

eTRM Phase 3 Enhancement List - Update



CALIFORNIA
TECHNICAL FORUM

ROGER BAKER
OCTOBER 23, 2019

eTRM Version 1.0

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- Live measures were published October 15
- eTRM consolidates data into one user-friendly location
- Phase 3 enhancements will build upon current functionality
 - Many enhancements address requests raised by core team during Phase 1 & 2 development
 - Some enhancements address issues raised by regulators

eTRM Version 1.0

3

Measures were published October 15

Phase 3 enhancements will build upon current functionality

- Many address requests raised by core team during Phase 1 & 2 development
- Some address issues raised by regulators



eTRM vs. DEER

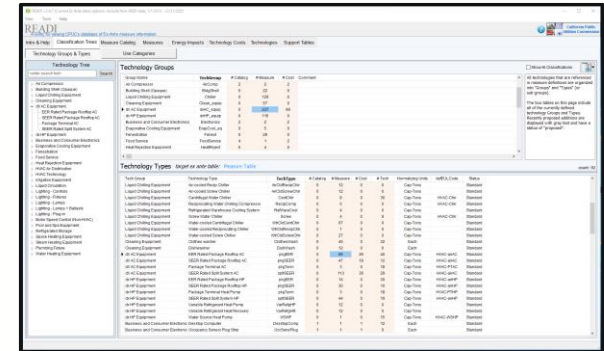
4

Let's compare the process of finding a single measure.

Accessing Measure Information Through DEER

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- READI
 - ❑ Ex Ante Values (savings, cost, NTG...)
 - ❑ For some measures
- DEEResources.net
 - ❑ Workpaper Access
 - ❑ For all workpapers
 - ❑ Not always the latest version
- DEEResources.com
 - ❑ *Information / Downloads / Links*



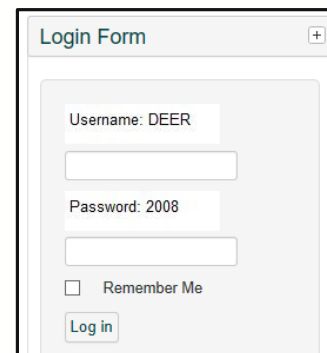
Technology Group	Technology Type	NTG	Cost	Savings
...

Technology Type	NTG	Cost	Savings
...

Filter options for DEER resources:

Sector: Any | Use Category: Any Appliance or Plug Load, Building Envelope, Commercial Refrigeration | PA: Any, Statewide (All), SCC, SCE | Technology Group: Any, Air Compressor, Anaerobic Digester, Audit, Information, Testing Services, Building Shell (Opaque), Liquid Chilling Equipment, Cleaning Equipment, Cooking Equipment, DX AC Equipment, dx HP Equipment, Business and Consumer Electronics, Evaporative Cooling Equipment, Facultative Pond Aerator, Fenestration

Buttons: Filter files, Reset filters. Tip: hold control (command on a Mac) to select more than one option at a time



Login Form

Username: DEER

Password: 2008

Remember Me

Log in

DEER Ecosystem - READI

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READI v.2.4.8 (Current Ex Ante data) options: include Non-DEER data; 1/1/2013 - 12/31/2025

View Tools Help

READI
A utility for viewing CPUC's database of Ex-Ante measure information

California Public Utilities Commission

Intro & Help Classification Trees Measure Catalog Measures Energy Impacts Technology Costs Technologies Support Tables

Energy Impacts

Energy Impact ID: D03-206 Version: DEER2005
 Measure ID: D03-206 Qualifier: None
 Measure Description: Grocery, Medium Temp Glass Doors (open display cases)

Energy Impact Values *All impacts are "per Len-ft"*

	Whole Building Impacts			Direct End-Use Impacts		
	kWh/unit	kW/unit	therm/unit	kWh/unit	kW/unit	therm/unit
Above Pre-Existing	170	0.0346	37.9	0	0	0
Above Code/Standard:	170	0.0346	37.9	0	0	0

Energy Impacts List

click on column titles to filter the list of impacts

count: 105 Display Graph

EnergyImpactID	Version	PA	Building Type	Building Vintage	Location	HVAC Type	NormUnit	NumUnit	WB-Pre_kWh	WB-Pre_kW	WB-Pre_therm	WB-Std_kWh	WB-Std_kW	WB-Std_therm
D03-206	DEER2005	Any	Gro	1975	C201	Any	Len-ft	196.00	170.4	0.035	37.94	170.4	0.035	37.94
D03-206	DEER2005	Any	Gro	1975	C202	Any	Len-ft	196.00	113.4	0.056	24.41	113.4	0.056	24.41
D03-206	DEER2005	Any	Gro	1975	C203	Any	Len-ft	196.00	112.7	0.016	28.54	112.7	0.016	28.54
D03-206	DEER2005	Any	Gro	1975	C204	Any	Len-ft	196.00	101.5	0.111	22.60	101.5	0.111	22.60
D03-206	DEER2005	Any	Gro	1975	C205	Any	Len-ft	196.00	102.7	0.005	26.30	102.7	0.005	26.30
D03-206	DEER2005	Any	Gro	1975	C206	Any	Len-ft	196.00	44.0	0.050	20.39	44.0	0.050	20.39
D03-206	DEER2005	Any	Gro	1975	C207	Any	Len-ft	196.00	43.5	0.019	17.76	43.5	0.019	17.76
D03-206	DEER2005	Any	Gro	1975	C208	Any	Len-ft	196.00	60.8	0.009	15.39	60.8	0.009	15.39
D03-206	DEER2005	Any	Gro	1975	C209	Any	Len-ft	196.00	72.0	0.114	15.57	72.0	0.114	15.57
D03-206	DEER2005	Any	Gro	1975	C210	Any	Len-ft	196.00	72.8	0.092	15.26	72.8	0.092	15.26
D03-206	DEER2005	Any	Gro	1975	C211	Any	Len-ft	196.00	143.6	0.052	20.87	143.6	0.052	20.87
D03-206	DEER2005	Any	Gro	1975	C212	Any	Len-ft	196.00	110.4	0.072	21.67	110.4	0.072	21.67
D03-206	DEER2005	Any	Gro	1975	C213	Any	Len-ft	196.00	127.9	0.114	17.77	127.9	0.114	17.77
D03-206	DEER2005	Any	Gro	1975	C214	Any	Len-ft	196.00	181.4	0.071	18.12	181.4	0.071	18.12
D03-206	DEER2005	Any	Gro	1975	C215	Any	Len-ft	196.00	43.2	0.031	8.96	43.2	0.031	8.96
D03-206	DEER2005	Any	Gro	1975	C216	Any	Len-ft	196.00	145.1	0.019	26.07	145.1	0.019	26.07
D03-206	DEER2005	Any	Gro	1985	C201	Any	Len-ft	196.00	189.1	0.060	39.59	189.1	0.060	39.59
D03-206	DEER2005	Any	Gro	1985	C202	Any	Len-ft	196.00	148.5	0.046	26.15	148.5	0.046	26.15
D03-206	DEER2005	Any	Gro	1985	C203	Any	Len-ft	196.00	156.4	0.029	31.43	156.4	0.029	31.43
D03-206	DEER2005	Any	Gro	1985	C204	Any	Len-ft	196.00	144.4	0.081	24.80	144.4	0.081	24.80
D03-206	DEER2005	Any	Gro	1985	C205	Any	Len-ft	196.00	147.7	0.024	29.20	147.7	0.024	29.20
D03-206	DEER2005	Any	Gro	1985	C206	Any	Len-ft	196.00	125.6	0.033	24.57	125.6	0.033	24.57
D03-206	DEER2005	Any	Gro	1985	C207	Any	Len-ft	196.00	106.4	0.031	22.15	106.4	0.031	22.15
D03-206	DEER2005	Any	Gro	1985	C208	Any	Len-ft	196.00	114.1	0.013	18.79	114.1	0.013	18.79
D03-206	DEER2005	Any	Gro	1985	C209	Any	Len-ft	196.00	117.0	0.090	18.63	117.0	0.090	18.63
D03-206	DEER2005	Any	Gro	1985	C210	Any	Len-ft	196.00	123.5	0.079	17.66	123.5	0.079	17.66
D03-206	DEER2005	Any	Gro	1985	C211	Any	Len-ft	196.00	169.2	0.048	22.27	169.2	0.048	22.27
D03-206	DEER2005	Any	Gro	1985	C212	Any	Len-ft	196.00	144.9	0.072	23.35	144.9	0.072	23.35
D03-206	DEER2005	Any	Gro	1985	C213	Any	Len-ft	196.00	163.3	0.101	19.09	163.3	0.101	19.09
D03-206	DEER2005	Any	Gro	1985	C214	Any	Len-ft	196.00	210.4	0.045	19.33	210.4	0.045	19.33

DEER Ecosystem - READI

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Support Tables include important information:

NTGR
GSIA
EUL
HOU

READI v.2.4.8 (Current Ex Ante data) options: include Non-DEER data; 1/1/2013 - 12/31/2025

View Tools Help

READI
A utility for viewing CPUC's database of Ex-Ante measure information

Intro & Help Classification Trees Measure Catalog Measures Energy Impacts Technology Costs Technologies **Support Tables**

Table Name: NTGR schema: costeff Rows: 99
Table Usage: The Net-to-Gross Ratio Table


Search for Records with: <any text>

NTG	Version	StartDate	ExpiryDate	NTG_Measure_Type	NTGR_kWh	NTGR_therm	BldgType	BldgVint	NTG_Qualifier	Measure_Deliv	Sector	Use
Agric-Default-2yrs	DEER2014	1/1/2013		All other EEMs with no evaluated NT	0.6	0.6	Any	Any	None	Any	Ag	
Agric-Sprinkr-All	DEER2016	1/1/2016	12/31/2018	Agricultural water conserving sprinkl	0.4	0.4	Any	Any	None	NonUpStrm	Ag	
Agric-Sprinkr-All	DEER2019	1/1/2019		Agricultural water conserving sprinkl	0.5	0.5	Any	Any	NonUpStrm	NonUpStrm	Ag	
Agricul-Default-HTR-dir	DEER2014	1/1/2013		All other EEM with no evaluated NTG	0.85	0.85	Any	Any	HTR	DirInstall	Ag	
All-Default-<=2yrs	DEER2014	1/1/2013		All other EEM with no evaluated NTG	0.7	0.7	Any	Any	None	Any	Any	
Com-Default-2yrs	DEER2014	1/1/2013		All other EEMs with no evaluated NT	0.6	0.6	Any	Any	None	Any	Com	
Com-Default-2yrs	DEER2014	1/1/2013		All other EEMs with no evaluated NTG	0.6	0.6	Any	Any	HTR	DirInstall	Com	
ConstrainedAreaProgram	DEER2015	1/1/2015		All programs targeting local T&D or r	0.85	0.85	Any	Any	None	Any	Any	
ET-Default	DEER2014	1/1/2013		Emerging Technologies approved b	0.85	0.85	Any	Any	None	Any	Any	
EUC-Default	DEER2014	1/1/2013	12/31/2015	Energy Upgrade California	0.85	0.85	Any	Any	None	Any	Res	
EUC-Default	DEER2016	1/1/2016		Energy Upgrade California	0.7	0.7	Any	Any	None	Any	Res	
Ind-Default-2yrs	DEER2014	1/1/2013		All other EEMs with no evaluated NT	0.6	0.6	Any	Any	None	Any	Ind	
Ind-Default-HTR-dir	DEER2014	1/1/2013		All other EEM with no evaluated NTG	0.85	0.85	Any	Any	HTR	DirInstall	Ind	
K-12School-ComCollege	DEER2015	1/1/2015		All K-12 and community college proj	0.85	0.85	ECC	Any	None	Any	Com	
K-12School-ComCollege	DEER2015	1/1/2015		All K-12 and community college proj	0.85	0.85	EPR	Any	None	Any	Com	
K-12School-ComCollege	DEER2015	1/1/2015		All K-12 and community college proj	0.85	0.85	ERC	Any	None	Any	Com	
K-12School-ComCollege	DEER2015	1/1/2015		All K-12 and community college proj	0.85	0.85	ESe	Any	None	Any	Com	
NonRes-sAg-mCust-ci	DEER2014	1/1/2013		All other custom either electric or nat	0.7	0.7	Any	Any	None	CustIncentDow	Ag	
NonRes-sAll-mCFL	DEER2014	1/1/2013	6/30/2017	CFL-screw in, All.	0.54	0.54	Any	Any	None	PreRebUp	Com	Light
NonRes-sAll-mCFL	ExAnte2017	7/1/2017		All nonresidential CFLs, all delivery r	0.85	0.85	Any	Any	None	PreRebUp	NonRes	Light
NonRes-sAll-mCFL-All	DEER2016	1/1/2016	6/30/2017	Nonresidential CFLs: deemed; all di	0.6	0.6	Any	Any	None	NonUpStrm	NonRes	Light
NonRes-sAll-mCFL-ci	DEER2014	1/1/2013	12/31/2015	CFLs	0.53	0.53	Any	Any	None	CustIncentDow	Com	Light
NonRes-sAll-mCFL-dir	DEER2014	1/1/2013	12/31/2015	CFLs	0.8	0.8	Any	Any	HTR	DirInstall	Com	Light
NonRes-sAll-mCFL-dn	DEER2014	1/1/2013	12/31/2015	CFLs	0.53	0.53	Any	Any	None	PreRebDown	Com	Light
NonRes-sAll-mCust	DEER2014	1/1/2013		Custom Mixed Electric and Natural G	0.6	0.5	Any	Any	None	CustIncentDow	NonRes	
NonRes-sAll-mCust-Elec	DEER2014	1/1/2013		Custom Electric Measures (that ma	0.6	0.6	Any	Any	None	CustIncentDow	NonRes	
NonRes-sAll-mCustElec-bd	DEER2014	1/1/2013	12/31/2015	Custom Electric Measures, RFP or E	0.7	0.7	Any	Any	None	CustIncent	NonRes	
NonRes-sAll-mCust-Gas	DEER2014	1/1/2013		Custom Natural Gas Measures (that	0.5	0.5	Any	Any	None	CustIncentDow	NonRes	

Summary for NTG_ID: Com-Default-2yrs
Net-to-Gross Ratios: 0.60 (kWh), 0.60 (therm).

Description: All other EEMs with no evaluated NTGR; existing EEM in programs with same delivery mechanism for more than 2 years
Start Date: 01/01/2013
Expiry Date: None
Applicable Sector: Commercial
Applicable Bldg Types: Any
Delivery Mechanism: All Delivery Strategies
Documentation: 2011 DEER Update Report - Section 15 Table 15-3

Search for workpapers



California Public Utilities Commission

Workpapers

Workpaper and Disposition Archive

This webpage includes deemed workpapers, submitted supporting documents, and ex ante data which are approved for use for any time period since January 1, 2015 (they are not necessarily currently approved). Also included are CPUC energy division ex ante dispositions which apply to workpapers approved for use during any time period since January 1, 2015.

Documents may be downloaded individually or in groups. There are multiple ways to find workpapers:

- Select Sector, Use Category, PA, and/or Technology Group. Multiple selections can be made for Use Category, PA, and Technology Group (use control, shift, or command to make multiple selections). Click Filter files to reduce the number of rows in the list.
- Sort columns by clicking on the arrows next to the column names
- Use your browser's search feature to find text in the list.

Notes within the table refer to guidance documents. Many of these files are located at this website: www.deeresources.com.

To download files:

- Check the box next to the selected workpaper and click Download Selected Files (bottom of page).
- The SELECT ALL checkbox will choose all rows in the list. The archive does not limit the number of files that a user requests. Please use your own discretion.

The files will be downloaded as a single ZIP. Within the ZIP archive, each workpaper will have the files name shown in the File Name column, below. This file name has been modified to have a consistent naming convention. The archive does not limit the size of the ZIP file that the user requests. Please use your own discretion.

Last Updated: **July 13, 2018**.
Most Recently approved workpapers were submitted on: **June 18, 2018**.

Sector
Use Category
PA
Technology Group

Tip: hold control (command on a Mac) to select more than one option at a time

Files presented in red could not be found within the FTP and cannot be downloaded as a result.

Workpaper files (712)
[Select all](#)
[Unselect all](#)
 Size of selected files: 0KB

Workpaper ID	Workpaper Title	Sector	Use Category	PA	Technology Group	Revision	Current Revision?	Date Approved	File Name	Disposition	Notes
http://www.deeresources.com											

eTRM Demonstration

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Key Enhancements

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Shared Data Library

Redesign shared data library based on EAR Team feedback



Automated Workflow

Augments existing measure workflow by automatically managing approval paths
Provide notification to approvers when measure is in queue



Configurable Security

Add additional roles & security profiles to support regulatory review & enhanced ownership of eTRM elements



Interface with Cost-Effectiveness Tool (CET)

Enhancements to automate CET analysis & eTRM exports for CET import



Reporting Tools

Enhanced built-in reports
Integrate Tableau for graphs & advanced reports
Allow “behind-the-scenes” connection for more advanced, administrative reports



Hourly Savings/GHG Calculation

Establish library of 8,760 profiles that can be attached to measure permutations
This will directly support GHG calculations, using hourly emission rate data

Shared Data Library

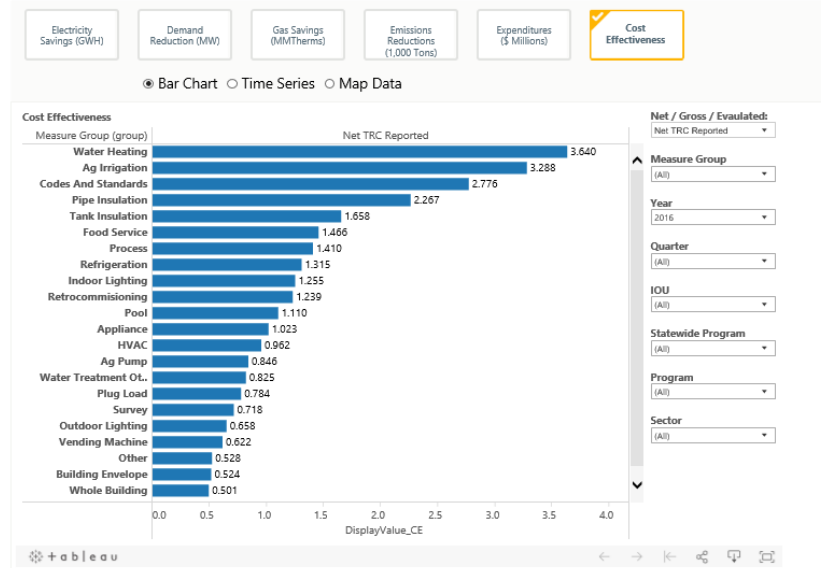
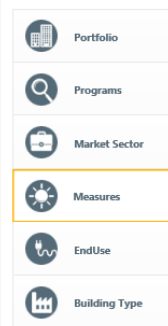
11

- Updates to certain tables occur frequently
- Bus-stop process is not enforced for new measures
- Current versioning process for shared data will result in excessive measure versions
- Recommendation: modify shared data versioning
 - Enforce versions at the record level rather than the table or library level
 - Use combination of start & end dates for every shared data record, combined with strict restrictions on who can modify shared data

Reporting Tools

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- Enhance existing report capabilities
- Add graphical reporting engine
 - Tableau Public Version
 - Allow user-customizable reports to be developed
 - User access to data would be security-constrained
- For power users, read-only database connection would be available



Configurable Security

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- eTRM currently supports two user roles
 - Base User
 - Administrator
- Plus three measure-specific roles
 - Measure Developer
 - Measure Reviewer
 - Measure Manager
- Additional roles will be added to support measure review requirements
 - Example: Shared Data Library – to be owned by EAR team

Automated Workflow

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- Automated workflow management solutions will allow standardized measure workflows to be defined
 - Status changes will be managed by workflow
 - As each person in “chain of review” completes task & measure can be “accepted” or “rejected”
 - ✦ Accepted measure advances forward in process
 - ✦ Rejected measure is returned to measure developer to be remediated
- Workflow manager would automatically notify next-in-queue for review
 - Typically done by email notification
 - Measure can also be placed on reviewer’s dashboard
 - Notification can be programmed to notify person or group

CET Interface

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- Enable eTRM permutations to be run through Cost-Effectiveness Tool (CET), return & populate results into measures
 - CET is currently managed as an online, batch-based tool
 - Measure data is formatted into specified flat file, which is then uploaded to CET website
 - When processing is done, results file can be downloaded
- Also develop measure exports that are formatted for CET import
 - Expedites development of program design by minimizing data manipulation between eTRM & CET

Hourly Load Shapes

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- Existing electric profiles and natural gas profiles
 - Load profiles support cost-effectiveness calculations
 - They may or may not be useful representations of hourly measure savings
- Ideally would have 8,760 hour profiles of energy savings for each measure
 - Various sources available
 - ✦ ADM load-shape profiles built for CEC
 - ✦ DEER profiles
 - HVAC measure profiles would likely vary by climate zone
 - Outdoor lighting measures would be latitudinally dependent
 - Other measures would be utility-independent
 - Profiles should be equally applicable for IOU & POU in same geographic zone
- Would also support GHG hourly estimates

GHG Impacts

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- For each measure, an 8,760 hourly savings profile is assigned
- A GHG hourly profile is selected
 - ❑ May be utility specific, or may be CAISO profile (from CNS calculator)
 - ❑ One table used for each year

Measure Savings: 45 kWh

Hourly Profile Table	X	CO2 Table	=	Hourly Reduction																																																																																				
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr><th>M</th><th>D</th><th>H</th><th>ES</th></tr> </thead> <tbody> <tr><td>1</td><td>1</td><td>1</td><td>0.02%</td></tr> <tr><td>1</td><td>1</td><td>2</td><td>0.02%</td></tr> <tr><td>1</td><td>1</td><td>3</td><td>0.04%</td></tr> <tr><td>1</td><td>1</td><td>4</td><td>0.05%</td></tr> <tr><td>...</td><td>...</td><td>...</td><td>...</td></tr> <tr><td>12</td><td>31</td><td>24</td><td>0.01%</td></tr> </tbody> </table>	M	D	H	ES	1	1	1	0.02%	1	1	2	0.02%	1	1	3	0.04%	1	1	4	0.05%	12	31	24	0.01%		<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr><th>M</th><th>D</th><th>H</th><th>CO2</th></tr> </thead> <tbody> <tr><td>1</td><td>1</td><td>1</td><td>0.030</td></tr> <tr><td>1</td><td>1</td><td>2</td><td>0.025</td></tr> <tr><td>1</td><td>1</td><td>3</td><td>0.025</td></tr> <tr><td>1</td><td>1</td><td>4</td><td>0.025</td></tr> <tr><td>...</td><td>...</td><td>...</td><td>...</td></tr> <tr><td>12</td><td>31</td><td>24</td><td>0.040</td></tr> </tbody> </table>	M	D	H	CO2	1	1	1	0.030	1	1	2	0.025	1	1	3	0.025	1	1	4	0.025	12	31	24	0.040		<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr><th>M</th><th>D</th><th>H</th><th>CO2</th></tr> </thead> <tbody> <tr><td>1</td><td>1</td><td>1</td><td>0.00027</td></tr> <tr><td>1</td><td>1</td><td>2</td><td>0.00023</td></tr> <tr><td>1</td><td>1</td><td>3</td><td>0.00039</td></tr> <tr><td>1</td><td>1</td><td>4</td><td>0.00056</td></tr> <tr><td>...</td><td>...</td><td>...</td><td>...</td></tr> <tr><td>12</td><td>31</td><td>24</td><td>0.00018</td></tr> </tbody> </table>	M	D	H	CO2	1	1	1	0.00027	1	1	2	0.00023	1	1	3	0.00039	1	1	4	0.00056	12	31	24	0.00018
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M = Month of year
 D = Day of month
 H = Hour of day
 ES = Energy Saving fraction for hour
 CO2 = CO2 Rate for Hour

Other Enhancements

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- Improve user dashboard
 - Allow users to quickly view measures by category
 - ✦ End use
 - ✦ Sector
 - ✦ Delivery type
 - Allow users to save preferences
- Allow users to sort tables, hide columns
- Add range-checking to tables
- Add additional fields to data dictionary
 - Fields to support CET
 - Flag field to identify if measure is derived from Emerging Technology work