

Chapter 18

Evolving Business Models in the Renewable Energy

Adrian Tantau

Bucharest University of Economic Studies, Romania

Robert Staiger

E3xpert, Germany

ABSTRACT

New business models in the solar PV business were pushed from government policies worldwide for reducing GHG emissions. Therefore, PV system installments increase exorbitant in the last years with the consequences of constant falling of prices for PV system and energy. All these quickly changed conditions, means new flexible BM. Power purchase agreements, Product Service Systems, demand resource provider, energy performance contracts are evolving rapidly in the renewable energy business. There is a variation of new PV BM for use. PV represent a new energy source for producing H_2 as a storable renewable fuel in an overcapacity situation. Using H_2 in combination with other systems, like hybrid systems, heat pumps gives new unique business opportunities. Decentralization will be the key to success. Other applications like mobility and long term storage are other further alternatives in connections or combination with the volatile renewable energy sources.

1. NEW BUSINESS MODELS IN THE RENEWABLE ENERGY FIELD

Business models in the renewable energy field are confronted with new challenges due to the development of the technology, liberalization and the increase of competition and due to the new approach besides the energy concept as a product or as a service.

The major transition between old business models and new business models has its roots in the new business mentality where the role of energy producers has many faces and in the societal shift from a passive to an active user role in the renewable energy value chain.

Nowadays main companies in the energy field are diversifying their activity also in the renewable energy field and are looking to reconfigure their business models main due to the new distributed energy companies which are implemented new business models (Schlandt, 2015; Jeevan Vasagar, 2015; AGL, 2015a).

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Business models that extend power purchase agreements (PPAs), investment and lease options to the residential sector are likely to become more widespread and available. In the future, instead of system ownership, at least half of the systems for residential, commercial and utility applications are likely to be investor owned (Mints, 2008, p. 63).

Meanwhile in the classic power purchase agreement (PPA) the project developer is selling energy to an intermediate company, in the case of distributed photovoltaic the PPA is a direct agreement with the residential or commercial end-user. From the business model perspective, the value proposition consist in paying only for the energy that is consumed, with no upfront costs. In this case the PPS introduce its own added value through the low carbon energy transaction and through the creation of a direct contact between the customer and the producer of renewable energy (Wainstein & Bumpus, 2016).

The next generation of PPA is represented by the distributed solar PPA with third part financing which represent the innovative tool added to the classic business model for PV systems. This business model introduces a long term agreement to purchase solar energy at an agreed competitive rate between a household or commercial owner and a private firm which installs the PV equipment and maintains ownership on the equipment (see Figure 1). A special type of PPA financing is the joint venture model of the third part ownership financing. In this case the project that is built by the developer is sold to the joint venture created by the developer with a finance fund. The customer is signing the PPA contract with the joint venture. In the special case of a sales-lease back model the project that is built by the developer is sold to the finance fond and then is leased back (Zhang, 2016).

From the cost perspective of the new business model the classic bill is exchanged by the PPA costs and new grid costs. These have to be less than the old classic grid costs (See Figure 2).

Figure 1. Structure of a distributed photovoltaic power purchase agreement

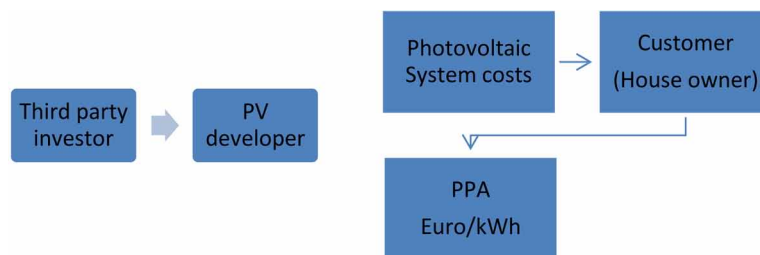
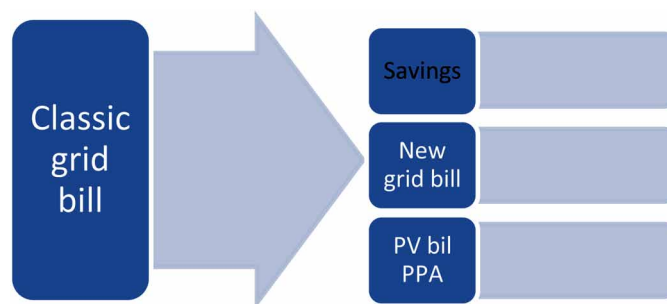


Figure 2. Bill structure for a PV PPA



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