## TEEEE



Vehicles Charging Semi

### PRODUCT SUITE



### Software Solar Powerpack Powerwall



Supercharging

### TESLA CHARGING

**Destination Charging** 

Where You Park

### TESLA CHARGING EQUIPMENT

### Supercharger V2 (150kW)

### Supercharger V3 (250 kW)



Supercharger (72kW)





Wall Connector



/	72 kW	7-17 kW
utes	50 minutes	4-8 hours
nce	Urban Fast Charging	Destination Charging (Public + Work + Home)





Missouri HB 355 (2019): The term "electrical corporation shall not include: (c) Persons or corporations not otherwise engaged in the production or sale of electricity at wholesale or retail that sell, lease, own, control, operate, or manage one or more electric vehicle charging stations;

### CUSTOMER EXPERIENCE

### TESLA'S MISSOURI FOOTPRINT

Site Location (21 sites)	Supercharger Connectors	
Bethany, MO	6	
Brentwood, MO	12	
Cape Girardeau, MO	8	
Columbia, MO	8	
Columbia, MO - West Broadway	12	
Concordia, MO	8	
Hannibal, MO	8	
Independence, MO	6	
Joplin, MO - South Main Street	8	
Kansas City, MO	8	
Liberty, MO	8	
Mehlville, MO	10	
Miner, MO	8	
Nevada, MO	8	
Osage Beach, MO	8	
Rolla, MO	8	
Saint Louis, MO	12	
Springfield, MO	8	
St. Charles, MO	5	
St. Charles, MO - Beale Street	12	
St. Joseph, MO	8	
Grand Total	179	



### TRANSPORTATION-ELECTRIC UTILITY NEXUS

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### UTILITY RATES

# TESLA LINE EXTENSION POLICIES EVELOPMENT

![](_page_6_Picture_3.jpeg)

### THREE BIGGEST BARRIERS TO EV CHARGER DEPLOYMENT

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### DEMAND CHARGES (UTILITY RATES)

UPFRONT UTILITY CONNECTION COSTS (LINE EXTENSION POLICIES)

TESLA

### DEVELOPMENT TIMELINES/ POWER CAPACITY

![](_page_7_Picture_5.jpeg)

- •Demand Charges Why are these a barrier?
  - •Based on max monthly peak kW charged on a \$/kW basis
  - •Can function like "fixed charges"
  - •Low usage customers can pay extremely high \$/kWh rates
  - •Many EV charging customers are low load factor

### •What's the solution?

- •Volumetric EV Time-of-Use rates
- Demand charge discounts or holidays
- Rate limiters
- •Load factor based relief (i.e. demand charges are phased in over time)
- •Rates should be opt-in and available to new and existing chargers.

### UTILITY RATES - DEMAND CHARGES CAN BE PUNITIVE

![](_page_9_Figure_1.jpeg)

### Load Factor (a measure of usage)

### UTILITY RATES - PRICE PER KWH BY LOAD FACTOR

- Liberty Utilities (MO) Rate CEV
  - 75% demand charge reduction
- Evergy (KS) Business Electric Vehicle Charging Service (
  - Low demand charge rate with volumetric time-of-use charge
- Ameren (IL) Rider EVCP
  - Rate limiter that phases back in demand charges over 10 year

![](_page_10_Picture_7.jpeg)

Current Distribution Delivery Demand Charge \$/kW yearly effective load factor \* 730

Where yearly effective load factor is in the following table:

	Yearly Effective	
Year	Load Factor	
2022	30%	
2023	28%	
2024	26%	
2025	24%	
2026	22%	
2027	20%	
2028	18%	
2029	16%	
2030	14%	
2031	12%	
2032	10%	

### UTILITY RATES - EV RATE EXAMPLES

The Commercial Electric Vehicle Rate Pilot (Schedule CEV) establishes a reduced billing demand for subscribing customers, calculated as the customer's billing demand under the standard rate schedule, reduced by 75% of the billing demand contribution of the chargers deployed under Schedule CEV.

	BUSINESS EV CHARGING SERVICE			
BEVCS)	RATE FOR SERVICE			
es.	A. Customer Charge (Per Month)		\$ <b>1</b> 05.97	
	B. Facility Charge (Per kW of Billing Demand per month)	)	\$ 3.069	
	C. Energy Charge per Pricing Period (Per kWh)	Summer Season	Winter Season	
	On-Peak Period	\$0.17979	\$0.11522	
	Off-Peak Period	\$0.08298	\$0.05458	
ars.	Super Off-Peak Period	\$0.02755	\$0.02416	
	D. Carbon Free Energy Option Charge (Per kWh)	\$0.00250		

![](_page_10_Figure_14.jpeg)

![](_page_10_Picture_15.jpeg)

### LINE EXTENSION POLICIES - DETERMINE UPFRONT UTILITY COSTS

- Line Extension Policy Why do these exist?
  - Incentivize new business
  - Help defer large upfront costs for new electric service
  - Existing line extension policies may not be adequate to support new EV charging customers

- What's the solution?
  - Adjustments to existing line extension policies
    - Should allow for 2<sup>nd</sup> services for EV charging to not be considered "excess facilities"
  - Make-Ready programs that help cover infrastructure for EV charging
  - Rebates/incentives

### Ameren Missouri's Line Extension Policy

### DEFINITIONS

Extension Allowance: An economically justifiable investment which may be made by the Company for distribution line extensions, service extensions, or a combination thereof, and uses the following formula:

> Marginal Revenue Extension Allowance = Cost of Service Factor

Marginal Revenue: The estimated average annual revenue measured over the first 5 years of life associated with the line extension project, less incremental energy, capacity, and marginal network and infrastructure support cost.

Cost of Service Factor: Comprised of the Company's cost of capital, cost of depreciation, property tax, state and federal income tax and insurance. The factor is applied to the Marginal Revenue to determine Ameren Missouri's Extension Allowance, and is determined from Ameren Missouri's most recent rate case proceeding and/or through a periodic review conducted by the Company.

Extension Charge: That portion of the total Extension Cost which is not covered by the Extension Allowance and for which the Customer is responsible.

Extension Charge = Extension Cost - Extension Allowance

![](_page_11_Figure_21.jpeg)

### LINE EXTENSION POLICIES - EV MAKE-READY PROGRAMS

- Utility side make-ready infrastructure (in front of the meter) •
  - ٠ including the electric meter, civil construction work
- Customer side make-ready infrastructure (behind the meter)
  - **Components:** electrical panel, conduit, wiring •

![](_page_12_Figure_5.jpeg)

![](_page_12_Picture_6.jpeg)

**Components:** utility service connection, transformer, conductor, connectors, and conduit up to and

### EV LINE EXTENSION POLICIES / EV MAKE-READY PROGRAMS

### <u>Ameren Illinois's Supplemental</u> <u>Line Extension Policy for EV Charging</u>

### SUPPLEMENTAL LINE EXTENSION PROVISIONS

Any stand-alone service point for a Non-Residential Customer that is primarily intended to provide power and energy to EVSE (non-EVSE will be equivalent to 10% or less of the connected kW load) will be eligible for supplemental line extension and service extension allowances. The supplemental allowance, if applicable, will be the greater of \$300/kW of connected EVSE in kW or the otherwise applicable combined line extension and service extension provisions available to new Customers. Multifamily Facilities located in identified low or moderate income areas will receive an additional \$200/kW supplemental allowance, for a total of \$500/kW of connected EVSE in kW. Revenue test provisions are not applicable to Customers who receive the Supplemental Line Extension Provisions.

If the Customer chooses the supplemental allowance option, and the cost of the Line Extension exceeds the supplemental allowance, Customer will pay, in advance of construction, to the Company an amount equal to the difference between the actual cost and the supplemental allowance.

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### 100 kW x \$300/kW = \$30,000 allowance

### <u>Contribution in Aid of Construction vs</u> <u>Make-Ready Infrastructure</u>

![](_page_13_Figure_8.jpeg)

- Development Timelines How do we accelerate deployment?
  - •Where is power available?
  - •What is the longest step of the development process?
  - •Should easements be treated differently for EV chargers?
  - •Should EV charging projects have to submit full projects for feasibility?
  - •Are there permitting barriers?
- Ideas for possible solutions
  - •Capacity maps
  - •Clear utility process for EV charging projects
  - Provide feasibility pathway without having to submit full new service application.
  - •EV charging specific easement that takes into consideration specific use case while still ensuring utility's necessary land rights and access.

### DEVELOPMENT TIMELINES / POWER CAPACITY

• Explore term limited easements or can access language be included in lease agreements?

- Provide EV charging utility rate options in all territories.
- Favorable line-extension policies for new EV charging infrastructure deployments.
- closely with utility.
- These policy recommendations will help complement the NEVI program by deployment in the state.

POLICY RECOMMENDATIONS

Simple pathway by which to understand project site feasibility by working

providing an environment friendly to sustainable EV charging infrastructure

### Thank You / Questions

![](_page_16_Picture_1.jpeg)