

**Annex 1**  
**Correlation between Policy and ESI**

Annex 1-1 TPES Self-sufficiency

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	Worsened	Nuclear	Nuclear development	No	<b>No</b>
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		Price and subsidy	Electricity tariff control		
Indonesia	Worsened	Nuclear	Nuclear development	No	<b>No</b>
		Hydro	Hydro development		
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development		
		Price and subsidy	Electricity tariff control		
Japan	Improved	Nuclear	Nuclear development	Yes	<b>Yes</b>
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Electricity tariff control	No	
Korea	Worsened Then Improved	Nuclear	Nuclear development	Yes	<b>Yes</b>
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	Improved then Worsened	Nuclear	Nuclear development	-	<b>No</b>
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		Price and subsidy	Electricity tariff control	-	
Malaysia	Improved then Worsened	Nuclear	Nuclear development	-	<b>No</b>
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Electricity tariff control	Yes (in Sabah)	
Myanmar	Improved	Nuclear	Nuclear development	No	<b>Yes</b>
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		Price and subsidy	Electricity tariff control	-	
New Zealand	Improved	Nuclear	Nuclear development	No	<b>Yes</b>
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Electricity tariff control	No	
Philippines	Improved	Nuclear	Nuclear development	Yes	<b>Yes</b>
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Electricity tariff control	No	
Thailand	No change	Nuclear	Nuclear development	No	<b>No</b>
		Hydro	Hydro development	No	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Electricity tariff control		
Vietnam	Improved	Nuclear	Nuclear development	Yes	<b>Yes</b>
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Electricity tariff control	Yes	

In addition to above policies, resource mining (E&P) policies were established in resource rich countries.

### Annex 1-2 Coal Self-sufficiency

Country	ESI Improved/Worsened/ No change	Policy			Correlation
		Description	Specific policy	Yes/No	
Cambodia	-	Coal	Coal mining (Indigenous)	No	
		Price and subsidy	Coal production subsidies		
Indonesia	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy	Coal production subsidies		
Japan	Worsened	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy	Coal production subsidies	Yes	
Korea	Worsened	Coal	Coal mining (Indigenous)	Yes	<b>No</b>
		Price and subsidy	Coal production subsidies	Yes	
Laos	Worsened	Coal	Coal mining (Indigenous)	Yes	<b>No</b>
		Price and subsidy	Coal production subsidies	Yes	
Malaysia	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy	Coal production subsidies		
Myanmar	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy	Coal production subsidies	Yes	
New Zealand	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy	Coal production subsidies	No	
Philippines	Relatively worsened	Coal	Coal mining (Indigenous)	Yes	<b>No</b>
		Price and subsidy	Coal production subsidies	Yes	
Thailand	Worsened	Coal	Coal mining (Indigenous)	Yes	<b>No</b>
		Price and subsidy	Coal production subsidies		
Vietnam	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy	Coal production subsidies	Yes	

### Annex 1-3 Crude oil Self-sufficiency

Country	ESI Improved/Worsened/ No change	Policy			Correlation
		Description	Specific policy	Yes/No	
Cambodia	-	Crude oil	Crude oil E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax	Crude oil production subsidies		
Indonesia	Worsened	Crude oil	Crude oil E&P (Indigenous)		
		Price and subsidy(incl. tax	Crude oil production subsidies		
Japan	-	Crude oil	Crude oil E&P (Indigenous)	-	
		Price and subsidy(incl. tax	Crude oil production subsidies	-	
Korea	Improved	Crude oil	Crude oil E&P (Indigenous)	No	
		Price and subsidy(incl. tax	Crude oil production subsidies	No	
Laos	-	Crude oil	Crude oil E&P (Indigenous)	-	
		Price and subsidy(incl. tax	Crude oil production subsidies	-	
Malaysia	Improved⇒Worsened	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax	Crude oil production subsidies		
Myanmar	Improved	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax	Crude oil production subsidies	Yes	
New Zealand	Improved	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax	Crude oil production subsidies	No	
Philippines	Improved	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax	Crude oil production subsidies	Yes	
Thailand	Improved	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax	Crude oil production subsidies		
Vietnam	Worsened	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax	Crude oil production subsidies	Yes	

Annex 1-4 Natural gas Self-sufficiency

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Natural gas production subsidies		
Indonesia	No change	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies		
Japan	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Natural gas production subsidies	No	
Korea	Improved	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	
Laos	-	Natural gas	Natural gas E&P (Indigenous)	-	
		Price and subsidy(incl. tax)	Natural gas production subsidies	-	
Malaysia	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Natural gas production subsidies		
Myanmar	Improved	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	
New Zealand	No change	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	No	
Philippines	Improved	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	
Thailand	Worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	
Vietnam	Improved	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	

Annex 1-5 Coal R/P (Reserve/Production)

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Coal	Coal mining (Indigenous)	No	
		Price and subsidy(incl. tax)	Coal production subsidies	-	
Indonesia	Worsened	Coal	Coal mining (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Coal production subsidies		
Japan	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Coal production subsidies	Yes then no	
Korea	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Coal production subsidies	Yes	
Laos	-	Coal	Coal mining (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Coal production subsidies	Yes	
Malaysia	-	Coal	Coal mining (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Coal production subsidies		
Myanmar	-	Coal	Coal mining (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Coal production subsidies	Yes	
New Zealand	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Coal production subsidies	No	
Philippines	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Coal production subsidies	Yes	
Thailand	Improved	Coal	Coal mining (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Coal production subsidies		
Vietnam	Worsened	Coal	Coal mining (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Coal production subsidies	Yes	

Annex 1-6 Crude oil R/P (Reserve/Production)

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Crude oil	Crude oil E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Crude oil production subsidies	-	
Indonesia	Relatively worsened	Crude oil	Crude oil E&P (Indigenous)		
		Price and subsidy(incl. tax)	Crude oil production subsidies		
Japan	-	Crude oil	Crude oil E&P (Indigenous)	-	
		Price and subsidy(incl. tax)	Crude oil production subsidies	-	
Korea	-	Crude oil	Crude oil E&P (Indigenous)	No	
		Price and subsidy(incl. tax)	Crude oil production subsidies	No	
Laos	-	Crude oil	Crude oil E&P (Indigenous)	-	
		Price and subsidy(incl. tax)	Crude oil production subsidies	-	
Malaysia	Worsened	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Crude oil production subsidies		
Myanmar	Improved	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Crude oil production subsidies	Yes	
New Zealand	-	Crude oil	Crude oil E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Crude oil production subsidies	No	
Philippines	-	Crude oil	Crude oil E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Crude oil production subsidies	Yes	
Thailand	Worsened	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Crude oil production subsidies		
Vietnam	Improved	Crude oil	Crude oil E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Crude oil production subsidies	Yes	

Annex 1-7 Natural gas R/P (Reserve/Production)

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Natural gas production subsidies	-	
Indonesia	Relatively worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies		
Japan	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Natural gas production subsidies	No	
Korea	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	
Laos	-	Natural gas	Natural gas E&P (Indigenous)	-	
		Price and subsidy(incl. tax)	Natural gas production subsidies	-	
Malaysia	Worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies		
Myanmar	Worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	
New Zealand	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Price and subsidy(incl. tax)	Natural gas production subsidies	No	
Philippines	Improved	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>Yes</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	
Thailand	Worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	
Vietnam	Worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	<b>No</b>
		Price and subsidy(incl. tax)	Natural gas production subsidies	Yes	

Annex 1-8 Coal R/C (Reserve/Consumption)

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Coal	Coal mining (Indigenous)	No	
		Coal	Coal use promotion	Yes	
		Price and subsidy	Coal consumer price control		
Indonesia	Worsened	Coal	Coal mining (Indigenous)	Yes	Yes
		Coal	Coal use promotion	Yes	
		Price and subsidy	Coal consumer price control		
Japan	Worsened	Coal	Coal mining (Indigenous)	Yes	Yes
		Coal	Coal use promotion	No	
		Price and subsidy	Coal consumer price control	No	
Korea	Worsened	Coal	Coal mining (Indigenous)	Yes	No
		Coal	Coal use promotion	Yes	
		Price and subsidy	Coal consumer price control	-	
Laos	-	Coal	Coal mining (Indigenous)	Yes	
		Coal	Coal use promotion	-	
		Price and subsidy	Coal consumer price control	-	
Malaysia	-	Coal	Coal mining (Indigenous)	Yes	
		Coal	Coal use promotion	Yes	
		Price and subsidy	Coal consumer price control		
Myanmar	-	Coal	Coal mining (Indigenous)	Yes	
		Coal	Coal use promotion	-	
		Price and subsidy	Coal consumer price control	-	
New Zealand	Improved	Coal	Coal mining (Indigenous)	Yes	Yes
		Coal	Coal use promotion	No	
		Price and subsidy	Coal consumer price control	No	
Philippines	Improved	Coal	Coal mining (Indigenous)	Yes	Yes
		Coal	Coal use promotion	Yes	
		Price and subsidy	Coal consumer price control	No	
Thailand	Worsened	Coal	Coal mining (Indigenous)	Yes	No
		Coal	Coal use promotion	Yes	
		Price and subsidy	Coal consumer price control		
Vietnam	Worsened	Coal	Coal mining (Indigenous)	Yes	Yes
		Coal	Coal use promotion	Yes	
		Price and subsidy	Coal consumer price control	Yes	

Annex 1-9 Crude oil R/C (Reserve/Consumption)

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Crude oil	Crude oil E&P (Indigenous)	Yes	
		Crude oil	Refinery construction	No	
		Price and subsidy	Oil product consumer price control		
Indonesia	Worsened	Crude oil	Crude oil E&P (Indigenous)		Yes
		Crude oil	Refinery construction	Yes	
		Price and subsidy	Oil product consumer price control	Yes	
Japan	-	Crude oil	Crude oil E&P (Indigenous)	-	
		Crude oil	Refinery construction	No	
		Price and subsidy	Oil product consumer price control	No	
Korea	-	Crude oil	Crude oil E&P (Indigenous)	No	
		Crude oil	Refinery construction	Yes	
		Price and subsidy	Oil product consumer price control	No	
Laos	-	Crude oil	Crude oil E&P (Indigenous)	-	
		Crude oil	Refinery construction	-	
		Price and subsidy	Oil product consumer price control	-	
Malaysia	Worsened	Crude oil	Crude oil E&P (Indigenous)	Yes	Yes
		Crude oil	Refinery construction	-	
		Price and subsidy	Oil product consumer price control	Yes	
Myanmar	Improved	Crude oil	Crude oil E&P (Indigenous)	Yes	Yes
		Crude oil	Refinery construction	-	
		Price and subsidy	Oil product consumer price control	Yes	
New Zealand	-	Crude oil	Crude oil E&P (Indigenous)	Yes	
		Crude oil	Refinery construction	Yes	
		Price and subsidy	Oil product consumer price control	No	
Philippines	-	Crude oil	Crude oil E&P (Indigenous)	Yes	
		Crude oil	Refinery construction	Yes	
		Price and subsidy	Oil product consumer price control	No	
Thailand	No change	Crude oil	Crude oil E&P (Indigenous)	Yes	No
		Crude oil	Refinery construction	Yes	
		Price and subsidy	Oil product consumer price control	Yes	
Vietnam	Worsened	Crude oil	Crude oil E&P (Indigenous)	Yes	Yes
		Crude oil	Refinery construction	Yes	
		Price and subsidy	Oil product consumer price control	Yes	

Annex 1-10 Natural gas R/C (Reserve/Consumption)

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Natural gas	Natural gas use promotion	No	
		Price and subsidy	Natural gas consumer price control		
Indonesia	Relatively worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	Yes
		Natural gas	Natural gas use promotion	Yes	
		Price and subsidy	Natural gas consumer price control		
Japan	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Price and subsidy	Natural gas consumer price control	No	
Korea	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
Laos	-	Natural gas	Natural gas E&P (Indigenous)	-	
		Natural gas	Natural gas use promotion	-	
		Price and subsidy	Natural gas consumer price control	-	
Malaysia	Worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	Yes
		Natural gas	Natural gas use promotion	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
Myanmar	Worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	No
		Natural gas	Natural gas use promotion	-	
		Price and subsidy	Natural gas consumer price control	-	
New Zealand	-	Natural gas	Natural gas E&P (Indigenous)	Yes	
		Natural gas	Natural gas use promotion	No	
		Price and subsidy	Natural gas consumer price control	No	
Philippines	Improved	Natural gas	Natural gas E&P (Indigenous)	Yes	Yes
		Natural gas	Natural gas use promotion	Yes	
		Price and subsidy	Natural gas consumer price control	No	
Thailand	Worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	No
		Natural gas	Natural gas use promotion	Yes	
		Price and subsidy	Natural gas consumer price control		
Vietnam	Worsened	Natural gas	Natural gas E&P (Indigenous)	Yes	No
		Natural gas	Natural gas use promotion	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	

Annex 1-11 Coal import source country diversity

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Coal	Import source country diversity	No	
Indonesia	-	Coal	Import source country diversity	No	
Japan	Worsened	Coal	Import source country diversity	No	
Korea	Relatively improved	Coal	Import source country diversity	Yes	Yes
Laos	-	Coal	Import source country diversity	-	
Malaysia	Improved	Coal	Import source country diversity	Yes	Yes
Myanmar	-	Coal	Import source country diversity	-	
New Zealand	Worsened	Coal	Import source country diversity	No	
Philippines	-	Coal	Import source country diversity	No	
Thailand	-	Coal	Import source country diversity		
Vietnam	-	Coal	Import source country diversity	-	



Annex 1-12 Crude oil import source country diversity

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Crude oil	Import source country diversity	No	
Indonesia	-	Crude oil	Import source country diversity	No	
Japan	No change	Crude oil	Import source country diversity	Yes	<b>No</b>
Korea	Relatively worsened	Crude oil	Import source country diversity	Yes	<b>No</b>
Laos	-	Crude oil	Import source country diversity	-	
Malaysia	-	Crude oil	Import source country diversity	-	
Myanmar	-	Crude oil	Import source country diversity	-	
New Zealand	Improved	Crude oil	Import source country diversity	No	
Philippines	-	Crude oil	Import source country diversity	No	
Thailand	Improved	Crude oil	Import source country diversity		
Vietnam	-	Crude oil	Import source country diversity	-	

Annex 1-13 Natural gas import source country diversity

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Natural gas	Import source country diversity	No	
Indonesia	-	Natural gas	Import source country diversity	No	
Japan	Improved	Natural gas	Import source country diversity	No	
Korea	Improved	Natural gas	Import source country diversity	Yes	<b>Yes</b>
Laos	-	Natural gas	Import source country diversity	-	
Malaysia	-	Natural gas	Import source country diversity	-	
Myanmar	-	Natural gas	Import source country diversity	-	
New Zealand	-	Natural gas	Import source country diversity	No	
Philippines	-	Natural gas	Import source country diversity	No	
Thailand	No change	Natural gas	Import source country diversity	Yes	<b>No</b>
Vietnam	-	Natural gas	Import source country diversity	Yes	

Annex 1-14 TPES diversity

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	Gradually improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Crude oil	Alternative fuel	No	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Indonesia	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development		
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Japan	Improved	Coal	Coal use promotion	No	<b>Yes</b>
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price contr	No	
		Price and subsidy	Electricity tariff control	No	
Korea	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price contr	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	Improved	Coal	Coal use promotion	-	
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	-	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price contr	-	
		Price and subsidy	Electricity tariff control	-	



Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Malaysia	Improved	Coal	Coal use promotion	Yes	Yes
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development		
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price contr	Yes	
Myanmar	Improved	Coal	Coal use promotion	-	
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	NO	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price contr	-	
New Zealand	Improved	Coal	Coal use promotion	No	Yes
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price contr	No	
Philippines	Improved	Coal	Coal use promotion	Yes	Yes
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy(incl. tax	Coal consumer price control	No	
		Price and subsidy(incl. tax	Natural gas consumer price contr	No	
Thailand	Improved	Coal	Coal use promotion	Yes	Yes
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	No	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
Vietnam	Improved	Coal	Coal use promotion	Yes	Yes
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	Yes	
		Price and subsidy	Natural gas consumer price contr	Yes	
	Price and subsidy	Electricity tariff control	Yes		

Annex 1-15 Power generation fuel diversity

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Crude oil	Alternative fuel	No	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Indonesia	Relatively improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development		
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Japan	Improved	Coal	Coal use promotion	No	<b>Yes</b>
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price contr	No	
		Price and subsidy	Electricity tariff control	No	
Korea	Relatively improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price contr	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	No change	Coal	Coal use promotion	-	
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	-	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price contr	-	
		Price and subsidy	Electricity tariff control	-	



Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Malaysia	Improved	Coal	Coal use promotion	Yes	Yes
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development		
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price contr	Yes	
Myanmar	Improved	Price and subsidy	Electricity tariff control	Yes (in Sabah)	
		Coal	Coal use promotion	-	
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	NO	
		Price and subsidy	Coal consumer price control	-	
New Zealand	Improved	Price and subsidy	Natural gas consumer price contr	-	Yes
		Price and subsidy	Electricity tariff control	-	
		Coal	Coal use promotion	No	
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
Philippines	Improved	Price and subsidy	Coal consumer price control	No	Yes
		Price and subsidy	Natural gas consumer price contr	No	
		Price and subsidy	Electricity tariff control	No	
		Coal	Coal use promotion	Yes	
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
Thailand	Improved⇒Worsened	Biofuels & wastes	Renewables development	Yes	No
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
		Coal	Coal use promotion	Yes	
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	No	
Vietnam	Improved	Geothermal, wind, other	Renewables development	Yes	Yes
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	Yes	
		Price and subsidy	Natural gas consumer price contr	Yes	
		Price and subsidy	Electricity tariff control	Yes	
		Coal	Coal use promotion	Yes	
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	

Annex 1-16 Crude oil Middle East dependence

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Crude oil	Import source country diversity	No	
Indonesia	-	Crude oil	Import source country diversity	No	
Japan	Worsened	Crude oil	Import source country diversity	Yes	<b>No</b>
Korea	Worsened	Crude oil	Import source country diversity	Yes	<b>No</b>
Laos	-	Crude oil	Import source country diversity	-	
Malaysia	-	Crude oil	Import source country diversity	-	
Myanmar	-	Crude oil	Import source country diversity	-	
New Zealand	Worsened then improved	Crude oil	Import source country diversity	No	
Philippines	-	Crude oil	Import source country diversity	No	
Thailand	Worsened	Crude oil	Import source country diversity		
Vietnam	-	Crude oil	Import source country diversity	-	

Annex 1-17 Natural gas Middle East dependence

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Natural gas	Import source country diversity	No	
Indonesia	-	Natural gas	Import source country diversity	No	
Japan	Worsened	Natural gas	Import source country diversity	No	
Korea	relatively improved	Natural gas	Import source country diversity	Yes	<b>Yes</b>
Laos	-	Natural gas	Import source country diversity	-	
Malaysia	-	Natural gas	Import source country diversity	-	
Myanmar	-	Natural gas	Import source country diversity	-	
New Zealand	-	Natural gas	Import source country diversity	No	
Philippines	-	Natural gas	Import source country diversity	No	
Thailand	-	Natural gas	Import source country diversity	Yes	
Vietnam	-	Natural gas	Import source country diversity		



Annex 1-18 Reserve margin of generation capacity

Country	ESI Improved/Worsened/ No change	Policy			Correlation
		Description	Specific policy	Yes/No	
Cambodia	-	Coal	Coal use promotion	Yes	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Indonesia	Worsened	Coal	Coal use promotion	Yes	No
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development		
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Japan	Improved	Coal	Coal use promotion	No	Yes
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Korea	Worsened	Coal	Coal use promotion	Yes	No
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	-	Coal	Coal use promotion	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	-	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	
Malaysia	Improved	Coal	Coal use promotion	Yes	Yes
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development		
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes (in Sabah)	

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Myanmar	-	Coal	Coal use promotion	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	
New Zealand	No change	Coal	Coal use promotion	No	<b>No</b>
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Philippines	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Thailand	Improved?	Coal	Coal use promotion	Yes	<b>Yes</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	No	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Vietnam	Worsened	Coal	Coal use promotion	Yes	<b>No</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	

#### Annex 1-19 Power outage frequency

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Electricity	Supply reliability	Yes	
Indonesia	Improved	Electricity	Supply reliability	Yes	<b>Yes</b>
Japan	Improved	Electricity	Supply reliability	Yes	<b>Yes</b>
Korea	Improved	Electricity	Supply reliability	Yes	<b>Yes</b>
Laos	-	Electricity	Supply reliability	Yes	
Malaysia	Improved	Electricity	Supply reliability	Yes	<b>Yes</b>
Myanmar	-	Electricity	Supply reliability	-	
New Zealand	No change	Electricity	Supply reliability	Yes	<b>No</b>
Philippines	-	Electricity	Supply reliability	Yes	
Thailand	-	Electricity	Supply reliability		
Vietnam	-	Electricity	Supply reliability	Yes	

#### Annex 1-20 Power outage duration

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Electricity	Supply reliability	Yes	
Indonesia	Worsened	Electricity	Supply reliability	Yes	<b>No</b>
Japan	Improved	Electricity	Supply reliability	Yes	<b>Yes</b>
Korea	Improved	Electricity	Supply reliability	Yes	<b>Yes</b>
Laos	-	Electricity	Supply reliability	Yes	
Malaysia	Improved	Electricity	Supply reliability	Yes	<b>Yes</b>
Myanmar	-	Electricity	Supply reliability	-	
New Zealand	Worsened	Electricity	Supply reliability	Yes	<b>No</b>
Philippines	-	Electricity	Supply reliability	Yes	
Thailand	-	Electricity	Supply reliability		
Vietnam	-	Electricity	Supply reliability	Yes	

Annex 1-21 Commercial energy access

Country	ESI Improved/Worsened/ No change	Policy			Correlation
		Description	Specific policy	Yes/No	
Cambodia	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Indonesia	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development		
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Japan	No change	Coal	Coal use promotion	No	<b>No</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Korea	No change	Coal	Coal use promotion	Yes	<b>No</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	Improved	Coal	Coal use promotion	-	<b>Yes</b>
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	-	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	
Malaysia	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development		
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes (in Sabah)	

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Myanmar	Improved	Coal	Coal use promotion	-	<b>Yes</b>
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	
New Zealand	No change	Coal	Coal use promotion	No	<b>No</b>
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Philippines	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Thailand	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	No	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Vietnam	Improved	Coal	Coal use promotion	Yes	<b>Yes</b>
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Price and subsidy	Coal consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	

Annex 1-22 Electrification

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	Improved	Coal	Coal use promotion	Yes	Yes
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		Electricity	Electrification	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Indonesia	Improved	Coal	Coal use promotion	Yes	Yes
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development		
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development		
		Electricity	Electrification	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Japan	-	Coal	Coal use promotion	No	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Electricity	Electrification	-	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price contr	No	
		Price and subsidy	Electricity tariff control	No	
Korea	-	Coal	Coal use promotion	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Electricity	Electrification	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price contr	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	Improved	Coal	Coal use promotion	-	Yes
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	-	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		Electricity	Electrification	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price contr	-	
Price and subsidy	Electricity tariff control	-			



Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Malaysia	Improved	Coal	Coal use promotion	Yes	Yes
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development		
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Electricity	Electrification	Yes	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price contr	Yes	
Myanmar	Improved	Coal	Coal use promotion	-	Yes
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	NO	
		Electricity	Electrification	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Natural gas consumer price contr	-	
New Zealand	-	Coal	Coal use promotion	No	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Electricity	Electrification	No	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price contr	No	
Philippines	Improved	Coal	Coal use promotion	Yes	Yes
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Electricity	Electrification	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Natural gas consumer price contr	No	
Thailand	Improved	Coal	Coal use promotion	Yes	Yes
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	No	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Electricity	Electrification		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Natural gas consumer price control		
Vietnam	Improved	Coal	Coal use promotion	Yes	Yes
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		Electricity	Electrification	Yes	
		Price and subsidy	Coal consumer price control	Yes	
		Price and subsidy	Natural gas consumer price contr	Yes	
	Price and subsidy	Electricity tariff control	Yes		



Annex 1-23 TPES/GDP

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	Improved	All energy	Energy conservation/efficiency	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Indonesia	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Japan	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Korea	Relatively improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	
Malaysia	Worsened	All energy	Energy conservation/efficiency	Yes	No
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes (in Sabah)	
Myanmar	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	
New Zealand	Worsened then improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Philippines	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Thailand	No change	All energy	Energy conservation/efficiency	Yes	No
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Vietnam	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	Yes	
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	

## Annex 1-24 TFEC/GDP

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	Improved	All energy	Energy conservation/efficiency	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Indonesia	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Japan	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Korea	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	
Malaysia	Worsened	All energy	Energy conservation/efficiency	Yes	No
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes (in Sabah)	
Myanmar	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	
New Zealand	Worsened then improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Philippines	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Thailand	No change	All energy	Energy conservation/efficiency	Yes	No
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Vietnam	Improved	All energy	Energy conservation/efficiency	Yes	Yes
		Price and subsidy	Coal consumer price control	Yes	
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	

Annex 1-25 Days of on-land oil stocks

Country	ESI	Policy			Correlation (not authorized)
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	-	Crude oil	Stock piling	No?	
Indonesia		Crude oil	Stock piling	Yes	
Japan	Improved	Crude oil	Stock piling	Yes	<b>Yes</b>
Korea	Improved	Crude oil	Stock piling	Yes	<b>Yes</b>
Laos	-	Crude oil	Stock piling	-	
Malaysia	-	Crude oil	Stock piling	-	
Myanmar	Improved	Crude oil	Stock piling	Yes	<b>Yes</b>
New Zealand	Worsened	Crude oil	Stock piling (*)	Yes	<b>No</b>
Philippines	-	Crude oil	Stock piling	No	
Thailand	Improved	Crude oil	Stock piling	Yes	<b>Yes</b>
Vietnam	-	Crude oil	Stock piling	-	

Annex 1-26 CO2 Emission/TPES

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	Worsened	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	No	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		CO2 Emission	CO2 Emission reduction	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
		Indonesia	Worsened	Coal	
Crude oil	Alternative fuel			Yes	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			No	
Hydro	Hydro development				
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development				
CO2 Emission	CO2 Emission reduction				
Price and subsidy	Coal consumer price control				
Price and subsidy	Oil product consumer price control			Yes	
Price and subsidy	Natural gas consumer price control				
Price and subsidy	Electricity tariff control				
Japan	Improved			Coal	Coal use promotion
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	No	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
		Korea	Improved	Coal	Coal use promotion
Crude oil	Alternative fuel			Yes	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			Yes	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development			Yes	
CO2 Emission	CO2 Emission reduction			Yes	
Price and subsidy	Coal consumer price control			-	
Price and subsidy	Oil product consumer price control			No	
Price and subsidy	Natural gas consumer price control			Yes	
Price and subsidy	Electricity tariff control			Yes	
Laos	Worsened			Coal	Coal use promotion
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	-	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		CO2 Emission	CO2 Emission reduction	-	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	



Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Malaysia	Worsened	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development		
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	-	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price contr	Yes	
		Price and subsidy	Natural gas consumer price contr	Yes	
		Price and subsidy	Electricity tariff control	Yes (in Sabah)	
		Myanmar	Worsened	Coal	
Crude oil	Alternative fuel			-	
Natural gas	Natural gas use promotion			-	
Nuclear	Nuclear development			No	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			No	
Biofuels & wastes	Renewables development			No	
CO2 Emission	CO2 Emission reduction			No	
Price and subsidy	Coal consumer price control			-	
Price and subsidy	Oil product consumer price contr			Yes	
Price and subsidy	Natural gas consumer price contr			-	
Price and subsidy	Electricity tariff control			-	
New Zealand	Improved then worsened			Coal	Coal use promotion
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price contr	No	
		Price and subsidy	Natural gas consumer price contr	No	
		Price and subsidy	Electricity tariff control	No	
		Philippines	Relatively worsened	Coal	Coal use promotion
Crude oil	Alternative fuel			Yes	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			Yes	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development			Yes	
CO2 Emission	CO2 Emission reduction			Yes	
Price and subsidy	Coal consumer price control			No	
Price and subsidy	Oil product consumer price contr			No	
Price and subsidy	Natural gas consumer price contr			No	
Price and subsidy	Electricity tariff control			No	
Thailand	Worsened			Coal	Coal use promotion
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	No	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price contr	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
		Vietnam	Worsened	Coal	Coal use promotion
Crude oil	Alternative fuel			-	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			Yes	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development			Yes	
CO2 Emission	CO2 Emission reduction				
Price and subsidy	Coal consumer price control			Yes	
Price and subsidy	Oil product consumer price contr			Yes	
Price and subsidy	Natural gas consumer price contr			Yes	
Price and subsidy	Electricity tariff control			Yes	

Annex 1-27 CO2 Emission/Fossil fuel

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	No change	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	No	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		CO2 Emission	CO2 Emission reduction	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Indonesia	Relatively worsened	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development		
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development		
		CO2 Emission	CO2 Emission reduction		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Japan	No change	Coal	Coal use promotion	No	
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	No	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Korea	Improved	Coal	Coal use promotion	Yes	Yes
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	Worsened	Coal	Coal use promotion	-	No
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	-	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		CO2 Emission	CO2 Emission reduction	-	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	





Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Malaysia	No change	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development		
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	-	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes (in Sabah)	
		Myanmar	Improved	Coal	
Crude oil	Alternative fuel			-	
Natural gas	Natural gas use promotion			-	
Nuclear	Nuclear development			No	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			No	
Biofuels & wastes	Renewables development			No	
CO2 Emission	CO2 Emission reduction			No	
Price and subsidy	Coal consumer price control			-	
Price and subsidy	Oil product consumer price control			Yes	
Price and subsidy	Natural gas consumer price control			-	
Price and subsidy	Electricity tariff control			-	
New Zealand	No change			Coal	Coal use promotion
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
		Philippines	Relatively worsened	Coal	Coal use promotion
Crude oil	Alternative fuel			Yes	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			Yes	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development			Yes	
CO2 Emission	CO2 Emission reduction			Yes	
Price and subsidy	Coal consumer price control			No	
Price and subsidy	Oil product consumer price control			No	
Price and subsidy	Natural gas consumer price control			No	
Price and subsidy	Electricity tariff control			No	
Thailand	No change			Coal	Coal use promotion
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	No	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
		Vietnam	no change	Coal	Coal use promotion
Crude oil	Alternative fuel			Yes	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			Yes	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development			Yes	
CO2 Emission	CO2 Emission reduction				
Price and subsidy	Coal consumer price control			Yes	
Price and subsidy	Oil product consumer price control			Yes	
Price and subsidy	Natural gas consumer price control			Yes	
Price and subsidy	Electricity tariff control			Yes	

Annex 1-28 CO2 Emission/GDP

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	No change	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	No	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		CO2 Emission	CO2 Emission reduction	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control		
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Indonesia	Worsened	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development		
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development		
		CO2 Emission	CO2 Emission reduction		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
Japan	Improved	Coal	Coal use promotion	No	Yes
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	No	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
Korea	Improved	Coal	Coal use promotion	Yes	Yes
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes	
Laos	Worsened	Coal	Coal use promotion	-	No
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	-	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		CO2 Emission	CO2 Emission reduction	-	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
		Price and subsidy	Electricity tariff control	-	



Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Malaysia	Worsened	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development		
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	-	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control	Yes	
		Price and subsidy	Electricity tariff control	Yes (in Sabah)	
		Myanmar	Improved	Coal	
Crude oil	Alternative fuel			-	
Natural gas	Natural gas use promotion			-	
Nuclear	Nuclear development			No	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			No	
Biofuels & wastes	Renewables development			No	
CO2 Emission	CO2 Emission reduction			No	
Price and subsidy	Coal consumer price control			-	
Price and subsidy	Oil product consumer price control			Yes	
Price and subsidy	Natural gas consumer price control			-	
Price and subsidy	Electricity tariff control			-	
New Zealand	No change			Coal	Coal use promotion
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
		Price and subsidy	Electricity tariff control	No	
		Philippines	Relatively worsened	Coal	Coal use promotion
Crude oil	Alternative fuel			Yes	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			Yes	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development			Yes	
CO2 Emission	CO2 Emission reduction			Yes	
Price and subsidy	Coal consumer price control			No	
Price and subsidy	Oil product consumer price control			No	
Price and subsidy	Natural gas consumer price control			No	
Price and subsidy	Electricity tariff control			No	
Thailand	Worsened			Coal	Coal use promotion
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	No	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
		Vietnam	no change	Coal	Coal use promotion
Crude oil	Alternative fuel			-	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			Yes	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development			Yes	
CO2 Emission	CO2 Emission reduction				
Price and subsidy	Coal consumer price control			Yes	
Price and subsidy	Oil product consumer price control			Yes	
Price and subsidy	Natural gas consumer price control			Yes	
Price and subsidy	Electricity tariff control			Yes	

Annex 1-29 CO2 Emission/Population

Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Cambodia	Worsened	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	No	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	No	
		Biofuels & wastes	Renewables development	No	
		CO2 Emission	CO2 Emission reduction	No	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control		
		Price and subsidy	Natural gas consumer price control		
Indonesia	Worsened	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development		
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development		
		CO2 Emission	CO2 Emission reduction		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price control	Yes	
		Price and subsidy	Natural gas consumer price control		
Japan	Worsened	Coal	Coal use promotion	No	No
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	No	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	No	
Korea	Worsened	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	Yes	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	Yes	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	No	
		Price and subsidy	Natural gas consumer price control	Yes	
Laos	Worsened	Coal	Coal use promotion	-	No
		Crude oil	Alternative fuel	-	
		Natural gas	Natural gas use promotion	-	
		Nuclear	Nuclear development	-	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	-	
		Biofuels & wastes	Renewables development	-	
		CO2 Emission	CO2 Emission reduction	-	
		Price and subsidy	Coal consumer price control	-	
		Price and subsidy	Oil product consumer price control	-	
		Price and subsidy	Natural gas consumer price control	-	
Price and subsidy	Electricity tariff control	-			



Country	ESI	Policy			Correlation
	Improved/Worsened/ No change	Description	Specific policy	Yes/No	
Malaysia	Worsened	Coal	Coal use promotion	Yes	No
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development		
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	-	
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price contr	Yes	
		Price and subsidy	Natural gas consumer price contr	Yes	
		Price and subsidy	Electricity tariff control	Yes (in Sabah)	
		Myanmar	Worsened	Coal	
Crude oil	Alternative fuel			-	
Natural gas	Natural gas use promotion			-	
Nuclear	Nuclear development			No	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			No	
Biofuels & wastes	Renewables development			No	
CO2 Emission	CO2 Emission reduction			No	
Price and subsidy	Coal consumer price control			-	
Price and subsidy	Oil product consumer price contr			Yes	
Price and subsidy	Natural gas consumer price contr			-	
Price and subsidy	Electricity tariff control			-	
New Zealand	Worsened			Coal	Coal use promotion
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	No	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	Yes	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction	Yes	
		Price and subsidy	Coal consumer price control	No	
		Price and subsidy	Oil product consumer price contr	No	
		Price and subsidy	Natural gas consumer price contr	No	
		Price and subsidy	Electricity tariff control	No	
		Philippines	Relatively worsened	Coal	Coal use promotion
Crude oil	Alternative fuel			Yes	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			Yes	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development			Yes	
CO2 Emission	CO2 Emission reduction			Yes	
Price and subsidy	Coal consumer price control			No	
Price and subsidy	Oil product consumer price contr			No	
Price and subsidy	Natural gas consumer price contr			No	
Price and subsidy	Electricity tariff control			No	
Thailand	Worsened			Coal	Coal use promotion
		Crude oil	Alternative fuel	Yes	
		Natural gas	Natural gas use promotion	Yes	
		Nuclear	Nuclear development	No	
		Hydro	Hydro development	No	
		Geothermal, wind, other	Renewables development	Yes	
		Biofuels & wastes	Renewables development	Yes	
		CO2 Emission	CO2 Emission reduction		
		Price and subsidy	Coal consumer price control		
		Price and subsidy	Oil product consumer price contr	Yes	
		Price and subsidy	Natural gas consumer price control		
		Price and subsidy	Electricity tariff control		
		Vietnam	Worsened	Coal	Coal use promotion
Crude oil	Alternative fuel			-	
Natural gas	Natural gas use promotion			Yes	
Nuclear	Nuclear development			Yes	
Hydro	Hydro development			Yes	
Geothermal, wind, other	Renewables development			Yes	
Biofuels & wastes	Renewables development			Yes	
CO2 Emission	CO2 Emission reduction				
Price and subsidy	Coal consumer price control			Yes	
Price and subsidy	Oil product consumer price contr			Yes	
Price and subsidy	Natural gas consumer price contr			Yes	
Price and subsidy	Electricity tariff control			Yes	

## **Annex 2 Policies**



## Annex 2-1 Cambodia

### **Hydro power**

The total potential of HPP in Cambodia is 10,000MW. To increase the energy security and reliable supply, there several domestic HPP and Coal power plant are under construction. In 2012, total existing HPP is about 200MW, while the HPP under construction is totally 750MW and coal power is 505MW that will complete in a few years later. From the PDP, the total install capacity in the country is about 6,300MW by 2020.

### **Resource development**

2001; Royal decree NS/RKM/1701/09 dated on July 13, 2001, Law on Mineral Resource Management and Exploitation (Including petroleum, oil resources, natural gas)

### **Electrification**

2003; No.27 dated January 28, 2003, Electricity Authority of Cambodia, Regulatory Treatment of Extension of Transmission & Distribution Grid in Cambodia.

2011; No. 1053/MIME, dated on November 30, 2011 on the establishment of strategy and plan for rural electrification development in the Kingdom of Cambodia.

Based on the government target, there are two targets for providing the electricity in the whole country: 1-all villages in Cambodia have access to electricity of any type by the 2020, and 2-at least 70% of all households in Cambodia have access to grid quality electricity by the year 2030. In 2011, the electrification increased to 35%.

### **Supply reliability**

2001; Royal Decree No. 0201/03, dated February 02, 2001 to promulgate the Electricity Law of the Kingdom of Cambodia and Establishing the Electricity Authority of Cambodia (EAC) for regulating the electricity power services, granting the right and obligation and penalize, if necessary, the supplier and consumer of electricity in relation to electricity generation and supply facilities.

2004; No.470 dated July 16, 2004, Ministry of Industry, Mines and Energy, Establishing the General Requirement of Electric Power Technical Standards of Cambodia.

2007; No. 796 dated August 9, 2007, Ministry of Industry, Mines and Energy, Amended the General Requirement of Electric Power technical Standards of the Kingdom of Cambodia issued by No. 470, dated July 16, 2004.

### **Electricity tariffs**

2007; No.113 dated October 26, 2007, Electricity Authority of Cambodian Regulations on General Principles for Regulating Electricity Tariffs in Cambodia.

Annex 2-2 China

<p><b>Coal mining</b>  1995: Issue procedures for coal exploration and coal mining;  1996: Issue Coal Law (中华人民共和国煤炭法)  1997: Issue measures on coal mining management</p>
<p><b>Coal use promotion</b>  2006: Energy Intensity Reduction Target  2007: National Climate Change Program  2011: The Twelfth Five-Year Plan for National Economic and Social Development of The Peoples Republic of China</p>
<p><b>Refinery construction, Natural gas use promotion</b>  2011: The Twelfth Five-Year Plan for National Economic and Social Development of The Peoples Republic of China (Give priority to the development of large liquefied natural gas (LNG) and liquefied petroleum gas (LPG) vessels, ocean-going fishing vessels, luxury liners, and other high-tech and high-added-value vessels. )</p>
<p><b>Alternative fuel</b>  2007: National Climate Change Program  2009: Renewable Energy Law amendments  2011: The Twelfth Five-Year Plan for National Economic and Social Development of The Peoples Republic of China</p>
<p><b>Nuclear development</b>  2011: The Twelfth Five-Year Plan for National Economic and Social Development of The Peoples Republic of China (develop nuclear power in the eastern costal region and some areas in central China mainly).</p>
<p><b>Hydro development</b>  1996: Brightness Programme  2001: Reduced VAT for renewable energy  2006: Renewable Energy Law  2006: Renewable Energy Development Targets  2007: National Climate Change Program</p>
<p><b>Wind energy development</b>  1996: Brightness Programme  2001: Reduced VAT for renewable energy  2006: Renewable Energy Law  2006: Renewable Energy Development Targets  2007: National Climate Change Program  2009: Onshore wind feed-in Tariff  2009: Offshore Wind developmnet plan  2009: Renewable Electricity Surcharge  2009: Golden Sun Programme  2010: Building Integrate Solar PV Programme  2011: Solar PV feed-in tariff</p>
<p><b>Biofuel development</b>  1996: Brightness Programme  2001: Reduced VAT for renewable energy  2006: Renewable Energy Law  2006: Renewable Energy Development Targets  2007: National Climate Change Program  2010: 2010 Biomass electricity Feed-in tariff</p>
<p><b>Electrification, supply reliability</b>  2006: The 11th Five-Year Plan for National Economic and Social Development of The Peoples Republic of China  2006: Expansion of Local Cogeneration (CHP)  2011: The 12th Five-Year Plan for National Economic and Social Development of The Peoples Republic of China</p>

**Energy conservation/efficiency**

2004: Medium and Long-term Plan of Energy Conservation: 10 Energy Conservation Programmes

2005: Vehicle Fuel Economy Standards

2006: Efficiency Upgrade for Electric Motors

2007: Retirement of Inefficient Plants

**CO2 Emissions**

2007: National Climate Change Program

2011: The 12th Five-Year Plan for National Economic and Social Development of The Peoples Republic of China

## Annex 2-3 Indonesia

<p><b>Resource Development</b></p> <p>2006; Blue Print of National Energy Policy, 2006 - 2025, where the share of oil decreases while coal, gas, and renewable energy increase.</p> <p>2006; Energy Supply Mix Target 2025; President Regulation no 5/2006, with the objective is energy security and move away from oil dependency.</p> <p>Crash Program I for coal power plant development and crash Program II for coal and RE (geothermal) power plant.</p> <p>2010; MEMR Regulation no 3/2010 concerning allocation and utilization of natural gas for domestic consumption.</p>
<p><b>Oil stocks</b></p> <p>GOI control the oil stock for 21 days, although the definition of the oil stock has not clear yet.</p>
<p><b>Commercial energy access</b></p> <p>1970s; Although since 1970s, GOI announce target for increasing the electricity access, however, in some area (mostly outside Java island) are still lack of access for commercial energy particularly electricity. Past development of electricity facilities focuses in Java island.</p>
<p><b>Supply reliability</b></p> <p>Lack of power supply in most area (outside Java island) of Indonesia causes the SIDI SAIFI in Indonesia power supply system are relatively high.</p> <p>1965; Since the establishment of PLN (state electricity enterprises) in 1965, PLN was the only company for power generation, transmission and distribution, and electricity retails in the country.</p> <p>2000; After new regulation (200), private (foreign of domestic) company are encouraged to invest in the power generation plant.</p>
<p><b>Energy conservation/efficiency</b></p> <p>1980s; RIKEN (national energy conservation plan) has been developed since 1980s.</p> <p>2010; MEMR Regulation no 14/2010 concerning energy manager of each company to manage their consumption.</p> <p>2011; MEMR Regulation 06/2011 concerning energy efficient labeling.</p> <p>2012; MEMR Regulation no. 13/2012 concerning efficiency in electricity demand.</p>
<p><b>CO2 Emissions</b></p> <p>2011; GOI announce non-binding commitment to reduce 26% below BAU level of emission in 2020 with domestic budget, and further reduced until 41% if there is international support GOI produced two new regulation reducing CO2 emissions, i.e. Presidential regulation no. 61/2011 (concerning national GHG emission mitigation action plan and no. 71/2011 national GHG emission inventory).</p>
<p><b>Oil subsidies</b></p> <p>1970s; Since 1970s, GOI gave subsidy for oil price in the country, although since 2000s, this kind of subsidy gradually decrease (only fro transportation).</p>

## Annex 2-4 Japan

<p><b>Resource development</b></p> <p>1955: Coal Mining Restructuring Law (Rationalization of coal mining had led to shift to cheaper imported coal gradually.)</p> <p>2002: Subsidies for domestic production coal were eliminated.</p>
<p><b>Alternative fuel</b></p> <p>1973: 1st Oil Shock</p> <p>1979: IEA announced a policy to prohibit energy firms from building new oil-fired power plants.</p> <p>1980: Law Concerning Promotion of the Development and Introduction of Alternative Energy (other than petroleum)</p>
<p><b>Import source country diversity</b></p> <p>After 1st Oil Shock, Japan adopted crude oil import source diversity policy.</p>
<p><b>Oil stocks</b></p> <p>1971: Private Sector Stockpiling program (60 days) was announced.</p> <p>1973: 1st Oil Shock</p> <p>1974: IEA was founded (Japan is a founding member)</p> <p>1975: Petroleum Stockpiling Law</p> <p>1978: National Stockpiling program was started.</p> <p>1981: 90 days Private Sector Stockpiling program was completed.</p> <p>1998: National Stockpiling target (50 million kiloliters of crude oil) was completed.</p>
<p><b>Nuclear development</b></p> <p>1955: Atomic Energy Basic Law</p> <p>Electricity sector is regulated by Electric Utilities Industry Law, 1949.</p> <p>(Standard tariff and other conditions of supply must be approved by Ministry of economy, Trade and Industry, METI. In order to be approved, the tariff for supply of electricity shall be the sum of the fair and proper cost of electricity and the fair and proper profits under efficient management.)</p> <p>Electricity tariff regulation is based on fully distributed cost method.</p>
<p><b>Supply reliability</b></p> <p>Electricity sector is regulated by Electric Utilities Industry Law, 1949.</p> <p>Electricity utilities are obliged to supply electricity for customer who require it and responsible to secure power supply for their supply area.</p> <p>Supply reliability is regulated by METI. Ministry ordinances set power quality standards (voltage and frequency). METI can order utilities to improve facilities if service quality to customer is impaired.</p>
<p><b>Energy conservation/efficiency</b></p> <p>1973: 1st Oil Shock</p> <p>1979: Energy Conservation Law</p> <p>The Government has adopted a range of tax and subsidy schemes to promote energy efficiency across sectors.</p> <p>Top Runner program</p>

Annex 2-5 Korea

<p><b>Resource development</b></p> <p>1969: Law concerning promotion of Development of Coal industries (subsidies for domestic production) .</p> <p>1978: 1st commercial NPP has been started to operating.</p> <p>2004: Gas field in Block 6-1 in East Sea, offshore Korea which was discovered in 1998 by KNOC has started to produce.</p>
<p><b>Coal, Natural gas use promotion</b></p> <p>After 2nd oil shock: Increasing importing coal and introduction of LNG</p> <p>1986: Coal industry rationalization policy had lead to reduce coal production and close down uneconomical mines.</p> <p>After financial crisis in the end of 1990s, the consumption of Anthracite turns to increasing.</p>
<p><b>Import source country diversity</b></p> <p>After 2nd oil shock: policy for diversity of import source countries</p> <p>-oil: 1981(7) -&gt; 1986(21), -coal: 1978(3) -&gt; 1986(8)</p>
<p><b>Alternative fuel</b></p> <p>1987: Law concerning promotion of the development and Introduction of Alternative energy</p>
<p><b>Electricity</b></p> <p>1961: Government established Electricity sole producer KEPCO</p> <p>1967: Private sector can be permitted to generation sector due to promoting private investment</p> <p>1999: Electricity Restructuring Law in order to promote competition and reduction of generation costs</p>
<p><b>Energy conservation/efficiency</b></p> <p>1980: Law for rationalization of energy Use. KEMCO(Korea Energy management Corp) was established</p> <p>2004: 3rd basic plan for rationalization for energy use (energy intensity reduction target by 2008: 0.28)</p> <p>2008: 4th Basic plan for rationalization of Energy Use(2008-2012) (Energy intensity improving target from 2007 to 2012 was set by 11.3%)</p>
<p><b>Oil stocks</b></p> <p>1978: 2nd Oil Shock</p> <p>1980: 1st plan for Oil stockpiling was enacted</p> <p>1988: 60 days public Sector Stockpiling was completed.</p> <p>1992: Private sector oil stockpiling program was started</p>
<p><b>Renewable energy development</b></p> <p>1993: First Basic plan for Rationalization of Energy Use</p> <p>1997: First Basic plan for technology development and deployment for NRE</p> <p>2008: Comprehensive plan for adapting to climate Change</p>
<p><b>Hydro development</b></p> <p>After 2nd oil shock, in mid-long term energy supply plan, Hydro development plan has been activated</p> <p>2003: Small hydro was included as one of Renewable energy</p>
<p><b>Price control</b></p> <p>1995: Oil business law was enacted</p> <p>1997.1: Oil product price has been liberalized</p>

## Annex 2-6 Laos

### **History of the Power Sector Development in Lao PDR**

- Memoranda of Understanding on the power exchange program were signed with the Royal Thai Government in 1993, 1996, 2006 and 2007 under which 7,000 MW is to be developed and supplied to Thailand by the year 2020;
- The “1995 Mekong Agreement and Procedural Rules” amongst the four Member countries of the Lower Mekong Sub-region was signed;
- In 1998 and 2006 MOUs’ for 5,000 MW were signed with the Government of Vietnam;
- In 1999, Agreement on Cooperation in Power Sector was signed with the Government of Cambodia;
- First Power Sector Strategy was developed in 2000;
- National Policy on Environmental and Social Sustainability of the Lao Hydropower Sector was issued in 2006;

Note: MOU’s are only long term indicative guidelines.

### **Objectives of Power Sector Development**

- Expand Rural Electrification to promote better socio-economic conditions of people in isolated communities;
- Supply reliable and affordable power to all sectors of the domestic demand;
- Export of excess electricity to provide a source of revenues to fund economic and social development and alleviate poverty;
- Explore and exploit mutually beneficial cross border exchanges of electricity with neighboring countries of the sub-region;
- Integrate power sector with international communities through power exchange programs and foreign direct investment.

### **Lao PDR: National Energy Policy**

- Maintain and expand affordable, reliable and sustainable electricity supply to promote economic and social development. Electrification Ratio to exceed 90% by 2020;
- Improve and expand transmission networks to support the industrialization and modernization policy, and to integrate the power sector in the ASEAN community through its power exchange programs;
- Tap the country’s large hydropower potentials with the participation of private developers;
- Promotion of Renewable Energy to reach 30% by 2025 with reasonable feed-in tariff.

**NATIONAL PETROLEUM POLICY 1975**

- Aims at regulating the oil and gas industry to achieve the country's economic development needs.

1. Making available adequate supplies at reasonable prices to support national economic development objectives, thus, placing the application of oil and gas resources to serve national needs as first priority.
2. Promoting greater Malaysian representation and providing a favourable investment climate, including creating opportunities for downstream industries.
3. Effecting an optimal social and economic pace of exploration of the country's endowment of exhaustible oil and gas resources, taking into account the need for conservation of these depleting assets and the protection of the environment.

**NATIONAL ENERGY POLICY 1979**

1. **Supply Objective:** To ensure the provision of adequate, secure and cost effective energy supply through developing indigenous energy resources, both non-renewable and renewable energy sources, and diversification of supply sources both from within and outside the economy.
2. **Utilisation Objective:** To promote the efficient utilisation of energy and elimination of wasteful and non productive patterns of energy consumptions.
3. **Environment Objective:** To minimise the negative impacts of energy production, transportation, conversion, utilisation and consumption on the environment.

**NATIONAL DEPLETION POLICY 1980**

1. The national depletion policy of 1980 was aimed at safeguarding the depleting oil reserves.

**FOUR-FUEL POLICY 1980**

1. Complementing the national depletion policy and aimed at ensuring reliability and security of supply.
2. Designed to reduce the country's over dependence on oil as the energy source by mixing oil, gas, hydropower and coal in energy use.
3. As much as possible, local resources will be used to enhance security of supply. Though diversification away from oil has been significant, most of this has been towards natural gas.

**FIVE-FUEL POLICY 2001**

1. A safe, cost-effective, secure energy supply which means promoting renewable, cogeneration, diversification, efficiency and using auditing, financial and fiscal incentives, technology development, and labeling.
2. Efficient utilization of energy through the introduction of new regulations and amendments to present laws.
3. Adequacy of electricity generating capacity.

**RENEWABLE ENERGY POLICY 2010**

1. **The Policy Vision:** Enhancing the utilisation of indigenous RE resources to contribute towards national electricity supply security and sustainable socioeconomic development.
2. **The Objectives:**
  - (i) To increase the contribution of RE in the national power generation mix;
  - (ii) To facilitate the growth of the RE industry;
  - (iii) To ensure reasonable RE generation costs;
  - (iv) To conserve the environment for future generations;
  - (v) To enhance awareness on the role and importance of RE.
3. **Strategic Thrusts:**
  - Thrust 1: Introduce an appropriate regulatory framework;
  - Thrust 2: Provide a conducive environment for RE businesses;
  - Thrust 3: Intensify human capital development;
  - Thrust 4: Enhance RE research and development;
  - Thrust 5: Design and implement an RE advocacy programme.

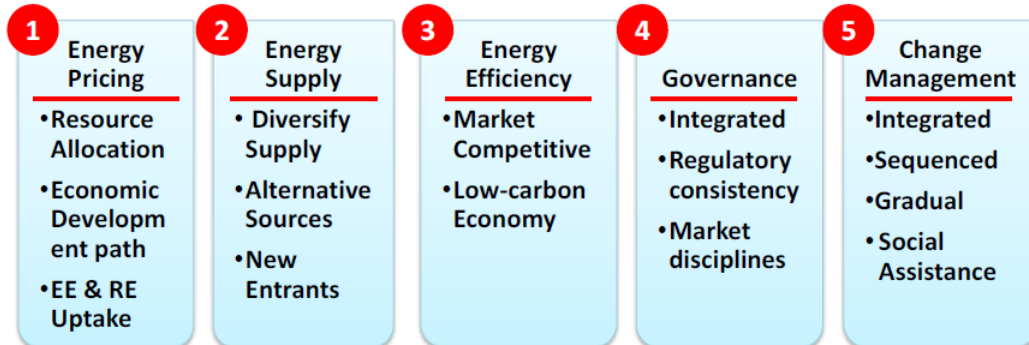


## New Energy Policy 2010: 10<sup>th</sup> Malaysian Plan

### The New Energy Policy objectives

- Supply Security
- Economic Efficiency
- Social & Environment

### FIVE PILLARS



Source: EPU

## Annex 2-8 Myanmar

### **1989: Energy Policy**

1. To maintain the Status of Energy Independence
2. To promote wider use of New and Renewable Sources of Energy
3. To promote Energy Efficiency and Conservation
4. To promote Use of Alternative Fuels in household
5. To Implement Effective Utilization of Discovered Crude Oil and Natural Gas Resources in the Interest of the Entire Nation including the Regions where the discovery was made.
6. To Promote more Private Participation

### **2000: Coal Policy**

1. To implement APAEC (1999-2004), (2004-2009), (2010-2015) and AFOC work plan 2010-2011.
2. To collect on production and consumption of coal by state – owned and private sector.
3. To increase coal production and consumption so that coal based energy be increased in energy mix.
4. To control pollution caused by coal.
5. To lead and take responsibility on international cooperation on coal.

### **Electricity Policy (MOEP – 1)**

1. To promote construction of transmission facilities of the National Grid and Substations so as to meet the expected increasing generated power due to the fifth short term five year plan
2. To provide technology and policy matters for the rural areas which are located in the off-grid areas
3. To fulfill electricity facilities to the off-grid rural areas by means of establishing mini-hydropower plants and diesel generators
4. To maintain the generated electricity quality so as to achieve stable distribution through reduced power losses
5. To generate electricity by utilizing natural gas power plants and gas turbines other than the hydropower plants
6. To employ hydroelectric power as one vital source; maintaining the natural gas power plants as short term power sources
7. To generate and distribute more electricity for economic development
8. To maintain and reduce electric power losses so as to acquire sufficient energy in future
9. To promote electricity from new and renewable sources of energy

### **Electricity Policy (MOEP – 2)**

1. To employ the available energy resources in power generation for the sufficient supply of electricity
2. To promote the effective and efficient use of electricity for future energy sufficiency, reserves and sustainability in our nation
3. To conduct the reliable power quality to be supplied safely
4. To enhance the electricity distribution system to be developed in accordance with the advance technologies
5. To adopt the environment-friendly ways in electricity generation, transmission and distribution
6. To encourage the expansion of power transmission and distribution throughout the country and Public-Private-Participation in each other

## Annex 2-9 New Zealand

### **Coal mining**

- 1975 to 1989 New Zealand Coal Resources Survey, major government-funded coal-exploration programme, which explored almost all of New Zealand's realistic coal prospects
- 1991 Crown Minerals Act, legislative framework for permits to prospect, explore and mine Crown-owned oil, gas and minerals, sets royalty paid to government (although does not apply to privately owned coal, approx. 50%)
- 1991 Resource Management Act, legislative framework for consents to construct buildings or infrastructure, change land use or for other activities that affect the environment
- 2000s Policies that have disadvantaged energy sources that generate greenhouse gas emissions and advantaged renewables

### **Crude oil development**

- 1988 Deregulation of the oil industry, removed price controls, government involvement in the refinery, licensing of wholesalers and retailers, and restrictions on imports of refined products
- 1991 Crown Minerals Act, governs allocation of rights to and management of all petroleum in its natural state and sets royalty paid to government
- 2000s Policies that have disadvantaged energy sources that generate greenhouse gas emissions and advantaged renewables
- Also influenced by developments in transport sector, since 2007 higher oil prices, subdued economic conditions, Emissions Trading Scheme and more fuel efficient vehicles have slowed growth in transport energy demand

### **Oil stocks**

- Since 2007, New Zealand's compliance with the IEA International Energy Programme's 90-day oil stocks obligation has been met through a combination of domestic commercial stocks and "ticket" contracts (an option to purchase stock in an IEA declared emergency) for stocks held in other IEA member countries; our government has entered into bilateral Arrangements with the governments of Australia, United Kingdom and Denmark and has concluded formal Agreements (treaties) with the Netherlands and Japan to enable stocks held in those countries to count towards New Zealand's IEA obligations.

### **Natural gas development**

- 1987 to 1988 Gas industry reforms began, government sold off its interests in gas production, transmission and distribution
- 1991 Crown Minerals Act, governs allocation of rights to explore and exploit natural gas and sets royalty paid to government
- 1992 Gas Act, set regulatory framework for industry self-regulation
- 1993 Removal of gas price controls
- 2003 to 2004 Gas Pipeline Inquiry by Commerce Commission, resulted in application of 1986 Commerce Act to gas pipeline services (transmission and distribution), regulatory framework for preventing abuse of market power in markets where there is little or no competition
- 2004 Amendments to 1992 Gas Act, introduced co-regulatory model of gas governance following failure of industry to self-regulate
- 2008 Commerce Amendment Act, amended the 1986 Commerce Act
- 2000s Policies that have disadvantaged energy sources that generate greenhouse gas emissions and

advantaged renewables

### **Renewable energy development**

- 1965 Government commissioned construction of under-sea transmission line between South Island and North Island, allowed strong growth in hydro capacity in South Island to serve large demand centres in North Island
- 1991 Resource Management Act, legislative framework for consents to construct buildings or infrastructure, change land use or for other activities that affect the environment
- 2002 New Zealand ratified the Kyoto Protocol to United Nations Framework Convention on Climate Change, set binding obligations to reduce emissions of greenhouse gases
- 2004 Resource Management (Energy and Climate Change) Amendment Act, amended the 1991 Resource Management Act to require decision-makers to have particular regard to benefits associated with use and development of renewable energy sources
- 2007 Government's Energy Strategy expressed preference for renewables, set target of 90% of electricity supply from renewable sources by 2025 and imposed moratorium on new thermal generation for base load supply
- 2008 New government lifted moratorium but retained renewables growth target as "aspirational"
- 2008 Emissions Trading Scheme introduced
- 2010 Emissions Trading Scheme applied to electricity generation, industrial processes and transport fuels, imposes obligation to purchase emissions entitlements to offset their greenhouse gas emissions from operation

### **Supply reliability**

- 1950s to 1970s Construction of national transmission grid, including under-sea transmission line between South Island and North Island
- 1987 Electricity generation and transmission responsibilities transferred from government to state owned enterprise
- 1988 Generation and transmission sections separated
- 1991 Resource Management Act, legislative framework for consents to construct buildings or infrastructure, change land use or for other activities that affect the environment
- 1992 Electricity Act, regulatory framework for electricity industry
- 1994 Transmission section became independent state owned enterprise
- 1994 Metering and Reconciliation Information Agreement, established to facilitate bi-lateral trading of electricity between buyers and sellers
- 1996 New Zealand Electricity Market established, a wholesale spot market for buying and selling electricity
- 1996 and 1999 Generation section split into several businesses (three state owned enterprises and one privatised) to introduce competition
- 1998 Electricity Industry Reform Act and amendments, required the separation of generation and retail businesses from distribution business, to develop competitive retail market
- 2001 Application of 1986 Commerce Act to transmission and distribution businesses, regulatory framework for preventing abuse of market power in markets where there is little or no competition
- 2003 Electricity Governance Regulations and Rules, governing operation of electricity market and establishing Electricity Commission to manage electricity market, following industry's failure to achieve improved self-governance arrangements

- 2007 Government Energy Strategy, expressed preference for renewables, set target of 90% of electricity supply from renewable sources by 2025, retained by new government in 2008 as “aspirational” growth target
- 2008 Commerce Amendment Act, amended the Commerce Act 1986
- 2010 Electricity Industry Act, replaced Electricity Commission with Electricity Authority, tasked with governing the electricity market
- 2000s Policies that have disadvantaged energy sources that generate greenhouse gas emissions and advantaged renewables

**Energy conservation/efficiency**

- 2000 Energy Efficiency and Conservation Act, established the Energy Efficiency and Conservation Authority to raise public awareness, undertake research and administer regulations for minimum performance standards of appliances
- 2002 New Zealand ratified Kyoto Protocol
- 2008 New Zealand introduced Emissions Trading Scheme

**CO2 Emissions**

- 2000 Energy Efficiency and Conservation Act, established the Energy Efficiency and Conservation Authority (EECA) to raise public awareness, undertake research and administer regulations for minimum performance standards of appliances
- 2002 New Zealand ratified the Kyoto Protocol to United Nations Framework Convention on Climate Change , set binding obligations to reduce emissions of greenhouse gases
- 2004 Resource Management (Energy and Climate Change) Amendment Act, amended the 1991 Resource Management Act to require decision-makers to have particular regard to benefits associated with use and development of renewable energy sources
- 2007 Government Energy Strategy expressed preference for renewables, set target of 90% of electricity supply from renewable sources by 2025 and imposed moratorium on new thermal generation for base load supply
- 2008 New government lifted moratorium but retained renewables growth target as “aspirational”
- 2008 Emissions Trading Scheme introduced
- 2010 Emissions Trading Scheme came into effect for electricity generation, industrial processes and transport fuels, imposes obligation to purchase emissions entitlements to offset their greenhouse gas emissions from operation

**Refinery**

- 1962 National oil refinery built
- 1973 Refinery expanded
- 1981 to 1986 Refinery further expanded
- 1988 Deregulation of the oil industry included removal of government involvement in the refinery

**Biofuel development**

- 2007 Bill introduced to require petrol and diesel to have a percentage of biofuels added
- 2008 New government repealed parts of the Bill and removed mandatory requirement for all fuel to contain a percentage of biofuel
- 2009 to 2012 Biodiesel Grants Scheme

## Annex 2-10 Philippines

### **Coal mining**

1917: Act No. 2719 - An act to provide for the leasing and development of coal lands in the Philippine Islands.

1936: Commonwealth Act No. 137, Mining Act - An act to provide for the conservation, disposition and development of mineral lands and minerals

1995: Republic Act No. 7942 - This Act shall be known as the 'Philippine Mining Act'...instituting a new system of mineral resources exploration, development, utilization, and conservation.

1976: Presidential Decree 972, Coal Development Act of 1976 - This Act provides for the active and systematic exploration, exploitation, development, disposition and utilization of Philippine coal resources. This decree introduced the Philippine coal service contract system and established the appropriate guidelines for coal operations.

1977: Presidential Decree 1174 - This Act amends PD 972 and awards additional incentives to coal operators through the reimbursement of all operating expenses not exceeding ninety percent (90%) of the gross income after deducting all operating expenses, likewise the granting of timber and water rights within the coal contract area and access to government reserved lands subject to applicable laws and guidelines by the concerned agencies.

### **Crude oil development**

1920: Act No. 2932 - An act to provide for the exploration, location and lease of lands containing petroleum and other mineral oils and gas in the Philippine islands.

1949: Republic Act No. 387, Petroleum Act of 1949 - An act to promote the exploration, development, exploitation, and utilization of the petroleum resources of the Philippines; to encourage the conservation of such petroleum resources; to authorize the secretary of agriculture and natural resources to create an administration unit and a technical board in the Bureau of Mines.

1971: Republic Act No. 6173, Oil Industry Commission Act - Declaring a national policy on the petroleum industry, regulating the activities and relations of persons and entities engaged therein, establishing an Oil Industry Commission to effectuate the same, and defining its functions, powers and objectives, and for other purposes.

1972: Presidential Decree No. 87 - This Act shall be known as the 'Oil Exploration and Development Act'...providing incentives for petroleum service.

2000: Department Circular No. 2000-05-009 - Establishment of a Corridor of Focus as part of the window of opportunity for Philippine Petroleum Exploration.

2003: Department Circular 2003-05-005 - Establishing procedures for contract area definition and public contracting rounds in petroleum prospective areas.

2003: Department Circular 2003-05-006, Amends to Petroleum Board Circular Nos. 15 and 2 series of 1975 and 1976 - Providing guidelines to the financial and technical capabilities of a viable petroleum exploration and production company.

### **Alternative fuel**

2006: Republic Act No. 9367, Biofuels Act of 2006 - To direct the use of biofuels, establishing the Biofuels Program

2008: Joint Administrative Order 2008-1 - Establishing the guidelines governing the biofuel feedstocks production, and biofuels and biofuel blends production, distribution and sale under Republic Act 9367

### **Natural gas development**

1967: Republic Act No. 5092, Geothermal Energy, Natural Gas and Methane Gas Law - An act to promote and regulate the exploration, development, exploitation and utilization of geothermal energy, natural gas and methane gas; to encourage its conservation; and for other purposes

1995: Department Circular No. 95-06-006 - Policy Guidelines on the overall development and utilization of natural gas in the Philippines.

1995: Executive Order 254 - Creating the Philippine Gas Project Task Force

1998: Administrative Order 381 - Providing for the fulfillment by the National Power Corporation of its

obligations under the agreement for the sale and purchase of natural gas dated December 30, 1997 with Shell Philippines Exploration B.V./Occidental Philippines, Inc. and the compliance of the national government, through the Department of Finance and the Department of Energy with its performance undertaking therefore and other purposes.

2000: Republic Act No. 8997 - An act granting First Gas Holding Corporation a franchise to construct, install, own, operate and maintain a natural gas pipeline for the transportation and distribution of natural gas to different areas in the island of Luzon

2001: Proclamation No. 72 - Establishing safety and exclusion zones for offshore natural gas wells, flowlines, platform, pipelines, loading buoy and other related facilities for the Malampaya Deep Water Gas to Power Project over certain waters and submerged lands adjacent to Batangas, Mindoro and Palawan, Philippines.

2002: Department Circular No. 2002-08-005 - Sets the interim rules and regulations governing the transmission, distribution and supply of natural gas.

2003: Department Order 2003-04-004 - Constituting the steering committee on the Batangas-Manila (BAT-MAN I) and Bataan-Manila (BAT-MAN II) natural gas pipeline projects.

#### **Nuclear development**

1957: Republic Act No. 1815 - To create the Philippine Nuclear Energy Commission to administer , regulate, and control the use, application, and disposition of fissionable materials; to authorize the establishment and administration of an atomic energy reactor; to determine the manner of development, use and control of atomic energy, to provide funds therefore, and for other purposes.

2007: Department Order 2007-11-0012 - Creation and composition of the DOE Task Force on Nuclear Power Program

#### **Hydro development**

1990: Republic Act No. 7156, Mini-hydroelectric Power Incentives Act - Granting incentives to mini-hydroelectric power producers and for other purposes

1977: Presidential Decree 1068 - Directing the acceleration of research, development and utilization of non-conventional energy resources and vesting in the energy development board powers and functions in connection therewith, and for other purposes.

2008: Republic Act No. 9513, Renewable Energy Act - An act promoting the development, utilization and commercialization of renewable energy resources

2009: National Renewable Energy Program -Outlines the policy framework enshrined in Republic Act 9513. It sets the strategic building blocks that will help the country achieve the goals set forth in the Renewable Energy Act of 2008.

#### **Geothermal, other renewable energy development**

1967: Republic Act No. 5092, Geothermal Energy, Natural Gas and Methane Gas Law - To promote and regulate the exploration, development, exploitation and utilization of geothermal energy, natural gas and methane gas; to encourage its conservation; and for other purposes.

1977: Presidential Decree 1068 - Directing the acceleration of research, development and utilization of non-conventional energy resources and vesting in the energy development board powers and functions in connection therewith, and for other purposes.

1978: Presidential Decree No. 1442 - An act to promote the exploration and development of geothermal resources.

1980: Proclamation No. 2036A - Establishing as reservation of PNOG Energy Development Corporation for geothermal exploration, exploitation and utilization the parcel of land situated in the provinces of Albay and Sorsogon, Island of Luzon and prohibition of logging activities within the reservation.

1997: Executive Order No. 462 - Enabling the private sector participation in the exploration, development, utilization and commercialization of ocean, solar, wind resources for power generation and other energy uses.

2008: Republic Act No. 9513, Renewable Energy Act - An act promoting the development, utilization and commercialization of renewable energy resources

<p>2009: National Renewable Energy Program -Outlines the policy framework enshrined in Republic Act 9513. It sets the strategic building blocks that will help the country achieve the goals set forth in the Renewable Energy Act of 2008.</p>
<p><b>Biofuel development</b></p> <p>2000: Republic Act No. 9003, Ecological Solid Waste Management Act - It is hereby declared the policy of the State to adopt a systematic, comprehensive and ecological solid waste management program</p> <p>2006: Republic Act No. 9367, Biofuels Act of 2006 - To direct the use of biofuels, establishing the Biofuels Program</p> <p>2008: Joint Administrative Order 2008-1 - Establishing the guidelines governing the biofuel feedstocks production, and biofuels and biofuel blends production, distribution and sale under Republic Act 9367</p> <p>2008: Republic Act No. 9513, Renewable Energy Act - An act promoting the development, utilization and commercialization of renewable energy resources</p> <p>2009: National Renewable Energy Program -Outlines the policy framework enshrined in Republic Act 9513. It sets the strategic building blocks that will help the country achieve the goals set forth in the Renewable Energy Act of 2008.</p>
<p><b>Electrification</b></p> <p>1999: Rural Electrification Program - To provide electric services to the people to yield more opportunities for improved quality of life, greater access to basic services and better infrastructure for rural development.</p> <p>2001:Republic Act No. 9136 -This Act shall be known as the 'Electric Power Industry Reform Act'...ordaining reforms in the electric power industry, amending for the purpose certain laws and for other purposes.</p>
<p><b>Supply reliability</b></p> <p>1992: Republic Act No. 7638, Department of Energy Act - to ensure a continuous, adequate, and economic supply of energy with the end in view of ultimately achieving self-reliance in the country's energy requirements through the integrated and intensive exploration, production, management, and development of the country's indigenous energy resources, and through the judicious conservation, renewal and efficient utilization of energy to keep pace with the country's growth and economic development and taking into consideration the active participation of the private sector in the various areas of energy resource development; and</p> <p>- to rationalize, integrate, and coordinate the various programs of the Government towards self-sufficiency and enhanced productivity in power and energy without sacrificing ecological concerns.</p> <p>2001:Republic Act No. 9136 -This Act shall be known as the 'Electric Power Industry Reform Act'...ordaining reforms in the electric power industry, amending for the purpose certain laws and for other purposes.</p> <p>2011:Department Circular No. 2011-06-0006 -Creating the Steering Committee Defining the Policies for the Commencement of Retail Competition and Open Access.</p>
<p><b>Energy conservation/efficiency</b></p> <p>1992: Republic Act No. 7638, Department of Energy Act - to ensure a continuous, adequate, and economic supply of energy with the end in view of ultimately achieving self-reliance in the country's energy requirements through the integrated and intensive exploration, production, management, and development of the country's indigenous energy resources, and through the judicious conservation, renewal and efficient utilization of energy to keep pace with the country's growth and economic development and taking into consideration the active participation of the private sector in the various areas of energy resource development; and</p> <p>- to rationalize, integrate, and coordinate the various programs of the Government towards self-sufficiency and enhanced productivity in power and energy without sacrificing ecological concerns.</p> <p>National Energy Efficiency and Conservation Program - Provides a framework in the government's efforts to promote efficient and judicious utilization of energy as an essential strategy in rationalizing the country's demand for petroleum products and eventually lessening the impact of escalating prices to the</p>



economy.

2004: Administrative Order 110 - Directing the Institutionalization of a Government Energy Management Program

2005: Administrative Order 126 - Strengthening measures to address the extraordinary increase in world oil prices, directing the enhanced implementation of the Government's Energy Conservation Program

2008: Department Circular 2008-09-0004 - To enforce the requirement for an ESCO to apply for a certificate of accreditation with the DOE while engaging in any energy efficiency related performance contracting projects.

**CO2 Emissions**

2009: Republic Act No. 9729 - An act mainstreaming climate change into government policy formulations, establishing the framework strategy and program on climate change, creating for this purpose the climate change commission, and for other purposes.

2011: A Resolution approving the National Climate Change Action Plan (NCCAP) - A milestone in "green governance" that details the short, medium, and long-term plans of the government on the issue.

1992: Republic Act No. 7638, Department of Energy Act - to ensure a continuous, adequate, and economic supply of energy with the end in view of ultimately achieving self-reliance in the country's energy requirements through the integrated and intensive exploration, production, management, and development of the country's indigenous energy resources, and through the judicious conservation, renewal and efficient utilization of energy to keep pace with the country's growth and economic development and taking into consideration the active participation of the private sector in the various areas of energy resource development; and

- to rationalize, integrate, and coordinate the various programs of the Government towards self-sufficiency and enhanced productivity in power and energy without sacrificing ecological concerns.

**Deregulation**

1998: Republic Act No. 8479, Downstream Oil Industry Deregulation Act - to define the regulatory framework for the downstream oil industry, based primarily on the guiding principle of a truly competitive market under a regime of fair prices, adequate and continuous supply of environmentally-clean and high-quality petroleum products.

## Annex 2-11 Thailand

<p><b>Crude oil development</b> 1971: Petroleum Exploration Law -In 1971, Thailand promulgated the Petroleum Act (PA) and the Petroleum Income Tax Act (PITA). -The PA established a concession system based on the Consideration Bases, and nine Ministerial Regulations were issued in 1971 dealing with major subjects under that act. -The PITA established an income tax system applicable only to concessionaires, with tax rates between 50% and 60%. A tax rate of 50% was prescribed by a Royal Decree.</p>
<p><b>Coal mining</b> 1972: Coal-Fire plant in Maemo using domestic lignite, account for 15% share in fuel mix.</p>
<p><b>Natural gas development</b> 1981: The First Gas Separations in Thailand using NG from Gulf of Thailand, then Thailand uses NG from it for power generation. Today NG becomes the largest fuel for power gen., using both domestic and imported NG. (1998: Myanmar–Thailand gas pipeline was completed.)</p>
<p><b>Alternative fuel, renewable energy development</b> 1995: Renewable policy in power generation and for oil substitution under renewable plan.</p>
<p><b>Alternative fuel, biofuel development</b> Oil substitution, Thailand turns to use other fuels to substitute some oil, which are NGV, LPG and Biofuel (Ethanol and biodiesel). - Heavy traffic jam pushes up oil demand. - The alternative energy use of the transportation section is promoted for the purpose of reduction of the oil import and reduction of the air pollution.</p>
<p><b>Energy conservation/efficiency</b> 1992: ECON Fund act funding for saving energy, collecting the fund from tax (levy) on oil price. Energy conservation policy began in 1995, supported by ECON Fund.</p>
<p><b>Price control</b> 1979: Oil Fund, to secure the oil price, and then 2004 the act purpose has been changed to prevent the oil shortage.</p>
<p><b>Oil stock</b> 2000: Oil stock law, 36 days today and the target at 90 days.</p>

Annex 2-12 Vietnam

<b>Nuclear development</b> 2008: Atomic Energy Law: Nuclear Power Generation Development (By 2020, plan to build a nuclear reactor.)
<b>Resource development</b> In December 1986, the government mandated the Doi Moi (open door) policy, shifting from a centrally planned economy to a market oriented one, inside the framework of state regulations.
<b>Coal mining</b> The coal mining operations are undertaken by the Vietnam National Coal Corporation (VINACOAL ; 2005 ~ VINACOMIN) which was established in 1994 to manage both the coal production and its marketing. VINACOAL sets the sale price for domestic coal at a level where costs are equal to revenues or where firms break-even. The State Price Committee is responsible for evaluating coal prices and submitting them to the Government for approval. Roadmap to reduce subsidies of coal price for fertilizer, Pulp and paper, Cement and Power sector
<b>Crude oil development</b> The Vietnam Oil and Gas Corporation (Petrovietnam) is a state-owned enterprise established in 1975 and controlled by the Prime Minister's Office. Petrovietnam is responsible for crude oil and gas exploration, production and transportation.
<b>Energy development</b> 2007: National Energy Development Strategy of Vietnam for the period up to 2020 with outlook to 2050 -Establishment of energy market -Roadmap to reject subsidies for energy price -Diversity of energy sources
<b>Electrification, supply reliability</b> 2005: Electricity law
<b>Energy conservation/efficiency</b> 2010: Law on energy efficiency and conservation