



Overview of Recent Energy Regulatory Developments in Thailand

presented at Asia Pacific Energy Regulatory (APER) Forum 2018

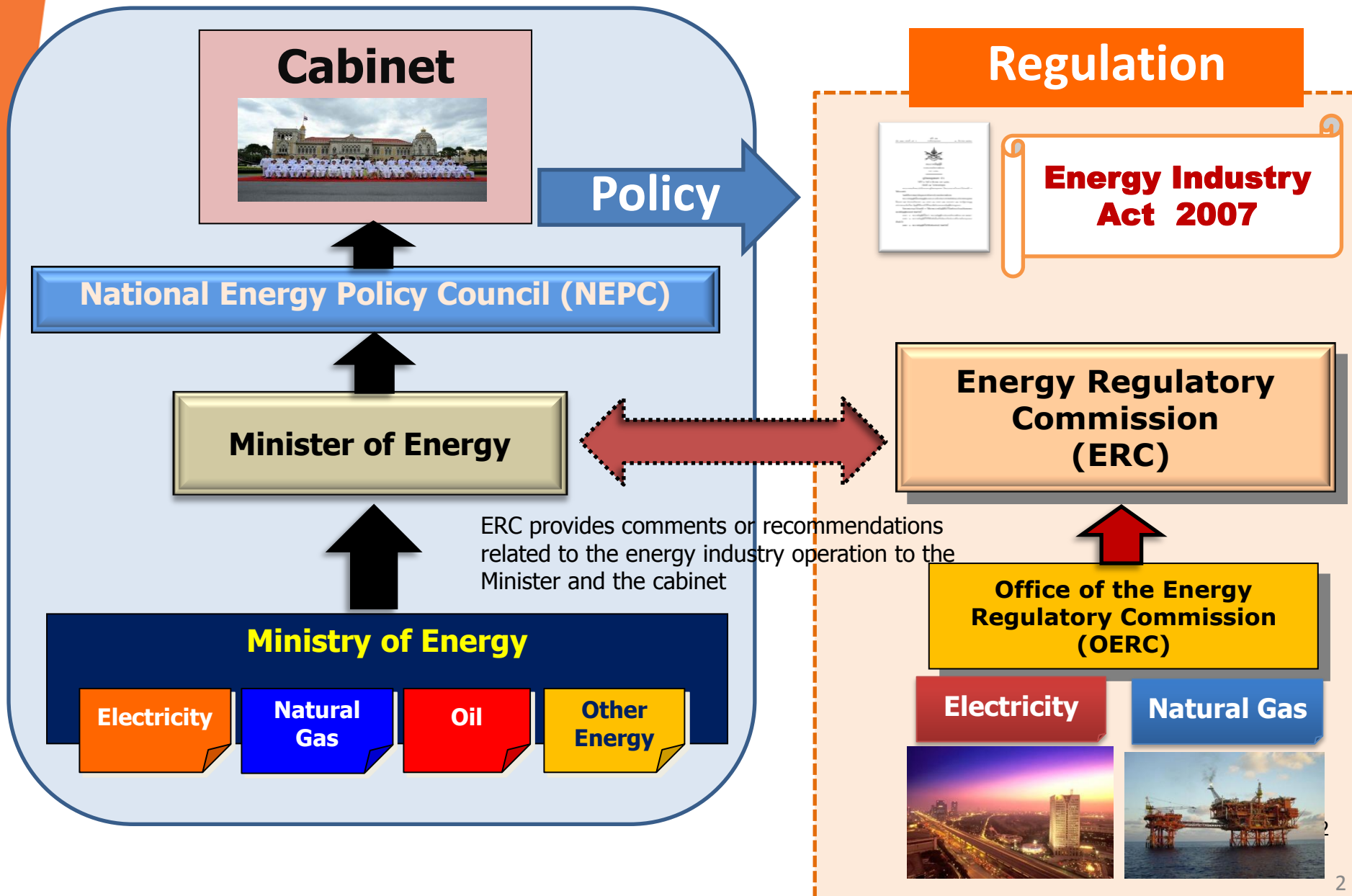
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Secretary General

Office of the Energy Regulatory Commission (OERC) Thailand

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Thailand's Energy Sector Management



ERC Authorities and Duties under Energy Industry Act 2007

Regulate through Licensing

Electricity

Generation



Transmission



Distribution



Retail



System Operator



Natural Gas

Supply & Wholesale



Transmission



Retail & Distribution



LNG terminal



Energy Security

- Regulate power purchase based on PDP (IPP/SPP/VSP - RE)
- Give opinions on energy development plans (e.g. PDP, gas procurement plan)
- FiT regulation & Wheeling Charges
- Demand Response
- Network systems & SO
- Promote competition

Standards

- One Stop Service Licensing
- Engineering & Environment (Code of Practice: COP)
- Quality of Services & Safety
- Improve PPAs/GSAs

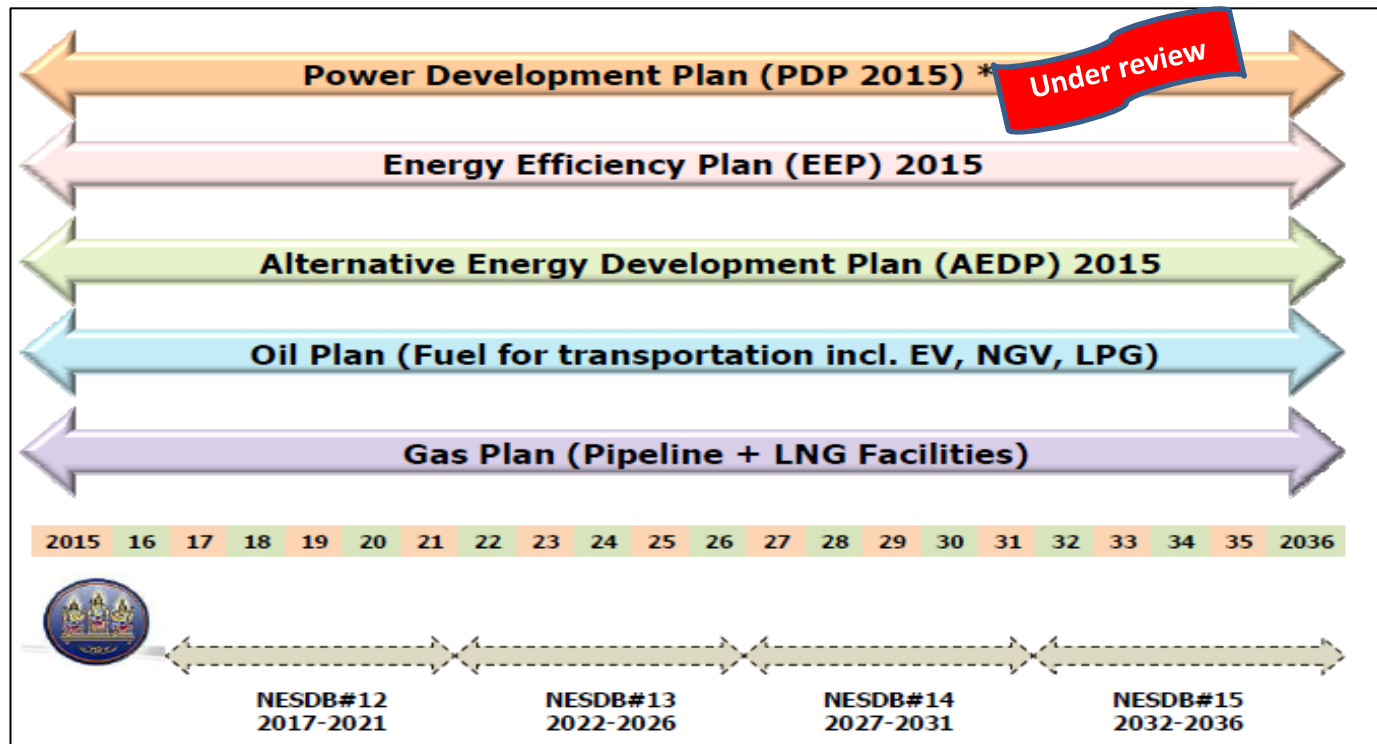
Tariffs

- Power tariff structure
- Power tariffs (Base Tariff + F_t)
- F_t formula
- NG transportation service tariffs
- TPA Codes

Consumers' Right Protection & Public Participation

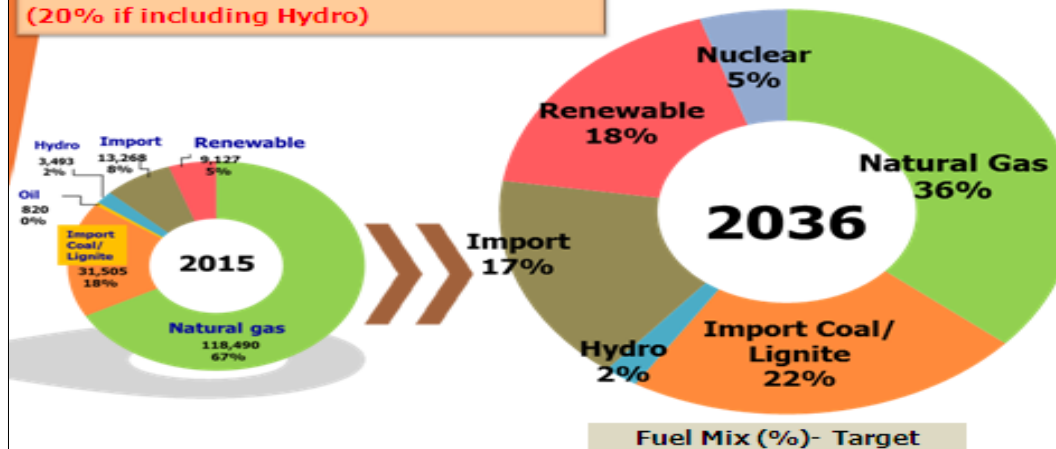
- Handle complaints, appeals, disputes
- Compensation for energy infrastructure construction
- Rights protection, RECC
- Power Development Fund

Thailand Integrated Energy Blueprint (TIEB)



Power Development Plan: PDP 2015 (2015-2036)

Target of RE Generation: increase from 5% in 2015 to 18% in 2036 (20% if including Hydro)



Status of RE Generation as at Sep 2018



Supplying to Grid

8,147 MW
(7,150 projects)



Committed as at Sep 2018

1,739 MW (152 projects)

PPA signed

1,243 MW
(101 projects)

Notified of acceptance

496 MW
(51 projects)

RE Type	Total Committed Generation Cap. from Purchase (MW)	IPS*	AEDP Target in 2036**	Remaining Capacity to Achieve the Target****
Waste	414	-	550	136
- MSW	377	-	500	123
- IW	37	-	50	13
Biomass	4,019	806	5,570	745
Biogas	445	57	1,280	778
Hydro	144	-	376	232
Wind	1,515	-	3,002	1,487
Solar	3,251	254	6,000	2,495
Others***	98	315	-	-
Total	9,886	1,432	16,778	5,873

* IPS exclusive of those exempted from license requirement

** AEDP target in 2036 (excluding large hydropower)

*** Others refer to REs other than those in the AEDP 2015, such as waste gas.

**** Excluding Others

Total RE Purchase

9,788 MW
(excl. Others 98 MW)



IPS from RE

1,117 MW
(excl. Others 315 MW)

AEDP Target of RE Gen in 2036

16,778 MW

65% of AEDP Target

RE Power Purchase Plan

2017

2018

2019



Solar (Phase 2) Government/ Agricultural Coop.

**Govt. 100 MW
Coop. 119 MW**

Announcement of
Selected Projects
3 Nov

PPA

2 Mar

SCOD: Dec 2018

NEPC resolution:
22 Oct 2014/13 Aug 2015,
26 Sep 2016/15 May 2017

FiT Bidding Biomass

Biomass 36 MW

PPA

12 Jan.

SCOD: Dec 2018

FiT Bidding Biogas

Biogas 10 MW

PPA

12 Jan

**Phase 1
SCOD: Dec 2018**

**Phase 2
SCOD: Jun 2019**

NEPC resolution:
15 Dec 2014/13 Aug 2015
21 Dec 2015

FiT MSW

86.4 MW

Announcement No. 5

6 Sep – Proposal
acceptance extended

SCOD: Dec 2021

NEPC resolution:
15 Dec 2014
21 Dec 2015

SPP Hybrid

300 MW

Announcement
of Outcome

14 Dec.

PPA

13 Dec 2019

NEPC resolution:
17 Feb 2017

**SCOD: as from 2020 to 31 Dec 2021
as per availability of the power
transmission system**

SCOD: Dec 2020/Jul 2021

VSP "Pracharat"

NEPC resolution: 17 Feb 2017

New PDP 2018

Under development.
Expected to complete
by the end of 2018

Security

Responding to power demand

- **Security of National Power System** Generation/ Transmission & Distribution in each area (Regional Grids)
- **Fuel Diversification** to reduce risk of over-dependency on merely one fuel type
- **Adequate Power Plants to Ensure Supply Security** being able to cope with energy crisis
- **Smart Grid Development** Develop small-scale power systems (Decentralized Generation: DG)

Economy

Reasonable generation cost

- **Appropriate power generation cost, with priority given to cheapest generation** to reduce power consumers' burden and not to hinder economic and social development in the long term
- **Improve efficiency of power generation, and priority given on the merit order**

Power tariff throughout the 20-year period under the new PDP must not be higher than the present tariff.

Ecology

Reduce environmental impact

- **Target of CO₂ emission mitigation** according to the Agreement (COP 21)
- **Promote Micro Grid in remote rural areas, industrial estates or EEC** to optimize the use of local resources and to reduce investment burden in power transmission systems
- **Promote Power System Efficiency** from generation to consumption/ **Promote Demand Response**

Approach to New PDP Development

1. Develop the new long-term Load Forecast
2. Manage electricity industry in 3 southern border provinces according to the "Pracharat" Scheme
3. Promote participation of the people sector via arrangement of hearing on Draft PDP
4. Develop the New PDP divided by region/ develop Power System Plan for 3 Southern Border Provinces; Evaluate the Supply in order to allocate the generation to Candidate Power Plants, apart from the Existing Capacity with PPA signed or purchase acceptance notified

Promotion of Competition in NG Industry

Third Party Access: TPA

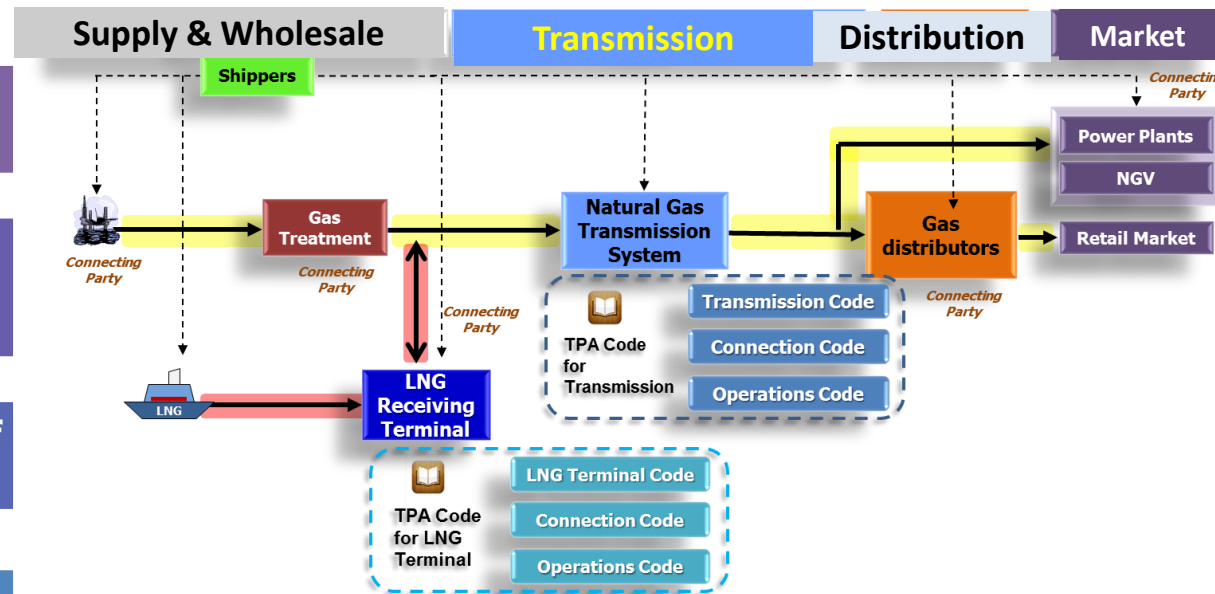
Stimulate competition

Promote investment

Optimize utilization of facilities

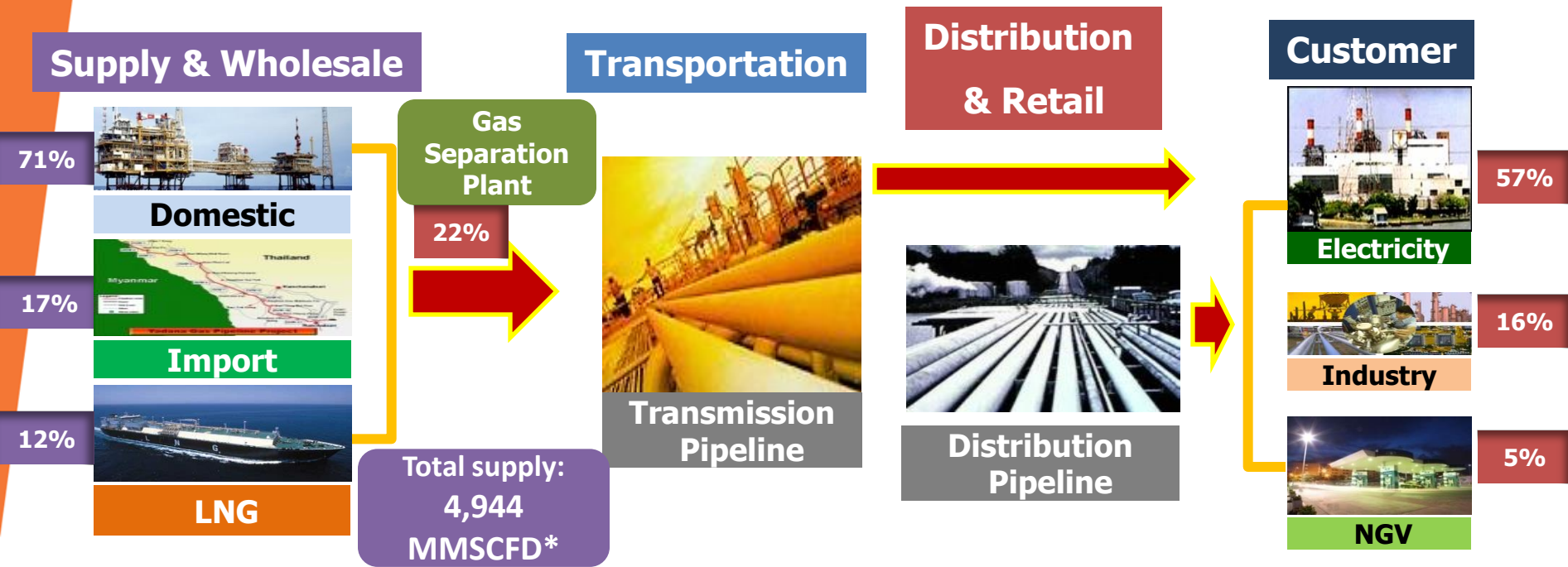
Incentive to improve efficiency

Reduce monopoly

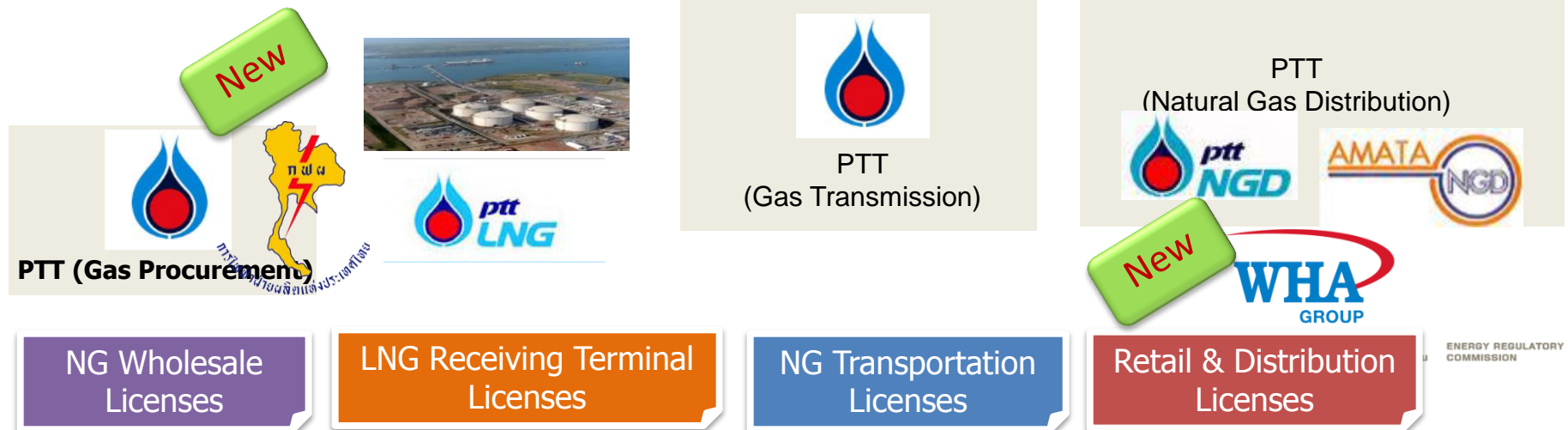


- ✓ ERC approved TPA Codes of PTT and PTTLNG to allow third party access to the use of or connection to NG transmission pipeline systems or LNG terminal.
- ✓ TPA Codes were announced on 30 March 2015.

TPA allows more Players in the Natural Gas Industry



* Source: EPPO (2018 – Jan-Aug data)



"Prosperity, Security, Sustainability"

Energy is mainly concerned with No. 2 & 5

"Prosperity"



Energy is in support of the following issues:

- Bio-agriculture
- Bio-industry
- National security-related industry
- Innovative technology infrastructure development

Issues of which energy is a crucial factor

- Development of security of water, energy, agriculture while maintaining environmental friendliness
- Development of national energy security & promote the use of clean energy
- Energy efficiency improvement & decrease in energy intensity

- Draft 20-Year National Strategic Plan was endorsed by the National Legislative Assembly on 6 July 2018.

Major Work Plans

- **Energy Industry Regulation:**
Power Tariffs, Standards, Licensing, Procurement/ Purchase

- Power Tariff Criteria for 2018-2020
- Power Tariff on Islands
- EV tariff
- OSS
- Waste-to-Energy
- Fast-growing trees, Biomass

- **Promote Competition/ Innovations**

- Voluntary Solar Roof
- Regulation of new businesses – EV, ESS
- Study on Competitive Approaches in Electricity & NG Industry
- Peer to Peer

- **Enhance Participation**

- Criteria for paying back interest from customer guarantee deposits (CGD)
- RECC potential development
- Fund money spending contributing to locality development

- **Organizational Development**

- Personnel with expertise/ professionalism
- Work process with good quality
- Leader of energy information

A New Age of Energy Regulation: Moving towards Smart Regulation



ERC 4.0

SMART Regulation

**Regulatory Procedures
Suitable for Thailand Digital Age**

**Setting rate for EV Charging and regulating
the EV charging station standards**

**Enforce the use of Energy Storage
to secure the power system**

**Issue relevant regulations for the purchase of
power generated from renewable energy**

**Promoting R&D and
applying ICT to
develop
"Smart Grid"**

**Determine rates to reduce peak
demand and monitor
the load balance (Demand
Response Program)
"Customer Participation"**

**Energy
4.0**



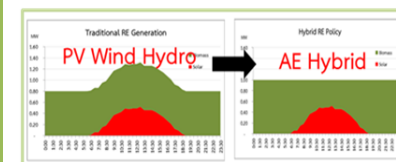
Electric Vehicle



Energy Storage



SPP Hybrid



Smart City



THANK YOU

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