MASS-MARKET DER TARIFFS

OPTIONS FOR NEW YORK

APRIL 2019

New York State Public Service Commission

NEW YORK STATE OF OPPORTUNITY. NYSERDA

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TASK OVERVIEW

Goal Identify the key considerations to be used in analyzing and comparing the various rate design proposals, and narrow the range of rate design options to a smaller, representative sample to investigate further.

Project Tasks

- **Task 1 – Research, conceptualize, and document**
  - Review docket activity and analytics to date
  - Boil down all the information presented in the rate design working group
- **Task 2 – Evaluate rate designs and program structures**
  - Consider metering, market understanding, and data issues
- **Task 3 – Obtain direct stakeholder feedback**
  - Present initial findings to Working Group
- **Task 4 – Develop next steps**
  - Identify near and mid-terms action items

ANALYTICAL APPROACH TO RATE OPTIONS

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THE OPTIONS

1. Joint Utilities time-of-use with demand charges (as filed) (“JU TOU Demand”)
2. Joint Utilities with summer focused demand charge (as filed) (“JU 2 Demand”)
3. Clean Energy Parties TOU (as modified by Staff) (“CEP TOU Vol”)
4. Alternative TOU (as requested by Staff) without demand charges (based on Joint Utilities’ demand rate proposals) (“Alt TOU Vol”)
5. Sensitivity: Alternative TOU with reduced customer charge (“Alt TOU Vol (Alt CC)”)
6. Sensitivity: Joint Utilities with reduced demand charges (“TOU Demand & Vol”)
7. Sensitivity: Clean Energy Parties’ TOU with reduced customer charge (“CEP TOU Vol (Alt CC)”)

GUIDANCE

- **Cost causation**: Rates should reflect cost causation, including embedded costs as well as long-run marginal and future costs. Fixed charges should only be used to recover costs that do not vary with demand or energy usage.
- **Encourage outcomes**: Rates should encourage desired market and policy outcomes including energy efficiency and peak load reduction, improved grid resilience and flexibility, and reduced environmental impacts in a technology neutral manner.
- **Policy transparency**: Incentives should be explicit and transparent, and should support state policy goals.
- **Decision-making**: Rates should encourage economically efficient and market-enabled decision-making, for both operations and new investments, in a technology neutral manner.
- **Fair value**: Customers should pay the utility fair value for services provided by grid connection, and the utility should pay customers fair value for services provided by the customer.
- **Customer-orientation**: The customer experience should be practical, understandable, and promote customer choice.
- **Stability**: Customer bills should be relatively stable even if underlying rates include dynamic and sophisticated price signals.
- **Access**: Customers with low- and moderate-incomes or who may be vulnerable to losing service for other reasons should have access to energy efficiency and other mechanisms that ensure they have electricity at an affordable cost.
- **Gradualism**: Changes to rate design formulas and rate design calibrations should not cause large abrupt increases in customer bills or delivery rate impacts.
- **Economic sustainability**: Rate design should reflect a long-term approach to price signals and the ability to build markets independent of any particular technology or investment cycle.

Track Two Order, Appendix A.

GUIDANCE

Take into account:

- Integrating REV objectives with rate design principles; a time-variable rate should support customer response as well as representing efficient cost recovery;
- Potential consequences for: customers participating in DER (both “active” and “prosumer”); non-participants (“traditional” customers); low-income customers; and utility financial risk as it relates to cost recovery; and
- Prerequisites to implementation, e.g., advanced metering; valuation of DER; outreach and education; and enabling technologies.

Track Two Order, pp. 123-124.

ANALYTICS

- E3 performed analysis of the rate design proposals to examine the cost shift issue. The analysis consisted of two components: (1) customer bill savings, (2) avoided costs and cost shift.

1. The **bill savings** calculation estimated the savings from a customer bill under the new rate design after installing solar, compared to a counterfactual customer bill under existing rates before installing solar. The bill savings were analyzed by component (e.g., fixed charges, supply charges, delivery charges, and other surcharges).

2. **Avoided costs** were used to estimate the "**cost shift**" (or "revenue shift," i.e. the impact on non-participant bills), calculated as the difference between customer bill savings from adopting solar vs. the utility avoided costs.
   - Installed Capacity (ICAP), carbon compliance (monetized via Regional Greenhouse Gas Initiative (RGGI) and avoided Renewable Energy Credit (REC) purchases, and a 'D' value calculated using each utility's Demand Reduction Value (DRV) rates under the Value Stack.
   - E3's analysis compares calculated bill savings and forecast avoided costs for a single snapshot year, 2020

THE VALUE GAP - RESIDENTIAL

DRV Case Cost-shift: Residential

	National Grid	NYSEG	RGE	Central Hudson	O&R	Con Ed
Cost-Shift: Cents/kWh	4.1	3.5	4.2	8.1	8.5	9.4
$/year 6 kW PV system	$262	$227	$270	$524	$551	$606
$/month 6 kW PV system	$22	$19	$23	$44	$46	$50
$/kW DC	$ 3.63	$ 3.16	$ 3.75	$ 7.28	$ 7.66	$ 8.41

Source: E3 and Navigant – First year savings including DRV, 6 kW system with a 12.27% capacity factor.

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THE VALUE GAP - COMMERCIAL

DRV Case Cost-shift: Commercial

	National Grid	NYSEG	RGE	Central Hudson	O&R	Con Ed
Cost-Shift: Cents/kWh	4.8	4.2	3.6	4.8	5.2	11.3
$/year 6 kW PV system	$311	$268	$233	$310	$333	$729
$/month 6 kW PV system	$26	$22	$19	$26	$28	$61
$/kW DC	$ 4.32	$ 3.72	$ 3.23	$ 4.30	$ 4.62	$ 10.13

Source: E3 and Navigant – First year savings including DRV, 6 kW system with a 12.27% capacity factor.

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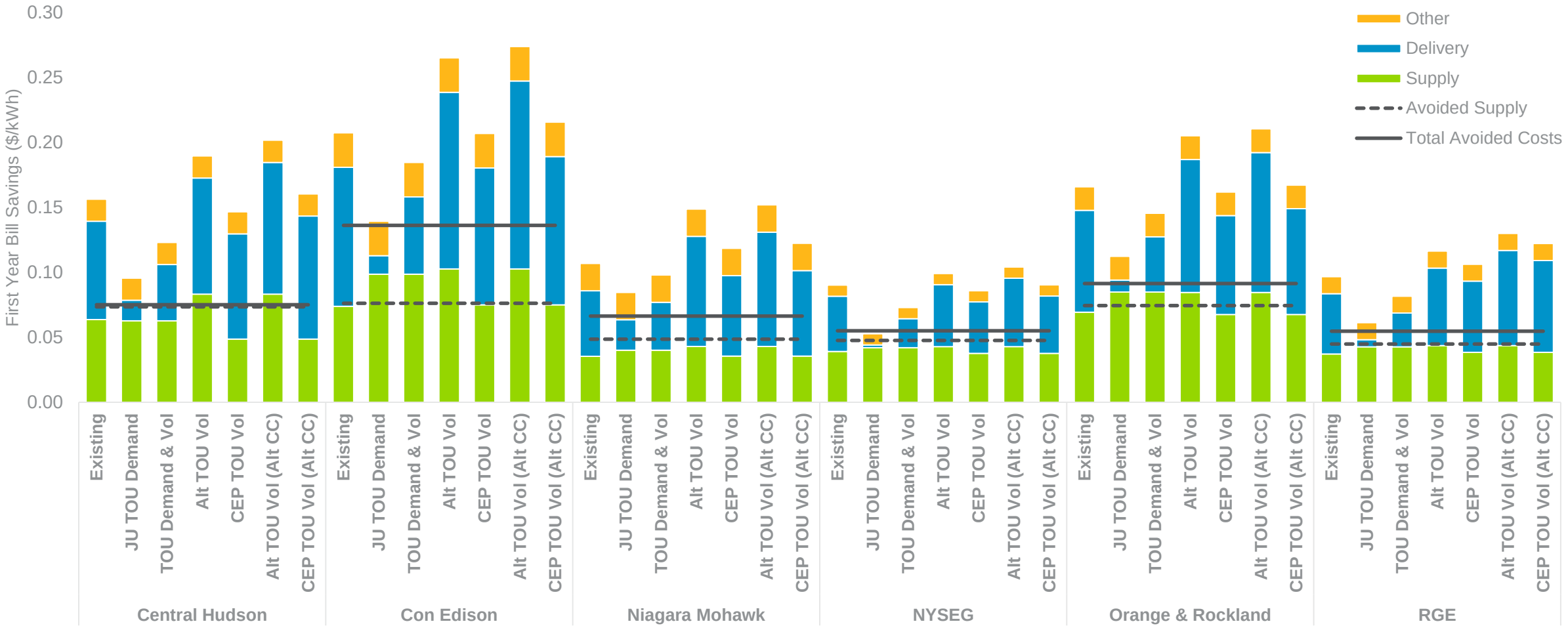
FIRST-YEAR BILL SAVINGS BY COMPONENT: RESIDENTIAL



Source: E3

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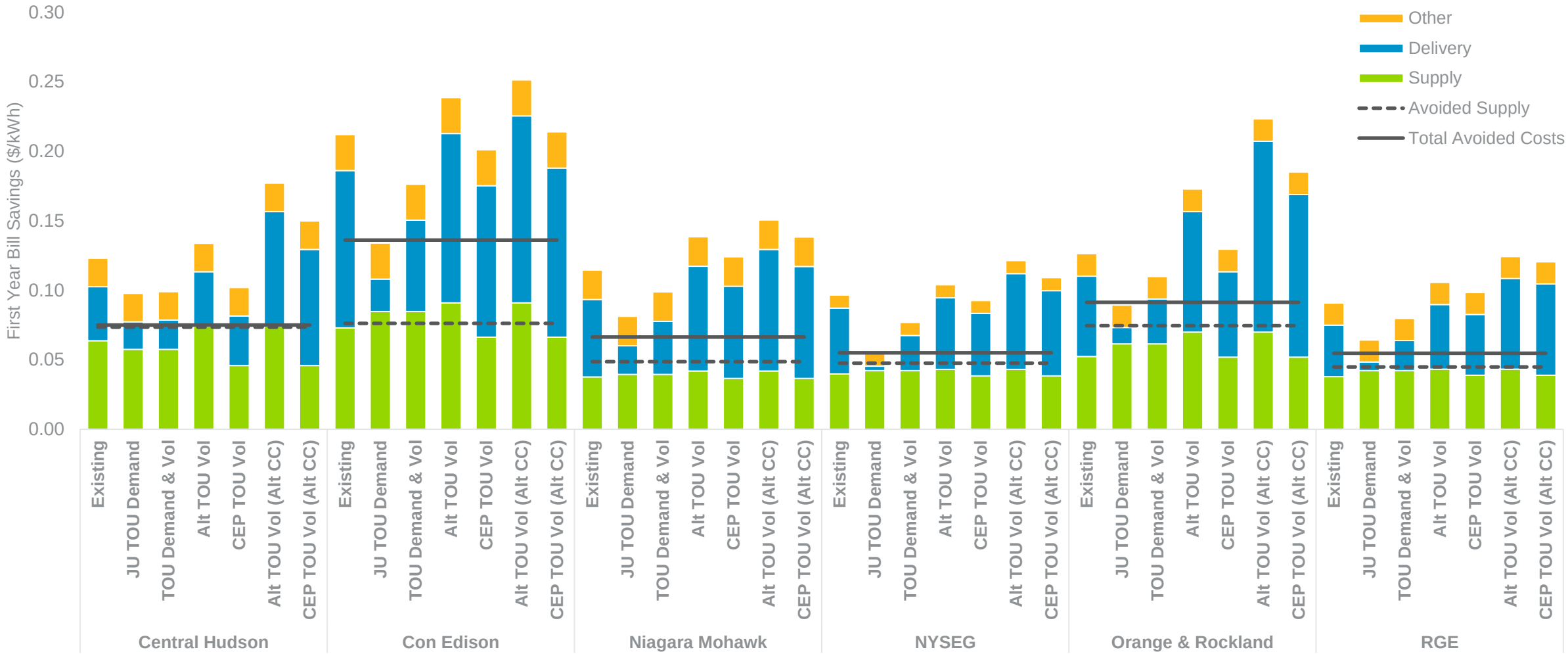
FIRST-YEAR BILL SAVINGS BY COMPONENT: SMALL COMMERCIAL



Source: E3

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PUBLIC BENEFIT PROGRAMS

Included in the gap between compensation and system value are the costs of public benefit programs

1. Utility Low Income Program
2. Utility Energy Efficiency Program
3. Clean Energy Fund
4. NY-Sun
5. New York Green Bank
6. Clean Energy Standard (CES)

FINDINGS

A customer installing 6 kW solar PV system avoids contributing the following to these various programs each month:

	Central Hudson	Con Edison	National Grid	NYSEG	O&R	RG&E
Residential ($/month)	$5.53	$6.54	$5.72	$4.15	$5.56	$5.05
Small Commercial ($/month)	$5.03	$6.60	$6.07	$4.34	$5.54	$5.00
$/kW DC			**~$1/kW**			

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RATE STRUCTURES AND CASE STUDIES

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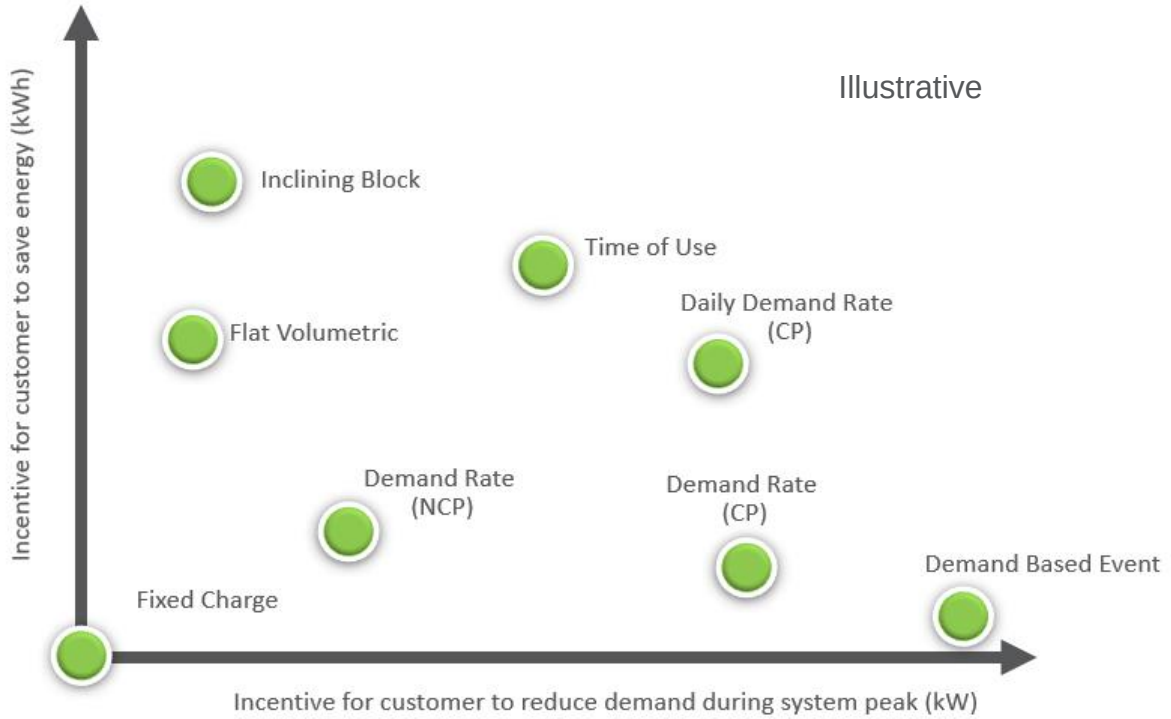
KEY TAKEAWAYS

1. Many of the rate options actually **increase** the gap between avoided cost and compensation.
2. JU demand based rates were the most closely aligned to avoided costs.
3. The CEP TOU Vol rate has the closest compensation to today's existing rates.
4. There is some misalignment around avoided supply costs for a few rates

IMPORTANT CONSIDERATIONS

- **Technology applicability –** Which technologies are spurred or hindered by different price signals within the rate?
- **State Goals** – How is cost causation and economic sustainability balanced with gradualism and customer orientation (i.e., that the customer experience be practical, understandable, and promote customer choice)?
- **Data** – Is there adequate data availability for residential and small commercial customers?



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A CASE FOR BRIDGE RATES?

- Many states that have sought to gain more data and balance economic sustainability with gradualism have pursued interim options
  - California
  - Arizona for APS
  - Hawaii

- Given the pending roll outs of Advanced Metering Infrastructure (AMI) and the current lack of historical interval data for residential and small commercial customers, more time may be needed to unlock the full suite of rate designs envisioned by the Track Two Order.

- More sophisticated mass market rates can be rolled out on an opt-in basis as soon as they are ready.

CASE STUDIES

	Interim Rate	Jurisdiction	
1	**Volumetric TOU rate with consideration for public benefit funds**	California	
2	**$/kW DC monthly fee to close the value gap (some public benefit fund capture)**	Arizona	
3	**Volumetric TOU rate and grid supply option**	Hawaii	

NEAR-TERM OPTIONS

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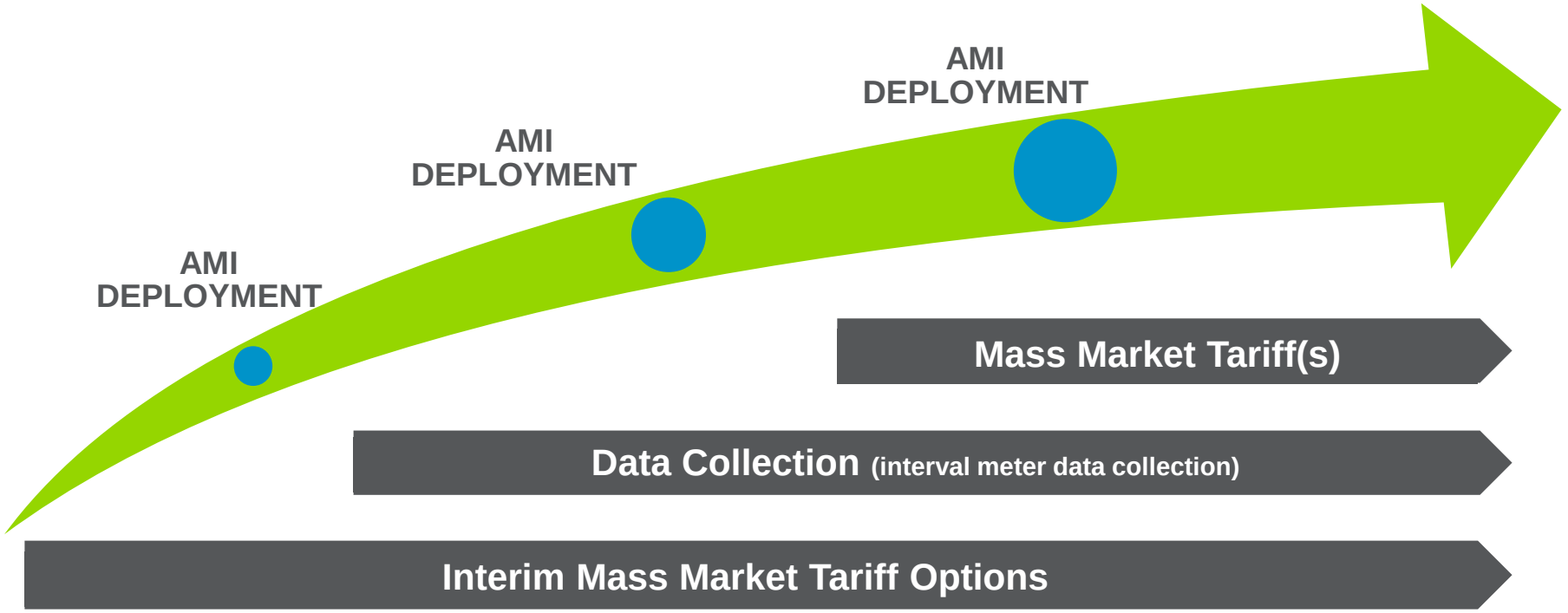
SEQUENCE TO ADVANCED SUCCESSOR RATES



BRIDGE OPTIONS – ALL OF THE ABOVE

1. Standard rates with public benefit fund recovery

- Start to reduce the value gap and fairly recover public benefit costs

2. Volumetric TOU Rate

- Start the transition to more accurate price signals

3. Value Stack

GETTING TO THE FUTURE MASS MARKET RATE

1. Narrow down future mass market tariff options that align with state policy
2. Define future mass market tariff rate(s)

EVALUATION FRAMEWORK

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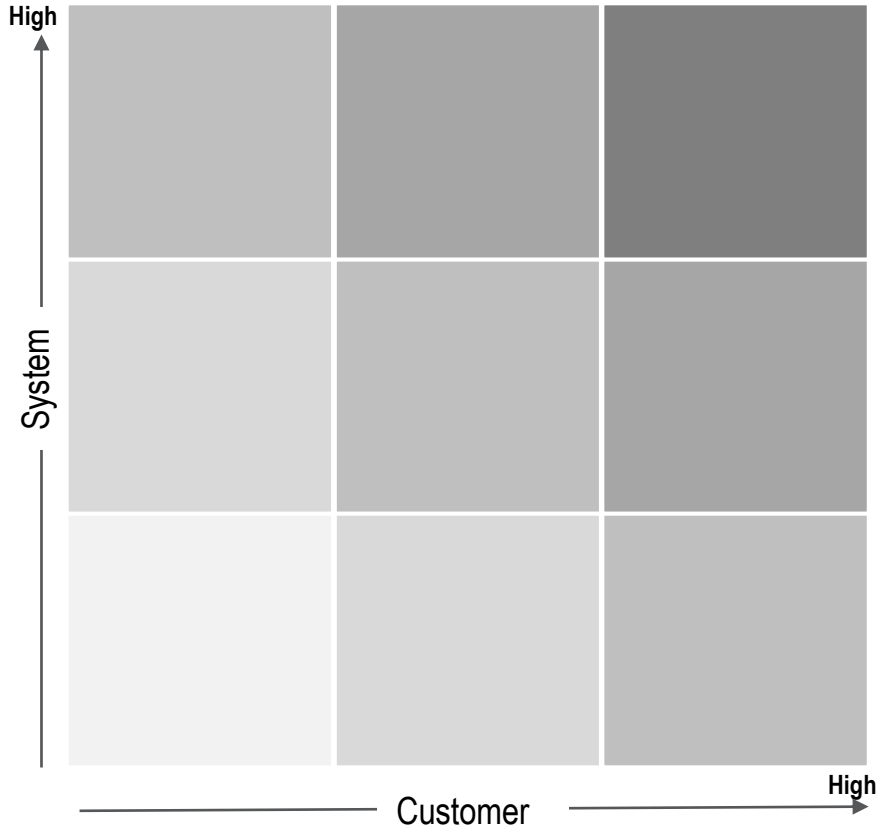
PRIORITIZATION FRAMEWORK



- ***Applicability***
- ***Economic scalability***
- ***Speed to implement***

- ***Gradualism***
- ***Simplicity***
- ***Ability to save***

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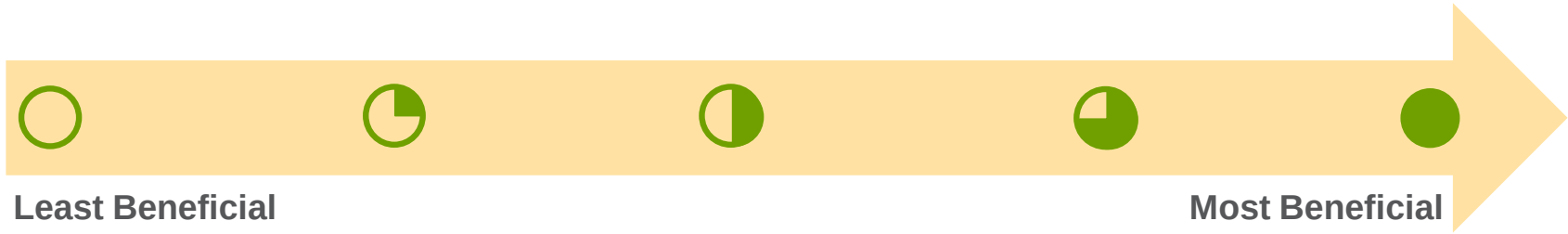
PRIORITIZATION FRAMEWORK OVERVIEW

	System Alignment			Participant Customer		
Title	**Applicability**	**Economic Scalability**	**Speed to Implement**	**Gradualism**	**Simplicity**	**Ability to save**
Descrip.	*Applicability to future technology*	*Level of linkage between system costs (marginal & embedded) and pricing*	*Estimated time frame to design, plan, and launch*	*Degree of value and structure change for rooftop solar from current rates*	*Level of effort and education needed by the customer*	*Number of ways to save on the bill*
High	Applies to all technology groups	Accurate price signals that avoid long run cost shifts while maintaining necessary grid investment	Less than 6-12 months	Strong similarity to pricing today	Limited efforts required	Reduce, shift, stagger
Medium	Applies to some demand and volumetric technologies	Subdued price signals that mitigate long run cost shifts but still lead to grid under recovery	Between 12-18 months	Medium similarity to pricing today	Moderate efforts required	Reduce and shift
Low	Only applies to demand or volumetric technologies	Masked price signals that propagate long run cost shifts and grid under recovery	Greater than 24 months	Weak similarity to pricing today	Significant efforts required	Reduce

POLICY SCREEN

Rate	GHG Savings/$	Technology Enablement	Equitable Funding	Efficient use of System	More Clean DG
Rate 1	●	◔	◑	◕	○
Rate 2	◑	●	○	●	◔
Rate 3	◕	◔	○	◑	●



NEXT STEPS

1. Working Group Meeting, May 23, 2019
2. Staff Whitepaper on Rate Design for Mass Market Net Metering Successor Tariff released

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Thank You

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