

## 39 Sustainable Electricity Transition in Thailand and the Role of Civil Society

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### Abstract

The chapter explains the creation and resistance to change of Thailand's centralized and fossil-fuel intensive electricity regime through a Sustainability Transition and Multilevel Perspective lens, with an emphasis on the sector's political economy. The incumbent electricity industry has evolved from a state-owned monopoly to a partially-privatized industry structure dominated by the state utility and several large independent power producers. The analysis demonstrates how important global landscape shifts articulate with the sector's domestic political economy, including a shifting global development paradigm from developmentalist state to liberal market principles, as well as the impact of waves of global economic crisis. The chapter highlights the role played by civil society coalitions in unsettling the incumbent electricity regime since the late 1970s, despite significant power asymmetries, through opposing problematic projects, advocating for progressive policy, and proposing alternative plans, values and visions for Thailand's electricity sector. Important but small steps towards sustainability transition are identified, including greater energy conservation and distributed renewable energy generation, the creation of an independent regulator, and a small increase in public participation and accountability in the power planning process. The chapter argues that civil society has been—and will continue to be—important in shaping the incumbent electricity regime and often acts as a catalyst for transition towards sustainability.

**Keywords:** Thailand, electricity, civil society, sustainability transition, multilevel perspective.

### 39.1 Introduction

Since the 1960s and more rapidly since the 1980s, Thailand's economy, society and environment have witnessed a major transformation. Throughout this period of high economic growth, as the country rapidly industrialized and urbanized, a centralized elec-

tricity system was established led by the state's utility, the *Electricity Generating Authority of Thailand* (EGAT). At first a monopoly, several waves of privatization since the 1980s have created a partially-privatized electricity regime that remains dominated by fossil fuels and centralized generation owned by EGAT and a small number of *independent power producers* (IPPs).

Whilst largely meeting the rapid growth in demand for electricity, the environmental and social costs have been high. Since the 1970s, an increasingly established civil society has emerged within Thailand's often precarious democracy (Phongpaichit/Baker 2002), which has included project-affected communities, their wider social movements, and various *non-governmental organizations* (NGOs) (Foran 2006). Nowadays, Thailand's electricity policy is an active arena of policy deliberation, including on the impacts of domestic projects and power-import projects from neighbouring countries, as well as on the transparency and accountability of the electricity plan-

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ning process as a whole. There are wide power asymmetries between actors in decision-making, however, and this remains largely one-sided and favours the established electricity industry. Despite these power asymmetries, there have been several important reforms, including some towards energy conservation, and the introduction of small-power producer and very-small-power producer legislation that has allowed a growing proportion of renewable energy generation within Thailand's electricity system.

Thailand's electricity system faces a number of contemporary challenges. Whilst on paper there may be a commitment to low-carbon economic growth (EPPO 2012), in practice higher on the policy agenda is ensuring energy security for Thailand's sustained economic growth. Meanwhile, policies on electricity production are fragmented and often contradictory in relation to other policy issues such as water resource management and food production (Middleton/Dore 2015). Finally, Thailand's electricity generation is also heavily dependent on natural gas, yet domestic reserves are rapidly depleting and growing dependence on imports (together with hydroelectricity) has raised concerns about national energy security.

Drawing upon the concepts of *sustainability transition* (ST) and the *multilevel perspective* (MLP) and adopting a political economy approach (actors, interests, power), the purpose of this chapter is to analyse the emergence and embedding of Thailand's incumbent electricity regime and the role played by civil society within it (Verbong/Loorback 2012). Synthesizing diverse literature on Thailand's power sector through an ST and MLP lens, the chapter addresses a general gap in ST literature on *newly industrialized countries* (NICs) in South East Asia, and on strategies taken by actors in incumbent electricity regimes to resist change, together with the role played by civil society in catalysing alternative pathways. The next section outlines the conceptual framework of ST and the MLP as relevant to electricity system transitions in NICs. Section 39.3 maps out the emergence and embedding of Thailand's electricity regime, differentiated into two phases: the construction of a centralized national power system (1950–1980); and the partial privatization of this system (1980–present). The section shows how globalization landscape pressures reformulated the regime over the two periods, and how the partially-privatized regime has emerged as a stable industry formation. Section 39.4 demonstrates how civil society has challenged and shaped the incumbent regime, including through transforming the landscape in which the regime exists, unsettling

the regime directly through resistance and cooperation, imagining a new regime, and catalysing new innovative niches. Section 39.5 draws conclusions and suggests strategic directions for transitions towards sustainability in Thailand's electricity sector.

## 39.2 Sustainable Electricity Transition and the Role of Civil Society

### 39.2.1 Transitions Studies and the Multilevel Perspective

*Sustainability Transition* (ST) explores how socio-technical systems change over time. It is a mid-range theory that sees technology and innovation as emerging from, embedded within, and shaping society. The scope of ST aims to incorporate “multi-level dynamics, multi-actor networks, radical innovation and uncertainty, and the impossibility of full control” (Verbong/Loorback 2012: 7). ST adopts a multi-disciplinary perspective, drawing on evolutionary economics, science and technology studies, structuration theory and neo-institutional theory (Geels 2011).

The *Multilevel Perspective* (MLP) conceptualizes processes of sociotechnological change as occurring at and between three levels: niche, regime and landscape (Geels 2002). ‘Regime’ refers to the existing dominant and dynamically stable sociotechnical system with its associated scientific knowledge, policy, industrial networks, markets and user practices, technology, infrastructure, and cultural meaning (Geels 2002: 1263). Markard/Raven/Truffer (2012: 956) note that a regime:

consists of (networks of) actors (individuals, firms, and other organizations, collective actors) and institutions (societal and technical norms, regulations, standards of good practice), as well as material artefacts and knowledge.

Geels (2011) warns against reifying the regime, emphasizing that it is the actors within the regime who hold agency, intentionality and strategy.

‘Niches’, meanwhile, are spaces where radical sociotechnical innovation can occur and that are protected from regime selection criteria, for example by subsidized research and pilot projects, or by culturally-held values. Finally, ‘landscape’ refers to the exogenous environment in which regimes evolve and niches also exist; it includes broad geographical factors, and political, economic and societal trends. In response to recent critiques of MLP's conceptualization of scale, which implies that micro-meso-macro levels are

nested and hierarchical (e.g. Shove/Walker 2010), Geels (2011: 37) has proposed that levels may refer to “different degrees of stability, which are not necessarily hierarchical”.

The transition from one sociotechnical regime to another is a set of non-linear process entailing a radical change in configuration of technologies, infrastructures, institutions, governance and actors. Existing sociotechnical regimes may become unsettled when: broad landscape-level changes create pressure (macro-economic environment, society values, and so on); there are growing processes towards and within the regime itself that destabilizes it; and niche-level experiments offer alternatives (Geels 2002; Grin/Rotmans/Schot 2010) and gain momentum, for example through learning processes, price/performance improvements, and support from powerful groups (Geels 2014: 23). Other have noted that over long periods, incremental changes in regime can amount to significant transformation; As Smith/Voß/Grin (2010: 440) put it: “In a Kuhnian vein, regimes tend to produce ‘normal’ innovation patterns, whilst ‘revolutionary’ change originates in ‘niches’” (see also Pavitt, 1984).

The incumbent regime may be resistant to significant rapid change for a range of economic, institutional, cultural, and technical reasons, including the resistance of existing actors that benefit from it. The regime can be analysed in terms of its lock-in, path dependence, and inertia; Geels (2014: 35) emphasizes, however, that an incumbent regime is not monolithic, and its stability is not guaranteed. Smith/Voß/Grin (2010:433) observe that “radical niche practice can be co-opted by a regime without unduly unsettling and transforming it” (Smith/Voß/Grin 2010: 443). Recent literature has considered in more detail how existing regimes exhibit resistance to change, and thus how sustainability transitions are inherently a political process (Smith/Stirling/Berkhout 2005; Meadowcroft 2011). One approach has been to adopt a political economy perspective, giving explicit consideration to various forms of power, agency and resistance (Geels, 2014; see also Schreuer/Rohracher/Späth 2010). This perspective rebalances previous literature that placed too greater emphasis on green niche innovation leading to ST, without also considering how the incumbent regime might also be resistant to being destabilized; as Geels (2014: 25) puts it, “we should better understand the ‘destruction’ part of Schumpeter’s ‘creative destruction’ concept”.

Studies of ST, by explaining how sociotechnical transitions occur, ask how they can be steered (or ‘managed’ or ‘governed’) towards sustainability, and

ideally how transition can be accelerated given the urgency of the sustainability challenge faced (Smith/Voß/Grin 2010). This approach is normative in that it recognizes that social and environmental values, alongside economic efficiency, are—and must be—accounted for in policy and practice. Thus the focus is not only upon the technical regime and its associated innovation, but also its relationship with broader social arrangements (Smith/Stirling/Berkhout 2005).

### 39.2.2 Sustainability Transition in South East Asia

ST as a concept has been developed and applied predominantly in *Organisation for Economic Co-operation and Development* (OECD) country contexts, with a particular focus on Europe (Markard/Raven/Truffer 2012). The concerns of geography matter to ST, however, ranging from the role of place and associated spatial relationships, to the transnational flows of capital, actors and ideas, to the availability of domestic resources and the implications of sovereignty (Smith/Voß/Grin 2010). Despite this, a literature on ST in developing Asia is only now beginning to emerge (Berkhout/Angel/Wieczorek 2009; Smits 2012; Sawdon 2014).

For Asia’s NICs, the spatial dynamics and flows of knowledge, technology and investment as well as export-market driven growth have held significant implications for economy, society and politics (Nevins/Peluso 2008). To understand the sociotechnical regimes of NICs in Asia, therefore, it is important to account for the international context (Berkhout/Angel/Wieczorek 2009: 225). At the same time, global diffusion of technology, knowledge and policies are not transplanted off-the-shelf, but articulate with local context (Dobbins/Simmons/Garrett 2007). Regarding sustainability transformations in Asia’s NICs, Angel/Rock (2009) propose that whilst initial development was at the sacrifice of environment quality, there has been a second wave of environmental governance reform building on pragmatic policy innovation, institutional strengths of the development state, and the changing norms of globalization, although impacts on sustainability have actualized unevenly.

### 39.2.3 Electricity System Transition

Geert/Loorbach (2012: 5) emphasize that “current energy systems are deeply entrenched in our economy, consumption patterns, regulations and infrastructure”. In most cases around the world, electricity provision

was initially provided by the private sector, but during the end of the nineteenth century and first half of the twentieth century its provision was taken over by municipal and later national state electricity suppliers, at which point electricity increasingly became considered as a public service.<sup>3</sup> The liberal wave of privatization policies in the 1980s that began in Northern countries and spread to developing countries restructured the electricity industry and reintroduced the private sector, but often resulted in only partial privatizations (Victor/Heller 2007).

Electricity services, like other network industry services such as water supply and telecommunications, have been of great political interest to governments and politicians, for reasons ranging from the importance of ensuring the provision of these services to the public (i.e. a form of social contract), to the importance of electricity security to economic growth, and the high capital investment costs and associated possibility of job creation, political patronage and corruption (Victor/Heller 2007: 1). In the context of Asian NICs, construction and maintenance of electricity systems have been promoted by the government as a priority for national economic development. Yet, this ‘national’ economic development has disproportionately benefited politically-connected industrial elites and their networks (Hildyard/Lohmann/Sexton 2012). Actors in the incumbent electricity regime, who are bound together by mutual dependencies, act to maintain regime stability and resist change. They include established business and state enterprises, supportive state agencies, policymakers, unions and politicians. Aside from considerations of politics and vested interests, there are a number of attributes of the electricity sector that lock in the incumbent regime, including high capital costs, political visibility, network monopoly effects, technological stasis, and daunting regulatory tasks (Victor/Heller 2007: 2).

Finally, in ST studies there has recently been an effort to unpack in greater detail how technical systems have implications for the practices of everyday life and its reproduction (Shove/Walker 2010). In the context of electricity systems, this means consideration not only of sociotechnical practices of supply, but also those of demand. Shove/Walker (2014: 41) observe “Whereas theories of practice highlight basic questions about what energy is for, these issues are routinely and perhaps necessarily obscured by those who see energy as an abstract resource that structures

or that is structured by a range of interlocking social systems”. Thus, everyday practices of electricity use are important considerations to understand how regimes and niches become embedded (or entrenched), and how (or whether) energy transitions occur (Smith/Voß/Grin 2010: 443).

#### 39.2.4 Role of Civil Society in Electricity Transitions

Amongst state agencies and enterprises, firms and civil society groups, networks exist that promote different visions for electricity systems. These partnerships—of differing degree of affiliation and asymmetrical power relations—may either seek to maintain and stabilize the incumbent regime, or promote alternative pathways. For example, Hess (2014) explores the formation, strategies and power asymmetries of broad coalitions of actors and how they shape the US energy sector, namely: the incumbent regime seeking to maintain its position; (often) grassroots coalitions, including social movements, seeking transition to a more sustainable regime; a ‘countervailing industry mobilization’ that support grassroots coalitions with financial and political resources around shared interests; and the multifaceted role of the state (Hess 2014).

Smith (2012) proposes that the MLP perspective helps social movement theory broaden its scope of analysis from political systems to sociotechnical regimes (table 39.1). Smith (2012: 180) asks “What visions do civil associations hold, and what roles do they play in transitions processes?” Smith (2012: 190) stresses, however, that civil society—whether unsettling regimes, nurturing niches, or shaping societal values—are “not amendable to herding and corralling” and thus it is unrealistic to anticipate diverse civil society activity as constituting a “coordinated transition management”. Instead, he emphasizes that it is the diversity of civil society that is one of its strengths, including ensuring that electricity system transitions do not lose sight of principles of justice.

#### 39.2.5 Conceptual Contribution

As a heuristic framework (Geels 2011: 34), ST and MLP can offer new conceptual insights into the emergence of Thailand’s electricity production-consumption system, and opportunities for a transition to sustainability. A significant number of studies have analysed electricity systems from an ST and MLP perspective but mainly in an OECD-country context (Markard/Raven/Truffer 2012). Few have examined

3 The author appreciates the insight of an anonymous reviewer in raising this point.



**Table 39.1:** Civil society activity in relation to sustainable electricity transitions. **Source:** The author, adapted from Smith (2012: 189).

MLP domain	Types of civil society activity
Sociotechnical landscape	Awareness raising; social pressure
Unsettling existing sociotechnical regime	Consumer boycotts; protest and lobbying; standards and counter-expertise
Aspired-to sociotechnical regime	Community aspirations; plural visions in civil society
Technological niches	Grassroots innovation; green consumption; citizen science

electricity systems in Asian NICs, an area to which this chapter contributes (Geert/Loorbach 2012). Responding to knowledge gaps identified by Geels (2011; 2014) and Smith/Voß/Grin (2010: 445), the chapter also highlights the active resistance of the incumbent regime to change, and the role and strategies of civil society groups in destabilizing it, whilst at the same time promoting alternative pathways (Smith 2012). Finally, in exploring the interaction between the incumbent electricity regime and its actors—and those who would like to change it—the chapter adopts a political economy approach and explicitly considers the actors involved within decision-taking processes and the relative distribution of political power, so contributing towards a nascent political economy turn in MLP literature (Geels 2014).

### 39.3 Emergence and Embedding of Thailand's Incumbent Electricity Regime

Since the 1960s, Thailand has been transformed from a predominantly agrarian to an industrializing, urbanizing society, where until the 1980s the country was a weak developmentalist state which subsequently increasingly liberalized. Thailand is presently mainland South East Asia's largest economy, and has been classified as an upper-middle-income country by the World Bank since 2011. Rapid economic growth came in the 1980s as the country shifted towards an export-orientated economy, infused with *foreign direct investment* (FDI) from Japan. The country's economic growth has been dependent upon—and as a political priority has shaped—the construction of a national electricity system fuelled predominantly by large-scale fossil-fuelled technologies, and to a lesser extent by large hydropower dams. Reflecting Thailand's development pathway, however, the country has experienced escalating challenges, including high levels of economic, social and political inequality, an oligarchic political structure, and widespread environmental degradation (UNEP/TEI 2007; UNDP 2010).

Thailand has regularly faced political crisis, and this has once again escalated since 2005 leading to the most recent military coup d'état in May 2014.

This section maps out the emergence and progressive embeddedness of Thailand's electricity regime. Two broad phases are identified: the construction of a centralized national power system (1950–1980; 39.3.1); and the partial privatization of this system (1980–present; 39.3.2).<sup>4</sup> Several researchers have described the evolution of Thailand's electricity sector in detail, including Wattana/Sharma/Vaiyavuth (2008), Greacen/Greacen (2004), Foran (2006; 2013) and Sulistiyanto/Xun (2004). This section furthers these analyses by examining the electricity system's emergence through the lens of ST and MLP with a focus on landscape and regime scales and guided by the electricity regime typology of Smith (2012:193–195) (table 39.2). Particular attention is paid to the politics of resistance of the incumbent regime during the second phase. The role played by civil society groups is also introduced, and then expanded upon in section 39.4.

#### 39.3.1 Establishment of a Development State-Led Sociotechnical Regime (1950–1980)

In 1932, Thailand transformed from an absolute to a constitutional monarchy, and this was followed by almost five decades of predominantly military and elite bureaucratic rule with only brief periods of representative democracy (Phonpaichit/Baker 2012). During this period, the aristocratic, senior bureaucratic and merchant oligarchic elites from the time of the absolute monarchy yielded to accommodate rising military and new business elites. The foundation of Thailand's national electricity system was laid in the

<sup>4</sup> Wattana/Sharma/Vaiyavuth (2008) provide a useful detailed chronology of Thailand's electricity sector's evolution as: early days (1884–1949); industry establishment (1950–79); foundation for privatization (1980–89); first steps in electricity reform (1990–97); and proposal for market-oriented reform (1998–2006).

**Table 39.2:** Evolution of Thailand's electricity regime. **Source:** Table structure adapted from Smith (2012: 193–195).

Sociotechnical dimension <sup>a)</sup>	Establishment of a development state-led sociotechnical regime (1950–1980)	Partial privatization of sociotechnical regime (1980–present)
'Guiding principles'	Electricity is a public good produced by the state utility for socio-economic development; electrification linked to nation-building, modernity, and bringing the benefits of 'development'	Electricity produced according to regulated market principles by the state utility and private enterprises; electrification and energy security required for rapid export-orientated economic growth
'Favoured technologies'	Large-scale technologies (lignite coal-fired plants; hydropower dams); centralized production with transmission through a national grid	Increased dependency on technologies fuelled by imported natural gas (combined-cycle gas turbines); still general commitment to large-scale projects and centralized system; some niche spaces emerge for energy conservation and renewable energy generation
'Industrial structure'	Vertically integrated. Dominated by <i>state-owned enterprises</i> (SOEs).	Remains vertically integrated. Increased private sector role in generation at large, small and very small scales; independent regulator since 2008; increasing electricity imports from neighbouring countries
'User relations and markets'	SOEs as monopoly generator and distributor of electricity, guided by a weak developmentalist state. Electricity consumers as passive recipients. Cost-plus arrangement in terms of EGAT investment, yet electricity prices low.	Electricity consumers generally remain passive, but increasingly aware of issues around energy including the <i>Power Development Plan</i> (PDP) and renewable energy. Cost-plus arrangements for EGAT remain in place, but limited competition introduced with <i>independent power producers</i> (IPPs).
'Policy and regulations'	Utilities essentially self-regulating. Policies on electricity and energy fragmented. Little concern for broader social, environmental and governance issues.	A period of policy flux from state monopoly to <i>enhanced single-buyer</i> (ESB) market regulations. Creation of an energy regulatory commission in 2008. Economic efficiency, social, environmental and governance issues rising up the policy agenda.
'Knowledge'	Expert engineering knowledge dominates policy development, planning, and operation	Expert engineering knowledge continues to dominate, but challenged by counter-knowledge related to social and environmental impacts of projects, and governance principles for electricity planning.
'Culture'	Cheap and reliable electricity perceived as important to economic development and Thailand's modernization. The electricity system also as a source of patronage and corruption.	Thailand's modernization and urbanization underpinned by cheap and reliable electricity. Ownership of electricity production increasingly contested, including between centralized versus decentralized models and role of state versus private sector.

a) Sociotechnical dimensions are flagged in the analysis by being placed in 'single quotation marks'.

1950s and 1960s, shaped by this landscape (Greacen 2004: 129).

As the cold war escalated, so Thailand's relationship with Western aid agencies grew closer, in particular with the World Bank and the United States. In 1961, during a period of martial law, the government announced its first five-year National Economic Development Plan with advice from the World Bank

aimed at transforming Thailand from an agricultural to an industrial country under a market economy; at this time the dominant development paradigm informed by the success of the Marshall Plan in Europe and Rostow's notion of economic take-off was for large-scale state-led development. Thailand pursued a weak development state model where the role of the government was to invest public expendi-

ture in basic infrastructure to support the private sector—including in large-scale electricity generation and rural electrification (Wattana/Sharma/Vaiyavuth 2008: 42). Some, however, have suggested that Thailand was closer to an authoritarian state rather than a developmental one (Siriprachai 2012).

The establishment of a national electricity infrastructure entailed significant ‘industrial restructuring’. With World Bank guidance, as concessions granted to over 200 small cooperative-, municipal- and privately-owned concessions ended in the 1950s, the government did not renew them. Instead, the Government brought the concessions under their control. With borrowing from private-sector lenders and concessionary lending and technical advice from USAID and the World Bank, Thailand built a series of large dams and lignite-fired power plants, together with a national high-voltage transmission network (Foran 2006:13–15). These ‘favoured technologies’ (lignite-fired power stations, hydropower) reflected the domestic availability of resources, before natural gas that could be used as a fuel was discovered in the early 1980s. In 1968, EGAT, a *state-owned enterprise* (SOE), was established to be responsible for electricity generation and transmission,<sup>5</sup> alongside the earlier-created *Provincial Electricity Authority* (PEA) (1960) and the *Metropolitan Electricity Authority* (MEA) (1958) which are SOEs responsible for rural and urban distribution respectively. Overall, this was a move to consolidate, vertically integrate, and standardize the ‘industry’s structure’, and also to bring the industry under the control of the state. These early infrastructure investments and institutional arrangements established the centralized system and cost-plus<sup>6</sup> organizational model that shapes the electricity system regime to this day.

Whilst in the early 1960s less than two per cent of Thailand’s population had access to electricity, this had increased to over eighty per cent by 2000 (Grea-

cen 2004: 127, 144). As a ‘guiding principle’, not only was electricity central to the country’s industrialization and economic growth strategy, but it was also viewed as a public good. Universal and affordable electricity became a promise of modernity by the state to the people, which, given the massive public investment and for some the social and environmental cost, also served as a justification for expectations of self-sacrifice (Williams/Dubash 2004). Electricity generation and provision delivered by the state was integral to the process of nation-building and was a symbol of development delivered. In terms of ‘knowledge’ (and its associated power relations), electricity provision was largely viewed as an administrative and technical exercise to be undertaken by the state, reflecting the prevailing global development paradigm of electricity system design, construction and operation.

During this period, EGAT in particular, but also PEA and MEA, became very powerful politically. These SOEs were ‘effectively self-regulating’ towards attaining the ends of meeting electricity demand for economic growth (Greacen/Greacen 2004: 519; Foran 2006: 17). Little concern was paid to “competition and profitability, environmental and social constraints, and governance issues such as transparency, accountability and public participation” (Williams/Dubash 2004: 413). There was a general atmosphere of ‘grow now and clean up later’, with implications for electricity production (Angel/Rock 2009: 232). More broadly, there was accelerating consumption of resources and production of pollution and waste. Environmental concerns—often raised by civil society groups and affected communities—emerged gradually in the late 1970s and grew in the late 1980s. Significant environmental legislation was first created in Thailand in 1975 and reformed in the early 1990s (Harashima 2000), although it was often weakly enforced. Contested projects have included the Mae Moh lignite-fired power station in Lampang province, northern Thailand (Boonlong 2011), and various dams such as the Sirindhorn dam in Ubon Ratchatani province, north-east Thailand (Blake 2013; Missingham 2003).

During this period of rapid growth, EGAT was located within the prime minister’s office.<sup>7</sup> With privileged access in the government structure, EGAT emerged as the country’s largest SOE with access to large amounts of development funds (Smith 2003). Thus, EGAT was also “regarded by politicians as a vehi-

5 Greacen (2004: 130) notes that the earliest large generation projects in the 1950s and 1960s were initially “set up as ‘independent’ state-owned enterprises at the behest of the World Bank in order to ensure that World Bank loans would not be deposited directly into the Thai national Treasury”.

6 A cost-plus regulatory model allows for a fixed rate of return (i.e. profit) based on expenditure, and globally has been a common model for regulated monopoly utilities. It provides a strong incentive for the rapid expansion of infrastructure, but also carries the risk of over-investment given that all costs—including excessive ones—are ultimately passed on to the consumer (Greacen/Footner 2006: 23).

7 The PEA and MEA, meanwhile, were established under the Ministry of the Interior.

cle for patronage in appointments and awarding contracts” (Smith 2003: 281). EGAT’s long-established well-connected political influence shaped its ability to muster resistance against later attempts at privatization. Meanwhile, at least until the 1970s, during this period of fledgling democracy in Thailand, military rather than elected government was more common, and civil society groups were little active on the electricity sector.

### 39.3.2 Partial Privatization of Electricity Regime (1980–Present)

From the mid-1970s, following protests by students, workers and farmers, there were lengthening periods of elected government—still punctuated by military coups—as democratic institutions became increasingly embedded.<sup>8</sup> Business owners became elected as *members of parliament* (MPs), displacing bureaucrats and generals from Parliament; in the process politics—via oligarchic networking—became more directly linked to the interests of private business and power relations between these elite groups partly shifted towards the latter (Phongpaichit/Benyaapikul 2013: 35).

In the late 1980s and early 1990s, Thailand’s economy boomed, growing at eight to nine per cent a year as a result of massive FDI inflows, in particular from Japan, and growth in export of manufactured goods. At the same time, the government increasingly liberalized Thailand’s economy. The Asian financial crisis severely affected Thailand in 1997, and recovery only began in 2000 although at a lower rate of growth than before (Phongpaichit/Baker 2008). The global financial crisis (2008–9), a major flood in 2011, and political unrest in 2010 and since 2013 have all affected growth since, and hence also the electricity sector coupled to it. Some economists consider Thailand caught in a ‘middle-income trap’, where it faces a significant challenge to transform from an industrializing economy based on cheap labour, exploitation of natural resources, and imported technology via FDI and transnational corporations, to an economy that can compete with advanced economies through producing value via knowledge creation and innovation

(Phongpaichit/Benyaapikul 2013); indicatively, in contrast to Korea and Japan, as well as China and India, very few globally competitive multinational companies have emerged from Thailand. The pathway set by Thailand’s economic model of development has also been related to the country’s contemporary environmental, social and political challenges.

Meanwhile, in 1997, following growing protests by social movements and now with an established and vocal NGO sector, Thailand passed a new ‘people’s’ constitution. These social movements, Phongpaichit/Baker (2012: 85) write, “focused on specific issues, particularly growing competition over resources of land and water, declining agricultural prices, corruption and over-centralization”. At the same time, the Asian financial crisis challenged the old oligarchic elites, and opened the door to Thaksin Shinawatra’s *Thai Rak Thai* (TRT) party and a new era of populist politics in Thailand (Phongpaichit/Baker 2012; Walker 2012). Ultimately, this led from 2005 onwards to an intense ‘politics of colour’ and entrenched political deadlock, and ultimately to two military coups in September 2006 and May 2014.

Thailand’s incumbent electricity regime has been fundamentally shaped by this economic, social and political ‘landscape’ and reconfigured power relations. With rapid economic growth, electricity consumption rose, and this was further bolstered by ‘policy principles’ for a commitment to nationwide electrification, and a pricing system that made electricity attractive over other fuels to the manufacturing and services sectors (Wattana/Sharma/Vaiyavuth 2008: 44). Thailand’s electricity system peak capacity grew elevenfold from 2,838 *megawatts* (MW) in 1982 to 32,600 MW in 2012 (Greacen/Greacen 2004; EPP0 2013). Yet, as democratic space expanded, controversy also erupted with increasing regularity over the environmental and social costs of individual projects and the procedures for electricity ‘policy-making and planning.’

The ‘landscape’ for the incumbent regime’s partial privatization was laid in the 1980s with a series of pro-business governments. Thailand had experienced a public sector debt crisis from 1978 to 1981 during the second global oil price shock,<sup>9</sup> compounded by inflationary pressures coupled with stagnant economic growth (i.e. stagflation) in OECD countries affecting

8 Thailand has witnessed since 1932 twelve successful military coups and nine attempted ones, and even during periods of democracy the military continues to play a pivotal, if often covert, role in Thai politics: Nicholas Farrelly, “Counting Thailand’s coups”, at: <<http://asiapacific.anu.edu.au/newmandala/2011/03/08/counting-thailands-coups/>> (31 May 2015).

9 The second oil price shock tripled Thailand’s fuel import bill, constituting thirty per cent of all imports by 1982, even as natural gas was at that time coming online (Foran 2006, citing Phongpaichit/Baker 1995; Greacen/Greacen 2004).



export demand. Thailand's electricity sector particularly struggled, as its rapid expansion in the late 1960s and 1970s had been debt-financed; furthermore, an emphasis on supply-side-led expansion (rather than energy conservation) also created perceptions of capital shortage (Foran 2006: 41). The government entered into a structural adjustment programme from 1981 to 1985 with the World Bank and *International Monetary Fund* (IMF), who had realigned themselves towards a neo-liberal development paradigm; loan conditions of the World Bank and the IMF included commitments to privatize SOEs, and for the electricity sector to raise prices (ultimately by two and a half times as much). Yet EGAT and its union resisted and ultimately defeated their privatization (Greacen/Greacen 2004).

By the late 1980s, Thailand's economy had recovered, and the country began to experience power shortages. EGAT, however, was still burdened by high levels of foreign-sourced debt, servicing of which constituted over half of its budget (Greacen/Greacen 2004). In 1992, the pro-market National Energy Policy Council chaired by the prime minister, and its secretariat the *National Energy Policy Office* (NEPO), tried to bring together a fragmented series of energy 'policies' within one entity (Wattana/Sharma/Vaiyavuth 2008). It also sought to address power shortages through 'restructuring the industry' by launching an *Independent Power Producers* (IPPs) programme in 1994. There were subsequent plans for a competitive power pool electricity market for generation and privatization of retail distribution, which remained unfulfilled. As EGAT also strengthened its technical capacity ('knowledge') for planning, it introduced least-cost planning practices. Thailand's *National Economic and Social Development Board* (NESDB), meanwhile, increased its 'regulatory' scrutiny of EGAT's *Power Development Plans* (PDPs) that it prepared (Foran 2006: 19). Power shortages also sparked EGAT's first concern for energy conservation, catalysed by the NGO *International Institute for Energy Conservation* (IIEC), signifying a shift in planning 'culture' (see Foran 2006; 39.4.2).

NEPO permitted EGAT to sign several *Power Purchase Agreements* (PPAs) with IPPs on a 'take-or-pay' basis, thus allowing entry of large private-sector actors into Thailand's electricity generation. EGAT established a subsidiary, the *Electricity Generating Company* (EGCO), to operate two of its most profitable plants as IPPs whilst maintaining a forty-five per cent share in the company, and began negotiating contracts with other IPPs. These 'policies' were rein-

forced by pressure from the World Bank and IMF, alongside the apparent availability of international private capital seeking profitable returns in developing countries. Greacen (2007) notes that the IPP programme, whilst contributing to meeting Thailand's electricity demand, has presented a number of risks to IPPs, including delays due to electricity demand gluts, community opposition, and political and policy/regulatory uncertainty, as well as risks to electricity consumers in Thailand who have had to pay for unused generation capacity (39.3.3).

At the same time, the *Small Power Producers* (SPP) programme, launched in 1992, allowed an additional role for the private sector, either selling to EGAT or directly to nearby industry. The SPP programme purchases electricity from either *combined heat and power* (CHP) or renewable private sector generation projects of up to 90 MW. Thailand was the first country in Asia to adopt such a programme,<sup>10</sup> which was modelled on the US *Public Utilities Policies Act* (PURPA) 'regulations' (Greacen 2007). As of 2009, the capacity of SPPs was 1,962 MW, representing 6.7 per cent of Thailand's total capacity (EGAT 2010).

As EGAT resisted NEPO's attempt to unbundle generation, transmission and distribution, in 1997 Thailand was hit by the Asian financial crisis (Smith 2003). The crash of the economy reduced electricity demand, whilst the collapse of the Thai baht left EGAT struggling with its foreign-denominated debt. The 'take-or-pay' IPP contracts signed by EGAT were also left in a precarious position, and the government subsequently renegotiated these (Greacen 2007). An economic adjustment package offered by the IMF required further 'policy change' towards privatization; EGAT was required to sell assets, including a sixty-five per cent share in its just-built, profitable Ratchaburi gas-fired plant (Smith 2003).

Following the Asian financial crisis, Thaksin Shinawatra's *Thai Rak Thai* (TRT) government which came to power in 2001 redefined the direction of Thailand's electricity 'industry restructuring' (as well as many other functionings of the government). Having established a new Ministry of Energy in 2002 and redesignated NEPO as the *Energy Policy and Planning Office* (EPPO) with significantly reduced powers, TRT

10 World Bank "Retoolkit Case Study: Small Power Producers in Thailand", at: <<http://siteresources.worldbank.org/EXTRENENERGYTK/Resources/5138246-1238175210723/ThailandoSmalloPoweroProduceroProgramo.pdf>> (31 May 2015).

shelved plans to create a competitive power-pool electricity market and replaced it with an *enhanced single-buyer* (ESB) model, in which EGAT owned approximately fifty per cent of the generation capacity and a hundred per cent of the transmission. Wattana/Sharma/Vaiyavuth (2008: 47) observe that the ESB model was quite similar to the previous single-buyer model, thus maintaining many traits of the existing electricity regime. TRT's approach de-emphasized market competition within the electricity sector, and promoted EGAT as a 'national champion.' A greater priority for TRT was to corporatize EGAT as a public company on the *Stock Exchange of Thailand* (SET), reflecting TRT's economic policy of expanding the SET, building Thailand's domestic market, and projecting influence into neighbouring countries. The SET listing, however, was blocked in Thailand's Supreme Administrative court in 2006 by a coalition formed of EGAT's labour union and civil society consumer groups concerned about the absence of an independent energy regulator. Subsequent to the court case, the Energy Industry Act, B.E. 2550 (2007) was passed (under a military-appointed government), which established the *Energy Regulatory Commission* (ERC) reshaping 'user relations' (Wattana/Sharma/Vaiyavuth 2008; Wisuttisak 2012).

As a result of these waves of partial-privatization, EGAT's share in generation dropped from eighty-nine per cent in the late 1980s to forty-six per cent in 2012 (EPPO 2013). Meanwhile, 'favoured technology' had shifted towards combined-cycle gas turbines fuelled by natural gas, which had become available domestically and via import from Myanmar. The claimed aims of the IPP programme were to reduce EGAT's investment burden and the cost of power generation. Wattana/Sharma/Vaiyavuth (2008: 45) conclude, however, that although IPP bidding was competitive, it appeared that cartels were formed to push up bidding prices, and thus any reduced costs in production were not passed on to consumers but rather remained with the companies and their shareholders. Conflicts of interest were also noted; Wattana/Sharma/Vaiyavuth (2008: 50) write "Some of the business-orientated politicians with dual roles—as citizens' representatives and as executive directors of companies—played a part in promoting the privatization of the industry".

The corollary of the partial privatization of Thailand's electricity sector is the growing role of the private sector in decision-making on power projects; this includes not only IPPs but also construction companies and commercial banks, among others (Middleton/Matthews/Mirumachi 2015). Many of Thailand's

IPPs and SPPs, as well as the major commercial banks that fund them, are listed on the Stock Exchange of Thailand (SET). For these actors, return on investment and minimization (or redistribution) of investment risks are key criteria by which power projects are financed and thus built. For example, the controversial 1,285 MW, US\$3.5 billion Xayaburi Dam on the Mekong River's main stream in northern Laos (see also 39.4.2.1), now under construction, is owned by a predominantly Thai consortium with financing from Thai commercial banks. The project signed a PPA with EGAT to export ninety-five per cent of its power to Thailand. When the Laos government announced its final approval of the project in November 2012, the share price of the lead developer, the Thai construction company Ch. Karnchang, hit a twenty-one-month high, unsurprisingly revealing the stock market incentives for listed IPPs.<sup>11</sup> Merme/Ahlers/Gupta (2014) warn that such strict market logic may undermine a power project's long-term commitment to environmental sustainability and local livelihoods, or displace these costs from the private developer to the state, as is highly likely to be the case with the Xayaburi Dam (Matthews 2012; Middleton/Matthews/Mirumachi 2015). Meanwhile, Phongpaichit/Benyaapikul (2013) flag up that EGAT's role as both state utility and major investor in private affiliates, such as Ratchaburi and EGCO (which also holds a 12.5 per cent share in the Xayaburi Dam), creates a potential conflict of interest as the organization becomes a blurred semi-public, semi-private entity.

In the 1990s, some initial domestic concern (reflecting also a global concern) for renewable energy, energy efficiency, and demand-side management moved up the 'policy' agenda within the incumbent electricity regime (see 39.3.3 and 39.4). This was catalysed by both collaborative and adversarial relationships with NGOs (see 39.4.2). An increasingly vocal civil society also sought to challenge individual projects, including fossil-fuel-fired projects and hydro-power dams that still remained as 'favoured technologies', as well as to influence EGAT's planning process. In total, this reflects the emergence of a "small sustainability agenda" in pursuit of cost effectiveness and environmental consideration, although Foran (2006: 4) argues that "Thailand's electricity planning, and its overall industry structure, impede sustainable energy

11 "Ch Karnchang hits 21-mth high on Xayaburi dam nod"; in: *Reuters*, 6 November 2014, at: <<http://www.reuters.com/article/markets-thailand-stocks-news-idUSL3E8M61E520121106>> (31 May 2015).

futures”. Foran (2006: 4) further observes that the privatization debate in the 1990s and 2000s insufficiently addressed who plans and strategizes the electricity system, and that:

Of all the agencies involved, EGAT plays a major role in shaping the details of what appears in the PDP, particularly plant size, fuel source, and location. These conditions prevailed in the 1980s, at the time Pak Mun was identified as a potential addition to the Thai power system. They prevail today. The continuity surrounding the PDP process is remarkable considering the dynamism surrounding EGAT (Foran 2006:5).

Whilst preparation of the PDP has been a closed-door process, since 2007 a slight (but imperfect) increase in transparency and public participation has emerged, with public hearings held during the 2010 PDP preparation process (Foran 2013) and more limited ones for the 2015 PDP. Thailand’s PDP process has been criticized by civil society groups and critical academics for emphasizing supply-side options, in particular large-scale centralized technologies, downplaying the potential for renewable small-scale technologies and distributed systems, and not integrating demand-side planning, including energy efficiency and demand-side management (Greacen/Greacen 2012). Thus, even as countervailing ‘knowledge’ of civil society advocacy coalitions increasingly challenged mainstream discourses, EGAT’s technical ‘knowledge’ continued to predominate, and constructive discussion about any actual technical and economic constraints and how they might be overcome has been limited.

It is of note that the circumstances, processes, industry structure, and outcomes of partial electricity sector reform in Thailand parallel the experience of other emerging economies that have incumbent electricity regimes. These include: the significant role of debt and financial crisis as a context for (partial) reform; the creation of an (enhanced) single-buyer model rather than full privatization of distribution; the prioritization of a limited number of (politically connected) IPPs to meet immediate generation demand that seems politically and technically easier, and the use of long-term PPAs rather than a competitive generation market, guaranteeing revenues; the relatively weak role of independent regulation; and, overall, the continued strong presence of the state (Victor/Heller 2007).

Thailand has also experienced the emergence of what Victor/Heller (2007: xvii) term ‘dual firms’ that are owned jointly between SOEs and private-sector actors. In other emerging economies, including China, India and South Africa, Victor/Heller (2007:

xvii) observe that dual firms “thrive in the murky middle ground between the old state-dominated system and a fully open and competitive private marketplace,” and this captures the character of EGCO and Ratchaburi. They are well connected politically, yet relatively efficiently managed, and act to protect the partially privatized regime and their privileged status within it (Victor/Heller 2007: 289–290). The limited number of actors within the regime facilitates policy negotiation internal to the regime, which outsiders—including critical NGOs and civil society groups—find difficult to influence, reflecting overall power relations between these actors.

### 39.3.3 Thailand’s Current Electricity System and Challenges

In terms of the current structure of the industry, of the total installed capacity of 32,600 MW in 2012, EGAT generates 46 per cent; IPPs generate 39 per cent; SPPs generate 8 per cent; and 7 per cent is imported from Lao PDR and exchanged with Malaysia (EPP0 2013: 89). The maximum peak demand in 2012 was 26,121 MW. The figures for fuel type are: natural gas fuels 67 per cent; coal/lignite fuels 20 per cent; domestic hydropower fuels 5 per cent; oil fuels 1 per cent; and electricity import/exchange (principally hydropower) fuels 7 per cent. By sector, the largest consumers of electricity were industry (45 per cent), followed by residential (23 per cent) and commercial (17 per cent) (EPP0 2013: 93).

Thailand faces a particular challenge in terms of long-term fuel supply. At present, seventy per cent of Thailand’s electricity generation is fuelled by natural gas, of which (as of 2006) twenty-seven per cent was imported from Myanmar (Nakawiro/Bhattacharyya/Limmeechokchai 2008). As Thailand’s domestic gas supplies could potentially be exhausted by 2025 (Sutabutr 2010, cited in Meerow/Baud 2012: 21), and opposition to further coal-fired power stations and hydropower remains staunch, as does proposals for nuclear power, EGAT faces a difficult dilemma in continuing a business-as-usual model without encountering civil society and community opposition (Nakawiro/Bhattacharyya 2010). Recognizing these challenges, and based on Thailand’s 2010 Power Development Plan, Kamsamrong/Sorapipatana (2014) argue that a renewable energy scenario for Thailand is possible, which would strengthen energy security through dependence on domestic fuel sources, whilst also reducing CO<sub>2</sub> emission intensity (see also Greacen/

Greacen 2012). However, the cost per unit of electricity in the 2010 PDP would increase by fourteen per cent.

On the other hand, at present Thailand's electricity system has an excess of generation capacity; in 2015, the reserve margin<sup>12</sup> was twenty-five per cent, and with several new projects contracted to come online in the next couple of years this could increase to as much as thirty-five per cent over the next decade.<sup>13</sup> EPP0 and EGAT have claimed that an unexpectedly weak economy has led to unanticipated low growth in electricity demand, whilst civil society groups, frustrated that these costs are ultimately passed on to consumers, claim that the creation of overcapacity is a systemic flaw in the incentives and oversight of the current cost-plus electricity regulations (39.3.1) and power planning model (39.4.2.1).

Climate change (as a 'landscape' factor) has also risen up the 'policy' agenda, creating pressure for change in the electricity system. For civil society groups, this has led to a push for energy conservation and renewable energy (see 39.1.4). EGAT, meanwhile, whilst incorporating these concerns into its so-called 'Green PDP' (EGAT 2010), has also responded by promoting 'clean coal technology', more large-scale hydropower dams, and a nuclear power station.

Another challenge is created by the institutional disjunctures, not unique to Thailand, between electricity planning and those agencies related to water management and food production (Middleton/Dore 2015). Since 2008, there has been growing discussion about the water-energy-food nexus globally and in South East Asia as a policy and research agenda, although to date this is yet to be extensively translated into national policy and practice (Middleton/Allouche/Gyawali et al. 2015).

At the time of writing, Thailand's most recent Power Development Plan is the PDP 2010 revision 3, approved in December 2011 (EPP0 2012).<sup>14</sup> It anticipates a total system capacity growth of 52,256 MW by 2030, almost double that of 2010, although this growth is contested by civil society groups (Greacen/Greacen 2012). Guided by an Alternative Energy Development Plan (2012–2021), the PDP proposes that "total capacity of renewable energy will be

around 20,546.3 MW (or 29 percent of total generating capacity in the power system)", although this includes a significant proportion of large hydropower plants whose 'renewable' credentials (in the sense of broad-based sustainability and social justice) are contested. This strategy reflects a concern for energy security, in particular fuel diversification, and a reduction in dependence on natural gas. Meanwhile, the Twenty-Year Energy Efficiency Development Plan 2011–2030 proposes a twenty-five per cent reduction in energy intensity within twenty years.

### 39.4 Role of Civil Society in Sustainable Electricity Transition in Thailand

This section discusses how civil society has acted to transform the 'landscape' in which the incumbent electricity regime exists (39.4.1), to unsettle the existing 'regime' (39.4.2) and to imagine a new one (39.4.3), and how new 'niches' have been created (39.4.4). The analysis is structured according to Smith's (2012: 189) typology of civil society activity in relation to sustainable energy transitions (see table 39.1).

#### 39.4.1 Landscape Transformation

Thailand's 1997 People's Constitution—since replaced, following a military coup, by a new Constitution in 2007<sup>15</sup>—was a fundamental shift in landscape (39.3.2) that reconfigured Thailand's political system, including recognizing many human rights, and creating a Constitutional Court, an Administrative Court, a National Counter Corruption Commission, and a National Human Rights Commission. Articles<sup>16</sup>

12 'Reserve margin' reflects the percentage of excess capacity relative to maximum annual peak demand in the system.

13 "Officials to tackle surplus in future electricity supply"; in: Bangkok Post, 29 April 2015, at: <<http://www.bangkokpost.com/business/news/544859/officials-to-tackle-surplus-in-future-electricity-supply>> (31 May 2015).

14 On 14 May 2015, Thailand's National Energy Policy Committee approved the PDP 2015. Full details were not available at the time of writing, but the plan anticipates a growth in generation capacity from 37,612 MW in 2015 to 70,410 MW by 2036 ("Public hearing held on the Energy Ministry's PDP"; in: Thai PBS, 28 April 2015, at: <<http://englishnews.thaipbs.or.th/public-hearing-held-on-the-energy-ministrys-pdp>> (31 May 2015)); and a reduction in the proportion of natural gas as a fuel from sixty-seven per cent to forty per cent, to be replaced by coal, hydropower and renewable sources ("National Energy Policy Committee approves Thailand's power development plan (PDP 2015)", in: media release by the Royal Thai Government, 14 May 2015, at: <[http://www.thaigov.go.th/index.php?option=com\\_k2&view=item&id=91997:91997&Itemid=398&lang=en](http://www.thaigov.go.th/index.php?option=com_k2&view=item&id=91997:91997&Itemid=398&lang=en)> (31 May 2015)).



allowed for the right to access information and to hold public hearings (Articles 56 and 57), and the right to public participation (Article 67); the latter is significant given that Thailand's *Enhancement and Conservation of the National Environmental Quality Act, NEQA* 1992, that predates the 1997 and 2007 constitutions and provides the law on *Environmental Impact Assessment* (EIA), does not detail requirements for public participation.

These mechanisms to counterbalance the power of the state have been framed by often contentious debate about democracy and development in Thailand, incorporating public interest issues such as economic, social and political (in)equality, and environmental protection versus development. These 'landscape' shifts have challenged (and been shaped by) the incumbent electricity regime, including in terms of transparency, participation and accountability, and they also provide some opportunity for emergent niches (Smith/Voß/Grin 2010: 441). For example, article 67 states that people have the right to ask for and participate in a *Health Impact Assessment* (HIA), which was translated into rules and procedures following a constitutional court ruling—brought by civil society—in December 2009; power development plans and large power projects are subject to a HIA (National Health Commission Office Thailand 2010: 12). In another example, as mentioned above (39.3.2), opponents of EGAT's listing on SET won their case in Thailand's Supreme Administrative Court in 2006. These entitlements under the law are legitimized and reinforced as they are exercised with regard to cases in the electricity sector.

Some civil society groups have also conducted awareness-raising campaigns about the impact of consumerist lifestyles in Thailand, perhaps the most high-profile of which have related to climate change, for example the activities of the Thai Climate Justice Network.<sup>17</sup> Whilst Thailand has made important steps in reducing material poverty and increasing *gross domestic product* (GDP), its ecological footprint is rising;<sup>18</sup>

15 The new constitution was approved in October 2006. At the time of writing (May 2015), the 2006 constitution had been repealed following another military coup in May 2014. In July 2014 an interim constitution was enacted, with a new constitution under preparation. Meanwhile, martial law was mostly lifted in April 2015, although many restrictions on political freedoms remain in place.

16 Carried over from the 1997 into the 2006 constitution.

17 See Thai Climate Justice website, at: <<http://www.thai-climatejustice.org/>> [in Thai] (28 May 2015).

Thailand's carbon intensity—CO<sub>2</sub> emissions per unit of GDP—are significantly higher than neighbouring Cambodia and Laos, as well as greater than some other large industrial countries in Asia such as Japan.<sup>19</sup> According to the International Energy Association, for the period 2011 to 2035, carbon intensity will decrease by 1.4 per cent per year on average, whilst per-capita emissions will rise from 36 per cent to 90 per cent of the OECD average over the same period (IEA 2013).

### 39.4.2 Unsettling the Incumbent Electricity Regime

Since the 1990s, a diverse range of civil society groups has sought to unsettle Thailand's existing electricity regime at scales ranging from individual projects to the PDP itself (Foran 2013). Not all civil society, however, is seeking to unsettle the incumbent regime. EGAT's union has maintained a close alignment with EGAT, staunchly resisting efforts to privatize EGAT in order to protect members' jobs and the benefits that EGAT provides for its employees. On the other hand, when interests have been aligned, EGAT's union has also partnered with consumer groups and NGOs, most notably when the Thai Rak Thai party sought to corporatize EGAT in 2006 (see 39.3.2); whilst EGAT's union opposed the corporatization in general and sought to maintain a minimum generation capacity of at least fifty per cent of the total system for EGAT, consumer groups and NGOs disagreed with the corporatization in the absence of an independent regulator.

#### 39.4.2.1 Challenging the Incumbent Regime Through Resistance

Since the 1990s, community protests—supported by a range of NGOs—emerged around numerous projects proposed by EGAT and IPPs, including the Pak Mun and Nam Choan hydropower dams (Foran/Manorom 2009; Hirsch 1998) and coal-fired power plants in Prachub Khiri Khan province and the Mae Moh project in Lampang province (Hildyard/Lohmann/Sexton 2012;

18 See at: <<http://www.gms-eoc.org/gms-statistics/overview/ecological-footprint>> (28 May 2015).

19 According to World Bank Indicators (see at: <<http://data.worldbank.org/indicator/EN.ATM.CO2E.PP.GD>> (28 May 2015)), CO<sub>2</sub> emissions (kg per PPP \$ of GDP) for 2010–2014 are: 0.4 in Thailand; 0.1 in Cambodia and Laos; 0.2 in Indonesia and the Philippines; 0.4 in Vietnam, Malaysia and South Korea; and 0.3 in Japan.

Greenpeace 2005). The case of Mae Moh, for example, has been the subject of a decade-long court case for remedy and restitution.<sup>20</sup> Whilst it has been claimed that EGAT was a relatively early adopter of EIA, partly due to the strong influence of the World Bank (Shepard/Ortolano 1997), numerous other researchers have highlighted the shortcomings of such assessment processes so far in Thailand (ADB 2010; Boonlong/Farbotko/Parfondry et al. 2011; Friend/Pradubsuk/Badenoch/ et al. 2011).

In the case of the proposed private coal-fired power plants in Prachub Khiri Khan in the 1990s, for example, EGAT signed a PPA before holding hearings or conducting an EIA. International NGOs supported local opposition “by pointing to the conflict of interest between the government’s investment in private projects, and its regulation of those projects’ rates of return” (Ryder 1997, cited in Foran 2006). Meanwhile, others pointed out that the power was surplus to requirements due to the impact of the Asian financial crisis. As Thailand has shifted to power-import projects from neighbouring countries, transnational campaigns have also emerged, for example around the Nam Theun 2 and Theun Hinboun Dams in Laos, and the Yandana gas pipeline and proposed dams on the Salween River in Myanmar (Middleton 2012). These have challenged EGAT as the electricity buyer, as well as the host project government, project developers and financiers.

A recent example of a transnational campaign is the Xayaburi Dam (see 39.3.2). Project proponents argue that the Xayaburi Dam would contribute towards Thailand’s energy security and generate cheap electricity, and that the FDI and project revenues would bring development to Laos. Those opposing the project, including various civil society groups, emphasize that the project will displace 2,100 people and that more than 200,000 people located near the dam would experience a negative impact on their livelihoods, both within Laos and in neighbouring countries. Civil society strategies to challenge the project have included: challenging the intergovernmental process hosted by the Mekong River Commission; direct protests including peace walks along the Mekong River, in front of the lead company’s headquarters, and at various government agencies; consumer boycotts against Thai banks; public petitions; and media

coverage (International Rivers 2014; Matthews 2012). A range of counter-expertise has been invoked, including legal interpretation,<sup>21</sup> scientific assessment of project documents (Hirsch/Hogan/Lanza et al. 2011), and alternative ways of valuing the river, ranging from ecological economic assessments (Costanza/Kubiszewski/Paquet et al. 2011) to local knowledge (Herbertson 2012). The project is currently a case before the Supreme Administrative Court in Thailand brought by Thai riparian communities against the Thai government agencies involved, including the Ministry of Energy, benefiting from the 1997 ‘landscape’ changes—and seeking to expand them, given that the project is located in neighbouring Laos.<sup>22</sup>

From the late 1990s, Thai NGO civil society groups have also sought to challenge the power planning process itself, seeking to make it more transparent and accountable (Greacen/Palettu 2007; Foran 2013). Electricity planning in Thailand has been enshrouded in a discourse of expert knowledge—and the power relations that that entails—which in turn has supported the incumbent electricity regime (Foran 2006). Since the 1980s, EGAT’s power planning has become more technically sophisticated, including least-cost planning, load forecasting, and determining reserve capacity (Foran 2006). Yet counter-expertise has challenged assumptions within EGAT’s PDP (see 39.4.3). For example, a 2006 study by Greenpeace showed that twelve of the last thirteen power-demand estimates by EGAT had been overestimates, resulting in over-investment in generation capacity (Greacen/Footner 2006). A combination of factors is likely to have contributed to this track record, including: a tendency to over forecast Thailand’s GDP growth rate, which is a fundamental assumption in the long-term PDP, and hence demand growth; risk perception of planners towards demand-side management and energy efficiency measures in the face of the need to maintain a stable electricity supply; the moral hazard of cost-plus regulations;<sup>23</sup> and the existing interests and politics of the incumbent electricity regime.

Civil society has sought also to open up the electricity planning process to more participation, transpar-

20 “Victory for Mae Moh victims”, in: Bangkok Post, 25 February 2015, at: <<http://www.bangkokpost.com/news/general/483656/victory-for-mae-moh-victims>> (31 May 2015).

21 Perkins Coei, “Letter to International Rivers and Environmental Defenders Law Center Re: PNPCA Process for Xayaburi Dam”, dated 5 July 2011, at: <<http://www.internationalrivers.org/files/attached-files/xayaburipnpcaprocess.pdf>> (31 May 2015).

22 “Thai Court Takes Villagers’ Case against Power Firm, Laos Dam”, in: *Reuters*, 24 June 2014, at: <<http://uk.reuters.com/article/2014/06/24/thailand-laos-law-suit-dam-idUKL4NoP51PN20140624>> (31 May 2015).

ency and accountability, citing the broader ‘landscape changes’ and associated entitlements. For example, under a wider World Resources Institute initiative, a consortium of Thai organizations researched a benchmarking report that assessed electricity governance performance with regard to policy process, regulatory process, and environmental and social considerations, and placed Thailand in a comparative perspective against nine other emerging economy countries (Sukumnoed/Greacen/Limstitt et al. 2006). The report and policy work surrounding it both contributed to blocking EGAT’s corporatization in 2006, and helped shape the subsequent law that established the Energy Regulatory Commission (WRI/EGI/Prayas Energy Group n.d.).

### 39.4.2.2 Challenging the Incumbent Regime Through Cooperation

Some civil society groups have sought to cooperate with EGAT to reform its practices. For example, the rise of Thailand’s energy conservation agenda is linked to the catalytic work of the *International Institute for Energy Conservation* (IIEC), a technically-orientated NGO with its headquarters in the US. In the early 1990s, IIEC proposed a US\$179 million energy conservation programme to EGAT, PEA and MEA, that was taken up and implemented. IIEC formulated its proposal on the basis that investment in *demand-side management* (DSM) and *energy efficiency* (EE) was the least-cost option for Thailand. In tracing the origin of the programme and its impact, Foran (2006: 28) observes that there was a “good rapport” between EGAT and IIEC.

Yet energy conservation also presented a number of challenges to EGAT, such that its full potential has not been exploited (Foran 2006: 27–32; Foran/du Pont/Parinya/ et al. 2010). IIEC proposed a new approach to PDP preparation based on the principles of *Integrated Resources Planning* (IRP), namely least-cost planning that optimizes both the supply side and the demand side. EGAT’s senior management and planners, however, perceived interventions to change user behaviour as risky with regard to ensuring electricity system reliability in contrast to building new

supply, and thus continued to pursue a business-as-usual approach that privileged the expansion of capacity. Such nationally-scaled framing of electricity systems—including of aggregated demand—renders invisible local-scaled practices surrounding electricity consumption, including its micro-politics (Smits 2012), and how the preferences of users are shaped through broader consumer society preferences and practices (Shove/Walker 2014) (39.2.3).

### 39.4.3 Imagined Alternative Sociotechnical Regime

Civil society has also unsettled the incumbent electricity regime through imagining and practising alternatives. At the community scale, for example, groups resisting EGAT’s plans for two large-scale coal-fired power plants in Prachub Khiri Khan province sought to reframe the concept of development. The power stations were part of the Southern Seaboard development plan that proposes industrial steel production in the region. They envision

a just provincial level programme for defence of local subsistence and prosperity through rice, coconut and pineapple cultivation, local marketing, small fisheries, tourism, and wind and other non-fossil energy sources (Sureerat 2010, cited in Lohmann/Hildyard 2013:14).

They reimagine energy production as locally produced and at an appropriate scale for their area, rather than meeting ‘national’ energy demand; this reflects an often-found ‘politics of scale’ tension between local- and national-level priorities and the discourses (and power inequalities) that frame them (Sneddon 2003). In another example, the *Appropriate Technology Association* at its energy ashram in Nakorn Ratchasima Province researches, promotes and puts into practice appropriate technologies related to rural development.<sup>24</sup> It was created by an early-retired engineering professor from Chulalongkorn University in Bangkok, and those visiting the ashram can learn about a range of methods by which to produce energy sustainably.

Other civil society groups have worked to create different PDPs from EGAT’s plans. In 2004, in the context of the opposition to the corporatization of EGAT, civil society groups under the auspices of the National Economic and Social Advisory Council developed an “Alternative PDP” that was presented to the Senate Committee on Public Participation (Permpongsachar-

23 It has been pointed out by numerous critics that EGAT’s cost-plus investment arrangement is a disincentive to investment in electricity-saving measures, as profit cannot be made by reducing electricity sales; in contrast, it incentivizes over-investment, as well as creating unnecessary social and environmental costs (Foran 2006: 31; Greacen/Footner 2007).

24 Appropriate Technology Association website; at: <<http://www.ata.or.th/th/index.php>> (28 May 2015).

oen 2004). Since then, two more complete studies have been prepared, in 2006 (Greacen/Footner 2006) and in 2012 (Greacen/Greacen 2012). These studies highlight the limitations of existing electricity planning and its governance, and propose plans whereby Thailand could meet its energy needs through energy conservation, renewable energy, and refurbishing existing power stations. They also propose improved practices for planning, namely IRP, and additional decision-making criteria that internalize environmental and societal costs. Whilst EGAT has not officially responded to these plans, as credible counter-expertise they have empowered community groups to challenge the business-as-usual approach.

#### 39.4.4 Electricity Niche Development

Civil society groups also play a role in nurturing niches (Seyfang/Smith 2007; Smith 2012). As an example in Thailand, this section focuses on the emergence of the *Very Small Power Producer* (VSPP) programme and the role of civil society, approved by the Thai Cabinet in 2002 and expanded in 2006. The internationally-applauded programme has allowed for the distributed production of electricity from renewable energy systems, and has been argued to increase the resilience of Thailand's electricity system (Meerow/Baud 2012).

The origin of the VSPP programme can be traced back to a community micro-hydropower project in Mae Kampong village, Mae On district, Chiang Mai province, northern Thailand (Smits 2012; Greacen 2004), and the activities of a small number of researchers, civil society groups and progressive government staff in EPPO and EGAT (Brouwer 2012). Briefly, three micro-hydro schemes of twenty to forty kilowatts have been built in Mae Kampong village in 1983, 1988 and 1994. The projects were built as a partnership between the community and the government's *Department of Alternative Energy Development and Efficiency* (DEDE), resulting in a strong sense of community ownership (Smits 2012). Importantly, even when PEA's grid electricity reached the village in 2000, the community preferred to maintain the micro-hydro system as a cooperative alongside it, partly because it enhanced their image as an 'environmentally friendly forest community' and thus supported an ecotourism project also implemented by the villagers (Smits 2012). The micro-hydro projects, in other words, are linked to the village's culturally-valued ecological identity (cf. Smith 2010).

In 2001, a PhD researcher working with the community, Christopher Greacen, began to consider how it might be technically possible to connect one of the micro-hydro projects to PEA's grid. At the same time, Cheunchom Sangarasri Greacen, a staff member at EPPO, explored how a regulatory framework might enable this arrangement.<sup>25</sup> According to Brouwer (2012: 4), over 2001:

Working closely with the utility companies and regulators, and operating without public pressure, lobbying, op-eds or media coverage, Chris and Chom saw Cabinet approval for the VSPP rules in less than a year. Their strategy was to work collaboratively with the authorities (government regulators), and to establish allies in the sector with the biggest influence on the process (utilities).

Thus, catalysed by this groundbreaking work emerging from Mae Kampong, in 2007 one of the village's micro-hydro projects was synchronized to sell to PEA's grid, benefiting from the VSPP programme it helped create and earning the community approximately US\$1,000 per month.<sup>26</sup>

Thailand's VSPP regulations are drawn from net-metering rules that were already in operation in the US at the time of drafting, and are also based on the existing Small Power Producers regulations passed in Thailand in 1992 (Greacen 2007). The first-phase VSPP regulations, approved in 2002, allowed projects of up to 1 MW to connect to the grid, thus assuaging the concerns of EGAT's engineers regarding distributed generation sources creating grid instability. The 2006 VSPP modifications included an added feed-in tariff (i.e. a subsidy) and allowed for projects of up to 10 MW, including co-generation units (Greacen 2007).

The VSPP projects have challenged Thailand's business-as-usual electricity regime, in that most contributing renewable energy systems are owned by small- and medium-scale businesses<sup>27</sup> rather than EGAT or large IPP companies, thus diversifying the ownership of gen-

25 Christopher and Cheunchom Greacen went on to create the NGO energy think tank Palang Thai in 2002 (Foran 2006), which continues to promote the VSPP programme.

26 Unfortunately, after six months operation, sales to PEA were halted due to a disagreement over the sharing of revenues between the village and the sub-district authority (Smits 2012).

27 Since 2014, community groups—in hybrid governance arrangements with the state and private sector—have sought to benefit from the VSPP programme, albeit on a small scale at present (On 2015).



eration capacity. On the other hand, at the time of the VSPP programme's development, EGAT was facing pressure to privatize, and thus EGAT's permitting a greater (but still comparatively small) role for the wider private sector could also be viewed as a minor compromise that actually bolstered the incumbent electricity regime. As Brouwer (2012) writes, interviewing Christopher Greacen:

the VSPP regulations were politically very 'nicely aligned, because they were consistent with private sector participation in the power sector in the sense that they would enable more customer-owned generators. The utilities could give back a little bit by making a concession on this while they were fighting against [utility privatization]'.

Despite the apparent success of the VSPP programme and Thailand's Ten-Year Alternative Energy Development Plan (39.3.3), challenges remain for the widespread scaling-up of renewable energy. Tongsovit/Greacen (2013: 440) point out that one "major impediment" is that Thailand has six separate long-term national energy plans which are neither integrated nor coordinated. Meanwhile, whilst the adder feed-in tariff programme as first implemented between 2007 and 2010 was, according to Tongsovit/Greacen (2013: 441), "systematic and transparent", since then loopholes have been exploited whereby private companies have bid for solar VSPP PPAs with the intent to resell the PPA rather than develop the capacity themselves. The government's response has been to create a new Management Committee and evolve rules since 2010 which have been criticized as lacking transparency and also as slowing down investment in renewable energy (see also Meerow/Baud 2013). Other controversies have also emerged, for example the local pollution impacts of some poorly-managed biomass projects under the VSPP programme (Yoo 2013).

### 39.5 Conclusion: Towards Decentralizing and Democratizing Electricity

This chapter has applied a Sustainability Transition and Multilevel Perspective lens to explain the creation and resistance to change of Thailand's incumbent electricity regime, which was first a state monopoly and since the 1980s has evolved into a partially-privatized structure. This chapter has conceptualized the incumbent regime not as monolithic but as a coalition of actors (pursuing their interests) including the state utility, its labour unions, and various 'dual-firm' IPPs,

thus adopting an explicitly political economy approach. The chapter has contributed to sparse literature on sustainability transition in Asia's NICs, and in particular on how Thailand's political economy has shaped the electricity regime's establishment and embedding, and its resistance to change that combines economic, institutional, cultural and political factors, with technical lock-ins and historical pathway dependencies.

Changes in the structure of the incumbent electricity regime have been shaped by shifts in 'landscape'. These shifts include those at the global scale (changing development paradigm from developmentalist state to neo-liberalism, global economic crisis and Thailand's exposure to it as an export-orientated economy, and climate change) and at the national scale (increasingly embedded democratic institutions, and a growing role for civil society). Regarding the latter, these political spaces have been widened as civil society groups have sought to claim, utilize, and thus legitimize them—and have been closed as elites have sought to reduce the role of progressive civil society groups. It may be noted that not only has reform of the electricity sector regime been shaped by these landscape level shifts, but the electricity sector has also constituted an important theme within broader political movements seeking landscape shifts in the first place. Incremental reforms, some of which have originated in niches, have been accommodated by the incumbent regime, including the growing contribution of distributed renewable energy generation and energy conservation, the creation of an independent regulator, and a small increase in civil society participation and accountability of the power planning process.

The chapter has emphasized in particular the role of civil society in shaping the incumbent electricity regime. Civil society groups have adopted a range of strategies to unsettle the regime, including opposing problematic projects, advocating for progressive policy, and proposing alternative plans, values and visions for Thailand's electricity sector. In the past two decades there has been a significant growth in contestation and deliberation about how electricity should be produced, how decisions should be taken around it, and how implications for ecological sustainability and justice should be internalized. Whilst significant power asymmetries exist, there is now somewhat more debate between government agencies with civil society. They have drawn upon independent state agencies, such as the justice system and the Thai National Human Rights Commission, to counterbalance the power of the state (Middleton 2012), and their existence reflects 'landscape' level shifts. Civil society is evi-

dently a source of reflexivity in Thailand's electricity sector (Grin/Rotmans/Schot 2010, cited by Smith 2012).

The ST approach and MLP has helped explain why the structure of the incumbent electricity regime has remained relatively intransient, despite the argued-for benefits of electricity sector reform (Greacen/Greacen 2012), and from the perspective of ongoing broader environmental, social and political challenges in Thailand (Phongpaichit/Benyaapikul 2013). Transformation towards sustainability in Thailand, therefore, is a long-term challenge. Drawing insight from sustainability transition management literature (Verbong/Loorbach 2012), some strategies and policies to steer Thailand's incumbent electricity regime in the direction of sustainability include:

- The importance of building long-term and broad coalitions formed of civil society, government reformers, academics, and media (amongst others) that can counterbalance the political influence of the incumbent electricity regime, and that can support the emergence of green niches.
- Expand and maintain political space (or 'transition arenas') and support more deliberative processes that increase the responsiveness of the incumbent

regime, and in particular government agencies (EGAT; Ministry of Energy), to public interest concerns. Adopting IRP practices can integrate supply-side and demand-side multi-criteria least-cost planning. Governance and planning tools such as strategic environmental assessment and (transboundary) environmental impact assessment can also be employed, through which deliberation can occur (Middleton/Dore 2015).

- Build upon landscape pressures to destabilize unsustainable aspects of the incumbent electricity regime. Landscape pressures range from international expectations for sustainability transition towards renewable energy and energy conservation in the context of climate change to utilizing (and thus reinforcing) relatively recent independent state agencies such as the Administrative Courts, the Thai National Human Rights Commission, and the Energy Regulatory Commission.
- Acknowledge and support the legitimate role of civil society in its diverse forms, ranging from local community groups to progressive NGOs, as regime watchdogs and advocates, and as niche innovators.

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