

# Adaptasi Perusahaan Migas Nasional Menghadapi Transisi Energi dan Implikasinya Bagi Daerah Penghasil Migas

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Presented by Eka Satria, CEO of Medco Power Indonesia  
December 2021



# Agenda

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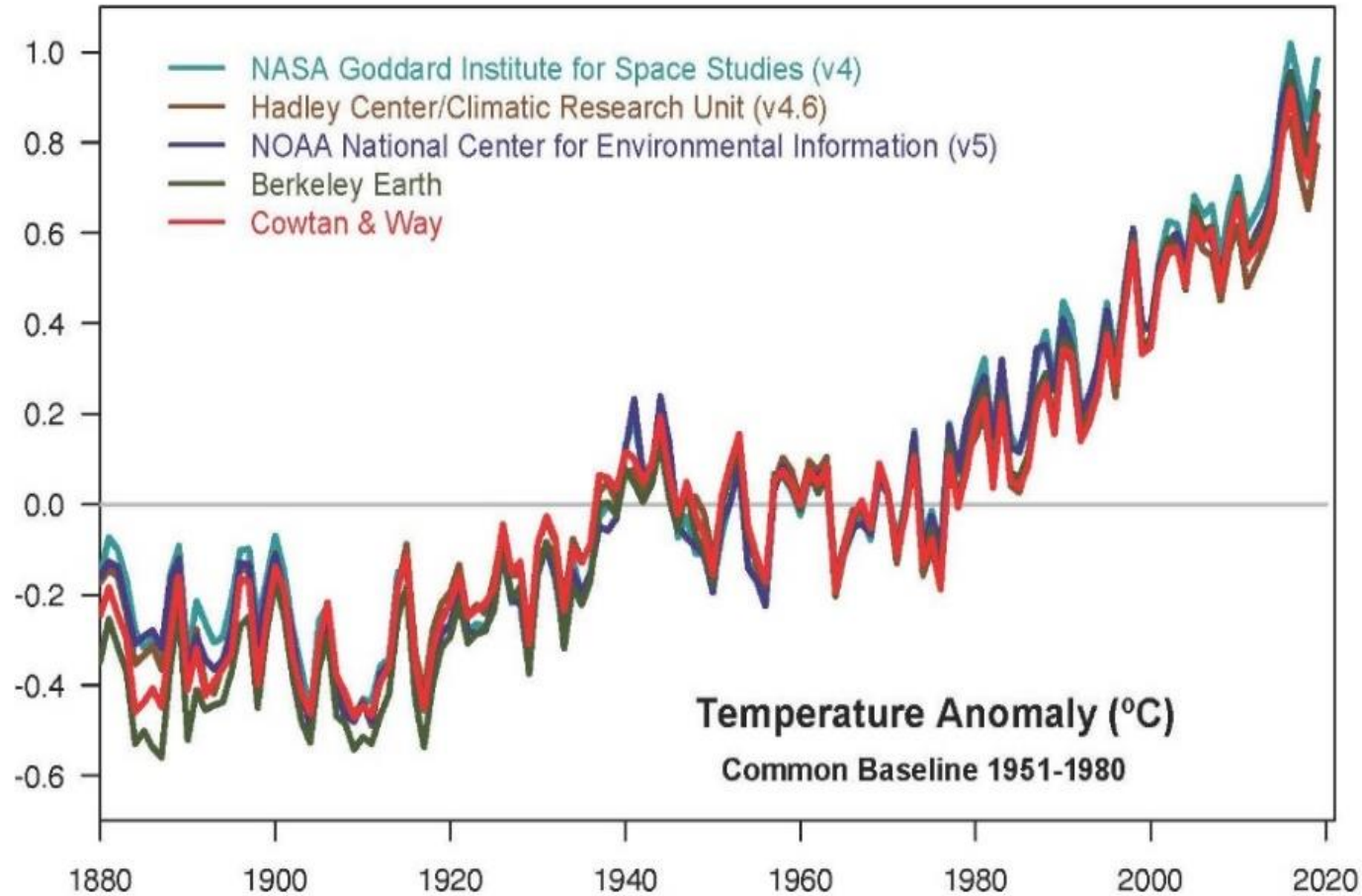
## 1. Global Trends on Energy Transition

2. Indonesian Context

3. Medco Energi Overview & Strategy

4. Energy Transition Impact Locally

# The Climate Change Issue



<https://www.nasa.gov/press-release/nasa-noaa-analyses-reveal-2019-second-warmest-year-on-record>

“The global annual temperature has increased at an average rate of 0.07°C (0.13°F) per decade since 1880 and over twice that rate (+0.18°C / +0.32°F) since 1981.” – Climate.gov

<https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>



## “The Defining Issue..”

Climate Change is the defining issue of our time and we are at a defining moment. From shifting weather patterns that threaten food production, to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. Without drastic action today, adapting to these impacts in the future will be more difficult and costly.



PARIS2015  
UN CLIMATE CHANGE CONFERENCE  
COP21·CMP11

## Paris Agreement

At the 21<sup>st</sup> Conference of the Parties (COP) in Paris in 2015, Parties to the UNFCCC reached a landmark agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future.

<https://www.un.org/en/sections/issues-depth/climate-change/>



# Climate Change Moment



## World Bank global risk analysis:

- Indonesia ranks as 12th out of 35 countries relatively high mortality risk from multiple hazards.
- Recent vulnerability mapping exercise for South East Asia suggests that western and eastern parts of the island of Java are considered hotspots for the impacts of multiple hazards.
- Hazards: geological or hydro-meteorological in nature and include earthquakes, tsunamis, volcanic eruptions, floods, landslides, droughts, and forest fires.
- An estimated 40% of the country's inhabitants are at risk.

## In the news:

- 2,000 islands and 42 million homes are on track to be submerged before 2050
- 2020: The [Indonesian](#) Forum for the Environment (Walhi): Two uninhabited islands in South Sumatra (Betet and Gundul Islands) have vanished, and four are on the brink, thanks to rising sea levels.

Sources: <https://climateknowledgeportal.worldbank.org/country/indonesia>  
<https://www.thejakartapost.com/news/2015/12/17/rising-sea-levels-threaten-2000-islands-indonesia.html>  
<https://globalnews.ca/news/6472868/indonesian-islands-sink/>

# Major emerging trends surrounding climate change

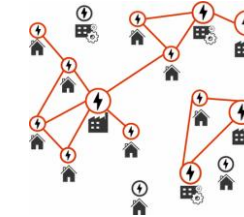
1 Public sentiment has turned more negative towards fossil fuels



2 Countries and global companies are responding for action on emission reduction



3 Decarbonization, Electrification, Decentralization, Digitalization



4 However, Energy Transition is becoming a financing challenge

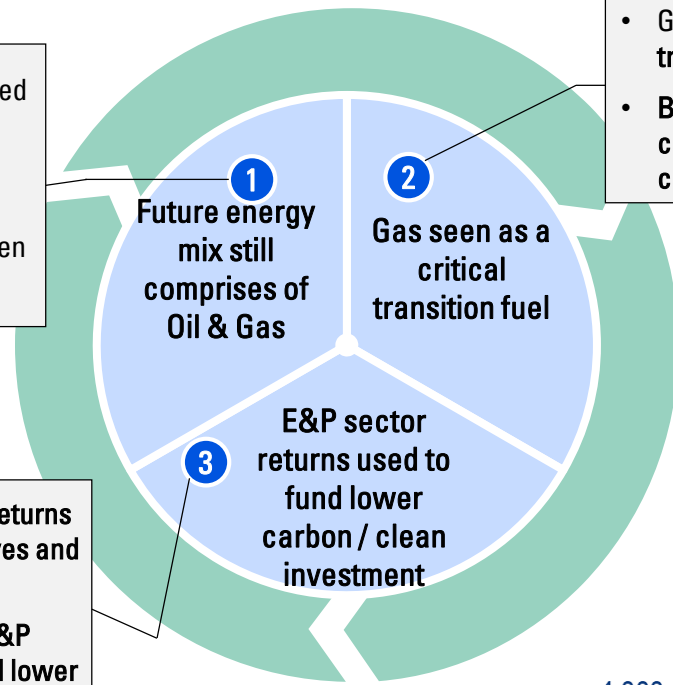


# However, during this energy transition agenda, oil & gas still play important roles at least in the next 2 decades.



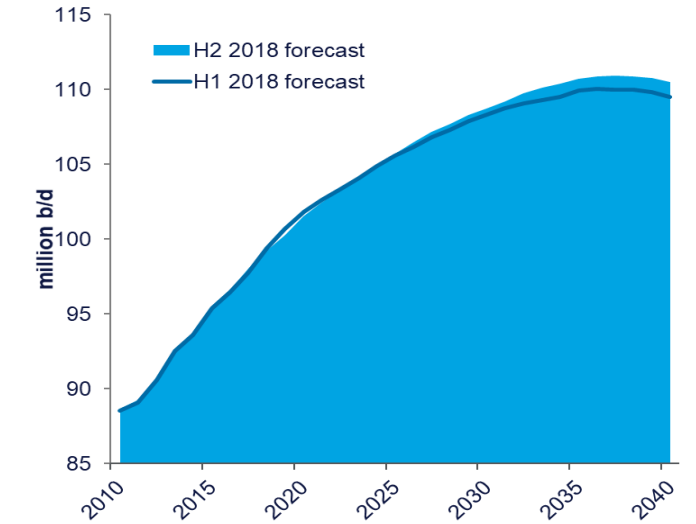
- Hydrocarbons still expected to remain core within the energy mix through 2040.
- Outlook for gas stronger compared to oil as it is seen as a transition fuel

- E&P returns still exceed returns of lower carbon alternatives and renewables
- In the near term, higher E&P returns are critical to fund lower carbon or renewable projects.

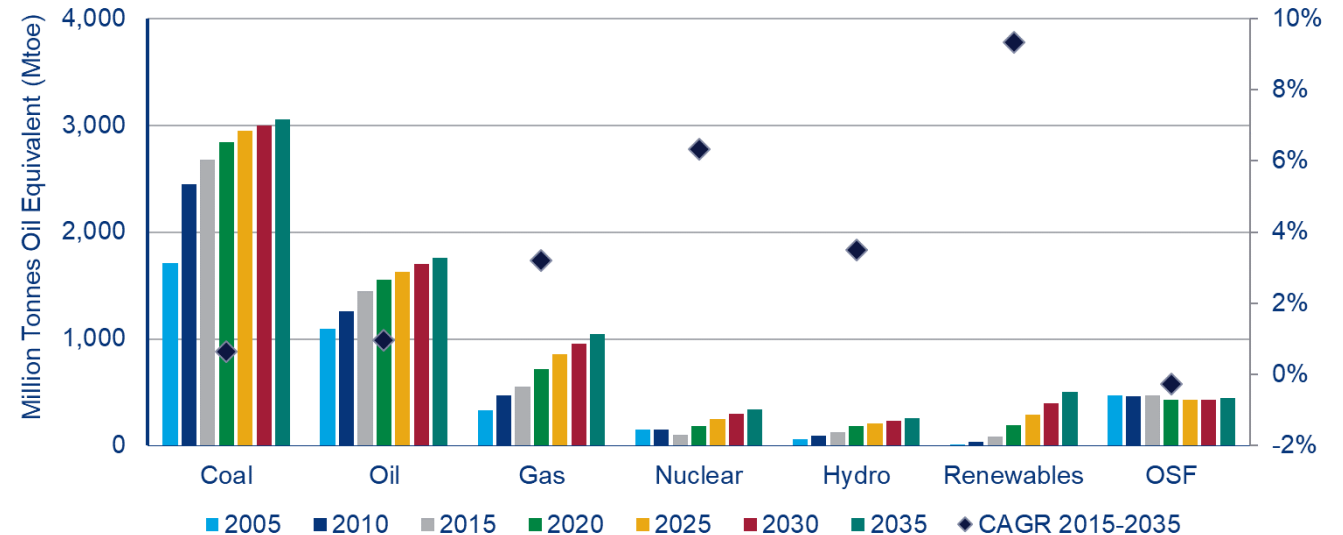


- Growth of gas as a transition fuel
- Balance between commercial aspect and current viability.

Global liquids\* demand



Asia Energy Demand by Source



Source: Wood Mackenzie

Source: SCB, IEA, Wood Mackenzie, Medco Power's analysis



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# Indonesia aims to be carbon neutral by 2060

## ENVIRONMENT

### Indonesia aims to dump coal plants for carbon neutrality by 2060

State utility envisions gradual cuts until all power comes from clean sources

### Minister outlines strategies for meeting carbon neutral target by 2060

© 7th June 2021

Home > Nasional

### Indonesia Green Summit 2021, Menteri LHK: Netral Karbon 2060 Jadi Komitmen Indonesia

BeritaSatu.com

### Di COP ke-26, Menteri ESDM Tegaskan Komitmen Indonesia Capai Net Zero Emission 2060

... Indonesia demi mencapai target penurunan emisi maupun net zero emission (netralitas karbon) yang ditargetkan akan tercapai di tahun 2060...

Kompas.com

### Wujudkan Net Zero Emission pada 2060, Pemerintah Indonesia Terapkan Pajak Karbon - Kompas.com

KEMENTERIAN ESDM Ilustrasi PLTU. KOMPAS.com – Indonesia berkomitmen untuk terus menurunkan emisi gas Rumah Kaca dalam kontribusi pencapaian net...

### Indonesia Prepares Scenarios for Achieving Net-Zero Emissions

English Indonesian government

Antara • 21 April 2021 14:35



### Pemerintah Ingin Indonesia Bebas Emisi Karbon di 2060

Jumat, 7 Mei 2021 17:32

Reporter : Anisyah Al Faqir



NEWS • NATIONAL

### Indonesia speeds up regulation on global carbon trading

### Indonesia introduces carbon trading policy to reduce emission

JAKARTA (Reuters) – Indonesia has introduced new rules on carbon trading to set up a market mechanism to help achieve the country's...





## KOMITMEN INDONESIA DALAM PENURUNAN EMISI



### PRINSIP NZE

01



**Peningkatan pemanfaatan Energi Baru Terbarukan (EBT)**

02



**Pengurangan energi fosil**

- Carbon tax & trading
- Co-firing PLTU dengan EBT
- Retirement PLTU

03



**Kendaraan listrik di sektor transportasi.**

04



**Peningkatan pemanfaatan listrik pada rumah tangga dan industri.**

05



**Pemanfaatan Carbon Capture and Storage (CCS).**



### ARAHAN PRESIDEN



#### UNFCCC - COP 26, November 2021

Menurunkan emisi GRK 29% (kemampuan sendiri) atau **41%**(bantuan internasional) pada 2030 sesuai NDC.



#### LEADERS SUMMIT ON CLIMATE, APRIL 2021

Membuka investasi terhadap transisi energi melalui pengembangan biofuel, industry baterai lithium, dan kendaraan listrik.



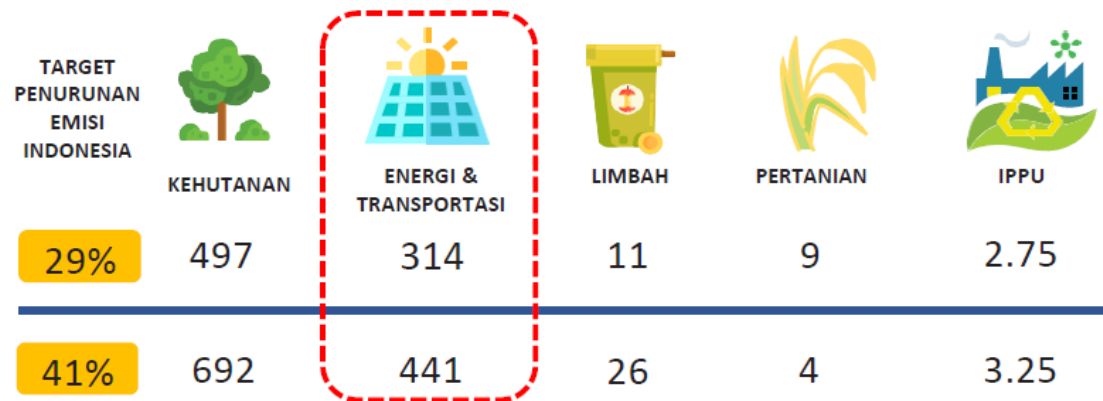
#### PIDATO KENEGARAAN 16 AGUSTUS 2021

Transformasi menuju EBT, serta akselerasi ekonomi berbasis teknologi hijau, akan menjadi perubahan penting dalam perekonomian kita.

## PARIS AGREEMENT & NDC INDONESIA



Target Penurunan Emisi Per Sektor (MTon CO<sub>2</sub>e)



Sumber: Updated NDC (2021)

### Estimasi Biaya Mitigasi Perubahan Iklim

Referensi	Ruang Lingkup	Estimasi Biaya/Dampak
Second Biennial Update Report, KLHK (2018)	Biaya mitigasi perubahan iklim untuk mencapai NDC	<b>Biaya mitigasi</b> akumulatif mencapai <b>Rp3.461 triliun</b> hingga tahun 2030
Roadmap NDC Mitigasi Indonesia, KLHK (2020)	Biaya mitigasi perubahan iklim untuk mencapai NDC (menggunakan pendekatan biaya aksi mitigasi)	Biaya mitigasi akumulatif dari tahun 2020-2030 mencapai <b>Rp3.779 triliun</b> (Rp343,6 triliun per tahun)

### Kebutuhan Pembiayaan Mitigasi Perubahan Iklim per Sektor

Sektor	Second Biennial Update Report (Rp triliun)	Roadmap NDC Mitigasi (Rp triliun)
Kehutanan	77,82	93,28
Energi dan Transportasi	3.307,20	3.500,00
IPPU	40,77	0,92
Limbah	30,34	181,40
Pertanian	5,18	4,04
<b>Total</b>	<b>3.461,31</b>	<b>3.779,63</b>

Sumber: Second Biennial Update Report (2018) & Roadmap NDC Mitigasi (2020)



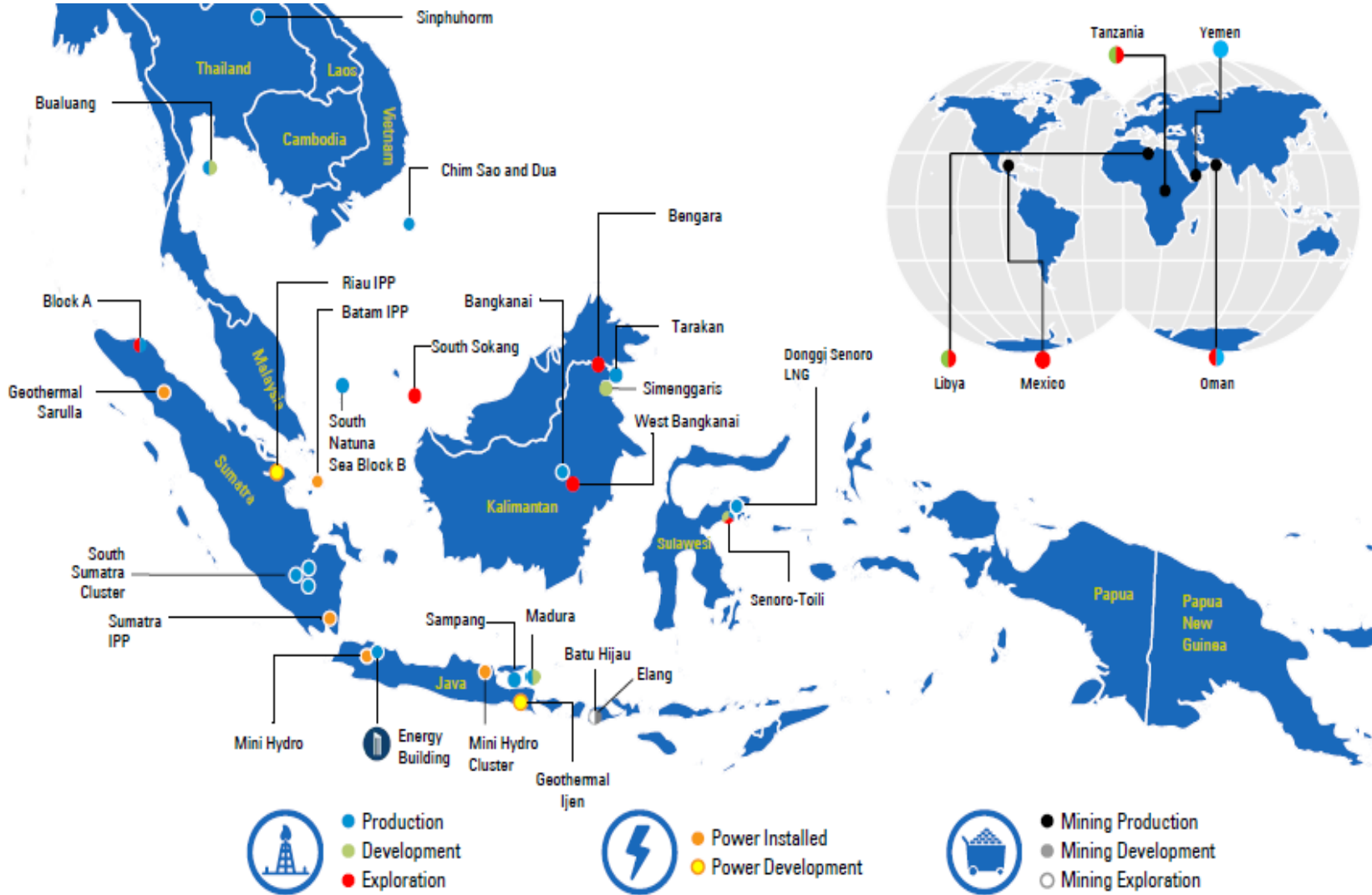
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# MedcoEnergi is an integrated energy & natural resources company



**MedcoEnergi 2020's Production: Oil and Gas of 100 mboepd, gross power of 3.1 GW, and mining stockpile of 96 Mlbs copper, 42 Koz gold**

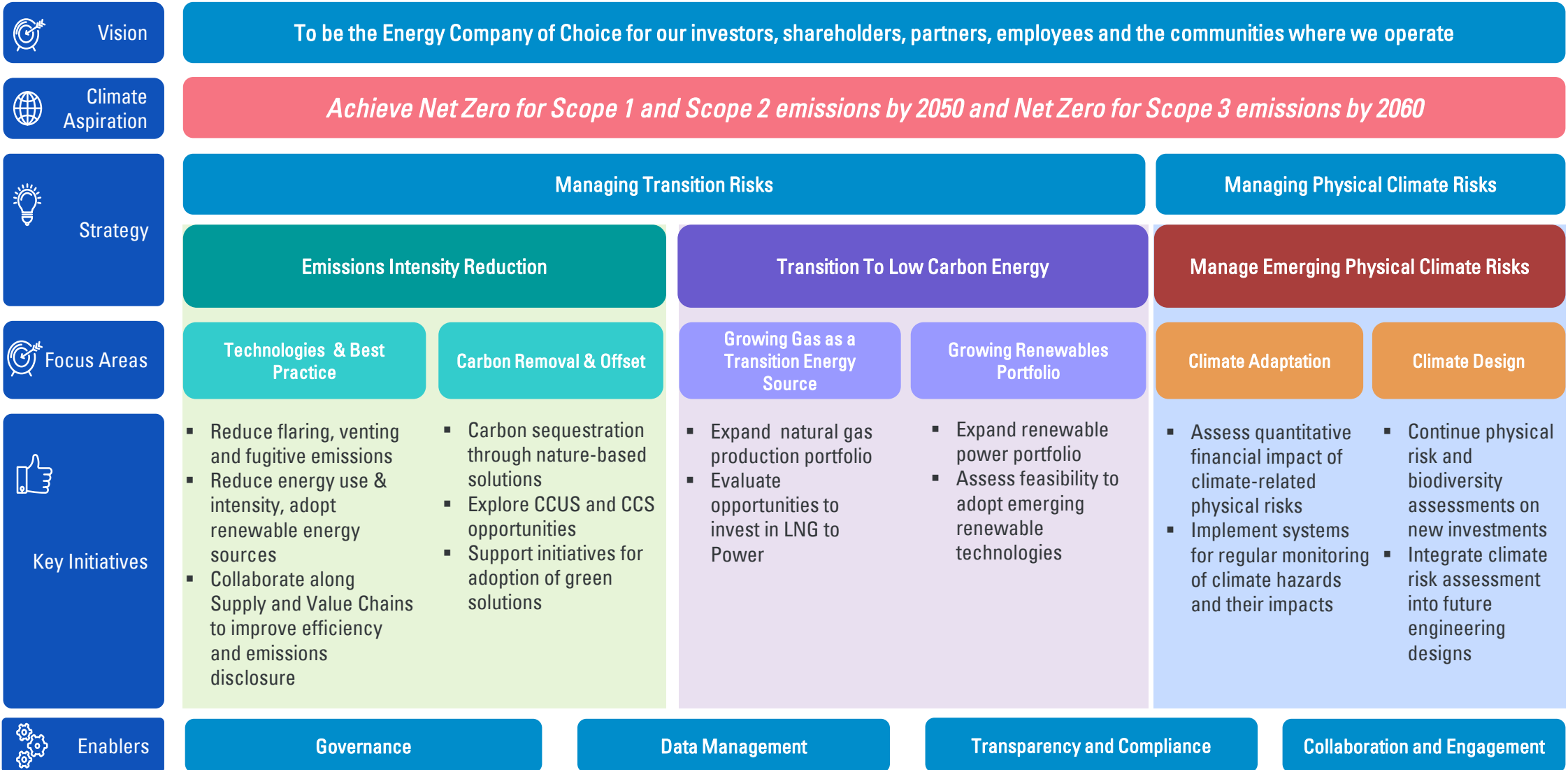
Source: Medco Energi, Medco Power



# MedcoEnergi has recently announced our climate aspiration, achieving net zero by 2050 (Scope 1 & 2)



MEDCOENERGI



\*\*Notes: CCUS = Carbon Capture Utilization & Storage; CCS = Carbon Capture & Storage; TCFD = Task Force on Climate Related Financial Disclosure; CDP = Carbon Disclosure Project



MEDCOENERGI

# MedcoEnergi's key initiatives to reduce emission intensity

## Emissions Intensity Reduction

Reduce flaring, venting and fugitive emissions in operation area



Offshore



Onshore



Downstream

Adopt renewable energy in our operating assets



Sumbawa PV  
26 MWp



Sumbawa  
LNG to Power



PV in  
operational  
areas

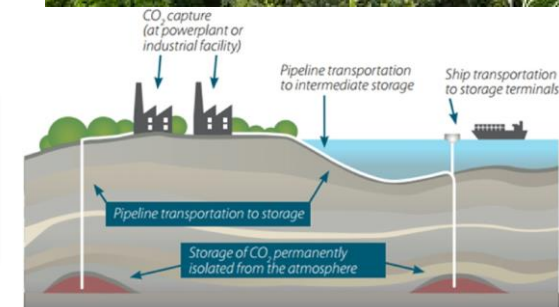


- EV in
- Jakarta,
  - Batam,
  - Riau
  - Bali

Carbon sequestration through nature-based solutions



Explore CCUS & CCS opportunities



Currently studying CCS in Natuna and East Java





MEDCOENERGI

# Transition to low carbon intensity business through Medco Power



Riau-1 CCPP 275 MW



Ijen Geothermal 2 x 55 MW



Electric Vehicle



Sarulla Geothermal 330 MW



Sumbawa LNG to Power



Pulau Bulan Pilot Solar Import Project 670 MWp

***Medco Power as a clean & renewable power house***



# Managing emerging physical climate risk

## Manage Emerging Physical Climate Risks

Assess quantitative financial impact of climate-related physical risks



Implement systems for regular monitoring of climate hazards and their impacts



Continue physical risk and biodiversity assessments on new investments



Integrate climate risk assessment into future engineering designs







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# Emerging energy transition ecosystem to be considered

## Energy Transition Emerging Businesses

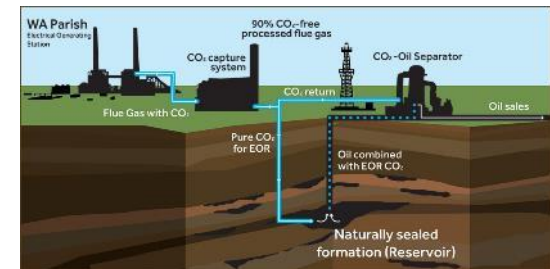
### Energy Supply



### Transportation



### Carbon Sink/Reduction



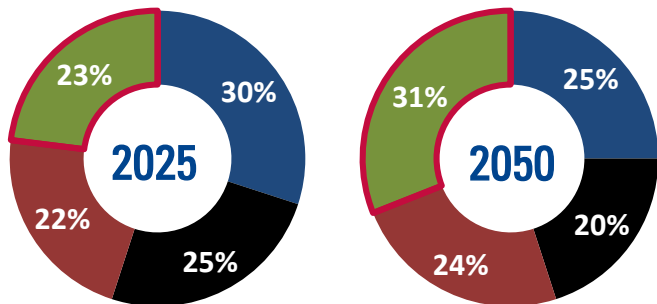
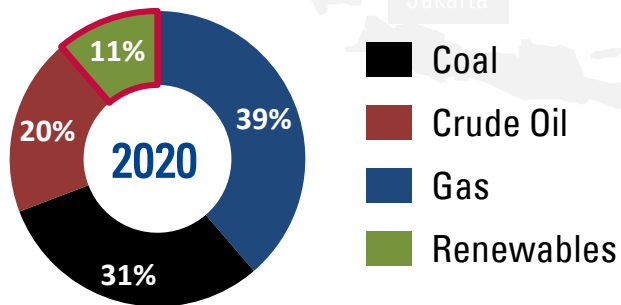
# Fundamentally, Indonesia is well positioned to cultivate its renewable energy sector



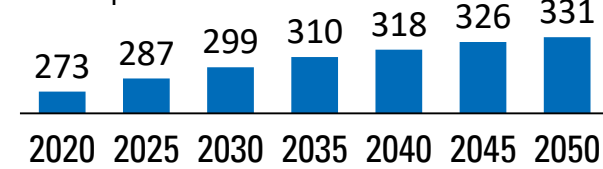
## 1 Renewable Energy Potential in Indonesia

Energy Source	Potential (GW)
Geothermal	23.9
Hydro	94.5
Solar	207.9
Wind	60.6
Biomass	32.6
Ocean	17.9

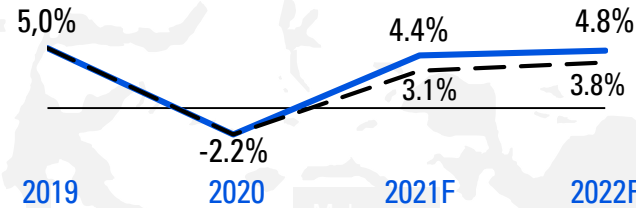
## 3 Indonesia Energy Mix, Mtoe



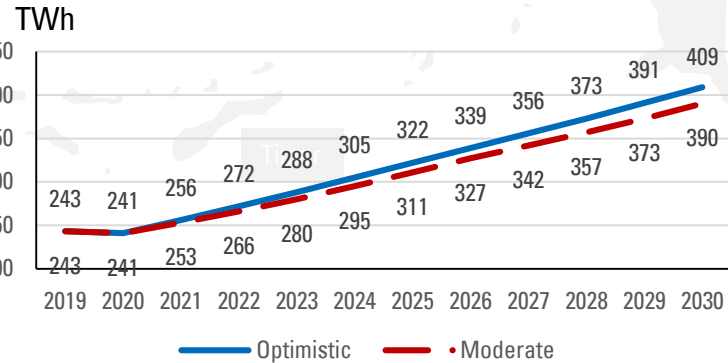
## 2 Indonesia's Population 2020 – 2050F



## Indonesia's GDP Growth (2019 – 2022F)



## Indonesia's Electricity Demand (2019 – 2030F)



## 4 Sup't Regulation for Renewable, e.g.:

- a MEMR Reg. No 4/2020 Replacement of BOOT scheme with BOO scheme
- b Presidential Decree on Renewable (Draft) Renewable tariffs



Available resources for renewables



Growing population and economy



Government's target for renewables capacity

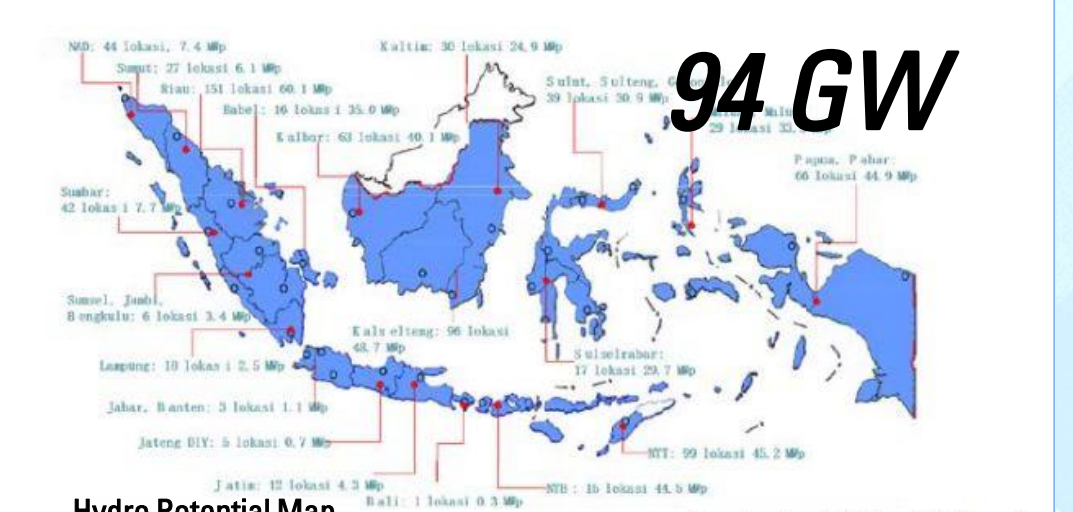
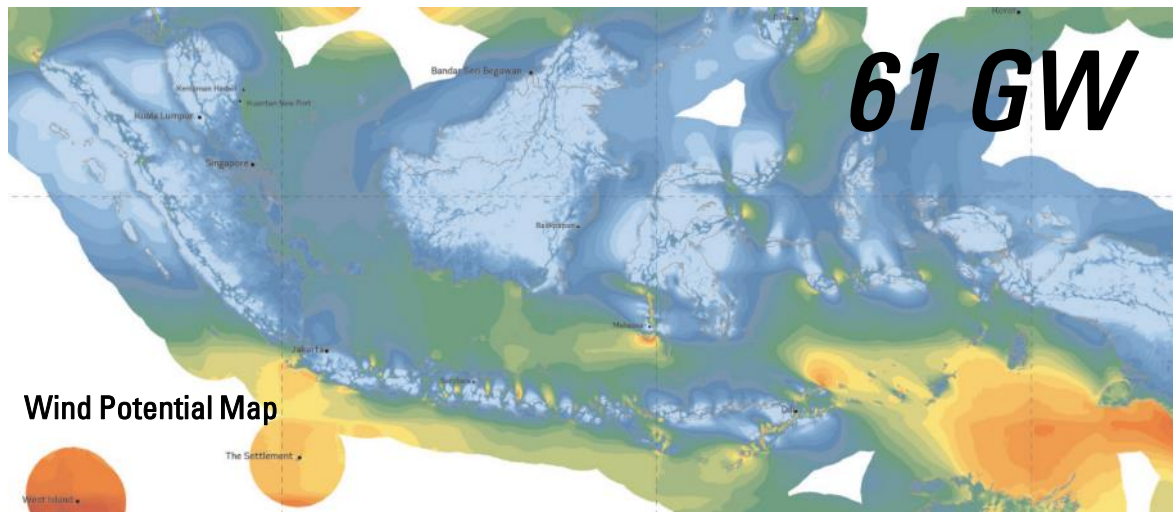
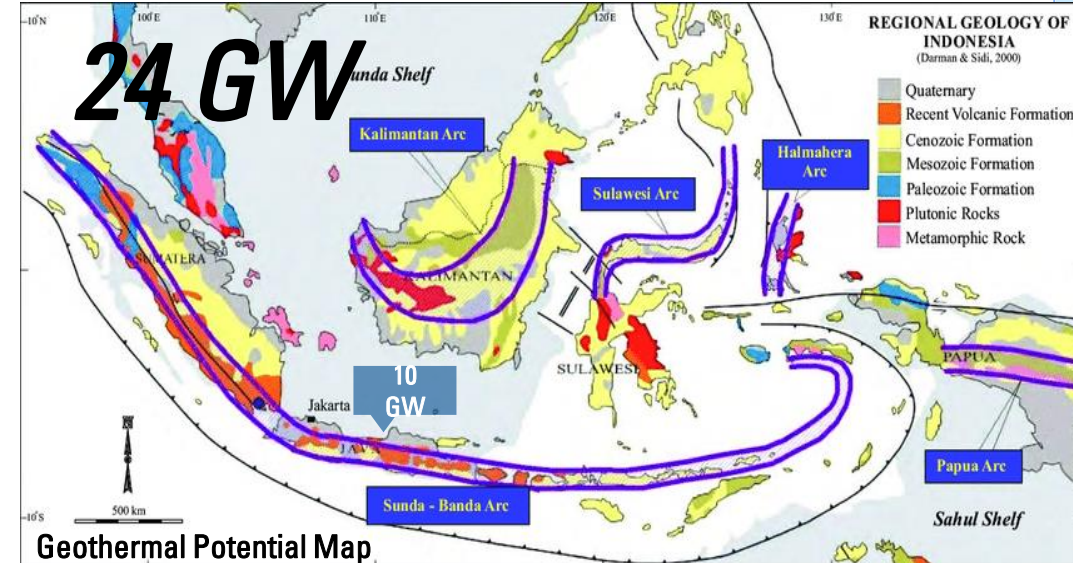
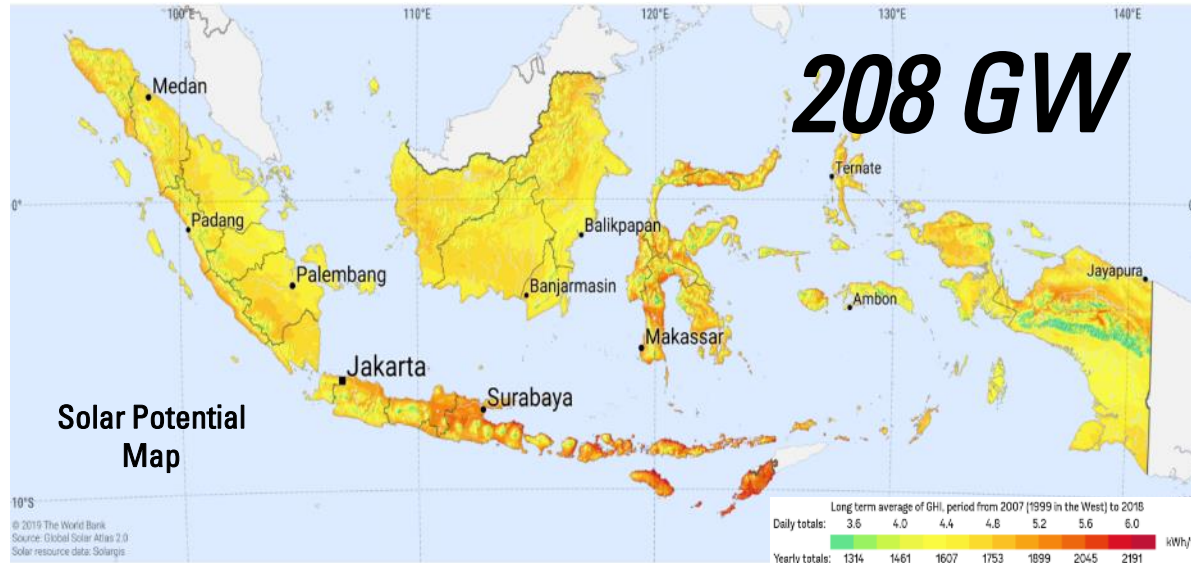


Government's policy on renewable





# Solar, Geothermal, Wind and Hydro Potential in Indonesia



(Source: Perusahaan Listrik Negara [PT PLN (Persero)])

Identifying renewable opportunity, utilizing the right technology and providing necessary support are keys



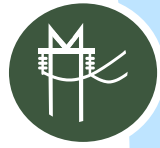


# General challenges of renewables in Indonesia during energy transition



## Policies & Permitting

- Tariff for RE is pegged to the average cost of generation, which includes DMO coal.
- Carbon tax and renewable incentives can create a level playing field.
- Land acquisition and permitting are still a challenge.



## Technological constraints

- Grid constraints to absorb variable output from renewables.
- Local content, technology progression vs cost.
- Mismatch between supply & demand location.



## Challenges in private financing opportunities

- ~USD 8 Bn/year investment required for Indonesia to reach 2025 target; private financing is key. (average investment from 2014-2020, ~USD 1.4 Bn/year).



## Consumer awareness, willingness to pay & green-conscious behavior

- Consumer's decision-making is mostly driven by affordability.
- Green-conscious behavior, which translates into demand, can help pushing the change to governments and companies.

# Local Government's commitment is critical for energy transition



## Meeting with Vice Governor of East Java for Ijen Geothermal



Governor of East Nusa Tenggara (NTT), Viktor Bungtilu Laiskodat, said that NTT has 60,000 MW renewable energy potential from sunlight. However, only 100 MW of it has been utilized optimally by the people. To optimize the use of renewable energy, the NTT Provincial Government hopes to take concrete steps through a collaboration with the central government and PLN.

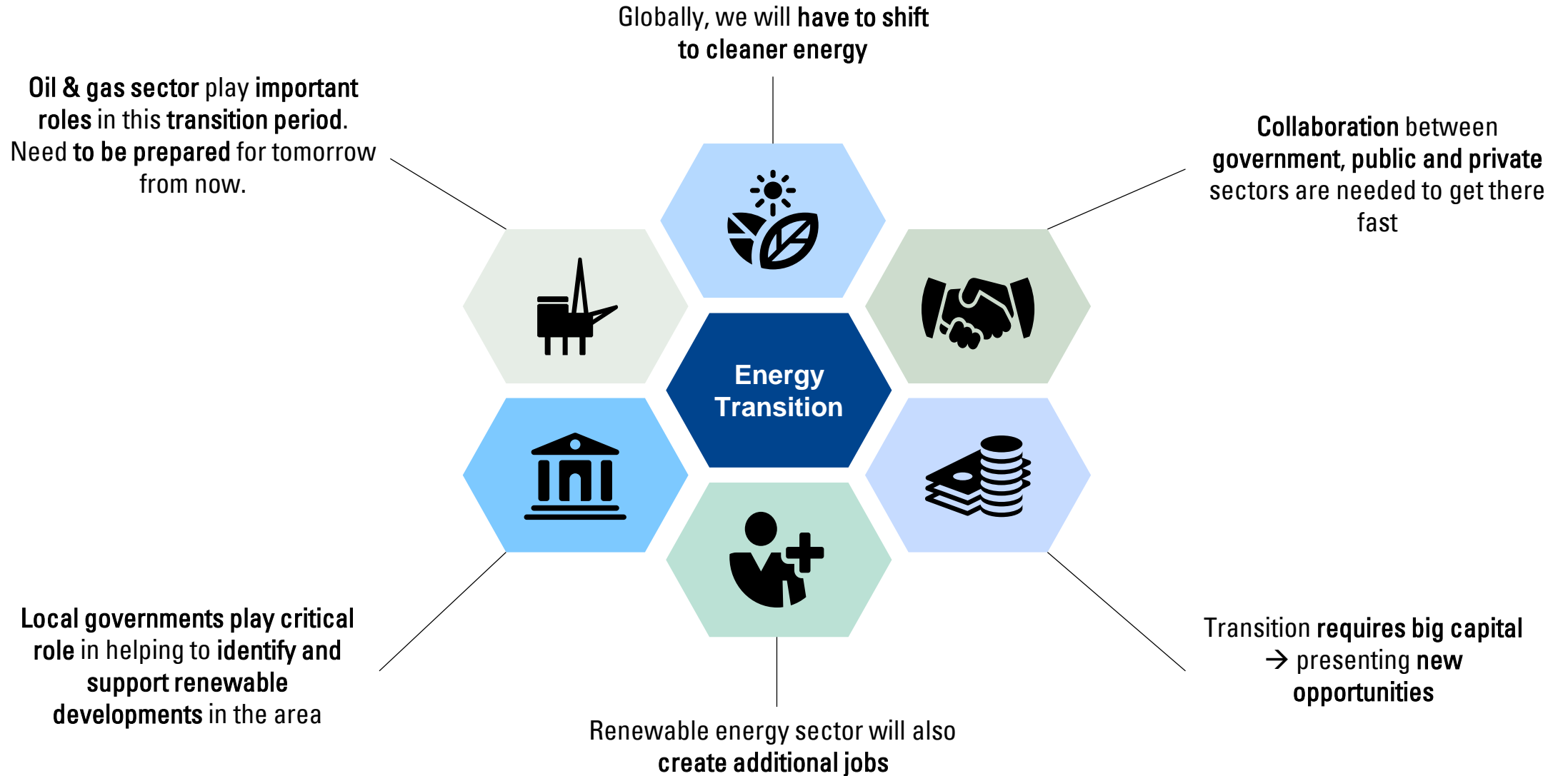
## Meeting with Governor and Vice Governor of Bali for Bali PV



Bali also needs the central government's support for the collaboration between **smart grid renewable energy and the old grid**. According to IGW Samsi Gunarta, the Head of Bali's Provincial Transportation Agency, this support is needed to support **electric vehicles** initiated by the Provincial Government.

# Key Takeaways

Energy transition is inevitable due to climate change. It is essential to shift and be prepared for tomorrow, today. Even though oil & gas still play important roles in energy sector for the next 2 decades. It requires collaboration from all parties – state & local governments, industry players and societies.





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# Thank You





# Profile



## Eka Satria CEO of Medco Power Indonesia

- E&P, Power, Infrastructure and Renewable Professional
- Experience includes Medco E&P Indonesia (Development Director), Medco Energi (Vice President of Project Capability), BP Tangguh LNG (Upstream Senior Project Manager), and Arco (Offshore Senior Project Manager)
- Educational background: Master of Civil Engineering from Bandung Institute of Technology, Magister Management from University of Indonesia, and BP Executive Program from MIT