



Determining an Appropriate Energy-Based Charging Fee



This document provides an example calculation for setting fair and sustainable energy-based fees for electric vehicle (EV) charging stations. An appropriate fee ensures financial sustainability for station owners while remaining attractive to EV drivers. Below are key points explaining the rationale and process for determining these fees.

Key Points

- **Align with User Expectations:** Start with local residential electricity rates to establish a baseline, as EV drivers compare public charging costs to home charging.
- **Account for Operating Costs:** Incrementally increase fees above residential rates to cover additional expenses, including maintenance, network fees, and site costs.
- **Maintain Balance:** Avoid rates that are too low, which could attract home chargers and impact station sustainability, or too high, which could deter users and reduce utilization.
- **Target Range:** A suggested range for 2025 is \$0.30 to \$0.40 per kWh, balancing cost recovery with competitiveness.

Sample Calculation: Setting an Energy-Based Charging Fee

To determine an appropriate per kWh fee:

1. Start with Local Residential Electricity Rates

Massachusetts average residential electricity rate (2024): \$0.29 per kWh

2. Add Incremental Adjustment for Costs

Estimate additional costs (e.g., maintenance, network fees, property expenses)

Incremental adjustment: \$0.08 per kWh.*

**How was this estimated?*

1. **Annual Costs:** Include network fees (\$1,200) and maintenance (\$500) totaling **\$1,700 annually**.
2. **Projected Energy Sales:** Assume **16.7% average utilization** for two Level 2 chargers (7.2 kW) operating eight (8) hours/day combined, resulting in **21,024 kWh/year**.
3. **Incremental Adjustment Formula:** Divide total costs by annual energy sales to calculate the adjustment per kWh.

$$\text{Incremental adjustment} = \frac{\text{Total Additional Costs}}{\text{Annual Energy Sales}}$$

Formula:

3. Calculate Total Energy-Based Fee

Add the residential rate to the adjustment:

Charging fee = $0.29 + 0.08 = \$0.37$ per kWh

4. Confirm Alignment with Recommended Range

The calculated fee of \$0.37 per kWh falls within the reasonable 2024 range of \$0.30 to \$0.40 per kWh.

Summary

Setting an appropriate per kWh charging fee ensures a balance between cost recovery and user appeal. A well-calculated fee, like \$0.37 per kWh, enables station owners to cover operational costs, attract EV drivers, and encourage public charging use. By aligning fees with user expectations and site-specific needs, operators can promote EV adoption and maintain financial sustainability.