

## Chapter 65

# Business Models and Policies to Support Renewable Energy Community in Islands

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### ABSTRACT

*This chapter starts with an introductory part, explaining the role of business models and analyzing the different financial models of ownership. It has been concluded that in renewable energy projects, ownership business models center in specialized complexity, economies of scale, capital costs, and financing perspectives based on its own characteristics. It has many favorable features including the ability to provide power to local communities and create jobs. However, business models include several decisive financing, service, and monitoring characteristics. Business models should be dynamic, while being adjusted to the special conditions, features, and risks of the given project. In renewable energy projects, ownership business models center on the specialized complexity, economies of scale, capital costs, and financing perspectives. The public-private partnership (PPP) is usually the optimum business model option for medium- to large-scale or grid-connected renewable energy projects, and is usually applied with a structure of a built-own-operate-transfer or multiparty ownership.*

### BUSINESS MODELS AND RENEWABLE ENERGY PROJECTS

In general, business models (BM) define how investments will be planned, designed, implemented, and managed. Business models include several decisive financing, service, and monitoring characteristics. The scope and the size of each project have to be well defined, as well as the target group. Business models should be dynamic, while being adjusted to the special conditions, features and risks of the given project. The business model that fits the best to a given project varies upon a number of parameters such as the local conditions, the financial and regulatory framework, the institutional context and the support mechanisms that may exist. Business models are usually structured upon the basis of the service considerations the scale of the project, the consumer, and the regulations.

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Business models can be sketchily classified into two categories as presented below (ADB, 2015):

- *Ownership models*, which emphasize on financing and risk mitigation concerns
- *Service models* which center on giving indicated services and highlight distinctive strategies of operation and support

In reality, actual business models are a combination of several forms and methods.

In renewable energy projects, ownership business models center on the specialized complexity, economies of scale, capital costs, and financing prospects of each project based on its own characteristics. The public–private partnership (PPP) is usually the optimum BM option for medium- to large-scale or grid-connected renewable energy projects, and is usually applied with a structure of a build–own–operate–transfer (BOOT) or multiparty ownership. It has been shown that in practice, small-scale projects include lease or hire purchase and dealer credit sale models (Roehrich et al., 2014).

The service-based business model is considered to offer either a product or a service to the consumer. Usually, the benefit is conveyed by an energy service company which can work as private or public utility, a cooperative, a nongovernment organization (NGO), or a private entity. These entities are part into two fundamental groups: an energy supply contracting company and an energy performance contracting company.

The most common business model in this category is the fee for service. Under this business model, the user pays a fee based on usage or energy savings. The most common case is that beneath the standard utility service contract, energy consumers will pay a tariff for electricity as specified from the national market operator. Be that as it may, in the case of isolated systems, where the infrastructure and generation resources must to begin with be set up (e.g. a microgrid, interconnections, renewables), a user cooperative business model may be more effectively chosen over other business models (ADB, 2015).

In general, renewable energy projects face a number of challenges as every business venture. Renewable energy projects such as wind, solar and biomass although considered as mature technologies still encounter difficulties associated with risks stemming from the aforementioned characteristics as well as specific details of the project as defined by the geographical and techno-economic specifications of the project. Business models are called to address technical and technologies challenges, administrative, market and financial challenges during RES projects implementation (Pasicko, 2016b).

Renewables have multiple benefits for isolated power systems as islands, since they reduce subsidized, expensive fuel imports while they support economic activities, they improve the quality of life, they reduce emissions, they support sustainable tourism and they assist in preserving the local environment. A key element however towards successful renewable energy deployment on islands is community involvement. Community involvement can take different forms as it can facilitate either projects for self-consumption or investments in projects which fed power into the local grid. Through the involvement of the local community and the development of the ownership feeling more renewable energy projects can be integrated into the system, while local expertise is developed for supporting O&M, although challenges have to be addressed in terms of access to knowhow and expertise (Roberts *et al.*, 2007). The ownership might range from 100% for small sized projects to lower rates, through co-owner-ship arrangements where third parties' private companies or the public sector participate as the majority shareholders (Leaney *et al.*, 2001). However, to support community ownership public awareness and education are required. It is noticed, according to Rogers et al. (2012), based on an interview sample that no interviewer declared

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