Duke Energy Florida

Behavioral Managed EV Charging Program

OVERVIEW

Duke Energy Florida, one of America's largest utilities, made a bold move toward grid sustainability by implementing engagement programs that enlist customers in helping to manage grid load. Working with Itron Inc., the utility designed and deployed a four-year behavioral managed EV charging program kicking off in 2022. Duke Energy Florida hoped to enroll 1,000 vehicles per year to encourage residential EV charging to off-peak periods. Driven by the program's overwhelming success, Duke Energy Florida extended its timeline through 2030 and removed enrollment limits—positioning it as one of the largest EV behavioral initiatives in North America.

Duke Energy, a Fortune 150 company headquartered in Charlotte, N.C., is one of America's largest energy holding companies, supplying and delivering energy to approximately 8.2 million U.S. customers. Duke Energy Florida, a subsidiary of Duke Energy, owns 10,500 megawatts of energy capacity, supplying electricity to 1.9 million residential, commercial and industrial customers across a 13,000-square-mile service area in Florida.

Duke Energy Florida's EV Adoption Landscape

Florida ranks among the top two U.S. states for EV ownership. Sales of EVs in the state of Florida have been growing, now at an average of 28% per year (compounded annually) from 2023 to 2032 per a Guidehouse Insights Q1 2024 report. Additionally, net population migration to Florida averages over 200,000 people annually, with approximately 10% of those moving to Florida already owning EVs – further contributing to the rise in EV ownership in the state and ranking as one of the top 2 U.S. states in terms of EV ownership according to the U.S. Department of Energy in a 2023 publication. At the end of 2023, Florida had 254,878 registered EVs, and Guidehouse projects that the total population of EVs in Florida will be over 3.6 million by 2032.

CUSTOMER

Duke Energy Florida

SERVICE TERRITORY

Central and North Florida

GOALS

- Shift residential EV charging from peak periods to off-peak periods
- Unlimited enrollment is now available
- Participants earn a $7.50 bill credit per month
- Participants are allowed to charge twice on peak, but on their third on-peak charge, they forfeit their incentive for the month

TECHNOLOGY

- IntelliFLEX for EV Charging Programs

SOLUTION

Duke Energy Florida Implements Residential Off-Peak Charging Credit Program

With the increase of EV ownership in Florida, Duke Energy Florida worked with Itron to address the looming challenges associated with the proliferation of EVs, taking a long-term approach and betting on customers to play the key role in this solution. The goal of the program was to shift residential EV charging from peak periods to off-peak periods to reduce Duke Energy Florida's system peak demand and the associated strain on the low-voltage distribution grid. Participants are allowed to charge their EVs during on-peak hours up to twice per month and earn a $7.50 bill credit.

IntelliFLEX For EV Charging Programs

IntelliFLEX provides Duke Energy Florida with the ability to offer their Off-Peak Charging Credit Program to any EV owner in their service territory with a Level 2 charger, using a combination of EV telematics and AMI load disaggregation. IntelliFLEX also handles all aspects of customer and vehicle enrollment, charging session monitoring, incentive tracking, customer support, and reporting – providing Duke Energy Florida with a comprehensive suite of turnkey program implementation services.

RESULTS

Enrollment Success

Duke Energy Florida's Off-Peak Charging Credit Program easily met its initial recruitment and participation goals in 2022, 2023 and 2024 enrolling, 1,000 participants in each year. The program's popularity led to enrollment waitlists forming before each year-end, as annual enrollment targets were achieved ahead of schedule. In response to this strong demand, the program was extended to 2030, offering a $7.50 per month bill credit with no enrollment cap. As of September 2025, more than 6,300 EVs were enrolled, while still maintaining 94% off-peak charging.

Load Shift Success

Since the launch of Duke Energy Florida's Program in January 2022, EV charging among program participants has accounted for 24 GWh of electricity consumption. Within that total charging consumption, only 6% of the charging has occurred during Duke Energy Florida's peak demand periods and 94% in off-peak periods– providing strong evidence that Duke Energy's Program has been quite effective in shifting residential EV charging to off-peak periods. Indeed, this overall share of on-peak charging among program participants has been remarkably stable since program inception – indicating that the behavioral change motivated by the program is not transient and temporary but long-term and reliable.

EXPAND SUCCESS

Next Steps

To capitalize on the demonstrated program success, Itron recommends pursuing the next steps to broaden the impact of shifting load to off-peak. Marketing and communications to multi-family charger owners to restrict charging to off-peak hours will further relieve on-peak charging pressure on the grid. The Department of Energy estimates that 80% of EV charging is performed at the EV owner's residence. According to Price Waterhouse and Coopers consulting the state of Florida is projected to have 58,110 GWh's of load by 2040. Expansion Duke Florida's off-peak charging program may enable 55,205 GWhs to be off peak.

Itron

2111 North Molter Road
Liberty Lake, WA 99019 USA