

Abstract

This research paper aims to explore the development of a practical tool to be used for both a) the development of a new Energy Strategy model related to a specific private, public or business environment; and b) to implement an existing or required Energy Strategy in a given new or existing project environment. In relying on existing findings and proven tools that have been used for many years in corporate business strategy design, the paper stresses the design of an Energy Strategy and adapting these tools to the Energy Environment.

The final purpose of the research is building a Techno-Economic Energy Model that allows developing a specific Energy Strategy related to energy generation or energy efficiency in a distributed or a closed system.

Techno-economic energy models provide a holistic approach towards the configuration and operation of energy systems. Our model will allow us to identify the optimal trade-off between energetic, economic and environmental performances, linked to given or newly-designed energy strategy models. To our knowledge, there is no model available that has been custom tailored for energy project design or for analyzing existing energy systems on maximum alignment to given energy strategies; therefore, it is necessary to not only adapt existing Techno-economic energy models, but also to develop new models based on existing tools that are available today in Business and Economic environments.

For this purpose, existing tools and concepts like Balanced Scorecard, Business Model Canvas and Michael Porter's Competitive Strategy Techniques will form the basis of the present research paper.

The research identified new options in existing strategy tools that were analyzed and that need to be further developed and presented in separate research papers.

This paper is limited on how to make use of existing Business Strategy Development and Monitoring tools in building a Techno-Economic Energy Model related to energy generation, energy efficiency strategy development and optimization and as a guideline through the development process of an EU project proposal. In a second paper, each individual tool will be analyzed regarding its structure and features for best adapting to a modern energy strategy development process.

This paper should also be used as a guide for developing innovative projects linked to EU programs like Horizon 2020, where project developers must rely on a given strategy and strictly follow a set of given objectives. By using this Techno-Economic Energy Model, the project developer will have an increased chance for succeeding in the project evaluation and selection process.

The author used all described tools in the context of his own international projects related to Business Strategy Development and has already optimized specific tools for best performing in a Business environment. The challenge for this research is adapting Business-oriented to Energy-oriented methodology. Related trainings were provided by the author in Luxembourg, Croatia, Serbia, Bulgaria, Romania, Morocco and the Ukraine.