**DEER Improvements / DEER Alternatives Subcommittee**

**Partial Outline of Final Deliverable, For Discussion**

1. **Criteria For Evaluating Future Ex Ante Framework**
* Conformance to Policy Objectives
	+ Commission Policy Objectives
		- NOTE: Some state policy objectives also repeated below.
	+ State Policy Objectives, including Clean Power Plan and statewide consistent values
* Meets Key Operational Objectives
	+ Cost
		- Measure development
		- Measure updating
		- Data management
	+ Timeliness
		- Measure development
		- Measure updating
	+ Data Quality and Accuracy
* Meets Key Technical Objectives
	+ Data Driven/Model Validation with Field Results: Timely and regular model validation with EM&V and other field data (from program implementation, other sources)
	+ Identifies and Focuses Resources on Key Inputs: Ability to analyze what measure parameters/inputs really make difference in key outcomes (TRC, savings, costs) so more resources can be spent on correctly estimating those inputs.
		- Includes high impact measures, measure parameters, and other measure inputs
	+ Simplifies Measure Complexity: Ability to analyze what measure distinctions really matter to key outcomes (TRC, savings, costs) so as to identify what measure distinctions should be made and which would just add unnecessary complexity.
	+ Facilitates Data Management – Ability to work with data for a variety of applications (TRC, measure tracking, program analysis by Commission) with limited need for re-do, manual “work-arounds” and extensive human QA/QC.
	+ Clear and high standards for technical information
		- Clear, written, well-organized, public standards for what technical information is acceptable for ex ante value development.
		- Uses “best in class” modeling tools
		- Process identifies additional data needs
		- Values and models regularly updated with field data/EM&V data to refine forecasts.
* Measures are Well-Documented
	+ Transparency
	+ Documentation
	+ Reproducibility
* Uses an Open Process For Developing/Updating Measures
	+ Ability for multiple entities to develop, review, and update measures
	+ Reasonable ability for qualified engineers to successfully follow Commission and Commission staff guidance
	+ Updating process has to be clear and regular
* Allows for Meaningful Stakeholder Review
	+ Stakeholder process for technical experts to review, comment, discuss, and resolve technical issues
* Incorporates Best Practices
	+ Incorporates best practices from jurisdictions throughout the country.
1. **Options** *- Phased approach*
* Option 1: **Status Quo**
* Option 2: **Create Statewide TRM (electronic) informed by but not bound by DEER**
	1. Create initial list of DEER, non-DEER, and TRM measures (about **190** Total)
		+ Cal TF staff has developed list of DEER, non-DEER and POU TRM measures
			- DEER measures (**53** Measures - Mostly HVAC and lighting, some appliances)
			- Non-DEER measures (**159** Measures - 34 of the non-DEER measures overlap with DEER measures)
			- POU measures (**38** Total: 8 overlap with both; 20 overlap with non-DEER; 1 overlaps with DEER; 9 are non-overlapping – mostly LED lighting)
		+ List must be reviewed and finalized since judgment is involved in determining what is a measure
	2. Create WP for each DEER measure that does not have a workpaper (**16 measures**, total; all other measures in DEER have a utility or POU WP) by:
		+ Weather Sensitive Measures:
			- Identify which measures should be modeled
			- Identify which model to use (EnergyPlus or DOE-2)
			- Create California building prototypes in EnergyPlus
				* CBECC Building Prototypes?
			- Model Validation: Have a plan for validating modeled results with empirical results over time using AMI data and other sources) to get empirical results.
		+ Non-Weather Sensitive Measures
			- Identify correct equations
			- Develop plan for validation using empirical results
		+ Identify relevant DEER material for both Weather and Non-Weather-Sensitive Measures
			- Only use content in DEER that is documented, current, and reproducible – may include NTG (EM&V), lighting or other operating hours; EULs (however, note that many EULs come from the DEER 2004 – 2005 Update Study Final Report by Itron. These values come from a variety of sources that should be updated, such as engineering judgment and a 2000 CALMAC report).
			- Only use parameters that are results of clearly accessible methods. Current modeled values are a black box.
	3. Put existing WP into agreed-upon “electronic TRM” tool or format
	4. Review WPs (non-DEER and POU TRM) using standard criteria (TBD). Prioritize according to following hierarchy:
		+ Current high-impact measures (1% of portfolio savings)
		+ Measures expected to be high-impact in next three years
		+ Medium-impact measures (need to define criteria - .5% of portfolio savings?)
		+ Measures expected to be medium impact in next three years
		+ Low-impact measures
	5. Perform detailed review of new and updated measure WPs through specialized Cal TF subcommittees (e.g. lighting, HVAC, etc.) Commission staff participation in specialized subcommittees.
	6. Final WP approval through full Cal TF
	7. Put WPs into agreed-upon electronic TRM format

Key open questions for “DEER Alternative”:

* + - What would be the process/timing for getting 200+ measures through full Cal TF?
		- How should measure be prioritized? (see proposal above)
		- Electronic TRM
			* What features do we want?
				+ Integration with existing databases that need to access ex ante value data, including:

Utility planning and tracking databases

Cost-effectiveness calculator

CPUC program analysis tool (ex ante database)

Workflow management tools (WPA database—although WPA could be replaced with electronic TRM workflow management feature)

Integration with EnergyPlus and other tools

* + - * + Open source software (won’t work for existing tools)
				+ Other desired TRM features:

Workflow management

Tracks all revisions

Can link to all sources and tools

All measure parameters linked to each measure

Searchable

* + - * Can existing product be used?
			* Should new product be developed?
			* Cost
				+ Cost of creating new “electronic” TRM
				+ Cost of populating existing TRM
				+ Cost of licensing/maintaining existing TRM
		- Who should do the work? How should new measure development and existing measure review be completed– by experts in chunks or by one group?
			* Role of outside consultants vs. Cal TF staff?
			* Recommendation on roles:
				+ Consultants: Bid out new measure development and measure review in end use categories—allow consultants and TF members to bid on.
				+ Utilities: Manage work
				+ Cal TF staff: Develops and enforces consistent approaches and data standards; review for bias; conducts QA/QC; performs statewide coordination and overall project coordination
		- What would be final CPUC review process?
			* Seek full Commission approval, not staff-level approval, as in other jurisdictions
		- Other Open Questions:
			* Coordination with Rolling Portfolio Process: How would the new DEER alternative process fit into rolling portfolio cycle? (Map out process) – How would the process flow in cases where Program Administrators are asked to make mid-cycle changes?
			* Demonstrate Overall Cost Savings
				+ Current ex ante development and review process estimated at about **$4.5** million annually
				+ Estimate cost of creating electronic TRM
				+ Estimate cost of maintaining electronic TRM
			* Freezing Existing Values Can values be completely frozen during updating process so time and money are not wasted on concurrent updating?
			* Continuing with New Measure Review: Process would still need to accommodate new measure development
			* Implementing New Values: Once electronic TRM fully developed and approved, how are updated values operationalized?
				+ Utility savings values adjusted for new TRM values
				+ Next potential study using electronic TRM, but don’t update current potential study
			* Securing staff buy-in and participation
				+ Secure buy-in from Energy Division staff
				+ Meaningful and empowered participation by staff and consultants in measure updating and review through Cal TF
				+ Agreement that the goal is consensus and that results of Technical Forum will be respected
			* Measure parameter validation
				+ Which measure parameters have greatest impact on key results (savings and cost-effectiveness)?
				+ Develop parameter validation plan using empirical data
			* How quickly can the alternative be implemented?
				+ Recommendation: Two years
* Option 3: Data-Driven Ex Ante Values (Pilot for select measures; expand over time if successful)
	1. Overview of approach (George Hernandez to provide more details at August 6th subcommittee meeting)
		+ Problem Statement: DOE – IT is hard to determine effects of EE measures at scale. DOE has done lots of modeling, and actual implementation can vary considerably from modeling.
		+ Approach 1 (large commercial) – DOE Building Performance Database – use real data rather than modeled data.
		+ Approach 2 – AMI-data based analysis for residential and small commercial (such as EnergySavvy)
		+ Questions:
			- What measures should be piloted?
			- How to extend results to different climate zones? Simple formula?
			- How to extend results from DOE Building Performance Database to California building stock and code? Should population be limited to CA buildings?
1. **Recommendations**
* Develop Project Implementation plan for preferred option (Two year timeline)