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July 18, 2018

MEMORANDUM

To: Bach Tsan, Will Vicent, Dallen Coulter (SCE)
From: David Douglass-Jaimes, Abhijeet Pande (TRC)
Re: **California Compliance Software Symposium II – Discussion Notes**

CALIFORNIA COMPLIANCE SOFTWARE SYMPOSIUM II

The notes outlined below document discussions that coincided with presentations at the second California Compliance Software Symposium, held on July 12, 2018 in web-based conference format.

Original presentations from the symposium are included separately as attachments.

Attendees

- ◆ CEC – Larry Froess, Martha Brook, Todd Ferris
- ◆ SCE – Bach Tsan, Will Vicent, Dallen Coulter, Charles Kim, Ruby Yopez, Andres Fergadiotti, Ryan McFadyan, Randall Higa, Michelle Thomas
- ◆ PG&E – Kelly Cunningham
- ◆ Chip Barnaby
- ◆ Bentley Systems – Dru Crawley
- ◆ Big Ladder Software – Neal Krus
- ◆ CPUC – Peter Biermayer
- ◆ CALBO – Greg Mahoney (City of Davis)
- ◆ CABEC – Lucas Morton (Morton Green Building), Nic Dunfee (TRC), Gina Rodda (Gabel Energy), Rosemary Howley (Gabel Energy)
- ◆ CalTF – Ayad Al-Shaikh, Roger Baker
- ◆ CBECC-Res – Bruce Wilcox
- ◆ Consol – Megan Cordes
- ◆ DOE – Amir Roth
- ◆ Energy Solutions – Rahul Athalye, Leslie Nelson, Heidi Hauenstein

- ◆ Frontier Energy – Bill Dakin, Alea German
- ◆ IBPSA – Mike Wilson
- ◆ IESVE – Liam Buckley
- ◆ Kolderup Consulting – Erik Kolderup
- ◆ LBNL – Tianzhen Hong
- ◆ NREL – Andrew Parker
- ◆ Noresco – Dimitri Contoyannis, Nikhil Kapur, Roger Hedrick
- ◆ PNNL – Supriya Goel, Michael Rosenberg
- ◆ Resource Refocus – Vrushali Mendon
- ◆ SAC Software Solutions – Scott Criswell
- ◆ Peter Simmonds
- ◆ SKEE – Steve Kromer
- ◆ TRC – Abhijeet Pande, David Douglass-Jaimes, Elizabeth McCollum, Parul Gulati
- ◆ Wrightsoft – Ethan Croteau

Discussion Notes

The following notes document discussions related to each of the presentations. These notes incorporate both the verbal discussion that occurred around each presentation, as well as on the online chat discussion.

The original presentations for each topic, where available, are included separately as attachments.

Meeting Goals Discussion

Will Vicent of SCE presented an introduction outlining the previous symposium outcomes, progress to date, and the goals for this symposium meeting.

Discussion:

- ◆ Amir Roth: To clarify, you don't want to standardize design and compliance on one single tool, you want users to be able to accomplish all the necessary tasks from whichever tool they are using, correct?
- ◆ Will Vicent: Yes, that's correct.
- ◆ Kelly Cunningham: One of the overarching goals is reducing the complexity of the compliance process.
- ◆ Abhijeet Pande: Yes, this was a tension of the last meeting, the balance between accuracy and simplicity.

The meeting goals presentation included several poll questions, the results of which are presented below.

1-C-1. What do you hope to get out of these symposiums? (Check all that apply.)	Qty.	% of Respondents	% of Attendees
a. Coordination & knowledge-sharing across organizations	30	83%	58%
b. Business development for my BEM tool	4	11%	8%
c. Overall process improvement to streamline BEM processes	24	67%	46%
d. Ensure technical sufficiency in BEM tools	20	56%	38%
e. Still figuring it out	3	8%	6%
f. Other (please note below)	12	33%	23%
No response	16	na	31%

Figure 1. Meeting Goals poll question 1

“Other” open-ended responses provided for question 1-C-1 (Figure 1) from attendees were as follows:

- ◆ “Inclusion of user base; odd that residential and commercial building industry groups are not closely involved”
- ◆ “Understand all parallel activities underway across the state relevant to BEM”
- ◆ “It is not clear what each of the players want. Is this convened by SCE? Or on behalf of CEC? Or who... who owns this and what are you trying to get out of this.”
- ◆ “Inform people about DOE projects and objectives.”
- ◆ “Guidance on most important projects to pursue for 2019 to support this effort”
- ◆ “Hear about user needs.”
- ◆ “Ensure that current modeling gaps and shortfalls are identified, prioritized and addressed.”
- ◆ “A platform to discuss and resolve software issues and where the software is falling short and to find solutions”
- ◆ “Understand where IOUs and CECs are headed, where is the focus going to be, and to try and influence the process.”
- ◆ “Understanding of state and federal development plans”
- ◆ “Make sure the transparency is being maintained with the public on software capability and functionality”
- ◆ “Discussion of implementation issues for actual code compliance of buildings”

1-C-2. How do you think these symposiums can better serve overall coordination? (Check all that apply.)	Qty.	% of Respondents	% of Attendees
<i>a. Clearer objectives & more detailed agendas</i>	18	53%	35%
<i>b. More meetings (in-person or web-based)</i>	12	35%	23%
<i>c. Identify working members using a RACI (Responsible, Accountable, Consulted, Informed) type of methodology</i>	9	26%	17%
<i>d. Dedicate budget to support projects identified as high-priority</i>	12	35%	23%
<i>e. Still figuring it out</i>	11	32%	21%
<i>f. Other (please note below)</i>	10	29%	19%
No response	18	na	35%

Figure 2. Meeting Goals poll question 2

“Other” open-ended responses provided for question 1-C-2 (Figure 2) from attendees were as follows:

- ◆ “Have CEC, CPUC, and IOUs describe what/if they are willing to change based on the outcomes of these meetings.”
- ◆ “Clear roadmap, outcomes, stakeholders, who is doing what? Who will do what?”
- ◆ “I would like to learn about other people’s projects and objectives if they are willing to share.”
- ◆ “Develop working groups; identify leaders (i.e. utility) to spearhead specific efforts”
- ◆ “More communication - more advanced warning for meetings/webinars”
- ◆ “Many stakeholders have their own roadmaps. This group should develop a common roadmap with clearly established mission statement, challenges and objectives.”
- ◆ “Sub-committees to deal with specific issues”
- ◆ “Post symposium dates in advance.”
- ◆ “Add other national stakeholders. More developers. Other states. Other utilities.”
- ◆ “Get stuff DONE!”

1-C-3. How do you see your organization best supporting a CA statewide Building Energy Modeling framework? (Check all that apply.)	Qty.	% of Respondents	% of Attendees
a. Technical software development	13	41%	25%
b. Consultancy and thought leadership	22	69%	42%
c. Ensure technical sufficiency in BEM tools through testing and quality assurance	19	59%	37%
d. Coordination & knowledge-share across organizations	21	66%	40%
e. Still figuring it out	2	6%	4%
f. Other (please note below)	6	19%	12%
No response	20	na	38%

Figure 3. Meeting Goals poll question 3

“Other” open-ended responses provided for question 1-C-3 (Figure 3) from attendees were as follows:

- ◆ “All of the above.”
- ◆ “Education, implementation, coordination, enforcement, testing, RESULTS”
- ◆ “Feedback re: compliance w/in actual design workflows”
- ◆ “Not sure.”
- ◆ “Training. Chapter meetings to share experiences. Online education. Conferences.”
- ◆ “IBPSA can survey its members to support CA BEM framework.”

The final poll question of the Meeting Goals presentation was an open-ended question, “What is the primary long-term goal of [Building Energy Modeling] in California?” Responses were as follows:

- ◆ “Accurate results reflecting building energy use”
- ◆ “Support moving to codes and programs that are based on whole-building energy performance”
- ◆ “Easier analysis to support decision making and verification”
- ◆ “Ensure that the tools that CA standardizes on is transparent, future looking, accessible by a variety of user, improves accuracy”

- ◆ “Support meeting the zero by 2050 target for new and existing buildings”
- ◆ “Consistency & coordination across code compliance & building design”
- ◆ “Reduce complexity in T24 compliance process”
- ◆ “More efficient and livable buildings”
- ◆ “Ensure that buildings contribute less to emissions”
- ◆ “Compliance tools that can function as effective design and evaluation tools for design of energy efficiency buildings”
- ◆ “Better buildings through simulation aided design and performance based code compliance.”
- ◆ “Meet the long-term energy efficiency and renewable energy goals of California.”
- ◆ “Better buildings”
- ◆ “ZNE through single solutions by designers (energy model and compliance model)”
- ◆ “To have a tool or tools that accurately model a buildings performance and can be understood by all users”
- ◆ “Be able to model to code compliance that matches up with the design of the building”
- ◆ “Helping California meet environmental goals with code compliance software and forms that are clear and easy to use”

Updates on Software Efforts

Will Vicent and Bach Tsan of SCE presented a summary of updates on software efforts from the statewide IOU team since the previous symposium.

Discussion:

- ◆ Bach Tsan: Previous roadmap documents discussed in the presentation will be sent out to attendees.
- ◆ Erik Kolderup: Do any of the ZNE working groups “own” simulation and design methods?
 - ◆ Will V.: At this point, we haven’t really “assigned” ownership to any of these components, which we should work out with this group. SCE doesn’t have to own any of these components, we just want to facilitate a framework for it.
- ◆ Kelly C.: The presentation shows a variety of building types, and this vision applies across building types, correct?
 - ◆ Will V.: Yes, the framework is applicable to all building types, in theory.
- ◆ Michael Rosenberg: Are compliance minimums meant to be determined by simulation?
 - ◆ Will V.: The short answer is yes, but Ryan and Bach will discuss that further.
- ◆ Gina Rodda: You’re missing documentation of the software development as part of the framework.
- ◆ Andres Fergadiotti: DOE provided significant support to the HVAC accuracy study.

- ◆ Kelly C.: It's worth noting that there are activities happening, but that stakeholders aren't aware of details of what is happening.
- ◆ Dimitri Contoyannis: On ASHRAE 205, how do we encourage manufacturers to provide data for simulation? Is there an opportunity for incentive or something
 - ◆ Bach T.: I think that's a longer term question and process, but it's something that we've been thinking about.
- ◆ Chip Barnaby: A key activity is *model* development (independent of software). How to represent actual device operation.
 - ◆ Kelly C.: By device, do you mean appliances? MELs?
 - ◆ Chip B.: Device = HVAC component, for example. In order to simulate, behavior under all operating conditions needs to be characterize.

The presentation included a poll question on software feature priorities, asking attendees to rank the features they were most interested in seeing implemented. However, the time allowed for this exercise was not sufficient to complete the ranking, so a separate poll will be sent to attendees after the event to collect this feedback.

This presentation also included one open-ended poll question, "What do you recommend be a focus on future compliance simulation software tools?" Responses were as follows:

- ◆ "Demonstration of real world accuracy"
- ◆ "Streamline the analysis process and encourage workflows that are not siloed for different codes, standards, incentives, etc."
- ◆ "Ability to validate the performance of the design"
- ◆ "Feature development in an ongoing process but there should also be some focus on error checking which would facilitate the verification of the compliance model."
- ◆ "Accuracy; compliance process simplification; flexibility"
- ◆ "Interoperability. Consensus data model."
- ◆ "That the focus NOT be on simulation tools, but a framework"
- ◆ "Allow simulation and credit for systems that designers are using to meet ZNE. Including VRF, central HPWHs."
- ◆ "Standardizing software input / output data"
- ◆ "Simplifying compliance process."
- ◆ "Use of standard data input and output formats to make it easier to use different tools and consistent methods, especially in different states."
- ◆ "CEC Rulesets implemented into any software engine, not using CBECC-Com."
- ◆ "Making sure the modeling is documented in a fashion that MAKES SENSE to the design/construction of the building."
- ◆ "Make sure that current features are working smoothly before adding more features"

Multifamily Prototypes

Elizabeth McCollum of TRC presented on work to compare modeling outcomes and challenges of modeling multifamily buildings in both CBECC-Com and CBECC-Res, on behalf of SCE.

Discussion:

- ◆ Elizabeth welcomes additional inputs on thresholds between residential and nonresidential for multifamily buildings.
- ◆ Gina R.: These limitations are exactly what we're dealing with as an industry.
- ◆ Chip B.: For both -Res and -Com, some limitation are in rulesets, others are in the engines. It would be useful to investigate each limitation and make targeted recommendations.
- ◆ Q: What is the timeline for stakeholder input?
 - ◆ Elizabeth M.: We need feedback on this ASAP.
 - ◆ Bach T.: The final report will be available publicly, but we need to think more about how to get external industry feedback as part of the process.
 - ◆ Kelly C.: There has been some discussion about possibly asking for feedback on multifamily topics sometime in the fall. We plan on asking, for example, if these are the prototypes that are actually needed. We do need to get these out to the world.
 - ◆ Elizabeth M.: To clarify, this research effort is not to define those prototypes, but to determine how the tools impact multifamily modeling and compare software tools.

This presentation also included one open-ended poll question, "Where should the dividing line be between low-rise and high-rise (residential and nonresidential), and why?" Responses were as follows:

- ◆ "You should follow the CA Building Code - 3 three stories and less are residential; over 4 stories are nonresidential; don't make up new definitions"
- ◆ "It depends on what you are trying to achieve with this distinction - application of Res/Nonres code , modeling baseline or what?"
- ◆ "6 stories to match the building code"
- ◆ "Traditionally the demarcation has been based on the building code -- limits of up to x stories"
- ◆ "I think residential should always be treated the same, regardless of whether the building is ultimately called low rise or high rise"
- ◆ "Maintain consistency with the building codes"
- ◆ "Construction Type (Type I, II etc.)"
- ◆ "Align with building code"
- ◆ "Building-wide mechanical systems"
- ◆ "Type of mechanical systems"
- ◆ "If you are asking from an energy codes perspective, it should match other codes."

- ◆ “What about residential in Megatall buildings?”
- ◆ “Consider framing type and mechanical system - # stories probably isn't the best metric”
- ◆ “System types/number of dwelling units”
- ◆ “Simple versus complex mechanical systems needs to be part of the consideration”
- ◆ “Accessibility requirements that apply to high-rise residential (requirement for an elevator or ADA for example)”

New Construction Energy Use Intensity (EUI) Database

Ryan McFadyen presented on SCE's efforts to develop an EUI database for various building types.

There was not a discussion period following this presentation, but attendees presented some comments and questions through chat as follows:

- ◆ Michael R.: Will these prototypes be created in CBECCOM?
- ◆ Erik K.: Is there any work to validate the simulation results with actual energy consumption?
- ◆ Vrushali Mendon: I'm curious why E+ was selected for the commercial buildings but CBECC-Res was chosen for the residential ones
 - ◆ Abhijeet P.: CBECC-Res is the residential compliance tool
- ◆ Liam Buckley: I'm also curious to why EnergyPlus was selected to the non-res DEER prototypes. Will they be compared against other non-res simulation engines?
- ◆ Greg Collins: Food for thought: Set up database to accept simulation results from compliance simulations (like via Savings by Design program model submissions). Plug "proposed" and "standard" model results in.
 - ◆ Supriya Goel: I think that's an excellent suggestion. Would be more helpful than just the prototypes

This presentation also included two open-ended poll questions. The first was, “How can SCE improve upon the EUI Database to make it even more useful?” Responses were as follows:

- ◆ “Publish all the prototypes”
- ◆ “Need full transparency so "anyone" can duplicate results. This will allow open review.”
- ◆ “Make it accessible to the public for feedback”
- ◆ “Include some variability in inputs in order to provide a distribution of EUI's for each case.”
- ◆ “Is there a data base? If so where is it?”

The second question was, “Any other comments or questions?” Responses were as follows:

- ◆ “Are ranges of EUIs from real buildings available for comparison”
- ◆ “Who is creating the DEER prototypes?”

Fixed Baseline

Dimitri Contoyannis gave a brief presentation on behalf of SCE on the concept of fixed baseline for nonresidential compliance, similar to the process currently used for residential.

There was no discussion session following this presentation, but there was some discussion on the chat feature, as follows:

- ◆ Rosemary Howley: Going to energy cost as a baseline seems as though it moves away from the more important energy use
- ◆ Kelly C.: In the report, will there be a section on how this move might affect the compliance process (better, same, more difficult)
 - ◆ Dimitri C.: Better
 - ◆ Peter Simmonds: Better
 - ◆ Bach T.: It will not be in this phases of the report, as it was a preliminary study. We will be addressing it in the future research for the report

CEC Status Update and Discussion

Larry Froess of CEC presented on the current status of software efforts and CBECC tools, now that the 2019 Standards have been officially adopted. Items he highlighted are as followed:

- ◆ ACM workshops will be held in August
- ◆ CBECC-Res:
 - ◆ compliance margin strictly based on EDR, not going to have TDV but that's what used to determine, efficiency EDR as well as from PV, etc. to make final EDR
 - ◆ Battery compliance credit, so if a project has a battery it gets a slight credit on efficiency and dr side
 - ◆ CO2 component for information
 - ◆ Introducing all-electric baseline option, package available for electric water heater based on heat-pump water heater
 - ◆ Looking forward to getting central water heating system that includes heat pump, but that is ongoing research
 - ◆ Also still working on community solar, under development
 - ◆ PV exceptions, etc, wall, roof values, etc.
- ◆ CBECC-Com:
 - ◆ Readjusting HVAC system map, bar was set too high for small buildings
 - ◆ Consider water heater for commercial to fule swap based on 90.1 recommendation, still up in the air, but heavy consideration
 - ◆ 2019 standards adoption
 - ◆ Already have a VRF beta released for users to work with, but cannot be used for compliance, getting feedback, which we may be able to implement that further

Discussion:

- ◆ Greg C.: How is feedback for VRF beta being gathered?
 - ◆ Larry F.: We're working with Kelly and Heidi to work with consultants who have been testing it.
 - ◆ Kelly C.: The statewide team agreed to support additional exploration, so if people have additional feedback they can send to Kelly. It's small, to expand on what's in there already and kick the tires, then will be sent to CEC for their consideration.
- ◆ Michael R.: What you just described for compliance in CBECC-Com is different from what Dimitri just discussed. Are these two alternatives that are being considered for 2022?
 - ◆ Dimitri C.: Yes, fixed baseline is still in the exploratory stages whereas what Larry described is more for immediate implementation.
- ◆ Larry F.: We mentioned early on standards based on emissions, but we have to base code measures based on energy efficiency and energy cost savings.
- ◆ Larry F.: For simplifying, we have been working on that for years, but we run into road blocks of time and funding. Utilities working with us on specifications, proposed feature, helping to research, see how it can be programmed in, then it gets presented to us, and we can determine best way forward. Since the effort is already done, it make it easier to get it into future versions.
 - ◆ Kelly C.: Just to complement what you just said, that prioritization of feature updates, hopefully we can all see how that feedback loop will work, and how it gets taken into account.
- ◆ Larry F.: For adding new features, it's great for modelers, but the challenges is also with field verification, and determining methods for field verification.
- ◆ Larry F.: Speed is another thing we are looking into, fast simulation feature can't be used for compliance, but gives you an idea of where your design stands.
- ◆ Larry F.: Regarding how the public is informed about what we're doing, this has also been on our list, but we have limited bandwidth, working with Bach on developing a public facing website or something to inform people on what we're working on and what's coming.
- ◆ Bach T.: Different baselines?
 - ◆ Larry F.: For multifamily, that is something we're thinking about, and we have been considering many of the inputs that the stakeholders mentioned in the previous poll question.
- ◆ Rahul Athalye: How does a building show compliance when using a feature that is currently not available in the software?
 - ◆ Lucas Morton: You find the next best system that you can model and explain what you're doing in the notes for the report using an Approved version of CBECC
 - ◆ Rahul A.: Okay. My point was more in relation to a lack of in-field verification that Larry mentioned was a stumbling block for adding new features.
 - ◆ Gina R.: I so agree with you! Hope we can get that worked on

IBPSA Presentation

Erik Kolderup presented on the perspective of IBPSA.

Discussion:

- ◆ Erik K.: Folks at AIA have also expressed interest in being part of this process. We haven’t spoken directly with USGBC on this, but LEED is also a major consumer of energy simulation.

The IBPSA presentation also included two poll questions, the results of which are presented below.

4-A-1. There is a need for national collaboration related to simulation-based code compliance	Qty.	% of Respondents	% of Attendees
a. Agree strongly	18	67%	35%
b. Agree somewhat	8	30%	15%
c. Neutral	1	4%	2%
d. Disagree somewhat	0	0%	0%
e. Disagree strongly	0	0%	0%
No response	25	na	48%

Figure 4. IBPSA presentation poll question

In addition, the IBPSA presentation included the open-ended question, “Any questions or comments?” Responses were as follows:

- ◆ “Should involve AIA, USGBC, GBCI”
- ◆ “Consider existing formats as a “:standard:” before jumping to developing something new. aka gbxml, SDD, osm, etc.”
- ◆ “The collaboration should be more in lines of training, education, methodologies and not software tools. Developing a single tool which works nationally is a very challenging task, might be more useful to develop data exchange mechanisms”
- ◆ “As long as collaboration doesn't somehow hinder individual states from taking leadership”
- ◆ “Strive for interoperability -- a common data model. gbXML++”
- ◆ “Suggest partnering with USGBC”
- ◆ “We need to ensure that CA standards are not watered down as a result.”
- ◆ “We need standard input/output data formats for building models.”
- ◆ “PRM Baseline model specification is likely approach to be acceptable nationally”

- ◆ “Better resources to SUPPORT those of use modeling in multiple states could be a good resource for IBPSA to create”
- ◆ “Need to make sure that we don't lose the advantages of the California code in trying to go national”
- ◆ “Address compliance workflows separate from design workflows”

CALBO Presentation

Greg Mahoney of the City of Davis presented on the perspective of building officials, plan checkers, and building inspectors.

Discussion:

- ◆ Rosemary H.: Totally agree on publishing work-arounds
- ◆ Greg C.: Designers of record should be able to explain workarounds. There's a box to explain in CBECC-Com, and I know I've also written memos to explain compliance modeling approaches
 - ◆ Gina R.: How can the building department know they are representing the problem correctly? Fairly?
- ◆ Chip B.: Re model simplification -- the ultimate goal is to have the software do the model reduction based on "complete" input from the user. Then full info is available for the building official without slow simulation. (Dream on?)
 - ◆ Neal Kruis: I agree 100%
 - ◆ Greg C.: I hear you, but simplification should not be necessary. My "normal" model (design, LEED) is the "complete" version and is very useful and valuable to design team. For code compliance, I simplify the geometry significantly before porting over to CBECC-Com. (Side note: I'm presenting on this process at IBPSA/ASHRAE building perf conference in Chicago in Sep)
- ◆ Rosemary H.: Good form design is a critical part of code compliance.
- ◆ Dimitri C.: I recall the "Ace" team provided input to the NR PRF-01 form design. is it time for another round?
 - ◆ Gina R.: We are putting another push forward on requested updates to that form
- ◆ Abhijeet P.: There has been some talk of shifting to electronic work flows, as a way of dealing with some of the issues with the forms
 - ◆ Greg M.: Especially for field inspector, the information needs to be presented in a way that's useful. 38 pages for an HVAC change out.
 - ◆ Dimitri C.: Since changing forms is a regulatory process, is there a helpful interim step, like some sort of guide
 - ◆ Greg M.: It's better than it is now, I don't see why it would be so hard to have a summary sheet
 - ◆ Mike Wilson: Is there a financial problem? Projects are on hold, can you quantify that?
 - ◆ Greg M.: I can't speak to the real financial consequence to the builders/owners, but every time something isn't right, we have to go back out there, someone has to fill out the form, etc.

CABEC Presentation

Lucas Morton and Gina Rodda presented on the perspective of CABEC members.

Discussion:

- ◆ Bach T.: what items have improved in CABEC members' workflow so we can try to mimic those success factors
- ◆ Lucas M.: just streamlining process, Gina mentions ADU topic. For me personally I have used batch processor repeatedly in projects to try and determine strategies. See also input from Gina and Rosemary in chat

CalTF Presentation

Ayad Al-Shaikh presented on the perspective of CalTF.

Discussion:

- ◆ Dimitri C.: To what degree does CalTF coordinate with CEC currently?
 - ◆ Ayad A.: They are part of the technical advisory committee, so we also work with IOUs and POUs, we try to communicate with them as much as possible
- ◆ Kelly C.: When developing this, did you have the component of inclusion of the different pathways, or was that not part of the roadmap
 - ◆ Ayad A.: This is looking specifically at deemed to go beyond
 - ◆ Kelly C.: But what about future code, do you envision these as future code measures?
 - ◆ Ayad A.: As they become more cost effective, yes, I think there is a natural progression to make that happen
- ◆ Erik K: It's great to hear about this work in this forum. We've heard about simulation tools from developers, compliance POVs, etc. Seems like CPUC working with CEC would want to consider how those tools get used in design, and this is yet another aspect to consider if we are working toward a common platform.

DOE Presentation

Amir Roth of DOE provided a national perspective on building energy modeling and compliance tools.

Discussion:

- ◆ Abhijeet P.: Going back to changes Sdk vs graphical is there a timeline for that?
 - ◆ Amir R.: What we're thinking of right now is two open studio releases (between a year and 18 months from now, approx. 2020)
- ◆ Will V.: Can you talk through reference rule set a bit, what that would look like
 - ◆ Amir R.: What this procedure would be used to do would be to prove equivalence between baseline and your implementation.
- ◆ Dimitri C.: Right now ACM has testing procedure to test validity of the rule set, but simulation results piece is important to that because CEC needs assurance that compliance margins don't vary between tools

- ◆ Amir R.: Not establishing a program for California, CEC can still establish preferred rulesets. More geared toward other states that do not have an entity like CEC.

Recap, Action Items, Next Steps

- ◆ Abhijeet P.: planning an in-person meeting in Sacramento
- ◆ Bach T.: poll for preferred dates. Format will be different this year, more of a workshop type format, open to suggestions for other formats if there is any input
- ◆ Bach T.: also organizing a breakout session at the IBPSA conference in Chicago in September
- ◆ Abhijeet P.: to recap from today, we will summarize feedback and poll results in meeting notes, also want to know how else can we do this better? What is the best way to use the two-day in person?
- ◆ Kelly C.: do want to send the survey out for ranking of CBECC-Com, but we do want to get that feedback.

As part of the recap, there was also a poll question on preferred dates for the upcoming in-person symposium to be held in Sacramento. Responses to the poll are presented below.

5-A-1. What date(s) do you prefer to the Symposium in October? (Select all that work well for you.)	Qty.	% of Respondents	% of Attendees
a. October 16-17 (Tues-Wed)	14	70%	27%
b. October 23-24 (Tues-Wed)	19	95%	37%
c. October 29-30 (Mon-Tues)	8	40%	15%
No response	32	na	62%

Figure 5. Preferred dates for next symposium poll question

APPENDICES

The following presentations, as they were presented during the symposium, are attached as appendices:

- ◆ Meeting Goals
- ◆ Software Roadmap
- ◆ Multifamily Modeling Analysis
- ◆ EUI Database
- ◆ Fixed Baseline
- ◆ IBPSA
- ◆ CALBO
- ◆ CABEC

MEMORANDUM (continued)

To: Bach Tsan, Will Vicent, Dallen Coulter (SCE)

Re: California Compliance Software Symposium II – Discussion Notes

September 4, 2018

- ◆ CaITF
- ◆ DOE