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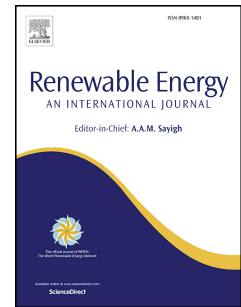
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The Prospects for Small Hydropower in Colombia

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Abstract

Small hydropower (SHP) has existed for more than a century in Colombia, and is gaining reserved interest as an option to mitigating climate change. In this paper we investigate the prospects for SHP in Colombia based on an analysis of economies-of-scale and learning-by-doing effects. We created an inventory of SHP plants realized in Colombia between 1900 and 2013, and focused on grid-connected SHP stations only. In the economies-of-scale part of our analysis we considered all SHP plants with a capacity lower than 20 MW. However, we exclude plants with a capacity lower than 0.1 MW from the learning-by-doing analysis, given that their cumulative capacity is still too small for a meaningful learning curve estimation. We used an Ordinary Least Squares analysis for estimating the parameters of our economies-of-scale and learning-by-doing models, and observed that infrastructure costs and total costs are mainly driven by economies-of-scale, while equipment costs can also be influenced by learning-by-doing. Our findings suggest that equipment costs for SHP plants with capacities between 0.1 and 20 MW have declined at an average learning rate of 21%. We conclude that both the public and private sectors can benefit from scaling effects for hydropower plants.

Keywords: hydropower, climate policy, investment costs, learning-by-doing, economies-of-scale, Colombia

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