

New book:

COMPETITIVENESS OF ENERGY TECHNOLOGIES

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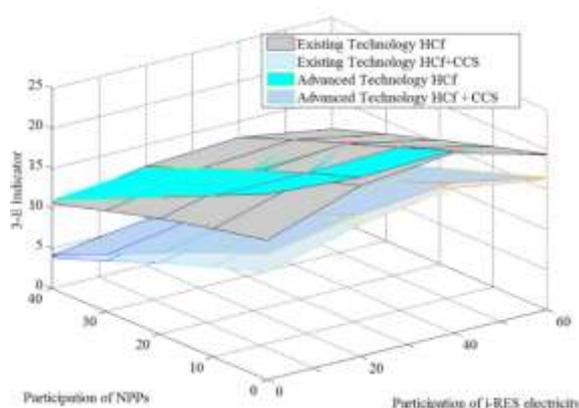
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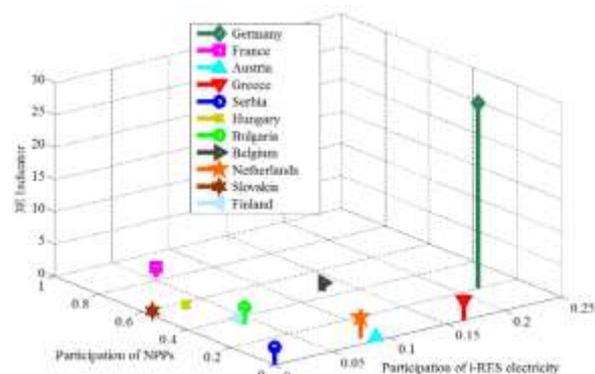
The book defines the concept of competitiveness of energy technologies. Starting points were Porter's definition of the concept of competitiveness, Krugman's critique of that concept, as well as the newer views on the concept of competitiveness in general (Dong-Sung) and in particular the competitiveness of the environment, energy and natural resources (Chorafas).

An overview of the existing indicators that can be used for competitiveness assessment of energy technologies is given. The indicators comprise: efficiency indicators, performance indicators, the indicators of anthropogenic impact on the environment and the indicators for electricity generation systems with variable renewable sources. New competitiveness indicators have been introduced, presented and considered. These are: 3E indicator and a group of indicators developed on its basis, dispatchability indicators - as indicators of the system's ability to respond on the power demand and, as a special indicator, the specific required soil area reduced to the total annual electricity production of the technology. Examples of calculated values of introduced competitiveness indicators are given.

A procedure for assessing the competitiveness of energy technologies has been proposed. It is based on the assessment of the competitiveness of the entire technology portfolio using the introduced indicators and, then, in the second step, on the assessment of the contribution of individual technologies to the competitiveness of the entire portfolio. In doing so, the procedure takes into account the fact that each technology has its place in the overall system load diagram. This approach has led to the concept of competitiveness of complex technological structures formed on the basis of key characteristics of each applied technology. The book presents the results of numerous parametric analyzes of the competitiveness of technology portfolios. The results of the analysis of the competitiveness of electric power systems in a selected group of European countries are also presented. The following two figures are given as an illustration of the numerous results presented. The greater numerical value of the 3E indicator indicate smaller competitiveness.



Graphical representation of 3E indicators in the case of existing lignite combustion technology in the base part of the residual load domain



Graphic representation of the estimated values of 3E indicators for selected European countries as a function of indicators α and λ

A special chapter presents the genesis of the development of modern energy policy that is based on the use of intermittent renewable energy sources (i-RES), starting from the time immediately before the outbreak of the energy crisis in 1973 to the second decade of the 21st century. Also, are presented the very interesting literature data documenting certain aspects of modern practice in composing electricity portfolios, following the so-called European energy turn around, as well as the comparison of some points of European and USA energy policies.

In the concluding deliberations, at the end of the book, the prices of electricity in the considered European countries are compared with the indicators of their electric power system's competitiveness that were determined in the previous analysis. It was concluded that the high price of electricity in a country does not mean a priori that its electricity system is less competitive. But also, the conclusion is valid: if a country has a less competitive electricity system, it will, as a consequence, have to have a higher price of electricity. In other words, the higher price of electricity can have various causes, but the lower competitiveness of the power system will always result in a higher price of electricity.

Summarizing this review, we can say that the main contributions of the book are: defined concept of competitiveness of energy technologies, proposal of new indicators of competitiveness, developed procedure for assessing the competitiveness of electric power systems and energy technologies, as well as numerous results of analyzes of their competitiveness.

Due to all the above, we gladly recommend this book to readers, as a very interesting read.