White Paper Topics

CALIFORNIA
TECHNICAL FORUM

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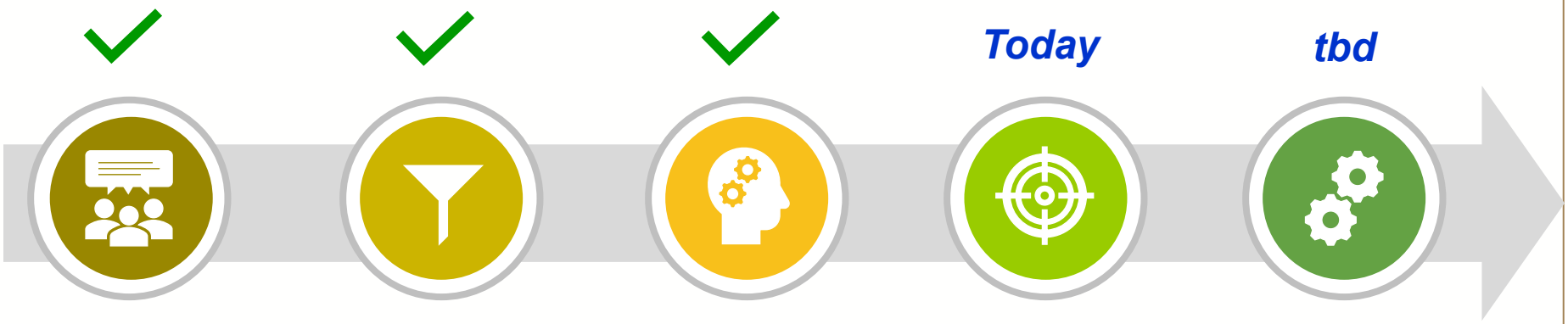
APRIL 23, 2020

White Paper Process



GATHER
15 suggestions from various sources (CPUC, CEC, TF members, etc.).

NARROW
Surveyed TF members and stakeholders to gauge value and interest; developed short list of 5 topics.

BRAINSTORM
Subcommittee meetings to identify key considerations, value, and importance.

PRIORITIZE
Today
"Champions" present topics, TF members provide input to prioritize topics and establish timelines.

DEVELOP
tbd
Cal TF Staff will work with champions and subcommittees to draft white papers.

Agenda

Fuel Substitution Measures	Jay Madden
EE Bundled Measures	Abhijeet Pande
EE + DR Bundled Measures	Martin Vu
Policy Guidance for Load Shapes	Armen Saiyan
Guidance for EE, Custom, and ET Measure Classification	Sepi Shahinfard

- 10-minute presentation of each topic
- 10-minute discussion/input period
- Next steps/prioritization

Thank you to our Champions!

#1 Fuel Substitution Measures

JAY MADDEN

APRIL 23, 2020

Fuel Substitution Measures

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Problem Statement & Objectives

- The CPUC adopted Fuel Substitution Technical Guidance in 2019 that must be applied clearly and consistently for the development of deemed fuel substitution measures.
- The new fuel substitution rules specify three sets of calculations/values that do not fit into the current measure and claims reporting process.
- The subcommittee has identified shortcomings in the Fuel Substitution Guidance/Calculator that should be addressed.

Value & Importance

- Standardize the implementation of fuel substitution measures in utility incentive programs
- Increase feasibility of implementing fuel substitution measures
- Influence on other initiatives and proceedings, such as the later track of decarbonization proceeding, integrated resource planning (IRP), market transformation, the potential & goals study, city (reach) and statewide codes & standards

Fuel Substitution Measures

Key Considerations

- Baseline definition: Baseline is unclear or under development for retrofits that trigger code
- Cost effectiveness (C/E):
  - Different CET approaches for fuel substitution measures yields different results
  - Are metrics aligned to GHG?
  - Align C/E with other programs, such as CARB cap-and-trade?
- Source energy values: Move to hourly values vs single value
- Infrastructure costs: Methodology for quantifying infrastructure costs has been developed but needs to be refined; market data and evaluation results will help to improve ex ante cost estimates over time
- Implementation: Customers in milder (non-AC) geographic areas might add AC load after switching to from heating only to an electric heat pump

Resources

- Fuel Substitution Technical Guidance & Fuel Substitution Calculator
- D.19-08-009, other CPUC decisions
- NYSERDA
- LBNL, NREL, E3 Potential Study

Fuel Substitution Measures

Additional Input

- Add input from April 23 TF meeting here.

#2 EE Bundled Measures

ABHIJEET PANDE

APRIL 23, 2020

EE Bundled Measures

Problem Statement & Objectives

- A bundled EE measure is the combination of two or more EE measures for which savings are developed and that are offered to end users as a single offering.
- The white paper will present key considerations and propose recommendations that will facilitate standardization/consistency of documentation, treatment of interdependencies/interactive effects, and other key parameters.
- Examples : TXV + showerhead, home energy upgrade, HVAC controls/lighting controls, smart thermostat, industrial pumping system upgrades.

Value & Importance

- Could increase market penetration of EE measures
- Whole-building impact from bundled measures (compared to single widget)
- Bundled EE measures support higher-level statewide goals including: decarbonization/electrification, zero net energy (ZNE), and reaching stranded savings.

EE Bundled Measures

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Key Considerations

- Definition
  - Do all measures in the bundle have to be installed at the same time?
  - Should a bundled measure be a hybrid measure? a custom measure? (What is the most appropriate savings calculation approach?)
- Technical
  - Bundled measures make standardization more challenging
  - Model measures together or separately? Whole-building simulation?
  - Model calibration with AMI data
  - Baseline assumptions
- Implementation
  - Are all measures in bundle installed and documented correctly?
  - # of choices increases complexity for implementers
  - Bundles can be more attractive to end user (more installed at once) and implementer (simplicity)
- Policy
  - How implementation parameters, such as EUL, should be calculated
  - C/E calculated for bundled measures better supports program design (a bundle could be cost effective even if single measures by themselves are not)
  - Bundles are not encouraged in CA

Resources

- LBNL “beyond widgets” working with various utilities to get bundles into portfolio
- DOE funded “Landscape Study” to compare savings modeled as one bundle or as separate measures (Navigant, now Guidehouse, Jan 2018)
- Custom program data
- Home Energy Upgrade EM&V studies

EE Bundled Measures

Additional Input

- Add input from April 23 TF meeting here.

#3 EE + DR Bundled Measures

MARTIN VU

APRIL 23, 2020

EE + DR Bundled Measures

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Problem Statement & Objectives

- A bundled EE + DR measure is the combination of at least one EE measure and at least one DR measure for which EE savings are developed and that are offered to end users as a single offering.
- The white paper will present key considerations and propose recommendations that will facilitate standardization/consistency of documentation, treatment of interdependencies/interactive effects, and other key parameters.
- Examples: smart thermostat, heat pump water heater + DR controller (new for PG&E).

Value & Importance

- Could increase market penetration of EE measures and DR measures
- Encourages flexible DR rather than traditional DR

EE + DR Bundled Measures

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Key Considerations

- Definition
  - Should a bundled measure be a hybrid measure? a custom measure?
  - What is the most appropriate savings calculation approach?
- Cost effectiveness (C/E)
  - How will the new default TOU rates affect C/E?
  - EE and DR have different C/E metrics (program vs measure)
  - The DR coincident peak savings will vary and deemed savings will most likely not be a good option. Additionally, you would need to lock down the coincident peak savings on a per-utility and possibly per-circuit basis—this would also be dependent on each year.
  - Methodology to parse out impacts of EE and DR needs to be developed/standardized
- Implementation
  - Creating measure bundles for a wide range of customers could be difficult; there is no "one-size" fits all and different bundle types should be created for different application types
  - Not all customers can take advantage of DR equally (need to state exclusions clearly)
  - DR needs are emerging and changing faster than programs

Resources

- Capacity bidding programs/DR Aggregators, past CBP evaluations
- Title24 – DR enablement
- LBNL DR Research Center
- Home Energy Upgrade EM&V studies

EE + DR Bundled Measures

Additional Input

- Add input from April 23 TF meeting here.

#4 Policy Guidance for Load Profiles

ARMEN SAIYAN

APRIL 23, 2020

Policy Guidance for Load Profiles

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Problem Statement & Objectives

- The set of *statewide* 8,760 electric load profiles is currently limited to 7 commercial and 14 residential. Ongoing activities by the DOE, CEC, and RTF are producing or updating end-use profiles.
- The objective of this white paper is to establish guidance with respect to the development of CA *energy savings load profiles* to ensure that we achieve the appropriate level of detail to meet immediate and long-term needs for identified use cases (cost-effectiveness, GHG calcs, peak-period estimation, etc).

Value & Importance

- Transparency, traceability
- Timing for updates
- Potential impact on cost effectiveness (C/E)
- Optimizes value of EE due to increased focus on using EE to avoid high peak.
- Potential & Goals study
- IRP
- Decarbonization
- Market transformation initiatives

Policy Guidance for Load Profiles

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Key Considerations

- Need "right" load shapes to develop programs that best meet market and policy need.
- Load Profiles vs Savings Profiles:
  - For many but not all end-use load profiles are reasonably close to the end-use/measure savings load profiles. A measure that does not generate the same % savings at all hours of the end-use operation is not well represented by the end-use load profile. (Ex: HVAC economizer)
  - Cal TF should focus on measure *savings* load profiles
  - For transparency we want to know how savings load profiles are derived
  - CEC/ADM are end use load profiles, not savings load profiles
- Level of Detail:
  - Some C/E tools use TOU buckets instead of 8760s
  - Consider dynamic load profile generator that changes profile based upon selected parameters
  - Consider whole-building vs end use
  - Need guidance for NMEC, which involves multiple measures and could necessitate program or population level profiles.
- Documentation & Transparency
  - Age and lack of documentation of current load profiles is a significant obstacle despite wide-scale use
  - CEC/ADM load profiles are more transparent
  - Demand for documentation will increase w/ NMEC

Resources

- CEC/ADM
- DOE nationwide end use profile project
- DNV GL updates for DEER measures
- DERIM/DRPEP/ICA maps for disaggregated circuit/substation level load profiles
- EnergyAtlas/CATALENA for potential data / input
- Leverage new RASS data when released

Policy Guidance for Load Profiles

Additional Input

- Add input from April 23 TF meeting here.

#5 Classification of Measures

SEPI SHAHINFARD

APRIL 23, 2020

EE, Custom, & ET Measure Classification

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Problem Statement & Objectives

- Entrepreneurs, vendors, and implementers are not clear on how to get a new measure into the California IOU / POU EE portfolios, and if/when/how to pursue the emerging technologies (ET), custom, or deemed path.
- The objective of this white paper is to develop clear definitions and criteria for the following measure types and pathways into the EE portfolio: deemed, custom, and ET.

Value & Importance

- It is important to establish clear, consistent, and transparent measure definitions, criteria that will be utilized in the New Measure Development and Update Review Process through which 3Ps will propose new EE measures.
- Classifications of EE measure types will provide measure developers with clarity and understanding of pathways into the EE portfolios.
- Measures that were denied in one pathway (deemed, for example) could enter another (ET for example) instead of “hitting a wall”.

EE, Custom, & ET Measure Classification

Key Considerations

- There is currently no centralized guidance for measure classification
- Guidance does exist (separately) for various measure types (for IOUs)
  - Deemed Rulebook, Custom Rulebook, Fuel Substitution Technical Guidance, NMEC, etc.
- Under what circumstances can an ET measure become deemed? custom?
- How are ET and RD&D measures distinguished?
- Can a measure be deemed for certain applications and custom or ET for others?
  - For example, a different classification for specific for CZs, building types, etc.

Resources

- Existing CPUC guidance (listed above), decisions, resolutions
- SEE Action Guide: Guidance on Establishing and Maintaining TRMs
- ETP definitions and criteria for ET measures

EE, Custom, & ET Measure Classification

Additional Input

- Add input from April 23 TF meeting here.

Next Steps

White Papers

- Cal TF Staff will compile and set schedule with subcommittees
- Interested in subcommittee? Send Jennifer or Ayad email by Friday May 1st.

Next Cal TF Meeting: June 25th

- TBD if in-person or online