

04/11/2022

Attendees:

Mike Stone
Mark Rodriguez
Kris Stenger
Amy Boyce
Amy Martino
Ann Edminster
Bob raymer
Bruce Swiecicki
Chris Perry
Courtney Anderson
Craig Conner
Diana Burk
Eric Lacey
Farhad Farahmand
Gary Heikkinen
Gayathri Vijayakumar
Jim Early
Jim Meyers
Joe Cain
Kevin Rose
Kiri Coakley
Lauren Urbanek
Michael Jouaneh
Micahel Tillou
Patricia Chawla
Payam Bozorgchami
Renee Lani
Robert Graff
Sean Denniston
Shane Hoeper
Shannon Corcoran
Steven Rosenstock
Thomas Culp
Tom Paine
Vladimir Kochkin
Vrushali Mendon

Agenda

1. Call to order.

2. Meeting Conduct. Staff
 - a. Identification of Representation/Conflict of Interest
 - b. ICC Council Policy 7 Committees: Section 5.1.10 Representation of Interests
 - c. ICC Code of Ethics: ICC advocates commitment to a standard of professional behavior that exemplifies the highest ideals and principles of ethical conduct which include integrity, honesty, and fairness. As part of this commitment it is expected that participants shall act with courtesy, competence and respect for others.
3. Roll Call - Stone
4. Approval of Minutes
5. Administrative issues.
 - i. JC - REPI-116 "Vote in PLR SC." Consensus committee sent it back to the modeling SC. PLR are stakeholders in this proposal and should debate, deliberate, and vote on it. Find coordination to reach consensus. Voting in PLR SC has precedent in the HVAC SC voting on a proposal from another SC.
 - ii. **Motion to review REPI-116 AM, 2nd BR. 7-6 Pass**
 1. Discussion:
 - a. MT - bad precedent
 - b. SR - it happens
 - c. CP - understand the desire but could be complicated
 - d. EL - me too on MT
 - e. AM - this Proposal should have been assigned to us since it covers renewables. Reach out to help resolve the issues. The proposal is proposed by DOE, they would not be "shopping" the proposal to other Cs.
 - f. BR - This is a huge issue regarding modeling and performance with huge impact moving forward. Concern that we are not reaching consensus with $\frac{2}{3}$ majority.
 - g. JC - great discussion but the precedent has been established multiple times. A working group should be the next motion. There are only a few elements to consider, envelope, whats appropriate, and how it relates to the prescriptive renewable requirement. The proposals does not also consider offsite PV
 - h. GV - has spoken with the proponent, supports the motion since they overlap. We want to keep modeling consistent. Propose something for off site and submit to the modeling SC. Say specifically that the effort is to reach an answer prior to public comment. Ignore the backstop, we do not want to change it, per REPI-118
 - i. MT - The consensus committee sent it back to modeling, we should not step on the committee with this motion. If you think you can improve it, participate in the modeling SC.

iii. JC - Motion to create a working group for REPI-116 and invite the modeling SC and proponent, 2nd BR 11-2-1 PASS

1. AM - reach out to chair with modeling SC to join hands
2. BR - offer the ability to work in concert
3. GV - no modeling to review, we trusted the proponent that they would update during public comment to find incentives for renewables.
4. MT - To the Chair, the SC is forming a working group to address concerns regarding REPI-116.
5. JC - we could create a committee proposal, but could also make it from the working group.
6. MT - speaking to the process in place. If the motion is to amend, then the proponent would have to agree. This process steps away from REPI-116 and the process that ICC created. Encouraging the best step forward is to generate an SC created proposal.
7. AM - Call the vote

6. Action Items.

- a. EVSE-related code proposals
 - i. CEPI-146 Part II (Bonesteel)
 - ii. CEPI-258 Parts I & II (Jeremy Williams, DoE)
 - iii. REPI-15-21 (Emily Kelly, ChargePoint)
 - iv. Discussion to transfer multi-family EVSE to Commercial Committee – next Residential
- b. EV Multi-family working group meeting is Friday, April 1 at 3:30 Eastern time
- c. REPI-158-21 (Diana Burk, NBI)
 1. SR - In Resi, there are a lot of 3rd party companies that use the RECs on the market. This may be a limitation in some states where 3rd party ownership or leases are used.
 2. DB - not saying that 3rd party can't be used, but only when the RECs are used to satisfy the energy code. A utility could claim the RECs and call it part of their portfolio.
 3. SR - thats kind of a win-win in some situations.
 4. DB - any renewable requirement in this code should not have utility take credit
 5. SR - may want to maximize flexibility, especially with aggressive renewable portfolios.
 6. DB - Cost effectiveness of PV would not include the selling of RECs
 7. SR - this is a possible additional revenue stream that may be taken away
 8. DB - want to make sure that renewables are credited to the building
 9. AM - Why the strike out on 406.7.3, how is it enforceable? At the time of permit, time of occupancy....?

10. DB - use solar to meet code, either you have a contract, and it shows that RECs are retained, show that to the AHJ, if not, the building owner may not be selling the RECs if no contract.
 11. MG - enforcement is a slippery slope with offsite renewables. The purpose of the code is to regulate the construction of a building on a site, not extraneous agreements with others by the building owner. Do we want to see in the future a property maintenance code that requires cutting the lawn. Support the intent but not a thing enforceable by the AHJ
 12. JC - inconvenient but important topic. Offsite options are necessary for those structures that can't comply with their own generation. We have agreed that it is necessary to prevent double-dipping. Lets not get stuck on onsite vs offsite.
 13. MG - Building code can't control things that happen offsite. The building department should not regulate public policy
 14. MR - its a timing issue of presenting the necessary proof at the permit stage.
 15. JC - MOTION TO APPROVE AS MODIFIED, 2nd PC 10 - 1 - 1
 - a. AM - would want the proponent to come back in public comment
- d. REPI-70-21 (Jeremy Williams, DoE)
- i. AM - we need to receive the documents in advance. We skipped over REPI-158, we should follow the agenda and should address changes at the start. Is there still a REPI-71 if it was combined with REPI-70? Is the modification in order or is this a rewrite? Be consistent in the process.
 - ii. CP - We will be ready to speak once it's seen by the entire committee. It has been modified per a similar proposal.
 - iii. AM - If there is a change or mod, can you highlight what has been changed and indicate whether its a substantial change or not.
 - iv. JC - Generally supportive, but I see 3 new reference standards but the monograph does not introduce them properly. They don't seem to be presented properly and may not have had staff review.
 - v. CP - hold off until the latest draft, no staff review.
 - vi. MT - Staff did receive copies back in October.
 - vii. KS - may not be in staff review if not included in October
 - viii. MOTION to table until 4/22, 2nd JM 11 - 2 PASS
- e. Electrification-related proposals
- i. REPI-111-21 (Jeremy Williams, DoE) – update from Michael Tillou on working group
 1. SD - Motion to send it back to the working group. The working group committee proposal is unresolved.

2. AM - working group didn't vote, just asked to give input. We should send it back just for formality purposes. Also requires a cost analysis.
 3. JC - First time I've seen the mod on the screen. REPI-155 in HVAC, are we coordinating?
 4. AM Motion to send it back to working groups to provide cost analysis and a vote.
 5. DB - Electric ready will affect our decision on REPI-155
 6. SR - may want to keep these separate REPI-111 and REPI-155
 7. JC - Allow MT to finish the presentation but not vote.
 8. MT - clearly there is misunderstanding. Some wordsmithing needs to be done with the intent that it comes back. Proponents have the prerogative to accept changes.
 9. AM - we need the final version to review
 10. SD - just an issue of clarity, the SC should be clear about what needs to happen with these proposals so the proponent can get feedback and move from there.
 11. PC - Is there a vote needed from the working group.
 12. SD - we could dissolve the working group and make a committee proposal.
 13. STRAW POLE to vote on REPI-111 - FAIL 3-7-1
 14. PC - Motion to table and bring back on 4/25, 2nd AE 15-0 PASS
 - a. MT - will update the cost analysis
 - b. SR - could be the same proposal next time
 - c. JC - many things happened when we were in NY, can we get the latest copy distributed.
 - d. BZ - hope that the WG plans to vote at the next meeting, Frustrated with delays.
 - e. AE - some got it, some didn't. Couldn't find it in my inbox. It would be helpful if everything required (resources) for a meeting is included in the invite or agenda email.
- ii. REPI-155-21 (Kim Cheslak, NBI)
 1. SD - Request to table
 2. BR - Motion to table until after we hear REPI-111, 2nd JC 10-0 PASS
 - 3.
- f. Solar PV
 - i. REPI-7-21 (Kim Cheslak, NBI)
 - ii. REPI-114-21 (Jeremy Williams, DoE)
 - g. Energy Storage Systems
 - i. REPI-8-21 (Kim Cheslak, NBI)
 - ii. REPI-115-21 (Joe Cain, SEIA)
 - h. Performance
 - i. REPI-117-21 (Steve Rosenstock, EEI)

- ii. REPI-130-21 (Vladimir Kochkin, NAHB)
- iii. REPI-137-21 (Bill Fay, EECC)
- i. Zero Net Energy
 - i. REPI-154-21 (Steve Rosenstock, EEI)
 - ii. REPI-155-21 (Kim Cheslak, NBI)
 - iii. REPI-157-21 (Emily Toto, ASHRAE)
 - iv. REPI-160-21 (Steve Rosenstock, EEI)
 - v. REPI-164-21 (Steve Rosenstock, EEI)
- j. Upcoming meetings – next EPLR meeting: April 25, 2:00 PM to 4:00 PM EST
- k. Adjourn.

03/14/2022

Attendees:

Mike Stone
Mark Rodriguez
Kris Stenger
Amy Martino
Ann Edminster
Bob raymer
Britta Gross
Chris Perry
Courtney Anderson
Craig Conner
David Mann
Diana Burk
Ed Carley
Emily Kelley
Eric Adair
Eric Lacey
Farhad Farahmand
Greg Johnson
Howard W
Jim Early
Jim Meyers
Joe Cain
Lauren Urbanek
Loren Ross
Maureen Guttman
Michael Jouaneh
Micahel Tillou
Patricia Chawla
Payam Bozorgchami
Robert Graff

Sean Denniston
Shane Hoeper
Steven Rosenstock
Tom Paine
Vrushali Mendon
Wanda Edwards

Agenda

7. Call to order.
8. Meeting Conduct. Staff
 - a. Identification of Representation/Conflict of Interest
 - b. ICC Council Policy 7 Committees: Section 5.1.10 Representation of Interests
 - c. ICC Code of Ethics: ICC advocates commitment to a standard of professional behavior that exemplifies the highest ideals and principles of ethical conduct which include integrity, honesty, and fairness. As part of this commitment it is expected that participants shall act with courtesy, competence and respect for others.
9. Roll Call - Stone
10. Approval of Minutes
11. Administrative issues.
12. Action Items.
 - a. Residential EV Proposal
 - i. Discussion of one- and two-family dwellings
 - ii. PC - would like to compare Commercial to Residential proposal
 - iii. SR - just passed in commercial committee, Staff should circulate soon.
 - iv. BR - Motion to approve as written, JC 2nd.
 1. AM - point of order that the second sentence of 404.4.1 is under debate
 2. Discussion of order of voting between commercial and residential proposals
 3. AM - not wanting to leave it up to Commercial group to decide the outcome
 4. JC, SD, SR - welcome to make improvements in the commercial group
 5. Vote to approve as submitted, roll-call vote - 12-0-1
 - b. REPI-158-21
 - i. DB - proponent presentation
 1. MR - how does this affect power purchase agreements? DB - Would have to be represented in contract language.
 2. SH - appears to be word for word with other language in ASHRAE standard 189.9
 3. JC - support in concept not double-counting renewables in prescriptive and performance paths. Also, not available everywhere.

4. AM - what are the social and other non-power attributes? DB - clarifying that renewables don't only have electric benefits.
 5. JC - need to modify the documentation statement
 6. Vote to table - 11-1-0
- c. REPI-70-21
- i. Motion to table by proponent, REPI-70
 1. JC - motion to table requires a revisit date, timeline to come back?
 2. MS - next meeting is 3/28, is that ok?
 3. CP - not available, following week?
 4. MS - 4/11 open 11-1-0 tabled
- d. REPI-111
- i. MT - requires installation of electrical circuits to allow flexibility to purchase either gas or electric appliances.
 1. AM - similar to what was proposed in 2021 and had been knocked out. Discussions about the water heater space which is large. This is not in scope.
 2. BS - against the proposal to remove a choice of energy, affects low income housing.
 3. SD - not limiting choice, but advancing it. In R404.4.3, space reserved, should be removed because the circuit should have an OCPD
 4. CA - make it easier to retrofit in the future. Water heating space, any requirements for space heating? Is that unnecessary?
 5. MT - space heating not included
 6. SH - what is the water heater space for? The exception says its not needed when a heat pump is included
 7. JM - Look at clothes drying equipment as an option, and allow fossil fuels in place of gas. The space for heat pump water heaters venting and limited clearance requirements. Typically new construction, where the builders would be specifying the appropriate space at design. Clean up with terminology and new products coming on line.
 8. DB - IN the scope of the code based on emissions.
 9. CP - Me too wave. This will add a little bit of cost upfront, but costs more in a retrofit. New tech, very open to mods to allow.
 10. LU -Me too wave. 3x3x7 space when a water heater isn't installed. Doesn't prevent the use of fossil fuels.

02/28/2022

Attendees:
 Mike Stone
 Mark Rodriguez
 Kris Stenger

Amy Martino
Ann Edminster
Bob raymer
Bryan Holland
Courtney Anderson
Craig Conner
Eric Lacey
Farhad Farahmand
Jerry Phelan
Jim Early
Jim Meyers
Joe Cain
Kevin Rose
Lauren Urbanek
Martin Herzfeld
Michael Jouaneh
Mike Moore
Noelani Derrickson
Patricia Chawla
Payam Bozorgchami
Shane Hoeper
Shannon Corcoran
Vladimir Kotchkin
Tom Paine
Vrushali Mendon

Agenda

13. Call to order.
14. Meeting Conduct. Staff
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15. Roll Call - Stone
16. Approval of Minutes
17. Administrative issues.
18. Action Items.
 - a. REPI-112-21 Parts I & II (Jouaneh – Lutron)
 - b. Lighting-related code proposals
 - i. REPI-105-21 (Kochkin – NAHB)

1. **Motion to approve** - Bob R, Joe C 2nd
 - a. Discussion on modifying the numbers through public comment or send back to proponents.
 - b. MJ - we should consider other zones
 - c. MS, BR - support the motion **10-0-2 PASS**
- ii. REPI-106-21 (NEMA)
 1. BH - this was a zombie proposal from the 2021 cycle. Many updates were lost in the process. Proposal seeks to fix the habitable spaces and other location text. Definition taken from other i-codes.
 2. JM - what about smart panel control, is there an option for this? REPI-107 seems to allow this.
 3. SH - prefers REPI-106 with a few small text modifications. Smart panels would pertain to load controls but maybe not in this instance.
 4. AM - Would be great to have a combined proposal. Is automatic shutoff a defined term? May want to consider. Notice that the NEMA proposal says it will increase cost but REPI-107 says it will not. What are the numbers? We need a cost analysis. Dimmers, automatic shut off and other controls would cost more.
 5. MJ - would be good to get feedback from the SC on the proposal. What are their thoughts on automatic shutoff vs occupancy sensor and lighting load less than 20W?
 6. SH - make a motion to approve REPI-106 and follow it through public comment?
 7. MJ - Motion to approve REPI-106-21 2nd
 8. PC - like the broadened language from REPI-107, but REPI-106 when defining occupancy sensor, isn't this an automatic shutoff?
 9. AM - Occupancy and vacancy sensors should be considered. More generic terms could be helpful. Reiterate cost impact.
 10. BH - would like the technology to be more inclusive. First sentence is derived from the commercial side. Trying for correlation between codes. This could go back to the hi-performance committee for suggestions.

11. Proponents to return at next meeting with a combined proposal
- iii. REPI-107-21 Parts I & II (Jouaneh - Lutron)
 1. MJ - similar to REPI-106, but added exception for ma lighting power less than 20W and changed "occupant sensor" to "automatic shutoff" control
 2. **Proponents to return at next meeting with a combined proposal**
- iv. REPI-108-21 (Rosenstock)
 1. JE -

2. MJ - first 4 edits are not required.
 3. Motion to modify MR, 2nd by MJ
 4. AM - clarification
 5. BH - this is linked to 106 and 107, they should go back
 6. SH - agree, send it back
 7. AM - this is editorial and independent. Not the same and should be voted separately.
 8. Motion to approve as modified 9-1-0
- v. REPI-109-21 Parts I & II (Jouaneh – Lutron)
1. MJ - allows for solutions using astronomical clocks that know daylight hours are everyday are to control lighting.
 2. JC - seems like there is no change in requirements, during daylight hours and when daylight is present seems the same
 3. SH - ditto with JC
 4. JM - daylit areas, do we need to define daylight hours? We know it means different times during the year.
 - a. MR - Motion to disapprove 2nd BR “Feel it does not add any clarity”
 - b. MJ - try to be explicit with the allowance for astronomical clocks.
 - c. Motion to disapprove 8-1-3
- vi. REPI-110-21 (Rosenstock)
1. JE - adding the exception for solar-powered lighting fixtures
 2. SH - doesn't think its should be required here
 3. MJ - agree with Shane, exterior solar lighting not permanent. What about battery powered fixtures?
 4. AM - Why not promote solar-powered lighting fixtures? It may not be normal now but could be in the future.
 5. SH - I would promote this, but not the purpose of this committee or the book to promote certain technologies
 6. JC - Not connected to any electrical service and low voltage, not permitted and could be used everywhere. No permit required. This is not needed.
 7. BH - Opposed to the proposal, we dont want an AHJ controlling this but what if the solar powered lighting is connected to the service? Solution to a problem that doesn't exist.
 8. AM - would make more sense if it was an exception for low power lighting fixtures. At what point would a solar-powered light fixture need an automatic light switch or control?
 9. BR - in CA, we are aware of emerging tech, nice lighting fixtures that have no connection to the grid.

10. JM - Communities in the SW that have dark sky amendments where at a certain time of the evening lights need to turn off. Maybe an amendment to “solar-powered lighting”
11. MJ - an exception already that exists in the 2021 IECC for solar-powered lighting 404.1.1
12. BH - what about other renewable power lighting, microgrid or wind powered?
13. AM - not wanting to future proof, this technology exists.
14. BH - REPI-102 was approved so fixture should be changed to “luminaire.” May be a better solution. Li-on battery powered lighting exists today. Could open a can of worms.
15. JC - this neither helps or hurts. We could align with R404.1.1 language, “Solar-powered lamps...”
16. MS - approve as modified straw poll 3-8
17. BR - **motion to disapprove** based on straw poll 2nd by SH
 - a. **Vote to deny 11-0-1**

c. EVSE-related code proposals

- i. CEPI-146 Part II (Bonesteel)
- ii. CEPI-258 Parts I & II (Jeremy Williams, DoE)
- iii. REPI-15-21 (Emily Kelly, ChargePoint)

d. From last meeting: Vote on REPI-101 proposal regarding antimicrobial lighting

- i. MM - proponent presentation. Modified proposal baked on committee direction to put exceptions into a list
 1. AM motion to approve as modified 2nd BR
 2. MJ - If a fixture can do both anti-microbial and lighting for a space, what does it cover?
 3. MM - covers only the antimicrobial part
 4. JC - good modification but will this still be a thing in 9 years for new buildings? Is it a thing?
 5. MM - already exempted in the code pre-pandemic.
 6. MJ - commercial language in the chat, “commercial side: Antimicrobial lighting used for the sole purpose of disinfecting a space.”
 7. MM - accept that as a friendly modification but what about the “space” part...would that cause confusion.
 8. SH - this may exempt lighting shining on an appliance versus appliance lighting.
 9. AM - withdraw, **motion to approve as modified**, “Antimicrobial lighting used for the sole purpose of disinfecting” 2nd MJ
 10. JC - Do we have a definition of “antimicrobial lighting”? MS - No, but language matches the commercial side.
 11. BH - new part in article 410, added in group A, interior environments that point to UL standards. Guidance in the IBC and NEC

a. Vote 10-2-0

- e. Schedule EV working group meeting
- f. REPI-158-21 (Diana Burk, NBI)
- g. REPI-70-21 (Jeremy Williams, DoE)
- h. Electrification-related proposals
 - i. REPI-111-21 (Jeremy Williams, DoE)
 - ii. REPI-155-21 (Kim Cheslak, NBI)

19. Other business.

- a. Roadmap for proposal discussion
 - i. EVSE (since this WG is in motion)
 - ii. Outliers and electrification proposals
 - iii. Solar PV
 - iv. Energy Storage Systems
 - v. Zero Net Energy
- b. PC - Likes the roadmap. Question on ZNE, has 3 proposals for the appendix under review by Admin SC. Things have been rearranged but no content changed. Do we want to review here? Review in Admin SC on 3/3
- c. CA - Suggest that we see solar and ESS prior to ZNE, me too wave.
- d. JC - some proposals will be blended so we should form a WG to look at them prior.
- e. AM - agree with moving ZNE up. For the next meeting, an update on cost-effectiveness matrix that is critical for determining the outcomes of these proposals.

20. Upcoming meetings – next EPLR meeting: March 14, 2:00 PM to 4:00 PM EST

21. Adjourn.

02/14/2022

Attendees:

Mike Stone
Mark Rodriguez
Kris Stenger
Amy Martino
Ann Edminster
Bob raymer
Ben Edwards
Bill Ambrefe
Bruce Świącicki
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Jim Early
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Lauren Urbanek
Martin Herzfeld
Michael Cunningham
Mary Booth
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Michael Tillou
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Agenda

- Discussion of Zero Net Energy
 - Up to the committee to determine the glide path
 - Commercial has a proposal authored by Dwayne J
 - Action: bring up at the next consensus meeting to form a working group
- EV Proposal discussion
 - Postpone based on Board investigation on mandatory versus optional requirements
 - Is EV code in scope? The Board of Directors ruled it was out of scope in a previous cycle.
- CEPI-12-21 Part II Biomass definition
 - Passed as modified
- REPI-112 Motion to modify approved 11-0-0
 - Michael J motion, Patricia C 2nd
 - Amy modify “conditioned floor area” to “living space,” not approved
- Lighting related code proposals
 - Vote on REPI-102 proposals regarding lighting efficacy
 - Passed as submitted
 - Vote n REPI-100
 - Denied
 - Vote on REPI-101 proposal regarding antimicrobial lighting
 - Tabled until next meeting to align with the proponents

01/24/2022

Attendees:

Mike Stone
Mark Rodriguez
Kris Stenger
Aron Phillips
Amy Martino
Bob raymer
Ann Edminster
Bruce Swiecicki
Courtney Anderson
Doug Powell
Gary Heikkinen
Howard W
James Earley
Jerry Phelan
Jim Meyers
Joe Cain
Lauren Urbanek
Martin Herzfeld
Michael Cunningham
Michael Jouneh
Norman Wang
Patricia Chawla
Payam Bozorgchami
Shane Hoeper
Shannon Corcoran
Steve Orłowski
Steven Rosenstock
Tom Paine
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Agenda

- Sub-committee proposal composed of CEPI 26, 146, 201 and 258. Voted on today.
 - EV proposals and work of the commercial committee. I would like to wait till they finalize their language before we vote on residential EV proposals to make sure the language is coordinated.
 - AM: What are we discussing? Proposal number? R-1 is not transient occupancy, Air BnB, how does it fit?
 - Modified proposal based on 4 other commercial proposals. See above.
 - SC thought more permanent form of occupancy.
 - Added to CDP access
 - Review table C405.13.1 for the table of requirements based on occupancy

- Commercial facilities more classified as commercial. Not meant for one- and two-family dwellings and townhomes
- Branch circuit capacity with EMS changes in C405.13.5.1 Circuit capacity Management
 - 4.1kva per space minimum
 - 2.7kVA for R-2 when 100% of spaces are either EV ready, V capable, or EVSE spaces.
- BR: With regards to R-2, apartment complexes, with 100 parking spots, required to have 100% of EV ready.. Going from 0 to 100?
 - SR: thought process is a high number of folks charging simultaneous in this occupancy
 - BR: agrees with the use, but this is a lot to expect in a short amount of time. In regards to R-3, some are commercial, but mostly one- and two-family dwellings, but the table says r-3, which includes these. Can we see the cost impact analysis?
 - SR: Cost info in the original separate proposals
- KS: **PROCESS NOTE** - SC proposal comes through, KS will add it to CDPAccess for review. A new proposal number will be generated to indicate that it's a committee proposal.
- AE: For R-3, for two dwellings, how do you calculate 2%?
- SR: Covered by the exception for fewer than 10 spaces
- BR: Production housing, many units over a long period, working in phases, 100 single family homes in the end, how does the table apply if the project is built in phases? Clarity needed in the table. IN CA< 100% of new homes are EV capable which is incredibly cost effective. The table needs work for clarity.
- PC:
- SH: Minimum amount of charge stations should apply, >=1. 208/240vac may be confusing and could lead to discrepancies in the current and wiring.
- SR: Minimum of 208/240 single phase level 2 charger is the minimum. Up to 80amps. EV ready spaces allows flexibility in negotiations and could get moved. A single charge with multiple cords could service multiple parking spaces if it meets the electrical requirements
- SD: Will bring learnings from this commercial group to the Resi side
- MS: Definitions from this proposal can be brought into the Resi side. A new table will be needed with numbers adjusted for Resi for EV Ready and EV capable. R-3 in CA is 100% for the last few years, but R-2 needs an agreement. Minimum charging rates and EMS could translate well.
- JC: A lot of effort went into this proposal with good outcomes. Definitions are fairly dialed in. Technical requirement elements were well meshed. A lot of questions about R-2 and R-3. The Building code can include other R-3 occupancies not residential. Residential building is defined in the energy code which includes one-and two family, and multi-family within limitations.
- CP: One of the original proponents and worked on the consensus proposal. The group was diverse and experienced.

- AM: Was there any discussion of this being an appendix? IN 2022, EV Charging was kicked out, not in scope and not energy conservation.
- SR: Original proposals all in the body of the code. Appendix not considered. In terms of saving energy, managed charging via an EMS and really saving transportation and building energy.
- AM: The IECC addresses the building, this proposal is increasing energy use. If determined in 2021 that it wasn't relevant, why now?
- SR: Chargers could get power from other sources rather than the building. Could be supplied by separate wiring. There are other models that do not impact building energy use.
- SD: We have a revised scope from 2021. IECC has telegraphed that EV is in scope. The proponents agree that for the EV market there are no areas that are not affected. Some places have a hard time adopting appendices.
- JM: Question about minimum amount of chargers, rounding up to the nearest whole number so there will always be at least 1 charger. Is it reasonable that the builder install particular EVSE device or rather make them EV ready.
- BR: Current issue in CA, detailing with folks that have never dealt with this technology. Keep in mind as we make code changes are they ready for a National Mandate or an appendix. We want people to use the code, a big jump may have jurisdictions run away or look for other solutions. Need an educational lift.
- JC: We want a code that will be adopted and used, realizing there are regional differences or political will to advance, there are places that are not eager to adopt the newest code. Surge in the midwest. Think we should lead by example and get the code to where we want it and allow AHJs to adopt on their own schedule.
- SR: Certain entities have announced big commitments to EVs with significant regulations. Major automakers making big announcements. There are reasons for these proposals and the numbers.
- JM: Lots of development at the local level in the SW. Parts they don't like can be removed. AHJs trying to figure out the code dev by themselves OR they follow their neighbors. They are asking for vetted consensus language to deploy at the local level.
- REPI-112-21 Large Home Lighting Controls
 - R404.4 for large homes >5000 sqft of conditioned floor area. Interior lighting capability to control lighting from the exit door or a lighting control system. Added a mod to consider spaces controlled by occupant sensors, countdown timers and vacancy sensors.
 - Cost savings report shows a savings of 11% of lighting loads or ~\$150. CEE reports on residential lighting, LED Column.
 - HW: Maui county bill passed that houses over 5k sqft to be ZNE. Most of the homes are largely unoccupied.
 - SR: ASHRAE Scaler using the commercial rate...its higher. It should be more cost-effective using the correct value of 0.13 instead of 0.1099. Countdown timers?
 - MJ: They do exist. Schedule timers do not currently qualify by design.

- JC: Question about countdown timer. Occupant sensor control is a defined term, Occupancy has been changed to Occupant in past code cycles. Vacancy sensor is NOT defined. Should propose a new definition. Are there commercially available systems that satisfy these requirements, is this proposal specific to a certain type of tech?
- MJ: There are several options including smart light bulbs.
- JMH: The 5% covers the need for another exception regarding scheduled lights. This seems non-controversial.
- MJ, we could remove “vacancy sensor” since it isn't defined.
- JC: In favor of the changes. Vacancy sensor is manual on and automatic off.
- AM: Wants to concur with security lighting and lighting for safety purposes can be quantified in the 5%. Would like to see sources.
- CEPI-12-21 Part 2 Definition of biomass waste for Residential
 - PC: DEFN - C202 BIOMASS WASTE. Organic non-fossil material of biological origin that is a byproduct or a discarded product. Biomass waste includes municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural crop byproducts, straw, and other biomass solids, liquids, and biogases; but excludes wood and wood-derived fuels (including black liquor), biofuel, feedstock, biodiesel, and fuel ethanol.
 - SR: Approved as submitted on the commercial side. There was a controversial discussion.
 - JC: Trying to recall if there were mods but not sure which SC discussed? There was a discussion of Black liquor(?) We have knowledge of historic PV systems wth data available, but for other renewable measures, we are without history. Hard to justify life-cycle cost analysis. IECC says renewable energy is required but may present challenges to cost effectiveness. At full decarb, we stop burning stuff but for long term...need to stop burning stuff.
 - SR: Certain states have already defined this term, there could be conflicts if already defined.
 - JC: Has anyone heard of new Commercial or Residential buildings where space heating is fueled by biomass? Are there individual examples?
 - JMH: Ecesss black liquor burned at the facility. Not used for home heating.
 - AM: We need to hear from the proponents and ask questions. Why is biomass fuel excluded? What is the future of this space? We want to encourage alternate renewable sources of energy. It would be helpful to know where the science is going.
 - JMH: A commercial expert informed the commercial SC. The EU used biomass as a fuel and led to more units of carbon and thermal efficiency. Long units of time required to recover the carbon produced. Not a desirable outcome.
 - AM: Restaurant biomass from oil fryers is known.
 - MJ: Q for Chris, what happens if the Resi committee has a different definition?
 - KS: It happens. Not uncommon. But we should work together to align.
 - MJ: We should invite the experts and have a controlled discussion.
 - SR: Good points on both sides. Biomass is used for the renewable energy portfolio
- Glide path to ZNE

- Next proposals this committee would like to discuss
 - MS: New meeting for Monday at 9am to discuss residential EV proposals.
 - ASHRAE conflict for Steve R.
 - JC: Hope to invite the group that worked on the Commercial proposal...Doodle poll?
 - JM: Second the doodle
 - KS: We can work it out.
 - REPI-112-21
 - CEPI-12-21 Part II
 - ZNE Glide path
 - PC: Can we schedule proposals for future meeting?

01/10/2022

Attendees:

Mark Rodriguez
Kris Stenger
Bob raymer
Ann Edminster
Courtney Anderson
Eric Lacey
Gary Heikkinen
James Earley
Howard W
Joe Cain
Michael Cunningham
Patricia Chawla
Shane Hoeper
Tom Paine
Robert Pegues
Amanda
Amy Martino
Martin Herzfeld
Jim Meyers
Nick Thompson
Lauren Urbanek
Farhad Faramand
Steve Orłowski

1. No Published Agenda today, Chair Mike Stone OOO
2. Discuss an “administrative proposal” to understand the process

- a. Moved to the admin working group
- b. JM: Commercial committee is starting to look at EV proposals. Maybe Steve and the group can share their work on EV proposals.
 - i. MJ: Ran out of time to complete the work today. Came to consensus on a modified proposal. Will discuss Next call in 2 weeks , but mostly looking at non-resi(?)
 - ii. BH: Only looked at Commercial side for EV. Formed a task force of proponents to meet for harmonization. Task force chair is Steve Rosenstock. Resi committee should coordinate. Mike Stone should be up to speed on this topic. Agreed to a set of definitions RE: EV and EVSE. Also, 3 concepts for parking, EV Capable, EV ready, EVSE Space, based on occupancy and use. Placeholders for Energy Management Systems and how to handle branch circuits and load control.
 - iii. BR: Seeing similarities to work done in CA. BSC approved EVSE spaces (25%). For single-family homes and electrification, trying to get a handle on what the service panel would look like.
 - iv. BH: Based on 2023 NEC, NEC 2020 silent on load impacts for EV except for NEC 625.40. Minimum load of 7200W, or nameplate rating of EVSE installed, used for load calcs, for dedicated EVSE. The code has an out for EMS or non-coincidental loading (lock out other loads). Could also use energy management to monitor the service, or demand response, or adjustable settings for EVSE. Correlating committee puts CMP 2 and 12 in convo to better determine the load rating of 7200W.
 - v. BR: Is this a mixture of smart tech that doesn't require operator intervention? RE: a customer to manage the loads of the EVSE.
 - vi. BH: There are dumb EVSE in market, not controllable. LEVEL 1 should have no impact. Higher charge rates could also be dumb OR use high tech controllable smart devices that could talk with the utility.
 - vii. BR: In CA, July 2015, kept code at EV Capable because vehicle capability was unknown at the time.
 - viii. BH: Justification of 7200W is a 30A circuit, "The 7200 watt (volt-amperes) minimum requirement is based on a 30 ampere, 240 volt, single-phase circuit."
 - ix. JM: In the SW, we see a lot of home rule, that include panel capacity requirements. Ordinances that mandate a minimum 200A service panel. Also seeing limitations on max panel capacity to 150A.
 - x. SR: Available to answer questions regarding commercial EV proposals. Do have reference to R2 Multi-family but haven't gone in depth on other resi structures.
 - xi. PC: Should we form a group to work with the Commercial group? To stay in alignment on time and content.

- xii. SR: Focused on consensus proposal, but could help inform Resi proposals. Working on a deadline of 1/24. One more meeting to finish the work.
- xiii. JM: Can members of this group that want to participate send an email to SR?
- xiv. SR: Yes. srosenstock@eei.org
- xv. AM: Important to keep track of this as IECC-R still considers multi-family.
- xvi. SR: Will keep the group informed of changes
- c. Proposals to review for next meeting
 - i. SH: See REPI-112-21"Large Home Lighting controls"
 - ii. MJ: For larger homes to have a lighting control system that allows control of lights by the exits or remotely.
 - iii. SH: Isn't this important for smaller homes, too?
 - iv. MJ: More potential for larger homes with lights left on when no one is home.
 - v. MJ: 5000sqft pulled from ASHRAE 90.2 as a standard
 - vi. SH: Would Occupancy controls qualify for this?
 - vii. MJ: The idea here is to turn them off remotely but should account for motion controlled lights.
 - viii. SH: Occupancy sensors may get the same result but easier to manage the home by occupants. Could be a safety issue.
 - ix. MJ: Maybe an exception for occupancy controlled lights....
 - x. BH: For One- and Two-family, there are no requirements for the location of lighting controls, not even for egresses. What needs to be illuminated is dictated by code, but not how to control them.
 - xi. JC: What about night lights and/or security lighting, is there a marking or indication of what lights will remain on or how certain lights would be controlled?
 - xii. MJ: Switches could be labeled, "last man out switch." Not a req to have all lights turned off when no ones home, but to have the option to turn all permanently installed lights off at the exit. Does not include plugged in lights.
 - xiii. JC: Include some dimming function possible, maybe too open ended. %5 exception is NOT in ASHRAE 90.2.
 - xiv. SH: New for 2020 NEC 210.70(a)(1) habitable rooms require a wall mounted control device near the entrance. Has exceptions for occupant sensors.
 - xv. MJ: no conflict with NEC 210.70
- d. For the next meeting, discuss REPI-112-21.
- e. JM: Could discuss the Biomass definition proposal. CETI 12 Part 2
- f. BH: The commercial group has scheduled out when proposals will be discussed. Create a chart for discussion at meetings. We should schedule the proposal discussion for this WG.

- g. PC: There may be an update available to us regarding Resi EV proposals by the next meeting.
3. Open forum
- a. BR: Initiate a discussion of the codes and the direction we are supposed to go. Considering proposals for PV Mandate, ESS ready, EV ready and the like, this may be onerous to the market. From a builders perspective, is there any thought on spreading this out across multiple code editions, rather than all in 2024. It takes time to get the market share up before we institute mandates. Do we have political consensus to move this forward in one fell sweep?
 - b. JC: Could argue both ways but this is an important topic. First thought is that things are moving quickly, could earn some push back. We are having a big impact on service panels. Building a home that satisfies one condition, but needs to be changed as electrical needs are met or change is bad, we need to be future proofing.
 - c. BR: In CA, Air resources board wants everyone to drive EVs, half of home power supplied by electricity, half by gas. EVs can have a great increase in electrical capacity for a home. We don't want to break the grid. How can things get done efficiently. Can we consider the cost impact? Retrofit costs? Builders will be evaluating the pain of cost increases due to code changes. We could have a smoother road if we work with builders to schedule the changes over time.
 - d. JC: Will there be a point where Neighborhood distro has to consider additional loads? There is a planning aspect of these loads and how a utility will deal with them in neighborhoods.
 - e. BH: <https://www.energycodes.gov/status/residential> SE states are against Net zero changes. 2024 IECC may have teeth in 2030 based on adoption rates. 80 programs identified that will trickle down to local level to support renewables, electrification, and EVs. EVs are also optional standby systems and can be bidirectional. Could also support utility demand response. Looks like a load, but not always. Trends towards limited energy class 4 systems, super low energy usage. Moving toward DC distro systems in the future.
 - f. SB: Utilities are already modifying Xfrmer sizes to prepare for the changing grid. Putting this in code gives a clear indicator on what to plan for. Now is the time to get it in the code.
 - g. KS: No framework for a glide path in Resi
 - h. BR: That's what we did in CA. Voluntary first, then move to mandatory over time. No opposition to these proposals.

12/13/2021

Attendees:
Mike Stone
Mark Rodriguez

Kris Stenger
Ann Edminster
Bob raymer
Courtney
Eric Lacey

Jim Meyers
Joe Cain
Michael Cunningham
Micheal Jouaneh
Noelani Derrickson
Patricia Chawla
Shane Hoepfer
Steve
Steve Rosenstock
Vrushali Mendon
Ann Edminster
Amy Martino

1. Call to order.
2. Meeting Conduct. Staff
 - a. Identification of Representation/Conflict of Interest
 - b. ICC Council Policy 7 Committees: Section 5.1.10 Representation of Interests
 - c. ICC Code of Ethics: ICC advocates commitment to a standard of professional behavior that exemplifies the highest ideals and principles of ethical conduct which include integrity, honesty, and fairness. As part of this commitment it is expected that participants shall act with courtesy, competence and respect for others.
3. Roll Call
4. Approval of Minutes
 - a. First meeting
5. Administrative issues
 - a. Appointment of recording secretary
 - b. Does Not need to be one person. Can rotate.
6. Action Items – code change proposals (37 total for this subcommittee)
 - a. Solar PV - 3
 - b. Energy Storage Systems – 3
 - c. EV infrastructure – 4
 - d. Electrification – 3
 - e. Lighting and controls – 15
 - f. Performance and design – 3
 - g. Zero Net Energy – 4
 - h. Other (biomass, demand response, documentation) - 3

i. Discussion

- JC: tee up the easy proposals first to help us get a groove.
- MS: for next meeting
- AM: me too wave. Will the review start today?
- MS: starting in Jan to list specific proposals to discuss. What is the timeline for review?
- KS: Early summer to go through all proposals. Other SCs may task us with other proposals. We may also create new proposals in the SC. Teeing up easy proposals to the consensus committee could help facilitate moving them through the vote. Sooner we get them on the agenda the better.
- MS: Can a prop be amended after consensus vote?
- KS: No, but to needs $\frac{2}{3}$ vote to move to consensus committee
- MS: SC may make their own proposal, can we introduce new material?
- KS: Yes. SC can make a recommendation, with or without proponent support, or create a new proposal. But the goal is to go through all of the Props submitted.
- MS: We could combine 3 props into one as needed to create a committee proposal.
- KS: Work with proponents to modify or work out.
- AM: Do we submit all props to the CC at once? Will Proponents give a presentation? How do speaking opportunities work?
- MS: Concise presentations are allowed.
- KS: As they are recommended, move to the CC. How we hear the items is up to the SC. Up to the chair.
- MS: List which props we are reviewing so that proponents are ready.
- AM: Does this SC have to wait on others that are doing cost effectiveness analysis? I don't see that criteria currently.
- KS: Commercial has an advisory group working since October. Within the intent of the code to analyze cost effectiveness but some of the proposals do not need consideration, but can be discussed. SC can also make a recommendation to have the CC review cost-effectiveness.
- JC: Who gets to vote? Proponent? Chair? SC members?
- KS: **Council Policy 28**. Proponents listed on the proposal can't vote on their own proposal. Discussion for the executive committee.
- JC: If I am a voting member of the SC, and there is a vote, and a member of my organization is on the proposal, can I vote? Seems controversial if someone else's name is on the proposal, from my org, and now I can vote.
- KS: If there are questions, email Chair, Vie-Chair, CC KS. Addressing it at the Executive Committee meeting.
- JC: Attendees need to know when they are eligible to vote.

- MS: Chair does not get a vote in other forums....but does get a vote in the SC. Council policy allows it. In CA CAC's, if you submit a PC, you can't give testimony to the CAC.
- AM: Joe raises an important issue. We should talk about it. There are times when you need to recuse yourself from a vote. If you represent, or a member of your Org represents, you should abstain.
- KS: The CC can vote to say otherwise.
- AM: Motion to discuss giving a recommendation
- BR: Second the motion
- SH: Thinking along the lines of JC, if the committee modifies the proposal, can the proponent vote? If we modify a proposal, as authors, can everyone vote?
- KS: Proponents can refuse the friendly modification, in which case the committee can decide to make a new proposal; Which allows the original proponent to vote.
- SR: In other forums, I can vote at both the SC and CC. The proponent or organization, could be multiple people that have to recuse themselves. More if joint proposals.
- JC: IMO, this is unworkable. If there are 6 proponents of a proposal, do they all have to abstain if they are all SC members. But then modify it slightly, it becomes a committee proposal and all can vote. Too many ways to game the system.
- MS: There are 18 code-making panels.
- MJ: Discussed in Commercial SC, too gameable. Proponent may vote against their own proposal in favor of a better option. ZVoting member should be able to vote whether or not listed as a proponent.
- JM: When is the next EC?
- KS: Next week
- JM: Will feel more comfortable after getting direction.
- AM: Roll Call vote for who is a proponent or member of an org that is a proponent?
- BR: None from us but some will come from other groups.
- MS: NBI, NEMA, EEI, DOE, SEIA, ASHRAE are current proponents. Who are voting members from those orgs?
- JC: Anyone from a proponent org can't vote on proposals with their name, but could on others. Fix it!
- MR: Are we saying that all members should be able to vote?
- Yes
- MS: How should we structure this statement?
- KS: Go with a more definitive language
- AM: Withdraw and amend motion.
- BR: agree
- AM: Amend motion to be consistent with CP28? Can we get the text?
- KS: "finding CP28 for the group."

- PC: Can we repost a meeting note link to chat?
- MS: Any idea on easy proposals to discuss?
- KS:

5.2.2 Conflict of Interest: A committee member shall withdraw from and take no part in those matters with which the committee member has an undisclosed financial, business or property interest. The committee member shall not participate in any committee discussion or any committee vote on the matter in which they have an undisclosed interest. A committee member who is a proponent of a code change proposal shall not participate in any committee discussion on the matter or any committee vote. Such committee member shall be permitted to participate in the floor discussion in accordance with Section 5.5 by stepping down from the dais.

- JM: Concerned that undisclosed interest..
 - Br: Distinction between committees, you could participate in the discussion at the working group level. We want experts to chime in on the proposal. Conflict of interest language is clear but does it pertain at the SC level. We need to hear from some folks.
 - AE: Me too wave. People come in with knowledge and are best equipped to speak on the issues. Silencing them is counter-productive.
 - AM: Anyone should be part of the discussion. This is a committee conflict of interest which should apply to the CC. Does Not have to be the same for the SC.
 - MS: Can we agree as an SC?
 - AM: Support CP28 for the CC, but not the SC. Specifically 5.2.2.
 - AM - Motion to comply with CP28 for the CC, but for the SC, 5.2.2 should not apply. BR- 2nd PC: Should the main committee review? AM: Yes, but this motion is only for our SC. JC: Don't think we can pick the policy apart...,the same rules should apply across all committees.
 1. Vote - motion carries
 - a. Yes = 7
 - b. No = 6
 - BR: looking for CC to review 5.2.2
- j. Proposal suggestion?
- BR: Next meeting in Jan? Over the next couple of weeks, provide proposal numbers to add to the agenda.
 - MS: Bah Humbug, no PTO for the holidays. Email proposals.
 - PC: 2-3 suggestions for Net Zero appendix. More administrative than substantial. 153, 156, and 159. Moved to the admin committee.
 - MS: any other business? Next meeting Jan 10.
7. Other business.
8. Upcoming meetings.
- a. Next Residential Electrical Subcommittee meeting: Monday, January 10, 2022, 2:00-4:00 PM EST

- b. Next IECC Residential Consensus Committee Meeting (full committee):
Thursday, December 16, 2021, 2:00-4:30 PM EST
- 9. Adjourn.