



May 21, 2020

VERMONT PUBLIC SERVICE DEPARTMENT

RATE DESIGN INITIATIVE / DISTRIBUTED ENERGY RESOURCES STUDY

STAKEHOLDER ENGAGEMENT MEETING #4

PANEL DISCUSSION – AREAS FOR RECOMMENDATIONS



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ADOPTION OF INNOVATIVE RATES

- Agenda
 - Review highlights from panel discussions from Workshop #3
 - EV programs in Vermont
 - Human element in adoption strategies
 - Technological aspect to increase responses
 - Pathways for greater adoption of innovative rates
 - Prioritization of rate strategies

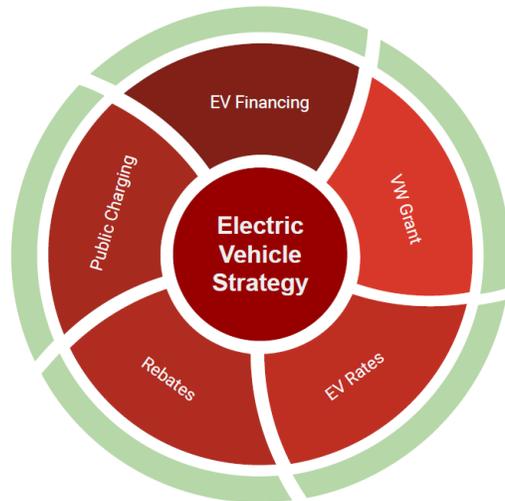
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WORKSHOP #3 PANEL: IMPLEMENTATION CHALLENGES - SUMMARY

Freddie Hall – BED EV Strategy

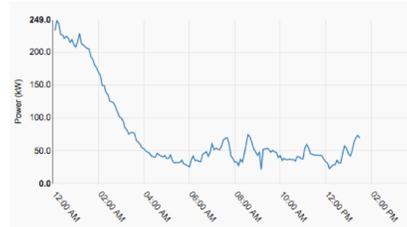
- Lowering up front costs
- Reducing ongoing costs
- Improving Convenience
- Education



CONVERTING TO TARIFF

TOU Option

- Daily on/off peak schedule applied to EV charging
- Customer sets own schedule, does not receive peak event notifications



Managed Option

- Discounted rate during all hours outside of called peak events, default opt-in
- \$0.69/kWh during events
- No intervention required by customer to achieve savings

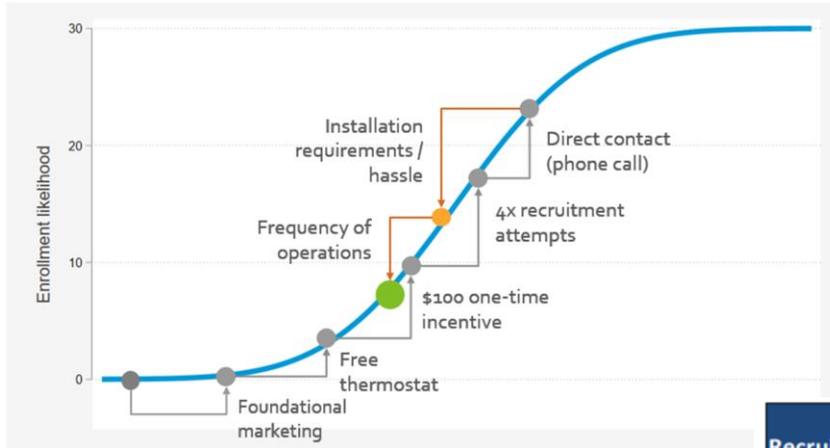
Used coincident peak data from pilot to calculate EV rate discounts

Graham Turk – GMP eCharger Update

- EV charging management reduces peak costs
- Low opt out rate w/ minimal interruptions at peak
- Free Level 2 charger critical for quick customer savings

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WORKSHOP #3 PANEL: IMPLEMENTATION CHALLENGES - SUMMARY



Josh Bode – Demand Side Analytics

- Strategies for success include incremental tactics over time
- Opt-Out / with technology overwhelmingly accepted

Recruitment Approach	Rate	IHD Offer	Acceptance Rate
Opt-in	CPP	No	18.8%
		Yes	18.2%
	TOU	No	16.4%
		Yes	17.5%
Default	CPP	Yes	95.9%
	TOU	Yes	97.6%
	TOU-CPP	Yes	92.9%

Mary Sprayregen - Oracle

- Getting humans to make decisions
- Behavioral load shaping

Behavioral Considerations:

1. Convince a customer to opt-in
2. Get them to choose the best rate
3. Actually change usage behavior in response to new rate



Financial Signals:

1. Rate guarantees
2. Maximize peak to off-peak price signal

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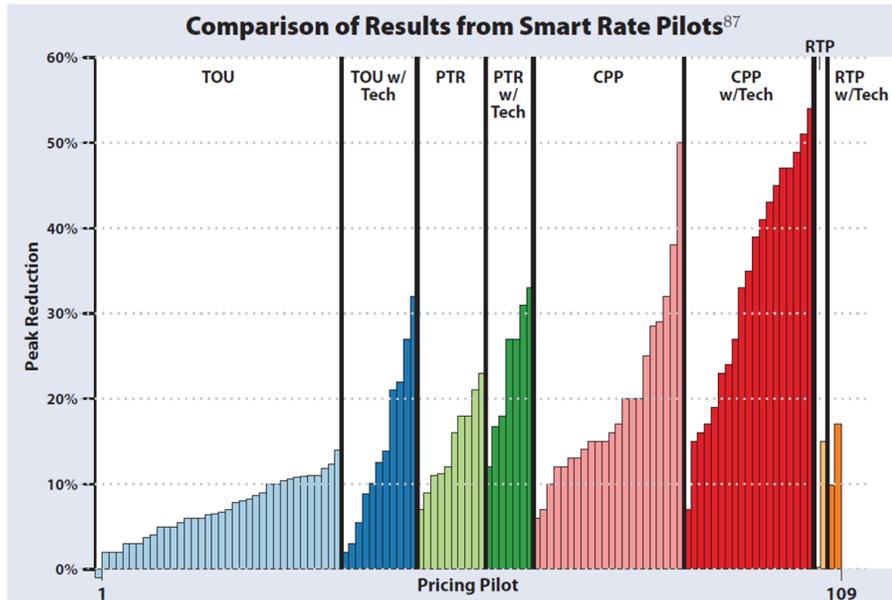


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WORKSHOP #3 PANEL: IMPLEMENTATION CHALLENGES - SUMMARY

Rick Weston – Regulatory Assistance Project

- Smart rate pilot peak reduction
- Impact of Pricing program with technology



PRICES TO DEVICES

- Shifts responsibility to manage volatility/capacity costs to customers, who may not have the tools (or interest) to do so.
- To mitigate annoyance & complexity, need to develop regular schedules, losing the ability to adapt load to real-time conditions.
- Potential for boom/bust cycles, creating new grid problems.

CONTRACTS TO DEVICES

- Pay for capacity with a fixed fee that is indexed to flexibility. “Whenever-you-want-it” electricity is expensive. Flexible electricity is closer to marginal cost.
- Incentivizes fuel switching.
- Utility provides the technology needed to enable flexibility.
- Flexibility strategies can adapt easily to changing market conditions.

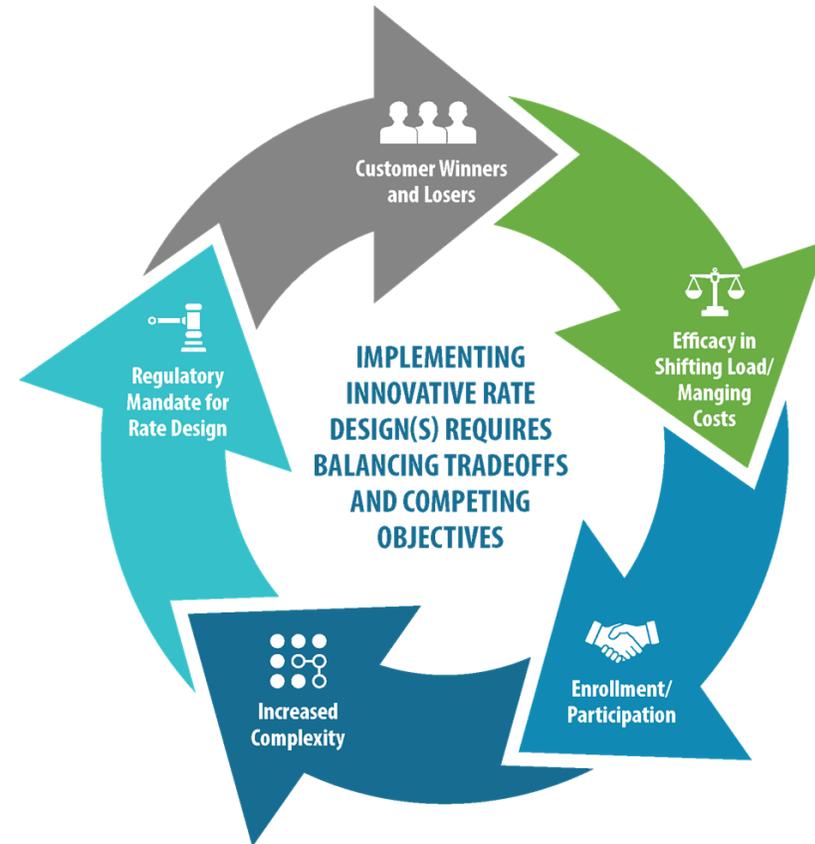
Paul Hines – Packetized Energy, U of V

- Near zero / zero marginal energy costs
 - High capacity costs
- Subscription services
 - Pay for flexibility

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PATHWAYS FOR GREATER ADOPTION

- Pilot programs
- Optional rates
- New rates / rate riders
 - Optional flexible load rates
 - With / Without incentives
- Opt-Out rates
 - With / Without incentives
- Rate requirement in exchange for utility investment
- Bundled programs for load management
 - Subscription services
 - Service contracts
- Mandated rates
 - PUC Requirement
 - Legislative Requirement



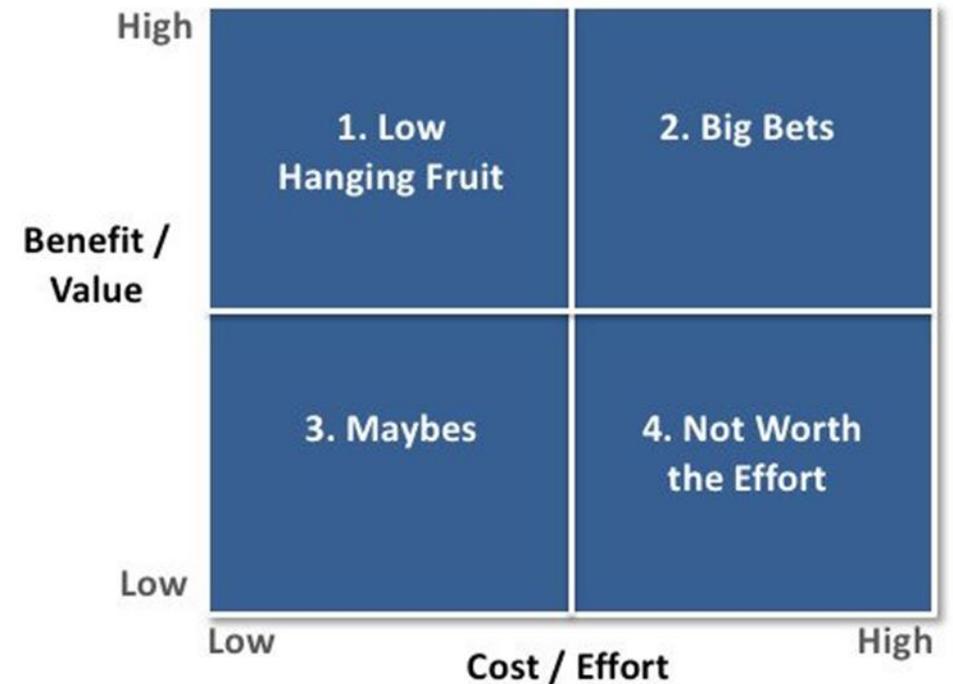
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PRIORITIZATION OF RATE STRATEGIES

- Low-hanging fruit
 - Opportunities for matching technology with rate design
 - Get in front of technology adoption
 - Require rate program participation in exchange for utility investment
 - EV Chargers = EV Rates
 - Thermostats / In-home displays = TOU Static rates
 - Reach customers during initial touch
 - Metering needs, inspections, rate guidance
 - Standardize equipment (e.g. EVSE)

PRIORITIZATION MATRIX

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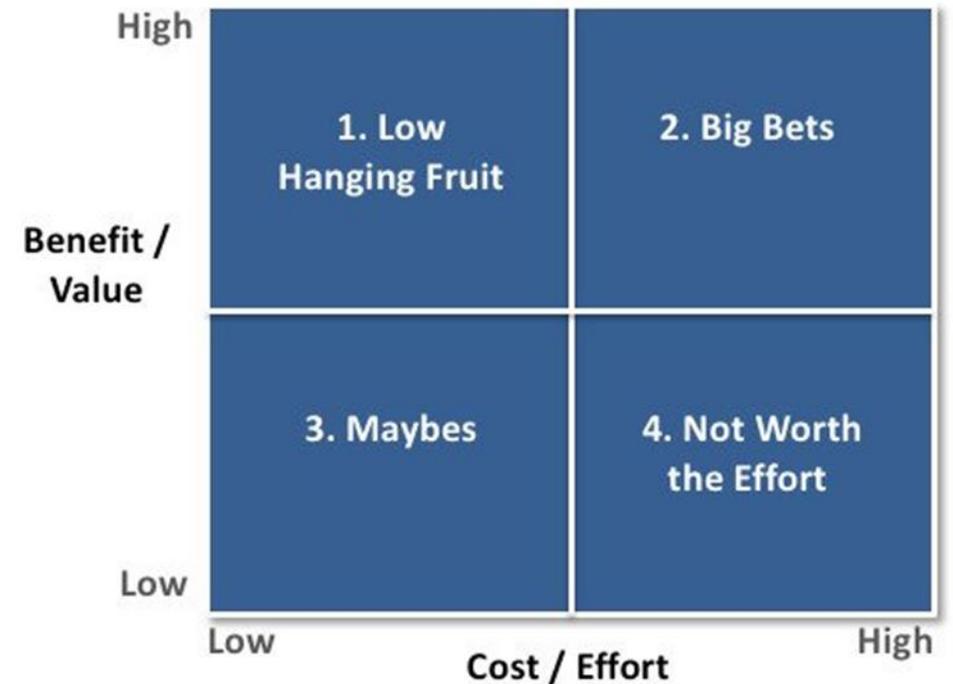
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PRIORITIZATION OF RATE STRATEGIES

- **Big Bets**
 - Capacity Incentives for flexible loads
 - Critical Peak Pricing
 - Customer control
 - Better for space conditioning
 - Direct Load Control
 - EVs required for load management
 - Thermal storage (water heaters)
 - Battery storage
 - 3rd party services
- **Not one silver bullet**
 - Many silver BB's

PRIORITIZATION MATRIX

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WRAP UP AND NEXT STEPS

WRAP-UP AND NEXT STEPS

- Summary of Break-Out Exercises
- Workshop #5 (Final)
 - Thursday, June 25 (On-line)
 - Incorporation of comments / workshop feedback
 - Presentation of report
 - Discussion of implications on PV policy, demand charges
- Beyond this Study
 - Bring rate design into regulatory processes
 - Integrated Resource Plans (2021)
 - Department Long Range Planning (2022)
 - Continue to build on momentum in collaborative manner