2020 Cal TF Business Plan

CALIFORNIA
TECHNICAL FORUM

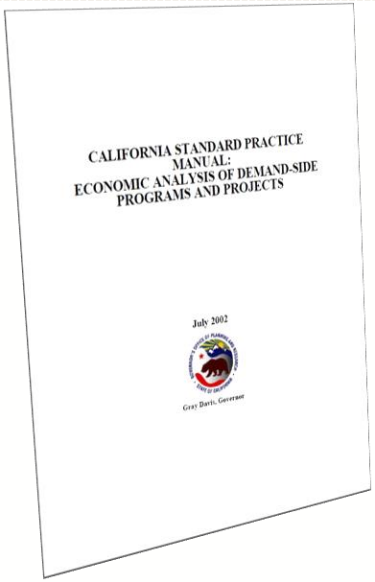
ANNETTE BEITEL
AYAD AL-SHAIKH
ROGER BAKER
DEC 16TH – PAC MEETING

Agenda

- Focus on impactful issues that have potential to increase opportunity for savings, cost-effectiveness and EE potential, including
  - CET calculation methodologies/inputs (IOU and POU)
  - Valuing GHG savings
  - Reviewing potential study methodology
  - Extending deemed measures to new measure types
  - BP Item Removed: Custom Process Improvement

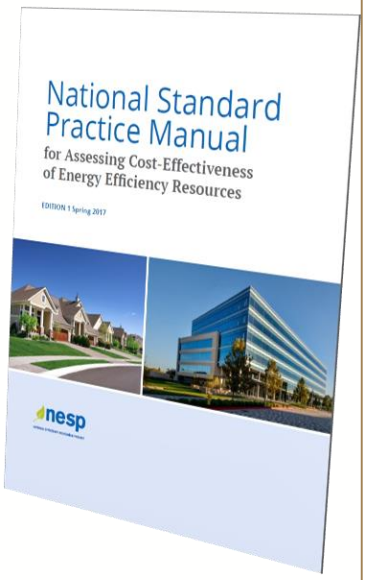
CET Calculation Methodologies / Inputs

Background; C/E Test (TRC)



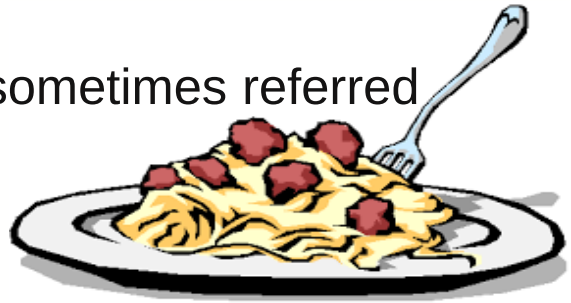
- CA C-E tests are based on the California Standard Practice Manual (October 2001), modified by D.06-06-043 and D.07-09-043
- Nationally developed C/E guidance (Spring 2017)

- CA test not aligned with national TRC test or TRC calculations in any other jurisdiction in one key respect
  - CA includes Incentives for free riders as program costs in TRC
  - Result: **Reduces CA TRC**



IOU and POU Tool Comparison

- IOU CET was compared with E3 POU calculator
  - Energy Platforms code was not available for inspection
  - Key difference from E3 POU calculator and EP tool is the incorporation of **hourly load shape data for energy savings and CO_2 impacts**
  - Many issues with IOU CET tool
    - Certain values (GHG) not correctly calculating (underreports GHG); CPUC fixing
    - No documentation/administrator manual/schema
    - Quality of code
    - Stability of code – questionable, sometimes referred to as “spaghetti code”



Tool Comparison – Findings

- The underlying tools are fairly similar
  - This owes to them originating from the same basic E3 tool
  - The EP tool builds on the E3 capabilities by incorporating hourly data into its analyses
  - EP tool also provides more sophisticated data rendering
    - Graphs, charts, powerful presentment capabilities built-in
  - CET is designed as a high-volume cost-effectiveness calculator
    - Not designed as a data presentment tool or for analytics (no what-if scenario capability)

Discussion: Desired Future State?

- C/E Calculation Approach
  - Standardized across IOUs and POUs
  - Consistent with National TRC Approach
    - Incentives for free riders not treated as program costs
  - Hourly inputs
    - Load profiles and GHG emissions
    - GHG emissions – customizable to all utility specific values (LADWP)
  - All avoided cost elements valued
    - T&D can be included (or not)
  - Carbon reporting calculation consistent across state
    - GHG - for purposes of reporting pounds of carbon reduction
  - Include all “resources” in calculation
    - Treat water as “resource” in CA

Discussion: Desired Future State?

- Tool Features
  - Tool in PostgreSQL, documented, transparent (can be inspected), includes documentation, user manual, schema
  - Sophisticated data analytics and presentment
  - No license fee
  - Web-based interface

Valuing GHG Savings

Greenhouse Gas Impact

- Current approach to calculating greenhouse gas impacts of EE measures is complex
  - Starts with CPUC-adopted Avoided Cost Calculator
    - Determines annual average GHG per MWh of energy
    - Parses annual value to hourly value per MWh based on supply mix
      - Assumes all avoidable supply comes from natural gas turbine
      - Uses market price as proxy for supply mix
      - Assumes higher market price reflects less efficient gas turbines
      - Lower market price would reflect increasing amount of renewables in mix
    - These were most recently updated in August 2019

Greenhouse Gas Impact

- ACC output is then “rolled up” for inclusion in Cost-Effectiveness Tool (CET)
  - Performed using Excel tool (e.g., SCE_PreProc mm-dd-yyyy.xlsm)
  - Uses hourly emissions outputs from ACC
  - Uses hourly end-use profiles from DEER 2011
  - Uses Time-of-Use mapping by utility
    - Addresses on-peak, partial peak, off-peak
    - Summer and Winter seasonal periods
  - Aggregates values to quarterly and annual values
  - Output from pre-processor tool is used to populate CET tables in SQL Server database

Greenhouse Gas Impact - POU

- CMUA guidance provides several options
  - Use CEC-forecasted emission rates
    - Need CEC buy-in
  - Use GHG methodology and emission rates developed by CARB
    - Viewed as over-simplistic, not very robust
    - May not be acceptable to CEC
  - Develop POU-specific emission rates
    - Would be most accurate
    - Also most expensive option, perhaps cost-prohibitive for smaller POUs
  - Adopt emission rates based on E3 analyses for IOUs
    - Can be seen as most viable near-term
    - Data already exists, is considered robust by regulators

Recent Rulings

- Avoided Cost Calculator updated to reflect changes in supply mix
  - More renewables
- Fuel Substitution Decision may affect how emissions rates are determined and monetized
  - Currently, ACS uses average emissions rates
  - Load-building activities like gas-to-electric fuel substitution would be better served by using long-term marginal emission rates
  - No change adopted yet, due to complexities involved in modifying existing tools
- These (and other, unforeseen future decisions) may affect the hourly emission rate values

- **However, the methodology proposed for eTRM should be flexible enough to incorporate any changes that may occur in future.**

Greenhouse Gas Impact

- Proposed eTRM methodology will use hourly profiles for energy savings and CO_2 emissions
- This approach will satisfy POU near-term desire for hourly emission impact data at measure level
- It also provides maximum flexibility to address emergent needs
  - Changes in DEER peak methodology
  - Allows rapid incorporation of new measures
    - Once a savings load shape is derived, the emissions profile and impacts can be readily determined in eTRM
  - In the future, it may allow tools like ACC and CET to be streamlined by offloading emissions calculations to eTRM
    - ACC may still monetize GHG at unitary rate and feed that value to CET
    - ACC would still generate avoided cost components, but would feed directly to CET
    - Emissions profile (and savings load shape) can be transmitted to CET from eTRM as part of measure packet
    - CET can then monetize estimated savings using unitary rate provided by ACC
    - This could eliminate the pre-processing step between ACC and CET

Reviewing Potential Study Methodology

Reviewing Potential Study Methodology

- General belief that current process is opaque, difficult to follow, and not very accurate
- CPUC held 2-day workshop on P&G process
  - Next study cycle begins July/August 2020
  - Questions raised regarding integration of fuel-substitution
    - Process
    - Quantification
    - Should study metric be changed from achievable kWh/therms to achievable carbon reduction?
- PAC Feedback
  - A more inclusive process, in general, will benefit all parties
  - CalTF should lead process reform discussions. Some key objectives:
    - Transparency
    - Ensure that emerging technologies and BRO savings get captured
    - Ensure that baselines reflect what exists in state today

Extending Deemed Measures to New Measure Types

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- New Measure Types
  - Procedural
    - Savings from ex post; Example: Universal Audit Tool
  - Existing conditions/flexible baseline
    - Whole building / AB802 measures
    - Focus on customer-type specific baselines due to customer type/size, building vintage, etc.
  - Targeted
    - Focus on customer-type specific baselines due to geography for water-energy savings, hard-to-reach, constrained areas, etc.
  - Fuel substitution
    - SCE submitting several examples now
  - NMEC
  - Simple measure bundles (ZNE and decarbonization)
  - Codes and Standards
  - Hybrid *(included in later slides)*
    - Streamline custom to improve rigor, improve customer experience, and increase participation

Goal #6: Hybrid Measure Concept

- Goals
  - For a discrete (but growing) number of custom measures
  - Clarity on the submittal is expected to result in packets that:
    - Provide deeper / more complete documentation
    - Require less review / oversite
    - Provide clarity and assurance on the approval process
    - Result: More projects and better *Customer Experience*

  - Captures data in a structured format that could:
    - Improve inputs over time
    - Result in converting the hybrid measure to a deemed measure
- LADWP Success
  - 60% of the custom projects = 10% of the savings
  - Increased participation in custom program
  - Focus engineering efforts on larger projects