AEG
APPLIED ENERGY GROUP

# 2022 Beneficial Electrification Plan
# Case Study

## Background

A large electric and gas utility contracted with AEG to assist in their efforts to support their transition to 100% clean energy through the development of a Beneficial Electrification Plan. The plan was designed to support accelerated growth of clean energy product and consumption with a focus on electric vehicles in particular. Additional Plan objectives included equitable access to clean energy and related jobs in equity eligible communities, grid reliability, a transition from coal to solar generation, and facilitation of energy storage.

AEG's critical contribution to the Plan was supporting the utility in the development of a portfolio of beneficial electrification programs. Beneficial electrification programs are defined as programs that lower carbon dioxide emissions, replace fossil fuel use, create cost savings, improve electric grid operations, reduce increases to peak demand, improve electric usage load shape, and align electric usage with times of renewable generation. The definition goes on to indicate that beneficial electrification programs include a portfolio of various rates, incentives, and programs designed to encourage electric vehicle utilization and EV infrastructure development, and to reach various, targeted population segments, such as, but not limited to, equity eligible individuals and communities, medium/heavy-duty vehicle operators, and public charging station developers.

## Plan Requirements

- Support the efficient and cost-effective use of the electric grid.
- Maximize total energy cost savings and rate reductions so that non-participants can benefit.
- Support at least 40% investment of infrastructure incentives for charging equipment in or serving low-income communities.
- Support at least a 5% investment target in electrifying school bus and diesel public transportation vehicles located in low-income communities.

## Overview of Analysis

AEG performed cost-effectiveness analyses on a comprehensive set of measures and interventions within its BenCost tool. BenCost, a Microsoft Excel®-based model, provides a transparent, user-friendly, and customizable database to analyze program data and support program design and development. Using this tool, measures are analyzed individually and bundled into programs, to determine which are the most beneficial for inclusion in future programs. We focused on the Total Resource Cost test as the foundation of the cost effectiveness analysis. The TRC measures the net benefits of a beneficial electrification program as a resource option based on the total costs of the program, including both participant and utility costs. The benefits calculated in the TRC test include outside state and federal incentives for electric vehicles and the avoided wholesale fossil fuel, net emissions, and O&M costs associated with the avoided non-electric vehicle usage. The costs in the test are the increase in supply and generation capacity costs associated with the electric load from the electric vehicles. The costs also include the non-incentive program costs paid by the utility and the incremental costs of the line extensions and vehicles paid by the participants.

For the proposed suite of programs in the Plan, AEG worked with the experts at the utility to identify the benefits and costs of the performance and activities associated with each program that could be reasonably identified and analyzed. Next, AEG developed a list of costs and benefits to include for the cost-effectiveness calculations. The full list of benefits and costs was cross-referenced with any similar analyses to ensure the appropriate benefits and costs were included for the Plan. Last, the identified benefits and costs were reviewed with the utility to confirm appropriate benefits and costs were being accounted for in the analysis.

## Solutions

Supported by AEG's analysis and in consultation with experts at the Utility, AEG helped to evaluate the comprehensive portfolio of beneficial electrification programs, measures, and tariffs including modifications to existing programs and the development of new programs. Below we summarize the new programs that we helped to develop as part of the Plan.

These four programs focus on supporting the adoption of EV's across several key areas including drivers, fleet owners, trade allies and job creation, and community involvement and education.

### Driver's Education

- Program providing high schools with EV educational materials suitable for curriculum use. In addition, high schools located in equity eligible communities qualify for direct financial assistance toward purchases of EV's and charging equipment.

### Fleet Assessment

- This program will offer fleet assessments for private fleet, education, and transit customers. An analysis of the customers' existing internal combustion engine (ICE) vehicles and usage patterns will be compared with battery electric vehicle (BEV) replacements. A total cost of ownership (TCO) report along with fuel, maintenance and emissions specifics will be provided along with recommendations.

### Trade Ally

- The Trade Ally Program will foster deep relationships between the utility and organizations that can play key roles in electrification of vehicles in the utility's service territory. The network will include individuals or organizations involved with charging station installation, maintenance, financing, etc. so that customers have access to reliable EV resources. The network will be utilized to verify charging equipment installations along with administering customer rebates.

### Community Engagement & Consultation

- The Community Engagement and Consultation program would provide a generic checklist of key considerations as communities develop EV adoption strategies. The program would also include access to resources that can assist community leaders in establishing EV adoption measures that best fit the needs of each community. In addition, equity eligible communities may qualify for direct financial assistance toward carrying out their EV adoption plans.
- Eligible communities will also receive assistance as they address barriers to transportation electrification to develop strategies best suited to their specific needs. Assistance may include access to EV planning expertise at no charge along with direct financial support to execute EV development strategies in equity eligible communities.

## Results

13 Programs (6 residential, 4 Non-Residential, 3 Other Programs)

Programs include: EV Chargers, Passenger Cars, School Buses, Transit Buses, and Medium/Heavy-Duty Vehicles

Programs provide: rebates, bill credits, supplemental line extensions, and financial assistance for participants, including equity investment eligible and/or low income customers

Portfolio achieved reductions of over 74.4M pounds of $CO_2$ emissions, 375,000 grams of PM emissions, and 11.2M grams of NOx emissions for the three year total plan

Portfolio achieved cost-effectiveness for the TRC and RIM tests for the three year total plan

AEG

**Applied Energy Group**
1377 Motor Parkway, Suite 401
Islandia, NY 11749

**CONNECT WITH ONE OF OUR EXPERTS TODAY**
info@appliedenergygroup.com