



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243-0435

ROBERT J. MARTINEAU, JR.
COMMISSIONER

BILL HASLAM
GOVERNOR

March 1, 2018

Via Email and Online Submission at www.ElectrifyAmerica.com

Wayne Killen
Electrify America
Volkswagen Group of America
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RE: Electrify America's Solicitation - Comments, Proposals, & Recommendations to Inform 2nd 30-Month ZEV Investment Cycle

Dear Mr. Killen:

The Tennessee Department of Environment and Conservation (TDEC) appreciates the opportunity to provide input on Electrify America's \$2 billion planned investment over the next 10 years in Zero Emission Vehicle (ZEV) infrastructure and awareness. In response to Electrify America's request for comment, proposals, or recommendations with regard to the Second 30-Month National ZEV Investment Cycle, TDEC provides the following updates to its Cycle 1 submission dated January 16, 2017:

Summary/Highlights:

- Despite minimal incentives, Tennessee has an EV-friendly culture and forward-looking vision.
- In Chattanooga, public EV charging use (kWh/day) has grown by an average of 90% per month since launching in May 2016, boosted by the transit authority's EV car-share pilot.
- Nashville and Chattanooga operate a total of 23 electric buses today. Nashville's proposed transit plan calls for adding over 180 electric buses, if approved by voters in May.
- Nissan already manufactures the all-electric Nissan LEAF in Tennessee. By 2020, it is [likely that Volkswagen](#) will manufacture an electric vehicle in Tennessee as well, furthering an already EV-friendly culture.

State-Wide Efforts:

- In response to the Federal Highway Administration's (FHWA) [second annual request for nominations of alternative fuel corridors](#), TDEC staff assisted the Tennessee Department of Transportation (TDOT) in compiling the necessary information to submit a nomination of I-24, I-65, and I-75 from end to end in Tennessee as alternative fuel corridors for both electricity and compressed natural gas. This nomination was submitted by TDOT to FHWA on November 30, 2017; FHWA has yet to announce the corridor designations under this second round of nominations, but is expected to do so in the coming months. Designation of alternative fuel corridors by FHWA fulfills a directive in the "Fixing America's Surface Transportation (FAST) Act" and will help drivers identify routes where they can refuel and recharge vehicles that run on alternative fuels such as electricity.
- In January 2018, a group of 20 public and private partners launched the [TennSMART Consortium](#) to accelerate the development and deployment of intelligent mobility innovations in Tennessee. Consortium members will assist with the creation of a technology roadmap and strategic plan for intelligent mobility initiatives in Tennessee. The specific intelligent mobility focus areas identified by the TennSMART Consortium are (1) connected and automated vehicles, (2) heavy duty trucking and freight efficiency, (3) cybersecurity, (4) electric vehicles (EVs), and (5) multimodal commuting. Founding members include DENSO Manufacturing Tennessee, GRIDSMART Technologies, Inc., Local Motors, Lyft, Miovision, Nissan North America, Oak Ridge National Laboratory, Stantec Consulting Services Inc., TDEC, TDOT, Tennessee Valley Authority (TVA), and four universities.
- In December 2017, TVA unveiled a proposed workplan for an "Electric Vehicle Shared Visioning and Roadmap Development" project, under which Navigant Consulting will conduct a multi-stakeholder engagement process and produce a market assessment and related roadmap for EV adoption and deployment in the Tennessee Valley. TDEC will be heavily involved in this multi-stakeholder roadmapping process, and will be sure to keep Electrify America apprised of TDEC's efforts with regard to this working group.

Local Policies, Plans, and Incentives:

Nashville/Davidson County:

- On May 1st, 2018, citizens of Nashville-Davidson County will vote in a referendum to decide whether to raise four taxes in order to pay for a \$5.6 billion transit plan. The plan, dubbed "[nMotion](#)," calls for improvements to bus service, the addition of light rail, and a full conversion of the city's transit bus fleet to all-electric buses, adding to the nine electric Proterra buses already in service.
- In February of 2017, Mayor Megan Barry's Livable Nashville Committee released the [Livable Nashville Draft Recommendations](#), which propose goals such as a transition of 25% of the Metropolitan government-owned light duty vehicle fleet to run on electricity or alternative fuel by 2030. Additional actions, such as research into an all-electric car-share service, as well as the encouragement of Transportation Network Companies to incorporate low emission vehicles into their fleets, are also addressed within the recommendations.

- The Davidson County Clerk offers a [“green permit” for low emission vehicles](#), which allows free parking at metered parking spaces within the Downtown Central Business Improvement District.
- Per a [Metropolitan Government LEED Ordinance](#), Nashville-Davidson County requires all new and renovated public projects that are 5,000 square feet or greater to be built to LEED Silver certification. As part of this and as noted within the Department of General Services’ [Design and Construction Criteria and Guidelines](#), Nashville-Davidson County requires the installation of Level 2 EV charging stations at all new or renovated City-owned buildings (the number of chargers is dependent on the total number of parking spaces offered).
- Sections of I-40, I-24, and I-65 within Nashville have access to the [high occupancy vehicle \(HOV\) lane for low emission vehicles](#), which include EVs.

Franklin/Williamson County:

- The City of Franklin has a [zoning ordinance to allow for free-standing solar car charging canopies](#) as stand-alone accessories.
- The City is currently considering a requirement for new single-family homes and townhomes to have 220 Volt outlets in order to support electric vehicle charging.

Chattanooga/Hamilton County:

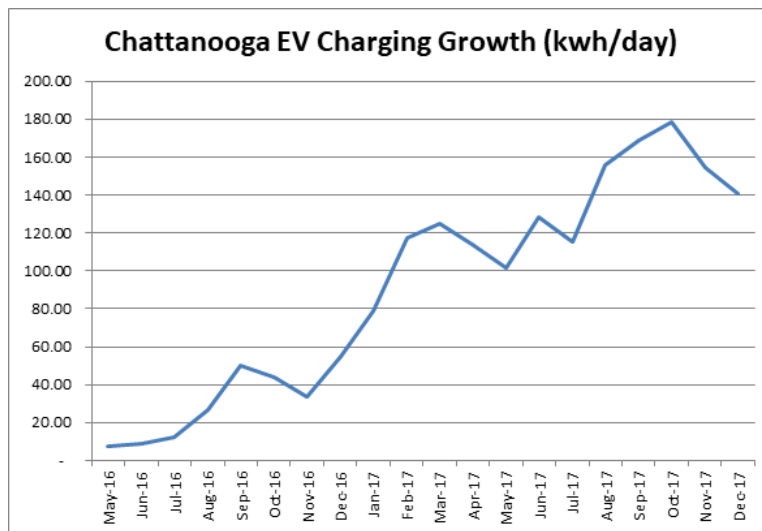
- The Chattanooga Area Regional Transportation Authority (ARTA), with funding provided by TVA, has launched an integrated public Level-2 charging and EV car share network along its existing public transit system. Providing 64 charging ports across 22 locations, the system's energy use is compensated by three solar power generators with a combined capacity of 80 kW. Green Commuter, a Los Angeles headquartered benefit corporation, was selected by ARTA to launch the state's first all-electric car share system with the initial deployment of 20 Nissan LEAFs. Offering on-demand hourly and daily rentals, Green Commuter vehicles serve the central business district, key employment and residential centers, the University of Tennessee at Chattanooga and Southern Adventist University. Remaining ports are available for public charging at no cost (parking fees apply if applicable).

Memphis/Shelby County:

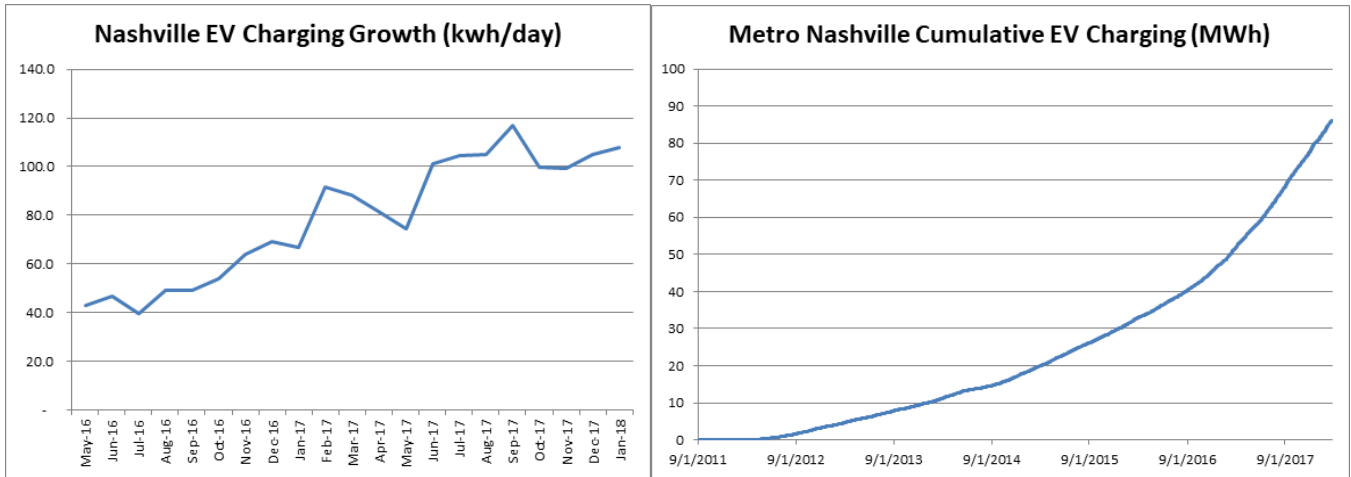
- The [Memphis-Shelby County Unified Development Code \(UDC\)](#) allows for the installation of electric vehicle charging stations as stand-alone accessories in any non-residential zoning district.
- Sections of I-40 and I-55 within Memphis have access to the [high occupancy vehicle \(HOV\) lane for low emission vehicles](#), which include EVs.

Utilization Data (Raw data is available for the instances noted within this section and will be provided upon request from Electrify America.)

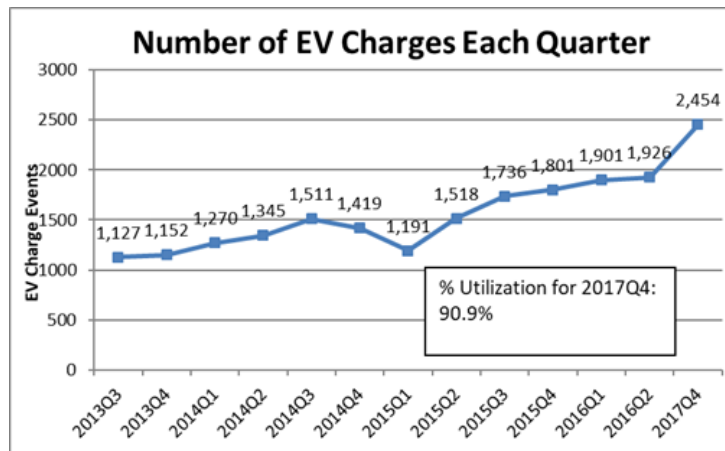
- With regard to the above-mentioned ARTA EV car-share program, in 2017, ARTA supported 7,824 charging events across 64 Level-2 charging ports in 22 distinct locations, with 46,469 kWh of total energy supplied. Green Commuter vehicles accounted for 50% of charging events and 48% of total energy supplied over this period. An additional 515 unique customers were served, with no other user representing more than 3% of total charging events or 6% of energy usage. Through the shared mobility use case, the ARTA EV car share project has been able to guarantee a dedicated baseline level of utilization for these stations, while still providing charging opportunities to the public. The following graph illustrates growth in kWh usage per day over a 19-month period at these ARTA-managed stations:



- Public Level-2 charging stations owned by Metropolitan Nashville and Davidson County Government also saw a significant level of organic utilization growth in the past few years, demonstrated by the usage patterns in the two graphs below. The graph on the left illustrates growth in kWh usage per day over a 20-month period, whereas the graph on the right illustrates the cumulative total in MWh utilized at these public stations over a 6-year period. Both of these graphs illustrate data for 27 public Level-2 stations, with a total of 49 plugs.



- From 2009-2013, TVA, in partnership with ORNL and the Electric Power Research Institute (EPRI), developed solar assisted charging stations to minimize demand on the grid and to integrate the use of renewable energy resources. In total, 125 of these solar-assisted Level-2 charging stations were installed in Oak Ridge, Knoxville, Nashville, Chattanooga, and Memphis. Utilization data for 25 solar-assisted workplace charging plugs and 16 non-solar-assisted charging plugs located on ORNL’s campus show that the number of charging events at ORNL has more than doubled since 2013 from 1100 events per quarter to approximately 2400 events in Q4 2017, reaching approximately 90.9% utilization in this most recent quarter:



Signage:

- With regard to current highway exit signage requirements and whether Electrify America could pay today for a spot on a “Gas” directional sign within the State of Tennessee, the [current State rules for the Logo Sign Program](#) note that in order to qualify for a space on the “Gas” logo sign, the following minimum criteria must be met: (1) Vehicle services, which shall include fuel, oil, air and water; (2) Drinking water suitable for public use and two or more clean public rest rooms, with at least one for men and one for women, must be available during all hours the facility is open to the public; (3) Continuous operation at least sixteen (16) hours per day, seven (7) days a week; and (4) Located not more than three (3) miles from the Primary Point of Intersection (PPOI).
- TDOT has confirmed that the State rules do not define the term “fuel;” as such, TDOT affirmed that electricity would likely be seen as eligible for purposes of the Gas logo sign.
- TDOT did note that if electric vehicle supply equipment is installed on the premises of another facility that provides fuel and vehicle services (such as a gas station), which is already featured on the sign for that highway exit, TDOT will not add a separate logo on the “Gas” logo sign for the electric vehicle supply equipment provider. In this instance, each logo is allowed to have up to two descriptive phrases underneath it, and a phrase such as “EV Charging” could be added underneath the logo if there is space.
- Should Electrify America be interested in evaluating Tennessee highway exit signage further, TDEC would be glad to coordinate additional conversations with TDOT.

Sincerely,

Molly R. Cripps
Assistant Commissioner, TDEC Office of Energy Programs