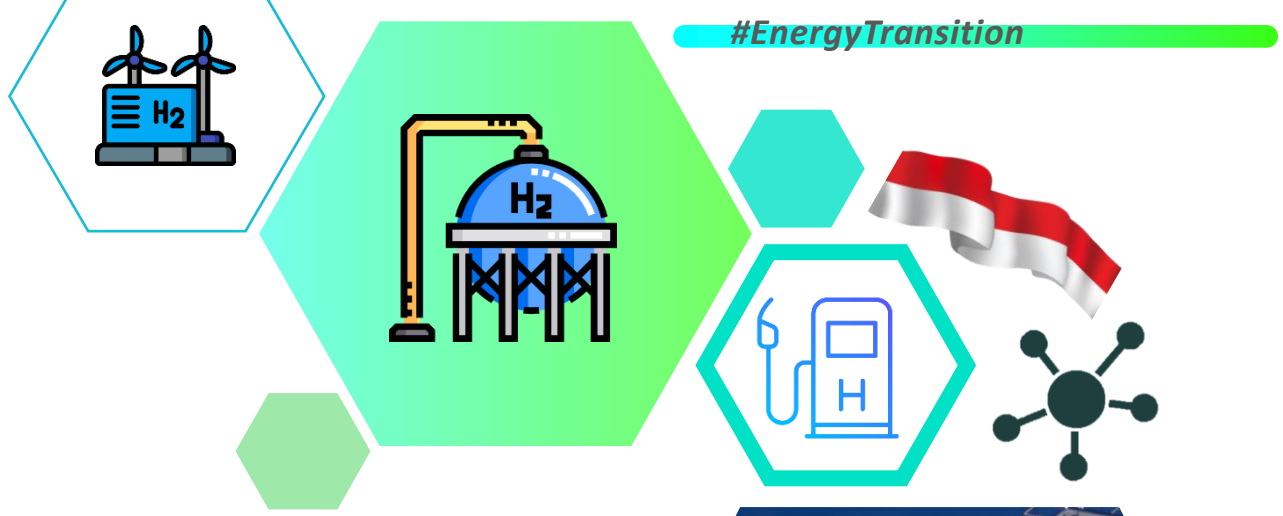
DIRECTORATE OF VARIOUS OF NEW AND RENEWABLE ENERGY
DIRECTORATE GENERAL OF NEW RENEWABLE ENERGY AND ENERGY CONSERVATION
MINISTRY OF ENERGY AND MINERAL RESOURCES

#EnergyTransition



Indonesia's National Hydrogen Strategy

Dr. Lana Saria, M.Si

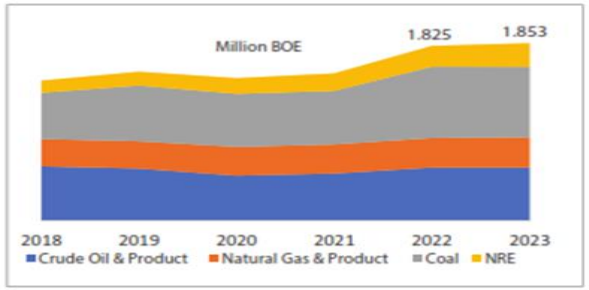
Ministry of Energy and Mineral Resources

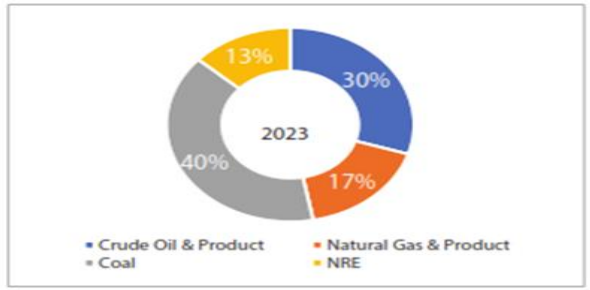
Japan, October 22, 2024

NRE Potential to Support Energy Transition

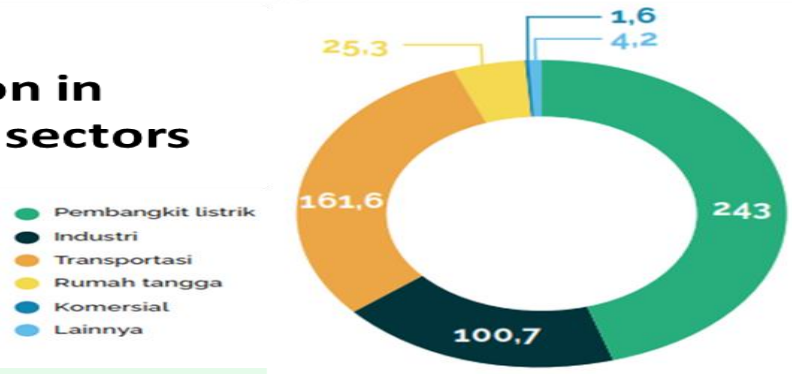
Energy Transition

Dependence on fossil fuels has negative impacts, especially on the environment and society.



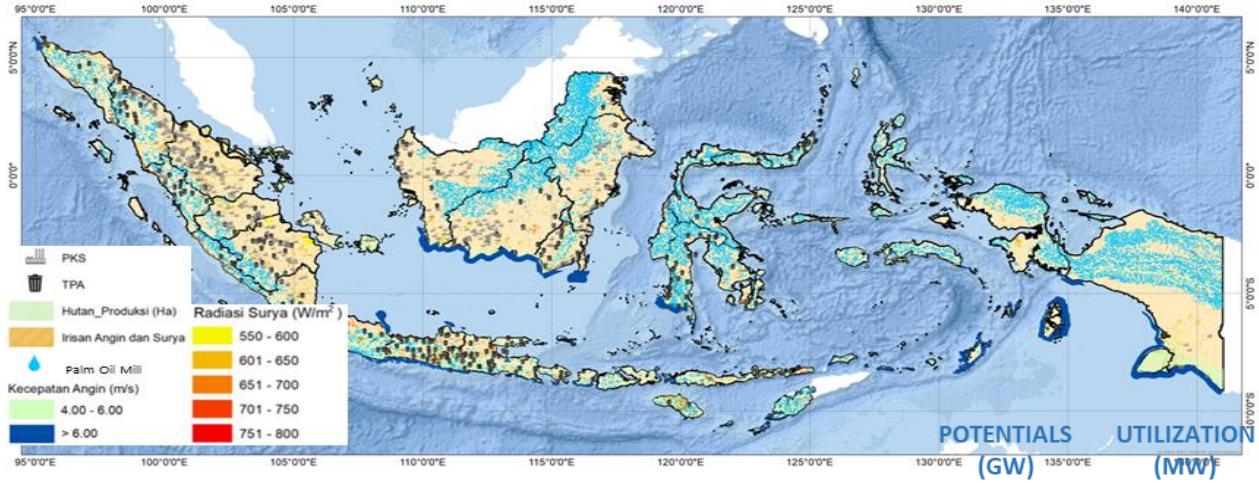


Emission in energy sectors



National NRE Potential and Utilization

Indonesia's NRE resources are **abundant, diverse and spread** throughout the country. Currently, **only 0.3% of the total potential has been utilized.**

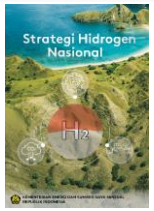


		POTENTIALS (GW)	UTILIZATION (MW)
	SOLAR | available all over Indonesia, particularly in East Nusa Tenggara, West Kalimantan and Riau which has higher radiation	3,294	640.4
	HYDRO | available all over Indonesia, particularly in North Kalimantan, NAD, North Sumatra and Papua	95	6,581.2
	BIOENERGY | available all over Indonesia in the form of main products, forestry/plantation land waste, waste in industry. Potential types include biofuels, biomass and biogas.	57	3,408.4
	WIND (>6 m/s) | available in East Nusa Tenggara, South Kalimantan, West Java, NAD & Papua.	155	152.3
	GEOTHERMAL | located in the «Ring of Fire», including Sumatra, Java, Bali, Nusa Tenggara, Sulawesi, & Maluku.	23	2,597.5
	OCEAN | **available** all over Indonesia, particularly in Maluku, East Nusa Tenggara, West Nusa Tenggara and Bali	63	0
	COAL GAS.		250
	TOTAL	3,687	13,630

POLICIES PREPARED BY MEMR

Complete/Published

1 Hydrogen National Strategy



- The document covers the current condition, direction and goals of hydrogen development in Indonesia.
- The National Hydrogen Strategy document was launched on December 15, 2023 and can be downloaded on link: https://bit.ly/StrategiHidrogenNasional

2 Hydrogen Technical Committee

Technical Committee 27-11 Hydrogen Technologies has been established with a scope: Mirroring ISO/TC 197 Hydrogen Technologies & IEC/TC 105 Fuel Cell Technologies.

3 Standar Nasional Indonesia (SNI)

Telah terbit 3 SNI pada tahun 2024 yaitu:

- ✔ **SNI ISO 14687:2019**, *Kualitas bahan bakar hidrogen – Spesifikasi produk*
- ✔ **SNI ISO 19880-1:2020**, *Gas hidrogen – Stasiun pengisian bahan bakar – Bagian 1: Persyaratan umum*
- ✔ **SNI ISO/TR 15916:2015**, *Pertimbangan dasar untuk keselamatan sistem hidrogen*

4 Green Hydrogen Supply Chain Feasibility Study (Upstream-Downstream)

- Detailed study and guidelines for hydrogen utilization in the transportation sector for the preparation of a hydrogen pilot project in DKI Jakarta.
- Overview of study results:
  - Potential Green H2 Source: PLN REC from Geothermal Plant Kamojang
  - Potential Green H2 Storage: pressurized tanks (low and high → max. 200 bar)
  - Potential H2 distribution method: using gas transmission pipeline (max. pressure 200 bar)
  - Potential utilization: at Hydrogen Re-fueling Station (HRS) with 12 potential locations

On Progress

1 National Roadmap of Hydrogen and Ammonia

Penjelasan mengenai **rencana aksi terperinci**, serta target pengembangan hidrogen hingga tahun 2060.

2 Guidance of HSE for HRS

Document is being finalized

3 Indonesian Standard Industrial Classification (KBLI) Code for Hydrogen

Urgency script for the proposal of KBLI Hydrogen is being finalized

4 Government Regulation for Hydrogen

Academic Paper on Draft of Hydrogen Government Regulation as the main regulation for hydrogen development in Indonesia is being prepared.

5 Preparation of Derivative Regulations

The Ministry of Energy and Mineral Resources is currently preparing a revision of Government Regulation No. 14/2012 with the addition of articles related to the purchase of electricity from new energy to accommodate the purchase of electricity from Hydrogen Power Plants.

CHALLENGES AND STRATEGIES FOR GREEN HYDROGEN DEVELOPMENT IN INDONESIA

	CHALLENGES	STRATEGIES
1	**Regulations governing the development of green hydrogen in Indonesia** Until now, there has been no government regulation/policy related to hydrogen development schemes, either as a transportation fuel or as energy storage and generation. The policy is needed to accommodate hydrogen development.	✓ Create a national strategic plan and roadmap for green hydrogen ✓ Formulate regulations to support hydrogen development (standards, incentives, safety, carbon pricing)
2	**Green Hydrogen Production Cost is still not competitive** Factors that contribute greatly to the price of green hydrogen are the uncompetitive price of renewable energy electricity, and the price of an electrolyser which is quite expensive	✓ Develop massive use of renewable energy sources to reduce the price of electricity from renewable energy ✓ Support the development of domestic electrolyser technology
3	**Hydrogen supply is still dominated by coal and natural gas** The development of green hydrogen from clean energy sources or renewable energy is still being explored both in the world and in Indonesia.	✓ Develop domestic green hydrogen production (gradually) ✓ Supporting the development of technology to produce green hydrogen more efficiently
4	**Infrastructure needs to be developed** It needs to be supported with dedicated infrastructure for hydrogen utilization	✓ Develop integrated infrastructure to support the use of hydrogen in industry and transportation (pipelines, long-distance transports, refuelling stations)

COLLABORATION NEEDED

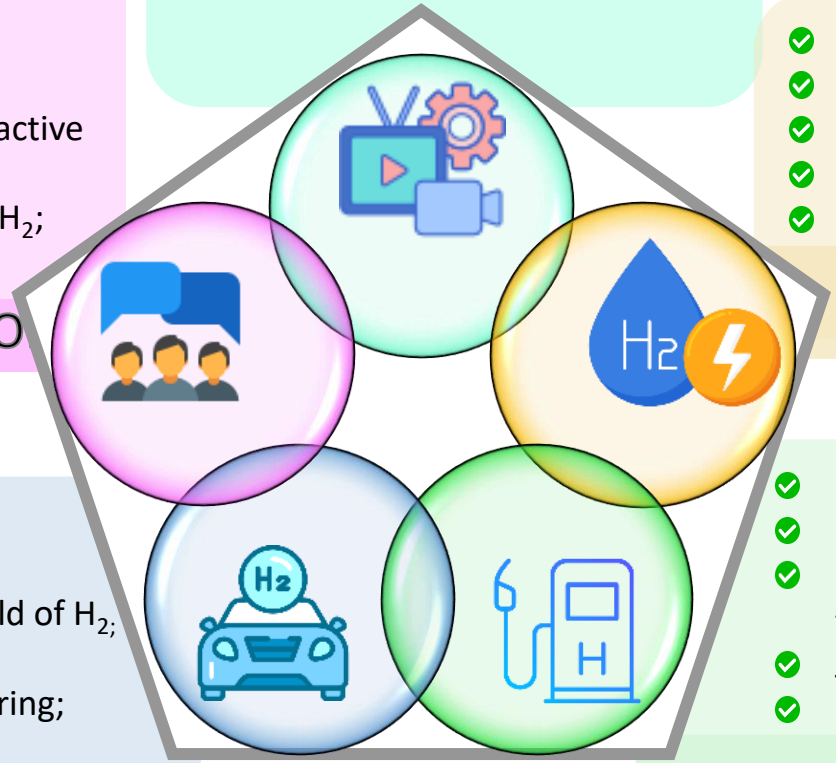
Cooperation and active participation from all stakeholders are needed to accelerate the hydrogen ecosystem in Indonesia to achieve a Just Energy Transition and meet Climate Change Mitigation Goals.

MEDIA

- Public education
- Dissemination of information and programs related to H_2.

COMMUNITY GROUPS/ASSOCIATIO

- H_2-related social support;
- As a government partner, provide advocacy/assistance for the utilization of H_2 technology;
- Participate in positive campaigns and take an active role in H_2 development;
- Availability of human resources in the field of H_2; etc.



ACADEMIC/RESEARCH INSTITUTE

- H_2 -related research and development (R&D);
- H_2 technology transfer
- H_2 related testing/certification;
- Human resource development in the field of H_2;
- etc.

GOVERNMENT

- Strategy/Policy, Regulation;
- H_2 Roadmap;
- Preparation of NSPK in the field of H_2;
- Risk-based H_2 licensing;
- Coaching-Supervising-Monitoring;
- etc.

INDUSTRY/BUSINESS ENTITY

- Pilot and commercialization project;
- Investment and business towards H_2 economics;
- Implementation of H_2 technology and program towards NZE 2060;
- Job creation and domestic H_2 industry;
- etc.

Thank You

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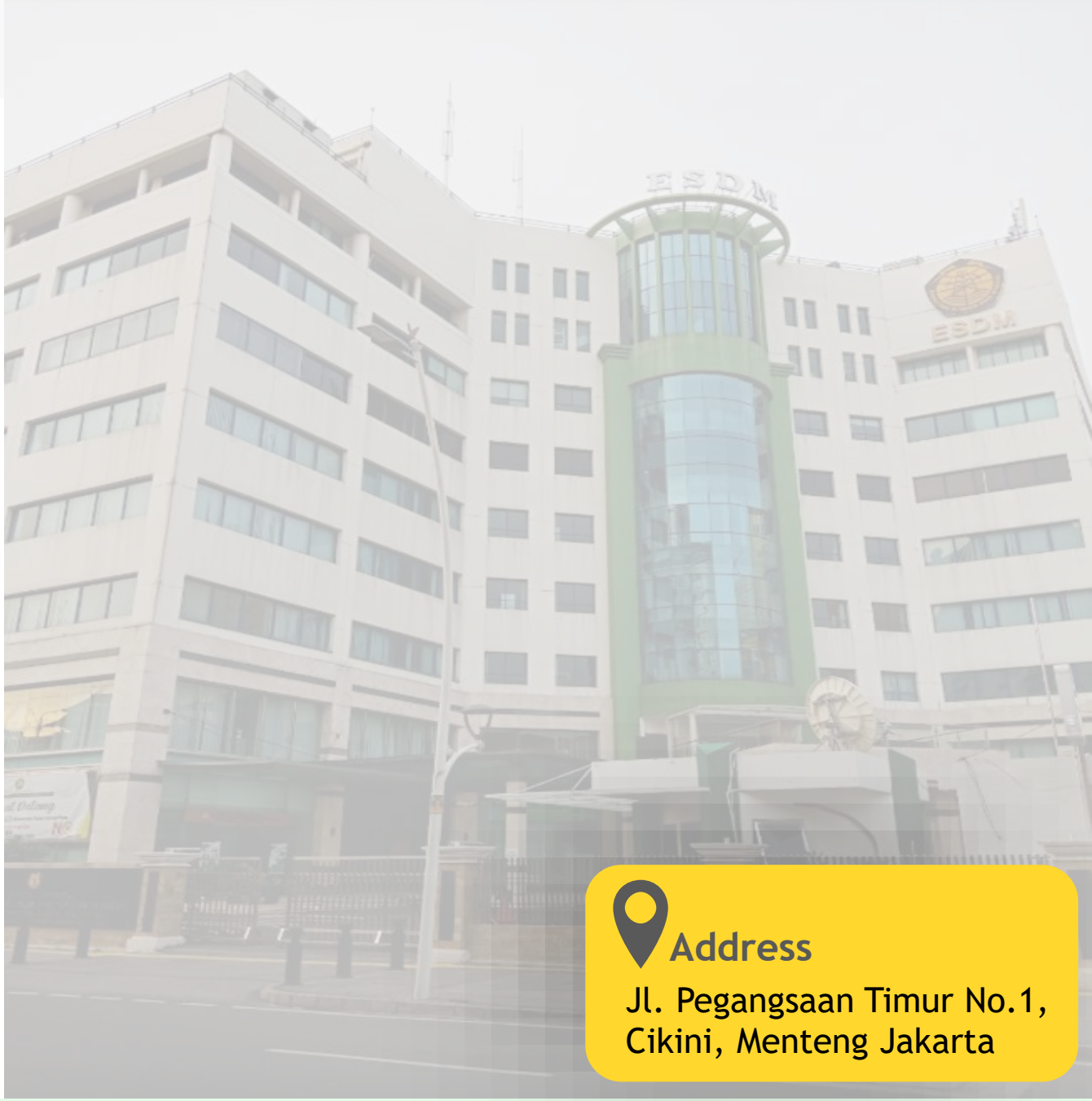

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Joint Message

Comment in about 100 words on the actions will take to accelerate the social implementation of green hydrogen.

“Indonesia has launched The National Hydrogen Strategy in December 2023. There are three strategies for the utilization of hydrogen: to support the development of renewable energy, to achieve the decarbonization target, and to use hydrogen as an export commodity. With the potential of RE energy amounting to almost 3,7 TW, Indonesia can potentially become a key player in producing green hydrogen worldwide. In contributing to Indonesia’s energy transition, hydrogen will be utilized in four sectors: Industrial, Transportation, Power Generation, and as an export commodity. We encourage building partnerships with international organizations for knowledge sharing, collaboration, and trade to accelerate green hydrogen utilization worldwide”.