



NOVIRIANTI
& PARTNERS

POLICY BRIEF (JULY, 2020)

**HYDRO-ENERGY DEVELOPMENT IN INDONESIA FOR ELECTRICITY PROVISION
THROUGH POLICIES THAT CAN ATTRACT INVESTORS**

1. Background

According to the energy security index published by the World Energy Council, Indonesia was ranked 69th out of 128 countries in 2019. The index showed inequality in energy supply in Indonesia that has not been utilized properly. Indonesia as an archipelago country has abundant energy resources and potential energy. Those are non-renewable energy namely fossil fuels (petroleum, natural gas, coal) and renewable energy (solar energy, geothermal energy, hydro energy, wind energy, bioenergy). However, population growth along with national development that continues to be intensified has resulted in increasing energy needs in Indonesia. The availability of energy in Indonesia rely solely on non-renewable energy which can be run out in the future. In fact, Indonesia still relies on non-renewable energy as demonstrated through the National Energy Policy Targets based on mixed energy derived from renewable and non-renewable energy sources contained in Government Regulation No. 79 Year 2014 Regarding National Energy Policy which can be seen in the following table:

TAHUN→	2015		2020		2025		2030		2040		2050	
SATUAN→	MTOE	%	MTOE	%	MTOE	%	MTOE	%	MTOE	%	MTOE	%
Biomassa Biofuel	6	2.8%	9	3.1%	19	4.7%	22	4.6%	44	5.9%	78	7.7%
Biomassa Sampah	4	1.9%	7	2.4%	20	5.0%	25	5.2%	52	7.0%	64	6.4%
Panas Bumi	9	4.2%	23	7.9%	28	7.1%	31	6.5%	36	4.9%	58	5.8%
Energi Air	2	0.9%	5	1.7%	11	2.8%	12	2.5%	13	1.8%	20	2.0%
Energi Laut	0	0.0%	0	0.0%	0	0.0%	1	0.2%	2	0.3%	4	0.4%
Energi Surya	0	0.0%	0	0.0%	0	0.0%	1	0.2%	11	1.5%	17	1.7%
ET Lainnya (Angin)	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%	1	0.1%
Energi Baru (Nuklir, CBM dan lainnya)	0	0.0%	5	1.7%	13	3.2%	27	5.6%	48	6.5%	68	6.8%
Minyak Bumi	84	39.3%	93	32.1%	100	25.0%	106	22.1%	155	20.9%	200	20.0%
Gas Bumi	47	22.0%	64	22.1%	88	22.0%	110	23.0%	178	24.1%	240	24.0%
Batubara	62	29.0%	84	29.0%	120	30.0%	144	30.1%	200	27.0%	250	25.0%
TOTAL	215	100.0%	290	100.0%	400	100.0%	479	100.0%	740	100.0%	1000	100.0%
SUB TOTAL FOSIL	193	90.2%	241	83.1%	308	77.0%	360	75.2%	533	72.0%	676	68.0%
SUB TOTAL NON FOSIL (EBT)	21	9.8%	49	16.9%	92	23.0%	119	24.8%	207	28.0%	310	31.0%

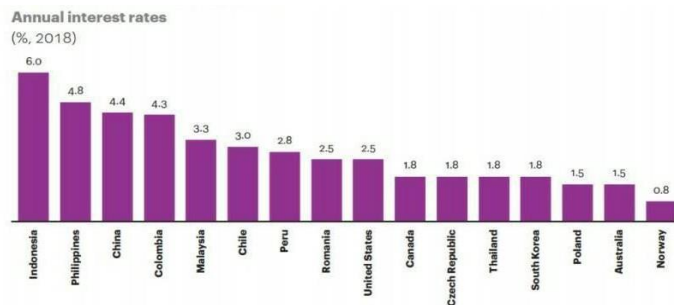
National Energy Policy Targets

Source: ESDM Directorate General of New and Renewable Energy and Energy Conservation

The target of non-renewable energy is still reliable energy used by the government compared to renewable energy, the target of using fossil-based non-renewable energy by 77% has a significant difference with the use of renewable energy of 23% by 2025. The target in subsequent in the upcoming years also has a quite far comparison with its use.

There was renewable energy in Indonesia that had enormous potential namely hydro energy. Based on the data from the Directorate General of Water Resources Indonesia, the utilization of these renewable energy types has only reached 10.1% or as much as 7,572 MW from the total potential of hydro energy by 75,000 MW. It shows that Indonesia's potential energy has not been effectively utilized to meet the needs of electrical energy.

The government has recently made efforts to attract investors in the development of renewable energy through the Minister of Energy and Mineral Resources Regulation No. 4 Year 2020 Regarding Utilization of Renewable Energy Resources for Electricity Supplies. The regulation has an impact on the development changes of the hydro energy sector, which is the addition of provisions to support investment in hydroelectric Power Plants by providing choices for the process of purchasing electricity through direct selection mechanisms, with a direct appointment to implement the use of irrigation channels or dams and eliminating patterns cooperation in the power purchase agreement which is originally a Build Own Operate Transfer (BOOT) to a Build Own Operate (BOO). It is expected to facilitate investors to be able to develop these renewable energy resources. However, in reality, investors are less given the ease of obtaining funding costs for the construction of power plants. Therefore, the government needs to find ways to reduce the cost of capital because bank interest in Indonesia is very high ranging between 10 -14% compared to other developing countries based on the AT Kearney Survey in 2019 as follows:



Source: Trading Economics; AT Kearney Analysis 2019.

Nowadays, the government still provides large subsidies to non-renewable energy sources, thus, they have lower prices compared to renewable energy. Its term refers to international subsidies, regarding providing access to financial assistance for the coal industry. Based on the report of the International Institute for Sustainable Development (IISD), the subsidy provided amounted to IDR 8.5 trillion in 2015. The comparison between the cost of subsidies and electricity production between non-renewable energy and renewable energy can be seen in the following table

	ENERGI TERBARUKAN	BATUBARA
	2015	2015
Produksi listrik (GWh)	25.197	130.508
Total Subsidi (US\$ juta)	133	664
Subsidi per unit (US\$ per kWh)	0,0055	0,0049

Source: International Institute for Sustainable Development

It shows that the subsidies given to the development of renewable energy require greater costs in the near future. However, the long-term development of this energy can provide enormous energy and reduce the costs that must be incurred by the government to cope with high carbon emissions. Therefore, the government can stop the non-renewable energy subsidies gradually and transfer them to the hydro energy development efforts as the most potential renewable energy in Indonesia.

2. Why Is This Important for Indonesia?

The Government's policy to attract investors with the aim of developing hydro energy in Indonesia to meet the needs of electricity should be implemented. Although, there is no state legislation that regulate this sector, but existing regulations must be able to optimize the development of hydro energy. This becomes important because electricity production is still dominated by coal by looking at the total power generation capacity in 2018 of non-renewable energy is 64.5 GW while the utilization of renewable energy is

only 8.8 GW or 14% of total usage.

3. **Recommendations**

In conclusion, to fulfill the needs of energy caused by overgrowing population, Indonesia develop its renewable energy sectors one of them is hydro energy. One of the efforts was to attract investors in the development of renewable energy through the Minister of Energy and Mineral Resources Regulation No. 4 Year 2020 Regarding Utilization of Renewable Energy Resources for Electricity Supplies. The regulation has an impact on the development changes of the hydro energy sector. However, in reality, investors are less given the ease of obtaining funding costs for the construction of power plants. In addition, the costs of renewable energy are costly compared the subsidized non-renewable energy.

To solve the problems there are several recommendations. *First*, implementation of the policy must be done consistently in order to support the development of hydro-energy plants and to provide certainty to investors and immediately issue state legislation related to renewable energy. *Second*, providing incentives in the form of additional costs to the investors of hydro energy providers. *Third*, subsidies for non-renewable energy sources that need to be stopped. Fourth, educating the public about the importance of supplying hydro-energy in maintaining the sustainability of energy supply in Indonesia as well as the influence of renewable energy sources that can have a positive impact on nature conservation.

Author: Sitta Fahrina Bestari

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