

U.S. Treasury Office of Technical Assistance Infrastructure Finance

Development of Sustainable RE Incentive Schemes and Bankable
Transactions in SEA.



OTA
Office of Technical Assistance

Infrastructure Finance Team
Advisor S.E. Asia
Milesz Mogilnicki

U.S. Treasury Office of Technical Assistance

The mission of the Department of the Treasury's Office of Technical Assistance (OTA) is to help finance ministries and central banks of developing and transition countries strengthen their ability to manage public finances effectively and safeguard their financial sectors.

U.S. Treasury OTA's Technical Assistance model:

OTA engagements are constructed on a resident- or intermittent-advisor basis with OTA advisor working directly with counterpart agencies.

Treasury's program consists of six core areas:

- Government Debt Issuance and Management
- Budget and Financial Accountability
- Banking and Financial Services
- Economic Crimes
- Revenue Policy and Administration
- Infrastructure Finance

U.S. Treasury OTA has been supporting PLN, Indonesian State Owned Electric Utility and other related agencies of GOI agencies since 2013 in development of robust fiscal and transactional management practices for implementation of Renewable Energy programs in Indonesia.

<https://www.treasury.gov/about/organizational-structure/offices/Pages/Technical-Assistance-.aspx>



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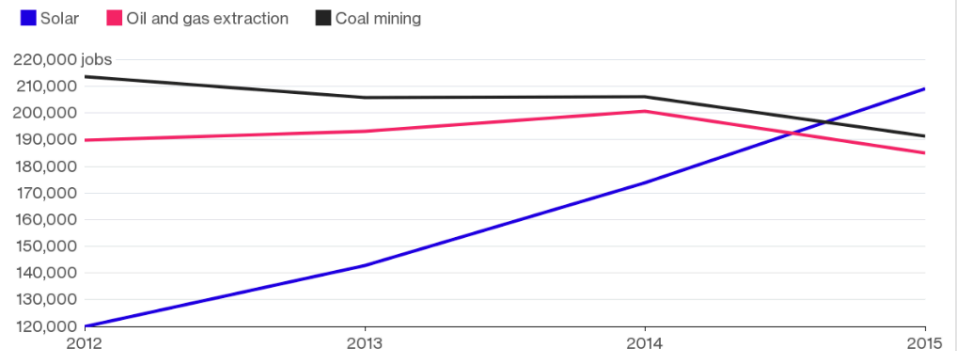
Opinion

Clean-Energy Jobs Surpass Oil Drilling for First Time in U.S.

by Anna Hirtenstein
ahirtens

May 25, 2016 — 9:00 PM ICT

There Are More Jobs in Solar than Oil and Gas, Coal Extraction in the U.S.
Employment grew 6 percent in solar and slumped 18 percent in upstream oil and gas and support services

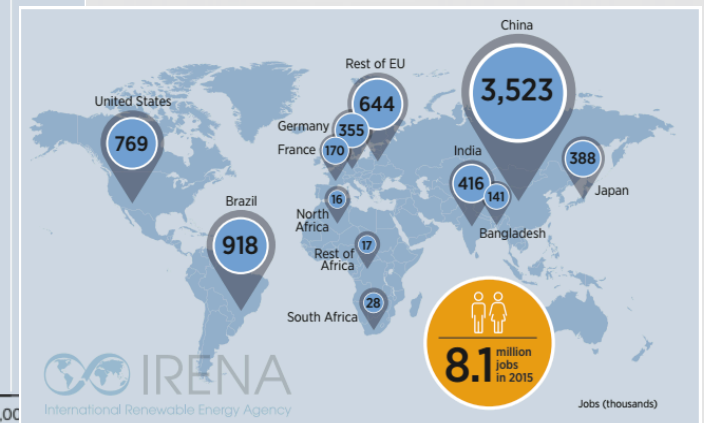
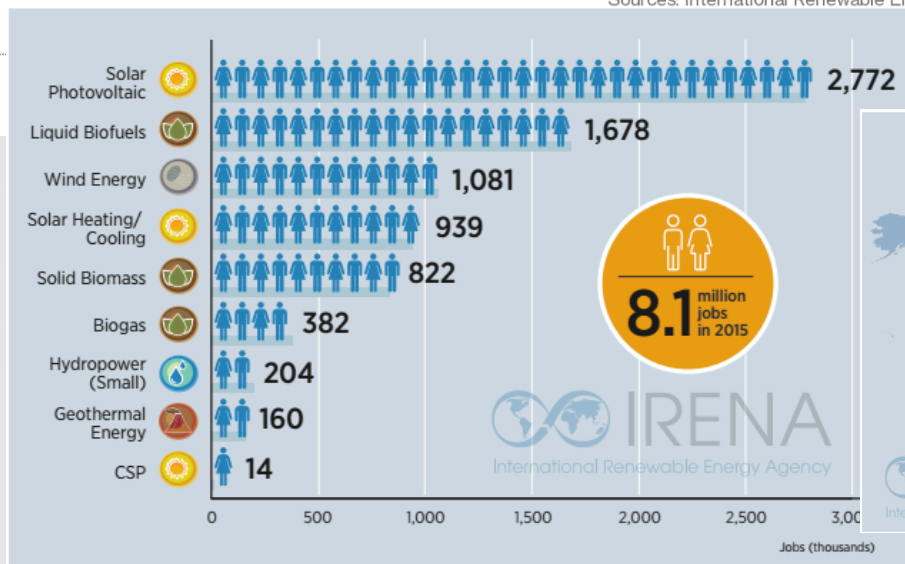


Sources: International Renewable Energy Agency, U.S. Bureau of Statistics

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Sources:

http://www.irena.org/DocumentDownloads/Publications/IRENA_RE_Jobs_Annual_Review_2016.pdf,
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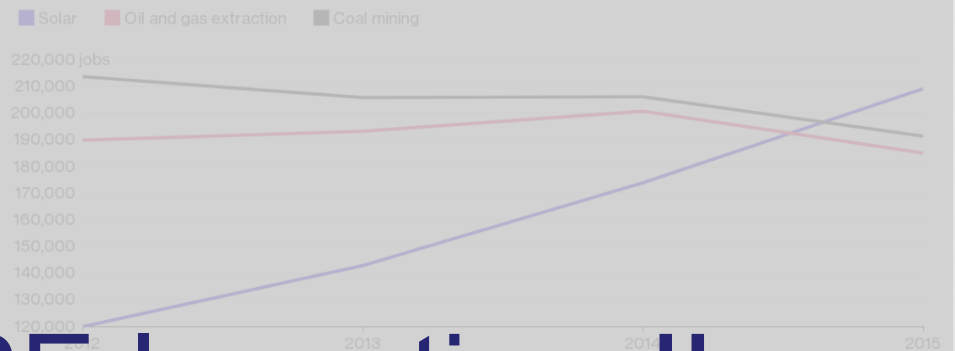
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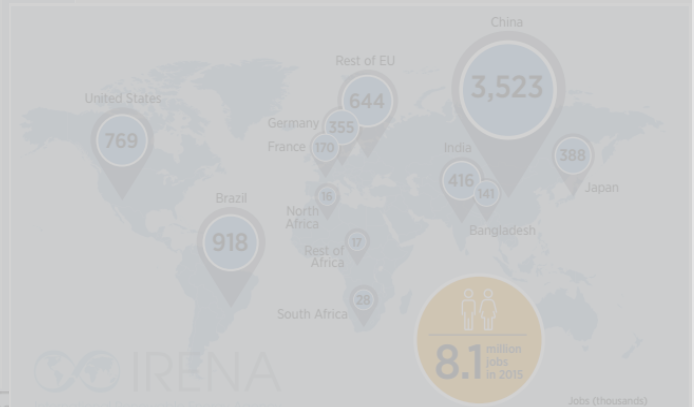
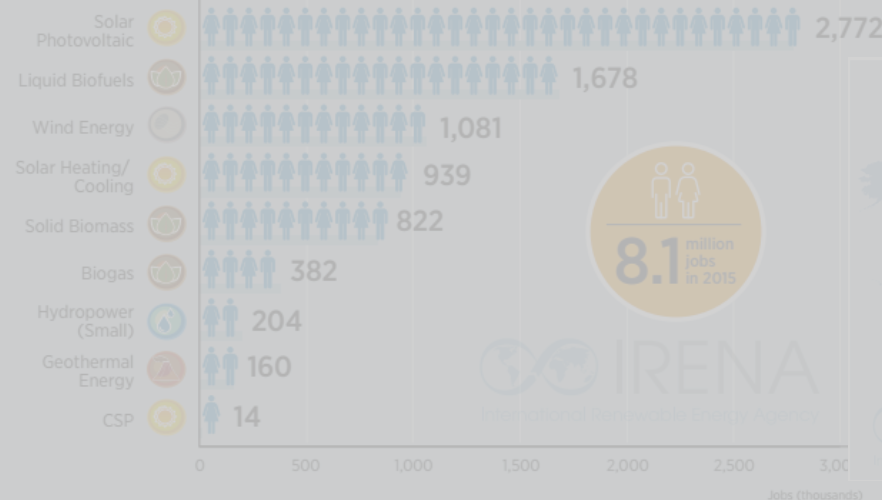
Sources: International Renewable Energy Agency, U.S. Bureau of Economic Analysis

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All thanks to RE Incentives!!

Sources:

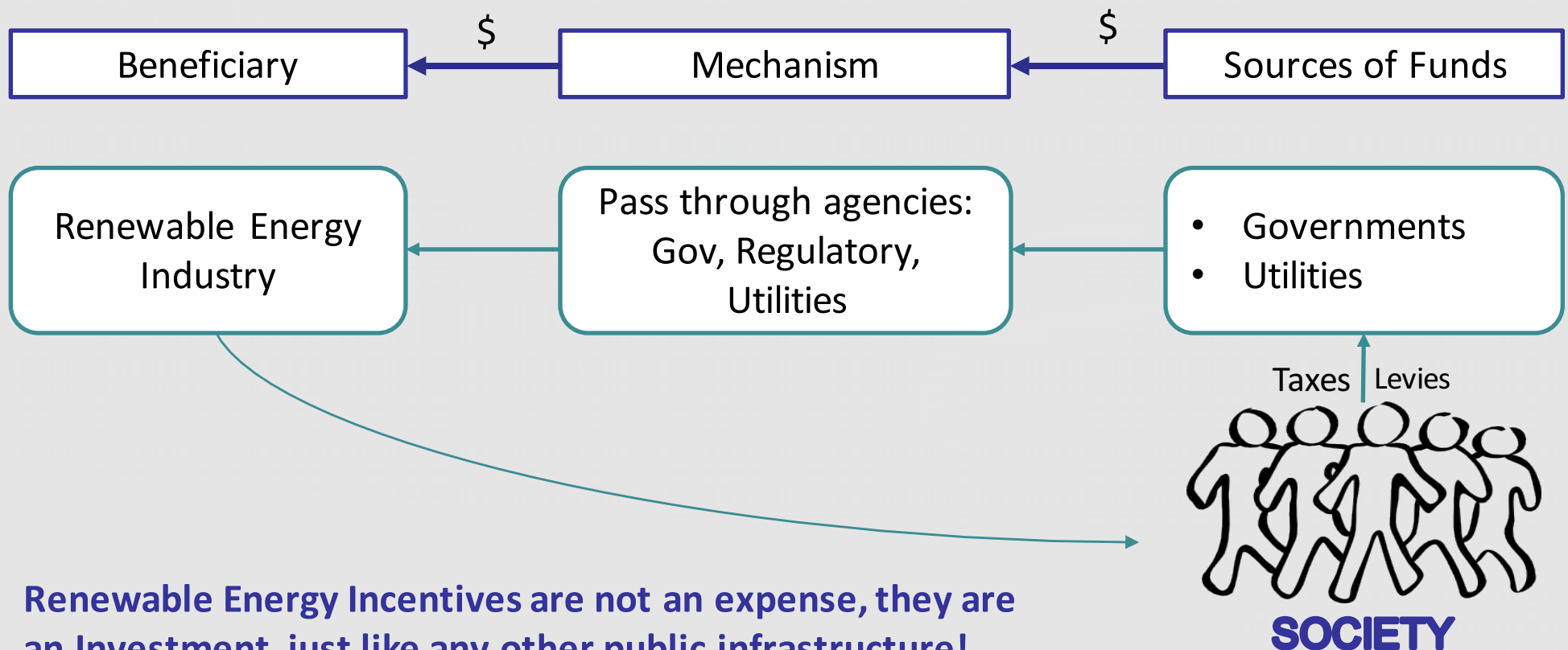
http://www.irena.org/DocumentDownloads/Publications/IRENA_RE_Jobs_Annual_Review_2016.pdf,
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What are Incentives?

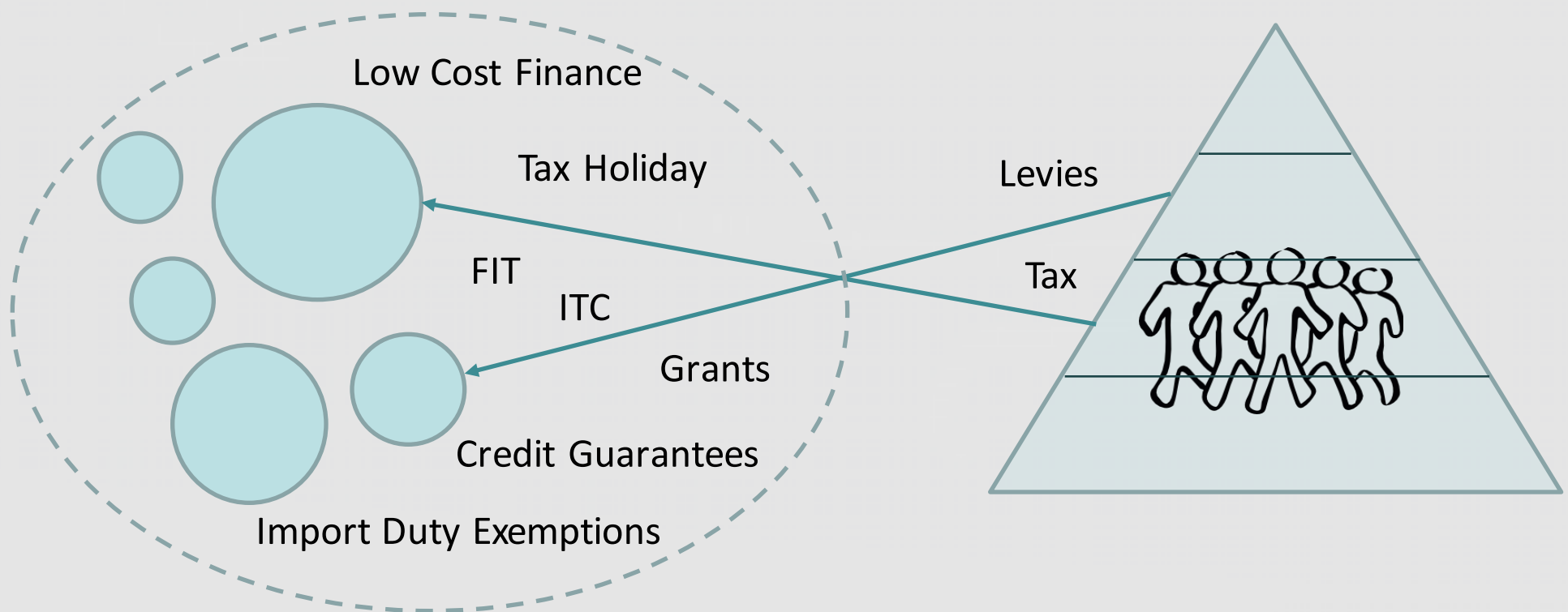
Incentives – above market tariffs, prices or any other direct and/or fiscal mechanisms provided, to benefit, and directed toward certain sector or industry development and investment.



Renewable Energy Incentives are not an expense, they are an Investment, just like any other public infrastructure!

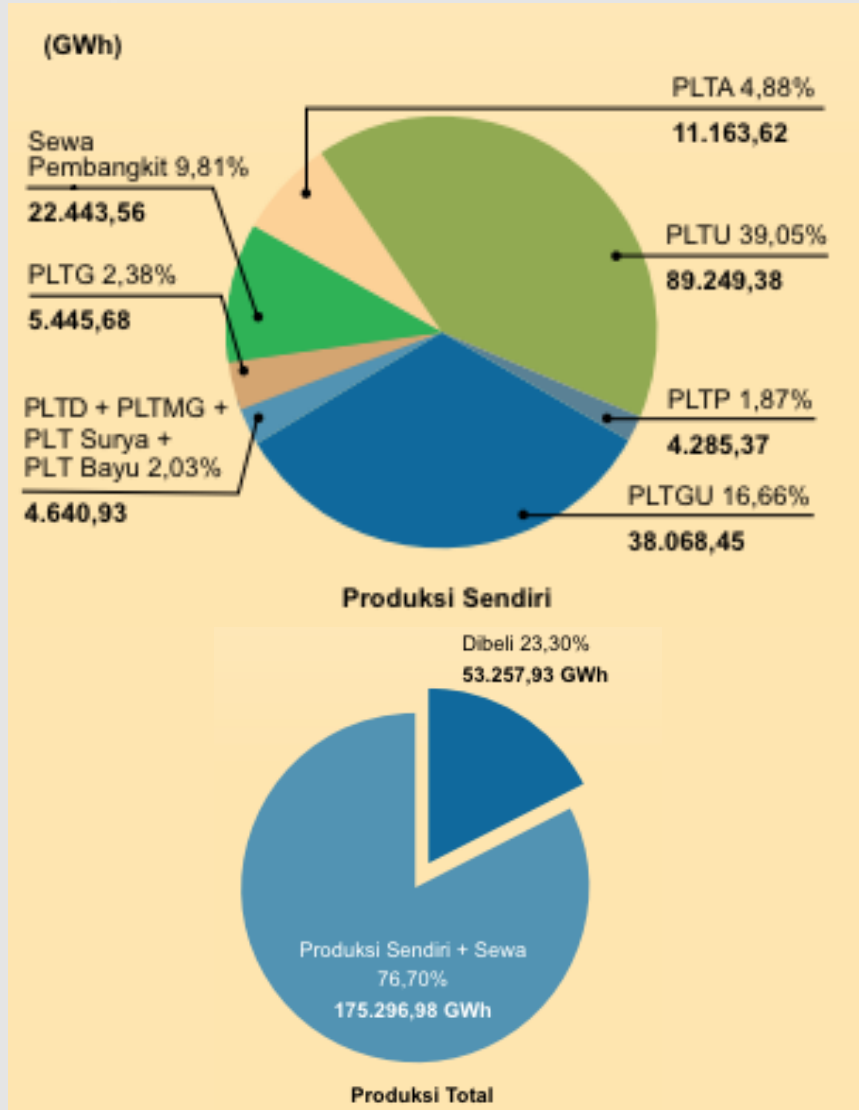
Targeting Incentives

Policy makers, government and regulatory agencies have a variety of fiscal and direct incentives tools that allow them to target specific segment of the society that will ultimately pay for the incentives and exactly who will be the beneficiaries and via what mechanism.



Focus on getting the incentives correct

Case Study: RE Incentives Indonesia



Source: PLN Statistik

QUICK FACTS:

PLN: Fully vertically integrated state owned electric utility. Generation, Transmission, Distribution

- Total generation capacity 37GW (PLN + IPP)
- 23% of generation portfolio IPP
- PLN operates over 4,000 separate systems
- Indonesia Electrification ratio 81.7%

Regulator: Ministry of Energy and Mineral Resources (ESDM) plays a role of market regulator, although there is no independent market regulator. ESDM regulates consumer tariffs and issues RE related regulation (FiT programs)

Subsidies: USD 7.9 Billion in 2014

Case Study: RE Incentives Indonesia

PLN Subsidies

PLN Cost of Generation (July 2015 USD/kWh)

0	Unit	Sale Price	Cost of Gen	% Gen kWh
1	ACEH	0.06	0.20	1.03%
2	SUMUT	0.07	0.17	4.31%
3	SUMBAR	0.07	0.10	1.51%
4	RIAU	0.08	0.13	2.07%
5	S2JB	0.07	0.10	3.20%
6	BABEL	0.08	0.20	0.42%
7	LAMPUNG	0.07	0.10	1.77%
9	KALBAR	0.07	0.20	0.97%
10	KALSELTENG	0.06	0.12	1.59%
11	KALTIM	0.08	0.14	1.46%
12	SULUTTENGGO	0.07	0.16	1.31%
13	SULSELRABAR	0.07	0.11	2.67%
14	MALUKU	0.07	0.23	0.41%
15	PAPUA	0.09	0.20	0.60%
16	NTB	0.07	0.18	0.68%
17	NTT	0.08	0.22	0.37%
19	BALI	0.09	0.09	2.27%
20	JAVA EAST	0.07	0.08	15.22%
21	JAVA CENTRAL	0.07	0.09	11.31%
22	JAVA WEST	0.07	0.08	25.37%
23	JAVA METRO JAK	0.09	0.08	20.35%

PLN Subsidies:

Costs of electricity generation and delivery exceed revenues collected from electricity sales.

PLN Subsidy USD 7.9 Billion in 2014

Current RE FiT (\$/kWh):

- Geothermal 0.122 (progressive)
- Mini-Hydro 0.093 (levelized)
- Solar Pv none
- Wind Power none

72% of gen kWh. Most attractive for investment due to access and robust grid.

Forex USD/IRD 13,499 08/03/2015

Source: PLN

Case Study: RE Incentives Indonesia

RE Cost Paradox

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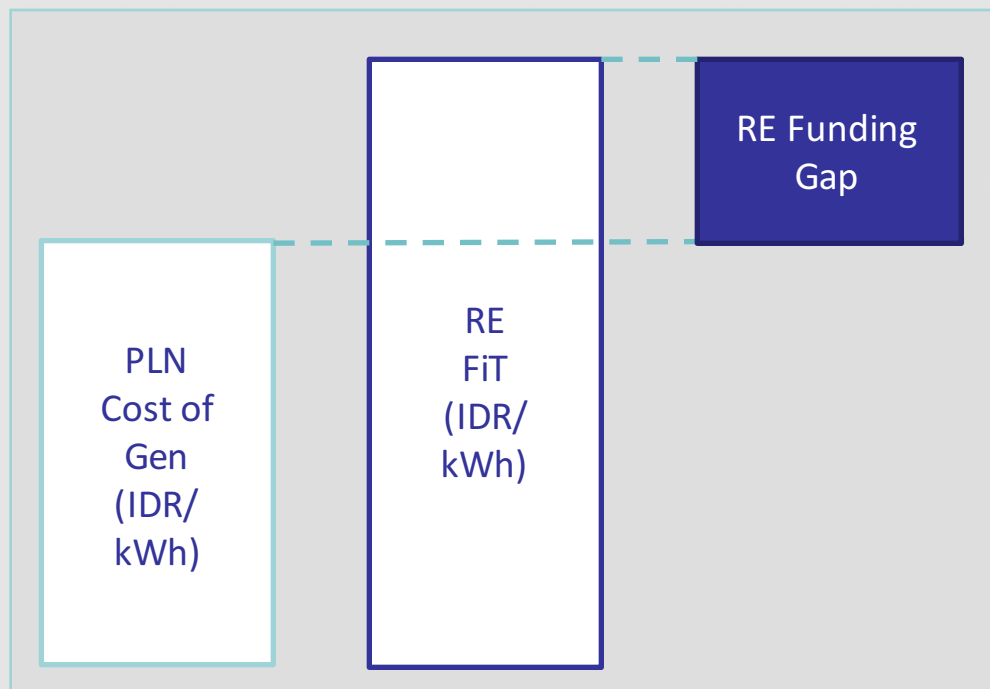
Forex USD/IRD 13,499 08/03/2015

Source: PLN

RE implementation program will require additional subsidy as costs remain relatively high due to two factors:

- Cost of average generation cost remains low (35GW program)
- High level of RE Tariff requirement

RE Funding Gap



RE Funding Gap is additional funding (subsidy) required to bridge the gap between PLN's cost of generation and RE FiT levels, (excluding cost for transmission, distribution, and independent of electricity subsidy).

Funding required to implement 14GW of RE is between **USD 6 and 10 Billion** over 10 years up to 2025.
(Excluding recent 5GW Solar Pv plan)

Case Study: RE Incentives Indonesia

RE Tariff

High level of RE Tariff requirement

- Underdeveloped industry, not yet optimized. (This will change with time)
- High cost of finance

Cost of Finance Indicators

	Country Rp	Total Rp	Ke @ Beta 1.0	Govt 10 Yr Bond Yield	Benchmark Interest Rate	Credit Interest Rate	Moody's rating
Thailand	2.47%	8.72%	11.0%	2.29%	1.50 %	7.10%	Baa1
Philippines	2.94%	9.19%	13.6%	4.37%	3.00 %	6.86%	Baa2
Indonesia	3.40%	9.65%	17.5%	7.88%	6.75 %	12.86%	Baa3

Solar Pv FiT TH: 15.8 ¢/kWh

PH: 19.1 ¢/kWh

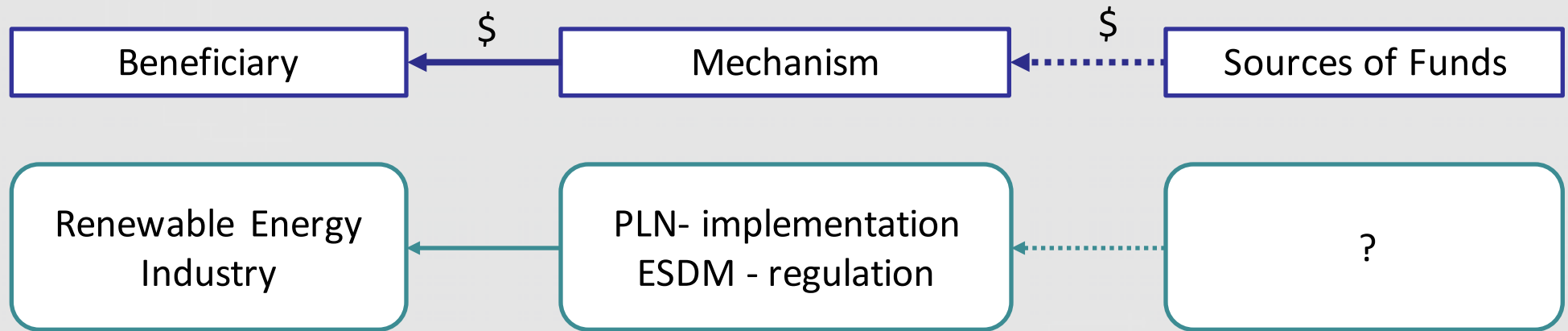
Govt 10 Yr Bond Yield, Benchmark Interest Rate TradingEconomics 06/06/16, Benchmark Rp for mature market 6.25%, Country Rp & Total Rp NYU Damodaran
Credit Interest Rate Businis Indonesia



Case Study: RE Incentives Indonesia

PLN Stance on RE

Although FiT exist the source of funds (Cost Recovery Mechanism is not robust)



In 2015 PLN rejected implementation of Mini-Hydro FiT program citing lack of government support.

What's next?

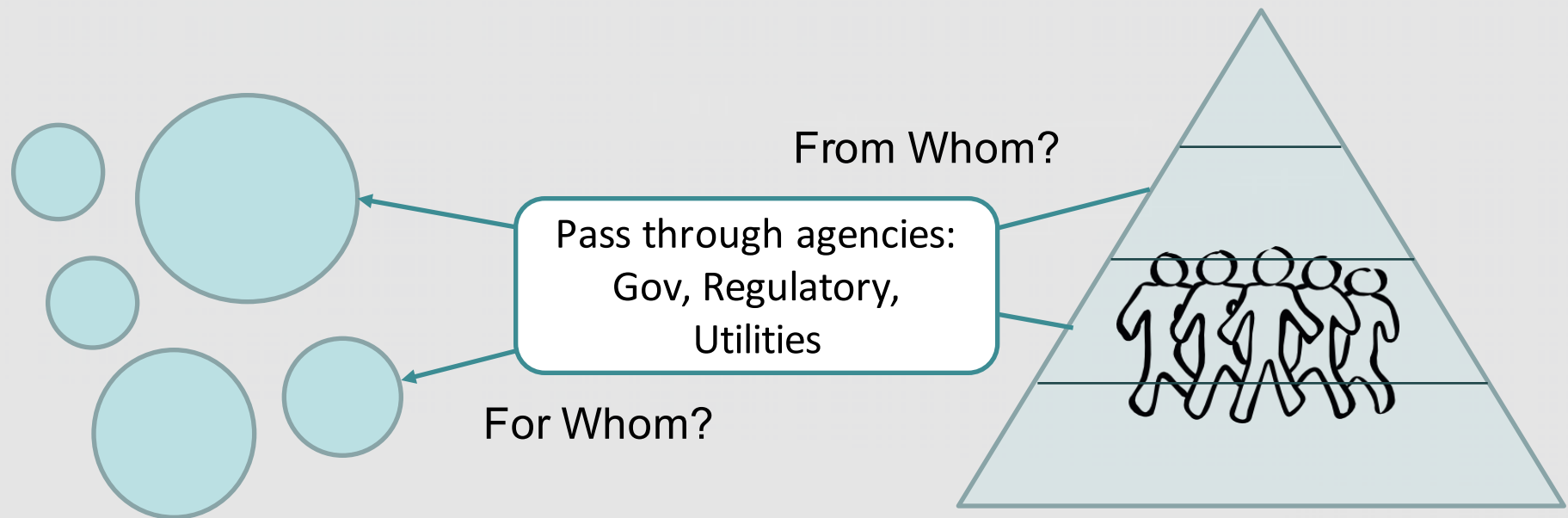
GOI has taken steps to establish strong supporting RE incentive programs.

- Performance Based Regulation (Ministry of Finance)
- PLN EBT – an effort to decouple RE and PLN's subsidies (Multi agency effort)
- RE Resilience Fund- Special task force P2EBT (Ministry of Energy)

RE Incentives

Development of effective and sustainable incentive program for RE requires a disciplined approach:

- Identifying sources of funds and its beneficiaries
- Designing funds disbursement programs (FiT, auctions, etc.)
- Synchronized planning and budgeting across all responsible agencies
- Establishing financial safeguards and fund management practices
- Establishing multiyear appropriation



U.S. Treasury OTA

Government Debt and Infrastructure Finance Team: Provides strategic and technical assistance to develop market-based means of public finance through the issuance of domestic government securities; increases the efficiency of government debt management; and implements comprehensive debt strategies that diversify sources of finance, reduce liability risk and lower debt service burdens. The team also provides technical assistance to accelerate the development of financially sound infrastructure projects.

Thank you.

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