

Challenge and Barrier for Developing RE Policy in Thailand

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Abstract. Although Thailand has become more aware of the need to promote the development of domestic renewable energy and well placed to take advantage of new developments in the renewable energy sector, there are important barriers that can hinder to achieve RE target in Thailand. This study explains two type obstacle (internal and external) that could prevent developing RE policy in Thailand. This study indicates that strong and long-term commitment from the Government is crucial in implementing any kind of policies which will lead to RE development.

Keywords: Renewable energy, Energy policy, Internal barriers, External barriers

1. Introduction

Energy is critical foundation for economic growth and social progress. Modern society, as we see it today, would have not been possible without energy. In fact, progress of a nation could be gauged in terms of how much energy it consumes per person [1]. Since the energy crises in the 1970's, development of renewable energy has received great attention and its application has been accelerated in the past few years [2]. Combined with the improvement of energy efficiency and the rational use of energy, renewable energy can provide everything fossil fuels currently offer in terms of energy services [3]. Thailand's economic boom, like that of so many other developing nations, has depended on--and continues to lay great demands on--energy supply. Not being blessed with copious reserves of fossil fuel has, however, turned the issue of growth into a serious challenge [4]. In Thailand, since 1992 overall management of energy sector has been under the National Energy Policy Council (NEPC) chaired by the Prime Minister. The NEPC is responsible for the promotion of energy conservation and management of Energy Conservation Promotion Fund (ENCON Fund) [5]. Thailand had proven onshore and offshore reserves of 183 million barrels of crude oil, 271 million barrels of condensate, and 12 003 billion cubic feet of natural gas. Total reserves of lignite, including remaining resources in areas currently in production and proven and probable reserves in undeveloped areas, were 2059 million tonnes. Table 1 show Thailand's economic profile.

It is important to notice that Thailand has abundant resources of renewable energy and according to the Department of Alternative Energy Development and Efficiency (DEDE)[6] renewable energy resource potential in the country, in ringgit value (Table 1.2). In Thailand despite the abundant potential of renewable energy (figure 3.1) and perceived benefits of more efficient modern renewable energy systems, there are still a number of obstacles in the way of mainstreaming these new energy technologies that can cause the failure of RE policy in.

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Table 1: Key data, economic profile, energy supply and consumption

Domestic production of primary energy (Ktoe)		Final energy consumption		Energy reserves	
Total	64550	Industry sector	18416	Oil (million barrels)	183
Commercial energy	45,045	Transport sector	23636	Condensate (million barrels)	271
Crude oil	8,367	Other sector	15155	Natural gas (billion cubic feet)	12003
Condensate	3,156	Total FEC	57206	Coal (million tonnes)	2059
Lignite	5983	Coal	6918	Key data	
Gas	26,525	Oil	36387	Area (sq.km)	513115
other	17800	Gas	2497	Population (million)	66.98
Energy import (ktoe)	60,563	Electricity and other	11413	Number of households	21,143,975
Energy export (Ktoe)	12,531	Co2 emissions (10³ ton)	197,657	GDP (USD (2000) per capita	6178

Source: Energy Data and Modeling Center, Institute of Energy Economics, Japan, and: DEDE

Table 2: Potential of Renewable energy in Thailand, Source: DEDE

ITEM	Potential
Solid biomass energy	33,004.54 (ktoe)
Solar energy	532.495.13(Ktoe)
Wind energy	12.25(Ktoe)
Hydro energy	48.14(Ktoe)
Garbage	3.629.94(Ktoe)
Geothermal energy	526.95(Ktoe)
Wave energy	.50(Ktoe)

2. Energy Policy

A Thailand energy saving policy had started since 1973 during the 3rd National Economic and Social Development Plan (1973-1976). The government at that time had determined several measures to prevent the oil shortage and savings of oil and electricity. Some measures were temporarily required such as: reducing the public lighting by 50 percent, restriction on engine capacity not over 1,300 cc for the new official vehicle procurement, etc. The energy conservation measures or energy savings in the 4th National Economic and Social Development Plan (Plan 4: 1977–1982) had been continuous implemented due to oil consumption still be at a very high rate and electricity generation still relied highly on imported petroleum. 5th National Economic and Social Development Plan (Plan 5: 1982–1986) had determined an energy policy as the basis in energy development to create the maximum benefits to a country development. In 6th National Economic and Social Development Plan (Plan 6: 1987–1991), the additional targets had been determined to cover the energy conservation in commercial and residential sectors [6]. In terms of Renewable Energy Thailand have introduces medium – to long term renewable energy targets. In 2006 Thailand introduced renewable electricity feed-in tariffs (FITs). Thailand have also introduced non-financial support mechanisms, including standard power purchase agreements (PPAs), preferential arrangements for small generators and information support. In 2008, the Ministry of Energy published the Renewable Energy Development Plan (REDP) to set targets for the deployment of renewable energy for the period 2008-22. It sets as a main target to increase renewable energy's share of total final energy demand to 20% in 2022. The implementation will be focused in five areas, namely: a) Promotion of biofuels (gasohol and biodiesel), b) Promotion of renewable energy utilization for power generation, c) Promotion of renewable energy for heat generation. d) Policy study and technology research. e) Public relations work to create positive attitude and correct understanding of renewable energy use [9]. The REDP targets are divided in

three phases. The target for phase I is to reach an increase in the renewable energy's share in the energy mix of 15.6% of total energy consumption in 2011. At the end of phase II (2012-2016), renewable energy is expected to represent 19.1% of total energy consumption. In the third phase (2017 to 2022), the share of renewable is expected to have developed to 20.3% of total final energy consumption[5].Renewables 2011GLOBAL STATUS REPORT (REN 2011) indicate the renewable energy target in Thailand as follow :

Table 3: Renewable energy Target in Thailand, *Source: REN21*

Renewable energy target	2011	2016	2022
Biomass	2800 MW	3220 MW	3700 MW
Wind energy	115 MW	375 MW	800 MW
Hydro	185 MW	281 MW	324 MW
Solar PV	55 MW	375 MW	800 MW

3. Challenge and barriers

3.1. Internal (inherent) barriers

There are several barriers that reflect the originate from the nature of these forms of energy:

- Renewable energy is often an intermittent source. These forms of energy cannot be produced continually and, thus, depends highly on the source (i.e. wind, sun, etc.). Thus, renewable energy is not controllable and society cannot count on it at any given time.
- Renewable energy is often generated on a distribution network near the final consumers. Thus, consumers may only pay wholesale prices for the generated power. This may lead to the fact that locational value of the power is not captured by producers.
- Lack of information: people have not much information about the advantages of renewable energy. Further, there is no national and local campaign on the benefits of renewable energy. This may prevent the diffusion and development of renewable energy in Thailand.
- Technical barriers: despite many matured technologies in renewable energy, there is still some renewable energy technologies suffer from lack of R&D activities that could lead to products suited to both local and national needs.

3.2. External barriers

Like inherent barriers, there are several obstacles rooted from external issues:

- Financial barriers: financial barriers are essential hindering diffusion and development of renewable energy technologies in Thailand. In fact many argue that the costs of renewable energy are more than conventional energy. This might be true if only the initial capital costs are considered. However, a real appraisal must count the total lifecycle costs that the comparison be reliable. Lifecycle costs account for initial capital costs, future operation and maintenance costs, etc. The current analytical tools for assessing the costs can discriminate against renewable energy if calculating is based on unrealistic assumptions.
- Subsidies for conventional energy: large public subsidies that are spent in varying amounts to all forms of energy, have distorted the investment cost decisions. Large amount of subsidies for conventional energy can lower final energy pricing, putting renewable energy at a competitive disadvantage.
- Institutional barriers: there are several bodies in Thailand involving in renewable energy technologies projects. Yet, the lack of coordination between different related organizations is an important hamper to diffusion and development of renewable energy technologies.

4. Conclusion

Scarcity is the main feature of resources in the world. There are even more reasons to highlight resource scarcity: rapid increase in world population especially during last decades; resource wastage, mass consumption and vulnerability of environment due to human being activities. Thus, many societies chiefly those with lack of fossil energy resources are willing to find safe and substitute energy resources. Though seemingly more expensive than conventional than conventional forms of energy, renewable energies are nowadays the best substitution resources with many advantages. However, there are also some barriers to utilize these forms of energy. Thailand, among other countries, is a pioneer country in the region that is experiencing utilizing renewable energy resources. Nevertheless, some barriers may hamper the diffusion or development of renewable energy resources in Thailand. The barriers can be categorized in two groups: inherent (internal) barriers and external barriers. For tackling these barriers. It is vital to strengthen the policy coordination among relevant instantiation. More coordinated efforts for real implementation of the policies in place seem to be wanting. As seen in quite a number of successful countries in promoting RE such as Germany, Denmark, and Japan, strong and long-term commitment from the Government is crucial in implementing any kind of policies which will lead to RE development. Resident has to have useful information about the impact of using renewable energy in daily life. The demand of using renewable energy by ordinary people has to increase significantly and to reaching this goal mass media and N.G.Os play an important role.

5. References

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