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An optimization model to design and analysis of renewable energy supply strategies for residential sector

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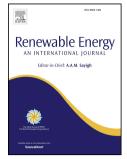
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1	An optimization model to design and analysis of renewable energy
2	supply strategies for residential sector
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10	Abstract.
11	In this study, we develop a new optimization-based framework to design and analyze
12	renewable energy systems for the residential sector. To achieve this, we first simulate
13	different scenarios for integrated energy systems, which include different types of renewable
14	resources and various new technologies along with the existing technologies in the current
15	energy system. We then develop a new network optimization model to feature the underlying
16	system, which includes minimizing the energy cost as an object function with different
17	constraints. Finally, we apply the model to the design problem regarding the energy supply
18	system faced by the residential sector of Jeju Island, Korea. As a result, we are able to
19	identify the optimal configuration for the systems, and comparatively analyze the economic
20	performance of the optimal and alternative energy systems. We also analyze the sensitivity of
21	the main cost-drivers for the total required cost.
22	
23	Keywords
25	Reywords
24	Optimization; renewable energy; energy supply system; energy scenario; Korea
25	

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