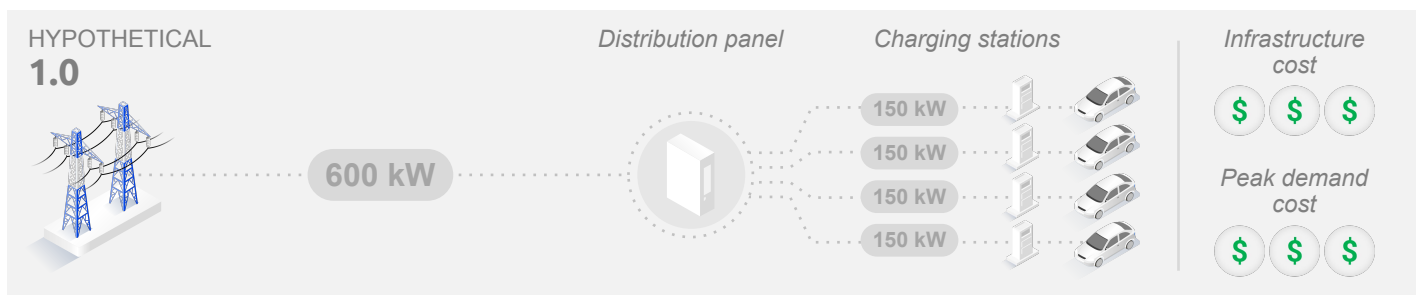


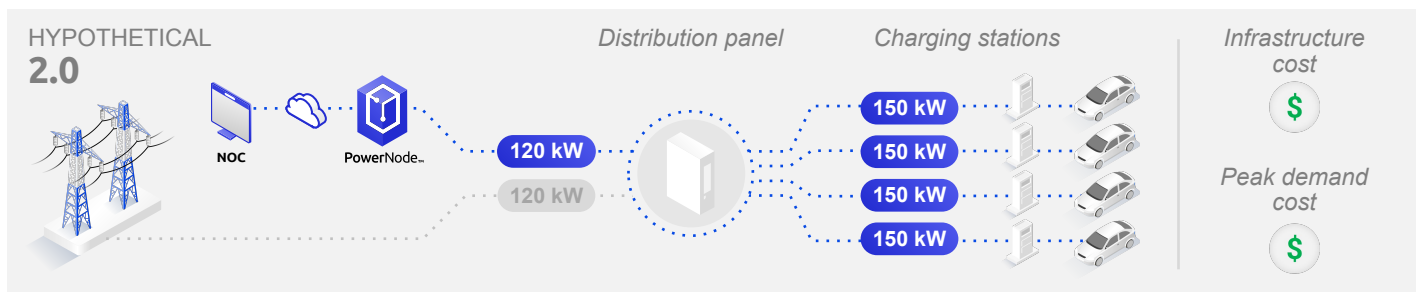
Electric Era's mission is to make fast charging for electric vehicles (EVs) ubiquitous and affordable. In pursuit of this mission, we have developed the PowerNode Platform – a high power, AI-driven battery-enabled fast charging technology. The Platform is designed to unlock the ultra fast charging business model for convenience stores and gas stations by solving for two critical barriers: *eliminating the need for economically prohibitive grid upgrades* and *minimizing the impact of demand charges*.¹

Solving for Grid Upgrades

Hypothetical 1.0: a convenience store wants to install four 150kW chargers on their property *without* the PowerNode Platform. The store has an existing 240v 3 Phase 300 amp service panel grid connection (i.e. 120kW) for fast charging.² Before installation, the convenience store would need a minimum grid service of 600kW to meet the new electrical demand, see *Hypothetical 1.0* below. These costly upgrades cause delays of up to 18-36 months and increase exposure to high demand charges.



Hypothetical 2.0: the same convenience store wants to install four 150kW chargers on their property *with* the PowerNode Platform. In this scenario, PowerNode's 120kW battery supplements the existing grid connection. The supplemental power, in conjunction with proprietary power balancing software (see next page), allow the convenience store to implement EV fast charging at their current 120kW grid connection, see *Hypothetical 2.0* below. The result is EV fast charging without heavy grid upgrades at unrivaled economics and performance.



¹ "The demand charge is a monthly fee that you pay as part of the cost of maintaining the electric utility's infrastructure required to deliver electricity to your building. On each month's bill, the demand charge amount is based on how high your energy use measured in kilowatts (kW) peaked during the month." (NYSERDA, 2022)

² $240\text{v} \times 300 \text{ amp} \times .96 \text{ (power factor)} \times 1.73 \text{ (3 Phase)} = 120,000\text{W} \text{ (120kW)}$



Q. How can the existing 120kW grid connection and the PowerNode Platform satisfy four 150kW chargers?

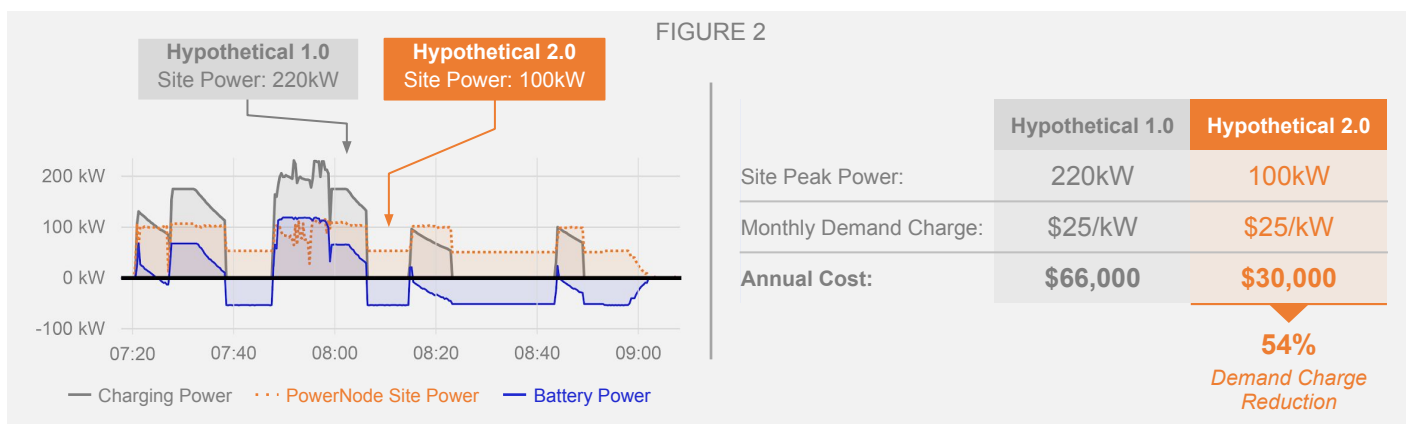
A. It's enabled by the PowerNode Platform's **AI-driven load forecasting** and **power balancing algorithms**.

Electric Era collects inventories of charging data and uses artificial intelligence to recognize and predict load patterns (i.e., when to expect customer demand for fast charging). These predictions allow the PowerNode Platform to make informed, continuous power balancing calculations to optimize power levels across all chargers depending on usage estimates. In a window of high customer demand, PowerNode balances customer-requested power across the four 150kW chargers while supplementing grid power with its stored energy to enable equitable charging *without* negatively impacting customer experience. It's important to note that high demand windows are statistically infrequent. At 100 sessions/day, the 90th and 95th percentile of sessions will receive >95% and >88% of peak power demanded, respectively.

Reducing Demand Charges

PowerNode's AI-driven load forecasting tool also enables the ability to anticipate demand spikes and minimize the impact of demand charges. Figure 2 is a sample of data to illustrate the capability. The **gray line** represents electrical demand from the chargers – the peaks are caused from various charging sessions. The highest peak is in this particular session is 220kW but, in practice, it could be as high as 600kW. In *Hypothetical 1.0*, let's say the local utility applies a demand charge of \$25/kW at this peak power level.

In *Hypothetical 2.0*, the **orange line** represents the PowerNode Platform's site power; we are able to cap peak electrical demand at 100kW. In this illustration, PowerNode saves the station owner \$36,000/year – a 54% decline in demand charges on this particular peak.



Conclusions

The PowerNode Platform enables the convenience store fast charging business case by bypassing expensive and time-exhaustive grid upgrades and minimizing the effects of demand charges. It will drastically increase your profit margins and enable you to affordably add EV fast charging at your property.

Get in touch

Connect with us

@ Sales@ElectricEra.Tech

Call us

📞 206.420.7844

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🐦 @ElectricEraTech