

GRID LINES

Sharing knowledge, experiences, and innovations in public-private partnerships in infrastructure

Big challenges, small states

Regulatory options to overcome infrastructure constraints

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Small island economies face special challenges in providing affordable infrastructure services. Effective regulation can help, by encouraging providers to seek innovative solutions better suited for small and remote islands. But conventional regulation may be out of reach for small islands, requiring more money, competence, and independence than they have. Low-discretion rules and 'light' or regional regulatory bodies may be good alternatives.

For small island economies, providing affordable infrastructure services is a key challenge for development.¹ Because of economies of scale, some infrastructure services are likely to cost more to provide in small markets than in larger ones. Remoteness and other geographic characteristics typical of small islands also increase the costs. Yet many small islands are providing good infrastructure services, often delivered by private providers. Regulation can play a key part in this.

What is the situation?

Despite the challenges, many small islands have reached good levels of infrastructure provision—though levels of access vary both among them and between sectors. Many have good levels of access to water services. Small islands in the Caribbean, where private provision of electricity is common, have achieved higher levels of access to electricity than small Pacific islands (figure 1).

Varied challenges across sectors

But providing infrastructure services on small islands comes at a cost. Remoteness, diseconomies of scale, lack of indigenous resources, and the topography of small islands all tend to increase costs. That said, these factors do not apply evenly across all infrastructure sectors.

Telecommunications. In the late 1990s many small islands (mostly in the Caribbean) began liberalizing telecommunications. Competition in the international market and the introduction of mobile phones—combined with regulatory changes that supported their use—reduced the price of services and drastically increased teledensity.

But there are exceptions. Some small islands have not introduced the regulatory changes necessary to take advantage of new technology. Other islands cannot escape their challenging topography. For Vanuatu, for example, whose small population spreads over more than 60 scattered, mountainous islands, simply putting up a few cell towers will not be enough to increase teledensity significantly. For small islands with difficult terrain or remote locations, costs will remain high.

Electricity. Diseconomies of scale have a big impact on the cost of generating power on small islands (figure 2). Remoteness and lack of indigenous resources are also factors: the high cost of importing fuel adds to the cost of generating electricity.

Water. The water sector faces similar challenges. Lack of indigenous resources is a problem on many islands; many lack water catchment areas and are forced to turn to expensive solutions such as desalination (Barbados, Cape Verde, Turks and Caicos) or barging (the Bahamas). Adding to the cost of supplying water are the high prices of electricity, usually one of the largest costs for a water utility.

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Private firms active

Many believe that private firms are not interested in participating in infrastructure in small, remote island economies. On the contrary, private companies play a large role in financing infrastructure on small islands, mostly in telecommunications and electricity. Many small island economies, particularly in the English-speaking Caribbean, have a long history of successful private ownership in utilities. And many outside the Caribbean have successfully introduced private participation in infrastructure more recently.

Small islands have used a wide spectrum of models for introducing private participation in infrastructure. Investor-owned utilities are common in electricity and telecommunications in the Caribbean, less so in water. Joint ownership is common in telecommunications in the Pacific Islands. Other models in use include concessions in water and electricity in Vanuatu, build-operate-transfer arrangements in water in Barbados, and build-operate-own arrangements in telecommunications in Timor-Leste.

Effective regulation critical

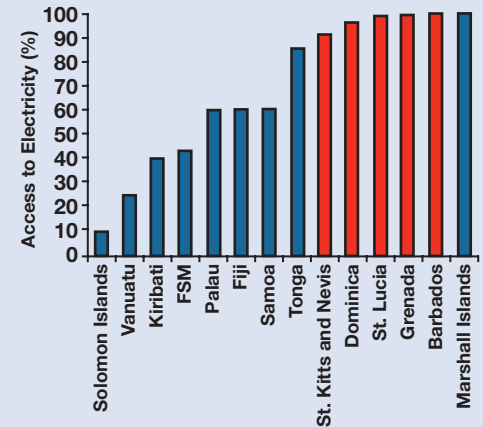
Given the inherently high costs of providing some infrastructure services on small islands, governments will want to ensure that prices are no higher than they need to be. That requires effective regulation to address the natural monopoly problem of network services. Regulation, by defining price controls and setting service standards, is intended to create the rules and incentives that will lead to fair and reasonable prices and services.

Effective regulation can also create the incentives that will lead providers to innovate, developing service delivery solutions better suited for small markets. In the Caribbean, for example, interconnection arrangements that opened the door to competition in telecommunications promoted innovation and the application of new technology. And that led to greater access to services and lower prices.

In contrast, the electricity sector lacks regulation that promotes innovation and efficiency. Many of the smaller Caribbean islands rely exclusively on diesel to fuel generators; since mechanisms are in place to pass through the fuel costs in the tariff, utilities have no regulatory incentive to switch to cheaper fuels. A fuel cost mechanism that uses efficiency targets could induce a utility to lower its fuel costs. Dominica, for example, introduced

FIGURE 1

Caribbean islands do better on access to electricity



Pacific islands are marked blue, and Caribbean islands are marked red

Source: World Development Indicators and Castalia Research

incentives for cost-effective supply of electricity and penalties for inefficiency. Using clear rules and processes can help ensure that utilities take advantage of efficient renewable generation and cogeneration while avoiding excessively costly and unreliable projects.

Problems with conventional regulation

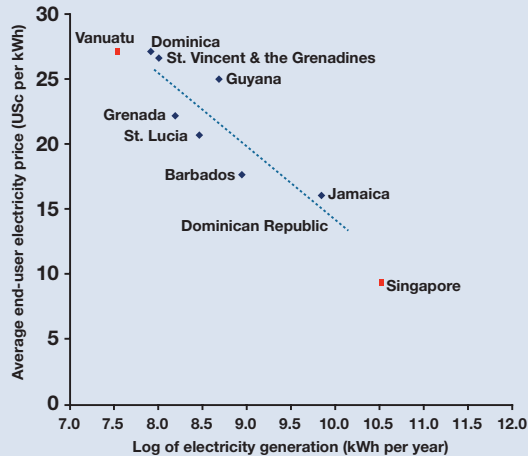
Countries have conventionally relied on independent regulatory bodies to guard the interests of investors and consumers in infrastructure and promote enduring economic and legal commitments by the government and the investor. But these conventional regulatory bodies are not suitable for small island economies, for three main reasons:

- **The cost is too high.** A regulatory entity has high overhead—too high as a percentage of a utility's total revenue on a small island.
- **The skills required are not readily available.** Regulation is a highly specialized skill. Small islands lack a broad skill set and find it difficult to attract the skilled professionals needed to staff a regulatory entity.

Effective regulation can help keep prices no higher than they need to be

FIGURE 2

The diseconomies of scale in electricity generation show up in tariffs on small islands



Note: The figure shows data for countries that use predominantly fossil fuels and have tariffs that approximate cost recovery. kWh is kilowatt-hour.
Source: Castalia Research.

- **Independence is difficult to achieve.** Ensuring an arm's-length approach to business is difficult in any sector on a small island, which is likely to have only a small group of well-educated people, who know each other through many channels. Moreover, the utility is often the only source of utility skills, and so it naturally has a strong influence on government thinking.

How to overcome these problems?

Alternatives to conventional regulatory bodies that could meet the needs of small islands include low-discretion rules, light national regulatory bodies, and regional regulatory bodies.

Low-discretion rules

Discretion in regulation creates risk. This risk can lead to low investment by the private sector or preclude it entirely. Constructing sets of rules that limit discretion reduces risk, creates a regulatory environment with more certainty, and, in doing so, promotes sustainable investments. Low-discretion rules can work well in small countries, since they are inexpensive to apply and reduce the need for regulatory expertise and independence (see Bakovic, Tenenbaum, and Woolf 2003).

Light or regional regulatory bodies

Low-discretion rules, which lack the ability to respond to external shocks, are often too rigid. Utility regulation inevitably requires some discretion; an institution with limited and accountable discretion is needed to check the rules, adjust them when needed, carry out some form of oversight (such as through periodic reviews), assess efficiency (such as through benchmarking), and create a channel for public participation.

What kind of regulatory institutions could serve these functions on small islands? Two options are light national bodies and regional regulatory bodies.

Light national bodies. Light national bodies—with limited staff performing limited functions—require less expertise and are less costly than traditional regulatory bodies. They are therefore a good option for small island economies with limited resources.

Vanuatu, for example, is creating a small utility regulatory authority to monitor concession contracts for water and electricity, creating greater accountability to consumers without disrupting the good services that are already being delivered. As a multisector regulator, the authority will minimize problems associated with diseconomies of scale. It will probably have about four full-time staff, contracting external consultants to provide quality assurance, train staff, and carry out major tasks such as tariff reviews.

Small islands also can contract regulatory expertise when needed. In Trinidad and Tobago, for example, the Regulated Industries Commission is allowed under its Act to assist smaller islands on a fee-for-service basis. In St. Lucia the Electricity Supply Act sets the regulatory rules, and a review board is formed only when needed for periodic reviews.

Regional regulatory cooperation. Regional cooperation is a natural solution to the problems of small size and the resulting lack of capacity and economies of scale. Regional regulatory cooperation tends to happen in three ways:

- **Regional regulatory forums.** These forums do not provide any type of regulation, but they do allow small states to come together and share problems and experiences, helping to overcome

Light regulatory bodies are a good option where resources are limited

BOX 1

A regional regulatory advisory body for the Eastern Caribbean

The Eastern Caribbean Telecommunications Regulatory Authority (ECTEL), established in 2000 by five states in the Eastern Caribbean, helped liberalize the telecommunications sector. Each member state has a national telecommunications regulator that retains all decision making power. ECTEL serves these regulators as an advisory body and helps its member states manage their telecommunications sector. While ECTEL's decisions are not technically binding, they are generally viewed as the last word by several member countries and have direct influence over interconnection policies and licensing conditions.

Source: Castalia.

the challenges posed by remoteness and limited availability of specialized professionals.²

- **Regional regulatory advisory bodies.** A regional body that advises on regulatory issues is more comprehensive than a regional forum, but still not binding (box 1). Advisory bodies can be useful, but they also risk duplicating the roles and resources of their national counterparts.
- **Binding regional regulator.** Though no binding regional regulator exists yet for utility sectors, this could be a good option for small island states.³ In this arrangement, several islands would delegate binding decision-making power to a single regional body. The regional body may operate under national rules, or could promote harmonized regulatory approaches across its member states. But governments may be unwilling to hand over sufficient authority to a regional body, undermining its ability to regulate effectively.

reasonable costs—and in doing so, lead them to seek innovative service delivery solutions better suited for small and remote islands.

But conventional regulation may not be an option for small islands, requiring more money, competence, and independence than they may have. Low-discretion rules and light or regional regulatory bodies can overcome these constraints. These alternatives are proving to be effective, and new initiatives applying these options are under way.

Reference

Bakovic, Tonci, Bernard Tenenbaum, and Fiona Woolf. 2003. "Regulation by Contract: A New Way to Privatize Electricity Distribution?" Energy and Mining Sector Board Discussion Paper 7. World Bank, Washington, D.C.

Notes

1. Small island economies range from those such as St. Kitts and Nevis (with a population of around 50,000) and Kiribati (100,000) to Jamaica (2.7 million) and Singapore (4.5 million). The emphasis in this note is on the smaller end of this spectrum.
2. Regional regulatory forums include the Organisation of Caribbean Utility Regulators and the East Asia and Pacific Infrastructure Regulatory Forum.
3. Binding regional regulators exist for civil aviation in the Eastern Caribbean and the Pacific. The member nations of the Organization of Eastern Caribbean States are now creating such an entity for electricity, and some island nations in the South Pacific are looking into the possibility. In addition, some advisory bodies are close to being binding (see box 1).

Conclusion

For small island economies, with characteristics that make providing some infrastructure services especially costly, effective regulation is critical to keep prices no higher than they need to be. It can also ensure that providers are able to recover fair and

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