Government Support to Coal and Their Impact on Renewables Expansion: Indonesia Case

Lucky Lontoh

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IISD
International Institute for Sustainable Development

Global Subsidies Initiative

Is Indonesia On Track to Meet Its 23% Renewable Energy Target by 2025?

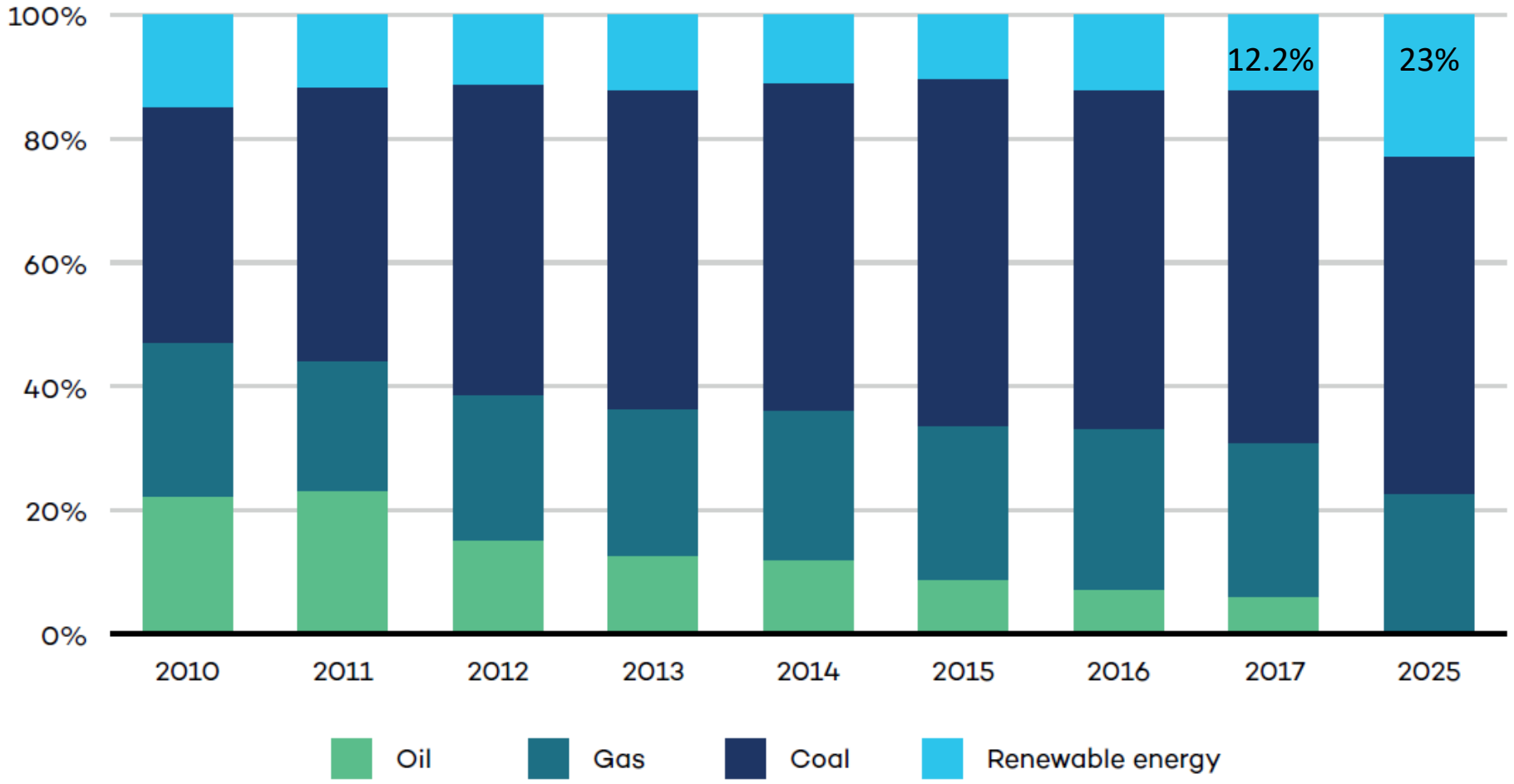
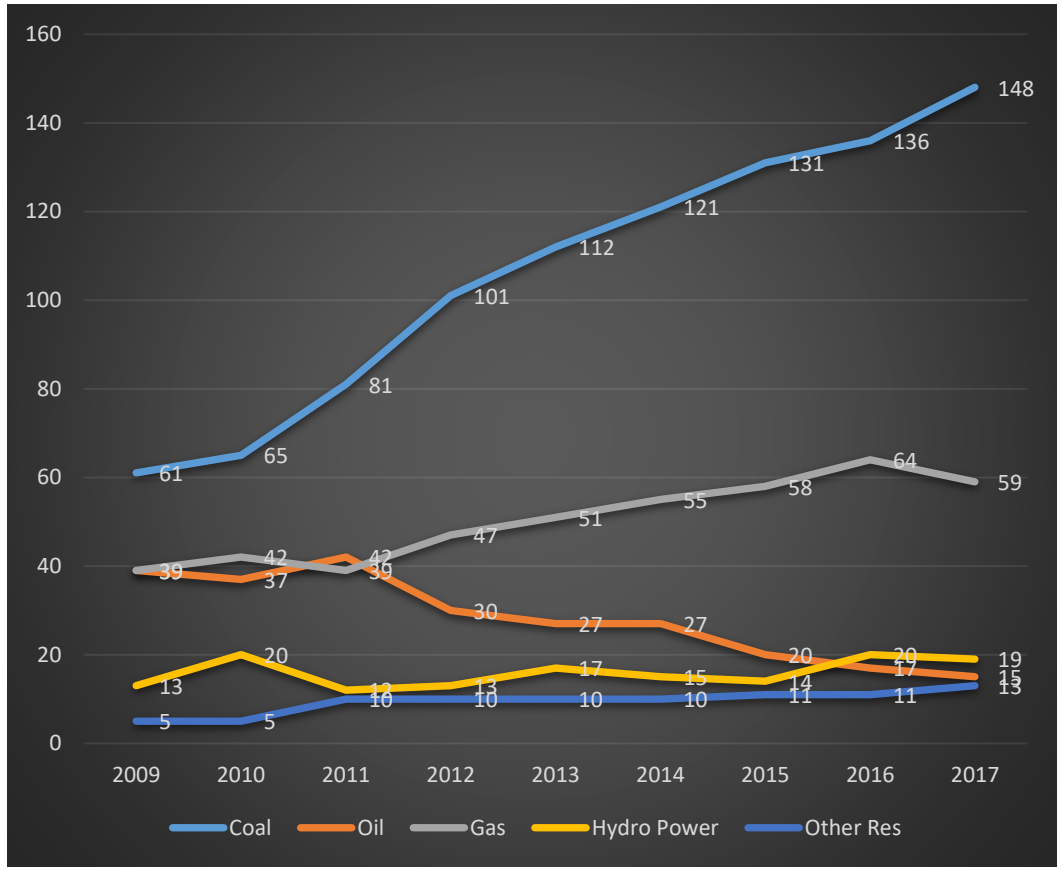


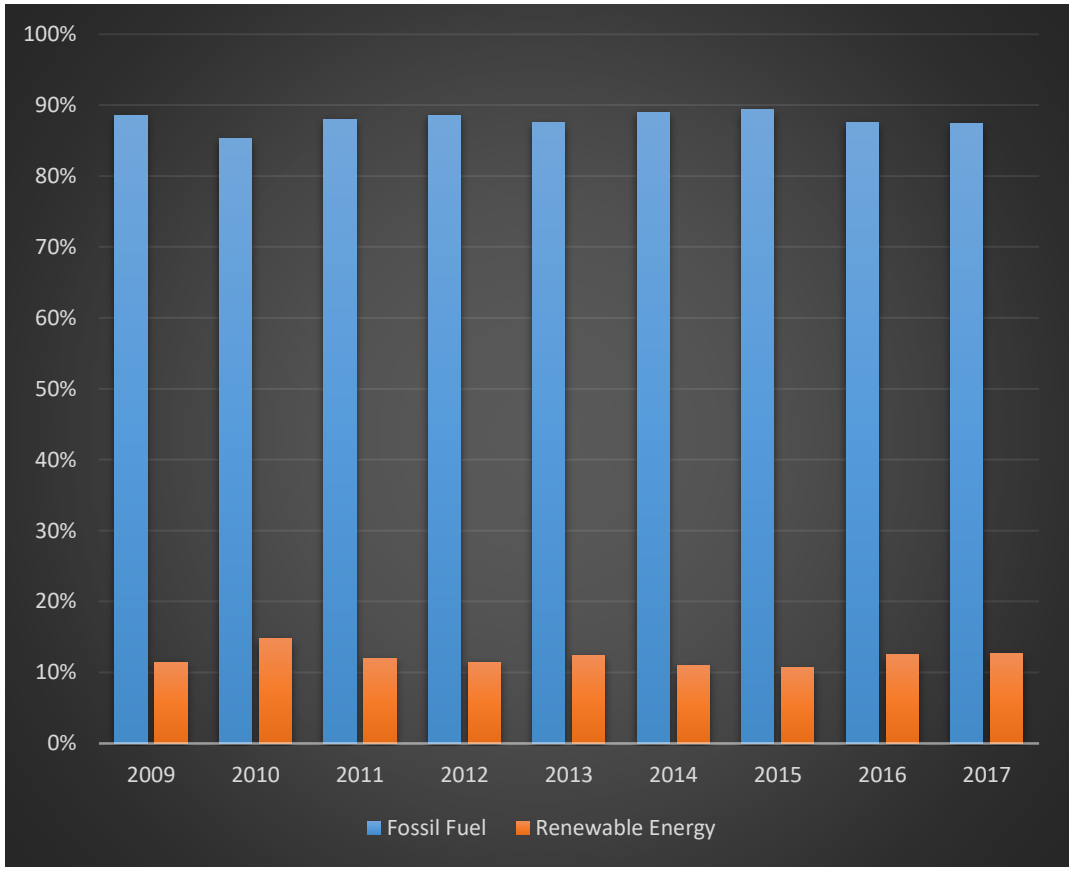
Figure 1. Development of Fuel Mix for Installed Power Generation

Indonesia: RE Target and Current Status

Electricity Production (TWh)



Electricity Production (%)



Source: Ministry of Energy and Mineral Resources
RE share in Primary Energy Mix by 2016 is 7%.
Target: RE 23% in 2025 and 31% in 2050 in Primary Energy Mix, at least 25% in power generation in 2025.
Near complete electrification ratio in all regions.

Subsidy Reform Stimulates Energy Efficiency

6.2.4 Domestic Oil Fuels Sales

million kl

	2012	2013	2014	2015*	2016	2017 *)
Avgas	2,606	2,868	1,499	3,070	2,967	1,128
Avtur	3,898,832	4,159,010	4,229,094	4,336,624	4,665,191	2,537,319
RON 88	28,459,985	29,501,773	29,707,002	28,107,022	21,753,536	6,861,800
Kerosene	1,382,469	1,260,490	971,434	769,233	590,190	304,090
ADO *)	25,079,718	23,715,716	21,440,501	26,130,183	14,306,728	7,205,407
IDO	91,600	79,137	60,870	53,069	37,720	11,732
Fuel Oil	3,428,875	1,973,903	1,884,040	1,647,441	1,229,379	912,064
RON 95	149,424	158,714	154,888	278,758	290,954	130,553
RON 92	666,461	850,408	1,062,920	2,761,956	4,789,597	2,775,787
RON 90	0	0	0	379,959	5,805,578	6,393,391
Solar 53	0	0	0	0	74,034	84,169
Solar 51	12,297	23,053	33,305	38,552	105,889	134,747
Bio RON 88	0	0	0	0	0	0
Bio RON 95	0	0	0	0	0	0
Bio RON 92	0	0	0	0	0	0
Bio Solar *)	9,130,039	10,332,005	11,232,729	3,042,511	13,220,539	5,445,482
Total Fuel	**72,302,305**	**72,057,077**	**70,778,283**	**67,548,378**	**66,872,301**	**32,797,669**

Sources : Directorate General of Oil and Gas
Note : *) Temporary Data up to Semester I 2017

- Fuel price adjustment (subsidy cut) has narrowed the price gap between subsidized fuel and the non-subsidized fuel.
- Narrower price gap between subsidized and non-subsidized fuel drives consumers to buy higher quality fuel (duplicating experience in 2003). 5.5 mkl switched to RON 90, 2 mkl switched to higher qulity and more expensive fuel. If the argument, “people loves cheap fuel”, is entirely correct the stats would not look like this. **PRICE INFLUENCES DECISION**.
- Higher appreciation towards quality drives competition and innovation in semi-open market. PT Pertamina launched gasoline RON 98 in the 2018.

Subsidy Impact: Understanding PT PLN's Limit

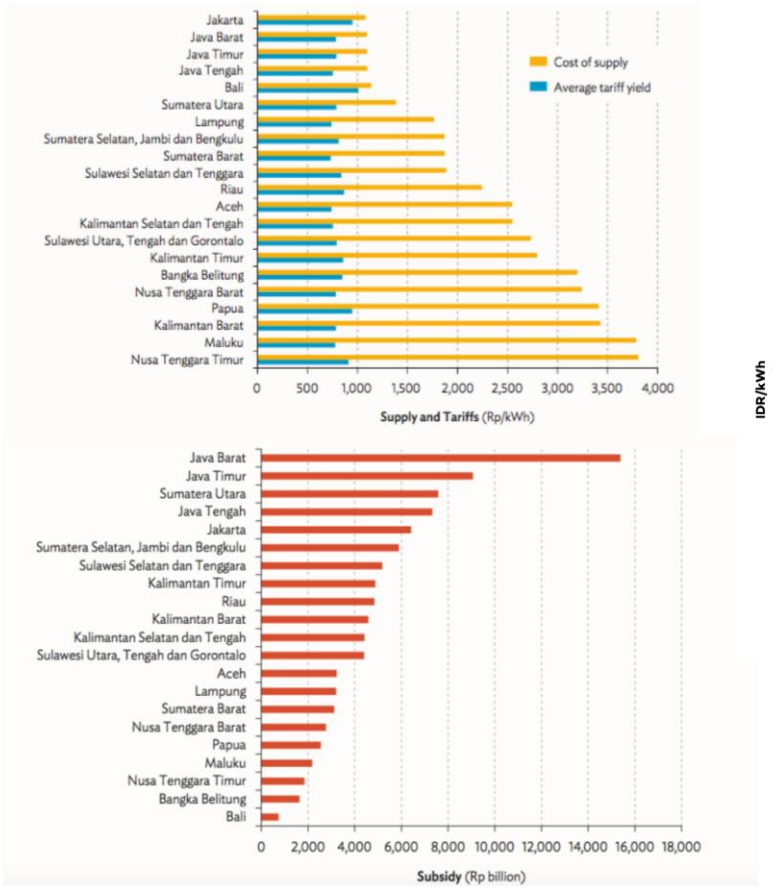


Figure 7: Cost of supply and tariff yield by region (above) and total electricity subsidy by region, 2013 (below)

Source: ADB (2016)

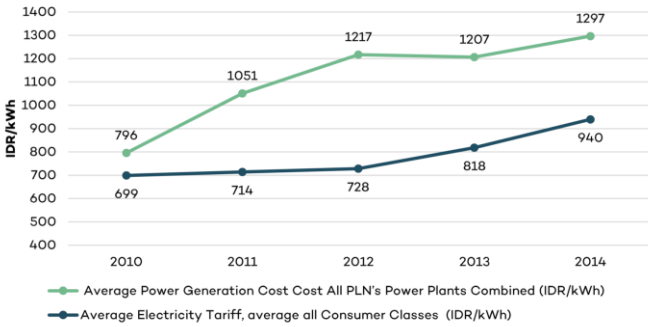
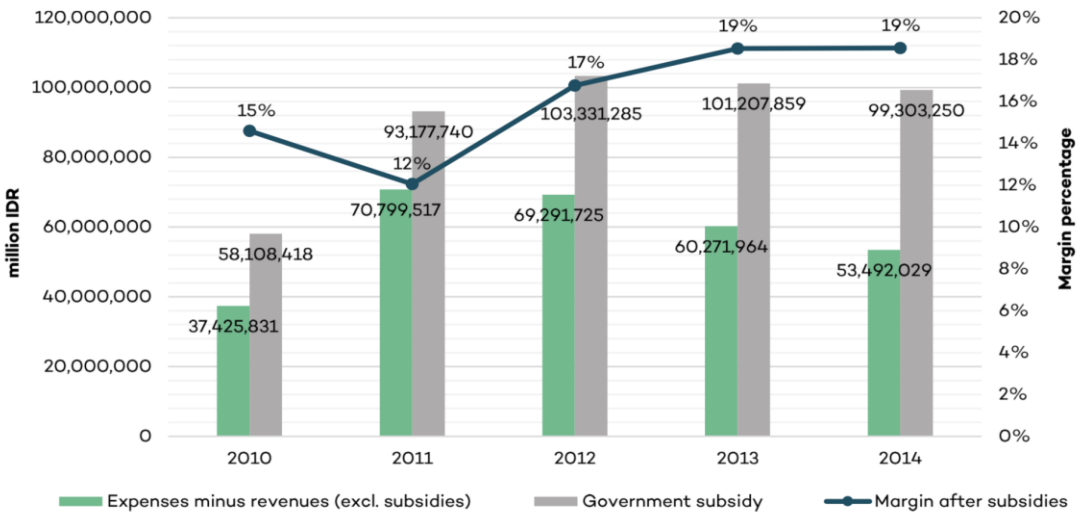


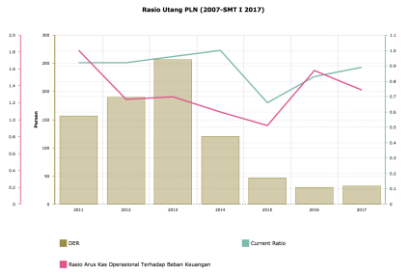
Figure 6: Cost of generation compared to average electricity tariffs.

Source: PT PLN (Persero) (2014)

Source: https://www.iisd.org/sites/default/files/publications/indonesia-financially-sustainable-electricity-sector.pdf

Understanding PT PLN's Limit





	Catatan/ Notes	2017 Rp	2016 Rp	
PENDAPATAN USAHA				***REVENUES***
Penjualan tenaga listrik	36	246,586,856	214,139,834	*Sale of electricity*
Penyambungan pelanggan	22	7,113,454	7,052,136	*Customer connection fees*
Lain-lain	38	1,594,933	1,629,986	*Others*
Jumlah Pendapatan Usaha		255,295,243	222,821,956	*Total Revenues*
BEBAN USAHA				***OPERATING EXPENSES***
Bahan bakar dan pelumas	39	116,947,824	109,492,383	*Fuel and lubricants*
Pembelian tenaga listrik	40	72,426,641	59,729,390	*Purchased electricity*
Sewa	41	6,592,161	6,545,114	*Lease*
Pemeliharaan	42	19,515,606	21,226,736	*Maintenance*
Kepegawaian	43	23,124,511	22,659,965	*Personnel*
Penyusutan	6	29,160,597	27,512,150	*Depreciation*
Lain-lain	44	7,706,754	7,284,064	*Others*
Jumlah Beban Usaha		275,474,094	254,449,802	*Total Operating Expenses*
RUGI USAHA SEBELUM SUBSIDI		(20,178,851)	(31,627,846)	***OPERATING LOSS BEFORE SUBSIDY***
Subsidi listrik Pemerintah	37	45,738,215	58,043,265	*Government's electricity subsidy*
LABA USAHA SETELAH SUBSIDI		25,559,364	26,415,419	***OPERATING INCOME AFTER SUBSIDY***
Penghasilan lain-lain - bersih	46	3,409,941	1,092,366	*Other income - net*
Keuntungan (kerugian) kurs mata uang asing - bersih		(2,935,144)	4,195,210	*Gain (loss) on foreign exchange - net*
Penghasilan keuangan		1,066,842	578,507	*Financial income*
Beban keuangan	45	(18,556,931)	(18,703,276)	*Financial cost*
LABA SEBELUM PAJAK		8,544,072	13,578,226	***INCOME BEFORE TAX***
BEBAN PAJAK	47	(4,115,955)	(5,427,843)	***TAX EXPENSES***
LABA TAHUN BERJALAN		4,428,117	8,150,383	***INCOME FOR THE YEAR***

Figure 5: PLN's expenses, revenues, subsidies and profit margin

Source: PT PLN (Persero) (2014)

Electricity subsidy is a critical factor to sustain PT PLN's operation and to patch *undesirable* financial performance. Reinvestment is already hard for PT PLN even with cheap fossil fuel.

In October 2017, Minister of Finance advised PT PLN to reconsider its capacity expansion, citing fiscal risk from loan guarantee to PT PLN and DSR as reason.

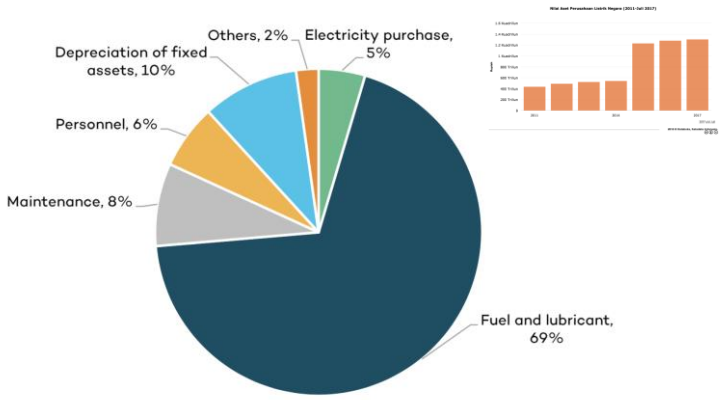


Figure 4: Breakdown of PLN's operational expenses in 2014

Source: Pusdatin ESDM (2014)

Government Support to Coal in Indonesia: Energy Price

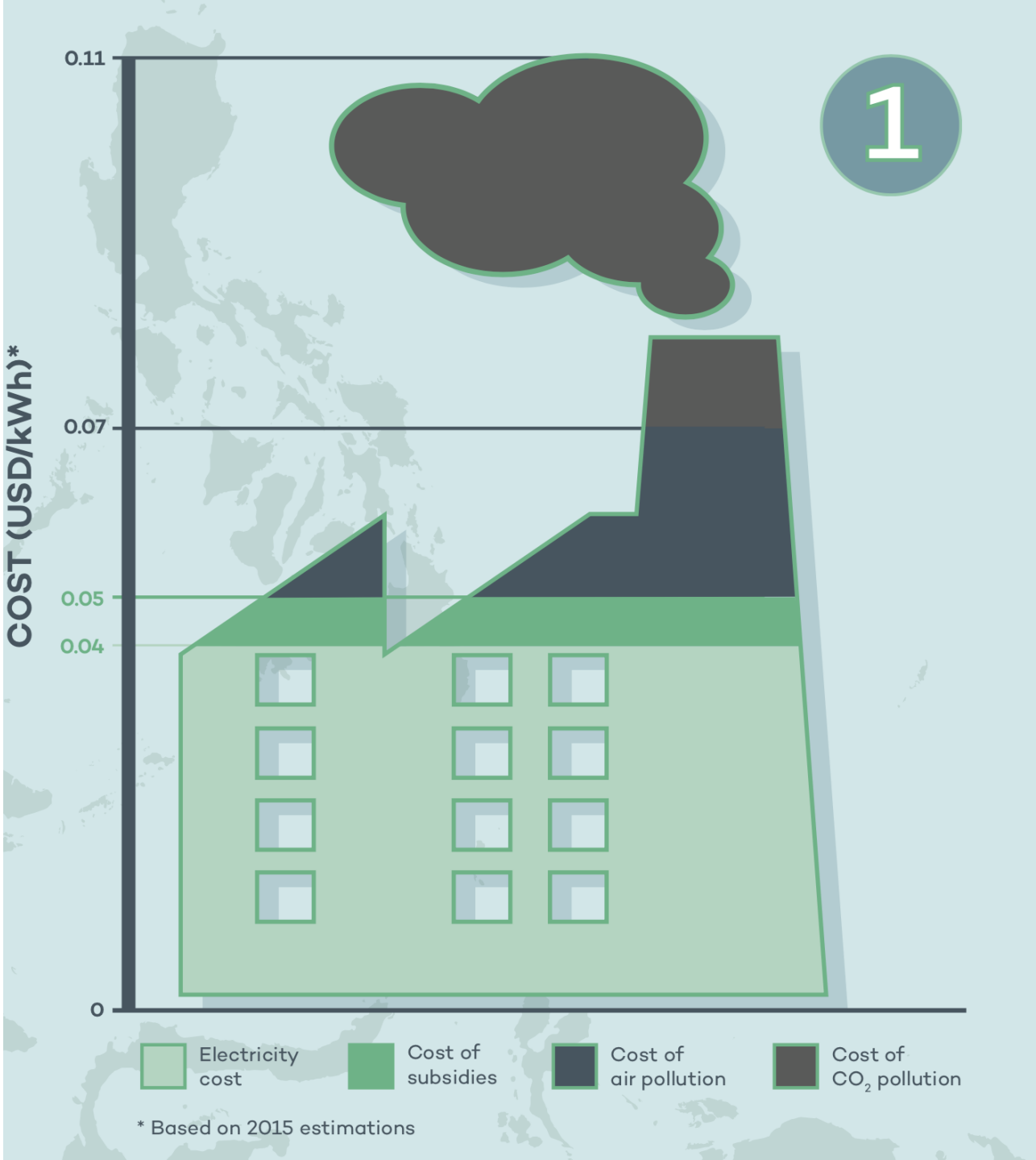
- Electricity Price: US$ 0.04/kWh
- Social Cost (Health): US$ 0.03/kWh
- CO_2 Emission: US$ 0.04/kWh

Coal has been hailed as the cheapest energy source, the ultimate answer to growth and welfare dilemma. But this concept has a flaw: **subsidies and externalities**.

This calculation is a conservative scenario on how pricing regime creates an advantage for coal over RE in Indonesia. This estimate doesn't include the full list of government support to coal industry in Indonesia.

Energy pricing is the most mentioned issue in GSI's surveys about the roadblocks of RE development in Indonesia.

Source:
https://www.iisd.org/sites/default/files/publications/indonesia-electricity-generation-coal-renewables-infographic-en.pdf



Subsidy: An Operational Definition

- **Direct and Indirect Transfer of Funds and Liabilities**
  - Direct Spending
  - Government Ownership of Energy Related Enterprises
  - Credit Support
  - Insurance and Indemnification
  - Occupational Health and Accidents
  - Environmental Cost
- **Government Revenue Forgone**
  - Tax Breaks and Special Taxes
- **Provision of Goods or Services Below Market Value**
  - Government-owned Energy Minerals
  - Government-owned Natural Resources or Land
  - Government Procurement
  - Government-provided Goods or Services
- **Income or Price Support**
  - Market Price Support and Regulation

Summary of Government Support to Coal in Indonesia

GSI identifies 15 subsidies to Indonesia's coal industry. It was possible to quantify seven of these.

In 2015, subsidies to coal production were estimated: app. IDR 8.5 trillion (USD 644 million). In 2014, at IDR 12.4 trillion (USD 946 million).

In 2015, RE subsidies was roughly USD 133 million in subsidies, a considerable increase from around USD 36 million in 2014. From 2010 to 2015, renewables received a cumulative total of USD 179 million. This is far less than the amount of subsidies provided for coal through the export tariff exemption alone, totalling USD 719.6 million from 2012 to 2015.

Source: https://www.iisd.org/sites/default/files/publications/financial-supports-coal-renewables-indonesia-executive-summary-en.pdf

(Source: World Trade Agreement's Agreement on Subsidies and Countervailing Measures)

See: https://www.iisd.org/sites/default/files/publications/fossil_fuel_subsidies_WTO.pdf

Lesson for Policy Making

- Start from Strong Database, No Silver Bullet Approach
  - Database Inventory
  - Energy Economy Analysis
- Create investment friendly environment
  - Getting the Price Right (Economy)
    - Subsidies, Externalities (Emission) and Social Cost (Health and Environment)
  - Subsidy Swap (Economy)
    - Shifting Fiscal Supports
  - Mitigate Risks (Social Welfare)
    - Compensation and Responsive Monitoring and Evaluation
  - Mobilize Public Confidence (Politics)
    - Communication Strategy
  - Show Strong Leadership (Politics)
    - Demonstrating Energy Reform as Top Development Priority

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Contacts:

Philip Gass (Geneva)
pgass@iisd.ca

Lucky Lontoh (Jakarta)
luckylontoh@iisd.org
lucky.lontoh@gmail.com

Anissa Suharsono
a.ramaniya@gmail.com

What are the main roadblocks preventing renewable energy technologies from thriving in Indonesia?

Price of renewable energy

Policies and regulations

Technical constraints

Subsidies and externalities of fossil fuels

Off-grid fossil fuel use

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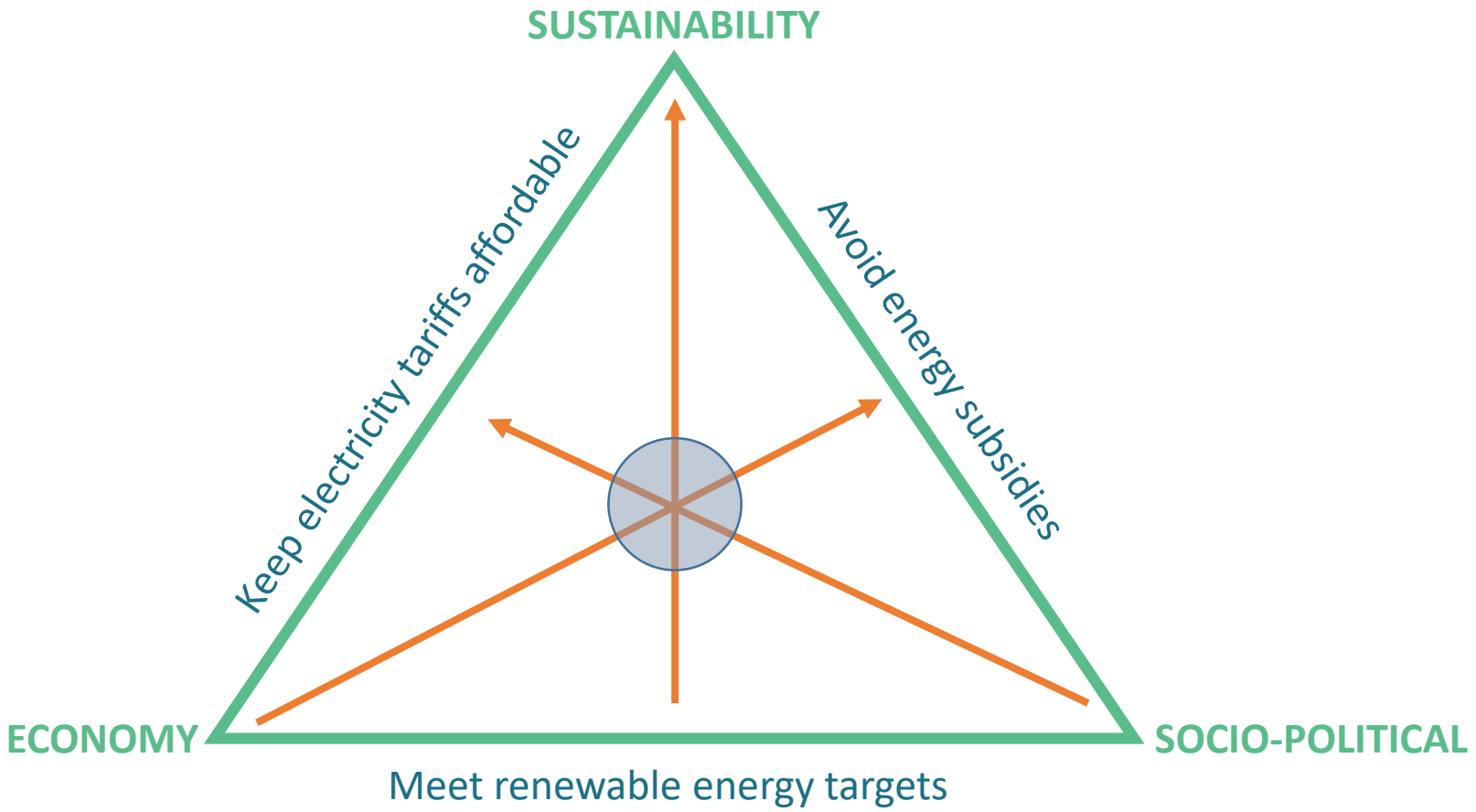
Analysis Framework



Source: https://www.iisd.org/sites/default/files/publications/23-per-cent-renewables-indonesia.pdf