

# EV Charging from an Owner's Standpoint — Business Case Analysis

*Dave Rich, Sustainable Energy Manager  
Nebraska Public Power District*



# Overview

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1. Why are you interested in installing a public EV charger?
2. Initial costs of installation
3. What are my annual costs of operation?
4. What will I charge for use of the public charger?

# Why are you interested in installing a Public EV charger

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1. As a public service – to promote EVs by reducing range anxiety
2. A for profit business
3. Draw clientele to your business – differentiate your business
  - a) Multi-hour charge (hotel, shopping mall, park, workplace)
  - b) Sub-hour charge (convenience store, highway corridor)

# What type of charger service do you want to provide?

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Faster is better right?

- a) Likely true if you are the one charging your EV
- b) May not be true if you are the one providing the EV charger
- c) Need to understand the costs and potential revenue

# Installation Costs

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1. The following table provides example of what the costs are for the charger equipment, utility connection charges, and your electrician charges
2. The purpose of the table is not to give firm budget costs, but to make you aware that there is a wide range of costs depending on what charging equipment you plan to install, what utility you are being served by, and what are the existing facilities that the electrician may be challenged with.
3. The Level 2 charger requires 240 VAC 40 amp circuits
  - a) Option A assumes that existing customer serves the charger (current facility has sufficient capacity in existing service and panel)
  - b) Option B assumes that charger service is new and metered separately (utility has sufficient capacity in existing transformer)

## Installation Costs (continued)

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4. The 50 and 62.5 KW DC charger needs 277/480 VAC three phase 60 and 75 amps respectively
5. The 150 KW DC fast charger needs 277/480 VAC three phase 180 amps
6. The utility cost estimates assume that your utility has a three phase distribution circuit with ample capacity nearby (ex. “in the alley”)
7. The utility cost estimates will depend on forecasted usage and may require a deposit

# Installation Cost Table

Level 2 Charger			New Services - DC Fast Charger 277/480 VAC		
	Existing Service	New Service	50 KW	62.5 KW	150 KW
Charger Cost*	\$7.5-9K	\$7.5-9K	\$35-38K	\$40-43K	\$65-70K
Utility A Cost	\$0	\$0-200	\$20-35K	\$20-35K	\$25-40K
		Requires deposit if new customer	Charges for actual construction – less allowance (reviews actual usage over 3 years, possible refund)		
Utility B Cost	\$0		\$10-25K	\$10-25K	\$0
		Requires deposit if new customer	Charges for actual construction – less allowance (based on 2.5 years estimated revenue)		
Electrician Cost**	\$500-\$5,000		\$750-\$6,000	\$750-\$6,000	\$1,000-\$8,000
* Grants from NDEQ VW Trust Fund and/or other entities (such as Nebraska Community Energy Alliance or Nebraska Environmental Trust) may significantly reduce the cost.					
** Depending on distance and existing landscaping (greenfield – new construction vs. boring under existing concrete)					

# Average kWh Cost for Various Chargers

	Level 2 Charger		DC Fast Charger 277/480 VAC New Service		
	Existing Service	New Service	50 KW	62.5 KW	150 KW
Utility A - low	48.8¢	18.9¢	23.0¢	23.0¢	52.2¢
Utility A - medium	12.4¢	11.9¢	12.6¢	12.6¢	17.4¢
Utility B – low	45.0¢	14.5¢	21.9¢	21.9¢	487.2¢
Utility B – medium	10.4¢	10.3¢	11.6¢	11.6¢	84.1¢

\* Low – 500 kWh/month, medium 3000 – 5000 kWh/month



# What will I charge for use of the public charger?

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## 1. Nebraska Power Review Board provides guidance for EV chargers

### a) Legal- Guidance Document #12

PRB interprets its jurisdiction over the provision of electricity by non-utility entities to third parties, including situations involving PEV charging stations

## 2. Typical EV charging rates are by the session, by the hour, or by the minute

### b) The PRB says it is non-jurisdictional if it does not consider actual KWh of energy provided

i. Example Level 2 charger - \$1.00 for the first four hours and \$1.00 for every hour thereafter

1. Designed to encourage EV owner to charge and then move on

ii. Example DC fast charger \$8.00 for xx minutes

iii. Example DC super fast charger \$1.00 connect and \$.35/minute

# What will I charge for use of the public charger?

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3. In the majority of the cases EV owners have alternatives
  - a) Most Tesla model X and model S have free charging options at existing Tesla charging stations
  - b) Most (80-90%) of EV charging is either at home or at the workplace
    - i. More convenient – can plug in overnight or while parked at work
    - ii. Home energy costs typically around \$.10/KWh
      1. Likely that utilities may be offering discounts for overnight charging
      - 2.

# Summary

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1. The decision process of installing a public charger is complex
2. Majority of the costs are dependent on the site selected
3. DC fast charging infrastructure can add significant costs
4. Discuss with your utility supplier to fully understand both initial and ongoing costs

# Questions?

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*Dave Rich, Nebraska Public Power District*

*402-563-5477*