

Pertamina Energy Outlook 2015

“New and Renewable Energy Development in Pertamina”

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Pertamina's Aspiration is To Be a Fortune 100 "Asian Energy Champion" by 2025 Aligned with national mission

"Asian Energy Champion"
 'Fortune 100' position (Revenue ~\$200b USD, EBITDA ~\$40b USD)

Leadership in existing core



E&P

Leading Asian NOC: 2.2 mmbopd production with domestic leadership (50%) and int'l foot-print (~30% of own prodn.)



Midstream gas

Integrated gas champion with trans-Sumatera and trans-Jawa gas infra-structure



Refining

Economically competitive refining capacity; Top quartile operating performance



Industrial fuels & lubes

Maintain position of strength with over 50% market share, while sustaining profitability



Trading

Optimize supply chain and improve profitability

Growth in new businesses



PetChem

Largest petchem player in Indonesia with 35% market share, high margins through integration



Coal

Leader in alternate technology (e.g. CBM, UCG) while maximizing coal production



Biofuels

Serving mandate of 20% blend; upstream presence to reduce losses and supply risk



Power

One of the largest Indonesian IPP player with ~ 3-5 GW capacity

Increase efficiency in PSO



Oil products

Maintain position of strength with 60% market share; new service model through "New pasti pas" and NFR



LPG

Optimize supply chain and infrastructure



Shipping

Support own supply chain and also build third party service model

**FORTUNE Global
 Pertamina ranked 123 out of
 500 companies in 2014**

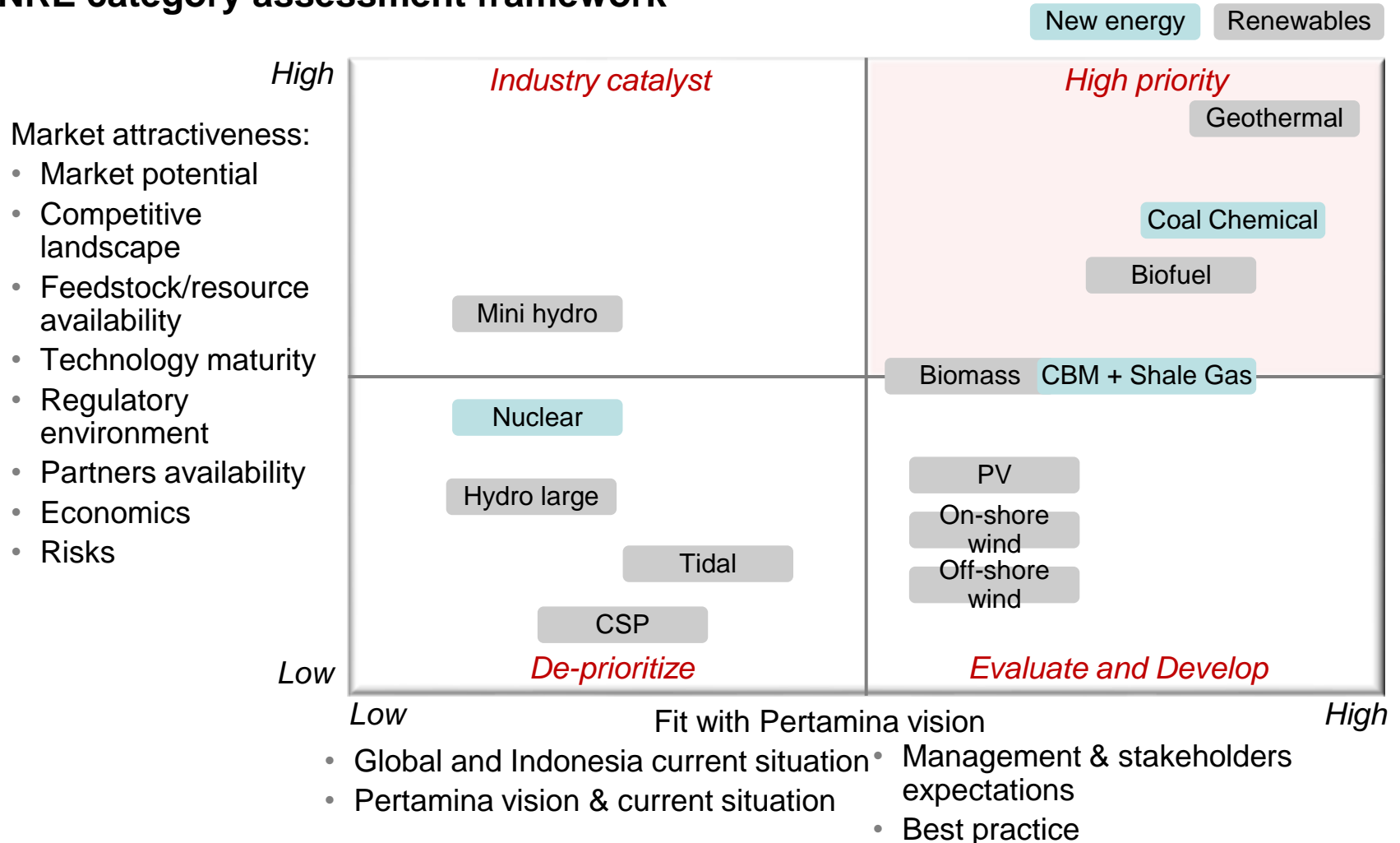


Project & Technology Center: Technology leader on CBM, Geothermal, EOR and deepwater; Strong project executor with delivery on time and within budget

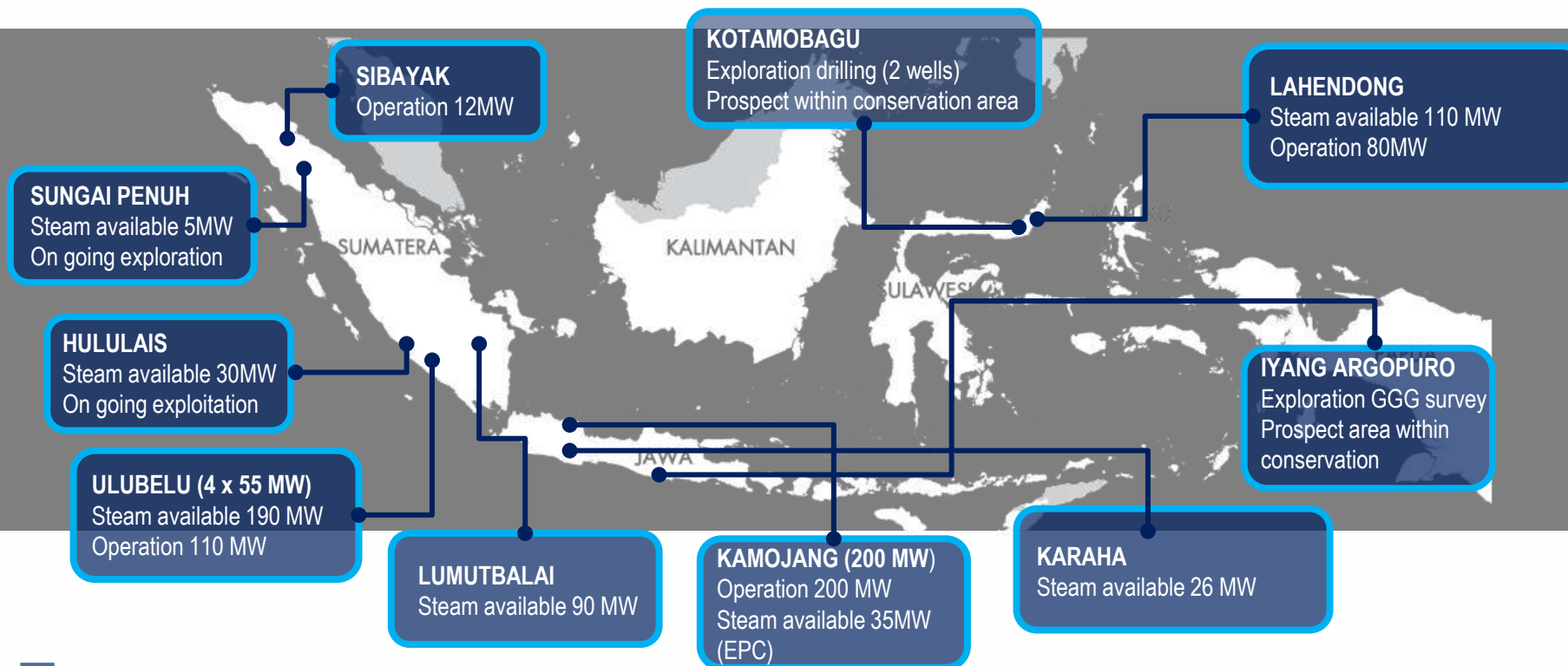
Organization & Capability: Accountability and delivery; Employer of choice to attract and retain best talent

NRE is a core part of Pertamina's vision to be an 'Asia Energy Champion' focus is on biofuel, geothermal, CBM and power

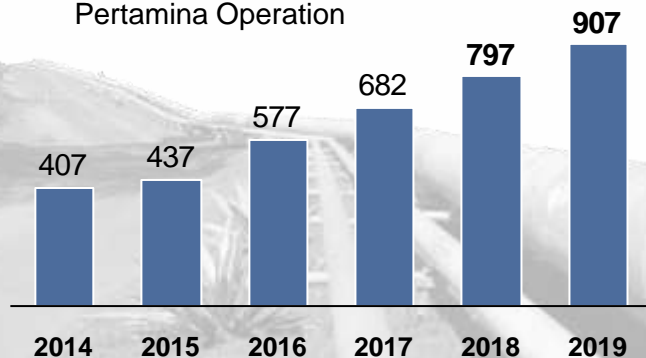
NRE category assessment framework



In Geothermal, Pertamina's installed capacity will increase around 20% (CAGR) in the next 5 years

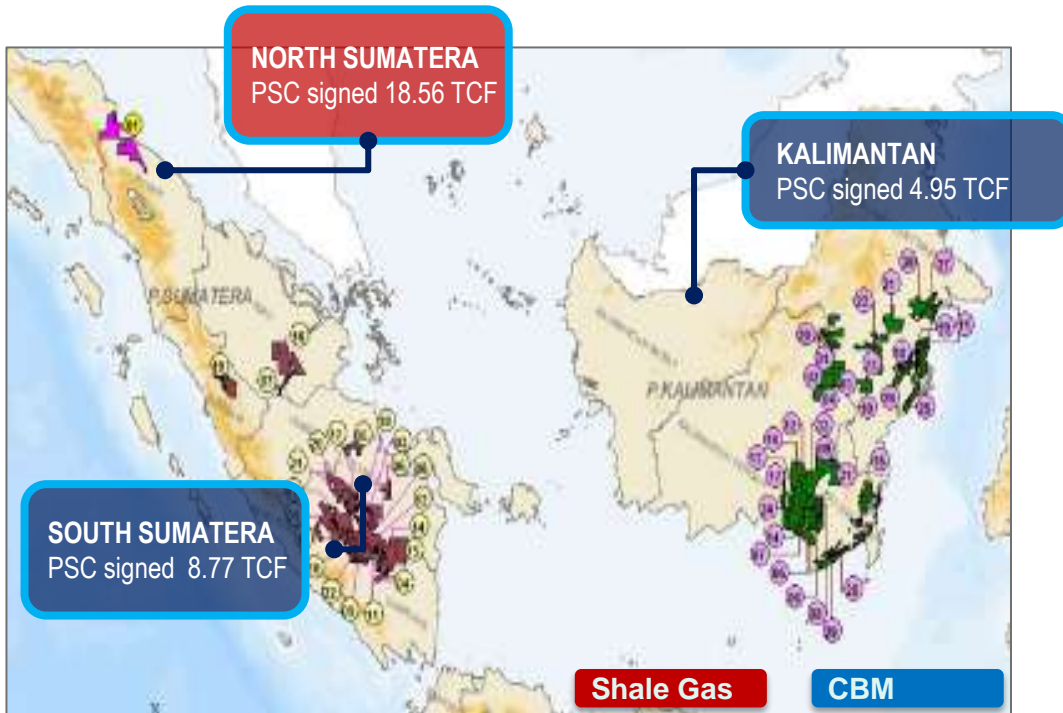


■ Installed Capacity (MW)
■ Pertamina Operation



- **Operation since 1983**
- **Indonesia is the 3rd largest geothermal producer in the world**
- **Potential up to 28.99 GWe**

Huge potential in unconventional hydrocarbon in Indonesia and Pertamina is currently in Exploration Phase



CBM Resources in Indonesia **138.362 TCF**

Pertamina has signed 14 PSC contract. with total of 13.72 TCF CBM or equal close to 10% of total PSC signed in Indonesia

Shale Gas Resources in Indonesia **574 TCF**

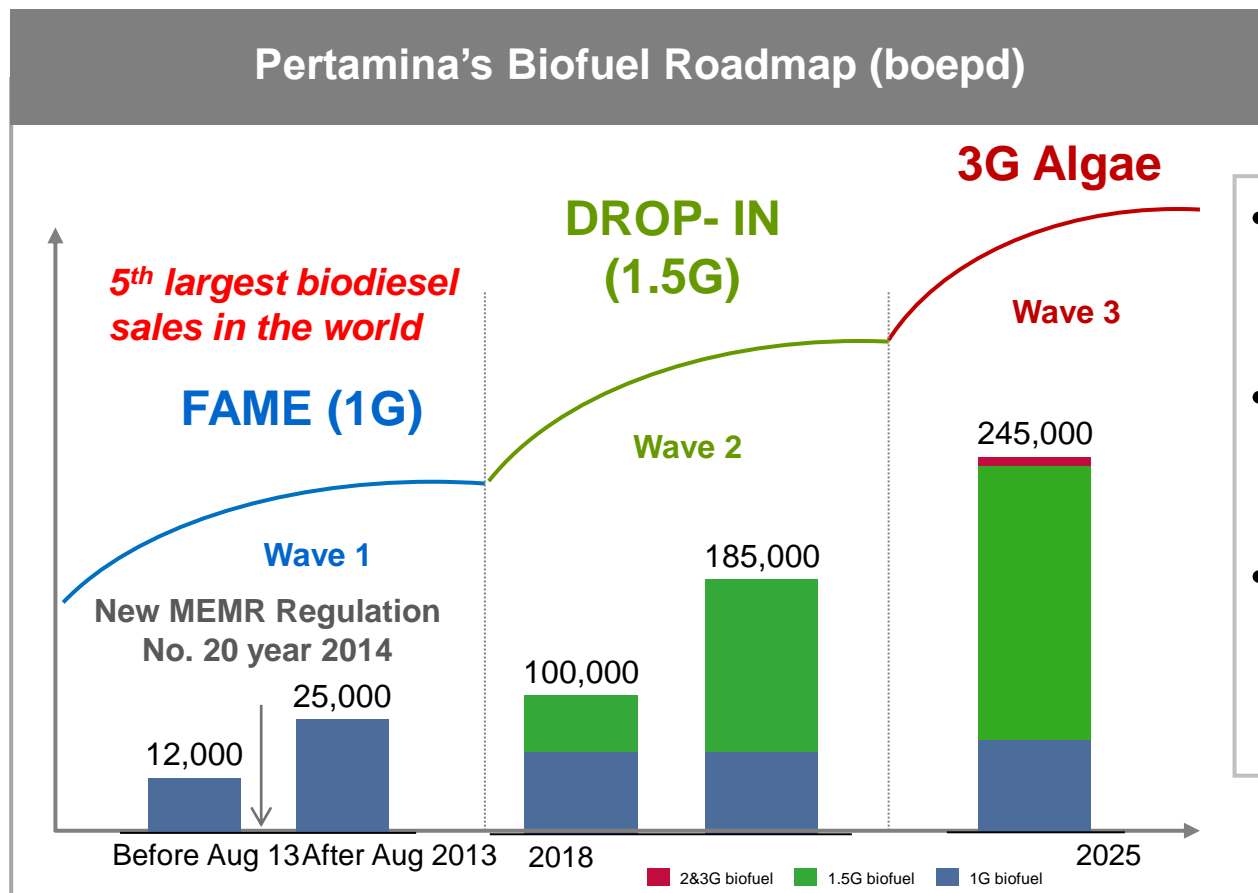
Pertamina has signed 1 PSC contract with total of 18.56 TCF.

Potential Business Development in unconventional oil and gas

Joint study in CBM & Shale oil and gas in Sumatera and Kalimantan
United States Shale Oil & Gas
South America Shale Oil & Gas (Mexico, Argentina)

Current Status : Exploration Phase

Pertamina is committed to increase biofuels utilization to reduce dependency of fuel import



- Pertamina has implemented biofuel since 2006
- Pertamina comply with government blending mandate
- Pertamina 2nd generation projects : **Greendiesel, Bioethanol, BioAvtur**

**“Pertamina’s target 2025 :
15% of Fuel sales from Biofuels; equal to 245.000 boepd”**

Pertamina has developed our own Technology & Catalyst to produce 2nd Generation Biofuels

1 High Quality Biofuel (Green Diesel)

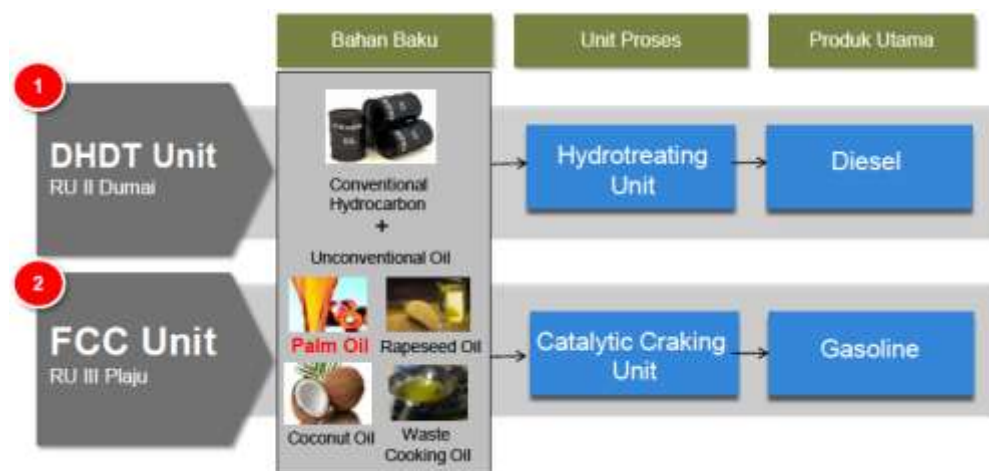
EURO 5 standards, high cetane number > 70, very low sulfur, reduce GHG emissions life cycle by up to 45 %.

2 PERTAMINA's own Technology & Catalyst

Catalyst developed by PERTAMINA's Research & Development – Refining, Manufactured in Indonesia. Great achievement in Innovation, developed by national engineers.

3 Implementation

Catalyst Run conducted in December 2014 in our Refining Unit II, Dumai



Solar PV + WIND : Implemented in Pertamina's working areas throughout Indonesia, WIND Assessment completed

Solar Cell implementation in **Upstream** field Jambi Pertamina EP



Solar Cell in Pertamina Head Office



Solar Cell in Pertamina Gas Station



Solar Cell in Pertamina's worker housing



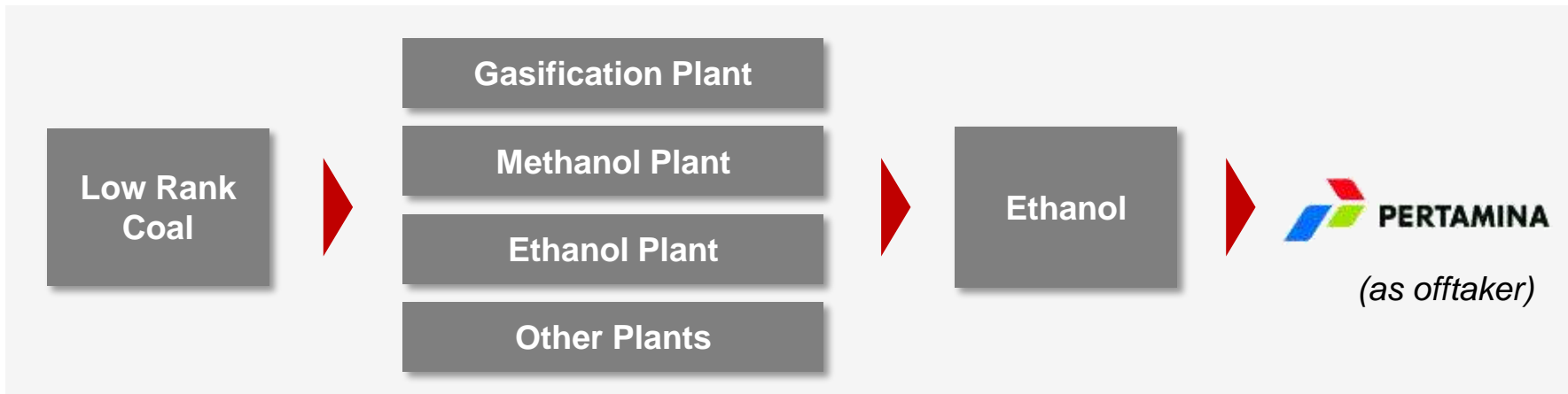
Wind Energy potential assessment



Pertamina has implemented solar cell technology in working areas through Indonesia with saving more than 200 IDR Million/year

We are Developing Clean Coal to Chemical & Fuel Projects :

- We are still in Detail Feasibility Study phase to assess the overall feasibility of this CTE integrated project.
- PERTAMINA will fully offtake all ethanol produced from this CTE integrated project.



Low Rank Coal

- Using low rank coal as feedstock for the gasification plant
- All low rank coal is bought from domestic mine in Indonesia

Plants to Build

- There has been some potential candidates to build plants required in this CTE integrated project
- Celanese Corp. will be technology provider for plant producing ethanol from methanol & syngas

Ethanol Production

- Ethanol produced will be used as gasoline blending component
- The ultimate goal is to produce E-10 Gasoline in Indonesia

PERTAMINA Role

- Pertamina will be main offtaker for ethanol produced in this integrated CTE Project.

Challenges and possible solution in New and Renewable Energy Development

	Challenges	Possible Solutions
Geothermal Projects	<ul style="list-style-type: none"> • Selling Price • Fiscal Terms • WK tender process 	<ul style="list-style-type: none"> • Feed in tariff • 34% tax all inclusive • Tender process after NORC
Unconventional Oil and Gas Projects	<ul style="list-style-type: none"> • Conventional PSC • Procurement Regulation (PTK007) • POD field basis 	<ul style="list-style-type: none"> • Gross PSC, concession? • Exception to PTK 007 • POD Block basis
Biofuel Projects	<ul style="list-style-type: none"> • Pricing mechanism • Supply of feedstock 	<ul style="list-style-type: none"> • Attractive business climate • DMO of CPO
Wind and Solar PV Projects	<ul style="list-style-type: none"> • Selling Price (compare to coal/gas) 	<ul style="list-style-type: none"> • Concentrate development of rural areas with high electricity generation cost
Coal to Chemical Projects	<ul style="list-style-type: none"> • High capex requirement • Technology maturity 	<ul style="list-style-type: none"> • Strategic partnership (technology provider, coal producer)

TERIMA

KASIH