Maximizing EV Benefits

January 21, 2015

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415-391-5100
<table>
<thead>
<tr>
<th>Topic</th>
<th>Effect</th>
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<tbody>
<tr>
<td>GHG &amp; Emissions</td>
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<tr>
<td>Energy Consumption</td>
<td>↓</td>
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<tr>
<td>Utility Infrastructure</td>
<td>↓</td>
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<tr>
<td>Retail Rates</td>
<td>↑</td>
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<tr>
<td>PV (with NEM) shifts costs to other ratepayers</td>
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<tr>
<td>EVs reduce rates for all ratepayers (If done right!)</td>
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**EV benefits**

**Ratepayers**
- Provides environmental and societal benefits
- Can pass CPUC and CARB cost tests
- Reduces rates for all customers
- Accelerates PEV adoption

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<table>
<thead>
<tr>
<th>Category</th>
<th>Revenue</th>
<th>Cost</th>
<th>Present Value $/Vehicle</th>
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<tbody>
<tr>
<td>Ratepayer</td>
<td>$25,000</td>
<td>$2,591</td>
<td>$23,409</td>
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<tr>
<td>Economic</td>
<td>$20,000</td>
<td>$4,977</td>
<td>$15,023</td>
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<tr>
<td>Societal</td>
<td>$15,000</td>
<td>$6,166</td>
<td>$8,834</td>
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**Investing in managed charging infrastructure:**

- Provides environmental and societal benefits
- Can pass CPUC and CARB cost tests
- Reduces rates for all customers
- Accelerates PEV adoption
Bending the EV adoption curve

EV Adoption Scenarios

5 year growth in EVs and the public charging to support them

3x 18x
TOU rates reduce distribution costs

- SDG&E EV TOU Pricing Study
- EV charging shifted to off-peak
- Reduce distribution upgrade costs by 60%

Distribution Upgrade Costs

- $0.38 for Flat
- $0.24 for Mixed
- $0.14 for TOU
Dynamic rates maximize use of renewable energy

Charge with excess daytime generation

40% RPS Spring Day Generation Profile

TOU Rate

40% RPS Cost of Delivered Energy
Concluding thoughts

+ Who pays for charging stations that don’t pay for themselves?

+ How to maximize flexibility and minimize grid and customer costs?
  - Demand charges

+ How to evaluate $/ton instead of $/kwh?

