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Technical and Economic Analysis of Municipal Solid Waste Potential for Waste to Energy Plant (Case Study: Jatibarang Landfill Semarang, Central Java, Indonesia) (Conference Paper) (Open Access)

Soleh, M.[a], Hadiyanto, H.[b], Windarta, J.[a], Anne, O.[c], Hendroko Setyobudi, R.[d,e], Mel, M.[f]

[a]Master Program of Energy, Diponegoro University, Jl. Prof. Sudarto No.13, Central Java, 50275, Indonesia
[b]Faculty of Chemical Engineering, Diponegoro University, Jl. Prof. Sudarto No.13, Central Java, 50275, Indonesia
[c]Engineering Department of Marine Technology and Natural Sciences Faculty, Klaipeda University H. Manto g. 84, Lithuania, 92294, Lithuania

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Abstract

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Municipal solid waste (MSW) is still a serious problem in Indonesia. As well as following up on the Indonesian Government's commitment to reduce carbon emissions, a Presidential decree Perpres Number 18 of 2016 concerning the Acceleration of the Development of Waste-Based Power Plants was made. It is expected that the construction of Waste-Based Power Plants from landfills can reduce the budget deficit in handling municipal waste while maintaining environmental preservation. This research calculates the potential of landfill gas that can be produced from the landfill waste dumps of Jatibarang, as well as the capacity of electrical energy that can be produced. Furthermore, with several types of plant scenarios used, it can be seen the economic feasibility of the construction of a Waste Based Power Plant in Jatibarang landfill. The landfill gas potential and economic feasibility for this study are calculated using the Intergovernmental Panel on Climate Change (IPCC) Inventory Software and LFG-CostWeb from LandGEM. The results showed that only from the electricity sale Standard Reciprocating Engine-Generator Set project may generate a break even in the 6 yr after the operation begins and value of the net present value is USD 755 664 for 15 yr project lifetime.

SciVal Topic Prominence

Topic: Landfill Leachates | Waste Disposal Facilities | Municipal Solid Waste

Prominence percentile: 97.918

Chemistry database information

Substances

CH_4

Author keywords

Green Landfill gas Renewable energy Urban waste Waste management Waste-based power plant

Indexed keywords

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Engineering uncontrolled terms: Economic feasibilities | Electricity sales | Environmental preservation | Intergovernmental panel on climate changes | Municipal solid waste (MSW) | Net present value | Reciprocating engines | Waste-to-energy plants

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Soleh, M.; Master Program of Energy, Diponegoro University, Jl. Prof. Sudarto No.13, Central Java, Indonesia;
email:bang.mohsaleh2019@gmail.com

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