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Subject: Summarizing and Comparing the Number of Measures in Several TRMs and DEER

Date: May 4, 2016 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

To begin assessing the appropriate level of measure detail to design into the California eTRM, several TRMs across the country were referenced to see how many measures they included and in what ways they were organized. The table below represents a high-level overview from five TRMs as well as measures addressed in California (via DEER, IOU Workpapers or POU TRM). The TRMs referenced were chosen for a couple of reasons. They were all recently updated and they were all developed by different authors. This should ensure they represent the most current measures being implemented in the marketplace and represent a diverse view of how to organize and present the measure details as outlined in the respective TRMs.

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| --- | --- | --- | --- | --- | --- | --- |
| TRM | Author | Commercial & Industrial Measures | | Residential Measures | | Total Measures |
| Category (#) | Total | Category (#) | Total |
| Texas TRM- Version 3.1, March 2016 | Tetra Tech | Lighting/Ltg Cntrls (2)  HVAC (4)  Building Envelope (2)  Food Service (7)  Refrigeration (8)  Miscellaneous (3)  Renewables (1) | 27 | Lighting (4)  HVAC (5)  Building Envelope (6)  DHW (7)  Appliances (4)  Renewables (1)  Load Management (2)  Appliance Recycling (1) | 30 | 57 |
| Wisconsin Focus on Energy TRM, October 22, 2015 | Cadmus | Agricultural (3)  Boilers & Burners (5)  Compressed Air, Vacuum Pumps (5)  DHW (1)  Food Service (7)  HVAC (27)  Lighting (50)  Other- DEET Behavioral Savings (1)  Process (4)  Refrigeration (5)  Renewable- GSHP (1) | 109 | Boilers (4)  Building Shell (1)  DHW (12)  HVAC (4)  Laundry (1)  Lighting (21)  Motors & Drives (2)  Other- MF Benchmarking (1)  Renewable (3) | 49 | 158 |
| Nothwest RTF | Northwest RTF | Agricultural (9)  Appliances (3)  Cooking Equipment (6)  DHW (3)  Grocery (11)  Smart Plug/Strips (1)  LED Traffic Signals (1)  School Weatherization (1)  Lighting (1)  HVAC (1)  Compressed Air (1)  Motor Rewind (1) | 39 | Advanced Power Strips (2)  Appliances (5)  DHW (3)  Heating/Cooling (13)  Lighting (3)  New Construction (8)  Weatherization (7) | 41 | 80 |
| Illinois TRM  Version 5.0  Effective 6/1/16 | VEIC | Agricultural (4)  Food Service (19)  DHW (9)  HVAC (37)  Lighting (14)  Refrigeration (9)  Compressed Air (5)  Miscellaneous (4) | 101 | Appliance (10)  Consumer Electronics (2)  HVAC (16)  DHW (8)  Lighting (8)  Building Shell (4) | 48 | 149 |
| New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs  Version 3  Effective 1/1/16 | E² Working Group | Agricultural (1)  Appliance/Appliance Control (2)  Building Shell (3)  Compressed Air (4)  DHW (2)  DHW Control (2)  HVAC (8)  HVAC Control (1)  Lighting (2)  Lighting Control (1)  Motors & Drives (2)  Refrigeration/Refrig. Controls (5) | 33 | Appliance/Appliance Control (4)  Appliance Recycling (2)  Building Shell (5)  DHW/DHW Controls (7)  HVAC/HVAC Controls (15)  Lighting (1) | 34 | 67 |
| DEER/IOU Workpapers/POU TRM | CPUC ED, CA IOUs, POUs | Agriculture (8)  Food Service (19)  Refrigeration (13)  HVAC (33)  Lighting (34)  Building Envelope (4)  Process ((14)  DHW (8)  Appliance/Plug Load (5)  Miscellaneous (2)  Pools (3) | 143 | Appliance/Plug Load (11)  HVAC (16)  Pools (4)  DHW (6)  Lighting (4)  Building Envelope (3) | 44 | 187 |

From the table, it is clear that it is common to differentiate residential measures from commercial & industrial measures. There also appears to be a pretty common breakdown within those two groups for most major sub-categories (i.e. lighting, HVAC, refrigeration, DHW, etc). It is interesting to note that within those sub-categories that there become pretty significant differences in the number of specific measures covered. In certain TRMs like Texas, this would include a limited number of measures in categories that are traditionally high impact measures in portfolios (e.g. lighting). This should be further investigated to determine if these measures are no longer in these portfolios because savings have eroded, or are they processed differently, perhaps as custom measures. The varying number of sub-measures in a specific category may also reflect potential streamlining in how a sub-category is offered which also warrants further investigation. Overall, the data seems to reflect pretty consistent measure categorization in the various TRMs, and the range in the overall number of measures is also comparable. It may provide useful insights to further investigate the way the three TRMs reviewed with a smaller number of measures (Texas 57, NW RTF 80, New York 67) are organized to determine if there is any methodologies employed differently than in the other TRMs reviewed that had a larger list of measures (IL 149, WI 158, CA 187). These insights may provide guidance on how to efficiently organize the California eTRM.