

A Goal-Oriented Approach for Supporting Input/Output Factor Determination in the Regulation of Brazilian Electricity Transmission

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Abstract : Benchmarking public utilities such as transmission system operators (TSOs) is one of the main strategies employed by regulators in order to fix monopolistic companies' revenues. Since 2007 the Brazilian regulator has been utilizing Data Envelopment Analysis (DEA) to benchmark TSOs. Despite the application of DEA to improve the transmission sector's efficiency, some problems can be pointed out, such as the high price of electricity in Brazil; the limitation of the benchmarking only to operational expenses (OPEX); the absence of variables that represent the outcomes of the transmission service; and the presence of extremely low and high efficiencies. As an alternative to the current concept of benchmarking the Brazilian regulator uses, we propose a goal-oriented approach. Our proposal supports input/output selection by taking traditional organizational goals and measures as a basis for the selection of factors for benchmarking purposes. As the main advantage, it resolves the classical DEA problems of input/output selection, undesirable and dual-role factors. We also provide a demonstration of our goal-oriented concept regarding service quality. As a result, most TSOs' efficiencies in Brazil might improve when considering quality as important in their efficiency estimation.

Keywords : decision making, goal-oriented benchmarking, input/output factor determination, TSO regulation

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