Upstream's commitment to sustainability and ESG management will also position it as a key player in the energy transition.

Closing

To conclude this report, allow us to express our heartfelt gratitude and highest appreciation to all stakeholders on behalf of the Company. We believe that by collaborating and synergizing, we can continue to deliver positive performance and innovate to provide more added value to sustainability for all stakeholders.

Jakarta, Mei May 2022

Atas Nama Direksi

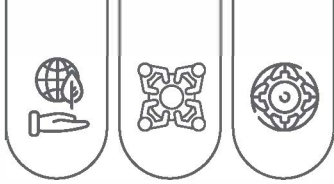
On Behalf of the Board of Directors

SIGNED

Budiman Parhusip

Direktur Utama

President Director



► PERNYATAAN DEWAN KOMISARIS TENTANG TANGGUNG JAWAB ATAS LAPORAN KEBERLANJUTAN 2021 PT PERTAMINA HULU ENERGI

Statement of the Board of Commissioners on Accountability of PT Pertamina Hulu Energi 2021 Sustainability Report

Kami yang bertanda tangan di bawah ini menyatakan bahwa kami telah melakukan tugas pengawasan dan memberikan nasihat sesuai ketentuan perundang-undangan kepada Direksi sesuai tugas kami, dengan tujuan agar semua informasi dalam Laporan Keberlanjutan PT Pertamina Hulu Energi telah disampaikan secara lengkap.

We, the undersigned, testify that we have conducted our supervisory duties and provided advice in accordance with the laws and regulations to the Board of Directors according to our duties, so that all information in the PT Pertamina Hulu Energi Sustainability Report is presented in its entirety.

Demikian pernyataan ini dibuat dengan sebenarnya.

This statement is made truthfully.

SIGNED

Rinaldi Firmansyah

Komisaris Utama & Komisaris Independen
(13 Juni 2020 - 12 Juni 2023)
President Commissioner & Independent Commissioner
(13 June 2020 - 12 June 2023)

SIGNED

Tumpak Simanjuntak
Komisaris Independen
(13 Juni 2020 - 12 Juni 2023)
Independent Commissioner
(13 June 2020 - 12 June 2023)

SIGNED

Nawang Untung
Komisaris
(28 Januari 2020 - 27 Januari 2023)
Commissioner
(28 January 2020 - 27 January 2023)

SIGNED

Nugroho Bramantyo
Komisaris
(3 Desember 2021 - 2 Desember 2024)
Commissioner
(3 December 2021 - 2 December 2024)

SIGNED

Mufti Ulomo
Komisaris
(2 April 2021 - 1 April 2024)
Commissioner
(2 April 2021 - 1 April 2024)

SIGNED

Tutuka Ariadji
Komisaris
(15 Februari 2021 - 14 Februari 2024)
Commissioner
(15 February 2021 - 14 February 2024)

SIGNED

Fadli Rahman
Komisaris
(28 Januari 2020 - 1 November 2021)
Commissioner
(28 January 2020 - 1 November 2021)

SIGNED

Djoko Siswanto
Komisaris
(6 Agustus 2018 - 15 Februari 2021)
Commissioner
(6 August 2018 - 15 February 2021)

► PERNYATAAN DIREKSI TENTANG TANGGUNG JAWAB ATAS LAPORAN KEBERLANJUTAN 2021 PT PERTAMINA HULU ENERGI

Statement of the Board of Directors on Accountability of PT Pertamina Hulu Energi 2021 Sustainability Report

Laporan Keberlanjutan menyajikan informasi Perusahaan mengenai kinerja ekonomi, sosial, dan lingkungan periode 1 Januari sampai 31 Desember 2021, serta informasi lain yang relevan dan signifikan bagi para pemangku kepentingan. Kami, segenap Direksi PT Pertamina Hulu Energi yang bertanda tangan di bawah ini menyatakan bertanggung jawab penuh atas kebenaran isi Laporan Keberlanjutan 2021 PT Pertamina Hulu Energi.

The Sustainability Report presents the Company's information of economic, social, environment performance for the period of 1 January until 31 December 2021, as well as other relevant and significant information to our stakeholders. We, the entire Board of Directors of PT Pertamina Hulu Energi who have signed below, hereby state our full responsibility for the validity of the content of PT Pertamina Hulu Energi 2021 Sustainability Report.

Demikian pernyataan ini dibuat dengan sebenarnya.

This statement is made truthfully.

SIGNED Budiman Parhusip Direktur Utama (13 Juni 2020 - 12 Juni 2023) President Director (13 June 2020 - 12 June 2023)		
SIGNED Danar Dojoadhi Direktur Perencanaan Strategis dan Pengembangan Bisnis (27 Oktober 2021 - 26 Oktober 2024) Director of Strategic Planning and Business Development (27 October 2021 - 26 October 2024)	SIGNED Taufik Aditiyawarman Direktur Pengembangan dan Produksi (13 Juni 2020 - 15 Maret 2022) Director of Development and Production (13 June 2020 - 15 March 2022)	SIGNED Oto Gurnita Direktur SDM dan Penunjang Bisnis (5 Mei 2021 - 4 Mei 2024) Director of Human Capital and Business Support (5 May 2021 - 4 May 2024)
SIGNED Medy Kurniawan Direktur Eksplorasi (13 Juni 2020 - 12 Juni 2023) Director of Exploration (13 June 2020 - 12 June 2023)		
SIGNED Harfy M. Zen Direktur Keuangan (16 Juli 2020 - 15 Juli 2023) Director of Finance (16 July 2020 - 15 July 2023)		
SIGNED Johri Hisar Simamora Direktur Perencanaan Strategis dan Pengembangan Bisnis (13 Juni 2020 - 27 Oktober 2021) Director of Strategic Planning and Business Development (13 June 2020 - 27 October 2021)	SIGNED Lelin Eprianto Direktur SDM dan Penunjang Bisnis (13 Juni 2020 - 5 Mei 2021) Director of Human Capital and Business Support (13 June 2020 - 5 May 2021)	

► TENTANG PERUSAHAAN

About the Company

Sejak tahun 2020, PT Pertamina (Persero) sebagai *holding* minyak dan gas (migas) sudah mulai melakukan transformasi struktur tata kelola di seluruh Anak Perusahaan. Di tahun 2021, PT Pertamina Hulu Energi (PHE) bertransformasi menjadi Subholding Upstream. Langkah ini diharapkan akan mendukung pencapaian aspirasi PERTAMINA di tahun 2024 untuk menjadi perusahaan global energi melalui kegiatan operasi yang unggul, fleksibilitas, pengembangan usaha, dan optimalisasi kapabilitas.

Since 2020, PT Pertamina (Persero) as an oil and gas holding has been transforming the governance structure of all of its subsidiaries. PT Pertamina Hulu Energi (PHE) transformed into PHE Subholding Upstream in 2021. This step is expected to assist PERTAMINA in achieving its 2024 goal of becoming a global energy company through superior operations, flexibility, business development, and capability optimization.

Visi, Misi dan Budaya Perusahaan [POJK51-3.a] [2-23]

Vision, Mission, and Company Culture



VISI
Vision

Menjadi perusahaan minyak dan gas bumi kelas dunia.

To become a world-class oil and gas company.

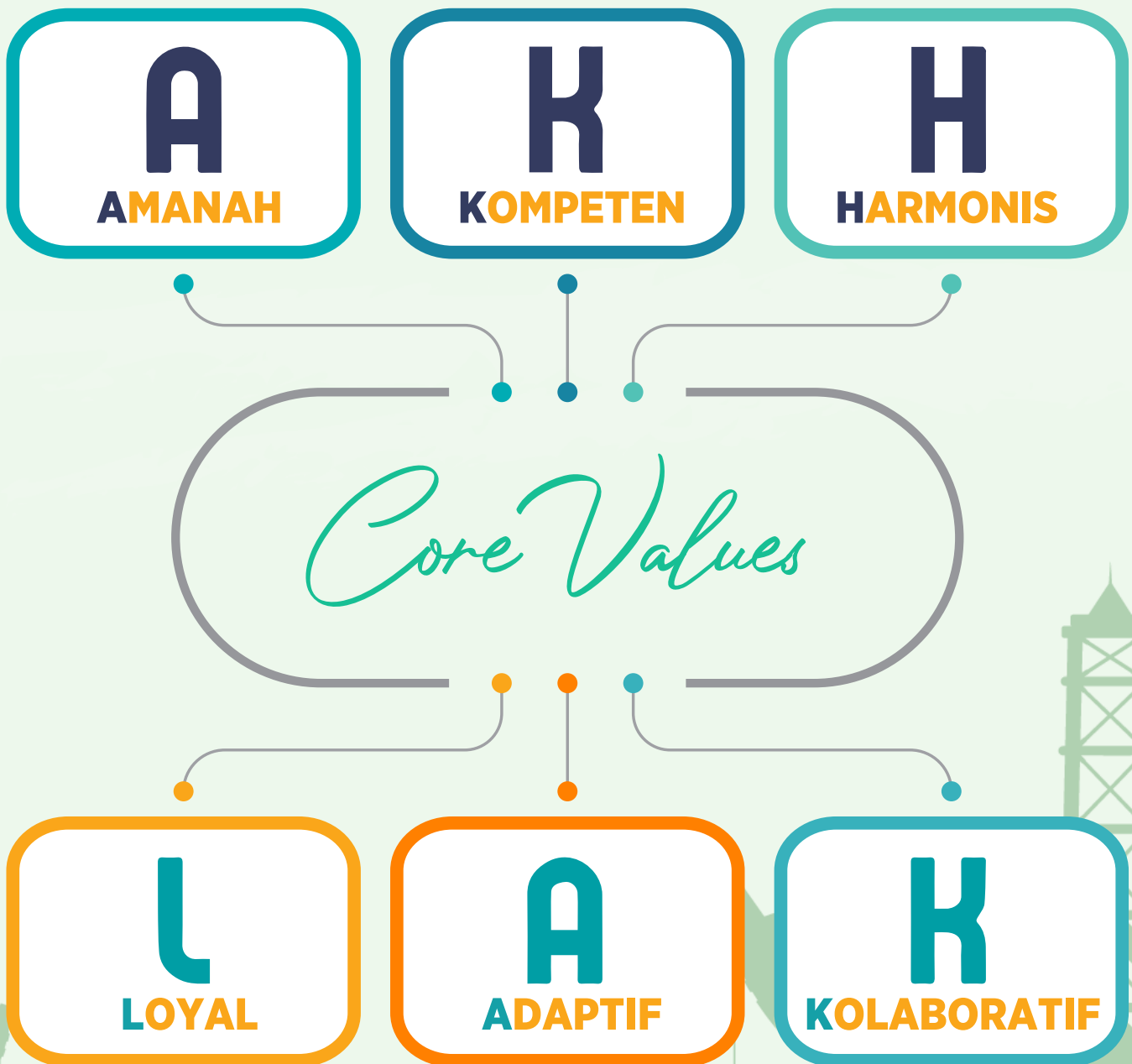


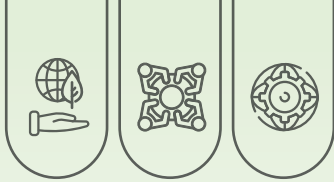
MISI
Mission

Melaksanakan pengelolaan operasi dan portofolio usaha sektor hulu minyak dan gas bumi secara profesional, dan berdaya laba tinggi, serta memberikan nilai tambah bagi *stakeholders*.

To manage operations and business portfolios of the upstream oil and gas sector in a professional and high-profit manner and to provide added value to stakeholders.

Budaya Perusahaan
Company Culture





Perubahan Organisasi [POJK51-3.b]

Organizational Changes

Berdasarkan Keputusan Pemegang Saham secara sirkuler PT PHE pada tanggal 1 September 2021 tentang Implementasi Pembentukan (*Legal End-State*) Subholding Upstream, PT PHE telah melakukan pengambilalihan seluruh saham milik PT Pertamina (Persero) di 8 (delapan) Anak Perusahaan Hulu PT Pertamina (Persero) dan 1 (satu) Anak Perusahaan Sektor Jasa Penunjang Migas, yaitu PT Pertamina Hulu Rokan, PT Pertamina EP, PT Pertamina Hulu Indonesia, PT Pertamina EP Cepu, PT Pertamina EP Cepu ADK, PT Pertamina Internasional EP, PT Pertamina East Natuna, PT Pertamina Drilling Services Indonesia, dan Pertamina E&P Libya Ltd serta menerima pengalihan saham dari PT Pertamina (Persero) di 1 (satu) Anak Perusahaan PT Pertamina (Persero), yaitu PT Elnusa Tbk. Kemudian, berdasarkan Keputusan Pemegang Saham secara Sirkuler PT PHE tanggal 1 Oktober 2021, PT PHE melakukan pengambilalihan saham milik PT Pertamina (Persero) di PT Badak NGL.

PT PHE sebagai Subholding Upstream mengelola Wilayah Kerja berdasarkan 5 (lima) Regional dengan mempertimbangkan aspek volume produksi, regional, dan kompleksitas operasional. Sampai akhir tahun 2021, PT PHE memiliki 68 Anak Perusahaan. PT PHE juga memiliki 6 (enam) perusahaan *joint venture*. Hingga akhir tahun 2021, WK PT PHE sebagai Subholding Upstream adalah sebagai berikut:

- 40 WK Domestik, terdiri dari 27 blok operator dan 13 blok non-operator
- 27 WK Internasional yang dikelola dari 13 negara (meliputi Asia Tenggara, Afrika, Eropa, dan Timur Tengah)

In accordance with the Circular Resolution of Shareholders dated 1 September 2021 regarding the Implementation of the establishment (*Legal End-State*) of Subholding Upstream, PHE acquired all shares owned by PT Pertamina (Persero) in 8 (eight) Upstream Subsidiaries of PT Pertamina (Persero) and 1 (one) Subsidiary in the oil and gas supporting services sector namely PT Pertamina Hulu Rokan, PT Pertamina EP, PT Pertamina Hulu Indonesia, PT Pertamina EP Cepu, PT Pertamina EP Cepu ADK, PT Pertamina Internasional EP, PT Pertamina East Natuna, PT Pertamina Drilling Services Indonesia, and Pertamina E&P Libya Ltd and received the transfer of shares from PT Pertamina (Persero) in 1 (one) Subsidiary of PT Pertamina (Persero), namely PT Elnusa Tbk. Then, based on the Circular Decision of the Shareholders of PT PHE dated 1 October 2021, PT PHE acquired the of shares owned by PT Pertamina (Persero) in PT Badak NGL.

PT PHE as Subholding Upstream manages WK based on 5 (five) Regionals taking into account aspects of production volume, regional, and operational complexity. Until the end of 2021, PHE Subholding Upstream consisted of 68 Subsidiaries. PHE also has 6 (six) joint venture companies. The PHE Subholding Upstream working area until the end of 2021 consists of:

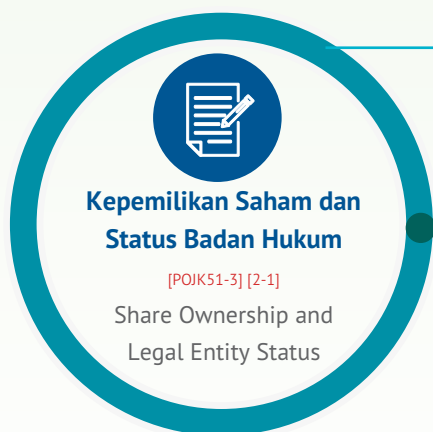
- 40 Domestic WKs consisting of 27 operator blocks and 13 non-operator blocks
- 27 International WKs managed from 13 countries (covering Southeast Asia, Africa, Europe, and Middle East)





Nama Perusahaan [2-1]
Company Name

PT Pertamina Hulu Energi (PHE)



PT Pertamina
(Persero)

» 99,9968%

PT Pertamina
Pedev Indonesia

» 0,0032%



Badan Hukum:
Legal Entity:
Perseroan Terbatas
Limited Liability
Company



Lokasi dan Alamat Kantor Pusat [POJK51-3] [2-1]
Head Office Location and Address

Pengungkapan informasi kantor Anak Perusahaan disampaikan dalam Laporan Tahunan 2021
PT Pertamina Hulu Energi
Information disclosure regarding Subsidiary offices is submitted in the 2021
PT Pertamina Hulu Energi Annual Report

PHE Tower

Jl. TB. Simatupang Kav 99
Jakarta Selatan 12520 Indonesia
Telepon/Telephone : +62 21 2954 7000
Faks./Fax. : +62 21 2952 9076
Surel/Email : pcc135@pertamina.com
Situs/Website : phe.pertamina.com



Negara Tempat Beroperasi (Wilayah Operasional) Perusahaan
Company Countries of Operation (Operational Areas)



Indonesia, Iraq, Algeria, Malaysia



Kegiatan, Rantai Pasok, TKDN, dan Hubungan Bisnis Lain yang Relevan

Activities, Supply Chain, TKDN, and Other Relevant Business Relationships

Untuk memastikan kegiatan operasional berjalan dengan lancar, sepanjang tahun 2021, kami melibatkan 3.467 vendor/pemasok atau mitra kerja dalam rantai pasok, termasuk vendor/pemasok lokal. Hingga 31 Desember 2021, terdapat 1.723 perusahaan lokal yang menjadi bagian rantai pasok PHE, atau 49,70% dari total jumlah vendor/pemasok. Total nilai kontrak pengadaan bagi vendor/pemasok lokal mencapai USD512,26 juta, atau 22,44% dari total nilai kontrak pengadaan pada tahun 2021. [POJK51-2] [POJK51-3] [2-6] [204-1]

PHE Subholding Upstream berkomitmen menaikkan tingkat kandungan dalam negeri (TKDN), dengan menerapkan TKDN dari tahapan perencanaan, proses pengadaan, hingga kontrak berakhir. Pada tahun 2021, PHE Subholding Upstream berhasil mencapai realisasi TKDN sebesar 58,81%, terdiri dari TKDN barang dan jasa. Realisasi TKDN pada tahun 2021 lebih tinggi dari target yang ditentukan Pemerintah sebesar 57%.

To ensure smooth operations, we involved 3,467 vendors/suppliers in the supply chain throughout 2021, including local vendors/suppliers. As of 31 December 2021, 1,723 local businesses were a part of the PHE supply chain, accounting for 49.70% of total vendors/suppliers. The total value of procurement contracts with domestic vendors/suppliers reached USD512.26 million in 2021, accounting for 22.44% of the total procurement contract value. [POJK51-2] [POJK51-3] [2-6] [204-1]

PHE Subholding Upstream is dedicated to increasing local content (TKDN) by implementing TKDN from the planning stage, procurement process, and until a contract is completed. In 2021, PHE Subholding Upstream achieved a TKDN realization of 58.81%, consisting of TKDN goods and services. The TKDN realization in 2021 was 57% higher than the Government's target .



Para Pekerja [POJK51-3.c.2] [2-7][2-7a][2-7b] [2-7c] [2-7d][2-7e]

Our Employees

Total pekerja PHE Subholding Upstream berjumlah 14.856 pekerja, terdiri dari 12.943 laki-laki (87%) dan 1.913 perempuan (13%). Jumlah tersebut sudah termasuk penambahan pekerja sebanyak 2.689 orang dari alih kelola WK Rokan.

Sebanyak 14.837 orang, atau 99,7% pekerja PHE Subholding Upstream ditempatkan di Indonesia, selebihnya tersebar di wilayah Algeria, Irak, dan Malaysia. Perusahaan tidak mempekerjakan pekerja paruh waktu dan pekerja borongan (*non-guaranteed hours employees*). Semua kinerja pekerja dievaluasi oleh Fungsi Human Capital (HC). Detail mengenai jumlah pekerja dapat dilihat pada Lampiran di dalam laporan ini.

PHE Subholding Upstream employs 14,856 people, including 12,943 men (87%) and 1,913 women (13%). This number includes the addition of 2,689 employees from the management transfer of the Rokan WK.

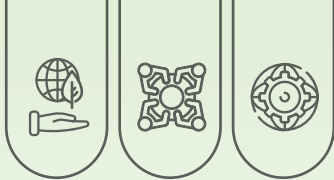
14,837 employees, or 99.7% of the total workforce, are located in Indonesia, with the remainder spread across Algeria, Iraq, and Malaysia. The Company does not hire part-time or non-guaranteed hours employees. The Human Capital (HC) Function evaluates all employee performance. The Appendix to this Report contains details on the number of employees.

Pekerja Lainnya

Other Employees

Selain status Pekerja Waktu Tidak Tertentu (PWTT) dan Pekerja Waktu Tertentu (PWT), PHE Subholding Upstream juga memberdayakan tenaga kerja (Tenaga Kerja Jasa Penunjang/TKJP) dari Pihak Ketiga/Perusahaan Jasa Penunjang (PJP) yang ditugaskan di lingkungan kerja PHE Subholding Upstream. Pada akhir tahun 2021, jumlah TKJP yang bertugas di lingkungan PHE Subholding Upstream sebanyak 24.343 orang. [2-8]

In addition to Indefinite Time Worker (PWTT) and Fixed Time Worker (PWT), PHE Subholding Upstream empowers the workforce (Support Service Workers/TKJP) assigned to the PHE Subholding Upstream work environment. At the end of 2021, 24,343 TKJP were working within the PHE Subholding Upstream. [2-8]



Skala Usaha (Juta USD) [POJK51-3.c][POJK51-3.c.1]

Organizational Scale (USD Million)



Keterangan | Note:

* Beroperasi sebagai PHE Subholding Upstream di tahun 2021.

Operates as PHE Subholding Upstream in 2021.

** Penyajian kembali atas perubahan struktur tata kelola dari PHE menjadi PHE Subholding Upstream. Ekuitas grup pada tanggal 31 Desember 2020 dan 1 Januari 2020 disajikan sebagai ekuitas unit bisnis yang menggabungkan diri dalam ekuitas grup sesuai dengan PSAK 38.

Restatement of the governance structure change from PHE to PHE Subholding Upstream. Group equity as of 31 December 2020 and 1 January 2020 is reported as the equity of the merging business units within the group equity, in accordance with PSAK 38.

Inisiatif Eksternal dan Keanggotaan Asosiasi & Profesional [POJK51-3.e] External Initiatives and Professional & Association Membership





Penghargaan Internasional dan Apresiasi Eksternal

International Awards and External Appreciation

Selama periode pelaporan tahun 2021, kami menerima penghargaan dan apresiasi terkait keberlanjutan dari berbagai pihak.

Throughout the 2021 reporting period, we received numerous sustainability-related awards and appreciations.



9 PROPER Emas dan 24 PROPER Hijau dari Kementerian Lingkungan Hidup dan Kehutanan.
9 Gold PROPER and 24 Green PROPER from the Ministry of Environment and Forestry.



Program TJSL Gampong Berdaya Tampur Paloh meraih penghargaan Internasional Global Corporate Sustainability Awards (GCSA) 2021 di Taiwan.

The Gampong Berdaya Tampur Paloh TJSL Program won the 2021 Global Corporate Sustainability Awards (GCSA) in Taiwan.



Lima penghargaan pada Subroto Award dari Kementerian Energi dan Sumber Daya Mineral (ESDM).

Five awards at the Subroto Award from the Ministry of Energy and Mineral Resources (ESDM).



Penghargaan internasional "The 13th Annual Global CSR Summit & Awards 2021" atas berbagai Program TJSL yang inovatif dan berkelanjutan berupa 1 penghargaan Platinum pada kategori *Women Empowerment*, dan pada 3 kategori lainnya meraih 3 Gold, 1 Silver, dan 1 Bronze.

"The 13th Annual Global CSR Summit & Awards 2021" international award for various innovative and sustainable TJSL programs, winning 1 Platinum award in the Women Empowerment category and the others category get 3 Gold, 1 Silver, and 1 Bronze in 3 other categories.



Anugerah Satyalancana dari Presiden Republik Indonesia bagi 2 Pekerja PHE Subholding Upstream atas inovasi dalam meningkatkan nilai tambah pada barang-barang produksi dalam negeri sehingga mendorong peningkatan TKDN.

The Satyalancana Award bestowed by the President of the Republic of Indonesia to two PHE Subholding Upstream Officers for their innovation in increasing the added value of domestically produced goods to stimulate TKDN growth.



Penghargaan Special Award Achievement in GIS (SAG) tahun 2021 pada sektor minyak dan gas bumi. Pengakuan global ini diberikan untuk keberhasilan aplikasi dalam teknologi geospasial dalam pertemuan ke-41 Esri User Conference (Esri UC) yang diadakan di San Diego, California.

The Special Award Achievement in GIS (SAG) 2021 in the oil and gas sector. This global acknowledgment was given for successful applications in geospatial technology at the 41st meeting of the Esri User Conference (Esri UC) held in San Diego, California.



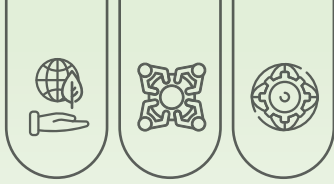
► KEBIJAKAN DAN STRATEGI KEBERLANJUTAN

Sustainability Policy and Strategy

PHE Subholding Upstream menjalankan kebijakan keberlanjutan dengan mengacu pada Kebijakan Keberlanjutan PT Pertamina (Persero) sebagai perusahaan *holding*. Kebijakan Keberlanjutan telah ditetapkan oleh Direktur Utama Persero pada September 2021. Kebijakan Keberlanjutan merupakan panduan untuk mendorong kepatuhan kepada peraturan perundang-undangan dan menciptakan nilai jangka panjang bagi para pemangku kepentingan melalui pengembangan praktik keberlanjutan di seluruh bisnis. Kebijakan Keberlanjutan mengintegrasikan strategi dan aktivitas Perusahaan dengan lebih baik dalam konteks lingkungan, sosial, dan tata kelola (LST), terutama untuk berkontribusi terhadap Tujuan Pembangunan Berkelanjutan (TPB), serta mewujudkan Ambisi PERTAMINA.

[POJK51-1]

PHE Subholding Upstream adheres to a sustainability policy by referring to PT Pertamina (Persero)'s Sustainability Policy as a holding company. The Company's President Director established a Sustainability Policy in September 2021. The Sustainability Policy serves as a guide for ensuring compliance with applicable laws and regulations while also creating long-term value for stakeholders through the development of sustainable business practices. The Sustainability Policy integrates the Company's strategies and activities into the context of environmental, social, and governance (ESG), especially in contributing to the Sustainable Development Goals (SDGs) and achieving PERTAMINA's Ambition. [POJK51-1]



Ambisi PHE
PHE Ambition

Menjadi perusahaan minyak dan gas bumi kelas dunia.
To become a world-class oil and gas company.



**Perusahaan Ramah
Lingkungan**
Environmentally
Friendly Company



**Bertanggung Jawab
Sosial Perusahaan**
Societal Responsible
Company



**Memiliki Tata Kelola
Perusahaan yang Baik**
Good Governance
Company



Komitmen Kami
Our Commitment

Menjamin keamanan pasokan dan akses energi di seluruh negeri dengan memperhatikan kesejahteraan para pemangku kepentingan dan keseimbangan aspek lingkungan, sosial, dan tata kelola yang berkelanjutan. Ensure the security of energy supply and access throughout the country by taking into account the welfare of stakeholders and a balance of environmental, social, and sustainable governance aspects.

PHE Subholding Upstream melakukan inisiatif keberlanjutan melalui pendekatan yang terintegrasi dalam kerangka kerja keberlanjutan melalui tiga pilar: LST. Pilar ini sejalan dengan dukungan untuk merespons tantangan, termasuk perubahan iklim, konservasi sumber daya, K3, pengembangan sumber daya manusia, dan pemberdayaan masyarakat. [POJK51-5]

PHE Subholding Upstream implements sustainability initiatives through an integrated approach based on three pillars: ESG. These pillars are consistent with the support for addressing challenges such as climate change, resource conservation, OHS, and community development. [POJK51-5]



ESG adalah pilar inisiatif yang harus diterapkan Perusahaan dalam menciptakan total dampak sosial

ESG are pillars of initiatives for companies to implement in creating total societal impact



LINGKUNGAN ENVIRONMENTAL

Dengan tantangan perubahan iklim, penggunaan sumber daya alam oleh perusahaan dan polusi serta pengelolaan limbahnya menjadi masalah kesadaran sosial

With the challenge of climate change, a company's usage of natural resources and its pollution and waste management become a matter of societal awareness



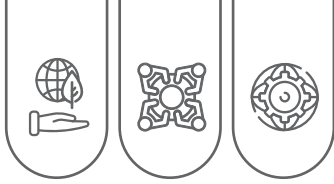
SOSIAL SOCIAL

Kesehatan dan keselamatan pekerja, tanggung jawab produk, dan asumsi tanggung jawab dalam lingkungan perusahaan membentuk citra publiknya
Health and safety of employees, product liability, and the assumption of responsibility within a company's environment shape its public image



TATA KELOLA GOVERNANCE

Tata kelola perusahaan seperti orientasi kepemimpinan pada kebijakan perusahaan selaras LST dan tanggung jawab sosial perusahaan adalah mekanisme pengarah implementasi LST
Corporate governance such as leadership's orientation on ESG aligned company policies and corporate social responsibility are the steering mechanisms of ESG implementation



PHE Subholding Upstream melakukan strategi LST untuk memastikan implementasi keberlanjutan melalui peta jalan yang telah ditetapkan.

PHE Subholding Upstream implements ESG strategy to ensure business sustainability through the established roadmap.

Fase Fondasi

Foundation Phase

2020-2023

Mengembangkan model LST, meningkatkan kapasitas fungsi keberlanjutan

Foundation phase: 2022-2023: Develop ESG model, increase the capacity of sustainability function



- Mengembangkan peta jalan *net-zero*, melindungi keanekaragaman hayati, meningkatkan efisiensi energi, dan pengelolaan limbah
Develop a net zero roadmap, protect biodiversity, improve energy efficiency, and waste management
- Mencegah kecelakaan *major*, meningkatkan pemberdayaan masyarakat dan dampaknya, melakukan rekrutmen, pengembangan, dan retensi pekerja
Preventing major accidents, increasing community empowerment and its impact, recruiting, developing, and retention workers
- Memperkuat landasan tata kelola
Strengthening the governance foundation

Fase Konsolidasi

Consolidation Phase

2023-2025

Meneruskan dan memperkuat inisiatif keberlanjutan dan strategi ESG

Consolidation phase: 2023-2025: continue and strengthen sustainability initiatives and ESG strategy



- Meningkatkan inisiatif pengelolaan air dan limbah, mengurangi emisi non-GRK, dan melaksanakan program keanekaragaman hayati
Improve water and waste management initiatives, reduce non-GHG emissions, and systematize biodiversity programs
- Meningkatkan K3, memperluas akses energi ke komunitas, manajemen keselamatan proses, Program DEI, retensi tenaga kerja
Improve OHS, expand energy access to communities, process safety management, DEI Programs, workforce retention
- Meningkatkan keamanan data, kemanan siber, etika Perusahaan
Improve data security, cyber security, Corporate ethics

Fase Akselerasi

Acceleration Phase

2025-2030

Melanjutkan inisiatif dengan memperkuat 3 Pilar ESG

Acceleration Phase: 2025-2030: continue the initiative by strengthening the 3 ESG Pillars



Inisiatif untuk Mendukung Tujuan Pembangunan Berkelanjutan (TPB)

Initiatives to Support the Sustainable Development Goals (SDGs)

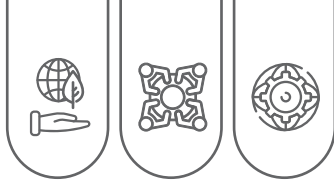
Sejalan dengan isu utama keberlanjutan yang disampaikan sebagai topik material, PHE Subholding Upstream memetakan inisiatif untuk memastikan strategi ESG dapat diimplementasikan dengan maksimal. Inisiatif ini tersebar dan berkontribusi terhadap 12 Tujuan sesuai implementasi topik material yang menjadi prioritas Perusahaan.

In line with the main sustainability issues presented as material topics, PHE Subholding Upstream mapped out initiatives to ensure that the ESG strategy could be implemented optimally. These initiatives are spread across and contributive to the 12 Goals that are the Company's priorities.

Inisiatif Implementasi Strategi ESG untuk Mendukung Tujuan Pembangunan Berkelanjutan

ESG Strategy Implementation Initiatives to Support the Sustainable Development Goals

	Implementasi	- Menjalankan kegiatan operasional dengan aman - Implementasi OHSAS 18001 dan ISO 45001 - Contractor Safety Management System (CSMS) - LTIR 0,02, zero occupational disease - Implementasi OHSAS SUPREME HSSE Excellence - Implementasi Fit to Work Level 2,96 - Realisasi pengukuran Survei Budaya HSSE = 4,12 (Proactive level) - Program penanganan pandemi COVID-19: termasuk vaksinasi COVID-19 bagi masyarakat	- Undertaking safety operations - OHSAS 18001 and ISO 45001 implementation - Contractor Safety Management System (CSMS) 0.02 LTIR, zero occupational diseases - OHSAS SUPREME HSSE Excellence implementation 2.96 Fit to Work Level implementation - HSSE Cultural Survey measurement realization = 4.12 (Proactive level) - Program for handling the COVID-19 pandemic: including COVID-19 vaccination for the community
	Target 2030	- Zero accident and fatalities - Tingkat peristiwa keselamatan proses Tier 1 dan Tier 2 sama dengan atau di bawah Asosiasi Internasional Minyak dan Gas (IOGP) rata-rata tahunan produsen	- Zero accident and fatalities - Process safety events rate Tier 1 and Tier 2 equal to or below the International Association of Oil and Gas Producers (IOGP) yearly average
	Strategi	- Meningkatkan aspek keselamatan dan kesehatan - Meningkatkan aspek kesehatan melalui penerapan sistem Fit-to-Work - Pencegahan kecelakaan besar	- Enhancing safety and health aspects - Enhancing health aspects through the implementation of a Fit-to-Work system - Prevention of major accidents
	Implementasi	- Pelatihan bagi pekerja sebanyak 3,9 juta jam pelatihan atau setara 350 jam per pekerja 6.000 jam kegiatan kesukarelawanan pekerja - Memberikan beasiswa kepada >690 siswa termasuk bagi masyarakat adat Suku Anak Dalam dan Suku Sakai, guru di wilayah terpencil dan mahasiswa terseleksi di AKA Migas	3.9 million training hours for employees, or the equivalent of 350 hours per employee 6,000 hours of employee volunteerism - Scholarships to >690 students, including the indigenous peoples of the Anak Dalam and Sakai Tribes, as well as teachers in remote areas and selected students at AKA Migas
	Target 2030	300 jam pelatihan per pekerja 100% karyawan telah mendapatkan pelatihan pada tahun 2030 - Perputaran karyawan di bawah 5%	300 training hours per worker 100% employees trained by 2030 - Below 5% employee turnover
	Strategi	- Mengembangkan kapasitas pekerja - Melakukan sosialisasi hak asasi manusia dan keberagaman, kesetaraan, dan inklusivitas - Mempertahankan tingkat retensi	- Developing employee capacity - Socializing human rights and diversity, equality, and inclusiveness - Maintaining retention rate



Implementasi Implementation	18,9% perempuan dalam <i>nominated talent</i> di tahun 2021 - Pemberdayaan >480 UMKM perempuan	18.9% composition of women in nominated talent in 2021 - Empowering more than 480 women SMEs
Target 2030 2030 Target	- Tidak ada diskriminasi 13% perempuan dalam <i>nominated talent</i>	- Zero discrimination 13% women in nominated talent
Strategi Strategy	- Pelatihan dan kesempatan berkarir bagi seluruh pekerja perempuan - Bekerja sama dengan pemangku kepentingan	- Training and career opportunities for all female employees - Collaborating with stakeholders



Implementasi Implementation	Efisiensi penggunaan air bersih	Efficient use of clean water
Target 2030 2030 Target	Pengurangan intensitas air	Reduction in water intensity
Strategi Strategy	- Pengurangan penggunaan air bersih dan mengurangi pembuangan air limbah - Pengumpulan dan pelaporan data mengenai air - Mengatasi permasalahan pembuangan air - Memastikan transparansi dalam penggunaan air - Mematuhi persyaratan penyediaan air baik di skala nasional dan internasional - Penggunaan dan pengurangan debit	- Reducing the use of clean water and reducing waste water discharge - Water related data gathering and reporting - Addressing the complexity of water disposal - Ensuring transparency in water usage - Complying with national and international water requirements - Water use and discharge reduction



Implementasi Implementation	- Efisiensi energi 2021 sebesar 4.968 juta GJ di cakupan Wilayah Kerja PHE - Implementasi EBT biodiesel dan <i>solar cell</i> sebesar 2,83% dari total energi - Implementasi <i>Solar Home System</i> untuk masyarakat dengan energi listrik 1.270 Watt Peak/Tahun melalui Program TJSL Kembang Bersinar dan BEST - Pemanfaatan gas metana 462.680 m³/tahun yang disalurkan bagi 200 sambungan rumah dan mampu menghemat listrik 3.650 kWh/tahun di TPAS Manggar Balikpapan	2021 energy efficiency of 4,968 million GJ in the PHE Work Area coverage - Biodiesel and solar cell NRE implementation accounted for 2.38% of total energy - Implementation of Solar Home System for the community with 1,270 Watt Peak/Year electrical energy through the TJSL Kembang Bersinar and BEST programs 462,680 m³/year methane gas utilization, which was distributed to 200 residential connections and is capable of saving 3,650 kWh/year at TPAS Manggar Balikpapan
Target 2030 2030 Target	Komitmen penggunaan energi terbarukan	Commitment for renewable energy use
Strategi Strategy	- Program efisiensi energi dan penggunaan energi rendah karbon - Mengembangkan komitmen untuk penggunaan EBT - Meningkatkan akses energi bagi masyarakat lokal, khususnya di wilayah yang minim akses energi melalui Desa Energi Berdikari	- Energy efficiency programs and low carbon energy use - Developing a commitment to the use of NRE - Increasing energy access for local communities, especially in areas with minimal access to energy, through the Energi Berdikari Village



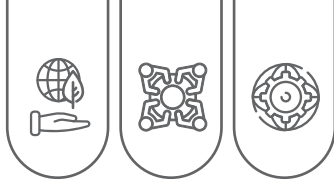
Implementasi Implementation	- Kontribusi pencapaian transaksi melalui Pasar Digital (PaDi) UMKM Indonesia tahun 2021 sebesar lebih dari Rp11,17 miliar - Terdapat 1.723 pemasok lokal yang menjadi rantai pasok PHE Subholding Upstream dan mencapai Tingkat Komponen Dalam Negeri (TKDN) sebesar 58,81% pada akhir tahun 2021 - Meningkatkan kesejahteraan pekerja	- In 2021, the contribution of transactions made through the Indonesian MSME Digital Market (PaDi) exceeded Rp11.17 billion - In 2021, 1,723 local suppliers were a part of the PHE Subholding Upstream supply chain and contributed 58.81% of the total local content (TKDN) - Enhanced employee welfare
Target 2030 2030 Target	- Melanjutkan program-program investasi sosial Perusahaan - Meningkatkan jumlah penerima manfaat langsung Desa Energi Berdikari - Meningkatkan jumlah TKDN	- Continuing the Company's social investment programs - Increase the number of direct beneficiaries of Energi Berdikari Village - Increase total TKDN
Strategi Strategy	- Mempertahankan total investasi sosial bagi masyarakat dan program sosial - Memberdayakan UMKM lokal di area baru yang menjadi fokus termasuk masyarakat marginal - Menjaga lingkungan kerja yang setara dan inklusif - Menyesuaikan tingkat remunerasi	- Sustaining total social investment for community and societal programs - Empowering local SMEs in new focus areas included marginal community - Maintain an equal and inclusive work environment - Adjusting the remuneration level



Implementasi Implementation	<i>Value creation</i> yang diperoleh Perusahaan melalui CIP sepanjang 2021 setara Rp12 triliun dari total 1.004 tema inovasi/<i>improvement/replikasi</i> - Mengembangkan studi CCUS	- Value creation obtained by the Company through CIP throughout 2021 was equivalent to Rp12 trillion from a total of 1,004 innovation/improvement/replication themes - Developed CCUS studies
Target 2030 2030 Target	Implementasi CCUS di lapangan Wilayah Kerja PHE Subholding Upstream	Implementation of CCUS in the PHE Subholding Upstream Working Area
Strategi Strategy	- Potensi injeksi dan penyimpanan gas potensial di dalam Wilayah Kerja PHE - Replikasi atas hasil inovasi terbaik untuk mendukung Visi Misi Perusahaan menjadi Perusahaan Energi Kelas Dunia	- Potential gas injection and storage within PHE Working Areas - Replication of the best innovation results to support the Company's Vision and Mission to become a World Class Energy Company



Implementasi Implementation	100% limbah <i>hazardous</i> telah dikelola dengan baik dan dikelola bekerja sama dengan pihak ketiga yang berizin dan disimpan di TPS Limbah B3 berizin	100% of hazardous waste was properly managed and stored in a licensed B3 Waste TPS in collaboration with a licensed third party
Target 2030 2030 Target	Pengurangan sampah intensitas sampah ke TPA	Reduction in waste intensity and waste to landfill
Strategi Strategy	- Penerapan prinsip 5R&D: <i>reduce, reuse, recycle, replace, return to supplier</i>, dan <i>disposal</i> - Pengurangan intensitas sampah - Analisis pengelolaan sampah, pengumpulan data, dan pengungkapannya - Inovasi terkait pengurangan limbah	- Application of 5R&D principles: reduce, reuse, recycle, replace, return to supplier, and disposal - Waste intensity reduction - Waste management analytics, data gathering, and disclosure - Waste reduction related innovation



Implementasi Implementation	• Mengembangkan dan menyelesaikan peta jalan <i>net zero</i> • Melakukan aktivitas program dekarbonisasi • Melaksanakan program jangka pendek pengurangan gas rumah kaca (GRK) • Melaksanakan studi <i>Carbon Capture, Utilization, and Storage</i> (CCUS) dan <i>Carbon Capture and Storage</i> (CCS) • Melaksanakan program pengurangan gas rumah kaca (GRK) untuk jangka pendek • Reduksi emisi 189.202,61 ton CO₂eq dari program TJSL Desa Energi Berdikari • Implementasi ISO 14001	• Developing and completing the net zero roadmap • Performing decarbonization program activities • Implementing short-term greenhouse gas (GHG) reduction programs • Conducting Carbon Capture, Utilization, and Storage (CCUS) and Carbon Capture and Storage (CCS) studies • Executing short-term greenhouse gas (GHG) reduction programs • 189,202.61 ton CO₂eq emission reductions from Desa Energi Berdikari's CSR program • ISO 14001 implementation
Target 2030 2030 Target	• Melakukan dekarbonisasi untuk mencapai pengurangan emisi sesuai target Indonesia National Determined Contribution (INDC) di 2030	• Carry out decarbonization to meet the Indonesia National Determined Contribution (INDC) target for emission reductions in 2030
Strategi Strategy	• Menerapkan Kebijakan Keberlanjutan • Meningkatkan kesadaran perilaku ramah lingkungan • Mengembangkan inovasi program dekarbonisasi • Bekerja sama dengan pemangku kepentingan	• Implementing a Sustainability Policy • Increasing awareness of environmentally friendly behavior • Developing innovative decarbonization programs • Collaborating with stakeholders



Implementasi Implementation	• Melakukan penanaman kembali di area yang diidentifikasi • Indeks <i>biodiversity</i> dengan nilai H'=3,27 (kategori 'tinggi') di kawasan konservasi Mangrove Labuhan • Implementasi ISO 14001	• Replanting in identified areas • Achieving a biodiversity index value of H'=3.27 ('high' category) in the Labuhan Mangrove conservation area • ISO 14001 implementation
Target 2030 2030 Target	• Komitmen untuk dampak positif bersih	• Net positive impact commitments
Strategi Strategy	• Melakukan studi dan <i>pilot project</i> pada area yang sensitif di 2025 • Melakukan studi awal untuk keanekaragaman hayati dan proyek percontohan di suatu daerah pada tahun 2025 • Pelibatan pemangku kepentingan, termasuk dengan komunitas lokal	• Conducting studies and pilot projects in sensitive areas in 2025 • Conducting a biodiversity baseline study and pilot project in sensitive areas by 2025 • Stakeholder engagement, including with local communities



Implementasi Implementation	- Mengumpulkan dan mengungkapkan <i>database</i> limbah - Implementasi ISO 14001 - Pelestarian 30 Owa Jawa yang dinyatakan terancam punah berdasarkan IUCN - Penghijauan 40 ha lahan dalam Program Agroforestry Koridor Gajah untuk melindungi Gajah Sumatra dari kepunahan	- Collecting and disclosing waste database - ISO 14001 implementation - Conserved 30 Javan gibbons (<i>Hylobates moloch</i>) that were declared endangered based on the IUCN 40 ha land reforestation in the Elephant Corridor Agroforestry Program to protect the Sumatran Elephant from extinction
Target 2030 2030 Target	- Mengurangi intensitas limbah dan mengurangi limbah yang dikirim ke tempat pembuangan akhir di 2030 - Komitmen untuk dampak positif bersih	- Waste generation reduction and a decrease in waste sent to landfill on 2030 - Net positive impact commitments
Strategi Strategy	- Mengembangkan peluang inovasi untuk pengurangan limbah - Kerja sama dengan pihak independen - Melanjutkan program konservasi keanekaragaman hayati daratan dan pelibatan masyarakat	- Developing innovation opportunities for waste reduction - Collaborating with independent parties - Continuing the terrestrial biodiversity conservation program and community involvement



Implementasi Implementation	- Persetujuan atas Dasar Informasi di Awal Tanpa Paksaan dalam Pedoman TJSL (FPIC) - Melakukan asesmen risiko secara berkala dan pembaruan kebijakan keamanan informasi sesuai ISO 27001 - Sertifikasi ISO 37001:2016 SMAP	- Free, Prior, and Informed Consent (FPIC) in CSR Guidance - Execute periodic risk assessments and update of information security policy referring to ISO 27001 - ISO 37001:2016 SMAP certification
Target 2030 2030 Target	- Tidak ada insiden penipuan, korupsi, dan perilaku bisnis yang tidak etis - Tidak ada kebocoran data perusahaan	- Zero incidents of fraud, corruption, and unethical conduct of business - Zero corporate data leakage
Strategi Strategy	- Mempromosikan hak asasi manusia dan keragaman, kesetaraan, dan inklusi (DEI), memperkuat tata kelola, mempromosikan pelatihan internal, dan melibatkan pemangku kepentingan - Mencegah pekerja yang rentan terhadap pengelabuan - Memperkuat tata kelola dan pelaporan untuk meningkatkan transparansi dampak sosial - Meningkatkan sistem pengelolaan GCG	- Promoting human rights and diversity, equality, and inclusion (DEI), strengthen governance, promote internal training, and engage stakeholders - Prevention phishing prone employees - Strengthening governance and reporting to improve the transparency of social impact - Enhancing GCG management system



► TENTANG LAPORAN KEBERLANJUTAN 2021

About the 2021 Sustainability Report

PHE Subholding Upstream menerbitkan Laporan Keberlanjutan sebagai bentuk penyampaian komitmen pada penerapan prinsip-prinsip keberlanjutan dalam menjalankan kegiatan bisnis, dengan mengelola aspek lingkungan, sosial, tata kelola (LST) dan ekonomi. Pada tahun-tahun sebelumnya, laporan keberlanjutan dibuat dalam bentuk laporan terintegrasi di bawah payung PT Pertamina Hulu Energi (PHE).

Tahun 2021 ini, sejalan dengan perubahan yang signifikan pada struktur tata kelola, maka laporan Keberlanjutan diterbitkan terpisah dengan Laporan Tahunan untuk memberikan informasi yang lebih komprehensif. Isi Laporan Tahunan dan Laporan Keberlanjutan saling melengkapi dan menjadi bagian yang tidak terpisahkan. Dengan demikian, baik Laporan Tahunan maupun Laporan Keberlanjutan 2021 diterbitkan di bawah nama PHE Subholding Upstream yang menaungi semua perusahaan di sektor hulu di grup PERTAMINA.

PHE Subholding Upstream publishes a Sustainability Report to demonstrate its commitment to implementing sustainability principles in all aspects of its business operations, including environmental, social, and governance (ESG) and economic aspects. Previously, sustainability reports were published as an integrated report under the umbrella of PT Pertamina Hulu Energi (PHE).

In 2021, in response to significant changes in the governance structure, the Sustainability Report was published separately from the Annual Report to provide more comprehensive information. The Annual Report and Sustainability Report content complement one another and are inseparable. Thus, the Annual and Sustainability Reports for 2021 were published under the name PHE Subholding Upstream, which oversees all upstream sector companies in the PERTAMINA group.

Dasar dan Acuan Penerbitan Laporan Keberlanjutan Basis and Reference for Issuing Sustainability Reports

01

Mengacu pada beberapa indikator Peraturan Otoritas Jasa Keuangan (POJK) No.51/POJK.03/2017 tentang Penerapan Keuangan Berkelanjutan bagi Lembaga Jasa Keuangan, Emiten, dan Perusahaan Publik;
Refers to several regulatory indicators Financial Services Authority (POJK) Regulation No.51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies;

02

Merujuk (*reference to*) pada Standar Global Reporting Initiative (GRI) 2021;
Reference to the 2021 Global Reporting Initiative (GRI) Standards;

03

Indikator Oil and Gas Sector Specific Disclosure (OGSS) (2021);
Indicators Oil and Gas Sector Specific Disclosure (OGSS) (2021);

04

Sustainability Accounting Standard Board (SASB) Oil & Gas (Exploration & Production) Standard; dan
Sustainability Accounting Standard Board (SASB) Oil & Gas (Exploration & production, Midstream, Refining & Marketing, Services) Standard; and

05

The Oil and Gas Industry Guidance on Voluntary Sustainability Reporting edisi ke-4 2020 dari International Petroleum Industry Environmental Conservation Association (IPIECA), American Petroleum Institute (API), and the International Association of Oil & Gas Producers (IOGP).
The Oil and Gas Industry Guidance on Voluntary Sustainability Reporting 4th edition 2020 from the International Petroleum Industry Environmental Conservation Association (IPIECA), the American Petroleum Institute (API), and the International Association of Oil & Gas Producers (IOGP).

Informasi Laporan Keuangan disampaikan sebagai konsolidasian. Informasi non-keuangan dalam Laporan diperoleh dari PHE dan entitas Anak Perusahaan pada topik material tertentu. Periode pelaporan untuk kinerja keberlanjutan dan Laporan Keuangan adalah 1 Januari 2021 – 31 Desember 2021. Perseroan menerbitkan Laporan setiap tahun dan berkesinambungan dengan Laporan Tahunan Terintegrasi 2020 yang diterbitkan pada bulan Maret 2021.

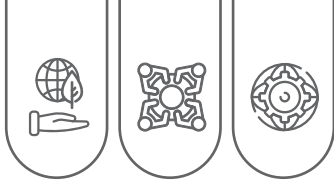
[2-2][2-3]

Information on Financial Statements was submitted as a consolidation. The Report obtained non-financial information from PHE and its Subsidiaries on certain material topics. Sustainability performance and financial statements were reported for the period 1 January 2021 – 31 December 2021. The Company issues an annual and continuous Report with the 2020 Integrated Annual Report that was published in March 2021. [2-2][2-3]

Pernyataan Kembali (*Restatement*) dan Penjaminan Eksternal Restatement and Assurance

Informasi keuangan konsolidasian telah diaudit kantor akuntan publik dan disajikan secara lebih komprehensif di dalam Laporan Tahunan. Adapun informasi lainnya dalam Laporan Keberlanjutan telah melalui proses verifikasi oleh pihak eksternal independen, yakni SR Asia perwakilan Indonesia, berdasarkan persetujuan Direksi. Proses verifikasi dilakukan pada tanggal 25-26 April 2022. [2-5]

A public accounting firm has audited the consolidated financial information and presented it more comprehensively in the Annual Report. Other information in the Sustainability Report has been verified by an independent external party, namely SR Asia representing Indonesia, based on the approval of the Board of Directors. The verification process took place on 25-26 April 2022. [2-5]



Tidak ada pernyataan kembali terkait informasi pada pelaporan terdahulu, namun kami melakukan penyesuaian data kuantitatif dengan penetapan PHE sebagai Subholding Upstream sehingga ada penambahan Anak Perusahaan sebagai sumber data. Seluruh pengungkapan informasi dalam Laporan ini telah mendapatkan persetujuan dari Direksi sebagai pejabat tata kelola yang bertanggung jawab.

[2-4][2-14]

There was no restatement regarding the information in the previous report. However, we made adjustments to the quantitative data due to PHE's appointment as Subholding Upstream, which added additional Subsidiaries as data sources. As the responsible governance officer, the Board of Directors has approved all information disclosures in this Report. [2-4][2-14]



Kontak terkait Laporan [2-3] Report Contact

Arya Dwi Paramita

Corporate Secretary

PHE Tower, Lantai 21-25 Jl. TB Simatupang Kav 99 Jakarta Selatan 12520, Indonesia

T. +62 21 2954 7000, 2952 9076

Surel/Email: arya.paramita@pertamina.com

Topik Material

Material Topics

Topik material pelaporan ditentukan melalui *focus group discussion* (FGD) yang dilaksanakan pada tanggal 29 November 2021, dengan pendekatan pembahasan dampak aktual dan potensial dari kegiatan Perusahaan selama periode pelaporan. Pembahasan meliputi dampak positif maupun negatif, disertai analisis pengaruhnya terhadap Perusahaan, baik terhadap aspek lingkungan, sosial, maupun tata kelola (LST). [3-1]

Diskusi melibatkan fungsi-fungsi di PHE Subholding Upstream dan Anak Perusahaan sebagai perwakilan pemangku kepentingan internal. Sebagai perwakilan pemangku kepentingan eksternal adalah tim akademisi, yang juga bertindak sebagai tim ahli. Seluruh proses diskusi disampaikan kepada Direksi yang memberikan persetujuan atas isi seluruh Laporan ini. Hasil diskusi telah menetapkan 11 topik material sesuai konteks keberlanjutan, yang telah dilaporkan dan disetujui Direksi melalui persetujuan RRD 094/PHE00000/2021-SO - RRD ESG Subholding Upstream. [3-1]

A focus group discussion (FGD) was held on 29 November 2021, with the objective of discussing the actual and potential impacts of the Company's activities during the reporting period. The discussion covered both positive and negative impacts, as well as an analysis of their influence toward the Company's environmental, social, and governance (ESG) aspects. [3-1]

The discussion included internal stakeholder representatives from the PHE Subholding Upstream and Subsidiaries functions. The academic team, which also served as an expert team, was one of the external stakeholder representatives. The entire discussion process was submitted to the Board of Directors, who approved the report's contents. The discussion results have determined 11 material topics according to the sustainability context, which has been reported and approved by the Board of Directors through RRD 094/PHE00000/2021-SO - RRD ESG Subholding Upstream. [3-1]



Sekolah Merdeka di Desa Tampur Paloh, Program Unggulan TJSL PEP Rantau Field, Zona 1, Regional Sumatra, meraih penghargaan internasional pada Global Corporate Sustainability Award 2021
Merdeka School in Tampur Paloh Village, assisted by PEP Rantau Field, Zone 1, Regional Sumatra, won an international award at the 2021 Global Corporate Sustainability Award

Fokus Keberlanjutan dan Topik Material ^[3-2] Sustainability Focuses and Material Topics

01



MENGATASI PERUBAHAN IKLIM ADDRESSING CLIMATE CHANGE

Emisi GRI-305
Emission

Mengatasi emisi GRK dari stasioner dan sumber energi bergerak, pembangkitan listrik yang dibeli yang dikonsumsi, dan emisi tidak langsung lainnya, termasuk polusi udara (non-GRK), pengukuran dan pengurangan emisi metana. Addresses GHG emissions from stationary and mobile sources, generation of purchased electricity consumed, and other indirect emissions. Includes air pollution (non-GHG), methane emissions measurement and reduction.

Inisiatif: Dekarbonisasi
Initiatives: Decarbonization



02



MENGURANGI JEJAK LINGKUNGAN REDUCING ENVIRONMENTAL FOOTPRINT

Energi GRI-302
Energy

Mengatasi dampak lingkungan yang terkait dengan konsumsi energi seperti intensitas energi atau campuran energi (menggabungkan bahan bakar fosil dan sumber energi terbarukan), seperti total penggunaan energi, total energi terbarukan, inisiatif untuk memulihkan lingkungan. Addresses environmental impacts associated with energy consumption such as energy intensity or energy mix (combining fossil fuel and renewable energy sources), e.g. total energy use, total renewable energy, initiatives to restore the environment.

Inisiatif: Meningkatkan efisiensi energi dan konservasi, Komitmen pada EBT
Initiatives: Improve energy efficiency & conservation, NRE Commitment





03



MELINDUNGI KEANEKARAGAMAN HAYATI PROTECTING BIODIVERSITY

Keanekaragaman Hayati GRI-304
Biodiversity

Pengelolaan dampak Perusahaan terhadap ekosistem dan keanekaragaman hayati, seperti penggunaan lahan untuk eksplorasi, ekstraksi dan budidaya sumber daya alam, pengembangan proyek, konstruksi dan pendangkalan, upaya pencegahan dan remediasi setelah *decommissioning*.

Addresses the management of the Company's impacts on ecosystems and biodiversity, e.g. land use for exploration, natural resource extraction and cultivation, project development, construction and silting, prevention and remediation efforts after decommissioning.

Inisiatif: Program konservasi dan rehabilitasi

Initiatives: Conservation and Rehabilitation Program



04



PENGELOLAAN AIR WATER MANAGEMENT

Air dan Efluen GRI-303
Water and Effluents

Upaya Perseroan dalam mengatasi transparansi penggunaan air, mengurangi konsumsi air, meningkatkan kualitas air, efisiensi air, kekurangan air, pengelolaan air, dan kelangkaan air. Address the Company's efforts on transparency in water usage, reducing water consumption, improving water quality, water efficiency, water shortage, water stewardship, and water scarcity.

Inisiatif: Pengurangan konsumsi dan buangan air

Initiatives: Water use and discharge reduction



05



PENGELOLAAN LIMBAH WASTE MANAGEMENT

Limbah GRI-306
Waste

Upaya Perseroan mengenai pembuangan emisi limbah yang berkelanjutan dalam bentuk material yang tidak diinginkan dan limbah operasional, pengurangan dan pengelolaan limbah, daur ulang, ekonomi sirkular, efisiensi sumber daya, tidak terdapat limbah hingga ke tempat pembuangan akhir.

Addressing the Company's efforts in sustainable disposal of waste emissions in the form of unwanted material and operational wastes, waste reduction and management, recycling, circular economy, resource efficiency, zero waste to landfill.

Inisiatif: Pengurangan intensitas pembuangan limbah

Initiatives: Waste intensity reduction



Fokus Keberlanjutan dan Topik Material ^[3-2]

Sustainability Focuses and Material Topics



06 KESEHATAN DAN KEAMANAN HEALTH AND SAFETY

Keselamatan dan Kesehatan Kerja (K3) ^{GRI-403}
Occupational Health and Safety (OHS)

Kemampuan untuk menciptakan dan memelihara lingkungan tempat kerja yang aman dan sehat yang bebas dari cedera, kematian akibat kerja, dan penyakit, seperti rencana manajemen keselamatan, sistem dan kebijakan, persyaratan pelatihan, audit berkala.
Ability to create and maintain a safe and healthy workplace environment that is free of injuries, fatalities and illness, e.g. safety management plans, systems and policies, training requirements, regular audits.

Inisiatif: Peningkatan aspek keselamatan dan kesehatan

Initiatives: Enhancement of safety and health aspects



07 PENCEGAHAN KECELAKAAN BESAR PREVENTION OF MAJOR ACCIDENTS

Keselamatan dan Kesehatan Kerja (K3) ^{GRI-403}
Occupational Health and Safety (OHS)

Penggunaan sistem manajemen dan perencanaan untuk mengidentifikasi dan meminimalisir terjadinya kemungkinan rendah, kecelakaan berdampak tinggi dan keadaan darurat dengan potensi eksternalitas lingkungan dan sosial yang signifikan, seperti tumpahan minyak, manajemen risiko keamanan.
Use of management systems and scenario planning to identify and minimize the occurrence of low probability, high impact accidents and emergencies with significant potential environmental and social externalities, e.g. oil spills, security risk management.

Inisiatif: Pengelolaan proses keamanan, Pemantauan & pelaporan peristiwa keselamatan proses

Initiatives: Process safety management, process safety event monitoring & reporting



08 PEREKRUTAN, PENGEMBANGAN & RETENSI PEKERJA EMPLOYEE RECRUITING, DEVELOPMENT & RETENTION

Pelatihan dan Pendidikan ^{GRI-404}
Training and Education

Rekrutmen dan pengembangan pekerja serta manajemen bakat dan *employer branding*, seperti promosi internal, pelatihan dan pengembangan, non-pembalasan tenaga kerja dan mekanisme pengaduan, kepuasan pekerja, dan kesetaraan gender.

Recruitment and development of employees as well as talent management and employer branding, e.g. internal promotions, training and development, workforce non-retaliation and grievance mechanisms, employee satisfaction, and gender equality.

Inisiatif: Hak Asasi Manusia (DEI), Pengembangan, Retensi

Initiatives: Human Rights (DEI), Development, Retention





09



KETERLIBATAN & DAMPAK KOMUNITAS COMMUNITY ENGAGEMENT & IMPACT

Masyarakat Lokal GRI-413
Local Community

Upaya Perseroan dalam mengatasi keterlibatan dengan komunitas tempat Perseroan beroperasi, seperti dampak langsung dan tidak langsung pada hak asasi manusia, perlakuan terhadap masyarakat adat, penyediaan akses bagi masyarakat ke energi berkelanjutan, kebijakan kewarganegaraan perusahaan yang baik, kesetaraan gender, sumbangan.
Addresses the Company's engagement with communities in which they operate, e.g. direct and indirect impacts on core human rights, treatment of indigenous peoples, providing access to sustainable energy, good corporate citizenship policies, gender equality, donations.

Inisiatif: Meningkatkan akses energi untuk masyarakat, investasi sosial
Initiatives: Improving accessibility to energy for the community, Social investment



10



KEAMANAN SIBER CYBER SECURITY

Antikorupsi GRI-205
Anti-Corruption

Manajemen risiko yang terkait dengan pengumpulan, penyimpanan, dan penggunaan data pelanggan atau pengguna yang sensitif, rahasia dan/atau kepemilikan, seperti masalah sosial yang mungkin timbul dari insiden seperti pelanggaran data informasi pribadi.
Addresses management of risks related to collection, retention, and use of sensitive, confidential and/or proprietary customer or user data, such as social issues that may arise from incidents such as data breaches of personal information.

Inisiatif: Asesmen risiko keamanan siber, telaah kebijakan dan evaluasi
Initiatives: Cyber security risk assessment, review of policies and testing



11



ETIKA PERUSAHAAN CORPORATE ETHICS

Antikorupsi GRI-205
Anti-Corruption

Pendekatan Perseroan untuk mengelola risiko dan peluang perilaku bisnis yang etis, seperti penipuan, korupsi, penyuapan, tanggung jawab fidusia, konflik kepentingan, keragaman, kesetaraan, penegakan hak asasi manusia, tingkat tanggung jawab eksekutif.
Addresses the Company's approach to managing risks and opportunities surrounding ethical conduct of business, e.g. fraud, corruption, bribery, fiduciary responsibilities, conflicts of interest, diversity, equality, human rights enforcement, executive level of responsibility.

Inisiatif: Meningkatkan sistem manajemen tata kelola yang baik
Initiative: Enhancing GCG management system





BERSAMA MENJAGA LINGKUNGAN TOGETHER PROTECTING THE ENVIRONMENT

PHE Subholding Upstream menerapkan pengelolaan lingkungan secara berkelanjutan dalam proses bisnis di hulu migas, sejalan dengan nilai-nilai lingkungan, sosial, dan tata kelola (LST).

PHE Subholding Upstream implements sustainable environmental management in upstream oil and gas business processes in line with environmental, social, and governance (ESG) values.

► **KEBIJAKAN DAN TARGET PENGELOLAAN LINGKUNGAN**

Environmental Management Policy and Target

Kebijakan dan Struktur Organisasi Pengelolaan Lingkungan [EM-EP-160a.1]

Environmental Management Policy and Organizational Structure

Sejalan dengan Visi dan Misi Perusahaan, PHE Subholding Upstream berkomitmen untuk melaksanakan operasi secara aman, sehat, ramah lingkungan, dan efisien. Komitmen tersebut ditunjukkan melalui Kebijakan HSSE PHE tanggal 28 April 2021 yang telah ditandatangani oleh Direksi Perusahaan.

Fungsi Health, Safety, Security, and Environment (HSSE) yang dipimpin pejabat perusahaan setingkat Vice of President dan Fungsi HSSE pada Regional dan Anak Perusahaan bertanggung jawab terhadap pengelolaan lingkungan dan keselamatan, keamanan, dan kesehatan kerja. VP HSSE bertanggung jawab kepada Direktur Utama dan dibantu oleh Senior Manager HSSE Performance, Assurance & ERCM, Senior Manager Safety, Manager Health, Manager Security, Manager Environment, serta Ast. Manager Planning, Management System & Risk Management.

Standardisasi sistem dan evaluasi dilakukan HSSE PHE sebagai Subholding Upstream, sedangkan untuk pelaksanaan dilakukan HSSE, baik di Regional maupun Anak Perusahaan pada wilayah kerja masing-masing dengan menerapkan ISO 14001:2015 pada 16 WK, ISO 50001:2018 pada 3 WK, ISO 45001 pada 23 WK dan 2 AP Services serta PT Badak NGL.

PHE Subholding Upstream is committed to conducting operations in a safe, healthy, environmentally friendly, and efficient manner consistent with the Company's Vision and Mission. This commitment is reflected in the Company's HSSE PHE Policy dated 28 April 2021, which the Board of Directors signed.

Environmental management and occupational health and safety are the responsibility of the Health, Safety, Security, and Environment (HSSE) function, led by Vice President-level company officials and the Regional and Subsidiary HSSE Functions. The VP HSSE reports to the President Director and is assisted by the Senior Manager HSSE Performance, Assurance & ERCM; Senior Manager Safety; Health Manager; Security Manager; Environment Manager, and the Assistant Manager Planning, Management System & Risk Management.

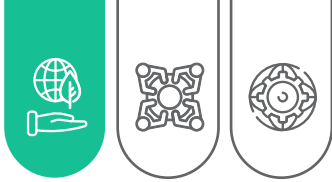
HSSE PHE Subholding Upstream is responsible for system standardization and evaluation, while HSSE Regional and Subsidiaries are responsible for implementation by implementing ISO 14001:2015 in 16 WKs, ISO 50001:2018 in 3 WKs, ISO 45001 in 23 WKs and 2 AP Services also PT Badak NGL.

Biaya Pengelolaan Lingkungan dan Pencapaian PROPER

Environmental Management Costs and PROPER Achievement

Sepanjang tahun 2021, PHE Subholding Upstream mengelola lingkungan dengan biaya sebesar Rp888,23 miliar. Biaya ini digunakan untuk Pengelolaan Lingkungan, Pengelolaan Emisi Udara, Pengelolaan Limbah Cair, Pengelolaan Limbah, dan Keanekaragaman Hayati. [POJK51-6]

PHE Subholding Upstream managed the environment throughout 2021 at the cost of Rp888.23 billion. These costs were used for Environmental Management, Air Pollution Control, Liquid Waste Management, Waste Management, and Biodiversity Management. [POJK51-6]



Biaya Pengelolaan
Lingkungan
(dalam Miliar Rp)
Environmental
Management Cost
(in Billion Rp)



Komitmen kami untuk mengelola lingkungan dengan sebaik-baiknya mendapatkan apresiasi PROPER Emas di tahun 2021 dari Kementerian Lingkungan Hidup dan Kehutanan (KLHK). Penghargaan diberikan untuk sembilan Anak Perusahaan PHE Subholding Upstream, termasuk PT Badak NGL yang dinilai telah melaksanakan kegiatan tanggung jawab sosial dan lingkungan melampaui kepatuhan. Pencapaian tersebut lebih tinggi dari target delapan PROPER Emas.

Our commitment to environmental management has earned us the Gold PROPER recognition from the Ministry of Environment and Forestry (KLHK) in 2021. The award was given to nine Subsidiaries of PHE Subholding Upstream, including PT Badak NGL, that were deemed to have gone above and beyond regulatory requirements in terms of social and environmental responsibility. This achievement exceeded the target of eight Gold PROPERs.



► MENGENDALIKAN EMISI MENGURANGI GAS RUMAH KACA

Controlling Emissions and Reducing Greenhouse Gases

Pengelolaan Topik Material ^[3-3]

Material Topic Management

Selain memproduksi migas, kegiatan PHE Subholding Upstream juga menimbulkan emisi gas rumah kaca (GRK) yang menyebabkan perubahan iklim. Tahun 2021, kami melanjutkan program reduksi emisi GRK dari proses produksi dengan melakukan efisiensi energi, mengganti pasokan listrik dari pembangkit berbahan bakar fosil dengan pasokan listrik PLN, dan pemanfaatan gas suar bakar (*flare*). Perusahaan melakukan evaluasi reduksi emisi GRK melalui penghitungan total emisi GRK dan perbandingan dengan *baseline* tahun 2020. Perhitungan ini belum termasuk WK Rokan dan PT Badak NGL ataupun sumber emisi. Hingga tahun 2021, Indonesia berada di urutan 96 dari 180 dalam Transparency Internasional's Corruption Perception Index, dan bukan termasuk dalam 20 urutan ke bawah. ^[OGSS-11.1.1] ^[EM-EP-510a.1]

In addition to producing oil and gas, PHE Subholding Upstream activities emit greenhouse gas (GHG) emissions, which contribute to climate change. In 2021, we continued to reduce GHG emissions from the production process by improving energy efficiency, substituting electricity supply from fossil fuel plants with supply from PLN electricity, and utilizing gas flares. The Company assesses GHG emission reductions by calculating total GHG emissions and comparing them to the 2020 baseline. This calculation excludes the Rokan WK and PT Badak NGL, as well as emission sources. Indonesia was ranked 96th out of 180 countries on Transparency International's Corruption Perception Index as of 2021, and was not among the bottom 20. ^[OGSS-11.1.1] ^[EM-EP-510a.1]

Perhitungan Emisi GRK ^[POJK51 6.e.4.a] ^[CCE-4] ^[EM-EP-110a.1]

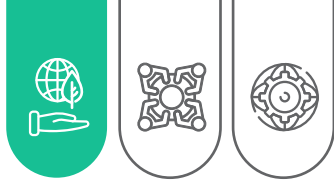
GHG Emissions Calculation

Perhitungan emisi mengacu pada International GHG Standard Protocol, dan menggunakan *control approach*, di mana perhitungannya hanya dapat dilakukan untuk emisi dari cadangan yang sudah dieksploitasi maupun yang terproduksi. ^[EM-EP-420a.2] ^[OGSS-11.2.2]

The calculation of emissions refers to the International GHG Standard Protocol, and uses a control approach, according to which emissions from reserves that have been produced are the only ones that can be calculated. ^[EM-EP-420a.2] ^[OGSS-11.2.2]

Lebih lanjut, penghitungan emisi GRK meliputi sumber emisi tidak bergerak dan sumber emisi bergerak. Pengukuran Cakupan 1 berasal dari produksi migas dan konsumsi bahan bakar, sedangkan Cakupan 2 berasal dari pemakaian listrik dari pihak ketiga pada seluruh Anak Perusahaan. Metode perhitungan: *Tier 1*, *Tier 2* (2a dan 2B), *Tier 3* (3b), dan *Tier 4*. Parameter pengukuran dan perhitungan mengacu pada Standar Pertamina Nomor PS-S-017-100-2021 perihal Penghitungan Emisi yang juga mengacu pada PermenLH No. 12 tahun 2012 tentang Pedoman Penghitungan Beban Emisi Kegiatan Industri Minyak dan Gas Bumi yang dinyatakan dalam ton CO₂eq dengan *baseline* tahun 2020. ^[305-1] ^[305-2] ^[OGSS-11.1.5] ^[OGSS-11.1.6]

Furthermore, the calculation of GHG emissions includes both stationary and mobile emission sources. Scope 1 is measured by oil and gas production and fuel consumption, while Scope 2 is measured by the electricity consumed from third parties by all Subsidiaries. Tier 1, Tier 2 (2a and 2B), Tier 3 (3b), and Tier 4 are the calculation methods. Parameters of measurement and calculation refer to Pertamina Standard Number PS-S-017-100-2021 regarding Emission Calculation, as well as Minister of Environment and Forestry Regulation No. 12 of 2012 regarding Guidelines for Calculation of Emission Burden of Oil and Gas Industrial Activities expressed in tons CO₂eq with a 2020 baseline. ^[305-1] ^[305-2] ^[OGSS-11.1.5] ^[OGSS-11.1.6]



Pada dasarnya, PHE telah melakukan dan mempresentasikan *cost benefit analysis* (CBA) dalam kegiatan reduksi emisi GRK yang dilakukan. Namun demikian, program tersebut belum dilakukan dokumentasi dikarenakan program ini merupakan langkah awal yang baru direpresentasikan di beberapa WK. Hingga tahun 2021, Indonesia belum memiliki regulasi mengenai pembatasan emisi yang dihasilkan. [EM-EP-420a.4]

Emisi karbon biogenik sudah masuk di dalam cakupan perhitungan emisi GRK yang berasal dari kegiatan pembakaran dalam dan luar, suar bakar, *fugitive*, kegiatan proses produksi dan proses pengolahan limbah cair. Berdasarkan pengukuran dan perhitungan pada periode pelaporan, volume penurunan emisi Gas Rumah Kaca Cakupan 1 dan Cakupan 2 PHE Subholding Upstream di tahun 2021 adalah sebesar 870.539,74 ton CO₂eq dari kegiatan sumber emisi Regional 1-5 dan AP Services yang mana emisi GRK yang dihasilkan sebesar 6.983.010,2 ton CO₂eq. Apabila dibandingkan dengan emisi GRK tahun 2020 terdapat penurunan 11% terhadap *baseline* sebanyak 7.853.549,94 ton CO₂eq. Data jumlah emisi PHE Subholding Upstream tidak termasuk WK Rokan dan PT Badak NGL. Kami belum melakukan penghitungan emisi GRK dari Cakupan 3 yang berasal dari kegiatan rantai pasok. Detail mengenai jumlah emisi GRK yang dihasilkan dapat merujuk pada lampiran. [305-1]

[OGSS 11-11.1.7]

Intensitas Emisi GRK [POIK51-6.e.4.a]

GHG Emissions Intensity

Penghitungan Intensitas Emisi GRK dinyatakan sebagai setara karbon (CO₂eq) sesuai total emisi GRK Cakupan 1 dan Cakupan 2, termasuk di dalamnya adalah penghitungan CH₄ dan N₂O. Penghitungan mengacu pada Standar Pertamina Nomor PS-S-017-100-2021 perihal Penghitungan Emisi yang juga mengacu pada PermenLH No. 12 tahun 2012 tentang Pedoman Penghitungan Beban Emisi Kegiatan Industri Minyak dan Gas Bumi yang dinyatakan dalam ton CO₂eq. Secara umum, nilai emisi GRK pada periode pelaporan mengalami kenaikan dari periode sebelumnya, karena adanya wilayah kerja baru yang tercakup di dalam area PHE Subholding Upstream di tahun 2021, yaitu WK Rokan yang bergabung pada Bulan Agustus 2021 dan PT Badak NGL yang bergabung dengan PHE Subholding Upstream pada bulan Oktober 2021. Lebih lanjut, selama tahun 2021 total emisi Cakupan 1 dan 2 sejumlah 9.751.899,12 ton CO₂eq. Detail mengenai jumlah emisi yang dihasilkan terdapat pada bagian lampiran. [305-4] [OGSS-11.1.8]

In principle, PHE has conducted and presented a cost-benefit analysis (CBA) for the GHG emission reduction activities that have been implemented. However, the program has not yet been documented, as this is the initial step that has only been represented in a handful of WKs. Until 2021, Indonesia does not yet have regulations regarding limiting the emissions produced. [EM-EP-420a.4]

The calculation of greenhouse gas emissions from internal and external combustion, flares, fugitives, production process activities, and wastewater treatment processes includes biogenic carbon emissions. Based on measurements and calculations performed during the reporting period, PHE Subholding Upstream's GHG emission reduction volume for Scope 1 and Scope 2 in 2021 totaled 870,539.74 tons CO₂eq from the emission source activities of Regionals 1-5 and AP Services, which generated a total of 6,983,010.2 tonnes CO₂eq in GHG emissions. When compared to the baseline of 7,853,549.94 tons CO₂eq in 2020, there was an 11% decrease. PHE's total emissions data excludes the Rokan WK and PT Badak NGL. We have not yet calculated the Scope 3 GHG emissions resulting from supply chain activities. Details regarding the total GHG emissions generated can be found on the appendix. [305-1] [OGSS 11-11.1.7]

GHG Emissions Intensity is calculated in terms of carbon equivalent (CO₂eq) based on the total GHG emissions from Scope 1 and Scope 2, including CH₄ and N₂O. The calculation is made in accordance with Pertamina Standard No. PS-S-017-100-2021 on Emission Calculation incorporates Minister of Environment Regulation No. 12 of 2012 concerning Guidelines for Calculation of Emission Burden of Oil and Gas Industry Activities expressed in tons CO₂eq. In general, the value of GHG emissions increased from the previous period, owing to the addition of new WKs within PHE Subholding Upstream in 2021, namely the Rokan WK in August 2021 and PT Badak NGL that joined PHE Subholding Upstream in October 2021. Furthermore, in 2021 the total emissions from Scope 1 and 2 totaled 9,751,899.12 tons CO₂eq. Details regarding total emissions produced can be found in the appendix. [305-4] [OGSS-11.1.8]

Reduksi Emisi GRK [POJK51-6.e.4.b] [OGSS-11.2.3] [EM-EP-110a.3]

GHG Emissions Intensity

Pada tahun 2020, PHE Subholding Upstream telah melakukan perhitungan dan masih memiliki emisi hulu sebesar 7.853.549,94 ton CO₂eq dengan sumber emisi terbesar adalah sumber pembakaran dalam dan luar (genset, generator, dan lainnya). Ada beberapa upaya yang dilakukan untuk mengurangi emisi karbon dan capaian selama tahun 2021, di antaranya:

PHE Subholding Upstream calculated and had upstream emissions of 7,853,549.94 tons CO₂eq in 2020, with internal and external combustion sources accounting for the majority of emissions (gensets, generators, and others). Several efforts and accomplishments were made in 2021 to reduce carbon emissions, including the following:

1

Komersialisasi CO₂ yang dihasilkan dari CO₂ Removal Pertamina EP (PEP) Subang Field ke konsumen dengan total penurunan emisi 42.330.33 ton CO₂eq/tahun. Commercialization of CO₂ produced by Pertamina EP (PEP) Subang Field CO₂ Removal to consumers, resulting in a total reduction of 42,330.33 tons CO₂eq/year.

2

Optimasi jumlah kompresor di lapangan PHM BSP dari sebelumnya *dual compressor* menjadi *single compressor*. Program ini menurunkan emisi sebesar 21.267,3 ton CO₂eq/tahun. Optimizing total compressors in the PHM BSP field from dual to single compressors. This program resulted in an annual reduction of 21,267.3 tons CO₂eq/year.

3

Substitusi bahan bakar minyak (solar) dengan bahan bakar gas di PEP Donggi Matindok Field yang dapat menurunkan emisi sebesar 2.456,5 ton CO₂eq/tahun. Substitution of fuel oil (diesel) with gas fuel at PEP Donggi Matindok Field, which resulted in a reduction of 2,456.5 tons CO₂eq/year in emissions.

4

Pengurangan gas suar (*flare gas*) dengan mematikan *process plant flare* di Pertamina Hulu Kalimantan Timur Daerah Operasi Bagian Utara (PHKT DOBU), yang berhasil menurunkan emisi 8.233,34 ton CO₂eq/tahun. Reduction of flare gas emissions by shutting down the Pertamina Hulu Kalimantan Timur Daerah Operasi Bagian Utara (PHKT DOBU) flare plant process, which resulted in a reduction of 8,233.34 tons CO₂eq/year.



Penurunan Volume Emisi GRK Tahun 2021 GHG Emissions Volume Reduction in 2021

Target Penurunan Emisi Tahun 2021 2021 Emissions Reduction Target

19.633,87
Ton CO₂eq

Realisasi Penurunan Emisi Tahun 2021 2021 Emissions Reduction Realization

870.539,74
Ton CO₂eq



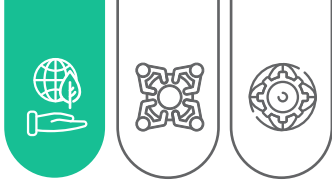
11,08%

Persentase Penurunan Emisi dari Baseline 2020

Emissions Reduction Percentage from 2020 Baseline

Keterangan | Note:

- Realisasi penurunan emisi mengacu sumber emisi yang teridentifikasi pada perhitungan *baseline* emisi tahun 2020.
- Belum termasuk data dari WK Rokan dan PT Badak NGL.
- Emissions reduction refers to emission sources identified in the calculation of the 2020 emissions baseline.
- Does not include data from the Rokan WK and PT Badak NGL.



Intensitas Emisi Emission Intensity



Intensitas Emisi Emission Intensity

0,0339* Ton CO₂eq/BOE

2020** : 0,0333

2019*** : 0,0356



Keterangan | Note:

- * Data Tahun 2021 sudah menjadi PHE Subholding Upstream
Data for 2021 have become PHE Subholding Upstream
- ** Data Tahun 2020 mencakup PHE Subholding Upstream tanpa memperhitungkan data dari WK Rokan dan PT Badak NGL
Data for 2020 includes PHE Subholding Upstream without taking into account data from the Rokan WK and PT Badak NGL
- *** Data Tahun 2019 adalah untuk Wilayah Kerja PHE sebelum pembentukan Subholding Upstream
2019 data is for the PHE Working Area prior to the establishment of the Subholding Upstream

Pengendalian dan Pemanfaatan Flare [CCE-7] [EM-EP-110a.3]

Flare Control and Utilization

Gas suar (*flare gas*) merupakan salah satu sumber emisi GRK cakupan 1 yang ditimbulkan dari kegiatan eksplorasi dan produksi migas, baik bersifat kontinu maupun tidak kontinu. Kami terus berupaya mengurangi pembakaran gas suar dengan melakukan inovasi pemanfaatan dan pengurangan emisi GRK, dengan mengacu pada ketentuan Peraturan Menteri ESDM Nomor 17 Tahun 2021 tentang Pelaksanaan Pengelolaan Gas Suar pada Kegiatan Usaha Minyak dan Gas Bumi; serta Kebijakan *Zero Routine Flaring* 2030.

Flare gas is a source of Scope 1 GHG emissions from both continuous and discontinuous oil and gas exploration and production activities. We will continue to work to reduce gas flaring by innovating the utilization of natural gas and reducing GHG emissions in accordance with the provisions of the Minister of Energy and Mineral Resources Regulation No. 17 of 2021 concerning the Implementation of Gas Flaring Management in Oil and Gas Business Activities, as well as the 2030 Zero Routine Flaring Policy.

Regional 1 - Sumatra

Pada bulan Desember 2021, PEP Field Adera melakukan pemanfaatan gas suar melalui relokasi *metering* dari Pusat Pengumpul Produksi Pengabuan ke Stasiun Kompresor Gas Cambai sehingga dapat mengurangi gas suar sebesar 2 MMSCFD untuk dijadikan tambahan gas sales.

Regional 2 - Jawa

Pada tahun 2021, pemanfaatan gas suar dan *venting* CO₂ di PEP Field Subang dilakukan dengan mengoperasikan CO₂ Removal Plant dan mampu mereduksi CO₂ sebesar 29.110 ton. Selanjutnya, terus dikembangkan fasilitas CO₂ Removal Plant di Field Subang dengan mengoperasikan CO₂ Removal Package di area Stasiun Pengumpul Bambu Besar (SP BBS) di Kabupaten Karawang, Jawa Barat. Fasilitas yang memiliki 6 unit *gas jack compressor* ini akan mengurangi pembakaran gas suar sebesar 1,8 MMSCFD, atau setara 93,28 ton CO₂eq.

Regional 3 - Kalimantan

Pada tahun 2021, Regional 3-Kalimantan telah melakukan efisiensi pembakaran gas suar melalui program Process Flare Offline and Fuel Gas Reduction (PROLONGATION) di PHKT DOBU. Melalui program ini, kami dapat mengurangi pembakaran gas suar total setara 1.285,6 ton CO₂eq. Regional 3-Kalimantan juga telah melakukan pengurangan emisi GRK di area kerja PT Pertamina Hulu Sanga Sanga (PHSS) melalui modifikasi aliran gas yang terlarut (*vapor*) dalam proses regenerasi *glycol* atau *glycol reconcentrator* dan berhasil mengurangi emisi per tahun setara 1.239,0 ton CO₂eq.

Regional 4 – Indonesia Timur

Pada tahun 2021, pengurangan gas suar di Regional 4 telah dilakukan melalui pengaturan jadwal *Turn-Around* (TA) *Upstream-Downstream* di Lapangan Donggi Matindok. Mekanisme ini dapat mengoptimalkan proses TA serta mengurangi volume gas suar bakar sebesar 110,2 MMSCFD atau setara reduksi emisi 7.070,11 ton CO₂eq.

Regional 5 - Internasional

Pada tahun 2021 angka gas suar dan *venting* di lapangan MLN, Algeria masih berada di bawah angka *threshold* yang berlaku (1% dari total produksi gas). Sekitar 95% dari total gas terproduksi dialokasikan untuk diinjeksikan kembali ke *reservoir* sebagai salah satu strategi dari *reservoir management plan* dan sisanya dimanfaatkan sebagai *gas fuel/own use* dan *gas lift*.

Regional 1 - Sumatra

In December 2021, PEP Field Adera utilized gas flare by relocating metering from the Ashing Production Collection Center to the Cambai Gas Compressor Station so as to reduce flare gas by 2 MMSCFD to be used as additional gas sales.

Regional 2 - Java

In 2021, the PEP Subang Field utilized CO₂ gas flares and venting by operating a CO₂ Removal Plant, which reduced CO₂ by 29,110 tons. Additionally, the CO₂ Removal Plant facility in Subang Field was expanded by operating the CO₂ Removal Package in the Karawang Regency's Big Bamboo Collecting Station (SP BBS) area. The facility's 6 gas jack compressor units reduced gas flare combustion by 1.8 MMSCFD, or 93.28 tons CO₂eq.

Regional 3 - Kalimantan

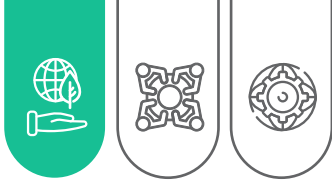
In 2021, Regional 3-Kalimantan implemented gas flare efficiency measures through the Process Flare Offline and Fuel Gas Reduction (PROLONGATION) program in PHKT DOBU. We avoided flaring by a total of 1,285.6 tons CO₂eq through this program. Regional 3-Kalimantan also reduced GHG emissions in the PT Pertamina Hulu Sanga Sanga (PHSS) work area by modifying gas flow, that dissolved (vapor) in the glycol regeneration process or glycol concentrator and reducing 1,239.0 tons CO₂eq annual emissions.

Regional 4 – East Indonesia

In 2021, Regional 4 reduced gas flares by adjusting the Upstream-Downstream Turn-Around (TA) schedule at the Donggi Matindok Field. This mechanism can optimize the TA process and reduce gas flaring by 110.2 MMSCFD, equal to 7,070.11 tons CO₂eq in emissions reduction.

Regional 5 – International

In 2021, the rate of gas flare and venting in the MLN field, Algeria was still below the applicable threshold (1% of total gas production). Approximately 95% of the total gas produced was allocated for re-injection into the reservoir as one of the strategies of the reservoir management plan. The remainder was used for gas fuel/own use and gas lift.



Pemanfaatan Material Ramah Lingkungan [POJK51-6.d.2]

Use of Environmentally Friendly Materials

Pada periode pelaporan, kami telah memanfaatkan material dan juga teknologi ramah lingkungan pada beberapa kegiatan yang dijalankan Anak Perusahaan. PT Pertamina Drilling Services Indonesia (PDSI) merancang dua bangunan *offshore workover rig* dengan teknologi dan kemampuan yang didesain lebih ramah lingkungan. *Rig* diposisikan menjadi bagian *accommodation work barge* dan mulai beroperasi di WK PHE Offshore South East Sumatra (OSES) di tahun 2021.

Selain memiliki motor penggerak elektrik, *Rig* ini juga memiliki fitur *skid & rotate*, di mana lantai bor bersama menaranya dapat bergeser horizontal ataupun berputar hingga 360 derajat di atas *sub base/sub structure*. Fitur ini membuat *rig* PDSI menjadi satu satunya *rig* di area OSES yang dapat berpindah dari sumur ke sumur dalam *platform* yang sama dengan waktu tercepat, tanpa harus melalui proses berulang *rig down*, *transfer*, dan *rig up*. Maksimalisasi fitur ini tentunya akan memberikan kontribusi positif dalam usaha klien PDSI untuk meminimalisasi *operation day*.

Lebih lanjut, pengembangan *rig* dan peralatan dengan teknologi yang lebih maju dan canggih merupakan upaya PDSI menyesuaikan kebutuhan operasional hulu migas Indonesia, selain dua unit *offshore workover rig*, PDSI dalam melakukan kegiatan *Drilling* dan *Work Over* juga sudah menggunakan *Onshore Rig* dengan teknologi Elektrik dan *Cyber Rig* dengan tetap mematuhi regulasi dan mengikuti standar internasional yang berlaku, seperti regulasi dari International Association of Drilling Contractors (IADC), American Petroleum Institute (API), dan Marine Standards. Dengan menggunakan *Rig* Elektrik dan *Cyber* dalam operasionalnya, PDSI tersebut dapat mendukung program pengurangan emisi karbon di PHE Subholding Upstream.

Our Subsidiaries used environmentally friendly materials and technology throughout the reporting period in several activities. PT Pertamina Drilling Services Indonesia (PDSI) designed two offshore workover rigs with environmentally friendly technology and capabilities. The rig was mounted on the accommodation work barge and began operations in the PHE Offshore South East Sumatra (OSES) WK in 2021.

This rig features a skid & rotate feature with the electric motor that allows the drill floor and tower to be shifted horizontally or rotated 360 degrees above the sub-base/sub structure. This feature enables the PDSI rig to move between wells on the same platform in the shortest amount of time possible without going through the iterative process of rig down, transfer, and rig up. Optimizing this feature will undoubtedly benefit the PDSI client's efforts to reduce operation days.

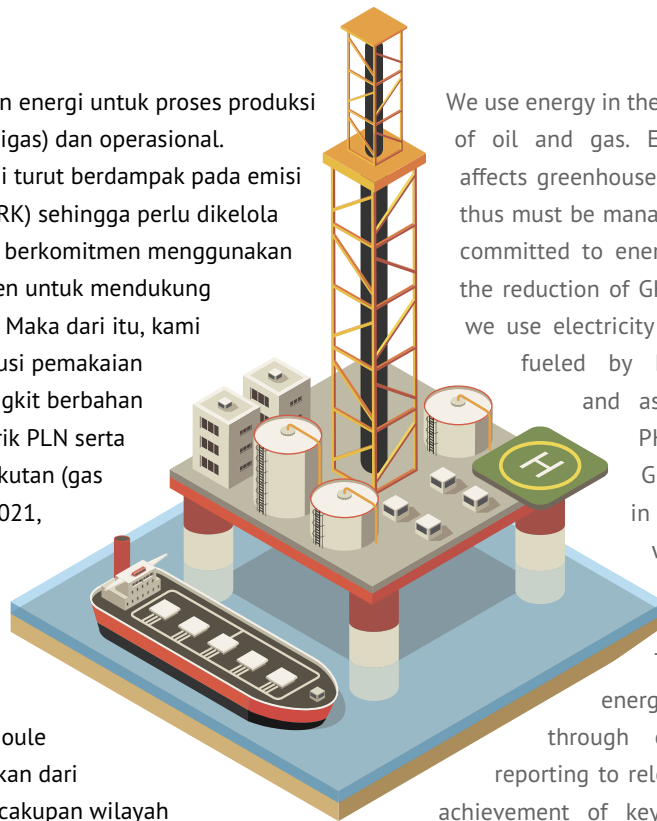
Furthermore, PDSI is attempting to adapt to the needs of Indonesia's upstream oil and gas operations by developing rigs and equipment with more advanced and sophisticated technology. In addition to the two offshore workover rigs, PDSI has utilized Onshore Rigs with Electrical and Cyber Rig technology to carry out Drilling and Work Over activities while adhering to applicable international regulations and standards, such as the International Association of Drilling Contractors (IADC), American Petroleum Institute (API), and Marine Standards. By employing the Electric and Cyber Rig in its operations, PDSI can contribute to the PHE Subholding Upstream carbon emission reduction program.

► PENGELOLAAN DAN EFISIENSI ENERGI

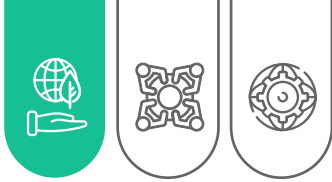
Energy Management and Efficiency

Pengelolaan Topik Material [POJK51-6] [3-3] Material Topic Management

Kami menggunakan energi untuk proses produksi minyak dan gas (migas) dan operasional. Penggunaan energi turut berdampak pada emisi gas rumah kaca (GRK) sehingga perlu dikelola dengan baik. Kami berkomitmen menggunakan energi secara efisien untuk mendukung reduksi emisi GRK. Maka dari itu, kami melakukan substitusi pemakaian listrik dari pembangkit berbahan bakar pasokan listrik PLN serta pemanfaatan gas ikutan (gas aso). Pada tahun 2021, untuk cakupan wilayah PHE melakukan penghematan energi sebesar 4.968.461,27 GigaJoule (GJ) jika dibandingkan dari pemakaian energi cakupan wilayah kerja PHE di tahun 2020. Penerapan efisiensi energi dipantau dengan melakukan audit energi, pelaporan berkala kepada pihak-pihak berwenang, dan pencapaian indikator kinerja kunci (KPI) fungsi pelaksana. Upaya kami mengelola penggunaan energi secara optimal dan efisien, dilaksanakan dengan melibatkan pemangku kepentingan, di antaranya pekerja, kontraktor, vendor, maupun pemasok.



We use energy in the production and operation of oil and gas. Energy consumption also affects greenhouse gas (GHG) emissions and thus must be managed appropriately. We are committed to energy efficiency to assist in the reduction of GHG emissions. As a result, we use electricity generated by generators fueled by PLN's electricity supply and associated gas (aso gas). PHE saved 4,968,461,27 GigaJoules (GJ) of energy in its coverage area in 2021 when compared to the total energy used in its coverage area in 2020. The implementation of energy efficiency is monitored through energy audits, periodic reporting to relevant authorities, and the achievement of key performance indicators (KPI) for the implementing functions. Our efforts to manage energy consumption optimally and efficiently are accomplished through collaboration with all stakeholders, including employees, contractors, vendors, and suppliers.



Konsumsi Energi di Dalam Perusahaan [OGSS-11.1.2]

Energy Consumption within the Company

Perhitungan konsumsi energi mencakup volume pemakaian energi di dalam Perusahaan yang berasal dari pemakaian bahan bakar, termasuk energi tidak terbarukan dan gas alam cair (*liquefied natural gas* atau LNG) yang termasuk energi baru terbarukan (EBT), serta pasokan listrik dari PLN. Perhitungan konsumsi energi diperoleh dari volume pemakaian bahan bakar, LNG dan listrik yang dikonversi ke dalam satuan energi: Gigajoule (GJ) sesuai konversi International Energy Agency (IEA). [POJK51-

6] [302-1] [OGSS-11.1.2]

Tahun 2021, total konsumsi energi mencapai 92.880.161,58 GJ. Kami belum menghitung konsumsi energi di luar Perusahaan, termasuk oleh kontraktor/vendor/pemasok. Konsumsi energi selama periode pelaporan berasal dari:

[302-1] [302-2]

The volume of energy consumed by the Company is calculated using fuels, including non-renewable energy and liquefied natural gas (LNG), which includes new and renewable energy (NRE) and electricity supplied by PLN. Energy consumption is calculated using the volume of fuel, LNG, and electricity consumed and converted Gigajoule (GJ), in accordance with the conversion of the International Energy Agency (IEA). [POJK51-

6] [302-1] [OGSS-11.1.2]

Total energy consumption reached 92,880,161.58 GJ in 2021. We have not included energy consumption by contractors/vendors/suppliers in our calculations. During the reporting period, energy consumption was derived from the following sources: [302-1] [302-2]

Selama tahun 2021, produksi migas PHE Subholding Upstream mencapai 2.000.547,46 GJ berdasarkan konversi 1 BOE setara dengan 6.112,728 GJ. Produksi migas dijual kepada PT Pertamina (Persero) dan/atau afiliasinya, serta pelanggan lain di dalam maupun luar negeri. Di sisi lain, PHE Subholding Upstream sudah mengidentifikasi cadangan terbukti dan belum terbukti mengikuti standar internasional perhitungan cadangan, yaitu Petroleum Resources Management System (PRMS). Perhitungan ini mengkategorikan maturitas dari *subsurface*, baik *reserve* dan *resource* yang tersedia. Namun demikian, kami tidak dapat menyampaikan informasi mengenai cadangan, termasuk persentase cadangan terbukti dan cadangan terkira yang dekat atau berada di wilayah hutan konservasi/hutan lindung/habitat spesies dilindungi, area konflik, dan wilayah masyarakat adat karena data tersebut tidak diperuntukkan bagi keperluan publik. [EM-EP-420a.1] [302-1][EM-EP-160a.3] [EM-EP-210a.1]

[EM-EP-210a.2]

PHE Subholding Upstream's oil and gas production in 2021 reached 2,000,547.46 GJ based on the conversion factor of 1 BOE to 6,112.728 GJ. Production of oil and gas was sold to PT Pertamina (Persero) and/or its affiliates, as well as other customers at home and abroad. In contrast, PHE Subholding Upstream has identified proven and unproven reserves using the Petroleum Resources Management System (PRMS), the international standard for calculating reserves. This calculation classifies the subsurface's maturity, including reserves and available resources. We are unable to provide information on reserves, including the percentage of proven reserves and probable reserves that are close to or located in conservation forest areas/protected forests/protected species habitats, conflict zones, and indigenous peoples' territories, as these data are not intended for public use.

[EM-EP-420a.1] [302-1][EM-EP-160a.3] [EM-EP-210a.1] [EM-EP-210a.2]



Pemakaian Bahan Bakar Tidak Terbarukan

Non-Renewable Fuel Use

85.508.355,85 GJ

Pemakaian Sumber Bahan Bakar Terbarukan

Renewable Fuel Use

2.625.017,73 GJ



Pemakaian Listrik dari PLN

Electricity Consumption from PLN

4.746.788,00 GJ

Volume Total Pemakaian Energi di Dalam Perusahaan [302-1] [POJK51-6] [CCE-6 C1]

Total Volume of Energy Use within the Company

Sumber Energi Energy Source	2021*		2020**	2019**
	GJ	%	GJ	GJ
Tak Terbarukan Non-Renewable	85.508.355,85	92,06	32.161.832,91	35.165.834,13
Energi Baru Terbarukan Renewable	Biodiesel	2.625.017,73	2,83	1.957.253,33
	Solar Cell			3.040.589,86
Listrik Pihak Ke-3 [PT PLN (Persero)] 3 rd Party Electricity [PT PLN (Persero)]	4.746.788,00	5,11	110.226,69	103.860,26
Jumlah Total	92.880.161,58	100,00	34.229.312,93	38.310.284,25

Keterangan | Note:

* Data Tahun 2021 sudah menjadi PHE Subholding Upstream, termasuk data WK Rokan (Agustus-Desember 2021) dan PT Badak NGL (Oktober-Desember 2021)
The 2021 data has become PHE Subholding Upstream, including Rokan WK data (August-December 2021) and PT Badak NGL (October-December 2021)

** Data Tahun 2019 dan 2020 adalah untuk Wilayah Kerja PHE sebagai PHE sebelum pembentukan Subholding Upstream
Data for 2019 and 2020 are for the PHE Work Area as PHE before the formation of Subholding Upstream

Laporan ini tidak menyertakan pengungkapan informasi terkait konsumsi energi di luar Perusahaan. Dengan demikian, tidak ada pengungkapan informasi terkait volume konsumsi energi, metode penghitungan, dan standar konversi yang digunakan. [302-2] [OGSS-11.1.3]

This Report does not include disclosure of information related to energy consumption outside the Company. Thus, there is no disclosure of information related to the volume of energy consumption, calculation methods, and conversion standards used. [302-2] [OGSS-11.1.3]

Intensitas Energi

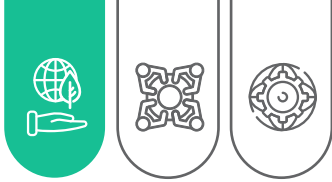
Energy Intensity

Pengungkapan informasi besaran Intensitas Energi dalam Laporan ini hanya mencakup pada kegiatan produksi migas. Laporan ini tidak menyertakan penghitungan Intensitas Energi dari Anak Perusahaan *Services*, serta penghitungan dari penggunaan energi di luar Perusahaan. Intensitas Energi dihitung sebagai energi dibutuhkan per GJ untuk produksi migas per *Barrel Oil Equivalent* (BOE). Nilai Intensitas Energi tahun 2021 mencapai 0,39 GJ/BOE. [POJK51-6] [302-3] [OGSS-11.1.4]

Kami tidak melakukan perbandingan nilai Intensitas Energi tahun 2021 dengan tahun 2020 dan 2019, karena perbedaan pendekatan penghitungan. Nilai Intensitas Energi tahun 2021 dihitung sebagai PHE Subholding Upstream, sementara untuk tahun 2020 dan 2019 dihitung sebagai PHE sebelum pembentukan Subholding Upstream.

The Report's disclosure of Energy Intensity data is limited to oil and gas production activities. This Report does not include the Energy Intensity calculation from the Services Subsidiary, nor does it include the calculation of energy use outside the Company. Energy Intensity is defined as the amount of energy required per GJ for oil and gas production in Barrels of Oil Equivalent (BOE). Energy Intensity reached 0.39 GJ/BOE in 2021. [POJK51-6] [302-3] [OGSS-11.1.4]

We did not compare the Energy Intensity values for 2021, 2020, and 2019 due to the difference in the calculation approach. Energy Intensity in 2021 was calculated as PHE Subholding Upstream, while 2020 and 2019 were calculated as PHE before the establishment of Subholding Upstream.



Hasil Pengukuran Intensitas Energi Total Total Energy Intensity Measurement Results

Intensitas Energi

Energy Intensity

0,39* GJ/BOE

2020** : 0,44

2019** : 0,50

Keterangan | Note:

* Data tahun 2021 sudah mencakup Regional 1-5, Elnusa, dan WK Rokan (Agustus-Desember), PT Badak NGL (Oktober-Desember)
Data for 2021 already includes Regionals 1-5, Elnusa, and the Rokan WK (August-December), PT Badak NGL (October-December)

** Data Tahun 2019 dan 2020 adalah untuk Wilayah Kerja PHE sebelum pembentukan Subholding Upstream
Data for 2019 and 2020 were for the PHE Work Area before the establishment of Subholding Upstream

Reduksi Konsumsi Energi

Energy Consumption Reduction

Kami menerapkan efisiensi energi melalui berbagai kebijakan, inisiatif, dan inovasi berkelanjutan, termasuk sertifikasi ISO 50001:2018 Sistem Manajemen Energi, serta pemanfaatan energi baru dan terbarukan (EBT). Pada tahun 2021, untuk cakupan wilayah Pertamina Hulu Energi melakukan penghematan energi sebesar 4.968.461,27 Giga Joule (GJ), jika dibandingkan dari pemakaian energi cakupan wilayah kerja PHE di tahun 2020. Perhitungan efisiensi energi mencakup setiap regional dengan basis periode satu tahun, berdasarkan selisih antara jumlah energi terpakai aktual dengan program penghematan energi, dibandingkan estimasi energi terpakai tanpa program penghematan energi. Penghitungan belum dipilah untuk produk atau jasa tertentu. [302-4]

We attain energy efficiency through various policies, initiatives, and sustainable innovations, including the ISO 50001:2018 Energy Management System certification and the use of new and renewable energy (NRE). Energy savings totaled 4,968,461.27 GigaJoule (GJ) in 2021 for the Pertamina Hulu Energi coverage area compared to the PHE working area coverage in 2020. Energy efficiency calculations are made on a one-year basis for each region, based on the difference between the actual amount of energy consumed during the energy conservation program and the estimated amount of energy consumed during the energy conservation program. Calculations for specific products or services have not been disaggregated. [302-4]

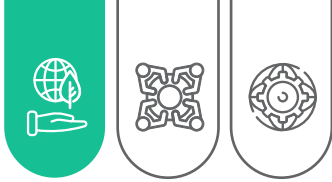


Upaya efisiensi energi yang dilakukan oleh PHE Subholding Upstream, di antaranya: [POJK51-6] [CCE-6 C2]

- Efisiensi penggunaan kapal pada kegiatan *Inspection, Repair, Maintenance* (IRM) di PHM Lapangan BSP yang berhasil menurunkan konsumsi bahan bakar kapal sebesar 1.896,28 GJ per tahun.
- Program Revamped WIP Line Discharged Injection System di PEP Field Rantau, di mana dilakukan perbaikan terhadap sistem *discharge* pompa injeksi EOR yang digunakan sehingga dapat mengurangi konsumsi energi sebesar 1.882,76 GJ/tahun pada proses injeksi EOR PEP Field Rantau.
- Metode *Re-Engineering Breather Line* pada Gas Engine Generator (GEG) Power Plant Talang Jimar di PEP Prabumulih Field, dilakukan upaya penanganan untuk menurunkan tekanan dan uap panas yang dihasilkan GEG sehingga *ambient temperature* berhasil turun hingga 33-34,1 derajat Celcius dan *heat rate* GEG turun 10%. Hal ini dapat meningkatkan efisiensi GEG sehingga pembakaran gas lebih optimal dan efisiensi energi mencapai 30.094,85 GJ/tahun.
- Program Tangent Gas SMK (Peningkatan Efisiensi Gas Kompresor dengan Tambahan Gas SMK) di lapangan Pertamina Hulu Kalimantan Timur Daerah Operasi Bagian Selatan (PHKT DOBS) yang merupakan peningkatan efisiensi kompresor Lapangan Sepinggan dengan menghilangkan aliran *recycle* melalui tambahan gas dari Lapangan SMK. Program ini dapat menurunkan penggunaan energi sebesar 2.011,94 GJ/tahun.
- Metode *External Recycle System* (X-Trem) di PHE WMO yang merupakan proses *recycle* gas produksi dari *output* GTC-624 ke input *valve* GTC-624 dengan penambahan jumlah gas sesuai yang diperlukan untuk mencukupi batasan *operating envelop*. Dari program ini, diperoleh penghematan energi dari penurunan penggunaan bahan bakar sebesar 50.607,90 GJ per tahun.

PHE Subholding Upstream's energy efficiency efforts, include the following: [POJK51-6] [CCE-6 C2]

- Ship use efficiency in *Inspection, Repair, and Maintenance* (IRM) in PHM BSP field activities at resulted in a reduction of 1,896.28 GJ per year in ship fuel consumption.
- Revamped WIP Line Discharged Injection System program at PEP Field Rantau, where improvements to the discharge system of the EOR injection pump were made, resulting in a reduction in energy consumption of 1,882.76 GJ/year in the EOR injection process of PEP Rantau Field.
- Re-engineering the Breather Line method at the Talang Jimar Power Plant's Gas Engine Generator (GEG) at the PEP Prabumulih Field, where efforts were made to reduce the pressure and hot steam produced by the GEG, resulting in an ambient temperature of 33-34.1 degrees Celsius and a 10% reduction in the GEG heat rate. This can improve GEG efficiency, resulting in more efficient gas combustion and energy efficiency of 30,094.85 GJ/year.
- The Tangent Gas SMK Program (Improving Compressor Gas Efficiency with Additional SMK Gas) in the Pertamina Hulu Kalimantan Timur Daerah Operasi Bagian Selatan (PHKT DOBS) field entails increasing the efficiency of the Sepinggan Field compressor by eliminating recycle flow via additional gas from the SMK Field. This program can save 2,011.94 GJ of energy per year.
- At PHE WMO, the External Recycle System (X-Trem) method is used to recycle production gas from the GTC-624 output valve to the GTC-624 input valve by adding the amount of gas required to meet the operating envelope limit. Energy savings are achieved through this program by reducing fuel consumption by 50,607.90 GJ per year.



Kontribusi pada Pengembangan EBT [POJ/KK51-6.d.3.b]

Contribution to NRE Development

Kami berkomitmen berkontribusi dalam pengembangan EBT dengan meningkatkan produksi gas bumi. Penggunaan gas bumi akan berpengaruh pada reduksi emisi GRK, mengingat gas bumi digunakan sebagai sumber energi pada berbagai sektor. Di tahun 2021, Perusahaan memanfaatkan energi dari sumber EBT sebesar 2.625.017,73 GJ atau 2,83% dari total penggunaan energi PHE Subholding Upstream.

We are committed to contributing to the development of NRE by increasing natural gas production. Natural gas use will reduce GHG emissions, as natural gas is used as an energy source in various sectors. In 2021, the Company derived 2,625,017.73 GJ from NRE sources, or 2.83% of PHE Subholding Upstream's total energy consumption.



► DUKUNGAN PADA KEANEKARAGAMAN HAYATI

Support for Biodiversity

Pengelolaan Topik Material ^[3-3]

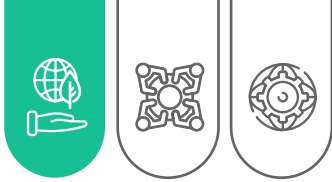
Material Topic Management

Kegiatan operasi dan produksi minyak dan gas (migas) PHE Subholding Upstream, tidak hanya menghasilkan migas sebagai sumber energi, namun juga berdampak pada keanekaragaman hayati di wilayah kerja (WK). Secara keseluruhan, pada tahun 2021, ada 112 spesies dilindungi berdasarkan Daftar Merah IUCN dan regulasi lain yang terdampak kegiatan Perseroan. Selama tahun 2021, kami melakukan berbagai upaya, di antaranya konservasi, penangkaran dan pelepasliaran satwa, serta penanaman kembali tumbuhan dari spesies dilindungi maupun endemik. Sampai dengan akhir tahun 2021, kami melaksanakan 135 kegiatan pelestarian lingkungan untuk mendukung keanekaragaman hayati. Pelaksanaan kegiatan melibatkan masyarakat, pemerintah, akademisi, organisasi independen, serta pemangku kepentingan lain. Seluruh kegiatan yang dilakukan dievaluasi berkala melalui pemantauan langsung di lapangan, pelaporan kepada pihak-pihak berwenang, serta pencapaian target KPI dari fungsi pelaksana di PHE Subholding Upstream. ^[POJK51-6] ^[OGSS-11.4.1]

PHE Subholding Upstream oil and gas operations and production activities generate energy and impact the local biodiversity in the work area (WK). In total, 112 protected species were impacted by the Company's activities in 2021, as defined by the IUCN Red List and other regulations. We made various efforts in 2021, including conservation, captive breeding, animal release, and replanting plants from protected and endemic species. We conducted 135 environmental conservation activities to support biodiversity until the end of 2021. The community, government, academia, independent organizations, and other stakeholders were all involved in implementing activities. All activities were evaluated periodically through direct field monitoring, reporting to authorities, and the achievement of key performance indicator (KPI) targets by the implementing function in PHE Subholding Upstream. ^[POJK51-6]

^[OGSS-11.4.1]





Kebijakan terkait Keanekaragaman Hayati [POJK51-6.e.2] [ENV-3 C1]

Biodiversity Policy

Wilayah kerja (WK) eksplorasi dan produksi migas PHE Subholding Upstream berada di daratan dan lepas pantai, baik di Indonesia maupun mancanegara. Setiap WK dikelola oleh Anak Perusahaan. Beberapa WK di Indonesia berada dan/atau berdampingan dengan kawasan dilindungi maupun kawasan dengan keanekaragaman hayati tinggi. Untuk wilayah operasi di mancanegara, tidak ada yang berada di dalam kawasan dilindungi berdasarkan regulasi internasional. Kami memiliki kebijakan setiap kegiatan di WK di Indonesia yang berada di dalam maupun berdekatan dengan kawasan dilindungi dan/atau kawasan dengan keanekaragaman hayati tinggi, telah dilengkapi dengan dokumen perizinan dari Kementerian Lingkungan Hidup dan Kehutanan (KLHK). [304-1] [OGSS-11.4.2]

The oil and gas exploration and production work area (WK) of PHE Subholding Upstream is located onshore and offshore, both in Indonesia and abroad. A Subsidiary manages each WK. Numerous WKs in Indonesia are located within or adjacent to protected areas or areas with a high level of biodiversity. There are no operational areas in foreign countries that are classified as protected zones under international law. We have a policy that all WK activities in Indonesia that occur within or adjacent to protected areas and/or areas with a high level of biodiversity must be accompanied by a permit document from the Ministry of Environment and Forestry (KLHK). [304-1] [OGSS-11.4.2]

Lokasi WK PHE Subholding Upstream di Indonesia yang Berada dan/atau Berdekatan dengan Kawasan Dilindungi [ENV-4 C1]

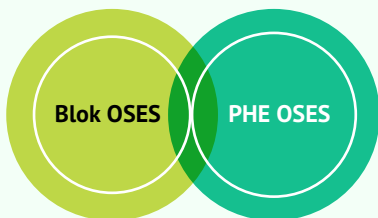
Locations of PHE Upstream Subholding WK in Indonesia that are In and/or Adjacent to Protected Areas



Seluas 324 km² dari WK di perairan Kabupaten Kepulauan Seribu berada di kawasan Taman Nasional Kepulauan Seribu
Kepulauan Seribu National Park encompasses 324 km² of WK in the waters of the Kepulauan Seribu Regency

Wilayah kerja terluar PHE ONWJ di perairan Kabupaten Indramayu, berdekatan dengan Kepulauan Biawak yang berstatus Kawasan Konservasi Laut Daerah (KKLD) Kabupaten Indramayu, dengan jarak terdekat sekitar 9 kilometer

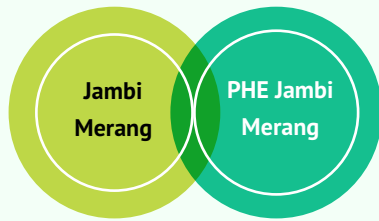
The PHE ONWJ's outermost work area is located in the waters of Indramayu Regency, adjacent to the Biawak Islands, which are designated as a Regional Marine Conservation Area (KKLD) by the Indramayu Regency, at a distance of approximately 9 kilometers



Wilayah kerja terluar PHE OSES di perairan Laut Jawa, berbatasan dengan Taman Nasional Kepulauan Seribu di Tenggara dan Taman Nasional Way Kambas di Barat

PHE OSES's outermost work area is in the Java Sea, bordered on the southeast by the Kepulauan Seribu National Park and west by the Way Kambas National Park

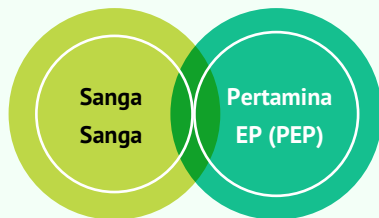
● Wilayah Kerja Work Area
● Anak Perusahaan Subsidiaries



Wilayah Kerja PHE Jambi Merang beririsan dengan kawasan Taman Nasional Sembilang
The Jambi Merang PHE Work Area intersects with the Sembilang National Park area



Wilayah Kerja PEP Field Donggi Matindok berbatasan dengan Taman Keanekaragaman Hayati Kokolomboi, Banggai Kepulauan, Sulawesi Tengah
The PEP Donggi Matindok Field is bordered by the Kokolomboi Biodiversity Park in Banggai Kepulauan, Central Sulawesi



Wilayah Kerja PEP Field Sanga Sanga area Samboja berbatasan dengan Taman Nasional Bukit Soeharto
The Sanga Sanga Field PEP Work Area in the Samboja area borders the Bukit Soeharto National Park

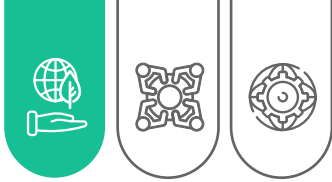
● Wilayah Kerja Work Area ● Anak Perusahaan Subsidiaries

Dari identifikasi yang dilakukan, kami mendapatkan beberapa spesies fauna maupun flora termasuk terumbu karang, yang berstatus dilindungi menurut Daftar Merah the International Union for Conservation of Nature (IUCN); Undang-Undang (UU) No. 5 Tahun 1990 tentang Konservasi Sumber Daya Alam; serta Peraturan Pemerintah No. 7 Tahun 1999 tentang Pengawetan Jenis Tumbuhan dan Satwa. [304-1]

Kegiatan operasi dan produksi secara langsung maupun tidak langsung, memberikan dampak pada spesies-spesies yang ada di sekitar masing-masing WK. Kami berkomitmen melindungi keanekaragaman hayati dengan melakukan identifikasi spesies dilindungi maupun spesies endemik sebelum kegiatan operasi dilaksanakan dan melakukan pemindahan ke kawasan konservasi yang sudah disiapkan atau ke kawasan lain yang tidak terdampak kegiatan operasi. Seluruh tahapan kegiatan dijalankan dengan melibatkan pihak-pihak berwenang, termasuk Balai Konservasi dan Sumber Daya Alam (BKSDA) maupun Dinas Lingkungan Hidup setempat dan disertai pelaporan berkala. [OGSS-11.4.3] [ENV-4 C2]

We identified several species of fauna and flora, including coral reefs, that are protected under the International Union for Conservation of Nature's (IUCN) Red List; Law No. 5 of 1990 on Natural Resource Conservation; and Government Regulation No. 7 of 1999 on Plant and Animal Species Preservation. [304-1]

Operations and production activities affect the species that surround each WK, either directly or indirectly. We are committed to protecting biodiversity by identifying protected and endemic species prior to conducting operations and relocating them to designated conservation areas or other areas that operations will not impact. All stages of activities are carried out in collaboration with authorities, including the Conservation and Natural Resources Center (BKSDA) and the local Environmental Service, and are documented through periodic reports. [OGSS-11.4.3] [ENV-4 C2]



Kami berupaya untuk memastikan agar tidak ada kegiatan operasi dan produksi yang berdampak signifikan terhadap spesies dalam bentuk kemunculan spesies invasif. Namun di beberapa WK, terdapat berkurangnya spesies karena pemindahan yang dilakukan ke wilayah konservasi dan perubahan proses ekologi, termasuk perubahan suhu, salinitas, dan faktor ekologis lainnya. Beberapa WK juga telah menetapkan wilayah konservasi untuk spesies dilindungi maupun spesies endemik. [POJK51-6] [304-2]

We strive to ensure that none of our operations or production activities have a significant impact on the emergence of invasive species. However, species numbers decreased in some WKs due to relocation to conservation areas and changes in ecological processes such as temperature, salinity, and other ecological factors. Moreover, several WKs have designated conservation areas for endemic and protected species. [POJK51-6] [304-2]

Pengelolaan Keanekaragaman Hayati Pasca insiden Minyak Sumur YYA-1

Biodiversity Management Following the YYA-1 Oil Well Incident

Pada tahun 2020, terjadi tumpahan minyak di Sumur YYA-1. Namun demikian, seluruh tumpahan yang terjadi telah ditindaklanjuti oleh Perseroan. Untuk mengatasi dampak tumpahan minyak sumur YYA-1, PHE Subholding Upstream berkomitmen untuk melakukan rehabilitasi lingkungan sesuai dengan Rencana Pemulihan Fungsi Lingkungan Hidup (RPFLH) yang telah disetujui KLHK. Sebagai bagian dari pelaksanaan program restorasi lingkungan, Perseroan telah melakukan studi terhadap ekosistem dan biota di area yang terkena dampak oleh pihak ketiga independen. [304-2]

[OGSS11-11.4.3] [OGSS11-11.4.4] [EM-EP-160a.2]

In 2020, there was an oil spill at the YYA-1 Well. However, all spills that occurred have been followed up by the Company. To overcome the impact of the YYA-1 well oil spill, PHE Subholding Upstream is committed to carrying out environmental rehabilitation by the Environmental Function Recovery Plan (RPFLH), which has been approved by KLHK. As part of the implementation of the environmental restoration program, the Company has studied ecosystems and biota in the affected areas by independent third parties.

[304-2] [OGSS11-11.4.3] [OGSS11-11.4.4] [EM-EP-160a.2]

Perusahaan tidak memiliki operasi wilayah di mancanegara yang dekat dengan wilayah arctic sehingga tidak ada tumpahan di wilayah arctic

The Company does not have regional operations in foreign countries that are close to the arctic region so there are no spills in the arctic region

Tahapan Penanggulangan dan Penanganan Tumpahan Minyak dari Sumur YYA-1

Stages of Mitigation and Handling of Oil Spills from the YYA-1 Well

Berdasarkan hasil kajian yang diverifikasi oleh KLHK secara umum, ekosistem (sedimen dasar laut, terumbu karang, padang lamun, kualitas air laut, kualitas udara) dan biota (nekton, ikan) tidak terdampak tumpahan minyak, kecuali tanaman *Mangrove* spesies *Rhizophoraceae*. Pada tahun 2021, telah dilakukan pemulihan dengan pengkayaan vegetasi *mangrove* di area terdampak sejumlah 233.498 pohon *Mangrove* yang tersebar di wilayah Karawang, Bekasi, Kepulauan Seribu, dan Banten atau 656% (lebih dari 6 kali) dari jumlah individu terpapar minyak, yaitu 35.569 pohon. Spesies *Mangrove* yang telah dilakukan pemulihan, antara lain Bakau kurap (*Rhizophora mucronata*), Bakau merah (*Rhizophora stylosa*), dan Bakau kecil (*Rhizophora apiculata*).

[ENV-3.C2]

Based on the results of studies verified by the Ministry of Environment and Forestry in general, ecosystems (seabed sediments, coral reefs, seagrass beds, seawater quality, air quality) and biota (nekton, fish) were not affected by the oil spill, except for the *Rhizophoraceae* species *Mangrove* plant. In 2021, restoration was conducted by enriching mangrove vegetation with 233,498 Mangrove trees spread across the Karawang, Bekasi, Seribu Islands, and Banten areas, or 656% (more than six times) of the total number of individuals exposed to oil, namely 35,569 trees. Mangrove species that have been restored include *Rhizophora mucronata*, *Rhizophora stylosa*, and *Rhizophora apiculata*. [ENV-3.C2]

Perlindungan dan Pemulihan Habitat di Daerah Operasi [POJK51-6.e.3.b][ENV-4]

Habitat Protection and Recovery in Operational Areas

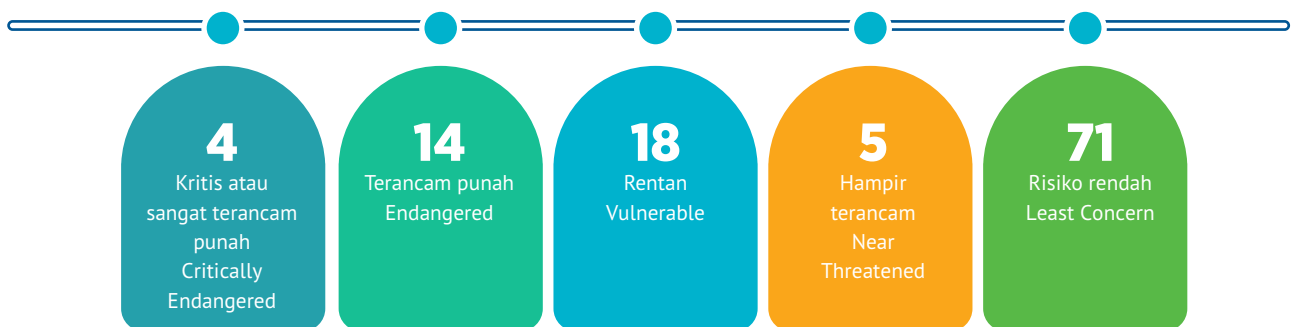
Melalui Anak Perusahaan, PHE Subholding Upstream selama tahun 2021 telah melakukan upaya perlindungan dan pemulihan habitat di WK masing-masing. Secara keseluruhan, ada 135 kegiatan yang dilaksanakan, dengan cakupan perlindungan dan konservasi terhadap 112 spesies dilindungi maupun spesies berdasarkan IUCN. Kegiatan yang dilaksanakan juga mencakup penanaman kembali 1.149.269 pohon dari beragam jenis termasuk spesies endemik pada area seluas total 13.511,37 hektare. Lokasi kegiatan meliputi WK PHE Subholding Upstream yang tersebar di seluruh Indonesia. [304-3] [304-4] [OGSS-11.4.5]

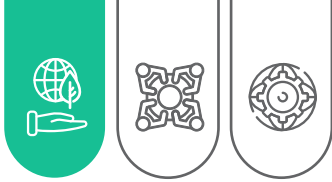
Throughout 2021, PHE Subholding Upstream made efforts to protect and restore habitats in their respective WKs through their Subsidiaries. There were 135 activities in total, where 112 IUCN species were protected and conserved. Furthermore, 1,149,269 trees of various species, including endemic species, were replanted on a total area of 13,511.37 hectares. The activities took place at PHE Subholding Upstream WK locations throughout Indonesia.

[304-3] [304-4] [OGSS-11.4.5]

Jumlah Spesies Fauna Dilindungi dan Tingkat Kepunahan Berdasarkan Daftar Merah IUCN

Total Protected Fauna Species and Extinction Rates According to the IUCN Red List





Kegiatan pemulihan habitat maupun pemulihan lahan serta konservasi, dilaksanakan dengan melibatkan pemangku kepentingan. Kami melibatkan akademisi/ perguruan tinggi dan organisasi independen untuk studi dan penelitian, masyarakat untuk penanaman dan pemeliharaan, serta pihak berwenang di KLHK termasuk BKSDA setempat dan Dinas Lingkungan Hidup di wilayah untuk evaluasi. [304-3]

Pada periode pelaporan, kami menyelesaikan kewajiban pemulihan lingkungan hidup sebagai dampak pascakejadian tumpahan minyak Sumur YYA-1 PHE ONWJ, sesuai Undang-Undang (UU) Lingkungan Hidup No. 32 Tahun 2009. Sebanyak 10 dokumen Rencana Fungsi Lingkungan Hidup (RPFLH) telah diajukan dan disetujui KLHK. Dokumen RPFLH terakhir yang disetujui adalah RPFLH 10. Saat ini, PHE ONWJ telah menyelesaikan seluruh kewajiban pemulihan dan mendapatkan 10 Surat Status Penyelesaian Lahan Terkontaminasi (SSPLT) dari KLHK.

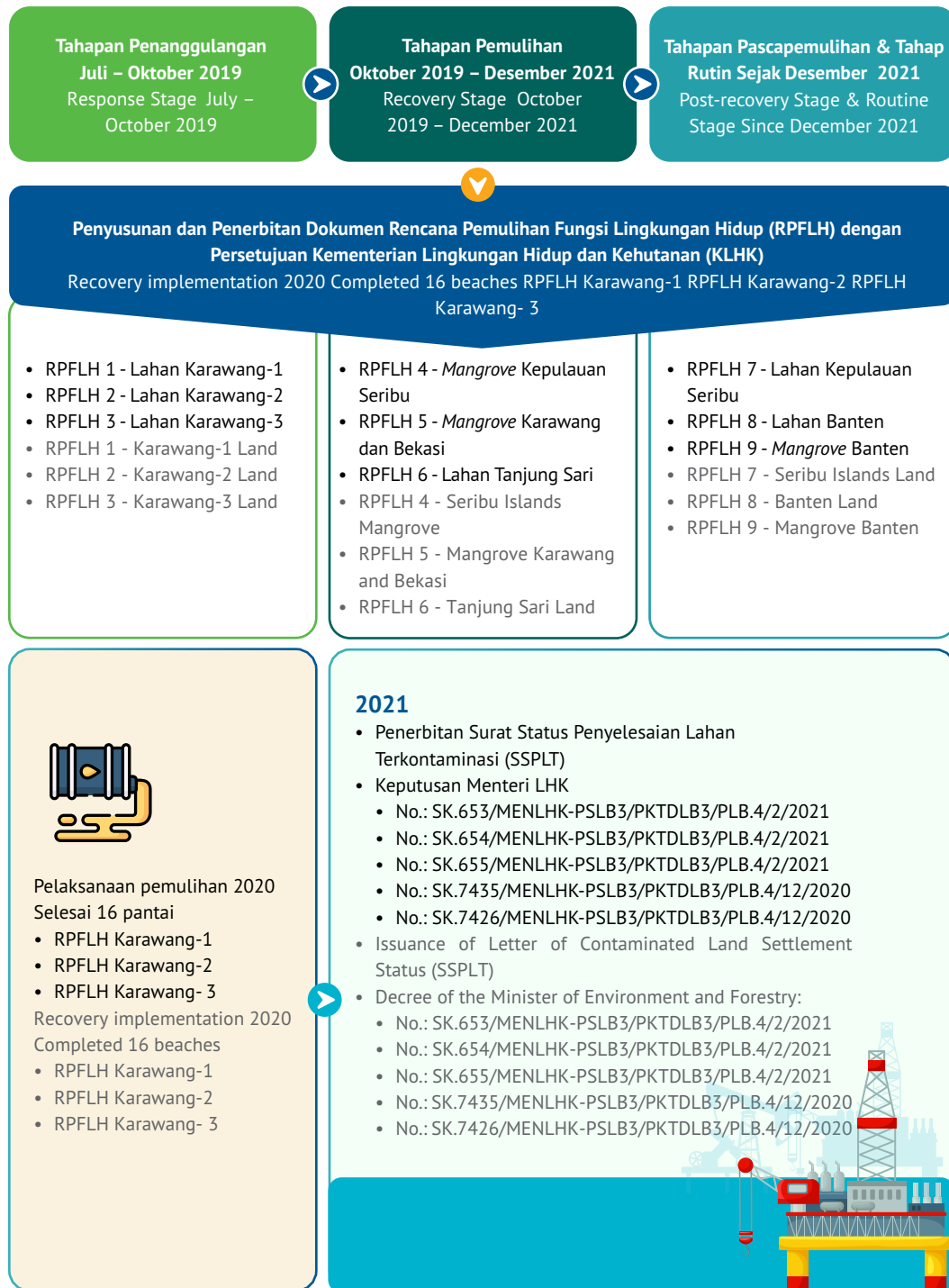
Habitat restoration activities as well as land restoration and conservation activities are carried out by involving stakeholders. We involved academics/universities and independent organizations for study and research, communities for planting and maintenance, and authorities in the Ministry of Environment and Forestry including the local BKSDA and the local Environmental Agency for evaluation. [304-3]

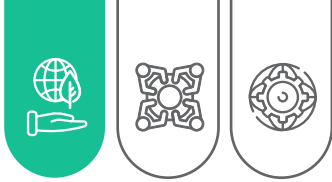
We fulfilled our environmental recovery obligations related to the post-event impact of the YYA-1 PHE ONWJ well oil spill during the reporting period, in accordance with Law No. 32 of 2009 on the Environment. KLHK has approved ten Environmental Function Plan (RPFLH) documents. The most recent RPFLH document approved was RPFLH 10. Currently, PHE ONWJ has completed all recovery obligations and received 10 Contaminated Land Settlement Status Letters (SSPLT) from the Ministry of Environment and Forestry.



Tahapan Penanggulangan dan Penanganan Tumpahan Minyak dari Sumur YYA-1 Stages of Mitigation and Handling of Oil Spills from the YYA-1 Well

KEGIATAN ACTIVITY





Pelaksanaan Pemulihan 2021

Recovery Execution 2021

No	RPFLH/Arahan KLHK RPFLH/KLHK Directive	Covered Area Covered Area	Status Pemulihan per 31 Desember 2021 Recovery Status as of 31 December 2021	Progres Progress
1	Lahan Karawang 1 Karawang Land 1	Pantai Mutiara, Pantai Galangan Kapal, Pantai Jalesana, Tambak Garam Cemara, Muara Sungai Buntu, Pantai Cemara (Pisangan), Pantai Samudera Baru, Permukiman Cemara 1, Pantai Pelangi, dan Permukiman Cemara 2 Mutiara Beach, Shipyard Beach, Jalesana Beach, Cemara Salt Pond, Buntu River Estuary, Cemara Beach (Pisangan), Samudera Baru Beach, Cemara Housing 1 and 2, and Pelangi Beach	Mendapat SSPLT dari KLHK 14 Desember 2020 dan 10 Februari 2021 Receiving SSPLT from MEF on 14 December 2020 and 10 February 2021	100%
2	Lahan Karawang 2 Karawang Land 2	Pantai Dobolan, Pantai Sedari, Pantai Karangsari, dan Pantai Singkih Dobolan Beach, Sedari Beach, Karangsari Beach, and Singkih Beach	SSPLT: 14 Desember 2020 dan 10 Februari 2021 SSPLT: 14 December 2020 and 10 February 2021	100%
3	Lahan Karawang 3 Karawang Land 3	Pantai Sarakan dan Pantai Bungin Sarakan Beach and Bungin Beach	SSPLT: 10 Februari 2021 SSPLT: 10 February 2021	100%
4	Substrat Kepulauan Seribu Seribu Islands Substrate	Substrat: Pulau Untung Jawa, Pulau Rambut, dan Pulau Lancang Substrate: Untung Jawa Island, Rambut Island, and Lancang Island	SSPLT: 30 Agustus 2021 SSPLT: 30 August 2021	100%
	Substrat Karawang – Bekasi	Substrat: Segar Jaya (Kab. Karawang) dan Pantai Bakti (Kab. Bekasi) Substrate: Segar Jaya (Karawang Regency) and Bakti Beach (Bekasi Regency)	SSPLT: 30 Agustus 2021 SSPLT: 30 August 2021	100%
5	Pengayaan Mangrove Karawang – Bekasi Mangrove enrichment in Karawang – Bekasi	Mangrove: Sukajaya, Mekarpohaci, Pusaka Jaya Utara, Sedari, Tambaksari, Segar Jaya, Pantai Bahagia, dan Pantai Bakti Mangroves: Sukajaya, Mekarpohaci, North Pusaka Jaya, Sedari, Tambaksari, Segar Jaya, Happy Beach, and Bakti Beach	Verlap KLHK 7-9 April 2021. Submit Final Report 7 Juni 2021 MEF's Field Verification on 7-9 April 2021 Final Report submission on 7 June 2021	100%
	Pengayaan Mangrove Karawang – Bekasi Mangrove enrichment in Karawang – Bekasi	Mangrove: Sukajaya, Mekarpohaci, Pusaka Jaya Utara, Sedari, Tambaksari, Segar Jaya, Pantai Bahagia, dan Pantai Bakti Mangroves: Sukajaya, Mekarpohaci, North Pusaka Jaya, Sedari, Tambaksari, Segar Jaya, Happy Beach, and Bakti Beach	Verlap KLHK 7-9 April 2021. Submit Final Report 7 Juni 2021 MEF's Field Verification on 7-9 April 2021 Final Report submission on 7 June 2021	100%
6	Lahan Tanjung Sari	Tanjung Sari Bagian 1, 2, dan 3 Tanjung Sari Sections 1, 2, and 3	SSPLT: 30 Agustus 2021 SSPLT: 30 August 2021	100%

No	RPFLH/Arahan KLHK RPFLH/KLHK Directive	Covered Area Covered Area	Status Pemulihan per 31 Desember 2021 Recovery Status as of 31 December 2021	Progres Progress
7	Lahan Kepulauan Seribu	Pulau Untung Jawa – Area 1 dan 2, serta Pulau Rambut – Area 1 dan 2 Untung Jawa Island – Areas 1 and 2, and Rambut Island – Areas 1 and 2	Pulau Untung Jawa: SSPLT 30 Agustus 2021 Pulau Rambut: SSPLT 13 Desember 2021 Untung Jawa Island: SSPLT 30 August 2021 Rambut Island: SSPLT 13 December 2021	100%
8	Lahan Banten	Pantai Muara serta Pulau Panjang 1, 2, dan 3 Muara Beach and Panjang Island 1, 2, and 3	SSPLT: 13 Desember 2021 SSPLT: 13 December 2021	100%
9	Substrat <i>Mangrove</i> Mangrove Substrate	Substrat: Desa Kronjo Substrate: Kronjo Village	SSPLT: 30 Agustus 2021 SSPLT: 30 August 2021	100%
	Pengayaan <i>Mangrove</i> Banten Mangrove Enrichment in Banten	<i>Mangrove</i> : Desa Muara, Desa Tanjung Burung, Desa Karangantu, Pulau Tunda, Pulau Panjang, dan Pulau Sangiang Mangroves: Muara Village, Tanjung Burung Village, Karangantu Village, Tunda Island, Panjang Island, and Sangiang Island	Penanaman <i>Mangrove</i> dan <i>Final Report</i> telah selesai dilaksanakan Mangrove planting and Final Report have been completed	100%
10	Lahan Kepulauan Seribu Tahap 2 Seribu Islands Land Stage 2	Pulau Burung, Pulau Tikus, Pulau Tidung Kecil, Pulau Tidung Besar Area Timur, Tengah, dan Barat, Pulau Pari Area Barat, Tengah, dan Timur, serta Pulau Payung Bagian Dalam, Tengah, dan Luar Burung Island, Tikus Island, Tidung Kecil Island, East, Central and West areas of Tidung Besar Island, West, Central and East areas of Pari Island, and Inner, Middle and Outer areas of Payung Island	SSPLT: 17 Januari 2022 SSPLT: 17 January 2022	100%



Pembayaran Kompensasi Tumpahan Minyak Sumur YYA-1 per 31 Desember 2021

YYA-1 Well Oil Spill Compensation Payment per 31
December 2021

Jumlah Kabupaten/Kota
Total Regency/City

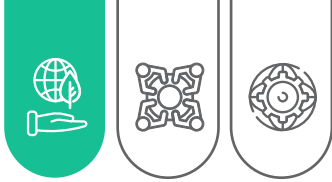
7

Nilai Kompensasi (USD)
Compensation Value (USD)

12,6 Juta | Million

Jumlah Penerima Kompensasi
Total Compensation Recipients

20.000



Offshore Well-Management

Offshore Well-Management

Kegiatan eksplorasi dan produksi migas PHE Subholding Upstream juga dilakukan di lepas pantai. Keberadaan sumur dan anjungan di lepas pantai juga berdampak kepada kawasan perairan di sekitarnya. Untuk meminimalkan dampak yang ditimbulkan dan meminimalkan jejak lingkungan, pengelolaan sumur lepas pantai dilakukan sejak perencanaan hingga setelah selesai beroperasi.

PHE Subholding Upstream's oil and gas exploration and production activities are also carried out offshore. The offshore wells and platforms also have an impact on the surrounding waters. To minimize the impact and environmental footprint, offshore wells are managed from the planning stage to after operations have concluded.



Pengelolaan Sumur Lepas Pantai dalam kegiatan praoperasional, operasional dan pascaoperasional mengacu pada Pedoman Pengelolaan *Well Integrity*, yang diberlakukan sejak Januari 2021. Pengelolaan sumur lepas pantai dilakukan di bawah koordinasi Fungsi Produksi sebagai pemilik aset dan Fungsi Drilling Well Intervention.

Offshore Well Management refers to the Well Integrity Management Guidelines, which have been in effect since January 2021 in pre-operational, operational, and post-operational activities. Offshore well management is coordinated by the Production Function as the asset owner and the Drilling Well Intervention Function.

Pengelolaan Wilayah Operasi Non-aktif

Non-Active Operational Area Management

Selama periode pelaporan, PHE Subholding Upstream mengelola fasilitas anjungan non-aktif melalui perawatan secara periodik untuk memastikan kepatuhan pada aspek keselamatan dan lindungan lingkungan. Perencanaan untuk Kegiatan Pasca Operasi (KPO) dilakukan bersama dengan regulator, baik SKK MIGAS, Ditjen Migas, dan para pemangku kepentingan yang mengatur perizinan, dengan tetap mengedepankan aspek LST. Pengelolaan kegiatan pascaoperasi mengacu kepada aturan PTK 040 SKK Migas Tahun 2018 dan Permen ESDM Nomor 15 Tahun 2018, dan PMK No. 140/PMK.06/2020 tentang Pengelolaan Barang Milik Negara Hulu Minyak dan Gas Bumi.

Selama periode pelaporan, terdapat *feasibility study* KPO di beberapa Wilayah Kerja sebagai hasil kolaborasi dengan Pusat Riset Kelautan, Kementerian Kelautan dan Perikanan, serta lembaga akademisi di luar negeri dalam melakukan upaya kajian perencanaan *decommissioning* dan pemanfaatan kembali anjungan lepas pantai non-aktif. Saat ini masih berlangsung inisiasi kegiatan serupa dengan badan riset tersebut untuk Wilayah Kerja yang lain.

PHE Subholding Upstream managed inactive platform facilities during the reporting period through scheduled maintenance to ensure compliance with safety and environmental protection requirements. Post-operational activities (KPO) are planned in collaboration with regulators, including SKK MIGAS, the Directorate General of Oil and Gas, and stakeholders who regulate licensing, while still prioritizing ESG aspects. Post-operational activities are managed in accordance with the provisions of PTK 040 SKK Migas 2018 and Minister of Energy and Mineral Resources Regulation No. 15 of 2018, and and PMK No. 140/PMK.06/2020 concerning the Management of State-Owned Property of Upstream Oil and Gas.

Several KPO feasibility studies were conducted during the reporting period due to collaboration with the Marine Research Center, the Ministry of Marine Affairs and Fisheries, and academic institutions abroad to conduct decommissioning planning studies and re-utilization of inactive offshore platforms. Other Work Areas are currently in the process of initiating similar activities with research agencies.





► PENGELOLAAN DAN PENGOLAHAN LIMBAH

Waste Management and Treatment

Pengelolaan Topik Material ^[3-3]

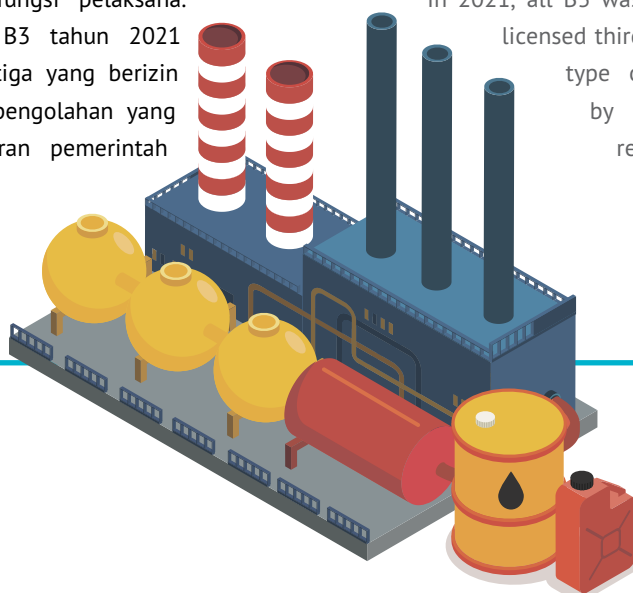
Material Topic Management

Kegiatan eksplorasi dan produksi migas PHE Subholding Upstream, baik di daratan maupun lepas pantai, berpotensi menimbulkan limbah yang berdampak terhadap lingkungan di sekitarnya. Timbulan limbah berasal dari setiap tahapan eksplorasi dan produksi, dalam bentuk cairan dan padatan, baik mengandung bahan berbahaya dan beracun (B3) maupun non-B3. Kami mengelola dan mengolah limbah tersebut dengan mengurangi timbulan limbah terutama B3, dan meningkatkan rasio pengolahan limbah (*reduce, reuse, recycle*). Kinerja pengelolaan dan pengolahan limbah dievaluasi melalui mekanisme pelaporan berkala kepada pihak-pihak berwenang, penilaian PROPER KLHK, dan pencapaian target indikator kinerja kunci (KPI) fungsi pelaksana. Keseluruhan limbah B3 tahun 2021 diolah oleh pihak ketiga yang berizin sesuai dengan jenis pengolahan yang berlaku pada peraturan pemerintah yang terkait.

[OGSS-11.5.1]

PHE Subholding Upstream oil and gas exploration and production activities, both onshore and offshore, have the potential to generate waste that has an impact on the surrounding environment. Each stage of exploration and production generates waste in the form of liquids and solids, both of which contain hazardous and toxic (B3) and non-B3 materials. We manage and process this waste by reducing waste generation, particularly B3, and increasing waste treatment ratios (*reduce, reuse, recycle*). Waste management and treatment performance is assessed through periodic reporting to authorities, the PROPER assessment conducted by KLHK, and the achievement of key performance indicator (KPI) targets for implementing functions.

In 2021, all B3 waste was processed by a licensed third party according to the type of processing required by applicable government regulations. [OGSS-11.5.1]



Pengelolaan dan Pengolahan Timbunan Limbah [OGSS-11.5.3] [OGSS-11.5.2] [306-1]

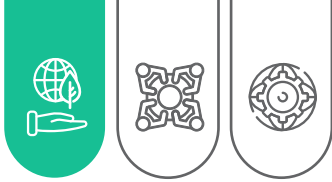
Waste Generation Management and Treatment

Timbunan limbah dari kegiatan eksplorasi dan produksi migas terdiri dari limbah B3 (Bahan Beracun dan Berbahaya) dan limbah non-B3. Pengelolaan dan pengolahan limbah dilakukan sesuai prinsip 3R, yakni mengurangi (*reduce*), penggunaan kembali (*reuse*), dan daur ulang (*recycle*) sesuai tahapan kegiatan khusus untuk limbah non-B3. Pada limbah B3, pengelolaan dan pengolahan limbah dilaksanakan sesuai dengan izin yang dimiliki oleh setiap unit usaha untuk masing-masing jenis limbah. Kegiatan pengolahan limbah *reuse* dan *recycle* dilakukan di *onsite*, sedangkan limbah yang dikelola oleh pihak ketiga dan TPA dilakukan di *offsite*. Limbah yang diinsinerasi dan di-*landfilling* dilakukan oleh pihak ketiga. PHE Subholding Upstream telah melakukan identifikasi dampak aktual maupun potensial terhadap risiko yang muncul dari limbah yang dihasilkan. Identifikasi ini dilakukan untuk merencanakan jenis pengolahan dari masing-masing limbah tersebut dengan proses eliminasi, substitusi, *engineering*, dan administratif. Harapannya, limbah yang dihasilkan dalam setiap kegiatan di Perusahaan dapat meminimalisasi dampak terhadap lingkungannya dengan seminimal mungkin.

Pengelolaan lanjutan oleh pihak ketiga dipastikan memiliki izin dari KLHK, berdasarkan kontrak yang telah disepakati dengan masing-masing Anak Perusahaan. Seluruh proses yang dilakukan oleh pihak ketiga dipantau dan diawasi Fungsi HSSE dan Operation pada masing-masing Anak Perusahaan dan dilaporkan secara berkala kepada pihak-pihak berwenang. Selain itu, kami juga mengelola limbah dengan melakukan penggantian bahan kimia yang lebih ramah lingkungan (*replace*) dan pengembalian drum bekas bahan kimia kepada pemasok (*return to supplier*).

B3 waste (Toxic and Hazardous Materials) and non-B3 waste are produced by oil and gas exploration and production activities. Waste management and processing are conducted in accordance with the 3R principles of reducing, reusing, and recycling in accordance with the phases of special activities for non-B3 waste. Waste management and treatment for B3 waste is conducted in accordance with the permits held by each business unit for each waste type. Reuse and recycling waste processing occurs on-site, while waste management by third parties and disposal in landfills occurs off-site. A third party is responsible for the incineration and landfilling of trash. PHE Subholding Upstream has identified the actual and potential risks posed by the generated waste and their impacts. This identification is performed in order to plan the type of treatment for each of these wastes through elimination, substitution, engineering, and administrative procedures. It is hoped that the waste generated by all Company activities will have a minimal impact on the environment.

On the basis of a contract with each of the Subsidiaries, a third party with a permit from KLHK conducts further management. All third-party processes are monitored and supervised by the HSSE and Operational Functions of each Subsidiary, and are reported to the authorities on a regular basis. In addition, we manage waste by replacement of chemicals that are more environmentally friendly (*replace*) and return of used chemical drums to suppliers (*return to supplier*).



Selama tahun 2021, di dalam cakupan Wilayah Kerja PT Pertamina Hulu Energi (PHE) dihasilkan volume limbah B3 yang diangkut pihak ketiga untuk diolah lanjut mencapai 1,13 ribu ton. Adapun total volume limbah non-B3 di tahun 2021 di dalam cakupan Wilayah Kerja PT Pertamina Hulu Energi (PHE) adalah 1,72 ribu ton. Data volume timbulan limbah pada tahun 2021 diperoleh dari masing-masing Anak Perusahaan, yang dilaporkan berkala kepada Regional, serta kepada PHE sebagai Subholding Upstream. Dalam proses pengelolaan selama tahun 2021 tidak ada tumpahan dari material limbah yang membahayakan lingkungan. PHE Subholding Upstream tidak memiliki *tailings* dan fasilitas *tailings* di seluruh Regional dan Anak Perusahaan. Detail mengenai jumlah limbah yang dikelola, dapat merujuk pada lampiran. [POJK51-6] [306-2] [306-3] [OGSS11-11.5.3] [OGSS11-11.5.4] [OGSS11-11.8.4]

Throughout 2021, the volume of B3 waste transported by third parties for further processing within the PT Pertamina Hulu Energi (PHE) Work Area totaled 1.13 thousand tons, while 1.72 thousand tons of non-B3 waste were generated within the PT Pertamina Hulu Energi (PHE) Work Area. Each Subsidiary provides periodic updates to the Regional and PHE as Subholding Upstream regarding the volume of waste generated in 2021. No environmental-damaging waste spills were found during the management process in 2021. PHE Subholding Upstream does not have tailings and tailings facilities among its Regionals and Subsidiaries. Detail regarding the total waste managed can be found in the appendix. [POJK51-6] [306-2] [306-3] [OGSS11-11.5.3] [OGSS11-11.5.4] [OGSS11-11.8.4]

- ☐ **Sampai dengan akhir tahun 2021, PHE Subholding Upstream tidak melakukan kegiatan perekahan hidrolik (*hydraulic fracturing*) dari sumber hidrokarbon non-konvensional untuk mendapatkan minyak serpih maupun gas serpih, di wilayah operasi di Indonesia. Dengan demikian, Laporan ini tidak menyertakan pengungkapan informasi terkait pemakaian fluida, bahan kimia, maupun pemakaian air untuk kegiatan perekahan hidrolik di wilayah operasi di Indonesia, beserta strategi perencanaan dan pengelolaan risiko dan peluang.**
- ☐ **Until the end of 2021, PHE Subholding Upstream did not carry out hydraulic fracturing activities from non-conventional hydrocarbon sources to obtain shale oil or shale gas in operating areas in Indonesia. Therefore, this Report does not include disclosure of information related to the use of fluids, chemicals, or water use for hydraulic fracturing activities in operational areas in Indonesia, as well as planning strategies and managing risks and opportunities.**

▶ PEMANFAATAN AIR DAN PENGELOLAAN EFLUEN

Water Use and Effluent Management

Pengelolaan Topik Material ^[3-3] Material Topic Management

Air dibutuhkan untuk kegiatan operasi, produksi, dan pendukung. Kebutuhan air dipenuhi dari berbagai sumber air, baik air tanah maupun air permukaan sehingga berpotensi menimbulkan dampak kepada masyarakat yang menggunakan sumber air sama. Kami berkomitmen melakukan efisiensi pemakaian air dan mendukung konservasi sumber daya air di WK setiap Anak Perusahaan. Selama tahun 2021, di dalam cakupan Wilayah Kerja PT Pertamina Hulu Energi (PHE) tercatat pemakaian air sebanyak 176.028,68 m³ atau 1.760,29 megaliter. Seluruh proses pengambilan air, pemanfaatan air, serta pengolahan efluen dan pelepasannya ke badan air dipantau berkala oleh Fungsi HSSE dan Operation di masing-masing Anak Perusahaan dan dilaporkan berkala kepada pihak-pihak berwenang. Kami melibatkan pemangku kepentingan dalam pengelolaan sumber air, terutama masyarakat yang menggunakan sumber air, para pekerja, serta pemangku kepentingan lain. Informasi detail mengenai pengambilan air berdasarkan sumber dapat dilihat pada lampiran. ^[OGSS-11.6.1]

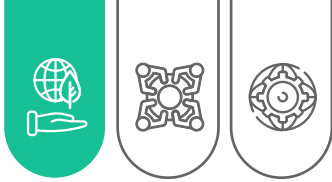
Wilayah Kerja PHE Subholding Upstream berada di daratan dan di lepas pantai. Kebutuhan air antara lain dipenuhi dari sumber air permukaan, baik sungai, danau, maupun laut. Beberapa sumber air permukaan juga digunakan dan dimanfaatkan masyarakat setempat sehingga pengambilan dan pemanfaatan air oleh Perusahaan memberikan dampak terhadap mereka. Perusahaan dalam penarikan air dari sumber air sangat memperhatikan izin dan juga pembayaran retribusi terkait dengan pemanfaatan air. ^[303-1]

Kami memanfaatkan air dari sumber air dengan tetap memperhatikan kebutuhan air untuk masyarakat. Masing-masing Anak Perusahaan juga melakukan upaya mitigasi dengan melibatkan masyarakat, pekerja, dan pihak-pihak berwenang, untuk memastikan proses berbagi sumber air dengan masyarakat berjalan dengan baik. ^[303-1]

Water is required for operations, production, and support activities. Water requirements are met through various water sources, both ground and surface, which has the potential to affect people who share a water source. We are committed to water efficiency and the conservation of water resources in each Subsidiary's WK. PT Pertamina Hulu Energi (PHE) consumed 176,028.68 m³ or 1,760.29 megaliters of water in its operating area in 2021. The HSSE and Operations Function in each Subsidiary monitor the entire process of obtaining water, utilizing water, as well as effluent treatment and its release to bodies of water periodically, reporting to the authorities on a regular basis. We involve all stakeholders in water resource management, particularly the community who use the water sources, employees, and other stakeholders. Detailed information on Water intake (freshwater) by source can be seen in the appendix. ^[OGSS-11.6.1]

The PHE Subholding Upstream Work Area operates onshore and offshore. Among other sources of water, surface water sources such as rivers, lakes, and seas are used to meet water needs. Several surface water sources are also used and utilized by local communities, which means that the Company's water extraction and utilization affects them. Companies withdrawing water from water sources are very concerned about permits and paying retribution for water use. ^[303-1]

We utilize water from natural sources while also considering the community's water needs. Additionally, each Subsidiary engages in mitigation efforts by involving community members, employees, and authorities to ensure that the process of sharing water resources with the community runs smoothly. ^[303-1]



Pelibatan Pemangku Kepentingan dalam Pemanfaatan Air ^[303-1]

Stakeholder Engagement in Water Use

Pemerintah / Pemerintah Daerah

Government / Regional Government

Pengambilan Air

Water Intake

- Pemenuhan Perizinan
- Peraturan Pemerintah (PP) Nomor 122 Tahun 2015 tentang Pengusahaan Sumber Daya Air
- Ketentuan turunan, sesuai masing-masing daerah
- Pemantauan dan pengukuran
- Permit Fulfillment
- Government Regulation No. 122 of 2015 concerning Water Resources Management
- Derivative provisions, based on each region
- Monitoring and measurement

Pengolahan Air Bekas Pakai

Used Water Treatment

- Pemenuhan Perizinan
- Pemantauan dan pengukuran parameter kualitas olahan air limbah
- Sesuai Peraturan Menteri Lingkungan Hidup Nomor 19 Tahun 2010 tentang Baku Mutu Air Limbah bagi Usaha dan/atau Kegiatan Minyak dan Gas serta Panas Bumi
- Permit Fulfillment
- Monitoring and measuring wastewater treatment quality parameters
- In accordance with the Minister of Environment Regulation No. 19 of 2010 concerning Wastewater Quality Standards for Oil and Gas and Geothermal Businesses and/or Activities

Pelepasan ke Badan Air

Discharge Into Bodies of Water

- Persetujuan teknis pembuangan air limbah
- Sesuai Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.102/MENLHK/SETJEN/KUM.1/11/2018 tentang Tata Cara Perizinan Pembuangan Air Limbah Melalui Pelayanan Perizinan Berusaha Terintegrasi secara Elektronik
- Technical approval of wastewater disposal
- In accordance with Minister of Environment and Forestry Regulation No. P.102/MENLHK/SETJEN/KUM.1/11/2018 concerning Procedures for Licensing Wastewater Disposal Through Electronically Integrated Business Licensing Services

Masyarakat

Community

Sosialisasi

Socialization

Pemantauan dan pengukuran

Monitoring and measurement

Penerimaan keluhan dan tindak lanjut

Receipt and follow-up of complaints

Kami juga melanjutkan penerapan kebijakan efisiensi pemakaian air yang diukur berdasarkan Intensitas Pemakaian Air. Selama tahun 2021, tidak ada WK PHE Subholding Upstream yang beroperasi di daerah rawan air sehingga tidak ada penghitungan khusus volume air maupun debit air terambil dari daerah rawan air. Kami juga belum melakukan penghitungan perubahan volume air tersimpan pada masing-masing sumber air terpakai. Sebagian besar air yang diambil dari setiap sumber air merupakan air baru, namun kami juga menggunakan air terproduksi yang telah diolah untuk proses injeksi kembali.

[303-1] [303-3][303-5] [OGSS-11.6.3] [ENV-1 C4]

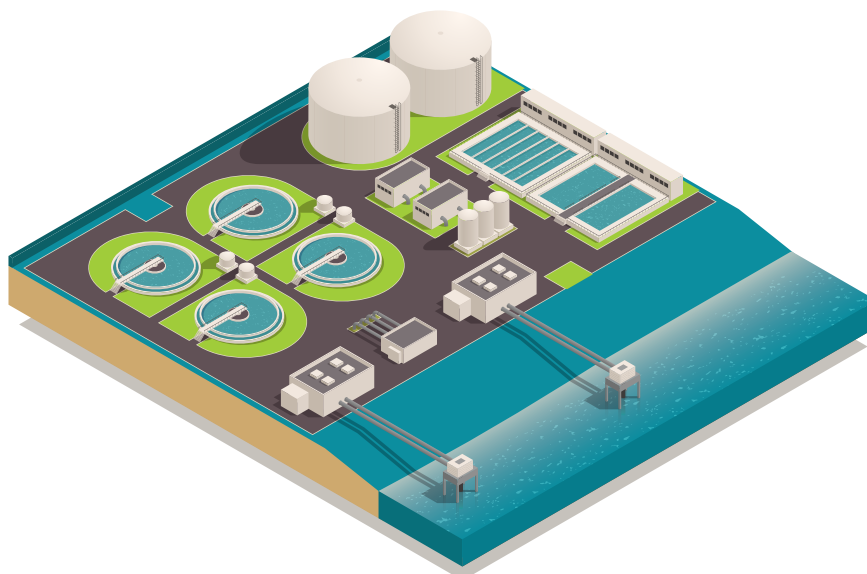
Furthermore, we continue to implement a water efficiency policy that is measured by Water Use Intensity. Due to the absence of PHE Subholding Upstream WKs operating in water-prone areas in 2021, no special water volume calculation or discharge from water-prone areas was performed. Additionally, we did not account for changes in the volume of water stored in each water source. Although the majority of the water drawn from each source is fresh, we also use treated produced water in the re-injection process. [303-1] [303-3][303-5] [OGSS-11.6.3] [ENV-1 C4]

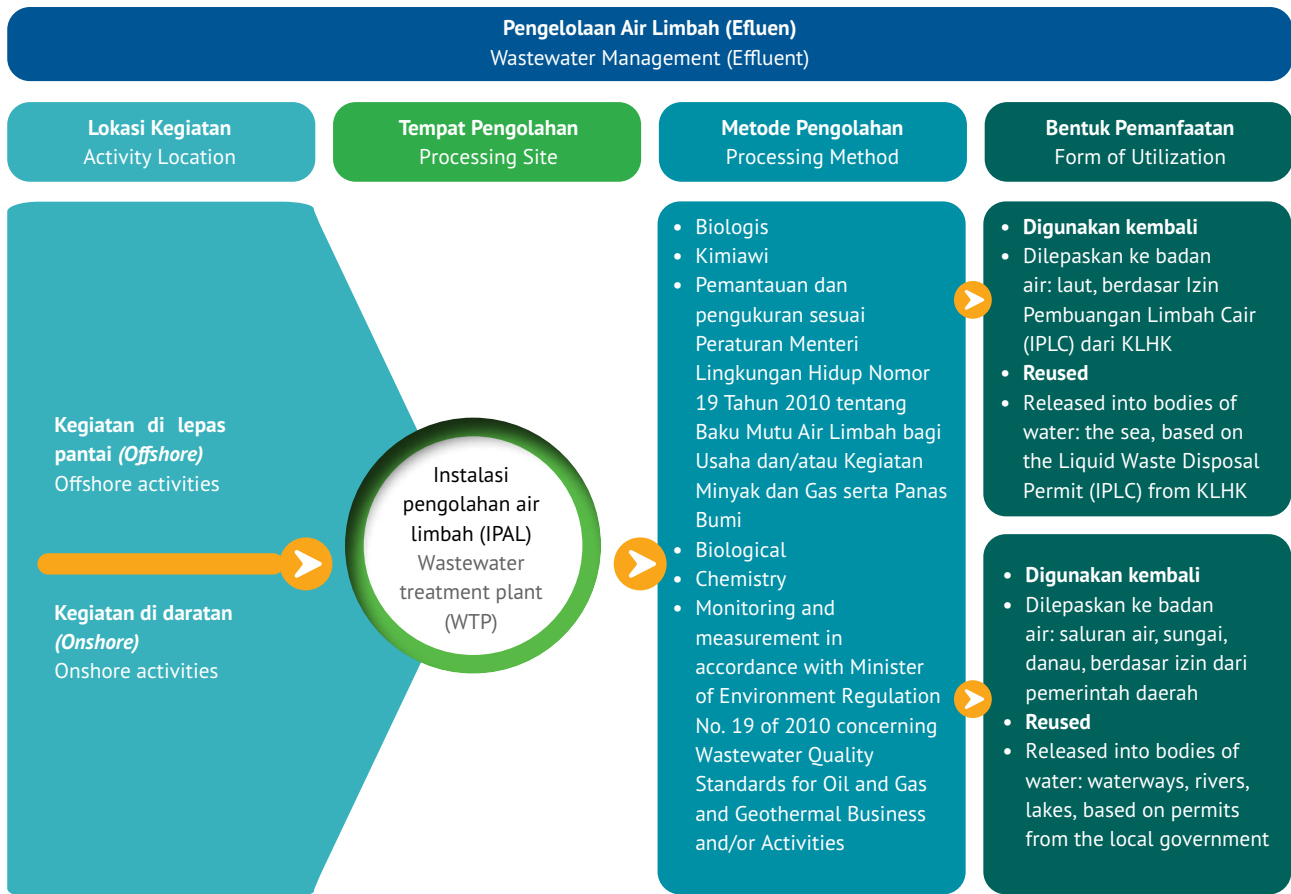
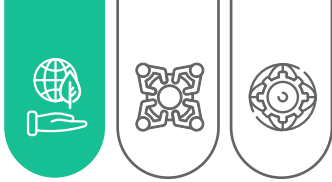
Pengelolaan Efluen

Effluent Management

Setiap Anak Perusahaan memiliki instalasi pengolahan air limbah (IPAL), untuk mengolah air limbah (efluen) sehingga memenuhi baku mutu yang ditetapkan Pemerintah. Secara berkala, kami memantau dan mengukur kualitas olahan efluen, sesuai Peraturan Menteri Lingkungan Hidup Nomor 19 Tahun 2010 tentang Baku Mutu Air Limbah bagi Usaha dan/atau Kegiatan Minyak dan Gas serta Panas Bumi. Tidak ada proses pelepasan efluen dengan tekanan air ke badan air, yang dapat merusak lapisan permukaan tanah maupun dasar badan air. Selama periode pelaporan, PHE Subholding Upstream tidak menerima sanksi denda maupun sanksi hukum lain karena sangkaan pencemaran air pada badan air akibat pelepasan olahan efluen. [POJK51-6] [303-2] [OGSS-11.6.3]

Each Subsidiary operates a wastewater treatment plant (WTP) to treat wastewater (effluent) to meet the Government's quality standards. We monitor and quantify the quality of processed effluents regularly in accordance with Minister of Environment Regulation No. 19 of 2010 concerning Wastewater Quality Standards for Oil and Gas and Geothermal Business and/or Activities. There is no process for releasing effluent into bodies of water using water pressure, which can cause damage to the soil's surface layer and the water body's bottom. PHE Subholding Upstream did not receive any fines or other legal sanctions during the reporting period in connection with allegations of water pollution in bodies of water caused by the release of processed effluent. [POJK51-6] [303-2] [OGSS-11.6.3]





Kegiatan eksplorasi dan produksi migas juga menimbulkan air terproduksi, yang kemudian dikelola dengan cara diolah dengan perlakuan khusus. Tujuannya agar kandungan di dalam air terproduksi memenuhi baku mutu yang ditetapkan dalam Peraturan Menteri Lingkungan Hidup Nomor 19 Tahun 2010 tentang Baku Mutu Air Limbah bagi Usaha dan/atau Kegiatan Minyak dan Gas serta Panas Bumi. Air terproduksi yang telah diolah kemudian diinjeksi kembali ke sumur minyak dan ada pula yang dilepaskan ke badan air.

[OGSS-11.6.5] [ENV-2-C1]

Di tahun 2021, PHE Subholding Upstream telah menginjeksikan kembali air terproduksi yang telah diolah sebesar 319,95 juta m³ atau 37% dari total air terproduksi yang dihasilkan, dengan 552,99 juta m³ yang dilepas ke badan air. Dari kegiatan tersebut, sebesar 3,6 ppm hidrokarbon terkandung di dalam air terproduksi. Adapun kegiatan injeksi ini juga bertujuan untuk *Pressure Maintenance* dan EOR (*Enhanced Oil Recovery*). [OGSS-11.6.5] [EM-

EP-140a.2] [ENV-2 C1]

Additionally, oil and gas exploration and production generate produced water, which must be managed through special treatment. The objective is for the produced water to meet the quality standards specified in Minister of Environment Regulation No. 19 of 2010 concerning Wastewater Quality Standards for Oil and Gas and Geothermal Business and/or Activities. After being treated, produced water is reinjected into oil wells, and some are released into bodies of water.

[OGSS-11.6.5] [ENV-2-C1]

In 2021, PHE Subholding Upstream reinjected 319.95 million m³ of processed produced water, or 37% of total produced water, with 552.99 million m³ released into bodies of water. From these activities, 3.6 ppm of hydrocarbons are contained in the produced water. Additionally, the injection activity was directed toward Pressure Maintenance and EOR (Enhanced Oil Recovery). [OGSS-11.6.5] [EM-EP-140a.2] [ENV-2 C1]

Pemakaian Air pada *Mature Field*

Water Consumption in Mature Fields

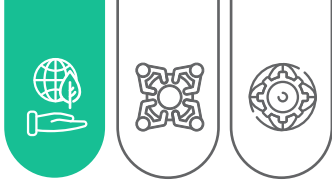
Pemakaian air pada *mature field*, yakni lapangan yang telah cukup lama diproduksi digunakan sebagai material untuk kegiatan EOR dengan metode *water flooding* pada perolehan sekunder. Pada periode pelaporan, kegiatan EOR dengan metode *water flooding* dilakukan pada 8 (delapan) *mature field*, dengan total volume air terpakai mencapai 127,58 juta m³.

Water is used as a material for EOR activities in mature fields, i.e. fields that have been produced for a long time, using the water flooding method for secondary recovery. EOR activities using the water flooding method were carried out in 8 (eight) mature fields during the reporting period, with a total volume of water used reaching 127.58 million m³.

Pelaksanaan *Water Flooding* pada *Mature Field*

Implementation of Water Flooding in Mature Fields

Lapangan Field	Sumber Air Terpakai Used Water Source	Volume Air Terpakai (juta m ³) Volume of Used Water (million m ³)
Rantau	Produksi air struktur Rantau Water production of Rantau structure	30,14
Jirak	Produksi air struktur Jirak ditambah produksi Struktur Sopa dan Musi Water production of Jirak structure plus Sopa and Musi structure production	7,30
Belimbing	Produksi air struktur Belimbing Water production of Belimbing structure	25,14
Ramba	Produksi air struktur Ramba Water production of Ramba structure	47,54
North East Air Serdang (PHE OK)	Produksi air struktur North East Air Serdang Water production of North East Air Serdang structure	11,45
Meruap	Produksi air struktur Meruap Water production of Meruap structure	1,67
Handil	Produksi air struktur Handil Water production of Handil structure	1,98
Tanjung	Produksi air struktur Tanjung Water production of Tanjung structure	2,36



Mekanisme Pengaduan Masalah Pengelolaan Lingkungan

Complaint Mechanism for Environmental Management Problems

Kami memberikan akses kepada masyarakat maupun pemangku kepentingan lain untuk menyampaikan pengaduan/keluhan terkait pengelolaan lingkungan. Pengaduan/keluhan dapat disampaikan melalui Kantor Pusat PHE di Jakarta, maupun kepada kantor operasional masing-masing Anak Perusahaan yang ada di WK mereka. Pada tahun 2021, tidak ada keluhan signifikan yang diterima PHE Subholding Upstream terkait pencemaran lingkungan maupun masalah pengelolaan lingkungan lainnya. [POJK51-6.e.6]

Seluruh kegiatan pekerjaan yang akan dilakukan oleh Perusahaan selalu melibatkan masyarakat pada tahap awal pelaksanaan sehingga selama tahun 2021, Perusahaan tidak pernah memiliki suatu pekerjaan yang ditunda dengan alasan non-teknis lainnya. Maka dari itu dapat dikatakan bahwa Perusahaan menjalankan seluruh kegiatan operasional dengan bertanggung jawab dan memperimbangkan aspek masyarakat. [EM-EP-210b.2]

We provide access to the public and other stakeholders to submit complaints/grievances related to environmental management. Complaints/grievances may be submitted to the PHE Head Office in Jakarta and each Subsidiary's operational offices in their respective WK. PHE Subholding Upstream received no significant complaints in 2021 regarding environmental pollution or other issues relating to environmental management. [POJK51-6.e.6]

The community is always involved in the initial stages of implementation for all work activities to be performed by the Company. Consequently, the Company never had a job delayed for non-technical reasons in 2021. Therefore, it can be asserted that the Company conducts all operational activities responsibly and takes community concerns into account. [EM-EP-210b.2]





HARMONI BERSAMA PEKERJA DAN MASYARAKAT HARMONY WITH EMPLOYEES AND THE COMMUNITY

Bergerak di sektor hulu minyak dan gas, PHE Subholding Upstream mengutamakan keselamatan dan kesehatan kerja, serta keselamatan proses seluruh kegiatan bisnis, mendorong para pekerja untuk berkembang menjadi talenta-talenta unggul, serta berkomitmen memberdayakan masyarakat di sekitar wilayah kerja Perusahaan.

PHE Subholding Upstream, which operates in the upstream oil and gas sector, prioritizes occupational safety and health, as well as process safety, in all business activities. We also encourage employees to develop into superior talents and are committed to empowering communities in which the Company operates.



➤ KESELAMATAN DAN KESEHATAN KERJA (K3) UNTUK LINGKUNGAN KERJA AMAN [POJK51-6.C.2.C]

Occupational Health and Safety (OHS) for a Safe Work Environment

Pengelolaan Topik Material [3-3]

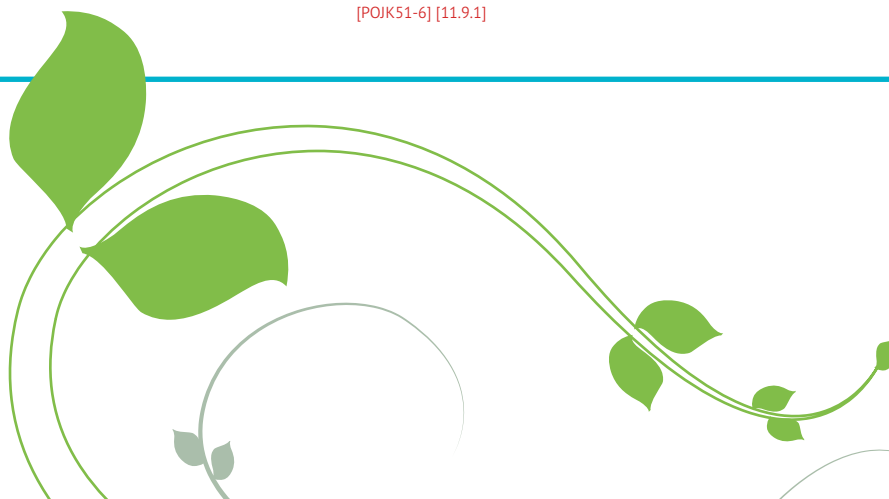
Material Topic Management

Penerapan keselamatan dan kesehatan kerja (K3) mendukung terciptanya lingkungan kerja aman serta kesinambungan operasi dan bisnis PHE Subholding Upstream. Komitmen kami melindungi keselamatan dan kesehatan pekerja dengan menetapkan target nihil insiden fatal, dan meningkatkan jam kerja selamat. Selama tahun 2021 kami telah mengidentifikasi risiko K3 dan melakukan mitigasi untuk mencegah insiden maupun penyakit akibat kerja (PAK), dengan menerapkan HSSE Golden Rules PERTAMINA, dan *Corporate Life Saving Rules* (CLSR). Evaluasi kinerja penerapan K3 dilaksanakan berdasarkan pencapaian target Indikator Kinerja Kunci (KPI) termasuk bagi Direksi, serta implementasi audit Sustainability PERTAMINA Expectations for HSSE Management Excellence (SUPREME). Berdasarkan hasil evaluasi tahun 2021 diketahui, tidak ada kecelakaan kerja yang signifikan, namun terdapat satu kecelakaan kerja yang mengakibatkan salah satu personil meninggal. Penerapan K3 melibatkan para pekerja, kontraktor/pemasok/vendor, atau mitra kerja, dan eksternal *stakeholder*.

[POJK51-6] [11.9.1]

Occupational health and safety (OHS) implementation enables the creation of a safe work environment and the continued operation and business of PHE Subholding Upstream. Our commitment is to safeguard the health and safety of employees by setting a goal of zero fatal incidents and increasing safe working hours. By implementing PERTAMINA's HSSE Golden Rules and Corporate Life Saving Rules (CLSR) in 2021, we identified OHS risks and implemented mitigations to prevent incidents and occupational diseases (OD). OHS implementation is evaluated on the basis of the achievement of Key Performance Indicators (KPI) targets, including those for the Board of Directors, as well as the implementation of the Sustainability PERTAMINA Expectations for HSSE Management Excellence (SUPREME) Sustainability audit. According to the results of the 2021 evaluation, there were no significant workplace accidents. However, one workplace accident resulted in the passing of one personnel. Employees, contractors/suppliers/vendors, or working partners, and the external stakeholder.

[POJK51-6] [11.9.1]



Sistem Manajemen K3 ^[11.9.2]

OHS Management System

Pengelolaan K3 PHE Subholding Upstream mengacu pada kebijakan K3LL/HSSE PT Pertamina (Persero), serta menjadi pemenuhan kepatuhan regulasi, di antaranya Undang-Undang (UU) No.22 Tahun 2001 tentang Minyak dan Gas Bumi. Sesuai ketentuan tersebut, kami berkewajiban menjamin standar dan mutu, menerapkan kaidah keteknikan yang baik, keselamatan dan kesehatan kerja serta pengelolaan lingkungan hidup sesuai dengan Kebijakan K3LL/HSSE PT Pertamina (Persero), HSSE *Golden Rules*, dan CLSR. Kami menerapkan K3LL/HSSE dalam seluruh tahapan kegiatan operasi maupun produksi, dengan melibatkan seluruh pekerja, baik pekerja PHE Subholding Upstream maupun pekerja kontraktor/vendor/pemasok, serta pemangku kepentingan lain yang berada di lokasi Perusahaan berkegiatan. ^{[403-1] [SHS-1 C3]}

PHE Subholding Upstream's OHS management system adheres to PT Pertamina's (Persero) K3LL/HSSE policy and regulatory compliance, including Law No. 22 of 2001 on Oil and Gas. These provisions require us to maintain standards and quality, apply good engineering principles, ensure occupational health and safety, and manage the environment according to PT Pertamina's (Persero) K3LL/HSSE Policy, HSSE *Golden Rules*, and CLSR. We implement K3LL/HSSE at all stages of operations and production, involving all PHE Subholding Upstream employees, contractors/vendors/suppliers, and other stakeholders in the Company's operating locations. ^{[403-1] [SHS-1 C3]}

PHE Subholding Upstream menerapkan sistem manajemen K3

untuk seluruh pekerja, pekerja kontraktor/pemasok/pihak ketiga lainnya. ^{[EM-EP-540a.2] [SHS-1 C3]}

PHE Subholding Upstream implements an OHS management system for all employees, contractors/suppliers/other third parties.



Safety

PERTAMINA sangat memperhatikan aspek-aspek keselamatan dalam bekerja dan beraktivitas. Keselamatan adalah prioritas utama.

PERTAMINA pays great attention to safety aspects at work and activities. Safety is a top priority.

Tujuan: | Objective:

- Tanpa insiden;
- Menghilangkan faktor-faktor risiko kecelakaan kerja
- No incidents;
- Eliminate work accident risk factors

Health

Bagi PERTAMINA, kesehatan adalah aset yang sangat penting dalam bekerja dan beraktivitas. Kami mengadakan program-program untuk mendukung kesehatan pekerja.

For PERTAMINA, health is a valuable asset at work and in activities. We conduct programs to support employee health.

Tujuan: | Objective:

- Mencegah penyakit akibat kerja;
- Menciptakan iklim kerja yang sehat, serta mendukung kesehatan pekerja
- Preventing occupational diseases;
- Creating a healthy work environment, and supporting the health of employees

Standardisasi K3 OHS Standardization



Internal

- SUPREME
- Corporate Life Saving Rules
- Pedoman HSSE
- Contractor Safety Management System (CSMS)

Eksternal | External

- Sistem Manajemen K3 dan Lindung Lingkungan (SMK3LL);
- Sistem Manajemen Pengamanan Peraturan Kapolri No. 24/2007;
- ISO 45001 Sistem Manajemen K3;
- ISRS
- OHS Management System and Environmental Protection (SMK3LL);
- Security Management System Regulation of the National Police Chief No. 24/2007;
- ISO 45001 OHS Management System;
- ISRS



SUPREME dan HSSE Golden Rules [SHS-3 C3] [SHS-7 C1]

SUPREME and HSSE Golden Rules

SUPREME merupakan Sistem Manajemen Pengendalian Risiko yang terintegrasi, terstruktur dan sistematis. SUPREME diterapkan untuk seluruh aktivitas bisnis di berbagai WK serta di *site* proyek yang sedang direncanakan. SUPREME diperlukan untuk memastikan praktik-praktik Sistem & Proses Pengendalian Risiko HSSE terbaik di seluruh Grup PERTAMINA. SUPREME telah ditetapkan sebagai Pertamina Standar (PS) oleh Pertamina Standardization & Certification (PSC) dengan Nomor PS-Sy-0001-15-2019. Saat ini PHE Subholding Upstream menerapkan SUPREME Revisi Ke-1 Tahun 2019 yang menggantikan Pedoman Sistem Manajemen HSSE Pertamina versi sebelumnya (No. A-001/I00200/2011-S0 [Rev. 2]). Di dalam SUPREME, terdapat standar pengelolaan aspek HSSE 'Kelas Dunia' termasuk hal-hal mengenai perbaikan terus menerus (*continuous improvement*) dan keberlanjutan bisnis (*business sustainability*).

SUPREME is a risk management system that is fully integrated, structured, and systematic. SUPREME is applied to all business activities in various WK as well as at project sites that are being planned. SUPREME is required to ensure that the PERTAMINA Group adheres to the highest standards of HSSE Risk Control Systems and Processes. SUPREME has been designated as a Pertamina Standard (PS) by Pertamina Standardization & Certification (PSC) under the designation number PS-Sy-0001-15-2019. PHE Subholding Upstream is currently implementing the SUPREME 1st Revision of 2019, which replaces the previous version of the Pertamina HSSE Management System Guidelines (No. A-001/I00200/2011-S0 [Rev. 2]). SUPREME has 'World Class' management standards for health, safety, and environmental management, including those relating to continuous improvement and business sustainability.

Proses, Ekspektasi, Kelengkapan, dan Tujuan SUPREME
SUPREME Process, Expectations, Completeness, and Objectives

Proses dan Ekspektasi Process and Expectation	Kelengkapan Equipment	Tujuan Objective
Proses 1 Kepemimpinan dan Akuntabilitas Process 1 Leadership and Accountability Proses 2 Kebijakan dan Sasaran Process 2 Policies and Targets Proses 3 Organisasi, Tanggung Jawab, Sumber Daya, dan Dokumen Process 3 Organization, Responsibilities, Resources, and Documents Proses 4 Manajemen Risiko Process 4 Risk Management Proses 5 Perencanaan dan Prosedur Process 5 Planning and Procedure Proses 6 Implementasi dan Pengendalian Operasional Process 6 Operational Implementation and Control Proses 7 Jaminan: Pemantauan, Pengukuran, dan Audit Process 7 Assurance: Monitoring, Measurement, and Audit Proses 8 Tinjauan Process 8 Review	 • Pedoman Implementasi SUPREME • SUPREME <i>Internal Audit Protocol</i> • <i>Continuous Performance Improvement Management Tools</i> • Pedoman Standar Proses-proses Bisnis Utama HSSE. • SUPREME Implementation Guidelines • SUPREME Internal Audit Protocol • Continuous Performance Improvement Management Tools • Standard Guidelines for HSSE Key Business Processes.	HSSE <i>Beyond Culture</i>  Kompetensi pengendalian risiko dan kepatuhan aspek HSSE sebagai "Way of Life" insan PERTAMINA. Risk control competency and compliance with HSSE aspects as the "Way of life" of PERTAMINA personnel.  01 Anda dan Saya PATUH pada hukum, kebijakan, peraturan, dan prosedur You and I COMPLY with laws, policies, regulations, and procedures  02 Anda dan Saya harus segera melakukan INTERVENSI terhadap tindakan tidak aman dan yang menyalahi peraturan You and I must immediately INTERVENE against unsafe acts and those that violate the rules  03 Anda dan Saya PEDULI pada setiap orang di sekitar kita You and I CARE for everyone around us

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Ekspektasi
Expectation



Coorporate Life Saving Rules (CSLR)

Coorporate Life Saving Rules

PHE Subholding Upstream telah menetapkan 15 CSLR yang berasal dari 15 kegiatan berisiko tinggi, yang dapat menimbulkan potensi kecelakaan kerja. Dengan ditetapkan 15 CSLR diharapkan pekerja lebih waspada dalam melakukan persiapan dan pelaksanaan pekerjaan.

PHE Subholding Upstream identified 15 CSLR associated with 15 high-risk activities that may result in work accidents. By establishing these 15 CSLR, it is hoped that employees will be more alert in planning and performing work.

Corporate Life Rules (CSLR)



Top 10 Risk dari Aktivitas Top 10 Risks from Activities

1. Production Activity
2. Well Activity (Including Drilling, Well Service and Work Over)
3. Maintenance Activity
4. Lifting Operation
5. Hot Work
6. Working with High Pressure Equipment
7. Personnel and Equipment Mobilization
8. Working at Height
9. Working in Confined Space
10. Chemical/Hazardous Handling

Top 10 Risk dari Hazard Category Top 10 Risks from the Hazard Category

1. Hydrocarbon Material Release
2. Microorganism
3. Moving, Failing & Flying Object
4. Pinched
5. Moving & Rotary Machinery
6. Pressurized System
7. Transportation (Dynamic Situation)
8. Falling from Height
9. Other Liquid Spill

Pengelolaan Risiko Terkait K3 [EM-EP-320a.2]

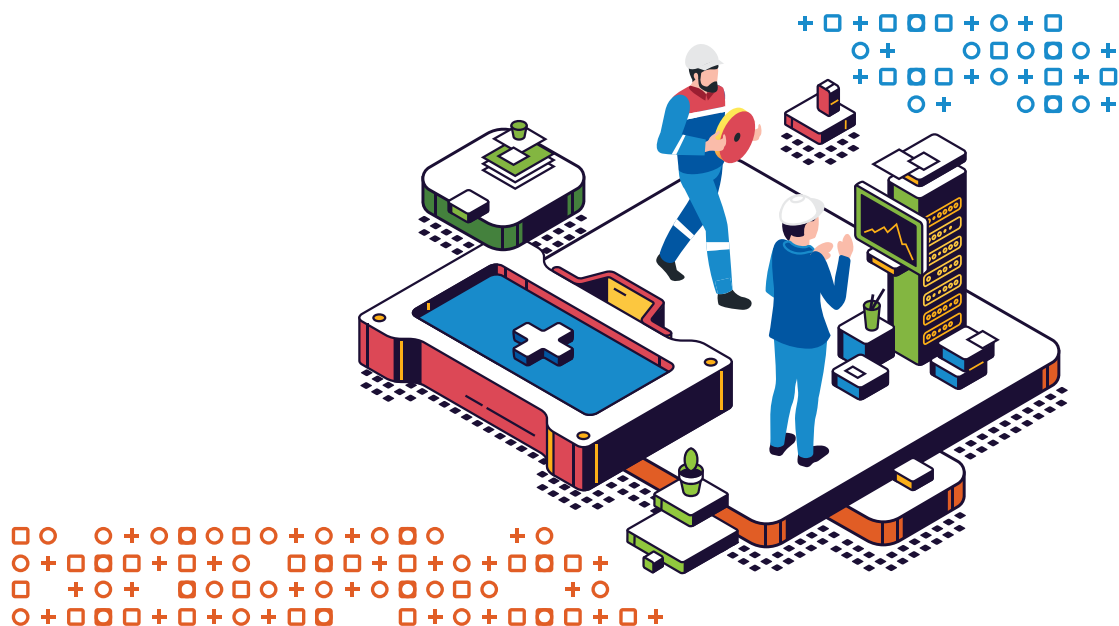
OHS Risk Management

Proses identifikasi potensi bahaya dan risiko terkait K3 dilakukan dengan melalui beberapa tahap dan level yaitu *Business Risk*, *HSSE Risk Register*, *Major Accident Hazard* dan *Kajian Risiko Spesifik* (TRA, HAZOP, JRMP, dan lain-lain) serta melibatkan fungsi-fungsi terkait, yang didukung pekerja dengan kompetensi khusus. Secara berkala kami melakukan monitoring terhadap pengelolaan potensi bahaya dan risiko tersebut. [403-2][11.9.3]

Pekerja berkewajiban melaporkan kepada pimpinan setempat bila mendapatkan kondisi kerja berbahaya (*unsafe action & unsafe condition*), dan dapat mengajukan permohonan meninggalkan kondisi tersebut. Selama tahun 2021 pekerja telah melaporkan kondisi kerja berbahaya melalui mekanisme sistem pelaporan PEKA (Pengamatan Keselamatan) yang merujuk kepada TKO No. B8-008/PHE04000/2021-S9 Rev.0 tentang Sistem Pengamatan dan Intervensi HSSE (PEKA). Selain dari kewajiban menyampaikan kondisi kerja yang berbahaya, setiap pekerja diwajibkan melaporkan kejadian kecelakaan dengan segera sesuai dengan TKO Pelaporan dan Investigasi Insiden No. B8-001/PHE04000/2021-S9, dan hasilnya dilaporkan kepada pejabat berwenang. Segala bentuk pelaporan, kami memberikan perlindungan kerahasiaan data pelapor. [403-2]

Identifying potential OHS-related hazards and risks involves several stages and levels, including *Business Risk*, *HSSE Risk Register*, *Major Accident Hazard*, and *Specific Risk Assessment* (TRA, HAZOP, JRMP, etc) also involve related functions that are supported by workers with special competencies. We monitor the management of these potential hazards and risks regularly. [403-2][11.9.3]

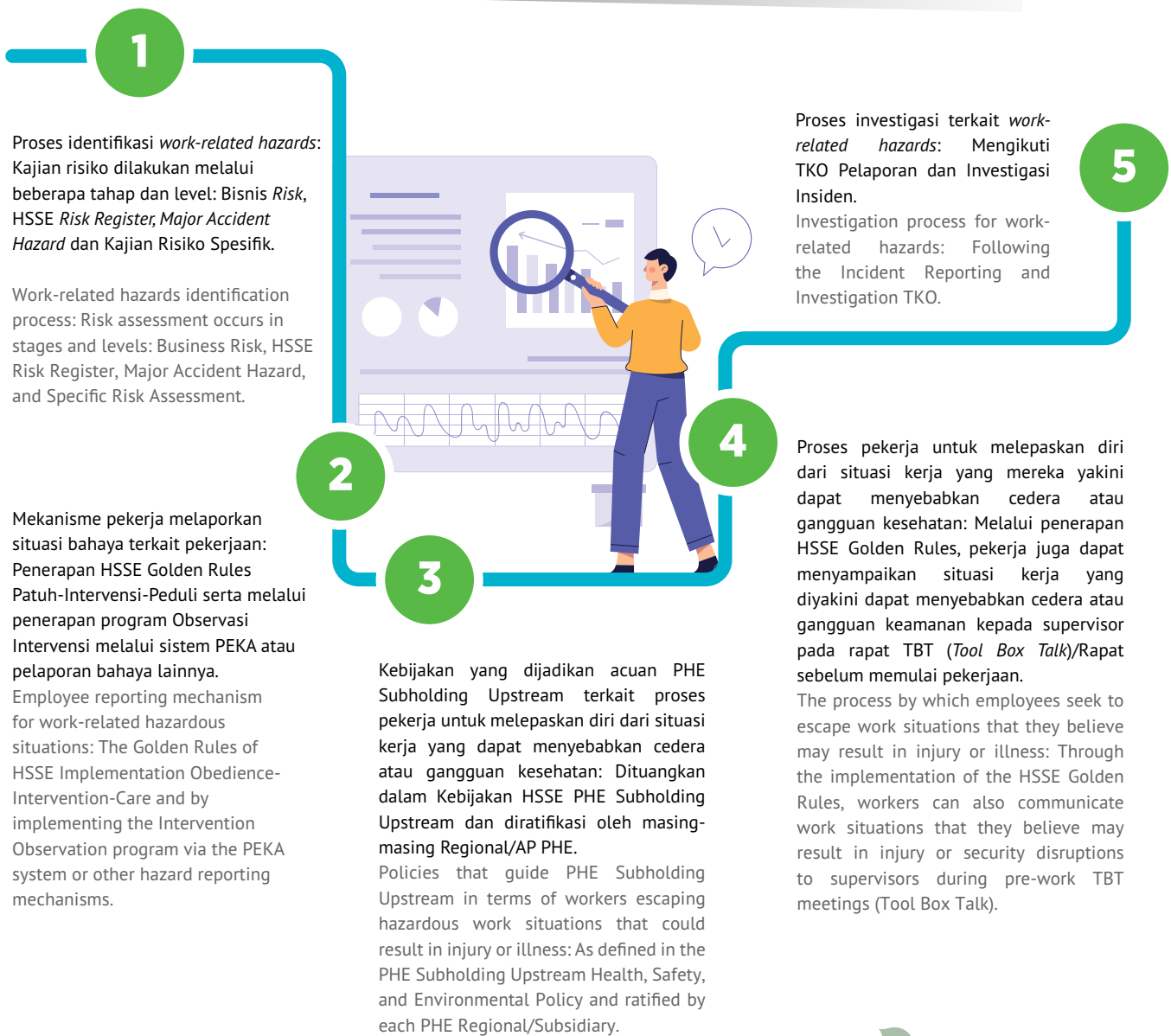
Employees must report unsafe actions and unsafe conditions to their local leadership and may apply to leave these conditions. Employees reported hazardous working conditions in 2021 via the PEKA (Safety Observation) reporting system, which is based on TKO No. B8-008/PHE04000/2021-S9 Rev.0 concerning the HSSE Observation and Intervention System (PEKA). Apart from the obligation to communicate hazardous working conditions, each employee is required to immediately report accidents in accordance with TKO Reporting and Investigation of Incidents No. B8-001/PHE04000/2021-S9, and the results are communicated to the appropriate authorities. We protect the confidentiality of the reporter's data in all forms of reporting. [403-2]





Identifikasi Bahaya, Penilaian Risiko, dan Investigasi Insiden ^[3-3]

Hazard Identification, Risk Assessment, and Incident Investigation



Penerapan K3LL menjadi tanggung jawab Fungsi Health, Safety, Security, and Environment (HSSE) PHE Subholding Upstream dan Anak Perusahaan yang harus diimplementasikan oleh semua pekerja. Pemantauan dan evaluasi penerapan K3LL dilakukan berkala oleh Fungsi HSSE PHE Subholding Upstream maupun Anak Perusahaan.

[403-3a]

The Health, Safety, Security, and Environment (HSSE) function of PHE Subholding Upstream and Subsidiaries is responsible for HSSE implementation, which all employees must carry out. The HSS Function of PHE Subholding Upstream and its Subsidiaries conduct the periodic monitoring and evaluation of HSSE. [403-3]

Penerapan K3LL sepanjang tahun 2021, di antaranya:

HSSE implementation throughout 2021 included the following:



Keselamatan Kerja, HSSE Risk Management dan Keselamatan Proses [SHS-2 C1]

Occupational Safety, HSSE Risk Management and Process Safety

- *HSSE Risk Management*
- *Sistem Izin Kerja Aman*
Safe Work Permit System
- *Contractor Safety Management System (CSMS)*
- *HSSE Golden Rules dan 12 Corporate Life Saving Rules dan 3 CLSR spesifik Subholding Upstream*
HSSE Golden Rules and 12 Corporate Life Saving Rules and 3 CLSR specific to Subholding Upstream
- *Learning from Event*
- *Process Safety Management*
- *Program Observasi dan Intervensi serta Audit dan Inspeksi*
Observation and Intervention Program as well as Audit and Inspection

Kesehatan Kerja & Higiene Industri [11.9.4]

Occupational Health & Industrial Hygiene

- *Program Higiene Industri di tempat kerja*
Workplace Hygiene Program
- *Program fitness for work melalui Medical Check Up Compliance*
Fitness for work program through Medical Check Up Compliance
- *Health Surveillance/Daily Check Up*
- *Program Pengelolaan Penyakit Menular, termasuk pencegahan penularan COVID-19*
Infectious Disease Management Program, including COVID-19 transmission prevention
- *Medical Emergency Management*
- *Program Promosi Kesehatan*
Health Promotion Program

Perusahaan terus berupaya untuk mendorong seluruh pekerja menerapkan gaya hidup sehat dengan cara melaksanakan beberapa kegiatan webinar mengenai konsumsi makanan bergizi, bahaya hipertensi, dan lain sebagainya. [SHS-2 C3]

The Company continues to encourage all employees adopt a healthy lifestyle by conducting several webinars regarding the consumption of nutritious food, the dangers of hypertension, and so on.



Partisipasi, Konsultasi, dan Komunikasi Pekerja Terkait K3 ^[11.9.5]

OHS-Related Employee Participation, Consultation, and Communication

Dalam penerapan K3, PHE Subholding Upstream memiliki *Loss Prevention Committee* (LPC) atau setara dengan Panitia Pembina Keselamatan dan Kesehatan Kerja (P2K3) yang berfungsi sebagai komite bersama. Keanggotaan P2K3 terdiri dari Fungsi HSSE sebagai perwakilan manajemen, serta perwakilan pekerja. LPC secara berkala melakukan pertemuan guna mengevaluasi dan mencari solusi masalah yang menyebabkan kerugian akibat *asset integrity*, kecelakaan kerja, penyakit akibat kerja, permasalahan lingkungan, dan *socio-security*; mengevaluasi potensi *Major Accident Hazard* (MAH), *Safety & Environmental Critical Element* (SECE). ^[403-4] ^[SHS-1-C1]

Perusahaan melaksanakan sosialisasi dan komunikasi mengenai program K3L yang dapat diakses oleh seluruh pekerja dan dipublikasikan secara massif melalui *broadcast* dalam bentuk tautan video, dan lain-lain. ^[OGSS-11.9.4]

PHE Subholding Upstream has a Loss Prevention Committee (LPC) or an equivalent committee to the Committee for the Development of Occupational Health and Safety (DOHS) that acts as a joint committee in implementing OHS. DOHS membership consists of the HSSE function as management representatives and employee representatives. LPC meets on a regular basis to evaluate and resolve issues that result in losses due to asset integrity, work accidents, occupational diseases, environmental issues, and socio-security; as well as evaluate the potential for a Major Accident Hazard (MAH) and Safety & Environmental Critical Element (SECE). ^[403-4] ^[SHS-1-C1]

The Company engages in socialization and communication regarding the Occupational Health and Environmental Safety (OHES) program that is accessible to all employees and widely distributed via video link broadcasts, among others. ^[OGSS-11.9.4]

Pelatihan Keselamatan dan Kesehatan Kerja dan Lindung Lingkungan ^[11.9.6] ^[SHS-7 C2] ^[EM-EP-320a.1]

Occupational Health and Safety and Environmental Protection Training

Secara rutin kami menyelenggarakan pelatihan terkait K3 dan Lindung Lingkungan bagi para pekerja. Pelatihan dimaksudkan untuk meningkatkan pemahaman dan membangun budaya K3LL di antara para pekerja. Secara keseluruhan ada 28 kegiatan pelatihan, dengan total waktu kegiatan 83.197 jam dan total peserta 4.168 sehingga rata-rata jam pelatihan per peserta sebesar 19,96. ^[403-5] ^[SHS-1 C2]

We conduct OHS and environmental protection training for our employees regularly. The training is designed to increase employee awareness and foster HSSE culture. There were 28 training activities totaling 83,197 hours of activity time and 4,168 participants, and thus the average hours of training per participant was 19.96. ^[403-5] ^[SHS-1 C2]



Promosi Kesehatan Pekerja [11.9.7]

Employee Health Promotion

Kami menyertakan seluruh pekerja pada program asuransi kesehatan yang diselenggarakan oleh PT Admedika. Sebagai peserta asuransi kesehatan, pekerja PHE Subholding Upstream mendapatkan akses layanan kesehatan baik penyakit akibat kerja (PAK) maupun tidak. Layanan kesehatan dapat diakses pada fasilitas kesehatan yang telah disepakati pihak asuransi dan pekerja, termasuk rumah sakit-rumah sakit yang dikelola PT Pertamina Bina Medika IHC yang menjadi salah satu dari Anak Perusahaan PT Pertamina (Persero). [403-6]

Selama tahun 2021 PHE Subholding Upstream menyelenggarakan kegiatan promosi kesehatan bukan PAK kepada pekerja dan pekerja lain. Pelaksanaan kegiatan disesuaikan dengan kondisi pandemi COVID-19, yakni secara daring. Beberapa kegiatan yang diselenggarakan, mendapatkan apresiasi dari berbagai pihak. [403-6]

We cover all employees through PT Admedika's health insurance program. As health insurance participants, PHE Subholding Upstream employees have access to health services, regardless of whether they are affected by occupational diseases (OD) or not. Health services are available at health facilities agreed upon by the insurance company and employees, including those managed by PT Pertamina Bina Medika IHC, one of PT Pertamina's (Persero) Subsidiaries. [403-6]

Throughout 2021, PHE Subholding Upstream promoted non-OD health to its employees and other workers. The activities were carried out online in accordance with the conditions of the COVID-19 pandemic. Several of the activities held have garnered praise from various parties. [403-6]

Pencegahan dan Mitigasi K3 terkait Relasi Bisnis [403-7] [11.9.8]

OHS Prevention and Mitigation related to Business Relations

Kami mewajibkan kontraktor/pemasok/vendor atau mitra kerja untuk melakukan perlindungan terhadap para pekerja dan memenuhi aspek Sistem Manajemen Keselamatan dan Kesehatan Kerja (SMK3) sesuai peraturan perundang-undangan, standar internasional (ISO/OHSAS/ISRS), dan kebijakan HSSE PERTAMINA yang berlaku. Penerapan CSMS pada tahun 2021 mencakup 533 mitra kerja dengan kategori pekerjaan risiko tinggi. Seluruh vendor Perusahaan telah menerima kontrak yang di dalamnya terdapat pembahasan klausul *socio-economic exhibit*. Perseroan juga mengacu pada Kebijakan Sosial untuk Pemasok dan Kontraktor PT Pertamina (Persero) guna memastikan implementasi prinsip-prinsip HAM kepada para pekerja di lingkungan kerjanya. Selain itu, di dalam kontrak juga terdapat klausul pengembangan Rencana Kerja K3LL yang mencakup salah satunya pengurangan emisi. Seluruh persyaratan aspek SMK3 dievaluasi berdasar pada TKO No. B8-004/PHE04000/2021-S9 Rev.0 tentang Pengelolaan Contractor Safety Management System (CSMS).

We require contractors/suppliers/vendors or working partners to protect workers and adhere to all aspects of the Occupational Health and Safety Management System (OHSMS) in accordance with applicable laws and regulations and international standards (ISO/OHSAS/ISRS) and the PERTAMINA HSSE policy. In 2021, the CSMS was implemented for 533 working partners in high-risk jobs. All of the Company's vendors have received contracts in which the socioeconomic exhibit clause was discussed. The Company also refers to the Social Policy for Suppliers and Contractors of PT Pertamina (Persero) to ensure the implementation of human rights principles for workers in their working environment. In addition, the contract includes a clause on the development of the HSSE Work Plan which includes emissions reduction. All aspects of the OHSMS requirements are evaluated in accordance with TKO No. B8-004/PHE04000/2021-S9 Rev.0 regarding Contractor Safety Management System (CSMS) Management.



Cakupan Perlindungan Pengelolaan K3LL [11.9.9] [403-8]

HSSE Management Scope of Protection

Penerapan K3LL mencakup seluruh atau 100% pekerja di PHE Subholding Upstream, baik pekerja maupun bukan pekerja yang meliputi pekerja mitra kerja. Kami menerapkan proses evaluasi/audit untuk memastikan para mitra kerja telah menerapkan K3LL/HSSE PHE Subholding Upstream, dan memastikan keselamatan maupun kesehatan pekerja mereka.

HSSE implementation covers all or 100% of employees in PHE Subholding Upstream, including both employees and non-employees, including working partners employees. We use an evaluation/audit process to ensure that our working partners have implemented PHE Subholding Upstream HSSE and that their workers are safe and healthy.

Kinerja Pengelolaan Keselamatan Kerja [11.9.10] [403-9] [EM-EP-320a.1]

Work Safety Management Performance

Selama tahun 2021 PHE Subholding Upstream mencatat 34 insiden (*recordable incident*), dengan total jumlah jam kerja mencapai 258.495.099. Penghitungan *Total Recordable Incident Rate* (TRIR) menggunakan metode OSHA Log 300 dengan basis penghitungan per-1.000.000, dan tidak ada pekerja yang dikecualikan dalam penghitungan. TRIR Subholding Upstream dalam periode tahun 2021 sebesar 0,13.

In 2021, PHE Subholding Upstream recorded 34 incidents (*recordable incidents*) and 258,495,099 total working hours. The Total Recordable Incident Rate (TRIR) is calculated using the OSHA Log 300 method per-1,000,000 basis, with no workers excluded from the calculation. TRIR for Upstream Subholding was 0.13 in 2021.

Pengelolaan Keselamatan Kerja Berdasarkan Insiden Tercatat dan Jumlah Jam Kerja [403-9]

Work Safety Management Based on Recorded Incidents and Total Working Hours

Kinerja Performance	2021	2020*	2019*
Insiden Tercatat Recorded Incidents			
Fatality	1	3	1
Lost Time Incident (LTI)	3	3	2
Restricted Work Day Case (RWDC)	10	14	24
Medical Treatment Case (MTC)	20	21	28
First Aid Case (FAC)	66	94	89
Jumlah Total	100	135	144
Jam Kerja Tercatat Recorded Working Hours			
Jumlah Jam Kerja Selamat Total Safe Working Hours	18,8 Juta Million	37 Juta Million	19,1 Juta Million

* Data tahun 2020 dan 2019 berdasarkan Direktorat Hulu PERTAMINA
Data for 2020 and 2019 based on PERTAMINA Upstream Directorate

Khusus untuk pekerja mitra yang bekerja di bawah pengawasan PHE Subholding Upstream, pengungkapan informasi *recordable incident* hanya untuk tahun 2021 meliputi *Fatality*, LTI, RWDC, dan MTC, sebanyak 34 kejadian. Sedangkan untuk FAC merupakan angka gabungan dari pekerja dan bukan pekerja PHE Subholding Upstream. Adapun untuk pengungkapan informasi tahun 2020 dan 2019 belum dipilah antara pekerja dan bukan pekerja. Total jumlah jam kerja yang dicatatkan pekerja bukan pekerja pada tahun 2021 adalah 224.045.803.

Adanya satu kasus *fatality incident* pada tahun 2021 di Rig Airlangga-55 di Bekasap-206 WK Rokan Regional 1-Sumatra menyebabkan PHE Subholding Upstream melakukan investigasi penyebab *crane boom* yang menimpa *swamper lowbed* sehingga mengakibatkan meninggal dunia. Perusahaan melakukan tindak lanjut sesuai dengan hasil investigasi dan menerapkan aturan K3 dengan lebih ketat.

[403-9] [SHS 3-C2]

Berdasarkan analisis kecenderungan insiden yang dilakukan pada seluruh insiden yang menyebabkan cedera, diketahui lebih dari 60% adalah aktivitas berisiko sedang-tinggi. Aktivitas berisiko sedang-tinggi tersebut di antaranya *drilling*, *workover*, *well services*, *maintenance/inspection*, *production operation*, dan *construction*. Sebagai salah satu upaya pencegahan insiden-insiden tersebut, kami menerapkan *full cycle CSMS* di Regional dan Anak Perusahaan. [SHS-3 C4]

Sementara itu, salah satu unit operasi di PHE Subholding Upstream yaitu Lapangan Bekapai di Wilayah Kerja PT Pertamina Hulu Mahakam PHM, berhasil mencapai 10 tahun tanpa *Lost Time Injury* (LTI) atau kehilangan jam kerja akibat kecelakaan. Pencapaian yang diraih pada tanggal 27 Agustus 2021 ini setara dengan 8.221.414 jam kerja.

Disclosure of recordable incident information for 2021 is limited to *Fatality*, LTI, RWDC, and MTC, totaling 34 incidents, and is restricted to working partners who work under the supervision of PHE Subholding Upstream. In contrast, for FAC, the disclosure includes both employees and non-employees of the PHE Subholding Upstream. In 2020 and 2019, information disclosure was not separated between employees and non-employees. In 2021, the total working hours by non-employees were 224,045,803 hours.

PHE Subholding Upstream experienced one case of *fatality incident* in 2021, whereby the Company conducted an investigation into the cause of a crane boom that fatally struck a *swamper lowbed* at the Airlangga-55 Rig in the Regional 1-Sumatra Bekasap-206 Rokan WK. As a follow up of the investigation's findings, the Company implemented more stringent OHS regulations. [403-9] [SHS 3-C2]

According to an analysis of all incidents that resulted in injury, it was determined that more than 60% involved moderate-high risk activities. Drilling, workovers, well services, maintenance/inspection, production operations, and construction are all considered medium-high risk activities. As part of our efforts to prevent these incidents, we have implemented a full cycle CSMS at our Regionals and Subsidiaries. [SHS-3 C4]

Meanwhile, one of the operating units at PHE Subholding Upstream, the Bekapai Field at the PT Pertamina Hulu Mahakam PHM Work Area, has achieved 10 years without a *Lost Time Injury* (LTI) or lost working hours due to accidents. This achievement on 27 August 2021 is equivalent to 8,221,414 working hours.



Kinerja Pengelolaan Kesehatan Kerja [11.9.10] [403-9] [EM-EP-320a.1]

Occupational Health Management Performance

Pengungkapan informasi terkait kinerja kesehatan kerja tahun 2021 PHE Subholding Upstream, disesuaikan dengan kondisi pandemi COVID-19 yang masih berlanjut. Program kesehatan kerja masih terus dioptimalkan menggunakan media *online* untuk memastikan pekerja tetap sehat dan update mengenai informasi terbaru. Tidak ada kriteria dan kondisi khusus yang mengecualikan pekerja pada pengungkapan informasi terkait kinerja pengelolaan kesehatan kerja, termasuk pekerja eks CPI yang kini menjadi pekerja PT Pertamina Hulu Rokan. Selama tahun 2021, tidak ada kasus PAK untuk pekerja PHE Subholding Upstream. Kami juga mengoptimalkan pelaksanaan vaksinasi kepada pekerja, dengan pencapaian 100% untuk vaksinasi-1 dan vaksinasi-2.

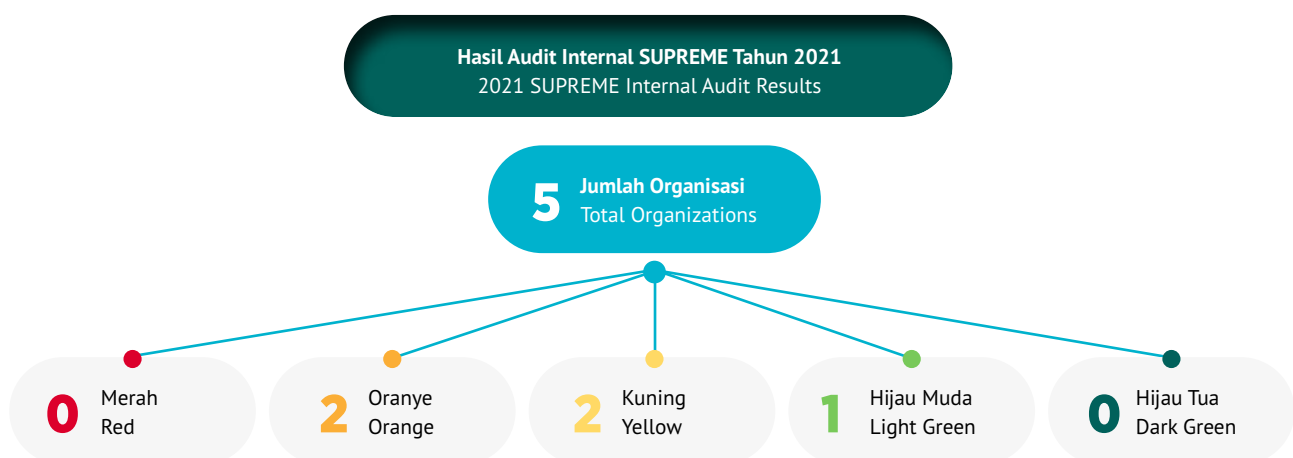
Information disclosure relating to the 2021 PHE Subholding Upstream occupational health performance has been adjusted to account for the ongoing COVID-19 pandemic. Using online media, the occupational health program constantly optimized to ensure that employees remain healthy and informed of the most recent developments. There are no specific criteria or conditions prohibiting employees from disclosing occupational health management performance information, including former CPI employees whom PT Pertamina Hulu Rokan now employs. There were no PAK cases involving employees of PHE Subholding Upstream in 2021. Additionally, we optimized employee vaccinations, achieving 100% vaccination for vaccination-1 and vaccination-2.

Audit SUPREME dan Survei Budaya HSSE

SUPREME Audit and HSSE Culture Survey

Pada periode pelaporan, kami telah melakukan audit internal SUPREME yang dilaksanakan terhadap 5 wilayah kerja. Hasil survei yang menggambarkan kemampuan dalam mengelola risiko kegiatan operasional, dikomunikasikan berdasarkan pada lima tipe warna: yakni Hijau Tua, Hijau Muda, Kuning, Oranye, dan Merah.

We conducted SUPREME internal audits on 5 work areas during the reporting period. The survey results described the ability to manage operational risk, and were communicated using five distinct colors: Dark Green, Light Green, Yellow, Orange, and Red.



PHE Subholding Upstream juga melakukan Survei Budaya HSSE, dengan tujuan untuk mengukur tingkat budaya perusahaan terhadap aspek HSSE, untuk tercapainya HSSE *Beyond Culture* menuju budaya HSSE Generatif. Berdasar hasil survei tahun 2021 diketahui nilai rata-rata skor mencapai 4,12 dari skala 5, atau berada pada level proaktif. Perubahan organisasi pada tahun 2021 menjadi PHE Subholding Upstream, menjadikan hasil survei budaya pada tahun 2021 merupakan *baseline* survei budaya dengan realisasi 100%.

Furthermore, PHE Subholding Upstream conducts an HSSE Culture Survey to assess the level of corporate culture regarding HSSE to achieve HSSE Beyond Culture and a Generative HSSE culture. According to the results of the 2021 survey, the average score reached 4.12 on a 5-point scale, indicating a proactive level. Due to organizational changes in 2021 that transformed into PHE Subholding Upstream, the culture survey results in 2021 were a baseline cultural survey with 100% realization.



Hasil Survei Budaya HSSE*
HSSE Cultural Survey Results*

Uraian Description	2021	2020*	2019*
Jumlah lokasi Total locations	18	25	36
Skor Score	4,12	4,14	3,75
Level	Proactive	Proactive	Proactive

Keterangan:

*Data gabungan perhitungan dari rata-rata pencapaian survei budaya di Hulu dan AP Services yang saat ini bergabung di bawah PHE Subholding Upstream.

Note:

* Data was a combined calculation of the average achievement of the cultural survey in Upstream and AP Services which are currently merged under PHE Subholding Upstream.



► KESELAMATAN PROSES DAN PENCEGAHAN INSIDEN BERSKALA BESAR

Process Safety and Large-Scale Incident Prevention

Pengelolaan Topik Material ^[3-3] Material Topic Management

Keselamatan proses mendukung kesinambungan produksi migas dan bisnis PHE Subholding Upstream. Sesuai Pedoman Pengelolaan Keadaan Darurat, Krisis dan Keberlangsungan Bisnis di PERTAMINA Nomor A7-002/S00000/2021-S9, PHE Subholding Upstream memiliki kebijakan bahwa potensi kejadian besar yang terkait dengan kegiatan operasional harus diidentifikasi dan dikaji secara komprehensif dan menyeluruh. Sesuai dengan kegiatan Perusahaan di bidang eksplorasi dan produksi migas, target kami pada tahun 2021 adalah mencegah terjadinya tumpahan minyak di darat maupun di lepas pantai, dan seluruh volume tumpahan yang terjadi telah ditangani oleh PHE Subholding Upstream. Secara berkala kami melakukan evaluasi melalui mekanisme pelatihan, serta pelaporan berkala kepada pihak-pihak berwenang. Seluruh kegiatan untuk keselamatan proses dilakukan dengan melibatkan pemangku kepentingan, termasuk masyarakat. ^[SHS-6 C3]

Process safety supports oil and gas production continuity and the PHE Subholding Upstream business. PHE Subholding Upstream has a policy where in potential major events related to operational activities must be identified and thoroughly studied in accordance with Pertamina's Emergency, Crisis, and Business Continuity Management Guidelines, Number A7-002/S00000/2021-S9. In line with the Company's oil and gas exploration and production activities, our target for 2021 was to prevent onshore and offshore oil spills, and the entire volume of the spill has been handled by PHE Subholding Upstream. We conduct periodic evaluations through training mechanisms and regular reporting to the appropriate authorities. All process safety activities involve stakeholders, including the community. ^[SHS-6 C3]

Secara umum penerapan keselamatan proses didasari pada kebijakan HSSE PHE Subholding Upstream dan diatur pada Pedoman No. A8-004/PHE04000/2021-S9 Rev.0 tentang Pedoman Process Safety dan Asset Integrity Management System (PSAIMS). Sepanjang tahun 2021, kinerja keselamatan ditandai oleh 13 *process safety event* (PSE), yang mencakup 3 peristiwa *Tier 1* dan 10 peristiwa *Tier 2*. PHE Subholding Upstream juga memantau dan melaporkan *Tier 3* dengan jumlah peristiwa sebanyak 1.611. ^{[SHS-6 C1] [EM-EP-540a.1] [OGSS-11-11.8.3]}

Process safety is generally applied in accordance with the PHE Subholding Upstream HSSE policy and is governed by Guideline No. A8-004/PHE04000/2021-S9 Rev.0 regarding Guidelines for Process Safety and Asset Integrity Management System (PSAIMS). Throughout 2021, 13 process safety events (PSE) were recorded, including 3 Tier 1 events and 10 Tier 2 events. PHE Subholding Upstream also monitored and reported 1,611 Tier 3 events. ^{[SHS-6 C1] [EM-EP-540a.1] [OGSS-11-11.8.3]}

Pada tahun 2021 tercatat ada beberapa peristiwa keselamatan proses yang termasuk *Tier-1*, *Tier-2*, dan *Tier-3* dan telah ditindaklanjuti PHE Subholding Upstream dengan melakukan berbagai upaya pencegahan terjadinya peristiwa keselamatan proses antara lain menyusun sistem perencanaan penanggulangan keadaan darurat, mengkaji ketersediaan dan kompetensi sumber daya manusia dalam penanggulangan tumpahan minyak, serta menyediakan peralatan *oil spill response equipment*. Kami terus melakukan berbagai upaya pencegahan terjadinya peristiwa keselamatan proses, termasuk insiden berskala besar. [SHS-6-C2]

Pencegahan Process Safety Event (PSE)

Process Safety Event (PSE) Prevention

Kami memiliki program dan kegiatan untuk mitigasi dan mengurangi risiko terjadinya peristiwa keselamatan proses, yang dapat mempengaruhi kondisi lingkungan. Langkah yang dilakukan mencakup pencegahan dan pengendalian tumpahan, kebocoran, dan insiden operasi lain yang berpotensi melepaskan bahan berbahaya dan beracun (B3) ke lingkungan. Langkah ini mencakup kegiatan produksi pada fasilitas dan sumur di daratan maupun di lepas pantai, distribusi dan pengangkutan meliputi pipa di permukaan tanah, pipa di bawah tanah dan bawah laut, serta transportasi darat dan transportasi laut. Upaya mitigasi yang dilakukan di antaranya melaksanakan inspeksi dan *asset integrity management* (AIM), serta program *well integrity*.

Pengendalian Keadaan Darurat

Emergency Control

Secara umum pengendalian keadaan darurat yang mungkin terjadi di setiap kegiatan operasi di lingkungan PHE Subholding Upstream dilakukan sesuai Pedoman Pengelolaan Tanggap Darurat dan Manajemen Krisis No. A8-001/PHE04000/2021-S9.

Manajemen tanggap darurat dilaksanakan melalui entitas *Emergency Response and Crisis Management* (ERCM) di dalam Fungsi HSSE. Pada praktiknya, aktivitas tanggap darurat di lingkungan PHE Subholding Upstream dilakukan dengan prinsip *tiered response* melalui organisasi tanggap darurat (*emergency response organization*), pada fasilitas lapangan produksi/Site Proyek/Site Eksplorasi, level Zona, Regional, dan Subholding Upstream.

PHE Subholding Upstream responded to several process safety events classified as Tier-1, Tier-2, and Tier-3 in 2021 by making various efforts to prevent process safety events, including developing an emergency response planning system, reviewing the availability and competence of human resources in handling oil spills, as well as providing oil spill response equipment. We continue to take multiple steps to avoid process safety incidents, including large-scale incidents. [SHS-6-C2]

We have programs and activities in place to mitigate and reduce the risk of process safety incidents that could negatively impact environmental conditions. Preventing and controlling spills, leaks, and other operational incidents that have the potential to release hazardous and toxic materials (B3) into the environment are among the steps taken. This step encompasses all aspects of production, including onshore and offshore facilities and wells and distribution and transportation includes above ground pipelines, underground and subsea pipelines, as well as land and sea transportation. Mitigation efforts include conducting inspections and implementing an asset integrity management (AIM) program, also a well integrity program.

In general, emergency controls are implemented in accordance with the Guidelines for Emergency Response and Crisis Management No. A8-001/PHE04000/2021-S9 for all operational activities within PHE Subholding Upstream.

Emergency response management is carried out by the Emergency Response and Crisis Management (ERCM) entity within the HSSE Function. In practice, emergency response activities in PHE Subholding Upstream are conducted through tiered response organizations at production field facilities/Project Site/Exploration Site, Zone, Regional, and Upstream Subholding levels.



► REKRUTMEN, RETENSI, DAN PENGEMBANGAN PEKERJA

Employee Recruitment, Retention, and Development

Pengelolaan Topik Material ^[3-3]

Material Topic Management

Pengelolaan Sumber Daya Manusia (SDM) yang kompeten dan pemantauan kinerja Pekerja, baik secara individu maupun tim menjadi dasar kegiatan usaha PHE Subholding Upstream. Perekrutan pekerja baik secara *internal resources* maupun *external resources* dan pengembangan pekerja eksisting tetap mengedepankan kesetaraan dan menghindari praktik-praktik diskriminasi yang dapat melanggar Hak Asasi Manusia (HAM). Salah satu pengembangan pekerja dilakukan melalui pelatihan, baik secara tatap muka maupun daring, dengan total jam penyelenggaraan pelatihan yang telah dilaksanakan sebanyak 3.939.125 jam pelatihan.

Pada tahun 2021 telah dilakukan promosi *grading* kepada 2.593 pekerja, atau 17% dari total pekerja telah mendapatkan promosi *grading* pekerja. Dari total tersebut terdiri dari 2.156 orang laki-laki, atau 83% laki-laki, dan 437 orang perempuan, atau 17% perempuan. PHE Subholding Upstream memberikan kesempatan yang sama kepada setiap pekerja untuk mengembangkan karir tanpa diskriminatif, serta evaluasi pengembangan pekerja dilakukan secara berkesinambungan melalui mekanisme penilaian pemenuhan Indikator Kinerja Kunci (KPI) fungsi pelaksana.

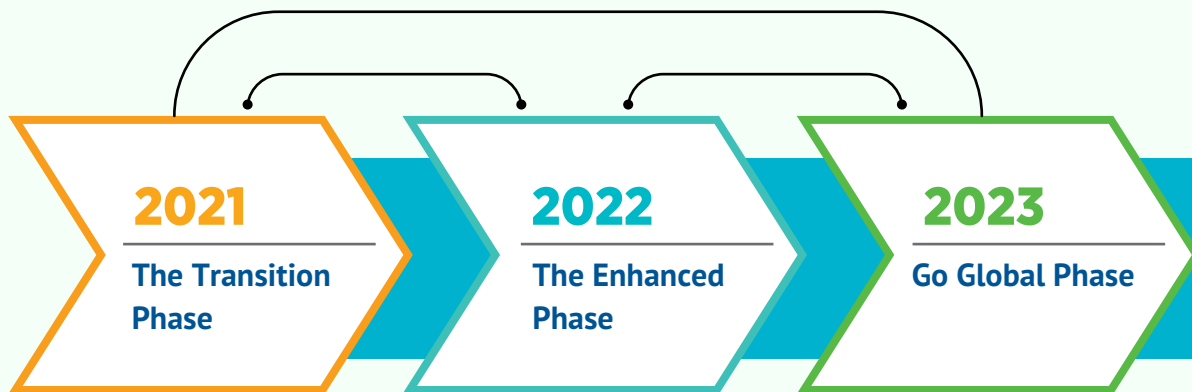
Competent human resource management and performance monitoring of employees, both individually and in teams, are fundamental to PHE Subholding Upstream's business activities. Internal and external recruitment of employees and talent development of existing employees continue to prioritize equality and avoid discriminatory practices that may violate human rights. One of the ways in which employees have been developed is through training, both face-to-face and online. In total, 3,939,125 hours of training have been conducted.

In 2021, 2,593 employees were promoted, representing 17% of total employees. There were 2,156 men, or 83% of the total, and 437 women, or 17% of the total. PHE Subholding Upstream provides equal opportunities for career development for all employees without regard for discrimination, and ongoing evaluation of employee development is conducted through an assessment mechanism for the fulfillment of the implementing function's Key Performance Indicators (KPI).





Pengelolaan Human Capital (HC) PHE Subholding Upstream bertujuan untuk mencapai visi sebagai *Primary Choice* para pekerja migas di lingkungan nasional dan global sebagai *role model* pengelolaan HC di bisnis hulu migas terintegrasi untuk mencapai keberlanjutan bisnis. Pengelolaan diterapkan dalam tiga fase mulai dari *The Transition Phase*, *The Enhanced Phase* dan *Go Global Phase* tahun 2023.



HC Subholding Upstream  Strategi | **Strategy 2021-2023**



Manage Value & Energy

Pengelolaan bisnis berdasarkan *leadership*, kompetensi, pengukuran kinerja serta pemberian *rewards* yang sesuai (terdiferensiasi)
Business management is based on leadership, competence, performance measurement, and appropriate rewards (differentiated)



People Analytics & Digital Tools

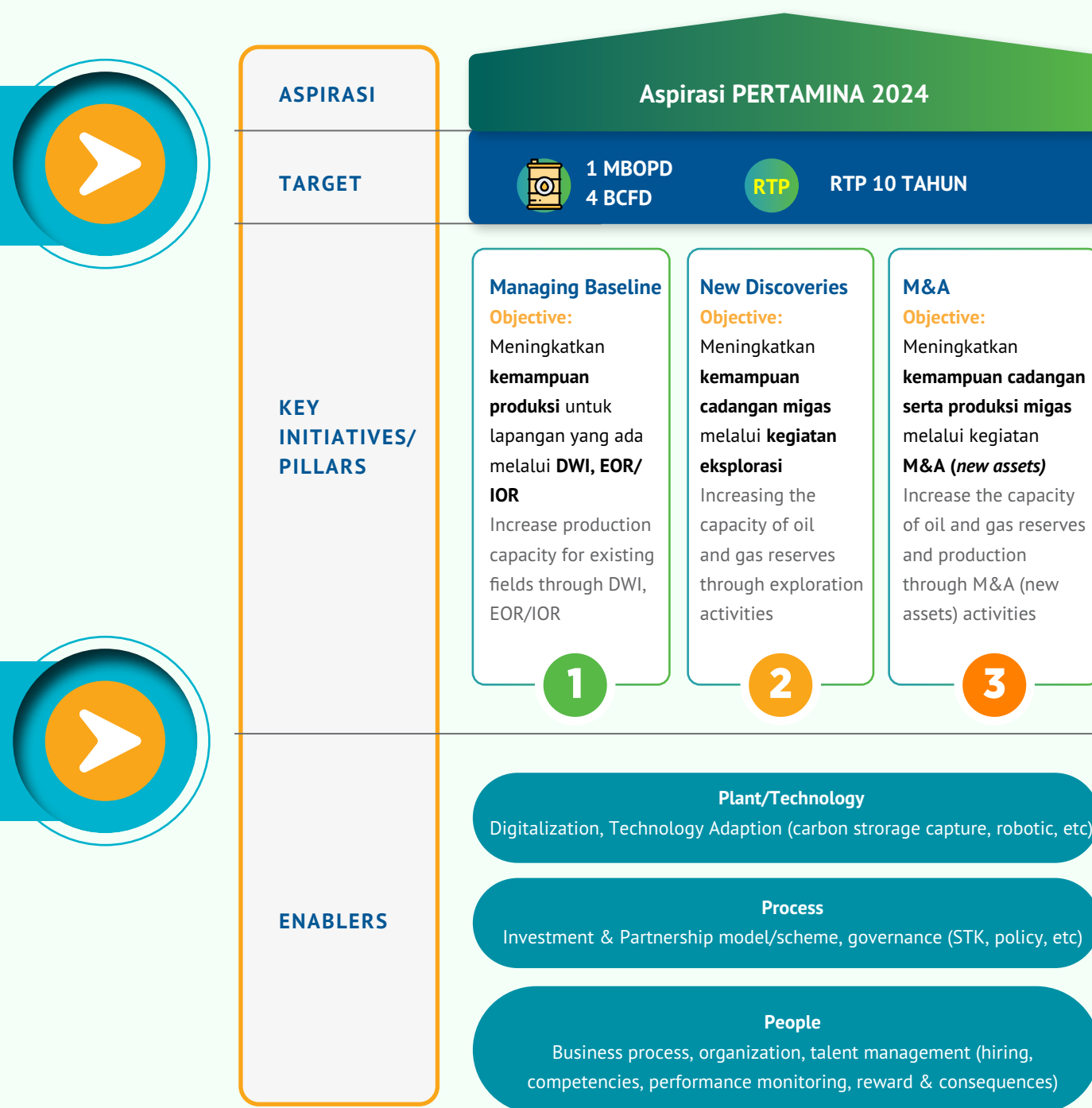
Penggunaan teknologi untuk memperbaiki proses pengelolaan SDM
Use of technology to improve HR management processes



The Social Enterprise at Work

Organisasi yang menggabungkan pertumbuhan pendapatan dan perolehan laba dengan kebutuhan untuk mendukung lingkungan dan pemangku kepentingannya
Organizations that combine revenue growth and profitability with the need to support the environment and its stakeholders

PHE Subholding Upstream's Human Capital (HC) management aims to achieve the vision of being the Primary Choice of oil and gas employees in the national and global environment by serving as a role model for HC management in the integrated upstream oil and gas business to ensure business sustainability. Management will be implemented in three phases beginning in 2023 with the Transition Phase, followed by the Enhanced Phase and the Go Global Phase.





Dalam menuju Aspirasi PERTAMINA tersebut, Fungsi HC mengimplementasikan beberapa program pengembangan Pekerja dan Organisasi, didukung dengan implementasi strategi inisiatif dengan konsep “Homeostasis”, yaitu proses dan mekanisme otomatis yang dilakukan makhluk hidup untuk mempertahankan kondisi konstan agar tubuhnya dapat berfungsi dengan normal, meskipun terjadi perubahan pada lingkungan di dalam atau di luar tubuh.

Sejalan dengan konsep tersebut, Human Capital melakukan pemanfaatan teknologi informasi dalam pengembangan tersebut mendukung proses pembelajaran dan pengembangan (*learning & development*) dan pengelolaan pengetahuan (*knowledge management*). Selama tahun 2021 Human Capital telah mengembangkan sejumlah program strategis yang memudahkan pekerja untuk terlibat dalam pengembangan, 10 program diantaranya yaitu:

To achieve PERTAMINA'S Aspiration, the HC Function implements several employee and organizational development programs, which are complemented by the implementation of an initiative strategy centered on the concept of "Homeostasis," which refers to the automatic processes and mechanisms that living things use to maintain constant conditions that allow their bodies to function normally regardless of changes in the environment, both inside and outside the body.

In line with this concept, Human Capital utilizes information technology development process aides in the process of learning and development as well as knowledge management. Human Capital developed strategic programs in 2021 to make it easier for employees to participate in development through 10 programs, namely:

Platform inovasi/ide bagi Pekerja untuk menyampaikan ide di mana data inovasi akan tersimpan dan dapat dimonitor melalui aplikasi myIDEA, selanjutnya diintegrasikan antara IDE dan Program CIP.

An innovation/idea platform for employees to communicate ideas, where innovation data is stored and accessible via the myIDEA application and is then integrated between the IDE and the CIP Program.



My Idea

Platform coaching & mentoring yang dapat diakses oleh seluruh pekerja sehingga tercipta budaya *coaching & mentoring*

A coaching and mentoring platform that is accessible to all employees to foster a culture of coaching and mentoring



Chatter

Platform Talent Profiling berbasis aplikasi digital yang menampilkan semua profil talenta PHE Subholding Upstream untuk memudahkan proses pengambilan keputusan berbagai kebutuhan organisasi terkait personalia secara tepat, cepat, dan objektif

A digital application-based talent profiling platform that displays all PHE Subholding Upstream talent profiles to aid in the accurate, timely, and objective decision-making process for various organizational needs related to personnel.



People Palm

Program Forum Pengembangan *Leaders* bertujuan memberikan pengayaan wawasan & *insight* terkait *Leadership & Business issues*

The Leaders Development Forum program aims to provide enrichment and insight related to Leadership & Business issues



ULTRA

Program berbagi pengetahuan secara masif dengan internal narasumber
Massive knowledge sharing program with internal speakers



PUSHKU

Program pembentukan kompetensi teknis, bisnis dan *leadership* dengan melibatkan Fungsi Teknis sebagai *Subject Matter Expert* untuk digunakan sebagai basis dalam program pengembangan pekerja.

A program to develop technical, business, and leadership competencies through the involvement of Technical Functions as Subject Matter Experts. This program will serve as the foundation for employee development programs.



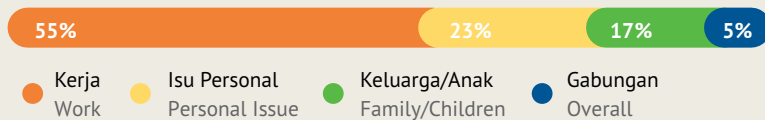
Upstream Academy

Program yang diciptakan untuk memfasilitasi pekerja mendapatkan *psychological support* dari Perusahaan dalam menghadapi perubahan terkait organisasi dan lingkungan keseharian. Sampai dengan akhir tahun 2021 jumlah Pekerja yang mengikuti konseling 242 Pekerja. Untuk peningkatan layanan PSYCHEE, dilakukan juga *Upskilling* kepada seluruh Konselor.

A program designed to assist employees in obtaining psychological support from the Company when confronted with organizational and daily environment changes. Until the end of 2021, 242 employees received counseling. To further enhance PSYCHEE services, all Counselors undergo upskilling.

Gambaran Isue Konseling

Overview of Counseling Issue



PSYCHEE Psychologist for Us

Program Pengembangan dengan memberikan kesempatan pekerja berpartisipasi dalam proyek di luar tugas utamanya. Sepanjang tahun 2021 telah dilaksanakan 4 proyek yaitu 2 proyek terkait kegiatan sosial – *Project Contribution to Community* (CSR Digital Marketing & Edu Visit Petani Maju) dan 2 proyek terkait *Operation* dalam Project Contribution to Company (Maratua & Overseas Aset Akuisisi). Total terdapat 6.000 jam kesukarelawanan Pekerja dalam Dynamite Program.

A Development Program that allows employees to work on projects that are unrelated to their primary responsibilities. Throughout 2021, 4 projects were completed, 2 of which were social in nature – Project Contribution to Community (CSR Digital Marketing & Edu Visit Farmers Maju) – and two of which were operational in nature – Project Contribution to Company (Maratua & Overseas Asset Acquisition). The Dynamite Program has a total of 6,000 employee volunteering hours.



DYNAMITE Do Your Next Assignment, Make it Excellent

Upstream Stakeholder Forum merupakan program berbagi pengetahuan dengan narasumber eksternal institusi pemerintahan

The Upstream Stakeholder Forum is a knowledge-sharing program featuring external speakers from government institutions



Upstream Stakeholder Forum

Program *Fundamental Competency* yang wajib dimiliki seluruh pekerja di setiap level jabatan, mencakup HSSE, Data Analytics, Upstream Business & Risk Mitigation

A Fundamental Competency Program that all employees at all levels of the organization must adhere to, including HSSE, Data Analytics, Upstream Business, and Risk Mitigation.



Surface



Rekrutmen Pekerja

Employee Recruitment

Proses rekrutmen pekerja dilaksanakan melalui seleksi ketat dengan mengedepankan kesetaraan kesempatan, dan bebas diskriminasi, baik gender, suku, agama, dan ras. PHE Subholding Upstream juga memastikan tidak ada tenaga kerja paksa dan pekerja anak di bawah umur sesuai dengan peraturan yang berlaku. Apabila terjadi perubahan operasional, pihak manajemen akan memberikan *minimum notice* kepada pekerja sesuai yang telah diatur di dalam Perjanjian Kerja Bersama (PKB). [POJK51-6] [402-1] [OGSS-11.10.5]

Sebagai dukungan pada kesetaraan kesempatan, pada tahun 2021 Direktur Utama juga memberikan komitmen akan kesetaraan gender dengan menjadi anggota pada Women Empowerment Principles (WEP), serta terdapat keterlibatan pekerja disabilitas yang ditugaskan di lingkungan PHE Subholding Upstream. Perusahaan berupaya untuk memulai program rekrutmen khusus pekerja bagi penyandang disabilitas yang akan diimplementasikan sebagai salah satu target Perusahaan pada tahun 2022. Sepanjang tahun 2021, tidak terdapat penambahan jumlah pekerja baru untuk wilayah operasi di mancanegara. [401-1] [OGSS-11.10.2]

Retensi Pekerja

Employee Retention

PHE Subholding Upstream menerapkan standarisasi sistem penilaian dan pemberian imbal jasa pekerjaan (remunerasi) yang adil berbasis kinerja, untuk mendorong dedikasi dan loyalitas setiap pekerja. Pada tahun 2021, dari total 14.856 pekerja, jumlah pekerja yang meninggalkan Perusahaan mencapai 801 orang, terdiri dari pekerja pensiun, pensiun dini, mengundurkan diri atas keinginan sendiri dan berakhirnya kontrak PKWT di AP Services (PT PDSI, PT Elnusa Tbk, PT Badak NGL), di mana sebagian besar jenis kegiatan atau operasionalnya bersifat *project*. Hal ini mencerminkan tingkat retensi PHE Subholding Upstream yang cukup tinggi, sejalan dengan hasil survei Indeks Kepuasan Pekerja tahun 2021. [401-1] [11.10.2]

Employee recruitment is conducted through a rigorous selection process that prioritizes equality of opportunity and is free of discrimination based on gender, ethnicity, religion, or race. Additionally, the selection process eliminates forced and child labor. In accordance with applicable regulations, PHE Subholding Upstream also ensures no forced and child labor. If an operational change occurs, the management will provide the employee with the minimum notice period specified in the Collective Labor Agreement (CLA). [POJK51-6] [402-1] [GRI11-11.10.5]

In support of equal opportunity, in 2021 the President Director also committed to gender equality by becoming a member of the Women Empowerment Principles (WEP) and involving disabled workers assigned to PHE Subholding Upstream. The Company seeks to start a particular recruitment program for workers with disabilities which will be implemented as one of the Company's targets in 2022. Throughout 2021, there were no new workers for overseas operations. [401-1] [OGSS-11.10.2]

PHE Subholding Upstream implements a standardized assessment system and compensates employees fairly based on their performance to foster employee commitment and loyalty. In 2021, from a total of 14,856 workers, 801 employees left the Company, consisting of Retired Workers, Early Retirement, resigning of their own volition and the termination of the PKWT contract in the Services Subsidiaries (PT PDSI, PT Elnusa Tbk, PT Badak NGL); most of the types of activities or operations are projects. This reflects the high retention rate of PHE Subholding Upstream, in line with the results of the 2021 Employee Satisfaction Index survey.

[401-1] [11.10.2]

**Hasil Survei Terhadap
Pekerja PHE Subholding
Upstream Tahun 2021**
Results of the 2021 PHE
Subholding Upstream
Employee Survey



Responden merupakan
Pekerja PWTT dan PWT di
lingkungan PHE Subholding
Upstream
Respondents were PWTT and
PWT employees within PHE
Subholding Upstream

Indeks Kepuasan Pekerja
Employee Satisfaction Index

Skor
Score

3,27

Skala
Scale

5,00

Salah satu faktor yang mempengaruhi tingkat retensi adalah remunerasi pekerja. Sesuai ketentuan internal, rasio remunerasi antara pekerja laki-laki dan perempuan pada jabatan yang sama adalah 1:1. Besaran remunerasi yang diterima pekerja PHE Subholding Upstream pada tingkat jabatan terendah pada periode pelaporan, masih lebih besar dari ketentuan upah minimum 2021 yang ditetapkan pemerintah daerah di masing-masing WK. Sesuai Peraturan Perusahaan, remunerasi yang diberikan dibedakan atas jenis hubungan kerja. Komponen dalam imbal jasa pekerjaan yang diberikan kepada pekerja sesuai dengan peraturan perundangan yang berlaku. Untuk pekerja PWTT antara lain terdapat *health care*, *parental leave*, serta program pensiun dan kompensasi terhadap pekerja yang sewaktu-waktu mengalami kecelakaan kerja. Perusahaan tidak memiliki kebijakan pemberian imbal jasa pekerjaan dalam bentuk opsi kepemilikan saham. [POJK51-6] [401-2] [401-3] [OGSS-11.10.3]

Sesuai dengan ketentuan internal Perusahaan, Perusahaan memberikan cuti melahirkan. Masa cuti melahirkan bagi pekerja perempuan yang menjalani persalinan adalah 90 hari kalender. Perusahaan juga memberikan cuti khusus 5 hari kerja kepada pekerja laki-laki, untuk mendampingi istrinya bersalin. Pelaksanaan cuti melahirkan pada tahun 2021 dapat dilihat dari Lampiran dalam Laporan ini. 11.10.4]

[11.10.5]

Employee remuneration is one of the factors that affect retention rates. Male and female employees in the same position are compensated at a 1:1 ratio according to internal regulations. PHE Subholding Upstream's employee remuneration at the lowest level of office earned more than the 2021 minimum wage stipulated by the regional government in each WK during the reporting period. In accordance with to Company Regulations, remuneration is classified according to the type of employment relationship. Components of remuneration for work services provided to all employees are guided by applicable laws and regulations. For PWTT employees are entitled to, among others, health care, parental leave, as well as pension and compensation programs for those who experience work accidents at any time. The Company does not have a policy of compensating employees through stock ownership options. [POJK51-6] [401-2] [401-3] [OGSS-11.10.3]

The Company only provides maternity leave in accordance with its internal regulations. Maternity leave is 90 calendar days for female employees. The Company also provides special 5 days of work leave to male workers, to accompany their wives in childbirth. The implementation of maternity leave in 2021 can be seen in the Appendix of this Report. [11.10.4] [11.10.5]





Pengembangan Pekerja [POJK 6.c.2.d]

Employee Development

Peningkatan kompetensi pekerja dilakukan melalui pembelajaran, baik yang diselenggarakan sendiri di internal PHE Subholding Upstream maupun melibatkan pihak lain salah satunya Pertamina Corporate University (PCU). Pelaksanaan kegiatan pembelajaran pada tahun 2021 dilaksanakan secara daring, karena berlanjutnya masa pandemi COVID-19. Metode pembelajaran dilaksanakan dengan memanfaatkan teknologi, di antaranya *mobile learning* dan *e-learning*.

Seluruh jajaran Komisaris telah mengikuti pelatihan dengan materi *corporate long term strategy*, *corporate governance* dan *business wisdom* sepanjang 2021. Pelatihan diselenggarakan oleh Pertamina Corporate University (PCU). Sementara, seluruh Direksi juga mengikuti pelatihan terkait *leadership*, *business sustainability*, dan transformasi yang diadakan, baik dari PCU, internal Perusahaan, maupun kerja sama dengan pihak eksternal.

Pada tahun 2021, terdapat 12.297 pekerja yang menjadi peserta pelatihan dan pendidikan *class room*, terdiri dari 10.335 orang laki-laki (84%), serta 1.962 orang perempuan (16%). Adapun total jam pelatihan mencakup webinar, pendidikan *class room* dan kegiatan pelatihan internal lainnya sebesar 3.939.125. [404-1] [11.10.6]

Bagi pekerja yang memasuki masa purnakarya, mendapatkan pelatihan agar dapat tetap melaksanakan kegiatan yang bermanfaat dan produktif. Pada tahun 2021 sebanyak 21 pekerja mengikuti pelatihan persiapan masa purnakarya. [404-2][11.10.7]

Selain itu, PHE Subholding Upstream juga menyertakan anggota satuan pengamanan pada pelatihan sertifikasi keamanan oleh Kepolisian Negara RI (Polri), terdiri dari Gada Pratama, Gada Madya, dan Gada Utama. Dalam sertifikasi tersebut terdapat materi pengenalan HAM. Sampai dengan akhir tahun 2021 ada 3.800 anggota *security* PHE Subholding Upstream mencakup Regional 1-Sumatra hingga Regional 5-Internasional, telah mendapatkan sertifikasi kompetensi keamanan.

Employee competency development is accomplished through education, conducted internally at PHE Subholding Upstream or through collaboration with third parties, such as Pertamina Corporate University (PCU). Due to the ongoing COVID-19 pandemic, learning activities were conducted online in 2021. Utilization of technology was used to implement learning methods, including mobile learning and e-learning.

The entire Board of Commissioners attended training with material on corporate long-term strategy, corporate governance and business wisdom throughout 2021. The training was organized by Pertamina Corporate University (PCU). Meanwhile, the Board of Directors also participated in leadership, business sustainability, and transformation training provided by either the PCU, internally within the Company, or through collaboration with external parties.

In 2021, there were 12,297 employees that participated in classroom training and education, consisting of 10,335 men (84%), and 1,962 women (16%). There were 3,939,125 hours of training, including webinars, classroom education, and other internal training activities. [404-1] [11.10.6]

Employees who are approaching retirement receive additional training to ensure that they can continue to perform useful and productive activities. In 2021, 21 people attended training for retiring employees. [404-2][11.10.7]

In addition, PHE Subholding Upstream includes members of the security unit in security certification training by the Indonesian National Police (Polri), consisting of Gada Pratama, Gada Madya, and Gada Utama. The certification contains material on the introduction of human rights. By the end of 2021, 3,800 PHE Subholding Upstream security members covering Regional 1-Sumatra to Regional 5-International, have obtained security competency certification.

Peningkatan Kompetensi terkait Keberlanjutan

Sustainability Competency Development

Direksi, Komisaris, dan pejabat perusahaan lain yang ditunjuk di lingkungan Subholding Upstream, mengikuti kegiatan untuk meningkatkan pengetahuan, kompetensi, dan pengalaman kolektif terkait pembangunan berkelanjutan. Selama tahun 2021, ada 28 kegiatan peningkatan kompetensi terkait kinerja keberlanjutan dalam aspek LST, yang diikuti oleh 19 peserta diantaranya 6 Dewan Komisaris dan 13 Direksi di lingkungan Subholding Upstream. [2-17]

[POJK51-5]

We engage the Board of Directors, Commissioners, and other company officials appointed in the Subholding Upstream in activities aimed at increasing collective knowledge, competence, and experience in sustainable development. In 2021, there were 28 competency development activities that concerned the sustainability performance of ESG aspects. The activities were attended by 19 participants, including 6 members within the PHE Board of Commissioners and 13 Directors within Subholding Upstream. [2-17] [POJK51-5]

Pengembangan Karir dan Keberagaman

Career Development and Diversity

Kami memberikan kesempatan sama kepada setiap pekerja untuk mengembangkan karir, tanpa diskriminatif. Promosi *grading* pekerja didasarkan pada hasil penilaian kinerja, secara berkesinambungan setiap tahunnya. Dari penilaian yang dilaksanakan tahun 2021, diperoleh hasil sebanyak 2.593 pekerja, atau 18,3% dari total pekerja telah mendapatkan promosi. [404-3]

We provide equal career development opportunities for all employees without discrimination. Promotions are determined by the performance assessments continuously. According to the assessment conducted in 2021, 2,593 employees, or 18.3% of total employees, received promotions. [404-3]



Jumlah Pekerja Mendapat Promosi Berdasar Gender

Total Employees Who Received Department Promotions Based on Gender

Gender	2021		2020*		2019*	
	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%
Laki-laki Male	2.156	83	470	79	828	82
Perempuan Female	437	17	122	21	185	18
Jumlah Total	2.593	100	590	100	1.013	100

(*) Data tahun 2020 & 2019 merupakan data sebelum PHE Subholding Upstream

(*) Data for 2020 & 2019 are data before PHE Subholding Upstream

Pengembangan karir pekerja didukung dengan pelaksanaan pelatihan dan sertifikasi yang diberikan kepada pekerja. Pelatihan yang diselenggarakan terdiri dari *Leadership* sebanyak 30 judul dengan 14.827 peserta, sertifikasi 17 judul dengan 64 peserta, *technical/functional* 138 judul dengan 3.578 peserta, HSSE 16 judul dengan 193 peserta dan *softskill /managerial* 6 judul diikuti 115 peserta.

Employee career development is supported by the implementation of training and certification provided to workers. The trainings included 30 titles on Leadership with 14,827 participants, 17 titles on certification with 64 participants, 138 technical/functional titles with 3,578 participants, 16 titles on HSSE with 193 participants, and 6 titles on soft skills/management with 115 participants.



Dukungan Pada Hak Asasi Manusia

Support for Human Rights

Kami mengedepankan penghormatan pada hak-hak asasi manusia (HAM) dalam mendorong produktivitas kerja, target dan pencapaian Perusahaan dengan menjamin dan memastikan keamanan, kesehatan, kenyamanan, dan iklim kerja yang harmonis. Hal ini sesuai kampanye *Zero Harassment* dengan mencanangkan *Respectful Workplace Policy* pada 31 Agustus 2021, yang dideklarasikan PT Pertamina (Persero). Kebijakan tersebut menjadi pedoman bagi manajemen dan seluruh pekerja PHE Subholding Upstream guna menghilangkan segala bentuk diskriminasi, pelecehan, dan kekerasan di lingkungan kerja.

PHE Subholding Upstream menyediakan akses pelaporan untuk segala bentuk diskriminasi, kekerasan, dan pelecehan yang terjadi di tempat kerja, baik melalui *whistleblowing system* dan mekanisme pelaporan *grievance* yang diatur dalam peraturan perusahaan. Pada tahun 2021 kami tidak menerima laporan adanya insiden diskriminasi terhadap pekerja dan/atau diskriminasi dalam bekerja. [11.11.6]

Sejalan dengan dukungan pada nilai-nilai universal HAM, PHE Subholding Upstream memiliki keberpihakan yang tinggi terhadap penduduk asli/masyarakat adat di sekitar wilayah operasi. Perusahaan melibatkan masyarakat lokal dan menghargai hak kolektif masyarakat untuk mengambil sikap setuju atau tidak setuju terhadap rencana pengembangan program yang diusulkan pada wilayah mereka, sejalan dengan prinsip *Free, Prior, and Informed Consent* (FPIC). PHE Subholding Upstream telah memasukkan prinsip FPIC ini dalam Pedoman Pengelolaan Tanggung Jawab Sosial dan Lingkungan (TJSL) No.A13-003/PHE01000/2021-S9. Kegiatan usaha PHE Subholding Upstream tidak ada yang mempengaruhi secara signifikan maupun menimbulkan perselisihan dengan masyarakat adat. Pada 2021, tidak terdapat insiden yang berkaitan dengan pelanggaran terhadap hak-hak masyarakat adat.

We prioritize human rights to promote the Company's productivity, targets, and accomplishments by guaranteeing and ensuring safety, health, comfort, and a harmonious work climate. This is in accordance with the Zero Harassment campaign by implementing the Respectful Workplace Policy, which PT Pertamina (Persero) declared on 31 August 2021. This policy serves as a guideline for PHE Subholding Upstream's management and all employees to eliminate all forms of discrimination, harassment, and violence in the workplace.

PHE Subholding Upstream provides reporting mechanisms for all forms of workplace discrimination, violence, and harassment, both through the whistleblowing system and the grievance reporting mechanism mandated by company regulations. In 2021, we received no reports of worker discrimination or workplace discrimination. [11.11.6]

In keeping with its support for universal human rights values, PHE Subholding Upstream strongly supports native/indigenous peoples in the vicinity of the Company's operational areas. Local communities are involved, and the Company respects their collective right to agree or disagree with the proposed program development plan in their area, in accordance with the principles of Free, Prior, and Informed Consent (FPIC). PHE Subholding Upstream has incorporated this FPIC principle into Guidelines for Corporate Social and Environmental Responsibility (CSR) No. A13-003/PHE01000/2021-S9. PHE Subholding Upstream's business activities have no discernible impact on or provoke conflict with indigenous peoples. In 2021, no incidents involving violations of the rights of indigenous peoples occurred.

WK Rokan

Wilayah Kerja Blok Rokan berada dekat dari tempat tinggal masyarakat adat yaitu Suku Sakai. Pasca alih-kelola Blok Rokan, PHE Subholding Upstream melanjutkan kebijakan pelibatan pekerja lokal yang berasal dari suku Melayu maupun Sakai. Beberapa dari mereka telah menduduki jabatan strategis di PT Pertamina Hulu Rokan (PHR), sebagai pengelola WK Rokan.

Bentuk dukungan lainnya kepada masyarakat Suku Sakai adalah dengan menciptakan Program Pertanian Terpadu di Desa Tengganau Pinggir, Bengkalis. Sementara, WK Rokan juga menciptakan Program Pencegahan *Stunting* untuk mendorong peningkatan kesejahteraan yang berkesinambungan bagi Masyarakat Adat Tempatan yang masih tergolong sebagai Suku Sakai. Selain itu, WK Rokan memfasilitasi Suku Sakai yang ada di Kabupaten Bengkalis dan Siak untuk meningkatkan kualitas SDM dan menciptakan angkatan kerja produktif melalui pemberian beasiswa bagi 75 orang dan inkubator bisnis bagi 20 mahasiswa Sakai.

Rokan WK

The Rokan Block operating area is located near the households of indigenous people, specifically the Sakai Tribe. Following the transfer of the Rokan Block, PHE Subholding Upstream maintained its policy of employing Malay and Sakai ethnic workers. Several of them have held strategic positions at PT Pertamina Hulu Rokan as Rokan WK management.

Another way we support the Sakai Tribe is by establishing an Integrated Agriculture Program in Tengganau Pinggir Village, Bengkalis. Meanwhile, the Rokan WK established a Stunting Prevention Program to promote sustainable welfare improvements for the Local Indigenous People of the Rokan WK, who are still classified as the Sakai Tribe. Additionally, the Rokan WK assisted the Sakai Tribe in the Bengkalis and Siak Regencies in improving the quality of human resources and developing a productive workforce through the provision of 75 scholarships and a business incubator for 20 Sakai students.

PHE Jambi Merang

PHE Jambi Merang berada di wilayah Ring 2 dari tempat tinggal Suku Anak Dalam (SAD) yang wilayahnya memiliki akses terbatas. Tercatat terdapat 17 Kepala Keluarga (KK) atau 79 warga di masyarakat adat minoritas SAD yang mendapat program pengembangan dari PHE Jambi Merang. Mereka diajak membangun pertanian dan mengelola lingkungan.

PHE Jambi Merang juga memberikan fasilitas proses legalitas diri masyarakat SAD untuk membantu memudahkan anak-anak meneruskan pendidikan di sekolah formal. Terdapat delapan anak SAD yang akhirnya dapat meneruskan pendidikan di sekolah formal. Selain itu, PHE Jambi Merang menyediakan solar cell komunal sebagai energi baru terbarukan di lokasi SAD yang terpencil. Program tersebut juga berhasil memberdayakan kelompok Mina Sada, beranggotakan para perempuan Suku Anak Dalam untuk budidaya ikan asin. Hasil budidaya ikan asin sudah dijual di luar masyarakat SAD, sebagai hasil peningkatan keterampilan baca tulis warga SAD termasuk kaum perempuan.

PHE Jambi Merang

PHE Jambi Merang is located in the Ring 2 area of the Suku Anak Dalam (SAD) residence, whose territory has limited access. The Jambi Merang Block provided development programs to 17 heads of families (KK) or 79 residents of the SAD minority indigenous community. They were invited to develop agriculture and manage the environment.

Additionally, PHE Jambi Merang provides legal services to the SAD community, making it easier for children to continue their education in formal schools. There were eight SAD children who were finally able to continue their education in formal schools. Furthermore, PHE Jambi Merang provides communal solar cells as a source of new renewable energy for SAD in remote areas. The program has also been successful in empowering the Mina Sada women's group to cultivate salted fish. As a result of improving the literacy skills of SAD residents, including women, salted fish farming products have been sold beyond the SAD community.



Uji Tuntas Hak Asasi Manusia (HAM)

Human Rights Due Diligence

PHE Subholding Upstream mendukung penerapan uji tuntas HAM bagi perusahaan-perusahaan, sejalan dengan pilar kedua United Nations Guiding Principles on Business and Human Rights (UNGPs), yaitu kewajiban menghormati HAM oleh sektor bisnis. Kami mendukung penegakan HAM melalui asesmen dampak sosial (*social impact assessment*) yang dilakukan sebagai bagian dari pelaksanaan Analisis Mengenai Dampak Lingkungan Hidup (AMDAL) sebelum proyek dimulai, yang berpengaruh kepada masyarakat dan lingkungan, serta menyediakan akses untuk penyampaian pengaduan/keluhan. Kami juga memastikan bahwa setiap kegiatan pemberdayaan masyarakat dilakukan dengan memperhatikan HAM, terutama bagi komunitas lokal yang berada di wilayah tersebut. Pada tahun 2018, PT Pertamina Hulu Mahakam telah melakukan Asesmen Dampak Hak Asasi Manusia (*Human Rights Impact Assessment*/HRIA) dengan validitas yang berakhir hingga tahun 2021.

PHE Subholding Upstream promotes corporate human rights due diligence in accordance with the second pillar of the United Nations Guiding Principles on Business and Human Rights (UNGPs), namely the obligation of the business sector to respect human rights. We support the enforcement of human rights by conducting a social impact assessment as part of the Environmental Impact Analysis (AMDAL) process prior to the start of any project that impacts the community or the environment and provides access to complaints. Furthermore, we ensure that all community empowerment activities are conducted in accordance with applicable human rights laws, particularly for local communities in the area. PT Pertamina Hulu Mahakam conducted a Human Rights Impact Assessment (HRIA) in 2018 with a validity period ending in 2021.

Kebebasan Berserikat

Freedom of Association

Salah satu bentuk dukungan pada kebebasan berserikat adalah kebebasan pekerja untuk mendirikan serikat pekerja, dan kebebasan memilih keanggotaan pada serikat pekerja. Saat ini ada 11 serikat pekerja di lingkungan PHE Subholding Upstream. Melalui perwakilan di serikat pekerja, pekerja menyusun dan menyepakati Perjanjian Kerja Bersama (PKB) dengan Manajemen. Segala bentuk pengaduan terkait Serikat Pekerja dan *whistleblowing system* yang disampaikan melalui situs web akan ditindaklanjuti oleh PERTAMINA holding untuk pengambilan langkah selanjutnya. Sampai dengan akhir periode pelaporan, tidak ada hal-hal yang dapat dikategorikan sebagai bentuk pelanggaran kebebasan berserikat bagi pekerja PHE Subholding Upstream, baik pada kegiatan operasional maupun Anak Perusahaan. [407-1]

[SOC-6 C1] [SOC-6 C2]

One form of support for freedom of association is the freedom of workers to form trade unions and the freedom to choose membership in trade unions. Currently, there are 11 labor unions within PHE Subholding Upstream. Through representatives in the trade union, workers draw up and agree on a Collective Labor Agreement (CLA) with Management. All forms of complaints related to Trade Unions and the whistleblowing system are submitted through the website and will be followed up by PERTAMINA holding to take further steps. As of the end of the reporting period, there were no matters that could be categorized as violations of freedom of association for PHE Subholding Upstream employees, both in operational activities and in Subsidiaries. [407-1] [SOC-6 C1] [SOC-6 C2]

► TUMBUH BERSAMA MASYARAKAT

Growing with the Community

PHE Subholding Upstream melakukan kegiatan tanggung jawab sosial dan lingkungan (TJSL) dengan mengedepankan penciptaan nilai bersama, baik untuk Perusahaan maupun kemandirian masyarakat sekitar. Kegiatan ini dijalankan melalui program pelibatan dan pengembangan masyarakat/ *community involvement and development* (CID), di antaranya dalam bentuk investasi sosial yang mendukung komitmen Perusahaan pada pengelolaan lingkungan, sosial, dan tata kelola (LST) untuk berkontribusi pada pencapaian TPB. Pelaksanaan TJSL berpedoman pada Undang-Undang Nomor 40 Tahun 2007 tentang Perseroan Terbatas dan merujuk pada ISO 26000 Guidance Standard on Social Responsibility.

PHE Subholding Upstream engages in corporate social responsibility (CSR) by prioritizing the creation of shared value for both the company and the surrounding community. This activity is carried out through community involvement and development (CID) programs, as well as social investment, in support of the Company's commitment to environmental, social, and governance (ESG) management in order to contribute to the attainment of the SDGs. CSR implementation is guided by Law No. 40 of 2007 on Limited Liability Companies and refers to the ISO 26000 Guidance Standard on Social Responsibility.





Pengelolaan Topik Material ^[3-3]

Material Topic Management

PHE Subholding Upstream berupaya untuk memitigasi potensi dampak negatif dan meningkatkan dampak positif kepada masyarakat sekitar. Potensi dampak negatif ini dapat terjadi karena berkurangnya area tangkapan ikan, mengingat wilayah operasional PHE Subholding Upstream sebagian ada di perairan. Perusahaan telah mengidentifikasi potensi dampak negatif ini dan menyediakan area tangkapan lain bagi nelayan, bahkan mengembangkannya dengan beragam inovasi ramah lingkungan agar membantu meningkatkan kesejahteraan mereka.

Di sisi lain, PHE Subholding Upstream memaksimalkan dampak positif, di antaranya dengan memberikan kesempatan berkarya bagi pekerja dan mitra kerja lokal. Kami juga melakukan investasi sosial sebagai salah satu pilar bidang kegiatan pelibatan dan pengembangan masyarakat sesuai dengan ISO 26000 Guidance Standard on Social Responsibility. Hingga akhir tahun 2021, PHE Subholding Upstream melakukan investasi sosial sebesar Rp170,8 miliar, atau USD11.96 juta termasuk realisasi PT PDSI, PT Elnusa Tbk, dan PT Badak NGL, dengan penghitungan merujuk pada ISO 26000 dan standar pedoman GRI pengungkapan 201. Nilai investasi sosial ini juga mencakup realisasi anggaran program TJSL untuk mendukung kelancaran operasi, yang telah disampaikan dalam Laporan Tahunan 2021. Dalam melaksanakan kegiatan tersebut, kami melibatkan masyarakat dalam perencanaan, pelaksanaan, pemantauan, serta evaluasi Program TJSL.

[413-2] [11.15.3]

PHE Subholding Upstream seeks to mitigate potential negative impacts on the surrounding community while increasing positive impacts. This potential negative impact could occur as a result of reduced fish catchment areas, given that the majority of the PHE Subholding Upstream's operational area is located in waters. The Company identified these potential negative consequences and provided additional fishing areas for fishermen, even developing them with various eco-friendly innovations to aid in their welfare.

PHE Subholding Upstream, on the other hand, maximizes positive impacts by providing employment opportunities for employees and local partners. Furthermore, we make social investments as a pillar of our community engagement and development activities in accordance with the ISO 26000 Social Responsibility Guidance Standard. Until the end of 2021, PHE Subholding Upstream made a social investment of Rp170.8 billion, or USD 11.96 million, including the realization of PT PDSI, PT Elnusa Tbk, and PT Badak NGL, with calculations referring to ISO 26000 and GRI disclosure standards 201. The value of this social investment also includes realizing the CSR program budget to support smooth operations that have been submitted in the 2021 Sustainability Report. We engaged the community in planning, implementing, monitoring, and evaluating these activities. [413-2] [11.15.3]

Pelaksanaan program TJSL dievaluasi melalui mekanisme pelaporan kepada manajemen, pencapaian Indeks Kinerja Kunci (KPI) fungsi pelaksana, evaluasi *social return on investment* (SROI) & pengukuran indeks kepuasan masyarakat (IKM), dan keikutsertaan pada PROPER. Pada tahun 2021, PHE Subholding Upstream mendapatkan 9 PROPER Emas dari 9 Unit Kerja. Untuk memastikan kinerja TJSL dapat memberikan manfaat yang maksimal, pengelolaan TJSL berada di bawah tanggung jawab Unit CSR & SMEP Management di bawah Corporate Secretary dan fungsi pelaksana di Regional dan Anak Perusahaan di lingkungan Subholding Upstream. Pelaporan kinerja TJSL sepanjang 2021 dilakukan setiap bulan kepada Direksi dan setiap triwulan kepada Dewan Komisaris. [3-3]

The CSR programs are evaluated through a reporting mechanism to management, the achievement of the Key Performance Index (KPI) for the implementing function, the evaluation of social return on investment (SROI) and the measurement of community satisfaction index (IKM), and participation PROPER. In 2021, PHE Subholding Upstream received 9 Gold PROPER awards from 9 of its work units. To maximize the benefits of CSR performance, CSR management is the responsibility of the CSR & SMEP Management Unit, which reports to the Corporate Secretary and implements functions in the Subholding Upstream environment's Regional and Subsidiaries. CSR performance reporting was conducted monthly to the Board of Directors and quarterly to the Board of Commissioners throughout 2021. [3-3]

Pelibatan Masyarakat Di Sekitar Wilayah Kerja (WK)

Community Involvement Around the Work Area (WK)

Kami melibatkan masyarakat dalam bentuk partisipasi pada kegiatan asesmen dampak sosial yang menjadi persyaratan dalam dokumen Analisis Mengenai Dampak Lingkungan (AMDAL). Hingga akhir tahun 2021, seluruh kegiatan (100%) pada unit operasi maupun unit produksi telah memiliki dokumen kajian lingkungan (AMDAL atau UKL UPL) dan Izin Lingkungan atau Persetujuan Lingkungan. Proses penyusunan dokumen AMDAL telah melalui tahapan pengumuman kepada masyarakat, sesuai Keputusan Kepala Badan Pengendalian Lingkungan No. 8 Tahun 2020 tentang Keterlibatan Masyarakat dan Keterbukaan Informasi dalam Proses AMDAL. Di samping itu, sebagian besar Wilayah Kerja (WK) di lingkup PHE Subholding Upstream juga telah melaksanakan pemetaan sosial untuk memastikan kegiatan TJSL dilakukan sesuai dengan kebutuhan dan potensi masyarakat setempat. [413-1] [413-2] [OGSS 11.15.2] [OGSS 11.15.3]

We engage the community through participation in social impact assessment activities mandated by the Environmental Impact Assessment (AMDAL) document. Until the end of 2021, all activities (100%) in operating and production units were accompanied by environmental study documents (AMDAL or UKL UPL) and environmental permits or approvals. The process of preparing the AMDAL document went through the public announcement stage, in accordance with Head of the Environmental Control Agency Decree No. 8 of 2020 concerning Community Involvement and Information Disclosure in the AMDAL Process. Furthermore, most Work Areas (WK) within the PHE Subholding Upstream scope conducted social mapping to ensure that CSR activities aligned with the local community's needs and potential. [413-1] [413-2] [OGSS 11.15.2] [OGSS 11.15.3]



Selain pemetaan sosial, sebanyak 33 lapangan telah melakukan kajian pelibatan pemangku kepentingan. Kajian pelibatan pemangku kepentingan ini dilakukan berdasarkan salah satunya *social license index*. Dari kajian yang telah dilakukan, diperoleh hasil bahwa masyarakat dan *stakeholder* telah menerima dan mendukung keberadaan operasi kami di tengah-tengah mereka dengan baik. Kami melibatkan sejumlah Fungsi terkait dalam upaya mengintegrasikan *core competency* Perusahaan dalam pengembangan Program TJSL. Kami juga melibatkan Fungsi HSSE dalam pengelolaan masyarakat di wilayah terdampak. Tahun 2021 pelibatan Fungsi HSSE PHE sebagai Subholding Upstream bersama PHE ONWJ terus memastikan pemulihan fungsi lingkungan hidup, pasca-tumpahan minyak Sumur YYA-1. Pemulihan ini membantu masyarakat dalam melanjutkan aktivitas mereka seperti sedia kala. [413-1] [SOC-9 C1]

In addition to social mapping, 33 fields have conducted stakeholder engagement studies. This stakeholder engagement study was conducted based on one of them is the social license index. From studies that have been carried out, the results found that the community and stakeholders have accepted and supported our operations' existence in their midst. We involve several related functions to ensure that the development of the CSR Programs incorporates the Company's core competencies. Likewise, we involve the HSSE Function in the management of affected communities. In 2021, the PHE Subholding Upstream HSSE Function continued to work with PHE ONWJ to ensure the restoration of environmental functions following the YYA-1 well oil spill. This rehabilitation has enabled the community to resume normal activities. [413-1] [SOC-9 C1]



Semua Blok Operator (100%) PHE Subholding Upstream di dalam negeri yang berjumlah 27 WK melibatkan komunitas lokal dalam program pengembangan masyarakat. Sejumlah 5 WK di antaranya masih dalam tahap eksplorasi sehingga dalam pelaksanaan program tersebut ada yang terfokus pada kegiatan pengelolaan hubungan *stakeholder* untuk mendukung *project* dapat berjalan sesuai tata waktu. [413-1] [SOC-9]
All domestic PHE Subholding Upstream Block Operators (100%) totalling 27 WKs involve local communities in their community development programs. There are a total of 5 WKs that are still in the exploration phase; therefore, the implementation of the program focuses on stakeholder relationship management activities to support the running of the project according to the timeline. [413-1] [SOC-9]

Untuk mengoptimalkan pengelolaan masyarakat, PHE Subholding Upstream dan Anak Perusahaan memberikan akses kepada mereka untuk menyampaikan keluhan. Selama tahun 2021, Perusahaan menerima sejumlah keluhan dari masyarakat di antaranya seputar peningkatan kesejahteraan, peluang kerja, dan ceceran minyak di beberapa lokasi unit kerja. Keluhan ini tidak menyebabkan gangguan yang signifikan pada wilayah operasional kami dan kami telah memproses serta menindaklanjuti setiap keluhan yang disampaikan hingga dinyatakan selesai. [413-1]

PHE Subholding Upstream and its Subsidiaries provide access for residents to file complaints to optimize community management. Throughout 2021, the Company received several complaints from the public, including those regarding the need to improve welfare, job opportunities and oil spills in several work unit locations. These complaints have had no significant impact on our operational area, and we have processed and followed up on every complaint received until they were resolved. [413-1]

Setiap program TJSL dievaluasi melalui beberapa pendekatan, di antaranya pengukuran *social return of investment* (SROI). Pendekatan SROI melibatkan masyarakat sebagai penerima manfaat dan para pemangku kepentingan terkait, termasuk

Each CSR program is evaluated through several approaches, including the social return on investment (SROI). The SROI approach involves the community as beneficiaries and other stakeholders and includes mapping and identifying

memetakan dan mengidentifikasi dampak yang terjadi pada penerima manfaat. Sampai dengan akhir tahun 2021, PHE Subholding Upstream telah melaksanakan pengukuran SROI untuk 22 program unggulan, dengan hasil rata-rata sebesar 1:6,08.

PHE Subholding Upstream melaksanakan kegiatan TJSL untuk mendukung TPB. Dukungan ini dilakukan dengan cara memetakan kegiatan melalui pendekatan mitigasi risiko, nilai yang dibagikan, dan aspek keberlanjutan yang mengacu pada UN SDGs Compass.

the impacted beneficiaries. Until the end of 2021, PHE Subholding Upstream measured the SROI of 22 flagship programs, averaging 1:6.08.

PHE Subholding Upstream engages in CSR activities that contribute to achieving the SDGs. Mapping activities provide this support in accordance with risk mitigation principles, shared values, and sustainability aspects as outlined in the UN SDGs Compass.

Pemberdayaan Usaha Mikro, Kecil Menengah (UMKM)

Micro, Small and Medium Enterprises (MSMEs) Empowerment

PHE Subholding Upstream melaksanakan pemberdayaan UMKM bersama Pemerintah setempat, lembaga mitra dan pemangku kepentingan terkait lain, untuk meningkatkan kemampuan usaha kecil agar menjadi tangguh dan mandiri, serta memberikan efek berantai bagi peningkatan kesejahteraan masyarakat. Hingga akhir tahun 2021 tercatat ada lebih dari 660 UMKM binaan yang produktif, yang tersebar di WK PHE Subholding Upstream, termasuk mereka yang berada di wilayah terpencil. Kami memberikan kesempatan yang setara bagi semua UMKM untuk berdaya dan mandiri, termasuk pelaku usaha dari kelompok perempuan dan masyarakat adat.

PHE Subholding Upstream empowers SMEs to collaborate with local governments, partner institutions, and other relevant stakeholders to strengthen and independent small businesses and create a chain effect for improving people's welfare. By the end of 2021, over 660 assisted SMEs located throughout the PHE Subholding Upstream WK, including those in remote areas, were productive. We provide equal opportunities for empowerment and independence for all SMEs, including those led by women's groups and indigenous peoples.

PHE Subholding Upstream turut memberikan akses kepada UMKM melalui usaha pengadaan barang maupun jasa lewat Pasar Digital (PaDi) UMKM Indonesia, dengan kontribusi pencapaian transaksi melalui PaDi tahun 2021 sebesar lebih dari Rp11,17 Miliar. Transaksi yang dilakukan meliputi 15 komoditas dari 26 komoditas utama barang dan jasa, di antaranya pengadaan *merchandise* produk mitra binaan, pengadaan jasa katering dan *snack*, serta jasa *event organizer*, dan lain sebagainya.

PHE Subholding Upstream provides access to guided SMEs in procuring goods and services via the Indonesian MSME Digital Market (PaDi), which achieved more than Rp11,17 Billion in transactions through PaDi in 2021. The transactions involved 15 commodities from 26 different commodities of goods and services, such as the procurement of merchandise for guided partners, catering and snack services also event organizer, and so on.



- Sentra Budaya dan Ekonomi Kreatif Melayu Riau merupakan salah satu pemberdayaan UMKM perempuan yang berasal dari 12 kabupaten/kota di Provinsi Riau, binaan dari Pertamina Hulu Rokan dan SKK Migas. Sekitar 75% dari total 300 UMKM atau sejumlah 225 UMKM yang dibina Sentra ini adalah perempuan. Pengembangan usaha juga dilakukan dengan peningkatan kapasitas UMKM perempuan dalam pemasaran digital.
- The Riau Malay Cultural and Creative Economic Center is one of the initiatives to empower women MSMEs from the Riau province's 12 districts/cities, with support from Pertamina Hulu Rokan and SKK Migas. Around 75% of the Center's 300 MSMEs, or 225 MSMEs in total, are women. Additionally, business development is accomplished by building the capacity of women-owned MSMEs in digital marketing.
- Mahakam Winners (Wanita Entrepreneurs) menjadi pusat pemberdayaan perempuan 'UMKM Sinergi' yang dibina oleh Pertamina Hulu Mahakam. Terdapat 32 UMKM yang tergabung dan mereka telah mampu mengelola hasil alam hutan Delta Mahakam maupun hasil laut yang dipasarkan di Sentra Nipah Urang Handil. Keberadaan UMKM perempuan ini juga memberikan dampak efek berganda bagi 20 kelompok di wilayah sekitar. Berkolaborasi dengan Rumah BUMN Pertamina Balikpapan, UMKM Sinergi telah memiliki Quick Response Indonesian Standard (QRIS)/barcode sebagai pembayaran digital untuk transaksi pembelian.
- The Mahakam Winners (Women Entrepreneurs) established a center for women's empowerment called 'UMKM Sinergi,' which is guided by Pertamina Hulu Mahakam. There are 32 MSMEs who have joined and are managing the natural products of the Mahakam Delta forest and marine products, which are sold at the Nipah Urang Handil Center. The existence of these women owned MSMEs have also had a multiplier effect on 20 surrounding groups. UMKM Sinergi already uses a Quick Response Indonesian Standard (QRIS)/barcode as a digital payment method for purchase transactions in collaboration with the Pertamina Balikpapan SOE Home.

Program Unggulan Pemberdayaan dan Pengembangan Masyarakat [POJK51-6] [413-1] [EM-EP-210b.1]

Community Empowerment and Development Flagship Programs

Desa Energi Berdikari

Energi Berdikari Village



Pemberdayaan Desa Energi Berdikari merupakan salah satu wujud dari komitmen PHE Subholding Upstream untuk mendukung ketersediaan akses energi yang lebih terjangkau, dapat diandalkan dan berkelanjutan, berbasis masyarakat dan sumber energi baru terbarukan (EBT). Energi listrik yang disediakan sepanjang tahun 2021 sebanyak 1.270 Watt Peak/Tahun dari program unggulan berbasis energi surya dan energi dari pemanfaatan gas metana mencapai 462.680 m³ ton/tahun, serta berhasil mereduksi emisi sebesar 189.202,61 ton CO₂eq dari 4 program unggulan yang dilakukan kajian oleh Perguruan Tinggi yaitu Wasteco, Best, Kembang Bersinar, dan Nelayanku Hebat.

The empowerment of the Energi Berdikari Village demonstrates PHE Subholding Upstream's commitment to ensuring access to more affordable, reliable, and sustainable energy sources, including community-based and new and renewable energy sources (NRE). In 2021, 1,270 Watt Peak/Year was generated from a solar-based flagship program; and 462,680 m³ tons/year was generated from energy that utilized methane gas. Furthermore, 4 flagship programs, namely Wasteco, Best, Kembang Bersinar, and Nelayanku Hebat, successfully reduced emissions by 89,202.61 tons CO₂eq.





WASTECO (Waste Energy for Community)

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Program WASTECO diinisiasi oleh Pertamina Hulu Mahakam (PHM) bekerja sama dengan TPAS Manggar untuk membantu masyarakat dalam mengelola sampah menjadi gas metana yang dapat digunakan untuk penyediaan kebutuhan gas rumah tangga dan UMKM. PHM juga melakukan pembangunan minigas *power plant* untuk listrik TPAS dan mengintegrasikan core competency Perusahaan berupa keahlian dalam teknik penyaluran gas ke dalam program. Dalam pelaksanaan Program Wasteco, PHM bersinergi dengan Bappeda dan DLH Kota Balikpapan serta lembaga mitra.

Hingga akhir periode pelaporan, Program Wasteco telah dimanfaatkan oleh 200 rumah dan 22 UMKM di lingkungan Kelurahan Manggar Baru, Balikpapan, dengan memanfaatkan gas metana sampah sebesar 462.680 m³/tahun dan melakukan penghematan biaya pengeluaran rumah tangga hingga Rp180 juta/tahun. Program Wasteco juga berhasil menurunkan emisi karbon sebesar 181.145 ton CO₂eq/tahun.

Pertamina Hulu Mahakam (PHM), in collaboration with TPAS Manggar, launched the WASTECO program to assist communities in converting waste into methane gas that can be used to provide gas for households and SMEs. Likewise, PHM constructed a minigas power plant for TPAS electricity, incorporating the Company's core competency in gas distribution techniques into the program. PHM synergized with Bappeda, the Balikpapan City Environmental Services, and a partner agency in implementing the WASTECO program.

Until the end of the reporting period, the Wasteco Program served 200 households and 22 SMEs in Balikpapan's Manggar Baru Village by utilizing 462,680 m³/year tons of waste methane gas per year and save up to Rp180 million/year in household expenses. Additionally, the Wasteco program reduced carbon emissions by 181,145 ton CO₂eq/year.



Direktur Eksplorasi Bapak Medy Kurniawan di lokasi Program WASTECO
Mr. Medy Kurniawan as Director of Exploration at the WASTECO Program Site

Kembang Bersinar

Kembang Bersinar

PHM juga memiliki program pemanfaatan energi terbarukan dari energi surya, yakni Program Kembang Bersinar yang dilaksanakan di wilayah terpencil Delta Mahakam, yaitu Kelurahan Muara Kembang, Kecamatan Muara Jawa, Kabupaten Kutai Kartanegara, Kalimantan Timur. Program ini ditujukan untuk mengganti pemakaian genset berbahan bakar solar, dengan pembangkit listrik tenaga surya melalui penyediaan 70 unit *solar home system* (SHS) yang dikelola lembaga ekonomi lokal, yaitu Badan Pelaksana Listrik Tenaga Surya (BPLTS).

Program Kembang Bersinar telah dapat mengurangi emisi dari penggunaan genset sebesar 198.789,55 kgCO₂/tahun, dan dari pengurangan penggunaan bahan bakar minyak (BBM) sebesar 74.520 liter/tahun. Hingga akhir 2021, Program Kembang Bersinar telah dimanfaatkan oleh 70 rumah tangga, atau 286 penduduk, serta dapat menghemat biaya pembelian solar untuk genset hingga total Rp372.6 juta/tahun. Pada tahun 2021, Desa Energi Berdikari Kelurahan Muara Kembang telah mendapatkan penghargaan Program Kampung Iklim (ProKlim) dari KLHK RI.

PHM also has solar energy-based renewable energy programs, including the Kembang Sinar Program, implemented in a remote area of the Mahakam Delta, specifically the Muara Kembang Village, Muara Jawa District, Kutai Kartanegara Regency, East Kalimantan. This program aims to phase out diesel generators in favor of solar energy by providing 70 solar home systems (SHS) managed by local economic institutions, specifically the Solar Electricity Implementing Agency (BPLTS).

The Kembang Bersinar Program has the potential to reduce emissions from generators by 198,789.55 kgCO₂/year and fuel oil (BBM) consumption by 74,520 liters/year. By the end of 2021, the Kembang Bersinar Program was utilized by 70 households, or 286 residents, also can saving a total of Rp372.6 million per year on diesel for generators. In 2021, Energi Berdikari Village Muara Kembang District received the Indonesian Ministry of Environment and Forestry's 'Program Kampung Iklim (ProKlim)' award.





Berbagi Energi Surya Terbarukan (BEST)

Renewable Solar Energy Sharing (BEST)

Program lain yang dijalankan PHM adalah BEST yang dilaksanakan di Desa Tani Baru, Kecamatan Anggana, Kabupaten Kutai Kartanegara, Kalimantan Timur. Program BEST juga mengembangkan pengelolaan *solar home system* (SHS) yang menggantikan pemakaian genset berbahan solar.

Sampai dengan akhir tahun 2021, PHM telah menyediakan 69 unit SHS yang dikelola BUMDes setempat, dengan penerima manfaat Program BEST sebanyak 67 rumah tangga atau 360 penduduk dan 17 fasilitas umum. Pemanfaatan SHS telah membantu menurunkan biaya pembelian solar hingga total Rp331,43 juta/tahun. Manfaat lainnya adalah pengurangan emisi gas rumah kaca (GRK) sebesar 176,82 ton CO₂eq/tahun, yang diperoleh dengan pengurangan penggunaan bahan bakar untuk operasi pembangkit sebesar 136,22 ribu liter/tahun. Desa Energi Berdikari Desa Tani Baru juga mendapatkan predikat ProKlim tahun 2021.

BEST is another PHM program that takes place in Tani Baru Village, Anggana District, Kutai Kartanegara Regency, East Kalimantan. Additionally, the BEST program has developed a management system for solar home systems (SHS) that eliminates the need for diesel generators.

PHM provided 69 SHS units managed by local VOEs until the end of 2021, benefiting up to 67 households or 360 residents through the BEST program and 17 public facilities. The use of SHS has resulted in an annual savings of Rp331.43 million on diesel fuel purchases. Another benefit is the reduction of greenhouse gas (GHG) emissions of 176.82 tons CO₂eq/year, which is obtained by reducing the use of fuel for generator operations of 136.22 thousand liters/year. The Energi Berdikari Village of Tani Baru Village has also received the 2021 ProKlim predicate award.

Desa Mandiri Energi Listrik Tepian

Desa Mandiri Energi Listrik Tepian

Program Desa Mandiri Energi Listrik Tepian dikembangkan oleh PT Pertamina EP (PEP) Tarakan Field. PEP Tarakan Field menginisiasi penggunaan SHS untuk penyediaan listrik di Desa Tepian, Kecamatan Sembakung, Kabupaten Nunukan, Provinsi Kalimantan Utara, yang selama ini tidak mendapatkan akses listrik, air bersih, sarana pendidikan serta kesehatan yang memadai. Penyediaan SHS menggantikan penggunaan mesin genset ke *solar cell* komunal, telah memberikan manfaat bagi 1.080 jiwa. Hingga akhir 2021, Desa Tepian menjadi Percontohan Desa Mandiri di Kalimantan Utara.

PT Pertamina EP (PEP) Tarakan Field developed the Desa Mandiri Energi Listrik Tepian Program. PEP Tarakan Field initiates the use of SHS to provide electricity to Tepian Village, Sembakung District, Nunukan Regency, North Kalimantan Province, which has historically lacked access to electricity, safe drinking water, educational facilities, and adequate health care. The provision of SHS has resulted in replacing generators with communal solar cells, and provide benefits for 1,080 people. Tepian Village was designated as a Model Independent Village in North Kalimantan in 2021.

Inovasi Enbarter

Enbarter Innovation

PEP Tarakan Field bekerja sama dengan Kelompok Swadaya Masyarakat (KSM) Ramah Lingkungan Kampung Enam mengembangkan inovasi Enbarter berupa pengolahan minyak jelantah sebagai bahan baku Biodiesel B10 dan B20 tersertifikasi untuk energi baru terbarukan. Program ini mampu mengolah minyak jelantah menjadi biodiesel 259 L/tahun, memanfaatkan sampah organik 9 ton/tahun, dan menggunakan gliserol 65 L/tahun menjadi bahan campuran pembuatan sabun. Penerima manfaat program hingga akhir periode pelaporan mencapai 5.200 jiwa atau sekitar 86,3% warga. Kelurahan Kampung Enam. Meskipun program telah dilakukan *exit strategy* pada 2020, PEP Tarakan Field tetap melakukan monitoring dan menjalin komunikasi dengan KSM Ramah Lingkungan sepanjang 2021, untuk memastikan keberlanjutan program.

Selain lima program unggulan di atas, PHE Subholding Upstream juga mengembangkan EBT yang terintegrasi ke dalam program-program unggulan lainnya, termasuk di lokasi program masyarakat adat Suku Anak Dalam.

[EM-EP-210b.1]

PEP Tarakan Field developed the Enbarter Innovation in collaboration with Kampung Enam Environmentally Friendly Non-Governmental Organizations (NGOs) in processing used cooking oil as a raw material for certified Biodiesel B10 and B20 for new and renewable energy. This program can process 259 liters of used cooking oil per year into biodiesel, utilizing 9 tons of organic waste per year, and utilizing 65 liters/year of glycerol per year as a mixture for soap production. Until the end of the reporting period, the program benefited 5,200 people, or approximately 86.3% of the population. Kampung Enam Subdistrict. Although the program's exit strategy was implemented in 2020, PEP Tarakan Field continued to monitor and communicate with Environmentally Friendly KSM throughout 2021 to ensure the program's sustainability.

In addition to the five flagship programs above, PHE Subholding Upstream also develops NRE which is integrated into other flagship programs included in the program location of the Suku Anak Dalam indigenous community.

[EM-EP-210b.1]



Petani Maju 4.0, Pertamina Hulu Mahakam - BSP

Advanced Farmers 4.0, Pertamina Hulu Mahakam – BSP



<https://youtu.be/5DLZLI8tpSU>



Program Petani Maju 4.0 dikembangkan PHM-BSP di Kelurahan Sanipah dan Handil Baru Darat, Kecamatan Samboja, Kabupaten Kutai Kartanegara melalui inovasi sosial: Sistem Pertanian Pertakultur (Pertamina Agrikultur) yang ramah lingkungan. Program memiliki tiga keunikan, yakni kolaborasi petani muda dan tua, inovasi dekomposer biotasuke dari limbah organik, serta integrasi teknologi dan pertanian berupa penggunaan drone untuk monitoring pertanian dan mitigasi karhutla serta pengembangan aplikasi tanam digital untuk pemasaran produk.

Pelaksanaan program telah dapat mengurangi jumlah pengangguran dengan pemberdayaan 33 pemuda bertani dan mendukung pelestarian lingkungan melalui pemanfaatan limbah organik. Dari aspek pengelolaan lingkungan, program mampu mengurangi emisi gas rumah kaca (GRK) dari limbah perkebunan sebanyak 259,2 kg CH₄ pada tahun 2021. Sementara itu, pengurangan karbon stok biomassa mencapai 91,64 ton CO₂/tahun dan penghematan biaya irigasi sebesar Rp1,2 juta per tahun.



PHM-BSP developed the Advanced Farmers 4.0 Program in the villages of Sanipah and Handil Baru Darat, Samboja District, Kutai Kartanegara Regency, utilizing social innovation and the environmentally friendly Pertaculture Agricultural System (Pertamina Agrikultur). The program has three unique features: it brings together young and old farmers, it develops biotasuke decomposers from organic waste, and it integrates technology and agriculture through the use of drones for agricultural monitoring and forest and land fire mitigation, as well as the development of digital planting applications for product marketing.

The program's implementation has resulted in a decrease in unemployment by empowering 33 young farmers and supporting environmental conservation through the use of organic waste. In terms of environmental management, the program reduced 259.2 kg CH₄ in greenhouse gas (GHG) emissions from plantation waste in 2021. Meanwhile, carbon stock reduction from biomass reached 91.64 tons CO₂/year, resulting in annual irrigation cost savings of Rp1.2 million.



Nelayanku Hebat, Pertamina Hulu Mahakam - SPU

Nelayanku Hebat, Pertamina Hulu Mahakam – SPU



<https://youtu.be/M7ZH4j4bMvY>



Program Nelayanku Hebat dilakukan di wilayah pesisir Delta Mahakam, di Desa Muara Pantuan, dan Sepatin, Kecamatan Anggana, Kabupaten Kutai Kartanegara, Kalimantan Timur. PHM-SPU membina 12 kelompok beranggotakan 170 orang. Dalam menjalankan Program Nelayanku Hebat, PHM-SPU berkolaborasi dengan Dinas Kelautan dan Perikanan Kabupaten Kutai Kartanegara.

Sejak ada Program Nelayanku Hebat, para nelayan mengubah penggunaan *trawl* dengan inovasi apartemen ikan yang ramah lingkungan sehingga menyelamatkan 32,4 Ha area *mangrove*. Efektifitas apartemen ikan didukung peralatan *global positioning system* (GPS) dan *fish finder* untuk memastikan akurasi titik tangkap nelayan saat melaut, serta pemanfaatan *solar cell* di kapal nelayan. Perubahan cara tangkap ikan ini mampu mengurangi pemakaian bahan bakar kapal sehingga mengurangi emisi sebesar 7,68269 ton CO₂/tahun. Hasil tangkap nelayan juga meningkat, dan sebanyak 26% nelayan anggota kelompok terbebas dari *punggawa* (tengkulak). Melalui program Bengkel Nelayan, PHM-SPU juga memberikan kesempatan kepada dua warga disabilitas untuk menjadi mekanik. Pada 2021, Desa Sepatin meraih predikat Desa ProKlim.

The *Nelayanku Hebat* program is implemented in the coastal areas of the Mahakam Delta in Muara Pantuan Village, and Sepatin, Anggana District, Kutai Kartanegara Regency, East Kalimantan. PHM-SPU supports 12 groups totaling 170 individuals. PHM-SPU collaborates with the Marine and Fisheries Office of Kutai Kartanegara Regency to run the *Nelayanku Hebat* Program.

Since the *Nelayanku Hebat* Program began, fishermen have replaced trawling with environmentally friendly fish apartments, thereby saving 32.4 hectares of mangrove habitat. The fish apartment's effectiveness is aided by global positioning system (GPS) equipment and a fish finder, which ensures the accuracy of fishermen's fishing points also the use of solar cells on fishing boats. This change in fishing methods enabled a reduction in ship fuel use, resulting in a reduction of 7,68269 tons of CO₂/year. Additionally, 26% of fisherman group members were no longer subject to *punggawa* (middlemen). Through, PHM-SPU offered two disabled individuals the opportunity to become mechanics through the Fisherman's Workshop program. In 2021, Sepatin Village won the title of ProKlim Village.



Kampung Kopi Luwak Desa Prangat Baru (KAPAK PRABU), PHKT - DOBU

Luwak Coffee Village, Prangat Baru Village (KAPAK PRABU), PHKT - DOBU



<https://youtu.be/D5O1C5ACFiQ>



PHKT DOBU mengembangkan budidaya kopi Liberika di Desa Prangat Baru, Kecamatan Marang Kayu, Kabupaten Kutai Kartanegara. Program ini memberikan nilai tambah ekonomi, sosial dan lingkungan bagi kelompok tani dan masyarakat sekitar. Pada tahun 2021 tercatat adanya penanaman 4.070 bibit kopi Liberika tambahan di lahan seluas 4 ha oleh 15 anggota kelompok. Program Kapak Prabu juga mampu memberikan kontribusi serapan karbon 125 ton CO₂ dan pelepasan 80 ton gas O₂. Di samping itu, untuk menjaga kualitas tanah yang baik, kelompok tani menciptakan inovasi sosial melalui pupuk kompos Santan Terminal (Pupuk KONTAN) dan mampu mengolah limbah organik sebanyak 100,55 ton.

Cultivation of liberica coffee was developed by PHKT DOBU in Prangat Baru Village, Marang Kayu District, Kutai Kartanegara Regency. This program benefits farmer groups and the surrounding community economically, socially, and environmentally. In 2021, 15 group members planted an additional 4,070 Liberica coffee seedlings on 4 ha of land. Furthermore, the Kapak Prabu program was able to sequester 125 tons of CO₂ and release 80 tons of O₂ gas. Likewise, farmer groups developed social innovations to preserve soil quality using Santan Terminal compost (Pupuk KONTAN) and processed 100.55 tons of organic waste.

Program Tani Terpadu Sistem Inovasi Sosial Kelompok Setaria (TANTE SISKa), PEP Sanga Sanga Field
Integrated Farmer Program for the Setaria Group Social Innovation System (TANTE SISKa), PEP Sanga Sanga Field



<https://youtu.be/35IEhte5Gx4>



PEP Sanga Sanga Field mendukung Program Tani Terpadu Sistem Inovasi Sosial Kelompok Setaria (Tante Siska) di Desa Sarijaya, Kecamatan Sanga Sanga, Kutai Kartanegara, berupa kegiatan pengembangan wirausaha sosial yang bergerak di bidang pertanian terpadu. Tujuan program adalah mengembangkan kegiatan pertanian dengan skema ekonomi sirkular yang mengutamakan efisiensi dan pengembangan diversifikasi produk secara ramah lingkungan.

Selain itu, integrasi *core competency* Perusahaan dalam program berkolaborasi dengan kelompok binaan menghasilkan alat destilasi asap sekam bakar (Damkar), yang menjadikan asap bakar menjadi asap cair yang dapat digunakan sebagai campuran pupuk cair organik dan sekam bakar menjadi komposisi tambahan pupuk organik. Inovasi ini berhasil mengurangi emisi CO₂ sebesar 7,76 ton CO₂eq/tahun.

PEP Sanga Sanga Field implements Integrated Farmer Program for the Setaria Group Social Innovation System (Tante Siska) in Sarijaya Village, Sanga Sanga District, Kutai Kartanegara. This is a social entrepreneur development activity focused on integrated agriculture. The program aims to develop agricultural activities through a circular economy framework that prioritizes efficiency and product diversification while remaining environmentally friendly.

Additionally, the program's integration of the Company's core competencies in collaboration with the guided groups resulted in the development of a burnt husk smoke distillation device (Damkar) that converts fuel smoke to liquid smoke that can be used as a mixture of liquid organic fertilizer and roasted husks to create an additional organic fertilizer composition. This innovation resulted in a 7.76 ton CO₂eq/year reduction in CO₂ emissions.



Program Kubedistik Rumah Batik Disabilitas Tarakan, PEP Tarakan Field

Tarakan Disability Batik House (Kubedistik) Program, PEP Tarakan Field



<https://youtu.be/U5oQJM29sd4>



PEP Tarakan Field berkontribusi bagi pengembangan masyarakat di sekitar wilayah kerjanya dengan memberikan kegiatan pemberdayaan kepada Rumah Batik Disabilitas Tarakan (Kubedistik). Program ini telah mendorong semangat 22 orang atau 12% kaum disabilitas di Kota Tarakan untuk lebih berdaya.

Batik yang dibuat merupakan batik ramah lingkungan dengan penggunaan pewarna alam dari limbah bakau. Kubedistik menjadi satu-satunya kelompok yang memiliki instalasi pengelolaan air limbah (IPAL). Hingga kini terdapat 3 motif batik yang telah mendapatkan Hak Cipta (HAKI) yaitu motif Rig Patra, Telaga Patra dan Pagun Patra, sedangkan 3 motif lainnya yakni Enggang Sejoli, Burung Enggang dan Pakis Pesisir menjadi motif khas Tarakan. Batik produksi Kubedistik telah mendapat dukungan dari Pemerintah setempat dengan mengeluarkan kebijakan Peraturan Wali Kota Tarakan No. 7 Tahun 2021 yang menyebutkan bahwa Pegawai Negeri Sipil (PNS) di Kota Tarakan wajib memakai Batik khas Tarakan setiap hari Kamis.

PEP Tarakan Field contributes to the community's development by providing empowerment activities to the Tarakan Disability Batik House (Kubedistik). This program sparked the interest of 22 people, or 12% of Tarakan City's disabled population, in becoming more empowered.

The batik is environmentally friendly, utilizing natural dyes derived from mangrove waste. Kubedistik is one of the few groups with its own wastewater treatment plant (WTP). To date, 3 batik motifs have been granted Copyright (HAKI), namely the Rig Patra, Telaga Patra, and Pagun Patra motifs. Meanwhile, another 3 motifs, namely the Enggang Sejoli, Burung Enggang, and Pakis Pesisir, have become signature Tarakan motifs. All of the batik produced by Kubedistik have garnered the support from the local government through Tarakan Mayor Regulation No. 7 of 2021, requiring Civil Servants (PNS) in Tarakan City to wear Tarakan Batik every Thursday.

Program Pendidikan untuk Anak (PELITA)- PEP Subang Field

Childhood Education Program (PELITA)- PEP Subang Field



<https://youtu.be/U5oQJM29sd4>



PEP Subang Field menjadikan PAUD Alam Al-Firdaus yang berlokasi di Karawang sebagai *pilot project* untuk menerapkan program PELITA dan bekerja sama dengan lembaga mitra, mengembangkan teknik kegiatan belajar mengajar (KBM) di tengah masa pandemi.

Saat ini, PAUD Al-Firdaus telah memiliki jangkauan yang luas dan menjadi *role model* inovasi pendidikan berbasis lingkungan. Kurikulum Tematik Pengelolaan Sampah telah dijadikan muatan lokal di tingkat PAUD di Karawang berdasarkan SK Dinas Pendidikan, Pemuda dan Olahraga No. 420/2514/Disdikpora dan diterapkan lebih dari 1.593 PAUD se-Kabupaten Karawang. PAUD Alam Al-Firdaus juga telah menjalin kerja sama dengan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi (Kemdikbudristek), Dinas Pendidikan Karawang dan Himpunan Pendidik dan Tenaga Kependidikan (HIMPAUDI), untuk adopsi penyusunan kurikulum PAUD terintegrasi edukasi pengurangan sampah plastik oleh Kemdikbudristek. Program juga berhasil meluncurkan aplikasi pembelajaran berbasis lingkungan untuk mengoptimalkan pembelajaran secara daring.

PEP Subang Field established PAUD Alam Al-Firdaus in Karawang as a pilot project for the PELITA program's implementation. During the pandemic, PAUD Alam Al-Firdaus developed a teaching and learning activity technique (KBM) in collaboration with partner agency.

PAUD Al-Firdaus currently has a broad reach and serves as a model for environmental-based educational innovation. Based on Office of Education, Youth, and Sports Decree No. 420/2514/Disdikpora, the Thematic Waste Management Curriculum has been adapted for local content at the PAUD level in Karawang and implemented more than 1,593 PAUD in Karawang Regency. Additionally, PAUD Alam Al-Firdaus collaborated with the Ministry of Education, Culture, Research, and Technology (Kemdikbudristek), the Karawang Education Office, and the Association of Educators and Education Personnel (HIMPAUDI) to have the Ministry of Education and Culture adopt an integrated PAUD curriculum for plastic waste reduction education. Furthermore, the program has successfully launched an environment-based learning application to optimize online learning.



Program Desa Cinta Bumi Tanggap Api, PHE Jambi Merang

The Desa Cinta Bumi Tanggap Api Program, PHE Jambi Merang



https://youtube.com/playlist?list=PLVp5_9ZPINFs2oAN2NDj-tAGN5F8PPVv



Program Desa Cinta Bumi Tanggap Api di Desa Mendis, Musi Banyuasin merupakan wujud kepedulian PHE Jambi Merang terhadap lingkungan dan masyarakat, khususnya dalam penanganan kebakaran hutan dan lahan (karhutla). Bersinergi bersama Kelompok Tanggap Api Ketan Adem, PHE Jambi Merang mengembangkan saluran komunikasi terpadu melalui HT sehingga warga dapat melakukan deteksi dini terhadap kebocoran pipa dan pencegahan pencemaran lingkungan. Inovasi ini juga menghasilkan *value creation* bagi Perusahaan yang terukur.

Hingga akhir periode pelaporan, program berhasil merevitalisasi 16.000 m³ embung dan jalur hijau serta seluas 8.000 ha lahan terlindungi dari kebakaran. Selain itu, sebanyak 30 orang dari kelompok Ketan Adem telah mendapatkan peningkatan keterampilan melalui pelatihan tanggap darurat.

The *Desa Cinta Bumi Tanggap Api* Program in Mendis Village, Musi Banyuasin demonstrates PHE Jambi Merang's concern for the environment and society, particularly when it comes to forest and land fire management (karhutla). PHE Jambi Merang has developed an integrated communication channel through HT in collaboration with the Ketan Adem Fire Response Group to enable residents to conduct early detection of pipe leaks and prevent environmental pollution. Additionally, this innovation results in quantifiable value creation for the Company.

By the end of the reporting period, the program had revitalized 16,000 cubic meters of reservoirs and green belts and covered an area of 8,000 hectares with fire-resistant vegetation. In addition, as many as 30 members of the Ketan Adem group have received emergency response training to improve their skills.

Program Pertanian Agroekologi Agroecology Agriculture Program



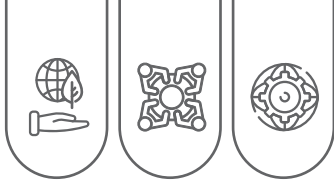
<https://youtu.be/e9wHp1m7Dng>



JOB Tomori sebagai bagian dari PHE Subholding Upstream, memiliki program Pertanian Agroekologi yang dijalankan di Kabupaten Banggai, Sulawesi Tengah. Program bertujuan untuk meningkatkan sistem pertanian ramah lingkungan. Seluruh kegiatan pertanian dikendalikan oleh kelompok tani melalui *Internal Control System* (ICS) dan hingga akhir 2021, hasil pertanian organik telah disertifikasi oleh Indonesian Organic Farming Certification (Inofice). Pertanian Agroekologi mampu memproduksi pupuk kompos secara mandiri, menghemat air irigasi sebesar 40%, dan sebanyak 456 petani mendapatkan edukasi pelatihan pertanian ramah lingkungan. Capaian ini menghasilkan Indeks Kepuasan Masyarakat (IKM) sebesar 3,6 atau 'sangat puas'.

JOB Tomori, as a subsidiary of PHE Subholding Upstream, operates an agroecological agriculture program in Central Sulawesi's Banggai Regency. The program's objective is to enhance environmentally sustainable agricultural systems. Farmer groups regulate all agricultural activities via the Internal Control System (ICS), and, in 2021, organic agricultural products were certified organic by the Indonesian Organic Farming Certification (Inofice). Agroecological agriculture is capable of producing compost on its own, saves 40% of irrigation water, and has educated as many as 456 farmers on environmentally friendly agricultural practices. This accomplishment resulted in a Community Satisfaction Index (IKM) score of 3.6, indicating 'very satisfied.'





Program Sampah Keliling Swadaya Masyarakat (SALIN SWARA) Self-Subsistent Mobile Garbage Program (SALIN SWARA)



<https://www.youtube.com/watch?v=aTOYuG7v-E0>



Salin Swara (Sampah Keliling Swadaya Masyarakat) merupakan program investasi berbasis pengelolaan sampah secara swadaya. Berkolaborasi dengan mitra binaan Bank Sampah Pesisir, Telihan Recycle, Bank Sampah Ceria, Bank Sampah Unit Selangan dan Bank Sampah Unit Masdarling, PT Badak NGL mengembangkan program ini di empat kelurahan di Kota Bontang, Kalimantan Timur.

Program Salin Swara memberikan banyak manfaat bagi masyarakat setempat, di antaranya peningkatan jumlah pendapatan untuk pemuda dan ibu rumah tangga dengan sekitar 467 orang berpartisipasi dalam kegiatan pengolahan sampah. Selain itu, program telah memberikan perluasan manfaat dan nilai tukar sampah. Sebanyak 899 orang mendapat manfaat langsung memilah sampah secara mandiri, 763,4 kg minyak jelantah berhasil diekspor, serta 522,5 liter olahan minyak jelantah menjadi biodiesel untuk bahan bakar. Program juga berhasil melakukan pengurangan timbulan sampah TPA mencapai 1.727,8 kg.

Lebih lanjut, program telah menghasilkan nilai CSV dengan pengolahan limbah Non-B3. Sejumlah 28 unit *coolbox* yang diproduksi masyarakat dari limbah aluminium perusahaan dimanfaatkan nelayan sebagai tempat penyimpanan ikan pengganti styrofoam, sedangkan limbah drum bekas diolah menjadi 20 set mebel dengan nilai jual per set Rp3 juta hingga Rp5 juta.

Salin Swara (Self-Subsistent Mobile Garbage Program) is a waste management investment program based on self-sufficiency. This program was developed in four subdistricts of Bontang, East Kalimantan, under the guidance of PT Badak NGL and in collaboration with its partners: the Coastal Waste Bank, Telihan Recycle, Ceria Garbage Bank, Selangan Waste Bank, and the Masdarling Unit Garbage Bank.

The Salin Swara program benefits the local community, including increased income for youth and housewives, with approximately 467 people involved in waste processing activities. Furthermore, the program expanded waste benefits and exchange rates. 899 people directly benefited from independently sorting waste, 763.4 kg of used cooking oil was successfully exported, and 522.5 liters of processed, used cooking oil was converted into biodiesel for fuel. The program also reduced landfill waste generation by 1,727.8 kg.

Additionally, the program has generated a CSV value through the treatment of non-B3 waste. As an alternative to Styrofoam, 28 coolbox units made by the community from the company's aluminum waste are used by fishermen to store fish, while 20 sets of furniture with sale value between Rp3 million and Rp5 million are created from used drum waste.

Rincian Program dan dukungan pada SDGs dapat dibaca pada Buku TJSL PHE Subholding Upstream 2021 "Berbagi Inspirasi Kebajikan untuk Masa Depan"

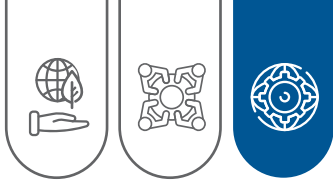
The program's details and support for the SDGs can be found in the PHE Subholding Upstream 2021 CSR Book "Sharing Good Inspiration for the Future"



Memperkuat Sinergi Strengthening Synergies

PHE Subholding Upstream terus memperkuat penerapan tata kelola keberlanjutan di seluruh lini bisnis dan operasional, sejalan dengan kebijakan pengelolaan lingkungan, sosial dan tata kelola (LST). Melalui penerapan tata kelola keberlanjutan, kami juga berkomitmen mendukung pencapaian Tujuan Pembangunan Berkelanjutan (TPB).

PHE Subholding Upstream continues to strengthen the implementation of sustainability governance across all business lines and operations in accordance with environmental, social, and governance (ESG) management policies. We are also committed to supporting the achievement of the Sustainable Development Goals (SDGs) through the implementation of sustainability governance.

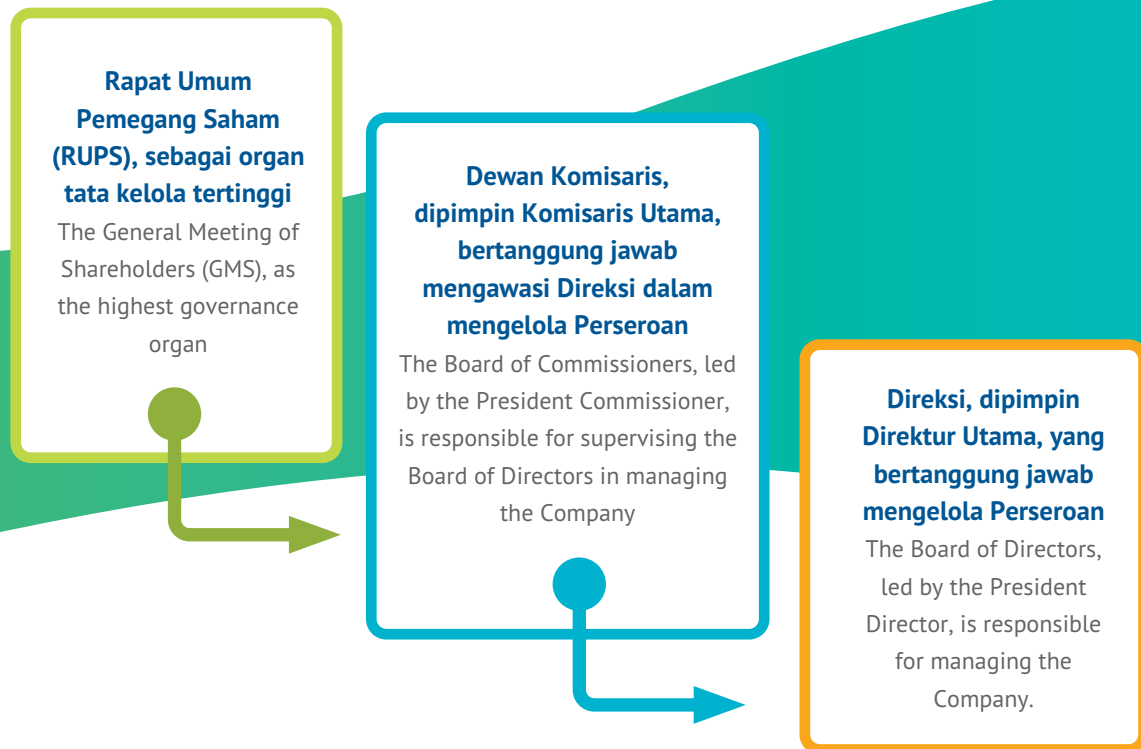


➤ TATA KELOLA KEBERLANJUTAN

Sustainability Governance

Tata kelola keberlanjutan PHE Subholding Upstream dijalankan sesuai Undang-Undang Nomor 40 Tahun 2007 tentang Perseroan Terbatas, yang terdiri dari: [2-9]

PHE Subholding Upstream's sustainability governance is conducted in accordance with the provisions of Law No. 40 of 2007 on Limited Liability Companies, which include the following: [2-9]



Tim ESG

ESG Team

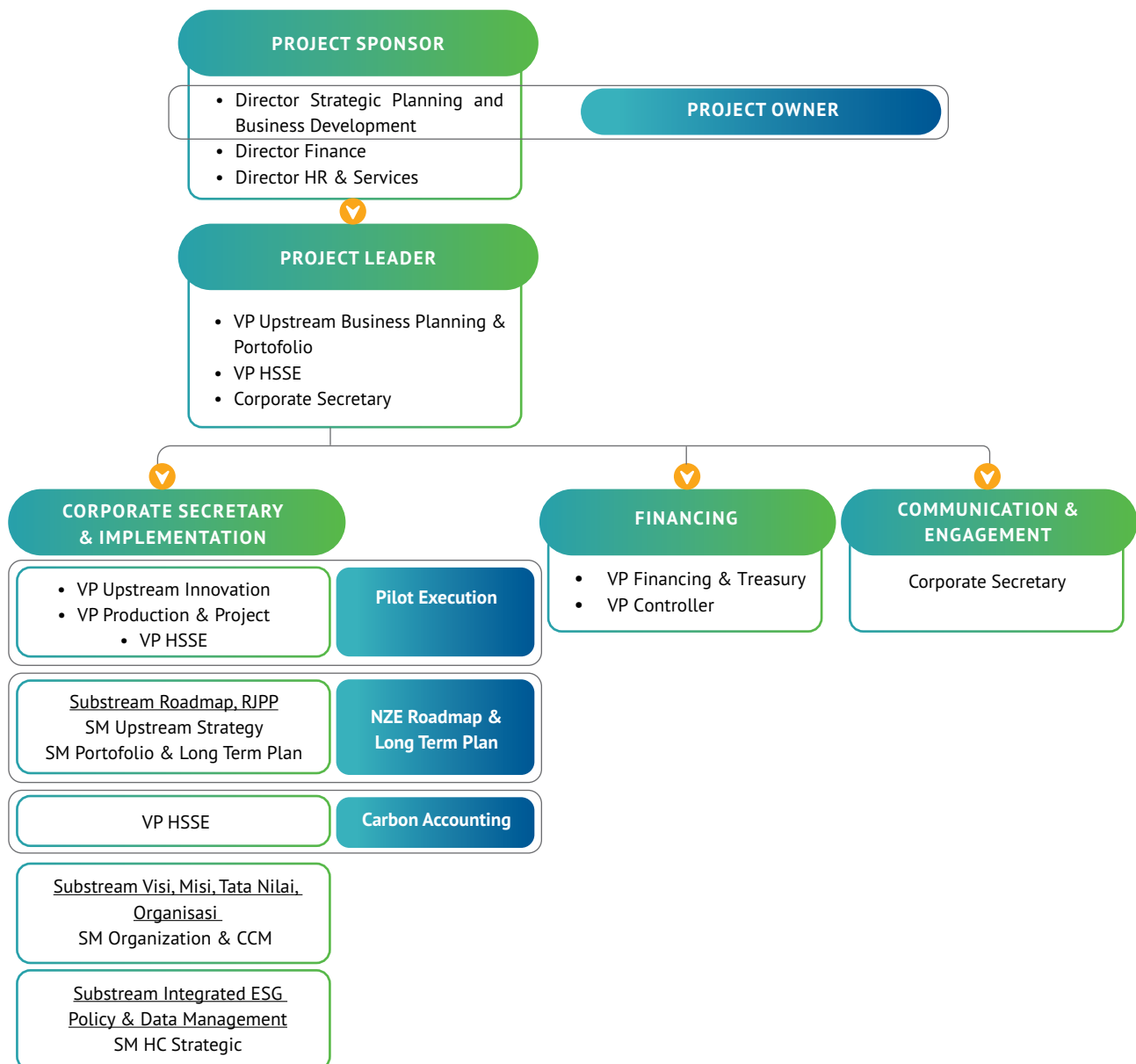
Hingga akhir 2021, PHE Subholding Upstream telah memiliki susunan Komite Keberlanjutan Subholding Upstream yang akan disahkan di tahun 2022. Selain itu, PHE Subholding Upstream telah membentuk Tim ESG pada 3 Agustus 2021 berdasarkan Surat Perintah Direktur Utama No. Prin - 035/PHE00000/2021-S0 Tentang Tim Environmental, Social & Governance (ESG) Management Subholding Upstream. Tim ESG beranggotakan berbagai fungsi yang bertanggung jawab kepada Direktur Utama, dan bertugas membantu Direksi dalam mengelola keberlanjutan. [POJK51-5] [2-12]

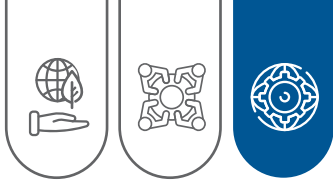
PHE Subholding Upstream has established the composition of the Upstream Subholding Sustainability Committee in 2021, which will be ratified in 2022. In addition, on 3 August 2021, PHE Subholding Upstream established an ESG Team pursuant to President Director's Order No. Prin - 035/PHE00000/2021-S0 concerning the Environmental, Social & Governance (ESG) Management Subholding Upstream Team. The ESG team comprises various functions that report to the President Director and are tasked with assisting the Board of Directors with sustainability management. [POJK51-5] [2-12]

Tim ESG dipimpin oleh Direktur Perencanaan Strategis dan Pengembangan Bisnis sebagai *project owner* yang didukung oleh Direktur Keuangan dan Direktur SDM & Penunjang Bisnis. Ketiga Direktur ini merupakan *project sponsor* yang memimpin *project leader*. Adapun *project leader* terdiri dari VP Upstream Business Planning & Portofolio, VP HSSE, dan Corporate Secretary. Tim ESG bertugas untuk mengintegrasikan seluruh fungsi lingkungan, sosial, dan tata kelola sehingga dapat meminimalkan risiko dan meningkatkan nilai pada pemangku kepentingan.

The Director of Strategic Planning and Business Development leads the ESG team as a supported project owner by the Director of Finance and Director of HR & Support Business. These three Directors serve as Project Sponsors, overseeing the work of project leaders. The project leaders are the Vice President of Upstream Business Planning & Portfolio, the Vice President of HSSE, and the Corporate Secretary. The ESG team is tasked with integrating all environmental, social, and governance functions to reduce risk and maximize value for stakeholders.

Struktur Tim ESG ESG Team Structure





Pendelegasian Kewenangan Pengelolaan Keberlanjutan

Delegation of Sustainability Management Authority

Secara berkala Direksi menyelenggarakan rapat internal maupun rapat gabungan dengan Dewan Komisaris, untuk membahas berbagai hal terkait pengelolaan keberlanjutan dan dampaknya terhadap Perusahaan. Proses yang berlangsung menjadi bagian dari realisasi pencapaian target dalam indikator kinerja kunci (KPI), dan secara berkala dilaporkan kepada pemegang saham. [2-12] [2-12]

Direksi dapat mendelegasikan tanggung jawab pengelolaan keberlanjutan dan dampaknya terhadap Perusahaan, kepada pejabat Perusahaan yang ditunjuk. Pendelegasian dilakukan sesuai dengan tugas, tanggung jawab, dan kewenangan dalam mengelola aspek ekonomi, lingkungan, sosial, dan tata kelola. Dalam hal pelaksanaan tanggung jawab sosial dan lingkungan, Direksi mendelegasikan tanggung jawab kepada Fungsi Corporate Secretary untuk kegiatan pelibatan dan pengembangan masyarakat dan Fungsi HSSE dalam kaitannya dengan pengelolaan lingkungan. [2-13]

The Board of Directors regularly holds internal and joint meetings with the Board of Commissioners regularly to discuss various matters related to sustainability management and its impact on the Company. The ongoing process is vital to achieving key performance indicators (KPI) targets and regularly reports to shareholders. [2-12] [2-12]

The Board of Directors may delegate responsibility for sustainability management and its impact on the Company to officials appointed by the Board of Directors. Delegation occurs in accordance with the duties, responsibilities, and authorities associated with the management of economic, environmental, social, and governance aspects. In terms of implementing social and environmental responsibilities, the Board of Directors delegate responsibility to the Corporate Secretary Function for community involvement and development activities and the HSSE Function for environmental management. [2-13]

Pencegahan Benturan Kepentingan

Prevention of Conflicts of Interest

Dewan Komisaris dan Direksi PHE Subholding Upstream menandatangani Pakta Integritas, guna memastikan tidak ada konflik kepentingan. Dewan Komisaris dan Direksi menjalankan Tata Kelola Korporasi yang baik, sejalan dengan tata nilai AKHLAK PT Pertamina (Persero) dan kode etik yang tercantum dalam Pedoman Perilaku dan Etika Bisnis Pertamina Hulu Energi No.A-003/PHE040/2018-S9. Penandatanganan Pakta Integritas selalu diperbaharui setiap tahun. Pada tahun 2021 seluruh Anggota Dewan Komisaris dan Direksi PHE Subholding Upstream telah menandatangani Pakta Integritas. Selama tahun 2021 tidak ada konflik kepentingan yang terjadi di antara Dewan Komisaris dan/atau Direksi. [2-13]

PHE Subholding Upstream's Board of Commissioners and Board of Directors signed an Integrity Pact to ensure no conflict of interest. The Board of Commissioners and the Board of Directors practice good corporate governance in accordance with PT Pertamina (Persero)'s clean AKHLAK core value and the code of conduct outlined in Pertamina Hulu Energi Code of Conduct and Business Ethics No.A-003/PHE040/2018-S9. Every year, the signing of the Integrity Pact is renewed. In 2021, all members of PHE Subholding Upstream's Board of Commissioners and Board of Directors signed an Integrity Pact. There were no conflicts of interest between the Board of Commissioners and/or the Board of Directors in 2021. [2-13]

Penyampaian Hal-Hal Kritis ^[2-16]

Conveying Critical Matters

Kami memiliki sistem untuk penyampaian hal-hal kritis:

1. Management Walkthrough (MWT)

Kunjungan ke lapangan dalam pelaksanaan MWT berlangsung komunikasi 2 arah yang dilakukan secara langsung dan terbuka, antara manajemen termasuk Direksi dengan pekerja di lapangan untuk mendapatkan informasi, memberikan dukungan dan mengidentifikasi masukan langsung dari seluruh lini operasi Perusahaan, serta mempercepat perbaikan yang menjadi penghambat dalam operasi di lapangan.

2. Whistleblowing System (WBS)

Implementasi WBS diharapkan dapat mendukung terwujudnya prinsip tata kelola perusahaan yang efektif, serta menciptakan lingkungan Perusahaan yang bersih dari praktik korupsi, suap, dan praktik kecurangan lainnya, serta meningkatkan upaya berperilaku etis dalam menjalankan/mengelola Perusahaan.

Berdasarkan Surat No. 257/J00000/2020-S0 tanggal 17 Desember 2020 perihal Pemberlakuan Tabel RASCI Fungsi Internal Audit di Holding, Subholding dan Anak Perusahaan Services, ditetapkan bahwa Pengelolaan *Whistleblowing System* (WBS) dilakukan secara *centralized* oleh Fungsi Investigation Audit, WBS & Fraud Prevention – Internal Audit PT Pertamina (Persero).

Sentralisasi Pengelolaan WBS di Fungsi Investigation Audit, WBS & Fraud Prevention – Internal Audit PT Pertamina (Persero) diperkuat dengan diterbitkannya Pedoman Pengelolaan Pengaduan No. A9-001/J00000/2022-S9 tanggal 19 Januari 2022.

Selama tahun 2021, terdapat 46 pelaporan/pengaduan yang diterima oleh Fungsi WBS – Internal Audit PT Pertamina (Persero) dengan lokasi terlapor/kejadian di lingkup PHE Subholding Upstream. Hingga akhir periode pelaporan tahun 2021, sebanyak 19 pengaduan dalam tahap analisis awal oleh Fungsi WBS PT Pertamina (Persero), 12 pengaduan dalam tahap penanganan oleh fungsi terkait, dan 15 pengaduan telah terselesaikan. Selain itu, di tahun 2021 tidak terdapat insiden korupsi.

^[205-3]

We have systems for conveying critical matters:

1. Management Walkthrough (MWT)

Field visits in the implementation of MWT took place through 2-way communication that was carried out directly and openly between management, including the Board of Directors, and field workers to obtain information, provide support and identify direct input from all lines of the Company's operations, as well as accelerate improvements that became obstacles to operations in the field.

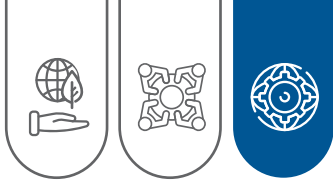
2. Whistleblowing System

WBS implementation is expected to contribute to the realization of effective corporate governance principles and to the establishment of a clean Company environment free of corruption, bribery, and other fraudulent practices, as well as to an increase in efforts to behave ethically in running/managing the Company.

Pursuant to Letter No. 257/J00000/2020-S0 dated 17 December 2020 regarding the Implementation of the RASCI Table Internal Audit Function in Holding, Subholding, and AP Services, it was determined that the Whistle Blowing System (WBS) was to be managed centrally by the Investigation Audit, WBS, & Fraud Prevention Function – Internal Audit of PT Pertamina (Persero).

The issuance of Guidelines for Complaint Management No. A9-001/J000000/2022-S9 dated 19 January 2022 strengthened the centralization of the Whistle Blowing System (WBS) management in the Investigation Audit, WBS & Fraud Prevention Function – Internal Audit of PT Pertamina (Persero).

In 2021, the WBS Function – Internal Audit of PT Pertamina (Persero) received 46 reports/complaints regarding locations/events within the scope of PHE Subholding Upstream. As of the end of the 2021 reporting period, PT Pertamina (Persero) had 19 complaints in the initial analysis stage, 12 complaints in the handling stage by related functions, and 15 complaints resolved. Additionally, there were no instances of corruption in 2021. ^[205-3]



Penilaian Kinerja Direksi dan Dewan Komisaris [2-18]

Performance Assessment of the Board of Directors

Penilaian kinerja Dewan Komisaris dilakukan berkala setiap tiga bulan dan pada akhir tahun, menggunakan sistem penilaian mandiri (*self-assessment*), *peer evaluation*, atau sistem lain, sesuai keputusan dalam rapat Dewan Komisaris. Dari penilaian yang dilakukan tahun 2021 diketahui, Dewan Komisaris telah melaksanakan fungsi pengawasan dengan baik.

Evaluasi kinerja Direksi diatur dalam Pedoman *Board Manual*. Penilaian kinerja Direksi dilaksanakan setiap triwulan dan pada akhir tahun dengan indikator atau parameter penilaian dan evaluasi. Penilaian Direksi juga mencakup aspek ESG *linked performance* meliputi HSSE, emisi, *diversity*, NoA, dan LHKPN sehingga kinerja ESG termonitor secara berkala.

The performance assessment of the Board of Commissioners is conducted quarterly and at the end of the year, using a self-assessment system, peer evaluation, or other systems, as determined in meetings of the Board of Commissioners. The assessment conducted in 2021 found that the Board of Commissioners performed effectively in its supervisory role.

The performance evaluation of the Board of Directors is regulated in Board Manual. Every quarter and at the end of the year, the performance of the Board of Directors is evaluated using assessment and evaluation indicators and criteria. The Board of Directors' assessment also includes aspects of ESG-linked performance including HSSE, emissions, diversity, NoA, and LHKPN so that ESG performance is monitored regularly.



► KODE ETIK DAN DUKUNGAN PADA ANTIKORUPSI

Code of Conduct and Support for Anti-Corruption

Pengelolaan Topik Material ^{[3-3] [11.20.1]} Material Topic Management

Kami menerapkan Kode Etik atau Kode Perilaku (*Code of Conduct/CoC*) untuk menjaga integritas pekerja dan mencegah potensi pelanggaran. Pada periode pelaporan, kami merealisasikan beberapa pencapaian dalam penerapan Kode Etik, di antaranya mempertahankan Sistem Manajemen Anti Penyuapan (SMAP) ISO 37001:2016 dan penerapan GCG Management System melalui Compliance Online System. Komitmen untuk menerapkan Kode Etik dilaksanakan dengan melibatkan pekerja, pemegang saham, dan pemangku kepentingan lain, seperti Komisi Pemberantasan Korupsi (KPK). Secara berkala, penerapan Kode Etik dievaluasi melalui mekanisme penilaian pencapaian Indikator Kinerja Kunci (KPI). Berdasarkan evaluasi di tahun 2021, realisasi atas penerapan Kode Etik yang tercakup dalam implementasi GCG melalui penerapan Compliance Online System (GCG Management System) sebesar 90,24% dengan target sebesar 88%.

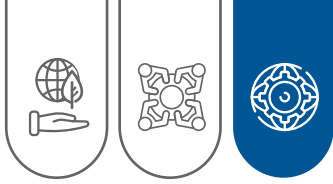
We have a Code of Conduct (CoC) to ensure employee integrity and deter potential violations. We achieved several milestones in implementing the Code of Conduct during the reporting period, including maintaining the ISO 37001:2016 Anti-Bribery Management System (SMAP) and implementing the GCG Management System through Compliance Online System. Employees, shareholders, and other stakeholders, such as the Corruption Eradication Commission (KPK), are all involved in the commitment to implement the Code of Conduct. Periodically, the Code of Conduct is evaluated in light of the achievement of Key Performance Indicators (KPI). Based on the evaluation conducted in 2021, the realization of implementation of the Code of Conduct, which was included in the implementation of GCG, through the implementation of the Compliance Online System (GCG Management System) of 90.24% from the target of 88%.

Pelaksanaan Kode Etik dituangkan dalam Pedoman Perilaku dan Etika Bisnis (CoC) No.A-003/PHE040/2018-S9 Revisi Ke-0, yang disusun selaras dengan CoC PT Pertamina (Persero). Komitmen untuk melaksanakan Pedoman Perilaku & Etika Bisnis berlaku bagi semua pemangku kepentingan. Untuk internal, baik pekerja maupun pimpinan Perusahaan, kepatuhan pada CoC dinyatakan dalam Pernyataan Kepatuhan yang setiap tahun diperbaharui melalui compliance online system.

Selain itu, kami juga menjalankan seluruh kegiatan bisnis secara profesional, tanpa benturan kepentingan dan pengaruh/tekanan dari pihak manapun. Perseroan memiliki Pedoman Benturan Kepentingan (*Conflict of Interest/COI*)

The Code of Conduct is implemented in accordance with the Code of Conduct and Business Ethics (CoC) No.A-003/PHE040/2018-S9 Revision 0, which was compiled in accordance with PT Pertamina's (Persero) CoC. All stakeholders are required to adhere to the Code of Business Conduct and Ethics. Internally, compliance with the CoC is documented in a Compliance Statement updated annually via the online compliance system.

Additionally, we conduct all business activities professionally, without regard for any party's conflict of interest or influence/pressure. The Company complies with Conflict of Interest (COI) Guidelines No A-004/



No A-004/PHE040/2018-S9 Revisi Ke-0. Di sisi lain, PHE sebagai Subholding Upstream juga telah memiliki ketentuan gratifikasi bagi insan PHE yang telah diatur sebagaimana termuat dalam Pedoman Pengendalian Gratifikasi No A13-002/PHE01000/2021-S9 Rev. 0.

GCG Management System

GCG Management System

Saat ini Perseroan telah memiliki GCG Management System, atau lebih dikenal dengan Compliance Online System, sebagai sarana pengawasan dan evaluasi pelaksanaan CoC, Col dan Gratifikasi. Melalui sistem ini, setiap pekerja dapat melakukan pengisian formulir CoC, termasuk, bila ada, penyampaian *conflict of interest* ataupun pelaporan gratifikasi. Realisasi tahun 2021 dari Compliance Online System mencapai 90,24% dari target 88%. Capaian ini menunjukkan kepatuhan pekerja terhadap CoC yang semakin meningkat.

Kami terus memperkuat tata kelola, sejalan dengan tata nilai AKHLAK dan mendorong penerapan ISO 37001:2016 Sistem Manajemen Anti-Penyuapan (SMAP). Pada periode pelaporan, PHE berhasil mempertahankan sertifikasi SMAP ISO 37001:2016 berdasarkan hasil Audit Surveillance yang dilakukan oleh Badan Sertifikasi Mutu Internasional.

Kami juga mendorong seluruh Anak Perusahaan untuk menerapkan SMAP dan memastikan penerapan berjalan dengan baik pada seluruh operasional. Sampai dengan akhir tahun 2021 ada 7 (tujuh) entitas yang terdiri dari 1 (satu) entitas PHE, 3 (tiga) Regional dan 2 (dua) AP Services serta 1 (satu) PT Badak NGL yang telah memiliki sertifikasi ISO 37001:2016 SMAP.

Dukungan Pada Antikorupsi [EM-EP-510a.2]

Support for Anti-Corruption

Sejalan dengan penerapan Kode Etik atau CoC, kami mendukung praktik-praktik antikorupsi, salah satunya dengan pemenuhan kewajiban pekerja di lingkungan PHE Subholding Upstream untuk menyampaikan Laporan Harta Kekayaan Penyelenggara Negara (LHKPN). Pelaporan dilakukan melalui mekanisme daring, sebagaimana diatur dalam Peraturan KPK No. 2 Tahun 2020. Pada tahun 2021

PHE040/2018-S9 Revision 0. On the other hand, PHE as Subholding Upstream has gratification provisions for PHE employees regulated by Gratification Control Guidelines No. A13-002/PHE01000/2021-S9 Rev. 0.

Currently, the Company utilizes a GCG Management System or better known as the Compliance Online System, to monitor and evaluate the Company's compliance with the CoC, Col and Gratification. Each employee can complete a Conflict of Interest form through this system, including, if applicable, submitting a conflict of interest or reporting a gratuity. The GCG Management System realization in 2021 achieved 90.24% of the 88% target. This accomplishment demonstrated that worker compliance with the Code of Conduct is increasing.

We continue to strengthen governance in line with a core value of AKHLAK and encourage the implementation of ISO 37001:2016 Anti-Bribery Management System (SMAP). During the reporting period, PHE successfully maintained the SMAP ISO 37001:2016 certification based on the results of the Surveillance Audit conducted by the International Quality Certification Agency.

Furthermore, we encourage all Subsidiaries to implement SMAP and to ensure its successful implementation across all operations. As of the end of 2021, ISO 37001:2016 SMAP certification was held by 7 (seven) entities consisting of 1 (one) PHE Entity, 3 (three) Regionals, 2 (two) AP Services and 1 (one) PT Badak NGL which already has the ISO 37001:2016 SMAP certification.

We support anti-corruption practices in accordance with the Code of Conduct (CoC), one of which is by fulfilling employee obligations within PHE Subholding Upstream, including the submission of the State Administrator Wealth Report (LHKPN). In accordance with KPK Regulation No. 2 of 2020, reporting is accomplished via an online mechanism. 607 PHE Subholding Upstream employees with the position

terdapat 607 pekerja dengan jabatan Manager/setara ke atas di lingkungan PHE Subholding Upstream yang menjadi wajib lapor LHKPN melalui situs web e-LHKPN KPK, untuk perolehan harta tahun 2020, dengan realisasi tingkat kepatuhan dan ketepatan waktu sebesar 100% dalam melakukan penyampaian pelaporan e-LHKPN KPK. Sepanjang tahun 2021 Perusahaan juga tidak menghadapi sangkaan perbuatan tindak pidana korupsi yang diduga melibatkan Pekerja PHE Subholding Upstream dan/atau Anak Perusahaan. PHE Subholding Upstream mempunyai dan menerapkan *anti-bribery risk register* yang dilakukan penilaian dalam kegiatan audit *surveillance* dalam rangka mendapatkan dan mempertahankan sertifikasi 37001:2016 SMAP. Risiko signifikan yang teridentifikasi terkait dengan proses SCM dan Project. Perusahaan juga mengadakan pelatihan atau sosialisasi terkait dengan SMAP untuk seluruh pekerja seperti *refreshment* atas SMAP, pelatihan auditor SMAP, dan lain sebagainya. [205-1] [11.20.4] [OGSS 11-11-20.2] [11.20.4]

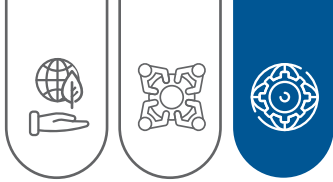
Untuk mencegah praktik korupsi, Perusahaan memiliki pakta integritas yang harus ditandatangani oleh seluruh mitra kerja yang membahas mengenai poin-poin anti korupsi. Sosialisasi secara berkala mengenai peningkatan *fraud awareness* melalui *broadcast* Perusahaan juga dilakukan kepada semua pekerja. Selain itu, Perusahaan mengadakan kegiatan Vendor Day yang dilaksanakan setiap tahun untuk mengingatkan kembali pentingnya praktik bisnis yang bertanggung jawab. Pada tahun 2021, sebanyak 1.539 mitra kerja telah mengikuti kegiatan tersebut. [205-2] [11.20.3]

Perusahaan juga menetapkan anti gratifikasi sesuai Pedoman Pengendalian Gratifikasi No A13-002/PHE1000/2021-S9 tanggal 31 Desember 2021. Seluruh pekerja diwajibkan melakukan pelaporan gratifikasi di tiap bulannya selama tahun berjalan. Sesuai ketentuan yang berlaku di internal PHE Subholding Upstream, proses atas pelaporan tersebut telah dijalankan sesuai prosedur, yaitu pekerja melaporkan ada atau tidaknya baik penerimaan, pemberian atau permintaan atas gratifikasi melalui aplikasi Compliance Online System PHE. Kemudian jika ada pekerja yang melaporkan penerimaan, pemberian atau permintaan gratifikasi, maka Perseroan melaporkan perihal tersebut ke PT Pertamina (Persero) dan selanjutnya akan dilaporkan melalui website Gratifikasi Online (GOL) KPK di <https://gol.kpk.go.id/login>. Setelah dilaporkan melalui GOL KPK, maka selanjutnya Perseroan akan menunggu instruksi selanjutnya dari KPK. [EM-EP-530a.1]

of Manager/equivalent and above within PHE Subholding Upstream were required to report their LHKPN through the KPK e-LHKPN website in 2021 for the acquisition of wealth in 2020, with a 100% compliance realization and timeliness in submitting the KPK e-LHKPN reports. Throughout 2021, the Company did not face any allegations of criminal acts of corruption allegedly involving employees of PHE Subholding Upstream and/or its Subsidiaries. In order to obtain and maintain the 37001:2016 SMAP certification, PHE Subholding Upstream maintains and implements an anti-bribery risk register that is evaluated during surveillance audits. Identified significant risks associated with the SCM and Project process. All employees receive anti-corruption training or socialization, such as SMAP Awareness, SMAP auditor training, and so forth. [205-1] [11.20.4] [OGSS 11-11-20.2]

To prevent corruption, the Company has an integrity pact that all working partners who discuss anti-corruption issues must sign. Regular socialization regarding the increase in fraud awareness through the Company's broadcasts is also carried out to all employees. In addition, the Company holds annual Vendor Day events to emphasize the significance of responsible business practices. In 2021, there were 1,539 working partners attends in this activity. [205-2] [11.20.3]

Furthermore, anti-gratification measures are implemented in accordance with Gratification Control Guidelines No. A13-002/PHE1000/2021-S9 dated December 31, 2021. During the current year, all employees were required to report gratuities every month. In accordance with the regulations governing PHE Subholding Upstream internally, the reporting process has been carried out in accordance with the procedure, which requires that employees report the presence or absence of receiving, giving, or requesting gratuities through the PHE Compliance Online System application. Then, if workers report receiving, giving, or requesting gratuities, the Company will report the matter to PT Pertamina (Persero) and it will be reported via the KPK Gratification Online (GOL) website at <https://gol.kpk.go.id/login>. After being reported through the KPK's GOL, the Company will then wait for further instructions from the KPK. [EM-EP-530a.1]



► KEAMANAN INFORMASI

Information Security

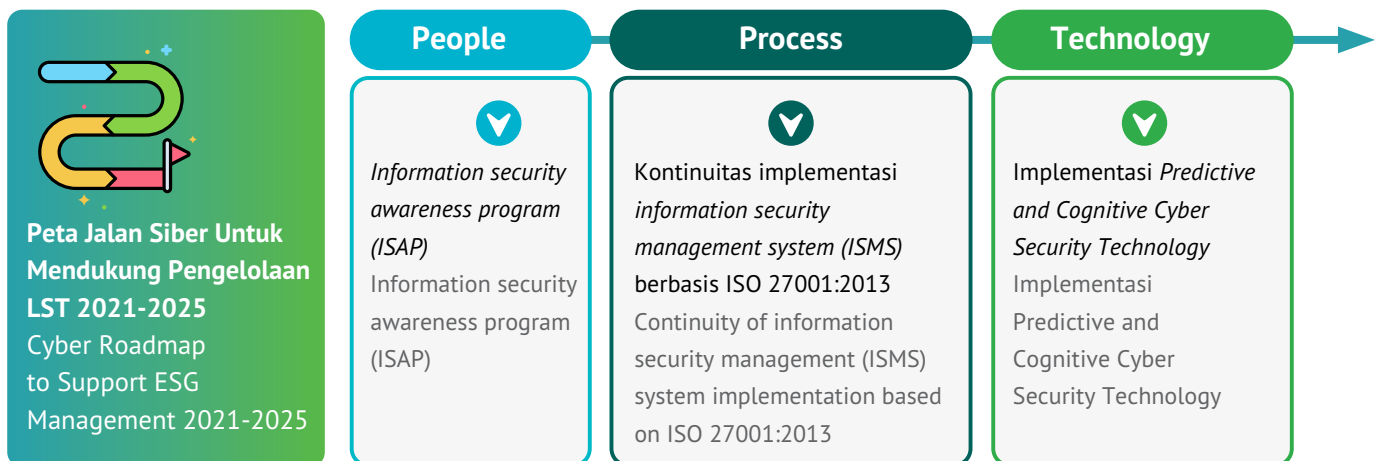
Pengelolaan Topik Material ^[3-3] Material Topic Management

Perusahaan terus membangun sistem perlindungan informasi yang terintegrasi dengan seluruh Anak Perusahaan dan berkomitmen untuk terus memberikan layanan IT yang prima. Perusahaan mendorong Fungsi IT untuk meningkatkan layanan IT dan keamanan informasi dengan mengembangkan berbagai inovasi yang mendukung pengelolaan lingkungan, sosial, dan tata kelola (LST).

Pada tahun 2020, Fungsi IT telah membangun kebijakan keamanan informasi, yaitu Pedoman Tata Kelola Keamanan Informasi No. A (13.1)-004/PHE440/2020-S9 dan Pedoman Manajemen Risiko Teknologi Informasi No. A (13.1)-006/PHE440/2020-S9 yang memuat klausul-klausul kebijakan sebagaimana dipersyaratkan dalam standar internasional ISO 27001:2013 (*information security management system*), dan Pedoman Penyelenggaraan Tata Kelola Teknologi Informasi & Komunikasi Perusahaan No. A(13.1)-004/PHE440/2020-S9. Target kerja terkait keamanan informasi/keamanan siber pada tahun 2022 adalah merencanakan, mengkaji, dan melakukan evaluasi *Security Operation and Response Center* (SORC) untuk kemudian dilakukan implementasi pada tahun 2023. Untuk mencapai target ini, Perusahaan akan menerapkan aspek *People, Process*, dan *Technology* secara terintegrasi untuk mencapai tujuan dan inisiatif strategis keamanan informasi.

The Company is committed to maintaining an integrated information protection system across all Subsidiaries and to delivering excellent IT services. The Company encourages the IT Function to enhance IT services and information security by developing various innovations that support environmental, social, and governance (ESG) management.

In 2020, the IT Function developed an information security policy, Information Security Governance Guidelines No. A (13.1)-004/PHE440/2020-S9 and Information Technology Risk Management Guidelines No. A (13.1)-006/PHE440/2020-S9, which includes policy clauses required by the international standard ISO 27001:2013 (*information security management system*), and Guidelines for the Implementation of Corporate Information & Communication Technology Governance No. A(13.1)-004/PHE440/2020-S9. The information security/cyber security work objective for 2022 is to plan, review, and evaluate the Security Operation and Response Center (SORC) in preparation for implementation in 2023. The Company will integrate People, Process, and Technology aspects to accomplish strategic information security goals and initiatives to accomplish strategic information security goals and initiatives.



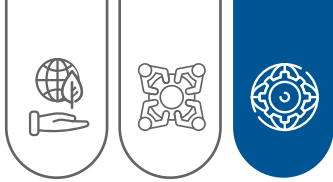
Sistem keamanan informasi dikembangkan melalui peta jalan untuk kurun waktu 2021-2025. Untuk meningkatkan keamanan informasi, Perusahaan juga melakukan *assessment security* menggunakan CIS Framework secara berkala. PHE Subholding Upstream juga senantiasa memberikan *awareness* dan pelatihan terkait keamanan informasi dengan menyelenggarakan berbagai kegiatan *sharing session* dan IT Security Forum (*workshop*). Beberapa metode *awareness* ini, di antaranya: *Information Security Awareness*, *Information Security Workshop/Forum*, dan *People Development* (Upstream Academy – Subskill IT Security) yang bertujuan untuk kompetensi bagi personil IT secara khusus, serta meningkatkan pemahaman terkait pentingnya kesadaran keamanan informasi bagi seluruh pengguna layanan IT di Perusahaan pada umumnya.

[418-1]

Agar sesuai dengan standar internasional dan praktik terbaik dalam hal praktik pengamanan informasi, sejak tahun 2020 Fungsi IT telah mengimplementasikan standar ISO 27001:2013 sebagai acuan *framework* dalam melakukan pengamanan informasi elektronik Perusahaan serta berhasil memperoleh sertifikasi ISO 27001:2013 di tahun yang sama untuk penyediaan salah satu layanan IT kepada pengguna internal layanan IT Perusahaan. Ke depan, Fungsi IT akan menerapkan strategi melalui integrasi *People*, *Proses*, *Technology* dan meningkatkan kontinuitas implementasi *framework* ISO 27001:2013 dengan cermat, efektif dan efisien termasuk meneruskan pelaksanaan *surveillance audit* pada tahun-tahun selanjutnya sebagaimana yang telah dilakukan pada tahun 2021. Seluruh upaya, program kerja, dan inisiatif strategis keamanan informasi ini akan menjadi dasar untuk mendukung penerapan aspek LST karena dapat membantu mengurangi emisi karbon, terutama melalui efisiensi berbagai proses operasional, termasuk mengurangi mobilisasi.

A roadmap for the 2021-2025 period was used to develop the information security system. Similarly, the Company conducts regular security assessments using the CIS Framework to enhance information security. Moreover, PHE Subholding Upstream continues to raise awareness and conduct training on information security through various sharing sessions and IT Security Forums (workshops). These awareness methods include information security awareness, information security workshops/forums, and people development (Upstream Academy – Subskill IT Security), all of which aim to increase IT personnel's competence and overall understanding of the importance of information security awareness. [418-1]

To ensure compliance with international standards and best practices for information security, the IT function has used the ISO 27001:2013 standard as a reference framework for securing the Company's electronic information since 2020 and has achieved ISO 27001:2013 certification for the provision of one IT service to internal users of the Company's IT services in the same year. Going forward, the IT Function will implement strategies through the integration of People, Processes, and Technology, and will ensure the careful, effective, and efficient implementation of the ISO 27001:2013 framework, including the continuation of surveillance audits in the following years, as was done in 2021. All efforts, work programs, and strategic information security initiatives will be used to support the implementation of ESG aspects because they have the potential to help reduce carbon emissions, particularly through the efficiency of various operational processes, including mobilization reduction.



► PELIBATAN PEMANGKU KEPENTINGAN

Stakeholder Engagement

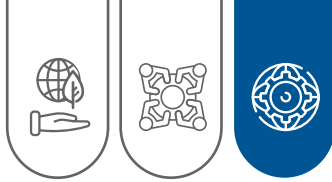
Kami telah melaksanakan proses identifikasi pemangku kepentingan melalui analisis pola interaksi dan keterlibatan dengan kegiatan operasi maupun perusahaan. PHE Subholding Upstream mengidentifikasi sembilan pemangku kepentingan yang saling mempengaruhi dalam proses bisnis. Perusahaan selalu melibatkan setiap pemangku kepentingan melalui kegiatan komunikasi rutin dan metode lain. [POJK51-5] [2-29]

We have identified stakeholders by analyzing patterns of interaction and engagement with the Company's operations and business activities. PHE Subholding Upstream identified nine stakeholders who influence one another during business processes. Every stakeholder is always involved in the Company's routine communication activities and other methods. [POJK51-5] [2-29]

Pemangku Kepentingan, Topik Utama dan Pendekatan Pelibatan Pemangku Kepentingan [POJK51-5] [2-29]
Stakeholders, Key Topics, and Stakeholder Engagement Approach

Pemangku Kepentingan Stakeholder	Topik Utama Key Topic	Pendekatan Approach	
		Metode Pelibatan Engagement Method	Frekuensi Frequency
 Pemegang Saham Shareholders	Pemenuhan target operasional dan <i>lifting</i> migas. Fulfillment of operational targets and oil and gas lifting.	Penyusunan dan pengesahan RKAP Preparation and approval of RKAP	Satu tahun sekali Once per year
	Pelaporan kinerja. Performance reporting.	Rapat Umum Pemegang Saham General Meeting of Shareholders	Minimal satu tahun sekali, atau jika diperlukan At least once per year, or if needed
		Laporan kinerja berkala Periodic performance reports	Triwulan Quarterly
		Laporan Keuangan Tahunan Annual Financial Reports	Satu tahun sekali Once per year
 Pekerja Employees	Pemenuhan hak-hak normatif dan jaminan keselamatan dan kesehatan kerja (K3) Fulfillment of normative rights and occupational safety and health (OHS) guarantees	Penyusunan Perjanjian Kerja Bersama (PKB) melalui perwakilan dalam serikat pekerja. Preparation of Collective Labor Agreements (CLA) through labor union representatives.	Jika diperlukan If required
	Kebebasan berserikat Freedom of association	Pembentukan dan dukungan terhadap serikat pekerja. Formation and support of labor unions.	Sesuai kebutuhan As needed
	Penyampaian pendapat pada manajemen dan sosialisasi peraturan. Expression of opinion on management and dissemination of regulations.	<i>Town Hall meeting</i>	Minimal satu tahun sekali At least once per year
		<i>Management walkthrough</i>	Secara berkala Periodically

Pemangku Kepentingan Stakeholder	Topik Utama Key Topic	Pendekatan Approach	
		Metode Pelibatan Engagement Method	Frekuensi Frequency
	Peningkatan kompetensi Competency development	Pendidikan dan pelatihan regular serta pengembangan karir (penilaian kepemimpinan <i>leadership</i>) Regular education and training as well as career development (leadership assessment)	Secara berkala Periodically
	Komunikasi yang jelas dan efektif Clear and effective communications	Meningkatkan saluran komunikasi internal dengan pekerja, seperti <i>broadcast</i> , <i>contact center</i> Improve internal communication channels with employees, such as broadcasts, contact centers	Secara berkala Periodically
Lembaga Legislatif Legislative Institutions 	Pemenuhan kebutuhan legal perusahaan Fulfilling the company's legal needs	Rapat Tahunan Annual Meetings	Sekurang-kurangnya sebulan sekali At least once per month
	Penyelesaian berbagai kasus hukum Resolution of various legal cases	Rapat Koordinasi Coordinating Meetings	
Pemerintah Pusat dan Regulator Central Government and Regulators 	Pembayaran: Pajak Penerimaan Negara Bukan Pajak (PNBP) Kewajiban Lain	Setoran pajak tahunan Annual tax deposits	Satu tahun sekali Once per year
		Setoran PNBP dan kewajiban lain PNBP deposits and other obligations	Satu tahun sekali Once per year
	Payment: Tax Non-Tax State Revenue (PNBP) Other Obligations		
	Tata kelola yang baik (GCG) dan kepatuhan Good corporate governance (GCG) and compliance	Assessment oleh pihak independen Assessment by an independent party	Satu tahun sekali Once per year
	Perizinan Migas, Alokasi Anggaran, dan koordinasi lain Oil and Gas Permits, Budget Allocation, and other coordination	Rapat Koordinasi Prosedur Pengurusan Formalities Coordination meetings Formalities Management Procedure	Sekurang-kurangnya sebulan sekali At least once per month
	Perizinan Lingkungan, Perizinan Operasi, Perizinan penggunaan Lahan, Pelaporan Jalur Pipa Bawah Laut, dan Perizinan lain yang memungkinkan Environmental, Operational, and Land use Permits, Subsea Pipeline Reporting, and other possible Permits	Rapat Koordinasi Prosedur Pengurusan Formalities Coordination meetings Formalities Management Procedure	Sekurang-kurangnya sebulan sekali At least once per month



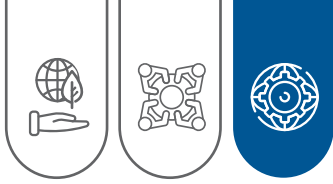
Pemangku Kepentingan Stakeholder	Topik Utama Key Topic	Pendekatan Approach	
		Metode Pelibatan Engagement Method	Frekuensi Frequency
Pelanggan Customers 	Kepastian hukum Legal certainty	Perumusan dan pengesahan kontrak jual beli migas Formulation and ratification of oil and gas sales and purchase contracts	Sesuai kebutuhan As needed
	Pelayanan dan jaminan pasokan migas Oil and gas supply services and guarantees	Mekanisme pengaduan Complaint mechanism	Saran dapat disampaikan melalui media komunikasi yang tersedia Suggestions can be submitted via available communication media
		Rapat koordinasi <i>lifting</i> migas Oil and Gas lifting coordination meeting	Secara berkala sesuai kontrak dan sesuai kebutuhan Periodically according to contract and as needed
		Survei kepuasan pelanggan Customer satisfaction survey	Tahunan Annually
Masyarakat Communities 	Manfaat kepada masyarakat Benefits to the community	Pelaksanaan program TJSL di seluruh wilayah operasi Perusahaan Implementation of CSR programs in all areas of the Company's operations	Sesuai kebutuhan As needed
		Penghitungan dampak melalui pengukuran SROI Calculation through SROI measurement	Satu tahun sekali Once per year
	Komunikasi yang efektif dan transparan Effective and transparent communications	Konsultasi publik dan Musrenbang Public Consultancy and Musrenbang	
		Survei indeks kepuasan masyarakat Community satisfaction index survey	
Mitra Usaha/Bisnis Business Partners 	Kepastian hukum. Legal certainty.	Perumusan dan pengesahan kontrak kerja. Formulation and approval of employment contracts.	Jika diperlukan If required
	Laporan kinerja dan operasional. Operational and performance reports.	Pertemuan koordinasi berkala. Periodic coordination meetings.	
	Berdampak signifikan kepada keberlanjutan. Significantly impact on sustainability.	<i>Assessment</i> dan evaluasi berkala. Periodic assessments and evaluations.	

Pemangku Kepentingan Stakeholder	Topik Utama Key Topic	Pendekatan Approach	
		Metode Pelibatan Engagement Method	Frekuensi Frequency
Mitra Kerja Pemasok/ Vendor/Kontraktor working Partners 	Keterbukaan tender pengadaan Procurement tender transparency	<i>E-procurement</i>	
	Kepastian hukum. Legal certainty.	Perumusan dan pengesahan kontrak kerja. Formulation and approval of employment contracts.	Setiap pelaksanaan kontrak Every contract implementation
	Kepatuhan Compliance	<i>Assessment</i> CSMS dan evaluasi berkala CSMS assessment and periodic evaluation	
Perguruan Tinggi dan Institusi Pendidikan Universities and Educational Institutions 	Penelitian, kajian dan konsultasi Research, studies and consultations	Kerjasama terkait kegiatan operasional Perusahaan, pengembangan masyarakat, dan pengelolaan lingkungan Cooperation related to the Company's operational activities, community development, and environmental management	Sesuai kebutuhan As needed
Media 	Informasi kinerja dan informasi lain terkait Perusahaan Performance information and other information related to the Company	Penyampaian berkala materi pemberitaan melalui jumpa pers maupun <i>press release</i> Periodic delivery of news material through press conferences and press releases <i>Media gathering</i> dan kunjungan ke lokasi Media gatherings and site visits	Sebanyak-banyaknya setiap hari untuk diseminasi. As much as possible every day for dissemination.

Pendekatan Khusus kepada Pemangku Kepentingan Special Approach for Stakeholders

Hubungan industrial dengan pekerja dikelola secara adil, saling menghargai, dan profesional, yang diwujudkan dalam Perjanjian Kerja Bersama (PKB). Pada periode pelaporan tidak ada hal-hal yang menghalangi penerapan dan pelaksanaan PKB. [2-30]

As mandated by the Collective Bargaining Agreement (CLA), industrial relations with employees are managed fairly, respectfully, and professionally, as mandated by the CLA. There were no impediments to the application and implementation of the CLA during the reporting period. [2-30]



► NILAI EKONOMI LANGSUNG YANG DIHASILKAN DAN DIDISTRIBUSIKAN

Direct Economic Value Generated and Distributed

Pengelolaan Topik Material ^[3-3] Material Topic Management

Nilai ekonomi yang dihasilkan dan didistribusikan berdampak pada dukungan pemangku kepentingan bagi keberlanjutan usaha dan operasi PHE Subholding Upstream. Tahun 2021 kami merealisasikan total pendapatan usaha sebesar USD11.822,10 juta. Kami mendistribusikan sebagian nilai ekonomi yang diperoleh untuk para pemangku kepentingan termasuk investasi sosial bagi masyarakat dan kesinambungan kontribusi pada pencegahan perubahan iklim melalui dukungan pada penerapan ekonomi rendah karbon. Pada tahun 2021 kami melakukan kolaborasi dengan berbagai pihak termasuk PT Pertamina (Persero) sebagai *Holding Migas* dalam pengembangan teknologi *Carbon Capture and Utilization and Storage* (CCUS). ^[OGSS-11.2.1]

Economic value generated and distributed impacts stakeholder support for the business and operations of PHE Subholding Upstream. In 2021 we realized a total operating income of USD11,822.10 million. We distributed a portion of the economic value generated to stakeholders, including social investment and a sustainable contribution to climate change prevention through support for implementing a low carbon economy. In 2021, we collaborated on the development of Carbon Capture and Utilization and Storage (CCUS) technology with several parties, including PT Pertamina (Persero) as an Oil and Gas Holding.

^[OGSS-11.2.1]



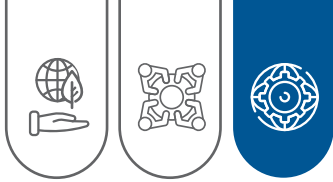


PHE Subholding Upstream mencatatkan kinerja positif. Perusahaan mampu meraih Indikator Kinerja Utama (KPI) sebesar 104,67%, dan laba bersih sebesar USD2.952,64 juta atau 113% dari RKAP Revisi 2021 sebesar USD2.622,82 juta. Pada tahun 2021, terjadi kecelakaan kerja yang menyebabkan *fatality* di lingkungan Subholding Upstream sehingga kinerja Direktur Utama mendapatkan pengurangan nilai kinerja menjadi 98,17%.

Di tengah dinamika akibat pandemi COVID-19 kami mampu mempertahankan kinerja produksi dan kapasitas *lifting* migas selama tahun 2021. Tingkat produksi dan kapasitas *lifting* migas PHE Subholding Upstream pada periode pelaporan mengalami penambahan signifikan, salah satunya karena adanya serah terima Blok Rokan yang kini dikelola PT Pertamina Hulu Rokan. Adapun jumlah total produksi dan kapasitas *lifting* migas PHE Subholding Upstream selama periode pelaporan dapat dilihat pada Laporan Tahunan PHE Tahun Buku 2021. [POJK51-6.b.1] [EM-EP-000.A]

PHE Subholding Upstream recorded a positive performance. The Company achieved 104.67% of KPI and a current year's net income of USD2,952.64 million or 113% of the 2021 Revised RKAP of USD2,622.82 million. In 2021, there was a work accident that caused a fatality in the Upstream Subholding, subsequently reducing the President Director's performance to 98.17%.

In 2021, we were able to maintain production performance and oil and gas lifting capacity despite the dynamics of the COVID-19 pandemic. The level of production and oil and gas lifting capacity of PHE Subholding Upstream in the reporting period experienced a significant increase, one of which was due to the handover of the Rokan Block which is now managed by PT Pertamina Hulu Rokan. The total amount of production and lifting capacity of PHE Subholding Upstream oil and gas during the reporting period can be seen in the PHE Annual Report for the 2021 Fiscal Year. [POJK51-6.b.1] [EM-EP-000.A]



Nilai Ekonomi Dihasilkan dan Didistribusikan

Economic Value Generated and Distributed

Sebagian dari nilai ekonomi yang dihasilkan pada tahun 2021, didistribusikan kepada pemangku kepentingan sesuai kebutuhan masing-masing. Laporan ini hanya mengungkap informasi nilai ekonomi dihasilkan dan didistribusikan yang mencakup operasional PHE Subholding Upstream. [201-1]

In 2021, a portion of the economic value generated was distributed to stakeholders based on their respective needs. This report only discloses information on the economic value generated and distributed by PHE Subholding Upstream operations. [201-1]

Nilai Ekonomi Dihasilkan dan Didistribusikan (Juta USD) [201-1]

Economic Value Generated and Distributed (Million USD)

Uraian Description	31 Desember 2021 31 December 2021	31 Desember 2020* 31 December 2020
Nilai Ekonomi Dihasilkan Economic Value Generated		
Pendapatan Usaha Operating Revenue	11.822,10	8.184,22
Nilai Ekonomi Didistribusikan Economic Value Distributed		
Biaya Operasi Operating Cost**	4.116,73	3.727,67
Gaji Karyawan dan Tunjangan Employee Salary and Allowances	356,15	223,78
Pembayaran kepada Investor dan Lender Payments to Investor and Lender***	873,58	816,76
Pembayaran kepada Pemerintah Payments to the Government	548,32	438,99
Investasi Sosial Social Investments****	11,96	1,77
Total Distribusi Nilai Ekonomi Total Economic Value Distributed	5.906,74	5.204,97
Nilai Ekonomi Ditahan (Jumlah Nilai Ekonomi Dihasilkan – Jumlah Nilai Ekonomi Didistribusikan) Economic Value Retained (Total Economic Value Generated – Total Economic Value Distributed)		
Jumlah Nilai Ekonomi Ditahan Total Economic Value Retained	5.915,36	2.979,25

* Penyajian kembali atas perubahan struktur tata kelola dari PHE menjadi PHE Subholding Upstream. Ekuitas grup pada tanggal 31 Desember 2020 dan 1 Januari 2020 disajikan sebagai ekuitas unit bisnis yang menggabungkan diri di dalam ekuitas grup sesuai dengan PSAK 38.

Restatement of changes in the governance structure from PHE to PHE Subholding Upstream. Group equity as of December 31, 2020, and January 1, 2020 is presented as equity of the merging business units in group equity in accordance with PSAK 38.

** Biaya operasi tidak termasuk biaya gaji pekerja dan biaya depresiasi

Operating costs do not include employee salaries and depreciation costs

*** Pembayaran kepada investor dan lender merupakan pembayaran dividen dan bunga pinjaman

Payments to investors and lenders are payments of dividends and interest on loans

**** Terdapat perbedaan metode perhitungan berdasarkan ruang lingkup mengacu pada panduan GRI 201 dan ISO 26000, serta data 2021 mencakup PHE Subholding Upstream

There were different calculation methods based on the scope of reference to the GRI 201 and ISO 26000 guidelines, also data from 2021 includes PHE Subholding Upstream

Dalam kinerja ekonomi, peningkatan produksi migas didukung alokasi biaya sebesar USD3.278,16 juta atau Rp46.806 miliar (asumsi kurs Rp14.278 per USD), dengan realisasi sebesar USD2.579,52 juta atau sekitar Rp36.830 miliar (*audited*). PHE Subholding Upstream bergerak di bidang eksplorasi dan produksi migas, sedangkan pengembangan energi terbarukan dilakukan di *Subholding* lain sehingga kami tidak dapat menyampaikan biaya investasinya dalam laporan ini. [POJK51-6] [EM-EP-420a.3]

The increase in oil and gas production was supported by a cost allocation of USD3,278.16 million or Rp46,806 billion (assuming an exchange rate of Rp14,278 per USD) and a realization of USD2,579.52 million or approximately Rp36,830 billion (*audited*). PHE Subholding Upstream is engaged in oil and gas production and exploration, whereas the development of renewable energy is the responsibility of other Subholdings; therefore, the investment costs cannot be detailed in this report. [POJK51-6] [EM-EP-420a.3]

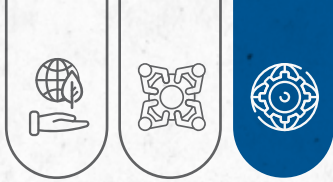
Kegiatan Activity	Realisasi Biaya Investasi (Juta USD) Investment Cost Realization (Million USD)
Eksplorasi Exploration	267,31
Pengembangan Development	1.677,48
Operasi dan Produksi Operation and Production	519,42
Services	83,85
Akuisisi Acquisitions	41,47
Jumlah Total	2.579,52

Sinergi dengan Anak Perusahaan PERTAMINA

Synergy with PERTAMINA Subsidiaries

Sinergi diperlukan dalam rangka memperkuat bisnis PERTAMINA dan meningkatkan kinerja *Subholding* beserta Anak Perusahaan masing-masing, melalui peningkatan profitabilitas, operasi unggul dan keunggulan daya saing serta optimalisasi peluang bisnis guna menghasilkan nilai tambah bagi korporat. Selama tahun 2021, PHE Subholding Upstream telah mendorong sinergi di antara Anak Perusahaan maupun dengan Subholding PERTAMINA lain dengan total nilai sinergi sebesar USD693,5 Juta dengan pembuktian berupa ikatan kerja. Rincian realisasi sinergi disampaikan dalam Laporan Tahunan 2021.

Synergy is required to strengthen PERTAMINA'S business and improve the performance of Subholding and their respective Subsidiaries by increasing profitability, superior operations, and competitive advantage, as well as by optimizing business opportunities to create value for the corporation. During 2021, PHE Subholding Upstream drove synergies between Subsidiaries and with other Pertamina Subholdings totaling USD 693.5 million, as evidenced by work ties. Details of the realization of the synergy are presented in the 2021 Annual Report.



Dampak Ekonomi Tidak Langsung

Pada 9 Agustus 2021 dilakukan pengalihan kelola dari Blok Rokan dari CPI ke PT Pertamina Hulu Rokan. Alih kelola memberikan dampak ekonomi tidak langsung masyarakat melalui kepemilikan hak partisipasi (*participating interest* atau PI) Blok Rokan sebesar 10% (sepuluh persen) kepada badan usaha milik daerah (BUMD). Aturan mengenai PI 10% (sepuluh persen) tercantum dalam Permen Energi dan Sumber Daya Mineral (ESDM) Nomor 37 Tahun 2016 tentang Ketentuan Penawaran Participating Interest 10% (Sepuluh Persen) Pada Wilayah Kerja Minyak dan Gas Bumi. Kepemilikan PI memberikan manfaat ekonomi tidak langsung bagi masyarakat, melalui pemberian bagian keuntungan kepada BUMD yang akan menambah pendapatan daerah. Perolehan tersebut dapat dimanfaatkan mendukung berbagai program peningkatan ekonomi daerah maupun kesejahteraan masyarakat. [203-2]

Keberadaan PHE Subholding Upstream dan anak usahanya, juga mendatangkan manfaat ekonomi tidak langsung bagi masyarakat melalui pemanfaatan fasilitas yang dibangun untuk mendukung operasi perusahaan. Seluruh pemanfaatan fasilitas tersebut bersifat probono. [203-1] [203-2]

Indirect Economic Impact

On 9 August 2021, CPI transferred the management of the Rokan Block to PT Pertamina Hulu Rokan. The transfer of management had an indirect economic impact on the community as it resulted in the transfer of 10% (ten percent) of the Rokan Block's participating interest (PI) to regionally-owned enterprises (BUMD). The rules governing the 10% (ten percent) PI are established in Minister of Energy and Mineral Resources (ESDM) Regulation 37 of 2016 concerning Provisions for Offering 10% (Ten Percent) Participating Interest in Oil and Gas Work Areas. By providing a share of profits to BUMD, PI ownership provides indirect economic benefits to the community. These gains can be used to fund various regional economic development and community welfare programs. [203-2]

Additionally, PHE Subholding Upstream and its subsidiaries indirectly benefit the community through the use of facilities constructed to support the company's operations. The use of these facilities is entirely probono. [203-1] [203-2]

PT Pertamina EP Cepu (PEPC) membangun jalan beton (*concrete road*) menuju Lapangan Gas Jambaran - Tiung Biru (JTB) yang menjadi akses utama warga sekitar. Proyek peningkatan kualitas jalan sepanjang 4,5 kilometer, menghubungkan Desa Mojodelik, Kecamatan Gayam dengan Desa Bandungrejo, Kecamatan Ngasem, di Kabupaten Bojonegoro, Jawa Timur, dan dikerjakan dengan melibatkan warga sekitar sebagai tenaga kerja. Pada tahun 2021, pekerjaan tahap satu sepanjang 2,5 km telah terselesaikan dan dilanjutkan pada tahap kedua di akhir tahun 2021 sampai dengan awal 2022 sepanjang 2 km. Kondisi jalan yang baik akan menunjang mobilitas masyarakat, serta memudahkan wisatawan menjangkau kawasan Wisata Puthuk Kreweng sehingga akhirnya dapat menciptakan kemanfaatan ekonomi dan meningkatkan kesejahteraan.

[203-1]

PT Pertamina EP Cepu (PEPC) constructed a concrete road leading to the Jambaran - Tiung Biru (JTB) Gas Field, which serves as the primary access point for local residents. The 4.5 kilometer long road quality improvement project connects Mojodelik Village, Gayam District, with Bandungrejo Village, Ngasem District, in Bojonegoro Regency, East Java, and was carried out with the involvement of local residents. The first phase of 2.5 km of construction was completed in 2021, and the second phase of 2 km will operate from the end of 2021 to the beginning of 2022. Good road conditions will enhance community mobility and make it simpler for tourists to reach the Puthuk Kreweng Tourism area, allowing them to generate economic benefits and improve social welfare. [203-1]

Kontribusi pada Penerimaan Negara

Contribution to State Revenue

Salah satu bentuk distribusi nilai ekonomi yang diperoleh adalah pembayaran pajak dan Penerimaan Negara Bukan Pajak (PNBP) kepada Pemerintah, sesuai regulasi perpajakan yang berlaku di negara yang menjadi wilayah kerja Anak Perusahaan. Laporan ini hanya mengungkapkan informasi pembayaran pajak dan PNBP untuk wilayah operasi di Indonesia. Total pembayaran pajak dan PNBP pada tahun 2021 mencapai USD5.273,87 juta, naik 56% dari tahun 2020 sebesar USD3.388,38 juta, seiring naiknya Pendapatan Usaha. [207-1]

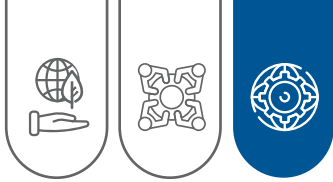
One method of distributing economic value obtained is through the payment of taxes and Non-Tax State Revenue (PNBP) to the Government in accordance with the applicable tax regulations in the country in which Subsidiaries operate. This report contains only data on tax and PNBP payments made for operating areas in Indonesia. Taxes and PNBP payments totaled USD5,273.87 million in 2021, up 56% from USD3,388.38 million in 2020, in line with the growth in Operating Income. [207-1]

Kontribusi Kepada Negara (Juta USD)
Contribution to the Country (Million USD)

Uraian Description	2021	2020*	2019*
Penerimaan Negara Bukan Pajak (PNBP) Non-Tax State Revenue (PNBP)			
PNBP Lainnya Other PNBP	3.200,48	1.933,93	2.999,73
Sub Total PNBP	3.200,48	1.933,93	2.999,73
Pajak Taxes			
Pajak Pertambahan Nilai Value-Added Tax	357,00	408,95	397,35
Pajak Bumi dan Bangunan Property Tax	123,50	159,94	210,94
Pajak Penghasilan Karyawan Employee Income Tax	118,12	125,99	139,72
Pajak Penghasilan Badan Corporate Income Tax	1.384,84	658,92	1.401,41
BBN dan Pajak Kendaraan/Retribusi Daerah BBN and Vehicle Taxes/Regional Levies	5,34	4,52	5,37
Pajak Lainnya Other Taxes	84,59	96,13	119,90
Sub Total Pajak Sub-Total Tax	2.073,39	1.454,45	2.274,69
Jumlah Kontribusi Kepada Negara Total Contribution to the Country			
Total	5.273,87	3.388,38	5.274,43

*angka penyajian kembali dengan data PHE Subholding Upstream

* restatement figures with PHE Subholding Upstream data



Pembayaran Pajak ^[207-1]

Tax Payments

PHE Subholding Upstream berkomitmen memenuhi kewajiban membayar pajak, baik di Indonesia maupun di negara lain yang menjadi wilayah operasi Anak Perusahaan (AP), berdasarkan peraturan perpajakan yang berlaku. Sampai periode pelaporan, pejabat Perusahaan yang bertugas mengelola perpajakan pada Regional 1-Sumatra sampai Regional 5- Internasional adalah Eksekutif Senior Manager Tax, yang bertanggung jawab langsung kepada Direktur Keuangan PHE Subholding Upstream. Pada AP *Services* lain di Subholding Upstream, pengelolaan pajak menjadi tanggung jawab fungsi yang ditunjuk masing-masing manajemen. Fungsi perpajakan pada PHE Subholding Upstream dan masing-masing AP, akan memastikan kepatuhan perpajakan terhadap regulasi yang berlaku, dan secara berkala dipantau serta dilaporkan sebagai bagian dari pencapaian target Indikator Kinerja Utama (KPI).

PHE Subholding Upstream is committed to paying taxes in accordance with applicable tax regulations, both in Indonesia and in other countries where Subsidiaries (APs) operate. During the reporting period, the Tax Executive Senior Manager, who reports directly to the Finance Director of PHE Subholding Upstream, is responsible for managing taxation in Regional 1-Sumatra to Regional 5- International of PHE Subholding Upstream. Tax management is the responsibility of the functions appointed by each management in the other AP Services of Subholding Upstream. PHE Subholding Upstream and each Subsidiary have a tax function that ensures compliance with applicable regulations and is regularly monitored and reported on to meet Key Performance Indicators (KPI) targets.

Inovasi Untuk Keberlanjutan

PHE Subholding Upstream terus melakukan inovasi untuk mencapai keberlanjutan. Pengelolaan inovasi dilakukan dengan memperhatikan beberapa hal:

1. Keberlanjutan dalam mengelola Upstream Oil and Gas Innovation dengan fokus Quality & Knowledge Management, Oil & Gas Exploration, Oil & Gas Development and Production, HSSE, serta bidang yang terkait dalam kegiatan pengelolaan dan penciptaan inovasi & teknologi minyak dan gas;
2. Menjalankan prinsip *continuous improvement* dalam pengelolaan inovasi teknologi;
3. Memiliki *commercial aspect*, baik internal dan eksternal;
4. Memastikan bahwa seluruh kegiatan pengelolaan inovasi teknologi berjalan sesuai dengan strategi, fokus bisnis, serta target pengurangan emisi.

Pengembangan inovasi dilakukan melalui studi *Carbon Capture, Utilization, and Storage* (CCUS)-EOR, yang dapat mengurangi emisi CO₂ dan meningkatkan produksi melalui injeksi CO₂. Pasokan CO₂ dapat diperoleh dengan cara penyaluran menggunakan pipa. Selain itu, Perusahaan juga melakukan studi *Carbon Capture Storage* (CCS) untuk mengurangi emisi dalam proses produksi.

Innovation For Sustainability

PHE Subholding Upstream is committed to sustainability through innovation. Several factors are taken into account when managing innovation:

1. Sustainability in the management of upstream oil and gas innovation, with a particular emphasis on quality and knowledge management, oil and gas exploration, oil and gas development and production, HSSE, and related fields in the management and creation of oil and gas innovation and technology;
2. Adheres to the principle of continuous improvement in technological innovation management;
3. Has a commercial aspect, both internal and external; and
4. Ensures that all technological innovation management activities are aligned with the strategy, business focus, and emission reduction targets.

Carbon Capture, Utilization, and Storage (CCUS)-EOR research is being conducted to determine how CO₂ injection can be used to reduce CO₂ emissions and increase production. CO₂ can be distributed via pipes. Moreover, the Company conducts Carbon Capture and Storage (CCS) studies to reduce emissions during the production process.

Implikasi Finansial Akibat Perubahan Iklim [OGSS-11.2.2]

Financial Implications due to Climate Change

Selama periode pelaporan, ada beberapa kondisi yang kami hadapi akibat perubahan iklim dalam bentuk anomali cuaca. Secara umum kondisi tersebut tidak menimbulkan implikasi finansial yang signifikan terhadap Perusahaan. Seluruh kegiatan operasional baik produksi maupun *lifting* tetap berlangsung secara optimal sehingga dapat memenuhi target *lifting* migas yang ditetapkan. [POJK51-6] [201-2]

During the reporting period, we encountered several conditions resulting from climate change in the form of weather anomalies. In general, these conditions did not have significant financial implications for the Company. All operational activity both production and lifting continue optimally to meet the established national oil and gas lifting targets. [POJK51-6] [201-2]

Kami terus mendorong transformasi bisnis ke arah *green economy* dan ekonomi rendah karbon. Dukungan ini juga kami berikan kepada PT Pertamina (Persero) sebagai *holding* migas, dalam keikutsertaan Konferensi Tingkat Tinggi (KTT) Perubahan Iklim Perserikatan Bangsa-bangsa di Glasgow, Skotlandia pada awal November 2021. [OGSS-11.2.4]

We are committed to driving business transformation toward a green and low-carbon economy. Additionally, we supported PT Pertamina (Persero), an oil and gas holding company, in its participation in the United Nations Climate Change Summit in Glasgow, Scotland, in early November 2021. [OGSS-11.2.4]

Dana Pensiun Pekerja

Employee Pension Fund

PHE Subholding Upstream melakukan program perlindungan kesejahteraan pekerja untuk mempertahankan dan memberikan motivasi pada setiap pekerja. Kami menyertakan pekerja dalam program pensiun, yakni Program Pensiun Iuran Pasti (PPIP). Pengelolaan Program Pensiun Iuran Pasti prosesnya dilakukan PHE Subholding Upstream melalui lembaga Dana Pensiun Lembaga Keuangan (DPLK). Jumlah dana pensiun (porsi Perusahaan) yang dikelola per 31 Desember 2021 mencapai Rp147 miliar. [201-3]

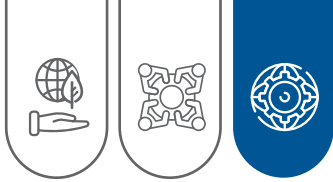
PHE Subholding Upstream retains and motivates its employees through an employee welfare protection program. We enroll employees in a pension plan, specifically the Defined Benefit Pension Plan (PPIP). PHE Subholding Upstream manages the defined contribution pension program via the Financial Institution Pension Fund (DPLK). As of 31 December 2021, the total pension funds managed (the Company's portion) reached Rp147 billion. [201-3]

Layanan Setara Kepada Konsumen

Equal Service to Consumers

Produk yang dihasilkan PHE Subholding Upstream adalah migas sehingga memiliki pasar dan pelanggan yang sudah pasti (*captive market*). Kami berkomitmen menerapkan sistem manajemen mutu di semua fungsi/unit kerja dan tingkatan, dan memastikan mutu produk serta layanan terbaik yang setara kepada seluruh pelanggan. Perusahaan menyediakan saluran bagi pelanggan untuk menyampaikan keluhan melalui berbagai saluran komunikasi, di antaranya: telepon 021-2954 7000 atau surel: commercial.phe@pertamina.com [POJK51-6]

Because PHE Subholding Upstream's products are oil and gas, they have a defined captive market and customer base. We are committed to implementing a quality management system across all functions/work units and levels and ensuring that all customers receive the highest-quality products and services. Customers can lodge complaints with the company via various communication channels, including telephone 021-2954 7000 or email: commercial.phe@pertamina.com. [POJK51-6]



Pada kurun waktu periode pelaporan, kami menerima 22 pengaduan/keluhan yang disampaikan oleh pelanggan. Secara prosedur, setiap keluhan yang disampaikan, akan ditindaklanjuti dan diselesaikan secara berjenjang, dimulai dari Fungsi Operasi di lapangan yang dikelola AP. Selanjutnya penanganan keluhan diselesaikan oleh Fungsi Marketing & Commercial pada Anak Perusahaan, dengan melibatkan Fungsi Commercial PHE sebagai Subholding Upstream dan fungsi terkait lainnya. Pengelolaan keluhan pelanggan dilaksanakan secara terpadu dengan melibatkan beberapa fungsi di PHE dan Anak Perusahaan, dengan mengacu pada beberapa regulasi yang berlaku, di antaranya Undang-Undang No.8 Tahun 1999 tentang kebijakan Pengelolaan Customer Focus atas Produk Minyak dan Gas PHE No.A-001/PHE460/2015-S0. Seluruh keluhan yang disampaikan pelanggan pada tahun 2021, telah ditindaklanjuti oleh fungsi-fungsi terkait dan hasilnya diinformasikan kepada pelanggan yang menyampaikan keluhan.

We received 22 complaints/complaints from customers during the reporting period. Procedurally, each complaint was followed up and resolved in stages, beginning with the Operations Function in the field, which Subsidiaries manages. Furthermore, the Marketing & Commercial Function of the Subsidiary handles complaints in collaboration with the Commercial Function of PHE as Subholding Upstream and other related functions. Customer complaints are managed holistically by involving multiple functions within PHE and its subsidiaries, in accordance with several applicable regulations, including Law No. 8 of 1999 concerning Customer Focus Management policy on PHE Oil and Gas Products No.A-001/PHE460/2015-S0. Relevant functions followed up all customer complaints received in 2021, and the results were communicated to the customers who lodged the complaints.

Indeks Kepuasan Pelanggan

Customer Satisfaction Index

Secara berkala kami melakukan survei kepuasan pelanggan. Dari hasil survei kepuasan pelanggan pada tahun 2021 diperoleh rata-rata Indeks Kepuasan Pelanggan sebesar 79,4%. Secara umum pelanggan telah menyatakan puas atas layanan yang diberikan dan kualitas produk yang dikirimkan.

We conduct customer satisfaction surveys regularly. The customer satisfaction survey results in 2021 yielded an average Customer Satisfaction Index of 79.4%. Customers have generally expressed their satisfaction with the services provided and the quality of the products delivered.



Hasil Survei Kepuasan Pelanggan (%)

Customer Satisfaction Survey Results (%)



LAMPIRAN

Appendix

Pengambilan air (*freshwater*) berdasarkan sumber

Water intake (freshwater) by source

Unit Operasi Operation Unit	Air permukaan (m ³) Surface water (m ³)	Air tanah (m ³) Groundwater (m ³)	Jumlah air yang diambil (m ³) Total water taken (m ³)
Regional 1 - Sumatra	3.648.856,91	2.666.083,83	6.314.940,74
Regional 2 - Jawa Regional 2 - Java	362.025,00	51.293,12	413.318,12
Regional 3 - Kalimantan	4.687.523,76	6.827.582,97	11.515.106,73
Regional 4 - Indonesia Timur Regional 4 - East Indonesia	16.616,10	85.879,07	102.495,17
Regional 5 - Internasional Regional 5 - International	-	-	-
PDSI	-	-	-
Elnusa	-	10.188,00	10.188,00
PT Badak NGL	-	4.491.165,07	4.491.165,07
Jumlah Total	8.715.021,77	14.132.192,06	22.847.213,83

Keterangan | Note:

- Tidak tersedia data dari Regional 5 –Internasional dan PDSI
- No data available from Regional 5 –International and PDSI

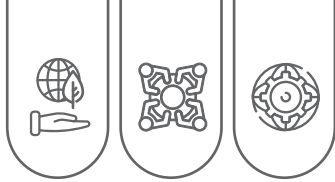
Jumlah limbah yang dikelola (B3) [306-2] [306-4] [OGSS-11.5.5]

Total waste managed (B3)

Unit Operasi Operation Unit	Limbah B3 Waste B3		
	Dihasilkan Produce (ton)	Dikelola pihak ketiga Third party managed (ton)	Sisa disimpan di TPS B3 The remainder is stored in TPS B3 (ton)
Regional 1 - Sumatra	13.311,89	10.888,16	2425,79
Regional 2 - Jawa Regional 2 - Java	1.670,55	1.634,68	35,864
Regional 3 - Kalimantan	27.099,30	26.936,70	162,60
Regional 4 - Indonesia Timur Regional 4 - East Indonesia	2.545,26	2.504,96	40,3
PT Badak NGL	67,20	64,11	0,46
Jumlah Total	44.694,23	4.2028,63	2.665,033

Keterangan | Note:

- Tidak melakukan *Reduce, Reuse, dan Recycle* (R3)
- Tidak tersedia data dari Regional 5 –Internasional, PDSI, dan Elnusa
- Not doing *Reduce, Reuse, and Recycle* (R3)
- No data available from Regional 5 –International, PDSI, and Elnusa



Jumlah Limbah yang Dikelola (Non-B3) [306-2] [306-4] [OGSS-11.5.5]
Total of Waste Managed (Non-B3)

Unit Operasi Operation Unit	Limbah Non-B3 Non Hazardous Waste				
	Dihasilkan Produce (ton)	Reduce (ton)	Reuse & recycle (ton)	Dikelola ke TPA Managed to TPA (ton)	Sisa Remainder (ton)
Regional 1 - Sumatra	6.768,26	1.727,92	2.274,96	6.464,12	4,58
Regional 2 - Jawa Regional 2 - Java	394,38	0	66,77	327,60	0
Regional 3 - Kalimantan	6.447,57	28,52	152,82	6.294,71	0
Regional 4 – Indonesia Timur Regional 4 – East Indonesia	1.331,68	9,19	43,48	1292,94	0
PT Badak NGL	788,11	32,36	273,61	514,5	0,19
Jumlah Total	15.730,02	1.798,01	2811,66	14.893,89	4,77

Keterangan | Note:

- Tidak tersedia data dari Regional 5 – Internasional, PDSI, dan Elnusa
- No data available from Regional 5 – International, PDSI, and Elnusa

**Volume Pengelolaan Air Limbah , dan Total Volume Olahan Air Limbah Digunakan Kembali,
dan Dialirkan Ke Badan Air** [OGSS-11.6.4] [OGSS-11.6.5] [306-4]

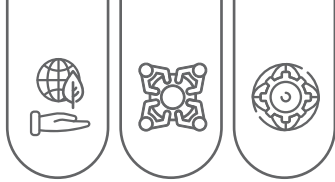
Volume of Wastewater Management, and Total Volume of Treated Wastewater Reused, and Distributed to Water Bodies

Regional	Uraian Description	Satuan Unit	2021	2020	2019
Regional 1 - Sumatra	Total air limbah diolah Total wastewater treatment	m ³	3.859.229,28	-	-
	Total olahan air limbah digunakan kembali Total treated wastewater is reused	m ³	179.496,00	-	-
	Total olahan air limbah dilepaskan ke badan air Total treated wastewater is released into water bodies	%	95%	-	-
Regional 2 - Jawa Regional 2 - Java	Total air limbah diolah Total wastewater treatment	m ³	479.921,81	-	-
	Total olahan air limbah digunakan kembali Total treated wastewater is reused	m ³	33.169,17	-	-
	Total olahan air limbah dilepaskan ke badan air Total treated wastewater is released into water bodies	%	93%	-	-
Regional 3 - Kalimantan	Total air limbah diolah Total wastewater treatment	m ³	8.763.529,44	-	-
	Total olahan air limbah digunakan kembali Total treated wastewater is reused	m ³	16.935	-	-
	Total olahan air limbah dilepaskan ke badan air Total treated wastewater is released into water bodies	%	100%	-	-

Regional	Uraian Description	Satuan Unit	2021	2020	2019
Regional 4 – Indonesia Timur Regional 4 – East Indonesia	Total air limbah diolah Total wastewater treatment	m ³	54.518,23	-	-
	Total olahan air limbah digunakan kembali Total treated wastewater is reused	m ³	1.597,14	-	-
	Total olahan air limbah dilepaskan ke badan air Total treated wastewater is released into water bodies	%	97%	-	-
Elnusa	Total air limbah diolah Total wastewater treatment	m ³	66.964	-	-
	Total olahan air limbah digunakan kembali Total treated wastewater is reused	m ³	-	-	-
	Total olahan air limbah dilepaskan ke badan air Total treated wastewater is released into water bodies	%	100%	-	-
PT Badak NGL	Total air limbah diolah Total wastewater treatment	m ³	346.661	-	-
	Total olahan air limbah digunakan kembali Total treated wastewater is reused	m ³	-	-	-
	Total olahan air limbah dilepaskan ke badan air Total treated wastewater is released into water bodies	%	100%	-	-
Jumlah Total	Total air limbah diolah Total wastewater treatment	m ³	13.570.823,77	-	-
	Total olahan air limbah digunakan kembali Total treated wastewater is reused	m ³	231.197,31	-	-
	Total olahan air limbah dilepaskan ke badan air Total treated wastewater is released into water bodies	%	98%	-	-
Entitas PHE PHE Entity	Total air limbah diolah Total wastewater treatment	m ³	-	277.697,39	174.127,28
	Total olahan air limbah digunakan kembali Total treated wastewater is reused	m ³	-	1.525,1	1.869,717
	Total olahan air limbah dilepaskan ke badan air Total treated wastewater is released into water bodies	%	-	99%	99%

Keterangan | Note :

- Air yang dibuang dihitung total padatan terlarutnya
- Tidak tersedia data dari Regional 5 –Internasional dan PDSI
- The water discharged is calculated for the total dissolved solids
- No data available from Regional 5 –International and PDSI



Volume Air Terproduksi dan Volume Air Terproduksi Dikelola [OGSS-11.6.5]
Produced Water Volume and Managed Produced Water Volume

Uraian Description		Satuan Unit	2021	2020	2019
Regional 1 - Sumatra					
Total volume air terproduksi dikelola	Sebagai air injeksi As water injection	m ³	275.117.265,1	-	-
Total volume of produced water is managed	Dilepas ke badan air Released into water bodies	m ³	28.291.017,75	-	-
	Jumlah Total	m ³	303.408.282,8	-	-
Regional 2 - Jawa Regional 2 - Java					
Total volume air terproduksi dikelola	Sebagai air injeksi As water injection	m ³	6.627.578,38	-	-
Total volume of produced water is managed	Dilepas ke badan air Released into water bodies	m ³	504.817.937,5	-	-
	Jumlah Total	m ³	511.445.515,9	-	-
Regional 3 - Kalimantan					
Total volume air terproduksi dikelola	Sebagai air injeksi As water injection	m ³	19.816.226,48	-	-
Total volume of produced water is managed	Dilepas ke badan air Released into water bodies	m ³	18.734.773,24	-	-
	Jumlah Total	m ³	38.550.999,73	-	-
Regional 4 – Indonesia Timur Regional 4 – East Indonesia					
Total volume air terproduksi dikelola	Sebagai air injeksi As water injection	m ³	18.374.304,27	-	-
Total volume of produced water is managed	Dilepas ke badan air Released into water bodies	m ³	1.150.123,575	-	-
	Jumlah Total	m ³	19.524.427,84	-	-
Regional 5 - Internasional Regional 5 - International					
Total volume air terproduksi dikelola	Sebagai air injeksi As water injection	m ³	14.254,36	-	-
Total volume of produced water is managed	Jumlah Total	m ³	14.254,36	-	-

Uraian Description		Satuan Unit	2021	2020	2019
Jumlah Total		m ³	8.729.434.80,6	-	-
Entitas PHE PHE Entity	Sebagai air injeksi As water injection	m ³	-	11.825.541,27	18.148.576,53
	Dilepas ke badan air Released into water bodies	m ³	-	579.588.713	594.166.536,2
	Jumlah Total	m ³	-	591.414.254,3	612.315.112,8

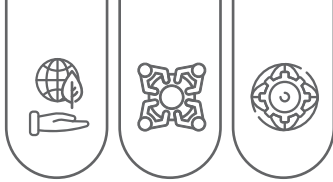
Keterangan | Note:

- Air yang dibuang dihitung total padatan terlarutnya
- Tidak tersedia data dari PDSI, Elnusa, dan PT Badak NGL
- The water discharged is calculated for the total dissolved solids
- No data available from PDSI, Elnusa, and PT Badak NGL

Emisi Gas Rumah Kaca (GRK) Langsung (Cakupan 1) (Ton CO₂) [305-1] [OGSS 11-11.1.5]

Direct Greenhouse Gas (GHG) Emissions (Scope 1) (Tons CO₂)

Unit Operasi Operation Unit	Uraian Description	2021
Penggunaan Bahan Bakar on-site: Pembakaran Stasioner di Pembangkit Listrik (Cakupan 1) On-site Fuel Use: Stationary Combustion at the Generator Electricity (Scope 1)		
Regional 1 - Sumatra	Pembakaran Dalam dan Luar Internal and External Combustion	1.234.351,60
	Suar Bakar Burn sound	826.361,53
	Process production	19.702,27
	Fugitive	89.891,59
Regional 2 - Jawa Regional 2 - Java	Pembakaran Dalam dan Luar Internal and External Combustion	1.389.590,49
	Suar Bakar Burn sound	1.028.586,37
	Process production	513.179,87
	Fugitive	54.953,54
Regional 3 - Kalimantan	Pembakaran Dalam dan Luar Internal and External Combustion	1.469.637,57
	Suar Bakar Burn sound	292.729,57
	Process production	43.505,27
	Fugitive	117.160,51
Regional 4 – Indonesia Timur Regional 4 – East Indonesia	Pembakaran Dalam dan Luar Internal and External Combustion	340.274,47
	Suar Bakar Burn sound	495.566,90
	Process production	558.700,11
	Fugitive	34.970,72



Unit Operasi Operation Unit	Uraian Description	2021
Regional 5 - Internasional Regional 5 - International	Pembakaran Dalam dan Luar Internal and External Combustion	153.375,20
	Suar Bakar Burn sound	38.146,49
	Process production	971,16
	Fugitive	21.040,63
PDSI	Pembakaran Dalam dan Luar Internal and External Combustion	17.831,37
	Suar Bakar Burn sound	-
	Process production	6,21
	Fugitive	-
Elnusa	Pembakaran Dalam dan Luar Internal and External Combustion	99.992,24
	Suar Bakar Burn sound	-
	Process production	-
	Fugitive	-
PT Badak NGL	Pembakaran Dalam dan Luar Internal and External Combustion	497.191,21
	Suar Bakar Burn sound	33.397,01
	Process production	192.317,6
	Fugitive	7,77
Jumlah Total		9.563.439,25

Emisi Gas Rumah Kaca (GRK) Tidak Langsung (Cakupan 2) (ton CO₂eq) [305-2] [CCE-4 C1] [CCE-4 C2]
Indirect Greenhouse gas (GHG) emission (Scope 2) (tonCO CO₂eq)

Unit Operasi Operation Unit	2021
Regional 1 - Sumatra	2.488,03
Regional 2 - Jawa Regional 2 - Java	8.381,93
Regional 3 - Kalimantan	47.917,87
Regional 4 - Indonesia Timur Regional 4 - East Indonesia	31.534,89
Regional 5 - Internasional Regional 5 - International	97.777,22
PDSI	-
Elnusa	273,67
PT Badak NGL	86,26
Jumlah Total	188.459,87

Keterangan | Note:

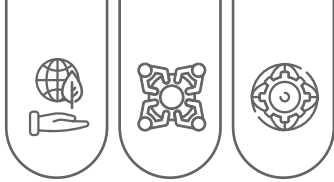
- Emisi dari penggunaan listrik dari pihak ketiga
- Tidak tersedia data dari PDSI
- Emissions from the use of electricity from third parties
- No data available from PDSI

Hasil Pengukuran Emisi GRK dan Emisi Konvensional Tahun 2021 Pada Kantor Pusat dan Regional (Ton) [EM-EP-120a.1][CCE-4 C3]
Results of Measurement of GHG Emissions and Conventional Emissions in 2021 at Headquarters and Regional Offices (Tons)

Jenis Gas Gas Type	Regional 1-Sumatra	Regional 2 - Jawa Regional 2 - Java	Regional 3-Kalimantan	Regional 4 – Indonesia Timur Regional 4 – East Indonesia	Regional 5 - Internasional Regional 5 - International	PDSI	Elnusa	PT Badak NGL	Jumlah
Gas Rumah Kaca (GRK) Greenhouse Gas (GHG)									
CH ₄ (metana) CH ₄ (methane)	4.513,73	6.059,63	6.025,77	1.844,79	891,89	0,97	4,03	1.549,03	20.889,85
CO ₂ (karbon dioksida) CO ₂ (carbon dioxide)	1.995.261,44	2.738.568,20	1.739.731,26	1.312.389,38	186.921,61	17.770,29	99.650,92	646.208,73	8.736.501,83
N ₂ O (dinitrogen oksida) N ₂ O (Nitrous oxide)	224,46	322,98	111,30	239,52	14,48	0,14	0,81	36,48	950,18
Emisi Konvensional Emissions of Conventional									
SO _x (sulfur oksida) SO _x (sulfur oxide)	2.283,82	280,70	546,20	9.780,92	3,51	34,99	195,53	72,54	13.198,21
NO _x (nitrogen oksida) NO _x (nitric oxide)	18.756,09	11.031,53	12.060,23	3.538,06	5.438,41	532,11	2.973,44	3.273,67	57.603,53
VOC (Volatile organic compound)	10.314,81	26.372,61	545,39	5.680,68	476,76	1,49	0	7,43	43.399,18
PM (partikulat) PM (particulate)	733,84	369,50	434,87	76,53	18,91	37,40	209,02	103,17	1.983,25
TOC (Total organic compound)	7.898,61	5.282,76	3.621,59	2.384,87	1.340,06	1,74	0	8,67	20.538,30

Keterangan Note:

- Total persentase CH₄ sebesar 0,24% [EM-EP-110a.2]
- Perhitungan emisi PHE Subholding Upstream yang disajikan berdasarkan regional, bukan aktivitas bisnis dari kegiatan produksi minyak dan gas.
- Total CH₄ percentage 0.24%
- PHE Subholding Upstream emission calculations are presented based on regional, not business activities from oil and gas production activities.



Jumlah Pekerja dan Pekerja Lain

Total PHE and Other Workers

Uraian Description	2021				2020				2019			
	Pria Male		Wanita Female		Pria Male		Wanita Female		Pria Male		Wanita Female	
	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%
Pekerja PHE Subholding Upstream	12.054	93%	1.723	90%	1.877	94%	379	95%	1.899	94%	386	94%
Subholding Upstream Employees												
Pekerja Lain Other Employees	889	7%	190	10%	123	6%	19	5%	129	6%	23	6%
Jumlah	12.943	87%	1.913	13%	2.000	83%	398	17%	2.028	83%	409	17%
Total			14.856				2.398				2.437	

Keterangan:

Data Tahun 2019 dan 2020 adalah untuk Wilayah Kerja PHE sebagai PHE sebelum pembentukan Subholding Upstream

Data for 2019 and 2020 are for the PHE Working area as a PHE before the PHE Subholding Upstream period

Jumlah Pekerja Berdasarkan Status Ketenagakerjaan

Number of Workers Based on Employment Status

Uraian Description	2021				2020				2019			
	Pria Male		Wanita Female		Pria Male		Wanita Female		Pria Male		Wanita Female	
	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%
Waktu Tidak Tertentu (Tetap)	11.706	90%	1.730	90%	1.991	100%	397	100%	2.001	99%	404	99%
Unspecified Time												
Waktu Tertentu (Kontrak)	1.237	10%	183	10%	9	0%	1	0%	27	1%	5	1%
Certain time												
Jumlah	12.943	87%	1.913	13%	2.000	83%	398	17%	2.028	83%	409	17%
Total			14.856				2.398				2.437	

Keterangan:

Data Tahun 2019 dan 2020 adalah untuk Wilayah Kerja PHE sebagai PHE sebelum pembentukan Subholding Upstream

Data for 2019 and 2020 are for the PHE Working area as a PHE before the PHE Subholding Upstream period

Jumlah Pekerja Berdasar Latar Belakang Pendidikan

Number of Workers Based on Educational Background

Uraian Description	2021				2020				2019			
	Pria Male		Wanita Female		Pria Male		Wanita Female		Pria Male		Wanita Female	
	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%
Doktor (S3) Doctorate Degree	27	0,21%	2	0,10%	2	0,10%	0	0,00%	1	0,05%	0	0,00%
Pascasarjana (S2) Master Degree	2.044	15,78%	413	21,68%	424	21,20%	85	21,36%	376	18,54%	72	17,60%
Sarjana (S1) Bachelor Degree	6.359	49,10%	1.249	65,56%	1.072	53,60%	274	68,84%	1.118	55,13%	287	70,17%
Diploma IV Diploma IV	105	0,81%	5	0,26%	47	2,35%	0	0,00%	47	2,32%	0	0,00%
Diploma III Associate Degree	1.478	11,41%	172	9,03%	211	10,55%	31	7,79%	231	11,39%	40	9,78%
Diploma I & II Diploma I & II	207	1,60%	26	1,36%	12	0,60%	2	0,50%	14	0,69%	3	0,73%

Uraian Description	2021				2020				2019			
	Pria Male		Wanita Female		Pria Male		Wanita Female		Pria Male		Wanita Female	
	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%
SMA Senior High School	2.716	20,97%	38	1,99%	231	11,55%	6	1,51%	238	11,74%	7	1,71%
SMP Junior High School	9	0,07%	0	0,00%	1	0,05%	0	0,00%	2	0,10%	0	0,00%
SD Elementary	6	0,05%	0	0,00%	0	0,00%	0	0,00%	1	0,05%	0	0,00%
Jumlah Total	1.951	87%	1.905	13%	2.000	83%	398	17%	2.028	83%	409	17%
	14.856				2.398				2,437			

Jumlah Pekerja Berdasarkan Kelompok Usia

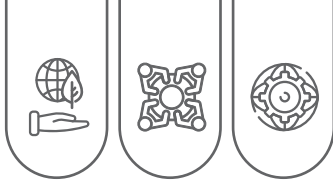
Number of Workers by Age Group

Uraian Description	2021				2020				2019			
	Pria Male		Wanita Female		Pria Male		Wanita Female		Pria Male		Wanita Female	
	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%
<= 30 Tahun <= 30 Years	1,168	9.02%	241	12.60%	197	9.85%	29	7.29%	233	11.49%	44	10.76%
31-40 Tahun 31 - 40 Years	4,801	37.09%	900	47.05%	788	39.40%	205	51.51%	806	39.74%	199	48.66%
41-50 Tahun 41 - 50 Years	4,681	36.17%	524	27.39%	623	31.15%	112	28.14%	600	29.59%	112	27.38%
>= 51 Tahun >= 51 Years	2,293	17.72%	248	12.96%	392	19.60%	52	13.07%	389	19.18%	54	13.20%
Jumlah Total	12,943	87%	1,913	13%	2,000	83%	398	17%	2,028	83%	409	17%
	14,856				2,398				2,437			

Jumlah Pekerja Untuk Masing-Masing Level Organisasi

Number of Workers for Each Organizational Level

Uraian Description	2021				2020				2019			
	Pria Male		Wanita Female		Pria Male		Wanita Female		Pria Male		Wanita Female	
	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%
Direksi Board of Directors	14	0,11%	1	0,05%	6	0,30%	0	0,00%	4	0,20%	1	0,24%
GM General Manager	73	0,56%	8	0,42%	6	0,30%	0	0,00%	8	0,39%	0	0,00%
VP Vice President	60	0,46%	11	0,57%	19	0,95%	2	0,50%	11	0,54%	4	0,98%
Konsultan Advisor	86	0,66%	15	0,78%	16	0,80%	0	0,00%	14	0,69%	0	0,00%
Manager/ Setara Manager/ Equivalent	720	5,56%	79	4,12%	129	6,45%	16	4,02%	130	6,41%	16	3,91%



Uraian Description	2021				2020				2019			
	Pria Male		Wanita Female		Pria Male		Wanita Female		Pria Male		Wanita Female	
	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%	Jumlah Total	%
Ass. Manager/ Setara Assistant Manager/ Equivalent	1.557	12,02	165	8,61	172	8,60	46	11,56	405	19,97	52	12,71
Senior Staf Senior Staff	3.880	29,95	493	25,72	266	13,30	45	11,31	577	28,45	157	38,39
Staf Staff	6.553	50,59	1.141	59,52	1.386	69,30	289	72,61	879	43,34	179	43,77
Jumlah Total	12.953	87,11	1.917	12,89	2.000	83,40	398	16,60	2.028	83,22	409	16,78
	14.856				2.398				2.437			

Target dan Realisasi Jumlah Jam Pelatihan Pekerja
Target and Actual Number of Training Hours for Workers

Regional	2021			2020			2019		
	Target	Realisasi Realization	%	Target	Realisasi Realization	%	Target	Realisasi Realization	%
Entitas PHE PHE Entity	239.250	363.547	152	412.272	453.499,2	110	377.100	414.810	110
Regional 1-5	1.936.500	2.797.284	144						
AP Services	602.000	778.294	129						

Keterangan | Note:
PT Badak NGL belum menghitung realisasi *learning hours* (LH)
PT Badak NGL has not calculated the realization of learning hours

Realisasi Jumlah Jam Pelatihan Pekerja Berdasarkan Regional dan Gender
Realization of Worker Training Hours Based on Regional and Gender

Regional	2021			2020			2019		
	Pria Male	Wanita Female	Jumlah Total	Pria Male	Wanita Female	Jumlah Total	Pria Male	Wanita Female	Jumlah Total
Entitas PHE PHE Entity	236.306	127.241	363.547	294.774	158.725	453.499	269.627	145.184	414.810
Regional 1-5	1.818.235	979.049	2.797.284						
AP Services	654.452	123.842	778.294						

Keterangan | Note:
PT Badak NGL belum menghitung realisasi *learning hours* (LH)
PT Badak NGL has not calculated the realization of learning hours

Realisasi Jumlah Jam Pelatihan Pekerja dan Rerata Jam Pelatihan Pekerja
Realization of Total Hours of Employee Training and Average Hours of Training

Regional	2021			2020			2019		
	Jumlah Jam Pelatihan Number of Training Hours	Jumlah Pekerja Peserta Number of Participant Workers	Rata-Rata Average	Jumlah Jam Pelatihan Number of Training Hours	Jumlah Pekerja Peserta Number of Participant Workers	Rata-Rata Average	Jumlah Jam Pelatihan Number of Training Hours	Jumlah Pekerja Peserta Number of Participant Workers	Rata-Rata Average
Entitas PHE PHE Entity	363.547	124.924	3	453.499	28.005	16	414.810	61.350	7
Regional 1-5	2.797.284	803.003	71						
AP Services	778.294	106.009	16						

Keterangan | Note:

PT Badak NGL belum menghitung realisasi *learning hours* (LH)

PT Badak NGL has not calculated the realization of learning hours

Realisasi Jumlah Jam Pelatihan PHE Subholding Upstream Berdasarkan Tingkat Jabatan dan Gender
Realization of Training Hours for PHE Subholding Upstream Workers Based on Position and Gender

Tingkat Jabatan Position Level	2021		
	Pria Male	Wanita Female	Jumlah Total
Dewan Komisaris Board of Commissioners	81	37	118
Direksi Board of Directors	12.474	1.322	13.796
SVP/VP/GM/ Setara SVP/VP/GM/Equivalent	388.065	111.418	499.483
Senior Manager/Manager/Setara Senior Manager/Manager/Equivalent	99.516	19.399	118.914
Asisten Manajer dibawah Under of Assistant Manager	2.208.857	1.097.957	3.306.813
Jumlah Total	2.708.992	1.230.133	3.939.125

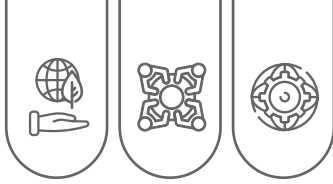
Keterangan | Note:

PT Badak NGL belum menghitung realisasi *learning hours* (LH)

PT Badak NGL has not calculated the realization of learning hours

Pelaksanaan Cuti Melahirkan Tahun 2021 ^[401-3]
Maternity Leave Implementation in 2021

Keterangan Description	Pekerja Laki-laki Male Employees			Pekerja Perempuan Female Employees		
	Total Pekerja Laki-laki Total Male Employees	Pekerja Cuti Employees on Leave	%	Total Pekerja Perempuan Total Female Employees	Pekerja Cuti Employees on Leave	%
Jumlah pekerja yang mendapat cuti melahirkan Total employees who received maternity leave		576	4,4	1.919	74	4
Jumlah pekerja yang kembali bekerja setelah cuti melahirkan Total employees returning to work after maternity leave	12.959	576	4,4	1.919	73	4



➤ PERNYATAAN ASSUROR INDEPENDEN

Independent Assurance Statement



Independent Assurance Statement The 2021 Sustainability Report of PT Pertamina Hulu Energi

Number : 014/000-174/V/2022/SR-Asia/Indonesia

Assurance Type : Type 1 assurance and Type 2 on the specific topic of the emission
Assurance Level : Moderate
Reporting Standards : GRI Universal Standard 2021 Consolidated, GRI 11 Oil & Gas Sector, SASB Oil & Gas Sector (Exploration and Production EM-EP 2018-10), and IPIECA Sustainability Reporting Guidance for the Oil and Gas Industry 4th edition 2020.
Reporting Regulation : Sustainable Finance Regulation POJK No.51/2017 (Indonesia)

Dear stakeholders,

Social Responsibility Asia or “SR Asia” is issuing an Independent Assurance Statement (“the Statement”) of **the 2021 Sustainability Report** (“the Report”) of **PT Pertamina Hulu Energi** (“the Company”). The Company is a subsidiary of Indonesia’s National Oil Company (NOC) PT Pertamina (Persero) operating in the exploration and production of oil and gas. The Report presents the commitment and efforts of the Company in managing its sustainability performance for the reporting period of **January 1st to December 31st, 2021**. As agreed with Management¹, SR Asia’s responsibility is to make an assessment based on the data and content of the Report for the year.

Intended User and Purpose

The Independent Assurance Statement (“the Statement”) is issued by SR Asia to present our opinions, findings, and recommendations derived from the assurance work on the Report content. As agreed by Management, SR Asia implemented particular assurance mechanisms, procedures, and scope of the assurance work with some limitations applied. Therefore, except for the areas covered in the assignment, the stakeholders shall NOT interpret or use solely the Statement or the Report as a basis for evaluating and concluding the Company’s overall performance or sustainability.

Responsibilities

Both SR Asia and the Management recognized the responsibilities of parties as specified in the Non-Disclosure Agreement and the Engagement Agreement documents. The Management is fully responsible for the presentation of data, information, and disclosures in the Report. The main responsibility of SR Asia is to provide an assurance service, NOT an audit, on the Report content. SR Asia is responsible for generating conclusions and recommendations, and coming up with the Statement and Management Letter based on the agreed standards, methods, and approaches. Unless the law requires it, our responsibility to disclose the results of assurance work is only to the Management. We do NOT accept or assume to hold a responsibility to disclose the results for any other purposes or to any other persons or organizations. Therefore, any dependence placed by a third party on the Statement or the Report is entirely at its own risk.

¹ The Management refers to the management of the Company



Independence, Impartiality, and Competency

SR Asia mandates its experts to follow a particular protocol and ethical code of conduct to ensure their integrity in the assurance work. We also carried out a pre-engagement assessment before the assurance work to verify the risks of engagement as well as to validate our independence and impartiality in conducting the assurance work. We confirm that the assurance experts have NO engagement in the Report development. We have NO relationships with the Company that can significantly influence our ability to generate unbiased and objective reviews and statements. The experts engaged in the Assurance Team also have sufficient work experience and knowledge in sustainability report drafting and assessment. They are familiar with AA1000 AccountAbility principles and standards, ISO 26000, GRI Standards, SASB standards, and POJK 51/pojk.03/2017.

Type and Level of Assurance Service

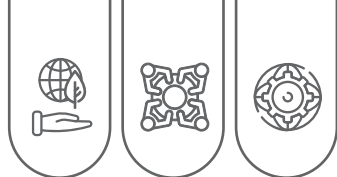
1. **Type 1 assurance** on the Report content and specifically **Type 2 assurance** was applied to **the emission** topic based on the AA1000 Assurance Standard v3 and AA1000APS (2018) AccountAbility Principles.
2. A **moderate level of assurance** to address **risks of information and conclusions of the Report being error is reduced, not to very low, but not zero.**

Scope and Limitation of Assurance Service

1. Data and information in the Report for the period of **January 1st to December 31st, 2021.**
2. Assessment of the topics that have been identified as “material” by the Company: **Emission; Energy Use and Efficiency; Biodiversity; Occupational Health and Safety; Prevention of Major Accidents; Training and Education; Local Community; Customer Privacy; Anticorruption; Water and Effluents; & Waste.**
3. Assessment of data, information, and disclosures including the mechanism, process, and control system under Type 2 assurance mechanism and procedures on **the Emission.**
4. Adherence to the following reporting principles, standards, and regulations:
 - a) Regulation of Indonesia Financial Service Authority No.51/POJK.03/2017 on the Application of Sustainable Finance to Financial Services Institution, Issuer, and Publicly Listed Companies (“POJK 51”);
 - b) Consolidated set of GRI Sustainability Reporting Standards 2021 (GRI Universal Standards);
 - c) GRI 11 Oil and Gas Sector (“GRI 11”);
 - d) Sustainability Accounting Standard for Oil & Gas Sector (Exploration & Production EM-EP 2018-10), issued by the Sustainability Accounting Standard Board (“SASB”);
 - e) IPIECA Sustainability Reporting Guidance for the Oil and Gas Industry 4th edition 2020 (“IPIECA”); and
5. Evaluation of publicly disclosed information, system, and process of the Company to ensure adherence to the Report content against the reporting principles and standards.
6. SR Asia excludes the financial data, information, and figures in the Report content in the scope of assurance work. We assume that the Company, independent parties, or other parties associated with the Company, have verified and/or audited any data and information related to financial statements.

Exclusion

1. Assessment against regulations, indicators, standards, guidelines, and principles other than those indicated in the Statement.
2. Any presumptions or forward-looking statements, including future plans, expectations, opinions, beliefs, and advertisements indicated in the Report content.
3. Topics, data, and information outside the reporting period, or in the public domain not covered in the reporting period, or not mentioned under the defining materiality section or the discussion on defining Report content.
4. Stakeholders’ engagement that might be taken by the Company in developing the Report.
5. Financial data and information other than those specified in the Report content.



Methodology

1. SR Asia formed an Assurance Team consisting of a number of experts in Indonesia.
2. The Assurance Team carried out the pre-engagement protocol to identify the risks of engagement and defined any factors that could affect the independence and impartiality of the Assurance Team.
3. The Assurance Team explained the assurance approaches and methods, scope of analysis, time plan, and other important issues in a kick-off meeting with the Company.
4. The Assurance Team conducted a preliminary analysis of the Report draft submitted by the Company.
5. Through online meetings, the Assurance Team shared the results of the initial analysis with the Management and verified the disclosures in the Report content against the regulation, standards, principles, and indicators of AA1000AS v3, AA1000AP (2018), GRI Standards, and POJK 51.
6. The Assurance Team verified evidence documents and traced data and information presented in the Report.
7. The Company revised the Report content based on SR Asia's recommendations and submitted it to SR Asia.
8. The Assurance Team prepared the Statement; it was sent to the SR Asia International Director in India for getting review and approval.
9. SR Asia sent the Statement to the Company.
10. The Assurance Team prepared a Management Letter detailing all aspects seen, recorded, and observed during the assurance work to the Management of the Company for further improvement of sustainability processes.

Adherence to AA1000AP (2018) and GRI Standards

Inclusivity – As the assurance work is taken, the presentation of key stakeholder groups in the Report is inclusive. Stakeholder identification in the Report content is comprehensive and well presented in detail. Overall, Stakeholder engagement also has been well managed by different units and functions in the Company using various approaches and methods.

Materiality – As specified in the Report, the Company has identified and discussed several topics considered “material”. The material topics covered various areas relevant to the sustainability context of the Company. However, the Company still needs to carry out a materiality test with clear criteria and thresholds as a basis to develop a sustainability report in the future.

Responsiveness – In general, the Company has responded to stakeholders’ concerns and expectations. The Company has a whistleblowing system and grievance mechanism in place to respond to grievances. The Company also has measured customer satisfaction and carried out various initiatives to ensure employee safety as part of its responses. Competencies and resources were well trained and allocated to ensure the Company’s capabilities in managing responses.

Impact – Our Assurance Team has concluded that the presentation of data and information in the Report regarding the impacts of business decisions and activities on the economy, society, and environment is sufficient. Both quantitative data and qualitative information were disclosed in the Report content. Further, the Company already measured its social impact based on Social Return on Investment (SROI). However, the results have not been validated by an external party.

Statement of Use: “Reference to the GRI Standards” – The Assurance Team has assessed the Report content including the statement of use against the GRI requirements for reporting to the GRI Standards. We concluded that the Report has met the three requirements; publish a GRI Content Index; provide a statement of use; and notify GRI.

GRI Standards Principles – To some extent, the Company has well applied the GRI Reporting Principles (Accuracy, Balance, Clarity, Comparability, Completeness, Sustainability Context, and Verifiability) in the Report Content. During the assurance work, the management extended excellent support by submitting evidence/documents as requested.

SR Asia Independent Assurance Statement, version 2022, page 3 of 4



Type 2 Assurance – The result of Type 2 assurance for the **Emission** topic. Policies, manuals, procedures, as well as control and management systems related to emission are already in place and well implemented. The Company has already set its carbon emission baseline and started developing the climate change and transition strategies and roadmap for the period up to 2050. The company has also an environmental policy where one of which contains to strengthen energy efficiency (emission reduction). Nevertheless, the Company is expected to engage an external party to monitor, evaluate, and validate the initiative.

Recommendation

1. To conduct a materiality test based on the approaches and methods as specified in the AA1000 standards, and principles. It should be well documented and used as the basis for identifying material topics in the next report.
2. To build a reliable, robust, and integrated information management system across functions, covering sustainability performance data and information. It should be built with digital information technologies following the sustainability reporting standards, approaches, and methodologies.

The assurance provider,

Jakarta, 30th of May 2022



Birendra Ratuni
International Director
Social Responsibility Asia




Dr. Semerdanta Pusaka
Country Director for Indonesia
Social Responsibility Asia

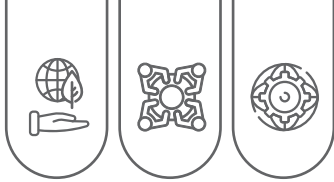
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➤ Indeks POJK 51, Indeks Isi Standar GRI (2021), GRI Spesifik Indikator: Oil and Gas Sector (2021), SASB: Minyak dan Gas (Eksplorasi dan Produksi) (2018), dan IPIECA Sustainable Guidance

Reference of POJK51, GRI Content Index (2021), GRI Specific indicator : Oil and Gas Sector (2021), SASB: Oil and Gas Exploration and Production) (2018), and IPIECA Sustainable Guidance

Indeks Isi GRI

GRI content index

Pernyataan Penggunaan:

PT Pertamina Hulu Energi telah melaporkan informasi yang tertera dalam Indeks Isi GRI untuk periode 1 Januari-31 Desember 2021 dengan merujuk ke Standar GRI.

Statement of use:

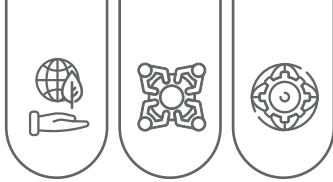
PT Pertamina Hulu Energi has reported the information cited in this GRI content index for the period 1 January – 31 December 2021 with reference to the GRI Standards.

GRI 1 digunakan : GRI 1 : Fondasi 2021
GRI 1 used : GRI 1: Foundation 2021

GRI Sector Standard yang Digunakan : GRI 11: Oil and Gas Sector 2021
Applicable GRI Sector Standard(s)

GRI Standard Other Source	Pengungkapan Disclosure	Letak Location
GRI 2: General Disclosures 2021	2-1 Detail Organisasi Organizational details	23
	2-2 Entitas yang termasuk dalam pelaporan keberlanjutan organisasi Entities included in the organization's sustainability reporting	39
	2-3 Periode pelaporan, frekuensi dan titik kontak Reporting period, frequency and contact point	39-40
	2-4 Pernyataan ulang informasi Restatements of information	40
	2-5 Assurance oleh pihak eksternal External assurance	39
	2-6 Aktivitas, rantai nilai dan hubungan bisnis lainnya Activities, value chain and other business relationships	24
	2-7 Karyawan Employees	25
	2-8 Pekerja yang bukan karyawan Workers who are not employees	25
	2-9 Struktur tata kelola dan komposisi Governance structure and composition	133

GRI Standard Other Source	Pengungkapan Disclosure	Letak Location
	2-10 nominasi dan seleksi untuk badan tata kelola tertinggi Nomination and selection of the highest governance body	-
	2-11 Ketua badan tata kelola tertinggi Chair of the highest governance body	133
	2-12 Peran badan tata kelola tertinggi dalam mengawasi pengelolaan dampak Role of the highest governance body in overseeing the management of impacts	132,134
	2-13 Pendelegasian tanggung jawab untuk mengelola dampak Delegation of responsibility for managing impacts	134
	2-14 Peran badan tata kelola tertinggi dalam pelaporan keberlanjutan Role of the highest governance body in sustainability reporting	40
	2-15 Konflik kepentingan Conflicts of interest	134
	2-16 Komunikasi keprihatinan kritis Communication of critical concerns	135
	2-17 Pengetahuan kolektif badan tata kelola tertinggi Collective knowledge of the highest governance body	136
	2-18 Evaluasi kinerja badan tata kelola tertinggi Evaluation of the performance of the highest governance body	132
	2-19 Kebijakan Remunerasi Remuneration policies	104-105
	2-20 Proses penentuan remunerasi Process to determine remuneration	104-105
	2-21 Rasio kompensasi total tahunan Annual total compensation ratio	105
	2-22 Pernyataan tentang strategi pembangunan berkelanjutan Statement on sustainable development strategy	29
	2-23 Komitmen kebijakan Policy commitments	30
	2-24 Menanamkan komitmen kebijakan Embedding policy commitments	30
	2-25 Proses untuk memulihkan dampak negatif Processes to remediate negative impacts	-
	2-26 Mekanisme untuk mencari nasihat dan menyampaikan kekhawatiran Mechanisms for seeking advice and raising concerns	108
	2-27 Kepatuhan terhadap hukum dan peraturan Compliance with laws and regulations	14
	2-28 Keanggotaan asosiasi Membership associations	27
	2-29 Pendekatan terhadap keterlibatan pemangku kepentingan Approach to stakeholder engagement	142-145
	2-30 Perjanjian perundingan kolektif Collective bargaining agreements	145

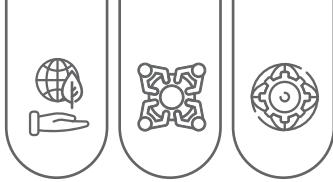


GRI Standard/Other Source	Pengungkapan Disclosure	GRI Spesifik Indikator Sektor Minyak & Gas (G11) GRI Oil & Gas Sector Specific Indicator (G11)	Letak Location
GRI 3: Topik Material 2021 GRI 3: Material Topics 2021	3-1 Proses untuk menentukan topik material Process to determine material topics		40
	3-2 Daftar topik material List of material topics		42-45

Pengungkapan Khusus
Specific Disclosure

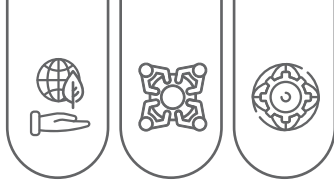
Topik Material: Kinerja Ekonomi Material Topic: Economic Performance			
GRI 3: Material Topics 2021	3-3 Management of material topics		
GRI 201: Kinerja Ekonomi 2016 GRI 201: Economic Performance 2016	201-1 Nilai ekonomi langsung yang diperoleh dan didistribusikan Direct economic value generated and distributed	11.14.2 11.21.2	148
	201-2 Implikasi finansial akibat perubahan iklim Financial implications due to climate change	11.2.2 11.14.3	153
	201-3 Kewajiban pada program imbalan pasti dan program pensiun lainnya Defined benefit plan obligations and other retirement plans		153
	201-4 Bantuan finansial dari pemerintah Financial assistance received from government	11.21.4	-
GRI 203: Dampak Ekonomi Tidak Langsung 2016 GRI 203 : Indirect Economic Impacts	203-1 Investasi infrastruktur dan dukungan layanan Infrastructure investments and services supported	11.14.4	150
	203-2 Dampak ekonomi tidak langsung yang signifikan Significant indirect economic impacts	11.14.5	150
GRI 204: Praktik Pengadaan 2016 GRI 204: Procurement Practice 2016	204-1 Penilaian terhadap operasi yang memiliki risiko korupsi Proportion of spending on local suppliers	11.14.6	24
Topik Material: Anti-korupsi Material Topic: Anti-corruption			
GRI 3: Material Topics 2021	3-3 Management of material topics	11.20.1	40
GRI 205: Anti-korupsi 2016 GRI 205: Anti-corruption 2016	205-1 Penilaian terhadap operasi yang memiliki risiko korupsi Operations assessed for risks related to corruption	11.20.2	42-45
	205-2 Komunikasi dan pelatihan terkait kebijakan dan prosedur anti-korupsi Communication and training about anti-corruption policies and procedures	11.20.3	139
	205-3 Kejadian korupsi dan tindakan yang diambil Confirmed incidents of corruption and actions taken	11.20.4	135

GRI Standard/Other Source	Pengungkapan Disclosure	GRI Spesifik Indikator Sektor Minyak & Gas (G11) GRI Oil & Gas Sector Specific Indicator (G11)	Letak Location
GRI 207: Pajak 2019 GRI 207: Tax 2019	207-1 Pendekatan terhadap pajak Approach to tax	11.21.4	151-152
	207-2 Tata kelola, pengendalian, dan manajemen risiko pajak Tax governance, control, and risk management	11.21.5	152
	207-3 Keterlibatan pemangku kepentingan dan pengelolaan perhatian yang berkaitan dengan pajak Stakeholder engagement and management of concerns related to tax	11.21.6	152
	207-4 Laporan per negara Country-by-country reporting	11.21.7	-
GRI 401: Ketenagakerjaan 2016 GRI 401: Employment 2016	401-1 Perekrutan karyawan baru dan pergantian karyawan New employee hires and employee turnover	11.10.2	104
	401-2 Tunjangan yang diberikan kepada karyawan purnawaktu yang tidak diberikan kepada karyawan sementara atau paruh waktu Benefits provided to full-time employees that are not provided to temporary or part-time employees	11.10.3	105
	401-3 Cuti melahirkan Maternity leave	11.10.4 11.11.3	105, lampiran
Topik Material: Kesehatan dan Keselamatan Kerja Material Topic: Occupational Health and Safety			
GRI 3: Material Topics 2021	3-3 Management of material topics	11.9.1	83
GRI 403: Kesehatan dan Keselamatan Kerja 2018 GRI 403: Occupational Health and Safety 2018	403-1 Sistem manajemen kesehatan dan keselamatan kerja Occupational health and safety management system	11.9.2	87
	403-2 Identifikasi bahaya, penilaian risiko, dan investigasi kecelakaan Hazard identification, risk assessment, and incident investigation	11.9.3	89
	403-3 Upaya kesehatan kerja Occupational health services	11.9.4	90
	403-4 Partisipasi, konsultasi, dan komunikasi pekerja terkait keselamatan dan kesehatan kerja Worker participation, consultation, and communication on occupational health and safety	11.9.5	90
	403-5 Pelatihan bagi pekerja mengenai keselamatan dan kesehatan kerja Worker training on occupational health and safety	11.9.6	91
	403-6 Peningkatan kualitas kesehatan pekerja Promotion of worker health	11.9.7	105, lampiran



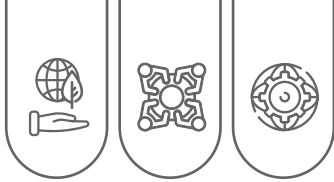
GRI Standard/Other Source	Pengungkapan Disclosure	GRI Spesifik Indikator Sektor Minyak & Gas (G11) GRI Oil & Gas Sector Specific Indicator (G11)	Letak Location
	403-7 Pencegahan dan mitigasi dampak dari keselamatan dan kesehatan kerja yang secara langsung terkait hubungan bisnis Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	11.9.8	91
	403-8 Pekerja yang tercakup dalam sistem manajemen keselamatan dan kesehatan kerja Workers covered by an occupational health and safety management system	11.9.9	92
	403-9 Kecelakaan kerja Work-related injuries	11.9.10	92
	403-10 Penyakit akibat kerja Work-related ill health	11.9.11	-
Topik Material : Pelatihan dan Pendidikan Material Topic: Training and Education			
GRI 3: Material Topics 2021	3-3 Management of material topics		
GRI 404 Pelatihan dan Pendidikan 2016 GRI 404 Training and Education 2016	404-1 Rata-rata jam pelatihan per tahun per pekerja Average hours of training per year per employee	11.10.6 11.11.4	106
	404-2 Program pengembangan kompetensi Program for upgrading employee skills	11.7.3 11.10.7	106
	404-3 Persentase karyawan menerima evaluasi kinerja dan pengembangan karir Percentage of employees receiving regular performance and career development reviews		107
GRI 407 : Kebebasan Berserik dan Perundingan Kolektif 2016 GRI 407 : Freedom Of Association And Collective Bargaining	407-1 Operasi dan pemasok di mana hak atas kebebasan berserikat dan perundingan kolektif mungkin berisiko Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	11.13.2	110
Topik Material: Masyarakat Lokal Material Topic: Local Community			
GRI 3: Material Topics 2021	3-3 Management of material topics	11.15.1	
GRI 413: Masyarakat Lokal 2018 GRI 413 : Local Community 2016	413-1 Operasi dengan keterlibatan masyarakat lokal, penilaian dampak, dan program pengembangan Operations with local community engagement, impact assessments, and development programs	11.15.2	113-114, 117
	413-2 Operasi yang secara aktual dan yang berpotensi memiliki dampak negative signifikan terhadap masyarakat lokal Operations with significant actual and potential negative impacts on local communities	11.15.3	112-113

GRI Standard/Other Source	Pengungkapan Disclosure	GRI Spesifik Indikator Sektor Minyak & Gas (G11) GRI Oil & Gas Sector Specific Indicator (G11)	Letak Location
Topik Material: Privasi Pelanggan Material Topic: Customer Privacy			
GRI 3: Material Topics 2021	3-3 Management of material topics		
GRI 418 : Privasi Pelanggan 2016 GRI 418 : Customer Privacy 2016	418-1 Pengaduan yang berdasar mengenai pelanggaran terhadap privasi pelanggan dan hilangnya data pelanggan Substantiated complaints concerning breaches of customer privacy and losses of customer data		141
Topik Material: Energi Material Topic: Energy			
GRI 3: Material Topics 2021	3-3 Management of material topics		
GRI 302: Energi 2016 GRI 302: Energy 2016	302-1 Konsumsi energi dalam organisasi Energy consumption within the organization	11.1.2	56-57
	302-2 Konsumsi energi di luar organisasi Energy consumption outside of the organization	11.1.3	56-57
	302-3 Intensitas energi Energy intensity	11.1.4	57
	302-4 Pengurangan konsumsi energi Reduction of energy consumption		58
	302-5 Pengurangan pada energi yang dibutuhkan untuk produk dan jasa Reductions in energy requirements of products and services		58
Topik Material: Air dan Efluen Material Topic: Water and Effluents			
GRI 3: Material Topics 2021	3-3 Management of material topics	11.6.1	
GRI 303: Air dan Efluen 2018 GRI 303: Water and Effluents 2018	303-1 Interaksi dengan air sebagai sumber daya bersama Interactions with water as a shared resource	11.6.2	75-77
	303-2 Manajemen dampak yang berkaitan dengan pembuangan air Management of water discharge-related impacts	11.6.3	77
	303-3 Pengambilan air Water withdrawal	11.6.4	77
	303-4 Pembuangan air Water discharge	11.6.5	-
	303-5 Konsumsi air Water consumption	11.6.6	49-50, lampiran



GRI Standard/Other Source	Pengungkapan Disclosure	GRI Spesifik Indikator Sektor Minyak & Gas (G11) GRI Oil & Gas Sector Specific Indicator (G11)	Letak Location
Topik Material: Emisi Material Topic: Emission			
GRI 3: Material Topics 2021	3-3 Management of material topics	11.1.1	
GRI 305: Emisi 2016	305-1 Emisi GRK (Cakupan 1) langsung Direct (Scope 1) GHG emissions	11.1.5	49-50, lampiran
GRI 305: Emission 2016	305-2 Emisi energi GRK (Cakupan 2) tidak langsung Energy indirect (Scope 2) GHG emissions	11.1.6	49, lampiran
	305-3 Emisi GRK (Cakupan 3) tidak langsung lainnya Other indirect (Scope 3) GHG emissions	11.1.7	-
	305-4 Intensitas emisi GRK GHG emission intensity	11.1.8	50
	305-5 Reduksi emisi GRK Reduction of GHG emissions	11.2.3	49, 51
	305-6 Emisi zat perusak ozon (ODS) 15 Emissions of ozone-depleting substances (ODS)		-
	305-7 Pengungkapan 305-7 Nitrogen oksida (NOX), sulfur oksida (SOX), dan emisi udara yang signifikan lainnya Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	11.3.2	lampiran
Topik Material : Limbah 2020 Material Topic : Waste			
GRI 3: Material Topics 2021	3-3 Management of material topics	11.5.1	
GRI 306: Limbah 2020	306-1 Timbulan limbah dan dampak yang signifikan terkait limbah Waste generation and significant waste-related impacts	11.5.2	73
GRI 306: Waste 2020	306-2 Pengelolaan dampak yang signifikan terkait limbah Management of significant waste-related impacts	11.5.3	74, lampiran
	306-3 Timbulan limbah Waste generated	11.5.4	74
	306-4 Limbah yang dialihkankan dari pembuangan akhir Waste diverted from disposal	11.5.5	lampiran
	306-5 Limbah yang dikirimkan ke pembuangan akhir Waste directed to disposal	11.5.6	-

GRI Standard/Other Source	Pengungkapan Disclosure	GRI Spesifik Indikator Sektor Minyak & Gas (G11) GRI Oil & Gas Sector Specific Indicator (G11)	Letak Location
Topik Material: Keanekaragaman Hayati Material Topic: Biodiversity			
GRI 3: Material Topics 2021	3-3 Management of material topics	11.4.1	
	304-1 Lokasi operasional yang dimiliki, disewa, dikelola, atau berdekatan dengan Kawasan lindung dan Kawasan dengan nilai keanekaragaman hayati tinggi di luar kawasan lindung Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	11.4.2	62-63
	304-2 Dampak signifikan dari kegiatan, produk, dan jasa pada keanekaragaman hayati Significant impacts of activities, products, and services on biodiversity	11.4.3	64
	304-3 Habitat yang dilindungi atau direstorasi Habitats protected or restored	11.4.4	65-66
	304-4 Spesies Daftar Merah IUCN dan spesies daftar konservasi nasional dengan habitat dalam wilayah yang terkena efek operasi IUCN Red List species and national conservation list species with habitats in areas affected by operations	11.4.5	65

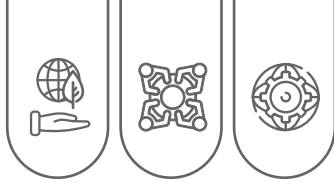


➤ REFERENSI POJK NO. 51/POJK/03/2017

References of POJK No. 51/POJK/03/2017

POJK No.51/POJK.03/2017		Pengungkapan Disclosure	Halaman Page(s)
1	Penjelasan strategi keberlanjutan Elaboration on sustainability strategy		29
2	Ikhtisar kinerja aspek keberlanjutan An overview of the sustainability performance aspect		6 -11
3	Profil singkat perusahaan Brief profile of the Company		23
3.a	Visi, misi, dan nilai keberlanjutan Vision, Mission, and sustainability value		20
3.b	Nama, alamat, nomor telepon, nomor faksimil, alamat surat elektronik (<i>e-mail</i>), dan situs web, serta kantor cabang Name, address, phone number, faximile numbers, electronic mail address (<i>e-mail</i>), website and branch office		23
3.c	Skala usaha Working scale		26
3.c.1	Total aset atau kapitalisasi aset, dan total kewajiban Assets total or asset capitalization and total responsibilities		26
3.c.2	Jumlah karyawan yang dibagi menurut jenis kelamin, jabatan, usia, pendidikan, dan status ketenagakerjaan The number of employees based on the gender, occupational level, ages, educational background, and employment status		lampiran
3.c.3	Persentase kepemilikan saham Percentage of Share ownership		23
3.c.4	Wilayah operasional Operational Area		23
3.d	Produk, layanan, dan kegiatan usaha Products, services, and business activities		24
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3.f	Perubahan LJK, Emiten, dan Perusahaan Publik yang bersifat signifikan Changes in LJK, Emiten, and public company changes that are significant		22
4	Penjelasan Direksi Directional explanation		12-17
4.a	Kebijakan untuk merespon tantangan dalam pemenuhan strategi keberlanjutan Policies to responds to challenges in fulfilling the sustainable strategy		13-14
4.b	Penerapan Keuangan Berkelanjutan, Implementation of sustainable financing		-
4.c	Strategi pencapaian target Business target		16

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5		Tata kelola keberlanjutan Sustainability governance	132
5.a		Tugas bagi Direksi dan Dewan Komisaris, pegawai, pejabat dan/atau unit kerja yang menjadi penanggung jawab penerapan Keuangan Berkelanjutan. Directors, Board Member, officer, government representative works to become responsible to manage sustainable financing.	134
5.b		Pengembangan kompetensi yang dilaksanakan terhadap anggota Direksi, anggota Dewan Komisaris, pegawai, pejabat dan/atau unit kerja yang menjadi penanggung jawab penerapan Keuangan Berkelanjutan. Development of competency, delivered to Directors, Board of Commisioners, employees, and working unit that responsible to sustainable financing.	107
5.c		Penjelasan mengenai prosedur Perusahaan Publik dalam mengendalikan risiko keberlanjutan Company procedures in controlling the risk of sustainability	-
6		Kinerja keberlanjutan antara lain, memuat: Sustainable performance	
6.a		Kegiatan membangun budaya keberlanjutan di internal Perusahaan Publik Activities to build a sustainabilityculture in the internal Public Company	48
6.b	6.b.1	Perbandingan target dan kinerja produksi, portofolio, target pembiayaan, atau investasi, pendapatan dan laba rugi Comparison between production target and performance, portfolio, funding or investment target, revenueand profit/loss	47
	6.b.2	Perbandingan target dan kinerja portofolio, target pembiayaan, atau investasi pada instrument keuangan atau proyek yang sejalan dengan penerapan Keuangan Berkelanjutan Comparison between portfolio target and performance, funding or investment target on financial instruments or projects in line with the implementation of Sustainable Finance	-
6.c	6.c.1	Komitmen LJK, Emiten, atau Perusahaan Publik untuk memberikan layanan atas produk dan/atau jasa yang setara kepada konsumen Commitment off inancial service institution, emiten, or public company to providing product and / or service equally to customers	48
	6.c.2.a	Kesetaraan kesempatan bekerja dan ada atau tidaknya tenaga kerja paksa dan tenaga kerja anak Equality of employment opportunities and the presence or absence of forced labor and child labor	104
	6.c.2.b	Persentase remunerasi karyawan tetap di tingkat terendah terhadap upah minimum regional Percentage of permanent employee remuneration at the lowest level against the regional minimum wage	104-105
	6.c.2.c	Lingkungan bekerja yang layak dan aman Safe and suitable working environment	82
	6.c.2.d	Pelatihan dan pengembangan kemampuan pegawai Training and capacity building for employee	106



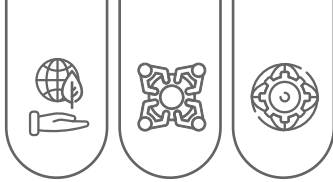
POJK No.51/POJK.03/2017		Pengungkapan Disclosure	Halaman Page(s)
	6.c.3.a	Informasi kegiatan atau wilayah operasional yang menghasilkan dampak positif dan dampak negatif terhadap masyarakat sekitar termasuk literasi dan inklusi keuangan Information on activities or operational areas that give positive and negative impacts to the surrounding community, including financial literacy and inclusion	-
	6.c.3.b	Mekanisme dan jumlah pengaduan masyarakat yang diterima dan ditindaklanjuti The mechanism and number of public complaints received and acted upon	80
	6.c.3.c	TJSL pada tujuan pembangunan berkelanjutan meliputi jenis dan capaian kegiatan program pemberdayaan masyarakat Social and environmental responsibility on sustainable development objectives includes the types and achievements of community empowerment program activities	117-130
6.d	6.d.1	Biaya lingkungan hidup yang dikeluarkan Environmental costs incurred	47
	6.d.2	Penggunaan material yang ramah lingkungan Use of environmentally friendly materials	54
	6.d.3	Penggunaan energi paling sedikit memuat: a) jumlah dan intensitas energi yang digunakan b) upaya dan pencapaian efisiensi energi yang dilakukan termasuk penggunaan sumber energi terbarukan Energy uses, at least contains: a) Total and intensity of energy used b) Work and achievement to use energy efficiently, including renewable energy resources	55-58, lampiran
6.e	6.e.1	Kinerja sebagaimana dimaksud dalam huruf d Performance as meant in letter d	110
	6.e.2	Kegiatan atau wilayah operasional yang menghasilkan dampak lingkungan hidup Activities or operational areas that have an impact to the surrounding environment	
	6.e.3.a	Dampak dari wilayah operasional yang dekat atau berada di daerah konservasi Impacts of operational areas that are near or in conservation area	61-66
	6.e.3.b	Upaya konservasi keanekaragaman hayati Efforts to conserve biodiversity	61-66
	6.e.4.a	Jumlah dan intensitas emisi yang dihasilkan berdasarkan jenisnya Total and intensity of emission produced, based on its type	50
	6.e.4.b	Upaya dan pencapaian pengurangan emisi yang dilakukan Efforts and achievement to reduce emission	51
	6.e.5.a	Limbah dan efluen yang dihasilkan berdasarkan jenis Wastes and effluent produced, based on its type	lampiran
	6.e.5.b	Mekanisme pengelolaan limbah dan efluen Mechanism of waste and effluent management	72-78
	6.e.5.c	Tumpahan yang terjadi (jika ada) Spilling, if any	64
	6.e.6	Jumlah dan materi pengaduan lingkungan hidup yang diterima dan diselesaikan The number and topic of environmental complaints received and resolved	80

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6.f	6.f.1	Inovasi dan pengembangan produk berkelanjutan Innovation and development of sustainable products	121
	6.f.2	Jumlah dan persentase produk dan jasa yang sudah dievaluasi keamanannya bagi pelanggan Number and percentage of products and services that have been evaluated for the customer's safety	153
	6.f.3	Dampak positif dan dampak negatif yang ditimbulkan dari produk dan/atau Jasa dan proses distribusi Positive and negative impact of product and / or services and distribution process	153
	6.f.4	Jumlah produk yang ditarik kembali dan alasannya Number of products withdrawn and the reason	153
	6.f.5	Survei kepuasan pelanggan Survey of customer satisfaction	154
7		Verifikasi tertulis dari pihak independen (jika ada) Written Verification from independent parties (if any)	

Sustainability Accounting Standard Board (SASB) : Minyak dan Gas (Eksplorasi dan Produksi) (2018)

Reference to the Sustainability Accounting Standard Board (SASB) Oil and Gas Exploration and Production (2018)

Topik Topic	Indikator Indicator	Pengungkapan Disclosure	Halaman Page (s)
Greenhouse Gas Emissions	EM-EP-110a.1	Gross global Scope 1 emissions, percentage methane, percentage covered under emissions-limiting regulations	49
	EM-EP-110a.3	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	51-52
Water Management	EM-EP-140a.1	(1) Total fresh water withdrawn, (2) total fresh water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	79
	EM-EP-140a.2	Volume of produced water and flowback generated; percentage (1) discharged, (2) injected, (3) recycled; hydrocarbon content in discharged water	78
Biodiversity Impacts	EM-EP-160a.1	Description of environmental management policies and practices for active sites	47
	EM-EP-160a.2	Number and aggregate volume of hydrocarbon spills, volume in Arctic, volume impacting shorelines with ESI rankings 8-10, and volume recovered	64
	EM-EP-160a.3	Percentage of (1) proved and (2) probable reserves in or near sites with protected conservation status or endangered species habitat	56



Topik Topic	Indikator Indicator	Pengungkapan Disclosure	Halaman Page (s)
Security, Human Rights & Rights of Indigenous Peoples	EM-EP-210a.1	Percentage of (1) proved and (2) probable reserves in or near areas of conflict	56
	EM-EP-210a.2	Percentage of (1) proved and (2) probable reserves in or near indigenous land	56
	EM-EP-210a.3	Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights, and operation in areas of conflict	108
Community Relations	EM-EP-210b.1	Discussion of process to manage risks and opportunities associated with community rights and interests	117-130
	EM-EP-210b.2	Number and duration of non-technical delays	80
Workforce Health & Safety	EM-EP-320a.1	(1) Total recordable incident rate (TRIR), (2) fatality rate, (3) near miss frequency rate (NMFR), and (4) average hours of health, safety, and emergency response training for (a) full-time employees, (b) contract employees, and (c) short-service employees	90, 92, 94
	EM-EP-320a.2	Discussion of management systems used to integrate a culture of safety throughout the exploration and production lifecycle	87
Reserves Valuation & Capital Expenditures	EM-EP-420a.1	Sensitivity of hydrocarbon reserve levels to future price projection scenarios that account for a price on carbon emissions	56
	EM-EP-420a.2	Estimated carbon dioxide emissions embedded in proved hydrocarbon reserves	49
	EM-EP-420a.3	Amount invested in renewable energy, revenue generated by renewable energy sales	149
	EM-EP-420a.4	Discussion of how price and demand for hydrocarbons and/or climate regulation influence the capital expenditure strategy for exploration, acquisition, and development of assets	50
Business Ethics & Transparency	EM-EP-510a.1	Percentage of (1) proved and (2) probable reserves in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index	49
	EM-EP-510a.2	Description of the management system for prevention of corruption and bribery throughout the value chain	138
Management of the Legal & Regulatory Environment	EM-EP-530a.1	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	139
Critical Incident Risk Management	EM-EP-540a.1	Process Safety Event (PSE) rates for Loss of Primary Containment (LOPC) of greater consequence (Tier 1)	96
	EM-EP-540a.2	Description of management systems used to identify and mitigate catastrophic and tail-end risks	83
Activity Metric	EM-EP-000.A	Production of: (1) oil, (2) natural gas, (3) synthetic oil, and (4) synthetic gas	147

Referensi International Petroleum Industry Environmental Conservation Association (IPIECA)

Reference of International Petroleum Industry Environmental Conservation Association (IPIECA)

Topik Topic	Indikator Indicator	Pengungkapan Disclosure	Halaman Page (s)
Perubahan Iklim dan Energi Climate Change and Energy	CCE-4	Emisi gas rumah kaca (GRK) Greenhouse gas (GHG) emissions	49, lampiran
	CCE-6	Penggunaan energi Energy use	57, 59
	CCE-7	Gas suar Flared gas	52
Lingkungan Environment	ENV-1	Air tawar Freshwater	77
	ENV-2	Debit air Discharges to water	78
	ENV-3	Kebijakan dan Strategi Keanekaragaman Hayati Biodiversity Policy and Strategy	62, 65
	ENV-4	Kawasan lindung dan prioritas untuk konservasi keanekaragaman hayati Protected and priority areas for biodiversity conservation	62-63, 65
Safety, Health, and Security	SHS-1	Keterlibatan keselamatan, kesehatan, dan keamanan Safety, health and security engagement	83, 90
	SHS-2	Tenaga kerja dan kesehatan masyarakat Workforce and community health	89
	SHS-3	Kecelakaan kerja dan insiden penyakit Occupational injury and illness incidents	84, 93
	SHS-6	Keamanan proses Process safety	96-97
	SHS-7	Manajemen risiko keamanan Security risk management	84,90
Sosial Social	SOC-6	Keterlibatan tenaga kerja Workforce engagement	110
	SOC-9	Dampak dan keterlibatan komunitas Community impacts and engagement	114



▶ LEMBAR UMPAN BALIK

Feedback Form



Laporan Keberlanjutan 2021 PT Pertamina Hulu Energi memberikan gambaran kinerja keberlanjutan Perseroan. Kami mengharapkan masukan dan saran dari Bapak/Ibu/Saudara sekalian melalui e-mail atau formulir ini.

The 2021 PT Pertamina Hulu Energi Sustainability Report aims to provide an overview of the sustainability performance. We would like to receive your input and suggestions by e-mail or through this form.

Mohon lembar umpan balik ini dikirimkan kembali kepada:

Please return this feedback form back to:
PT Pertamina Hulu Energi

Corporate Secretary

PHE Tower, Lantai 21-25

Jl. TB Simatupang Kav 99 Jakarta Selatan
12520, Indonesia

Tel : (021) 29547000

Email : pcc135@pertamina.com

1. Laporan ini mudah dimengerti. | The Report was Easy to Understand.

☐ Tidak setuju | Disagree ☐ Netral | Neutral ☐ Setuju | Agree

2. Laporan ini sudah menggambarkan informasi aspek material Perusahaan, baik dari sisi positif dan negatif.

The report has described positive and negative information of the Company's Material Aspects.

☐ Tidak setuju | Disagree ☐ Netral | Neutral ☐ Setuju | Agree

3. Topik material apa yang paling penting bagi anda (nilai 1=paling penting s/d 5=paling tidak penting)

Material topic(s) which is (are) the most important to you: (score 1=most important up to 5 = Least important)

- Emisi | Emission
- Energi | Energy
- Keanekaragaman Hayati | Biodiversity
- Keselamatan dan Kesehatan Kerja (K3) | Occupational Health and Safety
- Pelatihan dan Pendidikan | Training and Education
- Masyarakat Lokal | Local Community
- Antikorupsi | Anticorruption
- Air dan Efluen | Water and Effluents
- Limbah | Waste

4. Mohon dapat memberikan saran/usul/komentar anda atas laporan ini
Kindly provide your inputs/suggestions/comments about this report

.....

.....

.....

.....

Profil Anda | Your Profile

Nama | Name :

Institusi/Perusahaan :
Institution/Company

Email :

Golongan Pemangku Kepentingan | Stakeholder Group

- ☐ Pemegang Saham | Shareholders
- ☐ Pekerja | Employee
- ☐ Lembaga Legislatif | Legislative Institutions
- ☐ Pemerintah Pusat dan Regulator | Central Government and Regulators
- ☐ Pelanggan | Customers
- ☐ Masyarakat | Communities
- ☐ Mitra Usaha/Bisnis | Business Partners
- ☐ Mitra Kerja (Pemasok/ Kontraktor) | Working Partners
- ☐ Perguruan Tinggi dan Institusi Pendidikan | Universities and Educational Institutions
- ☐ Media
- ☐ Lainnya | Others



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