

AGENDA



California Technical Forum (Cal TF) Meeting

Thursday, May 25, 2023

10:00 a.m. – 11:30 p.m.

Remote only

GoToMeeting Details

<https://meet.goto.com/287588741>

You can also dial in using your phone

United States: +1 (571) 317-3112

Access Code: 287-588-741

Time (PST)	Agenda Item	Discussion Lead(s)
10:00 – 10:15	Agenda Review and Quick Updates	Ayad Al-Shaikh
10:15 – 11:30 (75 mins)	New Measure for LADWP: Solar Attic Fans ACT: <ul style="list-style-type: none">TF Affirmation of new POU measure	Lake Casco / TRC

Meeting Materials: <http://www.caltf.org/tf-meeting-materials>

- TF Meeting Presentation
- New Measure Proposal: Solar Attic Fans (eTRM Characterization and Data)

Next TF meetings:

- Wednesday, June 21, PG&E HQ (Data Charrette)
- Thursday, June 22, PG&E HQ (TF Meeting)

Meeting Attendees

	<i>In-Person</i>	<i>Via Telephone</i>
<i>Cal TF Staff</i>		Ayad Al-Shaikh Tomas Torres-Garcia
<i>Cal TF Members</i>		Abhijeet Pande Alfredo Gutierrez Anders Danryd Armen Saiyan Briana Rogers Christopher Rogers Dennis Livchak Eduardo Reynoso Eric Noller Gary Fernstrom

	<i>In-Person</i>	<i>Via Telephone</i>
		George Beeler Greg Barker Jay Bhakta King Lee Lake Casco Martin Vu Mike Casey Myrna Dayan Richard Ma Roger Baker Sepideh Shahinfard Steven Long
<i>Non-Cal TF Members</i>		CPUC/CPUC Staff Peter Biermayer / CPUC IOU/POU Babak Yazdanpanah / LADWP Bernardo Perez / LADWP David Becerra Briseno / LADWP Henry Liu / PG&E James Gingras / PG&E Merry Sweeney / SDG&E Mike Walters / SCG Sean Lim / LADWP Shane Sugiyama / SCE Implementer / 3P / Consultant / Other Angela Crowley / RMS David Wylie / RMS Geoff Wilkins / Willdan Glen LaPalme /TRC Jeff Romberger / SBW Mahsa Safari / Opinion Dynamics Michael Green / Willdan Mohammad Dabbagh / NORESKO Nicholas Fette / Solaris Paolo Pecora / Willdan Tim Olsen / TEC

Meeting Notes

I. Agenda Review and Quick Updates

Presenter: Ayad Al-Shaikh

Materials:

II. New Measure for LADWP: Solar Attic Fans

Presenter: Lake Casco

Materials: New Measure Proposal: Solar Attic Fans (eTRM Characterization and Data)

Steven Long: Did you consider other base cases? Existing swamp cooler and/or whole house fans.

- Lake Casco: We have not considered those, but we can consider those for the future.
- Armen Saiyan: The intention is to apply this at scale and consider the average baseline. We can consider more baselines if there are significant factors to consider as we get feedback from EM&V.

Steven Long: How about ventilation vents? And sizing for total cfm/fan?

- Lake Casco: Fans get very large, the intent was not to put a box over these fans to restrict offerings, but we do have information that informed the model. Not trying to be restrictive on cfm, for vents we can specify that they must be there or added.
- Steven Long (via chat): Are they large enough for fan flow rate?
- Roger Baker (via chat): One manufacturer states that 1 sqft fan input per 750 sqft of attic space is sufficient.
- Steven Long (via chat): So, about 1500 sqft, two story house?
- Roger Baker (via chat): If attic is 750 sqft, then it should have 5 sqft of vent per code, and one attic fan should be sufficient and properly sized.
- Roger Baker (via chat): So, this is fine for smaller homes (which might be ok in much of DWP territory), but suburban homes (Valley?) are often 2k-3k sqft.
- ❑ Action: Eligibility: Existence of ventilation in attic/best practice information (permit requirement)
 - We can add the following language: “In order to ensure proper ventilation airflow in the attic, the installer should confirm that attic vent sizes and locations are appropriate for attic fan installation.”

Gary Fernstrom: An online retail cost analysis was used to provide efficiency data; can you elaborate on that?

- Lake Casco: We collected flow efficiency data from the various products that we used in the cost analysis, we have some data supporting the assumptions. We will talk about it later in detail.
- Gary Fernstrom: You used that data to inform the energy model?
- Lake Casco: We used them to inform the energy model.

Mike Casey: I think vents are required by code?

- Roger Baker: Yes, they are required - 1 sqft of vent per 150 sqft of attic area.

Roger Baker: Is the max CFM listed there reasonable?

- Lake Casco: Calculated based on the attic volume, so that we can get to 12 ACH.
- Roger Baker: How large is the model?
- Lake Casco: I would have to take a look, but it is significantly large.
- Roger Baker: 2786 cfm is what houses are pushing though the attic, seems too high.
- Steven Long: This goes back to the venting question, there has to be some venting to handle that. This is something that people should be aware of, there might be specs/recommendations from the manufacturer.
- Lake Casco: There are fans like that in the market. Most houses of a certain age have some sort of venting, but it is something that will need to be added.
- Action: Follow-up needed to understand modeling completed in Energy Plus SFm prototype.
 - Issue identified when CalTF member and the measure developer started to dig into this, they believe that there may be an issue with the way the attic space is set up in the residential prototypes.
 - I think I found the issue (at least with the single-family model), and it's with the underlying EnergyPlus model geometry that is being used for this measure and potentially all single-family modeled measures. The attached Word document outlines my findings, but in short, part of the attic floor for each of the two houses in the model are 8.5 feet lower than they should be (their z-coordinates are at zero feet instead of 8.5 feet). This confuses EnergyPlus into adding nearly 6,200 cubic feet of volume to the attic when it calculates space sizes. Correcting the z-coordinates for the affected floors changes the attic zone to 7,753 cubic feet, which is much closer to what I would expect. The attached html shows the output from EnergyPlus v9.5 with the corrected Z coordinates as outlined in the Word document.
 - This should be routed to the modeling team for verification, as they may need to correct this issue for all single-family 1-story measures. I did not look at the 2-story model, as the attic volume for that model didn't seem out of line to me.
 - This remains an open issue; we have not received feedback on modeling issues, but we anticipate that the impact to the savings will be small.
 - .htm files: These include summary values for both models. In both models you can search for the 2 roof/attic zones (one per building) using the following zone names. The volume for each is found in the Zone Summary table.
 - SFm1-DXGF_CZ08_attic fan powered
 - Zone names: EL7 ROOF ZONE 1 and EL8 ROOF ZONE 1
 - Volume: 13,932 cf
 - CFM = 13,932 cf x 12 ACH /60 = 2,786 cfm

- SFm2-DXGF_CZ08_attic fan powered
 - Zone names: EL2 ROOF ZONE 1 and EL5 ROOF ZONE 1
 - Volume: 5,436 cf
 - CFM = 5,436 cf x 12 ACH /60 = 1,087 cfm

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Roger Baker: Some fans, hybrid fans, have both solar panels and an AC/DC inverter so that it can run at night. How is this addressed?

- Lake Casco: It was not considered in the scope of this measure; we would need to look at the market.
- Armen Saiyan: We can look at the data and see how we can include these in the future. Should we exclude it?
- Roger Baker: You can just see what happens in the field and then add/remove it later, handle it at that point.
- Armen Saiyan: We are leaving a lot to EM&V so a lot of good feedback will come from this. Hopefully, in a year or so.
- Gary Fernstrom: We are having a good discussion about this, but I am blown away by how thorough and thoughtful the analysis was done. This is a measure that must have merit and I hope the work done gets a program running.
- Armen Saiyan: For LADWP, we already have a program that would support this.
- Eligibility: Install PV in unshaded area
 - We can add the following language to the characterization based on Roger's comment: "The solar attic fan (or the solar panel powering the fan for remote solar models) must be installed in largely unshaded areas."

David Wylie: How is ceiling R value handled 0 to >38?

- Lake Casco: It is whatever the DEER default value is, would have to look that up.
- David Wylie: I posed that question because older and newer buildings will have different values, how will that be considered?
- Lake Casco: DEER value was used since this is a representative average of the market.
- David Wylie: It would be nice to know what the insulation value is in the models, that insulation would affect the savings.
- Anders Danryd (via chat): Baseline Ceiling Insulation varies by climate zone: R-7 (CZ01-09); R-18 to R-28 (CZ10-16), from the ceiling insulation measure.
- Ayad Al-Shaikh: Can we consider adding that to the data collection requirements? Finding out the existing insulation value.
- Armen Saiyan: We can go ahead and consider that.
- David Wylie (via chat): Might suggest a sensitivity analysis using a wide range of attic insulation to determine just how much difference is there.

Cal TF Affirms the Solar Attic Fan, Residential measure.