Food Services Subcommittee Meeting #3

CALIFORNIA
TECHNICAL FORUM

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Topics to Cover

- Materials:
  - Food Services, Sub Comm Mtg #3, r1.xls
  - Technology Summary - 2.0 Food Service r3.4.xls
- Cost Questions
  - Difference still exist
    - Additional cost documentation may be available to make this a mute point
  - See Project Cost description – *Thanks Chan!*
- Measures:
  - Pre-Rinse Spray Valves
  - High Density Holding Cabinet
- Open Action Items
  - Review Yellow items in Technology Summary file

Cost Questions

- Can't reproduce costs; if newer data is available, this may not be an issue
  - Feedback: Does the team believe that costs should be update for all measures where the data already exists? (Note that this could be out of sequence with updating savings values.)
    - 2.01, Com Convection Oven
    - 2.02, Commercial Dishwashers
    - 2.03, Commercial Combination Oven
    - 2.06, Commercial Ice Machines
    - 2.07, Insulated Hot Food Holding Cabinets – (not checked)
    - 2.11, Gas & Electric Fryers
- Tax included
  - Agreed that this is correct based upon the feedback from Working Group #1.
    - 2.09, Commercial Electric Deck Oven
    - 2.10, Commercial Hand Wrap Machines
  - Feedback: Does this effect the calculations for all other Food Services measures.

2.13, Low-Flow Pre-Rinse Spray Valves (PRSV)

- Should “hours/day” change with Flow Rate?
  - Study Result: Hours/day = -0.1322 x Flow Rate +1.176
  - Last meeting: Recommendation to keep unchanged
  - Change in values is
    - 2-4% for 1.4 gpm
    - 4-7% for 1.6 gpm
- Base case flow rate
  - 1.6 gpm - Energy Policy Act Section 119 Stat 632, pp 40
  - 1.4 gpm - Programs conducted by the CUWCC in California from 2002-2006
- Measure case flow rate
  - 1.07 gpm / 1.15 gpm / 1.28 gpm

2.13, PRSV - Permutation Review

- Variation by Climate Zone = 11%
- Add permutations by CZ for PG&E and SCG

Climate Zone	Base Case Flow (gpm)	Hours/Day	Measure Case Flow (gpm)	Hours/Day	Days/yr	Mix Water Temp (°F)	Supply Water Temp (°F)	Water Heater Efficiency (%)	Base Case Usage (Th/yr)	Measure Case Usage (Th/yr)	Energy Savings (Th/yr)
1	1.40	0.991	1.28	1.007	365	114.1	51.4	70%	226.7	210.6	16.1
2	1.40	0.991	1.28	1.007	365	114.1	57.3	70%	205.4	190.8	14.6
3	1.40	0.991	1.28	1.007	365	114.1	57.1	70%	206.1	191.4	14.6
4	1.40	0.991	1.28	1.007	365	114.1	59.5	70%	197.4	183.4	14.0
5	1.40	0.991	1.28	1.007	365	114.1	55.8	70%	210.8	195.8	15.0
6	1.40	0.991	1.28	1.007	365	114.1	61.8	70%	189.1	175.6	13.4
7	1.40	0.991	1.28	1.007	365	114.1	62.6	70%	186.2	173.0	13.2
8	1.40	0.991	1.28	1.007	365	114.1	63.7	70%	182.2	169.3	13.0
9	1.40	0.991	1.28	1.007	365	114.1	63.8	70%	181.9	168.9	12.9
10	1.40	0.991	1.28	1.007	365	114.1	64.1	70%	180.8	167.9	12.8
11	1.40	0.991	1.28	1.007	365	114.1	63.2	70%	184.0	170.9	13.1
12	1.40	0.991	1.28	1.007	365	114.1	60.9	70%	192.3	178.7	13.7
13	1.40	0.991	1.28	1.007	365	114.1	64.1	70%	180.8	167.9	12.8
14	1.40	0.991	1.28	1.007	365	114.1	62.7	70%	185.8	172.6	13.2
15	1.40	0.991	1.28	1.007	365	114.1	75.5	70%	139.6	129.6	9.9
16	1.40	0.991	1.28	1.007	365	114.1	51.8	70%	225.2	209.2	16.0
										Average	13.7
										Standard Deviation	1.5
										% Std Dev	11%

- Verify ground water temperature list

2.13, PRSV - Cost

- Methodology
  - PG&E - List cost with 50% derating factor (base–4; measure–2)
  - SCG - Direct quotes (base–4; measure–21)
- Direct Install
  - Labor cost included
    - SDG&E (Material + $23.22)
    - SCG (Material + $21.69)
    - 2013 RS Means Mechanical Cost Data, 224139.10.5000, bare labor costs of $18.60 multiplied by Los Angeles Installation Weighted Average value of 116.6

2.13, PRSV - Delivery

- Measure Application Type
  - REA – SCG
  - ROB – SDG&E
  - ROBNC – PG&E
  - This seems like an REA measure.

2.17, High Density Holding Cabinet

- Cost
  - ROB application compares 3-unit base case with 2-unit measure case
  - Should the difference in labor cost be included?
    - If so, we may need an additional data field to capture base case labor cost.
- Coincident Demand Factor (CDF)
  - Assumed to be 0.9 for Food Services measures
    - This value takes into account some portion of the units that are off during weekdays, 2-5pm.
  - Revisit CDF for Hand Wrap Machine
    - Should this include the 0.9 CDF factor even if measured?

2.17, High Density Holding Cabinet

- Savings
  - Offerings are broken up into 20-hr and 24-hr units
  - ET paper shows that the 20-hr units save more energy
    - Seems to be swapped in workpaper. Which is correct?
    - Consider:
      - Using only one offering for both 20-hr and 24-hr units
      - This may not be the most sensitive parameter that governs savings
  - SDG&E approach to finding Daily Energy (kWh/day) is not clear