

Electric Vehicle Technical Conference

Electric Vehicle Time Of Use Pilot

February 16, 2017



Let's turn the answers on.

EV TOU Pilot Background

- Offered in compliance with Utah Code Ann. § 54-20-103 in STEP Act
 - Requires “time of use pricing for electric vehicle charging”
 - To be authorized by Commission by July 1, 2017
- Based upon feedback from 5 workshops with various parties
- Applicable to residential customers with provide plug-in electric vehicle DMV registration
- Includes a load research study for about 120 – 180 customers
- Open to another 1,000 customers who choose to participate

EV TOU Pilot Timeline

- July 1, 2017 – Proposed effective date
 - Begin recruiting for load research study
 - Begin offering incentives/marketing to participants
- December 31, 2017 – Load research study in place
- December 31, 2018 – Conclusion of load research study
- December 31, 2020 – Tariff is closed to new applications
- End of 2021 – Final report filed with the Commission

EV TOU Pilot Load Research Study

- Recruit participants for 3 groups on load research study
 - TOU option 1
 - TOU option 2
 - Control group
- Select participants from existing plug-in electric vehicles registered with the DMV
- Achieve a precision level of $\pm 10\%$ at the 90%
- Offer \$200 “thank you” credit at the end of study

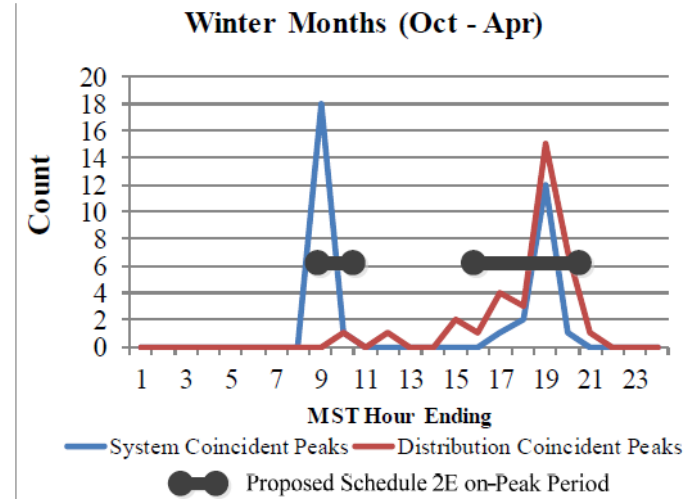
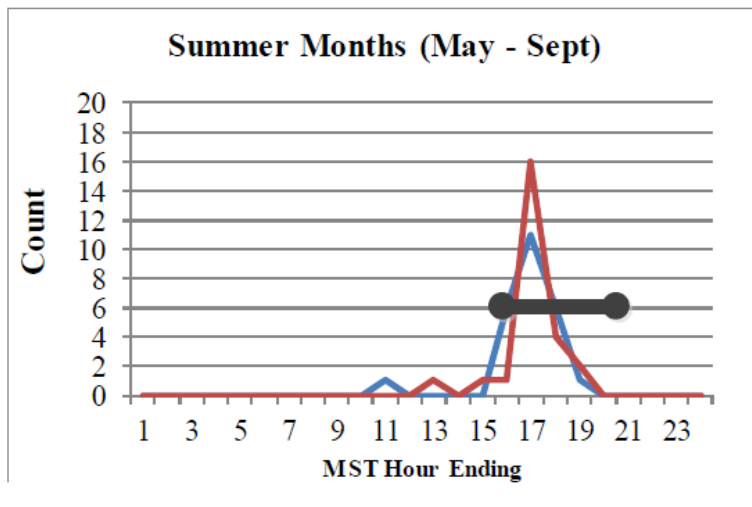
EV TOU Pilot Rates

	Rate Option 1	Rate Option 2
Customer Charge - 1 Phase	\$ 6.00	\$ 6.00
Customer Charge - 3 Phase	\$ 12.00	\$ 12.00
On-Peak kWh (cents\kWh)	22.2755	34.3753
Off-Peak kWh (cents\kWh)	6.7881	3.4003

- Two rate options
 - Moderate on-/off-peak differential \approx 3:1
 - More pronounced differential \approx 10:1
- Same basic and minimum charge as Schedule 1
- No tiering of energy rates

EV TOU Pilot On-Peak Period

- To determine on-peak periods, examined system coincident peak and distribution coincident peaks over last 5 filed cost of service studies
- Proposed periods capture 94 percent of peaks
- Illustration shown on Exhibit RMM-3



Cost to “Fuel” Vehicle

	Gasoline	Present Residential Sch 1	Present Time-of-Day Sch 2	Proposed EV TOU Pilot Option 1	Proposed EV TOU Pilot Option 2
Incremental Internal Combustion Engine (ICE) Vehicle Fuel Cost	\$71.52				
Incremental Plug-In Electric Vehicle (PEV) "Fuel" Cost		\$41.13	\$38.66	\$24.63	\$12.34
Savings from Fueling with Gasoline		\$30.39	\$32.86	\$46.89	\$59.18

- Exhibit RMM-5 estimates incremental cost to “fuel”
- Assumptions
 - 1,157 miles driven per month
 - EV charges during off-peak
 - Monthly household usage is average 698 kWh
 - \$2.25 per gallon for gasoline
 - 36.4 mile per gallon efficiency for internal combustion engine

EV TOU Pilot Rate Development

- Rate development calculation shown on Exhibit RMM-7. Can also be seen on workpaper file titled “UT EV TOU Pilot – Workpapers.xlsx” on the ‘Rate Design’ tab.
- Used residential load research data from last GRC to estimate on-/off-peak energy
- Developed TOU energy charges that are revenue neutral for the class given the assumed profile

EV TOU Pilot Rate Development

- TOU Option 2
 - Set off-peak energy to energy-related costs from the unit costs in the last GRC which is 3.4003¢ per kWh (cell N14 on 'Rate Design' tab)
 - After applying prices for the off-peak energy charge, the customer charge and the minimum charge, the remaining revenue is divided by on-peak energy to get a 34.3753¢ per kWh on-peak energy charge (cell N13 on 'Rate Design' tab)

EV TOU Pilot Rate Development

- TOU Option 1
 - Determine average energy price for residential class by dividing energy charge revenue by kWh to get 10.1759¢ (cell J30 on 'Rate Design' tab)
 - Off-peak energy charge set at 6.7881¢ - 50% movement from 10.1759¢ towards 3.4003¢ per kWh (cell J14 on 'Rate Design' tab)
 - Remaining revenue is divided by on-peak energy to get a 22.2755¢ per kWh on-peak energy charge (cell J13 on 'Rate Design' tab)

EV TOU Pilot Tariff Features

- Schedule 2E
 - Guarantee payment – refund made to customer if energy costs are greater than 110% of what they would have been on Schedule 1 after first year
 - Requirement to submit copy of DMV registration to Company or be selected in load research study
 - One year commitment
 - Includes the same credit provisions as Schedule 2
 - Excludes co-participation in net metering or subscriber solar