

Management of Energy Systems Research Projects

Boris German

Instituto de Investigación Geológico y Energético (IIGE)
Quito, Ecuador

Corresponding author's Email: boris.german@geoenergia.gob.ec

Abstract: This study analyzes the management of engineering projects that are developed from the generation of knowledge and technology in the renewable energy sector. The organizational management is aligned to a Research Development and Innovation of ID + i approach. This approach frames three phases that allow to obtain high impact results. The first phase, called research or at laboratory scale, runs experimental processes with high functionality. The obtaining of instantly information allows the conjugation of conditions and operational variables based on expected results. The versatility of this stage makes possible to set these variables to control the subsequent phases of the energy systems that are going to be used. Prior to the decision to continue with the next stage, a simulation of the energy systems in specialized software is proposed.

The second stage, called the pilot scale, brings together efforts in planning and strategic management for the sizing of processes based on the variables set. Depending on the budget cycle, the workflows are defined for the systems that are built and put into operation, the results obtained are contrasted with the results obtained in the simulation of the process. The continuous operation of the system provides the necessary criteria so that the decision makers allow to continue with the last phase.

The last phase comprises a business model, which seeks the necessary investment for the implementation of renewable energy systems developed.

In the renewable energy sector, the management of engineering projects based on this approach has enabled the adaptation and generation of new knowledge and exclusive technology for each area of application, since the systems have been adapted to the conditions and characteristics of each place. This approach has significantly minimized the error generated between the results of the laboratory phase with respect to the pilot phase.

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