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Analysis of Required Monthly Amounts of Electrical Energy Produced from Renewable Energy Sources for Covering Transmission System Losses

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Professional paper

Highlights

- Variability of average hourly values of technical transmission system losses
- Approximation of power plant production from RES
- Possibility to cover technical transmission system losses from RES

Abstract

The transition to climate neutrality by 2050, the so-called "green" transition is underway and therefore it is important to plan and ensure the sustainability of existing processes. Identification of opportunities and selection of actions are indispensable in planning future work. It often happens that the chosen action does not achieve the desired results, so we have to undergo iterative processes. In order to avoid the application of quick actions and the impossibility of conducting the necessary analyses, it is crucial to observe and design processes in time, especially if they arise from legally defined obligations.

When we talk about the transmission system operator, we recognize the procurement of electrical energy for covering of technical transmission system losses as one of the obligations from the Energy Law. In this paper, we will devote ourselves to a more detailed analysis of the chosen method of procurement of technical transmission system losses from renewable energy sources. The authors of the paper chose wind, sun and waste as sources of electrical energy that they will use in planning the procurement of electrical energy for covering transmission system losses. This paper is a continuation of the analysis that was started in the paper "Renewable Energy Sources as a Resource for the Procurement of Electrical Energy for Covering Transmission System Losses". From the level of looking at the annual needs of electrical energy for covering of transmission system losses produced from renewable energy sources, we go down to the monthly level.

This paper can serve as a guideline for mitigating the overall risks and uncertainties of transmission system operators during procurement of electrical energy for covering technical transmission system losses on the way towards clean energy by 2050. In the paper, we will analyze whether one of the basic principles of the transition, i.e. that the transition to clean energy is objective and inclusive, is justified in the case of transmission system operator.

Keywords

Approximation of production of electrical energy from renewable energy sources,
Climate neutrality, Losses

Notes:

The full text of this article is available only in the Serbian language.
In the English version, only its Abstract (above) is available.

This article thematically follows on from the text *Renewable Energy Sources as a Resource for the Procurement of Electrical Energy for Covering Transmission System Losses*, which was published on November 1, 2024 in the second, Special Edition of "Electric Power Industry Journal", dedicated to selected award-winning papers at the 36th CIGRE Serbia Conference.

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