November 16, 2018

Anastasia Palivos
Acting Commissioner
Illinois Commerce Commission
527 East Capitol Ave
Springfield, IL 62701

RE: Notice of Inquiry on Electric Vehicles

Dear Acting Commissioner Palivos:

Chanje Energy appreciates the opportunity to share our perspective on the merits and challenges of deploying electric vehicles. Chanje is a California-based, privately held electric vehicle and energy solutions company that specializes in the last mile industry. Chanje introduced its first vehicle in 2017 and is the first company in North America able to deliver large scale fleets of commercial electric trucks built completely from the ground up. Chanje also offers turnkey energy infrastructure solutions and will soon provide a full range of EVs including trucks, delivery vans, and shuttle buses in a variety of lengths and capacities.

Our comments will thus focus on commercial EVs, especially those for last mile deliveries, a booming segment given the proliferation of online shopping and on-demand purchases. Most EV policy discussions to date, including comments to the Notice of Inquiry (NOI), have revolved around light duty passenger vehicles. We strongly support the electrification of transportation at large. At the same time, we do not wish for the commission to overlook how commercial fleet can be advantageous for all ratepayers and the public at large. Key advantages of fleet electrification include the following:

*Predictable routes/duty cycles*
Trucks use for last-mile deliveries average 80 miles per day – and even less for those with highly urban routes. These daily duty-cycles fall well within the battery range of the commercial EVs (Chanje trucks can achieve a range of 140 miles on full charge). Predictable routes mitigate “range anxiety”, one of the biggest barriers to EV adoption. Moreover, they create predictable energy needs, which in turn can result in cost-savings for both the fleet operator as well as other ratepayers. (We discuss this more below).

*Greater leverage to reduce greenhouse gas (GHG) emissions and other pollutants*
Commercial vehicles typically travel over 20,000 miles or per year. Additionally, they consume more energy than light-duty vehicles on a per mile basis. Diesel trucks equivalent to Chanje’s EV achieve 12 miles per gallon. A fully loaded Chanje EV can get a miles-per-gallon-equivalent
(MPGe) of 24.\textsuperscript{1} Switching one MD commercial vehicle to electric will reduce GHG and other pollutants as much as converting perhaps 5 to 8 passenger vehicles to electric. Moreover, commercial vehicles are generally part of a fleet, which is operated by an owner who will have multiple fleets in Illinois (over 25 fleets for the large fleet owners). Policies that therefore incentivize fleet owners to switch will have significant leverage in reducing emissions.

\textit{Cost-effectiveness for ratepayers}

Because of the greater scale and more predictable duty cycles, accommodating commercial EV fleets can be very cost-effective. Infrastructure and utility assets supporting commercial EV charging will be used consistently and predictably, allowing utilities to more efficiently size the grid and maximize asset utilization rates. Moreover, most of the charging will occur overnight, when there is significant excess capacity in the electric grid. Incremental load from commercial EV charging can pay for the excess capacity, which ratepayers are already paying for. Importantly, we have found that in many instances fleet charging infrastructure can be built without any utility upgrade—that is, no additional cost to ratepayers.

As the figure below indicates, peak demand has been steadily increasing over average demand. This means that utilities have been increasingly maintaining more peak capacity that is on average getting less usage. Under prevailing volumetric pricing mechanisms to recover cost, less usage results in less revenues for utilities to pay for the excess capacity. Utilities often make up for the revenue gap by increasing rates, either through higher energy charges or, more controversially, through higher demand charges and fixed charges.

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Mid-Atlantic (PJM Interconnection) peak-to-average demand ratio & 1.59 & 1.62 & 1.61 & 1.63 & 1.73 & 1.70 & 1.64 & 1.62 & 1.73 & 1.70 & 1.64 & 1.62 & 1.59 & 1.69 & 1.74 & 1.79 \\
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Source: EIA\textsuperscript{2}

\textsuperscript{1} Assumes EPA conversion of 1 gallon is equivalent of 33.7kWh

\textsuperscript{2} https://www.eia.gov/tdr/energy/daily.php?id=15051#tabs_SpotPriceSlider-3
If policies and pricing mechanisms are designed correctly, commercial EV charging can put downward pressure on rates for all ratepayers. Commercial EV charging can improve overall asset utilization not only through nighttime charging, but also through dynamic load management. EV charging for fleets can be very flexible because load can be coordinated across perhaps dozens of vehicles. EV fleet charging can thus be manipulated to meet real-time needs of the grid, while still ensuring enough energy is supplied to meet each vehicle’s duty cycle. For instance, intelligent charging software can ramp down charging for a single EV or all EVs when the grid has congestion. Conversely, it can ramp up charging when there is no congestion—or when the grid has surplus of energy from, say, wind generation. Under more serious scenarios, fleets can provide vehicle-to-grid (V2G) services, injecting energy during critical times. Under the most extreme scenario, commercial EVs can serve as mobile emergency backup power, providing energy to key circuits during critical peak demand or critical loads during catastrophic grid failures.

Chanje strongly believes that transportation electrification, especially among the commercial vehicle segment, will open new opportunities to not only reduce emissions, but also create a more robust, reliable, and dynamic grid for all ratepayers.

Thank you again for the opportunity to respond to this inquiry. We look forward to working with the commission to further explore ways in which transportation electrification can benefit the public.

Sincerely,

James Tong
Director
Chanje Energy