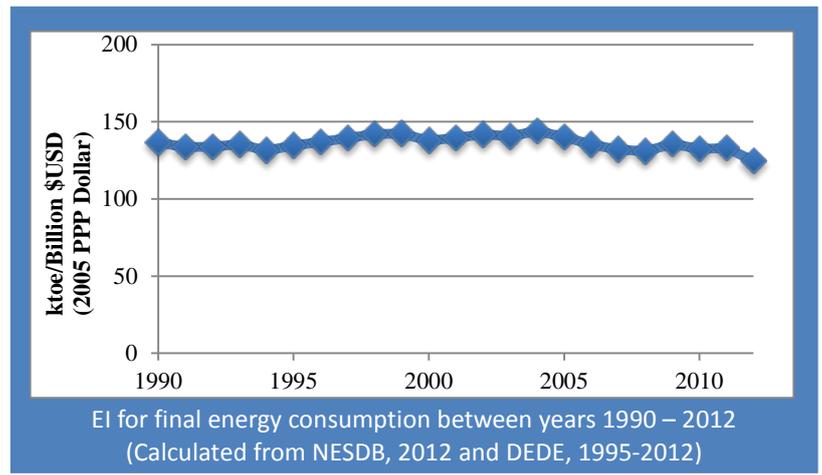


Can Thailand Manage Its Energy Intensity to Meet Energy Efficiency Master Plan Target in 2020?

The key success factors to achieve the target of energy intensity (EI) for Thailand depend on how the energy-saving plans and policies could be implemented and managed effectively rather than the plans themselves. **With a close collaboration between the public and the private sector, and a sound management through the market mechanism, it is possible that Thailand could achieve the target.** However, this is the true challenge for Thai Authority.

Energy intensity (EI) in Thailand has a steady trend for the last 20 years. Between years 1990 – 2012, EI for final energy consumption varied around 131 to 143 ktoe/Billion \$USD (2005). Thailand's EI reached its peak at 143.94 ktoe/Billion \$USD in year 2004, and then has been steadily declining since until below 124.73 ktoe/Billion \$USD in year 2012. It has been decreased by 0.38% per year on average.



Although having such a steady trend, Thailand has launched 20-years Energy Efficiency Development Plan (EEDP) targeting to reduce energy intensity by 25% in 2030 compared with the 2010 base year (EPPO, 2009). The plan aims to reduce final energy consumption by 23.5% or 38,200 ktoe calculated from energy saving potential in different sectors which are industry, transportation, large building and household. In order to achieve such goal, EEDP introduces five strategic approaches which are (1) mandatory requirements, (2) energy conservation promotion and support, (3) public awareness creation and behavioural change, (4) promotion of technology development and innovation, and (5) human resources and institutional capacity development.



There are two more related plans aiming to complement EEDP, which are Energy Efficiency Action Plan and Thailand Energy Efficiency Research Plan. Energy Efficiency Action Plan breaks down EEDP's strategic approaches into 34 measures and 67 sub-measures with more concrete information like implementation details, amount of budget

needed, as well as potentials on energy conservation and CO₂ mitigation (EPPO, 2013). Beside the action plan, Thailand Energy Efficiency Research Plan is a 10-years research framework in order to develop technology, knowledge, innovation and policy study for supporting EEDP (EPPO, 2013).

Despite of having such plans for driving energy efficiency, implementation is the most difficult part as there are many barriers and challenges.

Sector	Energy conserving target from EEDP (ktoe)	Estimated conservation from sub measures (ktoe)	Supporting fund	
			million baht	Percentage
Transportation	15,100	15,323	13,010	10.1
Industry	16,100	16,257	69,066	53.6
Commercial building	3,600	3,630	19,640	15.3
Small and residential building	3,400	3,635	27,024	21.0
Total	38,200	38,845	128,740	100.0

Estimated energy conservation from implementing EEDP by sectors (EPPO, 2013)

INSTITUTIONAL ARRANGEMENT

Institutional factor is one of the largest barriers in implementing energy efficiency. This barrier is found in government agencies which usually work in vertical hierarchy of management and lack of coordination between different agencies. On the other hand, implementing energy efficiency often requires a working team consisting of experts/representatives across government agencies, and sometime even from private sectors. For example, Ministry of Energy may launch an energy building code to improve energy efficiency in commercial buildings, but Department of Public Works and Town & Country Planning is the one who has authority to enforce such code. Therefore, lack of coordination and collaboration among different public agencies posing a challenge to implementing energy efficiency.

In order to achieve EEDP goal, a paradigm shift in management is necessary. This may need a steering committee or a working group from different government agencies and private bodies, and these synergies should not limit to only officers in a working or technical level, but include those in executive and planning level as well.



ENABLING ENVIRONMENT



A cultivation of awareness for all levels of peoples is necessary to build up energy saving behaviour. Moreover, creation of the environment to encourage peoples to preserve energy through good practices and utilizing of high energy efficiency appliances can help to save energy for the country as a whole. For example, self-consciousness in using efficient transport systems can make public transport or non-motorized vehicles possible to be dominant and to replace of private transport.

FINANCIAL STRATEGY

Financial incentive is an important tool to overcome barriers and challenges in implementing energy efficiency. Thailand has had many financial tools for promoting energy efficiency such as Energy Efficiency Revolving Fund which considered as a successful case that encouraged

commercial banks to invest in energy efficiency projects. However, one may argue that such financial supports are not yet well known among small entrepreneurs and SMEs. In addition, a solid technical knowledge is also necessary for preparing a sound proposal for getting a financial support. Unfortunately, such common wisdom and expertise are generally unfound in most small entrepreneurs and SMEs in Thailand.

ATTRACTING THE PRIVATE SECTOR

Implementing energy efficiency should be market oriented and should include private sector. Both producer and end user should be taken as a leading role. However, to let the market developed by itself may take a long time, so government intervention in the beginning is crucial. For example, government agencies should promote green procurement to lift up those regulations preventing energy efficiency improvement. Implementing energy efficiency in government buildings has a large untapped market potential. This can help professional like energy service company (ESCO) to develop their business plan, experience and reputation. However, least cost procurement regulation used by government agency does not allow adopting those new innovative energy efficiency technologies which often have high initial costs even though they make more economical sense in long run.

Not only procurement policy that can help setting up the market's demand, energy efficiency labelling and information flow to end user is also a crucial way for market development. Accurate information flow on energy efficiency technologies to enable end users to differentiate high and poor efficiency technologies can create demand, and energy labelling program in products and buildings is a promising solution. However, the one who in charge energy labelling should be careful of this measure because energy labelling has to be dynamic and be constantly revised as technology always evolves. Also, energy labelling should keep extending to cover more and more types of appliances and energy efficiency technologies rather than complacent on the success of a few technologies, already implemented in the past.

ASSESSING CO-BENEFITS

Generally, electricity utilities are the key players in implementing electrical energy saving since they are normally endowed with a large pool of highly skill technical peoples, and potentially accessible to consumers' behaviour data base. In several countries, the electric utilities are the spearhead in implementing energy conservation. However, it must ensure that such role is not a conflict interest for the utilities which they commonly earn income from selling electricity. An appropriate financial supporting scheme must be designed in such a way that any implementation in electrical energy saving on its success shall not become losses in benefits of utilities in a long

Energy and Environmental Policy Laboratory (EEPL)

To conduct policy relevant studies and develop tools to support public agencies and corporations in decision-making and formulating strategies and plans, for the development and deployment of energy and environmental technology options and measures, which would lead to sustainable economic growth and development.

Project Involved

- Effective energy efficiency policy implementation targeting "New Modern Energy Consumers" in the Greater Mekong Subregion (MECON) Project: Supported by United Kingdom Research Council
- Research project for conducting 20-Year Energy Efficiency Development Plan [In Thai].
- Research project for conducting Energy Efficiency Research Plan [In Thai].

term. Thus, assessment of co-benefits for the key player, such as the electric utilities, it is vital to the success of implementing those energy saving programs in the long term.

TRACKING EMISSIONS AND ENERGY CONSERVATION

Thailand still lacks of measurements, reporting and verification (MRV) system to follow up energy conserved by measures. Without a clear result on how much a measure or a project can conserve energy, it is unlikely that planners can conserve energy and improve efficiency effectively in order to meet the target in a long term. In case of ESCO, lacking in measurement and verification (M&V), a process of quantifying energy conservation, may lead to unclear result and contract being void.

DATA REQUIREMENTS

Although energy intensity is one of the main indicators for energy efficiency, more indicators by sector is needed to be simplified for ease of implementing energy efficiency and to analyse barriers. This is crucial since energy intensity does not show energy efficiency in details for each sector, and different sectors need different energy efficiency indicators in order to effectively implement measures and follow up.



By conclusion, the key success factor to achieve the target of EI for Thailand depend on how the plans and policies could be implemented and managed, effectively, rather the plans themselves.

Without a close collaboration between the public and the private sector, and a sound management through the market mechanism, it is hardly that Thailand could achieve the target.

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