SELECTION OF PHOTOVOLTAIC SOLAR POWER PLANT PROJECTS USING ANP

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ABSTRACT

This paper presents an analysis to simplify a complex model, based on the Analytic Network Process (ANP); to select photovoltaic (PV) solar power projects. These projects follow a long management and execution process from plant site selection to plant start-up. As a consequence, there are many risks of time delays and even of project stoppage. In a previous work a top manager of an important Spanish company decided on the best PV project (from four alternative projects) to invest based on risk minimization, using a complex ANP model (54 elements grouped into different clusters). This model needs to be simplified in order to solve similar selection problems in future.

To identify which risks have to be eliminated from the original model is a difficult task. In this work two ways for doing this identification are proposed: in the fist way we select the 25 more important risks obtained by the original ANP model; in the second way we asked the decision maker to select the 25 risks that he considers have to be included in the future selection problems. The differences between both models are analyzed.

In both cases the original ANP model, including its influences between elements of the network, has been simplified using Superdecisions software.

Keywords: Analytic network process (ANP), project selection, photovoltaic (PV) solar power projects

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