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Review on Recent Development Micro Gas Turbine -Trigeneration System and Photovoltaic Based Hybrid Energy System (Conference Paper)

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Abstract

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Research on distributed power generation as an alternative method to the conventional power generation system continue to be developed to improve its commercialization capabilities. The cogeneration system and trigeneration system are technological improved alternatives in distributed generation where they offer enhancement and reliability in term of efficiency, emission performances and economic benefits. However, it is more feasible to implement the trigeneration system for most commercial and domestic distributed generations as the cooling demand is deliberately high compared to heating demand especially in hot and humid climate locations. Moreover, micro gas turbine is observed to be a beneficial prime mover in cogeneration and trigeneration system based on several criteria such as ability on acquiring high heat to power ratio characteristic as well as lower greenhouse gas emission. On the other hand, the role photovoltaic in building integrated system provides opportunities for renewable energy system engagement in trigeneration based distributed generation systems. This paper emphasize on summarizing the research work perform on cogeneration system or trigeneration system in hybrid mode with photovoltaic. There are also preceding sections on overviewing the state of art of cogeneration system and the trigeneration system as well as photovoltaic technologies in power generation. © 2016 The Authors, published by EDP Sciences.

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1 *Global Energy-related Emissions of Carbon Dioxide Stalled in 2014*. Cited 3 times.
(IEA), I.E.A. March 2015 [cited 2015 23 April]
http://www.iea.org/

2 (2013) *Policy Framework and the Promotion of Cogeneration in Malaysia*
Ministry of Energy, C.a.M

3 Cho, H., Mago, P.J., Luck, R., Chamra, L.M.
Evaluation of CCHP systems performance based on operational cost, primary energy consumption, and carbon dioxide emission by utilizing an optimal operation scheme

(2009) *Applied Energy*, 86 (12), pp. 2540-2549. Cited 161 times.
http://www.elsevier.com/inca/publications/store/4/0/5/8/9/1/index.htt
doi: 10.1016/j.apenergy.2009.04.012

View at Publisher

4 Cho, H., Smith, A.D., Mago, P.
Combined cooling, heating and power: A review of performance improvement and optimization

(2014) *Applied Energy*, 136, pp. 168-185. Cited 78 times.
http://www.elsevier.com/inca/publications/store/4/0/5/8/9/1/index.htt
doi: 10.1016/j.apenergy.2014.08.107

View at Publisher

5 Gelazanskas, L., Gamage, K.A.A.
Demand side management in smart grid: A review and proposals for future direction

(2014) *Sustainable Cities and Society*, 11, pp. 22-30. Cited 75 times.
doi: 10.1016/j.scs.2013.11.001

View at Publisher

6 Kuhn, V., Klemeš, J., Bulatov, I.
MicroCHP: Overview of selected technologies, products and field test results

(2008) *Applied Thermal Engineering*, 28 (16), pp. 2039-2048. Cited 96 times.
doi: 10.1016/j.applthermaleng.2008.02.003

View at Publisher

7 Ahmad, S., Kadir, M.Z.A.A., Shafie, S.
Current perspective of the renewable energy development in Malaysia

(2011) *Renewable and Sustainable Energy Reviews*, 15 (2), pp. 897-904. Cited 106 times.
doi: 10.1016/j.rser.2010.11.009

View at Publisher

8 Wong, S.L., Ngadi, N., Abdullah, T.A.T., Inuwa, I.M.
Recent advances of feed-in tariff in Malaysia

(2015) *Renewable and Sustainable Energy Reviews*, 41, pp. 42-52. Cited 18 times.
doi: 10.1016/j.rser.2014.08.006

View at Publisher