Data in Brief ∎ (∎∎∎∎) ∎∎∎–∎∎∎

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Q2 Smart campus: Data on energy generation costs from distributed generation systems of electrical energy in a Nigerian University

Joshua O. Okeniyi [a,b,*], Aderemi A. Atayero [c], Segun I. Popoola [c], Elizabeth T. Okeniyi [d], Gbenga M. Alalade [e,f]

[a] Mechanical Engineering Department Covenant University, Ota, Nigeria
[b] Chemical, Metallurgical and Materials Engineering Department, Tshwane University of Technology, Pretoria, South Africa
Q3 [c] Department of Electrical and Information Engineering, Covenant University, Ota, Nigeria
[d] Petroleum Engineering Department, Covenant University, Ota, Nigeria
[e] Department of Architecture, Covenant University, Ota, Nigeria
[f] Physical Planning and Development Unit, Covenant University, Ota, Nigeria

ARTICLE INFO

Article history:
Received 23 January 2018
Received in revised form
9 February 2018
Accepted 12 February 2018

Keywords:
Smart campus
Energy consumption
Energy efficiency
Load forecasting
Energy management
Learning analytics
Nigerian university
Education data mining

ABSTRACT

This data article presents comparisons of energy generation costs from gas-fired turbine and diesel-powered systems of distributed generation type of electrical energy in Covenant University, Ota, Nigeria, a smart university campus driven by information and Communication Technologies (ICT). Cumulative monthly data of the energy generation costs, for consumption in the institution, from the two modes electric power, which was produced at locations closed to the community consuming the energy, were recorded for the period spanning January to December, 2017. By these, energy generation costs from the turbine system proceeds from the gas-firing whereas the generation cost data from the diesel-powered generator also include data on maintenance cost for this mode of electrical power generation. These energy generation cost data that were presented in tables and graphs employ descriptive probability distribution and goodness-of-fit tests of statistical significance as the methods for the data detailing and

* Corresponding author at: Mechanical Engineering Department Covenant University, Ota, Nigeria.
E-mail address: joshua.okeniyi@covenantuniversity.edu.ng (J.O. Okeniyi).

https://doi.org/10.1016/j.dib.2018.02.022

comparisons. Information details from this data of energy generation costs is useful for furthering research developments and aiding energy stakeholders and decision makers in the formulation of policies on energy generation modes, economic valuation in terms of costing and management for attaining energy-efficient/smart educational environment.

Specifications Table

Subject area	*Engineering*
More specific subject area	*Electrical Engineering, Mechanical Engineering, Engineering Economics, Engineering Physics*
Type of data	*Tables, graphs, figures and spreadsheet files*
How data was acquired	*Monitoring, logging in records and cumulated for each month of the year*
Data format	*Raw, analyzed*
Experimental factors	*Data monitoring and logging were performed manually rather than being automated*
Experimental features	*Ordered statistics was employed in combination with cumulative distribution fitting analyses, Kolmogorov-Smirnov goodness-of-fit statistics (K-S GoF) was employed for test-of-significance of the data distribution fitting*
Data source location	*The dataset of energy generation cost providedinthisarticlewere collected at Covenant University, Canaanland, Ota, Nigeria (Latitude6.6718°N, Longitude3.1581°E)*
Data accessibility	*A comprehensive dataset of energy generation cost is provided in this article*

Value of the data

- Accessibility to datasets of energy generation cost of a distributed generation system of electrical energy production using gas fired and diesel engine generators that could be used for fostering systems of practical data-driven research in the understanding of energy cost modeling valuations and how this can be improved towards efficient integration of energy generation for a smart university campus [1–5].
- Costs of energy generation data that could be employed for energy generation planning in the development of new energy generation plants as well as in the decision making of how to combine energy generation systems for electricity consumers in a smart university campus [6,7].
- Availability of energy generation costs that could be used for estimations of energy generation cost parameters and cost concepts, such as *levelised* cost of electric energy, society cost of electric energy, returns on investment on energy generating plants, projection of future energy costs for budget purposes, for energy stakeholders and decision makers of energy production in a smart university campus [8–10].
- Applicability and/or developmental prospects of Smart Electrical Energy Network (SEEN) for a stronger, more sustainable controls of centralized distributed generation of electric energy system via systems of the electric energy generation costing for a smart university campus [3,4,11].

Please cite this article as: J.O. Okeniyi, et al., Smart campus: Data on energy generation costs from distributed generation systems of electrical energy in a Nigerian University, Data in Brief (2018), https://doi.org/10.1016/j.dib.2018.02.022