LAW, BUREAUCRACY AND ELECTRIC POWER FROM RENEWABLE ENERGY IN THAILAND

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ABSTRACT

Thailand operates a large scale integrated power system. It has a well-developed electricity network and a high per capita energy demand in comparison with its South East Asian neighbours. Thailand is dependent on natural gas for over 70% of its electricity generation and imports almost 25% of its natural gas supply. As a result, Thailand commenced energy conservation measures in 1993. In 2012 it introduced an Alternative Energy Plan with high targets as Thailand seeks to have a low carbon future. One of the recent initiatives has been a Premium Feed-in Tariff to encourage production of power from renewable energy. The process is managed through a mix of legislative and administrative measures. As issues arise the administration of the renewable energy program has become more complex and less transparent. The paper briefly outlines the current government initiatives, the legislative framework, the disconnect between the various state plans such as the Alternative Energy Development Plan and the Power Development Plan, the overlapping organizations providing oversight and the ever increasing administrative processes to be met by independent power producers. It then offers suggestions as to how the current system might be changed to encourage an even more efficient industry without compromising the environmental aspirations of the population.

Key words: Renewable energy, Energy law, Alternative energy, Thailand.

Introduction

Thailand operates a large scale integrated power system. It has a well-developed electricity network and a high per capita energy demand in comparison with its South East Asian neighbours. Thailand is dependent on natural gas for over 70% of its electricity generation and imports almost 25% of its natural gas supply. As a result, Thailand commenced energy conservation measures in 1993. It has also been very active in the Clean Development Mechanism (CDM) process and aims to be a Low Carbon Society. The alternative energy supply regime is a mix of legal and administrative processes. As unintended consequences are identified in the adopted approach, the administrative regime has become more complex and more opaque. There are clear lessons here for Thailand's ASEAN neighbours.

Thailand has been operating under an energy and conservation Act since 1993 (Royal Decree, 1993) with the sector operating under an "Enhanced Single Buyer" model (Tongsopit & Greacen, 2012, p. 4). Over 70% of Thailand's electricity generation is dependent on natural gas of which 25% is currently imported (Weischer, 2013, p. 1). The regulatory regime under which the electricity industry operates has been described in detail by Smith, Smith and Smith (2014), and Tongsopit and Greacen (2012, 2013).

Thailand has operated a feed-in tariff (FiT) mechanism for suppliers of energy from renewable energy sources since 2007. The FiT is paid on top of the utilities' avoided costs and is called a Premium Feed-in Tariff or Adder. It is an additional rate on top of the market price for electricity and the purchase price for electricity generated from renewable energy sources will fluctuate in line with the market price from the state owned utilities.

In 2010 the Adder tariff for solar energy generators was reduced due to the reduction of capital costs as approved suppliers delayed their entry into the supply chain as the price of solar cells was falling significantly. Energy suppliers determined that their windfall profit would be greater the longer they waited (Energy Policy and Planning Office, 2010, p. 130). Suppliers delaying generation projects had an improved financial outcome at a negative environmental outcome for the country. The revised rate applied to projects that had not been accepted by the power utilities at that date. Ideally the tariff should have included a degressive mechanism which would allow the tariff to be adjusted for new entrants depending on the current cost of the technology at the time of connection to network.

This paper focusses on the legal and administrative response to Thailand's desire to become a low carbon society.

Initiatives Prior to 2014

- **Regulatory and Administrative Regime**

In 2012 Thailand issued revision three of its Power Development Plan (Energy Policy and Planning Office, 2012). Government policy is targeting an increasing share of renewable energy and alternative energy uses by 25% as it initiates new renewable energy projects to reduce the reliance on fossil fuels within the next 10 years, By the end of 2030 the total capacity of renewable energy is proposed to be 20,546.3 MW (or 29% of total generating capacity in the power system) consisting of domestic renewable energy of 13,688 MW and renewable energy from neighbouring countries of 6,858 MW. By 2030 it is proposed that renewable energy will provide 6.57% of power generation, hydro will provide 2.31% and nuclear energy will provide 5.34% (Pallapa, 2012). Proposed sources of renewable energy are solar power, wind power, hydro power from within the country and also from neighbouring countries, biomass, biogas, and municipal solid waste (MSW) (Energy Policy and Planning Office, 2012).

Although there is this focus on renewable energy, what was initially a relatively simple and transparent system has become more opaque with duplication of effort between agencies.

Initially the Small Power Producers (SPP) and Very Small Power Producers (VSPP) were required to meet the requirements of the relevant regulations (SPP Regulations, 2001; VSPP Regulations, n.k.). In 2010 this all changed with the establishment of the Managing Committee on Power Generation from Renewable Energy Promotion (Tongsopit & Greacen, 2012 p. 14) at the direction of the National Energy Policy Council (NEPC) which was established in 1992 (NEPC Act 1992). The Managing Committee became responsible of policy design, which is the statutory responsibility of the Energy Planning and Policy Office (EPPO) and energy regulation, which is the statutory responsibility of Energy Regulatory Commission (ERC). Suddenly, the various agencies within the Ministry of Energy had overlapping roles with the potential for duplication of effort and for the approval process to become more bureaucratic and less transparent.

Before the three agencies responsible for electricity supply, namely Electricity Generating Authority of Thailand (EGAT), Metropolitan Electricity Authority (MEA) and Provincial Electricity Authority (PEA) can enter into a power purchase agreement a number of criteria must be assessed. The project must have an easily identified and well equipped connecting point, the transmission and/or distribution system must be able to support the electricity purchase, the project must be technically approved by EGAT, tyres and other polluting forms of garbage are not to be used and, if wind energy is to be used, there must be a declaration that the proponent has rights to use the land (Tongsopit & Greacen, 2012, p. 14).

Once these criteria have been met the power purchase agreement cannot be signed until a further five criteria have been met. The relevant electricity authority must have agreed to the power purchase, it must be technically approved by EGAT, be ready in terms of legal possession of land, have access to required capital, be in possession of the required technology, and possess, or be in process of obtaining, all licences required by law. In addition the proponent has to agree to take responsibility for any system development costs (Energy Policy and Planning Office, 2010, p. 125). Finally the project must have an Environmental Impact Assessment as required by law and approved by the authorized government agency (p. 126). Subsequently there was a prohibition on applying for a change in quantity of power being offered, relocation of a power plant or a change in the production technology (Anon., 2011).

As can be imagined a significant number of statutory agencies are involved in the approval system making approval time-consuming and lacking transparency as the necessary rules and requirements have not been published. Whilst it is essential to have a vigorous process to ensure the integrity of the process it should be streamlined as feasibly possible.

Even if all of the administrative hurdles have been addressed there is the issue of the method of allocation, which is controlled by a "Cap and Deadline" mechanism (Tongsopit & Greacen, 2012, p. 8). In March 2009 the NEPC imposed a broad guideline that new project approval would be subject to acceptable cumulative effects on pass-through costs to consumers but no guidance was provided as to when the cost becomes unacceptable (p. 8). This has resulted in the utility companies using their own discretion in accepting or rejecting applications.

In their review of the FiTS Program Tongsopit and Greacen (2013) identified lack of integration of policy documents, lack of a unified energy policy and the fact that the FiT program is not backed up by a renewable energy law as major impediments to success. They also felt that implementation has been crippled by ad hoc and non-transparent responses to problems as they arise.

Whilst Thailand is proposing to move to a fixed price Feed-in-Tariff it is still operating a Premium Feed-in-Tariff or Adder Scheme where the Feed-in-Tariff is added to the base tariff. The base tariff is adjusted regularly based on the price of natural gas, 25% of which is currently imported and is subject to the vagaries of the international market and currency fluctuations. In addition it is predicated on the government owned utilities' operating and capital costs. Clearly the tariff should not be related to international market forces and the efficiency, or otherwise of the government producers. In his review of the Thai electricity market, Kurovat (2012), who, at the time, was Acting Director of the Power Policy Bureau, argued that the Adder is an upfront subsidy to the producer by a faster payback whilst imposing an extra burden on the consumer. He further argued that upfront

subsidies may promote inefficient technologies whilst a fixed Feed-in-Tariff promotes the use of higher energy efficiency technology.

- **Small Scale Community Projects**

In June 2010 the NEPC agreed in principle to a proposal to introduce a Feed-in Tariff for solar projects that are installed on residential and commercial buildings (NEPC Resolution 2/2553, 2010). The argument being that it will foster energy efficiency by promoting the installation of solar energy on residential and commercial roofs as it reduces the amount of grid infrastructure needed because energy is produced and used near the point of installation and generally utilizes unused space. It was not until mid-2013, however, that the details of the FiT for solar projects on residential and commercial buildings were released and invitations for bidders issued. The regulations have been translated by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (2013). Spitzley and Brückmann (2014) have undertaken a review of the program and concluded that "a series of challenges exist, which are not necessarily specific to a single development step, but apply to the general development process as such. The challenges include the structure of the relevant laws and regulations and the inherent differing competencies of a high number of governmental authorities. In addition, it also comprises the general concern regarding the influence of dominant or influential stakeholders and the existence of accelerating and extra-administrative payments." (p. 26).

A further initiative was announced on 8th February 2013 when the NEPC approved the use of biogas from energy crops under the Community Enterprise green energy plants in the form of an Adder, as described above, for projects that can produce up to 1 MW of power for a period of 20 years; the plan being to encourage farmers grouped together as communities or cooperatives to grow energy crops (NEPC Resolution 1/2556, 2013). Provided all environmental clearances are obtained it appears to the current authors that there is no impediment to the establishment of Community Enterprise green energy plants that provide local power that is used locally and is not purchased by the power utility.

- **Proposed Alternative Energy Sources**

Whilst the Alternative Energy Development Plan 2012-2022 (Department of Alternative Energy and Efficiency, 2012) provides a roadmap for the future there are a number of developing technologies proposed which may or may not be applicable in the Thai context with the aim of taking the initial steps into the Low Carbon Society.

The plan proposes an increase in geothermal energy from 350 kW to 1 MW over the period but Thailand lacks high heating value sources of geothermal energy with development dependent on overseas technologies. The proposal to target 2 MW from waves and tidal currents is more problematic as there is a lack of data and an assessment on wave and tidal energy potential. The Plan nominates two primary sites for potential development. Whilst no mention is made in the Plan of potential impediments for either site, it is the opinion of the current authors that the primary site at Sarasin Bridge, in southern Thailand near Phuket, has a significant possibility of disturbing fragile mangrove areas and will disturb the existing fishing villages and the potential livelihood of their communities. The other site is near Koh Samui, also in southern Thailand, is a major tourist destination and, if not carefully managed, the site could also have significant impacts. Finally the Plan suggests the exploitation of both hydrogen energy and hydrogen energy storage systems. In this case the Plan does identify a number of major problems and barriers to the utilization of hydrogen energy.

Having an Alternative Energy Plan is clearly a positive development. Of concern is the fact that the Plan is short on detail and the significant challenges have not been fully addressed. An argument could be made that Thailand should be focusing on obtaining maximum benefit and efficiencies from its current renewable energy sources rather than enter into new areas with obvious low potential for meeting Thailand's future energy needs.

As pointed out by Weischer (2013, p. 7), Thailand also needs to ensure that the renewable energy portfolio is balanced so as to achieve positive development impacts in terms of job creation and avoided imports.

- **World Economic Forum Study**

In 2012 the World Economic Forum released the results of a study of the energy industry in Thailand and recommended a new energy architecture (World Economic Forum, 2012). The study found that there is a need to build in flexibility to the 10-year Alternative Energy Development Plan to take account of the rapid changes that are taking place in the renewable energy sector (p. 34). It also considered that Small Power Providers and Very Small Power Providers should be more closely regulated and alternative financing support mechanisms such as the reverse auction Feed-in Tariff should be considered for new energy technologies (p. 36).

The Study also found that there was a need to foster understanding about energy issues and renewable energy targets in a language that consumers understand (p. 38) and demonstrate and encourage change through pilot programs that bring local benefits (p. 44).

Major Changes in 2014

As everyone is no doubt aware, 2014 has been a difficult year for Thailand resulting in a Military Coup in May 2014. The year has also seen major administrative reform as well. It appears that the Coup has been the catalyst for major initiatives that have been developed previously, possibly over a number of years, but have never been implemented.

Since May there has been a flurry of reforms in the energy sector. This has resulted in wholesale changes to the senior staff of Ministries, Boards and Government-owned corporations. At the same time there have been a number of significant policies announced.

On 23 June the Chair of the Energy Policy Management Committee (EPCM) stated that the number of energy-related subcommittees would be reduced to between 13 and 5, down from 29 to improve efficiency (Tephaval, 2014). He also stated that the rules for overseeing energy affairs must be improved to provide maximum benefit.

July saw the announcement of a review, by the Energy Conservation Board (ECB), of 23 energy-saving and energy-efficient projects worth nearly THB 10 billion (USD 300 million) (Praiwan, 2014a). It was announced that these projects may be scrapped, delayed or have their investment terms revised. The list of 23 included solar roof tops on state-owned buildings, LED lamp replacement for the Defence Ministry and energy saving electrical equipment for small and medium-sized enterprises. What is even more telling is that four different agencies within the Ministry of Energy were involved in the projects under review: Energy Ministry's Energy Policy and Planning Office, Energy Business Department, Alternative Energy Development and Efficiency Department and Office of the Permanent Secretary. The Newspaper report also stated the new energy permanent secretary as saying they [presumably Government] wanted the Energy Conservation Fund to play a more significant role in promoting energy savings and efficiency. This was followed by a report in early August that an Energy Conservation Fund Board member stated that the Fund was expected to approve projects worth THB 3 billion the following week (Praiwan, 2014b). The funds would partially support projects including waste-to-energy and solar rooftops, both developed by state agencies. He also stated that the fund planned to introduce a new feed-in tariff rate for renewable energy projects as new incentives were slated for renewable energy projects. The new tariff rate would reflect the actual cost of new technologies.

One of the features of post-coup Thailand has been the wholesale transfer of officials. For instance the National Council for Peace and Order replaced all the members of the Energy Regulatory Commission, and removed its secretary-general (Anon. 2014a). Fortunately a number of the replacements were energy industry professionals and bureaucrats. Never-the-less such wholesale changes can adversely affect the corporate knowledge and the efficiency of the organization.

On 5 August the Permanent Secretary of the Ministry of Energy announced a review of the draft Power Development Plan (PDP) for 2015-35 to reflect actual global energy prices (Praiwan, 2014c). Importantly, the new PDP will integrate the Alternative Energy Development Plan (2012 to 2021) and the Energy Efficiency Development Plan (2011-2030). One of reasons for the review was that technologies for energy from both fossil fuels and renewable energy sources have changed significantly and global energy prices have declined.

This announcement is significant as the consolidation of the three Plans into one will force greater interaction between Departments as they prepare and move forward with an integrated focus. The challenge is to ensure that the technologies proposed for future renewable energy sources are practicable. If this is achieved two of the major deficiencies in the existing management regime will be overcome i.e. overlapping plans and the potential promotion of alternative energy sources that appear to be inappropriate for Thailand.

The first meeting of the National Energy Policy Council in over a year was held on 15 August. The Nation newspaper reported that the "National Council for Peace and Order chief General Prayuth Chan-ocha, who chaired the NEPC meeting, said the May 22 coup put the country back at Square 1 in terms of energy policy. All such policies the junta considers 'proper' will be kept, but everything else will be revised." (Anon, 2014b) [At the time of writing this article the minutes of the meeting had not been posted on the website.]

Thailand's Strategy for Success and Current Challenges

Weischer (2013) identified a number of factors to explain why Thailand was able to take up the renewable energy challenge (p. 4-5). He considered that the renewable energy policies were aligned with broader political considerations rather than just environmental concerns. [It might be noted that most of the early renewable energy initiatives followed an aborted attempt at electricity privatization.] Whilst the renewable energy schemes encouraged private participation in the sector they were small enough not to be seen as threatening the government owned utilities. Civil society played a crucial role in the process, as there was very limited expertise within the government owned Thai electricity sector. He specifically mentions the role of Palang Thai, a Thai NGO working for energy reform, which brought in international experts to provide advice on areas such as renewable energy and regulatory frameworks that were successful in other countries. [The key role played by Palang Thai can be seen by reference to their web-site (www.palangthai.org)]. Finally he considered that a key factor was that programs started small and grew over time, essentially providing pilot schemes that showed both regulators and the community at large that the program would work.

The adoption of the Alternative Energy Development Plan 2012-2021 clearly showed that Thailand had accepted the challenge. It acknowledges that Thailand should conduct renewable energy development and promotion as a measure to reduce the release of greenhouse gases as "this would be an initial point to step into the Low Carbon Society and be exemplary for the world society to cite Thailand as the country with strong intent in using renewable energy" (Department of Alternative Energy and Efficiency, 2012).

There are still a lot of challenges ahead. Thailand started out with a relatively simple scheme that has evolved into what could become a bureaucratic nightmare as additional administrative requirements are placed on potential suppliers. Not only are a significant number of different ministries involved in the process there is also a duplication of roles within the various Departments within the Ministry of Energy. This has led to an increasing lack of transparency and certainty for potential applicants. It appears that the current administration has recognized these issues. Whether or not it is successful in bringing about permanent change is yet to be seen.

A cogent argument could be made for a thorough review and harmonization of the current energy laws and regulations. A solid legal foundation would remove some of the current bureaucratic interference in the development process. The laws should specifically avoid duplication in policy development.

Information is hard to obtain and much of the information that is available is brief conference PowerPoint presentations by Government bureaucrats at international symposia. Clearly, whilst the government is developing policy any comment would be a work in progress. Even so regular updates and issues papers would go a long way to providing guidance to the industry. The published deliberations of the National Energy Policy Council chaired by the Prime Minister are a valuable source of information often including the rationale behind recommendations. Nevertheless they do not show the current thinking. For instance, why has it taken over four years to develop the fixed Feed-in-Tariff which was announced in 2010 and details of which have still not been published? New schemes such as the Community Enterprise green energy plants announced in early 2013 are still operating under the Adder Scheme.

Conclusion

There is no doubt that Thailand has a vision to become a Low Carbon Society and is actively pursuing that vision. The vision includes using the renewable energy industry as a means to improve the economic development of the rural sector. Not only is the government improving the supply of energy from indigenous resources it is also encouraging community schemes for the production of power from renewable crops.

As Thailand has chosen to use a mix of legal and administrative mechanisms to regulate the renewable and alternative energy industries, the challenge is to develop a streamlined process which provides the desired outcomes without compromising the environmental and social obligations to the broader society. An argument could be made that there should be a greater focus on regulation and less on administrative decision making.

The immediate need is to streamline the bureaucracy to remove duplication of roles and responsibilities, and to develop and publish detailed transparent criteria for the approval process. There is also a need for a reduction in time between announcing that there will be changes to policy and the release of the outline of policies under consideration even if they are initially only issues papers.

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