

eTRM Demo + DEER Ecosystem



CALIFORNIA
TECHNICAL FORUM

ANNETTE BEITEL
AYAD AL-SHAIKH
ROGER BAKER
DECEMBER 2, 2019

eTRM Demo



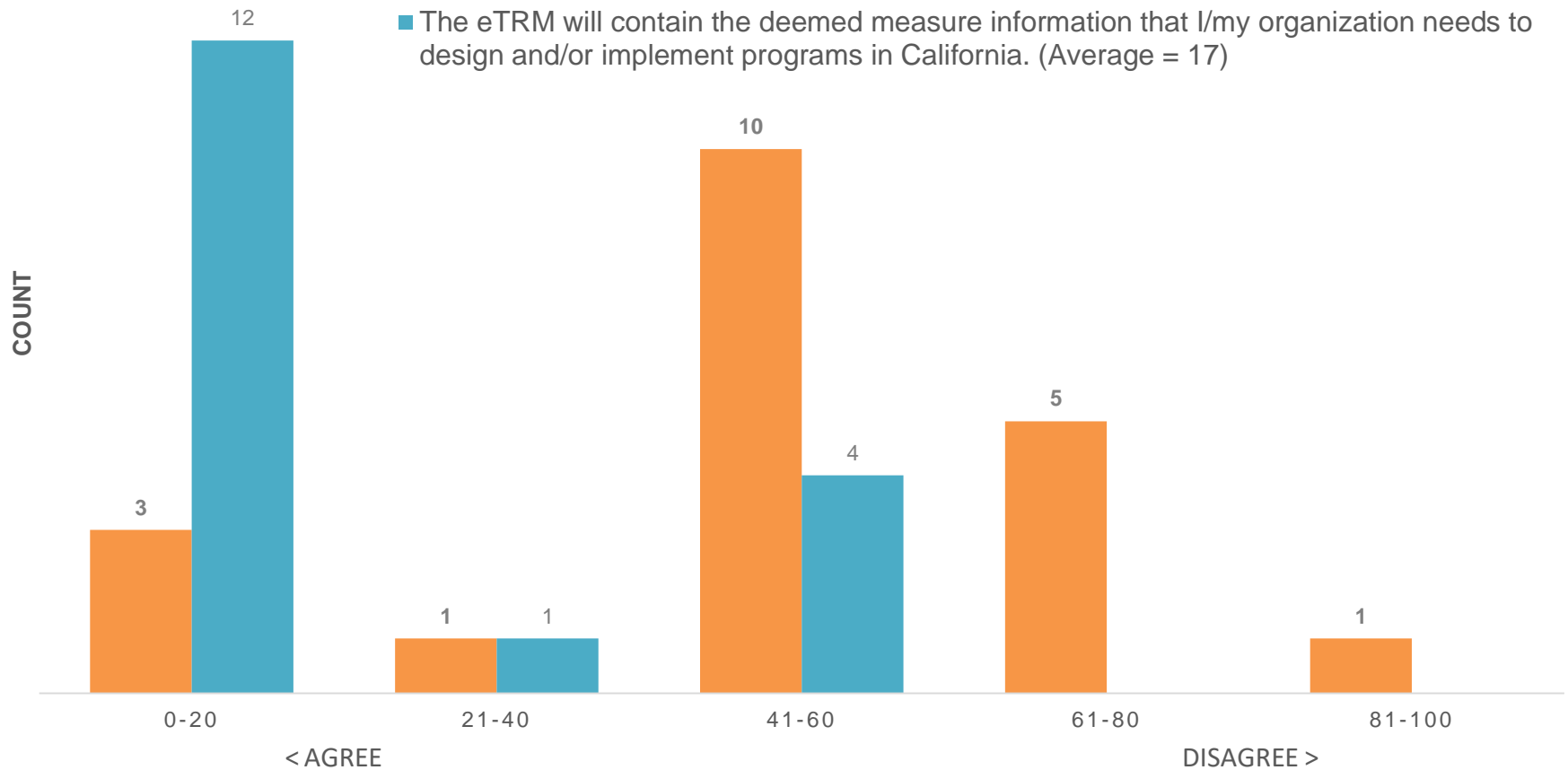
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Contains Deemed Measure Information

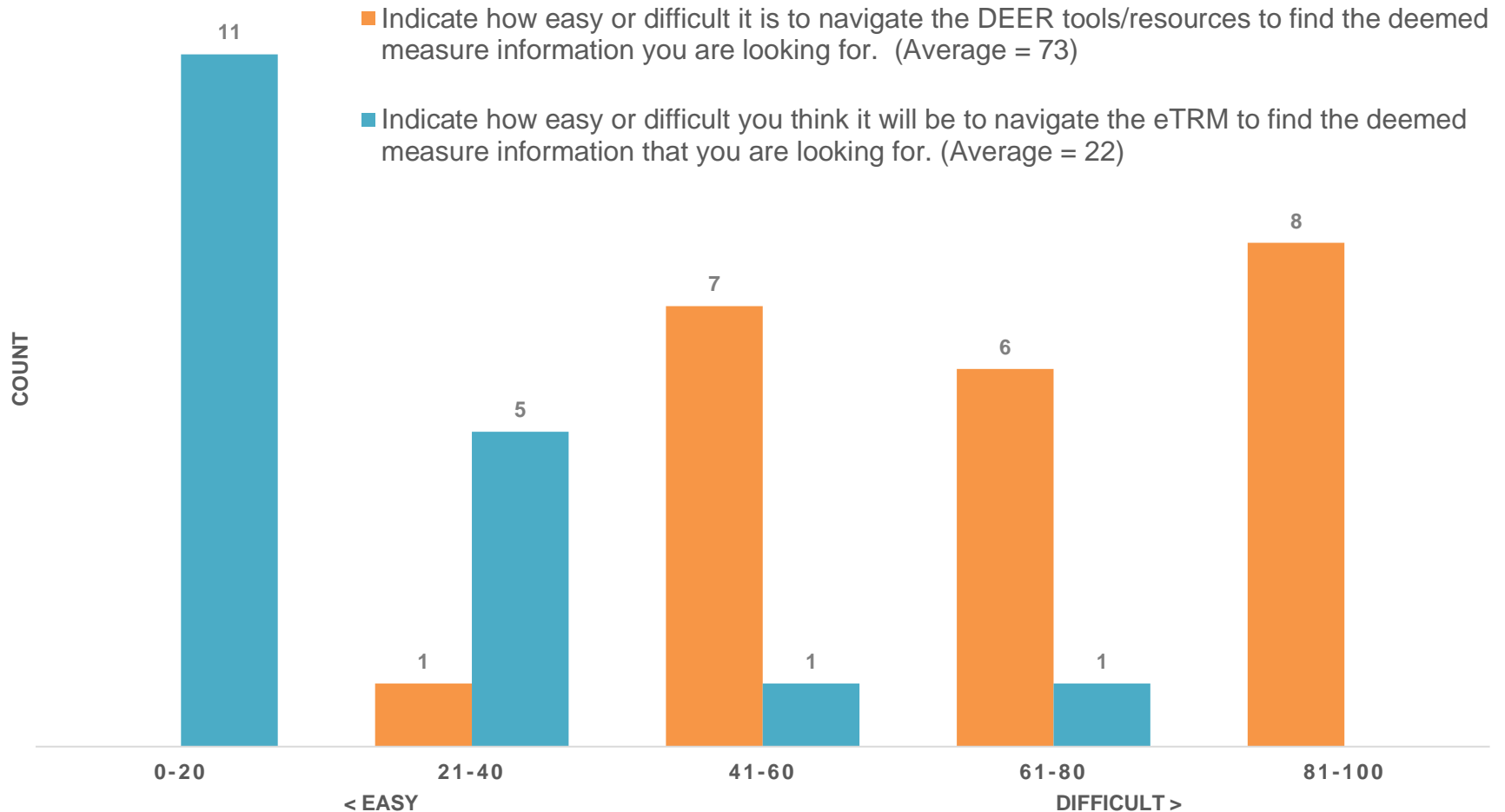
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- The DEER tools/resources contain all the deemed measure information that I/my organization needs to design/implement programs. (Average = 50)
- The eTRM will contain the deemed measure information that I/my organization needs to design and/or implement programs in California. (Average = 17)



Ease of Navigation

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DEER Verbatim Responses

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Comment on your overall experience using the DEER tools/resources. What features/aspects do you find useful? What features/aspects are not working well?

- *Hard to navigate: difficult to search without knowing exactly what you're looking for in advance. Difficult to trace references.*
- *Work papers are confusing to navigate. Column headers are repetitive and make it unclear which values to utilize.*
- *User interface is absolutely terrible. Impossible to use without significant training. Not transparent, assumptions not clear, source information not clear. Does not inspire trust in the quality of the information.*
- *There is very minimal back-up documentation for DEER measures. For IOU measures the work papers are not consistent. Very tough / almost impossible to trace the rationale behind lot of DEER numbers/ assumptions.*

eTRM Verbatim Responses

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Comment on the eTRM content and functionality. What features/aspects do you think will be useful? What additional features/aspects would you like to see?

- *The design of the system looks great. Being able to follow citations easily, and see data tables will be very useful...*
- *Seeing the actual calc methodology is helpful.*
- *The reference tags/flags look like they will be useful.*
- *It looks fantastic from the training...I'd prefer to use this than the other DEER resources.*
- *Looks easy to use. Hoping to be able to integrate with other tools via the API to automate savings calculations.*
- *Central repository and CalTF's effort to source back-up documentation will help. I am assuming CalTF is going to do similar work on DEER measures which may not have IOU workpapers.*

Can eTRM Replace DEER?



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CPUC Staff Questions

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- Can eTRM replace DEER?
 - Can eTRM perform all functions that DEER can perform? (DEER is very complex . . .)
 - Is eTRM complete? (Does it have all current information in DEER?)

CPUC Staff Questions

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- Can eTRM replace DEER?
 - ([WPA](#)) Receive Submitted Workpapers
 - ([READI](#)) View Measures (DEER & Non-DEER Measures)
 - ([PEAR db](#)) Draft Updates to DEER Measures
 - ([Ex Ante db](#)) Active DEER Measures
 - ([DEEResources.com](#)) Support for DEER Energy & Demand Impacts Values
 - ([DEEResource.net](#)) Active DEER and Non-DEER Measures
 - ([DEEResources.com](#)) References for DEER and non-DEER Measures
 - ([PEAR db](#)) Shared Tables
 - ([DEEResource.net](#)) Data for CET Analysis
 - ([Ex Ante db](#)) Data for CPUC Staff Review of IOU Claims
 - ([DEEResources.com](#)) MASControl & Other Calculation Tools
 - ([DEEResources.com](#)) Commission Rulings, Dispositions, Guidance, “What’s Happening”

Can eTRM perform all functions that DEER can perform?

Function	DEER	eTRM	DEER/eTRM Comparison
Receive Submitted Workpapers	Measures submitted via WPA. No public access to WPA (CPUC review status). No public visibility of measure development and review.	Yes. Measures developed within eTRM directly. Can make “in progress” measures viewable by public (enhancement).	Current eTRM workflow management feature allows tracking of time and resources spent on measure development and review, as well as measure status.
View Measures (DEER & Non-DEER Measures)	Measures viewed via READi. READi contains all DEER measures, only some non-DEER measures. READi is not complete database of all deemed, approved measures. Key measure parameters not linked in READi.	Yes. All active measures (DEER and non-DEER) viewable through eTRM modern web interface. eTRM contains all values and information about a measure in a single, cohesive location.	In eTRM, 100% of approved, deemed active measures are viewable, including cost and implementation parameters. In contrast, READi does not contain cost, implementation parameters, or references.
Draft Updates to DEER Measures	PEAR db	Yes. Measures can be updated/versioned in eTRM Measures are published when approved.	In eTRM, automatic stakeholder notifications keep interested parties informed of measure changes. Stakeholders can register to receive notifications for measures or technology categories they are interested in tracking.

Can eTRM perform all functions that DEER can perform?

Function	DEER	eTRM	DEER/eTRM Comparison
Active DEER Measures	Ex Ante db	Yes. All active DEER measures are in eTRM effective 1/1/20.	The eTRM is the repository for all DEER and non-DEER measures. Cost and implementation data is stored for all measures in the eTRM.
Support for DEER Energy & Demand Impacts Values	Values exist throughout DEER and in MASControl (external software). Supporting documentation is not readily accessible. Some documentation missing.	Yes and No. eTRM does not contain the support for DEER energy savings and demand reduction values.	It would be very helpful to work with ex ante team to locate, identify, and link all support for DEER measures (particularly DEER energy & demand impacts) so DEER values are transparent and replicable.
Active DEER and Non-DEER Measures	DEERresources.net	Yes. All active measures are in eTRM.	Because of the eTRM relational database structure, DEER and non-DEER measures can be easily updated when support values change. In DEER, updating each measure is a manual and more laborious process.

Can eTRM perform all functions that DEER can perform?

Function	DEER	eTRM	DEER/eTRM Comparison
References for DEER and non-DEER Measures	<p>References are scattered throughout DEER.</p> <p>References not linked to values they support.</p> <p>Documentation for some DEER values/assumptions not identified.</p>	<p>Yes.</p> <p>eTRM includes a complete reference library for IOU measures, and all DEER references that could be located.</p> <p>All references linked directly to values they support in the eTRM</p> <p>All references are hosted in eTRM reference library.</p>	<p>In eTRM, original DEER sources found and linked (to extent possible);</p> <p>References are available via the eTRM interface</p> <p>References also accessible via active links within the PDF to the eTRM library.</p>
Shared Tables	PEAR db	<p>Current: Copies of shared tables in eTRM, but updated and maintained externally.</p> <p>Proposed: Move and maintain in the eTRM.</p>	The relational nature of the eTRM facilitates measure updates when a change has been made to a shared table.
Data for CET Analysis	<p>No.</p> <p>Costs in Ex Ante db (EAD) outdated, cannot link to CET calculator and get accurate results. Also, EAD does not have all measures.</p>	<p>Yes.</p> <p>eTRM can also be used to create direct link to CET tool to automate C/E analysis.</p>	<p>eTRM facilitates easy CET analysis.</p> <p>Getting data out of DEER is manual, cannot be automatic, and is time-consuming and cumbersome.</p>

Can eTRM perform all functions that DEER can perform?

Function	DEER	eTRM	DEER/eTRM Comparison
Data for CPUC Staff Review of IOU Claims (particularly savings)	No. Ex Ante db not complete (does not contain all measures and all measure parameters), so CPUC Staff cannot automate process to verify accuracy of savings claims.	Yes. eTRM contains all approved measures and stores savings and other key parameters for all measures, so staff could use eTRM to validate accuracy of utility savings claims and other measure parameters such as cost.	eTRM has an API that allows Staff to programmatically validate savings claims, costs, and other parameters against approved measure data. Current DEER system does not support automated comparison of claims and other parameters against approved values. Must be done manually, so Staff is not currently able to validate accuracy of all savings, costs and other parameters in utility savings claims.
MASControl & Other Calculation Tools (e.g., Water Heater Calculator)	No. Separate software – values imported to DEER.	No. Separate software – values imported to eTRM.	Cal TF Staff could work with Commission Staff to add MASControl references if they are made available.
Commission Rulings, Dispositions, Guidance, “What’s Happening”	Yes. Stored and accessible via DEEResources.com	No. Guidance will continue to reside on Commission website.	eTRM cites guidance for specific measures/values and Commission guidance stored in the eTRM reference library. Regardless, the Commission would still host Commission guidance on its website (rulings, dispositions, etc.)

Is eTRM complete?

(Does it have all current information in DEER?)

Information	Examples	Add to eTRM?
Support tables	Interactive effects, EUL, NTG, GSIA, and many other parameter related lists.	Copies of support tables in eTRM. Currently, updated in PEAR db. However, support tables could be updated and maintained in eTRM.
Inactive DEER Measures	Measures not currently used by programs are not in the eTRM. However, when eTRM measures are “sunset” they will remain in the eTRM as “inactive” status.	No. Keep as historical archive in case someone needs it.
Support for DEER Energy Savings Values	Weighting tables, thermostat settings tables, building prototypes, “key word” changes from DEER base case to measure case.	Yes. In general, eTRM does not have support for DEER savings values. We recommend working with the ex ante team to identify and link support for DEER measures in eTRM to provide transparency and reproducibility.
WP (for all active deemed measures, including those from DEER)	All WP used by IOU programs are in the eTRM. In other words, eTRM contains all active measures, DEER and non-DEER.	Yes. If any missing, can easily be added.

Is eTRM complete?

(Does it have all current information in DEER?)

Information	Examples	Add to eTRM?
Historic Information	Archived DEER Updates and ESPI postings.	No. Recommend that DEER be kept as historical archive.
Custom Related Data	DEER has link to custom ISP libraries, other guidance documents, and a few disposition abstracts.	Could be a future opportunity for the eTRM
IOU-specific Measure IDs	Implementation IDs, solution codes, product codes (codes are IOU-specific)	No. In eTRM, have SW measure offering IDs, which are appropriate for SW measures and SW program implementation.

Can eTRM Replace DEER?

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YES

- **eTRM** is a repository of all active deemed measures (DEER and non-DEER). eTRM is built as a modern relational database that will lead to reduced costs and improved measure updating, tracking, and CET analysis. The eTRM will reduce errors and increase the Commission's ability to validate claims.
- **DEER** should be maintained as a historic archive and as the repository for Commission guidance and other Commission documents. The Commission will no longer need to maintain and update the DEER "database" elements that would be replaced by eTRM if it becomes the "database of record."
- **MASControl** (which exists outside of DEER) will need to be maintained and updated.

eTRM Enhancements



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Key Elements: Enhancements

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- CPUC Staff “Priority” Enhancements (from June meetings)
 - Configurable security
 - Shared data library versioning process
 - Enhanced reporting capabilities
 - Enhanced workflow management
 - CET integration
- Seeking additional CPUC and CEC Staff input on enhancements
 - Recent interest in calculating GHG
- Other Enhancements

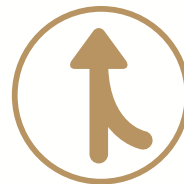
Key Enhancements

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Shared Data Library

Redesign library 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 and 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



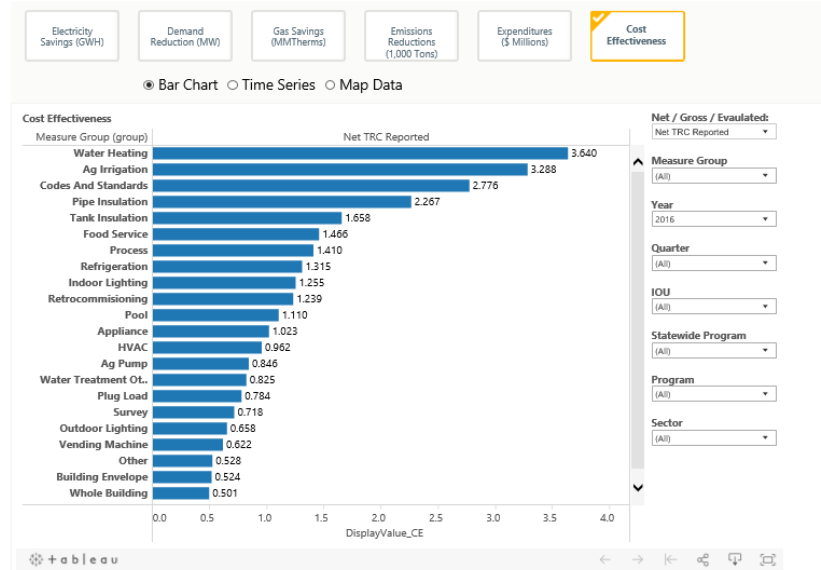
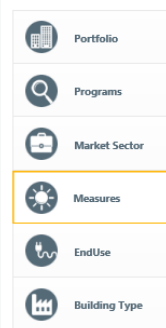
Hourly Savings/GHG Calculation

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

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



CET Interface

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- Enable eTRM permutations to be run through Cost-Effectiveness Tool (CET), return and 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 and 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 and 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																																																																																				
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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