Keekonomian dan Insentif bagi Energi Terbarukan

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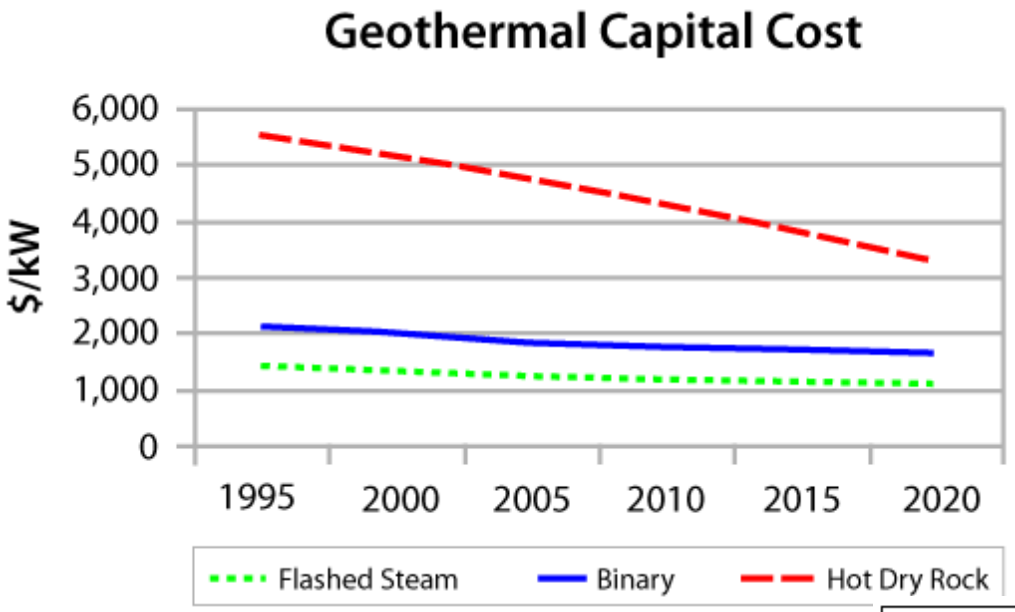
Pesan Kunci

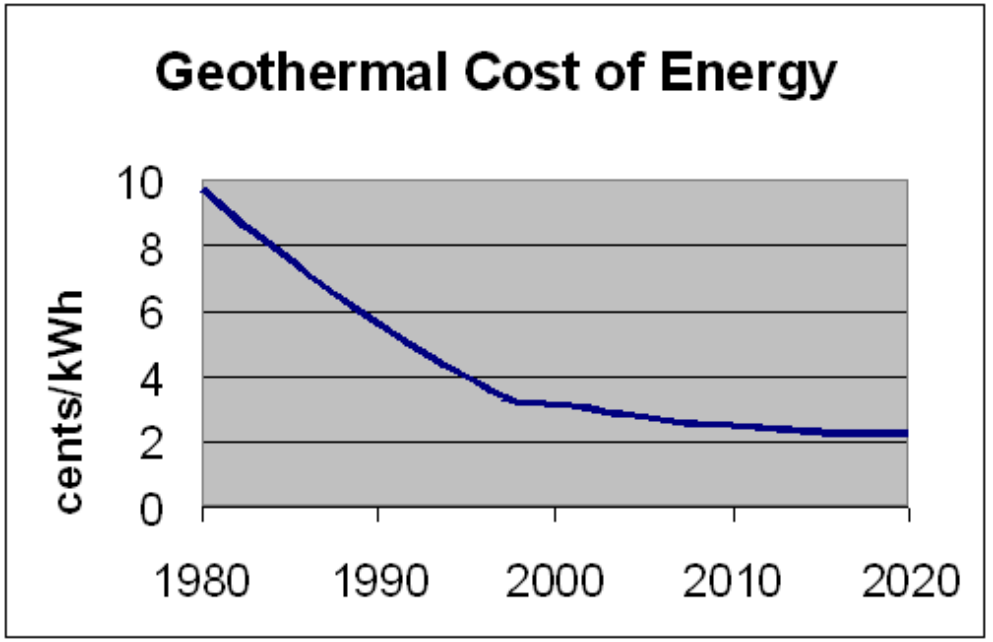
- Pemerintah berperan penting dalam pengembangan energi terbarukan, tidak hanya terbatas sebagai pembuat kebijakan tetapi mendorong pengembangannya melalui kebijakan dan program-program jangka panjang, dengan melibatkan institusi negara.
- Desain insentif/skema subsidi untuk energi terbarukan bervariasi untuk masing-masing jenis teknologi, berdasarkan keekonomia dan kematangan (*maturity*) serta tahap pengembangan teknologi tersebut.
- Investor menginginkan "TLC" untuk menanamkan modalnya
- Insentif diberikan untuk:
  - Pengembangan sampai dengan komersialisasi teknologi
  - Pembangkitan dan penyaluran listrik dari energi terbarukan (e.g: FiT, tender, production tax incentives)

Keekonomian Teknologi Energi Terbarukan

- Keekonomian teknologi energi terbarukan berbeda-beda:
  - Tingkat kematangan teknologi (*technology maturity*)
  - Penetrasi pasar (*market penetration*)
  - Insentif (*incentives*)
  - Harga (*pricing*)

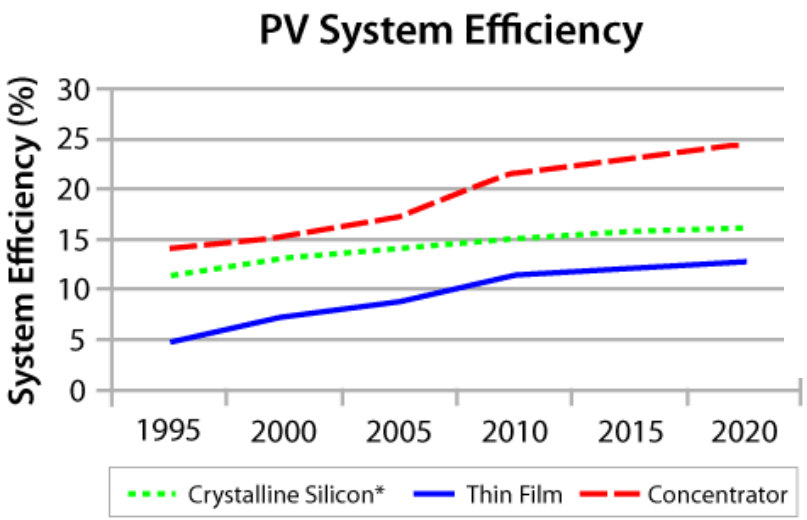
Keekonomian Geothermal

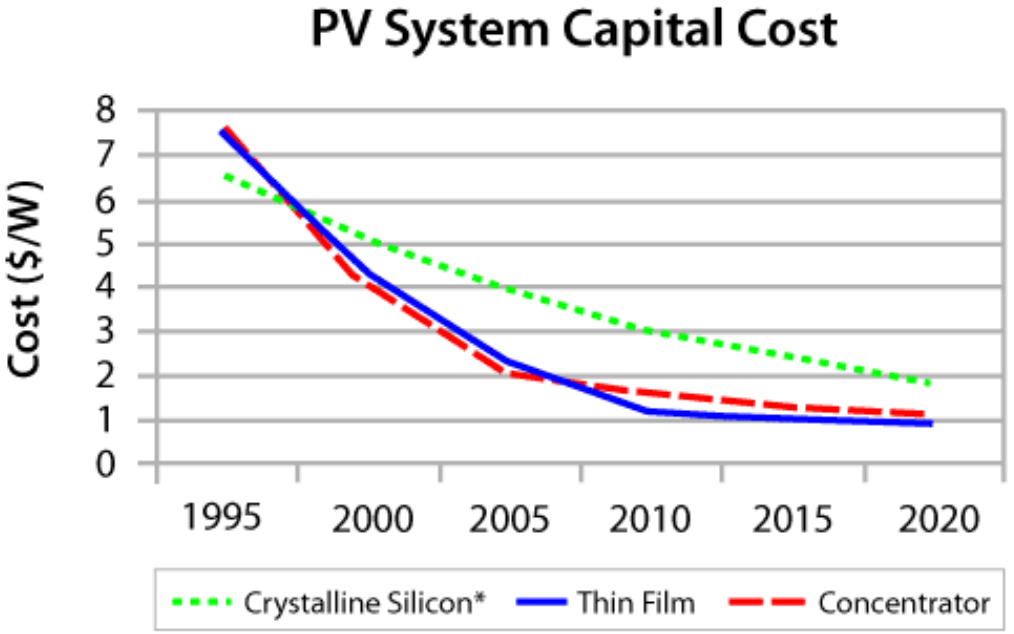


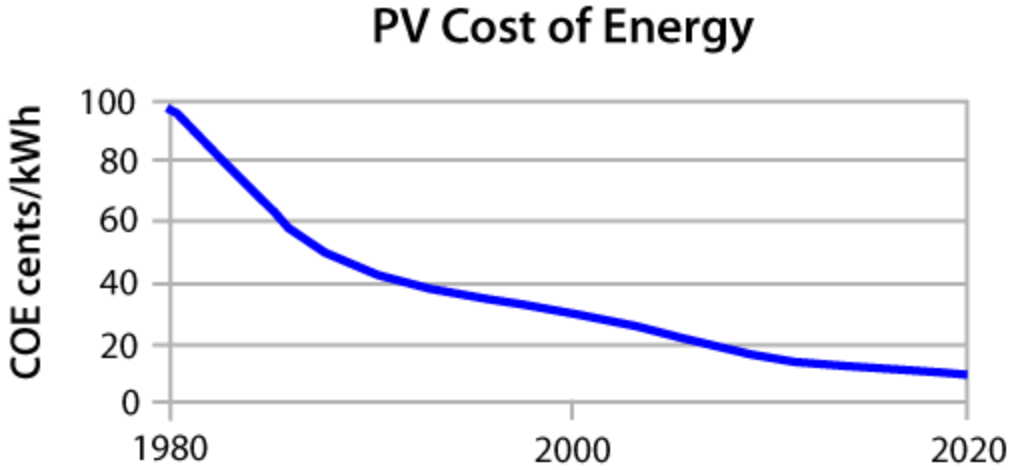


Source: DoE US (2010)

Keekonomian Photovoltaic (PV)







Source: DoE US (2010)

Perbandingan *Levelized Electricity Cost*

LCOE SCENARIO ANALYSIS	HIGH CASE	BASE CASE	LOW CASE	MIN.	DIFF.
Solar PV (Crystalline)	$201	$153	$119	$119	$82
Solar PV (Thin Film)	$180	$140	$110	$110	$71
Fuel Cell DG	$117	$90	$72	$72	$46
Solar Thermal	$126	$90	$69	$69	$57
Coal	$66	$55	$46	$46	$19
Natural Gas (CCGT)	$64	$52	$40	$40	$25
Nuclear	$64	$62	$35	$35	$29
Wind	$61	$43	$29	$29	$32
Geothermal	$59	$36	$22	$22	$38
Efficiency	$30	$15	$0	$0	$30

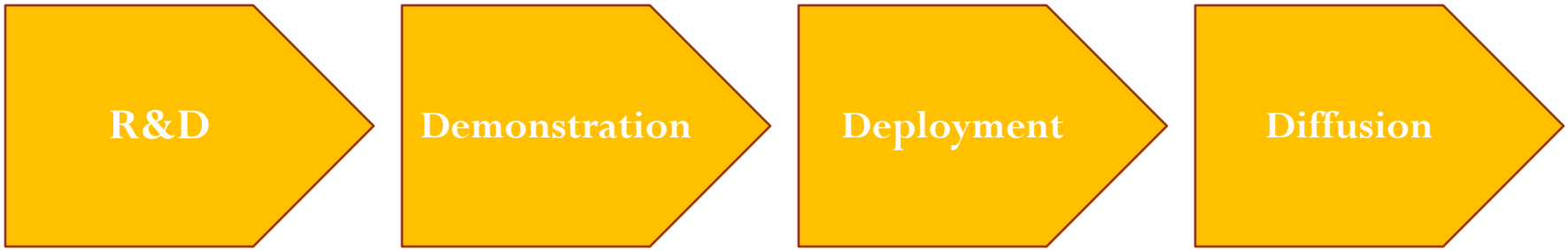
Source: Credit Suisse

Credit Suisse (2009)

Desain Kebijakan Energi Terbarukan (IEA, 2009)

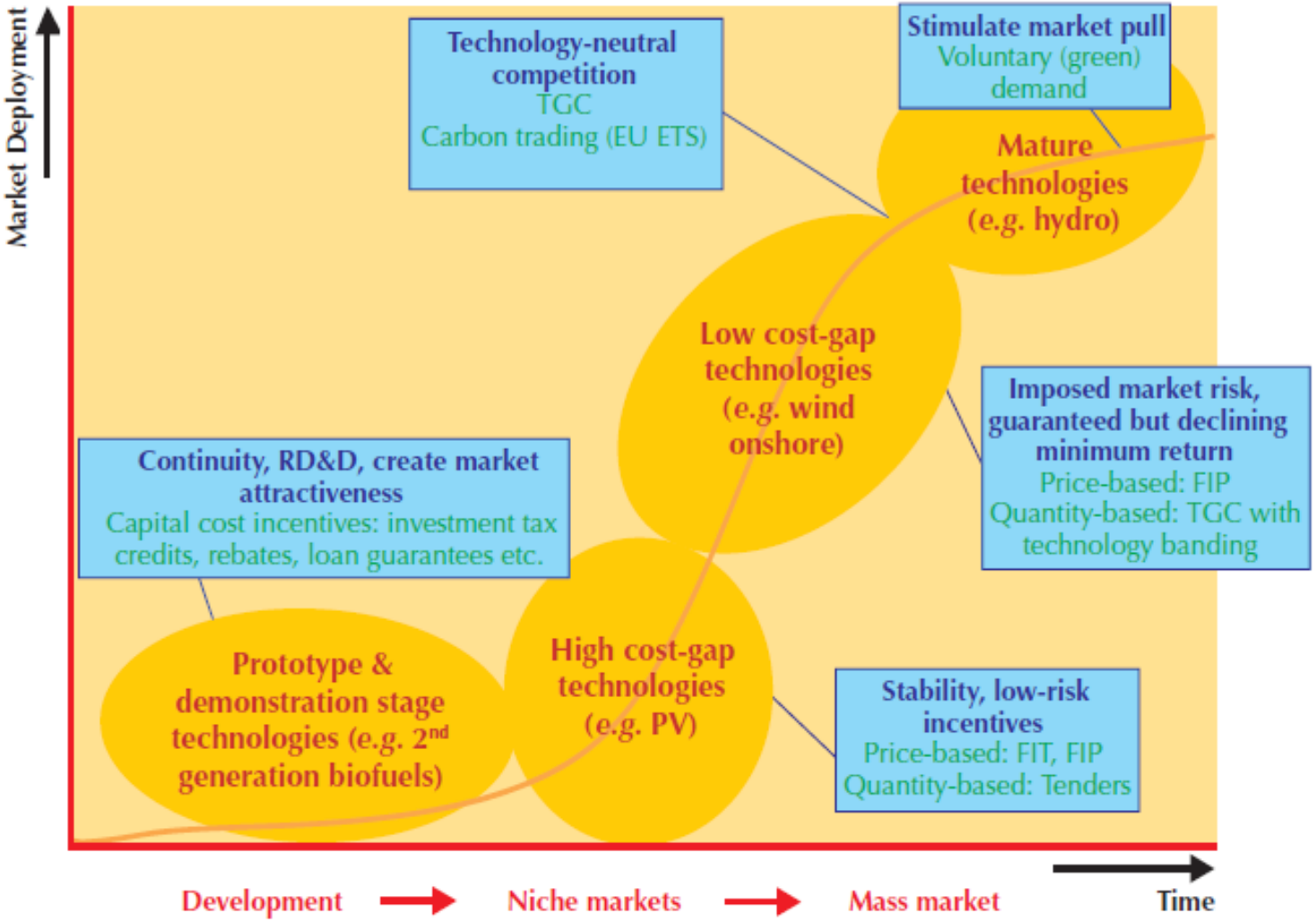
- Prinsip utama:
  - Menghilangkan hambatan non-ekonomi.
  - Kerangka dukungan yang transparan dan dapat diduga (*predictable*).
  - Pengenalan insentif yang bertransisi (*transitional incentives*)
  - Pembedaan insentif berdasarkan pada jenis teknologi dan tingkat kematangannya.
  - Dampak penetrasi energi terbarukan pada total biaya pada sistem dan kehandalan sistem.
- Responsif terhadap kebutuhan investor (publik dan swasta): ***Transparency, Longevity and Certainty*** (TLC)

Siklus Pengembangan Teknologi



R&D	Demonstration	Deployment	Diffusion
• Mengatasi hambatan teknis dan pengurangan biaya teknologi • Komersialisasi teknologi masih sangat tidak pasti.	• Demonstrasi teknologi • Biaya teknologi masih tinggi.	• Teknologi telah teruji dan siap untuk dipasarkan. • Masih memerlukan dukungan untuk mengatasi hambatan biaya dan non-biaya.	• Teknologi telah kompetitif di sejumlah/seluruh pasar. • Penetrasi lebih lanjut membutuhkan dukungan regulasi, misalnya: externalitas

Kerangka Insentif Energi Terbarukan



Tax Incentives

- Berbagai jenis insentif pajak untuk energi terbarukan:
  - Investment tax incentive
  - Production tax incentive
  - Property tax reduction
  - VAT's reduction
  - Excise tax reduction
  - Import duty reduction
  - Accelerated depreciation
  - R&D tax incentive
  - Tax holiday
  - Tax for conventional fuel

Elemen *Feed In Tariff* (FiT): Perbandingan Berbagai Negara

FIT Design Features	Key Factors	TLC at the Right Price	France	Germany	Netherlands	Ontario	Spain
Policy & Economic Framework	"Linkage" to mandates & targets	Yes	23% by 2020	30% by 2020	20% by 2020	Halt coal use by 2014	20% by 2020
Core Elements	Eligible technologies	All renewables eligible	Wind, Solar, Geothermal, Small hydro, Biomass, Biogas	Wind, Solar, Geothermal, Small hydro, Biomass, Biogas	Wind, Solar, Biomass, Biogas, CHP	Wind, Solar, Hydro, Biomass, Biogas	Wind, Solar (PV & CSP), Geo, Small hydro, Biomass, Biogas
	Specified tariff by technology	Yes	Yes	Yes	Yes	Yes	Yes
	Standard offer/ guaranteed payment	Yes	Yes	Yes	Yes	Yes	Yes
	Interconnection	Yes	Yes	Yes	Yes	Yes	Yes
	Payment term	15-25yrs	15-20yrs	20yrs	15yrs	20yrs	15-25yrs
Supply & Demand	Must take	Yes	No	Yes	No	Yes	Yes
	Who operates (most common)	Open to all	IPPs; communities; utilities	IPPs; communities; utilities	IPPs; communities	IPPs; communities	IPPs, communities; utilities
Fixed Structure & Adjustment							
How to set price	Fixed vs. variable price	Fixed	Fixed	Fixed	Hybrid	Fixed	Both
	Generation cost vs. avoided cost	Generation	Generation	Generation	Generation	Generation	Generation
	IRR target	Yes	8%	5-7%	No	11%	7-10%
How to adjust price	Degression	Yes	Wind only	Yes	No	No	No
	Periodic review	Yes	No	Yes	Yes	Yes	Yes
	Grid parity target	Yes	No	Yes	No	No	No
Caps	Project size cap	Depends on context	Varies	No	Yes	PV only	Yes
Policy interactions	Eligible for other incentives	Yes - eligible to take choice	Yes	Yes	Yes	Yes	Yes
Streamlining	Transaction costs minimized	Yes	Yes	Yes	No	Yes	No

Source: DBCCA analysis, 2009

Insentif Energi Terbarukan di Indonesia

- Insentif Fiskal:
  - PMK No. 21/PMK.011/2010 tentang Fasilitas Perpajakan and Kepabeanan untuk Kegiatan Pemanfaatan Energi Terbarukan.
    - PPh : a) pengurangan penghasilan neto sebesar 30% dari jumlah Penanaman Modal, dibebankan selama 6 tahun masing-masing sebesar 5% per tahun; b) penyusutan dan amortisasi yang dipercepat; c) Pengenaan Pajak Penghasilan atas deviden yang dibayarkan kepada Subjek Pajak Luar Negeri Sebesar 10% atau tarif yang lebih rendah menurut Persetujuan Penghindaran Pajak Berganda yang berlaku; dan d) Kompensasi kerugian yang lebih lama dari 5 tahun tapi tidak lebih dari 10 tahun.
    - Kepabeanan: (a) PMK Nomor 176/PMK.011/2009 tentang Fasilitas Pembebasan Bea Masuk Atas Impor Mesin Serta Barang dan Bahan untuk Pembangunan atau Pengembangan Industri Dalam Rangka Penanaman Modal, beserta perubahannya; (b) PMK Nomor 154/PMK.01.1/2008 tentang Pembebasan Bea Masuk Atas Impor Barang Modal Dalam Rangka Pembangunan dan Pengembangan Industri Pembangkit Tenaga Listrik Untuk Kepentingan Umum, beserta perubahannya.

- PMK No. 24/PMK.011/2010 tentang PPN yang ditanggung pemerintah untuk Impor barang bagi eksplorasi hulu migas dan eksplorasi panas bumi tahun anggaran 2010.
- PMK No. 35/PMK.011/2010 tentang Mekanisme pajak yang ditanggung pemerintah dan perhitungan pendapatan negara bukan pajak bagi pemanfaatan panas bumi bagi pembangkitan tenaga listrik untuk tahun anggaran 2010.

- Kebijakan Harga untuk Energi Terbarukan:
  - Permen ESDM No. 31/2009: PLN wajib membeli listrik yang dihasilkan oleh pembangkit dari sumber energi terbarukan skala kecil (<10MW) dengan ketetapan harga yang bervariasi.
  - Permen ESDM No. 32/2009: Pembelian listrik panas bumi oleh PT PLN dengan harga patokan tertinggi sebesar 9.7 cent$/kWh.

Studi Kasus: Pengembangan Energi Terbarukan di China

- 2005: Renewable Energy Law (diamandemen pada Desember 2009):
  - Renewable energy target
    - Specific target for each RE's to develop market (10% in 2010 to 16% in 2020).
    - Large power companies incorporate at least 3% renewable energy toward their overall power portfolio by 2010 and 8% by 2020.
  - Compulsory grid connection
    - All energy generated by RE sources must be purchased by state grid company
    - Utilities must provide grid connection services and related technical support.
    - Clear regulations on heat, gas, and liquid fuel sourced from renewable energy.
    - In the are where no grid available, government will support the construction and development of independent RE electricity generation

- Power pricing arrangement:
  - Feed in Tariff – production subsidy, price set by government (government-fix pricing)
  - Tendering – government run bidding process for provision of specific amount of RE (government guided pricing).
- Cost sharing arrangement:
  - End-user bear surcharged cost
  - Utilities shared cost, cannot be passed to consumers

Price Setting untuk Listrik dari Energi Terbarukan

Type of Energy	Price Setting Method	Details
Biomass	FiT	Price for coal plus 0.25 Yuan/kWh, decreasing by 2% per year from 2010
Solar PV & Solar Thermal	FiT with government approval of project	Government first needs to approve each solar power project. If a project is approved, the government will set an appropriate feed-in tariff, on a project-by-project basis. The tariff will be set based on the concept of a "reasonable price".
Wind	Tendering	Government will select potential investors through a competitive bidding process, with power price and domestic content the key criteria

- Investment incentive for Renewable Energy
  - Renewable Energy Development Fund: companies (foreign and domestic) and individuals can apply to receive free financial aid or free-interest loan.
    1. Scientific and technological research, standard establishment and pilot project for the development and utilization of renewable energy;
    2. Construction of renewable energy projects for domestic use in rural and pasturing areas;
    3. Construction of independent renewable power systems in remote areas and islands;
    4. Surveys, assessments of renewable energy resources, and the construction of relevant information systems;
    5. Localized production of the equipment for the development and utilization of renewable energy.
  - Preferential loans with subsidized interest rates being made available for renewable energy projects
  - Tax incentives

Terima Kasih

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