



APERC Workshop at EWG52
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4-1. PRLCE in Viet Nam

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**Asia-Pacific
Economic Cooperation**

1. Background of APEC PRLCE

2. Overview of Viet Nam

3. PRLCE in Viet Nam



1. Background of APEC PRLCE

Initiated by APEC Energy Ministers' 2010 Fukui Declaration

Objectives of PRLCE (Peer Review on Low Carbon Energy Policies)

- **Share information** on low carbon energy performance as well as on policies and measures for improving and promoting low carbon energy in respective economies;
- Provide opportunities for **learning from the experiences** of other economies and for broadening the network among low carbon policy experts;
- Explore **how low carbon goals** on an overall and/or sectoral basis and action plans could be effectively formulated in each economy under review, taking into account the range of possible strategies that could be used, according to the circumstance of each economy;
- **Monitor progress** on attaining low carbon energy goals on an overall and/or sectoral basis and implementing action plans, if such goal and action plans have been already formulated at the time of the review; and
- **Provide recommendations for voluntary implementation** on how implementation of action plans could be improved with a view to achieving low carbon energy goals.

Background of APEC PRLCE (2)

PRLCE Main Responsibilities and Stakeholders

Host Economy

- Plan review process
- Prepare Documents for Review
- Source and provided data
- Assess the preliminary and the draft final report

APERC

- Prepare the guidelines for PRLCE
- Liaise with Host Economy on logistics and technical preparations
- Lead the expert review team
- Review the final report with Host Economy

Review Team

- Conduct the review
- Present findings and recommendations in the preliminary report
- Prepare the draft final report

EWG

- Discuss and Endorse the draft final report
- Report to APEC Senior Officials

* Thailand (21-25 May 2012)

- 10 experts
- 45 Recommendations

* Philippines (19-23 November 2012)

- 9 experts
- 45 Recommendations

* Indonesia (13-17 May 2013)

- 8 experts
- 51 Recommendations

* Malaysia (9-13 December 2013)

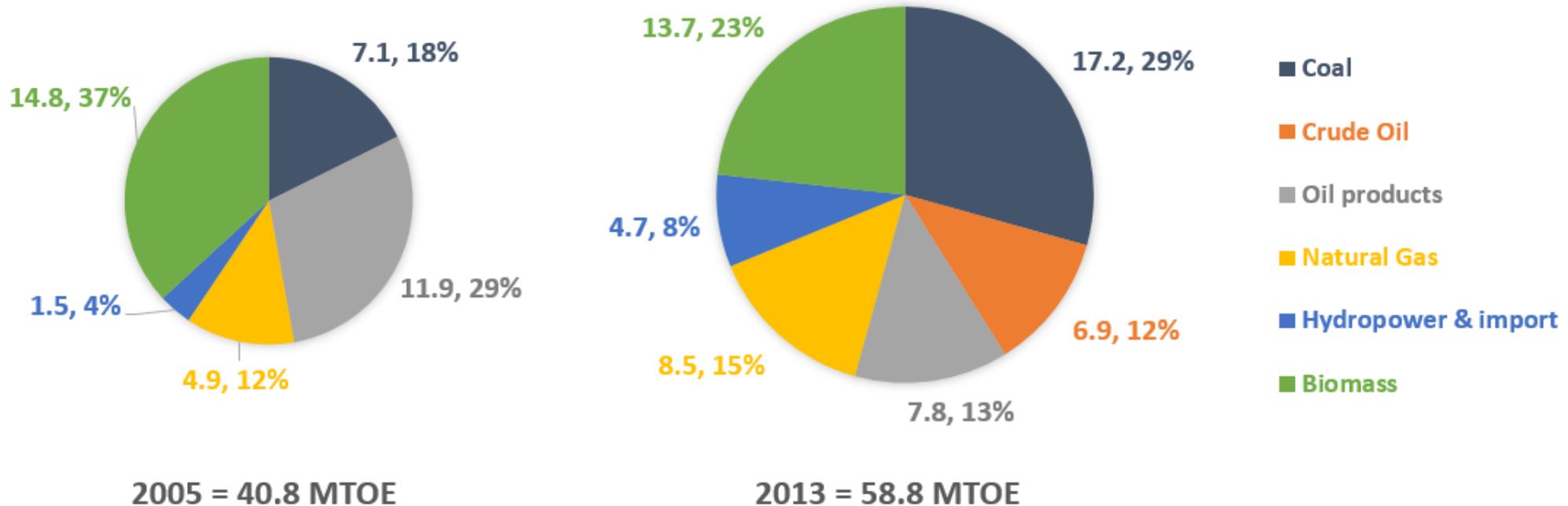
- 9 experts
- 52 Recommendations



2. Overview of Viet Nam

Overview of Viet Nam (1) Total Primary Energy Supply

Viet Nam's total primary energy supply, 2005 vs 2013



Sources: Institute of Energy, 2006; National Energy Efficiency Program (VNEEP) - Ministry of Industry and Trade (MOIT), 2015

Overview of Viet Nam (2) Power Capacity and Generation

Power installed capacity and generation in Viet Nam in 2013

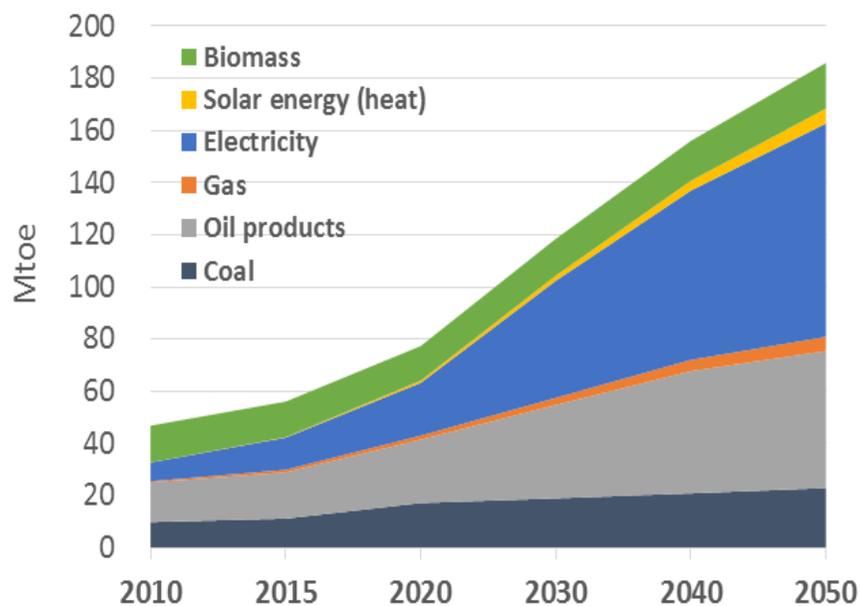
Power Type	Capacity (MW)	Share (%)	Generation* (GWh)	Share (%)
Large Hydro (>30 MW)	13,260	43.2	51,954	40.8
Coal thermal	7,116	23.2	26,863	21.1
Gas turbine	7,446	24.3	42,745	33.6
Oil thermal	912	3.0	249	0.2
Diesel	70	0.2	7	0.01
Other renewables	1,884	6.1	5,511	4.33
Small-hydro	1670	5.4	4,989	3.92
Wind	56	0.2	62	0.05
Biomass	150	0.5	460	0.36
Biogas / MSW	4	0.01		
Solar power	4	0.01		
Total	30,688	100%	127,329	100%

Note (*): Including only grid connected power plants

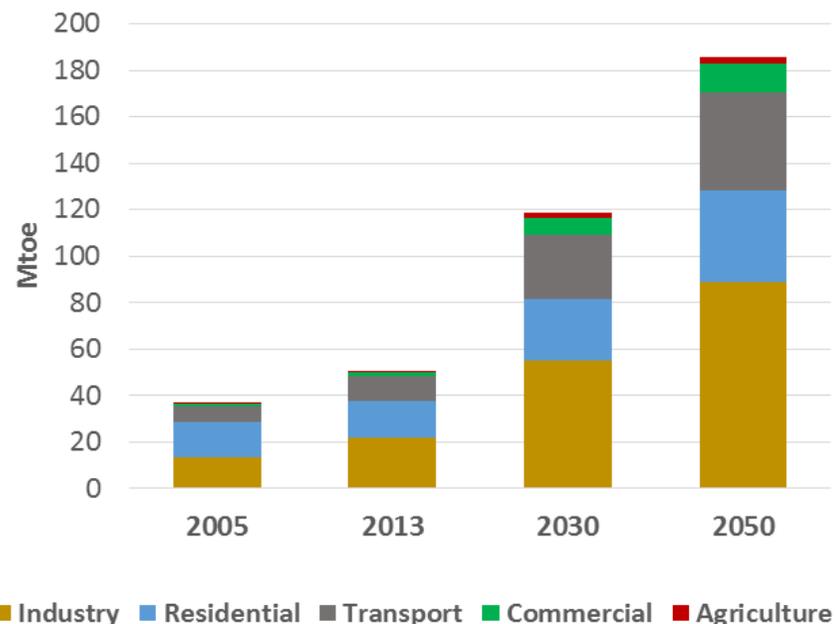
Source: MOIT, 2014; Viet Nam's Power Master Plan and 2016c; Viet Nam Power Generation and Import.

Overview of Viet Nam (3) Final Consumption

Viet Nam's final energy demand by source, 2005-2050



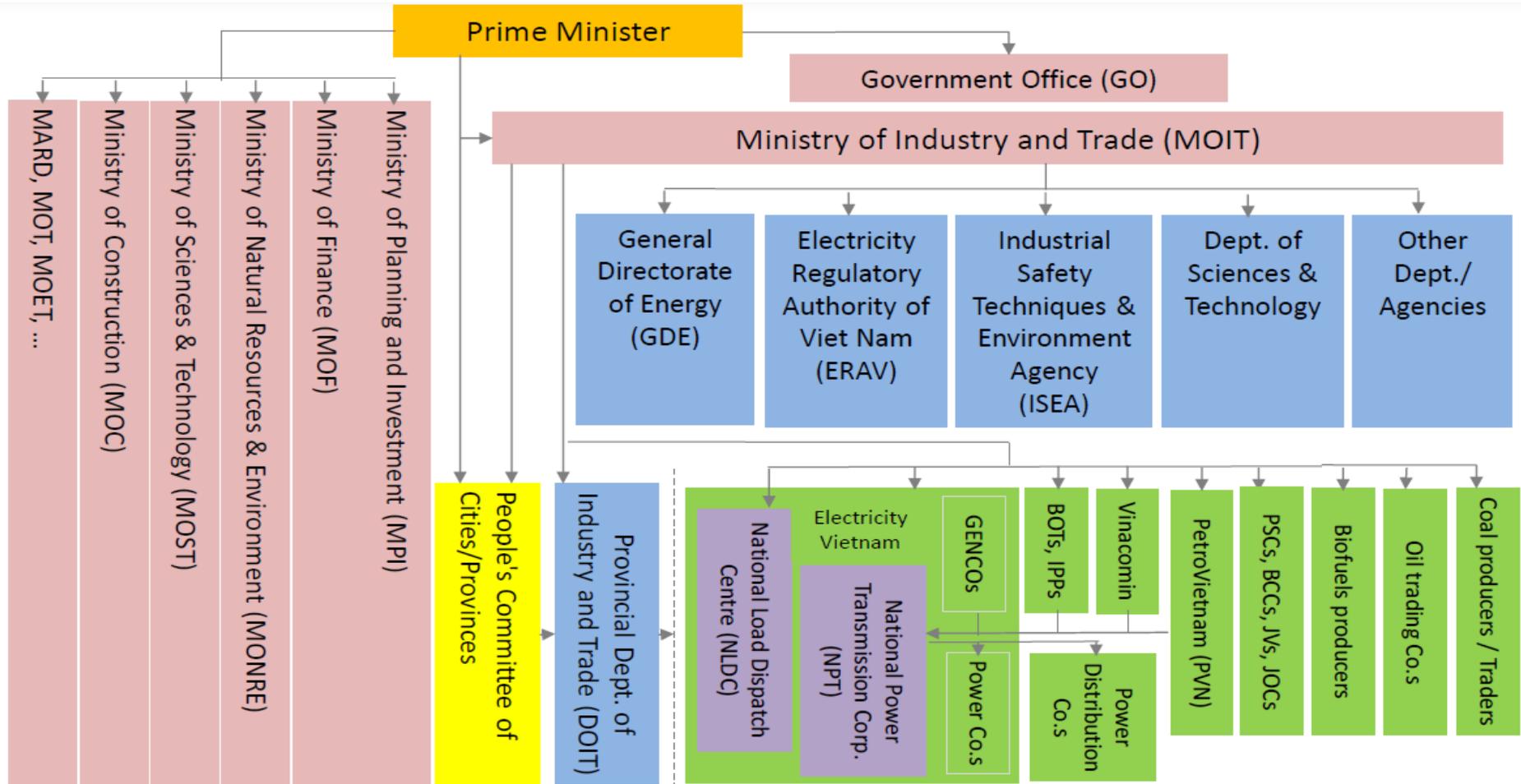
Viet Nam's final energy demand by sector, 2005-2050



Source: Institute of Energy, 2006; Current status of using renewable energy for power generation in Viet Nam and GOV, 2015; Summary study report on renewable energy strategy to 2030 with vision to 2050.

Overview of Viet Nam (4) Energy Sector Organisations

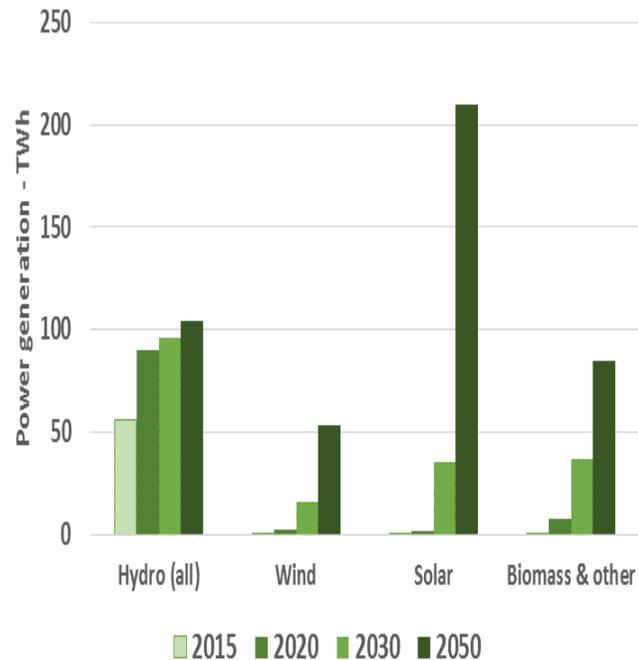
Simplified diagram of Institutional organization of energy sector in Viet Nam



Source: Made by APERC

Overview of Viet Nam (5) Renewable Power Development

Renewable power development orientations by subsector in Viet Nam, 2015-2050



Measure	2015 baseline	2020 target	2030 target	2050 target
primary energy supply from RE	25 Mtoe	37 Mtoe	62 Mtoe	138 Mtoe
RE in total primary energy supply	31.8%	31%	32.3%	44%
Electricity generation from RE	58 TWh	101 TWh	186 TWh	452 TWh
RE in total electricity generation	35%	38%	32%	43%
Electricity generation from hydropower	56 TWh	90 TWh	96 TWh	96 TWh
Installed capacity of pumped- storage hydropower	-	-	2,400 MW	8,000 MW
Electricity generation from wind	0.18 TWh	2.5 TWh	16 TWh	53 TWh
Wind power in total electricity generation	Negligible	1.0%	2.7%	5.0%
Electricity generation from solar	0.01 TWh	1.4 TWh	35.4 TWh	210 TWh
Solar power in total electricity generation	Negligible	0.5%	6%	20%
Electricity generation from biomass	0.6 TWh	7.8 TWh	37 TWh	85 TWh
Biomass power in total electricity generation	1.0%	3.0%	6.3%	8.1%

Source: Prime Minister of Viet Nam, 2015; Approving the development strategy of renewable energy of Viet Nam by 2030 with a vision to 2050



3. PRLCE in Viet Nam



- **Viet Nam PRLCE workshop in Hanoi (18-22 January 2016)**
 - – 8 focused areas and overarching issues for peer-review
 - – 7 nominated experts from APEC member economies
 - – 10 discussion sessions
 - – 1-day site visit to Hoa Binh hydropower (1920 MW)
 - – 39 Vietnamese participants from 10 organizations (*DOST-MOIT, GDE-MOIT, ERAV, PMO, IE, MOT, MOF, MONRE, MOST, EVN- Hoa Binh Hydro power*)
 - – 90% positive feedback on the workshop/project impacts from participants
 - – **66 recommendations**

PRLCE in Viet Nam (2) ~ Peer Review Team: Responsibility sharing

	Peer-review Contents	Leading Review Expert	Number of Recommendations
	Review Team Leader	-Mr. Takato Ojimi (APERC)	
1	Institutional Context	-Dr. Kazutomo Irie (APERC)	4
2	Low Carbon Energy Goals, Targets and Strategy	-Ms. Elizabeth Yeaman (NZ)	7
3	Regulation and Infrastructure	-Dr. Iain MacGill (AUS)	9+3
4	Bioenergy		
	Biofuels	-Dr. Karnnalin Theerarattananon (THA)	6
	Biomass	-Dr. Steven Hou-Peng Wan (CTP)	10
5	Wind energy	-Dr. Seokwoo Kim (ROK)	5
6	Solar PV, Small-Hydro, Geothermal energy	-Mr. Mario C. Marasigan (PHL)	4+2+2
7	Power Supply System		
	Feed-in-Tariff, Smart Grid	-Dr. Iain MacGill (AUS)	4+3
	Private participation	-Ms. Elizabeth Yeaman (NZ)	1
8	Greenhouse Gas Management	-Dr. Naoki Matsuo (JPN)	3
9	Overarching issues	-Ms. Fang-Chia Lee (APERC)	6
	Total		66

1 INSTITUTIONAL CONTEXT

Recommendation 4: It would be better to establish regular dialogue sessions between the MOIT and stakeholders on progress of RE planning and investment programs.

2 LOW CARBON ENERGY GOALS, TARGETS AND STRATEGY

Recommendation 5: Consider setting separate and clear targets for generation from small-hydro and run-of-river schemes; for solar farm and solar PV rooftop; and for biodiesel; also consider developing targets and policies for transport electrification.

Recommendation 9: Promptly establish/designate a focal competent agency responsible for the national energy statistics and national GHG emission inventory's data collection, analysis, verification and update.

3 REGULATION AND INFRASTRUCTURE

Recommendation 12: Shorten time lag between issuance of a sectoral strategy/program with the issuance of detailed regulations, guidelines for its implementation.

Recommendation 13: Facilitate genuine stakeholder engagement by establishing a single one-stop destination website that details progress on planned activities, including promoted investment programs (especially for renewables), with time frames and on-going assessment.

Recommendation 15: Provide greater transparency, information and campaigns to enhance societal trust and consensus on the need and opportunity for greater renewable energy deployment in Viet Nam.

Recommendation 17: Improve investment environment with clearer, specific and more transparent guidelines including permitting and registration requirements, fiscal incentives within the FiT and RPS arrangements

Recommendation 20: Better define the role of large/impounding hydropower generators in the national power development plan may facilitate the recognition of the need for the deployment of various renewables (particularly solar and wind)

Recommendation 21: Facilitate capacity building of key stakeholders in whole RE supply and deployment chain, including network operators, construction companies and the local renewable energy industry

4 BIOENERGY-BIOFUELS, BIOMASS

Recommendation 24: Set clearer near and long term biofuel targets and strategies with more details on storage and distribution infrastructure and economic regulations in order to boost effectively the biofuel production and consumption market in Viet Nam.

Recommendation 25: Consider promoting stronger uptake of E10 through a sale obligation on fuel retail. Adoption of a bioethanol blending ratio E10 target might be a better option than an E5 target not only to close the oversupply production-demand gap, but also in the aspect that E10 usage could reduce the risk of phase separation.

Recommendation 26: Raise more public awareness on bioethanol usage via campaign program designed to match with different target groups.

Recommendation 36: Study to promptly apply FiT as incentives for promoting biogas

5 WIND ENERGY

Recommendation 37: Invest to improve wind resource data reliability and consider establishing a specific agency responsible for unifying and managing wind resource data in an efficient way for wind power planning and development.

Recommendation 39: Consider the introduction of graded tariffs when designing FiT for wind power

6 SOLAR PV, SMALL-HYDRO, GEOTHERMAL ENERGY

Recommendation 43: Promptly establish the FiT system for solar power development to attract more private-sector participation.

Recommendation 47: Consider improving investment environment with clearer and more specific, transparent guidelines including potential sites, permitting and registration requirements, fiscal incentives under the FiT and RPS system

7 POWER SUPPLY SYSTEM - FEED-IN TARIFF (FIT), SMART GRID, PRIVATE PARTICIPATION

Recommendation 51: Consider mechanisms such as additional FiT premiums for renewable energy projects that provide greater industry and Viet Nam benefits in terms of transmission costs, regional demand needs and the temporal value of the energy they provide.

Recommendation 53: Need careful management of interactions between FiT and other policies such as RPS to avoid adverse interactions such as providing unreasonable advantages to incumbent market players

Recommendation 57: Particular attention should be given to ensuring SOEs and other existing participants do not receive unfair advantages under the policies developed so that new private participants can compete on a level playing field

8 GREENHOUSE GAS MANAGEMENT

Recommendation 58: Viet Nam should actively prepare for the development and introduction of domestic PDCA (Plan-Do-Check-Act)-cyclic evolutionally process on climate strategy

Recommendation 60: Viet Nam needs to re-assess the current INDC targets and upgrade them to prepare NDC1 with new methodologies

9 OVERARCHING ISSUES

Recommendation 61: To clarify targets, roadmap, supporting measures, as they may not be clear in some specific areas (e.g., hydropower, solar power, biodiesel).

Recommendation 62: To improve energy statistics with more detailed data by subsectors (e.g., new and renewable power, transportation data, environmental impacts), renewable energy resource data quality, hence helping the formulation of policy to be more precise.

Recommendation 66: To continue and strengthen regional and international cooperation, including APEC.



Thank you for your kind attention

<http://aperc.ieej.or.jp/>