

Is electric vehicle charging feasible in Ethiopia?

This paper focuses on the feasibility and techno-economic analysis of electric vehicle charging of PV/wind/diesel/battery hybrid energy systems with different battery technology, which is the first in Ethiopia, and includes PV and Wind power sources, different technology battery storage, diesel generator and grid connection.

Which battery configuration is best for wind turbines in Addis Ababa?

Of all feasible systems, the Wind Turbine (WT)/PV/LI, PV/LI and WT/PV/LI configurations have the highest values of NPC and COE in Addis Ababa, Jijiga and Bahir Dar. Using this configuration, the results demonstrate that ZnBr battery is the most favorable choice because the economic parameters, including total NPC and COE, are found to be lowest.

What is the renewable fraction in Addis Ababa?

Furthermore, in Addis Ababa, Jijiga and Bahir Dar, the renewable fraction, which is the percentage of energy provided to the load that comes from renewable power sources, was 92.8%, 96.6% and 93.7%, respectively. The monthly average electrical energy production of the PV/DG/ZnBr systems in Addis Ababa is illustrated in Figure 10.

What EVs are available in Ethiopia?

The Kona SUV, for example, is Ethiopia's only electric vehicle type, with a battery capacity of 42 kWh, a range of 300 km and a CO<sub>2</sub> emission of 0 g/km. The number of EVs that arrive at a charging station, as well as the batteries' capacity and their state of charge, determine EV demand.

How much does a hybrid energy system cost in Bahir Dar?

In Bahir Dar, the optimal hybrid energy system is an initial capital of \$2,307,413.03, an operating cost of \$41,890.54/year, a total NPC of \$2,848,954.00 and a levelized COE of \$0.1877/kWh with a CC strategy.

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photovoltaic and battery energy storages. The structure proposed here is to install the solar panels on the train's roof with onboard batteries. Data were collected, and an in-depth analysis ...

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Redox flow batteries (RFBs) have emerged as a promising option for large-scale energy storage, owing to their high energy density, low cost, and environmental benefits.

Read Full License Light Rail Transit System Energy Flow Analysis for the Case of Addis Ababa City: For the Application of Regenerative Energy and Energy Storage Asegid Belay Kebede<sup>1</sup>, Getachew Biru Worku<sup>2</sup> <sup>1</sup> African Railway Centre of Excellence, Addis Ababa Institute of Technology, Addis Ababa, Ethiopia. <sup>2</sup> Electrical and Computer Engineering, Addis Ababa ...

The impact of Addis Ababa road dynamics and topographic distribution of the city have been investigated and it was compared with various international drive cycles like EUDC, NYDC, and WLTP. ... battery Energy storage system is less efficient when compared to hybrid energy storage system hence electric vehicle implemented in the city of Addis ...

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Ethiopian Investment Holdings and Dodai sign an MoU to accelerate sustainable urban transportation by setting up 100 battery swap stations in Addis in 12 months, expanding to 300 in 3 years--cutting emissions, boosting mobility, and creating 100,000 jobs!. Here's what EIH said about the signing of MoU on it's Linkedin page. Diversifying, and Driving ...

To illustrate the effect of arbitrating power flow for a battery and ultra-capacitor energy storage system, this thesis uses a generic built-in battery and supper capacitor model, and simulations ...

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