

Reforming the Colombian electricity market for an efficient integration of renewables: a proposal

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Abstract-

The Colombian short-term electricity market is characterised by a single settlement and by the clearing of a single national hourly spot price for the entire grid. This price is computed *ex post*, based on the real-time operation of the system. In the day ahead, there is only an operational dispatch, which does not set any binding economic commitment. A deviation from such dispatch (due, for instance, to an outage), if it is informed in advance, has no economic consequence for market agents. As recognised by Colombian regulatory institutions, this design is not suitable to efficiently integrate large shares of variable renewable resources. This paper presents a regulatory proposal for introducing, in Colombia, a multi-settlement system, consisting of a binding day-ahead market, followed by intraday sessions and a balancing market. The main discussion focuses on how to solve the complexities arising from the introduction of a multi-settlement system in a context where sessions are cleared based on uniform pricing. The paper also analyses the interactions of the proposed design with other aspects of the Colombian power sector regulation (such as the impact of this reform on long-term contracts or on the reliability charge mechanism).

Index Terms- Colombian electricity market; Renewable integration; Single settlement; Multi settlement; Binding dispatch; Intraday market; Uniform pricing

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