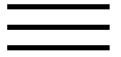


An integrated scenario-based robust planning approach for foresight and strategic management with application to energy industry.

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An integrated scenario-based robust planning approach for foresight and strategic management with application to energy industry

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Highlights

- â€¢ Integrated scenario-based robust planning method for foresight and strategic management
- â€¢ Several foresight methods combined into one tool
- â€¢ The method offers a systematic process for scenario creation and easy implementation.

â€¢ Robust strategies for Iran's energy industry were created with the new method.

Abstract

Energy industries face major future challenges related to environment, security, and economics. Here we present a scenario-building framework based on the Global Business Network (GBN) method to help energy industries to develop more resilient conservation policies when faced with unpredictable and external uncertainties. The approach combines several foresight methods such as Delphi; Political, Economical, Social, and Technological (PEST) analysis, and Cross-Impact Analysis (CIA). In addition, a strategic foresight software program (MICMAC) was applied in the scenario-building phase. The proposed integrated scenario-based robust planning approach builds on the strengths of traditional scenario planning, but overcomes its weaknesses by offering a systematic process for scenario creation and easy implementation. The outcome of this approach is a limited range of core strategies. We use Iran as the case for a more detailed application of the method. Foreign investments in the energy industry, external economic sanctions, and the domestic energy consumption growth were found as the key drivers and critical uncertainties in the Iranian energy industry. Three scenarios based on these critical uncertainties and expert information were developed: Technology-driven, Stagnation, and Self-sufficiency scenario. For these scenarios, a range of robust strategies was determined. National energy efficiency and productivity increases emerged as the key factors for robustness. The main macro-level result was that economic and political drivers will be the most important factors for Iran's energy futures followed by technological and social factors.



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Keywords

Foresight; Scenario; Strategy; Robust planning; Energy; Iran

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Reza Alizadeh received his B.Sc. degree in industrial engineering from the Urmia University of technology, Urmia, Iran and holds a Master's degree in Technology Foresight from Amirkabir University of Technology (AUT), Tehran, Iran. He has been honored through receipt of the distinguished Master's Thesis Award of AUT in 2014. He is a researcher at Futures Studies Research Institute of AUT and Sustainability Office of AUT. He also received the membership and grant of the Iranian National Elite Foundation. His research interests include energy and climate policy, strategic management, technology policy and foresight, decision-making, and sustainability. He has proposed integrated foresight method which is more practical in comparison to conventional methods. He has more than ten papers in international journals and conferences. He has been fortunate to obtain a wide range of teaching experiences as a lecturer. His teaching roles included under graduate and graduate courses. He is currently supervising the undergraduate research of several students here at Tabriz.

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