

COUNTRY REPORT

Energy Report in Indonesia

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JICA Knowledge Co-Creation Program
Energy Policy

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Indonesia Information

: General

Indonesia has officially locked in the next era of green growth through the long-term energy plan enacted the RUPTL plan 2025-2034 which is mandating that 76% of all new power generation capacity come from clean sources. Through that mandate, the country significantly driving the national clean energy mix ahead of schedule.



288 mio
population



71.5 mio
household



\$1.54 T
GDP



95 GW
Power plant capacity

Organization Structure Related to Energy



Ministry of Energy and Mineral Resources

The Ministry of Energy and Mineral Resources has the task of organizing government affairs in the field of energy and mineral resources. the Ministry of Energy and Mineral Resources carries out the following functions: formulation, stipulation and implementation of policies in the field of guidance, control, and supervision of oil and gas, electricity, minerals and coal, new energy, renewable energy, energy conservation, and geology



National Research and Innovation Agency

organizing government duties in the field of research, development, assessment, and application as well as invention and innovation, the implementation of nuclear power, and the implementation of space nationally integrated. The agency functions to implement the research, development, assessment, and application as well as invention and innovation which cover also the development of energy sector

State-Owned Enterprise in Energy Sector



Power Generation and Electricity Utility



Oil and Natural Gas Utility



Mineral Resources Mining

Past Energy Demand and Supply (1/3)

Primary energy supply by source											Unit: ktoe
source	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Production	428.869	440.719	432.059	432.231	460.533	489.855	450.555	480.879	455.535	503.784	550.980
Import	48.713	51.180	49.261	47.479	48.888	41.489	40.283	48.530	51.692	56.101	60.600
Export	(245.139)	(274.253)	(264.231)	(243.569)	(246.002)	(291.386)	(260.497)	(279.689)	(245.932)	(272.437)	(297.695)
Stock Change	(9.125)	26.795	(14.892)	(22.802)	(48.686)	(13.062)	(21.247)	(33.342)	(4.869)	(25.658)	(27.063)
Total	223.318	244.441	202.197	213.440	214.733	226.896	209.095	216.378	256.427	261.790	286.821

Primary energy supply by energy source																Unit: ktoe
Year	Coal	Crude Oil & Product	Natural Gas & Product	Hydro Power	Geothermal	Solar PP & Solar PV	Wind	Bioenergy PP (inc. MSW)	Solar Powered Public Street Lighting & Energy Saving Lamp	Solar Water Heater	Direct Use of Geothermal	Biofuel	BioGas	Traditional Biomass	Industrial Biomass	Total
2014	44.794	80.876	37.993	5.314	2.267	-	-	-	-	-	-	1.675	-	6.676	-	185.921
2015	51.047	71.328	39.149	4.845	2.287	-	-	-	-	-	-	1.173	17	5.614	0	181.752
2016	53.243	74.499	40.397	6.643	2.455	-	-	-	-	-	-	2.888	20	5.052	26	191.379
2017	57.054	77.437	39.985	6.664	2.836	-	-	-	-	-	-	2.933	2	4.107	3	197.270
2018	67.667	79.407	40.364	5.629	3.646	50	65	4.269	1	-	-	3.964	23	3.920	48	215.096
2019	81.390	76.301	40.402	5.506	3.667	65	166	4.187	2	-	-	6.430	23	3.420	78	227.637
2020	77.549	65.940	35.160	6.329	4.047	10	163	4.254	2	-	-	7.772	25	3.079	89	211.812
2021	78.229	69.080	33.890	6.433	4.135	110	150	5.239	2	-	-	9.179	25	2.947	183	217.034
2022	104.401	77.346	34.302	7.109	4.337	239	122	7.292	7	131	1	10.412	29	2.611	633	256.427
2023	102.976	77.614	44.386	6.394	4.404	424	165	8.083	7	268	1	11.773	98	2.331	2.863	261.787
2024	114.837	81.979	45.989	7.260	4.448	855	163	8.045	7	345	1	12.883	85	2.331	7.592	286.827

Source: MEMR, HEESI 2024

Past Energy Demand and Supply (2/3)

Final energy consumption by sector

Unit: ktoe

Sector	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Industrial	34.813	34.930	33.972	35.535	44.014	51.933	42.563	40.978	73.102	79.519	83.750
Households	15.197	15.810	16.435	17.171	17.899	18.667	19.668	20.364	20.691	21.543	22.924
Commercial	5.556	5.420	5.718	5.863	6.039	6.317	5.841	6.091	6.914	7.739	8.153
Transportation	48.974	49.367	48.753	52.021	57.148	59.073	52.056	55.515	61.798	64.076	65.825
Other	4.099	3.100	2.837	2.428	1.939	1.587	1.463	1.541	1.562	1.517	1.634
Final Energy Consumption	108.641	108.628	107.717	113.020	127.579	137.579	121.593	124.491	164.069	174.396	182.288
Non Energy Utilization	4.066	4.777	4.574	4.523	4.763	4.868	4.528	4.470	4.513	4.509	4.537

Final energy consumption by energy source

Unit: ktoe

Year	Traditional Biomass	Industrial Biomass	Solar Water Heater	Direct Use of Geothermal	Coal	Natural Gas	Oil Fuel	BioGasoil			BioGas	Briquette	LPG	Electricity	Total
								Gasoil	Biodiesel	Blending Product					
2014	6.658	-	-	-	7.709	13.314	50.920	8.526	1.675	10.202	-	8	7.272	17.044	113.127
2015	5.573	17	-	-	9.832	13.441	45.266	12.025	831	12.857	17	7	7.611	17.408	112.030
2016	5.001	26	-	-	8.891	13.046	46.073	8.294	2.732	11.026	20	15	7.928	18.538	110.565
2017	4.106	26	-	-	82	15.187	46.404	10.808	2.335	13.143	22	15	8.582	19.149	114.867
2018	3.919	48	-	-	14.071	16.620	44.902	14.833	3.406	18.239	23	5	9.026	21.567	128.421
2019	3.419	78	-	-	23.438	15.975	36.676	21.055	5.809	26.864	23	4	9.283	22.487	138.248
2020	3.078	89	-	-	15.878	14.975	31.127	17.473	7.629	25.102	25	26	96	22.362	122.240
2021	2.947	183	-	-	1.229	15.530	33.032	18.727	8.441	27.168	25	0	9.975	23.793	124.949

Source: MEM R, HEESS 2024

Past Energy Demand and Supply (3/3)

Electricity Generation by energy source

Unit: GWh

Past electricity demand by energy source					
	Energy Source	2021	2022	2023	2024
A	Renewable Energy	36.875	40.479	38.979	41.240
	Hydropower	19.765	22.355	19.932	21.505
	Geothermal Power	15.898	16.677	16.936	16.763
	Other NRE	1.212	1.447	2.111	2.971
B	Non-Renewable Energy	252.596	267.523	284.342	302.652
	Steam Power	189.684	205.309	216.777	228,433
	Diesel Power	9.094	8.309	8.576	10,054
	Steam Gas Power 55.979		51.604	51.426	60,686
	Biofuel	2.214	2.479	3.010	3,478
Total Electricity Production		289.471	308.002	323.321	343.891

CO₂ emissions by sector

Unit: MTon

Sector	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Energy	496.030	531.142	527.102	529.575	553.974	593.026	636.452	584.284	595.862	727.330	752.279
IPPU	37.873	45.996	48.744	53.765	57.085	57.481	58.173	57.194	59.377	59.192	59.854
Agriculture	97.046	100.092	100.684	102.640	105.363	104.053	105.300	101.981	105.876	90.642	104.979
FOLU	490.730	317.878	948.566	548.877	678.681	886.487	481.719	200.114	254.745	211.714	220.743
Peat Fire	60.724	314.077	410.013	44.984	6.235	60.461	227.462	9.199	11.919	9.653	86.154
Waste	93.569	95.884	97.539	102.105	108.938	114.636	120.333	124.753	128.274	130.188	136.335
Total	1.275.947	1.405.070	2.132.651	1.381.949	1.510.279	1.816.146	1.619.146	1.077.527	1.156.055	1.228.721	1.360.346

Source: Greenhouse Gas and MPV 2020 Inventory Report, Ministry of Environment and Forestry Republic of Indonesia

Energy Mix Target and Bioenergy Utilization

based on Government Regulation No. 40/2025 on the National Energy Policy

		2030		2040		2050		2060	
		Energy Final Utilization	Bauran	Energy Final Utilization	Bauran	Energy Final Utilization	Bauran	Energy Final Utilization	Bauran
	Biomass	15,8 – 23,1 MTOE equivalent 44,09 – 64,48 million Ton	7,2% s.d. 9,0%	21,9 – 24,7 MTOE equivalent 61,13 - 68,94 Million Ton	6,5% s.d. 6,7%	30,3 – 35,0 MTOE equivalent 84,57 - 97,69 million Ton	7,4% s.d. 7,6%	67,5 – 71,9 MTOE equivalent 188,41 - 200,69 million Ton	12,2% s.d. 13,4%
	Biogas	0,048 – 0,065 MTOE equivalent 91,28– 122,78 million m³	0,013% s.d. 0,014%	0,0875 – 0,1182 MTOE equivalent 165,02 – 222,92 million m³	0,019% s.d. 0,020%	0,1584 – 0,2007 MTOE equivalent 298,73 – 378,51 million m³	0,027% s.d. 0,028%	0,2867 – 0,3783 MTOE equivalent 540,70 – 713,45 million m³	0,043% s.d. 0,049%
	Biofuel	18,7 – 22,7 MTOE equivalent 23,94 – 44,41 million kL	5,1% s.d. 5,2%	21,9 – 25,2 MTOE equivalent 28,04 – 49,30 million kL	4,2% s.d. 4,7%	18,7 – 22,1 MTOE equivalent 23,94 – 43,24 million kL	3,1% s.d. 3,2%	13,6 – 19,9 MTOE equivalent 17,41 – 38,93 Million kL	2,1% s.d. 2,6%
	Total Bioenergy	34,55 – 45,87 MTOE	12,313% s.d. 14,214%	43,89 – 50,02 MTOE	10,719% s.d. 11,420%	49,16 – 57,30 MTOE	10,527% s.d. 10,828%	81,39 – 92,18 MTOE	14,343% s.d. 16,049%
	Total Energy Primer	368 – 454 MTOE	19%-23%	468 – 596 MTOE	36% s.d. 40%	595 – 712 MTOE	53% s.d. 55%	665 – 775 MTOE	70% s.d. 72%

Major Difficulties and Bottlenecks in Formulating Energy Policies

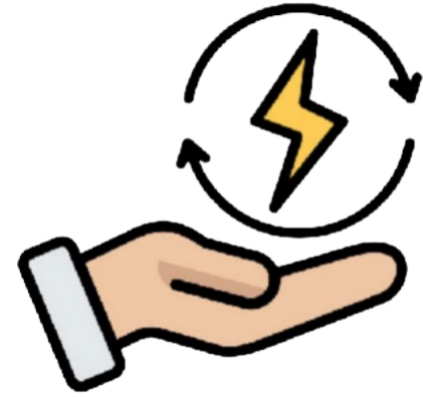
Regulatory Volatility and Multi-Layered Bureaucracy

Capital Investment need consistency but frequent shifting regulation and policy, overlapping authorities between central and local governments, and uncertainty in procurement regulations (especially for renewables) have damaged investor trust. Regulatory overlap between MEMR, MOA, KLHK, and regional governments affects bioenergy licensing, land permits, and waste utilization. Better cross-sectoral coordination is needed for streamlined project development.



Demand and Supply Mismatch and Renewable Energy Integration Issues

Many renewable resources are located far from demand centers. The current transmission system, especially outside Java-Bali, lacks the capacity and flexibility to integrate intermittent renewable energy like solar and wind. For Bioenergy, ensuring consistent, traceable, and sustainable biomass feedstock—especially outside Java—is a major challenge. Seasonality, land use competition, and fragmented supply chains hamper scalability.



Training Expectation

Source of Interest

- **Bioenergy Policy Integration in Energy Transition Frameworks**
 - How bioenergy is planned and integrated in national decarbonization strategies (e.g., Japan's biomass roadmap or EU's RED II policies).
- **Circular Economy Practices**
 - Lessons on feedstock aggregation, technology selection, and community-based renewable energy models from countries with mature renewable energy ecosystems.
- **Mechanisms for Enhancing Private Sector and Regional Participation**
 - Including financing schemes, incentives, and decentralized energy business models that can accelerate rural bioenergy deployment.

Thank You

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GOVERNMENT REGULATION NO. 40 OF 2025 ON THE NATIONAL ENERGY POLICY

NATIONAL ENERGY TARGETS



Achieving Energy Security

while maintaining energy supply security and energy affordability.



Meeting Energy Demand

in a rational manner to achieve a high Human Development Index (HDI) and support Indonesia's transition into a high-income country



Achieving Decarbonization and the Energy Transition

to reach peak emissions by 2035 and achieve Net Zero Emissions by 2060.

NATIONAL ENERGY POLICY STRATEGIES

1

Managing population growth

to minimize long-term energy consumption.

2

Reducing Energy Intensity

to ensure that economic growth exceeds the growth of energy consumption.

3

Meeting energy demand to achieve a high HDI

support strong economic growth.

4

Promoting energy conservation on the demand side

by fostering more efficient use of space, materials, and energy.

5

Improving energy efficiency

on both the demand side and the supply side.

6

Ensuring optimal energy supply

in terms of supply security, production costs, and carbon emissions.

7

Diversifying energy sources

to meet energy demand through a broad range of energy resources.

8

Optimizing the utilization of domestic energy resources

to minimize energy imports and maximize the use of national energy resources

9

Directing energy systems and technologies toward low energy intensity and low emissions.

10

Maximizing electrification across all end-use sectors

by shifting non-electric final energy supply toward electricity.

URGENCY OF UPDATING GOVERNMENT REGULATION NO. 79 OF 2014 TO GOVERNMENT REGULATION NO. 40 OF 2025

To establish national energy sovereignty, independence, and resilience to achieve **energy self-sufficiency**; **strengthen Indonesia's commitment to decarbonizing the energy sector**; **enhance national climate resilience**; and **support green economic development**.



Energy Situation in Indonesia



Pioneering Floating Solar Utility

Cirata Floating Solar (192 MWp) became Indonesia first floating solar installation with the largest scale in Southeast Asia.



Pioneering Mandatory B35/B40 Biodiesel Program

In 2024 marked as world-first mandatory B35 Biodiesel Implementation and moving rapidly through 2025, Indonesia continue the success story of Mandatory B40 Biodiesel implementation.