

**2024 Technical Code Engagement  
Question/ Comment Summary  
July 2024**



**INTERNATIONAL ENERGY CONSERVATION CODE (IECC)**

<b>Question/Comment:</b>
Support for ERV exceptions in multi family and shelters.
<b>Response:</b>
Thank you for your comment. The ERV code requirements found at C403.7.4 Energy recovery systems are outside of the scope of the residential provisions of the IECC.

<b>Question/Comment:</b>
I am asking to remove resistance water heating from Residential buildings when it is the main hot-water supply. The use of this energy-wasteful technology affects the poor the most, since many multifamily and tract-home units are built with this equipment. Continued installation of resistance water heat not only adversely affects these specific consumers directly. It raises the summer peak demand (and the cost of summer peak demand) for all consumers who are Austin Energy customers. I have spoken with a resident expert on the legality of this at the City of Austin legal department, and he has not provided any solid legal rationale as to why there would be a problem with this proposal.
<b>Response:</b>
Thank you for your comments and suggestion. Austin Energy Green Building is following legal counsel in understanding that resistance water heating cannot be removed as an option since it would be in violation of the federal preemption provisions of the Energy Policy and Conservation Act (EPCA). Minimum efficiency requirements for appliances and equipment by fuel/type are set at the Federal level by the Energy Policy and Conservation Act. It is considered preemption of that Act to pass local minimum requirements for specific types of equipment that are more stringent than the federal standard.

<b>Question/Comment:</b>
Insulation Requirements: Thank you for reducing attic insulation from R49 to R38. Our own analysis shows dwindling returns for the cost above R38. We also appreciate the distinction between attic/ceiling insulation, under roof deck insulation, and above roof deck insulation. It is nice that our code recognizes that those are all very different assemblies.
Heated Slab Insulation: Does this requirement also apply to heated floor assemblies NOT embedded in the slab? Schluter's Ditra-Heat for example? Also, we have had inspectors fail slab edge insulation because it prevents a termite separation/inspection gap between the ground and the framing. Are there examples of how to accomplish both? R402.5.1.2
Air Leakage Testing: "During testing Exterior or Interior terminations of continuous ventilation systems shall be sealed." What about discontinuous ventilation? Bathroom exhaust fans, Hood vents, Intermittent Fresh Air Intake systems, etc.? Can those be taped off for the blower door testing as well?
RK101.1.5 Water Heater Space: What is the purpose of the required 3'x3'x7' area? Even the largest heat pump water heater I can find only has a 28" diameter. If a water heater closet does not have enough volume for the air exchange, there are PLENTY of design options to make the system work; ducting, louvered doors, transfer grilles, etc. Why are we mandating one specific design solution when the industry already provides enough flexibility in the market?
<b>Response:</b>
Thank you for your comments.

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Slab insulation shall be installed in accordance with Section R402.2.10 Slab-on-grade floors. While floor assemblies shall install insulation in accordance with Section R402.2.8 Floors and as applicable Section R402.2.11 Crawl space walls. Refer to Section M2103 Floor Heating Systems of the IRC for requirements outside the IECC regarding systems like Schluter’s Ditra-Heat. The issue of failed slab insulation has been referred to DSD Building Inspections for further discussion.

Only continuous ventilation systems are allowed to be sealed during air leakage testing. Intermittent ventilation systems shall have the damper closed however may not be sealed during air leakage testing.

Thank you for your feedback regarding the proposed amendment for the 3’x3’x7’ water heating space. The purpose of the space is to ensure sufficient physical space is created at the time a dwelling is constructed, when it is the cheapest to do so, to offer more opportunities for dwelling owners to install more efficient water heating equipment once the current equipment needs to be replaced. The space should accommodate for the size of the equipment and any necessary clearances for access and maintenance.

**Question/Comment:**

I support the proposed adoption of the 2024 Residential IECC, including the amendments. Increasing energy efficiency is important for reducing greenhouse gas emissions and local air pollution, keeping bills affordable and increasing electric grid and community resilience. Building homes so that future residents can easily and affordably choose electric appliances and electric vehicles is important. There are two changes I’d like to see to allow for full efficient electrification of all new homes. 1) Adopt the EV-Ready amendment to allow for affordable installation of a car charger. 2) Remove the exemption for providing the required space if a home has a water heater on the outside of the house.

**Response:**

Thank you for your support.

1. Appendix RE Electric Vehicle Charging Infrastructure is proposed to be adopted in Austin’s 2024 IECC amendments. This can be found in § 25-12-261 (A).
2. Exception #2 will be removed.

**Question/Comment:**

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**Question/Comment:**

After reviewing here are my comments, questions: 1. changing R-49 to R-38, will this will affect the U-values used in the IC3 calculation? 2. R-20 to R-25 entirely above roof decking - does IC3 distinguishing between above and below roof deck insulation. Making sure IC3 doesn't default foamed roofs to the "entirely above" R-25 vs. current R-20. 3. Hallelujah, glad your getting rid of the magical R-15 by filling 2x4 cavity!!! 4. Duct Testing Targets, thank you for opting for the less complicated. 5. Future space for HP Water heaters may cause issue in smaller homes where they tuck the mech. closet under stairs. All is I have no issues with and have heard nothing from our COA clients.

**Response:**

Thank you for your comments.

1. The corresponding U-factor changes to the R-49 to R-38 update are found in Table R402.1.2(1) and (2). It is our intention to work with Texas A&M's Energy Systems Lab to create a 2024 IECC version of their IC3 tool specific to Austin amendments.
2. It is not clear in the IC3 tool if it distinguishes between above and below roof deck insulation. We will inquire.
3. Thank you for your support.
4. Thank you for your support.
5. Thank you for this feedback regarding space constraints in small homes.

**Question/Comment:**

The Sierra Club fully supports the adoption of the 2024 IECC for both commercial and residential buildings. Indeed, lowering energy use and incorporating new technology is a key tool to meet our long-term energy and climate goals, and because buildings can last well over 50 years, making sure new and refurbished buildings use less energy is of paramount importance. Austin has been a leader on energy codes, and adoption of the 2024 IECC would help cement this leadership. We have reviewed both proposals and appreciate in particular for the residential IECC, the adoption of the solar-ready, EV-ready and electric-ready, as well as water heater demand response requirements. We also support the additional energy savings required for those builders choosing the performance path. Adoption of the residential 2024 IECC with local amendment and required appendices should save energy (and water), lower carbon, and make future apartments and homes better prepared to embrace new technologies like electric vehicles, electric appliances and onsite solar and storage. According to the DOE's Pacific Northwest National Laboratory, in climate zone 2, the improvements to the 2024 IECC should result in 5.16% energy savings, 7.10% energy cost savings and 7.07% carbon cost savings. While we understand that the 2024 IECC did lower the R-value requirement for ceiling insulation in residential buildings from 49 to 38 for the prescriptive path, we ask that the City of Austin consider as a requirement an R-value of 42, as the City of San Antonio recently adopted. This would be a good compromise for those builders picking the prescriptive path. We are very appreciative of the inclusion of water heater demand response and spacing requirements and agree that an exception for those water heaters that have predetermined timing controls would not need to meet the demand response requirements. We also support the spacing requirements for water heaters, as well as the exceptions provided for tankless water heaters located on the outside of dwellings, heat pump water heaters and those serving more than one unit. The City of Austin should consider other exceptions to the water heater space requirements as appropriate. Finally, the City of Austin should consider formally prohibiting space heaters that rely on resistance heating given the availability of space electric pump heating.

**Response:**

Thank you for your support and recommendations. From modeling, an increase in R-value to R-42 would not be cost effective in our climate zone and in combination with the City of Austin IECC amendment

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requiring radiant barrier. We can re-evaluate at the next code cycle.  
Please see R403.14 Space Heating in the proposed City of Austin IECC amendments. This amendment was added in previous code cycles to limit electric resistance as a primary source of space heating except in very small dwellings.

**Question/Comment:**

I received this sample input from Public Citizen and completely agree with the proposals below. The largest portion of my energy bill is air conditioning and appliances. As the owner of several EVs since 2013, I can tell you that the main deterrent to faster adoption is the lack of reliable and widespread charging infrastructure. In-home charging is the most accessible and convenient way to charge. These proposals will help tremendously to reduce air pollution and CO2 emissions, and increase access to solutions. I support the proposed adoption of the 2024 Residential IECC, including the amendments. Increasing energy efficiency is important for reducing greenhouse gas emissions and local air pollution, keeping bills affordable and increasing electric grid and community resilience. Building homes so that future residents can easily and affordably choose electric appliances and electric vehicles is important. There are two changes I'd like to see to allow for full efficient electrification of all new homes. 1) Adopt the EV-Ready amendment to allow for affordable installation of a car charger. 2) Remove the exemption for providing the required space if a home has a water heater on the outside of the house.

**Response:**

Thank you for your support.

1. Appendix RE Electric Vehicle Charging Infrastructure is proposed to be adopted in Austin's 2024 IECC amendments. This can be found in § 25-12-261 (A).
2. Exception #2 will be removed.

**Question/Comment:**

Public Citizen strongly supports the City of Austin adopting the IECC 2024 Technical Code for residential buildings, as proposed by staff, with one exception. This code update is important for meeting the city's climate, energy and affordability goals. It will improve energy efficiency and the ability to participate in demand response programs for new buildings while enabling easier and more affordable electrification of transportation and buildings. We support adopting the proposed based code and the proposed electric-ready, EV-ready, and demand response appendixes. These provisions will reduce greenhouse gas emissions, reduce other air pollution emissions and make buildings more resilient and flexible for future occupants. The EV-ready requirement is important for enabling wider adoption of electric vehicles. Electric vehicles are more affordable than ICE vehicles over time, but access to charging is still a challenge. The cost of installing a charger is significantly less if it is included in the original design of the building. Likewise, designing for future installation of electric appliances is cost-effective. These are important provisions for enabling beneficial electrification and decarbonization, as called for in the Austin Climate Equity Plan. Likewise, the demand response provision aligns with the Austin Climate Equity Plan and the Austin Energy Resource, Generation and Climate Protection Plan. The one change that we request is for the exemption is for exception number 2 to section "RK101.1 Electric readiness" to be removed. This exception to the requirement to provide space for a heat pump water heater contradicts the goal of electrifying and decarbonizing buildings. It would leave future homeowners without an easy option to switch to an efficient heat pump water heater without incurring the significant cost of creating a space for it in the home and hiring a plumber and an electrician to connect a heat pump where one was not designed for. Additionally, including this exception could encourage more builders to install tankless water heaters on the exterior of homes, leaving them vulnerable during freezing temperatures. Many water heaters on the

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exterior of homes were damaged and required replacing after Winter Storm Uri. Not only does this inconvenience residents, it is also a waste of resources. The City of Austin should be encouraging resilient design of homes. Including this exception could encourage more such poor design because a builder may want to avoid the water heater space requirement and the only way to do so would be to place the tankless water heater outside. We request a conversation with the appropriate staff to discuss removing this exception.

**Response:**

Thank you for your support. Exception #2 will be removed.

**Question/Comment:**

For EV-capable spaces, please specify 1" or greater conduit, 4-wire, 50A capacity. This eliminates undersizing the capacity or conduit.

**Response:**

Thank you for your comments. Installed raceway or cable assembly for EV capable spaces and service by an electrical distribution system for EV ready spaces must both be in accordance with the sizing requirements of Section RE101.2.5. This should eliminate undersizing of the capacity or conduit.

**Question/Comment:**

Please see attached comments on behalf of Texas Gas Service Company, a division of ONE Gas, Inc. ("Texas Gas Service").

Texas Gas Service Company, a division of ONE Gas, Inc. ("Texas Gas Service") proudly provides over 235,000 customers inside the City of Austin ("City") and another 40,000 customers in the Austin Metro area with affordable, reliable and clean natural gas service. We are excited to work with the City and industry stakeholders in the development of a fuel neutral energy code, designed to achieve building energy conservation while maintaining building safety, energy affordability, and energy reliability and resilience within both the commercial and residential sectors. As a stakeholder, Texas Gas Service appreciates the City's willingness to grant the public time to review the proposed inclusion of all (or only parts) of the 2024 IECC (International Energy Conservation Code) within the City of Austin's building codes. Because the affordability of housing in the Austin area is important to current and potential residents,<sup>1</sup> and the adoption of certain portions of the latest energy codes will likely increase the prices of new homes, these adoption proceedings are important. As such, Texas Gas Service strongly supports the City of Austin's decision to organize public hearing(s) and to provide the opportunity for public comment surrounding any recommendations for adoption prior to taking final action.

In 2024, ONE Gas, Inc. ("ONE Gas"), Texas Gas Service's parent company received a rating of AAA (on a scale of AAA to CCC) in the MSCI ESG Ratings assessment. ONE Gas, also holds a "Prime" corporate rating in ESG from Institutional Shareholder Services (ISS) and is a member of ONE Future, a coalition of companies across the natural gas value chain that are committed to keeping emissions intensity below 1%, a goal the coalition has beaten every year ONE Gas has been a participant.

Further, natural gas has proven to be affordable, reliable and a clean energy source which works in tandem with the electrical grid. In support of our customers and our environment, Texas Gas Service offers a robust energy efficiency program throughout the State of Texas. Texas Gas Service was one of the first natural gas utility companies in the country to offer rebates for high efficiency appliances in Austin and have done so for 30 years. In the Central Texas Region alone, during 2023 and up until May 2024, TGS has provided over

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\$750,000 in rebates to residential and commercial customers, including builders, for the installation and purchase of various high efficiency natural gas appliances, as well as weatherization strategies to improve building efficiency and reduce emissions. In 2023, our energy efficiency program avoided 44,400 metric tons of CO<sub>2</sub>e, which is equivalent to removing over 10,000 passenger vehicles off the road.

The availability of natural gas for end-use in commercial and residential buildings is vital to the City of Austin’s ability to put forth a viable energy portfolio. As proven on numerous occasions over the past few years, natural gas is a critical component to a comprehensive energy plan. Because our infrastructure is located primarily below ground, our natural gas system has a 99% reliability rating. During Winter Storm Uri, (and the subsequent ice storms) we kept the gas flowing to provide life-saving services to our customers. During URI, service was interrupted to only 300 of our more than 690,000 customers that we serve throughout the state of Texas, and most of these outages lasted less than 24 hours.

It is important to us that our customers continue to have access to safe and reliable natural gas in both good and difficult circumstances. And so, ONE Gas and members of each of its divisions (including Texas Gas Service) monitored and participated (both on its own and where possible in collaboration with others), in the IECC’s process of drafting, reviewing and adoption of the 2024 IECC codes. Along the way, we and other collaborators with interests tied to the Austin community have worked diligently to provide relevant input on a variety of issues raised during the IECC’s code adoption process. As can be expected some of our recommendations were considered while others went unacknowledged and unheard. However, we recognize that local government is more likely to have the ability recognize and to consider the real impacts that certain actions may have on its residents, industry and community. It is with this understanding that we are highlighting certain important issues that may have negative impacts on our customers ability to make reasonable and affordable choices related to building construction, the appliances they may desire and their ability to choose safe and reliable energy to warm their homes or businesses and/or to operate their appliances. We respectfully request your careful and thoughtful consideration of our recommendations below. Additionally, we are attaching, in *Appendix I*, proposed code language, that if adopted would implement building energy conservation measures in an equitable, affordable, and reliable manner for all Austinites.

**Summary of Recommendations:**

- **Electric Readiness – Sections 8.4.5 and RK101:** This portion of the code is intended to prepare such buildings for electrification if and when fossil fuels are no longer a permissible or viable, cost-effective option. However, requirements for “electric readiness” for residential and commercial buildings were not properly justified in the IECC drafting process and as a result, led to these proposed requirements being relegated by the IECC committee as guidance material only and placed in an appendix of the 2024 IECC.<sup>2</sup> Based on the lack of confidence in the justification and general uncertainty surrounding this proposed code, we recommend that the City of Austin reject the promulgation of this portion of the 2024 IECC appendix as requirements in the City of Austin energy code. Instead, should the City find some value in this proposed section, we encourage the City to revise the code language to align more closely with the manner of adoption by the 2024 IECC, which made the use of the information as non-mandatory guidance only for builders, building operators, and homeowners.
- **Partnership with Interested Parties:** We strongly encourage the City of Austin to take steps to invite and build a close partnership with the local home builder associations to afford ready opportunities to understand the true cost implications of electric-ready code provisions that may be imposed upon Austinites, builders, and building operators, should the City choose to enforce or the building owner opt to pay for such electric-readiness preparations. Until true costs are determined, we recommend the City delay its final decision on this proposed code provision, given the importance of making sure there is an

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adequate supply of affordable new housing for all. Austin housing costs for both new homes and rental properties continue to climb, shutting out many potential new and low-income community home buyers and renters. The City of Austin needs to integrate housing affordability considerations in its consideration of 2024 IECC code adoption, looking at both the impact upon housing costs of construction and affordability directly affected by 2024 IECC and code amendment provisions.

- **Section R408 “additional energy credits” and Table R408.2:** Publication of the revised Section R408 was done without broad stakeholder consensus concerning justification of the credit values, or the development of sound definitions of technology categories used for Table R408.2 credit assignments. Further, we are also raising a concern regarding the level of consideration given to the issues of relative site energy, full fuel cycle energy, and emissions reductions, and to the quantitative basis for numerical credit values across envelope and mechanical system options. among technology options for specific fuels and end uses, or between competing electric and gas options for residential buildings. We encourage the City of Austin to withhold adoption of this section until it has had an opportunity to independently review and justify these credit assignments from its adoption of the Table R408.2 credits as published to address the lack of technical consensus and justification during the 2024 IECC deliberations, with a specific focus on climate and emissions factors relevant to City of Austin energy supply alternatives foreseeable over the current IECC code cycle.

In addition, the “additional energy credits” in Table R408.2, presume a federal minimum energy efficiency for non-weatherized residential natural gas central furnaces of 95% AFUE and base additional credits on this minimum energy efficiency as a baseline. However, the federal minimum efficiency standard of 95% AFUE is under challenge in lawsuits filed by the American Gas Association (AGA) and other petitioners<sup>3</sup> and as a result cannot simply be presumed as the baseline for Table R408.2 credits. If the AGA, *et. al.* petitions are successful, the federal minimum efficiency for non-weatherized residential natural gas central furnaces would remain at 80% AFUE, and “additional energy credits” available in Table R408.2 would have to be adjusted to account for the 80% AFUE baseline. Texas Gas Service recommends that the City of Austin revise its proposal for “additional energy credits” to recognize efficiency improvements over the current 80% baseline. This should begin at 90% AFUE for incentivizing installation of Category IV natural gas furnaces (i.e., condensing combustion, positive venting pressure) as a first tier of “additional energy credits” as available, to builders for both singularly credited measures and in combination with other measures such as installation of high efficiency air conditioning as currently offered in Table R408.2. We recommend this revision be made applicable at least until a court order is issued.

- **Texas Utility Code §181.903 (Texas 2021 HB 17) – Restriction on Regulation of Utility Services and Infrastructure:** In 2021, the Texas Legislature took steps by adopting HB 17 (now codified as Tex. Util. Code § 181.903) to protect builders and property owners from facing the negative impacts of regulation that either encourages or discourages the installation of certain utility facilities based on energy type. To avoid potential conflict with this recent state law, we strongly encourage the city to conduct a comprehensive and thorough legal review of the proposed new codes in light of the legislative intent to ensure preservation of fuel choice for commercial and residential customers.

For a more detailed discussion and support of our positions as summarized points above, please see “Texas Gas Service Attachment A” as attached hereto. Again, we appreciate the opportunity to meaningfully participate in the City’s process of reviewing the 2024 IECC code provisions for consideration of adoption and implementation by the City. We stand ready to provide additional details or to respond to questions on this subject upon the City’s request.

Sincerely,

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Jason Ketchum  
VP Commercial

<sup>1</sup> See, data.austiontexas.gov, “Percentage of Households Paying More Than 30 Percent (and more than 50 percent) of Income Toward Housing,” <https://data.austintexas.gov/stories/s/EOA-C-1-Percentage-of-households-paying-more-than-/tevy-4u2b/>; see also, The Texas Tribune, “Austin Will Try Again to Tame its Housing Affordability Crisis with Zoning Reforms. Can It Do It This Time?” September 19, 2023.

<sup>2</sup> <https://www.iccsafe.org/products-and-services/i-codes/code-development/2024-iecc-appeals/>

<sup>3</sup> AGA, *et al.*, v. DOE, D.C. Cir. Nos. 22-1030 and 23-1337.

**TEXAS GAS SERVICE – ATTACHMENT A  
Discussion of Recommendations**

**2024 IECC and Electric-Readiness Provisions (Sections 8.4.5 and RK101.1)**

As proposed, the City of Austin’s draft technical code language requires infrastructure for water heaters, clothes dryers, and cooking appliances that utilize fuel gas or liquid fuel, to also include installation of a dedicated 240-volt branch circuit outlet to be installed within 3 feet of each appliance specified above. During the 2024 IECC appeals process and final decision-making period, the ICC Board of Directors specifically recognized that the ‘electric-ready’ code provisions (and other associated requirements) did not comport with traditional “Scope” and “Intent” of the IECC. As a compromise, the Board agreed to place the problematic language into appendices based upon the Board’s understanding that such coverages **could not be justified as IECC requirements**, which represent minimum energy conservation requirements. (*emphasis added.*)

Texas Gas Service’s concern with the ‘electric-ready’ code provisions is that the economic analysis presented within the IECC code process was fundamentally flawed by the reliance on the presumption as a matter of course, that replacement of gas appliances with electric alternatives will take place in 100% of occupancies. The cost comparison used to support the presumption was restricted to the incorporation of electric infrastructure at the time of construction versus the possibility of future retrofit installation of electric infrastructure. The presumption did not allow for consideration of the facts that: (1) replacement of gas appliances with electric alternatives will not occur in all occupancies; and, (2) policies that would require such replacement in all cases, would run counter to cautions expressed by the ICC Board that could be challenged on federal preemption of EPCA covered products, discuss later in these comments. Additionally, any replacement not so mandated would need to be accounted for in actuarial predictions of gas appliance retirements. None of these considerations were taken into account in the development phase of the ‘electric ready’ provisions, now residing in IECC’s Appendix RK.

The City of Austin, in their code changes summary, specifically states that electric-readiness code provisions are adopted to align with their Climate Equity Plan. According to the plan, the city will achieve energy efficient, net-zero carbon buildings with “equity principles” in mind to ensure that impacts to low-income communities and communities of color are fully understood and taken into consideration.<sup>4</sup> Texas Gas Service stands with the City in its pursuit of a reduction in green house gas (“GHG”) emissions, in an equitable manner. However, we believe that it necessary to work toward achieving such a goal through a fuel agnostic approach to the adoption of the 2024 IECC. We also believe that natural gas emissions reduction strategies must be developed and deployed in a fair and equitable manner. Further, Texas Gas Service also believes that such emission reduction strategies should be achieved with consideration of economic justice for all Austinites.



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We define economic justice to encompass three primary pillars: affordability, energy choice, and energy access. Like environmental justice, economic justice is the fair treatment of all people, regardless of income level, with respect to the City’s enforcement of energy regulation, or in this case, the development, adoption and enforcement of building codes.

Language within the Climate Equity Plan specifically provides that such strategies designed to reduce natural gas emissions “may include but are not limited to” use of renewable natural gas and expansion of energy efficiency programs, and other “new technologies and programs.”<sup>5</sup> However, if the proposed electric-readiness language is adopted as a requirement for new residential and commercial buildings, the ability for the City to utilize new technologies and programs to reduce natural gas emissions will no longer be an option because electric-readiness language is adopted upon the premise that electrification of the building sector will indeed occur and natural gas end-use will no longer be a viable option. By requiring placement of a branch circuit to include labels such as “for future electric clothes drying equipment”, the City is indirectly banning natural gas by requiring use of electric appliances. TGS is concerned that if such language is finalized and adopted, a dangerous precedent will occur by limiting the City and its residents to one single energy source - electricity. An equal important concern is that adoption of this strategy would also be contrary to the legislative intent expressed in Texas 2021 HB 17 (Tex. Util. Code § 181.903).

In support of the legitimacy of our concern, during the May 30<sup>th</sup>, 2024, in-person code engagement meeting, Austin Energy staff stated that the reason for electric-readiness language adoption is to prevent the higher cost of electrifying the residential and commercial building sectors in the future. They also stated that the driver behind electric-readiness is to “allow these projects to have a choice when the homeowner decides in the future to replace that equipment, they can have an option of what fuel source to use.” We found this reasoning confusing as today, homeowners already have a choice to choose electric appliances as well as natural gas appliances. There is nothing now that prevents Austinites from choosing electric appliances. In addition, Austin Energy staff stated that electric-readiness provisions are drafted for adoption “based off of the equipment we have now” not on potential future additions which is contrary to the actual intent of the ‘electric ready’ provisions.<sup>6</sup> Before the City moves forward with any serious considerations for the adoption of the proposed ‘electric ready’ provisions, we ask that the City encourage staff to further explain what equipment is available now that wouldn’t be available to consumers but for an adoption of the proposed code requirements.

**Electric-Readiness Cost Concerns**

According to the Pacific Northwest National Laboratory (PNNL), the entity that conducts the energy savings calculations of the newest IECC provisions, ‘electric readiness’ provisions are simply a measure in place in case natural gas is no longer a viable option. Specifically, the lab states that electric-readiness codes prevent homeowners from incurring “future costs should fossil fuels become less affordable or even unavailable over the life of the building.”<sup>7</sup> PNNL also states that electric readiness codes will help “improve the cost effectiveness of electrification in the future,” not in the present. Again, these statements are based on an assumption that such required additional electrical infrastructure will be used and useful to consumers in a timely manner.

In the City’s proposal for adoption of the ‘electric ready’ provisions, it has not provided a definition of “future” in a manner to permit the City the ability to consider the costs against any ‘future’ benefits of the proposed adoption.

Also, in addition to PNNL analysis, the New Building Institute (NBI), another stakeholder in the 2024 IECC

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process and strong proponent of electric-readiness code language, stated that the cost of electrical panel upgrades and associated electric-readiness infrastructure for a new build “is equivalent to the expense of upgrading to an average stone kitchen countertop,” or between \$1,000-\$1,800.<sup>8</sup> This analysis assumes that the average homeowner can afford the cost equivalent of upgrading to a kitchen countertop and that they will in fact reap the “thousands of dollars” saved from using such infrastructure.

Finally, in 2021, Home Innovation Research Labs published cost analyses conducted for the National Association of Home Builders for four major U. S. cities comparing gas equipped houses to all electric houses.<sup>9</sup> For new home construction in Houston, Texas (the metropolitan area closest to Austin), the study showed that costs of electrification (including costs of appliances for cooking, clothes drying, space heating (and cooling), and service water heating) averaged \$24,282 more than the average baseline gas house . This total cost, while not specific to electric-ready equipment, addresses appliance costs, and illustrates two impacts. First, the increased cost of going all-electric in an average home is, on its own, an inducement not to later switch or add new fuels and to instead, make use of the already installed electric-ready infrastructure. This burden will force builders and owners to forgo consideration of the benefits of alternative fuel sources in favor of avoiding stranding the costs of that alternative infrastructure as a direct result of the mandated code compliance. Second, the added total cost to residential construction is likely to negatively impact economically disadvantaged and first-time home buyers by escalating home prices generally. Of course, these costs do not capture direct costs of electric-ready provisions such as branch circuits and panel upgrades. However, the U. S. Energy Star program estimates that panel upgrades for new builds (compared to that of standard systems) may add \$1,000 to \$2,500 and branch circuit costs of \$300 to \$1,000 per end use appliance with higher costs, where runs of circuits increase in length and increasing numbers of wall penetrations.<sup>10</sup> In cases where these added expenses become stranded costs in particular, the added cost to home construction would represent a decidedly negative impact on consumer resources and financing capacity.

**Conflict with Chapter 181, Section 181.903 of the Utilities Code**

Texas Gas Service believes that draft language regarding electric-readiness codes for both commercial and residential end-uses may be in direct violation of Tex. Util. Code § 181.903 (Texas 2021 HB 17), which was signed into law on May 18<sup>th</sup>, 2021. The law specifically states that no regulatory or planning authorities, or political subdivision “may adopt or enforce an ordinance, resolution, regulation, code, order, policy, or other measure that has the purpose, intent, or effect of directly or indirectly banning, limiting, restricting, discriminating against, or prohibiting the connection or reconnection of a utility service or the construction, maintenance, or installation of residential, commercial, or other public or private infrastructure for a utility service based on the type or source of energy to be delivered to the end-use customer.”<sup>11</sup>

As discussed above, the electric-ready code provisions for commercial and residential buildings have a purpose and intent to indirectly ban, limit, and discriminate against natural gas end-use. The provisions serve to prohibit the connection of a utility service based on the type of energy source, in this case, natural gas, and to prevent it from being delivered to the end-use customer in the future. By requiring installation of branch circuits with labels that state ‘for future electric appliance,’ next to natural gas appliances, and by specifically targeting those buildings that operate natural gas appliances, the City would be prohibiting fuel choice.

Due to our stated concerns, we strongly encourage a comprehensive and thorough legal review of state law to ensure that fuel choice for commercial and residential customers is preserved as intended under Texas law.

**Additional Considerations for Deliberation by City of Austin:**

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**A. Recent Electricity Cost and Reliability Projections**

Austin Energy provides valuable electricity services via various renewable resources such as solar, wind, and biomass. Because these resources are dependent upon weather patterns, which are drastically changing due to climate change, additional fuel resources like nonrenewables and natural gas distribution services are critical to meeting the ongoing (and increasing) high demand for electricity.

Growing electricity demand from residential and commercial customers, increasing use of AI, and a transition away from fossil fuels is pushing the US electric grid to the brink, according to McKinsey & Company, the Federal Energy Regulatory Commission (FERC) and multiple news outlets.<sup>12</sup> In FERC's May 2024 summer energy market and reliability report, it explained that U.S. electric demand is expected to increase 2.7% this summer to 1,487 TWh compared to last summer. Similarly, U.S. data center load is expected to grow to nearly 21 GW this year, up from 19 GW in 2023, FERC staff said in the report. Electric demand from such facilities across the U.S. is expected to climb to 35 GW by the end of this decade, according to the report.<sup>13</sup>

A report released in June 2024, by the National Energy Assistance Directors Association (NEADA) and the Center for Climate and Energy Poverty shows increases in the US electricity bill average since 2014. Specifically, for the Southwest Region of the US, (which includes Texas), consumers can expect an average electricity bill to be upwards of \$858 during the cooling season from June -September 2024. This burden weighs heaviest on low-income consumers. According to the report, the high costs are exacerbated by extreme heat events caused by climate change. The report recommends policy alternatives that are inclusive of low-income communities, such as weatherization assistance and installation of heat pumps. However, the heat pump recommendation does not take into consideration the impacts of climate zone differentiation and may not be suitable for the Southwest Region. Nonetheless, Texas Gas Service provides weatherization assistance throughout the Central Texas Region as well as rebates to make high efficiency natural gas appliances affordable for low-income customers.<sup>14</sup> This report provides a snapshot into the importance of a fuel agnostic approach to energy usage via all policy avenues, including building code development.

In addition to the NEADA report, the North American Electric Reliability Corporation (NERC) predicts a "potential for insufficient operating reserves" for ERCOT this summer if demand is at its highest. The report specifically states that although solar PV is added at a rate outpacing demand, energy risks are growing when solar output is at its lowest. Transmission permitting and development delays also contribute to this energy risk concern for ERCOT. Natural gas end-use offers certainty when the electric grid is not able to perform at its highest and meet the demand of the growing Texas population.<sup>15</sup>

**B. The Berkeley Gas Ban and Court Challenges to State and Local Codes Disproportionately Affecting Fuel Gas Installation.**

Earlier this year, the City of Berkeley, California, repealed their ban on natural gas end-use in new residential and commercial buildings after the Ninth Circuit Court of Appeals ruled that such a ban was in violation of the Energy Policy and Conservation Act (EPCA). The ruling states that EPCA preempts state regulation or building code from regulating the efficiency of natural gas appliances; instead, the US Department of Energy oversees this concern. Many stakeholders including the California Restaurant Association and builders, were in opposition to a direct ban on natural gas end-use. As a result of the decision, other cities throughout California have repealed their bans on natural gas end-use. Although the City of Austin's proposed energy code is not a direct ban on natural gas use in new residential and commercial buildings, the premise of electric-readiness code language is to prepare for a future for electrifying buildings and a hypothetical world without natural gas end-use, all of which is to be paid for by customers who may or may not want to discontinue their use of natural gas appliances.

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**C. Legal Interpretation of Federal Preemption Risks Forewarned by 2024 IECC Cautionary Notices of Appendix Adoptions as Requirements**

As several appendices of the 2024 IECC note the potential for federal preemption issues with the use of appendix material as requirements, ONE Gas recognizes that all requirements that set criteria for EPCA “cover product” federal minimum efficiency standards other than the promulgated minimum efficiency standard subject the City of Austin to these risks if adopted as building requirements. Based upon court cases involving the EPCA statute and its prohibition of federal minimum efficiency standards, these risks are not manifest just for incidents where a local jurisdiction is setting conflicting minimum standard and can include energy efficiency programs that create biases against such minimum efficiency standard “covered products.”<sup>16</sup>As discussed for Table R408.2 above, ONE Gas strongly recommends that the City conduct a review of 2024 IECC requirements for “covered products” and determine whether or not such adoption of the proposed electric ready provisions would impose a risk of the City of violating federal preemption prohibitions. Although in its comments to the 2024 IECC, ONE Gas recommended that ICC conduct its own legal analysis of potential conflicts and associated risks for the benefit of potential adopting jurisdictions, the ICC Board, in recommending advisory language in appendix material covering this issue “punted” the consideration of the issue of potential risks to local jurisdictions to assess.

**D. Impacts of Additional Electricity Demand Upon Carbon Emissions Under Scenarios of Grid Makeup.**

The City of Austin neither provides nor documents usage of any impact analysis covering expanded electricity demand that might arise as a consequence of electric-ready provisions in the code and replacement of natural gas end use applications that may result. This is a serious deficiency in the ability of the City to assess benefits as well as costs of electric-ready requirements. Based upon federal grid electricity data published by the U. S. Environmental Protection Agency (EPA) in its eGRID database and employed in energy emissions estimating tools such as GTI Energy’s EPAT tool for the City of Austin,<sup>17</sup> current grid electricity consumed in the City accounts for 916.5 pounds of carbon dioxide (CO2) per megawatt of power. Unless the City can demonstrate dramatic reductions in this CO2 emission rate in the future, electric-ready provisions in buildings (if put into effect) will proportionately increase the City’s CO2 emissions in the future. Also, these data sources document that current source energy consumption factors for the City of Austin to be 2.38 times the energy delivered to building sites in comparison to natural gas, which only accounts for a 1.09 times source energy factor. Emissions are proportional to these source energy factors and the current electricity grid mix. As a result, forced fuel switching to grid electricity based upon current data would likely increase the City’s emissions contribution over maintaining use of natural gas for many applications. ONE Gas strongly recommends that the City, prior to agreeing to promulgate electric-ready building requirements, take these effects into account. If the City bases its code on a different grid electricity future, that forecast should be made available to the public for review.

<sup>4</sup> Austin Climate Equity Plan

[https://www.austintexas.gov/sites/default/files/files/Sustainability/Climate%20Equity%20Plan/Climate%20Equity%20Plan%20Full%20Document\\_\\_FINAL.pdf](https://www.austintexas.gov/sites/default/files/files/Sustainability/Climate%20Equity%20Plan/Climate%20Equity%20Plan%20Full%20Document__FINAL.pdf)

<sup>5</sup>[https://www.austintexas.gov/sites/default/files/files/Sustainability/Climate%20Equity%20Plan/Climate%20Equity%20Plan%20Full%20Document\\_FINAL.pdf](https://www.austintexas.gov/sites/default/files/files/Sustainability/Climate%20Equity%20Plan/Climate%20Equity%20Plan%20Full%20Document_FINAL.pdf), pg. (50, 94)

<sup>6</sup> Technical Code Amendments In-Person Document, <https://publicinput.com/g4245?lang=en>

<sup>7</sup> [https://www.pnnl.gov/main/publications/external/technical\\_reports/PNNL-32183.pdf](https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-32183.pdf)

<sup>8</sup> <https://newbuildings.org/wp-content/uploads/2022/04/BuildingDecarbCostStudy.pdf>

<sup>9</sup> Home Innovation Research Labs, “Cost and Other Implications of Electrification Policies on Residential Construction,” prepared for National Association of Home Builders, February 2021.

<sup>10</sup> U. S. Energy Star, “Make Your Home Electric Ready:”

[https://www.energystar.gov/products/energy\\_star\\_home\\_upgrade/make\\_your\\_home\\_electric\\_ready](https://www.energystar.gov/products/energy_star_home_upgrade/make_your_home_electric_ready)

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<sup>11</sup> See, Tex. Util. Code § 181.903(b)( May 18, 2021).

<sup>12</sup> <https://www.washingtonpost.com/business/2024/05/13/power-grid-transmission-lines-electricity/>  
<https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/investing-in-the-rising-data-center-economy>

<sup>13</sup> <https://www.ferc.gov/news-events/news/report-2024-summer-energy-market-and-electric-reliability-assessment>

<sup>14</sup> <https://neada.org/wp-content/uploads/2024/06/2024summeroutlook.pdf>

<sup>15</sup> [https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC\\_SRA\\_2024.pdf](https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_2024.pdf)

<sup>16</sup> Air Conditioning, Heating and Refrigeration Institute v. City of Albuquerque, Docket No. 08-633 MV/RLP, October 3, 2008.

<sup>17</sup> <https://cmicepatcalc.gti.energy/BuildCityHouse.aspx>.

Texas Gas Service's Proposed Code Language Update

**(Austin's Commercial Code Provisions with PROPOSED Changes Highlighted in Blue)<sup>18</sup>**

**8.4.5 Additional electric infrastructure.** Electric infrastructure in *buildings* that contain combustion equipment shall may be installed in accordance with this section.

**Combustion space heating.** Spaces containing combustion equipment for space heating shall may comply with Sections 8.4.5.1.1, 8.4.5.1.2 and 8.4.5.1.3

**4.5.1.1 Designated exterior locations for future electric space-heating equipment.** Spaces containing combustion equipment for space heating shall may be provided with designated exterior location(s) shown on the plans and of sufficient size for outdoor space-heating heat pump equipment, with a chase that is sized to accommodate refrigerant lines between the exterior location and the interior location of the space heating equipment, and with natural drainage for condensate from heating operation or a condensate drain located within 3 feet (914 mm) of the location of the future exterior space-heating heat pump equipment.

**4.5.1.1 Dedicated branch circuits for future electric space-heating equipment.** Spaces containing combustion space-heating equipment with a capacity not more than 65,000 Btu/h (19 kW) shall may be provided with a dedicated 240-volt branch circuit with ampacity of not less than 50. The branch circuit shall may terminate within 6 feet (1829 mm) of the space heating equipment and be in a location with ready access. Both ends of the branch circuit shall may be labeled with the words "For Future Electric Space Heating Equipment" and be electrically isolated. Spaces containing combustion equipment for space heating with a capacity of not less than 65,000 Btu/h (19 kW) shall be provided with a dedicated branch circuit rated and sized in accordance with Section 8.4.5.1.3, and terminating in a junction box within 3 feet (914 mm) of the location the space heating equipment in a location with ready access. Both ends of the branch circuit shall may be labeled "For Future Electric Space Heating Equipment."

**Exceptions:**

1. Where a branch circuit provides electricity to the space heating combustion equipment and is rated and sized in accordance with Section 8.4.5.1.3.
2. Where a branch circuit provides electricity to space cooling equipment and is rated and sized in

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- accordance with Section 8.4.5.1.3.
3. Where future electric space heating equipment would require three-phase power and the space containing combustion equipment for space heating is provided with an electrical panel with a label stating “For Future Electric Space Heating Equipment” and a bus bar rated and sized in accordance with Section 8.4.5.1.3.
  4. Buildings where the 99.6 percent design heating temperature is not less than 50°F (10°C).

**TABLE 8.4.5.1**

**ALTERNATE ELECTRIC SPACE HEATING EQUIPMENT  
 CONVERSION FACTORS (VA/kBtu/h)**

<u>99.6% HEATING DESIGN TEMPERATURE</u>		<u>Ps</u>
<u>Greater Than (°F)</u>	<u>Not Greater Than</u>	<u>VA/kBtu/h</u>
<u>50</u>	<u>N/A</u>	<u>N/A</u>
<u>45</u>	<u>50</u>	<u>94</u>
<u>40</u>	<u>45</u>	<u>100</u>
<u>35</u>	<u>40</u>	<u>107</u>
<u>30</u>	<u>35</u>	<u>115</u>
<u>25</u>	<u>30</u>	<u>124</u>
<u>20</u>	<u>25</u>	<u>135</u>
<u>15</u>	<u>20</u>	<u>149</u>
<u>10</u>	<u>15</u>	<u>164</u>
<u>5</u>	<u>10</u>	<u>184</u>
<u>0</u>	<u>5</u>	<u>210</u>
<u>-5</u>	<u>0</u>	<u>243</u>
<u>-10</u>	<u>-5</u>	<u>289</u>
<u>-15</u>	<u>-10</u>	<u>293</u>

For SI: °C = [(° F) – 32]/1.8, 1 British thermal unit per hour = 0.2931 kW.

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**Additional space heating electric infrastructure sizing.** Electric infrastructure for future electric space heating equipment **shall may** be sized to accommodate not less than one of the following:

1. An electrical capacity not less than the nameplate space heating combustion equipment heating capacity multiplied by the value in **Table 8.4.5.1**, in accordance with **Equation 8.4.5.1**.  $VAs = Q_{com} \times Ps$

**2. Equation 8.4.5.1**

Where VAs = The required electrical capacity of the electrical infrastructure in volt-amps.  $Q_{com}$  = The nameplate heating capacity of the combustion equipment in kBtu/h  $Ps$  = The VA per kBtu/h from **Table 8.4.5.1** in VA/kBtu/h.

3. An electrical capacity not less than the peak space heating load of the *building* areas served by the space heating combustion equipment, calculated in accordance with **Section 6.4.2.1**, multiplied by the value for the 99.6 percent design heating temperature in **Table 8.4.5.1**, in accordance with **Equation 8.4.5.2**.

$$VAs = Q_{design} \times Ps$$

**Equation 8.4.5.2**

Where VAs = The required electrical capacity of the electrical infrastructure in volt-amps.

$Q_{design}$  = The 99.6 percent design heating load of the spaces served by the combustion equipment in kBtu/h.

$Ps$  = The VA per kBtu/h from **Table 8.4.5.1** in VA/kBtu/h.

2. **Combustion service water heating** Spaces containing combustion equipment for *service water heating* **shall may** comply with **Sections 8.4.5.2.1, 8.4.5.2.2 and 8.4.5.2.3**.

**4.5.1.1 Combustion service water heating electrical infrastructure.** For each piece of combustion equipment for water heating with an input capacity of not more than 75,000 Btu/h (22 kW), the following electrical infrastructure is required:

1. An individual 240-volt branch circuit with an ampacity of not less than 30 **shall may** be provided and terminate within 6 feet (1829 mm) of the *water heater* and shall be in a location with ready *access*.
2. The branch circuit overcurrent protection device and the termination of the branch circuit **shall may** be labeled "For future electric water heater."
3. The space for containing the future *water heater* **shall may** include the space occupied by the combustion equipment and shall have a height of not less than 7 feet (2134 mm), a width of not less than 3 feet (914 mm), a depth of not less than 3 feet (914 mm) and with a volume of not less than 700 cubic feet (20 m<sup>3</sup>).

**Exception:** Where the space containing the *water heater* provides for air circulation sufficient for the operation of a heat pump *water heater*, the minimum room volume shall not be required.

**4.5.1.1 Designated locations for future electric heat pump water heating equipment.** Designated locations

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for future electric heat pump water heating equipment shall may be in accordance with one of the following:

1. Designated exterior location(s) shown on the plans, of sufficient size for outdoor water heating heat pump equipment and with a chase that is sized to accommodate refrigerant lines between the exterior location and the interior location of the water heating equipment.
2. An interior location with a minimum volume the greater of 700 cubic feet (19 822 L) or 7 cubic feet (198 L) per 1,000 Btu/h (293 W) combustion equipment water heating capacity. The interior location shall include the space occupied by the combustion equipment.
3. An interior location with sufficient airflow to exhaust cool air from future water heating heat pump equipment provided by not fewer than one 16-inch (406 mm) by 24-inch (610 mm) grill to a heated space and one 8-inch (203 mm) duct of not more than 10 feet (3048 mm) in length for cool exhaust air.

**4.5.1.1 Dedicated branch circuits for future electric heat pump water heating equipment.** Spaces containing combustion equipment for water heating with a capacity of greater than 75,000 Btu/h (21 980 W) shall may be provided with a dedicated branch circuit rated and sized in accordance with **Section 8.4.5.2.4** and terminating in a junction box within 3 feet (914 mm) of the location the water heating equipment in a location with ready access . Both ends of the branch circuit shall be labeled “For Future Electric Water Heating Equipment.”

**Exception:** Where future electric water heating equipment would require three-phase power and the main electrical service panel has a reserved space for a bus bar rated and sized in accordance with **Section 8.4.5.2.4** and labeled “For Future Electric Water Heating Equipment.”

**4.5.1.1 Additional water heating electric infrastructure sizing.** Electric infrastructure water heating equipment with a capacity of greater than 75,000 Btu/h (21 980 W) shall may be sized to accommodate one of the following:

1. An electrical capacity not less than the combustion equipment water heating capacity multiplied by the value in **Table 8.4.5.2** plus electrical capacity to serve recirculating loads as shown in **Equation 8.4.5.3**

Where VAW = The required electrical capacity of the electrical infrastructure for water heating in volt-amps

Qcapacity = The water heating capacity of the combustion equipment in kBtu/hPw = The VA per kBtu/h

from Table 8.4.5.2 in VA/kBtu/h Qrecirc = The capacity required for temperature

e maintenance by recirculation, if applicable, in Btu/h

2. An alternate design that complies with this code, is *approved* by the authority having jurisdiction and uses no energy source other than electricity or on-site renewable energy.

**TABLE 8.4.5.2**

**ALTERNATE ELECTRIC WATER HEATING EQUIPMENT  
 CONVERSION FACTORS (VA/kBtu/h)**

<b><u>99.6% HEATING DESIGN</u></b>	<b><u>Ps</u></b>
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<u>TEMPERATURE</u>			
<u>Greater Than (°F)</u>	<u>Not Greater Than</u>		<u>VA/kBtu/h</u>
<u>55</u>	<u>60</u>		<u>118</u>
<u>50</u>	<u>55</u>		<u>123</u>
<u>45</u>	<u>50</u>		<u>129</u>
<u>40</u>	<u>45</u>		<u>136</u>
<u>35</u>	<u>40</u>		<u>144</u>
<u>30</u>	<u>35</u>		<u>152</u>
<u>25</u>	<u>30</u>		<u>162</u>
<u>20</u>	<u>25</u>		<u>173</u>
<u>15</u>	<u>20</u>		<u>185</u>
<u>10</u>	<u>15</u>		<u>293</u>
<u>5</u>	<u>10</u>		<u>293</u>
<u>0</u>	<u>5</u>		<u>293</u>
	<u>Less than 0°F</u>		<u>293</u>

For SI: °C = [(° F) – 32]/1.8, 1 British thermal unit per hour = 0.2931 kW.

**3. Combustion cooking. Spaces containing combustion equipment for cooking ~~shall~~ may comply with Section**

4.5.1.1 or 8.4.5.3.2.

4.5.3.1 **Commercial cooking.** Spaces containing commercial cooking appliances shall be provided with a dedicated branch circuit with a minimum electrical capacity in accordance with **Table 8.4.5.3.1** based on the appliance in the space. The branch circuit ~~shall~~ may terminate within 3 feet (914 mm) of the appliance in a location with ready access . Both ends of the branch circuit shall be *labeled* with the words “For Future Electric Cooking Equipment” and be electrically isolated.

**All other cooking.** Spaces containing all other cooking equipment not designated as commercial cooking appliances ~~shall~~ may be provided with a dedicated branch circuit in compliance with **NFPA 70 Section 422.10**. The branch circuit ~~shall~~ may terminate within 6 feet (1829 mm) of fossil fuel ranges, cooktops and ovens and

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be in a location with ready access . Both ends of the branch circuit shall may be labeled with the words “For Future Electric Cooking Equipment” and be electrically isolated.

**TABLE 8.4.5.3.1**

**COMMERCIAL COOKING MINIMUM BRANCH CIRCUIT  
CAPACITY**

<u>COMMERCIAL COOKING APPLIANCE</u>	<u>MINIMUM BRANCH CIRCUIT CAPACITY</u>
<u>Range</u>	<u>469 VA/kBtu/h</u>
<u>Steamer</u>	<u>114 VA/kBtu/h</u>
<u>Fryer</u>	<u>200 VA/kBtu/h</u>
<u>Oven</u>	<u>266 VA/kBtu/h</u>
<u>Griddle</u>	<u>195 VA/kBtu/h</u>
<u>All other commercial cooking appliances</u>	<u>114 VA/kBtu/h</u>

For SI: 1 British thermal unit per hour = 0.2931 kW.

**Combustion clothes drying.** Spaces containing combustion equipment for clothes drying shall may comply with **Section 8.4.5.4.1 or 8.4.5.4.2.**

**4.5.1.1 Commercial drying.** Spaces containing clothes drying equipment and end uses for commercial laundry applications shall may be provided with conduit that is continuous between a junction box located within 3 feet (914 mm) of the equipment and an electrical panel. The junction box, conduit and bus bar in the electrical panel shall may be rated and sized to accommodate a branch circuit with sufficient capacity for equivalent electric equipment with equivalent equipment capacity. The electrical junction box and electrical panel shall may have labels stating, “For Future Electric Clothes Drying Equipment.”

**4.5.1.1 Residential drying.** Spaces containing clothes drying equipment, appliances and end uses serving multiple dwelling units or sleeping areas with a capacity less than or equal to 9.2 cubic feet (0.26 m3) shall may be provided with a dedicated 240-volt branch circuit with a minimum capacity of 30 amperes, shall may terminate within 6 feet (1829 mm) of fossil fuel clothes dryers and shall may be in a location with ready access . Both ends of the branch circuit shall may be labeled with the words “For Future Electric Clothes Drying Equipment” and be electrically isolated.

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**9.4.5 On-site transformers.** *Enclosed spaces and underground vaults containing onsite electric transformers on the building side of the electric utility meter shall may have sufficient space to accommodate transformers sized to serve the additional electric loads identified in Sections 8.4.5.1, 8.4.5.2, 8.4.5.3 and 8.4.5.4.*

(Residential Code Provisions with **PROPOSED** Changes Highlighted in **Blue**)

**RK101.1 Electric readiness.** *Water heaters, household clothes dryers and cooking appliances that use fuel gas or liquid fuel shall may comply with Sections RK101.1.1 through RK101.1.4 RK101.1.5.*

*A space that is at least 3 feet (0.91 m) by 3 feet (0.91 m) wide by 7 feet (2.13) high shall may be available surrounding or within 3 feet (0.91 m) of the installed water heater.*

**Exceptions:**

- 1. Installed heat pump water heaters.*
- 2. Installed tankless water heaters on the exterior of the dwelling unit.*
- 3. Water heaters serving multiple dwelling units in a R-2 occupancy.*

<sup>18</sup> Please note, in addition to the proposed edits as highlighted in blue, TGS added formatting edits only to the City's original draft document to improve readability of the same information upon inclusion into the Company's comments.

**Response:**

Thank you for your comments and recommendations. Please see below for responses to each recommendation.

- **Electric Readiness-Sections 8.4.5 and RK101.** Many new appendices were introduced in the 2024 code cycle. The content of Appendices RK and CH initially were included in the main body of the energy code by the majority voting action of the consensus committee, however, were moved to appendices after an appeal process. The City of Austin has proposed to adopt Appendices RK and CH as developed in the consensus committee process and with the inclusion of a water heater space requirement as initially proposed by the US Department of Energy. The ICC board did not cite lack of confidence in these provisions in their decision to move these provisions to an appendix, but rather noted that these provisions address greenhouse gases. Appendices are designed to be optional and can be adopted by authorities having jurisdiction that seek to take advantage of the benefits of the provisions in an appendix. The City of Austin does not propose to adopt Resource RRA.
- **Partnership with Interested Parties.** The City of Austin appreciates close partnerships with all stakeholders involved in the Technical Building Codes knowing they all bring different perspectives and expertise. We welcome more opportunities with the local home builder associations to understand impacts new codes bring. All proposed city code amendments, ordinances, and other proposed changes must complete an Affordability Impact Statement (AIS) to identify any potential impacts on housing affordability. Potential impacts are to include construction costs or savings for the developer and operation costs or savings for the homeowner or renter.
- **Section R408 "additional energy credits" and Table R408.2.** Section R408 credit values were determined through modeling by the US Department of Energy's Pacific Northwest National Lab (PNNL). Due to PNNL's federally mandated role in modeling and issuing determination and cost effectiveness studies for the energy code, they were asked by the consensus committee to perform the preliminary modeling throughout the code development process. PNNL staff attended consensus committee, subcommittee,

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and work group meetings, presented modeling results 2-3 times and answered questions throughout the code development process. Ultimately, the consensus committee voted in favor of the final version of Section R408 through multiple cycles in the standards development process and multiple ballots. We recommend any interested parties that would like to propose changes do so for the 2027 IECC code cycle. Like any other federal or state legislative changes that may occur between code cycles, if federal action necessitates changes to Section R408 the City of Austin has various avenues to implement those changes, if and when needed.

- **Texas Utility Code §181.903 (Texas 2021 HB 17) – Restriction on Regulation of Utility Services and Infrastructure.** The proposed Electric Readiness standards are intended to expand customer appliance choice (now and in the future). The provision doesn't limit or discourage the use of any fuel source nor does Electric Readiness prohibit, limit, or restrict builders from connecting to any utility service.

**Question/Comment:**

The American Gas Association (AGA) represents more than 200 local energy companies committed to the safe and reliable delivery of clean natural gas to more than 73 million customers throughout the nation. AGA appreciates the opportunity to comment on the proposed changes to the City of Austin's residential energy code. Our first concern is the city is not referencing a published 2024 edition of the IECC but relies on a redline version that may not be what is eventually published by the ICC. We would ask that the efforts to modify the residential Austin, Texas energy code be based on a published and publicly available edition of the 2024 IECC and not rely on a redline version that may have, for a number of reasons, differences then the published 2024 IECC.

Regarding the proposed revisions to add Appendix RE Electric Power Transfer provisions Appendix RK – Electric-Ready provisions, we do not believe these additions help the city to meet its energy and emissions reduction goals and in fact, will result in an overall increase in both as well as an increase in construction cost that will impact the affordability of new and existing structures. Regarding the Electric Vehicle power transfer provisions, it is clear that this will add significant cost and electricity usage with no specific documentation and analysis that justifies the benefits of such and extensive requirement for residential building installations. The Appendix RK – Electric-Ready provisions is even more troublesome since it adds a costly requirement that may never be used in residential applications and if eventually used, can actually add more source energy use than the fossil fuel appliances that it targets for possible future replacement. The ICC Board of Directors took the logical action at the end of the 2024 International Energy Conservation Code development process to remove both the Electric Vehicle provisions and the Electric-Ready Commercial Building Provisions from the compliance requirements of the 2024 IECC and we urge that the City of Austin, Texas do the same. The AGA March 20, 2024 Press Release that provides the March 18, 2024 ICC Board of Directors action on these requirements can be found here. In summary, AGA respectfully, request that the city of Austin, Texas remove Appendix RE and Appendix RK from consideration during this code development process.

**Response:**

Thank you for your comments. The redline version of the 2024 IECC is a final draft version similar to redline versions of other I-codes. All final changes to the model code are incorporated in the redline version. ICC is expected to publish the non-redline print and digital versions this month. The redlined version is available for purchase as a pdf at <https://shop.iccsafe.org/2024-international-energy-conservation-coder.html>. Once the non-redline print and digital versions are available, they will also be available for purchase in ICC's shop.

Adopting Appendices RE and RK are in alignment the Austin Climate Equity Plan to reduce building related carbon emissions and are intended to reduce future costs to homeowners when choosing how to replace

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end-of-life appliances.

**Question/Comment:**

Revised The American Gas Association (AGA) represents more than 200 local energy companies committed to the safe and reliable delivery of clean natural gas to more than 73 million customers throughout the nation. AGA appreciates the opportunity to comment on the proposed changes to the City of Austin’s residential energy code. Our first concern is the city is not referencing a published 2024 edition of the IECC but relies on a redline version that may not be what is eventually published by the ICC. We would ask that the efforts to modify the residential Austin, Texas energy code be based on a published and publicly available edition of the 2024 IECC and not rely on a redline version that may have, for a number of reasons, differences then the published 2024 IECC. Regarding the proposed revisions to add Appendix RE Electric Power Transfer provisions Appendix RK – Electric-Ready provisions, we do not believe these additions help the city to meet its energy and emissions reduction goals and in fact, will result in an overall increase in both as well as an increase in construction cost that will impact the affordability of new and existing structures. Regarding the Electric Vehicle power transfer provisions, it is clear that this will add significant cost and electricity usage with no specific documentation and analysis that justifies the benefits of such and extensive requirement for residential building installations. The Appendix RK – Electric-Ready provisions is even more troublesome since it adds a costly requirement that may never be used in residential applications and if eventually used, can actually add more source energy use than the fossil fuel appliances that it targets for possible future replacement. The ICC Board of Directors took the logical action at the end of the 2024 International Energy Conservation Code development process to remove both the Electric Vehicle provisions and the Electric-Ready residential building provisions from the compliance requirements of the 2024 IECC and we urge that the City of Austin, Texas to do the same. The AGA March 20, 2024 Press Release that provides the March 18, 2024 ICC Board of Directors action on these requirements can be found here. In summary, AGA respectfully request that the city of Austin, Texas remove Appendix RE and Appendix RK from consideration during this code development process.

**Response:**

Note, duplicate comment.

**Question/Comment:**

I support the proposed adoption of the 2024 Residential IECC, including the EV-ready, electric-ready, and demand response amendments. Increasing energy efficiency is important for reducing greenhouse gas emissions and local air pollution, keeping bills affordable and improving electric grid and community resilience. Building homes so that future residents can easily and affordably choose electric appliances and electric vehicles is important. There is one change I’d like to see to allow for full efficient electrification of all new homes. Remove the exemption for providing the required space if a home has a water heater on the outside of the house.

**Response:**

Thank you for your support. Exception #2 will be removed.

**Question/Comment:**

Upon further examination, Sierra Club believes that the exemption from the space requirement to accommodate a heat pump water heater for homes with an external tankless water heater is unnecessary and will inhibit beneficial electrification of homes. We recommend that exception be removed. We strongly support code changes to increase energy efficiency as an important action to reduce greenhouse

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gas emissions and local air pollution, keep bills affordable, and increase electric grid and community resilience. We hope to emphasize the importance of code that builds homes so that future residents can easily and affordably choose electric appliances and electric vehicles is important.

**Response:**

Thank you for your further review of the proposed amendments. Exception #2 will be removed.

**Question/Comment:**

The HBA's biggest concern with the 2024 IECC is centered around affordability. We appreciate that the 2024 code is more performance based and less prescriptive than the 2021 code, which allows builders the necessary flexibility they need to meet the code. However, there are some elements that we believe are a step too far and will unnecessarily add additional cost to the price of a home.

1. Electric vehicle capable / electric vehicle ready / EVSE space – Whether or not a home is built to accommodate an electric vehicle should lie solely with the homebuyer. EV capable has a minimal impact on affordability of approximately \$500. However, electric ready and the full EVSE space would likely add \$1,000+ to the price of a home. Since this code will affect all new construction, it will increase the cost of even the most affordable homes. We would request that the city leave this decision up to the homebuyer. However, if the city decides to move forward with this proposal, we ask that the city maintain the current draft that allows the least expensive method (electric vehicle capable) to meet the new code.

2. Do not go above or beyond the model code, specifically regarding the residential all-electric appendix that was not included in the base code. There are many reasons why a homebuyer might prefer gas appliances over electric, some of which are personal preference and others which are safety related. For example, during the freeze, when much of the city lost power, many homes with gas appliances were still able to prepare food and boil water. We would suggest the city consider strong incentives for the homebuilder and the homebuyer to switch over to electric appliances if they choose to do so.

We understand that the ICC process is rigorous and has taken longer than anticipated. However, as stakeholders, it is difficult to fully weigh in on these proposed changes before the model code is finally released. We would request that the city open up the public input process again once the model code is released and can be reviewed along with the proposed amendments.

The HBA is working with AE staff to provide more educational opportunities for our members. We ask that the City not rush to adoption and allow for a back-and-forth conversation with users and practitioners. If you have any questions, please reach out to David Glenn at david@hbaaustin.com.

**Response:**

Thank you for your comments.

1. The current proposal provides flexibility to the building owner to what level of EV readiness they choose to provide. EV capable remains a choice for building owners to meet proposed code requirements.
2. Austin's 2024 IECC amendments do not propose to adopt Resource RRA All-Electric Residential Buildings.
3. Thank you for your understanding of the IECC development process. Please note that the redline version of the 2024 IECC is a final draft version similar to redline versions of other I-codes. All final changes to the model code are incorporated in the redline version. ICC is expected to publish the non-redline print and digital versions this month. The redlined version is available for purchase as a pdf at <https://shop.iccsafe.org/2024-international-energy-conservation-coder.html>. Once the

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non-redline print and digital versions are available, they will also be available for purchase in ICC's shop.

4. Austin Energy and the City of Austin appreciate working with the HBA-Austin and look forward to creating future educational opportunities.

**Question/Comment:**

The city had one time provided for free home thermostats, which had the option of turning down or off the power during certain parts of the day. Those are still available or citizens could be allowed to purchase them at a reasonable price, that would provide a lot of saved electric energy. Thank you.

**Response:**

Thank you for your comments. Austin Energy customers qualify for a one-time bill credit on each eligible thermostat enrolled plus annual credits for each thermostat that remains enrolled in the Power Partner program. More information can be found at <https://savings.austinenergy.com/residential/offerings/cooling-and-heating/pp-thermostat> for residential customers and <https://savings.austinenergy.com/residential/offerings/cooling-and-heating/pp-thermostat> for multifamily residents, property managers, or owners.

**Question/Comment:**

I support the proposed adoption of the 2024 Residential IECC, including the EV-ready, electric-ready, and demand response amendments. Increasing energy efficiency is important for reducing greenhouse gas emissions and local air pollution, keeping bills affordable and improving electric grid and community resilience. Building homes so that future residents can easily and affordably choose electric appliances and electric vehicles is important. However, there is one change I'd like to see to allow for full efficient electrification of all new homes. Remove the exemption for providing the required space if a home has a water heater on the outside of the house.

**Response:**

Thank you for your support. Exception #2 will be removed.

**Question/Comment:**

I support the proposed adoption of the 2024 Residential IECC, including the EV-ready, electric-ready, and demand response amendments. There is one change I'd like to see to allow for full efficient electrification of all new homes. Remove the exemption for providing the required space if a home has an existing water heater on the outside of the house.

**Response:**

Thank you for your support. Exception #2 will be removed.

**Question/Comment:**

Today is the final day to submit a comment on the City of Austin's proposed adoption of the 2024 International Energy Conservation Code (IECC). This part of the building code ensures that new buildings are built to conserve energy and allow for the use of clean energy. Improving building energy efficiency is key to combating climate change, keeping electric bills affordable, and avoiding electric grid collapse. This code update will make new buildings more airtight and more efficient, and will include a few key provisions that will allow future building owners to choose electric appliances without expensive retrofits. (When a resident or business owner can simply buy an appliance and plug it in, the choice to use clean electric options becomes a lot more attractive!) There will also be a new requirement to leave sufficient

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space for a hot water heat pump, which looks much like a standard water heater tank but uses much less energy. Heat pumps take up about the same space as a standard hot water tank, so the problem mostly arises when replacing a tankless water heater with a heat pump. However, we need one important change to the Austin Residential IECC proposal to allow for full and efficient electrification of all homes: Remove the exemption for providing the required space if a home has a water heater on the outside of the house. We support the proposed adoption of the 2024 Residential and Commercial International Energy Conservation Codes. We support the proposed adoption of the 2024 Residential IECC, including the EV-ready, electric-ready, and demand response amendments. Increasing energy efficiency is important for reducing greenhouse gas emissions and local air pollution, keeping bills affordable and improving electric grid and community resilience. Building homes so that future residents can easily and affordably choose electric appliances and electric vehicles is important. There is one change I'd like to see to allow for full efficient electrification of all new homes. Remove the exemption for providing the required space if a home has a water heater on the outside of the house. Thank you

**Response:**

Thank you for your support. Exception #2 will be removed.

**Question/Comment:**

I support the proposed adoption of the 2024 Residential IECC, including the EV-ready, electric-ready, and demand response amendments. Increasing energy efficiency is important for reducing greenhouse gas emissions and local air pollution, keeping bills affordable and improving electric grid and community resilience. Building homes so that future residents can easily and affordably choose electric appliances and electric vehicles is important. There is one change I'd like to see to allow for full efficient electrification of all new homes. Remove the exemption for providing the required space if a home has a water heater on the outside of the house.

**Response:**

Thank you for your support. Exception #2 will be removed.

**Question/Comment:**

July 8, 2024

Attention: Public Comments

RE: Tesla Comments on City of Austin Residential and Commercial Electric Vehicle Readiness proposals of the 2024 International Energy Conversation Code (IECC)

Dear Austin Energy Green Building Staff,

Tesla<sup>1</sup> appreciates the opportunity to comment on Austin Energy's Residential and Commercial Electric Vehicle Readiness proposals of the 2024 International Energy Conversation Code (IECC). We applaud the City's leadership in pushing forward the energy code in a timely manner. Although many cities and states have adopted energy codes, only a handful have been proactive in adopting, updating, and enforcing the most up-to-date codes. Energy codes ensure that a building's energy use is included as a fundamental part of the design and construction process of new buildings; making an early investment in building energy improvements will pay dividends to Austin residents for years into the future. We offer the following comments on the 2024 IECC Electric Vehicle Readiness proposals for both commercial and residential buildings.



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**1. We support the residential electric vehicle readiness proposal for one-and two-family dwellings, townhomes, and R-2 occupancies.**

The residential proposal derived from Appendix RE of the 2024 IECC Residential code requires that new one- and two-family dwellings and townhouses with designated parking provide one EV capable, EV ready, or EVSE space per dwelling unit. Multifamily buildings with four stories or less must provide an EV capable space, EV ready space, or EVSE space for 40 percent of dwelling units or automobile parking spaces, whichever is less. These requirements give building owners flexibility in establishing the level of EV readiness that will fit their current and future needs, while still providing the necessary minimum EV charging load that the distribution system needs to be sized for.

Moreover, the language in Appendix RE was developed as a consensus proposal during the IECC code development process with input from a diverse group of stakeholders including representatives from the home builders, electrical manufacturers, EV charging providers, and utilities. It went through several rounds of public comment and editorial changes to ensure clarity, consistency, enforceability, and technical soundness. Adopting Appendix RE outright would help staff streamline and quicken the public input process given that the language has already been thoroughly vetted.

**2. We strongly recommend increasing EV-ready requirements and including EVSE-installed spaces for certain commercial occupancy types**

We are concerned that the omission of EV-ready and EVSE-installed spaces in Table CG101.2.1 from all commercial occupancy types except Groups R-1 and R-2 will result in an under-investment in necessary charging infrastructure to support current and future EV drivers in Austin. The current proposal heavily stacks EV-capable requirements across nearly all commercial building types, which puts the burden on building owners, EV drivers, or tenants to have an outlet or EVSE wired and installed at their parking space. While an EV capable space requires panel capacity, a dedicated circuit and raceway, it does not include a way for someone to drive up to a parking spot and plug in and charge. In particular, this barrier presents a significant obstacle to installing EV infrastructure at multi-family dwellings, which have proven to be the most challenging sector to deploy EV infrastructure.

Unlike residents of single-family homes, multi-family tenants are commonly renters without the authority to retrofit parking spaces to install charging equipment. When retrofitting to provide EV charging is possible, tenants and owners can face costs of 4-6 times higher than if done during new construction<sup>2</sup>. The ability to charge an EV overnight is additionally important for multifamily tenants who are rural, low-income, and in disadvantaged communities, who typically have longer commutes and drive older EVs with shorter ranges.

Several cities and counties across the country have included ambitious EVSE-installed and EV-ready requirements for commercial building types, including Scottsdale, Tucson, Coral Gables, St. Petersburg, St. Louis County, Charlotte, Columbus, Orlando, Chicago, Seattle, and many others. We recommend that Austin match or exceed the ambition of its peer cities and adopt EV-ready and EVSE-installed requirements for new commercial buildings. Tesla proposes revisions to Table CG101.2.1 in the Appendix 1.

**3. We recommend including a Direct Current Fast Charging (DCFC) compliance pathway that provides new commercial buildings the option to meet compliance with charging that mirrors dwell times.**

Depending on the type of nonresidential building and the typical dwell time a vehicle is parked, a higher

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power level for charging beyond a standard Level 2 charger may be most beneficial. A DCFC compliance pathway would allow new non-residential buildings the option to meet EV-capable and EVSE compliance either through Level 2 or DCFC. For example, commercial buildings with short dwell times, such as grocery stores, would have the ability to use a DCFC compliance ratio of 5:1 EVSE installed if minimum requirements are met and at least one Level 2 EVSE is installed. A DCFC compliance option is important as it provides building owners with the incentive to go beyond minimum EVSE requirements and the optionality to install the level of EV charging, either Level 2 or DCFC, that best fits customer needs. This optionality also results in a more efficient use of state and private infrastructure investment given more optimal charging station usage. Tesla proposes recommended language in the attached Appendix 2.

Tesla appreciates the opportunity to provide feedback on 2024 IECC Electric Vehicle Readiness proposals for both commercial and residential buildings. We look forward to continued work with the City of Austin on its transportation electrification efforts. Thank you for the opportunity to submit these comments.

Sincerely,  
Tessa Sanchez  
Senior Policy Advisor  
Business Development and Public Policy  
Tesla, Inc.

<sup>1</sup> Tesla's mission is to accelerate the world's transition to sustainable energy. To accomplish its mission, Tesla designs, develops, manufactures, and sells high-performance fully electric vehicles and energy generation and storage systems, installs, and maintains such systems, and sells solar electricity. Tesla also owns and operates an extensive EV charging network across the U.S. including stations in Austin. At Gigafactory Texas in Austin, TX, Tesla produces the Model Y crossover, and Cybertruck and manufactures Tesla's new, advanced 4680 lithium-ion battery cell, cathode, and battery packs. Upon completion, Gigafactory Texas will invest over \$10B in factory development and create at least 10,000 new jobs.

<sup>2</sup> <https://caletc.aodesignsolutions.com/assets/files/CALGreen-2019-Supplement-Cost-Analysis-Final-1.pdf>

**Response:**

Thank you for your support.

**Question/Comment:**

Dear City of Austin Council Members, Development Services Department Staff, and Austin Energy Green Building Staff:

SWTCH respectfully submits these comments on the proposed Electric Vehicle Readiness 2024 Technical Code Amendments to the City of Austin Model Residential Code. SWTCH is pleased to strongly support the proposed amendments to adopt the 2024 International Energy Conservation Code (IECC) Appendix code provisions on electric vehicle (EV) readiness. SWTCH applauds Austin's commitment to transportation decarbonization and equitable access to EV charging. SWTCH has included any referenced sections from the 2024 IECC Appendix code provisions on page 3 of these comments.

**About SWTCH**

SWTCH is a leading provider of electric vehicle (EV) charging and energy management solutions for multifamily, commercial, and workplace properties in Texas and across North America. Our end-to-end solution optimizes EV charging usage and manages load to benefit drivers, property owners, and the grid. SWTCH has deployed more than 15,000 chargers across North America, with a strong focus on equitable

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access. SWTCH's charging management platform is built upon a foundation of open communication standards and interoperability to prevent stranded assets and to ensure future flexibility, scalability, and innovation. SWTCH has actively participated in the 2024 IECC code development process, as well as other state and municipal EV readiness code cycles.

Comments

**Residential Code Proposal**

**SWTCH is a strong proponent of the EV-capable, EV-ready, and EVSE requirements for homes (one- and two- family dwellings, townhouses) and multifamily buildings (R-2 occupancies).** In SWTCH's experience working with Austin property owners, building managers, and new construction developers, the 2024 IECC Appendix code sets cost-effective and flexible EV readiness standards, especially for R-2 occupancies. These standards ensure buildings are future-proofed for current and future residents to access at-home EV charging solutions the same as single-family homes.

Additionally, **SWTCH is a strong advocate for 2024 IECC Appendix code provisions for EV charging load management.** Section R404.7.4.4 sets appropriate minimum capacity standards per EVSE space, with options for EVSE spaces controlled by an EV energy management system (EVEMS). These standards promote a 4:1 circuit sharing ratio<sup>1</sup> when using EVEMS. SWTCH supports this circuit ratio for multifamily building use cases, in which higher ratios reduce power output and charging speeds beyond what is a positive user experience and lower ratios prevent buildings from realizing the full potential and value of EVEMS. Moreover, Section R404.7.5 sets forth electrical system capacity requirements that align with NFPA 70, National Electrical Code (NEC), a widely accepted standard that addresses installation of EVEMS. This section right sizes infrastructure for electrical load served to EV-capable, EV-ready, and EVSE that allows for properties to leverage EVEMS.

**In Closing**

SWTCH applauds the steps that the City of Austin Development Services Department and Austin Energy Green Building are taking to advance EV Readiness. We look forward to working with the City Council and other stakeholders to move forward formal adoption of IECC 2024 EV Readiness provisions into Austin's residential model building code.

Additionally, we recommend revisiting this code in 1-2 years to (a) understand the impact of removing parking minimum requirements for new developments, and (b) ensure sufficient EV charging is available for occupants at new buildings. SWTCH is also supportive of aligning code reviews with IECC code updates.

We appreciate the opportunity to comment on these matters, and if you have questions or if I can provide more information, please contact me.

<sup>1</sup> Based on 40-ampere circuit, 30-ampere EV charger, 208/240V minimum capacity

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**IECC 2024 Residential EV Readiness Code Provisions**

**R404.7.1 Quantity.** New one- and two-family dwellings and townhouses with a designated attached or detached garage or other onsite private parking provided adjacent to the dwelling unit shall be provided with one EV-capable, EV-ready, or EVSE space per dwelling unit. R-2 occupancies or allocated parking for R-2 occupancies in mixed-use buildings shall be provided with an EV capable space, EV ready space, or EVSE space for 40 percent of dwelling units or automobile parking spaces, whichever is less.

**R404.7.4 EVSE spaces.** An installed EVSE with multiple output connections shall be permitted to serve multiple EVSE spaces. Each EVSE serving either a single EVSE space or multiple EVSE spaces shall comply with the following:

1. Be served by an electrical distribution system in accordance with Section R404.7.5
2. Have a nameplate charging capacity of not less than 6.2 kVA (or 30A at 208/240V) per EVSE space served. Where an EVSE serves three or more EVSE spaces and is controlled by an energy management system in accordance with Section R404.7.5, the nameplate charging capacity shall be not less than 2.1 kVA per EVSE space served.
3. Be located within 6 feet (1828 mm) of each EVSE space it serves.
4. Be installed in accordance with NFPA 70 and be listed and labeled in accordance with UL 2202 or UL 2594.

**R404.7.5 Electrical distribution system capacity.** The branch circuits and electrical distribution system used to comply with Section R404.7.1 shall comply with one of the following:

1. Sized for a calculated EV charging load of not less than 6.2 kVA per EVSE, EV ready, or EV capable space. Where a circuit is shared or managed it shall be in accordance with NFPA 70.
2. The capacity of the electrical distribution system and each branch circuit serving multiple EVSE spaces, EV ready spaces, or EV capable spaces designed to be controlled by an energy management system in accordance with NFPA 70, shall be sized for a calculated EV charging load of not less than 2.1 kVA per space. Where an energy management system is used to control EV charging loads for the purposes of this section, it shall not be configured to turn off electrical power to EVSE or EV ready spaces used to comply with Section R404.7.1.

**Response:**

Thank you for your support.

**Question/Comment:**

Dear City of Austin:

Atmos Energy Corporation (“Atmos Energy”) supports fuel-neutral energy codes that are consistent with state and federal law. As proposed, the 2024 Technical Code would adopt provisions of the International Energy Conservation Code (“IECC”) and 2024 IECC appendices that advance the electrification of homes and businesses. Atmos Energy urges the City not to include these provisions in the final 2024 Technical Code.

Atmos Energy is the nation’s largest natural-gas-only distributor, serving more than three million natural gas distribution customers in over 1,400 communities in eight states, from the Blue Ridge Mountains in the East to the Rocky Mountains in the West. Included in Atmos Energy’s service territory is the City of Austin, within which Atmos Energy serves approximately 11,000 customers. Atmos Energy’s vision is to be the safest provider of natural gas services and the company is committed to the safety and success of our communities, the environment, delivering a reliable source of energy, and providing exceptional customer service. This vision continues to fuel Atmos Energy’s investment in modernizing its system, which is integrated with our comprehensive environmental strategy focused on reducing the environmental impact from our operations. This strategy includes a robust set of programs that improve consumer

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energy efficiency within our service territories.

Efforts to affordably increase energy efficiency for the broadest number of residents and businesses should be fuel neutral. Currently, the proposed 2024 Technical Code amendments would adopt provisions that favor electrification.<sup>1</sup> Before finalizing the amendments, Atmos encourages the City to consider the following—

1. **Fuel neutral measures promote efficient appliances and reliable energy.** Atmos Energy’s SmartChoice Energy Efficiency Program offers rebates and incentives for businesses and residential customers, including those in the City, who install energy-efficient natural gas appliances such as furnaces, tankless water heaters, smart thermostats, and more.<sup>2</sup> The efficiency benefits of natural gas appliances are heightened when considering the energy consumed to generate and distribute the resource—transporting natural gas from wellhead to consumer’s meter results in less than 10% of energy lost, compared to a 63% energy loss in transporting electricity from powerplant to consumer home.<sup>3</sup>
2. **Fuel neutrality is the most affordable approach to achieving emission reductions.** Costs are a significant factor in a consumer’s decision to replace an appliance in their home, and natural gas appliances are often a more affordable option for improving energy efficiency. For example, in the forecast of the Department of Energy (“DOE”) of the average unit costs of residential energy sources, the DOE found that electricity is 3.3 times more expensive than the equivalent energy through the direct use of natural gas.<sup>4</sup> Atmos Energy recommends that the City work with local industry to fully understand the actual cost impacts of imposing the provisions being considered.
3. **Whether the codes at issue cost effectively increase energy efficiency is untested.** In considering electric-favoring provisions, fuel neutral alternatives were not adequately evaluated as part of the 2024 IECC code development process. For example, the underlying analyses supporting the electric-readiness appendices were flawed and oversimplified—only comparing costs at time of construction versus retrofitting.<sup>5</sup> Further, earlier this year, the Board of the International Code Council—the organization responsible for developing the 2024 IECC—found that certain provisions, including some in the 2024 Technical Code amendments, were not consistent with the intended purpose of “providing the minimum efficiency requirements for buildings that result in the maximum level of energy efficiency that is safe, technologically feasible, and life cycle cost effective considering economic feasibility, including potential costs and saving for consumers and building owners, and return on investment.”<sup>6</sup>
4. **The codes at issue do not concern energy conservation.** The International Code Council Board evaluated the function of the codes at issue here and found that they do *not* “concern[] . . . building energy conservation.”<sup>7,8</sup> Accordingly, these codes do not accomplish the Technical Code’s foundational purpose of conserving energy use by homes and businesses and should not be included in the final 2024 Technical Code.<sup>9</sup>

To aid in the City’s review of the proposed 2024 Technical Code amendments, a list of the 2024 IECC provisions that should not be included in the final 2024 Technical Code amendments is attached. Atmos Energy sincerely appreciates the City’s consideration of these comments.

Please do not hesitate to reach out to Eric Tate at 469-975-4615 if you have questions or would like to discuss these comments further. Atmos looks forward to continuing to engage with the City on the code amendment process.

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**Attachment A**

As explained in Atmos Energy’s comments, we ask that the City omit or make optional the following proposed provisions which directly or indirectly preference electrification:

**Residential:**

- Section R408: Additional Efficiency Requirements
- Appendix RB: Solar-Ready Provisions – Detached One- And Two-Family Dwellings and Townhouses
- Appendix RE: Electric Vehicle Charging Infrastructure
- Appendix RK: Electric Readiness

<sup>1</sup> Attachment A lists the 2024 IECC provisions the City has proposed to include in the 2024 Technical Code amendments that advance electrification.

<sup>2</sup> Atmos Energy, Mid-Tex SmartChoice Rebates, <https://www.atmosenergy.com/ways-to-save/mid-tex-appliancerebate-program/>.

<sup>3</sup> Atmos Energy, *Natural Living: Natural Gas: The Natural Choice for a Better Home, a Better Environment* (Spring/Summer 2024) at 11, <https://www.atmosenergy.com/static/6678f502ccd0cdf430497f5b2c934daf/Natural%20Living%20Spring%202024.pdf>.

<sup>4</sup> Energy Conservation Program for Consumer Products: Representative Average Unit Costs of Energy, 88 Fed. Reg. 58,575, 58,576 (Aug. 28, 2023).

<sup>5</sup> Such analysis overlooks the possibility that electric readiness measures may never be fully utilized, as well as the varying timelines on which buildings will begin to utilize their readiness infrastructure.

<sup>6</sup> International Code Council, *2024 IECC Appeals: ICC Board of Directors Actions Report*, Apr. 11, 2024, at 6.

<sup>7</sup> *Id.* at 10.

<sup>8</sup> Also of note, the Board went on to determine that all-electric requirements pose a “significant risk of preemption based on case law” and added “[a] cautionary note regarding the risk of preemption.” *Id.* at 5

<sup>9</sup> See Austin, Texas Code, Section 25-12-261 (entitled “International Energy Conservation Code”)

**Response:**

Thank you for your comments and recommendations. Please see below for responses to each recommendation.

1. Thank you for your notes.
2. The City of Austin appreciates close partnerships with all stakeholders involved in the Technical Building Codes knowing they all bring different perspectives and expertise. We welcome more opportunities with the development community to understand impacts new codes bring.
3. We understand that the point being made by the quote of the IECC intent statement from the 2024 IECC Appeals ICC Board of Directors Actions Report is that the provisions being appealed address greenhouse gas emissions rather than directly affecting building energy conservation. The report does not indicate that cost was a consideration in the board’s decision.
4. Appendices are designed to be optional and can be adopted by authorities having jurisdiction that seek to take advantage of the benefits of the provisions in an appendix.

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**Question/Comment:**

Honorable Mayor Watson and City Council Members,  
The South-central Partnership for Energy Efficiency as a Resource (SPEER) is the U.S. Department of Energy (DOE) recognized Regional Energy Efficiency Organization supporting energy and building code education, adoption and compliance throughout Texas and Oklahoma. Through this work, SPEER facilitates educational trainings and acts as a resource for local governments and the state as they seek to adopt new energy and building codes. In this capacity, SPEER supports the efforts of the City of Austin to review and consider adoption of the 2024 International Energy Conservation Code (IECC 2024) with amendments.

The review, adoption, and enforcement of updated energy codes across the state will enhance efficiency in new buildings, lower energy costs for homeowners, and increase reliability and resiliency to the region’s energy grid. As new technologies flow into the region and the state prepares for a more diverse resource mixture to the wholesale electricity market, it is imperative for cities like Austin to adopt new codes to adequately prepare and receive the added efficiency gains which provide passive survivability and lower bills to the ratepayer.

**Residential Amendments:**

Relating to the IECC 2024 Residential Code Amendments outlined by the current proposal, SPEER supports the proposal for adoption with amendments by the City of Austin. The proposal provides consumers with adequate choice in fuel types through requiring electric ready homes, however, stops short of mandating specific fuel type requirements. This change allows for easier adoption of electric vehicles and backup generation for residents while not limiting their options for implementing new measures. Additionally, the changes to the ceiling insulation portions of the code protects residents of Austin from incoming heat transfer from their roofs which will ultimately aid in conserving energy in heating and cooling of homes. Lastly, the updated “pick-a-package” for home appliances will work as a force multiplier for conserving energy and reducing costs for customers. Maintaining an updated home envelope and with new energy efficient appliances will build the city’s resiliency and reliability during peak summer months and extreme weather events year-round. These savings are noted in the Pacific Northwest National Labs reporting on the 2024 IECC suite. The Residential updates will result in increases of 5% energy savings, 7% energy cost savings, and reductions of carbon emissions for the region of 7%.

**Commercial Amendments:**

SPEER supports the proposed amendments for the 2024 IECC Commercial Model Codes. Similar to the Residential Model Codes, the Commercial amendments provide electric ready commercial buildings without limiting consumer choice for implementation of measures. Through providing electric ready buildings, consumers have the opportunity to install their choice of fuel type for backup generation resources, as well as being prepared for increased electric vehicle adoption in the region.

**Conclusion:**

SPEER appreciates the opportunity to submit this letter of support for adoption and implementation of the 2024 IECC suite and looks forward to working with the City of Austin for additional amendments and adoption in the future.

**Response:**

Thank you for your support.

**Question/Comment:**

July 8, 2024 Attention: Public Comments Dear Austin Energy Green Building Staff, Vehicle Readiness proposals of the 2024 International Energy Conversation Code (IECC) The Alliance for Transportation Electrification supports Tesla's comments and appreciates the opportunity to comment on Austin Energy’s Residential and Commercial Electric Vehicle Readiness proposals of the 2024 International Energy

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Conversation Code (IECC). We applaud the City's leadership in pushing forward the energy code in a timely manner. Although many cities and states have adopted energy codes, only a handful have been proactive in adopting, updating, and enforcing the most up-to-date codes. Energy codes ensure that a building's energy use is included as a fundamental part of the design and construction process of new buildings; making an early investment in building energy improvements will pay dividends to Austin residents for years into the future. We offer the following comments on the 2024 IECC Electric Vehicle Readiness proposals for both commercial and residential buildings.

1. We support the residential electric vehicle readiness proposal for one- and two- family dwellings, townhomes, and R-2 occupancies. The residential proposal derived from Appendix RE of the 2024 IECC Residential code requires that new one- and two-family dwellings and townhouses with designated parking provide one EV capable, EV ready, or EVSE space per dwelling unit. Multifamily buildings with four stories or less must provide an EV capable space, EV ready space, or EVSE space for 40 percent of dwelling units or automobile parking spaces, whichever is less. These requirements give building owners flexibility in establishing the level of EV readiness that will fit their current and future needs, while still providing the necessary minimum EV charging load that the distribution system needs to be sized for. Moreover, the language in Appendix RE was developed as a consensus proposal during the IECC code development process with input from a diverse group of stakeholders including representatives from the home builders, electrical manufacturers, EV charging providers, and utilities. It went through several rounds of public comment and editorial changes to ensure clarity, consistency, enforceability, and technical soundness. Adopting Appendix RE outright would help staff streamline and quicken the public input process given that the language has already been thoroughly vetted.
2. We strongly recommend increasing EV-ready requirements and including EVSE- installed spaces for certain commercial occupancy types. We are concerned that the omission of EV-ready and EVSE-installed spaces in Table CG101.2.1 from all commercial occupancy types except Groups R-1 and R-2 will result in an under-investment in necessary charging infrastructure to support current and future EV drivers in Austin. The current proposal heavily stacks EV-capable requirements across nearly all commercial building types, which puts the burden on building owners, EV drivers, or tenants to have an outlet or EVSE wired and installed at their parking space. While an EV capable space requires panel capacity, a dedicated circuit and raceway, it does not include a way for someone to drive up to a parking spot and plug in and charge. In particular, this barrier presents a significant obstacle to installing EV infrastructure at multi-family dwellings, which have proven to be the most challenging sector to deploy EV infrastructure. Unlike residents of single-family homes, multi-family tenants are commonly renters without the authority to retrofit parking spaces to install charging equipment. When retrofitting to provide EV charging is possible, tenants and owners can face costs of 4-6 times higher than if done during new construction<sup>2</sup>. The ability to charge an EV overnight is additionally important for multifamily tenants who are rural, low-income, and in disadvantaged communities, who typically have longer commutes and drive older EVs with shorter ranges. Several cities and counties across the country have included ambitious EVSE-installed and EV- ready requirements for commercial building types, including Scottsdale, Tucson, Coral Gables, St. Petersburg, St. Louis County, Charlotte, Columbus, Orlando, Chicago, Seattle, and many others. We recommend that Austin match or exceed the ambition of its peer cities and adopt EV-ready and EVSE-installed requirements for new commercial buildings. Tesla proposes revisions to Table CG101.2.1 in the Appendix 1.
3. We recommend including a Direct Current Fast Charging (DCFC) compliance pathway that provides new commercial buildings the option to meet compliance with charging that mirrors dwell times. Depending on the type of nonresidential building and the typical dwell time a vehicle is parked, a higher power level



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for charging beyond a standard Level 2 charger may be most beneficial. A DCFC compliance pathway would allow new non-residential buildings the option to meet EV- capable and EVSE compliance either through Level 2 or DCFC. For example, commercial buildings with short dwell times, such as grocery stores, would have the ability to use a DCFC compliance ratio of 5:1 EVSE installed if minimum requirements are met and at least one Level 2 EVSE is installed. A DCFC compliance option is important as it provides building owners with the incentive to go beyond minimum EVSE requirements and the optionality to install the level of EV charging, either Level 2 or DCFC, that best fits customer needs. This optionality also results in a more efficient use of state and private infrastructure investment given more optimal charging station usage. ATE proposes recommended language in the attached Appendix 2. ATE appreciates the opportunity to provide feedback on 2024 IECC Electric Vehicle Readiness proposals for both commercial and residential buildings. We look forward to continued work with the City of Austin on its transportation electrification efforts. Thank you for the opportunity to submit these comments. Sincerely, Alliance for Transportation Electrification \*\*\*

4. APPENDIX 1 Language to be added is underlined. Language to be removed is struck. TABLE C405.14.1 REQUIRED EV POWER TRANSFER INFRASTRUCTURE Occupancy Group A Group B Group E Group F Group H Group I Group M Group R-1 Group R-2 Group R-3 and R-4 Group S exclusive of parking garages Group S-2 parking garages EVSE Spaces 5% 0% 5% 0% 5% 0% 2% 0% 1% 0% 5% 0% 5% 0% 10% 0% 10% 0% 0% 0% 5% 0% EV Ready Spaces 5% 0% 10% 0% 10% 0% 0% 0% 10% 0% 10% 0% 5% 5% 0% 0% 10% 0% EV Capable Spaces 10% 30% 30% 5% 0% 30% 30% 35% 35% 5% 0% 30%
5. APPENDIX 2 Language to be added is underlined. Language to be removed is struck. CG101.2.1 Quantity. The number of required electric vehicle (EV) spaces, EV capable spaces and EV ready spaces shall be determined in accordance with this section and Table CG101.2.1 based on the total number of automobile parking spaces and shall be rounded up to the nearest whole number. For R-2 buildings, the Table CG101.2.1 requirements shall be based on the total number of dwelling units or the total number of automobile parking spaces, whichever is less. 1. Where more than one parking facility is provided on a building site, the number of required automobile parking spaces required to have EV power transfer infrastructure shall be calculated separately for each parking facility. 2. Where one shared parking facility serves multiple building occupancies, the required number of spaces shall be determined proportionally based on the floor area of each building occupancy. 3. Installed electric vehicle supply equipment installed spaces (EVSE spaces) that exceed the minimum requirements of this section may be used to meet the minimum requirements for EV ready spaces and EV capable spaces. 4. Installed EV ready spaces that exceed the minimum requirements of this section may be used to meet the minimum requirements for EV capable spaces. 5. Where the number of EV ready spaces allocated for R-2 occupancies is equal to the number of dwelling units or to the number of automobile parking spaces allocated to R-2 occupancies, whichever is less, requirements for EVSE spaces for R-2 occupancies shall not apply. 6. Requirements for a Group S-2 parking garage shall be determined by the occupancies served by that parking garage. Where new automobile spaces do not serve specific occupancies, the values for Group S-2 parking garage in Table CG101.2.1 shall be used. 7. Group S-2 parking garages with no less than 50% long term parking spaces shall provide no less than 10% EV capable spaces. Long term parking spaces are considered as parking spaces where users generally park for more than 8 hours at a time, including overnight, at places such as airports, transit hubs, etc. 8. The installation of Direct Current Fast Charging (DCFC) EVSE shall be permitted to reduce the minimum number of required EV capable or EV ready spaces without EVSE or EVCS with Level 2 EVSE by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.

**Response:**

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Thank you for your support of the residential electric vehicle readiness proposal. Responses to your comments regarding the commercial electric vehicle readiness proposal are provided in the Commercial Question/Comment Summary.

**Question/Comment:**

I support the proposed adoption of the 2024 Residential IECC, including the amendments. Increasing energy efficiency is important for reducing greenhouse gas emissions and local air pollution, keeping bills affordable and increasing electric grid and community resilience. Building homes so that future residents can easily and affordably choose electric appliances and electric vehicles is important. There is one change I'd like to see to allow for full efficient electrification of all new homes. Remove the exemption for providing the required space if a home has a water heater on the outside of the house. It is vitally important that we take advantage of the energy efficiency and carbon reduction potential of electric and heat pump technology in our building and reconstruction codes. Thanks for working on these important climate issues.

**Response:**

Thank you for your support. Exception #2 will be removed.

**Question/Comment:**

Patricia, I did go through the proposed amendments and they all make sense to me. I didn't see anything that is not doable with current technologies or building practices. My only real comment is the same as it has always been. The C406 and R408 sections are clunky and cumbersome. They act more like the IGCC than a strict building code. I would like to remove them from the IECC and any local governments ban them and then if they want to implement a more "above code" style project require the IGCC as well. For example on Commercial apartments in Austin it has been very hard to meet all the necessary points in C406 because of the way multifamily is built and the additional efficiency packages are more for actual commercial buildings not R class. I think Austin does a great job at implementing AEGB in the required areas and it has been adopted outside mandatory areas for a while. It would be much better if we just added AEGB to everywhere in Austin (like Dallas) for new construction and that would pretty much eliminate the need for the C406-R408 issues. I suppose my real problem is the gamification of the code. If there is a push for more energy efficient strategies just require them. Don't make them a points system.

**Response:**

Thank you for your support.