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Representative Scott Cupps  
Chair  
Rules – Legislative Committee  
201 W Capitol Ave, House Hearing Room 4  
Jefferson City, Missouri 65101

**Re: MEEA's comments on limiting the adoption of energy efficiency measures in new homes**

Dear Representative Cupps,

Thank you for the opportunity to provide information on the impact of limiting residential energy efficiency building requirements in Missouri jurisdictions. The Midwest Energy Efficiency Alliance (MEEA) is a member-based, non-profit organization promoting energy efficiency to optimize energy generation, reduce consumption, create jobs and decrease carbon emissions in all Midwest communities. We have worked in Missouri and other states to provide technical assistance and education on energy-efficient building policies since 2009.

Limiting the adoption of new energy codes and/or prohibiting jurisdictions from requiring energy efficiency measures more recent than the 2009 IECC would decrease affordability for homeowners and occupants, diminish health and safety in new Missouri dwellings, and harm the construction workforce. Energy codes, just like other types of construction codes (e.g., fire, electrical, mechanical), ensure health and safety by providing better indoor air quality and more reliable, resilient homes in times of emergency or extreme weather events. Energy codes protect consumers by guaranteeing minimum standard safeguards that most homebuyers do not know to ask about (e.g., insulation behind walls). Additionally, energy codes make homes more affordable to inhabit and become more cost-effective with each new version. By placing limits on jurisdictions, the Missouri construction workforce would also take a step back and revert to out-of-date building practices.

**1. Building energy efficiency is a public health and safety matter.**

The State of Missouri has a responsibility to protect the health and safety of its residents. This includes adopting and enforcing energy codes, which are critical to ensuring that buildings operate as intended. They integrate electrical, heating, cooling, ventilation and building envelope components to provide a safe, healthy and comfortable place to live.<sup>1</sup> Insulation and ventilation are crucial to keeping out pollutants and ensuring proper ventilation, and only energy codes contain provisions that dictate the proper balance between these components. Accordingly, homeowners in energy efficient homes report fewer hospital visits for respiratory issues.<sup>2</sup>

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<sup>1</sup> Energy Codes are Life-Safety Codes (<https://www.mwalliance.org/sites/default/files/meea-research/codes-life-safety.pdf>)

<sup>2</sup> Occupant Health Benefits of Residential Energy Efficiency, E4TheFuture (<https://e4thefuture.org/wp-content/uploads/2016/11/Occupant-Health-Benefits-Residential-EE.pdf>)

Another way energy codes protect health and safety is through moisture management. When moisture infiltrates a building, it can lead to rotting construction materials and harmful mold growth. A well-sealed building envelope and proper insulation, as required with strong energy codes, help keep the cold outside air from the warm interior, reducing both condensation and ice damming.<sup>3</sup> Removing energy efficiency standards for homes will undoubtedly have negative health effects on Missouri residents.

Energy codes also enhance peoples' safety. Energy-efficient homes put less demand on the electrical grid, making it more reliable for longer periods of time. This means residents can shelter in place longer and more comfortably during emergencies (e.g., tornadoes, heat waves) and power outages. Overall, energy-efficient construction techniques and products protect homes in extreme weather events, especially when utility services are disrupted.<sup>4</sup>

Finally, energy codes protect homebuyers' health and safety by prescribing minimum standard safeguards that most people do not think about. For example, when people go to buy a home, they do not typically ask the real estate agent about the age or condition of the electrical wiring (and the real estate agent typically won't know the answer) – they simply trust that it was assembled up to code and that it passed all relevant inspections. **The same goes for insulation and other energy efficiency standards.** Most potential homebuyers do not consider qualities like how well a home is sealed to keep out air pollutants and moisture or how long a home will stay livable during power outages. It is up to the energy code to **guarantee** these safeguards and the health and safety of the occupants.

## 2. Energy efficiency protects consumers and makes homes more affordable to live in.

Energy-efficient homes are 32% less likely to default on mortgages<sup>5</sup> and are cheaper to maintain, making them more affordable to homebuyers. In August of 2022, it was discovered that at least 20 million U.S. homes had fallen behind on their utility bill payments.<sup>6</sup> Since before Covid-19, the amount owed to utility companies has doubled for approximately one out of every six homes nationwide.<sup>7</sup> Electricity inflation rose by 15.2% in July 2022 compared to the same period the previous year.<sup>8</sup> In August 2022, natural gas was trading at around \$9.35 per Metric Million British Thermal Unit (MMBtu), more than twice the cost it was the year before.<sup>9</sup> All these happenings ultimately force homeowners and occupants to make tough decisions, between paying the rent or mortgage, affording groceries, or paying their utility bills.

Energy codes help ensure that a home is properly and sufficiently insulated, reducing the need for occupants to make these tradeoffs. Home insulation provides resistance to heat flow and

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<sup>3</sup> Energy Codes are Life-Safety Codes (<https://www.mwalliance.org/sites/default/files/meea-research/codes-life-safety.pdf>)

<sup>4</sup> The Important Role of Energy Codes in Achieving Resilience ([https://www.iccsafe.org/wp-content/uploads/19-18078\\_GR\\_ANCR\\_IECC\\_Resilience\\_White\\_Paper\\_BRO\\_Final\\_midres.pdf](https://www.iccsafe.org/wp-content/uploads/19-18078_GR_ANCR_IECC_Resilience_White_Paper_BRO_Final_midres.pdf))

<sup>5</sup> Home Energy Efficiency and Mortgage Risks, Institute for Market Transformation (<https://www.imt.org/resources/home-energy-efficiency-and-mortgage-risks/#:~:text=The%20IMT%2Dfunded%20study%2C%20by,controlling%20for%20other%20loan%20determinants.>)

<sup>6</sup> New York Post, 20 million US homes can't pay utility bills as "tsunami of shutoffs" looms, August 25, 2022 (<https://nypost.com/2022/08/25/20-million-us-homes-cant-pay-utility-bills-as-shutoffs-loom/>)

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

<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

thereby lowers heating and cooling costs.<sup>10</sup> The heat that is lost during the colder months must be replaced by heating systems, and the heat gained during the warmer months must be removed by cooling systems. However, when a home is properly and sufficiently insulated, the overall heat flow is decreased – heating and cooling **systems do not need to run as much, and homeowners and occupants do not need to pay as much**. Due to the annual costs of energy, the amount of money people save from energy efficiency accumulates year after year for the life of the home.

Moreover, building energy codes become more efficient and cost-effective with each new version that is developed. The U.S. Department of Energy (DOE) is required by law to issue a determination as to whether the latest version of the IECC will improve energy efficiency compared to the previous edition of the corresponding standard or code. For example, DOE found that the 2021 IECC improved efficiency by 9.4% and reduced greenhouse gases (GHG) by 8.7% over the 2018 IECC. Those improvements save homeowners an average of \$2,320 over the life of a typical mortgage.

If homes are not built to updated standards, **homebuyers will actually end up spending more**. As described above, most buyers simply trust that a home has been built up to code and properly inspected. Once already built, they do not independently verify that insulation is sufficient for health and safety or would result in low-cost utility bills. If there are no improved code standards in place, homebuyers will need to pay additional costs to ensure that homes are livable. These costs have the potential to add up very quickly.

### **3. Local governments are in the best position to know the wants and needs of their communities.**

Missouri law is written providing for no mandatory statewide energy code, thus, local jurisdictions are *meant and expected to* adopt the building energy standards they (and their residents) want. At least 14 counties and 87 cities in Missouri currently have standards in place that go beyond the regulations of the 2009 IECC.<sup>11</sup> Notable examples include Kansas City, Springfield, and St. Louis City.

Kansas City - As referenced above, Kansas City adopted the *full, unamended* 2021 IECC in 2022, the strongest energy code in the state. In doing so, it has provided its homeowners and occupants with significant savings on their utility bills for years to come. According to a determination by U.S. DOE, updating to the unamended 2021 IECC would result in a national average of 9.4% energy savings and 8.7% energy cost savings compared to the 2018 IECC.<sup>12</sup> Of course, those savings will be even higher if updating from an even older code. The adoption of the 2021 IECC also helps Kansas City meet its climate goal of achieving carbon neutrality by 2040.<sup>13</sup> A recent attempt to roll back the standards in Kansas City determined that the new energy code was not negatively impacting permits and that increased costs of the 2021 IECC were exaggerated.

Springfield - Springfield, Missouri also updated its building energy standards in 2022 to the 2018 IECC. Compared to the 2006 IECC (Springfield's previous residential code), per the home

<sup>10</sup> Insulation, Energy Saver (<https://www.energy.gov/energysaver/insulation>)

<sup>11</sup> Energy Codes by Jurisdiction, Missouri Department of Natural Resources (<https://dnr.mo.gov/energy/energy-efficiency/codes-jurisdiction>)

<sup>12</sup> U.S. DOE's Determination of Efficiency (<https://www.energycodes.gov/determinations>)

<sup>13</sup> Kansas City, Missouri Climate Protection and Resiliency Plan (<https://www.kcmo.gov/home/showpublisheddocument/9561/638066074662570000>)

specifications outlined by the Springfield Building Department,<sup>14</sup> this will reduce homeowners' energy use by an average of 9% per year, saving them \$142 annually on their energy bills.<sup>15</sup> Even when factoring in potential increased construction costs associated with a code update, this proves to be cost-effective. A homeowner with a 30-year mortgage (which includes incremental construction costs) may use the monthly energy cost savings to pay for a portion of the total incremental costs and realize a positive cash flow<sup>16</sup> after 17 months.<sup>17</sup> The energy savings and cost-effectiveness of the 2018 IECC are even more favorable for larger homes with more volume. For instance, when using the standard U.S. DOE model home (2,400 sf) located in Springfield, a homeowner would reduce their energy use by 20%, save an average of \$408 on their energy bills and see a positive cash flow in around six months.

St. Louis City – In 2018, St. Louis City adopted the 2018 IECC. Due to this update, new homebuyers in St. Louis are expected to reduce their annual energy use by 27% and energy costs by approximately \$580 annually.<sup>18</sup> When factoring in potential increased construction costs associated with a code update, this update proves to be cost-effective. A homeowner with a 30-year mortgage will realize a positive cash flow after eleven months, and a life-cycle cost savings of over \$7,700.<sup>19</sup>

Additionally, the clean energy sector currently supports more than 14,400 jobs in the St. Louis Metro area, which is more than one third of all clean energy jobs in the state. Of those jobs, 83% are in the energy efficiency sector, and the vast majority are interdependent with the building industry, whether it be HVAC, insulation, or lighting.<sup>20</sup> These are good jobs in a vital, growing sector of St. Louis' economy. In fact, the clean energy sector grew at a rate of 5.3% from 2015 to 2016 in Missouri – over three times faster than all other sectors in the state.<sup>21</sup>

Prohibiting jurisdictions from adopting new building energy standards and enforcing currently adopted standards that go beyond the 2009 IECC effectively rolls back energy codes in several Missouri jurisdictions. These municipalities have set advanced goals for themselves to achieve better and cleaner buildings, and they have committed to achieving those goals by adopting stronger building energy standards. They have done all this work in order to make Missouri a better place to live and work, to make Missouri attractive for businesses and funding, and to make Missouri a leader in energy conservation and innovation. To effectively “roll back” the results of this hard work would be to wash away years of dedication, energy and cost savings, and all-around progress.

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<sup>14</sup> Modeling based on a 1,547 sq. ft., one-story home with a conditioned crawl space.

<sup>15</sup> “Springfield Residential Energy Savings Advanced 2006 to 2018 IECC” fact sheet, MEEA

<sup>16</sup> Cash Flow: Difference between annual energy cost savings and increased annual costs for mortgage payment. Incremental costs are included in a 30-year fixed-rate mortgage. Thus, a homeowner uses the monthly energy cost savings to pay a portion of the total incremental construction costs each month, ultimately leading to a net positive cash flow.

<sup>17</sup> *Id.*

<sup>18</sup> MEEA conducted an REM/Design analysis using DOE model home specifications (St. Louis 2009 IECC to 2018 IECC home), determined energy savings and multiplied that number by Ameren residential energy costs. Assumed 36% electric heat and 64% gas heat based on NREL database for MO.

<sup>19</sup> Based on the U.S. DOE methodology for residential cost-effectiveness in energy codes.

<https://www.energycodes.gov/development/residential/methodology>. Incremental Costs of \$3,274 were derived from the following sources: PNNL, RS Means, St. Louis Home Depot, and local energy raters.

<sup>20</sup> Clean Jobs Missouri (<http://www.cleanjobsmissouri.org/>)

<sup>21</sup> Clean Energy Trust, Clean Jobs Midwest (<https://www.cleanjobsmidwest.com/state/missouri>)

#### **4. Technical assistance is available to implement compliance.**

Technical assistance around energy codes is readily available for free in Missouri, ensuring that the construction trades and inspection workforce have the tools necessary to understand and implement energy efficiency requirements. MEEA, the Metropolitan Energy Center, and others offer training to the building industry (including builders and building code officials) to educate on the specific provisions of the 2021 IECC (and now the 2024 IECC) and how best to implement them. Additionally, MEEA created and manages the Missouri Code Compliance Collaborative, which is a group of stakeholders that convenes regularly to explore common interests and address obstacles related to energy code compliance. The Collaborative establishes a neutral, cooperative forum for identifying and tackling obstacles to improving energy code compliance. These strategies help citizens better understand the codes and apply them successfully. Especially when coupled with other state-created resources, these programs can help designers and builders feel confident that they won't be left to fend for themselves when it comes to implementing stronger energy efficiency standards. The program includes educational trainings, workforce development opportunities, and a circuit rider who travels the state to provide proactive one-on-one education and resources to improve compliance.

#### **5. The cost memorandum being used to support such code changes is inaccurate.**

The ~\$31,000 increased costs cited in the referenced memorandum (memo) are taken out of context and are not accurate, as they only represent the costs associated with the prescriptive path of the 2021 IECC. The other two compliance path options included in the 2021 IECC have been shown to be less expensive to implement and are generally supported by the industry for their flexibility. For example, air sealing and tightening of the building envelope has the highest impact on increasing energy efficiency and is also the least expensive improvement to make. A builder could choose to build a tighter building envelope (e.g., 2 ACH(50) instead of 3 ACH(50))<sup>22</sup> and then trade off that efficiency so that continuous insulation in the walls and R60 in the roof would not be required. Choosing another path also means that double frame walls (as represented in the cost calculations) would not be necessary; double frame walls are not a requirement of any energy code.

Moreover, MEEA calculated the cost attributed to continuous wall insulation using Means Construction Cost Data and arrived at a number about three times less than that proposed in the memorandum (i.e., \$6,958 as compared to \$18,137).

The "Additional Energy Package" that is cited to cost around \$3,000 is also unnecessary if a builder puts all the ducts in conditioned space, which is a common building practice in many Midwestern homes (and is better for air quality in general).

If you have any questions about these comments, noted reports and references or general impact and analysis of building energy codes, please contact Zoya Ehsan at [zehsan@mwalliance.org](mailto:zehsan@mwalliance.org).

Thank you for your consideration.

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<sup>22</sup> This is an estimate; actual trade-offs vary per building.



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Sincerely,

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