

When international ‘best practice’ is not: power sector reform in small island states

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1 Introduction

Small island states have led the world in establishing ambitious renewable energy targets over the last decade. This has made the electricity sector a dynamic sector in small island economies, with considerable investment in new generation capacity, much of it donor-funded. Achievement of renewable energy targets has been one objective on which reform of the power sector has been advocated in recent years. These reforms draw on what is considered international ‘best practice’ and follow on from an earlier and quite different set of reforms that aimed at liberalizing the sector.

This chapter discusses the impact of these reforms and explores the strengths and weaknesses of different ownership and regulatory arrangements in the electricity sectors of small island states.

Two waves or generations of regulatory reform can be identified, each with its own conceptualization of ‘best practice’. In the earlier wave that commenced in the 1980s, the introduction of competition and private sector involvement, in what was traditionally a sector dominated by the state, was advocated on efficiency and performance grounds, and in light of the poor performance and reach of state-owned utilities. Best practice in this first generation of reforms involved competition between companies at multiple levels: when generating electricity (the wholesale market) and when selling it to consumers (the retail market). Transmission and distribution functions remained fully regulated under all regulatory models, given their intrinsic monopoly characteristics. This liberalization agenda led to significant changes the electricity sectors of many developed economies and in the economies of developing countries in Latin America. However, its impact was more limited in small island states, with some notable exceptions.

More recently, a second wave of reform has taken place, focused on establishing regulatory oversight that is independent from elected officials in the sector. These second generation reforms are aimed at encouraging new investment and ensuring appropriate pricing in the sector. Best practice is framed around independent price regulation – both in the case of retail and feed-in tariffs. In practice, this often involves a dominant power utility that generates most

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of the electricity in the grid, but which purchases some electricity from independent power producers. This second wave of reform has had a greater (if still limited) impact in small island states. Its advocacy should be placed in context, with small island states establishing ambitious renewable energy targets which, if met, would see most move toward an electricity network dominated by renewable energy technologies.

In discussing the strengths and weaknesses of different regulatory arrangements, a central argument of this chapter is that international ‘best practice’ is often not appropriate in small island states. The chapter identifies a number of factors that influence what is an appropriate regulatory structure. It also explores novel solutions suggested for small island states as a means of overcoming constraints associated with small size – solutions such as regional regulation. It is evident from this discussion that no one model is appropriate across the diverse range of small island states.

The chapter proceeds as follows: Section 2. discusses the international context for power sector regulation. Section 3. briefly highlights the features that make the electricity sectors of small island states unique while Section 4. overviews the experience of small island states with power sector reform. Section 5. provides an analysis and discusses some of the strengths and weaknesses of different models. Section 6. concludes the chapter.

2 How is the power sector regulated internationally?

International thinking and practice on power sector reform has undergone significant change in recent decades. The first electricity networks were fragmented, having largely been developed by private firms, cooperatives, and city councils. Subsequent consolidation saw a (often) state-owned utility become responsible for the generation, distribution and retailing of electricity across countries or large areas. These vertically integrated state-owned monopolies were considered necessary for achieving the economies of scale required in electricity generation, with government ownership crucial for energy security, safeguarding consumers against abuse of market power, and ensuring that utilities pursued non-commercial objectives that had important social benefits, such as rural electrification.

Consensus around this model began to break down in the 1980s. There was a push – part of a broader move toward deregulation and liberalization – to dismantle vertically integrated monopolies in the electricity sector, introduce competition, and in some cases, to privatize state-owned electricity utilities. The rationale for these first generation reforms was that the introduction of competition and private sector participation to the sector could increase efficiency and lower generation costs.

Initial moves to liberalize the electricity sector primarily occurred in developed countries, although there were some early developing country reformers, such as Chile. But liberalization was subsequently pursued in many developing countries, especially in Latin America, often with the support of international financial institutions (and sometimes as a condition of structural adjustment loans). In developing countries, reform objectives generally went beyond efficiency and lower generation costs. Proponents of reform argued that in developing countries liberalization could improve performance in the power sector, which in many cases was plagued by inadequate retail prices – undermining the ability of power utilities to manage electricity infrastructure – and poor management. It was also often argued that liberalization was the key to widening access to electricity through private sector financing of grid expansion and investment in generation capacity (Choynowski, 2004, Gratwick and Eberhard, 2008, Rosenzweig *et al.*, 2004).

Power sector reform can be understood with reference to four models of ownership and regulation identified in the literature – shown in Table 15.1 (Choynowski, 2004). State-owned

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Table 15.1 Ownership and regulatory structures in the power sector

	<i>Operational model</i>	<i>Ownership and regulatory structure</i>
	Vertically integrated monopoly	One vertically integrated (generally state-owned) monopoly utility is responsible for generation, transmission, distribution, and retail components of power supply. Prices are set by government or an independent regulator.
	Monopsony	One vertically integrated (generally state-owned) monopoly utility is responsible for most generation and for all transmission, distribution, and retail components of power supply. Independent Power Producers sell power to the utility. Retail and feed-in prices are regulated by an independent regulator.
	Wholesale competition	Numerous companies generate electricity, selling it to distribution companies in a (largely) unregulated wholesale market. Transmission and distribution fees are set by an independent regulator. Retail prices are regulated by an independent regulator.
'Best practice' first generation regulatory model	Full customer choice	Numerous companies generate electricity, selling it to distribution companies in a (largely) unregulated wholesale market. There is also competition in the retail market, with retail prices (largely) unregulated. Transmission and distribution fees are set by an independent regulator.

Source: Adapted from Choynowski (2004).

vertically integrated monopolies remain the most common model, despite the reforms highlighted above.

The second most common structure is the monopsony model, where limited competition is introduced in electricity generation through the sale of power to the dominant utility by independent power producers (IPPs). As noted below, the monopsony model has increased in popularity and can be considered the best practice model for second generation reformers where independent price regulation is in place.

The third and fourth models are more complex, involve more competition, and require the 'unbundling' of the dominant power utility's control over generation, distribution and retailing. The 'wholesale competition model' involves full competition at the generation level, with distribution companies bidding for electricity from generation companies in a wholesale market. The 'full customer choice' model, considered best practice by many first generation reformers, involves competition at every level of the power sector with the exception of the transmission and distribution network.

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The four models of power sector regulation are commonly represented as a continuum involving different levels of competition. This continuum was used in the past to demonstrate progress in power sector reform, with countries expected over time to move from a vertically integrated monopoly (the least desirable structure) to a full customer choice model (the most desirable, or best practice model) (Gratwick and Eberhard, 2008, Stern, 2000).

The full suite of reforms was never implemented in most countries, despite advocacy for reform. Besant-Jones' (2006) survey of reform around the world found that only 19 countries had introduced extensive competition in both retailing and generation, and that this had occurred primarily in Europe and Latin America. Vertically integrated monopolies remained in place in 79 countries; while in 52 countries, IPPs sold electricity to a single buyer. Gratwick and Eberhard (2008) conclude that the 'standard model' of (first generation) power sector reform is inaccurate, especially in developing countries, and that instead:

What we find in the power sector of most developing countries is a confused and contested policy and institutional space that arises from the fact that the incumbent state-owned utility remains intact and dominant, but where IPPs are also invited into the market, often with less than enthusiastic support from the incumbent.'

The failure to implement the full suite of 'best practice' reforms has numerous explanations. In developed countries liberalization has been politically contentious, limiting the extent to which governments are willing implement reform, even when supportive in theory. Political opposition has also been strong in developing countries, in part owing to the fact that many governments in developing countries previously subsidized electricity, meaning that liberalization would increase electricity tariffs (Besant-Jones, 2006, Choynowski, 2004).

But efficiency and lower generation costs were always only part of the reason reforms were implemented in developing countries (Newbery, 2001). Instead, reforms were commonly driven by crises in the electricity sector where supply had not kept pace with rising demand for power (Gratwick and Eberhard, 2008). It was hoped that reform would lead to investment in electricity sector infrastructure by the private sector; where this investment did not materialize, reforms were often abandoned (Newbery, 2001).

Support for first generation reforms or full liberalization has wavered in the last decade as a result of mixed experiences (Besant-Jones, 2006). Possibly the most famous example of problematic reform is the power crisis that affected California in 2001, which was caused by manipulation of the wholesale market by sellers who enjoyed monopoly power. But there are other, less extreme, examples. In both the United Kingdom and Chile, two countries commonly cited as examples of successful power sector reform, prices for consumers have not fallen despite lower generation costs resulting from efficiency gains. This was due to the monopoly power enjoyed by private sector utilities and the use of price cap regulation, both of which ensured efficiency gains boosted profits rather than reduced retail prices (Choynowski, 2004, Gratwick and Eberhard, 2008).

There is also increased recognition of the importance of regulation (Stern, 2000), and of the difficulties and risks entailed in liberalizing the electricity sector: an industry where supply and demand are highly inelastic (or less responsive to price signals) (Borenstein, 2002, Besant-Jones, 2006, Rosenzweig *et al.*, 2004). This is especially so in developing countries, where weak institutions make regulation especially challenging. In countries where reforms have been successful, they have involved careful sequencing and have been supported by effective institutions. Most examples of successful reform have occurred in developed countries (Besant-Jones, 2006, Choynowski, 2004, Gratwick and Eberhard, 2008, Kessler and Alexander, 2005).

Advocacy for power sector reform has not disappeared. But it has changed focus, and become more modest in its objectives. First generation reforms in the 1980s and 1990s were focused primarily on the dismantling of vertically integrated state-owned monopolies, introduction of competition, and in some cases, privatization. Nowadays, the World Bank and Asian Development Bank (ADB), strong advocates of power sector liberalization in the past, support such extensive reforms only on a case by case basis. Both are instead more likely to push for independent regulation of the sector in what can be considered a second wave of reform (ADB, 1995, 2009). Second generation reform typically has a number of objectives. One is to ensure that retail electricity prices reflect costs of supply, thereby avoiding regressive subsidies and improving the financial health of power utilities (leading to better management in the sector). The second is ensuring that feed-in tariffs are sufficiently high so as to incentivize independent power producers to invest in generation capacity and sell power to the electricity grid – a reform that can be understood as moving countries with the monopoly model of regulation toward the monopsony model. A third objective, pursued only in some cases, is the use of regulatory mechanisms to incentivize private sector investment that helps widen access to electricity.

Independent regulation has thereby become the new ‘best practice’ regulatory model, reflecting the limited implementation and success with a first wave of more ambitious reform in the sector. In practice, independent regulation has commonly occurred under a monopsony ownership structure. Advocacy of reform has differed across small island states, but in many cases it has been linked to foreign aid or concessional finance – often for renewable energy development. The World Bank and ADB have been the strongest advocates of reform in small island states of the Pacific. In the Caribbean, USAID has actively advocated and supported such reform. The suitability in small island states of what is considered international ‘best practice’, both in the first and second waves of reform, is discussed in the next section.

3 The electricity sector in small island states

The two defining features of small island states are size and the absence of land borders with neighbouring states. Both have important ramifications for the electricity sector. Almost all electricity networks in small island states are isolated networks, meaning that they are not connected to other networks, including those of other countries (in some small island states undersea cables provide a link, but these are costly and are very much the exception). Energy security, an important consideration for all electricity networks, is far more challenging for isolated networks. Such networks must be self-sufficient in the production of electricity – electricity is not imported from neighbouring networks, such as occurs in other small states (e.g. Luxembourg). This means backup generation (or storage) is required, which increases the economic cost of supply. The lack of a connection with other networks also makes the integration of renewable energy technologies that produce electricity intermittently more complicated and costly, especially at high levels of penetration.

4 Size of the network

The small scale of networks in small island states presents other economic challenges. Limited demand for electricity constrains the ability of power utilities to achieve economies of scale in generation. Unit costs are higher as a result. Although this situation has changed considerably in the last decade due to technological advances that have lowered the cost of renewable energy technologies (especially solar-power), the absence of economies of scale is still important in

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Table 15.2 Fossil-fuel-based electricity production in small island states (% of total production)

<i>Pacific</i>		<i>Caribbean</i>		<i>Other</i>	
Cook Islands	100	Antigua and Barbuda	100	Bahrain	100
Fiji	53	Bahamas	100	Cape Verde	71
Kiribati	100	Barbados	100	Comoros	95
Marshall Islands	100	Belize	4	Maldives	100
Micronesia Fed. States	100	Dominica	69	Malta	96
Nauru	100	Grenada	100	Mauritius	79
Niue	100	Guyana	100	Sao Tome/ Principe	86
Palau	87.67	Jamaica	90	Seychelles	100
Samoa	67	St Kitts and Nevis	100		
Solomon Islands	100	St Lucia	100		
Timor Leste	100	St Vincent /Grenadines	83		
Tonga	94	Trinidad and Tobago	100		
Tuvalu	99				
Vanuatu	86				

Source: Data is taken from Energy Information Association (EIA) (2017) and is for 2014 (the latest year for which data was available across most countries). In the case of Tonga, Tuvalu and Vanuatu, EIA data incorrectly reports fossil-fuel production as 100% of total production in 2014. These figures have been corrected using data from PPA (2016) and Tonga Power Limited's 2014 annual report. EIA did not have data for FSM, so the table uses Pacific Power Association (PPA) data instead (utilities in all four states reported 100% fossil-fuel based generation in 2014).

explaining why electricity supply costs are higher in small island states than in larger countries (Dornan and Jotzo, 2015). Electricity in small island states is instead commonly generated using oil-fired generators (Table 15.2), although renewable energy investments are leading to greater diversity of generation sources over time.

Compounding these challenges are the geography and population distribution of some small island states. Where small populations are spread across island archipelagos, or where networks are fragmented and limited to urban centres, the 'national market' is segmented into smaller sub-national markets. This makes it harder still to achieve economies of scale. It also means that utilities must install expensive back-up or latent generation capacity (or storage), in order to safeguard the security of electricity supply (Dornan 2014a).

5 Differences between small island states

It is important to also acknowledge differences across the electricity sectors of small island states. The most important is size of the network. While all electricity networks in small island states are small by global standards, they do vary immensely with one another. Cuba, for instance, consumes more than 20,288 GWh of electricity each year. In the independent state of Tuvalu, with just 10,000 people, the figure was less than 6 GWh.

Another difference is access to electricity, which is closely linked to income. Many small island states enjoy high levels of access to electricity, but this is not universal. Access rates are especially low in the Melanesian states of the West Pacific, where countries like Papua New Guinea, Solomon Islands, and Vanuatu have rates of electricity access comparable to those Sub-Saharan Africa.

A third difference is the renewable energy resources that are available across small island states. These vary enormously between countries, with smaller atoll island nations especially constrained in the options available to them.

Such attributes influence the priorities for development of the electricity sector, with ramifications for regulation. Regulatory incentives for expanding access to electricity are generally non-existent, and indeed often hinder electrification through the granting of a monopoly to the incumbent utility. This is of particular concern in states with low electrification rates. Regulatory mechanisms for the promotion of renewable energy development and (especially) demand side management are often lacking in small island states, despite the high level renewable energy ambitions of their governments.

6 Regulation and reform in small Island states

The power sectors of most small island states were developed as vertically integrated monopolies, as occurred across most of the world. In a majority of small island states, the state either controlled or had a share in this monopoly – in many cases after purchasing private companies that had initially developed small networks. State control or investment in the monopoly utility was often used as a means to achieve government objectives without the need for regulatory oversight. Regulatory oversight, where it did exist, was more commonly put into place where vertically integrated monopoly utilities were controlled by the private sector, although there were some cases where private sector utilities enjoyed unregulated monopolies, such as Vanuatu (until recently), Grenada, and Aruba and Curacao (Shirley and Kammen, 2013, Dornan, 2015b). Legislation in the electricity sector was generally dated and modelled on legislation in metropolitan countries.

The monopoly model worked reasonably well in small island states where governments are effective and corruption is limited, especially where governments had a stake in ownership. It worked less well where these conditions were not met. Many power utilities in the Pacific, for example, were obliged by political leaders to price electricity below its full cost, with the result that power utilities were placed under financial pressure and were unable to adequately maintain generation equipment and the network (Dornan, 2014a). By design, the monopoly model of regulation did not attract investment from other parties. This has acted as a barrier to the expansion of access, and to renewable energy development, especially where combined with a tariff setting regime that is politicized and a regulatory regime that has not prioritized renewable energy development (Dornan, 2014a, Timilsina and Shah, 2016).

The impact of first generation reforms aimed at liberalizing the electricity sector has been limited in small island states – more limited than in other developing countries. Size is clearly important in determining whether liberalization is appropriate: no country with less than 1,000 MW of installed capacity had established a wholesale market that features competition (Dornan, 2014b). Most small island states have instead retained a monopoly structure, or have moved toward the monopsony model (often only in recent years). However, there are exceptions.

In Fiji, the vertically integrated state-owned monopoly that supplied electricity was in 1998 broken up into three companies responsible for generation, distribution and retailing, with technical assistance provided by the Asian Development Bank. This structure was short-lived: a

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change of government the following year saw the ‘unbundling’ reversed (Dornan, 2014b). In Aruba, generation and distribution were also unbundled, but no competition was introduced. The state subsequently took control of both functions (Shirley and Kammen, 2013). Singapore has recently announced it will fully liberalize its electricity sector in 2018.

Reform of the electricity sector in small island states has been more pronounced in recent years, although it has involved second generation reforms, aimed at establishing an appropriate pricing structure and in some cases, at introducing independent power producers (the monopsony model), rather than the introduction of competition. Efforts to expand renewable energy supply – often with reference to a response to climate change – have been used to justify many of these reforms.

Small island states have established renewable energy targets that are among the most ambitious in the world (Dornan and Shah, 2016, Timilsina and Shah, 2016). Whereas most countries have established renewable energy targets below 40% of total generation, most small island states have established targets above this number (see Table 15.3). The scale of investment needed for these developments is beyond what is possible for existing monopoly utilities. New sources of funding are needed, including climate change funding, development assistance, and private sector investment (Betzold, 2016). Removing the legislated monopoly over generation that is enjoyed by existing utilities, and thereby enabling independent power producers to invest in new generation capacity, is one way that some small island states have attempted to address this issue (Timilsina and Shah, 2016). Strengthening the financial position of state-owned utilities through appropriate pricing, thus better enabling them to develop renewable energy resources, is another. Regulatory oversight that ensures adequate retail and feed-in tariffs has been important in both cases.

In summary, while the ambitious liberalization agenda of the 1980s and 1990s had limited impact in small island states, a second wave of reforms aimed at facilitating investment by independent power producers has had a greater effect, even if only in some countries. This second wave of reform has been driven in large part by an ambitious agenda to develop renewable energy resources, often as a result of advocacy and support by external actors like the multilateral development banks and USAID that are also assisting to develop renewable energy sources.

Failure to implement the earlier, first wave of more ambitious liberalization reforms likely reflected a recognition that competition would always be limited in small island states where electricity networks are limited in size – a point emphasized by Stern (2000). It is hard to imagine that in very small states the cost reductions driven by competition would ever outweigh the overheads associated with different generation, distribution and retailing companies, as well as regulatory oversight (which would include a centralized dispatch function). The same limitations do not all apply to ‘best practice’ in the second wave of reform, which commonly involves a monopsony model where independent power producers supply a dominant power utility that is responsible for some generation and for all distribution and retail sales. However, even this second model presents challenges, such as the need for regulatory oversight. Its feasibility in small island states is discussed next.

7 Discussion

Consensus around what constitutes ‘best practice’ regulation in the electricity sector has changed over time and in response to the mixed results of early liberalization. It is clear that the initial liberalization agenda, which focused primarily on the introduction of competition, was not well suited to small island states. The importance of economies of scale in generation, fixed costs associated with administration, and the cost of regulation all serve to make competition

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Table 15.3 Renewable energy targets in the electricity sector in small island states

<i>Country</i>	<i>Target</i>
<i>Pacific</i>	
Cook Islands	100% by 2020
Fiji	100% by 2030
Marshall Islands	20% by 2020
Niue	100% by 2020
Palau	45% by 2025
Samoa	100% by 2017
Solomon Islands	50% by 2015
Timor Leste	50% by 2020
Tonga	100% by 2030
Tuvalu	100% by 2020
Vanuatu	65% by 2020
<i>Caribbean</i>	
CARICOM*	47% by 2027
Antigua and Barbuda	15% by 2030
Bahamas	30% by 2030
Barbados	29% by 2029
Belize	100% (no date)
Dominica	100% (no date)
Jamaica	30% by 2020
St Kitts and Nevis	20% by 2015
St Lucia	35% by 2020
Trinidad and Tobago	60MW by 2030
<i>Other</i>	
Bahrain	5% by 2030
Cape Verde	50% by 2020
Maldives	16% by 2017
Mauritius	35% by 2025
Seychelles	15% by 2030

Source: Compiled using Ren21 (2015), IRENA (2015), UN Intended Nationally Determined Contributions, and country planning documents.

* Target is for electricity generation across the entire Caribbean Community. This regional target was agreed by national leaders from these countries.

uneconomic in small electricity networks. As a result, full liberalization was not implemented in small island states, although a number of countries made moves in that direction (some of which were subsequently reversed).

A second generation of power reform advocated nowadays in small island states is more concerned with regulatory oversight. One objective behind price regulation that is at arm's length from government (and the political incentives of leaders) is that it can facilitate the establishment of conditions for investment by independent power producers. In small island states, this is both an acknowledgement that ambitious renewable energy targets cannot be

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financed using the traditional state-owned monopoly utility model, and the result of advocacy and support from external providers of foreign aid and development finance. Independent price regulation is also aimed at shoring up the financial position of dominant utilities already operating in the sector, in recognition that politicized tariff setting by government has in the past contributed to poor performance and, in some countries, to the failure to widen access to electricity (Dornan, 2015a).

This second wave of power reform is less problematic for small island states than the first. Economies of scale constraints to competition are less relevant in the monopsony model, central to which is a dominant power utility. However, the monopsony model is not without its challenges. In order to function well, such a model requires independent regulation, to ensure that an adequate feed-in tariff is paid to independent power producers, that electricity prices charged to consumers reflect costs, and to provide a means of preventing the abuse of market power by the dominant utility (especially important where the utility is no longer controlled by government). Independent regulation has fixed costs, which potentially overwhelm the benefits of reform for the smallest networks – an issue of particular importance in microstates, or the smallest of the small island states (e.g. Nauru or Tuvalu, with 10,000 people each). A related challenge are the human resources necessary for regulation. As Stern (2000) notes:

... to provide effective regulation in electricity requires not just substantial numbers of staff, it requires substantial numbers of staff with particular and scarce specialist skills e.g. economists, lawyers, accountants, financial analysts as well as engineers. These services are also needed in the regulated companies. It remains a very open question as to whether poorer and particularly small countries are able to find the necessary numbers of people with these scarce skills available to staff regulatory institutions and to run the new companies and to provide for a policy capacity in the relevant Ministries.

Effective independent regulation in small island states also faces challenges unrelated to resources. Regulatory capture, whereby an independent regulatory agency is too heavily influenced by the regulated entity, is a risk in any country. But it is especially likely to happen in a small state where expertise in the sector is limited to a small number of people. In this context, personal relationships between experts are of increased importance, making confrontation between the regulator and regulated entity unlikely – no matter how warranted. This undermines effective regulation. Stern's paper on regulation in small states again summarizes the problem succinctly:

For very small countries (e.g. under 3 million people), there is the problem that the political, economic and social elite is typically sufficiently small and regularly interactive that any genuine separation of powers can become virtually impossible. Since regulation (and, in particular, the separation of regulation from policy) depends on the separation of powers, this can make the establishment of separate regulatory agencies a notional rather than a genuine exercise.

8 Addressing challenges associated with independent regulation

The challenges associated with independent regulation in small states have been acknowledged previously (Stern, 2000, Dornan *et al.*, 2013). This paper goes further in discussing the evolution of regulatory reform internationally and its implications for small island states. A number of approaches to addressing challenges associated with independent regulation in small island states have been proposed. Two of the most popular are discussed below.

The first is regional regulation, or the pooling of resources for regulation. Most commonly what is proposed is a number of small island states pooling their resources in order to establish a regional regulatory agency. This approach has the potential to make regulation more economically feasible for small states. It also addresses the challenge of establishing a truly independent regulatory body in small states. However, experience suggests that establishing such an agency is challenging. The best example of an organization responsible for regulating the electricity sector across multiple small island states is the Eastern Caribbean Regulatory Authority (ECERA), which has taken years to develop and is not yet fully established. A number of similar organizations have been established in other sectors of small island states – see Dorman and Newton Cain (2014) and Warner and Anatol (2015) for a summary of developments in the Pacific and the Caribbean. A common problem has been the perceived lack of legitimacy of these organizations. The public attention electricity prices receive makes this deeply problematic. A related approach involving use of regulatory capacity in metropolitan states is subject to the same issue (Dorman and Newton Cain, 2014, Stern, 2000).

A second approach for addressing challenges associated with independent regulation in small island states is the establishment of a regulatory body responsible for regulation across multiple sectors. This model has clear advantages in terms of reducing the cost of regulation. It is increasingly used in the Pacific islands. In the case of electricity supply, multi-sector regulators have been given the power to regulate prices in Fiji (in 2002), Papua New Guinea (2002), Vanuatu (2007), and Samoa (2009). Multi-sector regulators also control electricity prices in a number of Caribbean states, including Jamaica and in Trinidad & Tobago.

There are a range of models for multi-sector regulation. A multi-sector regulator could be large, as in the case of the Australian Competition and Consumer Commission, which incorporates the Australian Energy Regulator. But it could also be small, drawing on external expertise as required. In an extreme form, a multi-sector regulator could operate only as a secretariat for external commissioners, a model which would have the added value of reducing the risk of regulatory capture. Such an approach might seem suited to small island states, but it too is not without flaws. External expertise is costly, and establishing sound contracts requires another set of specialized skills (Stern, 2000). The model may still be too costly for microstates, although in poorer states, an arrangement subsidized by development partners is an option (as occurs in Vanuatu).

Neither alternative comprehensively addresses the challenges of independent regulation for microstates. Where does that leave those countries? The traditional monopoly model, despite its weaknesses, minimizes the need for specialist regulatory expertise. It has also worked well in some contexts, although this is very much dependent on political leadership. In part, the push for independent regulation in small island states recently has come about due to a desire to attract private sector investment. On this point, it is important to note that such investment can occur without independent regulation, through regulation by contract. The key advantage of such an arrangement is its low cost. But to be workable, a strong judicial system is crucial. This condition is often not met in poorer microstates. Contract by regulation also involves greater risk for potential investors. As Stern notes: ‘There are clear advantages in relying on defined regulatory processes by which contractual issues can be re-opened at regular intervals or triggered by certain events or by major concerns of the parties rather than on regulatory contracts.’

9 Conclusion

This chapter has investigated the appropriateness of different ownership and regulatory structures in the electricity sectors of small island states. It is clear from the discussion that the size of the electricity sector is an important determinant of the appropriateness of regulatory models. It

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is also clear that models considered 'best practice' internationally are often not suited to small island states.

This disconnect between international best practice and what is appropriate in small island states is most evident in the first wave or generation of power sector reforms advocated in the 1980s and 1990s. Liberalization aimed at introducing competition was never appropriate for small electricity networks, given the importance of economies of scale in generation and the overhead costs associated with regulation. Few small island states implemented such reforms. A second wave or generation of reforms, aimed at establishing independent regulatory oversight (with a view to encouraging investment in the sector – both public and private) has also been somewhat problematic for small networks owing to its fixed costs.

A number of responses have been proposed, including regulation by a regional body, and national regulatory agencies responsible for various economic sectors. Neither approach is without its problems. The legitimacy of a regional approach is subject to question, especially given that price setting in the electricity sector is so politically charged. The multi-sector model is likely to be too costly for microstates (the smallest of the small island states).

Other factors are also important in determining which ownership and regulatory model is most appropriate in a given context. Governance is especially important. Where political leadership has not intervened in technical issues or insisted on electricity prices that are below cost, there is less of a motive for establishing independent regulation. Similarly, where a good judicial system is in place, contract by regulation may be sufficient to attract private sector investment – assuming it is needed in the first place. The implication is that traditional monopoly models of regulation may be appropriate in some small island states after all. However, this will depend on the context. What is clear is that one standard model of regulation is inappropriate across small island states. Solutions need to be tailored.

The subject of regulation in the electricity sector is of considerable importance in small island states given their renewable energy ambitions. A range of regulatory reforms and initiatives are needed in most small island states if ambitious renewable energy targets are to be met. What this chapter has stressed is that there is no one regulatory structure that is best suited to enabling small island states achieve their ambitions. What is clear, is that regulatory models advocated internationally are often not appropriate for small island states.

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