

**Diverse Power Incorporated
LaGrange, Georgia**

**Initial Comments Regarding
The Two PURPA Standards
In The
Infrastructure Investment and Jobs
Act of 2021**

**Prepared By
Alan C. Shedd P.E., CEM
Director of Emerging Technologies
Oglethorpe Power Corporation**

On November 15, 2021, two new federal standards were enacted in the Infrastructure Investment and Jobs Act of 2021 (“IIJA 2021”) relating to all electric utilities with annual retail sales greater than 500 million kilowatt-hours during the calendar years 2020 and 2021. These electric utilities must consider the adoption of these standards.

The two new federal standards added to the Public Utility Regulatory Policies Act of 1978 (PURPA) Section 111(d) are:

Demand-response practices (26 U.S.C. § 2621(d)(20))

(A) In general

Each electric utility shall promote the use of demand-response and demand flexibility practices by commercial, residential, and industrial consumers to reduce electricity consumption during periods of unusually high demand.

(B) Rate recovery

(i) In general

Each State regulatory authority shall consider establishing rate mechanisms allowing an electric utility with respect to which the State regulatory authority has ratemaking authority to timely recover the costs of promoting demand-response and demand flexibility practices in accordance with subparagraph (A).

(ii) Nonregulated electric utilities

A nonregulated electric utility may establish rate mechanisms for the timely recovery of the costs of promoting demand-response and demand flexibility practices in accordance with subparagraph (A).

Electric vehicle charging programs (26 U.S.C. § 2621(d)(21))

Each State shall consider measures to promote greater electrification of the transportation sector, including the establishment of rates that—

(A) promote affordable and equitable electric vehicle charging options for residential, commercial, and public electric vehicle charging infrastructure;

(B) improve the customer experience associated with electric vehicle charging, including by reducing charging times for light-, medium-, and heavy-duty vehicles;

(C) accelerate third-party investment in electric vehicle charging for light-, medium-, and heavy duty vehicles; and

(D) appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle charging infrastructure.

Affected electric utilities are not required by IJIA 2021 to implement the standards. However, each state's electric utility regulatory authority and any nonregulated electric utility must consider the standards and decide if they should or should not implement the standards based on the appropriateness of the standards.

Electric utilities with at least 500 million kilowatt-hour sales in the two calendar years prior to 2022 must consider the standards. Diverse Power, Incorporated (DPI) had annual retail sales of 689,321,145 kilowatt-hours for 2021 and 724,655,875 kilowatt-hours for 2022. These sales require DPI to consider implementation of the standards.

PURPA Standards

PURPA defines a nonregulated utility as "any electric utility other than a state regulated utility." 16 U.S.C. / 2602(9). Since DPI is nonregulated, the DPI Board of Directors (Board) must consider the standards and any evidence presented in a public hearing and decide whether it is appropriate to implement such standards.

The comments and facts in this document are part of the information used by the Board in determining whether to adopt the standards. These comments and facts have been prepared by DPI employees and While I work for both Green Power and OPC, it's best to list me as OPC – EV programs are managed under OPC employee subject matter expert, Alan Shedd, P.E., CEM.

DPI has considered all industry specific circumstances and conditions in deciding to implement, modify and implement, or decline to implement the PURPA standards as stated in IJIA 2021. Any relevant additional information received by the DPI Board will also be considered.

PURPA Goals

The three goals of PURPA relevant to the standards being considered here are: (1) Conservation of electric energy supplied by DPI – end users should use energy as efficiently as possible. (2) Delivery of electric energy by DPI – the utility should ensure electric energy is delivered in a manner that facilities and resources are optimized. (3) Rate structure and implementation by DPI – the utility should design its retail rates to ensure that all operations and actions by the utility enhance the achievement of the first two goals.

The DPI Board must review the two standards and the three goals and decide if implementation is fully warranted. If a standard inhibits the validity of any of the goals, the standard may be rejected by the Board.

Diverse Power, Incorporated (DPI)

Adoption of the PURPA Standards by the DPI Board must include careful consideration of DPI operational goals, objectives, and policies. DPI is member-owned, non-profit electric cooperative whose board of directors is voted upon by membership. This membership will bear the full cost of any implementation of the PURPA standards.

DPI owns and operates an electric distribution system that supplies electric energy to its members. DPI partners with other entities for 3 power supply contracts, 2 energy generation and transmission, and energy resources. As such, DPI must consider in all its decisions, the impact of these contracts and agreements.

The major partners and components utilized by DPI in partnership with the other 37 electric cooperatives in the state are key to the viable, affordable, and reliable generation and delivery of electric energy to end users. Georgia Transmission Corporation (GTC), Georgia Power Company (GPC), The Municipal Electric Authority of Georgia (MEAG), and Dalton Utilities all co-own the Integrated Transmission System (ITS) is the infrastructure that delivers power throughout the state of Georgia. Georgia System Operations Corporation (GSOC) and Oglethorpe Power Corporation (OPC) are the entities that own and operate the 38 electric cooperatives' generation and transmission resources. (GTC) co-owns Integrated Transmission System. OPC owns and operates generation for 38 Georgia EMCs. Green Power EMC secures renewable energy resources for 38 Georgia EMCs. GSOC controls and monitors electric generation, transmission, and distribution assets for 38 Georgia EMCs. In addition, DPI has power supply contracts with Morgan Stanley. The impact on all these partners and resources must be considered by the DPI Board in deciding whether to implement the standards.

Demand Response Practices Standard

Diverse Power Incorporated (DPI), established in 1936, has been dedicated to promoting the safe and efficient use of electricity to ensure that its member-owners receive the utmost value for their electricity expenditure. DPI provides a range of programs and practices across various sectors such as industrial, commercial, residential, agricultural, recreational, and public, encouraging members to utilize infrastructure, equipment, and best practices that best meet their specific needs and preferences. Simultaneously, DPI manages its operations and energy portfolio to ensure the long-term viability of meeting customer demand with reliable, affordable, and environmentally friendly energy and related services.

One of the key aspects of DPI's approach is the implementation of rate structures tailored to different customer classifications. These rates aim to recover the cost of service while offering potential cost savings through load management, particularly in industrial, commercial, and public sectors. The rate classes encompass Residential, Outdoor Lighting Service Electric Rate,

General Service Rate, Small General Service Electric Rate, Large Load Individual Rate, Cooperative Solar Rate, and Net Metering Service Rider.

DPI also places emphasis on educating its members about energy use and providing resources for informed decision-making. The Energy Suite offers a virtual assessment that analyzes building and equipment profiles, enabling members to identify potential energy savings. The Energy Library provides comprehensive materials on energy use and conservation, covering various topics such as fundamentals, meters, bill information, energy audits, heating, cooling, insulation, power quality, and more. Additionally, DPI offers resources like the Fundamentals of Electricity, Energy Advisor, Interactive Energy Analysis, Wattage Reference Guide, and Energy Calculators for efficient energy utilization.

To incentivize energy efficiency, DPI offers rebates to residential members for the installation of energy-efficient HVAC and water heating equipment. These rebates contribute to meeting customer expectations for efficient, low-cost operation. The rebates cover various categories, including heat pumps, water heaters, insulation, and total leakage reduction (ducts/house combined), facilitating energy savings and enhancing sustainability.

In line with its commitment to environmental responsibility, DPI provides members with the option to purchase a portion of their energy from renewable sources through its collaboration with Green Power EMC. Green Power EMC, a not-for-profit corporation established in 2001, supports Georgia's EMCs in sourcing renewable resources. By leveraging solar, landfill gas, hydro, wood waste, and wind energy sources, Green Power EMC offers the largest operational green power program in the Southeastern United States. DPI's offerings under this collaboration include Cooperative Solar, Solar Photovoltaic, and Green Power options, enabling members to access cleaner and greener sources of electricity.

DPI also emphasizes conservation efforts by offering programs and services aimed at evaluating energy-related characteristics and use in residential dwellings. Members can avail themselves of self-audits and energy audits, which assess energy consumption patterns and suggest improvements for enhanced comfort, durability, and affordability. Premium audits provide additional comprehensive examinations, including blower door and duct blaster examinations, to qualify members for insulation upgrades, roof deck foaming, and envelope tightening rebates. These conservation initiatives empower members to optimize their electricity usage and reduce energy waste.

For non-residential customers in industrial, commercial, agricultural, and public sectors, DPI offers tailored consulting services. These consultations cater to the unique needs of these customers, providing customized rates, infrastructure recommendations, and educational resources to support their specific requirements while aligning with DPI's long-term objectives.

In summary, DPI's demand response practices encompass a wide range of programs and initiatives that encourage efficient energy use, educate members on best practices, provide rebates for energy-efficient installations, offer renewable energy options, and support

conservation efforts. By adopting these practices, DPI aims to ensure the satisfaction of its member-owners while promoting sustainability and environmental stewardship.

Factors contributing to EV Adoption

Vehicle availability plays a significant role. Despite previous limitations caused by supply and manufacturing constraints, the EV market is expanding. The introduction of EVs in different vehicle types, such as crossovers, SUVs, and pickups, has broadened the appeal to a wider audience. By 2024, there are expected to be around 134 different EV models available across all vehicle types, although not all of them will be sold in Georgia.

Vehicle price is a crucial factor. With increased production and a more diverse market, the prices of EVs are expected to become more affordable. Furthermore, tax credits on select models, subject to the rules of the Inflation Reduction Act of 2022, will serve as incentives to boost EV sales.

The range of EVs has been a significant consideration for potential buyers. In 2021, the median range of an EV was 234 miles, whereas an internal combustion engine (ICE) vehicle had a range of 403 miles. However, EVs with driving ranges of up to 500 miles per charge are now available, and a 300-mile range per charge has become commonplace. Despite the fact that rural Georgians typically drive an average of 57 miles per day, well within the capabilities of nearly every EV on the market, concerns about "Range Anxiety" - the uncertainty of whether an EV has enough range to reach a destination - still persist.

Charging station availability is a critical aspect. Alongside concerns about range, the accessibility of charging stations plays a crucial role in the widespread adoption of EVs. Approximately 78% of EV charging is currently done at home. Diverse Power, given its large single-family home residential member base, can contribute to meeting charging requirements by enabling the installation of low-cost level 2 charging equipment at home. This approach helps alleviate concerns related to charging infrastructure.

These factors, including vehicle availability, price, range, and charging station availability, all contribute to the ongoing and anticipated increase in EV adoption. Workplace charging also plays a significant role, as it provides an additional 16% of an EV's charging needs. Level 2 charging equipment can effectively meet these requirements as well.

In terms of public charging, there are two types that contribute to the overall charging infrastructure. "Destination charging" involves the installation of level 2 chargers at hotels, shopping areas, restaurants, and parking decks where vehicles are expected to remain for two hours or more. On the other hand, "Corridor Charging" is facilitated by high-powered Direct Current Fast Chargers (DCFC) that can quickly charge a vehicle, allowing EV drivers to continue their journey. These DCFC chargers range in power output from 50 kW to 350 kW and can add 100 miles of driving range in as little as 10 minutes.

However, it is important to note that DCFC chargers come with higher costs and require significant utility infrastructure to support their operation. To address this, federal programs such as the National Electric Vehicle Infrastructure (NEVI) Program, included in the Infrastructure Investment and Jobs Act (IIJA) of 2021, provide funding for the installation of DCFC chargers across the country. Georgia, specifically, is allocated \$135 million over five years as part of the NEVI funding. The funding prioritizes the development of charging infrastructure along designated alternative fuel corridors, primarily interstates. Once these corridors are established, additional funding will be allocated to expand coverage on state and U.S. highways. Furthermore, there is specific funding earmarked to support rural and underserved areas, ensuring that charging infrastructure reaches all communities.

By investing in and expanding the charging network through federal programs like the NEVI, the goal is to build a comprehensive nationwide charging infrastructure and further encourage EV adoption.

Electric vehicle charging program

Electric vehicle charging programs (26 U.S.C. § 2621(d)(21))

Each state shall consider measures to promote greater electrification of the transportation sector, including the establishments of rates that...(26 U.S.C. § 2621(d)(21))

Careful reading of this sentence brings several items to light.

- 1) It directs the “state” to consider measures, not the utility or specifically Diverse Power. This brings into question whether Diverse Power should undertake its own measures and programs to achieve these goals or whether it must wait for such measures to be defined by some unnamed state entity and react / support those measures as directed.
- 2) The statement uses the words “shall consider” rather than the term “shall promote” as used in the Demand Response Standard. This suggests that after thorough review that only certain measures identified initially might be deemed feasible.
- 3) Use of the term “electrification of the transportation sector” is quite broad, encompassing not only cars and other light duty vehicles but medium and heavy-duty trucks, trains, ships, aircraft, and non-road applications. This is a much larger scope that encompasses technologies not fully commercialized and that may include unknown requirements and support by electric utilities.
- 4) The sentence makes specific reference to “establishing rates” and the following sections A through D deal specifically with rate considerations. There are many effective opportunities for promoting electrification including many programs currently implemented by Diverse Power individually and in collaboration with other electric cooperatives that lie outside of rate-making – including education and awareness campaigns, R&D and pilot projects, incentives and rebates, codes and standards efforts, training initiatives, collaboration with third parties, schools, and government agencies, and managed charging and vehicle-grid integration programs.

Part A: *“promote affordable and equitable electric vehicle charging options for residential, commercial and public electric vehicle charging infrastructure” (26 U.S.C. § 2621(d)(21))*

Rate design that promotes affordable EV charging seems straightforward – keep the cost of electricity low. Equitable rate design is more nuanced. Equity can denote that each rate class covers its full cost without cross subsidization. It can also refer to providing charging opportunities to all members, including low-income and underserved populations. While there are many variables and opportunities in rate design, it is not a case of one-size fits all. Rate design is necessarily different for all three groups listed – residential, commercial, and public. Opportunities to implement time of use, demand, critical peak pricing, and seasonal rate components depend on the consumer needs and charging utilization. Development of rates is driven by cost of service and need. To be effective, rates are but part of a more comprehensive strategy. Given the current level of EV adoption, market growth, and the predominance of residential charging, development of rates across all classes might not be indicated at this time.

Part B: *“improve the customer experience associated with electric vehicle charging, including reducing charging times for light-, medium-, and heavy-duty vehicles” (26 U.S.C. § 2621(d)(21))*

It is logical to assume that reduced charging times result in improved satisfaction. Other than for high-speed corridor charging and certain commercial applications, charging speed is less significant than accessibility and reliability. For residential charging, the EV driver simply wants to have the vehicle sufficiently charged to meet their driving requirements by the time they want to depart. How that charging occurs and at what rate is less important. The ability to charge a vehicle at a high speed requires more power resulting in higher infrastructure investment and the attendant need to recover the cost of that infrastructure. Traditionally, these costs are recovered through facilities and demand charges common to commercial accounts. Rates for high-power, fast charging stations are necessarily higher if they are to be equitable as referenced in part A but this is counter to affordability and could discourage adoption. It is important to recognize that the energy and power requirements of light, medium, and heavy-duty vehicles are significantly different. A typical residential charger for a passenger car might require a 10-kW charging station that would be capable of adding 100 miles of range to the vehicle in 4 hours. A school bus will use a 50-kW charger to add 100 miles of driving range in 2.5 hours. The development of class 8 tractors for long-haul trucking is progressing. The Megawatt Charging Standard (MCS) provides for charging rates of up to 4 MW per truck. A typical class 8 tractor could require as much power to recharge as a Walmart Supercenter. A depot serving several trucks simultaneously could equal the power draw of a data center.

Part C: *“accelerate third-party investment in electric vehicle charging for light, medium, and heavy-duty vehicles” (26 U.S.C. § 2621(d)(21))*

Third party investment in charging stations and charging infrastructure is hampered by their traditionally low profitability due in part to excessive cost and low utilization. While there are several manufacturers of charging equipment for residential and light commercial use, these products are largely a low-margin commodity. High-power DCFC charging equipment is expensive to build, install, and maintain. Some charging networks generate additional revenue through maintenance and data services. Two of the largest DCFC networks, Tesla and Electrify America, are financed by their companies rather than exclusively through revenues derived from vehicle charging sessions. The federal NEVI program described previously uses federal funding of private entities for capital expenditures and O&M expenses for a 5-year term in order to build a nationwide charging network. This is of a scale much larger than any utility incentive program. Rate design to encourage third-party investment in the form of economic development riders or make-ready programs to cover infrastructure costs have been employed by some utilities but may not meet the Part A equity requirement. Diverse Power installed multiple level 2 chargers behind our gates at our main office location to charge the EVs purchased from 2018 to present. These chargers are monitored and documented to obtain knowledge of energy usage and overall dependability. DPI has also installed two level 3 units outside the gates (for consumers). One unit at DPI headquarters one unit at Chick-Fil-A on Lafayette Parkway in LaGrange GA. These 2 units are studied to learn what it will take to run and support commercial chargers. These chargers are monitored and documented to obtain knowledge of energy usage and overall dependability. Our experience with Level 3 chargers has been less than optimal. This experience has led us to have many concerns about the future of charging. Level 3 (and higher) chargers require a considerable amount of maintenance, monitoring, and customer support. When chargers go off-line there is not adequate support from manufacturers, reserve parts or customer support. With so many different vehicles being manufactured there is no standard for charging stations. This could pose a problem. There is no standard plug, there is no standard voltage and there are no standards on charge location on cars. When supporting the consumer, these could lead to difficulties in determining what charger to use and where to locate for best usage.

Part D: *“appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle charging infrastructure” (26 U.S.C. § 2621(d)(21))*

Electric cooperatives as not-for-profit utilities, utilize cost recovery mechanisms that ensure fair and equitable treatment. It is important to note that the cost of serving an EV charging station and recovering the cost of installing infrastructure to serve a specific charging station can encompass more than its marginal cost. The cost of residential and small commercial charging may be recovered in aggregate since the charging station is part of the total load and part of a rate class with many members. A high-power charging station may require line extensions, larger transformers, and additional infrastructure beyond that covered by the rate. The cooperative may assess a contribution in aid to recover those additional costs.

Diverse Power has purchased a Nissan Leaf as well and a Tesla Model 3 to use for research on reliability, cost to operate and ease of charging. These vehicles are used daily for short drive errands as well as longer distance business travel. Our experience has given us a good understanding of what it is like to own and operate an electric vehicle. Diverse Power supports the advancement of EVs by offering our members the opportunity to enroll in our “Drive Free for a Year” program. This program offers credits and rebates for vehicles and chargers.

The electric vehicle market is characterized by continuous development and evolution. Technical breakthroughs, setbacks, and announcements by vehicle OEMs, component suppliers, and researchers occur on a weekly basis. Consumer preferences, demographics, and news cycles are akin to a rollercoaster ride. Additionally, policies, incentives, economics, and supply chain issues constantly shift, making it challenging to accurately forecast the market's development and pace.

Nevertheless, electric vehicle adoption holds immense potential for achieving a triple win: saving consumers money, benefiting the environment, and aiding utilities in better utilizing the grid. However, it is important to recognize that EVs can also place significant demands on the utility. Despite these challenges, they can be managed effectively with sufficient planning, preparation, and investment.

At Diverse Power, our commitment lies in providing reliable, affordable, and safe electricity to our members. We remain up-to-date with electrification trends, including the rise of EVs. We collaborate with industry partners and other EMCs (Electric Membership Cooperatives), develop programs, and actively communicate with our members to embrace the future.

Recommendations

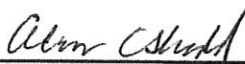
The DPI board should consider the following recommendations for action on the two new PURPA standards set for in IJJA 2021:

Demand-Response Practices Standard – The Board should conclude that to the extent DPI is able as a distribution cooperative, has adopted programs that promote demand-response practices to reduce electricity consumption during unusually high periods of usage.

Electric Vehicle Charging Programs Standard - The Board should conclude that to the extent DPI is able as a distribution cooperative has adopted and will consider programs that promote greater electrification of the transportation sector, provided such programs appropriately recover marginal costs.

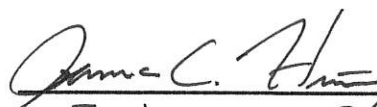
The information provided herein is true and not based solely on my knowledge but a combination of my personal knowledge and information provided by the staff of Diverse Power Incorporated.

This 17th day of May, 2023



Alan C. Shedd, P.E., CEM

Sworn to and subscribed before me this 17th day of May, 2023



Expires 1-11-26

