



IECC/DGC Energy Committee Hearing # 6 Minutes

March 31, 2022

2 p.m. – 5 p.m.

City and County of Denver

1. Roll Call

Committee Member		In Attendance?
Aaron Esselink		X
Carol Pafford		Cannot attend
Chris Parr		Cannot attend
Chris Spelke	ONE VOTE	
Ashleigh Wheeler		X
Christy Collins		X
Chuck Bartel		X
Allen Yanong		X
Courtney Anderson		X
Elizabeth Gillmor		X
Eric Browning		X – left early
Jamy Bacchus		Cannot attend
John Burns		
Ken Urbanek		X
Adam Lyons		X – left early
Nate Huyler		X
Curtis Underwood		X
John Dutch		Cannot attend
Jeff Crowe		Cannot attend
Linda Morrison	ONE VOTE	Cannot attend
Eric Rader		Cannot attend
Mike Walton		X
Nathan Kahre		X - Need to leave at 4
Paul Kriescher		Cannot attend
Paul Schaffer	One vote	
Robert Pruet		X
Antonio Navarra		X
Shanti Pless		
Chuck Kutscher		X
Mark Rodriguez		Cannot attend
Bill Rectanus		Cannot attend

Bryan Kazin		Cannot attend
Alex Martin	One vote	X
Kevin Eronymous		X
Laura London		

2. Approach for utilizing committee member time effectively and meet the community's goals. How to do this correctly?
 - a. Elizabeth: Is the committee being tasked with achieving Denver's goals no matter what or what is acceptable by the committee?
 - Denver: The aggregate knowledge of the committee can help guide the language of the proposals. If we feel the language as presented is implementable, then let's vote for it for the purpose of advance of the provisions. We want committee to speak their mind as we value their opinions. If we don't like what is in the proposal, is there a way to make it work so that it will pass? The calibration of proposals comes after the conversations we are having. We want to understand the framework of where the committee feels the stringency should be and then calibrate after proposals are selected.

3. Introduction of key proposals for **IECC/DBC-Residential (non-voting)**
 - a. [#P39](#) R403.13 Partial Space Heating Electrification
 - Public Discussions:
 - Eric: Single Family, Two-family, and IRC Townhouses are not meant to be covered in the Energize Denver Ordinance.
 - Maggie Thompson: City council is very supportive of proposals just like this. This will eventually need to be voted and approved upon by city council and it is imperative that the stringency of this proposal is met.
 - Lindsey Rasmussen: Representative of a Denver resident. Felt very restrained on my budget while purchasing a home but wanted to be climate conscious. Just moved into an all-electric

home and love it. This is a community of young professionals which there isn't a lot of wealth. There is a miscommunication about having a sustainable home and it being overwhelm expensive.

- Jenny Willford: Share an experience retrofitting our home from gas to all-electric. Received quotes for a new gas system vs all-electric and they were very similar, except the electrician cost. Supplementary heat should be limited to electric resistance. This has a large impact on the metro area.
- Meera Fickling: Would like to be a responsible when it comes to climate change. Find a home that we can afford that is electric and it is very difficult. Would rather purchase all-electric from the start rather than retrofitting. Natural gas bills are very high and want protection from that volatility.
- Shawn LeMons: Mitsubishi representative- Heat pumps do not work in cold climate and there are different options to combat this. I've seen them operate -22 deg and has to do with the quality of operation and installation.
- Sarah Snead: Having asthma and as a renter there isn't an opportunity to pick all-electric homes to rent. All- electric supports better indoor air quality.
- Committee Discussion:
 - Ken: Please clarify it is space heating in the language
 - Chuck: Could include expectations for new technologies, including geothermal. What does thermostat malfunctions trigger? Where did the 20 deg come from?
 - Sean: structured to require heat pumps instead of efficiencies due to federal preemption laws. Ground source heat pump would be considered a heat pump

through this proposal. For thermostat malfunctions, because depending on the thermostat, sometimes the fail safe is to turn on the supplementary heat. Want to make sure that a failsafe is allowed. For 20 deg, was identified as a handy threshold of 20 before it switches to supplementary heat.

- Eric: Want to understand more about the cost of installation. Why aren't people installing heat pumps if the costs are similar?
 - Christine: The reason we aren't seeing it take over the market is because of contractor familiarity with heat pumps and the rapid improvements of performance. Also for retrofits, it is pretty challenging because you may need a whole new duct system. Manufacturers and Xcel are working on this information lag. In new construction, there are savings from not having the gas connection which was nearing \$3,000 in savings. You can make up costs over the operational energy use over time, but it is not dramatic.
- Eric: For those that want a gas cooktop, does that just negate or elongate the savings process?
 - Sean: Yes, but due to the market factors they can muddy the waters on this proposal. Electric heating from a first cost standpoint without the market factors, the contractors can add a premium. Without the infrastructure savings, electric can still be cheaper, but dependent on the contractor.
- Aaron: Be cautious of what we codify because the Xcel rebates can only be for what goes above code requirements. In other words, those rebates may not

- Christine: This proposal does not specify an efficiency, whereas Xcel's rebate does. So incentivization can come from an increase in efficiency
- Chuck: We should not support having fossil fuel backup. The reasonable backup to have would be for electric, we do not want to incentivize gas. Solar thermal is an exception, but that will only cover part of the load but push that gas is not allowed. 20 deg is high to switch to a backup, more reasonable to have 5 degrees.
 - Solar thermal exception was just to allow solar thermal but the backup would have to be a heat pump. 20 deg is the result of stakeholder considerations. If the committee wants to lower that point, then that is perfectly reasonable. Supplemental gas was included to allow for large volume homes due to not being able to meet the load with heat pumps alone.
- Cold climate heat pumps are now available in commercials but there is a larger upfront cost.
- Christy: Does CASR want to speak to Bulk purchase agreements and what else is being done to combat that increase in cost.
 - Tom: Stakeholder engagement meetings to advise what to incentivize. Opportunity areas include working with local distributors and bulk purchase agreements. Trainings are being provided to heat pump installers and sales people.
- Elizabeth: Same concerns for the commercial code. Does not only apply to single family, but it applies to dwelling units as well. I don't think we should be putting the blame on the local contractors. There are so many things that go into

consideration outside of just equipment. Is 1000 watts for an exception fair for a dwelling unit or single family home?

Mandating this could potentially remove Xcel rebates.

- Nathan Kahre: In SF and townhomes projects from going to a traditional gas equipment to a heat pump. The inclusion of high rise MF was under the commercial code, will this continue for the 2021?
 - Christy: The baseline does include the definition for residential homes.
 - How many R3 and R4 building types are there?
 - Small compared to overall residential data but don't have specific numbers.
- Antonio: These could be constantly running so the volume needs to be taken into considerations.
 - Sean: Only applies to new buildings so no duct system would need to be provide. This only requires a code level heat pump while Xcel provides incentive above codes.
 - Aaron: Would be able to incentive higher efficient heat pumps. Would not change rebate structure just for Denver, but the plan for rebates is submitted every two years.
 - R503 for alteration, and energize Denver doesn't technically apply, but they would need to comply with that requirement.
 - This is specifically for new buildings. Potential for just additional clarification and the intent is fully carried through.

b. [#P37](#) R403.5 Partial SWH Electrification

- Committee Discussion:
 - Nathan: Would the proponent be interested in an exception for small tight spaces less than 1200 sqft?
 - Christine: Could be considered
 - Courtney: Is 1200 sqft the right threshold?
 - Sean: Dialing what the right threshold would be something we would want to use the building department data.
 - Chuck: Should be based more on the capability or volume needed by the water heater itself.
 - Why are we exempting snow and ice melt systems?
 - For clarity purposes. No you don't need to use a heat pump system for snow and ice melt systems.
 - Chuck K: Purpose should be to get off fossil fuels and we want to electrify in the most efficient way possible. Solar thermal system would need a backup of electric resistance? Not sure the tank size is the appropriate metric.
 - Only the solar thermal system is exempted, not the backup.
 - Eric: The additional volume necessary for a heat pump water heater. And also the sound of a water heater.
 - That will be a larger consideration for smaller homes. It is similar to a refrigerator level of noise.
 - Chuck: How does this apply to instantaneous water heater?
 - Sean: That would be allowed but it is not a practical loophole. Can address if it is a concern by changing storage threshold to a kbtuh threshold.
 - Nathan: The sound concern is a large issue due to the vibrations and it can be minimized but education for installers is needed.

- Antonio: the research I've found goes up to 40-60 decibels. Does we have any stats on north facing units? Run time should be considered.
 - Sean: Not aware, the water itself is going to run the same amount because it is a conditioned space. If it is unconditioned space, that may be different when considering orientation.
- Courtney: How does the committee feel about the intent of these proposals?
 - Heat pump: 4 for
 - Heat pump water heater: 8 for
- Elizabeth: Support the concept but still provides the option through R408 and C406 and it keeps the door open through potential incentives
- Nathan: Has this been any other consideration on the efficiency requirements?
 - Sean: Proposals would need to be modified to mandate electrification
- Chuck: Unless we have mandatory requirements, we are not going to see change fast enough. Rather than make it incentivized based, make it mandatory with exceptions brought up by the committee
- Antonio: Second Elizabeth, should give citizens options, not obligation
- Ashleigh: Echoing Elizabeth and would like access to all the cost data, need to understand the numbers moving forward being someone who builds affordable housing.
- Elizabeth: There is a way to guarantee heat pump is the path forward is by increasing efficiency of gas equipment.

- Ken: One out for the group to consider is pushing up the gallon mark to 30 gallons, but it does provide the power necessary for a retrofit down the line.

4. Discussion and voting on **IECC/DBC and DGC**

a. [#31](#) R406 Energy Rating Index Compliance (NON-VOTING)

- Committee Discussion:
 - Mike Walton: Why did we eliminate thermal envelope backstops?
 - Robby: It is not needed because of the ERI score becomes the backstop which requires comparable envelope requirements and mechanical systems.
 - Nathan: This will be linked to the ANSI 301 standard, what year?
 - Robby: The 2021 IECC in the appendix chapter has all of the listings and version of the standards. Currently referencing the 2019 version. 2022 is about to be published which the city may want to consider at a later point.
 - Chuck K: Are renewables allowed to be used to meet the requirement?
 - Robby: Only 5% of onsite renewable are allowed to be considered. ERI is designed to consider all systems. The lowest you can go is 35-40 ERI then the rest would need to be met by renewables. We do not want to tradeoff a poor performing envelope.
 - Mike Walton: Seems like there is some inequality between the two performance choices
 - Sean: The 77 % that calibrates both pathways in R406 and the proposed R408.

b. [#47](#) R408 Additional Efficiency Options

- Committee Questions:
 - Mike Walton: Isn't the standard reference design getting more restrictive, are we double dipping?
 - Robby: The percentage would need to be calibrated for R405 and the percentage in R406. Would also need to account for whatever goes into the main body of the code. Might need to lower the credit values dependent on the main value of the code.

QUORUM LOST at 4:40pm

c. C406 related proposals

- [#10](#) Remove Credit limit for premium cooling
- [#12](#) Premium Air tightness
 - Chuck K: With this likely not being the end of pandemics, we might increase the ACH. The airflow direction in a building would be considered, any considerations for direction?
 - Robby: Air tightness is important from a efficiency prescriptive but ventilation is key from a health prescriptive. We want to gain control of the airflow in the building. Ventilation would be considered in a different proposal.
 - John: Displacement ventilation systems would be a potential option for addressing COVID concerns. As people move to DOAS system, they include a little buffer.
 - Chuck B: There are not any specific code amendments for the IMC committee
- [#16](#) Enhanced Envelop UA

- [#101](#) C406 Electrification Option
 - Chuck B: Are we going to be treating those building equitably? Restaurants can't get credit for going electric. A Occupancies should be considered.

Meeting Adjourned at 4:58pm