

## What's J-POWER

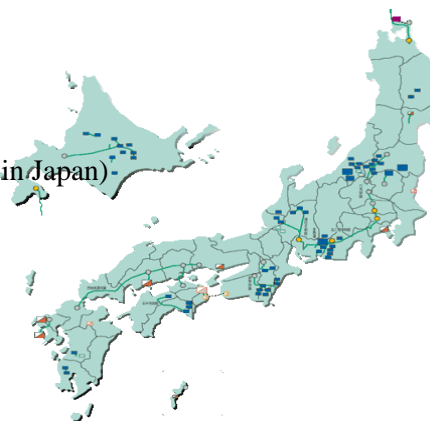
■ 58-year Electric Power Utility since 1952

■ Japan's Biggest Wholesaler

- Hydro power (59 plants) : 8,555.5 MW (Second Largest Operator in Japan)
- Coal-Fired Thermal power (8 plants) : 7,824.5 MW (Largest Operator in Japan)
- Total (67 plants) : 16,380.0 MW**

< For Reference >

- Wind Power (8 plants) : 145 MW (2nd Largest Operator in Japan)
- Co-Generation (3 plants) : 323 MW
- Waste-Fueled Power (1 plant) : 21 MW
- IPP (3 plants) : 522 MW
- **Trunk lines : 2,400 km (includes 267 km DC lines)**
- **Energy sales : 60,320 GWh**



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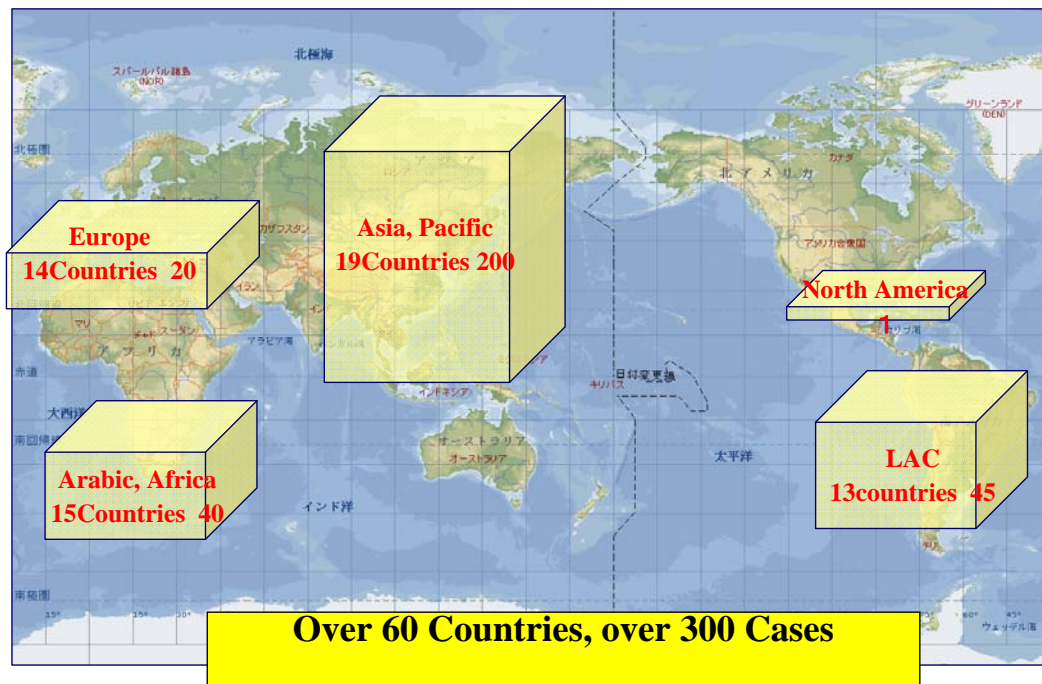
## Overseas IPP Business

**J-POWER currently  
has 23 power projects operating  
in 6 countries/regions  
(as of September 2008)**

**China, Taiwan, USA, Philippines,  
Thailand and Poland**

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# J-POWER Overseas Consulting Services

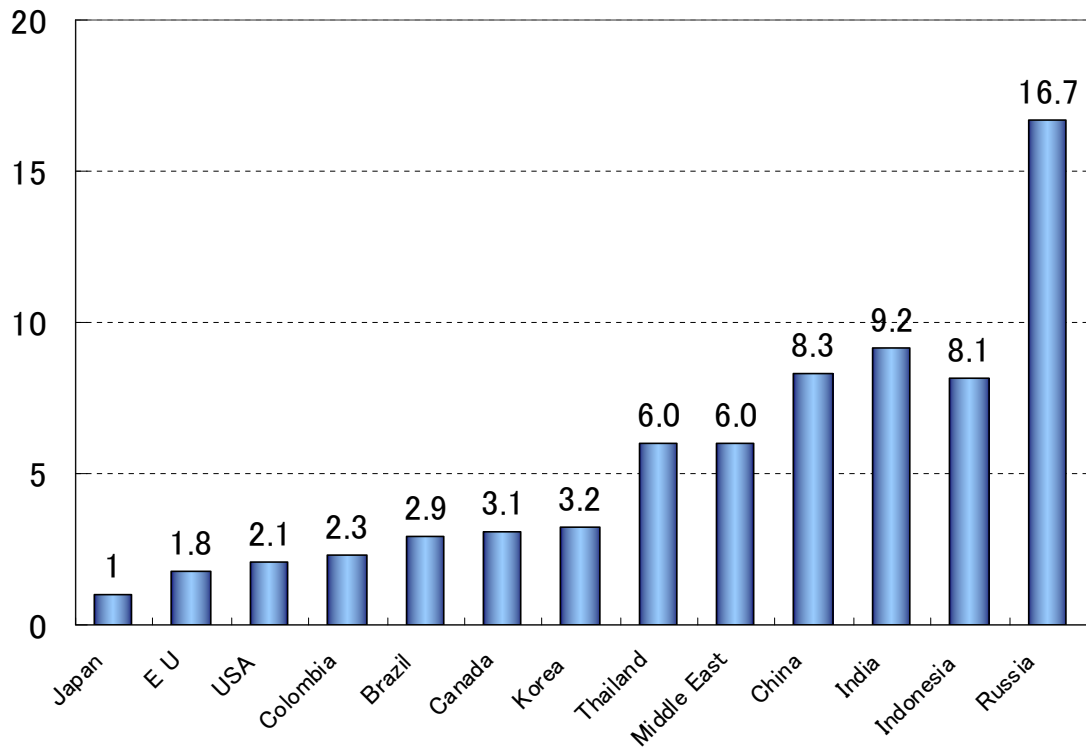


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## Present Condition in LAC countries

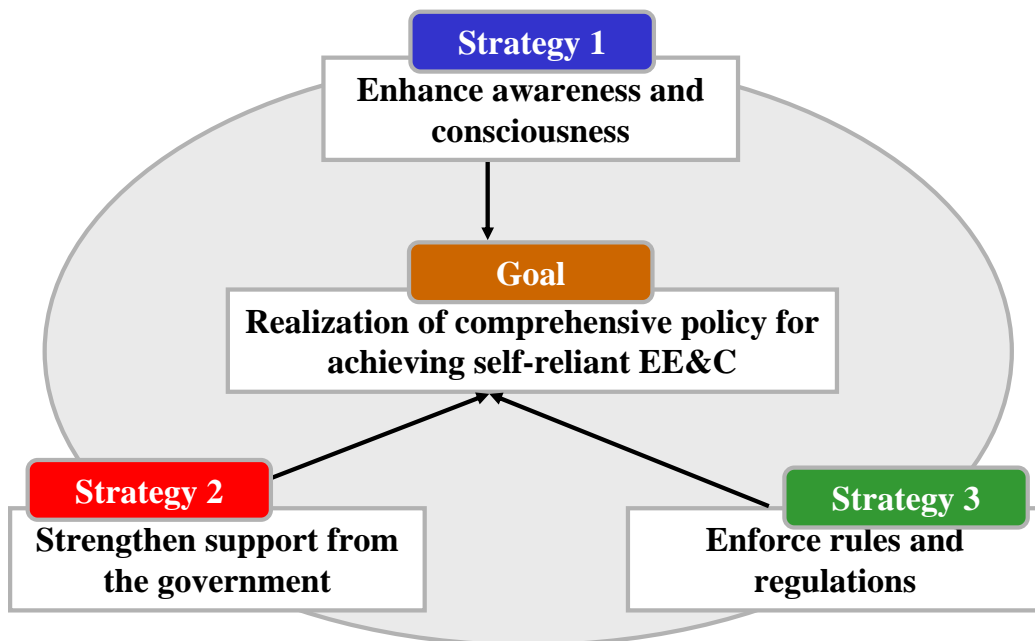
Country	Population	GDP/capita (\$)	Language	National Target	EC Law	EC Standard	Average Tariff cent/kWh	Subsidy to electricity (US\$mil)	Subsidy cent/kWh	Max Demand (MW)	Annual Demand (GWh/y)	kWh /capita	Daily Load Peak	Electricity Main Sources
Belize	300,000	3,800	E	N	N	N	22	N	0	76	473	1577	Evening	Hydro, Import
Brazil(2009)	191,500,000	8,234.5	P	Y	Y	Y	20	N	0	69,900	466,200	2434	Morning, Afternoon, Evening	Hydro
Colombia	44,500,000	4,989	S	Y	Y	Y	15	368	0.7	9290	55965	1258	Evening	Hydro, Gas, Coal
Costa Rica	4,520,000	6,297	S	Y	Y	Y	12	N	0	1497	9236	2043	Evening	Hydro, Renewable
Dominican Republic	9,750,000	3,550	S	N	N	N	16	700	6	1850	11613	1191	Night	Oil, Gas
Ecuador	14,000,000	4,296	S	Y	N	Y	10	300	2	2790	19108	1365	Evening	Hydro, Fuel Gas
Guatemala	14,360,000	2,848	S	Y	N	N	19	125	2	1500	8015	558	Evening	Oil, Hydro
Honduras	7,100,000	1,800	S	Y	N	N	15	313	3	1300	11800	1662	Morning, Evening	Oil, Renewable, Hydro
Nicaragua	5,860,000	1,123	S	Y	N	Y	25	30.5	1	525	3100	529	Evening	Oil
Panama	3,320,000	5,615	S	Y	Y	N	18	92	1	1154	6892	2076	Afternoon	Oil, Hydro
Peru	29,132,013	4,356	S	Y	Y	Y	8.3	N	0	4322	32696	1122	Evening	Hydro, Gas
Suriname	500,000	4,730	Dutch	N	N	N	7	110	9	160	1190	2380	Evening	Hydro, Oil
Guyana	762,000	1,450	E	N	N	N	26	Y		95	586	769	Afternoon, Evening	Oil

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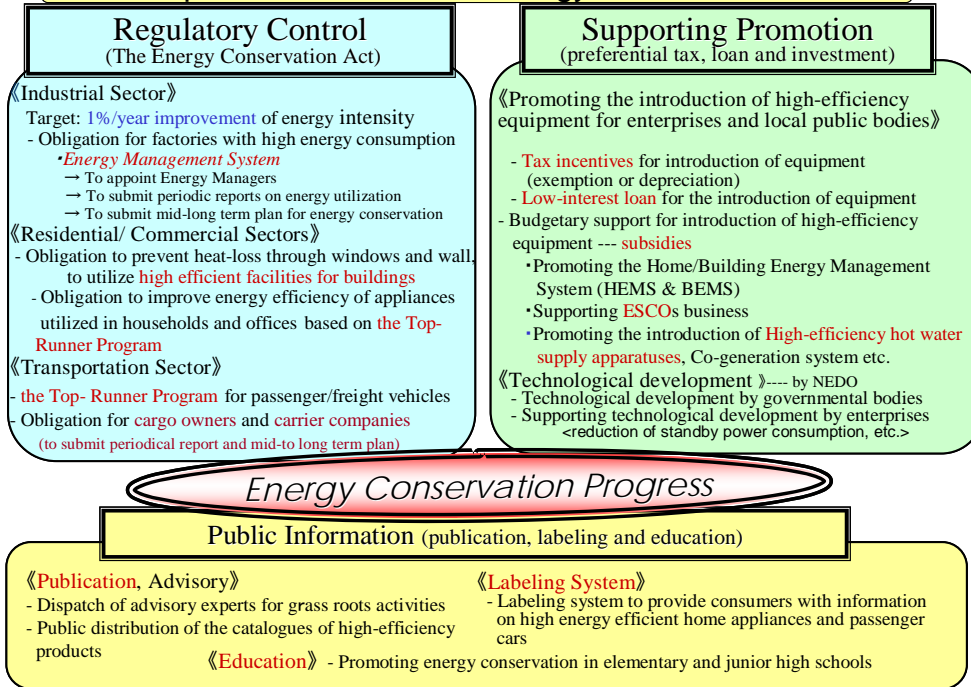
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## Basic Strategy ; Integrated



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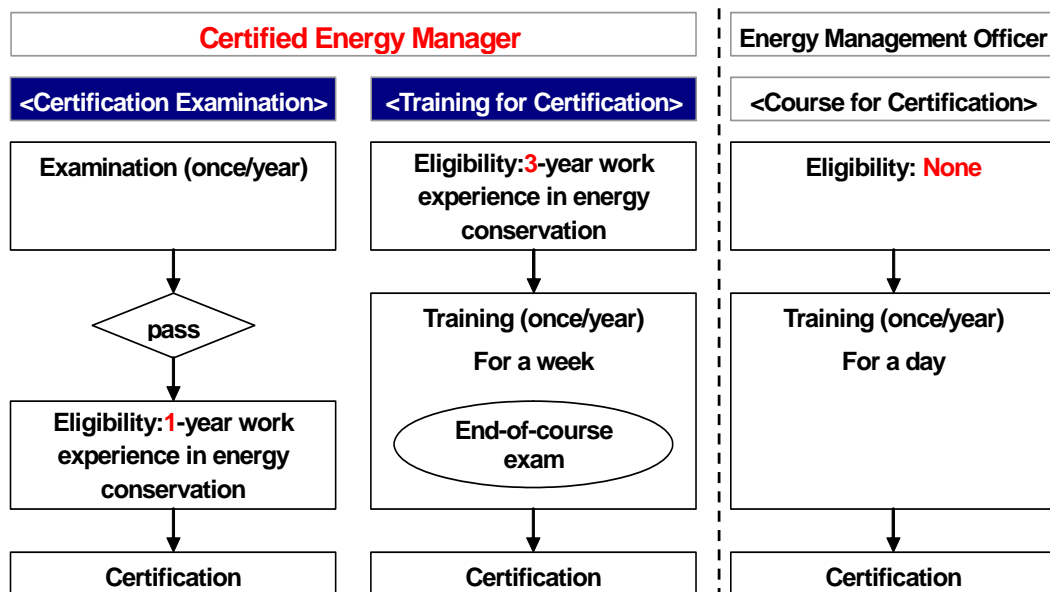
## Specific Measures for Energy Conservation



## Priority ; Energy Manager Program

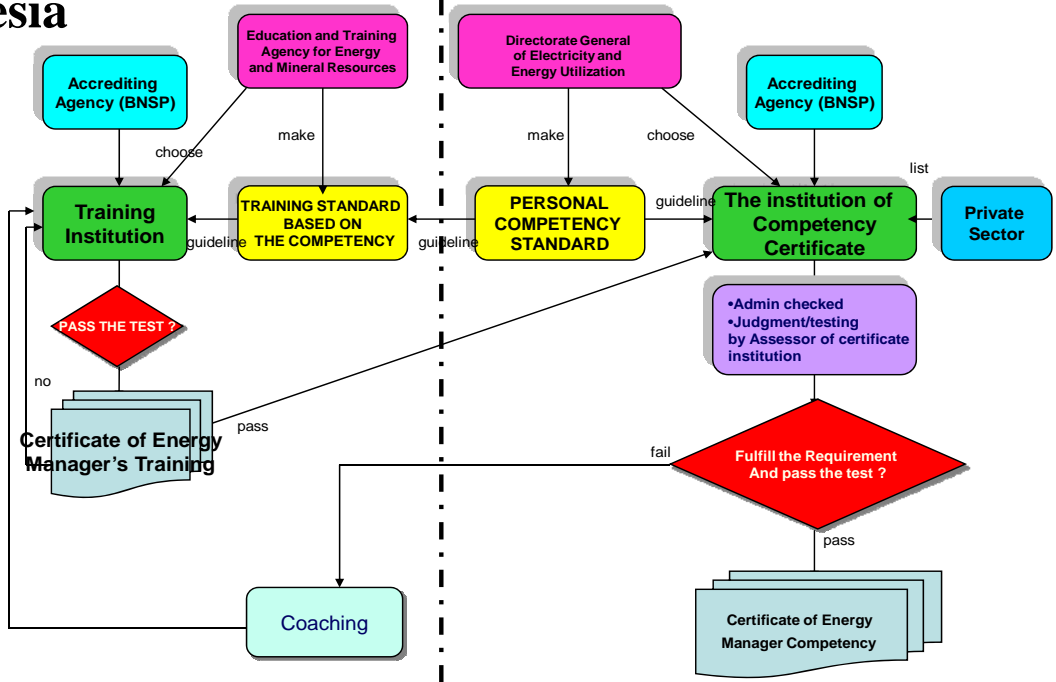
### Appointment, submission of Annual energy consumption data and EE& C plan

### A. Case in Japan

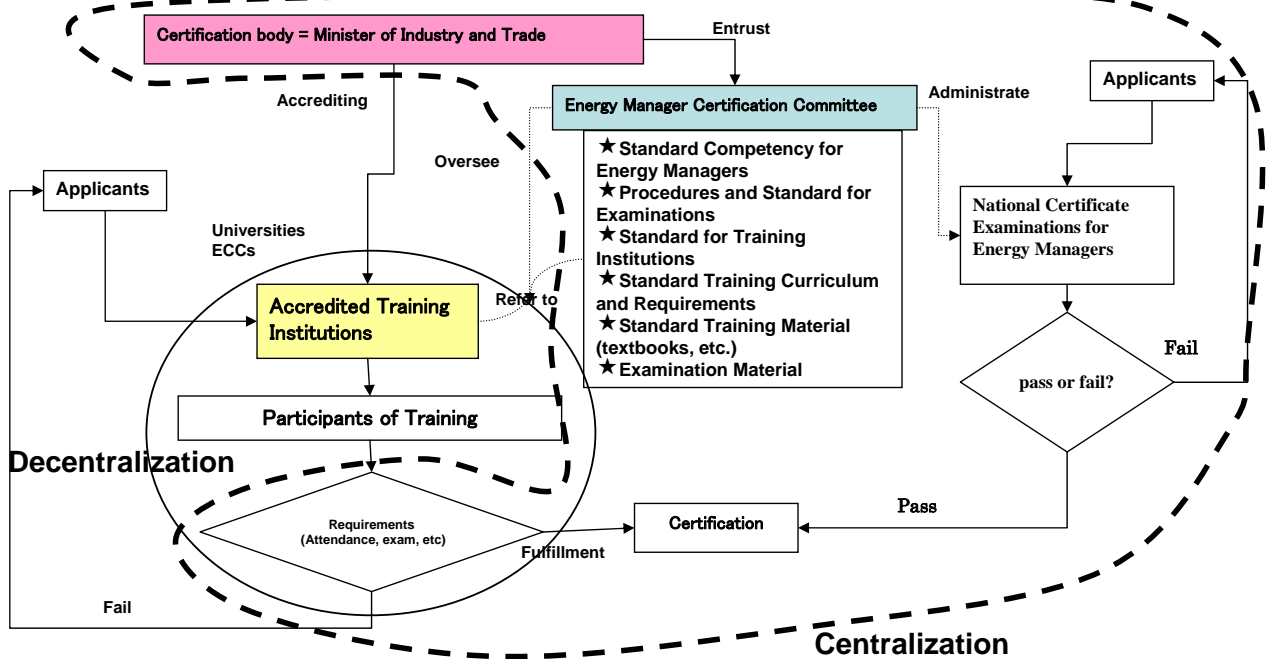


# B. Case in Indonesia

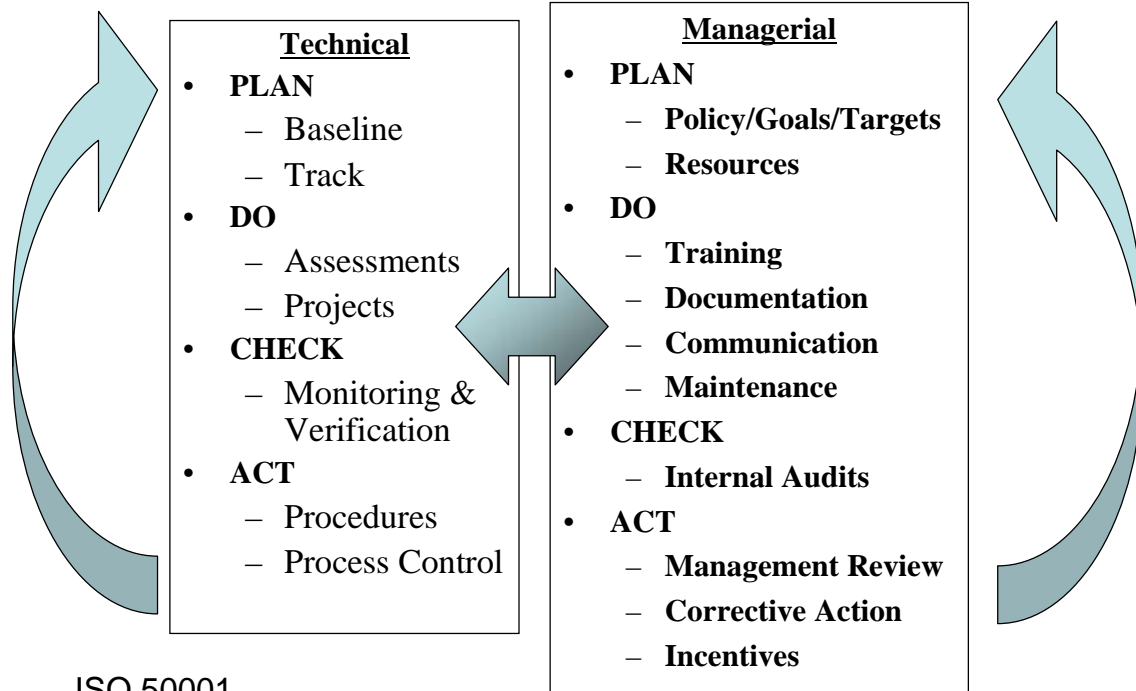
## THE PROCESS OF ENERGY MANAGER'S CERTIFICATION AND DEVELOPMENT OF ENERGY MANAGER COMPETENCY STANDARD



## Framework of Examination and Training for Energy Manager



## Energy management; PDCA cycle

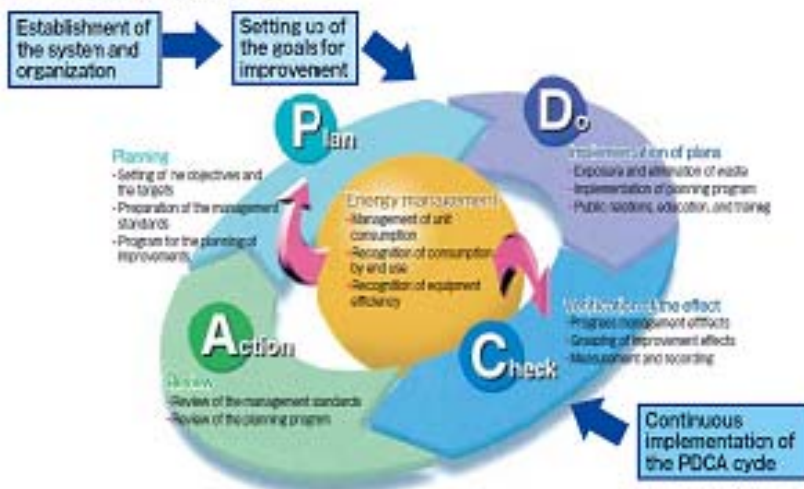


ISO 50001

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## Application of PDCA for Energy Management

To ensure continuous and effective action, the PDCA cycle should be implemented by establishing a management system. An energy conservation promotion committee consisting of representatives from different sections will provide a good opportunity to put heads together, and will produce a significant effect.




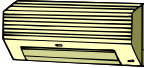


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# EE labeling



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## Priority targets for EE labeling

Country	Lighting 	AC 	TV 	Refrigerator 
Japan	V	V	V	V
China	M	M		M
Korea	M	M		M
Singapore		M		M
Indonesia	V			
Thailand		V		M
India	M	M	M	M
Australia	M	M		M
Mexico	V	M		M,V
Brazil	V	M		M,V

V; Voluntary      M; Mandatory

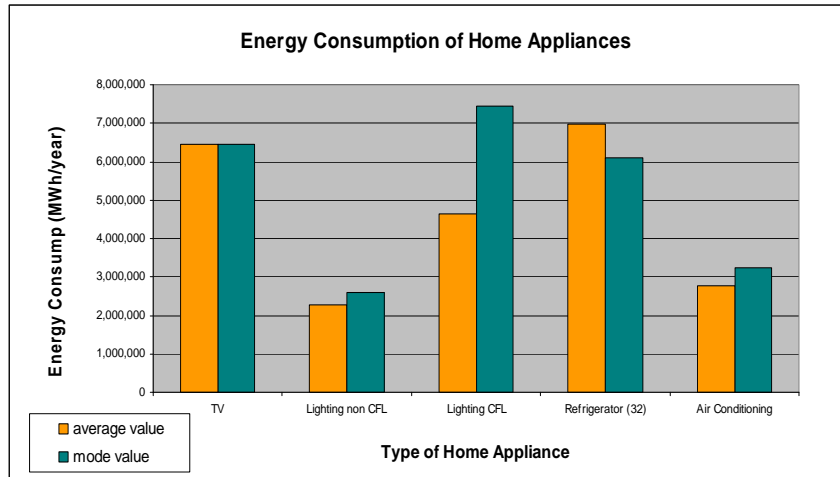
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## Appliances CO2 Emission is 18.36 % of Total Electricity Emission

Indonesia JAWA-BALI

Home Appliances Type	Total Energy Consumption (MWh/y)	
	Average	Mode
TV	6,462,789.00	6,440,964.00
Lighting non CFL	2,276,106.00	2,587,908.00
Lighting CFL	4,640,017.00	7,433,454.00
Refrigerator (32)	6,963,943.00	6,094,064.00
Air Conditioning	2,778,519.00	3,245,482.00
<b>TOTAL</b>	<b>23,121,374.00</b>	<b>25,801,872.00</b>

↓  
**125,908,969 MWh/y**



**If 20% reduction achieved, 4,624,275 MWh/y Saving, is 3.7% of total JAWA-BALI**

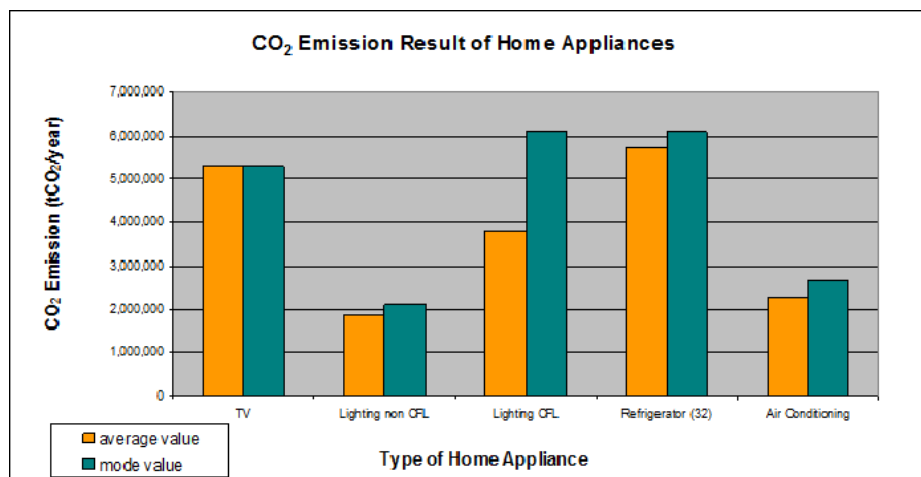
\* Data is based PUPTL2010

## CO2 Emission from 4 appliances is 20 mil ton/y

Indonesia JAWA-BALI

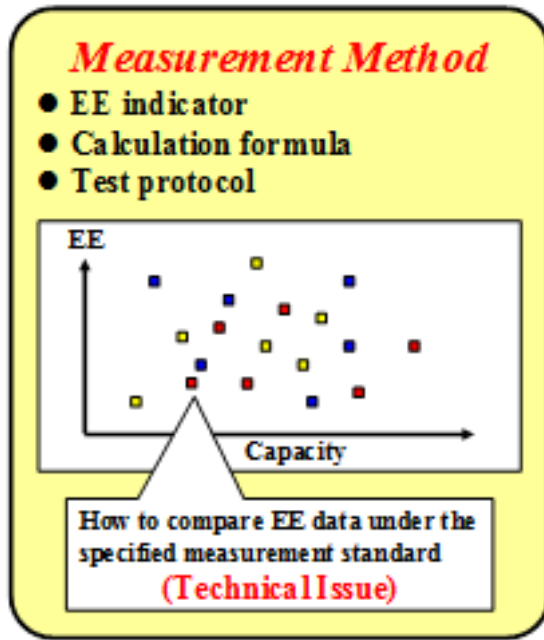
Home Appliances Type	Total CO <sub>2</sub> Emission (tCO <sub>2</sub> /y)	
	Average	Mode
TV	5,314,131.00	5,296,184.00
Lighting non CFL	1,871,563.00	2,127,947.00
Lighting CFL	3,815,328.00	6,112,278.00
Refrigerator (32)	5,726,212.00	6,094,064.00
Air Conditioning	2,284,680.00	2,668,648.00
<b>TOTAL</b>	<b>19,011,914.00</b>	<b>22,299,121.00</b>

**Lighting , TV is big  
AC and Ref is increasing**

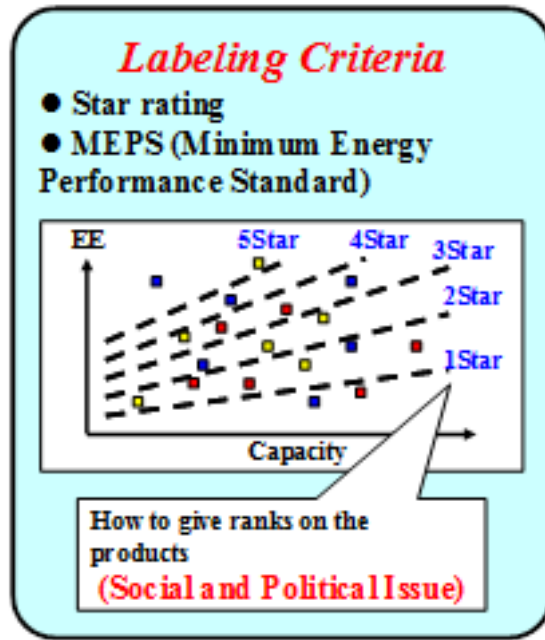




## International

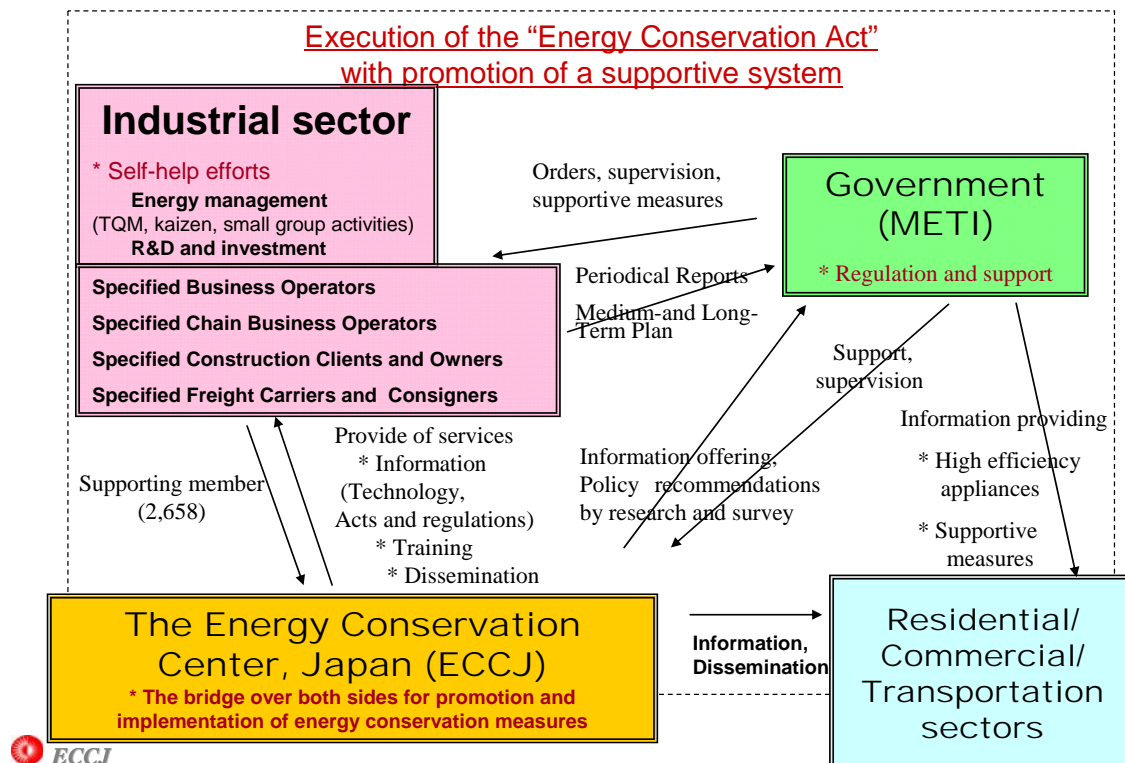


## Domestic



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## Energy Conservation center for Dissemination

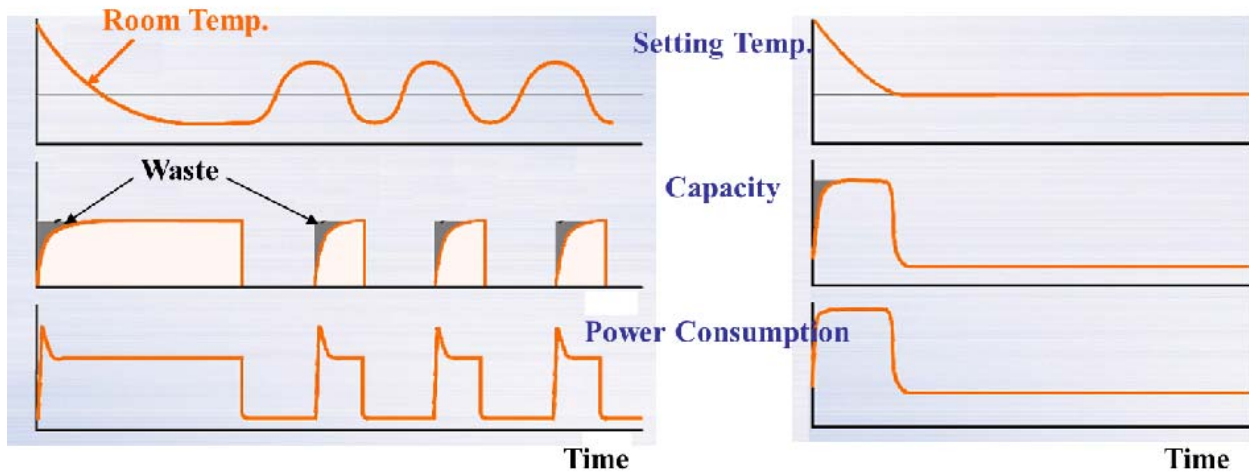


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# “Inverter Control” of Air Conditioner

## On-Off Control

## Inverter Control



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# Hot Water Supply

- Energy demand for hot-water supply dominates approximately 30% of total energy consumption in a household.
- A subsidy system has been introduced to promote the proliferation of energy efficient hot-water systems.

### CO<sub>2</sub> Refrigerant Heat-Pump Boiler (ECO CUTE)

Utilizing the principle of a heat-pump used in an air-conditioner, it can be heated with energy of approximately 3 times more than input energy. Energy saving of **approximately 30%** compared to a traditional combustion-type boiler is achieved.



### Latent-heat Recovery Boiler (ECO JOZU)

Recovers the latent heat of exhausted gas, which is usually wasted. Energy saving of **approximately 15%** compared to a conventional combustion-type boiler is realized.



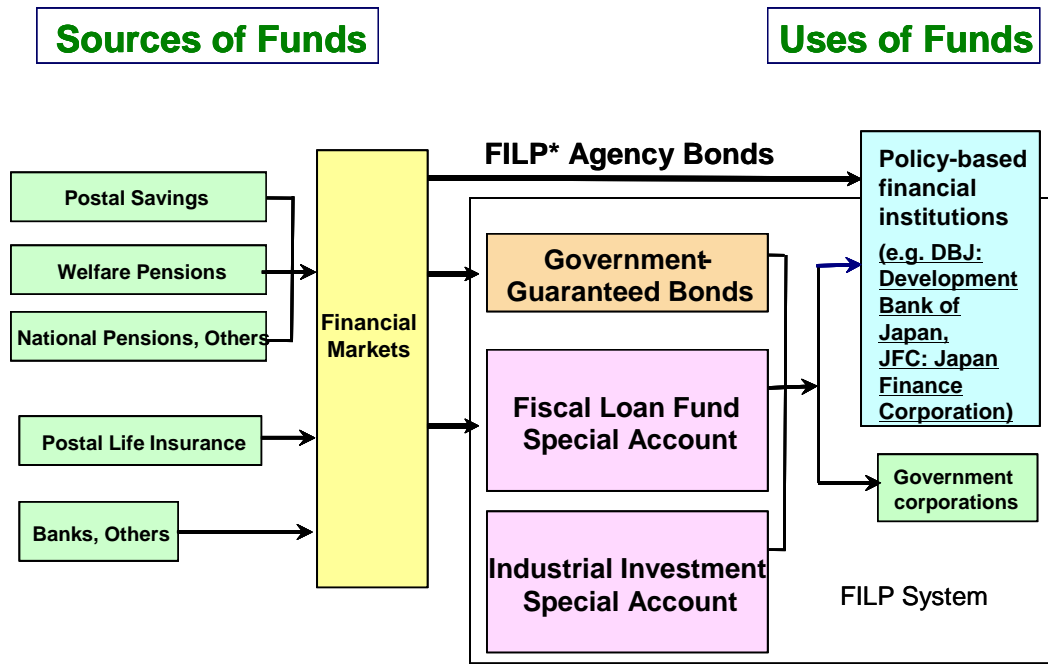
### Gas Engine Boiler (ECO WILL)

Uses the gas-powered engine's exhaust heat and power to provide heat (main) and electricity (sub) for **approximately 10%** of overall energy saving for a building.



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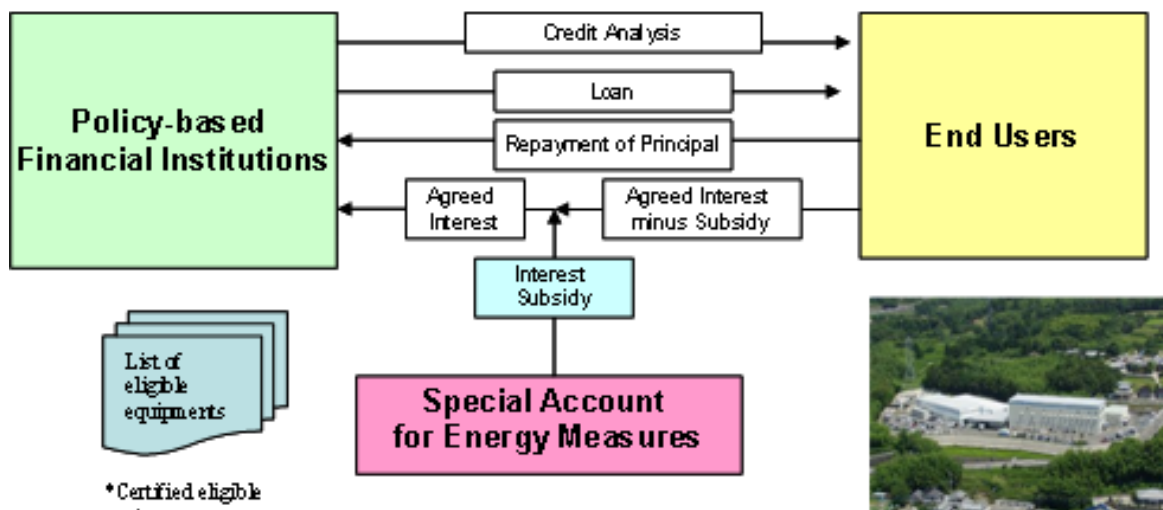
## Special Account for EE&C



\*FILP: Fiscal Investment and Loan Program

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## Low Interest Loan



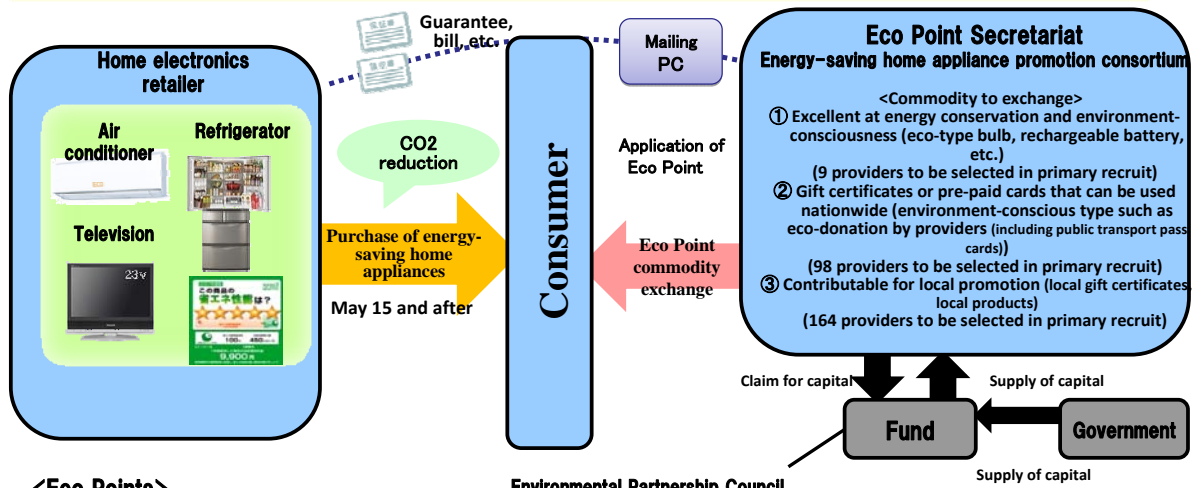
\* Certified eligible equipments

\*\* Subsidize a part of interest rates (e.g. 1%)

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## For home appliances: Eco Point

[Purpose] ① CO2 reduction, ② Economic activation, ③ Spread of ground-wave digital television



### <Eco Points>

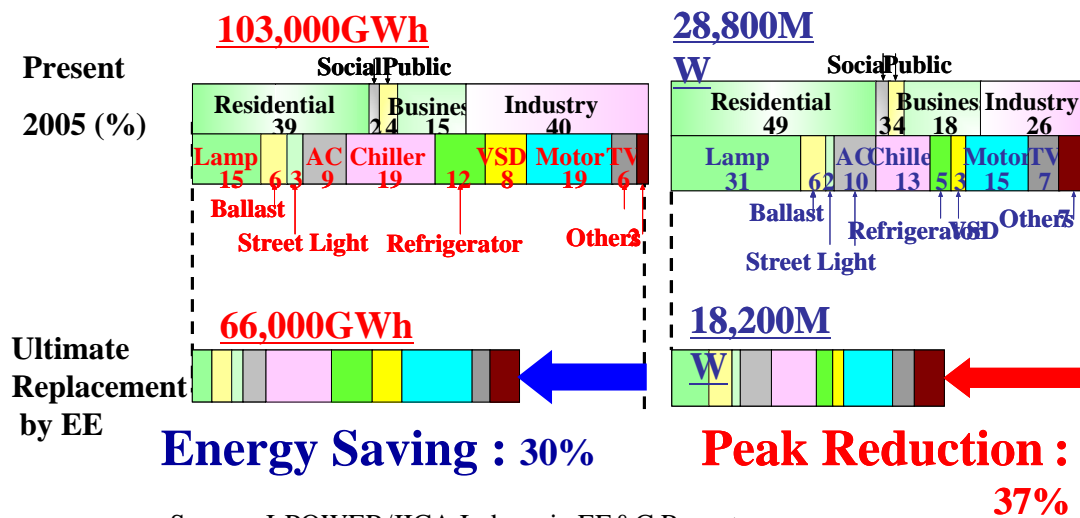
Environmental Partnership Council

	Air conditioner	Refrigerator	Television
Purchase of product with uniform energy-saving label equivalent to 4 stars	6,000 to 9,000 (3 steps according to cooling capacity)	3,000 to 10,000 (4 steps according to capacity)	7,000 to 36,000 (5 steps according to screen size)
Further recycling	3,000	5,000	3,000

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## Synergy between EE&C and peak clipping

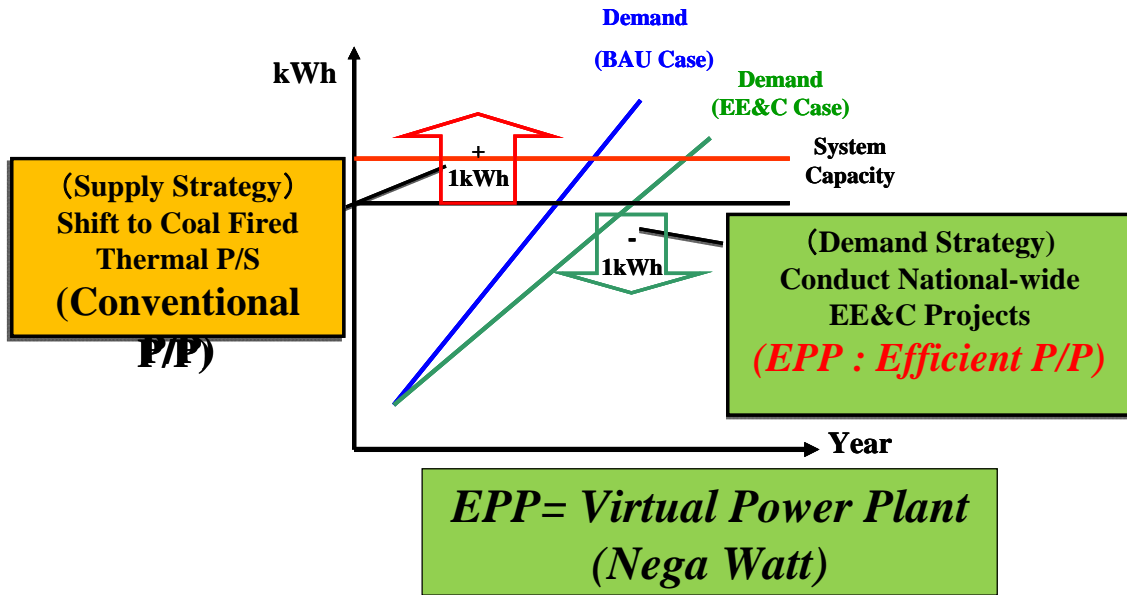
### Double Benefit of Electricity Conservation



Source; J-POWER/JICA Indonesia EE&C Report

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Electricity EE&C is equivalent to electricity supply  
 Counter measure to match 'Deficit of Supply'  
 and 'Growing Demand'



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## Least Cost Analysis

Supply Side

Utility

Raising Tariff

New Plant Construction

Supply Side Option

Demand Side

Harmonization

Least Cost Option

Customers

Demand Side Option

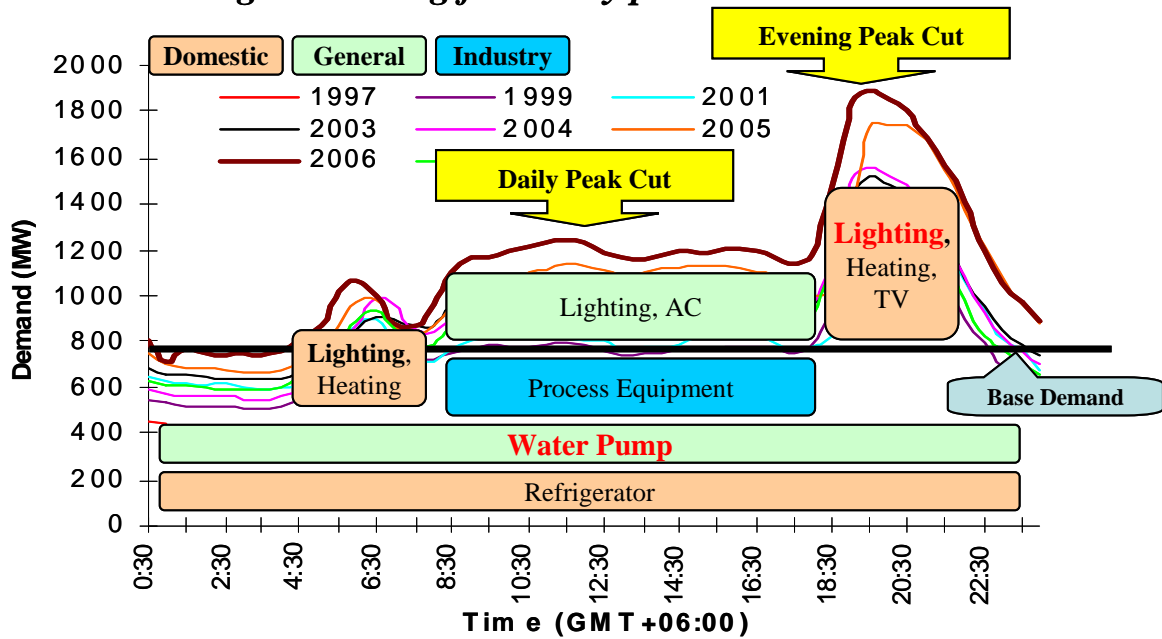
Energy Conservation

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# Case of Sri Lanka

1<sup>st</sup> Target : Lighting for 'Evening peak cut'

2<sup>nd</sup> Target : Cooling for 'Daily peak cut'



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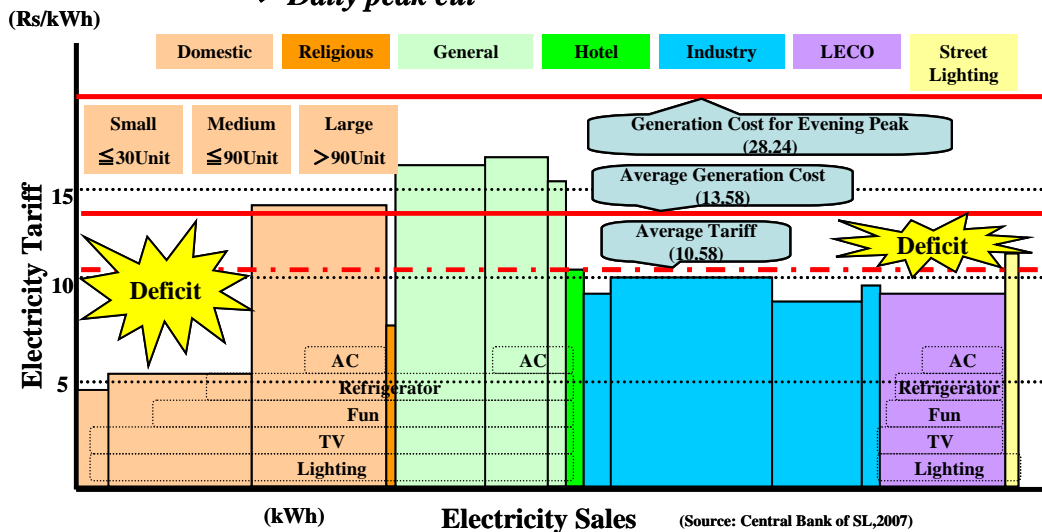
# Case of Sri Lanka

1<sup>st</sup> Target : Lighting for Domestic (Small, Medium)

⇒ 'Subsidy reduction' and 'Evening peak cut'

2<sup>nd</sup> Target : Cooling for Domestic (Medium, Large) and General consumer

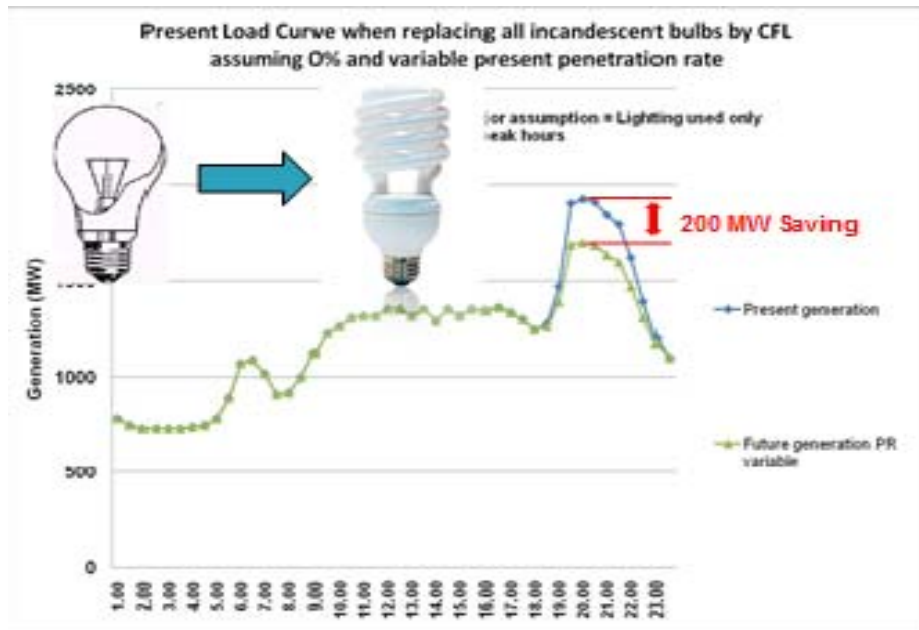
⇒ 'Daily peak cut'



(Source: Central Bank of SL, 2007)

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# Case of Sri Lanka



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