Problems and solutions for the Electricity Sector

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Thai electricity sector has high Reserve Margin

- Since 2008, the **excess Reserve Margin** (above 15% peak) is **3,887 MW** (equal to three Xayaburi dam)
- In 2018, the **excess Reserve Margin** is **5,951 MW** (equal to five Xayaburi dam)
- Due to wrong power planning and Power Purchase Agreements with too many large power plant projects

**Source:** Ministry of Energy, PDP2015 and PDP2018
Peak demand growth is lower and even decrease


Peak demand growth 1999 - 2018 (EGAT system)

- 1999-2000: 6.4%
- 2001-2003: 3.8%
- 2004-2018: 1.4%

![Graph showing peak demand growth from 1999 to 2018 for the EGAT system](image)
Growing number of ‘prosumers’

already 15% of yearly consumption (4.5 times of Xayaburi dam) households, schools, hospitals, shops, hotels, malls, factories, etc.
Huge potentials on Energy Efficiency

- Lower cost, minimal impacts, best option
- The EE target in PDP2018 is 4,000 MW in 2036
- If Thailand achieving the same level as Hong Kong in 2004, the EE target has to be 17,000 MW in 2036
- Will decrease about 19 large power plant projects
- Laos also has the EE potential about 1,200 MW within 2030.

Source: 1. PDP 2015 Public Hearings, Ministry of Energy
Huge potentials on Renewable Energy

- The study by WWF&IES and other studies show that Thailand, Laos, Vietnam, Cambodia, Myanmar can rely on 100% renewable energy, including biomass, biogas, solar, wind, and mini hydropower
- Local people can learn and do renewable energy by themselves
- Start-up, Community Enterprises, SMEs, job creation, and many other benefits

(seems to be) Good opportunities for sustainable energy transformation in Thailand and the region
But the energy industry may not think so

• In addition to four existing projects, Xayaburi, Nam Ngieb, Xe pian – Xe Nam Noi, Nam Theun1

• At least, new five large hydropower projects, 3,500 MW, will be added in 2026 – 2035

• At least 16 new projects 13,156 MW using imported natural gas

• The Power Development Planning is lock-in with large projects pushing by large corporations

Source: Ministry of Energy, PDP2018
100% Renewable Energy is possible for the power system

‘flexible’ options

1. Demand response/DSM
2. Energy storage e.g. battery, etc.
3. Power grid development
4. ‘Flexible’ power plants
5. Linkages between electricity – heating/cooling - transportation

Ref.: Suphakit Nuntavorakarn and Akanit Gawggeaw, 2019, SEA Southern Power Development Strategy (in Thai)
No need for large power plants

Neither Large hydropower, Coal, Natural Gas, nor Nuclear
Key challenges: Thai energy policy institutions

National Energy Policy Council
More participation and accountability

High-level staffs of Ministries
Conflict of Interests with positions in energy companies

* Energy Democracy

Electricity Authorities
New incentive structure needed

Energy Regulatory Commission
Partial independent under Energy Minister

Energy Conservation Fund
Must be decentralize for all stakeholders access and manage
Thank you for your attention

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