

Please consider including bidirectional electric vehicle charging in the inquiry into the transition to electric vehicles. See the below briefing regarding the value of this inclusion.

Briefing: The Value of Bidirectional Electric Vehicle (EV) Charging

Date: March 8, 2024

Introduction:

As the global transition towards sustainable energy intensifies, the role of electric vehicles (EVs) has become increasingly prominent. Amidst this transition, bidirectional electric vehicle charging (V2G or vehicle-to-grid, V2H or vehicle to home, and V2L or vehicle to load) emerges as a technology offering significant value propositions. This briefing aims to define and elucidate the value of bidirectional EV charging in today's energy landscape.

Definition:

Bidirectional EV charging, also known as V2G, refers to the capability of electric vehicles not only to draw power from the grid for charging but also to reverse the flow and supply stored electricity back to the grid. This two-way flow enables EVs to act as both consumers and providers of electricity, facilitating a dynamic interaction between vehicles and the grid infrastructure.

Value Propositions:

Grid Stability and Reliability: Bidirectional EV charging offers a promising solution for enhancing grid stability and reliability. By leveraging the energy stored in EV batteries during peak demand periods, utilities can mitigate strain on the grid, reduce the likelihood of blackouts, and enhance overall system resilience.

Peak Demand Management: One of the significant challenges for utilities is managing peak electricity demand. Bidirectional charging enables grid operators to access the stored energy in EV batteries during peak periods, thereby alleviating pressure on the grid and potentially reducing the need for expensive peaker plants.

Renewable Energy Integration: The intermittent nature of renewable energy sources such as wind and solar poses challenges for grid operators. Bidirectional EV charging offers a means of storage and flexibility, allowing surplus renewable energy to be stored in EV batteries and discharged back to the grid when needed, thereby facilitating greater integration of renewable energy into the grid.

Revenue Generation for EV Owners: Bidirectional charging presents an opportunity for EV owners to generate revenue by participating in demand response programs or selling stored electricity back to the grid during peak demand periods. This can offset the cost of EV ownership and incentivize greater adoption of electric vehicles.

Emergency Backup Power: In situations such as natural disasters or grid outages, bidirectional EV charging can provide emergency backup power to homes, businesses, or critical infrastructure. EVs equipped with bi-directional charging capabilities can serve as mobile power sources, offering resilience and support during emergencies.

Conclusion:

Bidirectional electric vehicle charging holds immense potential to transform the energy landscape by enhancing grid stability, managing peak demand, integrating renewable energy, generating revenue for EV owners, and providing emergency backup power. As the technology continues to evolve and

gain traction, stakeholders across the energy ecosystem must collaborate to unlock the full value of bidirectional EV charging and accelerate the transition towards a sustainable and resilient energy future.

Acknowledging Chat GBT and Gippsland Climate Change Network in the development of this briefing. 😊

For more information please review the following blog article:

<https://www.cleanenergyreviews.info/blog/bidirectional-ev-charging-v2g-v2h-v2l>

Kind Regards

Daryl Brooke

