MI POWER GRID

Making the Most of Michigan's Energy Future

Energy Programs & Technology Pilots

Stakeholder Meeting 5

The meeting will begin shortly at 1:32 pm to allow people to join.

May 28, 2020

1:30-4:00 PM

MPSC

Michigan Public Service Commission

MI POWER GRID

Making the Most of Michigan's Energy Future

Welcome and Overview

Joy Wang
wangj3@Michigan.gov
MPSC Staff
Smart Grid Section

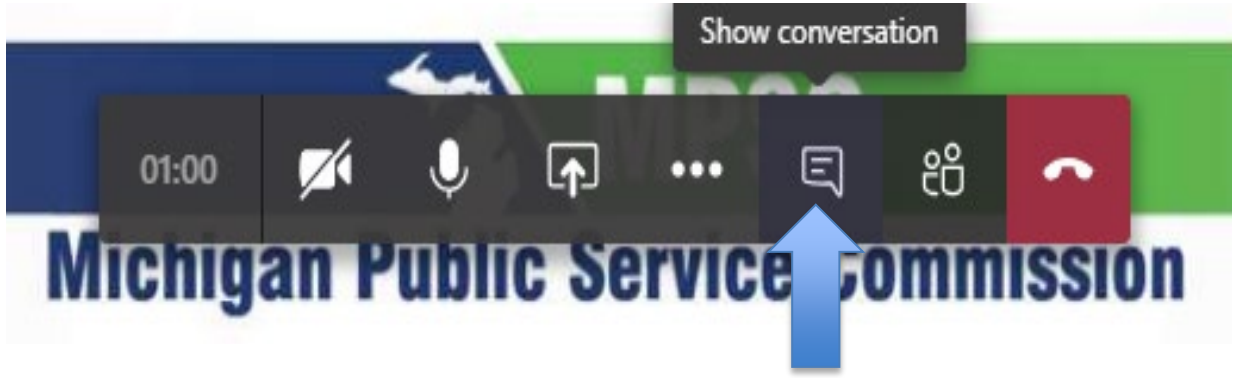
MPSC
Michigan Public Service Commission

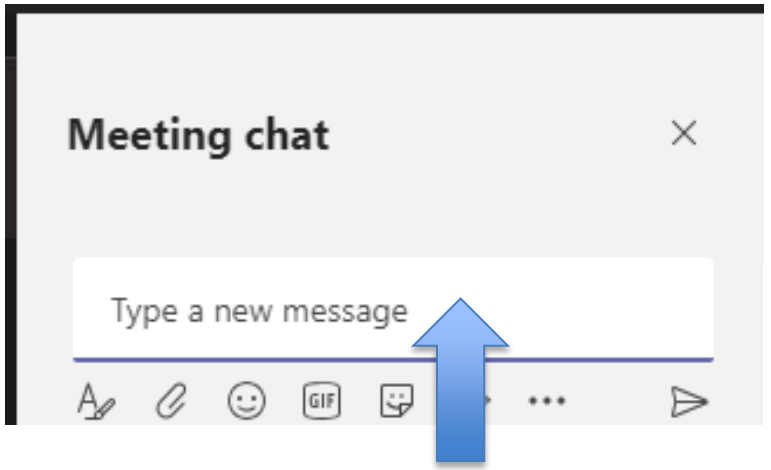
Agenda

1:30 p.m.	Welcome & Overview of Last Meeting	Joy Wang (MPSC Staff)
1:35 p.m.	Panel: Reflections on Pilot Best Practices, Recommendations, and Path Forward	Panelists: Ryan Kiley (Consumers) Camilo Serna (DTE) Laura Sherman (MiEIBC) Wayne Snyder (NextEnergy) Andrew Williamson (I&M) Moderator: MPSC Staff
2:35 p.m.	Break	
2:45 p.m.	Making Pilot Data Publicly Available: Experiences and Opportunities	Peter Cappers (Lawrence Berkeley National Lab)
3:15 p.m.	MPSC EWR Pilot Annual Report Review	Karen Gould (MPSC Staff)
3:45 p.m.	Unintended Consequences of not Aligning Metrics with Program Goals	Lekha Sridhar and Christy Lewis (WattTime)
3:55 p.m.	Closing Statements	Joy Wang, MPSC Staff
4:00 p.m.	Adjourn	

Housekeeping

- This meeting is being recorded
- Recording and slides posted on workgroup website in about a week
- All audience members will be muted
- Please type questions into the chat box
  - To access chat box:





- Staff will ask chat box questions during Q&A

Housekeeping, cont.

- During the panel discussion, if clarification of your question is needed, we will ask you to unmute.
  - To unmute:
    - Phone: Press *6
    - Teams: Click mic button
  - Please mute yourself again after your clarification.
- Chat box notes when audience member enter/exit.
  - These notices are automatic:

- If Teams via web browser is not working, try a different web browser. Some browsers that may work are:
  - Google Chrome, Internet Explorer, and Mozilla Firefox

Overview of May 14 Meeting

- Seven presentations
  - Tom Stanton (NRRI)
    - Facilitating Utility and Regulatory Innovation: Implementing Hubs, Links, Sandboxes, and More
  - Douglas Jester (5 Lakes Energy)
    - Agility, Prudence, and the Commission's Approach to Pilot Projects
  - Consumers:
    - Emily McGraw: Bring Your Own Device Pilot
    - Heather Prentice: Manufactured Gas Plan Remediation
  - DTE:
    - Keegan Farrell: Smart Currents, Dynamic Peak Pricing Pilot
    - Richard Mueller: O'Shea Battery Storage Projects
  - I&M:
    - Jon Walter: Plug Loads

Overview of May 14 Meeting, cont.

- Presentation topics covered:
  - Summary of what others are doing to facilitate utility and regulatory innovation
    - Sandboxes, hubs, links, etc.
  - Ideas on how to balance agility and prudence
  - Understanding of pilots and their evolution
    - Learnings available regardless of whether pilots go to full-scale
    - Difficulties that arise in pilot process

Overview of May 14 Meeting, cont.

- Panel: Agility and Accountability
  - Ryan Kiley (Consumers Energy)
  - Camilo Serna (DTE)
  - Andrew Williamson (I&M)

- Panel takeaways
  - Agility means:
    - Shorter cycle for problem identification and pilot initiation
    - Allows changes based on scope, scale, and purpose of pilot and without repetition
    - Clear regulatory framework with comprehensive view of pilots
  - Accountability focuses on:
    - Reasonableness of the approach rather than successful approach
      - Defining goals and objectives
      - Explaining decisions and providing information

Overview of May 14 Meeting, cont.

- Panel takeaways, continued:
  - Some needs:
    - Agility and speed
    - Clear objectives for pilots from regulators and lawmakers
    - Clear regulatory process and ability to use it on timely basis
    - Funding clarity

- Recording and presentation slides available at workgroup website

Timeline Update

- Previous timeline:
  - Stakeholder meetings, in-person
    - February 27
    - March 19
    - April 16
  - Report due: June 30, 2020

- Updated timeline:
  - Stakeholder meetings:
    - Past: Feb. 27 (in-person), April 16, April 30, May 14,
    - Current: May 28
    - Future: June 11, June 25 (tentative)
  - Report due: September 30, 2020
    - Commission order in Case No U-20645 on May 19, 2020

Agenda

1:30 p.m.	Welcome & Overview of Last Meeting	Joy Wang (MPSC Staff)
1:35 p.m.	Panel: Reflections on Pilot Best Practices, Recommendations, and Path Forward	Panelists: Ryan Kiley (Consumers) Camilo Serna (DTE) Laura Sherman (MiEIBC) Wayne Snyder (NextEnergy) Andrew Williamson (I&M) Moderator: MPSC Staff
2:35 p.m.	Break	
2:45 p.m.	Making Pilot Data Publicly Available: Experiences and Opportunities	Peter Cappers (Lawrence Berkeley National Lab)
3:15 p.m.	MPSC EWR Pilot Annual Report Review	Karen Gould (MPSC Staff)
3:45 p.m.	Unintended Consequences of not Aligning Metrics with Program Goals	Lekha Sridhar and Christy Lewis (WattTime)
3:55 p.m.	Closing Statements	Joy Wang, MPSC Staff
4:00 p.m.	Adjourn	

MI POWER GRID

Making the Most of Michigan's Energy Future

Energy Programs & Technology Pilots

Panel: Reflections on Pilot Best Practices, Recommendations, and Path Forward

1:35 – 2:35 p.m.

Stakeholder Meeting 5

May 28, 2020

MPSC

Michigan Public Service Commission

MI POWER GRID

Making the Most of Michigan's Energy Future

Energy Programs & Technology Pilots

Break: 2:35 - 2:45 PM

Stakeholder Meeting 5

May 28, 2020

MPSC

Michigan Public Service Commission

Making Pilot Data Publicly Available

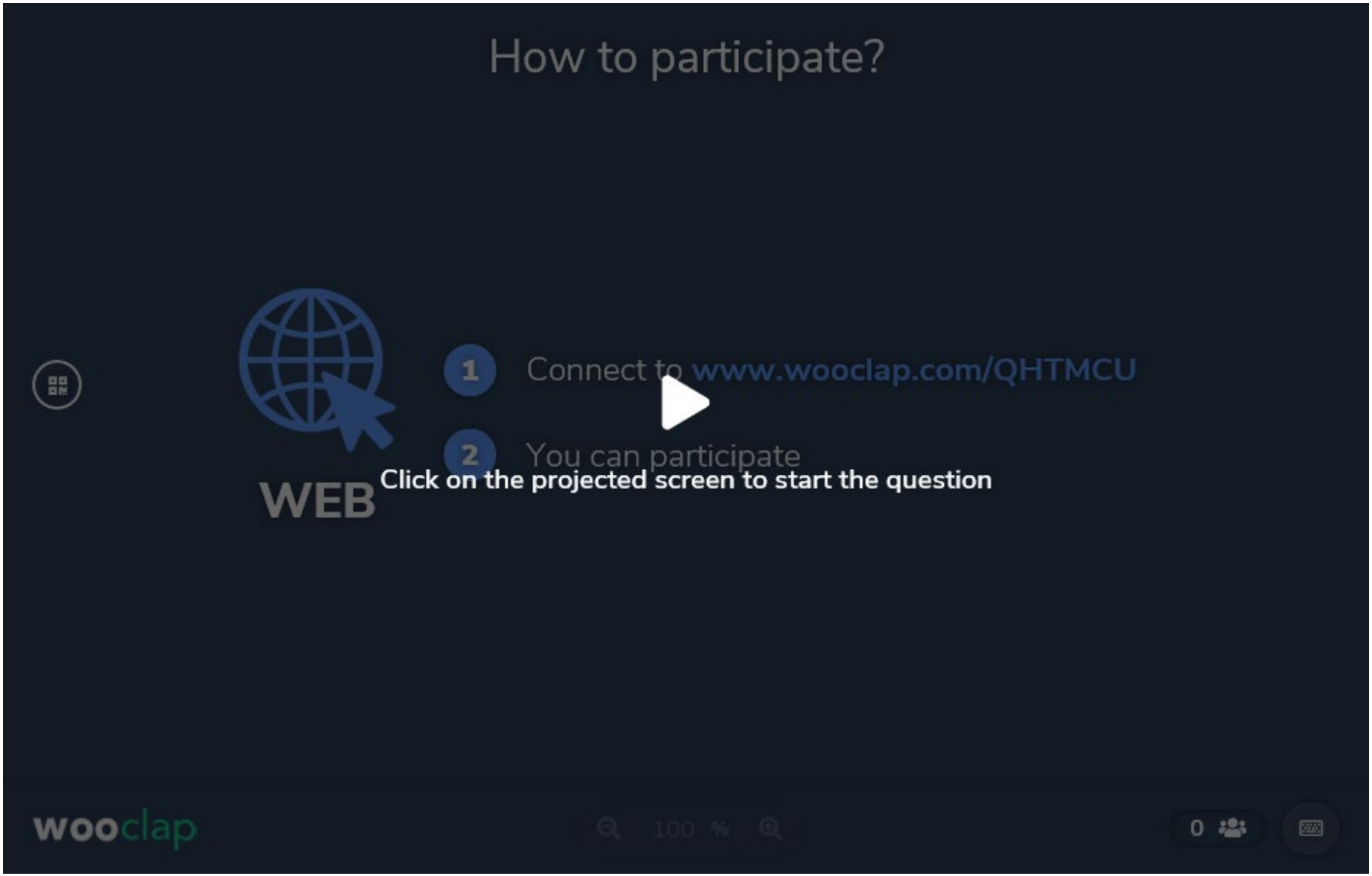
Experiences and Opportunities

Peter Cappers, LBNL

MI Power Grid Stakeholder Session: Energy Programs and Technology Pilots

May 28, 2020

How to actively participate in today's webinar?

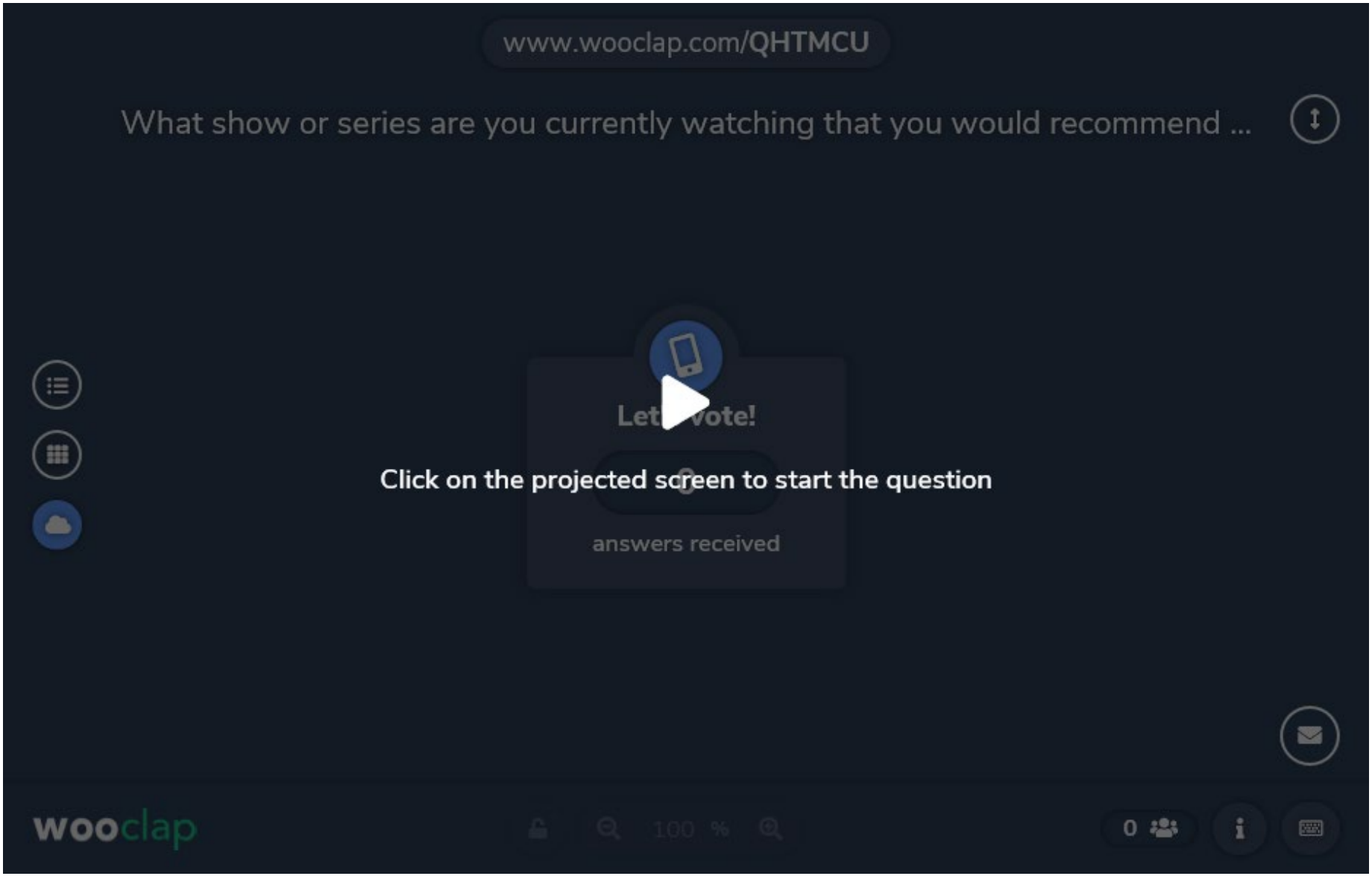


Hi!

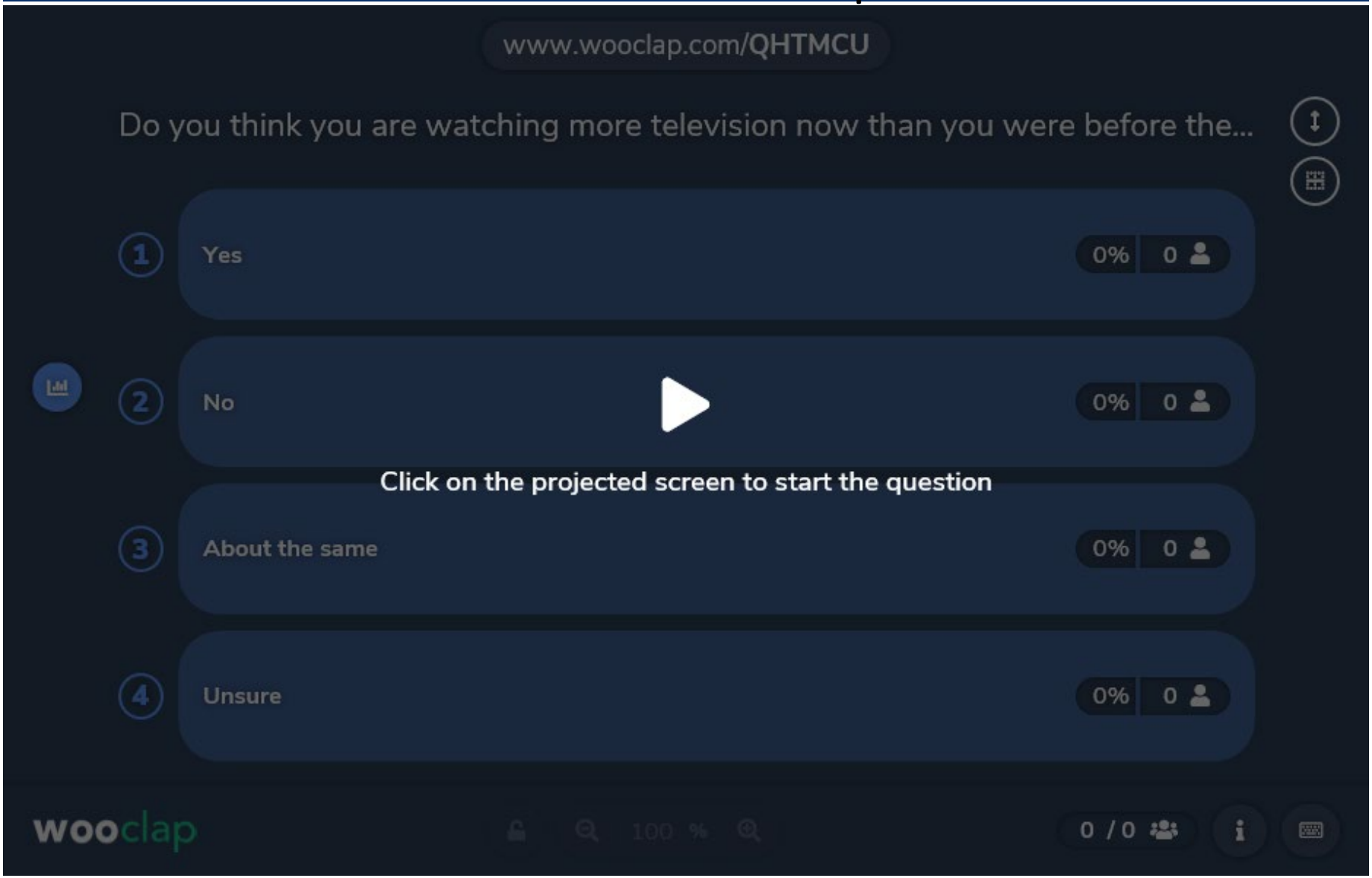
Let's test this out before we get started

www.wooclap.com/QHTMCU

What show or series are you currently watching that you would recommend to others?



Do you think you are watching more television now than you were before the COVID-19 pandemic?



Overview

- Background on SGIG Consumer Behavior Studies
- Benefits of Publicly Available Pilot Data
- Risks of Publicly Available Pilot Data
- Tale of Two Experiences:
  - SGIG Consumer Behavior Studies
  - California Energy Data Request Program

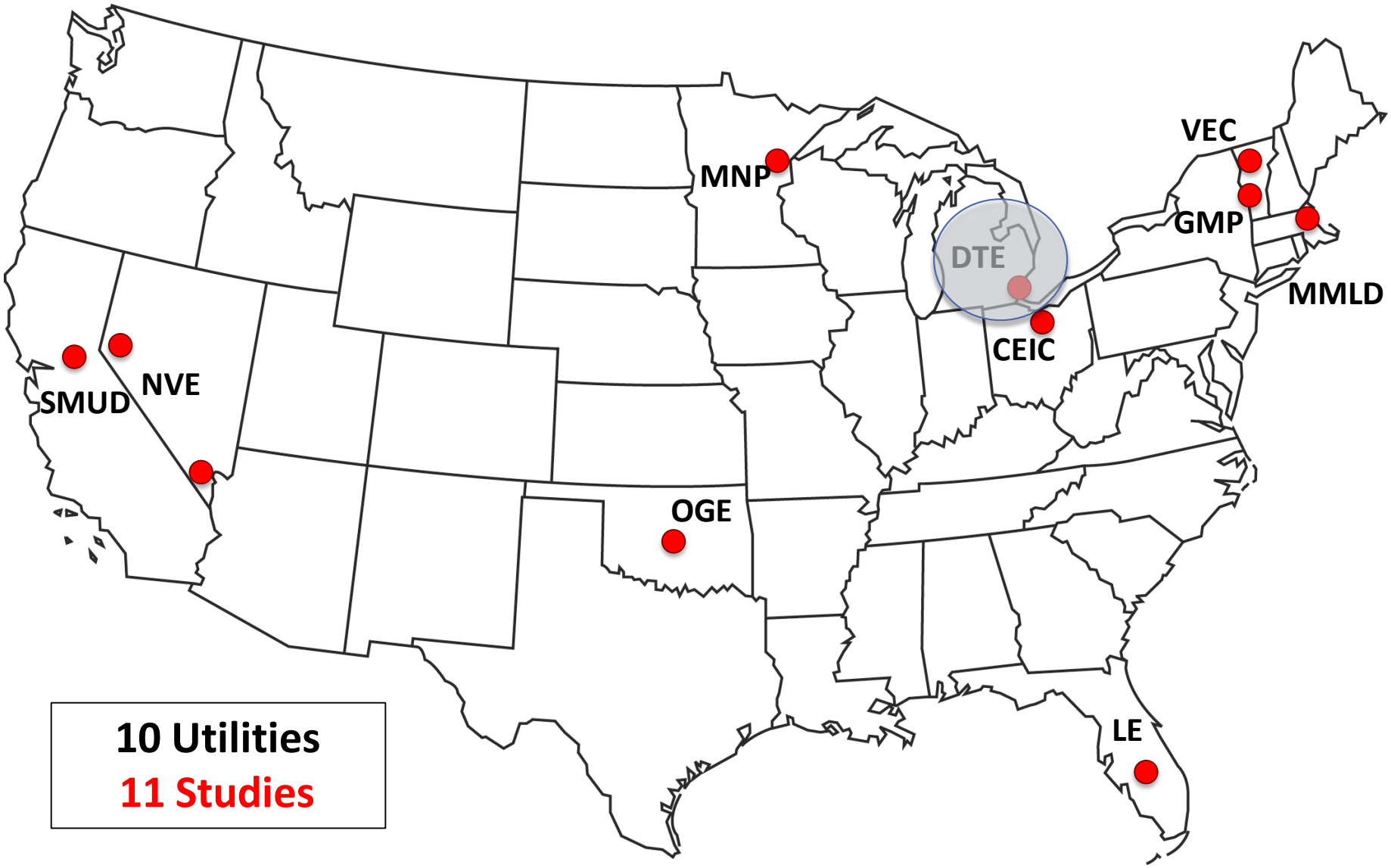
Overview

- Background on SGIG Consumer Behavior Studies
- Benefits of Public Available Pilot Data
- Risks of Publicly Available Pilot Data
- Tale of Two Experiences:
  - SGIG Consumer Behavior Studies
  - California Energy Data Request Program

DOE's Smart Grid Investment Grant (SGIG) Program Consumer Behavior Studies (2009-2015)

- Funding Opportunity Announcement (FOA) identified an interest in funding AMI projects that:
  - Focused on highly dynamic pricing tariffs (i.e., RTP, CPP)
  - Used random assignment of start date for customers to be exposed mandatorily to dynamic pricing as default rate design
  - Required customers to remain on such rates for at least two (2) years
  - Committed to deliver highly granular customer-level data for subsequent DOE cross-project research
- LBNL was the project manager providing support and oversight of the 11 utility pricing pilots that were undertaken to ensure, to the degree possible, all of these guidelines were adhered to

Utilities Participating in SGIG Consumer Behavior Studies



Overview of SGIG Consumer Behavior Studies

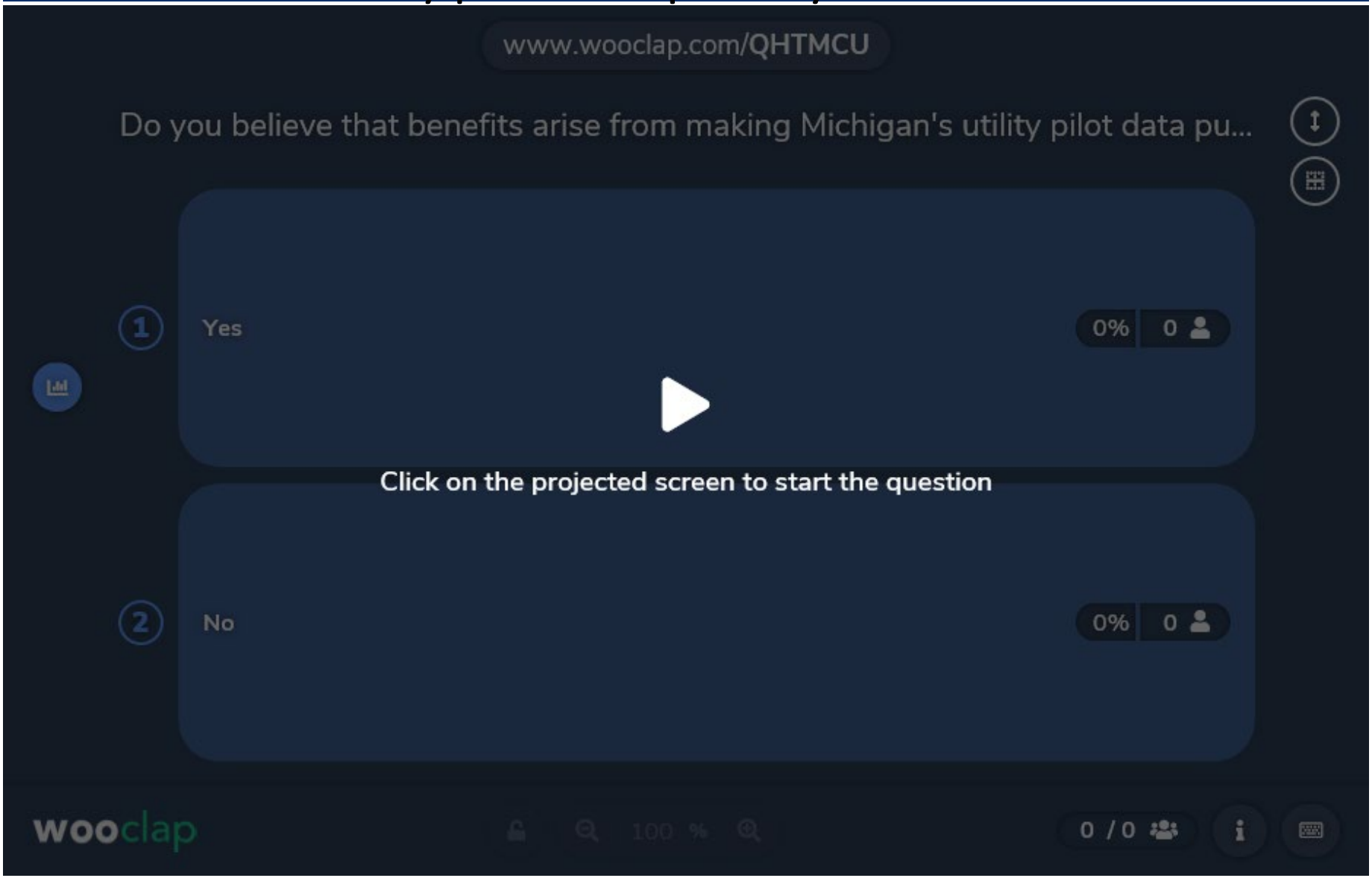
	CEIC	DTE	GMP	LE	MMLD	MP	NVE	OG&E	SMUD	VEC
Rate Treatments										
CPP		●	●		●	●	●	●	●	
TOU		●		●		●	●	●	●	
VPP								●		●
CPR	●		●							
Non-Rate Treatments										
IHD	●	●	●					●	●	
PCT	●	●					●	●		
Education							●			
Recruitment Approaches										
Opt-In	●	●	●	●	●	●	●	●	●	●
Opt-Out				●					●	

Utility Abbreviations: Cleveland Electric Illuminating Company (CEIC), DTE Energy (DTE), Green Mountain Power (GMP), Lakeland Electric (LE), Marblehead Municipal Light Department (MMLD), Minnesota Power (MP), NV Energy (NVE), Oklahoma Gas and Electric (OG&E), Sacramento Municipal Utility District (SMUD), Vermont Electric Cooperative (VEC)

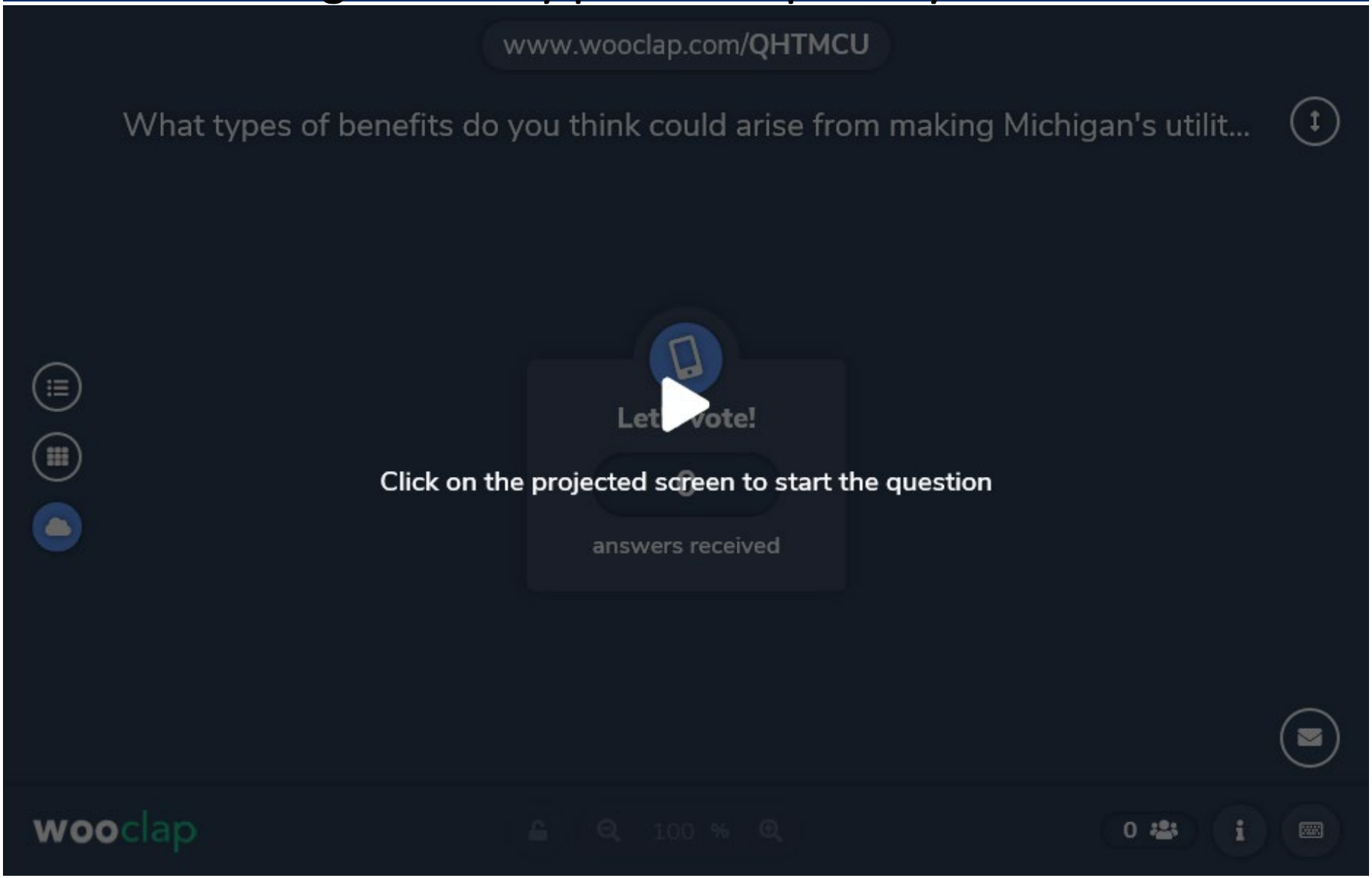
Overview

- Background on SGIG Consumer Behavior Studies
- Benefits of Publicly Available Pilot Data
- Risks of Publicly Available Pilot Data
- Tale of Two Experiences:
  - SGIG Consumer Behavior Studies
  - California Energy Data Request Program

Do you believe that benefits arise from making Michigan's utility pilot data publicly available?



What types of benefits do you think could arise from making Michigan's utility pilot data publicly available?



Pilot Evaluations Often Narrowly Focus on Issues Critical for the Utility to Move Forward

Customer Preferences

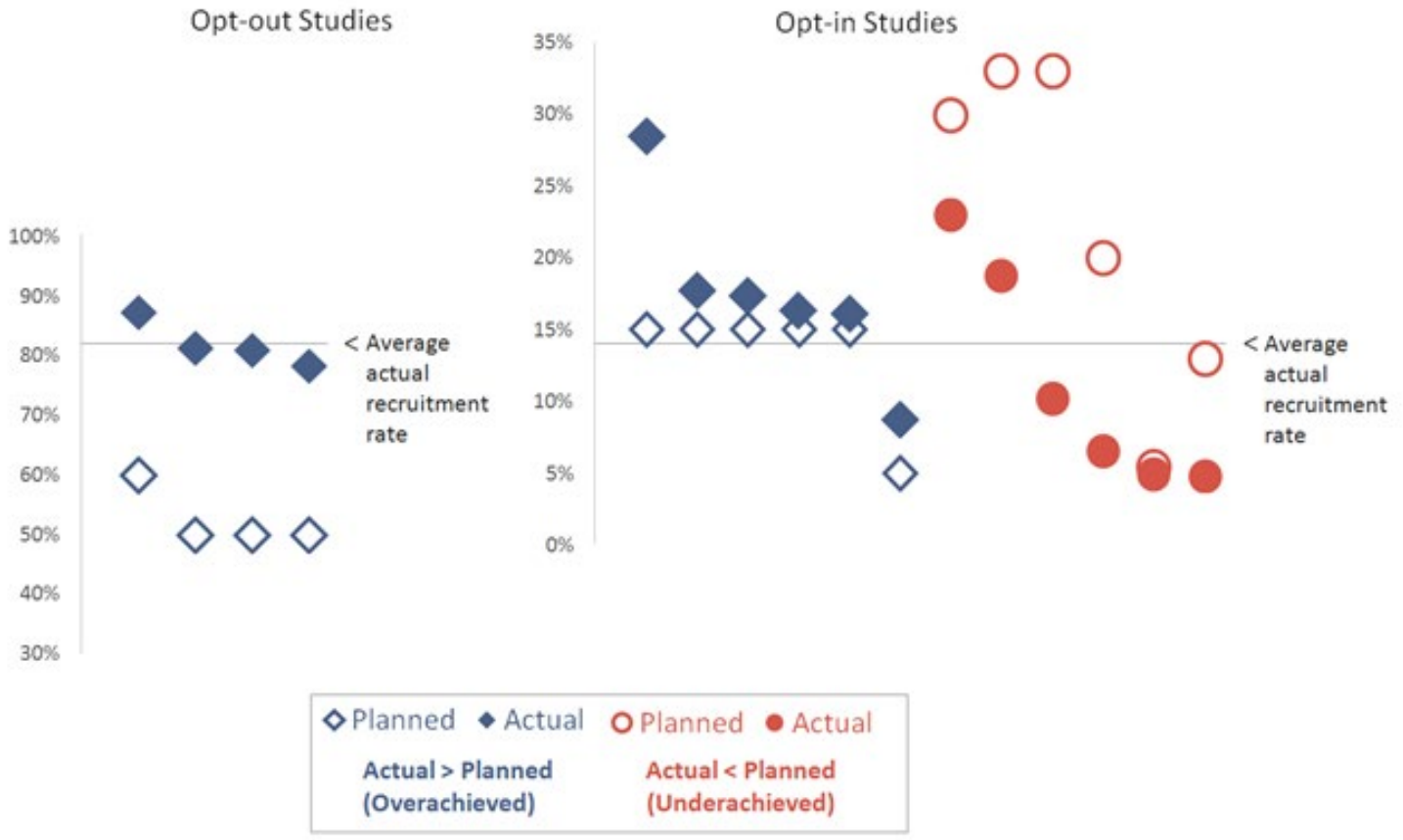
- Enrollment & retention metrics & motivations
- Experiences during the pilot
- Willingness to continue after the pilot ends

Customer Response

- Electricity usage impacts
- Activities undertaken to support response
- Bill impacts
- Experiences during the pilot

LBNL Analyses Afforded via Access to SGIG CBS Data

Utilities are not always very good at predicting enrollment rates

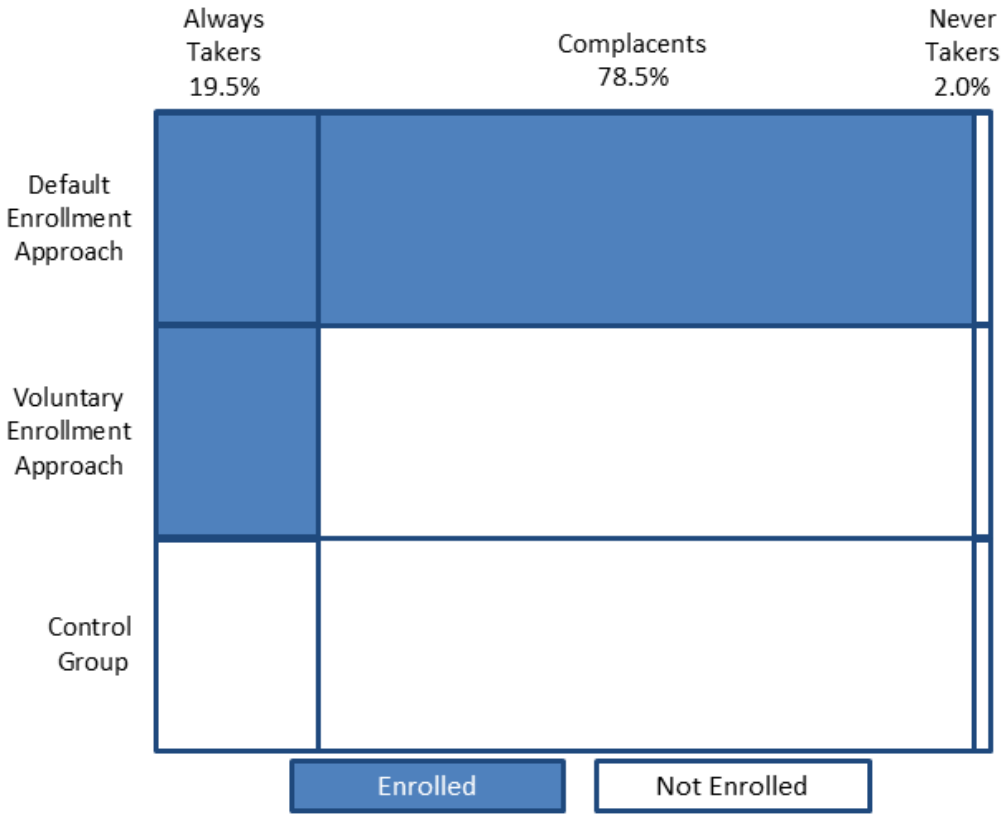


Source: Todd, A., Cappers, P. and Goldman, C. (2013) Residential Customer Enrollment in Time-Based Rate and Enabling Technology Programs: Smart Grid Investment Grant Consumer Behavior Study Analysis. Lawrence Berkeley National Laboratory, Berkeley, CA. June 2013. LBNL-6247E.

LBNL Analyses Afforded via Access to SGIG CBS Data

Experiences of *"Complacents"* Should Be the Focus When Contemplating Default vs. Voluntary Enrollment

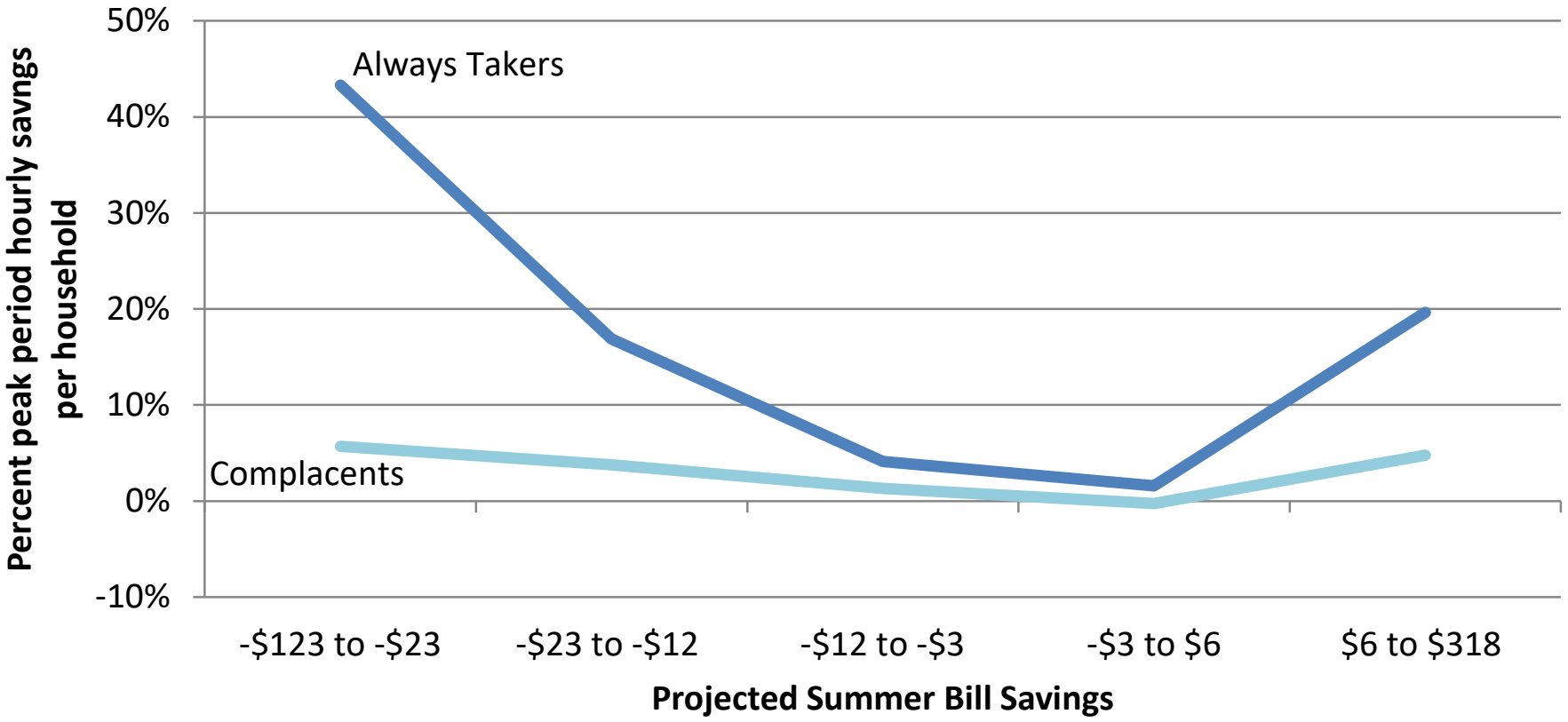
- Always Takers: The set of customers that would actively opt-in to a voluntary TOU offer and would not actively opt-out when TOU is the default
- Complacents: The set of customers who would not actively opt-in to a voluntary TOU offer, but would not actively opt-out when TOU is the default.
- Never Takers: The set of customers that would not actively opt-in to a voluntary TOU offer, and would actively opt-out when TOU is the default



Source: Cappers, P., Spurlock, C. A., Todd, A., Baylis, P., Fowlie, M. and Wolfram, C. (2016) Time-of-Use as a Default Rate for Residential Customers: Issues and Insights. Lawrence Berkeley National Laboratory, Berkeley, CA. June. LBNL-1005704.

LBNL Analyses Afforded via Access to SGIG CBS Data

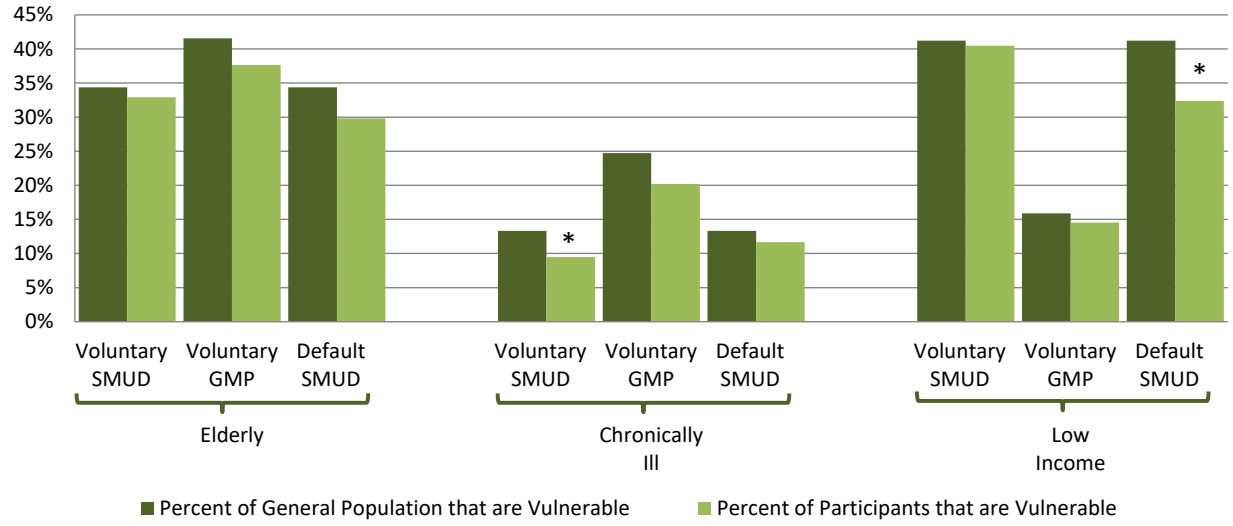
Large Predicted Bill Savings/Loss May Increase Desire & Willingness to Manage Electricity Usage More

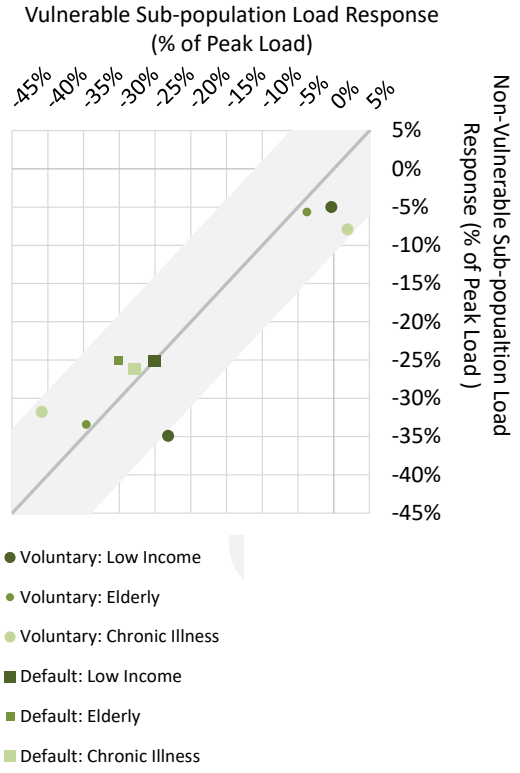


Source: Cappers, P., Spurlock, C. A., Todd, A., Baylis, P., Fowlie, M. and Wolfram, C. (2016) Time-of-Use as a Default Rate for Residential Customers: Issues and Insights. Lawrence Berkeley National Laboratory, Berkeley, CA. June. LBNL-1005704.

LBNL Analyses Afforded via Access to SGIG CBS Data

Acceptance and Load Response Experience of Elderly, Chronically Ill, and Low Income are Not that Different from their Non-Vulnerable Counterparts

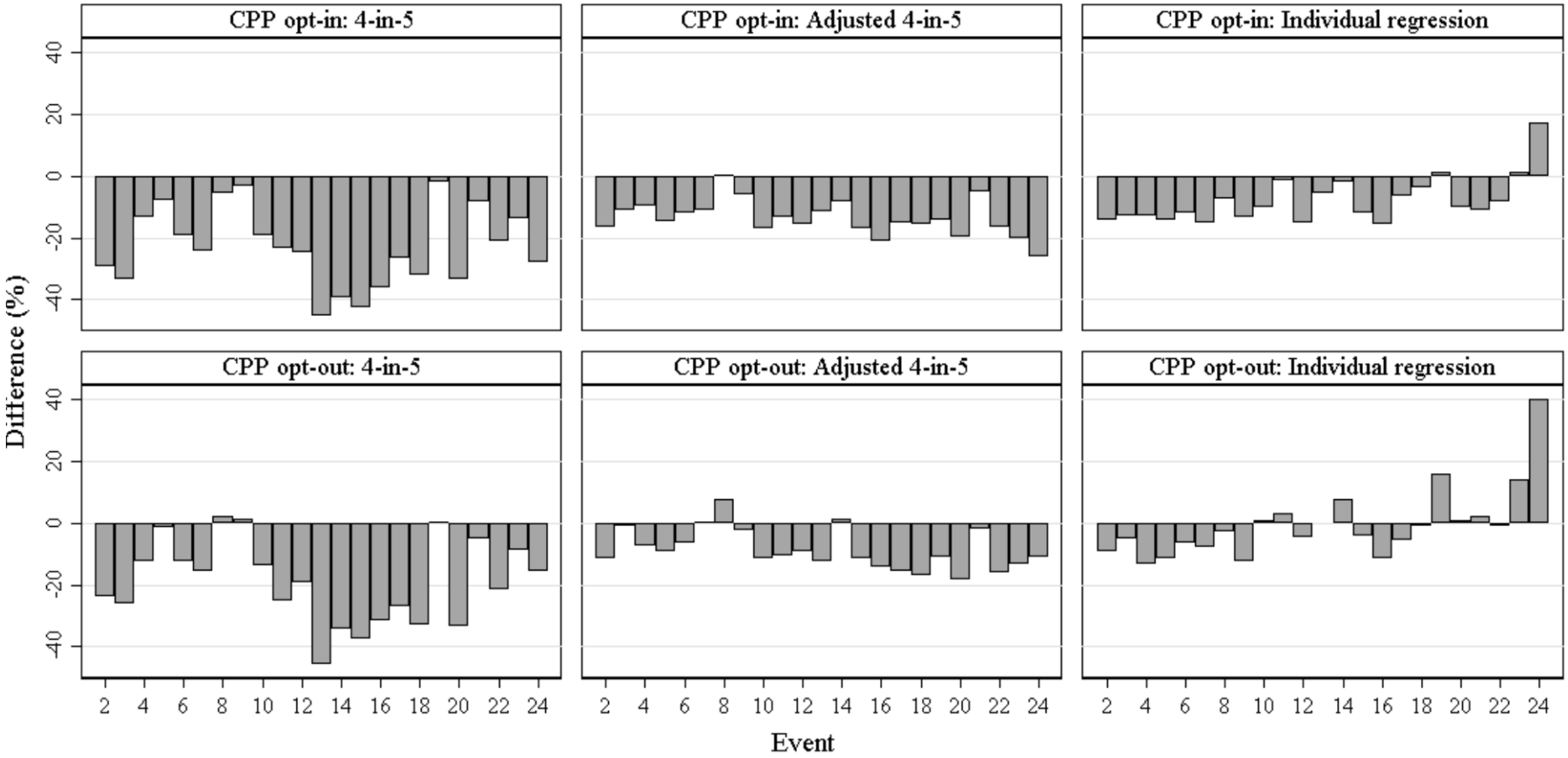




Source: Cappers, P., Spurlock, C. A., Todd, A. and Ling, J. (2018) Are Vulnerable Customers Any Different Than Their Peers When Exposed to Critical Peak Pricing: Evidence from the U.S. Energy Policy. 123(2018): 421-432.

LBNL Analyses Afforded via Access to SGIG CBS Data

Common baseline techniques introduce substantial inaccuracies into load impact estimates vis-à-vis experimental approaches



Source: Baylis, P., Cappers, P., Jin, L., Spurlock, A. and Todd, A. (2016). Go for the Silver? Evidence from Field Studies Quantifying the Difference in Evaluation Results between "Gold Standard" Randomized Controlled Trial Methods Versus Quasi-Experimental Methods. Presented at ACEEE Summer Study on Energy Efficiency in Buildings, Asilomar, CA. August 21-26, 2016.

LBNL Analyses Afforded via Access to SGIG CBS Data

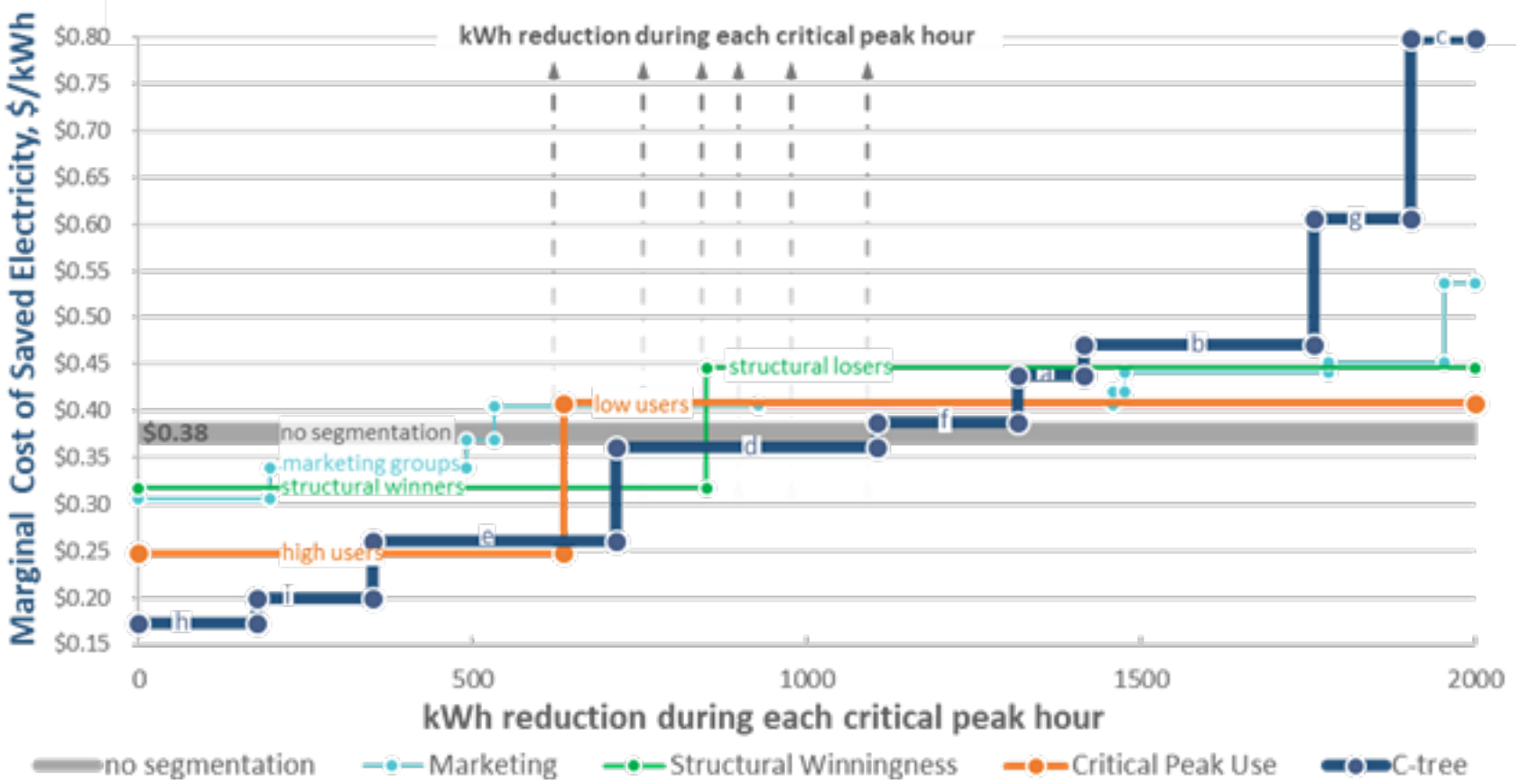
Inaccuracies in common baselines are largely due to spillover (i.e., changes in consumption at times not targeted by rate/program)

Bias from spillover and portion of total bias explained by spillover under voluntary CPP

Source: Todd, A., Cappers, P., Spurlock, A. and Ling, J. (2019) Spillover as a Cause of Bias in Baseline Evaluation Methods for Demand Response Programs. Applied Energy. 250(2019): 344-357.

LBNL Analyses Afforded via Access to SGIG CBS Data

Develop more sophisticated customer segmentation approaches that enable more cost-effective marketing efforts

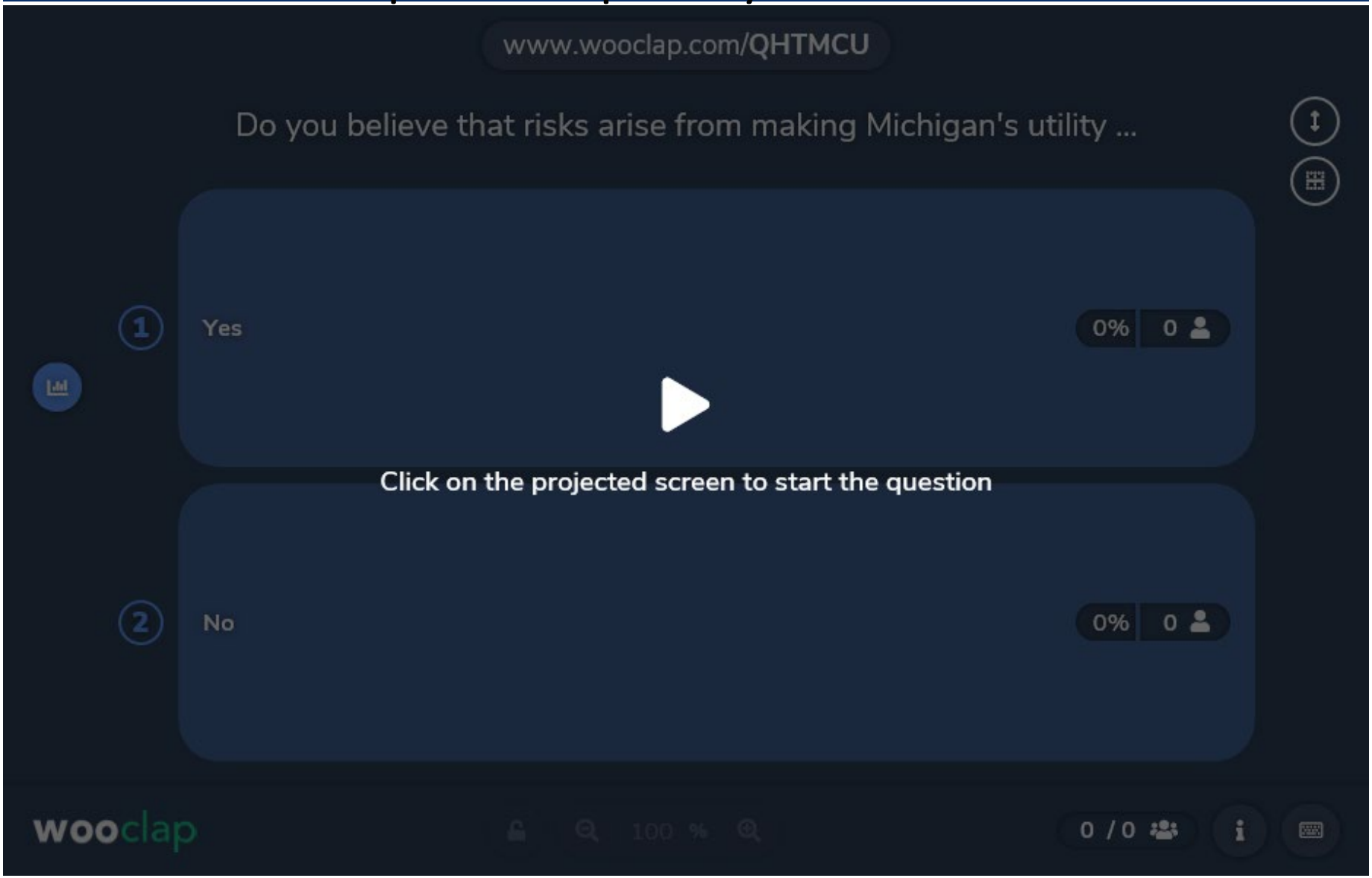


Source: Todd-Blick, A., Cappers, P., Spurlock, C. A., Jin, L., Borgeson, S., Fredman, D. and Zuboy, J. (Forthcoming) Winners Are Not Keepers: Characterizing Household Engagement, Gains, and Energy Patterns in Demand Response Using Machine Learning in the United States. Energy Research & Social Science.

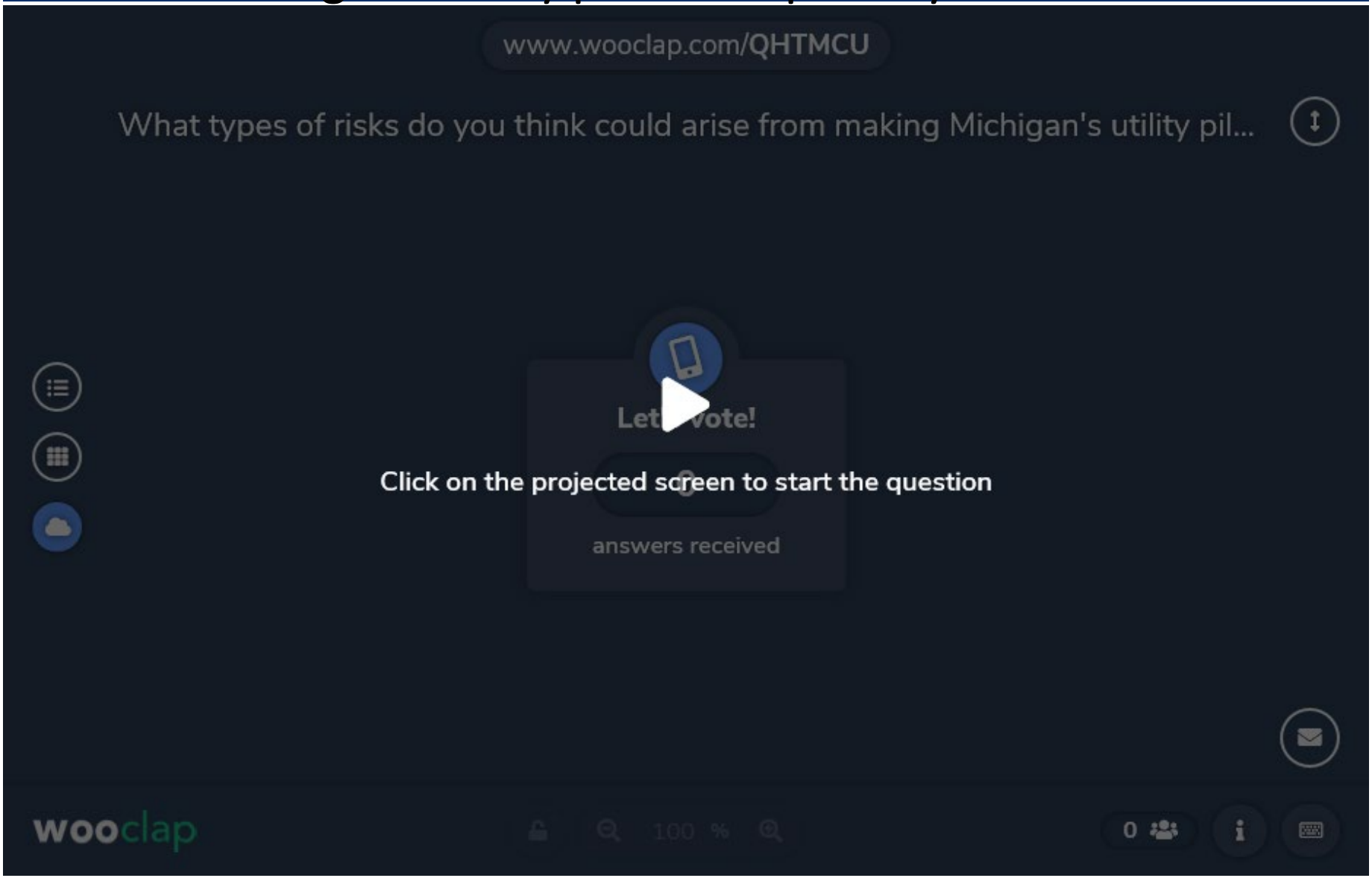
Overview

- Background on SGIG Consumer Behavior Studies
- Benefits of Publicly Available Pilot Data
- Risks of Publicly Available Pilot Data
- Tale of Two Experiences:
  - SGIG Consumer Behavior Studies
  - California Energy Data Request Program

Do you believe that risks arise from making Michigan's utility pilot data publicly available?



What types of risks do you think could arise from making Michigan's utility pilot data publicly available?



Risks: Purpose for Wanting Access

Analysis

- Competing versions of the “truth”
- Analysis results reflect poorly on utility and/its customers
- Analysis results undercut previous decisions

Monetization

- Use data to develop and pursue new commercial opportunities that do not benefit consumers and/or may harm consumers
- Resell data for profit

Risks: Confidentiality and Privacy

Derive PII

- Reverse engineered using this and other data sources

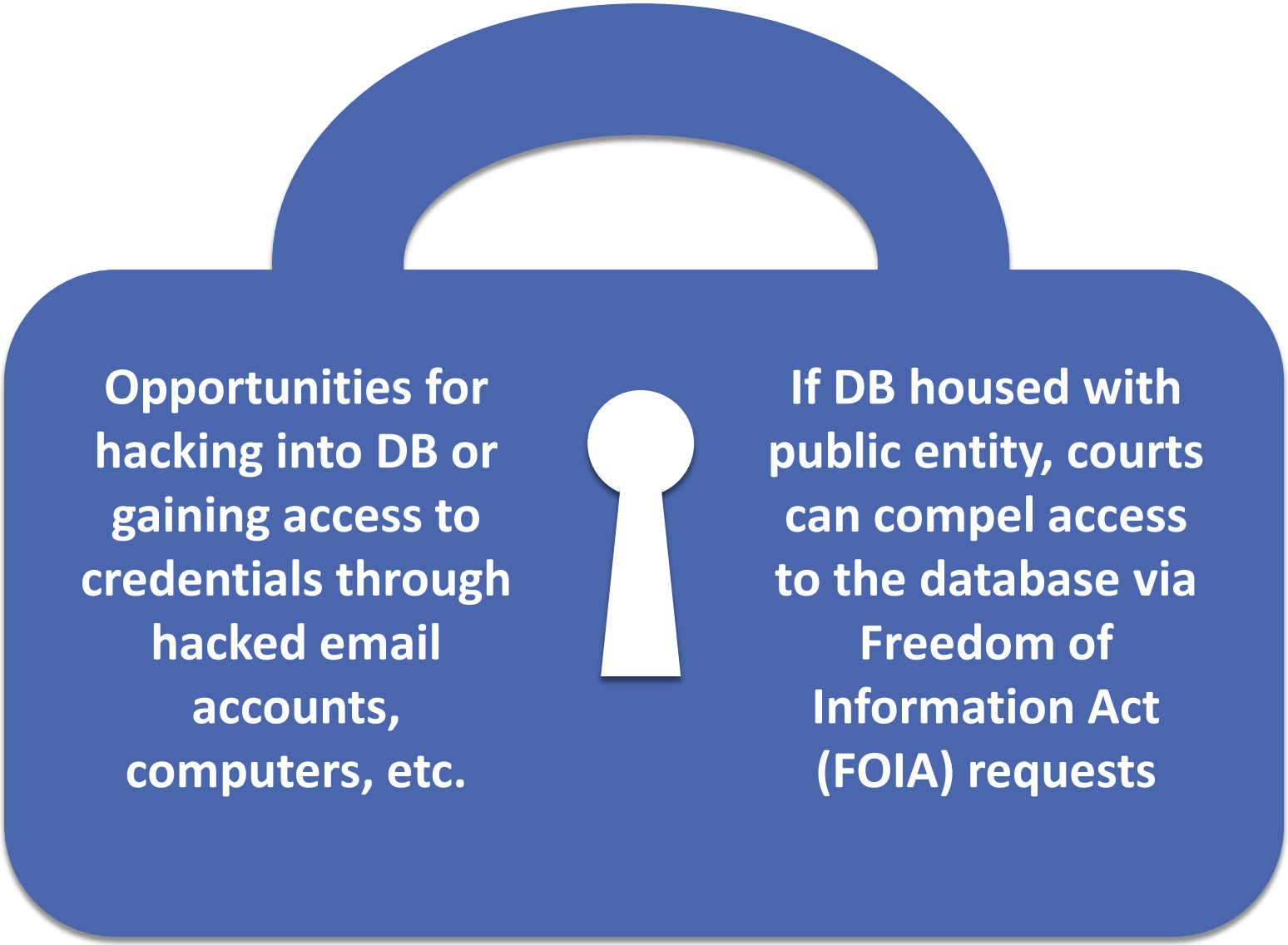
T&C for release

- Restrictions on who can access and use the data
- Restrictions on how the data can be used

Consent for release

- Opt-in vs. Opt-out
- Timing for when consent is sought

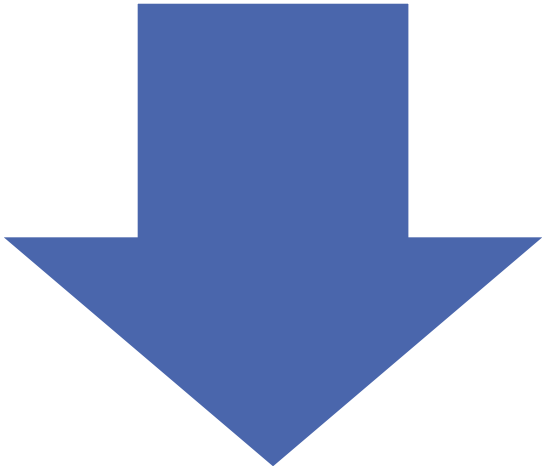
Risks: Protection



Decisions for Managing These Risks

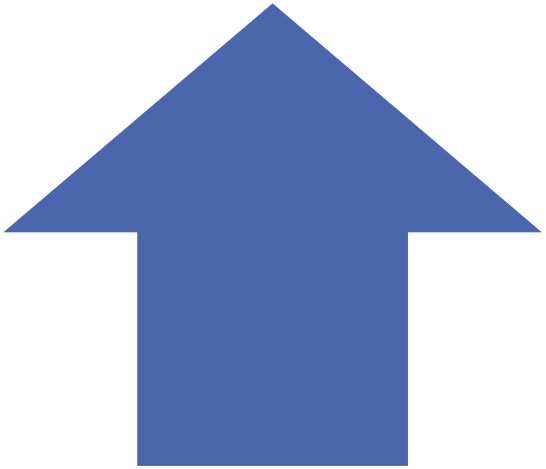
- Who stores and manages the data?
- Who develops and administers the process for determining who can access the data?
- Does the entity(ies)/organization(s) responsible for managing and/or administering the database get compensated for doing so?
- Who sets the standards for and provides oversight of confidentiality, privacy, and protection?

SGIG Experience



Lots of interest by Federal entities and academics in gaining access to datasets in their entirety

Lots of pushback from participating utilities about the myriad risks with little to no benefit for them



LBNL Efforts to Manage Identified Risks

- Commissioned a study to determine the minimum level of geographic data granularity and/or what data elements need to be restricted/redacted to ensure probability was acceptably low for someone to reverse engineer a customer's address
- Developed a Data Access Policy
- Addressed concerns related to Human Subjects restrictions
- Identified FOIA exemptions that could be used to limit legal exposure
- Sought additional funds and long-term commitment from DOE to support the creation and administration of this database

Overview

- Background on SGIG Consumer Behavior Studies
- Benefits of Publicly Available Pilot Data
- Risks of Publicly Available Pilot Data
- Tale of Two Experiences:
  - SGIG Consumer Behavior Studies
  - California Energy Data Request Program

Conclusion on Publicly Available SGIG CBS Database

- All told, it took 17 months to determine that it was **not going to be feasible** to have an accessible database with all of the data and desired level of detail for subsequent analysis (i.e., aggregating customer meter data would undermine the ability to leverage the experimental designs)
- Unable to convince some/many of the utilities that the risk from FOIA was now small enough to warrant them voluntarily providing data
  - Some said they would only send a subset of what was being asked for, which was often times the most important data for evaluation (e.g., customer meter data)
  - DOE was reticent about issuing threats or commencing legal action to receive the full datasets
- Ultimately, **LBNL** committed that it would be the **only entity accessing the data** and would allow **utilities full review rights** for all published works

Overview

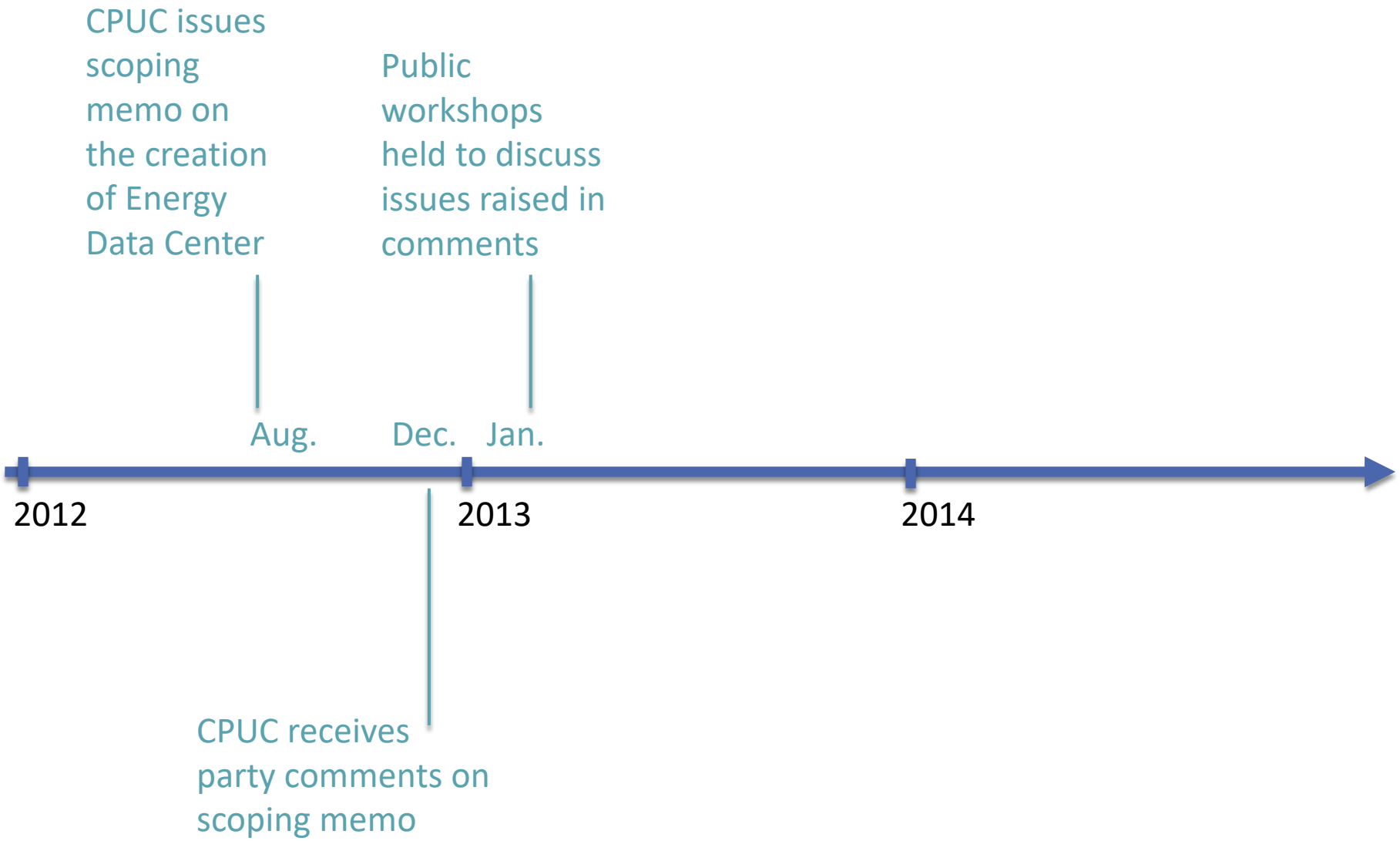
- Background on SGIG Consumer Behavior Studies
- Benefits of Publicly Available Pilot Data
- Risks of Publicly Available Pilot Data
- Tale of Two Experiences:
  - SGIG Consumer Behavior Studies
  - California Energy Data Request Program

Issues that CPUC Sought to Address

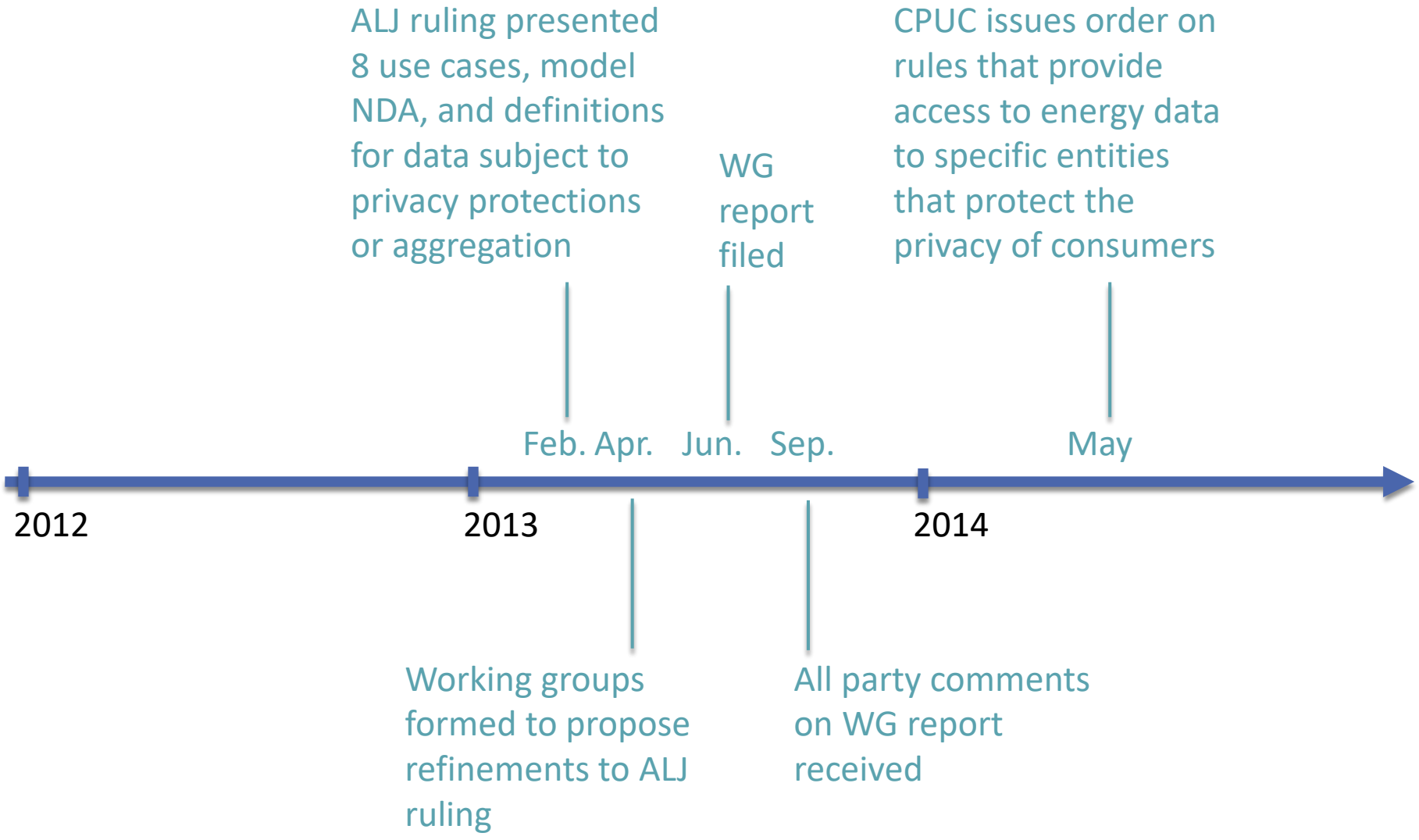
"Can access to usage data be made available in an efficient and streamlined fashion to those with needs for data while still protecting the privacy of consumers?"
CPUC Decision 14-05-016

- Identify use cases
- Establish rules guiding provision of data, addressing liability issues, and addressing privacy issues
- Develop definitions of "aggregated data" and "anonymized data"
- Establish rules for data access and model NDAs
- Explore issues related to an Energy Data Center

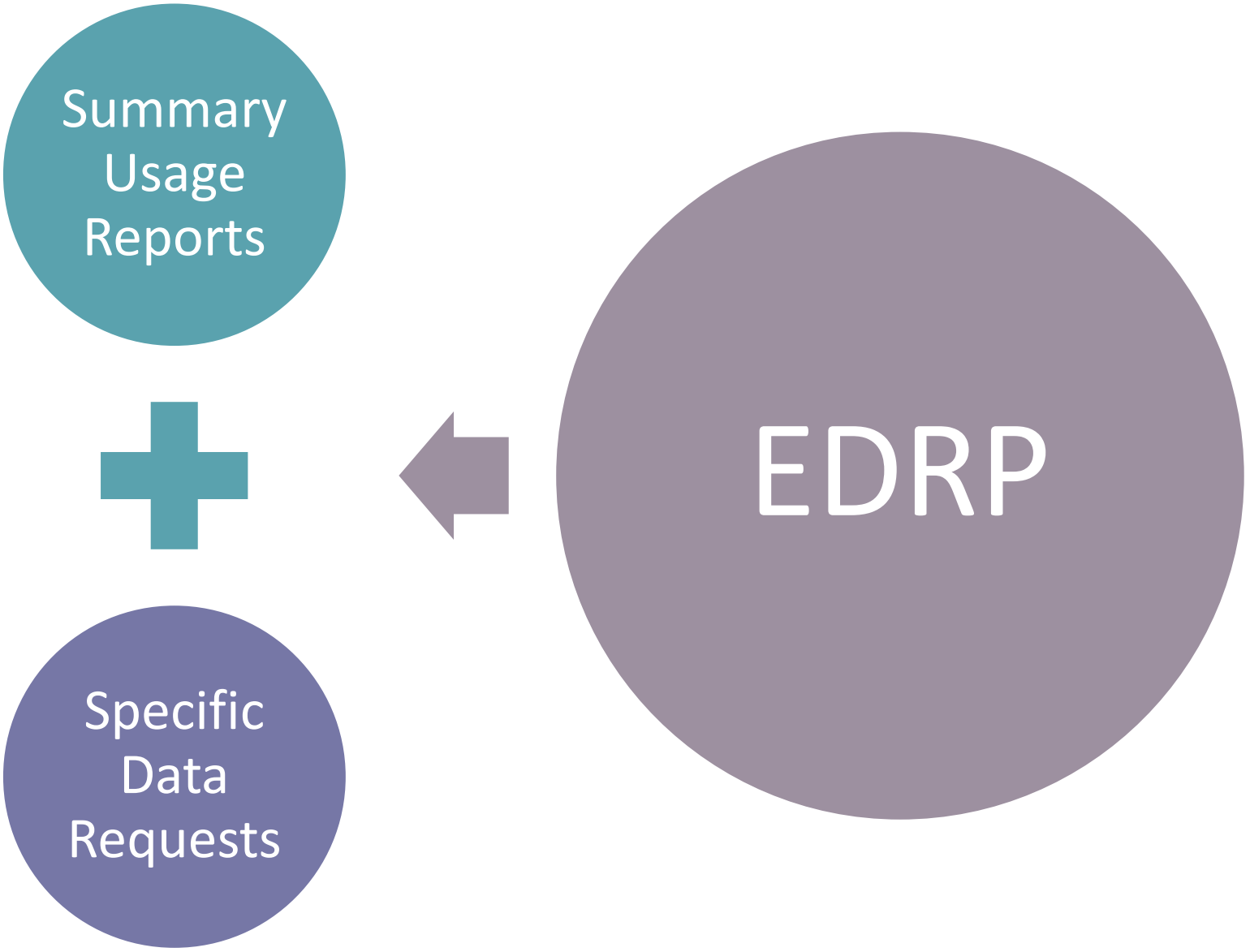
California's Energy Data Request Program



California's Energy Data Request Program



EDRP: Data Types



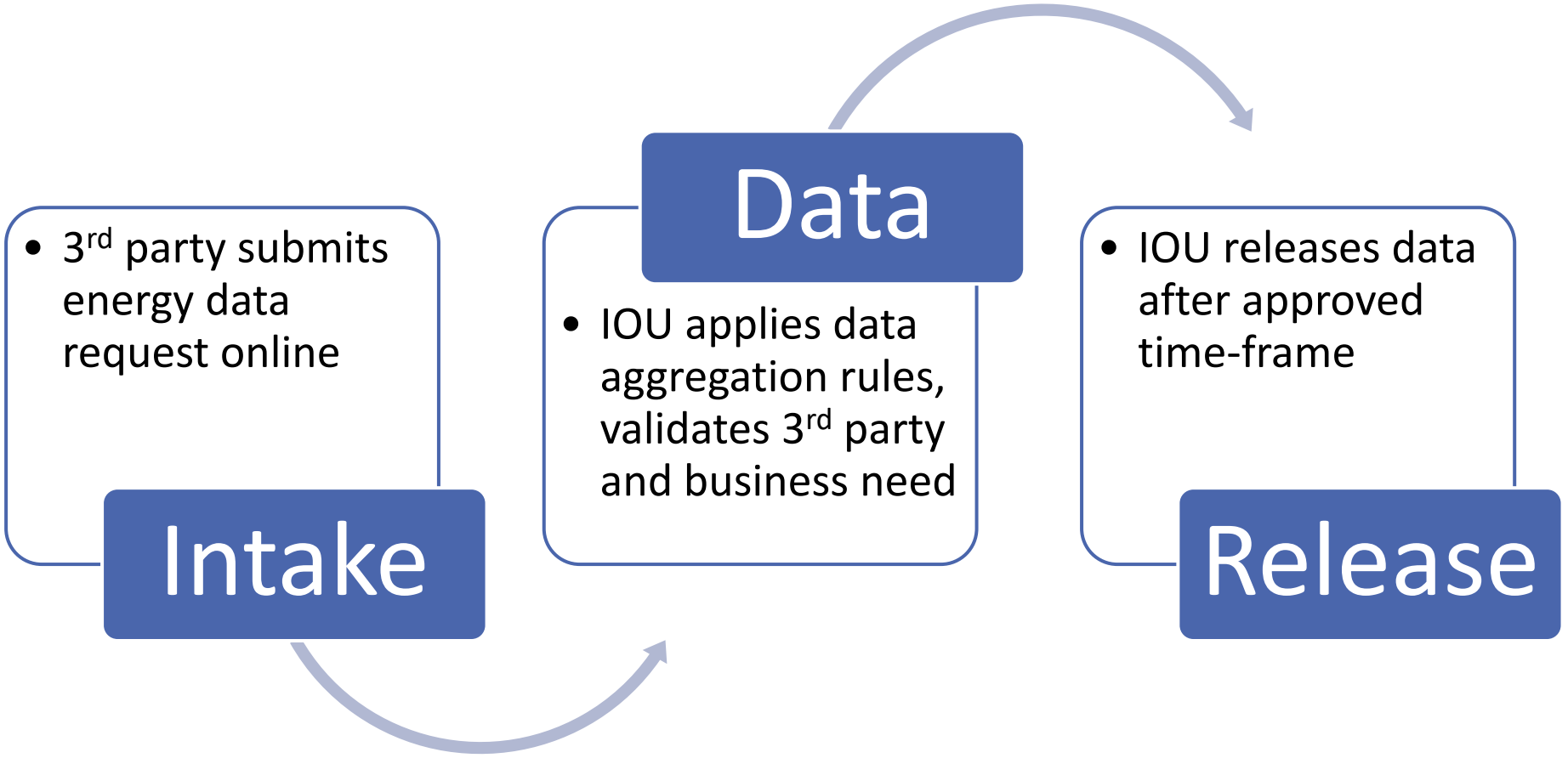
EDRP: Summary Usage Reports

- Energy usage reports by zip code published quarterly on each IOU's website

ZipCode	Month	Year	CustomerClass	Combined	TotalCustomers	TotalkWh	AveragekWh
94102	1	2013	Elec- Commercial	N	850	9,525,503	11,206
94102	2	2013	Elec- Commercial	N	955	10,140,320	10,618
94102	3	2013	Elec- Commercial	N	963	12,739,033	13,228
94103	1	2013	Elec- Commercial	N	1,699	23,015,962	13,547
94103	2	2013	Elec- Commercial	N	1,703	20,836,079	12,235
94103	3	2013	Elec- Commercial	N	1,739	22,739,276	13,076
94104	1	2013	Elec- Commercial	N	104	6,994,891	67,259
94104	2	2013	Elec- Commercial	N	121	6,537,162	54,026
94104	3	2013	Elec- Commercial	N	121	7,427,713	61,386
94105	1	2013	Elec- Commercial	N	380	15,619,045	41,103
94105	2	2013	Elec- Commercial	N	391	14,920,613	38,160
94105	3	2013	Elec- Commercial	N	395	16,336,960	41,359

PG&E 2013 Q1 Electric Usage by Zip Code
https://pge-energydatarequest.com/public_datasets/download?file=PGE_2013_Q1_ElectricUsageByZip.zip&type=electric

EDRP: Specific Data Requests



EDRP: Eligible 3rd Party Participants

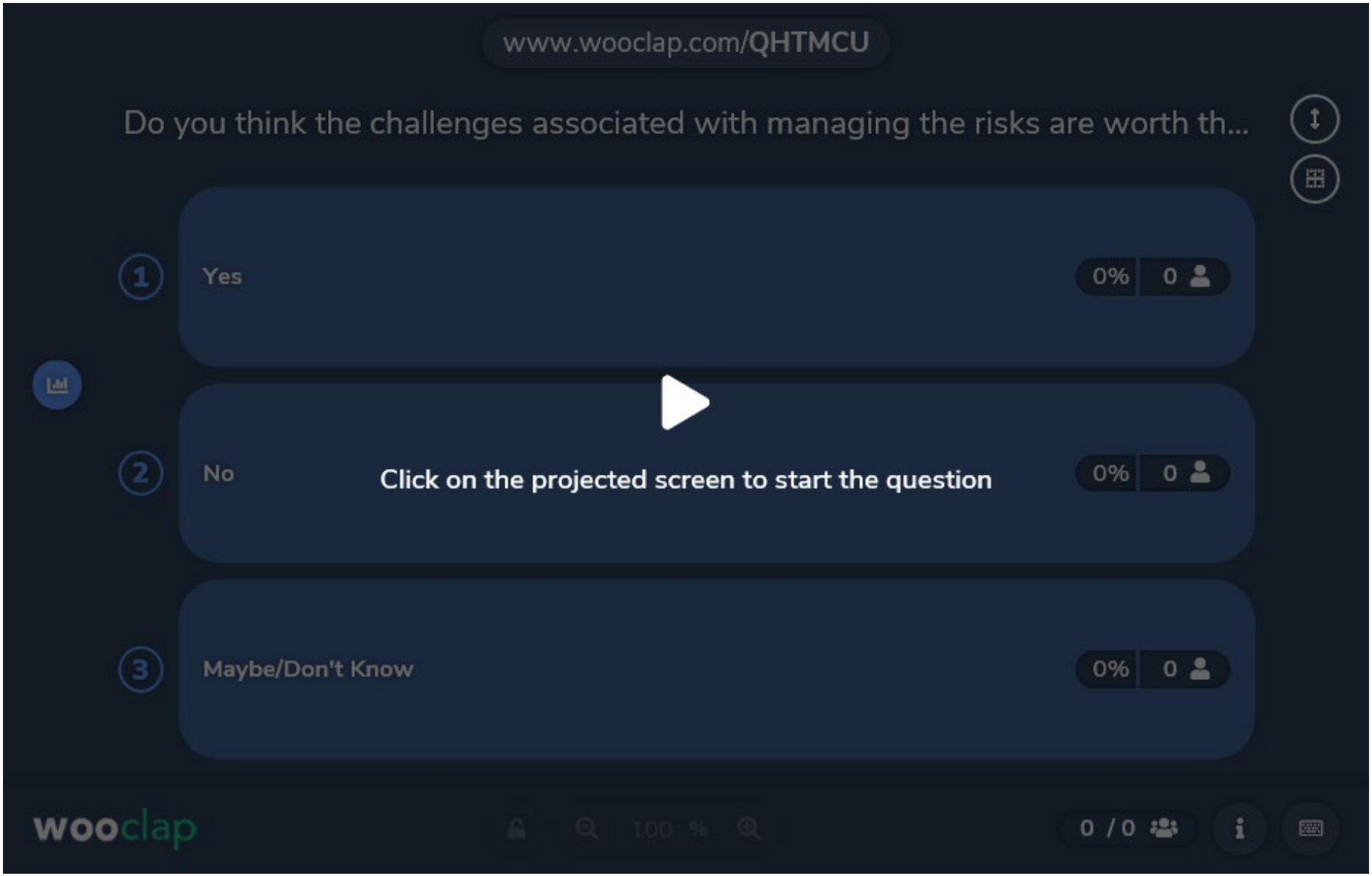
Federal or State Gov't Agencies

Community Services & Development

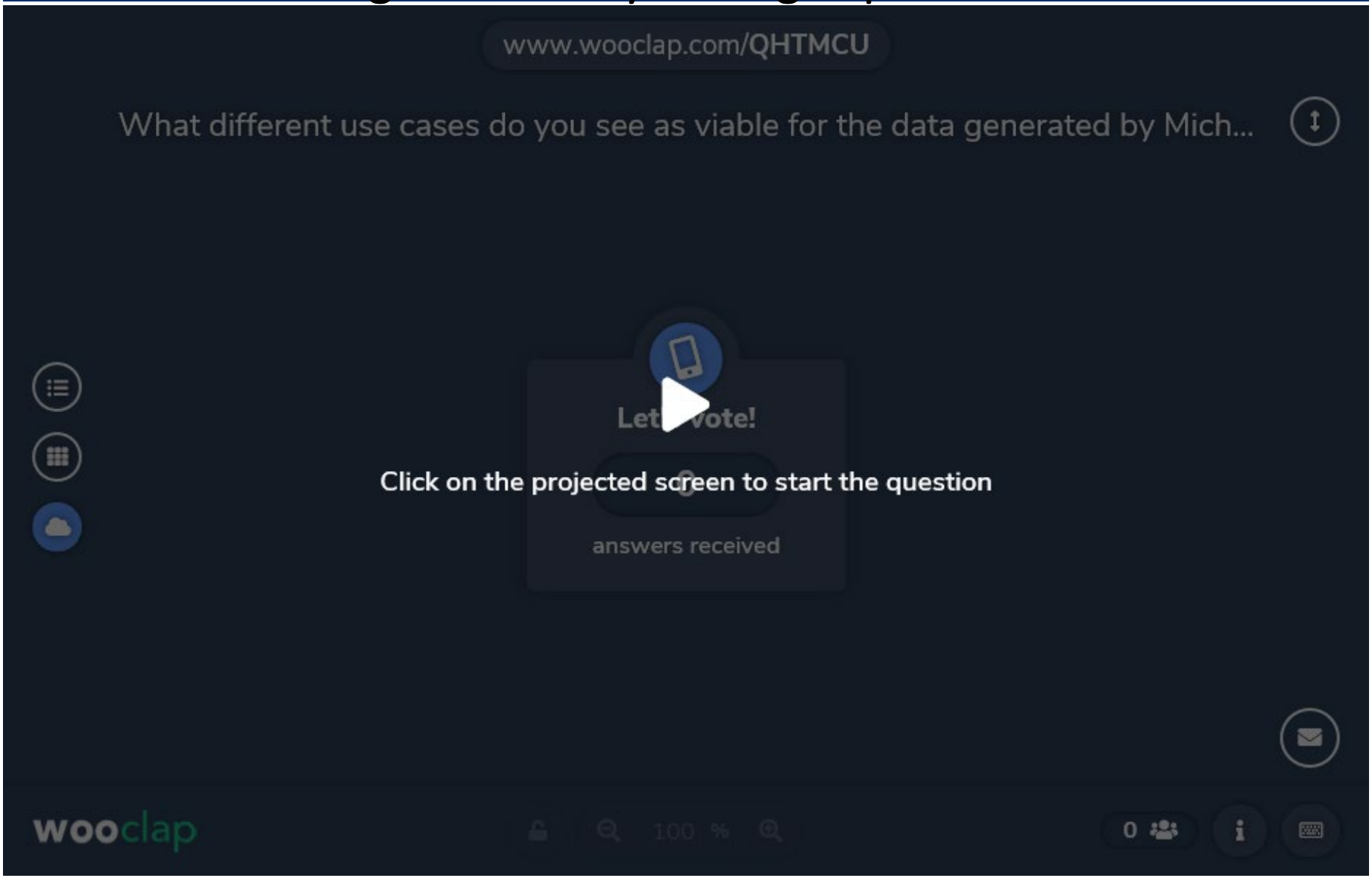
Local Government

Accredited Research Institutions

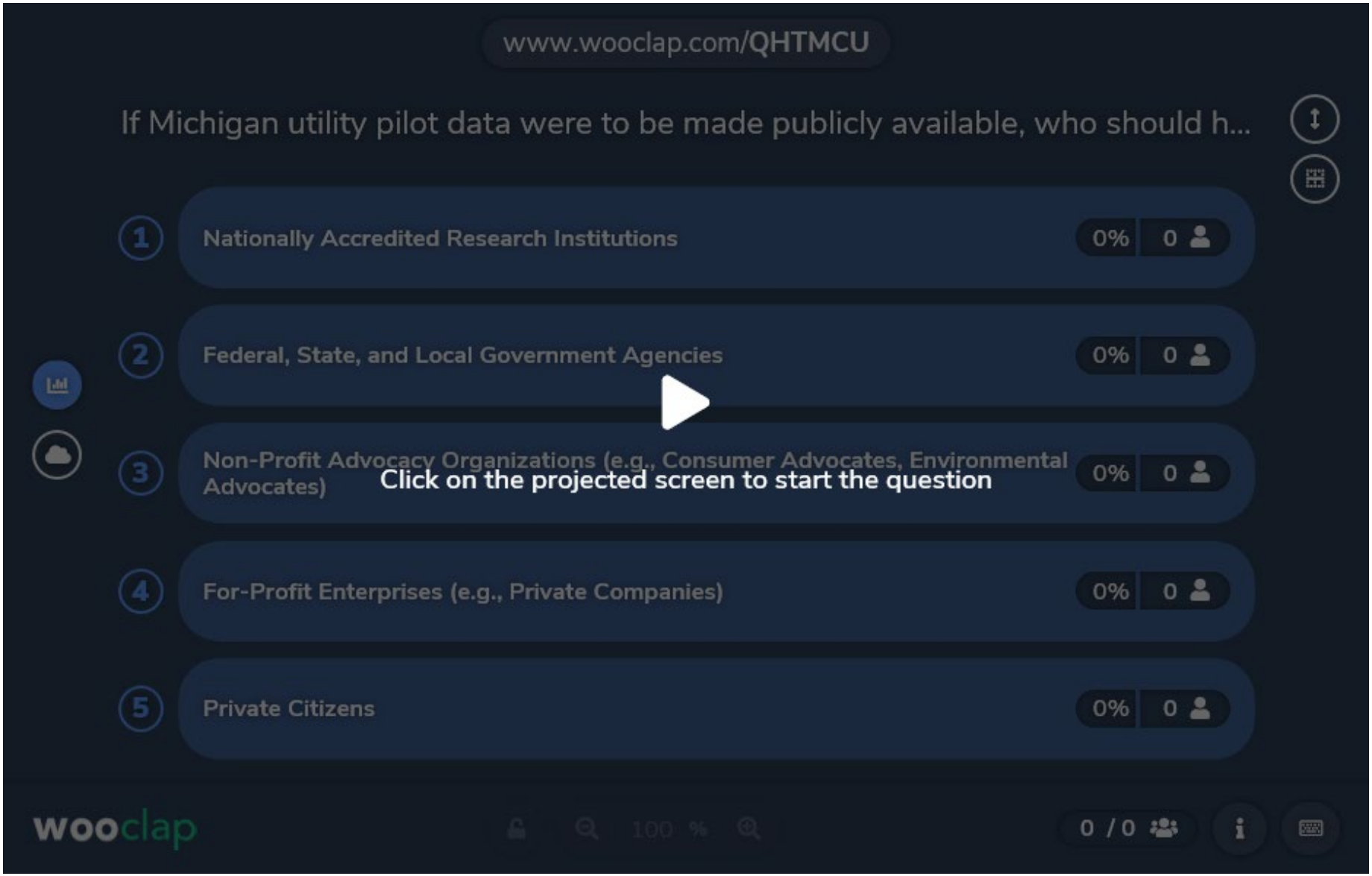
Do you think the challenges associated with managing the risks are worth the effort given the opportunity for benefits realization from making Michigan utility pilot data publicly available?



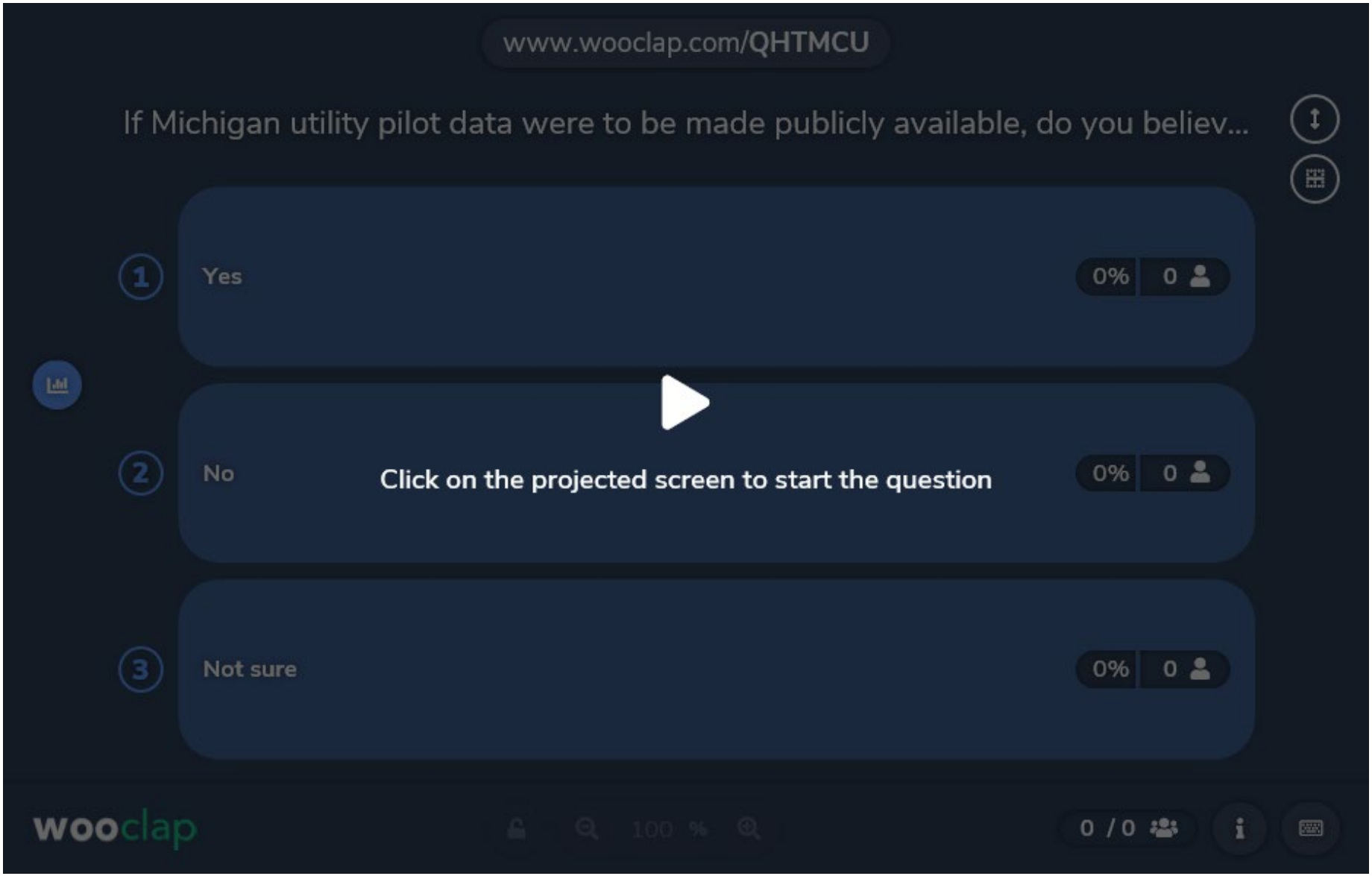
What different use cases do you see as viable for the data generated by Michigan pilots?



If Michigan utility pilot data were to be made publicly available, who should have access to it?



If Michigan utility pilot data were to be made publicly available, do you believe there should be different levels of customer usage data aggregation based on who is accessing it?



Questions/Comments

Peter Cappers

(315) 637-0513

pacappers@lbl.gov

MI POWER GRID

Making the Most of Michigan's Energy Future

MPSC Energy Waste Reduction Pilot Report Review

Karen Gould

Gouldk1@Michigan.gov

Michigan Public Service Commission

MPSC

Michigan Public Service Commission

Agenda

- MPSC EWR Pilot Review
  - Summary of past reviews
    - MPSC Case Review
- Pilot Funding
- Pilot Program and Measure Review
- Conclusions

Energy Programs & Technology Pilots Workgroup Tasks

- Engage with utilities and stakeholders
- Investigate past Commission approved pilots
- Understand outcomes and apply lessons learned from existing pilot projects
- Identify pilot best practices
- Propose objective criteria for the Commission to utilize when evaluating proposed utility pilot projects

Energy Programs & Technology Pilots Workgroup Tasks

- Engage with utilities and stakeholders
- Investigate past Commission approved pilots
- Understand outcomes and apply lessons learned from existing pilot projects
- Identify pilot best practices
- Propose objective criteria for the Commission to utilize when evaluating proposed utility pilot projects

Rate Regulated and Coop EWR Cases

	COMPANY	2009 Plan Case #	2009 Recon Case #	2010 Recon Case #	2011 Plan Case #	2011 Recon Case #	2012 Recon Case #	2013 Plan Case #	2013 Recon Case #	2014 Recon Case #	2015 Plan Case #	2015 Recon Case #	2016 Recon Case #	2017 Plan Case #	2017 Recon Case #	2018 Recon Case #	2019 Plan Case #	2020 Recon Case #
	IOUs																	
1	Alpena Power Company	U-15804	U-16346	U-16347	U-16669	U-16735	U-17280	U-17350	U-17600	U-17830	U-17770	U-18021	U-18330	U-18260	U-20027	U-20371	U-20371	20701
2	Consumers Energy Company	U-15805	U-16302	U-16303	U-16670	U-16736	U-17281	U-17351	U-17601	U-17831	U-17771	U-18025	U-18331	U-18261	U-20028	U-20365	U-20372	20702
3	DTE Energy - ELECTRIC	U-15806	U-16358	U-16359	U-16671	U-16737	U-17282	U-17352	U-17602	U-17832	U-17772	U-18023	U-18332	U-18262	U-20029	U-20366	U-20373	20703
4	Indiana Michigan Power Company	U-15808	U-16310	U-16311	U-16673	U-16739	U-17283	U-17353	U-17603	U-17833	U-17773	U-18022	U-18333	U-18263	U-20030	U-20367	U-20374	20704
5	Northern States Power Company-Wisconsin	U-15809	U-16314	U-16315	U-16674	U-16740	U-17284	U-17354	U-17604	U-17834	U-17774	U-18020	U-18334	U-18264	U-20031	U-20375	U-20375	20705
6	Upper Peninsula Power Company	U-15810	U-16318	U-16319	U-16675	U-16741	U-17285	U-17355	U-17605	U-17835	U-17775	U-18017	U-18335	U-18265	U-20032	U-20368	U-20376	20706
7	UMERC	U-15811	U-16362	U-16363	U-16676	U-16742	U-17286	U-17356	U-17606	U-17836	U-17776	U-18018	U-18336	U-18266	U-20033	U-20377	U-20377	20707
8	Wisconsin Electric Power Company **	U-15812	U-16368	U-16369	U-16677	U-16743	U-17287	U-17357	U-17607	U-17837	U-17777	U-18019	U-18337	U-18267	U-20034	U-20378	U-20378	
	Co-ops																	
9	Alger Delta Cooperative Electric Association	U-15813	U-15813		U-16678		U-16678	U-17367			U-17778			U-18271		U-18271	U-20379	U-18271
10	Bayfield Electric Cooperative	U-15814	U-16350		U-16679		U-16679	U-17368			U-17779			U-18272		U-18272	U-20380	U-18272
11	Cherryland Electric Cooperative	U-15815	U-15815		U-16680		U-16680	U-17369			U-17780			U-18273		U-18273	U-20381	U-18273
12	Cloverland Electric Cooperative	U-15816	U-16354	U-16355	U-16681	U-16744	U-17294	U-17364	U-17611	U-17838	U-17781			U-18274		U-18274	U-20382	U-18274
13	Great Lakes Energy Cooperative	U-15817	U-16322	U-16323	U-16682	U-16745	U-16682	U-17370			U-17782			U-18275		U-18275	U-20383	U-18275
14	Midwest Energy Cooperative	U-15818	U-16326	U-16327	U-16683	U-16746	U-17295	U-17365	U-17612	U-17839	U-17783			U-18276		U-18276	U-20384	U-18276
15	Ontonagon Co. Rural Electricification Assoc.	U-15819	U-16330	U-16331	U-16684	U-16747	U-16684	U-17371			U-17784			U-18277		U-18277	U-20385	U-18277
16	Presque Isle Electric and Gas Co-op	U-15820	U-16334	U-16335	U-16685	U-16748	U-16685	U-17372			U-17785			U-18278		U-18278	U-20386	U-18278
17	Thumb Electric Cooperative	U-15821	U-16338	U-16339	U-16686	U-16749	U-17296	U-17366	U-17613	U-17840	U-17786	U-18026		U-18279		U-18279	U-20387	U-18279
18	Tri-County Electric Cooperative	U-15822	U-16342		U-16687		U-16687	U-17373			U-17787			U-18280		U-18280	U-20388	U-18280
	Retail Rate-Regulated Natural Gas Prov.																	
60	Consumers Energy Company (joint filing)	U-15805	U-16302	U-16303	U-16670	U-16736	U-17281	U-17351	U-17601	U-17831	U-17771	U-18025	U-18331	U-18261	U-20028	U-20365	U-20372	20702
61	DTE Energy - GAS	U-15890	U-16289	U-16290	U-16730	U-16751	U-17288	U-17358	U-17608	U-17841	U-17788	U-18024	U-18338	U-18268	U-20035	U-20369	U-20429	20708
62	Michigan Gas Utilities Corporation	U-15891	U-16291	U-16292	U-16731	U-16752	U-17290	U-17360	U-17609	U-17842	U-17789	U-18015	U-18339	U-18269	U-20036	U-20430	U-20430	20709
63	Northern States Power Co-Wisc.(joint filing)	U-15892	U-16314	U-16315	U-16674	U-16740	U-17291	U-17361	U-17604	U-17834	U-17774	U-18020	U-18334	U-18264	U-20031	U-20375	U-20375	20705
64	SEMCO Energy, Inc.	U-15893	U-16293	U-16294	U-16733	U-16754	U-17292	U-17362	U-17610	U-17843	U-17790	U-18016	U-18340	U-18270	U-20037	U-20370	U-20431	20710
65	UMERC	U-15894	U-16362	U-16363	U-16676	U-16742	U-17293	U-17363	U-17606	U-17836	U-17776	U-18018	U-18336	U-18266	U-20038	U-20377	U-20378	20707
	Amendments										Amendment Years							
		2009		2010	2011	2012		2013			2015	2016	2017					
1	Consumers Energy Company			U-16412	U-16670	U-17138		U-17351					U-17771					
2	DTE Energy - ELECTRIC	15806				U-17050					U-17762		U-17762					
3	Cherryland Electric Cooperative				U-16680													
4	Consumers Energy Company (joint filing)				U-16670	U-17138		U-17351					U-17771					
5	DTE Energy - GAS	15890				U-17049					U-17763		U-17763					
6	SEMCO Energy, Inc.											U-18179	U-18179					

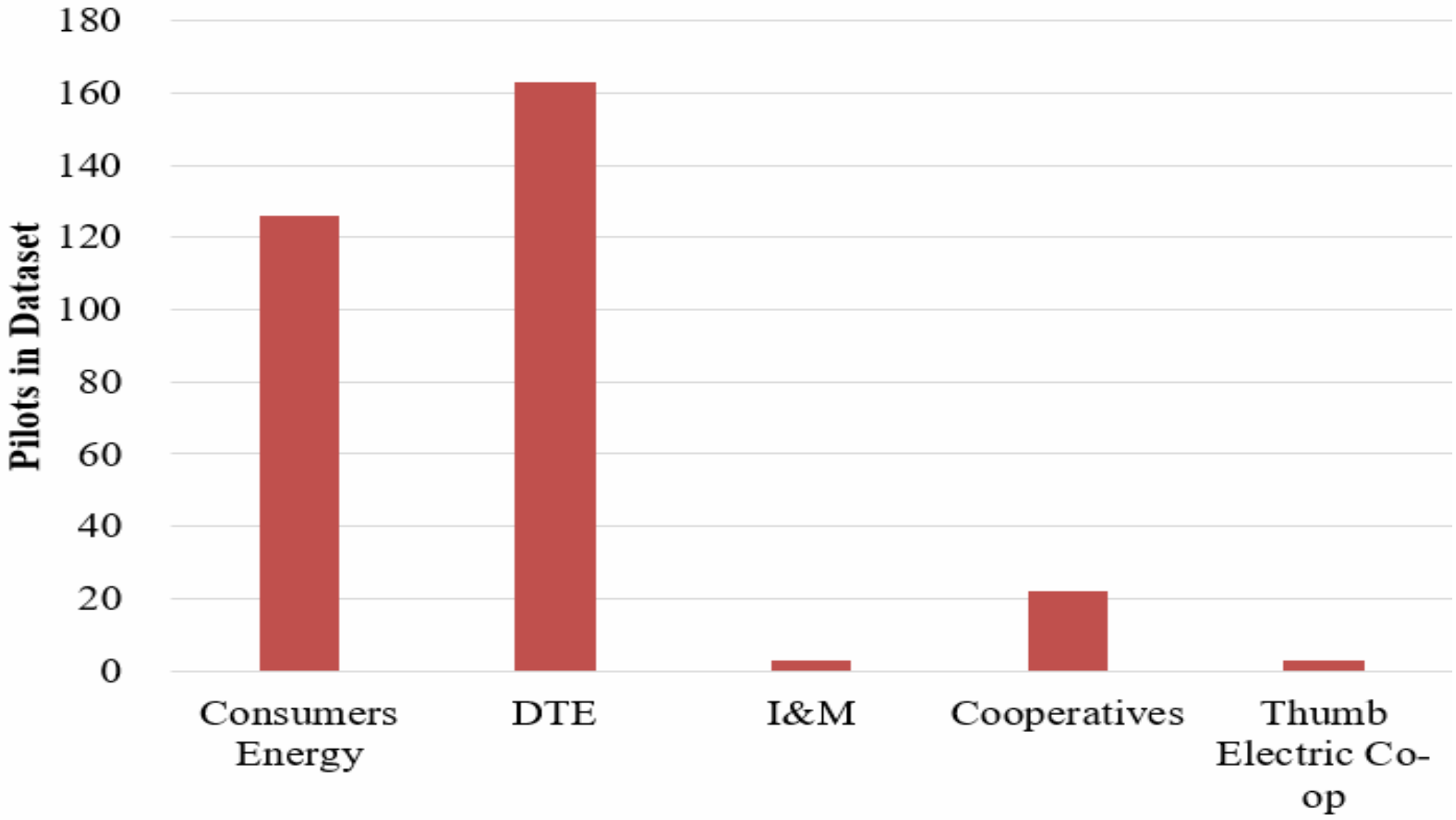
Municipal EWR Cases

	COMPANY	2009 Plan Case #	2009 Recon Case #	2010 Recon Case #	2011 Plan Case #	2011 Recon Case #	2012 Recon Case #	2013 Plan Case #	2013 Recon Case #	2014 Recon Case #	2015 Plan Case #	2015 Recon Case #	2016 Recon Case #	2017 Plan Case #	2017 Recon Case #	2018 Recon Case #	2019 Plan Case #	2020 Recon Case #
	Municipals																	
19	Village of Baraga	U-15848	U-15848	U-15848	U-16688	U-15848	U-16688	U-17381			U-17381			U-18281		U-18281	U-20389	U-18281
20	City of Bay City	U-15849	U-15849	U-15849	U-16689	U-15849	U-16689	U-17382			U-17382			U-18282		U-18282	U-20390	U-18282
21	City of Charlevoix	U-15850	U-15850	U-15850	U-16690	U-15850	U-16690	U-17383			U-17383			U-18283		U-18283	U-20391	U-18283
22	Chelsea Department of Electric and Water	U-15851	U-15851	U-15851	U-16691	U-15851	U-16691	U-17384			U-17384			U-18284		U-18284	U-20392	U-18284
23	Village of Clinton	U-15852	U-15852	U-15852	U-16692	U-15852	U-16692	U-17385			U-17385			U-18285		U-18285	U-20393	U-18285
24	Coldwater Board of Public Utilities	U-15853	U-15853	U-15853	U-16693	U-15853	U-16693	U-17386			U-17386			U-18286		U-18286	U-20394	U-18286
25	Croswell Municipal Light & Power Department	U-15854	U-15854	U-15854	U-16694	U-15854	U-16694	U-17387			U-17387			U-18287		U-18287	U-20395	U-18287
26	City of Crystal Falls	U-15855	U-15855	U-15855	U-16695	U-15855	U-16695	U-17388			U-17388			U-18288		U-18288	U-20396	U-18288
27	Daggett Electric Department	U-15856	U-15856	U-15856	U-16696	U-15856	U-16696	U-17389			U-17389			U-18289		U-18289	U-20397	U-18289
28	Detroit Public Lighting Department	U-15857	U-15857	U-15857	U-16697	U-15857	U-16697	U-17390										
29	City of Dowagiac	U-15858	U-15858	U-15858	U-16698	U-15858	U-16698	U-17391			U-17391			U-18291		U-18291	U-20398	U-18291
30	City of Eaton Rapids	U-15859	U-15859	U-15859	U-16699	U-15859	U-16699	U-17392			U-17392			U-18292		U-18292	U-20399	U-18292
31	City of Escanaba	U-15860	U-15860	U-15860	U-16700	U-15860	U-16700	U-17393			U-17393			U-18293		U-18293	U-20400	U-18293
32	City of Gladstone	U-15861	U-15861	U-15861	U-16701	U-15861	U-16701	U-17394			U-17394			U-18294		U-18294	U-20401	U-18294
33	Grand Haven Board of Light and Power	U-15862	U-15862	U-15862	U-16702	U-15862	U-16702	U-17395			U-17395			U-18295		U-18295	U-20402	U-18295
34	City of Harbor Springs	U-15863	U-15863	U-15863	U-16703	U-15863	U-16703	U-17396			U-17396			U-18296		U-18296	U-20403	U-18296
35	City of Hart Hydro	U-15864	U-15864	U-15864	U-16704	U-15864	U-16704	U-17397			U-17397			U-18297		U-18297	U-20404	U-18297
36	Hillsdale Board of Public Utilities	U-15865	U-15865	U-15865	U-16705	U-15865	U-16705	U-17398			U-17398			U-18298		U-18298	U-20406	U-18298
37	Holland Board of Public Works	U-15866	U-15866	U-15866	U-16706	U-15866	U-16706	U-17399			U-17399			U-18299		U-18299	U-20405	U-18299
38	Village of L'Anse	U-15867	U-15867	U-15867	U-16707	U-15867	U-16707	U-17400			U-17400			U-18300		U-18300	U-20407	U-18300
39	Lansing Board of Water & Light	U-15868	U-15868	U-15868	U-16708	U-15868	U-16708	U-17401			U-17401			U-18301		U-18301	U-20408	U-18301
40	Lowell Light and Power	U-15869	U-15869	U-15869	U-16709	U-15869	U-16709	U-17402			U-17402			U-18302		U-18302	U-20409	U-18302
41	Marquette Board of Light and Power	U-15870	U-15870	U-15870	U-16710	U-15870	U-16710	U-17403			U-17403			U-18303		U-18303	U-20410	U-18303
42	Marshall Electric Department	U-15871	U-15871	U-15871	U-16711	U-15871	U-16711	U-17404			U-17404			U-18304		U-18304	U-20411	U-18304
43	Negaunee Department of Public Works	U-15872	U-15872	U-15872	U-16712	U-15872	U-16712	U-17405			U-17405			U-18305		U-18305	U-20412	U-18305
44	Newberry Water and Light Board	U-15873	U-15873	U-15873	U-16713	U-15873	U-16713	U-17406			U-17406			U-18306		U-18306	U-20413	U-18306
45	Niles Utility Department	U-15874	U-15874	U-15874	U-16714	U-15874	U-16714	U-17407			U-17407			U-18307		U-18307	U-20414	U-18307
46	City of Norway	U-15875	U-15875	U-15875	U-16715	U-15875	U-16715	U-17408			U-17408			U-18307		U-18308	U-20415	U-18308
47	City of Paw Paw	U-15876	U-15876	U-15876	U-16716	U-15876	U-16716	U-17409			U-17409			U-18309		U-18309	U-20416	U-18309
48	City of Petoskey	U-15877	U-15877	U-15877	U-16717	U-15877	U-16717	U-17410			U-17410			U-18310		U-18310	U-20417	U-18310
49	City of Portland	U-15878	U-15878	U-15878	U-16718	U-15878	U-16718	U-17411			U-17411			U-18310		U-18311	U-20418	U-18311
50	City of Sebewaing	U-15879	U-15879	U-15879	U-16719	U-15879	U-16719	U-17412			U-17412			U-18312		U-18312	U-20419	U-18312
51	City of South Haven	U-15880	U-15880	U-15880	U-16720	U-15880	U-16720	U-17413			U-17413			U-18313		U-18313	U-20420	U-18313
52	City of St. Louis	U-15881	U-15881	U-15881	U-16721	U-15881	U-16721	U-17414			U-17414			U-18314		U-18314	U-20421	U-18314
53	City of Stephenson	U-15882	U-15882	U-15882	U-16722	U-15882	U-16722	U-17415			U-17415			U-18315		U-18315	U-20422	U-18315
54	City of Sturgis	U-15883	U-15883	U-15883	U-16723	U-15883	U-16723	U-17416			U-17416			U-18316		U-18316	U-20423	U-18316
55	Traverse City Light & Power	U-15884	U-15884	U-15884	U-16724	U-15884	U-16724	U-17417			U-17417			U-18317		U-18317	U-20424	U-18317
56	Union City Electric Department	U-15885	U-15885	U-15885	U-16725	U-15885	U-16725	U-17418			U-17418			U-18318		U-18318	U-20425	U-18318
57	City of Wakefield	U-15886	U-15886	U-15886	U-16726	U-15886	U-16726	U-17419			U-17419			U-18319		U-18319	U-20426	U-18319
58	Wyandotte Department of Municipal Service	U-15887	U-15887	U-15887	U-16727	U-15887	U-16727	U-17420			U-17420			U-18320		U-18320	U-20427	U-18320
59	Zeeland Board of Public Works	U-15888	U-15888	U-15888	U-16728	U-15888	U-16728	U-17421			U-17421			U-18321		U-18321	U-20428	U-18321

MPSC EWR Pilot Annual Report Review

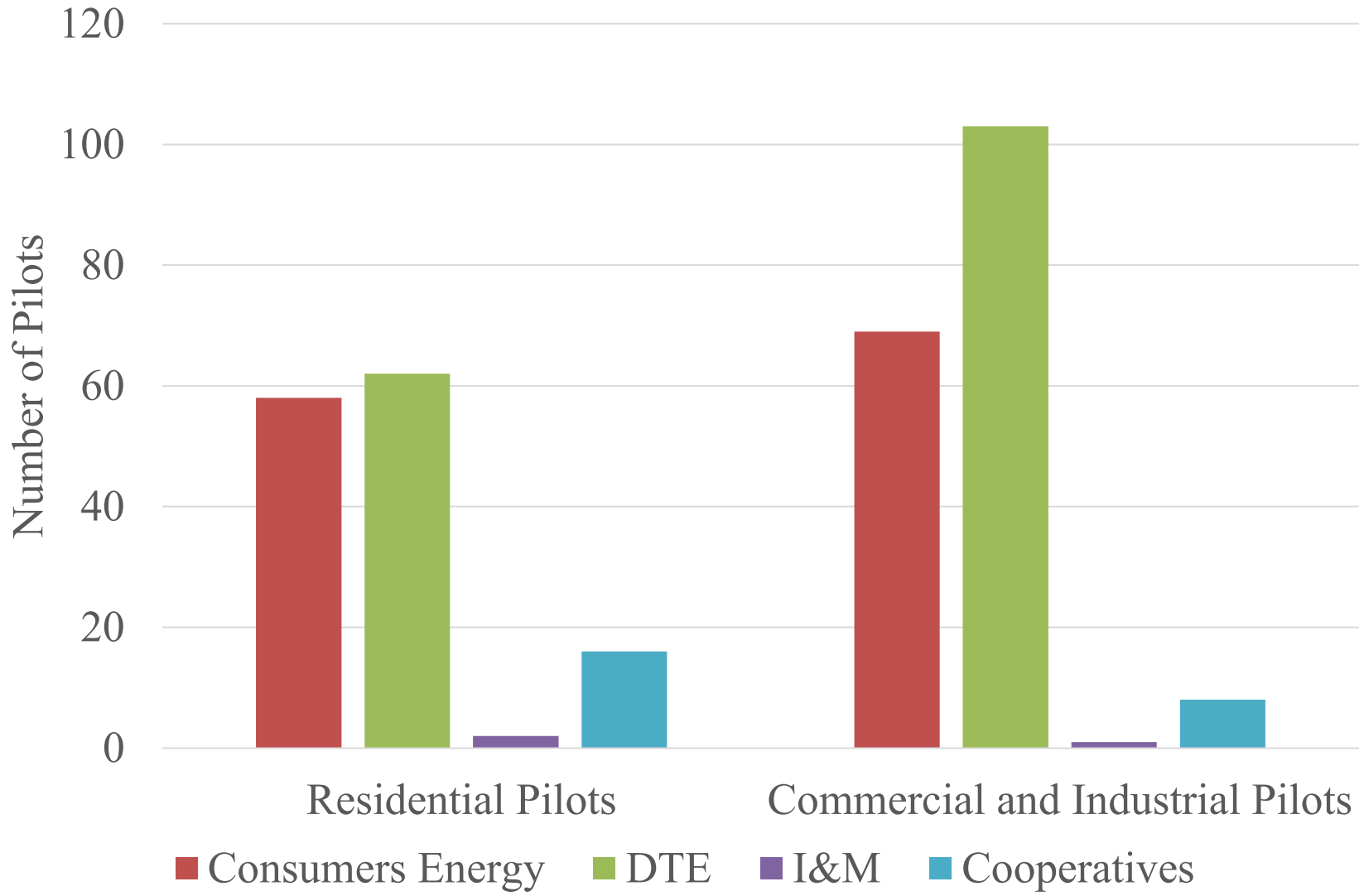
- Goal: Review EWR pilots
- Reviewed Period: 2012 – 2019
- Scope: Focused on CE, DTE, Coops
- Total Reviewers: 6 staff
- Materials Reviewed: EWR Annual Reports
- Total Cases Identified: 28 annual reports
- Total Pilots: 342 pilots

IOUs & Cooperatives Represented



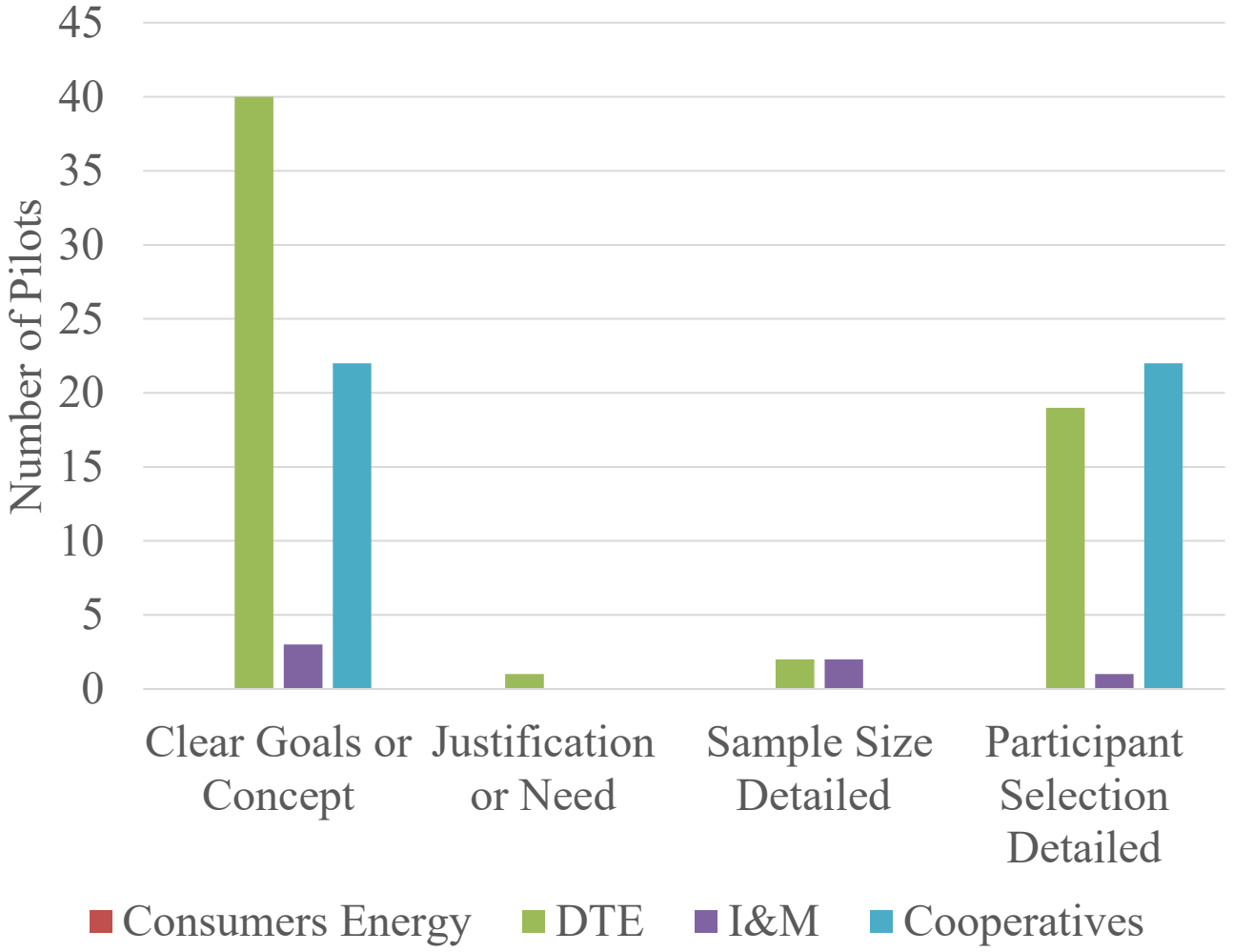
Sources: Chart by MPSC Staff, May 2020.

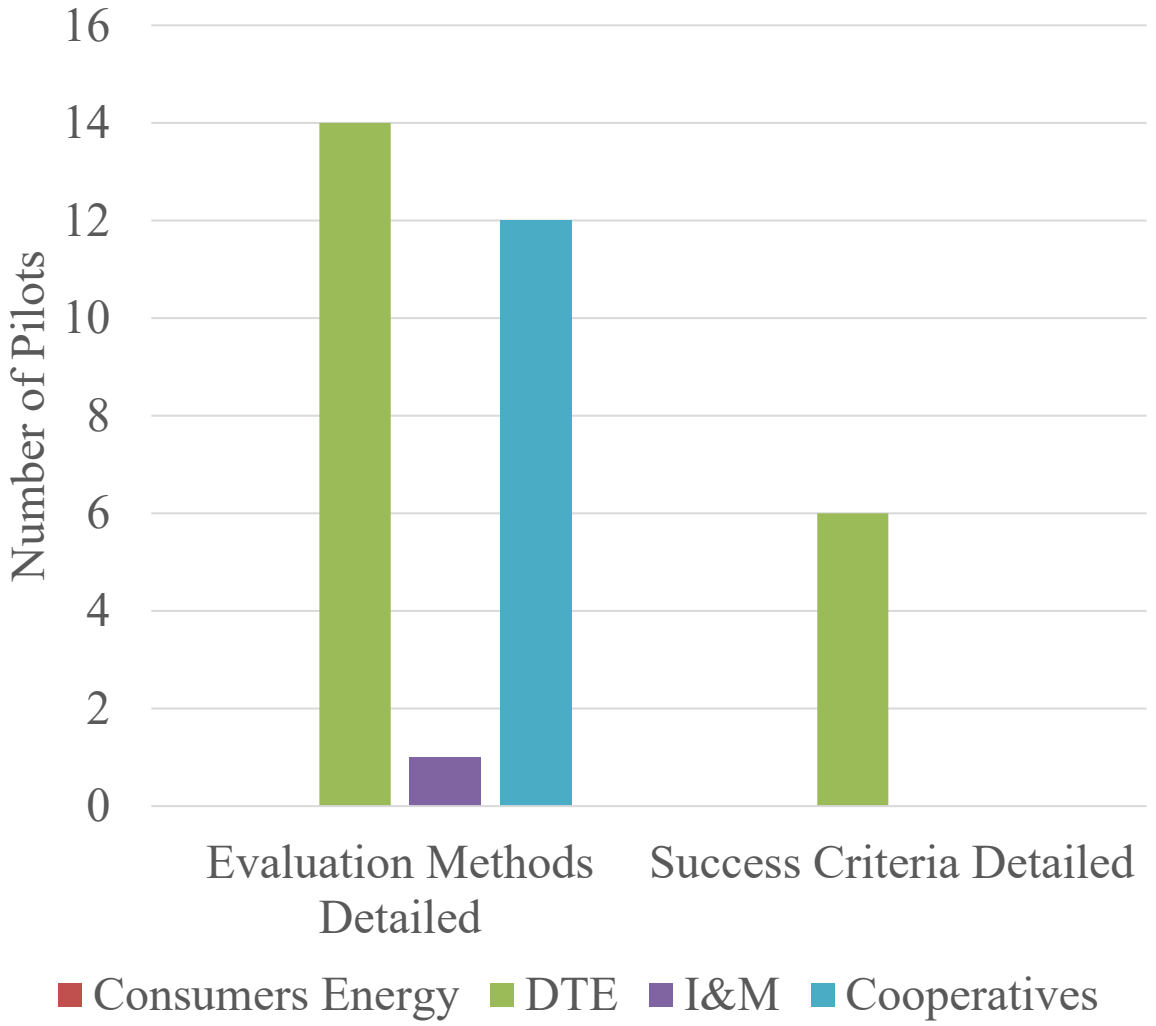
Majority have Commercial & Industrial Focus



Sources: Chart by MPSC Staff, May 2020.

EWR Annual Reports Lack Pilot Details

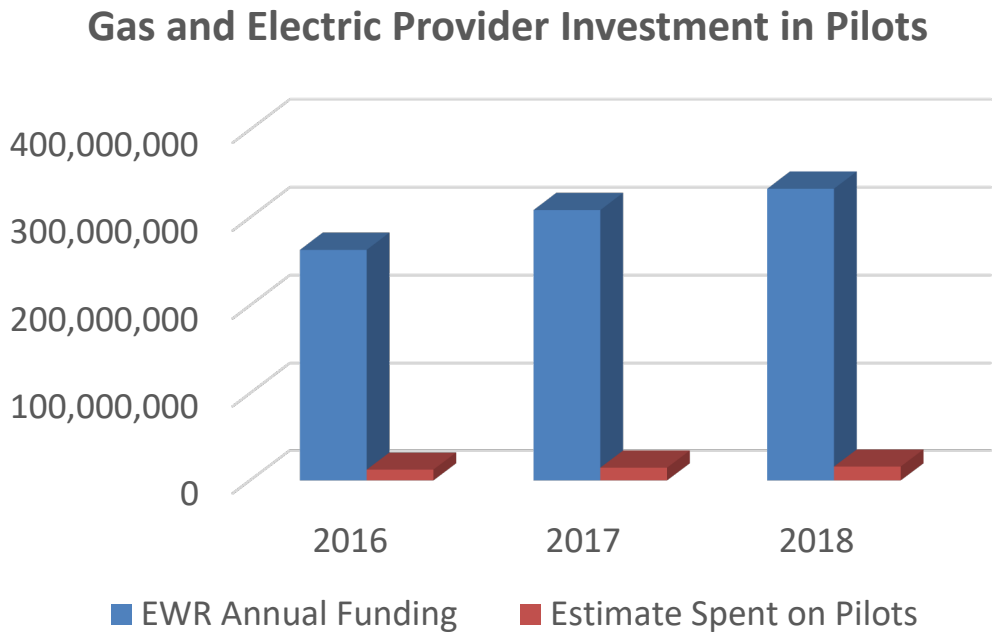




Sources: Chart by MPSC Staff, May 2020.

Pilot Funding

U-15800 states, "Utilities may designate up to five percent of the energy optimization budget for pilot programs, future energy optimization program development or to assess emerging technologies. As technology changes, impacts to program success can be great. Programs need to incent customers to move above the base efficiency available to them. These budget funds will be deemed to generate a proportional amount up to five percent of the required energy savings for the program year during which the money is spent."



Year	EWR Annual Funding	Estimate Spent on Pilots
2016	$263,257,976	$12,414,468
2017	$308,561,161	$14,672,990
2018	$332,831,907	$15,922,898

Sources: Chart by MPSC Staff, May 2020.

Three Ways Staff Reviews Pilot Outcomes:

1. Annual Evaluation, Measurement and Verification reports submitted by utilities.
2. Present successful pilots to the EWR Collaborative to share ideas and collect suggestions from all participants and stakeholders.
3. Submit the findings for a particular measure in white paper form to the MEMD Technical Subcommittee for review and entrance into the MEMD.

Pilot Program Oversight

MPSC Design, Implementation, and Evaluation EWR Collaborative

Michigan.gov E-DOCKETS CONTACT US SEARCH

LARA MPSC ABOUT THE MPSC | COMMISSION ACTIVITIES | CONSUMER INFORMATION | REGULATORY INFORMATION

MPSC / REGULATORY INFORMATION

Energy Waste Reduction Collaborative

Notice: MI Power Grid meetings and all other MPSC workgroup meetings will be conducted via teleconference only until further notice. Please find remote access information for upcoming meetings on our calendar of events. We apologize for any inconvenience this may cause.

On December 21, 2016, Public Act 342 was signed into law. This Act, known as the Clean and Renewable Energy and Energy Waste Reduction Act, amends Michigan's 2008 energy law, Public Act 295. The work of the EWR Collaborative (formerly named EO Collaborative under PA 295) will continue under the new law and will focus on collaborative discussions from a varied stakeholder group consisting of state government, representatives of utilities, cooperative and municipal load serving entities, as well as contractors, program evaluators and implementers, energy efficiency advocates, low income representatives, and others.

The goals of the EWR Collaborative continue to include the following:

- Make recommendations for improving EWR Plans for all providers.
- Provide program evaluation support and develop any needed re-design and improvements to energy efficiency programs.
- Update and refine the MEMD on the basis of actual experience.
- Promote economic development and job creation in Michigan by providing a forum to connect Michigan manufacturers, suppliers and vendors with EWR programs.

Sources: Chart by MPSC Staff, May 2020.

Presentations Past and Present

RECENT MEETING AGENDAS AND PRESENTATIONS

FEBRUARY 18, 2020

Agenda | Presentation 1 | Presentation 2

APRIL 21, 2020

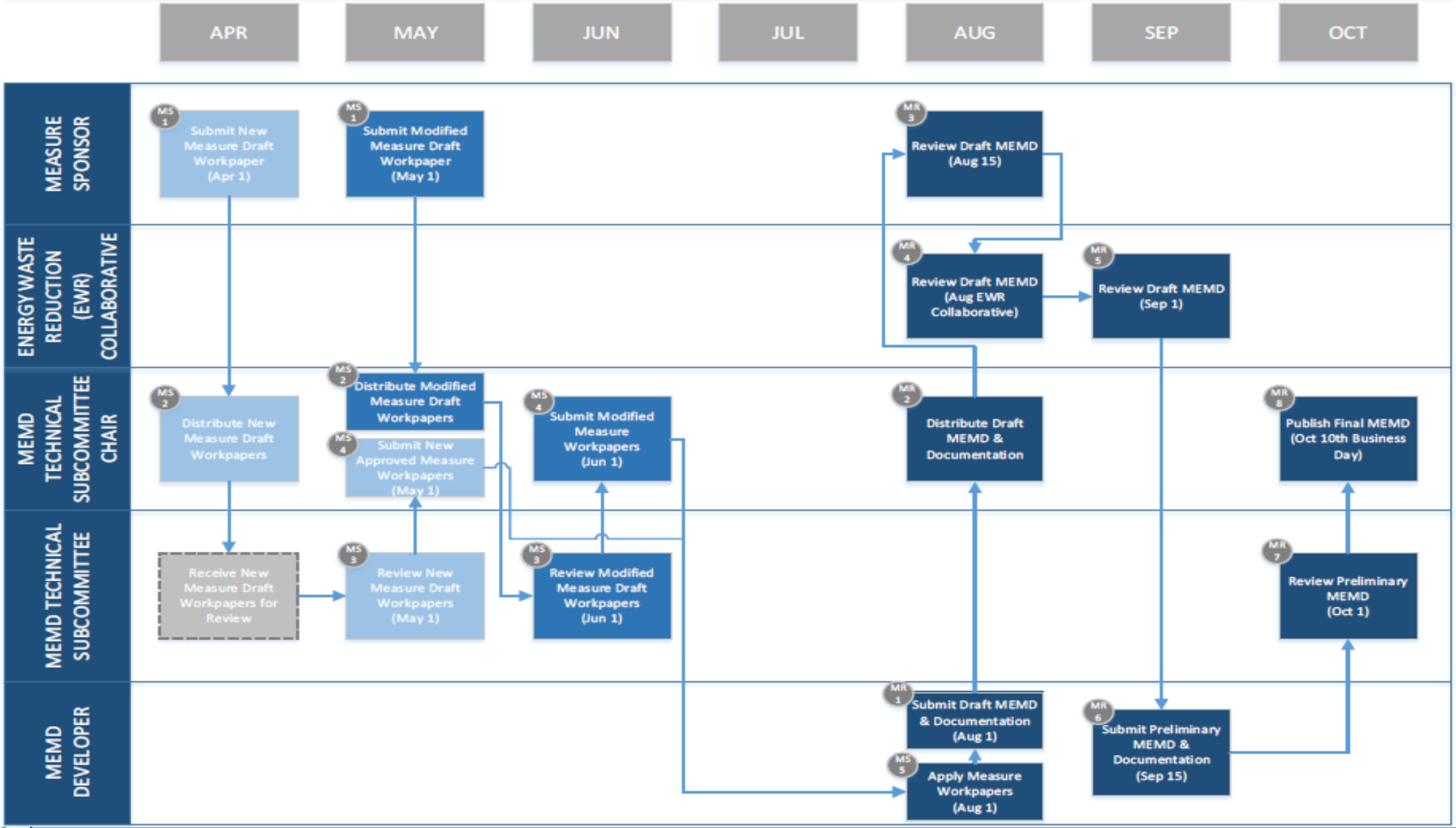
Agenda | Presentation 1 | Presentation 2

MAY 19, 2020 (TELECONFERENCE ONLY)

Meeting Event | Agenda

View Older Meeting Agendas and Presentations

MICHIGAN ENERGY MEASURE DATABASE (MEMD) MAINTENANCE PROCESS



Conclusion

- EWR Pilots, whether a program or measure, are different
- EWR pilot spending optional but strongly encouraged by Staff
- Set pilot funding per annual EWR expenditures
- Results can vary, but sometimes a bad pilot is an excellent learning tool
- EWR Pilot specifics lacking in EWR annual reports
  - However, pilot details available through EWR Collaborative presentations, EMV reports, and MEMD white papers
  - No consolidated location for all EWR pilot information

Questions??

Karen Gould

gouldk1@Michigan.gov

Unintended consequences of not aligning metrics with program goals

Case studies of clean energy goals from other states

About Us

Who we are

•High-tech nonprofit dedicated to accelerating the development & spread of new sustainability techniques

•Built by 200+ volunteers from Google, MIT, Climate Corp, DOE, and more

•Joined forces with Rocky Mountain Institute in 2017

What we do

•Obsessed with understanding grid emissions at a granular level and building tools to help others use that information to maximize impact and advance goals

•Effectively utilize granular emissions data (5 minute intervals) over 100 U.S. grid regions

Background

DERs (i.e. electric storage resources, distributed generation, thermal storage, and electric vehicle charging infrastructure) have many benefits:

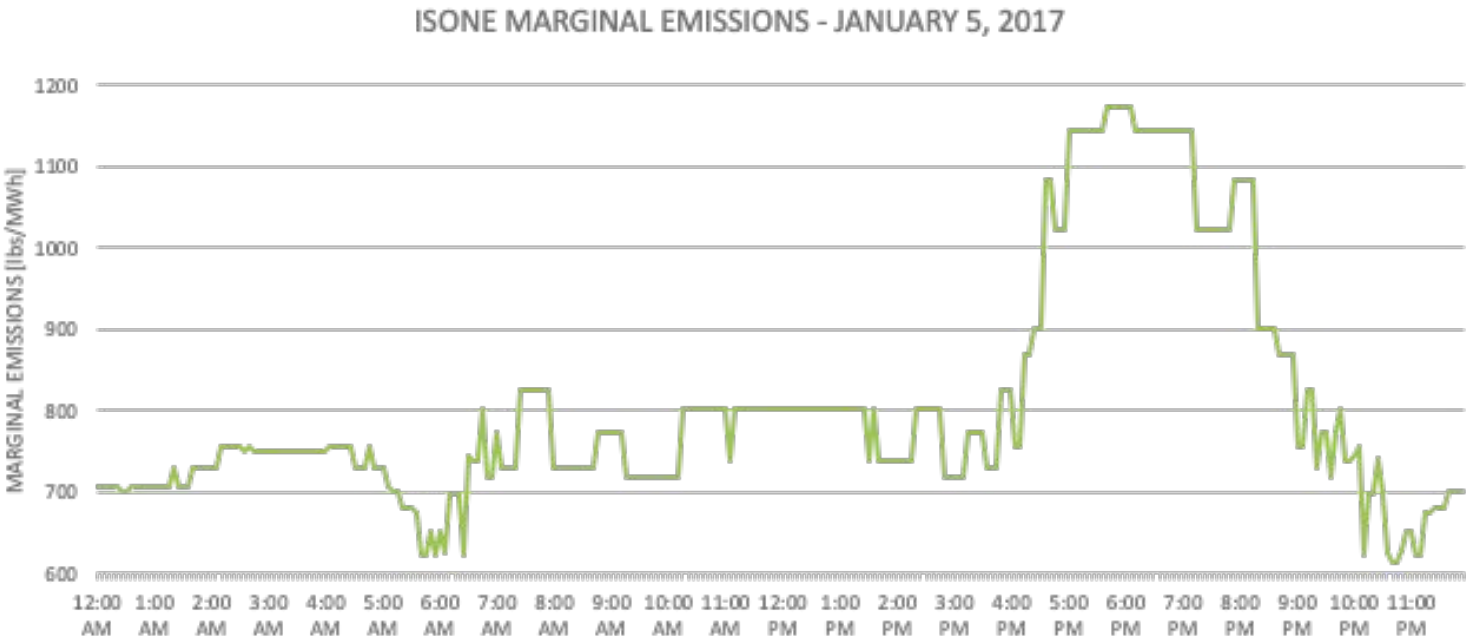
- Avoided generation capacity costs,
- Avoided transmission costs,
- Less need for backup power,
- Reduced air emissions

The MI Power Grid Initiative to "*to maximize the benefits of the transition to clean, distributed energy resources for Michigan residents and businesses*" could potentially capture these benefits through appropriate goals and related metrics

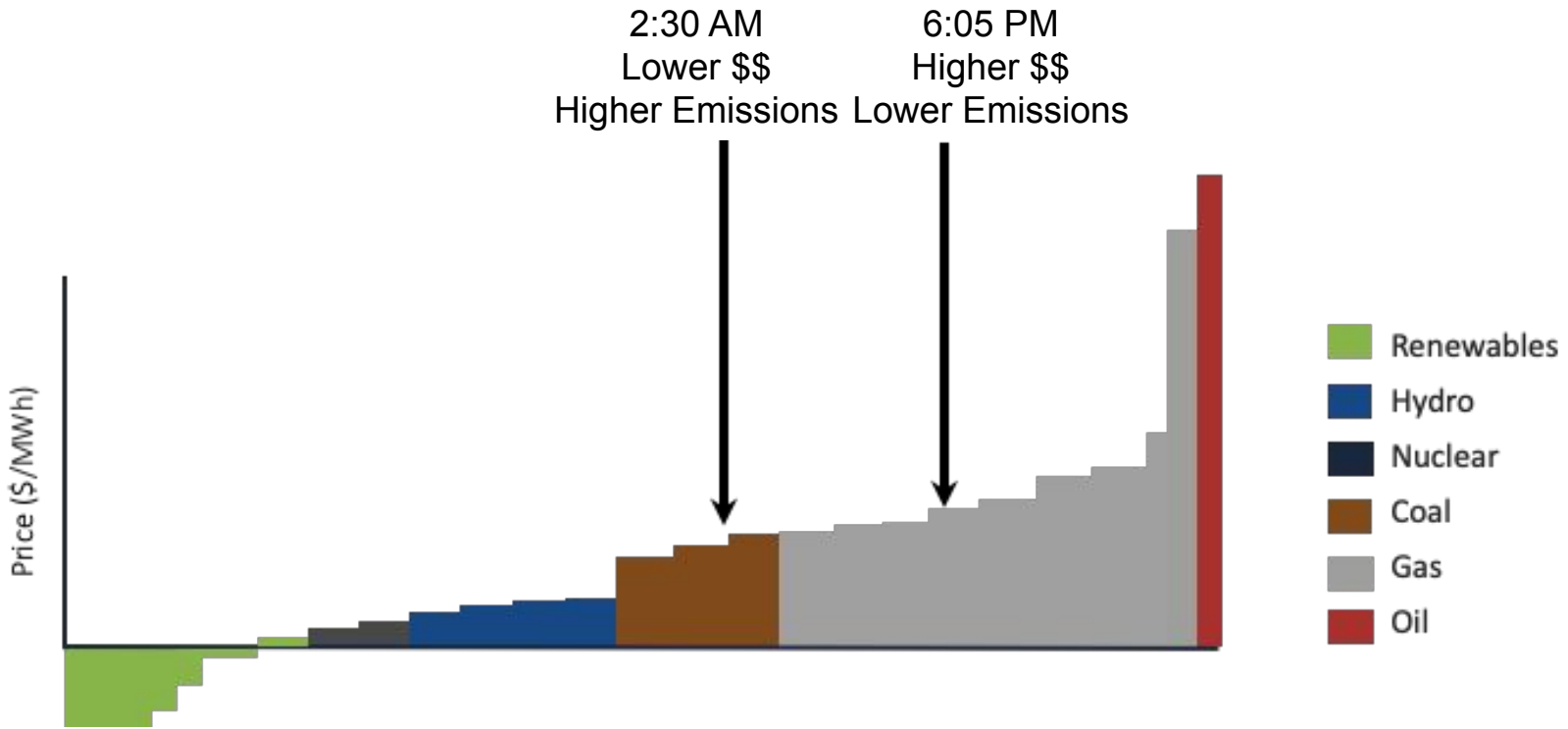
Avoiding unintended consequences

- DERs program benefits, especially emissions reduction, should not be assumed as a given.
- DERs can increase emissions if policies are not designed carefully
- If a program has an environmental/emission reduction goal, appropriate metrics are needed to achieve this goal.
- For eg, **Marginal Operating Emission Rates:**
  - The additional pollution caused by using one more unit of electricity generation at a particular time and place,
  - Vary by time and location

Grid Emissions Vary by Time



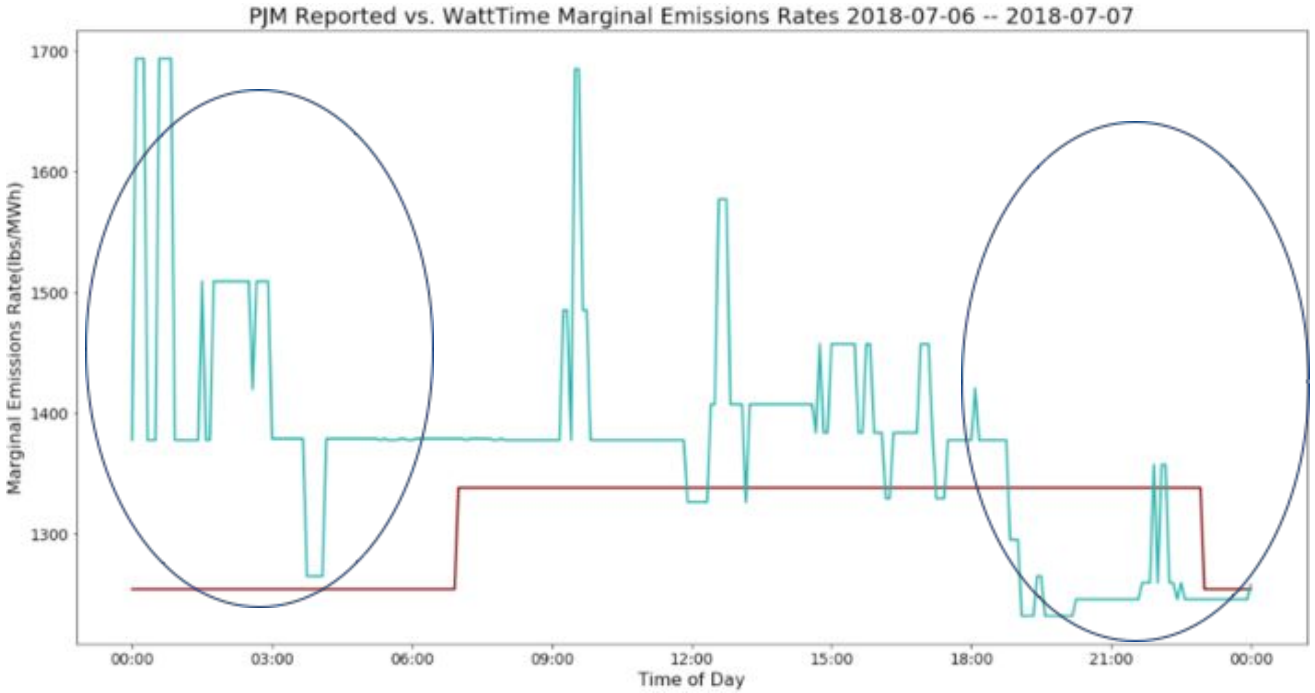
Grid emissions do not always correlate with wholesale energy price



Theoretical example grid

Grid emissions do not always follow a consistent pattern

Case Study: Maryland Energy Storage Pilot



PJM average marginal emission rates:

-On Peak: 1338 lbs/MWh CO2

-Off Peak: 1254 lbs/MWh CO2

- Red line illustrates the static value that the working group recommends for emissions calculations
- Blue line illustrates the true variability of the emissions intensity of the grid
- The use of a static value can cause unintended consequences for battery emissions

Grid emissions do not always correlate with peak demand

Case Study: MA Clean-Peak Standard

- **About the Program:** A resource that can discharge to the electric grid during certain windows would generate Clean Peak Energy Certificates

- **Program Goal**: Shift storage discharge to offset production from generators with high pollution emissions.

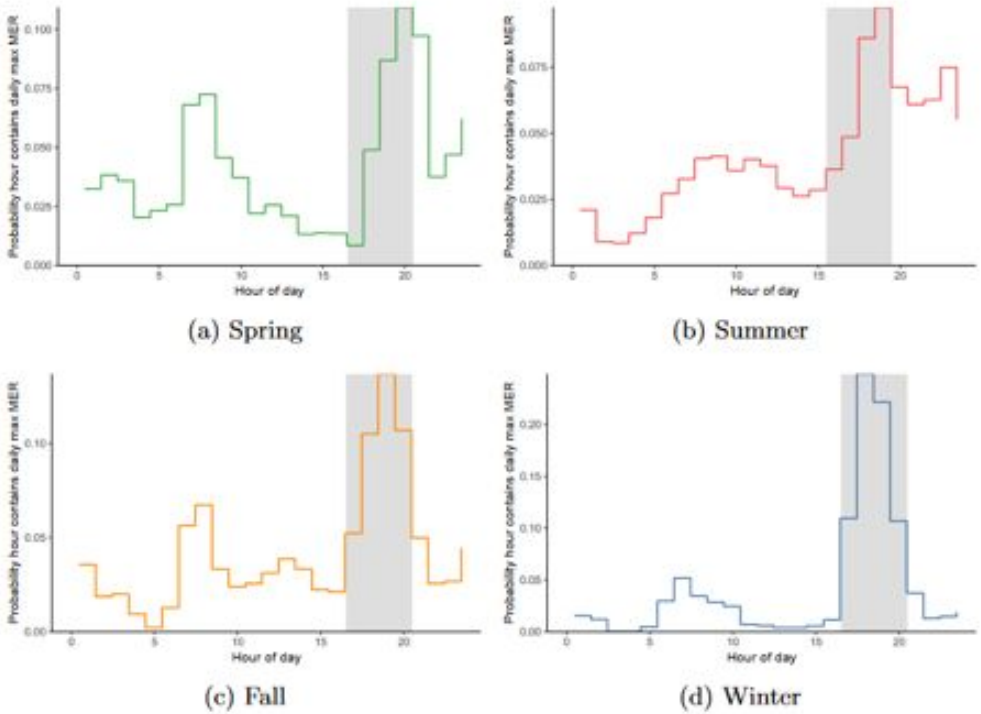
- Proposed seasonal “Clean Peak Windows”
  –Spring: 4 p.m. to 8 p.m.
  –Summer: 3 p.m. to 7 p.m.
  –Fall: 4 p.m. to 8 p.m.
  –Winter: 4 p.m. to 8 p.m.

- **Impact:** Policy is largely ineffective in achieving its goal.

ISO-NE SEMA

Average Hourly Marginal Operating Emission Rates

Figure 5: When Do Peak Emissions Occur?



Source: Shrader, Jeffrey and Christy Lewis, Gavin McCormick, Isabelle Rabideau, Burcin Unel, (Not So) Clean Peak Energy Standards (December 10, 2019). Available at SSRN: https://ssrn.com/abstract=3502271

Emissions don’t always correlate with rate structures and incentive patterns

Case Study: CA Self-Generation Incentive Program

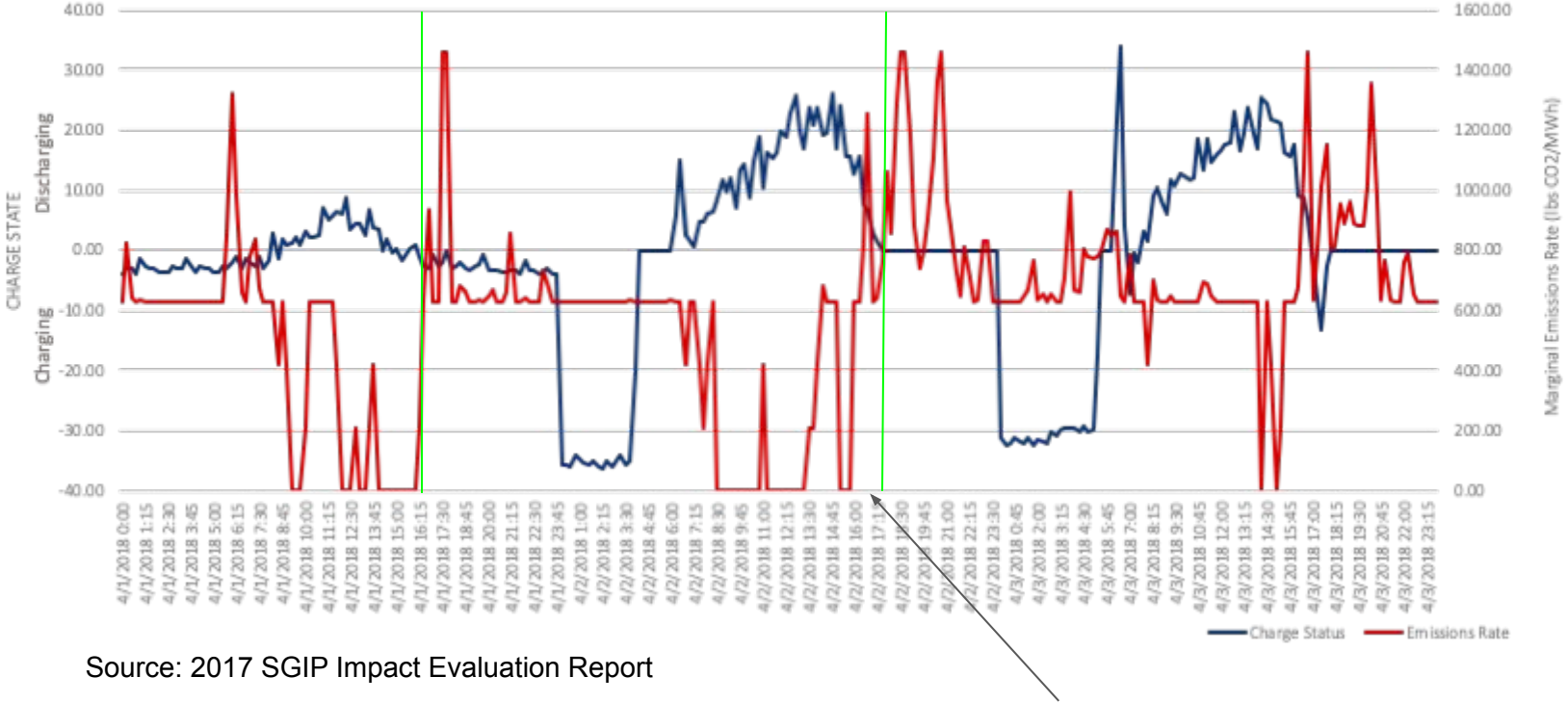
About the program: Rebates for qualifying distributed energy systems (such as energy storage) installed on the customer's side of the utility meter.

Program goals: Improve reliability of the distribution and transmission system, reduce emissions of greenhouse gases, and lower grid infrastructure costs

Proxy metric: Battery round-trip efficiency

Impact: SGIP commercial-storage projects increased annual GHG emissions by about 1,436 metric tons (2017 impact evaluation report).

Energy Storage Emissions Drivers



Source: 2017 SGIP Impact Evaluation Report

Emissions Mis-aligned Behavior: Battery discharging during lower emissions periods.

Proxies versus direct measurement as metrics

- Policymakers often rely on proxy metrics for achieving program goals (eg locational marginal price, time of use, etc).
- Proxy metrics may be easier to regulate and have lower costs to monitor/enforce than actual measurement of values such as air emissions.
- However, proxies can lead to unintended consequences like increased emissions.
- It is important to use direct measurements like marginal emissions rates if the goal of the program is to decrease emissions or increase clean energy.

Questions or comments?

Contact information

Christy Lewis: christy@watttime.org

Lekha Sridhar: lekha@watttime.org

MI POWER GRID

Making the Most of Michigan's Energy Future

Energy Programs & Technology Pilots
Closing Comments

Stakeholder Meeting 5

May 28, 2020

MPSC

Michigan Public Service Commission

Thank You and Please Stay Engaged

- Thank you for your participation.
- Please stay engaged:
  - Sign up for the listserv if you have not already
    - Go to www.michigan.gov/MIPowerGrid → Customer Engagement → Energy Programs and Technology Pilots → Scroll to bottom to add email
  - Attend future meetings
    - Every other Thursday.
      - June 11: Tentatively for 1:30 – 4:00 p.m.
      - June 25 (tentative meeting)

Thank You and Please Stay Engaged

- Please stay engaged:
  - Speak at a future meeting
    - Limited slots available for stakeholder input/experiences on important pilot topics and best practices.
    - If interested or have suggested speakers, email: Joy Wang at WangJ3@Michigan.gov

Thank you!