
To: The Ohio Manufacturers' Association

From: John A Seryak, PE (Runnerstone)

Senate Bill 307 - Electric Vehicle Charging Cost, Competitiveness, and Reliability Implications

Key Points

- Senate Bill 307 has three contentious electric policy concepts: whether the addition of electric vehicle charging stations require electric grid upgrades, whether utilities need new law to recover costs of grid upgrades associated with electric vehicle charging, and whether utilities should or need to own competitive products.
- Electric infrastructure upgrades: OMA proposed language requires the creation of a grid capacity map to determine where the electric grid is in need of infrastructure upgrades in order to add load to the system; the proposed utility language does nothing to determine which parts of the electric grid actually need upgrades.
- Utility cost recovery: OMA proposed language relies on existing law for needed utility cost recovery; the proposed utility language creates new law to recover costs from customers with no demonstration of need. Utility supported provisions could create tens of hundreds of millions of dollars in additional costs per year to customers.
- Competitive products: OMA proposed language protects competitive markets; the utility proposed language creates or encourages rate-subsidized utility-ownership of competitive products.

Senate Bill 307 (SB307) has been introduced in the 134th Ohio General Assembly to support electric vehicle (EV) deployment throughout Ohio, including through the creation of an automotive industry task force, a sales tax exemption for EVs, and changes to the state's electricity laws, among other provisions. SB307's changes to the state's tax and electricity laws should be of concern to manufacturers. The introduced bill could result in significant, potentially unfettered utility spending on unneeded infrastructure, resulting in higher electricity costs to manufacturers with no commensurate benefit.

At contention is whether utility grid infrastructure changes are needed to accommodate EV adoption, whether the utilities need new law to recover costs for these upgrades, and whether utilities should be allowed to own competitive products, such as EV charging stations and batteries.

Is new electric grid infrastructure needed?

Manufacturers and policymakers should know that Ohio's electric distribution grid can already accommodate EV charging, even at peak times, on many electric circuits. Circuits with ample capacity would not need infrastructure upgrades. Moreover, EVs can be encouraged to charge off-peak when even more distribution grid capacity is available. Thus, if managed smartly, in most cases EV charging would result in better utilization of existing grid infrastructure, rather than the need for more grid infrastructure.

While some electric circuits may need upgraded, in many cases EV adoption could be accommodated with today's electric distribution grid capacity. What is not known currently is how many EV charging stations can be accommodated on a given circuit when utilizing off-peak charging. This critical information is missing from the policy discussion on EV charging and electric infrastructure needs.

What do manufacturers suggest?

The Ohio Manufacturers' Association (OMA) is recommending two solutions to help policymakers and businesses determine how much new electric grid infrastructure is needed:

- Power capacity maps - OMA's proposed language would require the electric utilities to make publicly available distribution circuit peak power hosting capacity maps. While the name "distribution circuit peak power hosting capacity map" is complex, the concept is simple: it is a color-coded map of electric lines that show which have available power capacity (green) and which don't and may need upgrades (red). These maps achieve the following:
 - Transparency: customers, EV businesses, and regulators can all readily see which circuits have plentiful charging capacity and do not need upgraded. Many states already require their utilities to post such maps on their website - this information is not a trade secret but is of the public interest.
 - Lower costs: EV charging businesses would be attracted to locating on circuits which do not require costly upgrades, allowing development of charging stations at a lower cost.
 - Speedier EV adoption: EV businesses that locate on circuits with available capacity save time in addition to money, as they do not have to wait on the utility to make time intensive upgrades. Electric grid upgrades could take months or years, significantly bottlenecking EV charger deployment.
 - Improves reliability: EV charging businesses would naturally gravitate to circuits that have ample capacity, and would pose less risk to overloading circuits at peak times.
 - Protects competition from monopolies: utilities would not be able to withhold circuit information for leverage on competitive businesses, which is currently the case.
- Smart charging electric rates - OMA's proposed language would require the electric utilities to create electricity rates that encourage off-peak charging of EVs. EV charging technology has the promise of being able to charge an EV at off peak times, that is, when electricity use is lowest during the day and typically cheaper. For example, most electric circuits have a peak hour(s), like a "rush hour" of electricity. Costly grid upgrades can be avoided by ensuring EVs charge off-peak at night and other times of low electricity use. A smart charging rate achieves the following:

- Transparency: customers and EV businesses would see which hours of the day are the least costly to charge the EV.
- Lower costs: armed with information on how to lower their charging costs, businesses and customers would be attracted to saving money by charging EVs when electricity is cheap, instead of when it is expensive.
- Speedier EV adoption: Lowering the cost of electricity for EV charging is like lowering gas prices for internal combustion engines - it will encourage adoption of EVs.
- Improves reliability: EV charging would naturally gravitate to charging at times when electric circuits are underloaded, and thus reduce risk of overloading circuits at peak times.
- Protects competition from monopolies: utilities would not be able to "hide the ball" on prices by charging low rates during peak periods. Utilities have a natural incentive to load circuits up on their peaks, as this would lead to utility spending to upgrade lines and utility profits.

What do the utilities suggest?

Utilities are proposing that new law be created to give them more powers and create new costs. The proposed utility provisions:

- Fail to require a demonstration of need prior to completing costly infrastructure upgrades,
- Fail to offer a way in which infrastructure needs can be evaluated, and
- Fail to require off-peak charging to minimize the risk of overloading the grid during peak times, and
- Creates a presumption of need.

Dangerously, the utility provisions allow "make ready" investments, which means the utility can over-build infrastructure whether EV charging is going to occur on a particular circuit.

Do utilities need a new law to recover costs to accommodate new electric loads?

No, utilities do not need new law to recover costs to accommodate new electric loads such as EV charging stations. For example, many EV charging stations have already been installed in Ohio under existing laws and regulations. Moreover, utilities regularly accommodate new electric loads that require grid infrastructure upgrades. This includes new manufacturing production lines, new homes, new buildings, etc. The electric grid is not static and unchanging, it is dynamic. Electric utilities regularly make upgrades and changes to the grid based on changing customer needs, and already collect billions of dollars per year to maintain and update the electric grid. In this way, EV charging is no different than other new business developments.

What do manufacturers suggest?

Manufacturers do not think utilities need new law to recover costs for electric grid infrastructure improvements. Utilities already collect billions of dollars each year to maintain and upgrade the electric

grid. Utilities have existing legal authority and regulatory processes to make necessary grid upgrades when new electric load is added to a circuit. When it comes to infrastructure upgrades, there is no clear reason to treat new EV charging stations differently than, say, electric load for a new manufacturing production line.

What do utilities suggest?

Utilities are requesting new spending powers through the approval of a "transportation electrification program." SB 307 allows for cost recovery of "electric vehicle charging infrastructure," yet is silent on how this infrastructure is different from existing utility-owned infrastructure. Utilities already have law that enables them to upgrade the electric grid and recover costs of doing so. The need for new law suggests utilities would like to recover costs for new products or recover costs of standard utility infrastructure for new reasons or no reason at all. The utility provisions include "make ready" spending, which could result in significant costs to build out electrical infrastructure whether or not EV charging is located on the circuit.

Do utilities need to own competitive products, like EV charging stations and batteries?

No. Certain provisions of SB307 could allow utilities to own EV charging stations and other emerging competitive products, such as batteries, by calling them utility "infrastructure". While these new technologies are certainly going to be part of the electric system, and thus part of its infrastructure, they are currently part of a competitive market and do not need to be owned by utilities. That is, private capital investment can be used to fund these product installations and these companies can compete for their customers. There is not a clear need that customers should fund electric utilities - a government-franchised monopoly - to profit on these new technologies over competitive providers.

What do manufacturers suggest?

Manufacturers oppose and existing laws prohibit public utilities from owning products or delivering services that are part of competitive markets.

What do utilities suggest?

Utilities have proposed new law to allow them to own competitive products and services. Proposed language broadly includes competitive products as "infrastructure" they can own. This includes:

- EV charging stations - As introduced, SB307 quite clearly creates a pathway for "utility-owned electric vehicle charging infrastructure." An amendment removes this phrase, but notably did not bar utilities from owning EV chargers.
 - Additionally, the amended bill, even with the deletion would allow utilities to recover costs of any EV charging stations from all customers, whereas today the cost of an EV charging station is borne by a competitive business. This is a significant expansion of costs utilities pay recover from customers.
- Batteries - SB 307 allows for cost recovery of "electric vehicle charging infrastructure," yet is silent on how this infrastructure is different from existing utility-owned infrastructure. One new type of

equipment that would likely be included in electric vehicle charging infrastructure is a battery. Because electric vehicle charging will be intermittent but have high power requirements, it may make sense in some cases to install a battery with the charging stations to limit the cost of line capacity upgrades and wholesale market power costs. At issue then is who will own the battery. Under SB 307, if electric utilities are allowed to own batteries the battery cost would be paid for through captive customers' rates. This contradicts Ohio's policy of supporting competitive electric markets, which should include batteries.

Conclusion

The OMA proposed SB307 sub bill (I_134_2951) creates a way to determine if and where electric grid infrastructure has limited capacity, relies on existing law to approve spending that is needed, and does not allow monopoly utility franchises to charge customers to compete with competitive businesses. It additionally uses grid capacity maps and smart charging rates to create transparency, which can guide investment of EVs charging infrastructure to the least cost locations and incent charging of EVs during periods where the costs are the lowest. These provisions protect competition, minimize costs, promote reliability, and thus speed the adoption of EV charging infrastructure as compared to utility proposed versions of SB307.

Table 1: Effect Comparison of Proposed S.B. 307 Amendments

	Manufacturer Proposed Sub Bill I_134_2951	Utility Supported Language
Determines electric grid capacity	✓	X
Protects competition	✓	X
Minimizes costs	✓	X
Promotes reliability	✓	X
Speeds EV adoption	✓	X
Promotes transparency	✓	X