Appeal of provisions for Energy Storage Systems

in the

2024 draft International Energy Conservation Code

Commercial and Residential

Building Owners and Managers Association International

and the

National Multifamily Housing Council

December 2023

Specific description of the issue being appealed:

The 2024 International Energy Conservation Code – Commercial (IECC-C) mandates the provision of electrical energy storage systems (ESS) or a reserved area for future installation of ESS. These requirements apply regardless of whether the building has, or is even capable of having, onsite renewable energy generation.

These requirements violate the core intent of the IECC-C to provide *"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 savings for consumers and building owners, and return on investment."*[1]

These requirements also violate the IECC-C intent provisions by abridging safety and health requirements found in other codes.

Statement describing precisely why the issue is being appealed:

ESS do not provide any building energy efficiency – do not save energy - and are primarily intended to benefit electric grid operators' management of the grid and to support Federal policies relative to the grid as indicated by reason statements for code change proposals CEPI-7-21, CEPI-142-21, REPI-8-21, and REPI-115-21.[2]

Many 2024 IECC-C compliant buildings will not have onsite renewable energy generation systems. Those buildings will comply with the IECC-C requirement to provide renewable energy by various offsite procurement methods as permitted by Section C405.15.2. In such buildings, an ESS can only store grid delivered electricity, which can support electric grid management, but which saves no energy.

While grid delivered and stored electricity can mitigate electric service interruptions, providing some resiliency for a building, resiliency is not within the intent of the IECC. Further, ESS is only one legal, technical solution to electric service interruptions. The 2024 International Building Code (IBC) (Sections 1008.3.1 and 1013.63) specifically permits emergency power to be provided by on-site generators. Indeed, commercial buildings required by the IBC to have emergency and/or standby power systems frequently meet the requirement with onsite fuel powered generation.

Section 2701.1 of the IBC governs "*the design, construction, erection and installation of the electrical components, appliances, equipment and systems used in buildings and structures covered by this code"* (IBC). Given that the IBC governs requirements for the provision of emergency and standby power systems, the IECC-C cannot require ESS for 'resiliency' purposes without running afoul of the last sentence of the intent section of the IECC-C: *"This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.*"

The minimum standard for building site-provided electrical energy during grid service interruptions is already established by the IBC, and fuel powered generation meets that minimum standard.

Note that NFPA 99: *Healthcare Facilities Code* qualifies as an "*other applicable code*" regarding essential electrical systems, which it defines as "*A system comprised of alternate sources of power and all connected*

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[1] https://www.iccsafe.org/wp-content/uploads/IECC-COM-PCD2.pdf Section C101.3
[2] https://www.iccsafe.org/wp-content/uploads/2021-Public-Input-Complete-Monograph_-Revised-12-14-2021_reduced-file-sizeII.pdf

distribution systems and ancillary equipment, designed to ensure continuity of electrical power to designated areas and functions of a health care facility during disruption of normal power sources, and also to minimize disruption within the internal wiring system." IBC Section 2702.1.8 clarifies that essential electrical systems are permitted to be powered by generators.

Recognize that the draft IECC-C required capacity of ESS has not been aligned with any loading requirements of the IBC or other applicable codes, standards, or ordinances. The IECC-C ESS requirements, not aligned with the IBC, are likely greatly insufficient to meet the specified loads of the IBC for many buildings, and particularly highrise and healthcare buildings.

The IECC-C Section C405.16.2 permitted alternative to providing an ESS is for each building to "…*have one or more reserved ESS-ready areas to accommodate future electrical storage…*"

For buildings meeting their required emergency and standby power needs with generators, and for buildings meeting renewable generation requirements via offsite procurement, this represents an inappropriate taking of the owner's property. "… [*R]eserved ESS-ready areas to accommodate future electrical storage"* do not save energy, do not provide energy efficiency, and fail to meet IBC requirements for emergency and standby power while restricting ('reserving') an owner's use of their property. Required ESS-ready areas encumber owners' property, potentially for many years, with no recompense or benefit to the owner. These requirements are inherently ineffective.

IECC-C provisions that are not effective – implemented because of some presupposed future use - provide no return on investment and cannot be life cycle cost effective. This clearly violates the intent of the IECC-C to provide *"the maximum level of energy efficiency that is safe, technologically feasible, and life cycle cost effective, considering economic feasibility, including potential costs and savings for consumers and building owners, and return on investment."*

Finally, distributed energy storage is intended to support the management of the grid. Grid performance is outside the purview of building owners. Instead, building owners can be incentivized to engage in grid management efforts. At least one local EU is subsidizing ESS for owners.[3] There are Federal and state jurisdictions and local EU's providing incentives for ESS.[4] These are appropriate market incentives versus the proposed code mandate.

A mandate to provide ESS for grid management is a mandate for building owners to financially support the management of the grid. These types of fiscal policy decisions are not the purview of a model energy code and its appointed body.

A general purpose of the ICC is the *"the lessening of burdens of government through the development, maintenance and publication of model statutes and standards for the use by federal, state and local governments in connection with the administration of building laws and regulations."*[5] Federal, state, and local government burdens are not lessened by using the IECC to end-run local fiscal policy and regulation of EUs.

[3] https://greenmountainpower.com/rebates-programs/home-energy-storage/bring-your-own-device/
[4] https://www.energysage.com/energy-storage/benefits-of-storage/energy-storage-incentives/
[5] https://www.iccsafe.org/wp-content/uploads/ICC-Bylaws-December-10-2021-Certified.pdf

Incorporation of requirements in the IECC that violate the intent of the IECC represent a material and significant irregularity of process.

Detailed description of how the issue being appealed will adversely affect the appellants:

The National Multifamily Housing Council (NMHC) provides a voice for America's apartment industry. Our membership is engaged in all aspects of the apartment industry, including ownership, development, management, and finance. NMHC represents the principal officers of the apartment industry's largest and most prominent firms.

The Building Owners and Managers Association (BOMA) International is the leading trade association for commercial real estate professionals for more than 100 years. It represents the owners, managers, service providers and other property professionals of all commercial building types, including office, industrial, medical, corporate, and mixed-use. BOMA International is the voice of commercial building owners and operators.

According to recent research commissioned by NMHC, the U.S. needs to build 4.3 million new apartment homes by 2035 to meet the demand for rental housing.[6] This includes an existing shortage of 600,000 apartments stemming from underbuilding due in large part to the 2008 financial crisis. Further, underproduction of housing has translated to higher housing costs – resulting in a consequential loss of affordable housing units (those with rents less than $1,000 per month), with a decline of 4.7 million affordable apartments from 2015-2020.

In fact, the total share of cost-burdened apartment households (those paying more than 30% of their income on housing) has increased steadily over several decades and reached 57.6% in 2021.[7] During this same period, the total share of *severely* cost-burdened apartment households (those paying more than half their income on housing) increased from 20.9 to 31.0%.[8]

Further, the Biden Administration has recognized this immense need to bolster the nation's housing production and outlined a strategy to improve housing supply conditions through the *Housing Supply Action Plan*. The plan underscores that this national supply shortfall "*burdens family budgets, drives up inflation, limits economic growth, maintains residential segregation, and exacerbates climate change*."[9] And that *"[r]ising housing costs have burdened families of all incomes, with a particular impact on low- and moderate-income families, and people and communities of color."*[10]

It is becoming increasingly difficult to build housing that is affordable to a wide range of income levels. Ongoing materials and equipment shortages and strained supply chain conditions pressures housing development and results in costs and delays that impact overall affordability and availability. In addition, ill-timed, unnecessary, or unduly burdensome laws, policies, and regulations – such as requirements to provide ESS in addition to alternative legal emergency and standby power generation systems - prevent us from delivering the housing our country so desperately needs. Elevated regulatory costs, particularly,

[6] Hoyt Advisory Services, "Estimating the Total U.S. Demand for Rental Housing by 2035." (2022), https://www.weareapartments.org/
[7] American Housing Survey, U.S. Census Bureau, "NMHC tabulations of 1985 American Housing Survey microdata." (2021).
[8] *Id.*
[9] "President Biden Announces New Actions to Ease the Burden of Housing Costs." (May 16, 2022) https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/16/president-biden-announces-new-actions-to-ease-the-burden-of-housing-costs/
[10] *Id.*

create a barrier to affordable housing supply. Recent research published by NMHC and the National Association of Home Builders found that regulation imposed by all levels of government accounts for 40.6 percent of multifamily development costs.[11]

Following extreme, pandemic-fueled volatility in product costs, supply chain stability, and staffing constraints, the apartment construction and renovation pipeline has seen some moderation yet continues to face difficult conditions. Construction delays are prevalent – with 88 percent of respondents reporting delays in NMHC's September 2023 Quarterly Survey of Apartment Construction and Development Activity. Further, 48 percent of respondents reported experiencing repricing increases in projects over the last three months. Respondents experiencing delayed starts cited a range of causes including lack of construction financing and project infeasibility, while the availability of necessary products and materials, or lack thereof, saw the largest increase in responses, with 30 percent of respondents citing materials sourcing and delivery challenges as a contributing factor to delayed starts (up from 10 percent in the last quarter).

Apartment builders and developers also continue to be impacted by escalations in materials costs. The prices of a myriad of essential building products and equipment continue to rise, with respondents reporting a 7% average increase in residential appliance costs over a three-month period. A sizeable portion of respondents further reported relying on alternative brands or suppliers to mitigate price increases and supply shortages for appliances (58%).

Adding ESS equipment and devices mandated by the IECC to already constrained supply chains fundamentally reduce the ability of NMHC members to meet the nation's housing needs and BOMA International members to meet the changing, post-pandemic needs of commercial building inventories.

Statement indicating the requested remedial action:

NMHC and BOMA International request that all provisions mandating ESS in buildings not served by onsite renewable energy systems be deleted from the IECC-C and IECC-R for failure to comply with the respective intents of the IECC-C and IECC-R. Those requirements are in IECC-C Section C405.16 and IECC-R Appendix RD Sections RD103.1 and RD103.4.

NMHC and BOMA International are not opposed to "*optional supplemental requirements*" for ESS being placed in adoptable appendices as permitted by the respective intents of the IECC-R and IECC-C provided appropriate correlation with the IBC and restriction to ESS serving onsite renewable energy systems are made.

Alternatively, if ESS requirements are found by the appeals board to comply with the respective intents of the IECC-R and IECC-C to potentially *"include nonmandatory appendices incorporating additional energy efficiency and greenhouse gas reduction resources developed by the Code Council and others,"* NMHC and BOMA International request that all provisions currently mandating provision of ESS be placed in nonmandatory language of the applicable codes. In accordance with the direction provided by ICC's

[11] National Multifamily Housing Councill and National Association of Home Builders, "Regulation: 40.6 Percent of the Cost of Multifamily Development." (2022) https://www.nmhc.org/globalassets/research--insight/research-reports/cost-of-regulations/2022-nahb-nmhc-cost-of-regulations-report.pdf

February 15, 2022 memorandum,[12] nonmandatory appendices are informational and not adoptable, meaning such appendices are drafted in nonmandatory language.

[12] https://www.iccsafe.org/wp-content/uploads/IECC-Discount-Rates-and-Code-Content-Memorandum_02_15.22.pdf

The names and mailing addresses of individuals and organizations that may have an interest in or be affected by the matter being appealed:

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IECC COMMERCIAL PUBLIC COMMENT DRAFT #2 UPDATE
JULY 6, 2023

THE FOLLOWING IS AN UPDATE TO THE STRIKETHROUGH/UNDERLINE IECC COMMERCIAL PUBLIC COMMENT DRAFT #2 UPDATED WITH ERRATA FROM PUBLIC COMMENT AND STAFF. ITEMS SHOWN IN BLUE/GRAY ARE APPROVED CHANGES FROM PUBLIC COMMENT DRAFT #1.

CHAPTER 1 [CE] SCOPE AND ADMINISTRATION

User note:

About this chapter: Chapter 1 *establishes the limits of applicability of the code and describes how the code is to be applied and enforced.* ***Chapter 1*** *is in two parts: Part 1—Scope and Application and Part 2—Administration and Enforcement.* ***Section C101*** *identifies what buildings, systems, appliances and equipment fall under its purview and references other I-Codes as applicable. Standards and codes are scoped to the extent referenced.*

The code is intended to be adopted as a legally enforceable document and it cannot be effective without adequate provisions for its administration and enforcement. The provisions of ***Chapter 1*** *establish the authority and duties of the code official appointed by the authority having jurisdiction and also establish the rights and privileges of the design professional, contractor and property owner.*

PART 1—SCOPE AND APPLICATION

SECTION C101
SCOPE AND GENERAL REQUIREMENTS

C101.1 Title. This code shall be known as the *Energy Conservation Code* of **[NAME OF JURISDICTION]**, and shall be cited as such. It is referred to herein as "this code."

C101.2 Scope (Not subject to public input). This code applies to the design and construction of buildings not covered by the scope of the IECC – Residential Provisions.

C101.2.1 Appendices Provisions in the appendices shall not apply unless specifically adopted.

C101.3 Intent (Not subject to public input). The International Energy Conservation Code - Commercial Provisions provide market-driven, enforceable requirements for the design and construction of commercial buildings, providing 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 savings for consumers and building owners, and return on investment. Additionally, the code provides jurisdictions with supplemental requirements, including ASHRAE 90.1, and optional requirements that lead to achievement of zero energy buildings, presently, and through glidepaths that achieve zero energy buildings by 2030 and on additional timelines sought by governments, and achievement of additional policy goals as identified by the Energy and Carbon Advisory Council and approved by the Board of Directors. Requirements contained in the code will include, but not be limited to, prescriptive- and performance-based pathways. The code may include non-mandatory appendices incorporating additional energy efficiency and greenhouse gas reduction resources developed by the Code Council and others. The code will aim to simplify code requirements to facilitate the code's use and compliance rate. The code is updated on a three-year cycle with each subsequent edition providing increased energy savings over the prior edition. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve this intent. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

~~C101.5~~C101.4 Compliance. *Residential buildings* shall meet the provisions of IECC—Residential Provisions. *Commercial buildings* shall meet the provisions of

CEPI-7-21

IECC®: SECTION 202 (New), C103.2, C105.2.5, C405.15 (New), C405.15.1 (New), C405.15.2 (New), C405.15.2.1 (New), C405.15.2.2 (New), C405.15.2.3 (New), UL Chapter 06 (New), CB103.6, CB103.7, CB103.8, CB103.9

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2021 International Energy Conservation Code

Add new definition as follows:

<u>ENERGY STORAGE SYSTEM (ESS)</u>.
<u>One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time.</u>

Revise as follows:

C103.2 Information on construction documents. Construction documents shall be drawn to scale on suitable material. Electronic media documents are permitted to be submitted where *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include, but are not limited to, the following as applicable:

1. Energy compliance path.
2. Insulation materials and their *R*-values.
3. Fenestration *U*-factors and solar heat gain coefficients (SHGCs).
4. Area-weighted *U*-factor and solar heat gain coefficient (SHGC) calculations.
5. Mechanical system design criteria.
6. Mechanical and service water-heating systems and equipment types, sizes and efficiencies.
7. Economizer description.
8. Equipment and system controls.
9. Fan motor horsepower (hp) and controls.
10. Duct sealing, duct and pipe insulation and location.
11. Lighting fixture schedule with wattage and control narrative.
12. Location of *daylight* zones on floor plans.
13. Air barrier and air sealing details, including the location of the air barrier.
14. <u>Location reserved for inverters, metering equipment, ESS, and a pathway reserved for routing of raceways or conduit from the renewable energy system to the point of interconnection with the electrical service and the ESS.</u>
15. <u>Location and layout of a designated area for ESS.</u>
16. <u>Rated energy capacity and rated power capacity of the installed or planned ESS.</u>

C105.2.5 Electrical system. Inspections shall verify lighting system controls, components and meters as required by the code, *approved* plans and specifications.
<u>Where an electrical energy storage system area is required, inspections shall verify space availability and pathways to electrical service.</u>

Add new text as follows:

C405.15 Electrical energy storage system. Buildings shall comply with the one of C405.15.1 or C405.15.2.

C405.15.1 Electrical energy storage energy capacity..
Each building shall have one or more ESS with a total rated energy capcity and rated power capacity as follows:

1. ESS rated energy capacity (kWh)≥1.0 x Installed PV System Rated Power (kW_{DC})
2. ESS rated power capacity (kW)≥0.25 x Installed PV System Rated Power (kW_{DC})

Where installed, DC coupled battery systems shall meet the requirements for rated energy capacity alone.

C405.15.2 Electrical energy storage system ready.
Each building shall have one or more reserved ESS-ready areas to accomododate future electrical storage complying with the following:

1. Energy storage system rated energy capacity (kWH) ≥ Conditioned floor area of the three largest stories (ft^2) x 0.0008 kWh/ft^2
2. Energy storage system rated power capacity (kW) ≥ Conditioned floor area of three largest stories (ft^2) x 0.0002 kWh/ft^2

C405.15.2.1 ESS-ready location. Each ESS-ready area shall be located in accordance with Section 1207 of the *International Fire Code*.

C405.15.2.2 ESS-ready minimum area requirements.
Each ESS-ready area shall be sized in accordance with the spacing requirements of Section 1207 of the *International Fire Code* and the UL9540 or UL9540A designated rating of the planned system. Where rated to UL9540A, the shall be in accordance with the manufacturer's instructions.

C405.15.2.3 Electrical distribution equipment.
The onsite electrical distribution equipment shall have sufficient capacity, rating, and space to allow installation of overcurrent devices and circuit wiring in accordance with NFPA 70 for future electrical ESS installation complying with the criteria of Section C405.15.2.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

9540-2020	Standard for Energy Storage Systems and Equipment

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

9540A-2019	Standard for Safety Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

Revise as follows:

CB103.6 Interconnection pathway. Construction documents shall indicate pathways for routing of conduit or piping from the solar-ready zone to the electrical service panel ~~and electrical energy storage system area~~ or service hot water system.

~~**CB103.7 Electrical energy storage system-ready area.**~~
~~The floor area of the electrical energy storage system-ready area shall be not less than 2 feet (610 mm) in one dimension and 4 feet (1219 mm) in another dimension, and located in accordance with Section 1207 of the *International Fire Code*. The location and layout diagram of the electrical energy storage system-ready area shall be indicated on the construction documents~~
.

~~CB103.8~~CB103.7 Electrical service reserved space. The main electrical service panel shall have a reserved space to allow

installation of a dual-pole circuit breaker for future solar electric and
~~a dual-pole circuit breaker for future electrical energy storage system installation. These spaces~~ shall be labeled “For Future Solar Electric~~and Storage~~.” The reserved space~~s~~ shall be positioned at the end of the panel that is opposite from the panel supply conductor connection.

~~CB103.9~~CB103.8 Construction documentation certificate. A permanent certificate, indicating the solar-ready zone and other requirements of this section, shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional.

Reason: Energy storage will soon become critical to achieving President Biden’s goal of a carbon-free power sector by 2035. These systems could also bolster economy, present a cost savings opportunity for homeowners and increase resilience to power outages. In 2020, 21% of the United State’s electricity is sourced from renewable energy, primarily wind, an intermittent source of energy. As the U.S. increases the amount of electricity generated from renewables, buildings must be prepared to aid in this transition by storing energy to match grid demands.
Policies to encourage energy storage will improve the U.S. economy. Energy storage is expected to grow by over 40% each year until 2025 and the U.S., because of its manufacturing background and experience in battery-storage technology for cars is becoming a clear leader in this market.

Energy storage will also present a cost-saving opportunity. Battery prices have and will likely continue to fall in the United States, meaning that behind-the-meter storage will likely become more accessible and affordable in the short-term. More and more utilities are moving beyond voluntary programs and are expanding use of time-of-use rates for electricity as a tool for shaping demand. Ensuring buildings are energy-storage ready now will allow them to cost effectively install storage systems in the future and take advantage of these programs.

Finally, energy storage will improve resilience to power outages. In 2020, DOE found that an average household in the United States goes without power for 8 hours in a year. Because of extreme weather events caused by climate change, those outages are increasing. These outages are estimated to cost the U.S. economy between $25 billion to $70 billion annually. Requiring buildings to be storage-ready will ensure communities are more resilient by allowing buildings to cost effectively install storage which can operate for a short-period of time without relying on the electricity grid.

Bibliography: Renewables Became the Second-Most Prevalent U.S. Electricity Source in 2020 , U.S. Energy Information Administration, https://www.eia.gov/todayinenergy/detail.php?id=48896.
Fact Sheet: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies, The White House, 22 Apr. 2021, https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/.

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Campbell, Richard. Weather-Related Power Outages and Electric System Resiliency, 28 Aug. 2012, https://sgp.fas.org/crs/misc/R42696.pdf.

Economic Benefits of Increasing Electric Grid Resilience to Weather Outages, U.S. Department of Energy and President's Council of Economic Advisors, Aug. 2013, https://www.energy.gov/sites/prod/files/2013/08/f2/Grid%20Resiliency%20Report_FINAL.pdf.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.
Analysis completed by NBI using RSMeans showed no incremental costs for this measure.

CEPI-142-21

IECC®: C405.13 (New), IEEE Chapter 06 (New), UL Chapter 06 (New)

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2021 International Energy Conservation Code

Add new text as follows:

C405.13 Inverters.
Direct-current-to-alternating-current inverters serving on-site renewable energy systems or on-site electrical energy storage systems shall be compliant with IEEE 1547-2018a and UL 1741-2021.

Add new standard(s) as follows:

IEEE

Institute of Electrical and Electronic Engineers
3 Park Avenue, 17th Floor
New York, NY 10016

1547-2018a	IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

1741-2021	UL Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources

Reason: IEEE 1547-2018a governs requirements for the interconnection of distributed energy resources that operate in parallel to the electric grid. This standard (and its implementation at the device level through (UL 1741) ensure that these resources can support and potentially enhance grid stability, thereby improving reliability, reducing curtailments, stabilizing voltage, and maintaining power quality. Requirements to implement IEEE 1547-2018 are being explored in several states and the standard is already required as a part of California's Rule 21 interconnection requirements. The National Association of Regulatory Utilities Commissioners (NARUC) has already recommended that state utility commissions require implementation of IEEE1547-2018a as a part of their interconnection requirements.
While commission rulemaking will help to accelerate adoption, codifying the requirement within building code will provide further clarity to DER installers and provide consistency across unregulated (consumer-owned/public) utility service areas. This will help to avoid inconsistency and requirements and/or potentially future retrofit costs if a non-compliant unit must be retrofitted later at interconnection.

Smart inverter functionality can provide several benefits, with potentially significant cost advantage over traditional solutions. While the primary purpose of smart inverter functionality is grid stability, there are several additional benefits to the grid and its stakeholders. When operating in volt-VAR mode supporting reactive power, these inverters can actually provide energy savings, particularly when operating within distribution networks already operating conservation voltage reduction schemes. Additionally, smart inverters can help to increase DER hosting capacity of distribution networks, enabling greater access to renewable energy systems while maintaining safety and reliability.

Bibliography: [1]IEEE 1547-2018 Status of Adoption across the U.S. (2021) https://sagroups.ieee.org/scc21/wp-content/uploads/sites/285/2021/09/IEEE-1547-2018_States-and-ISOs-RTOs-Adoption_IEEE-Format.pdf
[2] CPUC, Rule 21 Rulemaking, https://www.cpuc.ca.gov/Rule21/

[3] NARUC, Recommending State Commissions Act to Adopt and Implement Distributed Energy Resource Standard IEEE 1547-2018 (2021) https://pubs.naruc.org/pub/E86EF74B-155D-0A36-3138-B1A08D20E52B

[4] IEEE PES, Impact of IEEE 1547 Standard on Smart Inverters and the Applications in Power Systems (2020)

https://www.nrel.gov/grid/ieee-standard-1547/assets/pdfs/smart-inverters-applications-in-power-systems.pdf

[5] EPRI, The Economic Impact of Real Power Management of Solar Photovoltaic Systems (2019) https://www.epri.com/research/products/000000003002013325

[6] NREL, Photovoltaic Impact Assessment of Smart Inverter Volt-VAR Control on Distribution System Conservation Voltage Reduction and Power Quality (2016) https://www.nrel.gov/docs/fy17osti/67296.pdf

[7] PG&E, EPIC 2.03A: Test Smart Inverter Enhanced Capabilities – Photovoltaics (PV): Smart Inverter Modeling Report (2019) https://www.pge.com/pge_global/common/pdfs/about-pge/environment/what-we-are-doing/electric-program-investment-charge/PGE-EPIC-Project-2.03A_Modeling-Report.pdf

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.
In an economic assessment of 1547-2018 functionality, EPRI found that an increase of 25% in distribution hosting capacity for solar could be achieved at a savings of $20,000/year per feeder in the reference case and could reach as high as $100,000/year. In its assessment of smart inverter benefits in high DER areas, NREL found an additional energy savings of up to 1% from smart inverters when coupled with traditional conservation voltage regulation (baseline savings of 1.5%-3%) while also improving power quality scores by up to 0.26. A study by PG&E of a set of representative feeders found deferred distribution upgrade costs of up to $200,000 per feeder at the highest levels of DER penetration and that smart inverter functionality was cost-effective across a wide range of scenarios.

Given the growing prevalence of smart inverter requirements, this is likely to have a low to no incremental cost. While communication with utility and/or third-party systems is enabled by IEEE 1547-2018a, it is not required and smart inverters can provide much of their value autonomously based on their operating setpoint. Individual utilities or jurisdictions may dictate specific setpoints and/or communications integration with utility/third-party systems as they see fit based on the specific grid context, like how loads might be integrated for demand response programs. The physical communication pathway for smart inverters is typically wi-fi, which is standard for inverters already for the purposes of system monitoring and commissioning.

REPI-8-21

IECC®: R103.2.2 (N1101.5.2) (New), R105.2.5 (New), R105.2.5, R404.4 (N1104.4) (New), R404.4.1 (N1104.4.1) (New), R404.4.2 (N1104.4.2) (New), TABLE R405.2, TABLE R406.2

Proponents: Kim Cheslak, NBI, NBI (kim@newbuildings.org); Lauren Urbanek, Natural Resources Defense Council (lurbanek@nrdc.org); Ben Rabe, Fresh Energy (rabe@fresh-energy.org); Chris Castro, City of Orlando, City of Orlando (chris.castro@orlando.gov); Brad Smith, City of Fort Collins (brsmith@fcgov.com); Amber Wood, ACEEE, ACEEE (awood@aceee.org)

2021 International Energy Conservation Code

Add new text as follows:

R103.2.2 (N1101.5.2) Energy storage-ready system.
The construction documents shall provide the location of pathways for routing of raceways or cable from the energy storage system area to the electrical service panel and the location and layout of a designated area for electrical energy storage system.

R105.2.5 Electrical rough-in inspection.
Inspections at electrical rough-in shall verify compliance as required by the code and the approved plans and specifications as to the locations, distribution, and capacity of the electrical system. Where the energy storage system area is not in the same space as the electrical panel, inspections shall verify conduit or pre-wiring from the energy storage ready zone to the electrical panel.

Revise as follows:

~~**R105.2.5**~~ **R105.2.6 Final inspection.** The *building* shall have a final inspection and shall not be occupied until *approved*. The final inspection shall include verification of the installation of all required *building* systems, equipment and controls and their proper operation and the required number of high-efficacy lamps and fixtures.

Add new text as follows:

R404.4 (N1104.4) Energy storage infrastructure.
Each *building site* shall have a dedicated location for the installation of future on-site energy storage in accordance with this section.

Exception: Where an onsite electrical energy system storage system is installed.

R404.4.1 (N1104.4.1) One- and two- family dwellings and townhouses.
One- and two-family dwellings and townhouses shall be provided with an energy storage ready area in accordance with the following:

1. Floor area not less than 2 feet (610 mm) in one dimension and 4 feet (1219 mm) in another dimension and located in accordance with Section 1207 of the International Fire Code and Section 110.26 of the NFPA 70.
2. The main electrical service panel shall have a reserved space to allow installation of a two-pole circuit breaker for future electrical energy storage system installation. This space shall be labeled “For Future Electric Storage.” The reserved spaces shall be positioned at the end of the panel that is opposite from the panel supply conductor connection.

R404.4.2 (N1104.4.2) Group R occupancies. Buildings with Group R-2, R-3 and R-4 occupancies shall comply with Section C405.15.

Revise as follows:

TABLE R405.2 (TABLE N1105.2) REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

SECTION[a]	TITLE
General	

R401.2.5	Additional energy efficiency
R401.3	Certificate
Building Thermal Envelope	
R402.1.1	Vapor retarder
R402.2.3	Eave baffle
R402.2.4.1	Access hatches and doors
R402.2.10.1	Crawl space wall insulation installations
R402.4.1.1	Installation
R402.4.1.2	Testing
R402.5	Maximum fenestration U-factor and SHGC
Mechanical	
R403.1	Controls
R403.3, including R403.3.1, except Sections R403.3.2, R403.3.3 and R403.6	Ducts
R403.4	Mechanical system piping insulation
R403.5.1	Heated water circulation and temperature maintenance systems
R403.5.3	Drain water heat recovery units
R403.6	Mechanical ventilation
R403.7	Equipment sizing and efficiency rating
R403.8	Systems serving multiple dwelling units
R403.9	Snow melt and ice systems
R403.10	Energy consumption of pools and spas
R403.11	Portable spas
R403.12	Residential pools and permanent residential spas
Electrical Power and Lighting Systems	
R404.1	Lighting equipment
R404.2	Interior lighting controls
R404.4	Energy storage infrastructure

a. Reference to a code section includes all the relative subsections except as indicated in the table.

TABLE R406.2 (TABLE N1106.2) REQUIREMENTS FOR ENERGY RATING INDEX

SECTION[a]	TITLE
General	
R401.2.5	Additional efficiency packages
R401.3	Certificate
Building Thermal Envelope	
R402.1.1	Vapor retarder
R402.2.3	Eave baffle
R402.2.4.1	Access hatches and doors
R402.2.10.1	Crawl space wall insulation installation
R402.4.1.1	Installation
R402.4.1.2	Testing
Mechanical	
R403.1	Controls
R403.3 except Sections R403.3.2, R403.3.3 and R403.3.6	Ducts
R403.4	Mechanical system piping insulation
R403.5.1	Heated water calculation and temperature maintenance systems
R403.5.3	Drain water heat recovery units
R403.6	Mechanical ventilation
R403.7	Equipment sizing and efficiency rating
R403.8	Systems serving multiple dwelling units
R403.9	Snow melt and ice systems
R403.10	Energy consumption of pools and spas
R403.11	Portable spas
R403.12	Residential pools and permanent residential spas
Electrical Power and Lighting Systems	
R404.1	Lighting equipment
R404.2	Interior lighting controls
R404.4	Energy storage infrastructure
R406.3	Building thermal envelope

a. Reference to a code section includes all of the relative subsections except as indicated in the table.

Reason: Energy storage will soon become critical to achieving President Biden's goal of a carbon-free power sector by 2035. These systems could also bolster economy, present a cost savings opportunity for homeowners and increase resilience to power outages. In 2020, 21% of the United State's electricity is sourced from renewable energy, primarily wind, an intermittent source of energy. As the U.S. increases the amount of electricity generated from renewables, buildings must be prepared to aid in this transition by storing energy to match grid demands.

Policies to encourage energy storage will improve the U.S. economy. Energy storage is expected to grow by over 40% each year until 2025 and the U.S., because of its manufacturing background and experience in battery-storage technology for cars is becoming a clear leader in this market.

Energy storage will also present a cost-saving opportunity for homeowners. Battery prices have and will likely continue to fall in the United States, meaning that behind-the-meter storage will likely become more accessible and affordable in the short-term. More and more utilities are moving beyond voluntary programs and are expanding use of time-of-use rates for electricity as a tool for shaping demand. Ensuring homes are energy-storage ready now will allow them to cost effectively install storage systems in the future and take advantage of these voluntary programs.Finally, energy storage will improve resilience to power outages. In 2020, DOE found that an average household in the United States goes without power for 8 hours in a year. Because of extreme weather events caused by climate change, those outages are increasing. These outages are estimated to cost the U.S. economy between $25 billion to $70 billion annually. Requiring homes to be storage-ready will ensure communities are more resilient by allowing buildings to cost effectively install storage which can operate for a short-period of time without relying on the electricity grid.

Infrastructure for energy storage language has been adapted from Appendix CB Solar-Ready Zone into the main body of the residential energy code. This language includes revisions from the 2019 Group B Public Comment that were not incorporated into the final text of the 2021 IECC but modified the language to ensure needed correlation with the IFC and NFPA. Single and two family dwellings are subject to a prescriptive based sizing requirement, while low-rise multifamily buildings will be asked to refer to commercial guidelines. Additional language is provided for construction documents, inspections, and to make this requirement mandatory across all compliance paths.

Bibliography: "Battery Storage Paves Way for a Renewable-Powered Future." *International Renewable Energy Agency*, www.irena.org/newsroom/articles/2020/Mar/Battery-storage-paves-way-for-a-renewable-powered-future.

Lee, Timothy. *Battery Prices Have Fallen 88 Percent over the Last Decade*. Ars Technica, 18 Dec. 2020, arstechnica.com/science/2020/12/battery-prices-have-fallen-88-percent-over-the-last-decade/#:~:text=The%20average%20cost%20of%20a,of%2013%20percent%20since%202019.

Campbell, Richard. *Weather-Related Power Outages and Electric System Resiliency*, 28 Aug. 2012, https://sgp.fas.org/crs/misc/R42696.pdf.

Economic Benefits of Increasing Electric Grid Resilience to Weather Outages, U.S. Department of Energy and President's Council of Economic Advisors, Aug. 2013, https://www.energy.gov/sites/prod/files/2013/08/f2/Grid%20Resiliency%20Report_FINAL.pdf.

Cost Impact: The code change proposal will increase the cost of construction.

Commercial analysis for a similar measure showed no incremental costs. Some costs are expected on residential. Overall savings potential impacts are outlined in reason statement - costs of outages and other grid infrastructure are passed on to consumers, it just isn't as recognizable on an energy bill. Measure will also allow consumers the ability to install energy storage in the future, removing retrofit costs, and allowing homeowners to have resiliency onsite, which have quantifiable health, wellness, and comfort co-benefits.

REPI-115-21

IECC®: SECTION 202 (New), R103.2.4 (New), R105.2.5 (New), R404.4 (New), R404.4.1 (New), R404.4.2 (New), R404.4.2.1 (New), R404.4.2.2 (New), R404.4.2.3 (New), R404.4.2.4 (New), TABLE R405.2, TABLE R406.2

Proponents: Joseph H. Cain, P.E., Solar Energy Industries Association (SEIA), Solar Energy Industries Association (SEIA) (JoeCainPE@gmail.com)

2021 International Energy Conservation Code

Add new definition as follows:

ENERGY STORAGE SYSTEM (ESS) .
One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time.

Add new text as follows:

R103.2.4 Energy storage-ready system.
The construction documents shall provide the location of pathways for routing of raceways or cable from the *energy storage system* to the electrical service panel, from the panelboard to dedicated branch circuits, the location and layout of a designated area for electrical *energy storage system* and system isolation equipment.

R105.2.5 Electrical rough-in inspection.
Inspections at electrical rough-in shall verify compliance as required by the code and the approved plans and specifications as to the locations, distribution, and capacity of the electrical system. Where the energy storage system area is not in the same space as the electrical panel, inspections shall verify conduit or pre-wiring from the energy storage ready zone to the electrical panel.

R404.4 Electrical energy storage system.
One- and two-family dwellings, townhouse units, and Group R-3 occupancies shall either comply with R404.4.1 or R404.4.2. Buildings with Group R-2 and R-4 occupancies shall comply with C405.15.

R404.4.1 Electrical energy storage energy capacity.
Each building shall have a ESS with a minimum rated energy capacity of 5 kWh with a minimum of four ESS supplied branch circuits.

R404.4.2 Electrical energy storage system ready.
Each building shall be energy storage ready area in accordance with Sections R404.4.2.1 through R404.2.2.4.

R404.4.2.1 Energy storage system space.
Interior or exterior space with dimensions and locations in accordance with Section R328 of the *International Residential Code* and Section 110.26 of NFPA 70 shall be reserved to allow for the future installation of an *energy storage system*.

R404.4.2.2 System Isolation Equipment Space.
Space shall be reserved to allow for the future installation of a transfer switch within 3 feet (305 mm) of the main panelboard. Raceways shall be installed between the panelboard and the transfer switch location to allow the connection of an *ESS*.

R404.4.2.3 Panelboard with backed-up load circuits.
A dedicated raceway from the main service to a panelboard that supplies the branch circuits served by the *ESS*. All branch circuits are permitted to be supplied by the main service panel prior to the installation of an *ESS*. The trade size of the raceway shall be not less than one inch. The panelboard that supplies the branch circuits shall be labeled "Subpanel reserved for future battery energy storage system to supply essential loads."

R404.4.2.4 Branch circuits served by ESS.

A minimum of four branch circuits shall be identified and have their source of supply collocated at a single panelboard supplied by the *ESS*. The following end uses shall be served by the branch circuits:

1. A refrigerator.
2. One lighting circuit near the primary egress.
3. A sleeping room receptacle outlet.

Revise as follows:

TABLE R405.2 REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

SECTION[a]	TITLE
General	
R401.2.5	Additional energy efficiency
R401.3	Certificate
Building Thermal Envelope	
R402.1.1	Vapor retarder
R402.2.3	Eave baffle
R402.2.4.1	Access hatches and doors
R402.2.10.1	Crawl space wall insulation installations
R402.4.1.1	Installation
R402.4.1.2	Testing
R402.5	Maximum fenestration U-factor and SHGC
Mechanical	
R403.1	Controls
R403.3, including R403.3.1, except Sections R403.3.2, R403.3.3 and R403.6	Ducts
R403.4	Mechanical system piping insulation
R403.5.1	Heated water circulation and temperature maintenance systems
R403.5.3	Drain water heat recovery units
R403.6	Mechanical ventilation
R403.7	Equipment sizing and efficiency rating
R403.8	Systems serving multiple dwelling units
R403.9	Snow melt and ice systems
R403.10	Energy consumption of pools and spas

R403.11	Portable spas
R403.12	Residential pools and permanent residential spas
Electrical Power and Lighting Systems	
R404.1	Lighting equipment
R404.2	Interior lighting controls
R404.4	Electrical energy storage system

a. Reference to a code section includes all the relative subsections except as indicated in the table.

TABLE R406.2 REQUIREMENTS FOR ENERGY RATING INDEX

SECTION[a]	TITLE
General	
R401.2.5	Additional efficiency packages
R401.3	Certificate
Building Thermal Envelope	
R402.1.1	Vapor retarder
R402.2.3	Eave baffle
R402.2.4.1	Access hatches and doors
R402.2.10.1	Crawl space wall insulation installation
R402.4.1.1	Installation
R402.4.1.2	Testing
Mechanical	
R403.1	Controls
R403.3 except Sections R403.3.2, R403.3.3 and R403.3.6	Ducts
R403.4	Mechanical system piping insulation
R403.5.1	Heated water calculation and temperature maintenance systems
R403.5.3	Drain water heat recovery units
R403.6	Mechanical ventilation
R403.7	Equipment sizing and efficiency rating
R403.8	Systems serving multiple dwelling units
R403.9	Snow melt and ice systems

R403.10	Energy consumption of pools and spas
R403.11	Portable spas
R403.12	Residential pools and permanent residential spas
Electrical Power and Lighting Systems	
R404.1	Lighting equipment
R404.2	Interior lighting controls
R404.4	Electrical energy storage
R406.3	Building thermal envelope

a. Reference to a code section includes all of the relative subsections except as indicated in the table.

Reason: As deployment of distributed energy resources such as solar photovoltaic systems increases, so does the need for distributed energy storage resources to minimize grid impacts. Solar PV systems are known to be an intermittent power source, with peak power generation at mid-day and reduced power generation in the late afternoon and into early evening. Energy storage systems such as Battery Energy Storage Systems charge during the peak PV generation hours, and begin to discharge in late afternoon and evening as the sun sets. Considering these energy storage systems reduce the backfeed into the grid, they help with grid management, as well as provide a financial buffer for differing net energy metering policies by states and utilities. In an ideal case, a home with PV and ESS can be nearly "invisible" to the grid.

In recent news we have seen extended grid power outages in multiple regions of the U.S. owing to severe environmental events such as fire, wind, hurricanes, and flooding. Many homeowners in regions with a history of recurring grid power outages have acquired gas-powered generators to serve as their backup power source. People need power to keep food from spoiling in refrigerators and freezers, as well as to refrigerate their medicines. Many people need to power medical devices, which can be as common and simple as CPAP machines. And of course, basic communications means a need for charging cell phones and other electronics.

Solar photovoltaic systems paired with battery storage systems can operate to serve these basic needs indefinitely. Stand-alone battery storage systems can serve short-term needs. Manufacturers of electric vehicles are providing more options for connecting vehicle batteries to home electrical systems.

The cost of battery storage systems is declining. As the market expands, the cost will continue to drop. During the years the 2024 IECC will be in effect, it will help to have storage readiness, to provide for reduced cost of ESS installation, and dedicated circuits to direct backup power where it is needed the most.

This proposal is based on the ESS Ready provisions that will appear in California's 2022 Building Energy Efficiency Standards as a mandatory measure. The specific requirements -- and the cost consideration -- have been prepared by the California Energy Commission.

Cost Impact: The code change proposal will increase the cost of construction.

The proposed requirements are based on mandatory measures in California Energy Commission's 2022 Building Energy Efficiency Standards. The goal of the CEC was an estimated cost for ESS readiness of no more than about $200 to $250 per home, which will vary by location and builder. For any homes that have ESS installed in the future, ESS readiness will save more money at the time of installation than money spent in the cost of readiness.

Bring Your Own Device

Get up to $10,500 toward your home battery purchase when you enroll and share your stored energy with GMP! You choose the battery. You choose your installer. You choose the amount to enroll.

Join now!

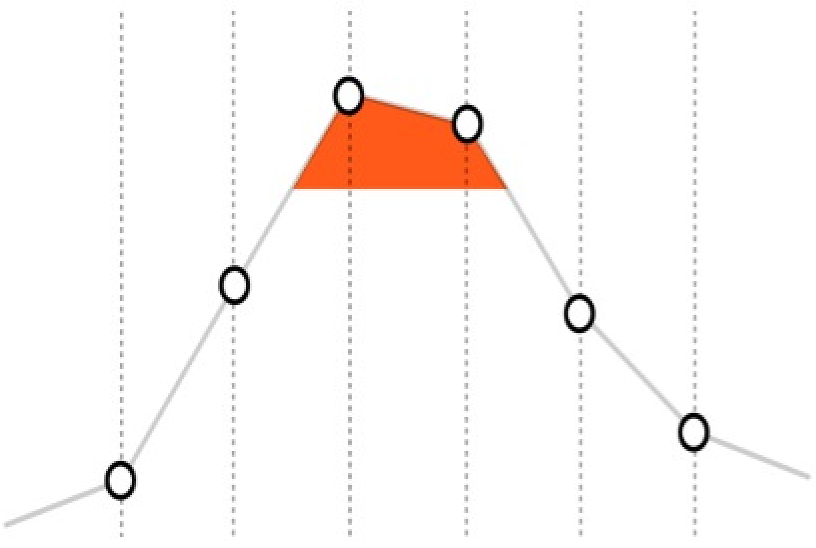
We designed our BYOD program in partnership with Renewable Energy Vermont. You choose the amount of energy you'd like to enroll, and then get enhanced incentives – the biggest upfront payments of any utility in the country. You're saving money, and helping all GMP customers save, too!

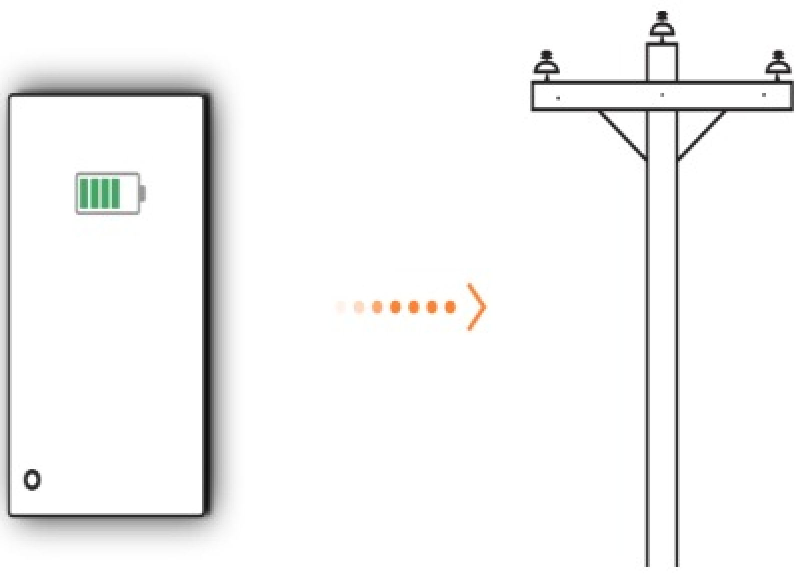
Work with a company of your choice to buy your battery, and once you have it, you can start the enrollment process by going to the Enroll Now section below.

Have Questions?

- Renewable Energy Vermont or (802) 229-0099
- GMP (888) 835-4672

How it Works





What is an energy peak?

Peaks are the times when there is the greatest power demand on the grid (for example, 5pm on a steamy July evening). Energy peaks not only put a strain on the grid, but energy used then can be more expensive and dirty, and peaks are one of the biggest costs all GMP customers pay. Reducing demand then saves everyone money.

How do I help?

GMP is pioneering the use of stored energy to cut carbon and costs for all customers by cutting the amount of grid power needed during peaks. Joining GMP's BYOD program adds your stored energy to that of hundreds of other battery and EV charger owners – and GMP's growing network of stored energy helps offset what's needed to meet power demand during those critical times.

Benefiting you and Vermont

You save money by joining GMP's BYOD program. If you enroll a battery for ten years, we'll give you an upfront payment of $850 per kW of storage enrolled for three hour discharge, $950 per kW for four hour discharge. If you're retrofitting an existing solar system in one of the areas of the state where extra storage will help the grid most, we'll give you an extra $100 per kW. Plus, get the benefit of knowing your device is helping to cut carbon emissions and costs for all GMP customers!

Eligible Devices

Batteries

Home battery systems used for battery back-up.

+

Enroll Now

If you have an eligible device, enrolling in the program is fast and easy.

(*Enrollment for Enphase batteries can be completed on the Enphase Enlighten App)

Enroll Now

Solar battery incentives and rebates

Written by: Spencer Fields
Updated Apr 17, 2023 6 min read

Table of contents

- The storage investment tax credit
- State level solar battery incentives
- Example: Tesla Powerwall battery cost in California
- Additional storage incentives to keep in mind

Similar to solar energy, if you're considering investing in energy storage, there are incentives and rebates available that can help lower your costs. From federal incentives to state rebates to utility programs to solar-adjacent incentives, here are a few ways that storage incentives can help fray the costs of installing a battery.

As a reminder, at EnergySage, we're solar and storage experts, not tax experts. Tax codes are complicated, so please consult your tax advisor for a final determination of whether you'll be eligible to receive tax incentives for solar and storage.

The storage investment tax credit

The best incentive for storage is the federal investment tax credit (ITC). The exact same ITC that provides a 30 percent credit on the cost of your solar system provides that same benefit to storage systems under certain conditions.

Due to the **Inflation Reduction Act**, as of 2023, all residential storage systems over 3 kilowatt-hours (kWh) in size are eligible for the ITC. Prior to 2023, batteries needed to be paired with solar and had to be powered by solar at least 75 percent of the time for five years in order to qualify for the ITC. For a typical home energy storage system, the ITC can reduce the cost of your system by $3,000 to $5,000.

For commercial properties, storage projects must be larger than 5 kWh in size and meet certain prevailing wage and apprenticeship requirements (the same as **commercial solar projects**) to receive the full 30 percent ITC. The ITC for commercial storage is only guaranteed until 2025.

State level solar battery incentives

Increasingly, a number of states now also offer energy storage rebates to encourage the growth of the storage industry. These incentives typically take one of two forms: an upfront rebate or a performance-based incentive. Rebate programs are exactly what they sound like: states provide a direct cash payment after your battery is installed and connected to the grid. To date, state-level performance incentives for storage have typically been added to solar incentives.

California

Perhaps the best-known state-level storage incentive in the US is California's **Self-Generation Incentive Program (SGIP)**. SGIP provides a dollar per kilowatt ($/kW) rebate for the energy storage installed. While the rebate level steps down as more homes and businesses add storage in California, in 2020, **the state updated SGIP** to provide more funding and higher levels of incentives for customers in high fire threat districts and for low-income customers to help provide emergency backup power to those that need it most.

Maryland

Maryland is one of the only, if not the only, states in the country currently offering a storage-specific tax credit for its residents. The tax credit covers 30% of the cost of your storage system, up to $5,000 for residential batteries and up to $150,000 for commercial batteries. But act fast–this incentive is currently only authorized through the 2022 tax year and there's a cap on the level of funding available each year.

Massachusetts

Massachusetts offers a storage adder under the commonwealth's solar-focused SMART incentive program. If you're installing storage with a solar panel system, the per-kilowatt-hour incentive you're paid for solar production will actually increase as a result of purchasing storage as well. (Yes, it's interesting that the storage incentive pays you based on solar production, but we're not complaining.)

New York

While the state of New York has significant policy targets for energy storage (3 gigawatts by 2030!!), and while there are plenty of incentives for commercial-scale storage, the only incentive currently available for homeowners in the state at present is for residents of Long Island. This program offers a similar rebate-style incentive to California's SGIP program, with the state currently offering a $250 per kilowatt rebate to Long Island residents. But this incentive won't last forever–as of early 2021, 70% of the funds were already committed.

Example: Tesla Powerwall battery cost in California

As an example of how solar battery incentives can influence the cost you pay, let's take a Tesla Powerwall installation in California. You can read our article about **the SGIP battery incentive** for more in-depth information, but here's how the costs play out once everything is all said and done:

Component	Estimated Cost
Powerwall battery	$6,700
Installation cost	$2,000 to $4,000
Shipping, components, and fees	$3,000 to $4,000
SGIP value	-$2,700
ITC value	-$3,040 to $3,820
Total cost (approximate)	$5,960 to $8,180

Especially in a state like California, rebates and incentives can save you significant money on a solar plus storage installation! As solar batteries only become more popular, it's likely that incentives like SGIP will continue to receive funding, and also will likely pop up in other states.

Additional storage incentives to keep in mind

Beyond states taking steps to encourage greater adoption of energy storage technologies, some utilities are now also offering incentives to home and business owners who install storage. To date, most of these utility-specific storage incentives are in the Northeast, between the ConnectedSolutions program and Green Mountain Power's storage programs.

The ConnectedSolutions program

Utility customers of Eversource or National Grid in Connecticut, Massachusetts, New Hampshire, and Rhode Island can participate in the ConnectedSolutions program, a demand response-style incentive that pays you an annual incentive for access to the stored energy in your battery. The incentive structure is designed with two key things in mind: first, it's designed to not pull from your battery if a major storm event is on its way so that you'll always have backup power when you need it; and, second, the incentive is designed to cover the cost of your battery in five years, meaning the incentive will ultimately pay you to have a battery over the ten years of the incentive program.

Green Mountain Power storage programs

While Vermont doesn't have any state-specific storage incentives, their primary utility–Green Mountain Power–has been a pioneer for residential energy storage in the US. In fact, Green Mountain Power offers a few different programs for energy storage: a bring-your-own-device program that provides a rebate for whatever battery you want to install, as well as a **Tesla Powerwall** Pilot program.

Bylaws for the International Code Council, Inc.
A Delaware Nonprofit Nonstock Corporation
Effective December 10, 2021

ARTICLE I — NAME AND OBJECTIVES

1.1 Name - This organization shall be known as the International Code Council, Inc., hereinafter in these Bylaws referred to as the "Council" or the "Corporation".

1.2 General Purposes - The Council is a nonprofit nonstock corporation and is not organized for the private gain of any person. The Corporation is organized exclusively as an organization described in Section 501(c)(6) of the Internal Revenue Code of 1986, as amended, or the corresponding provision in any future United States internal revenue law (the "Code"). Notwithstanding any other provision herein, the Corporation shall not engage in a regular business activity of a kind ordinarily carried on for profit and shall not carry on any other activity not permitted to be carried on by a corporation exempt from federal income tax under Section 501(c)(6) of the Code. It is organized under the Delaware General Corporation Law for public and charitable purposes. Such purposes specifically include:

With respect to buildings and structures: (a) the lessening of burdens of government through the development, maintenance and publication of model statutes and standards for the use by federal, state and local governments in connection with the administration of building laws and regulations, and (b) the lessening of the burdens of government through the performance of certain services for the benefit of federal, state and local governments in connection with the administration of building law and regulation.

1.3 Principal Office - The Corporation shall have and continuously maintain a registered office in the State of Delaware and a registered agent whose principal business office is identical with such registered office.

ARTICLE II — MEMBERSHIP

2.1 Categories of Membership - The Council shall have the following categories of voting membership:

2.1.1 Governmental Member - A Governmental Member shall be a governmental unit, department or agency engaged in the administration, formulation, implementation or enforcement of laws, ordinances, rules or regulations relating to the public health, safety and welfare. Each Governmental Member shall designate its Primary Representative who will receive benefits of membership in the Council on behalf of the Governmental Member as determined by the Board of Directors from time to time.

2.1.1.1 Governmental Member Voting Representatives - Each Governmental Member shall exercise its right to vote through its designated Governmental Member Voting Representatives, and shall be entitled to the number of Governmental Member Voting Representatives as specified in Table 2.1.1.1. Governmental Member Voting Representatives shall be designated in writing, by the Governmental Member, and shall be employees or officials of the Governmental Member or departments of the Governmental Member, provided that each of the designated voting representatives shall be an employee or a public official actively engaged either full or part time, in the administration, formulation, implementation or enforcement of laws, ordinances, rules or regulations relating to the public health, safety and welfare. The designation of a Governmental Member Voting Representative may be changed by the Governmental Member, in writing, from time to time.

Table 2.1.1.1	
Population	Voting Representatives
0 to 50,000	4
50,001 to 150,000	8
Over 150,000	12

2.1.2 Honorary Member - An individual who has rendered outstanding service to the Council, and whose name shall be proposed by the Board of Directors and confirmed by a majority vote of the Voting Members, as defined in Article III of these Bylaws, at an Annual Business Meeting.

2.1.3 Non-voting categories: The Board of Directors shall establish the non-voting categories of membership as may be necessary for the adequate representation of all parties interested in association with the International Code Council. Non-voting categories shall provide for membership of individuals and corporate entities and shall include, but not necessarily be limited to, employees of governmental units, design professionals, corporations, educational institutions, not-for-profit associations, and other individuals interested in the purposes and objectives of the Council.

2.2 Classification by the Board of Directors - All applications for membership shall be subject to classification by and approval of the Board of Directors. Applicants shall be eligible for membership on approval of the membership application by the Board and on timely payment of such dues and fees as the Board may fix from time to time. This authority may be delegated by the Board of Directors to the Chief Executive Officer.

2.3 Dues - The annual dues for each membership category shall be established by the Board of Directors. In no case shall a person be considered in good standing, or be qualified to exercise membership participation or entitled to receive any privilege of membership, who is default in payment of dues for three months, except as may be extended by the Board of Directors.

2.4 Termination - A membership in the Council shall terminate on occurrence of any of the following events:

(a) Resignation of the member;
(b) Expiration of the period of membership, unless the membership is renewed on the renewal terms fixed by the Board;
(c) The member’s failure to pay dues, fees or assessments, as set forth by the Board, after they are due and payable;
(d) Any event that renders the member ineligible for membership, or failure to satisfy membership qualifications.

2.5 Nonliability of Members - A member of the Corporation shall not be personally liable, solely because of membership, for the debts, obligations, or liabilities of the Corporation.

ARTICLE III – VOTING MEMBERS

Only Governmental Member Voting Representatives and Honorary Members (collectively, the “Voting Members”) shall have the right to vote on any matters under these Bylaws, including but not limited to, the right exercised through those individuals eligible to vote for the election of a Director or Directors, or on a disposition of all or substantially all of the assets, or on a dissolution, or on any changes to the Articles of Incorporation or the Bylaws. Only the Voting Members shall be permitted to make motions and to vote on any issue at the Annual Business Meeting, special meetings and written consents. Voting by proxy is not permitted. Any person designated as a Governmental Member Voting Representative of more than one Governmental Member or who is also an Honorary Member shall be entitled to only one vote.

ARTICLE IV —GEOGRAPHICAL REPRESENTATION

4.1 Limitations - To encourage wide geographical representation, no more than two Governmental Member Voting Representatives designated by Governmental Members located in the same state may serve simultaneously on any one committee nor may more than two Governmental Member Voting Representatives designated by Governmental Members located in the same state serve simultaneously on the Board of Directors.

4.2 Distribution - To provide for geographical representation on the Board of Directors, the following sections are established:

Table 4.2	
Section A	Alaska, British Columbia, Washington, Oregon, California, Nevada Hawaii
Section B	Idaho, Montana, Wyoming, North Dakota, South Dakota, Minnesota, Iowa, Wisconsin, Alberta, Saskatchewan, Manitoba
Section C	Utah, Arizona, Colorado, New Mexico, Oklahoma, Texas, Arkansas, Mexico
Section D	Nebraska, Kansas, Missouri, Illinois, Michigan, Indiana, Ohio, Kentucky, Ontario
Section E	Maine, Vermont, New Hampshire, New York, Massachusetts, Connecticut, Rhode Island, Pennsylvania, New Jersey, Delaware, Maryland, West Virginia, Virginia, Washington, D.C., Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland
Section F	Tennessee, Louisiana, Mississippi, Alabama, North Carolina, South Carolina, Georgia, Florida, the Caribbean

ARTICLE V — BOARD OF DIRECTORS

5.1 Governing Body - Subject to the limitations of the Certificate of Incorporation, these Bylaws and the laws of the State of Delaware, all corporate powers shall be exercised by the Board of Directors. The Board of Directors shall be composed of the following: President, Vice President, Secretary/Treasurer, the most Immediate Past President eligible; eight (8) Directors-at-Large, and six (6) Directors, one elected from each Section ("Sectional Directors"). Each member of the Board of Directors shall be a Governmental Member Voting Representative with the exception of the Immediate Past President. All members of the Board of Directors, except as provided in the Bylaws, shall be elected for a term of three years, and shall not serve for more than two consecutive full terms. However, nothing in this section shall preclude a Director initially appointed to a one or two year term, or appointed or elected to fill an unexpired term, from being elected to two subsequent full term(s). Each Sectional Director shall be and remain, throughout their term, a Governmental Member Voting Representative for a Governmental Member within the applicable Section.

5.2 Resignation, Disqualification and Vacancies - If the office of any director becomes vacant by reason of death, resignation, disqualification, removal or other cause, the President (or in the case the office of President is vacant, the Vice President) shall nominate a successor for the unexpired term and until their successor is elected and qualified at the next Annual Business Meeting, subject to the ratification of the Board of Directors. Any director, who ceases to be designated Governmental Member Voting Representative, for a period exceeding 60 days, shall automatically forfeit their position as a director.

5.2.1 Military Leave - Board members called to and serving active military duty shall not thereby become disqualified as a member of the board.

5.3 Removal of a Director - Any director may be removed from office upon the affirmative vote of two-thirds of the Voting Members present and voting at a duly held meeting of the members at which a quorum is present.

5.4 Election - Except as provided herein, the Board of Directors shall establish policies governing the conduct of elections and copies thereof shall be provided to any member requesting a copy. At each Annual Business Meeting a majority of the Voting Members present and voting shall elect such number of directors as necessary to fill vacancies of directors whose terms expire as of such meeting.

5.5 Quorum - At all meetings of the Board of Directors, two-thirds of the voting directors then in office shall constitute a quorum for transaction of business, and the act of a majority of the voting directors present at the meeting at which there is a quorum shall be the act of the Board of Directors, except as may be otherwise specifically provided by the law of the State of Delaware or by the certificate of incorporation. If a quorum shall not be present at any meeting of the Board of Directors, the directors present there at may adjourn the meeting from time to time, without notice other than announcement at the meeting until a quorum shall be present.

5.5.1 Written Action - Unless otherwise restricted by the certificate of incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors may be taken without a meeting, if all voting members of the Board of Directors consent thereto in writing, and the writing or writings are filed with the minutes or proceedings of the Board of Directors.

5.5.2 Participation in Meetings by Conference Telephone - Members of the Board of Directors may participate in a meeting through use of conference telephone, electronic video screen communication, or other communication equipment if all of the following apply: (1) each director participating in the meeting can communicate with all of the other directors concurrently, (2) each director is provided the means of participating in all matters before the Board of Directors, including the capacity to propose, or to interpose an objection, to a specific action to be taken by the corporation and (3) the corporation adopts and implements some means of verifying both that (i) a person participating in the meeting is a director or other persons entitled to participate in the Board of Directors meeting and (ii) all actions of, or votes by, the Board of Directors are taken or cast only by the directors and not by persons who are not directors.

5.6 Meetings of the Board of Directors –

5.6.1 General - The Annual Meeting of the Board of Directors shall be held in conjunction with the time and place of the Annual Business Meeting. The Board of Directors shall meet at such other times and in such places as it may determine, and otherwise upon the call of the President or of a majority of the Board of Directors. Motions and votes at such meetings shall be duly recorded.

5.6.2 Organizational Meeting - At the conclusion of the Annual Business Meeting, the Board of Directors shall hold an organizational meeting at which time it may transact any necessary business, including any appointments pertinent to the ongoing business.

5.6.3 Closed Meetings - A meeting or portion of a meeting of the Board of Directors may be closed to persons not serving on the Board of Directors by a vote of the Board of Directors when matters that are sensitive to the purpose of the Council, including but not limited to budget, personnel, legal actions, and proprietary practices or materials are to be discussed. The Board of Directors may invite persons who are not members of the Board of Directors to attend portions, or all, of such closed meetings in an advisory capacity.

5.7 Authority - The Board of Directors may adopt any policy or procedure, or authorize any administrative action in the best interest of the Council and its membership.

5.8 Emergency Actions - In the event that the Board of Directors determines an emergency amendment to any International Code® or standard or supplements thereto is warranted, the same may be adopted by the Board of Directors. Such action shall require an affirmative vote of at least two-thirds of the Board of Directors. The membership shall be notified, within ten days after the Board of Directors' official action, of any emergency amendment. At the next Annual Business Meeting any emergency amendment shall be presented to the members for ratification by a majority of the Voting Members present and voting.

ARTICLE VI — OFFICERS

6.1 Officers and Election - The Officers of the Council shall consist of a President, Vice President, Secretary/Treasurer (who shall be the chief financial officer of the Corporation), and Immediate Past President. Election of Officers for the ensuing year shall be held at the Annual Business Meeting, and Officers shall be elected from the Board of Directors by the Voting Members present and voting at the Annual Business Meeting, with the exception of the Immediate Past President. At no time shall more than one Officer located in any one state serve at the same time. Such Officers shall take office beginning at the conclusion of the Annual Business Meeting and shall serve until adjournment of the following Annual Business Meeting or until their successors are duly elected and qualified. Officers' tenure shall be limited to one single, full-year term in each office. Officers shall not act in their official capacity by proxy.

6.2 Duties of President - The President shall preside at the Annual Business Meeting, special meetings of the members and at meetings of the Board of Directors. The President shall be a regular member and preside at meetings of the Executive Committee and shall be an ex officio nonvoting member of all other committees. The President shall have other such duties as are prescribed by the Board of Directors or these Bylaws.

6.3 Duties of the Vice President - The Vice President shall act and perform the duties of the President during the President's absence from any meetings of this Corporation or the Board of Directors, or by a vote of the Board of Directors in case of disability of the President, and shall assist the President in the conduct of the office of President.

6.4 Duties of the Secretary/Treasurer - The Secretary/Treasurer shall be responsible for keeping the minutes and records of meetings, maintaining correspondence, receiving and disbursing funds, supervising financial affairs, approving expenditures as provided by resolution of the Board of Directors, and generally performing such official duties of a Secretary/Treasurer of a corporation. The Board of Directors may designate the Chief Executive Officer as the official agent for all or portions of such duties.

6.5 Resignation, Disqualification and Vacancies - If the position of any officer becomes vacant by reason of death, resignation, disqualification, removal or other cause, the President (or in the case the office of President is vacant, the Vice President) shall nominate a successor for the unexpired term and until their successor is elected and qualified at the next Annual Business Meeting, subject to the ratification of the Board of Directors. Any officer who ceases to be a member of the Board of Directors shall automatically forfeit their position as an officer.

ARTICLE VII — EXECUTIVE COMMITTEE

7.1 Executive Committee Members - There shall be an Executive Committee of the Board of Directors. The members of the Executive Committee shall be composed of the President, the Vice President, the Secretary/Treasurer and the Immediate Past President.

7.2 Powers and Duties - The Executive Committee shall have authority to act in such matters as are specifically delegated by the Board of Directors and take action on such matters delegated, as deemed prudent in furtherance of the general objectives of the Council. If an urgent situation arises and the President determines a matter requires immediate action or a timely decision, and it is not practical to convene a quorum of the Board of Directors, the Executive Committee shall have the authority to act on behalf of the Board unless otherwise specifically provided. The Executive Committee and the Chief Executive Officer shall meet as necessary, between meetings of the Board of Directors, at a date and place designated by the President. Actions of the Executive Committee shall be reported to the Board of Directors without delay.

ARTICLE VIII — ADMINISTRATION

8.1 Chief Executive Officer - The Board of Directors shall appoint a Chief Executive Officer and such other officers as it shall designate, who shall serve at the pleasure of the Board. The Board of Directors shall fix the Chief Executive Officer's compensation. The Chief Executive Officer shall manage the affairs of the Council within the policies established by the Board of Directors and shall perform such other duties as may be assigned by the Board of Directors to the Chief Executive Officer. Neither the Chief Executive Officer nor any other officer appointed by the Board shall have a vote in the proceedings of this Council or of the Board of Directors.

ARTICLE IX — MEETINGS OF THE MEMBERS

9.1 Annual Business Meeting - A regular meeting of the Voting Members, herein referred to as the Annual Business Meeting shall be held each calendar year at a time and place designated by the Board of Directors.

9.1.1 Order of Business Meeting - The items of business at the Annual Business Meeting shall include, but not be limited to, the election of directors and officers, consideration of proposed amendments to these bylaws, and any other proper items of business as determined by the Board of Directors.
The order of business as announced at the meeting may be changed by a majority vote of the Voting Members present and voting at the Annual Business Meeting.

9.2 Special Meetings - Special Meetings of the Voting Members may be called at any time by the President with approval of two-thirds of the Board of Directors. The President shall call a special meeting upon the receipt of a valid petition, specifying purpose of the special meeting and bearing the names, titles, addresses, and signatures of five percent of the Voting Members.

9.3 Quorum - A quorum for the transaction of business at any annual or special meeting shall consist of 100 Voting Members.

9.4 Meeting Notice - A notice of the time and place of a special meeting shall be published not less than 60 days prior to the start of the special meeting. A notice of the time and place of the Annual Business Meeting shall be published not less than 60 days prior to the start of the Annual Business Meeting.

9.5 Eligibility to Vote - Voting Members in good standing under these Bylaws shall be entitled to vote at any meeting of Voting Members. Each Voting Member entitled to vote may cast one vote on each matter submitted to a vote of the Voting Members.

ARTICLE X — CODE DEVELOPMENT PROCESS

The Board of Directors shall adopt a policy, which may be amended from time to time, on the Code Development Process for the International Codes®.

ARTICLE XI — COMMITTEES

11.1 Committees, Councils - The Board of Directors may establish committees and councils as it shall deem advisable. The President shall, with the concurrence of the Board, appoint or replace all members of committees and councils not otherwise specifically provided for herein.

11.2 Board Authority - Any member of any committee or council may be removed by the Board at any time, subject to the limitations of the laws of the State of Delaware, and subject to any limitations of the Certificate of Incorporation or Bylaws regarding actions which require approval of the Voting Members. Each committee or council shall be under the direction of the Board and shall have such authority as shall be delegated and prescribed by the Board.

11.3 Nominating Committee - There shall be a Nominating Committee chaired by the Immediate Past President and consisting of Governmental Member Voting Representatives and/or Honorary Members having a reasonably distributed geographical representation. The Board of Directors shall establish policies governing the Nominating Committee and the conduct of elections. The Nominating Committee, excluding the Chairperson, shall have no more than one Governmental Member Voting Representative or Honorary Member from any one state.

11.4 Meetings of Committees - Except as otherwise provided by these Bylaws, committees and councils shall comply with the policies established by the Board of Directors.

ARTICLE XII — CHAPTERS

12.1 Organization - The Council shall encourage and recognize the establishment of regional, state, student, professional, local area and international chapter organizations of its members, the purpose of which shall be the furtherance of the objectives of the Council. Applications for the establishment of a chapter, together with a copy of the proposed chapter Bylaws and a list of those who have agreed to become members of the chapter, shall be submitted to the Board of Directors for approval. The chapter shall be established upon approval by the Board of Directors.

12.2 Management - All chapters shall be managed in accordance with policies established by the Board of Directors.

ARTICLE XIII — AUDITING AND REPORTS

13.1 Fiscal Year - The fiscal year of the Council shall be as determined by the Board of Directors.

13.2 Audit - There shall be an audit of the activities and financial affairs of the Council at the end of each fiscal year by an independent auditor selected by the Chief Executive Officer with the advice and consent of the Board of Directors. Such audit shall be submitted to the Board of Directors.

ARTICLE XIV — INDEMNIFICATION, INSURANCE AND DIRECTOR LIABILITY

14.1 Definitions - For the purposes of this Article XIV, "agent" means any person who is or was a director, officer, employee, or other agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee, or agent of another foreign or domestic corporation, partnership, joint venture, trust, foundation, or other enterprise, or was a director, officer, employee, or agent of a foreign or domestic corporation which was a predecessor corporation of the Corporation or of another enterprise at the request of such predecessor corporation; "proceeding" means any threatened, pending, or completed action or proceeding, whether civil, criminal, administrative, or investigative; and "expenses" includes without limitation attorneys' fees and any expenses of establishing a right to indemnification under Sections 14.4 or 14.5(b) of these Bylaws.

14.2 Indemnification in Actions by Third Parties - The Corporation shall have power to indemnify any person who was or is a party to, or is threatened to be made a party to, any proceeding (other than an action by or in the right of the Corporation to procure a judgment in its favor, an action for which indemnification is prohibited under Delaware Law, or an action brought by the Attorney General or a person granted relator status by the Attorney General for any breach of duty relating to the assets held in charitable trust) by reason of the fact that such person is or was an agent of the Corporation, against expenses, judgments, fines, settlements and other amounts actually and reasonably incurred in connection with such proceeding if such person acted in good faith and in a manner such person reasonably believed to be in the best interests of the Corporation and, in the case of a criminal proceeding, had no reasonable cause to believe the conduct of such person was unlawful. The termination of any proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent shall not, of itself, create a presumption that the person did not act in good faith and in a manner which the person reasonably believed to be in the best interests of the corporation or that the person had reasonable cause to believe that the person's conduct was unlawful.

14.3 Indemnification in Actions by or in the Right of the Corporation - The Corporation shall have power to indemnify any person who was or is a party to, or is threatened to be made a party to, any threatened, pending or completed action by or in the right of the Corporation, or brought by the Attorney General or a person granted relator status by the Attorney General for breach of duty relating to assets held in charitable trust, to procure a judgment in its favor by reason of the fact that such person is or was an agent of the Corporation, against expenses actually and reasonably incurred by such person in connection with the defense or settlement of such action if such person acted in good faith, in a manner such person believed to be in the best interest of the Corporation, and with such care, including reasonable inquiry, as an ordinarily prudent person in a like position would use under similar circumstances. No indemnification shall be made under this Section 14.3:

(a) In respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the Corporation in the performance of such person's duty to the Corporation, unless and only to the extent that the court in which such proceeding is or was pending shall determine upon application that, in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for the expenses which such court shall determine;

(b) Of amounts paid in settling or otherwise disposing of a threatened or pending action, with or without court approval; or

(c) Of expenses incurred in defending a threatened or pending action which is settled or otherwise disposed of without court approval unless it is settled with the approval of the Attorney General.

14.4 Indemnification Against Expenses - To the extent that an agent of the Corporation has been successful on the merits in defense of any proceeding referred to in Sections 14.2 or 14.3 of these Bylaws or in defense of any claim, issue, or matter therein, the agent shall be indemnified against expenses actually and reasonably incurred by the agent in connection therewith.

14.5 Required Determinations - Except as provided in Section 14.4 of these Bylaws, any indemnification under this Article XIV shall be made by the Corporation only if authorized in the specific case, upon a determination that indemnification of the agent is proper in the circumstances because the agent has met the applicable standard of conduct set forth in Sections 14.2 or 14.3 of these Bylaws, by:

(a) A majority vote of a quorum consisting of Directors who are not parties to such proceeding; or

(b) The court in which such proceeding is or was pending upon application made by the Corporation or the agent or the attorney or other person rendering services in connection with the defense, whether or not such application by the agent, attorney, or other person is opposed by the Corporation.

14.6 Advance of Expenses - Expenses incurred in defending any proceeding may be advanced by the Corporation prior to the final disposition of such proceeding upon receipt of an undertaking by or on behalf of the agent to repay such amount unless it shall be determined ultimately that the agent is entitled to be indemnified as authorized in this Article XIV.

14.7 Other Indemnification - No agreement made by the Corporation to indemnify its (or its subsidiaries') Directors or Officers shall be valid unless such agreement is consistent with this Article XIV.

In the event of any inconsistencies between this Article XIV and any other provisions regarding indemnification of Directors and Officers by the Corporation, this Article XIV shall prevail. Nothing contained in this Article XIV shall affect any right to indemnification held by persons other than Directors and Officers.

14.8 Forms of Indemnification Not Permitted - No indemnification or advance shall be made under this Article XIV, except as provided in Section 14.4 or 14.5(b), in any circumstances where it appears:

(a) That it would be inconsistent with a provision of the Certificate of Incorporation, these Bylaws, or an agreement in effect at the time of the accrual of the alleged cause of action asserted in the proceeding in which the expenses were incurred or other amounts were paid, which prohibits or otherwise limits indemnification; or

(b) That it would be inconsistent with any condition expressly imposed by a court in approving a settlement.

14.9 Nonpaid Directors - Except as otherwise required under Delaware Law, there shall be no monetary liability on the part of, and no cause of action for damages shall be asserted against, any nonpaid Director, including any nonpaid Director who is also a nonpaid Officer of the corporation, based upon any alleged failure to discharge the person's duties as Director or Officer if the duties are performed in a manner that meets all of the following criteria:

(a) The duties are performed in good faith;

(b) The duties are performed in a manner such Director believes to be in the best interests of the Corporation; and

(c) The duties are performed with such care, including reasonable inquiry, as an ordinarily prudent person in a like position would use under similar circumstances.

14.10 Insurance - The Corporation shall have power to purchase and maintain insurance on behalf of any agent of the Corporation against any liability asserted against or incurred by the agent in such capacity or arising out of the agent's status as such whether or not the Corporation would have the power to indemnify the agent against such liability under the provisions of this Article XIV; provided, however, that the Corporation shall have no power to purchase and maintain such insurance to indemnify any agent of the Corporation for a violation that may not be indemnified under Delaware law.

14.11 Nonapplicability to Fiduciaries of Employee Benefit Plans - This Article XIV does not apply to any proceeding against any Director, investment manager, or other fiduciary of an employee benefit plan in such person's capacity as such, even though such person may also be an agent of the Corporation as defined in Section 14.1 of these Bylaws. The Corporation shall have power to indemnify such Director, investment manager, or other fiduciary to the extent permitted under Delaware Law.

If any part of this Article XIV shall be found in any action, suit or proceeding to be invalid or ineffective, the validity and the effectiveness of the remaining parts shall not be affected.

ARTICLE XV — AUTHORITY AND BENEFIT

15.1 No Benefit to Any Individual - No part of the net earnings, if any, of this Council shall inure to the benefit of any member or other individual, and no gain, profit, or dividends shall ever be distributed to any member of this Council or inure to the benefit of any private persons, except as provided for in these Bylaws.

15.2 No Authority to Act - A member or chapter or any officer or member thereof shall not participate in or purport to have authority to act on behalf of or bind this Corporation to any legal obligations or liability, except as provided in these Bylaws, or resolution or policy of the Board of Directors.

ARTICLE XVI — DISSOLUTION

In the event of a dissolution or final liquidation of the Council, all of the remaining assets and property of the Council shall, after paying or making provision for the payment of all of the liabilities or obligations of the Council and for necessary expenses thereof, shall be transferred to one or more organizations which will (i) dedicate such assets and property to public and/or charitable purposes, and (ii) qualify as tax exempt organizations under Section 501(c)(3), Section 501(c)(4), or Section 501(c)(6) of the Code.

ARTICLE XVII — RULES OF ORDER

Roberts Rules of Order shall govern all aspects of a parliamentary nature unless otherwise provided for by the Board of Directors.

ARTICLE XVIII — AMENDMENTS TO BYLAWS

18.1 Proposals - Proposed amendments to these Bylaws, to be considered at an Annual Business Meeting, shall be signed by at least 100 Voting Members and shall be presented to the Board of Directors at least 90 days prior to the opening of an Annual Business Meeting or must be proposed through resolution of at least ten of the members of the Board of Directors at least 90 days prior to the opening of an Annual Business Meeting.

18.2 Notice of Actions - The Board of Directors shall cause proposed amendments to the Bylaws to be printed in the Annual Business Meeting notice. The Board of Directors shall present its recommendations for each proposal, including reasons for recommending such action(s), at the Annual Business Meeting. These proposed amendments may be discussed and amended at the Annual Business Meeting, and if passed by a two-thirds vote of those Voting Members present, shall be sent by ballot, as amended on the floor, to all Voting Members of the Council for ratification. To be considered, the ballots submitted by the Voting Members shall be received within 30 days of distribution. A two-thirds majority of the ballots submitted by Voting Members is required for adoption. The returns shall be certified by the President if the necessary majority for adoption is received.

18.3 Effective Date - The approved amendments become effective ten days thereafter unless otherwise provided in the amendment.

ARTICLE XIX — OPERATIVE DATE

19.1 General - These Bylaws shall be effective and operative upon the date on which the Merger of International Code Council, Inc. (California) and International Code Council, Inc. (Delaware) becomes effective.

19.2 Committees - Council committees in existence as of the operative date of these Bylaws to the extent permitted under these Bylaws shall not be deemed abolished by the adoption of these Bylaws, subject to the right of the Board of Directors to remove them.

19.3 Previous Action Remains in Effect - Upon the operative date of these Bylaws, all prior actions consistent with these Bylaws, whether pursuant to resolution or policy, of the Board of Directors, or any other committee, remain in effect until modified, repealed or otherwise superseded.

[History: The original ICC Bylaws were approved on July 24, 2002. Seven amendments were presented to the ICC membership at the ABM on September 27, 2004. The amendments were approved and ratified by letter ballot sent to all Governmental Members. The results of the election were certified by the ICC President on December 19, 2004, and became effective on December 29, 2004. One amendment was presented to the ICC membership at the ABM on September 27, 2005. The amendment was approved and ratified by letter ballot sent to all Governmental Members. The results of the election were certified by the ICC President on January 3, 2006 and became effective on January 13, 2006. Two amendments were presented to the ICC membership at the ABM on September, 2006. The amendment was approved and ratified by letter ballot sent to all Governmental Members. The results of the election were certified by the ICC President on April 5, 2007, and became effective on April 15, 2007. One amendment was presented to the ICC membership at the ABM on October 2, 2007. The amendment was approved and ratified by letter ballot sent to all Governmental Members. The results of the election were certified by the ICC President on January 23, 2008, and became effective on February 2, 2008. One amendment was presented to the ICC membership at the ABM on September 16, 2008. The amendment was approved and ratified by letter ballot sent to all Governmental Members. The results of the election were certified by the ICC President on January 12, 2009, and became effective on January 14, 2009. Two amendments were presented to the ICC membership at the ABM on November 3, 2009. One amendment was approved and ratified by letter ballot sent to all Government Member Voting Representatives. The results of the election were certified by the ICC President on February 26, 2010. Four amendments were presented to the ICC membership at the ABM on November 1, 2011. One amendment was approved and ratified by letter ballot sent to all Government Member Voting Representatives. The results of the election were certified by the ICC President on February 7, 2012. One amendment was presented to the ICC membership at the ABM on October 23, 2012. The amendment was approved and ratified by letter ballot sent to all Governmental Member Voting Representatives. The results of the election were certified by the ICC President on February 5, 2013. An amendment was presented to the ICC membership on October 22, 2020 as part of a statutory merger ballot. The statutory merger ballot and relative amendment were approved on November 12, 2020 and became effective on January 1, 2021. Two amendments were presented to the ICC membership at the ABM on September 20, 2021. The amendments were approved and ratified by electronic ballot sent to all Voting Members. The results of the election were certified by the ICC President on December 1, 2021 and became effective on December 10, 2021.**]**

WE ARE APARTMENTS

The country needs to build 4.3 million more apartments by 2035.

Our Resources

NATIONAL DATA

Apartments and their residents contribute $3.4 trillion to the U.S. economy annually, supporting 17.5 million jobs.

The number of affordable units (those with rents less than $1,000 per month) declined by 4.7 million from 2015 to 2020.

Our Resources

The apartment industry stands ready to work with urban, suburban and rural communities in every region to meet the housing demand of Americans across all income levels.

Our Resources

Hoyt Advisory Services; NMHC / NAA; 2021 American Community Survey, U.S. Census Bureau

MAY 16, 2022

President Biden Announces New Actions to Ease the Burden of Housing Costs

New Biden-Harris Administration Housing Supply Action Plan To Help Close the Housing Supply Gap in Five Years

As President Biden said last week, tackling inflation is his top economic priority. Today, President Biden is releasing a Housing Supply Action Plan to ease the burden of housing costs over time, by boosting the supply of quality housing in every community. His plan includes legislative and administrative actions that will help close America's housing supply shortfall in 5 years, starting with the creation and preservation of hundreds of thousands of affordable housing units in the next three years. When aligned with other policies to reduce housing costs and ensure affordability, such as rental assistance and downpayment assistance, closing the gap will mean more affordable rents and more attainable homeownership for Americans in every community. This is the most comprehensive all of government effort to close the housing supply shortfall in history.

The Plan will help renters who are struggling with high rental costs, with a particular focus on building and preserving rental housing for low- and moderate-income families. The Plan's policies to boost supply are an important element of bringing homeownership within reach for Americans who, today, cannot find an affordable home because there are too few homes for sale in their communities. And it will help reduce price pressures in the economy, as housing costs make up about one-third of of the market basket for inflation, as measured by the Consumer Price Index.

Under the Plan, the Administration will:

- ***Reward jurisdictions that have reformed zoning and land-use policies*** with higher scores in certain federal grant processes, for the first time at scale.
- ***Deploy new financing mechanisms to build and preserve more housing where financing gaps currently exist***: manufactured housing (including with chattel loans that the majority of manufactured housing purchasers rely on), accessory dwelling units (ADUs), 2-4 unit properties, and smaller multifamily buildings.
- ***Expand and improve existing forms of federal financing***, including for affordable multifamily development and preservation. This includes making Construction to Permanent loans (where one loan finances the construction but is also a long-term mortgage) more widely available by exploring the feasibility of Fannie Mae purchase of these loans; promoting the use of state, local, and Tribal government COVID-19 recovery funds to expand affordable housing supply; and announcing reforms to the Low Income Housing Tax Credit (LIHTC), which provides credits to private investors developing affordable rental housing, and the HOME Investment Partnerships Program (HOME), which provides grants to states and localities that communities use to fund a wide range of housing activities.
- ***Ensure that more government-owned supply of homes and other housing goes to owners who will live in them*** – or non-profits who will rehab them – not large institutional investors.
- Work with the private sector to address supply chain challenges and improve building techniques to ***finish construction in 2022 on the most new homes in any year since 2006***.

Today's rising housing costs are years in the making. Fewer new homes were built in the decade following the Great Recession than in any decade since the 1960s – constraining housing supply and failing to keep pace with demand and household formation. This mismatch between housing supply and housing demand grew during the pandemic. While estimates vary, Moody's Analytics estimates ↗ that the shortfall in the housing supply is more than 1.5 million homes nationwide. This shortfall burdens family budgets, drives up inflation, limits economic growth, maintains residential segregation, and exacerbates climate change. Rising housing costs have burdened families of all incomes, with a particular impact on low- and moderate-income families, and people and communities of color.

As his Action Plan reflects, President Biden believes the best thing we can do to ease the burden of housing costs is to boost the supply of quality housing. This means building more new homes and preserving existing federally-supported and market-rate affordable housing, ensuring that total new units do not merely replace converted or dilapidated units that get demolished.

The President continues to urge Congress to pass investments in housing production and preservation. One independent analysis ↗ of proposals in the House of Representatives-passed reconciliation bill found that the housing-related proposals would finance close to 1 million affordable homes. Key provisions, like the expansion of LIHTC and the Neighborhood Homes Tax Credit, have received bipartisan support. The President's 2023 Budget includes investments in housing supply that would lead to the production or rehabilitation of another 500,000 homes.

Building on the actions the Administration announced last September to build and rehabilitate 100,000 homes over the next three years, these legislative proposals and the new administrative steps being launched – in partnership with state, local, for-profit, and non-profit partners – can put the economy on a path to closing the housing supply gap in the next five years.

Providing Incentives for Land Use and Zoning Reform and Reducing Regulatory Barriers

One of the most significant issues constraining housing supply and production is the lack of available and affordable land, which is in large part driven by state and local zoning and land use laws and regulations that limit housing density. Exclusionary land use and zoning policies constrain land use, artificially inflate prices, perpetuate historical patterns of segregation, keep workers in lower productivity regions, and limit economic growth. Reducing regulatory barriers to housing production has been a bipartisan ↗ cause in a number of states throughout the country. It's time for the same to be true in Congress, as well as in more states and local jurisdictions throughout the country.

To that end, the Administration is taking the following *immediate steps*:

- **Leveraging transportation funding from the Bipartisan Infrastructure Law (BIL).** Earlier this year, the Administration began using federal transportation programs to encourage state and local governments to boost housing supply, where consistent with current statutory requirements. For example, this year, the U.S. Department of Transportation (DOT) released three funding applications for competitive grant programs totaling nearly $6 billion in funding that reward jurisdictions that have put in place land-use policies to promote density and rural main street revitalization with higher scores in the grant process. Today, the Administration is announcing that DOT will continue to include language encouraging locally driven land use reform, density, rural main street revitalization, and transit-oriented development in BIL and other transportation discretionary grant programs.
- **Integrating affordable housing into DOT Programs.** DOT will also issue updated program guidelines that increase financial support for Transportation Infrastructure Finance and Innovation Act (TIFIA) program projects that include residential development.
- **Including land use within the U.S. Economic Development Administration's (EDA) investment priorities**.EDA evaluates all project applications for its competitive grants to determine the extent to which they align with EDA's investment priorities ↗. EDA already includes transit-oriented and infill development within its "Environmentally-Sustainable Development" priority. Over the coming year and before its next round of grants, EDA will add language to its investment priorities to encourage economic development projects that enhance density in the vicinity of the development.

These actions build on the strategies that the *Administration has proposed and continues to call on Congress to pass*:

- **Unlocking Possibilities Program**. The Unlocking Possibilities Program, proposed by President Biden and included in the reconciliation bill passed by the House last year, would establish a new, $1.75 billion competitive grant program, administered by HUD, to help states and localities eliminate needless barriers to affordable housing production, including permitting for manufactured housing communities.
- **Housing Supply Fund grants to reduce affordable housing barriers.** Building on the Unlocking Possibilities Program, the President's 2023 Budget includes a mandatory spending proposal that would provide $10 billion in HUD Grants to Reduce Affordable Housing Barriers for states and localities that have already adopted Housing Forward policies and practices to address challenges to housing supply production constraints. While Unlocking Possibilities would help states and localities undertake reform, the Housing Supply Fund would reward those that have already made reforms by giving them additional funding to boost the affordability and maximize the benefits of their new policies. This funding would also support broader housing development activities, including environmental planning and mitigation, road infrastructure, and water or sewer infrastructure.

Piloting New Financing for Housing Production and Preservation

A second, significant barrier to increasing housing supply is a lack of attractive and low-cost financing for new construction and rehabilitation – particularly for units that are affordable. While the federal government currently offers a range of financing options for large multifamily development, market gaps exist for the construction and rehabilitation of single-family homes, 2-4-unit properties, ADU construction, manufactured and modular housing delivery, and smaller multifamily properties. Financing for these housing types has the potential to boost supply in constrained markets, and create location-efficient, modest density that can improve labor market outcomes and reduce greenhouse gas emissions – particularly when paired with state and local policies that remove barriers to where these kinds of housing can be located.

To that end, the Administration is taking the following *immediate steps*:

- **Supporting production and availability of manufactured housing.** The majority of people buying new manufactured homes rely on personal property financing (chattel lending) rather than conventional mortgages. This type of financing typically costs more than traditional mortgage financing due to higher interest rates and shorter loan terms. Freddie Mac has announced that it will complete a feasibility assessment for the requirements and processes necessary to support loan purchases of personal property manufactured housing loans. If FHFA approval is obtained, Freddie Mac will purchase these kinds of loans to assist with product design and support future loan purchase capabilities. Beyond personal property financing, both Fannie Mae and Freddie Mac (the Enterprises), in their Duty to Serve Plans, also released revised purchase targets for manufactured housing loans, which will have the effect of fostering greater liquidity for manufactured housing and increasing delivery of manufactured homes. Finally, recognizing the cost and development time savings provided by manufactured housing, HUD is making it easier to finance new units and helping manufacturers update their designs to meet changing consumer demands. This includes working to increase the usability of FHA's Title I loan program for Manufactured Housing, supporting greater securitization of Title I loans through Ginnie Mae's platform, updating the HUD Code to allow manufacturers to modernize and expand their production lines, and helping manufacturers respond to supply chain issues.
- **Scaling Up ADUs and piloting ADU and home renovation financing tools.** As the Biden-Harris Administration highlighted at a recent event ↗, a number of states and local jurisdictions have made land-use changes to permit the construction and renovation of ADUs, which can offset the cost of homeownership while expanding the supply of affordable rental housing. According to a recent independent analysis ↗, these kinds of state and local reforms – when combined with policies to improve financing options – could lead to the creation of more than 1 million ADUs in the next five years. In addition to zoning and land use changes, achieving that goal will require simpler and more affordable financing options for homeowners and builders. To that end, FHA and FHFA are exploring avenues to help lenders pilot and scale renovation and construction financing for ADUs—particularly for low- and moderate-income homeowners – in addition to new financing options for other single-family renovations and for 2-4-unit rehabilitation. FHA and FHFA will evaluate the credit performance of these loans to identify opportunities to add features and flexibilities to existing loan programs, expanding affordable financing options for homeowners and builders.
- **Boosting rural single-family construction.** USDA's Construction to Permanent program, allows approved lenders and homebuilders participating in the Single Family Housing Guaranteed Loan program to close both construction and permanent financing at the same time and receive a loan note guarantee before construction begins. This additional certainty has the effect of encouraging more single-family supply to be built more quickly in rural areas throughout the country. In the months ahead, USDA will educate lenders on the benefits of the program in order to improve program utilization, increase new construction in rural areas, and address obstacles that may be limiting use of the program.

These actions build on the strategies that the *Administration has proposed and continues to call on Congress to pass*:

- **Provide tax credits to build and rehabilitate 125,000 homes for low- and middle-income homebuyers.** The Neighborhood Homes Investment Act, proposed by the President and included in last year's reconciliation bill, would provide tax credits to encourage investment in the millions of homes that are otherwise too costly or difficult to develop or rehabilitate. It also requires that these homes are sold to owner-occupants, rather than large investors. This investment would boost the supply of affordable homes for low- and moderate-income homebuyers who have struggled with historically low availability of affordable, starter homes – and has received bipartisan support in Congress.
- **Provide Housing Supply Fund financing for affordable housing production to develop 500,000 units of housing for low- and moderate-income renters and homebuyers.** The President's 2023 Budget includes a proposal for $25 billion for Grants for Affordable Housing Production. These resources would be distributed to State and local housing finance agencies and their partners, territories, and Tribes, and would be focused on streamlining financing tools to reduce transaction costs and increase housing supply through multifamily and single-family housing units of modest density (up to 100 units per site). HUD will encourage grantees to develop housing that directly meet identified local needs, especially housing that is not sufficiently provided by the market. This includes intergenerational housing, investments that place vacant or underutilized properties back into productive use, ADUs, and novel and non-traditional development techniques, including modular, panelized, or manufactured housing. States and localities would have flexibility to design their programs to meet local needs, and the resources would be used to support renters and homebuyers with up to 150 percent of area median income in high-cost areas. These investments, combined with complementary proposals in the Budget, would support the development of around 500,000 units of housing over the next 10 years.

Improving and Expanding Existing Federal Financing

Multiple forms of federal financing have played a critical role over the years in boosting affordable housing supply. But more production is needed to make up for more than a decade of underbuilding before the pandemic, and existing programs need to work more effectively and efficiently in order to boost housing production at a pace that will close the housing shortfall in 5 years.

To that end, the Administration is taking the following *immediate steps*:

- **Strengthening Enterprise financing for multifamily development and rehabilitation.** Fannie Mae and Freddie Mac are working to determine how to expand and better market their forward commitment programs. These programs allow developers to secure financing to pay off a construction loan upon completion of construction and when the housing project has been approved for occupancy. In addition, FHFA will work with Fannie Mae to consider the feasibility, in addition to the safety and soundness, of purchasing Construction to Permanent multifamily loans. These single closing loans finance the construction of multifamily housing, in addition to serving as a permanent mortgage, which allows for the developers to only need one loan, thus reducing interest rate risk, loan resizing risk, and transaction costs – encouraging production and supply. These loans would not finance land purchases. Expansion of forward commitments and increasing liquidity for Construction to Permanent financing will provide a stable and low-cost source of capital for new construction of affordable multifamily units. These actions build on actions earlier this year to meet the demand for rental housing and growth in the multifamily originations market. For example, FHFA raised the maximum amount of multifamily loans Fannie Mae and Freddie Mac can purchase by 11 percent to a total of $78 billion in 2022. These purchases allow for more liquidity in the multifamily market, which in turn allows more deals to be financed. Last September, Fannie Mae and Freddie Mac also increased their equity investment in LIHTC deals, resulting in investments in over 7,000 units. The Enterprises anticipate further growing their LIHTC equity investments in the year ahead. And to ensure a strong focus on affordable housing and traditionally underserved markets, FHFA is requiring that at least 50 percent of the Enterprises' 2022 financing for multifamily housing be targeted to mission-driven affordable housing.
- **Leveraging American Rescue Plan funds for investments in affordable housing.** Treasury has urged state, local, and Tribal governments to dedicate more of their American Rescue Plan funds to build additional affordable housing at lower costs for families and individuals.A broad range of affordable housing production and preservation activities are eligible uses of the American Rescue Plan's State and Local Fiscal Recovery Funds, including development of multi-family or single-family affordable housing, preservation of existing affordable housing, permanent supportive housing, support for home repairs, homeownership assistance, rental subsidies, and other activities. To date, nearly 570 jurisdictions have committed over $11.7 billion to housing-related activities, with $3.2 billion committed to production and preservation. For example, Los Angeles County, California will invest $10 million into creating permanent supportive and interim housing for individuals and families with complex health or behavioral health conditions who are experiencing homelessness by constructing new modular, prefabricated, or container housing on County-owned or City-owned or leased property, and by the strategic renovation of existing County facilities. Denver, Colorado has allocated $28 million to the Affordable Housing Fund, which will support 400 newly constructed rental units, 200 preserved rental units, 50 newly constructed homeowner units, and work to acquire existing unsubsidized affordable or hotel buildings. And Erie, Pennsylvania will use $6.5 million to preserve and expand the supply of quality affordable housing, creating 100 units of new affordable housing, helping homeowners and small businesses bring their properties up to code, and providing low-interest loans for new homeowners.
- **Finalizing the LIHTC "Income Averaging" proposed rule.** To qualify for LIHTC, developers must make commitments to create housing that is affordable to households that meet specific income thresholds. Income averaging allows a developer to meet the same affordability goals by taking the average of the income for some households who are in the property as opposed to requiring all to meet the same threshold. This "average-income test" for LIHTC qualification will enable the creation of more financially-stable, mixed-income developments and make LIHTC-supported housing more feasible in sparsely populated rural areas. It will also facilitate the production of additional affordable and available units for extremely low-income tenants. By the end of September, Treasury will finalize regulations to provide needed guidance to developers using LIHTC equity to build multifamily housing that is rented to tenants across a wider income spectrum.
- **Advancing HOME as a key tool for the production and preservation of affordable rental and homeownership housing.** HUD will update guidance to strengthen the HOME Investment Partnerships Program. Through the reauthorization of HOME, updated guidance, and robust technical assistance, HUD will advance and streamline this critical resource for the creation of affordable rental housing and promotion of homeownership. HOME provides grants to states and localities that communities use to fund a wide range of activities including building, buying, or rehabilitating affordable housing for rent or homeownership or providing direct rental assistance to low-income people
- **Continuing to drive housing production through the Federal Financing Bank's Risk Sharing Program**. Last September, the Administration announced that Treasury and HUD had finalized an agreement to restart the Federal Financing Bank's Risk Sharing program. The program provides loans at reduced interest rates to state and local housing finance agencies to create and preserve high-quality, affordable homes. Twenty-two state agencies have been approved to use FFB, and HUD has committed to guarantee more than $1.3 billion in loans representing more than 7,100 affordable units. HUD will work in the months ahead to accelerate this work by encouraging more state and local HFAs to participate and explore the development of a permanent financing mechanism for these loans through Ginnie Mae's securitization platform.
- **Improving the alignment of federal funds to reduce transaction costs and duplications, and accelerate development.** Affordable housing development projects often require more than one federal source of funding. The most common pairing is LIHTC and HUD funds, such as FHA Multifamily, the Housing Trust Fund, or HOME. But each funding source comes with its own set of requirements and procedures. To reduce transaction costs and duplication, and to speed development, the Administration will make changes to harmonize federal requirements across programs as much as possible – including through programs like HUD's LIHTC Pilot Program, which streamlines FHA processing of mortgage insurance applications for projects with LIHTC equity. To encourage alignment of affordable housing subsidies, the White House, HUD, Treasury, and USDA will convene state housing agencies to discuss best practices on the alignment of applications, reviews, and funding.
- **Supporting the construction of more than 8,000 rural multi-family housing units**. In March 2022, the U.S. Department of Agriculture (USDA) announced a new fee structure that would lower initial and annual guarantee fees for lenders under the Section 538 program. This new fee reduction will encourage lenders to utilize the program to develop multifamily housing. USDA anticipates these fee reductions will facilitate a 84.5 percent increase over the pre-fee reduction volume.
- **Disposing of federal properties to create affordable housing for people experiencing homelessness**. Title V of the McKinney Vento Act allows for the disposition of federal property for re-use as housing for the homeless. While only a small percentage of disposed properties are suitable for this use, Title V is an important mechanism to create housing, especially in places with high rates of homelessness. GSA, HUD, and HHS are planning to issue new Title V regulations this summer. The goals of the proposed regulations are to make the disposition process easier to navigate for affordable housing developers and enable the creation of new affordable housing developments to serve people experiencing homelessness. In addition to the proposed regulations, HUD and GSA will strengthen the process to identify suitable properties, market them to potential developers, and enhance technical assistance.
- **Supporting new and existing affordable housing in Indian Country.** HUD will award Indian Housing Block Grant (IHBG) funding to Tribes and Tribally Designated Housing Entities to finance the construction of new affordable housing in Indian Country, and also make historic levels of annual IHBG formula funding available to them.

These actions build on the proposals that the *Administration has proposed and continues to call on Congress to pass*:

- **Financing more than 800,000 affordable rental units by expanding and strengthening the Low-Income Housing Tax Credit.** LIHTC offers federal income tax credits to private investors in exchange for investments in affordable rental housing. The House-passed reconciliation bill would increase tax credit allocations, provide additional capacity for private activity bonds to finance affordable housing, target tax credits for housing that serves extremely low-income Americans, and make it easier to use tax credits in Indian Country. The President's 2023 Budget also includes a provision that would provide additional subsidy through LIHTC to developments that add net new supply and that would otherwise not be financially feasible. Given the longstanding bipartisan support for LIHTC, the Administration looks forward to working with Congress to pass these critical enhancements, as soon as possible.
- **Expanding access to federal subsidies for the construction or rehabilitation of rental homes affordable to low and extremely low income households.** Additional federal resources are needed to create housing affordable for people with the lowest incomes such as people experiencing homelessness. The House-passed reconciliation bill would bolster funding for successful housing subsidy programs that can pair with LIHTC to produce and preserve housing that is affordable for very- and extremely-low-income renters. These programs include the Housing Trust Fund, the HOME Program, Housing Choice Vouchers and the Project Based Rental Assistance program. Together, these investments would produce, preserve, and retrofit hundreds of thousands of deeply affordable, rental housing homes in big cities and small towns across the country.
- **Addressing longstanding public housing capital needs.** Nearly two million people across the country live in public housing. The House-passed reconciliation bill includes a transformative investment to rehabilitate and preserve public housing, addressing residents' critical health, safety, and energy efficiency concerns.
- **Preserving more than 10,000 multifamily rental housing units in urban and rural America**. The House-passed reconciliation bill provides funding to preserve over 10,000 HUD-assisted multifamily rental properties that are at risk of deterioration and do not have other sources of repair funds. It also invests specifically in rural preservation through USDA, as rural communities face unique housing needs that are not always fulfilled by other federal housing programs. The bill would support the construction, rehabilitation, and affordability of thousands of multifamily units, including units that provide affordable, sustainable housing to farmworkers and their families.

Preserving the Availability of Affordable Single-Family Homes for Owner-Occupants

Beyond financing challenges, in recent years, the share of single family home purchases by investors has grown – comprising more than 25% ↗ of all purchases nationally in some months of 2021, with an even higher share in certain markets, like Atlanta, San Jose, and Phoenix. Well over half of these purchases were made by investors with more than ten properties, and almost a quarter of these purchases were made by investors with over 100 properties. Large investor purchases of single-family homes drive up home prices for lower-cost starter homes, making it harder for aspiring first-time and first-generation home buyers, among others, to access wealth-building opportunities from homeownership.

To that end, and beyond the proposed investments discussed above, the Administration is taking the following *immediate steps*:

- **Directing supply to owner-occupants and mission-driven entities instead of large investors.** After the Administration announced it would take steps to direct a greater percentage of the supply of FHA- and Enterprise-defaulted asset dispositions to owner-occupants and mission-driven entities instead of large investors, 50% of mortgage notes secured by vacant HUD-held properties were sold to non-profit organizations in a recent sale, rather than investors. This compares to just 10% in a typical sale. FHA and the Enterprises, at the direction of FHFA, have extended the period during which available real-estate owned (REO properties) are only made available to owner-occupants and non-profit organizations to 30 days. Large investors are only permitted to submit bids after that period. In addition, earlier this month, FHA announced it is expanding its Claims Without Conveyance of Title Process (CWCOT) to include the establishment of an initial exclusive Post-Foreclosure Sales Period for owner-occupant buyers, HUD approved non-profit, and governmental entities. FHA, FHFA, and agencies across government will accelerate efforts to direct available supply to targeted buyers by continuing to target the sale of at least 50 percent of mortgage notes to owner-occupants and mission-driven entities. Additionally, FHFA previously announced ↗ that it will prohibit the Enterprises from purchasing institutional investor mortgages for single family homes.
- **Encouraging use of CDBG for local acquisition and local sales to owner-occupants and mission-driven entities.** HUD also will provide technical assistance and update guidance on the "Use of CDBG Program Funds in Support of Housing" to promote acquisition, homeownership assistance, conversion of existing structures into rental housing and "starter" homes, housing counseling, and rehabilitation and reconstruction.

Addressing Other Constraints to Supply: Materials Costs and Labor Supply

During the pandemic, the price of goods used in residential construction has increased, squeezing already-tight project budgets and delaying completions. And even before, there has been limited adoption of potentially cost-saving, off-site building techniques used widely in other countries. Additionally, labor supply challenges in construction have made it harder for affordable housing developers to recruit and retain workers. In the months ahead, the Administration is committed to working with the private sector to address near-term constraints to supply and production – with the goal of achieving the most completed housing units in a single year in 15 years.

To that end, the Administration is taking the following *immediate steps*:

- **Partnering with the private sector to address supply chain disruptions for building materials.** Secretary Fudge, Secretary Raimondo, and other Administration leaders will meet with representatives from the building industry to explore additional actions that the federal government and the private sector can take in partnership to help turn the record number of homes under construction into completed homes where Americans can live. The Administration already has taken a range of short-term and long-term actions that will have the effect of easing price pressures for building materials over time. The Bipartisan Infrastructure Law included funding for wildfire resilience, forest management, and reforestation that will promote the health and resilience of our forests and timber supply. In addition, the Department of Commerce recently announced that it had reduced duties on softwood lumber shipments from Canada, as part of an independent and quasi-judicial process.
- **Promoting modular, panelized, and manufactured housing – and construction R&D.** Innovations in homebuilding, including manufactured, modular, panelized, precut, and additive construction, hold promise for increasing housing productivity and thus housing supply. HUD will highlight these and other technologies that can benefit affordable housing construction during the Innovative Housing Showcase on the National Mall in June 2022. HUD is also working to assess hurdles to modular and panelized housing posed by inconsistent state and local inspection requirements and standards, which limit economies of scale and potential cost savings. The Department of Energy also recently awarded $32 million in funding to support 30 next-generation building retrofit projects that will dramatically improve affordable housing technologies. These technologies include prefabricated, super-insulated wall retrofit panel blocks and 3D-printed modular overclad panels.

These actions build on the strategy that the *Administration has proposed and continues to call on Congress to pass*:

- **Recruiting more workers into good-paying construction jobs**. The House-passed reconciliation bill included funding for increasing the number of Registered Apprenticeships for career technical education, as well as for pre-apprenticeship programs like JobCorps and YouthBuild, which would increase the pipeline of construction workers. The President's Budget includes a 50% increase in funding for Youth Build, invests $303 million to expand Registered Apprenticeships and $100 million for a new Sectoral Employment through Career Training for Occupational Readiness program, which will support training programs focused on growing industries, like construction. Additionally, the $1.2 trillion for training in the Bipartisan Infrastructure Law is creating good paying union jobs, many of them in construction. In addition, the Administration continues to call on Congress to pass comprehensive immigration reform, while the Administration acts administratively to accelerate visa processing and other improvements to our immigration system.

Regulation: 40.6 Percent of the Cost of Multifamily Development

Paul Emrath, National Association of Home Builders (NAHB)
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Regulation imposed by all levels of government accounts for an average of 40.6 percent of multifamily development costs, according to research by NAHB and NMHC.

Apartment development can be subject to a significant array of regulatory costs, including a broad range of fees, standards and other requirements imposed at different stages of the development and construction process. This joint research effort surveyed NAHB and NMHC members to quantify how much regulation exists and how much it is adding to the cost of developing much-needed new multifamily properties.

About NAHB

The National Association of Home Builders (NAHB) strives to protect the American Dream of housing opportunities for all, while working to achieve professional success for its members who build communities, create jobs and strengthen our economy. NAHB Multifamily provides services, benefits and opportunities to members with an interest in multifamily housing, including multifamily member meetings, newsletters, events, webinars and multifamily housing awards. It coordinates with other NAHB departments on advocacy efforts, economic studies and resources for multifamily housing. For more information, please visit NAHB Multifamily at nahb.org/nahb-community/councils/multifamily-council.

About NMHC

Based in Washington, D.C., the National Multifamily Housing Council (NMHC) is the leadership of the apartment industry. We bring together the prominent owners, managers and developers who help create thriving communities by providing apartment homes for 40 million Americans, contributing $3.4 trillion annually to the economy. NMHC provides a forum for insight, advocacy and action that enables both members and the communities they help build to thrive. For more information, contact NMHC at 202/974-2300, e-mail the Council at info@nmhc.org, or visit NMHC's website at nmhc.org.

Introduction

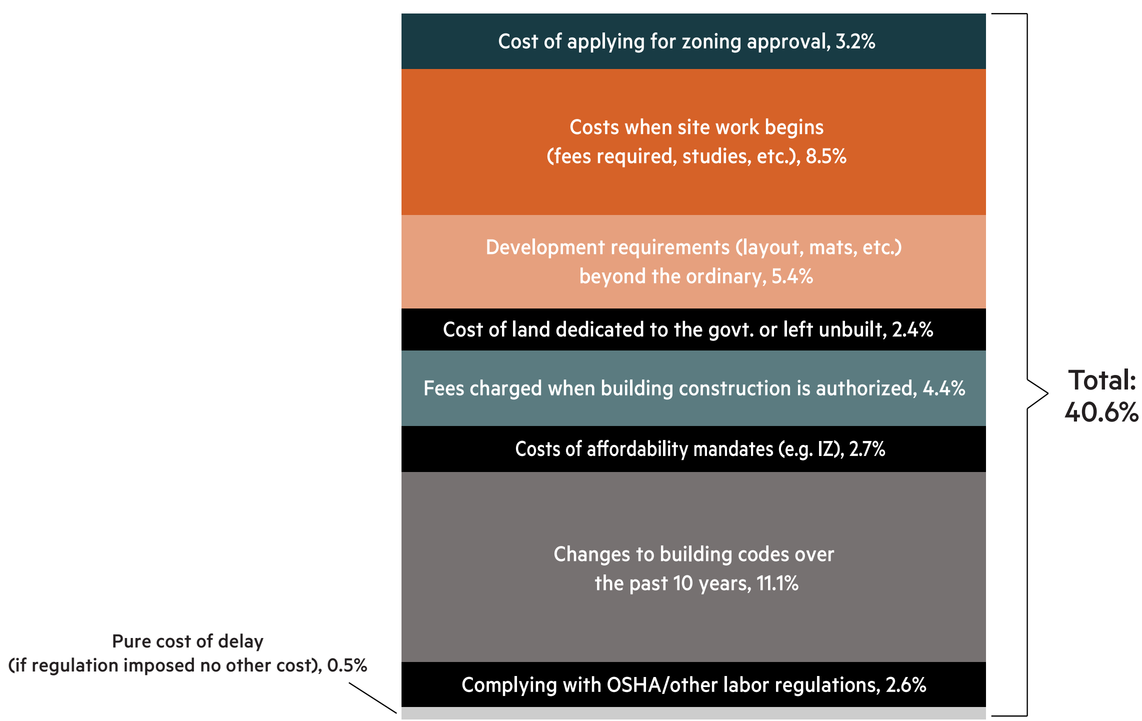
Multifamily development is subject to a variety of regulations at all levels of government. While some of these regulations are necessary to protect the health and safety of residents as well as the integrity of the building or community, it is informative to know the financial impact of each type of regulation, particularly in an era of widespread cost increases and worsening affordability problems for renters. Each added cost means the developer must increase rents for the project to remain financially feasible.

Regulations cover a wide-range of issues, and while they may be well-intentioned, the costs and burdens of any regulation must be carefully weighed against the benefits. Few would argue, for example, that basic safety standards for structures and workers are unnecessary. But, when regulation constitutes an average of 40.6 percent of a project's development costs, this raises questions about how thoroughly governments are considering the consequences of their actions. Are they aware of how much regulation currently exists? Do they realize how multiple regulations with conflicting standards can cause delays and increase costs? And do they understand the extent to which these increased costs translate into higher rents and make it difficult to build new housing that families with modest incomes can afford?

Recently, the National Association of Home Builders (NAHB) and the National Multifamily Housing Council (NMHC) undertook a joint research effort to find out how much government regulation adds to the cost of building new multifamily housing via a survey distributed to multifamily developers. (See Appendix 2).

The research finds that an average of **40.6 percent of total development costs** can now be attributed to complying with regulations imposed by all levels of government. Figure 1 shows how this percentage breaks down among the various types of regulation.

Figure 1. Average Cost of Regulation as a Percent of Total Multifamily Development Cost



Source: NAHB and NMHC

Perhaps more importantly, some of these regulatory mandates can discourage developers from building in the very marketplaces that have the greatest need for more housing. This can prove to be particularly burdensome in a world of rising costs. For example, 47.9 percent of multifamily developers said they avoid building in jurisdictions with policies such as inclusionary zoning, and a full 87.5 percent will avoid building in a jurisdiction with rent control in place.

There are also significant obstacles to development at the community level that are unrelated to governmental regulation. For instance, our research shows that "Not in My Backyard" (NIMBY) opposition to multifamily development adds an average of **5.6 percent to total development costs** and delays the delivery of new housing by an average of **7.4 months**. While most Americans agree that we need more housing and more housing affordable to middle-income households, too many change their opinion when someone proposes to put that new housing in their neighborhood. The intensity of opposition is escalated if that housing is rental housing.

About the Research

NAHB and NMHC distributed an identical survey in April 2022 to their respective memberships to access a wide range of development scales across the United States. The primary purpose was to quantify how much regulation exists for developers to contend with and how much that regulation is adding to the cost of developing new multifamily properties.

Some of these questions quantify the impact of regulations, such as inclusionary zoning and rent control, that not only may directly increase the costs of projects that are built but affect the supply and cost of housing in the community by causing some projects not to be built at all. An additional set of questions asked about the financial impact of NIMBYism, an issue that has been widely identified as one of the major cost drivers impacting affordability but where little quantifiable data currently exists.

A total of 49 usable responses were received. The responses from the survey were combined with existing public data and other survey collections to calculate the financial cost as a percent of total development cost for each regulation. A detailed description of the assumptions used in the calculations can be found in Appendix 1.

Total Cost of Regulations

Regulatory costs that exist during the multifamily development process can be divided into several categories. Table 1 shows the share of developer respondents subject to these various regulations and the average cost of each category as a percentage of the total development cost.

Understanding Table 1

The last column of the table shows the averages across all multifamily developments in the survey, even those not subject to a particular type of regulation (i.e., the "zeroes" are averaged in). The column to the left of that shows average costs calculated ***only*** for those properties that ***are*** subject to the regulation.

Note that because each percentage in the "Average When Present" column is calculated for a different set of properties, the rows in that column do not add up to the total. The primary reason for including this column is so readers interested in the comparatively uncommon regulations—such as requiring developers to leave some of their land unbuilt and affordability mandates such as inclusionary zoning—can see how costly these regulations tend to be when they are present.

The other categories of regulation in the table are widespread (impacting over 90 percent of multifamily developers). For them, the differences between the "Average When Present" and "Average Across All Properties" columns are negligible.

Table 1. Average Regulatory Costs as a Share of Total Multifamily Development

	Share With the Regulatory Cost	Regulation as a Percent of Total Development Cost	
		Average When Present*	Average Across All Properties
Cost of applying for zoning approval	93.9%	3.4%	3.2%
Costs when site work begins (fees, required studies, etc.)	98.0%	8.7%	8.5%
Dev. requirements (layout, mats, etc.) beyond the ordinary	91.8%	5.8%	5.4%
Cost of land dedicated to the goverment or left unbuilt	51.0%	4.7%	2.4%
Fees charged when building construction is authorized	95.9%	4.6%	4.4%
Costs of affordability mandates (e.g., inclusionary zoning)	38.8%	6.9%	2.7%
Changes to building codes over the past 10 years	100.0%	11.1%	11.1%
Complying with OSHA/other labor regulations	93.9%	2.7%	2.6%
Pure cost of delay (if regulation imposed no other cost)	95.9%	0.5%	0.5%
TOTAL COST OF REGULATION	**100.0%**	**40.6%**	**40.6%**

* The base is different for every percentage in this column, so the line items are not additive.

Source: NAHB and NMHC

As Table 1 indicates, the highest average regulatory cost is the result of changes to building codes over the past 10 years (11.1 percent of total development costs). The second highest are the costs imposed when site work begins (8.7 percent). The lowest average cost impact was the pure financial cost of delay, consisting of 0.5 percent when present, lower than the average cost of complying with Occupational Safety and Health Administration (OSHA) or other labor regulations (2.7 percent when present).

The first significant interaction between a multifamily developer and the government typically occurs when the developer applies for zoning approval to allow multifamily housing to be built on a particular parcel of land. Regulatory costs at this stage can vary from costs associated with fees owed to the local jurisdiction for proceeding through the approval process to market or environmental impact studies that must be commissioned from private consultants.

In some cases, a developer can acquire land that allows for multifamily structures to be built on it without requiring rezoning or a special exemption. However, this is rare, with 93.9 percent of the respondents indicating that they must dedicate resources to rezone the land to allow multifamily construction. When they exist, these costs average 3.4 percent of the total development cost.

Once site work begins, local jurisdictions often require a variety of fees or other studies. Examples of fees could include impact fees (fees charged only on a new development to be used for capital improvements) or utility impact fees. Almost all respondents (98.0 percent) reported paying some of these costs in their typical project, representing an average of 8.7 percent of total development costs when present.

Most respondents (91.8 percent) were also required by their local jurisdiction to include certain design features in their project design that go beyond what they would ordinarily include. Examples include energy-efficiency upgrades or specific design requirements for facades. When present, complying with these requirements amounted to an average of 5.8 percent of total development costs.

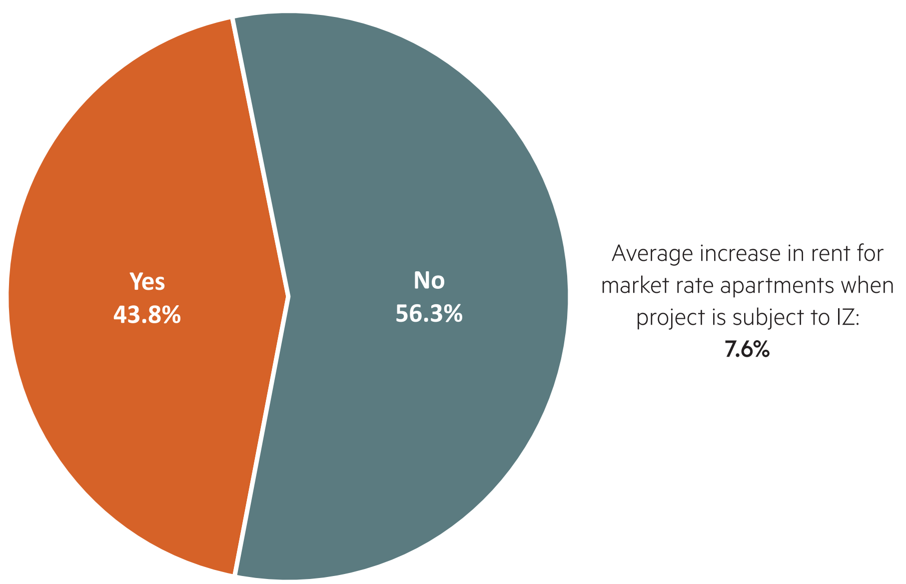
Governments can also require developers to leave a portion of the development site dedicated for government use or left unbuilt. This requirement reduces the amount of developable area, which means the revenue from that area is lost and must either be absorbed or made up for elsewhere. This requirement was present for approximately half (51.0 percent) of respondents; when present, it represented an average of 4.7 percent of total development costs.

Jurisdictions also often charge fees when site work is completed to authorize building construction. Examples of these costs include a fee when filing for a building permit or fees for additional utility hook-ups. Almost all respondents (95.9 percent) reported paying some sort of fee at this phase of development, with an average cost of 4.6 percent of total development cost when present.

Local affordability mandates are another important cost driver. These mandates are designed to increase the supply of affordable apartments. A common example is inclusionary zoning, where developers must offer a certain percentage of apartments at below-market rent levels. In many cases, a density bonus is provided to developers, which allows them to include more units in their project than ordinarily permitted by zoning to offset those lowered rents.

Unfortunately, these incentives are often inadequate and do not fully cover the lost rental revenue. In those cases, developers are forced to raise rents on the unrestricted apartments to fill the gap or to abandon the project altogether because it is no longer financially feasible.[1] These mandates were present in slightly over one-third (38.8 percent) of respondents' typical projects, and when present, they made up an average of 6.9 percent of total development costs (Figure 2). Respondents subject to inclusionary zoning report having to raise rents by an average of 7.6 percent.

Figure 2. Is Respondent's Typical Project in a Jurisdiction with Inclusionary Zoning? (Percent of Respondents)



Source: NAHB and NMHC

[1] NAHB has developed an Inclusionary Zoning Calculator Tool to help developers and local jurisdictions determine if incentives are adequate to allow a project to be built.

The increase in costs to comply with changes to building codes over the past 10 years was the largest driver of development cost, amounting to 11.1 percent of total development costs.

Most jurisdictions have been adopting, revising and enforcing building codes for decades, and an entire industry has emerged supporting and encouraging changes to existing building codes. While building codes play an important role in protecting resident safety and building integrity, they have evolved well beyond their original purpose and now are also used to promote public policies like energy efficiency and sustainability.

Building code development and adoption are complex, and it is essential to consider impacts to housing affordability throughout the process. State and local jurisdictions adopt and enforce building codes, but federal policymakers are also active in the development of international model codes, and they promote the adoption of certain code editions. For example, the U.S. Department of Energy encourages states to adopt the most stringent versions of the model energy codes. Various policy groups, industry organizations and individual companies also advocate for code changes that promote specific goals. These changes do not always balance the needs of housing affordability and have the potential to drive up construction costs[2] without improving building safety or integrity.

Developers are also subject to complying with Occupational Safety and Health Administration (OSHA) requirements and other labor regulations throughout the development process. While measures to protect the safety and health of construction workers are essential, NAHB has argued that some OSHA policies, like applying its beryllium standards to residential construction, simply drive construction costs up without impacting health or safety.

Fully 93.9 percent of respondents said they had to comply with these regulations and that they added 2.7 percent to total development costs.

Almost all respondents (95.9 percent) also reported that complying with regulations caused some sort of delay for their typical project. We estimate that "pure" cost of delay—the financial cost that taking the time to comply with that regulation would incur—would be an average of 0.5 percent of total development costs. This may not seem like a substantial number, but in an era of rising costs and diminishing affordability, any additional cost can impact project feasibility.

Affordability Mandates and Neighborhood Opposition Can Discourage Development Altogether

Aside from increasing development costs, some regulations and restrictions can impact whether development even occurs, which is incredibly harmful given the nation's shortage of housing.

There are many factors a developer considers when choosing a potential site for a future development; primary among them is the market demand for the proposed units. Increasingly, however, developers are also forced to consider whether their chosen jurisdiction imposes affordability mandates on new development. Two of the most popular mandates are inclusionary zoning and rent control because they are wrongly deemed to be "quick and free" fixes to housing affordability challenges.

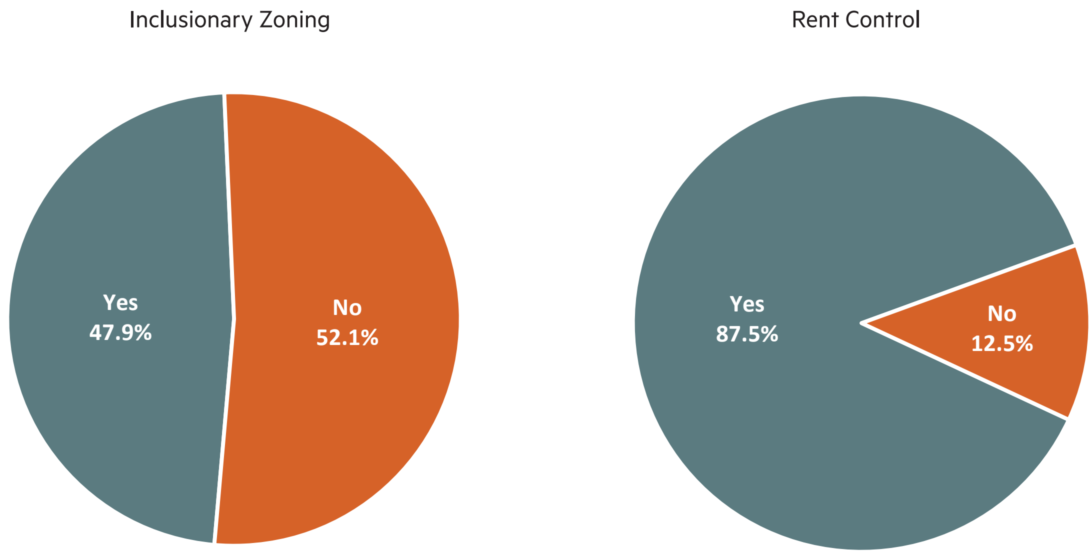
[2] NAHB's subsidiary Home Innovation Research Labs has recently produced a report showing that codes adopted in 2018 increase construction costs for standard types of multifamily buildings between $2,500 and $25,000.

Research has shown, however, that these quick fixes, particularly rent control, have many pitfalls. One major pitfall of both, as shown in Figure 3, is that it can deter development completely. Almost half of the respondents (47.9 percent) reported that they avoid building in jurisdictions with inclusionary zoning policies. The response was more acute for rent control—the overwhelming majority of respondents (87.5 percent) reported they avoid building in jurisdictions where rent control is present.

In fact, these mandates can impact the financial feasibility of a project, both in the short-term and long term. As a result, developers may simply choose to avoid jurisdictions with these mandates because of the difficulty in making a project pencil out.

Rent control regulations similarly differ depending on the local jurisdiction. In its basic form, rent control is a restriction on how much a property owner can raise a resident's rent, ignoring market conditions. Some rent control laws exempt new construction from price controls, and others institute a cap on how much an owner can raise a resident's rent, often tied to the Consumer Price Index (CPI).

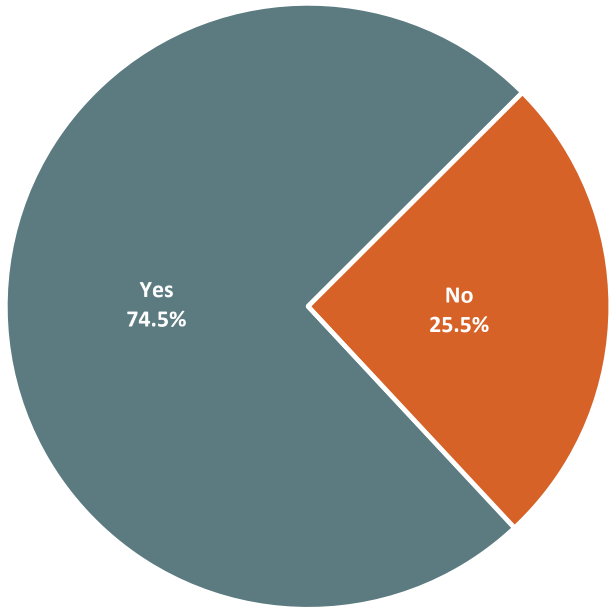
Figure 3. Do Multifamily Developers Avoid Building in Jurisdictions with Certain Policies? (Percent Of Respondents)



Source: NAHB and NMHC

Another major impediment to whether a project gets built can be neighborhood opposition. Opposition against multifamily development by current residents, commonly referred to as "Not in My Backyard" (NIMBY) opposition, can take many different forms. Residents may fight against rezoning attempts or may even file lawsuits to attempt to prevent development from occurring. Approximately three-quarters (74.5 percent) of respondents reported encountering neighborhood opposition to multifamily construction (Figure 4). The resources required to overcome this opposition add an average 5.6 percent increase in development costs when present. They also delay the development timeline by an average of 7.4 months.

Figure 4. Have Developers Encountered Neighborhood Opposition To Multifamily Construction? (Percent Of Respondents)



Average impact when neighborhood opposition is present:
5.6% increase in development costs
7.4 months delay

Source: NAHB and NMHC

Conclusion

As the above discussion has demonstrated, multifamily development can be subject to many regulatory costs, including a broad range of fees, standards and other requirements imposed at different stages of the development and construction process. Because of this, it may not be surprising that regulation imposed by all levels of government accounts for 40.6 percent of multifamily development costs on average.

This research was solely restricted to the impact of regulations on total development costs. It is important to note that developers are also dealing with rapidly rising land, material, and labor costs. Combined, these costs make it virtually impossible for private sector developers to deliver housing at a price point that many working Americans can afford.

When multifamily development costs rise, it unavoidably translates to higher rents and reduced rental housing affordability. Multifamily developers cannot secure financing to build their projects unless they can demonstrate to lenders that the rents will be sufficient to cover costs and pay off the loans.

The purpose of this report is not to argue that all regulation is bad and should be eliminated, but that some of these regulations are likely duplicative as multiple levels of government impose regulations on the same project. In addition, many of these regulations do not have a relationship to resident safety or building integrity.

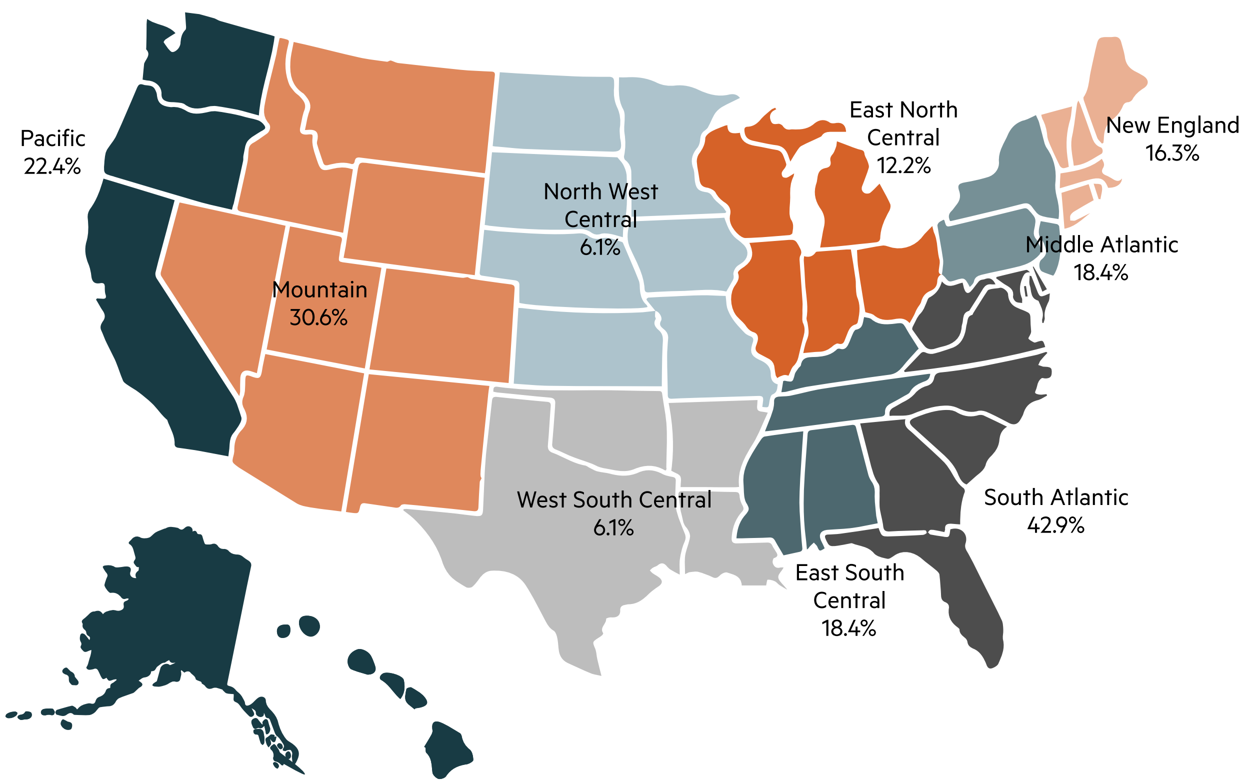
The research aims to raise awareness of how much regulation currently exists, how much it costs and to encourage governments to do a thorough job of considering the implications for housing affordability when proposing and implementing new directives. It is also to help inform local leaders that they also have the power to waive some of these duplicative costs, thus lowering the rent required for the project to remain financially feasible and improving affordability.

Respondent Profile

A total of 49 usable responses were received from multifamily developers, with a slightly higher concentration of NAHB members than NMHC members (and no duplicates). In one instance, two survey responses were accepted from one member company because the respondents represented different geographic areas.

All geographic areas in the United States were represented (see Figure 5). Respondents were able to choose more than one region of operation. The South Atlantic region (DE, DC, FL, GA, MD, NC, SC, VA, WV) had the largest representation, with 42.9 percent of respondents operating there, followed by the Mountain region (AZ, CO, ID, NM, MT, UT, NV, WY) with 30.6 percent and the Pacific region (AK, CA, HI, OR, WA) with 22.4 percent. The West North Central (IA, KS, MN, MO, NE, ND, SD) and West South Central (AR, LA, OK, TX) had the lowest representation at 6.1 percent of respondents each.

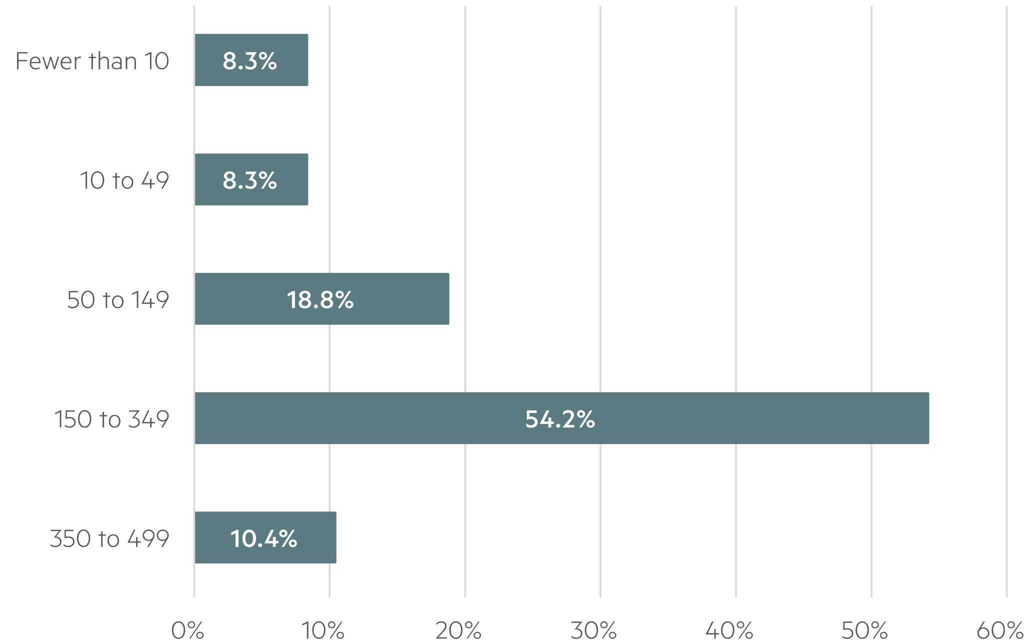
Figure 5. Share of Respondents Who Build in Each of the Nine Census Divisions



Source: NAHB and NMHC; U.S. Census Bureau

The respondents' typical project size varied widely: from fewer than 10 units to 499 (see Figure 6). The majority of respondents (54.2 percent) reported a typical project size of 150 to 349 units. Note that this is project size, not building size, meaning that each category could comprise both garden-style communities, which frequently have units spread across multiple buildings, as well as high-rise buildings, where all units are traditionally in one building.

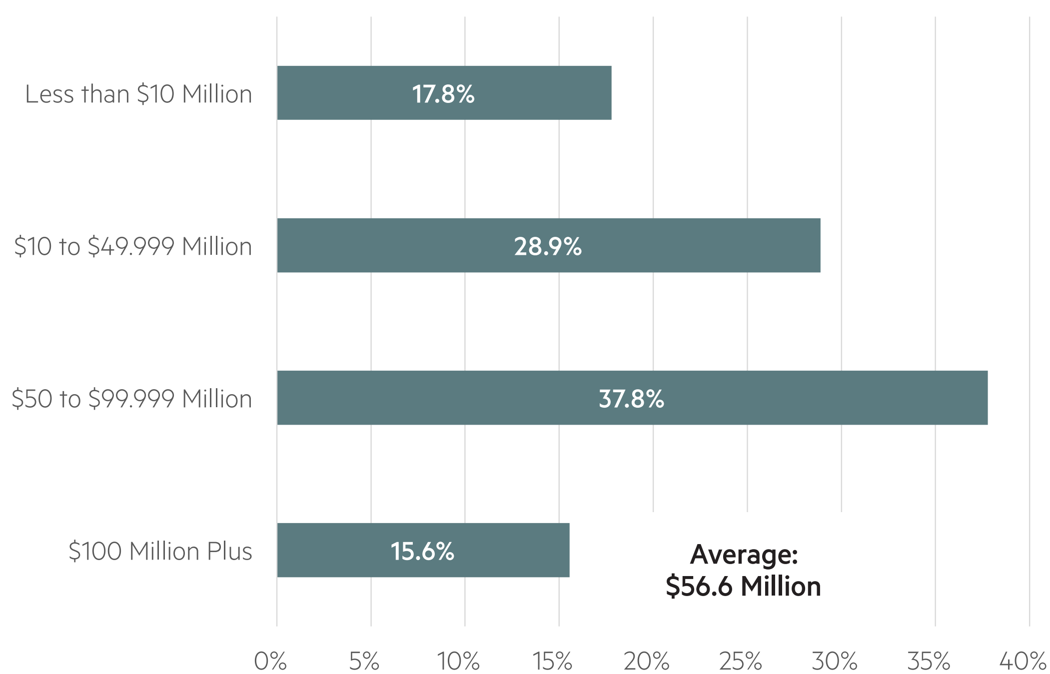
Figure 6. Number of Apartments in Respondent's Typical Project (Percent of Respondents)



Source: NAHB and NMHC

The typical total development cost varied as well but was slightly more evenly distributed (Figure 7). The average total development cost of respondents for a typical project was $53.6 million. Barely over one-third (37.6 percent) reported a typical development cost of $50 to $99.99 million. Small and large projects were equally represented, with 17.8 percent of respondents reporting a cost of less than $10 million and 15.6 percent indicating the typical project costs at least $100 million.

Figure 7. Total Development Costs for Respondent's Typical Project (Percent of Respondents)



Source: NAHB and NMHC

Appendix 1: Assumptions Used in the Calculations

To calculate a final effect on development costs, many of the NAHB-NMHC survey responses need to be combined with additional information. Primarily these are assumptions about the terms of development and construction loans, how long construction typically takes, and how to allocate costs to different stages of the development and construction process. This appendix lists all the assumptions used in the calculations and gives the sources for each.

Loan Terms

1. 1 point charged for all land acquisition, development, and construction (AD&C) loans, based on results from a Quarterly Finance Survey (QFS) that NAHB was conducting in the early to mid-2000s.

A 7.65 percent interest rate on all AD&C loans. The QFS indicates that rates are typically set one point above prime, and 6.65 percent is NAHB's estimate of the prime rate that would prevail in the long run under neutral Federal Reserve policy.

The estimates also assume that three-fourths of any category of costs are financed, based on typical AD&C loan-to-value ratios in the QFS.

Construction Lags

The source for information lags not directly collected in the NAHB-NMHC questionnaire is the Survey of Construction, conducted by the Census Bureau and partially funded by the Department of Housing and Urban Development.

Preliminary estimates are taken from the published annual tables, averaged over the 2001-2016 period:
Authorization to start = 1.71 months
Start to completion = 10.87 months

If the project is 5-9 units
- Authorization to start = 1.95 months
- Start to completion = 11.64 months

If the project is 10+ units
- Authorization to start = 1.94 months
- Start to completion = 13.21 months

The NAHB-NMHC survey collected data on how much time regulation adds to the development process. To assign this to a particular phase of the development, the following assumptions are used.

The regulatory delay is split and attributed half to the lag between applying for zoning approval and the beginning of site work and half to the period after site work begins. If half of the regulatory delay exceeds the lag between applying for approval and the beginning of site work, the excess is also attributed to the period after site work begins.

It is first assumed that the resulting regulatory delay is attributable to the period between the start of site work and the start of building construction, minus three months (the assumed minimum time it would take to do site work in the absence of regulation, based on conversations with developers). If any regulatory delay remains after being allocated to the zoning approval and site work periods, it is then attributed to the building construction period, and the start-to-completion lag is adjusted upward beyond the SOC-based average, accordingly.

The analysis assumes all loans are paid off when the buildings are completed.

Cost Breakdown

To implement the process described in the paragraph above and calculate a "pure" cost of delay (i.e., the effect regulatory delay would have even if the regulation imposed no other cost), estimates of costs incurred during different phases of the development process are needed.

The breakdown is based on the split between lot and construction costs in NAHB's Construction Cost Surveys (averaged over surveys conducted since 2000) and the Census Bureau's "non-construction cost factor" for raw land. The calculations also assume three-fourths of these costs are financed, based on typical AD&C loan-to-value rations in the QFS.

Resulting assumptions:

- Only the cost of applying for zoning occurs at the very start of the development process. Financing costs associated with this are charged to the regulatory cost of the application and not counted in the pure cost of delay.
- 10.2 percent of total development represents costs financed by a land acquisition loan at the start of the site work phase.
- 10.8 percent of total development costs represent costs financed by a development loan during the site work phase, assuming draws on the loan occur on average halfway through this phase.
- 54.0 percent of total development costs represent costs incurred after building construction has started and financed with a construction loan, again assuming draws on the loan occur on average halfway through the site work phase.

Appendix 2: Survey Questionnaire

1. **What regions do you build in? Please select all that apply.**
   - o New England (CT, ME, MA, NH, RI, VT)
   - o Mid Atlantic (NJ, NY, PA)
   - o South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)
   - o East North Central (IN, IL, MI, OH, WI)
   - o West North Central (IA, KS, MN, MO, NE, ND, SD)
   - o East South Central (AL, KY, MS, TN)
   - o West South Central (AR, LA, OK, TX)
   - o Mountain (AZ, CO, ID, NM, MT, UT, NV, WY)
   - o Pacific (AK, CA, HI, OR, WA)

2. **How many units does your typical multifamily project have?**
   - o 2-4 Units
   - o 5-9
   - o 10-49
   - o 50-149
   - o 150-349
   - o 350-499
   - o 500 units or more

3. **What is the total dollar amount spent on development costs in your typical project?**

   $____________

4. **For a typical piece of land, how much does it cost to apply for zoning approval as a % of total development cost?** *(Include costs of fiscal or traffic impact or other studies and any review or other fees that must be paid by the time of application. Please enter "0" if application costs are Zero percent).*

   ______%

5. **For a typical project, how many months does it take between the time you apply for zoning approval and the time you begin site work?**

   ____________months

6. **How much does it cost to comply with regulations when site work begins, as a % of total development costs?** *(Include costs of complying with environmental or other regulations as well as the cost of hook-up or impact or other fees.) Please enter "0" if cost of complying with these regulations is Zero percent.*

   ____________%

7. **How much do development requirements that go beyond what you would otherwise do (in terms of property layout, landscaping, materials used on building facades, etc.) add to your cost as a % of total development costs?** *(Please enter "0" if the jurisdiction's requirements don't go beyond what you would normally do.)*

   _______________%

8. **In the typical case, what is the value of any land that must be dedicated to the local government or otherwise left unbuilt (for parks, open green space, etc.) as a % of total development cost?** *(Please enter ")" if dedicating land is required infrequently.)*

   _______________%

9. **How many months does it take between the time you begin site work and the time you obtain authorization to begin construction of the apartment building(s)?**

   _______________months

10. **How much extra time (in months) overall does complying with regulations add to the development process?** *(Please enter "0" if regulations typically cause no delay).*

    _______________months

11. **When you obtain authorization to begin construction, how much do you pay in additional fees as a % of total development costs? In many cases, this will be only a permit fee but include any additional impact or hook-up or inspection fees if they kick in at this time.** *(Please enter "0" if fees paid during or after construction are Zero percent).*

    _______________%

12a. In the typical case, does a jurisdiction have inclusionary zoning/affordable housing requirements that apply to your project?

- o Yes
- o No

12b. *[If the answer to 12a is "yes"].* **In the typical case, how much do these requirements (or a fee in lieu of affordable housing) cost as a % of total development cost?** *(Please enter "0" if inclusionary zoning/ affordable housing mandates/fees in lieu of affordable housing are encountered infrequently).*

_______________%

12c. *[If the answer to 12a is "yes"].* **In the typical case, how much do these additional requirements raise the rents of market-rate units?**

_______________%

13. **Do you typically avoid building in a jurisdiction if it has an inclusionary zoning requirement?**
    - o Yes
    - o No

14. **Do you typically avoid building in a jurisdiction that has rent control?**
    - o Yes
    - o No

15. Over the past 10 years, how much have changes in construction codes and standards added to the cost of building a typical multifamily project as a % of total development costs? *(Please enter "0" if code changes have had minimal impact on costs).*

______________%

- o Please select if you have not been in operation for the past 10 years

16. How much does complying with OSHA or other labor regulations cost, as a % of total development cost? *(Please enter "0" if labor regulations have no impact on development costs).*

______________%

17. Have you experienced added costs or delays due to neighborhood opposition to multifamily construction?

- o Yes
- o No

18. In the typical case, how much costs are added to a project due to neighborhood opposition to multifamily development as a % of total development costs?

______________%

19. In a typical case, how much extra time (in months) does it take to address neighborhood opposition to multifamily development?

______________months

20. Comments:

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ICC MEMORANDUM

TO: Energy Code Development Committees, Subcommittees and Interested Parties
FROM: Mike Pfeiffer, PE, Senior Vice President of Technical Services
RE: Discount Rates and Code Content
DATE: February 15, 2022

The Code Council appreciates the considerable effort to date by members of the Commercial and Residential Consensus Committees, Subcommittees and interested parties to develop the 2024 International Energy Conservation Code and Chapter 11 of the International Residential Code under a standards development process. We are aware of two issues before the committees which if not resolved expeditiously may lead to an inability to complete the Committees' work in a timely manner. This memorandum provides direction to the committees on the use of discount rates in cost effective analysis and the placement of code content in the IECC and IRC, as applicable.

Discount Rates:
In the framework and subsequent committee procedures issued by the Code Council Board of Directors, the procedures for use of cost effectiveness analysis are provided. Per these procedures, "underlying assumptions should be clearly documented including compliance with any parameters set by the committees and approved by the Board." Groups tasked by the committees to develop parameters have successfully reached consensus on many of the items. However, agreement on the discount rate(s) to be used has not been reached to date.

The direction below points to discount rates set by the U.S. Office of Management and Budget (OMB) for use in analysis conducted by federal agencies (including the U.S. Department of Energy). These rates are currently used to support the statutory review DOE conducts upon release of a new edition of the IECC. Cost effectiveness analysis is an important tool for use by the committee in determining the resolution of a proposal. It is up to individual committee members and the Consensus Committees to determine the weight they place on results of a cost effectiveness analysis as it relates to the action taken on the proposals for which cost effectiveness is a consideration.

The Code Council provides the following direction:

> *Consistent with guidance from the U.S. Office of Management and Budget (Circular A-4) the Committees shall conduct cost effectiveness analysis using discount rates of both 3 percent and 7 percent for evaluation of the public input proposals currently under consideration. If OMB revises these rates prior to the posting of Public Comment Draft 1 for comment, the updated discount rates will be used for those comments.*

Code Content:
In the new framework approved by the Board in March 2021, a new scope and intent were developed for the IECC and Chapter 11 of the IRC. While this new scope and intent is considerably more detailed than the prior scope and intent, there is some confusion within the Committees on what topics can be addressed within the body of the IECC or IRC Chapter 11 as minimum requirements as opposed to an IECC or IRC appendix.

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The scope and intent of ICC codes and standards are set by the Board of Directors in accordance with Council Policy 28. The Board has not previously provided updates or clarification to the scope or intent of codes or standards during an active development process, allowing the development process to proceed to resolution. If a topic is contained in the scope or intent statement, it may be included either in the base of the code or as an appendix, as determined by the consensus body. Generally, appendices in the I-Codes fall under one of two categories: available for state/local adoption and for informational purposes only. In both cases, they undergo the rigors of the process no differently than text considered for the minimum requirements in the code. Each appendix in the respective I-Code notes the specific application of the appendix.

The Code Council provides the following direction:

Any content within the scope and intent of the code may be included either in the body of the code as minimum requirements or as an adoptable appendix based on the determination of the responsible Consensus Committee. Where content is to be included in an adoptable appendix, the appendix must include mandatory enforceable language.

Cc: Dominic Sims, CEO