Indonesian Energy Outlook and Priorities

Working Visit to Washington, D.C.
June 23-28, 2018
Global Competitiveness Index 2017-2018

**Indonesia Position #36.**

9 of 12 pillars has improved for example:
- Institution, infrastructure, macroeconomic, health and primary education, technological readiness, business sophistication

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**Galup World Poll**

Indonesia along with Switzerland have gained The highest Public Trust level to The Government

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**Ease of Doing Business 2018**

Up 19 Ranks

Indonesia position up from #91 to #72, and became one of the Top Improvers. Currently Indonesia position higher than India, Brazil, and Phillipines

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**Investment Grade**

<table>
<thead>
<tr>
<th>Moody’s</th>
<th>S&amp;P</th>
<th>Fitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baa1</td>
<td>BBB+</td>
<td>BBB+</td>
</tr>
<tr>
<td>Baa2</td>
<td>BBB</td>
<td>BBB</td>
</tr>
<tr>
<td>Baa3</td>
<td>BBB-</td>
<td>BBB-</td>
</tr>
</tbody>
</table>

In terms of sovereign credit ratings, Standard and Poor’s also upgraded Indonesia’s rating from BB+ to BBB-; as such, the three world’s biggest rating agencies have lifted Indonesia’s status to Investment grade. Fitch ratings even increased Indonesia’s rating one notch higher from BBB- to BBB with a stable outlook.

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**Global Competitiveness Index 2017-2018**

Up 5 Ranks

Indonesia Position #36. 9 of 12 pillars has improved for example: Institution, infrastructure, macroeconomic, health and primary education, technological readiness, business sophistication

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Source: World Economic Forum

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Source: World Bank

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Source: Galup World Poll

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Source: Moody’s, S&P, Fitch
**#EquitableEnergy**
Emphasize Social Wellfare, Condusive Business Climate dan Economic Growth

<table>
<thead>
<tr>
<th>Electrification Ratio</th>
<th>Fair Distribution</th>
<th>Sustainability &amp; Affordability</th>
<th>Investment &amp; Growth</th>
<th>Bureaucracy Reform</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Increasing Power Generation Capacity (35,000 MW)</td>
<td>✓ Targeted Subsidies</td>
<td>✓ Renewable Energy Utilization</td>
<td>✓ Mineral Added Value</td>
<td>✓ Simplification of Permits</td>
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<tr>
<td>✓ Rural Electrification</td>
<td>✓ Single Retail Fuel Price</td>
<td>✓ PPA Reform</td>
<td>✓ NI 10% from oil &amp; gas contract</td>
<td>✓ Online System</td>
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<tr>
<td>✓ Electrifying 2,519 Villages</td>
<td>✓ City Gas</td>
<td>✓ Private Refinery</td>
<td>✓ Industrial Gas Price</td>
<td>✓ Good Governance</td>
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<tr>
<td>✓ Electricity Tariff of NRE</td>
<td>✓ LPG’s Converter Kit for fishery</td>
<td>✓ Mine Mouth Power Plant</td>
<td>✓ PSC Gross Split</td>
<td>✓ Beneficial Ownership</td>
</tr>
<tr>
<td>✓ 1 Gas Refueling Station Nozzle at Each gas station</td>
<td>✓ Wellhead Power Plant</td>
<td>✓ Sunk Cost Refund - PSC</td>
<td></td>
<td></td>
</tr>
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</table>

**Sovereignty and Energy Resilient**
According to the President’s Directive, MEMR has simplified permits & bureaucracy to create friendly investment climate, encourage economic growth & create Jobs.

Ignasius Jonan
Minister of Energy and Mineral Resources

<table>
<thead>
<tr>
<th>Industry</th>
<th>Regulations</th>
<th>Permits</th>
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<tr>
<td>Oil &amp; Gas</td>
<td>18</td>
<td>32</td>
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<td>SKK Migas</td>
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<td>64</td>
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<td>5</td>
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<tr>
<td>NRE &amp; EC</td>
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</table>

186 Regulations/Permits were revoked
“Several Areas Still Shortage of Electricity Infrastructure”

95.35% Electrification ratio 2017

Electrification Ratio (%)

<table>
<thead>
<tr>
<th>Target</th>
<th>Realization</th>
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<tr>
<td>2010</td>
<td>67,2</td>
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<tr>
<td>2011</td>
<td>75,0</td>
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<td>2012</td>
<td>76,6</td>
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<td>91,2</td>
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<tr>
<td>2018</td>
<td>97,5</td>
</tr>
<tr>
<td>2019</td>
<td>99,0</td>
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</tbody>
</table>

Installed Capacity (MW)

- 2013: 51,019
- 2014: 53,065
- 2015: 55,528
- 2016: 59,656
- 2017: 60,790

ISINFORMASI

> 70
50 - 70
< 50

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Efficient Solar Powered Lighting Program

**2,519 Villages in 2019**
- Realization in 2017
- Illuminating 79,564 (*) houses in 5 Provinces (in process of implementation)

**Target in 2018**
- Illuminating 175,782 houses in 15 Provinces

**Target in 2019**
- Illuminating 105,000 houses

(*) appropriate to the contract

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Spesifikasi LTSHE

1. Ultra Efficient Light Emitting Diode (LED) 3 Watt = Lampu Pijar 25 Watt
2. Lithium Energy Storage Pack (Lithium Battery)
3. Chip Management Energy

Operate for 6, 12, and up to 60 hrs in a single charge

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Solar Panel with 4 LED Lamps and USB Port, provides an extensive benefit in remote area

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ACCELERATION OF INDONESIAN RURAL ELECTRIFICATION

Electrification program up to 50 MW capacity are given to:

- Underdeveloped rural areas
- Isolated rural areas
- International border areas
- Small populated islands

Renewable Energy Usage

Rural Electrification Acceleration Program utilizes renewable energy (RE) as a source of electricity.

Determining The Business Areas:

1. Minister’s authority to determine which business area to develop based on each Governor’s proposal
2. Minister of Energy assigns companies that already have Power Supply Business License (IUPTL)
3. Governor proposes business area
4. Governor offers business area to companies
5. Governors issues Power Supply Business License (IUPTL)

Procurement Mechanism

- **Investment**: Based on governor’s proposal then auctioned to corporations that manage the business area
- **Assignment**: Regional governments can assign regional owned enterprise (BUMD) if there are no interested investor

Tariff Mechanism

- **Subsidy**: The government calculates the required subsidy to be proposed to the parliament (DPR)
- **Nonsubsidised with agreed tariff**: Tariff is set by the Minister or Governor based on their respective authority
- **Nonsubsidised with national’s tariff**: PLN based tariff, regional government can’t set the tariff
5 Oil and Gas Blocks with Gross Split scheme enthused by Investors

Year 2015 & 2016
O&G blocks tender: There is no O&G block signed in cost recovery scheme

In 2018 government will offering at lease 41 Conventional Blocks and 3 Unconventional Blocks
Investment for Refinery Development Open for Private Investor
Refinery Permit Bundling with Retail (eligible to sell to end user)

Based on the Minister of EMR Regulation 35/2016

Why private refinery is important?
1. Realize the energy resilience;
2. Ensure the oil fuel availability;
3. Reduce the oil fuel import;
4. Optimize the participation of private enterprises.

Incentive dan Facilities
- fiscal and non fiscal incentive
- integrated with petrochemical production

Raw Materials
- Crude Oil
- Condensate
  sourced of:
  1) domestic
  2) import

Development Process
- Using a eco-friendly technology
- Prioritize the use of domestic products

Outcome Production
- Oil fuel prefers to meet the domestic needs.
- Able to be exported by considering domestic needs.
- Able to be sold to all end-user in the domestic (given by Commercial Business Permit).
Utilization of Renewable Energy for Affordable Electricity Price and Environmental Friendly

- Ministerial Regulation No. 50/2017
- Implementation of Power Purchase
  - General auction in accordance to the provisions of the legislation
  - Through direct selection mechanism

- Power Purchase Price
  - Indexing to generation cost in local system
    - National average power generation cost
      - Maximum purchase price is 85% of local power generation cost

- If the power generation cost in the local electricity system > national average power generation cost
  - Maximum purchase price is 100% of local power generation cost

- Based on agreement, if power generation cost in Sumatera, Java, Bali or local electricity system ≤ National Average power generation cost.
Indonesia Economic Outlook
Better than Global Trend

Driving Factors

2016, Indonesia's economic growth has found a momentum of recovery, when the global trend is still slowing.

2017, the consistent structural reforms carried out by the government has shown material results reflected in 2017, with 5%-5.1% economic growth.

Outlook, economic growth will continue the upward trend among others supported by a healthy domestic sector and government support on activities that show productivity (e.g. infrastructure).

Global economic risk remains to be wary so that the external sector is conducive and confidence is maintained.

Forecasts of Economic Growth

Beside economic outlook, The GOI also got stable currency, low inflation rate (3.61% yoy), improve external balance demonstrated by trade surplus amounted to USD 11.8 billion, manageable state budget deficit at 2.42% of GDP, as well as gradually decreasing interest rate.

Source:
- WEO Oct 2017 & Ministry of Finance of The Republic of Indonesia
- Statistics Indonesia

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ANNEX – ELECTRICITY & RENEWABLE ENERGY
The GOI also committed to participate on global sustainable action as pledged by President Joko Widodo, at the 21st COP 2015 in Paris, known as Paris Agreement that is committed:

✓ To reduce greenhouse gas emission in 2030 to 29% on its own efforts.
✓ With International support, the reduction of greenhouse gas emission is targeted up to 41%.

President of The Republic of Indonesia:
“Emition mitigation in energy sector conducted in several ways:
✓ Switch fuel subsidy into productive sector;
✓ Enhancement of renewable energy use about 23% of total national energy consumption by 2025;
✓ Waste to energy management.
Energy Mix Target 2025 - 2050

- **Role of energy**
  - 2017: Commodity
  - 2025: As development capital

- **Renewable mix**
  - 2017: 8.4%
  - 2025: 23%
  - 2050: 31%

- **Energy supply**
  - 2017: 163 MTOE
  - 2025: 400 MTOE
  - 2050: 1,030 MTOE

- **Power Plant Capacity**
  - 2017: 60.49 GW (NRE 9 GW)
  - 2025: 136 GW (NRE> 45 GW)
  - 2050: 443 GW (NRE> 167 GW)

- **Energy elasticity**
  - 2017: 1
  - 2025: < 1
  - 2050: < 1

- **Electricity/capita/year**
  - 2017: 1,012 KWh
  - 2025: 2,500 kWh
  - 2050: 7,000 kWh

- **Electrification Ratio**
  - 2017: 95.35%
  - 2025: ~100%
  - 2050: ~100%

**New and renewable**
- Coal: 30%
- Oil: 25%
- Gas: 22%

**2025 RE 45 GW**
1. Geothermal PP, 7.2 GW
2. Hydro PP, 17.9 GW
3. Small Hydro PP, 3 GW
4. Bioenergy PP, 5.5 GW
5. Solar PP, 6.5 GW
6. Wind PP, 1.8 GW
7. Others, 3.1 GW

**2050**
- 400 MTOE
- 24% New and renewable
- 25% Coal
- 23% Oil
- 31% Gas
Progress of Renewable Energy Power Plant

Wind Power Plant Sidrap
(30x2.5 MW) Expected COD in First Quarter 2018

Located at Sidereng Rappang (Sidrap) Regency South Sulawesi

- COD Target
  First quarter 2018

- PPA Price:
  US$ 11.41 cent/kWh

- Investment
  US$ 150 Million

- Average Wind Speed
  (85 m) 7+ m/s (25+ KPH)

Next Progressive Renewable Energy Projects

- PLTB Jeneponto
  Capacity 60 MW
- PLTB Sidrap II
  Capacity 50 MW
- PLTB Tanah Laut
  Capacity 70 MW
- PLTS Floating Cirata
  Capacity 200 MW
Increasing The Electrification Ratio

Energizing The Villages and Accommodate Local (Energy Sources) Wisdom

Power Generation Capacity Growing (MW)

2013 | 51,019
2014 | 53,065
2015 | 55,528
2016 | 59,656
2017 | 60,790

Enforce Electricity
Consumption

1,012 kWh/Kap (2019)
1,250 kWh/Kap

Electricity Consumption per Capita

2013: 51,019
2014: 53,065
2015: 55,528
2016: 59,656
2017: 60,790

PROMOTE UTILIZATION OF:
• Electric Vehicle
• Electric Cooking Stove/Inverter

"Yet there are still 2,519 villages without electricity at all, we focus on those problems, because equity is important."

-Ignasius Jonan-

Acceleration of Rural Electrification
(Ministerial Regulation No. 38/2016)

Provision of electricity (primarily based on new renewable energy) <50 of capacity to undeveloped villages, remote villages, borderer villages & small inhabited island those have not access of electricity.
70 Contracts of New Renewable Energy Signed in 2017

- 70 Contracts of New Renewable Energy Power Generator Signed in 2017
- 70 Contracts has COD
- 22 Contracts is under Construction

- 70 Contracts
- 1.214,1 MW
- 754 MW (62%)
- 286,8 MW (23%)
- 9,8 MW (1%)
- 32,5 MW (3%)
- 45 MW (4%)
- 86 MW (7%)

- January 2017: 13.5 MW
  - Mini-hydro: 10 MW
  - Biogas: 3.5 MW
- May 2017: 11 MW
  - Mini-hydro: 9 MW
  - Biogas: 2 MW
- August 2017: 257.6 MW
  - Biogas: 7.8 MW
  - Biomass: 29 MW
  - Mini-hydro: 176.8 MW
  - Sun: 45 MW
- September 2017: 291.4 MW
  - Mini-hydro: 239 MW
- November 2017: 640.6 MW
  - Mini-hydro: 39.5 MW
  - Air: 515 MW
  - Panas Bumi: 5 MW

- Status 19 February 2018
Increase Business Certainty in Power Purchase Agreement (PPA)

- **PPA Reform – Ministerial Regulation 49/2017**

**BACKGROUND**
- Power purchase risk balance between PLN and IPP
- Ensuring reliability of electricity supply
- State’s authority on electricity supply
- Power Purchase Agreement Standard (PJBL)

**COOPERATION SCHEME PLN - IPP**

**BOOT**
*(Build, Own, Operate, Transfer)*

*Note: Based on the Constitutional Court decision on Electricity Law regarding the state authority on electricity*

**PROVISIONS CERTAINTY OF COMMERCIAL OPERATION DATE**
- Delay of COD
  - IPP will be penalized
- COD Acceleration as requested by PLN
  - IPP will get Incentives

**CAPITAL INVESTMENT DEPRECIATION**
- Minimum 20 years
  - As basis for electricity sales price determination

**PROVISIONS OF TRANSACTION**

*Delivery or Pay*
- If IPP doesn’t supply electricity according to the contract due to IPP’s fault
  - IPP will be penalized

*Take or Pay*
- When PLN doesn’t absorb electricity as contracted due to PLN’s fault
  - PLN will pay penalty to IPP

**Improved business certainty:**
- The risk of government force majeure is removed
- Fair balance / risk sharing
**AFFORDABLE ELECTRICITY FOR PUBLIC**
**PROMOTING MINE MOUTH COAL POWER PLANT (REDUCE FUEL LOGISTIC)**

Ministerial Regulation No. 19 Year 2017*

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**MINE MOUTH POWER PLANT**
Combined cycle power plant in which its coal supply was guaranteed by the mining company based on PPA

**ADVANTAGES:**

- **EFFICIENT:** Power plant’s location is parallel with coal mine’s location thus cutting distribution & transportation cost
- **ENVIRONMENTAL FRIENDLY:** Transportation infrastructure (roads & river) are exempted from damage and reduced air pollution

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**MINE MOUTH POWER PLANT**

- Power purchase can be directly appointed
- PT PLN & Power Generation Company are obliged to ensure coal supply based on PPA
- PPA is implemented for 30 years since COD (BOOT Scheme)

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**REGULAR COAL FIRED POWER PLANT (CFPP)**

- PPA is implemented for 30 years since COD (BOOT Scheme)

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**Electricity Purchase Price:**

- If local BPP ≤ national BPP average, the ceiling price is 75% of local BPP
- If local BPP > national BPP average, the ceiling price is 75% of national BPP
- Electricity purchase price is set (assumption of 80% generating capacity)

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*BPP = Biaya Pokok Penyediaan (Electricity Production Cost)*

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Natural Gas Utilization for Generating Power at Wellhead could be done by direct appointment.

1. Direct Appointment
   Gas Price ≤ 8% ICP (MMBTU)

2. General Auction
   Gas Price > 8% ICP (MMBTU)

Natural Gas Utilization for Generating Power other than at Wellhead

14.5% ICP / MMBTU

Highest price limit for power generation (Plant Gate) with terms and condition.

Remarks:
ICP = Indonesian Crude Price
LNG = Liquefied Natural Gas
MMBTU = Million British Thermal Units

IF THE PRICE MORE HIGHER FROM 14.5% ICP/MMBTU:

- Can buy LNG at a bidding price below the price of natural gas through the pipeline
- If domestic LNG price is equal to import LNG price, it is mandated to buy LNG from domestic
- If the above provision is not achieved, then the minister may stipulate the gas supply policy for the power plant

Ensuring the availability of gas supply with a reasonable and competitive price, either gas pipeline or LNG
Providing a convenient setting in gas allocation for electricity power generation
Developing power plants at wellhead either through direct appointment or general auction

AFFORDABLE ELECTRICITY FOR PUBLIC
PROMOTING WELLHEAD GAS POWER PLANT (REDUCE FUEL LOGISTIC)

Ministerial Regulation Number 45/2017
Natural Gas Utilization for Generating Power
ANNEX – OIL & GAS
INDONESIA OIL & GAS BID ROUND 2018

http://e-wkmigas.esdm.go.id
Conventional Oil and Gas Bidding First Round 2018 (1/2)

http://e-wkmigas.esdm.go.id
### Direct Proposal

<table>
<thead>
<tr>
<th>No.</th>
<th>Block Name</th>
<th>Onshore/Offshore</th>
<th>Location</th>
<th>Minimum Firm Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>South East Jambi</td>
<td>Onshore</td>
<td>Jambi</td>
<td>G&amp;G ; 2D Seismic 300 Km</td>
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<tr>
<td>2</td>
<td>Citarum</td>
<td>Onshore</td>
<td>West Java and Central Java</td>
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<td>3</td>
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<td>4</td>
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<td>Molucca</td>
<td>G&amp;G ; 2D Seismic 500 Km</td>
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### Regular Tender

<table>
<thead>
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<tbody>
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<td>Onshore</td>
<td>Central Java</td>
<td>G&amp;G ; 1 Exploration Well</td>
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<td>3</td>
<td>West Sanga-Sanga</td>
<td>Onshore</td>
<td>East Kalimantan</td>
<td>G&amp;G ; 2D Seismic 250 Km &amp; 1 Exploration Well</td>
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<td>Air Komering</td>
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<td>South Sumatera</td>
<td>G&amp;G ; 1 Exploration Well</td>
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<td>5</td>
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<td>Onshore</td>
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<td>G&amp;G ; 1 Exploration Well</td>
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<td>Jambi</td>
<td>G&amp;G ; 1 Exploration Well</td>
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<td>Belayan</td>
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<td>East Kalimantan</td>
<td>G&amp;G ; 2D Seismic 100 Km &amp; 1 Exploration Well</td>
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<tr>
<td>8</td>
<td>Suremana I</td>
<td>Offshore</td>
<td>Makassar Strait</td>
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<td>Natuna</td>
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<td>West Papua</td>
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<td>Andika Bumi Kita</td>
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<td>East Java</td>
<td>G&amp;G ; 1 Exploration Well</td>
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<td>12</td>
<td>Manakarra Mamuju</td>
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<td>Makassar Strait</td>
<td>G&amp;G ; 2D Seismic 1,000 Km</td>
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<td>Offshore</td>
<td>Southeast Sulawesi</td>
<td>G&amp;G ; 3D Seismic 800 Km2</td>
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<td>North Kangean</td>
<td>Offshore</td>
<td>East Java</td>
<td>G&amp;G ; 1 Exploration Well</td>
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<td>15</td>
<td>Southeast Mahakam</td>
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<td>East Kalimantan</td>
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<td>East Sokang</td>
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<td>Natuna</td>
<td>G&amp;G ; 3D Seismic 500 Km &amp; 1 Exploration Well</td>
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<td>17</td>
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<td>Papua</td>
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<td>South Sulawesi</td>
<td>G&amp;G ; 2D Seismic 1,000 Km</td>
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<td>19</td>
<td>East Muriah</td>
<td>Offshore</td>
<td>East Java</td>
<td>G&amp;G ; 1 Exploration Well</td>
</tr>
</tbody>
</table>

**14 O&G blocks offered in 2018 located in offshore**

http://e-wkmigas.esdm.go.id
Unconventional Oil and Gas Bidding First Round 2018

Direct Proposal

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<tr>
<td>1</td>
<td>MNK Sumut Tenggara</td>
<td>Onshore</td>
<td>North Sumatera</td>
<td>G&amp;G Study; 1 Exploration Well</td>
</tr>
<tr>
<td>2</td>
<td>GMB Sumbagsel</td>
<td>Onshore</td>
<td>South Sumatera</td>
<td>G&amp;G Study; 3 Core Holes; 2 Exploration Wells; 1 Production Test</td>
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</tbody>
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