

***Master Plan Amendment #2025-00004  
Green Building Plan Chapter***

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Issue: (A) Initiation of a Master Plan Amendment; and	Planning Commission Hearing:	January 6, 2026
(B) Public hearing and consideration of an amendment to the Master Plan to create the Green Building Plan, adding a new Chapter to the City's Master Plan	City Council Hearing:	January 24, 2026
Staff: <i>Office of Climate Action</i> : Ryan Freed, Climate Action Officer; Dustin Smith, Green Building Manager; <i>Department of Planning and Zoning</i> : Paul Stoddard, Director; Jeffrey Farner, Deputy Director; Carrie Beach, Division Chief – Neighborhood Planning		

**CITY COUNCIL ACTION, JANUARY 24, 2026:**

City Council approved the Planning Commission recommendation with the following modifications:

- accept the Planning Commission recommendation regarding small projects
- accept the Planning Commission recommendation regarding development review with Planning and Zoning taking the lead
- incorporate the future updates portion into the Planning recommendation
- Add onsite combustion is prohibited unless included in the Permitted Combustion Uses regarding electrification
- OCA should consider the emergency management implications of EV charging infrastructure, including types of chargers, spacing, locations, emergency egress, and fire access.
- Multi-unit residential EUI will be no tier 38
- staff recommendation of 3% on-site or Clean Energy Fund
- staff recommendation of produce enough energy on-site or on other City-owned property to cover site energy use.
- Add the following condition that will strike language about air quality flushing and keep the language regarding materials without adverse health impacts will be used.

**PLANNING COMMISSION ACTION, JANUARY 6, 2026:**

On a motion by Vice Chair Koenig, seconded by Commissioner Manor, the Planning Commission voted to close the Public Hearing. The motion carried on a vote of 7-0.

On a motion by Vice Chair Koenig, seconded by Commissioner Dubé, the Planning Commission voted 7-0 to recommend approval of Master Plan Amendment #2025-0004 with the following modifications by Vice Chair Koenig and Commissioner Lennihan:

1. On page 18, Table 2, Site EUI by Property Type, for Multi-Unit Residential – High Rise and Multi-Unit Residential – Other, change the Site EUI Target from 38 to 30.
2. On page 19, Renewable Energy, Option 1, change the text as follows: “Generate at least ~~3%~~ 5% of the project’s anticipated total annual energy use with on-site renewable energy.”
3. On pages 19-20, Renewable Energy, delete references to the clean energy fund and options to make contributions to the fund in lieu of providing onsite renewable energy. This includes deleting the language related to options 2 and 3 and any associated text paragraphs, steps, formulae, etc.
4. On page 20, Electrification, add a second sentence as follows: "Onsite combustion is prohibited unless included in Permitted Combustion Uses."
5. On page 28, Option 4: Small Projects, change the text as follows: “Residential projects with four or fewer units, or projects under ~~25,000~~ 10,000 square foot gross floor area are exempt from Options 1, 2, and 3 . . .”
6. On page 29, Option 5: Public Projects, select and add an industry recognized net zero energy standard for Public Projects in the Development Review Process (item 7) to be created by the Office of Climate Action.
7. Insert the following language in an appropriate location: “The City’s Office of Climate Action is directed to create a process for reviewing development submissions and periodically

updating the Green Building Plan’s application in the City’s development process, administratively and as necessary, to accommodate swift, accurate, and effective submission review and Green Building Plan implementation.”

8. Insert the following language in an appropriate location: “The Office of Climate Action will, at least every two years, review the standards set in this policy, particularly Energy Use Intensity, Renewable Energy, and Permitted Combustion Uses, and recommend any changes to City Council.”
9. As part of the development review process and to the extent permitted, the Office of Climate Action should consider the emergency management implications of electrical vehicle charging infrastructure, including types of chargers, spacing, locations, emergency egress, and fire access.

Reason:

The Planning Commission largely maintained their recommendation which was outlined in their June 23, 2025 letter to Ryan Freed, Climate Action Officer, and the Alexandria Office of Climate Action.

Discussion:

Vice Chair Koenig started the commissioner discussion with a process question related to ensuring the memo he and Commissioner Lennihan had provided had been circulated and staff confirmed it had been circulated digitally and that it could be shared on the screen when the Vice Chair was ready to make a motion based on the memo’s recommended modifications.

Commissioner Dubé reviewed the intent behind the memo he wrote and circulated – RE: EV Charging and Life Safety. The memo included potential changes to the Green Building Plan but he withdrew his proposed modifications related to electric vehicle charging infrastructure after reviewing the proposed modifications with the City Attorney Office’s staff. Since the City of Alexandria and the Fire Official Authority do not have the legal authority to dictate charger locations, density, or placement in enclosed/below-grade garages, he requests that staff coordinate these topics with the Fire Department and their current review of proposed development projects to request that the Fire Department Official conducting the review include “recommendations” related to EV charging and life safety rather than “requirements” development teams must follow.

Vice Chair Koenig recommends EV charging and life safety considerations and recommendations be incorporated into the development review process. He notes Commissioner Dube’s recommendations are market leading recommendations which have not been incorporated yet by regulators.

Commissioner Manor asks staff if there are requirements now that new developments have EV charging infrastructure. Staff respond that the EV charging infrastructure is part of the standard conditions ask and negotiation for each project.

Chair McMahan thanks Vice Chair Koenig and Commissioner Lennihan for their input on and their recommendations for the Green Building Plan. She is disappointed the staff recommendation does not reflect the Planning Commission’s letter they wrote in June 2025. She supports modifications to the staff recommendation that bring the Plan closer to what Planning Commission recommended in that letter. She supports the letter and recommended modifications outlined in Vice Chair Koenig’s

and Commissioner Lennihan's letter from January 4, 2026. She is compelled that an EUI of 30 for multi-unit residential projects now and an EUI of 23 for multi-unit residential projects in 2030 is an achievable goal based on data that has been collected through the engagement process to put this Plan together. She also underscores that she is not a developer and respects their fear that these goals are not achievable. She does not want high-rise residential developers to stop building in Alexandria, but she is not convinced that will happen. Her perspective is that she would be doing a disservice if she was afraid to lead on this issue due to projects that might stop or might not happen in the future due to the changes in this Plan.

She states that she thinks Alexandria is a leader in making things easier for development and reflects on a previous docket item of the night related to simplifying the approvals needed to convert unused commercial buildings to residential use. She states how community members often speak in the Planning Commission's public hearings about how Planning Commission is making it too easy for developments to happen, the process is too fast and there is not enough scrutiny in the process. In her opinion, development is a give-and-take. She acknowledges the Plan narrows the focus of what projects have to implement and that is an efficiency projects can realize.

She considers this topic summarized: we are in it together with developers, but we must move forward on this priority. She discusses how affordability and equity are benefited from greener buildings. Green buildings have better air quality, more sustainable energy bills over the life of the unit and are more resilient should a brownout occur during extremely hot or cold weather. Heat emergencies and brownouts will be very impactful to the community, and we can make decisions today to lessen that risk and impact. Resilient green buildings last longer, make our residents less vulnerable to threats, require less energy to operate, they put less strain on the grid, and they can generate some of their own power. The long-term bet on greener buildings is better for our community.

She is concerned with completely eliminating the Clean Energy Fund.

Commissioner Lennihan outlines technologies over the past decades that have been deemed impossible or costly by industry but have been widely adopted now and have resulted in wide benefits: the catalytic converter, ADA, and volatile organic compounds in household emitting products are her examples. She states there needs to be a paradigm shift in design and construction of buildings in terms of building envelopes, EUI, and onsite PV arrays. She thinks these items need to be a requirement before the market begins designing and constructing buildings with these green features.

She acknowledges this change will not be simple. It is going to take time to get the market to shift and she thinks requirements need to be in place before the market begins to shift. It is her perspective that we will not get to our 2030 commitments unless we really begin to require developers to focus on low EUI design and construction and the incorporation of onsite renewable energy.

Commissioner Ramirez expresses support for what Commissioner Lennihan says. Human adaptability will help the market adjust to these standards. She supports removing the cap on the Clean Energy Fund to encourage more developers to do onsite renewable energy. Data centers have constrained our local utility grid and to incorporate greener buildings which are more energy efficient is the responsible thing to do. This could help establish a standard for the region or for Virginia. She supports a two year re-evaluation for implementing the Plan as to whether it's a good

idea to carry this policy and requirements forward or whether things need to be adjusted.

Vice Chair Koenig reviewed the background information in his and Commissioner Lennihan's memo dated January 4, 2026. He points to the Washington, D.C. BEPSs examples in staff's presentation. He points to the foundational documents of this effort: 2019 Resolution of the Alexandria City Council to Declare a Climate Emergency, the Environmental Action Plan 2040, the Energy and Climate Change Action Plan, the 2019 Green Building Policy, and the joint letter from the Environmental Policy Commission and the Planning Commission in early 2023 which advocated for an update to the Green Building Policy which resulted in electric, efficient, and renewable energy buildings. He describes his perspective of how the previous efforts to get to this goal of electric, efficient, and renewable energy buildings have been challenged.

He states that if this Plan passes, people in the coming decades will live and work in buildings which are healthier, safer, less expensive to energize, and more resilient in the face of climate change impacts. It is his perspective that the generation of renewable energy onsite is as important as the EUI piece of the Plan. He supports the elimination of the Clean Energy Fund and the establishment of the onsite renewable energy requirement.

He supports a biannual review of the standards in the Plan. He says this is key to getting to the City's goals. He thinks these are important process improvements and must be partnered with appropriate performance targets in the Plan. The EUI target for multi-unit residential projects should be 30 and that should be reviewed in two years. He justifies this by pointing to examples that buildings in our region are regularly built to this standard based on the presentation examples.

He recommends increasing the onsite renewable energy requirement from three percent to five percent. This would diversify energy production in Alexandria and support local workforce capacity and skill development. He recommends staff set design criteria for roof design that will facilitate future solar arrays. If a requirement or standard is not set, developments will not incorporate these design aspects.

The Vice Chair believes the creation of the Clean Energy Fund will significantly inhibit the clean energy goals of the Plan and supports eliminating it from the Plan.

Commissioner Manor asks whether the renewable energy section would apply to conversions as well as new construction. Staff responds that there is some flexibility for conversion projects in the Plan on a case-by-case basis based on the limitations of the building being converted.

Chair McMahon expresses appreciation for the arguments made by Commissioner Lennihan for removing the Clean Energy Fund from the Plan since they are ultimately looking for buildings to begin installing renewable energy as part of resilience.

Commissioner Brown supports the modifications recommended in Vice Chair and Commissioner Lennihan's memo dated January 4, 2026. He states he is persuaded by the arguments made by the Vice Chair and Commissioner Lennihan.

Commissioner Dubé fully supports the letter the Planning Commission wrote in July 2025 and the arguments made by the Vice Chair and Commissioner Lenihan. He supports advancing resiliency in buildings in Alexandria.

Commissioner Lennihan outlines specific details of a net zero energy building she has previously worked on and concludes that the recommendations in the Plan are very different and are much easier than what is required for a net zero energy building.

Commissioner Ramirez outlines that the market needed to make energy efficient buildings a reality already exists and adopting the Plan with the modifications proposed by the Vice Chair and Commissioner Lennihan will further support developing a market for energy efficient buildings and the products needed to design and construct them. She supports the modifications recommended in Vice Chair and Commissioner Lennihan's memo dated January 4, 2026.

The Vice Chair makes a motion which incorporates the modifications proposed in the letter dated January 4, 2026 from the Vice Chair and Commissioner Lennihan. The motion is adopted 7 to zero.

Speakers:

Bill Pugh: As a resident of Alexandria, he appreciates living in a city where climate change and addressing the issues from it are a priority. He encourages the Planning Commission to support adoption of the Green Building Plan.

David Peabody: As longtime resident of Alexandria and an architect of high-performance buildings, Mr. Peabody recommends lowering the EUI requirements for multi-family buildings from 38 to 30 in the Green Building Plan, with an EUI requirement of 23 in 2030. He noted that more energy efficient buildings protect residents from rising energy costs over the life of the project, as energy costs are expected to double in the next 10-15 years. He noted that if a multi-family project with an actual 42 EUI was built to a 30 EUI would add 3.5% to construction costs, or 1.75% to total project costs, which he supports shifting those costs to the developers as opposed to residents.

Deborah Buelow: An architect of high-performance buildings based in Alexandria for the architecture practice Cedar, she noted that costs from completed, occupied projects with a 30 EUI are available. She noted that in her professional experience, achieving a 30 EUI does not require passive house, extreme construction techniques, or unfamiliar materials, and can provide flexibility, allowing a variety of envelopes and mechanical systems. She noted that having developers address a modest, one-time design and construction challenge will shift long-term energy risk from residents.

Sandra Leibowitz: Presented remarks on behalf of USGBC. Sandra recommended adding LEED certification to the list of certifications in Option 2 of the Green Building Plan, and asked that LEED credit language be updated in Appendix 2 to reference LEED 5. She noted that the platinum level of LEED 5 addresses energy efficiency, renewable energy, and electrification goals in the Green Building Plan, and all LEED 5-certified buildings must assess the direct and indirect carbon emissions from the project over 20 years.

Moira MacDougal: Resident and representative of Grassroots Alexandria that supports requiring multi-family projects to have a 30 EUI instead of a 38 EUI, and for the City to commit to reviewing EUI targets and metrics at least every two years with the goal of decreasing required EUIs. She also recommended clarifying definitions and establishing policies that do not rely on federal government standards.

Ken Wire: With Wire Gill law firm and provided remarks on behalf of NAIOP Northern Virginia. He

noted that City code does not allow solar panels to be installed over HVAC units or green roofs, which limits the amount of renewable energy that can be generated. He recommended providing a range of EUIs in the Green Building Plan that takes into account building occupancy, as he has concerns about denser developments being able to meet the current requirements. He noted that developers may prefer to develop townhouses, as it is more straightforward to meet the required EUI. He suggested that the Green Building Plan supersede all other City policies on architecture. He does not think the Green Building Plan is permitted under the Dillon Rule and suggested requesting a review from the Attorney General.

Mary Catherine Gibbs: With Wire Gill law firm on behalf of their client Paradigm Development Company. She raised concerns about high density buildings being able to achieve a 38 EUI, and noted that none of Paradigm Development Company's high rise buildings have an EUI close to 38. She stated that these requirements will disincentivize high-rise developments and will exacerbate the housing crisis in Alexandria.

Stephen Walz: Alexandria resident and representative of the Alexandria Hub of the Faith Alliance for Climate Solutions and Build Our Future. Stephen recommends lowering the EUI requirements for multi-family buildings from 38 to 30 in the Green Building Plan, with an EUI requirement of 23 in 2030. He noted that a higher EUI will result in an energy burden on residents, and 37% of low or moderate income households cannot pay their full energy bill, and rates may double over the next decade. He also recommended using the 25th percentile of building performance to guide the Green Building Plan, not the 75th percentile.

Scott Barstow: Alexandria resident associated with Faith Alliance for Climate Solutions and Build Our Future. He provided information from the ASHRAE 2022 net zero multi-family building design guides, which show a 20 EUI is possible in buildings up to 39 stories, and that net zero buildings provide increased resilience, utility cost stability, and lower utility costs for tenants and owners. Eliminating combustion in housing units results in healthier homes and better air quality.

## I. WHY A PLAN UPDATE

The City has long prioritized environmental stewardship, including a goal in the Environmental Action Plan 2040 to achieve a 50% reduction in greenhouse gas (GHG) emissions by 2030 and at least an 80% reduction by 2050. Addressing climate change is a key priority for the health and well-being of Alexandrians. The impact of climate change includes the increased frequency of extreme heat, flooding, drought, and extreme weather, all of which have significant impacts on Alexandrians' health, economics, well-being, and the environment.

Because increased GHG emissions directly drive climate impacts, mitigation efforts must focus on the sectors where reductions will have the greatest effect. According to a Greenhouse Gas Emissions analysis<sup>1</sup> provided by the Metropolitan Washington Council of Governments (MWCOC), most greenhouse gas emissions in the City are from buildings and transportation. The analysis shows that in 2020, more than 52% of emissions came from buildings and nearly 38% came from transportation. To address the impacts of buildings and meet the City's climate commitments, targeted action is needed.

Buildings also serve a critical role as infrastructure to provide resilience from these impacts of climate change. While the current Green Building Policy has made strides in improving the general sustainability of buildings in Alexandria, the Green Building Plan targets metrics that specifically impact building design and operation that will improve the mitigation of these impacts and resilience in the face of these challenges. Specifically, this Plan is designed to positively impact the resilience of the local and regional electric transmission and distribution grids by reducing energy consumption. The Green Building Plan creates a long-term framework to manage the impact of the built environment and transportation on resident health, well-being, and the environment.

## II. COMMUNITY COMMENTS

Staff solicited community feedback throughout the planning process. Staff established the Green Building Policy Advisory Group, which consisted of 14 members and included representatives from the commercial and residential development community, architects, attorneys, and residents. A spot on the Advisory Group was reserved for the Planning Commission, Environmental Policy Commission, and NAIOP (the commercial real estate development association) to nominate a member to represent those bodies. This engagement was a key component of developing the Plan.

A summary of community comments provided to staff is included in the attachments of this report.

The Advisory Group began meeting in March of 2024 and covered a variety of topics. Each meeting included in-depth discussion of each of the components of the Green Building Plan to better understand what metrics would have the most impact and a reasonable approach to setting achievable targets.

Following the Advisory Group meetings, Staff developed the recommended Plan and engaged in numerous additional meetings with land-use attorneys, NAIOP, developers, environmental advocates, and the Environmental Policy Commission. These community comments led Staff to hire third party experts to provide additional analysis of the metrics and to assist in target-setting. The resulting

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<sup>1</sup> MWCOC Greenhouse Gas Emissions Analysis:

<https://www.mwcog.org/file.aspx?D=vctpsw7k7mBXo5fDiocOsHJqqhRN0YFFWHsg8E3adw%3d&A=dbSpm3H76XXsFnyDdSKus9Tt5xObNjmLmpZGFdQgmXE%3d>

recommendations and Plan components represent a balancing of the needs of the community to mitigate potential environmental impacts of new development with the ability for the development community to deliver high-quality projects in the City.

The draft policy was released for public comment in April of 2025 and staff accepted comments until June 1. Comments received from various groups, including land-use attorneys, the development community, and environmental advocates varied widely, with environmental advocates arguing for lower energy use intensity (EUI) targets and higher renewable energy requirements. The development community argued for considerably higher EUI targets, lower requirements for renewable energy, and more flexibility for use of combustion equipment.

In response to those comments, Staff reviewed numerous studies and engaged industry experts to refine the policy requirements. While the EUI and Renewable Energy targets were found to be reasonable targets, the plan was changed to provide additional flexibility in achieving some of these targets, including capping costs for renewable energy investments and allowing a broader set of exceptions for combustion appliances.

Top Areas of Discussion	Stakeholders	Recommendation
EUI targets are too aggressive,	NAIOP	The requirements in the Plan are set at levels that mitigate environmental impacts of proposed developments. The recommended EUI targets have been informed by local market context and flexibility is available for projects based on individual consideration.
EUI targets are not aggressive enough,	EPC, Planning Commission	The requirements in the Plan are set at levels that mitigate environmental impacts of proposed developments. The recommended EUI targets have been informed by local market context and flexibility is available for projects based on individual consideration.
Renewable energy requirements are too aggressive,	NAIOP	Development increases electrical demand in Alexandria. The recommendation balances an increase in electrical demand resulting from development. A contribution option was crafted in lieu of onsite generation requirements.
Renewable energy requirements are not aggressive enough,	EPC, Planning Commission	The recommendation introduces a three percent onsite renewable energy generation requirement. In lieu of the three-percent renewable energy requirement, a project can contribute to the Clean Energy Fund.
Building electrification has feasibility limitations,	NAIOP	The requirements in the Plan are set at levels that mitigate environmental impacts of proposed developments.
The 2019 Policy is too	NAIOP, Green	The Plan is written with clearly formulated

complicated,	Building Policy Advisory Group members	Options. The options are crafted by project use and account for affordable housing projects or smaller development project scopes. The intent of the Plan is to simplify and focus the requirements.
Maintain the minimum requirements of the 2019 Policy for items outside of energy efficiency and renewable energy,	Green Building Policy Advisory Group members	The Plan maintains a set of minimum performance standards related to energy and water conservation, and indoor environmental quality.
Electric vehicle charging infrastructure requirements should be reduced and clarified based on project use	NAIOP, Green Building Policy Advisory Group members	Requirements for EV-charger make ready spaces were reduced. Requirements are tailored for project type.
100% net zero energy for public projects can be infeasible in some cases	Staff, ACPS	The Plan permits public projects to achieve net zero energy through a combination of onsite and offsite renewable energy generation.

The Plan was developed with an understanding that requirements to mitigate environmental and health impacts may come with associated costs for developers. The City set targets by exploring standard practices in the region, including examining specific building-level data in Washington, D.C. The targets are designed to be achievable without adding significant costs to building design and construction. A building’s EUI can also be impacted from the outset of design, allowing more flexibility and opportunity to achieve targets, compared to the prescriptive requirement included in the current policy’s certification requirements.

### III. PLAN OVERVIEW

The Plan proposes a strategy that focuses on core components of a building’s impact on the community. Specifically, the Plan addresses energy use by setting Energy Use Intensity (EUI) targets, renewable energy requirements, and on-site combustion guidelines. The Plan also establishes requirements for Electric Vehicle (EV) charging and guidelines for energy and water consumption. The Plan also eliminates previous requirements for building certifications. Together, these components make measurable progress toward achieving the City’s sustainability goals and policies.

### IV. DISCUSSION

Climate change has increasingly impacted the wellbeing of communities, including the City of Alexandria. As global temperatures increase, communities are experiencing more frequent and intense heat, with significant impacts at the local level. These changes affect our health, environment, and economy. According to the EPA,<sup>2</sup> these impacts include:

- Increased frequency and intensity of heat waves,

<sup>2</sup> Impacts of Climate Change | US Environmental Protection Agency (EPA): <https://www.epa.gov/climate-change>

- Worsening air and water quality,
- More frequent and intense extreme weather events,
- Increased rainfall and flooding, and
- A resulting increase in property damage, and the cost of insurance.

The changes pose risks to the City's health, infrastructure, and long-term resilience. The U.S. Energy Information Administration notes, "scientists know with virtual certainty that high levels of greenhouse gases in the atmosphere tend to warm the planet. In computer-based models, rising concentrations of greenhouse gases result in a rising average surface temperature of the earth over time. Rising temperatures may produce changes in precipitation patterns, storm severity, and sea level."<sup>3</sup> As GHG emissions increase so too will the global temperature. The result will be widespread impacts felt across the world, and those impacts will continue to get worse unless action is taken to mitigate GHG emissions.

Although climate change is a global challenge, its impacts manifest locally. Local governments are uniquely positioned to address certain causes of climate change, through activities such as land use, infrastructure, and environmental planning.

Because increased GHG emissions directly drive climate impacts, mitigation efforts must focus on the sectors where reductions will have the greatest effect. According to a Greenhouse Gas Emissions analysis<sup>4</sup> provided by the Metropolitan Washington Council of Governments (MWCOC), most greenhouse gas emissions in the City are from buildings and transportation.

The ECCAP further underscores the critical role of the built environment. ECCAP's projections show that, without intervention, most future growth in GHG emissions between 2020 and 2050 will come from new construction, and over time, 69% of reductions from the built environment should be from new buildings.

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### *Buildings as Critical Community Shelters*

In addition to the role buildings play in contributing to the GHG emissions in the City, buildings also serve a vital role in protecting the community in times of extreme weather. The ECCAP quantified, among other climate impacts, the increase in extreme heat that can be expected in Alexandria. As illustrated in **Figure 3** below, while historically Alexandria had seen approximately 30 days a year over 90 degrees Fahrenheit, by the 2030s that number is expected to be 55 days, and more than 70 days by the 2050s. More concerning is the rise in days above 100 degrees Fahrenheit, which was historically 1 day, and increasing to 10 days by the 2050s. Buildings of all kinds, whether public recreation centers, homes, retail shopping, or cultural centers provide a needed shelter from these extreme temperatures.

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<sup>3</sup> Greenhouse gases' effect on climate - U.S. Energy Information Administration (EIA): <https://www.eia.gov/energyexplained/energy-and-the-environment/greenhouse-gases-and-the-climate.php>

<sup>4</sup> MWCOC Greenhouse Gas Emissions Analysis:

<https://www.mwcog.org/file.aspx?D=vctpsw7kJ7mBXo5fDiocOsHJqqhRN0YFFWHsg8E3adw%3d&A=dbSpm3H76XXsFnyDdSKus9Tt5xObNjmLmpZGF DQgmXE%3d>

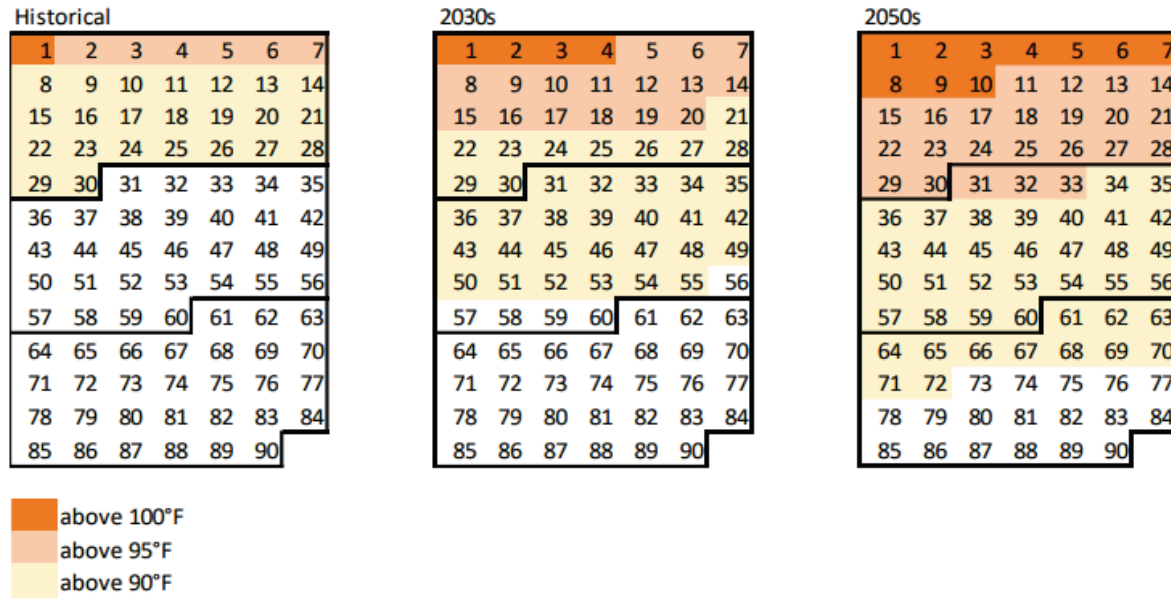


Figure 2. Number of days per year in Alexandria with maximum temperatures exceeding 90oF, 95oF, and 100oF (under high emissions scenario RCP 8.5) (ECCAP)

*Grid Reliability and the Need for Efficient & Resilient Buildings.*

Concerns about extreme heat are compounded by concerns about the reliability of the utility systems that power Alexandria. In its 2025 Integrated Resource Plan (IRP),<sup>5</sup> Dominion Energy notes that a challenge to reliability is continued load growth within its territory, and within the territory of the regional transmission operator, PJM. The IRP expects summer peaks to grow by 4% on a compound annual basis over the next 20 years. These increased grid constraints reduce reliability, making the focus on efficient and resilient buildings an even more pressing matter for the health and safety of Alexandrians.

A concern about electric grid reliability also moves the City to encourage locally produced renewable energy, such as solar. Solar installations installed at the site of consumption – on the roof, in a parking lot, or on the building’s façade – allow for increased resilience of that site in the event of a power outage. Increasing intensity and frequency of storms, increased extreme heat, and concerns from Dominion Energy and the regional transmission operator about grid reliability make renewable energy valuable, in addition to the GHG emission reductions.

In addition to addressing buildings, the City has policies to address:

- **Urban heat islands** to reduce localized temperatures and impervious surfaces through plans and policies such as increased tree canopy, decreasing parking lots and impervious surfaces, and selecting native species to maximize survival of new plants and trees.
- **Shading and site design** by orienting streets and buildings to maximize natural shade and airflow and requiring streetscapes and setbacks to allow tree planting and open spaces.
- **Stormwater management** by implementing bioswales, rain gardens, and stormwater detention and treatment.
- **Sustainable transportation** by actively planning for and providing public transit, such as new Metrorail stations, bike lanes, and pedestrian networks.

<sup>5</sup> Dominion Energy’s 2025 Integrated Resource Plan Update: <https://cdn-dominionenergy-prd-001.azureedge.net/-/media/content/about/our-company/irp/pdfs/2025-integrated-resource-plan-update.pdf?rev=c656e4bd80184dbc80d4531cb6e9e975>

- **Land use planning and development patterns** by actively planning for compact mixed use neighborhoods to reduce travel demand and energy use, preserve open space, expand tree canopy, and incentivize redevelopments of brownfields and parking lots.

### *New and Renovated Buildings*

New buildings and those undergoing significant renovations present a unique opportunity to significantly reduce GHG emissions and improve long-term environmental performance. Decisions made during the design and construction phases determine a building's carbon footprint for decades. Failure to prioritize energy efficiency and sustainability during these stages results in higher GHG emissions, greater operating costs, reduced resilience and increased environmental impacts.

The Green Building Plan updates and refines the provisions of the 2019 Green Building Policy for private development projects that require a Development Site Plan (DSP) or a Development Special Use Permit (DSUP). These provisions will be reviewed as part of the DSP and DSUP application process and will be tailored to the elements and impacts of each individual project. The updated requirements focus on strategies that deliver the greatest long-term impact on energy performance.

To mitigate the environmental impacts created by new construction, proposals requiring a DSP or DSUP will be reviewed for conformance with the Green Building Plan, after completing an individualized assessment through the development review process.

The Green Building Plan ensures environmental sustainability and climate resilience are integrated into land use decision-making throughout the City and directly supports:

- Environmental Action Plan 2040,
- Energy & Climate Change Action Plan,
- Housing Master Plan,
- Alexandria Mobility Plan, and
- Electric Vehicle Charging Infrastructure Readiness Strategy.

The Plan's core elements include mitigating the impact developments have on the Alexandria community. Specifically, the Plan sets EUI standards that reduce GHG emissions resulting in lowering the negative environmental impacts of constructed buildings; addresses the increased instability and reduced reliability of the electrical grid associated with increased energy consumption through setting EUI and renewable energy targets; addresses local air quality through on-site combustion guidelines; and addresses the impact of additional vehicles by setting EV charging requirements.

Key components of the Green Building Plan include:

**Energy Use Intensity (EUI):** Ultimately, achieving the City's goals and protecting its residents from the impacts of climate change and rising costs of energy means improving the energy-efficiency of buildings. The most significant impact on the community from new developments is the increased energy use associated with new, typically higher-density developments. The majority of the City's GHG reductions by 2050 will come from new construction. Achieving GHG reductions requires setting achievable but ambitious targets that will ensure new buildings prioritize energy efficiency in their design and operation. The Green Building Plan sets different EUI targets for various building use types.

EUI is a direct measure of the amount of energy used by a building, measured by converting electric and natural gas use to kBtu, and divided by the square footage of the building. An EUI standard provides a clear and easy-to-compare metric about the building's energy use. The Plan provides an EUI target for numerous building types, setting specific targets based on how the building will be used. The Plan's targets will mitigate the increase in energy use in new developments and were informed by existing construction practices and energy performance of regional buildings.

**Renewable Energy:** Increased energy use requires additional electric generation, which typically comes from carbon-intensive sources. The Plan addresses this increase in environmental impact by setting a renewable energy target for new developments. Through the Plan development process, it was noted that some buildings may not be able to install enough renewable energy to mitigate the impacts, so the Plan provides an alternative through the creation of a Clean Energy Fund which funds will be invested in renewable energy installations in the City.

Increasing the amount of clean energy generation will mitigate the environmental impacts created by new construction and achieve the City's climate goals. The Green Building Plan sets a minimum amount of renewable energy required for each new development, ensuring that locally produced clean energy is a part of each new development in the City. Renewable energy production not only reduce reliance on fossil fuels, it also improves the reliability and resilience of our energy systems – an important response to the impacts already being experienced from climate change such as extreme heat.

**Electrification:** Combustion of natural gas is a significant contributor to GHG emissions, presents safety concerns, and reduces both indoor and outdoor air quality.<sup>6</sup> The Green Building Plan prioritizes non-combustion solutions for heating and cooling and other appliances. The City encourages full electrification of all buildings, but the Green Building Plan provides flexibility and exceptions where technology or environmental conditions merit. The Plan provides guidelines as to which combustion appliances are allowed, balancing the commercial availability and cost of electric alternatives.

**Energy & Water Meters:** Knowing and actively monitoring the energy<sup>7</sup> and water<sup>8</sup> use of a building can help an owner or operator quickly identify that a system is malfunctioning and using more energy or water than anticipated. A building's environmental impact does not end at construction; the ongoing operation of the building will have an impact on the environment for decades. The Green Building Plan requires the installation of whole-building meters to ensure this information is available to owners and operators to have continual awareness of the building's operation.

**Indoor and Outdoor Water Conservation:** Water conservation provides environmental benefits, and the production of clean, potable water requires a significant amount of energy.<sup>9</sup> Reducing the amount of water that is used without compromising the health and operation of a building provides both the benefit of reducing water use and reducing the associated energy consumption and GHG emissions.

**Energy-Efficient Appliances:** While the EUI targets set in the Green Building Plan address a significant portion of a building's energy use through design, the appliances installed in the building are also an important factor in reducing energy use in the building's operation. Reducing the building's impact on the environment means ensuring the everyday use of the facility by occupants is also aimed at reducing the environmental impact and GHG

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<sup>6</sup>Home electrification health benefits: <https://www.rewiringamerica.org/research/home-electrification-health-benefits>

<sup>7</sup> Energy Management Systems: How immediate benefits drive strategic gains: <https://blog.se.com/energy-management-energy-efficiency/2024/01/05/energy-management-systems-drive-strategic-gains/>

<sup>8</sup> Keeping Tabs: Why Monitoring Water Levels Matters: [https://smartwateronline.com/news/keeping-tabs-why-monitoring-water-levels-matters?srsltid=AfmBOooYMB15KuNPF-PSm\\_0qVf63enpkQKF6r72D24AQAs8M3xSIlg](https://smartwateronline.com/news/keeping-tabs-why-monitoring-water-levels-matters?srsltid=AfmBOooYMB15KuNPF-PSm_0qVf63enpkQKF6r72D24AQAs8M3xSIlg)

<sup>9</sup> Addressing Energy-Water Challenges, U.S. Department of Energy: <https://www.energy.gov/eere/addressing-energy-water-challenges>

emissions<sup>10</sup>. The Green Building Plan establishes standards for end-use appliances that align with nationally recognized standards such as ENERGY STAR® to ensure lower energy use during the building’s operation.

**EV Charging:** Transportation is the second highest source of GHG emissions production in Alexandria. As developments increase the number of vehicles in the area, there is a direct increase in GHG emissions. Addressing the impact of increased GHG emissions from vehicles includes encouraging the widespread adoption of electric vehicles (EV). Without access to a robust EV charging infrastructure, EV adoption will continue to be slow. The Green Building Plan sets requirements for the installation of EV charging infrastructure to increase the availability of chargers and support the transition to EVs for residents and visitors. In line with the City’s EV Charging Infrastructure Readiness Strategy,<sup>11</sup> the Green Building Plan’s requirements allow for faster and more widespread adoption of zero-emission transportation options.

**Low Emitting Materials:** While GHG emissions are a significant environmental impact, new construction also impacts indoor air quality through the choice of materials used and installed<sup>12</sup>. Indoor air quality and the health of occupants is a key environmental concern for the City. The choice of which materials are used in a building, such as paints and carpets, can have a significant impact on air quality and health. The Green Building Plan establishes criteria, like those adopted as part of the 2019 Green Building Policy and widely adopted throughout the industry.

**Pre-Occupancy Flush or Indoor Air Quality Testing:** Further ensuring the health of occupants of the building, the Green Building Plan requires a pre-occupancy flush, which removes toxins that may be present from the building’s construction<sup>13</sup>. Alternatively, the Green Building Plan allows for testing of the air quality to demonstrate that a building is safe for occupants.

**Flexibility for Adaptive Reuse Projects:** Prioritizing energy efficiency and GHG reductions for new developments does not always mean newer is better. When a building is being renovated from one use to another – such as a commercial office building being converted to a residential building – there are significant environmental benefits to adaptive reuse over the alternative of demolishing and rebuilding.<sup>14</sup> The industrial processes to make the materials that go into a new building are carbon-intensive, as is the construction process. The Green Building Plan offers considerable flexibility to developments that avoid these emissions through adaptive reuse.

**Public Buildings:** The City’s current Green Building Policy sets a higher standard for public buildings than it does for private buildings, including the requirement to achieve net-zero energy use. The Plan updates this requirement to allow public buildings to achieve net-zero with both on-site and off-site energy generation, if installed on other publicly owned facilities.

## V. PLAN IMPLEMENTATION

Implementation of the Plan will be by the Office of Climate Action, in partnership with the Department of Planning & Zoning, through individual development (DSUP or DSP) case review. The Plan’s implementation allows for regulatory certainty for applicants and its design allows flexibility in how applicants can achieve these targets. Rather than prescribing specific measures, the Plan allows applicants to impact EUI through numerous components of the building’s design or equipment installed. This flexibility also requires fewer reviews by staff, reducing both the amount of work and submissions for each review stage and decreasing review time by staff.

<sup>10</sup> ENERGY STAR Impacts: <https://www.energystar.gov/about/impacts>

<sup>11</sup> The City of Alexandria’s Electric Vehicle Charging Infrastructure Readiness Strategy, dated May 2021: [https://www.alexandriava.gov/sites/default/files/2024-06/alexandria\\_evrs\\_final.pdf](https://www.alexandriava.gov/sites/default/files/2024-06/alexandria_evrs_final.pdf)

<sup>12</sup> Indoor AirPlus: How to Find Compliant Building Materials, U.S. Environmental Protection Agency, [https://www.epa.gov/system/files/documents/2024-08/iap-compliant-building-products-july-2024\\_508-compliant.pdf](https://www.epa.gov/system/files/documents/2024-08/iap-compliant-building-products-july-2024_508-compliant.pdf)

<sup>13</sup> Flushing newly built residential buildings with outdoor air for reducing formaldehyde and VOCs concentrations: <https://www.tandfonline.com/doi/full/10.1080/13467581.2023.2270025>

<sup>14</sup> Building Reuse: A Proven Climate and Economic Strategy, AIA, [https://www.aia.org/sites/default/files/2024-12/AIA\\_NTHP\\_Building\\_Reuse\\_42\\_0.pdf](https://www.aia.org/sites/default/files/2024-12/AIA_NTHP_Building_Reuse_42_0.pdf)

The Green Building Plan will be applied through development conditions on DSP or DSUP applications before Planning Commission and City Council. Conformance to the Plan will be reviewed by staff through the development submission materials provided by development applicants.

For projects meeting Option 1: Standard, the following will be confirmed at Concept submission: Narrative confirming the applicant has reviewed the requirements of this Option and will meet this Option of the Green Building Plan. EUI, renewable energy, electrification, water consumption, EV charging infrastructure, and indoor air quality measures will be reviewed as the project's design progresses from the preliminary site plan submission, to final site plan submission, and to building permit submission. Energy efficient appliance and indoor air quality measures will be reviewed at the Certificate of Occupancy submission. The project's renewable energy measures – onsite generation vs a Clean Energy Fund Contribution – will be confirmed at Final Certificate of Occupancy.

For projects meeting Option 2: Certification, a narrative will be required at Concept confirming the applicant has reviewed the requirements of this Option and will meet this Option of the Green Building Plan. Documentation demonstrating the project has earned the final Certification will be required at Final Certificate of Occupancy.

For projects meeting Option 3: Affordable Housing, a narrative confirming the applicant has reviewed the requirements of this Option and will meet this Option of the Green Building Plan will be required with the project's Concept submission. The EV charging infrastructure measures will be confirmed at Final Site Plan submission.

For projects meeting Option 4: Small Projects, a general approach narrative will be required with the project's Concept submission materials. Outdoor water efficiency and solar-ready roof and electrical design will be reviewed at Preliminary Site Plan submission. Indoor water efficiency measures will be reviewed at Building Permit submission and energy efficient appliances will be reviewed at Certificate of Occupancy submission.

For projects meeting Option 5: Public Projects, conformance to the Plan will be confirmed for projects as compliance with the 2019 Green Building Policy is currently confirmed. Green building measures for public projects will not change with the exception of offsite renewable energy systems will be permitted as part of the strategies projects can use to meet the 100% net zero energy requirement.

The City's Office of Climate Action will review implementation of the Plan every two years and report back to City Council should updates to the City's development process be needed to accommodate swift, accurate, and effective review and implementation of the Plan.

## **VI. MASTER PLAN AMENDMENTS**

This Plan, if adopted, will be added as a new Chapter of the City's Master Plan.

## **VII. STAFF RECOMMENDATIONS**

Staff recommend that the Planning Commission, on its own motion, initiate a Master Plan Amendment and recommend approval of the proposed Green Building Plan, adding a new Chapter to the City's Master Plan.

### **Attachments:**

1. Green Building Plan and Appendices
2. Resolution MPA2025-00004
3. Green Building Plan Presentation
4. Community Comment Summary
5. Boards and Commissions Endorsement Letters

RESOLUTION NO. MPA #2025-00004

WHEREAS, under the Provisions of Section 9.05 of the City Charter, the Planning Commission may adopt amendments to the Master Plan of the City of Alexandria and submit to the City Council such revisions in said plans as changing conditions may make necessary; and

WHEREAS, the proposed amendment will create the Green Building Plan chapter of the City's Master Plan;

WHEREAS, the Department of Planning and Zoning and the Office of Climate Action have analyzed the proposed revisions and presented its recommendations to the Planning Commission; and

WHEREAS, a duly advertised public hearing on the proposed amendment was held on **January 6, 2026** with all public testimony and written comment considered; and

WHEREAS, the Planning Commission finds that:

1. The proposed amendment is necessary and desirable to guide and accomplish the coordinated, adjusted and harmonious development of the City; and
2. The proposed amendment is generally consistent with the overall goals and objectives of the 1992 Master Plan; and
3. The proposed amendment shows the Planning Commission's long-range recommendations for the general development of the City; and
4. Based on the foregoing findings and all other facts and circumstances of which the Planning Commission may properly take notice in making and adopting a master plan for the City of Alexandria, adoption of the Green Building Plan will, in accordance with present and probably future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the residents of the City;

NOW, THEREFORE, BE IT RESOLVED by the Planning Commission of the City of Alexandria that:

1. The attached Green Building Plan is hereby adopted with the following modifications:
  1. On page 18, Table 2, Site EUI by Property Type, for Multi-Unit Residential - High Rise and Multi-Unit Residential – Other, change the Site EUI Target from 38 to 30.
  2. On page 19, Renewable Energy, Option 1, change the text as follows: “Generate

at least ~~3%~~ 5% of the project's anticipated total annual energy use with on-site renewable energy.”

3. On pages 19-20, Renewable Energy, delete references to the clean energy fund and options to make contributions to the fund in lieu of providing onsite renewable energy. This includes deleting the language related to options 2 and 3 and any associated text paragraphs, steps, formulae, etc.
4. On page 20, Electrification, add a second sentence as follows: “Onsite combustion is prohibited unless included in Permitted Combustion Uses.”
5. On page 28, Option 4: Small Projects, change the text as follows: “Residential projects with four or fewer units, or projects under ~~25,000~~ 10,000 square foot gross floor area are exempt from Options 1, 2, and 3 . . .”
6. On page 29, Option 5: Public Projects, select and add an industry recognized net zero energy standard for Public Projects in the Development Review Process (item 7) to be created by the Office of Climate Action.
7. Insert the following language in an appropriate location: “The City’s Office of Climate Action is directed to create a process for reviewing development submissions and periodically updating the Green Building Plan’s application in the City’s development process, administratively and as necessary, to accommodate swift, accurate, and effective submission review and Green Building Plan implementation.”
8. Insert the following language in an appropriate location: “The Office of Climate Action will, at least every two years, review the standards set in this policy, particularly Energy Use Intensity, Renewable Energy, and Permitted Combustion Uses, and recommend any changes to City Council.”
9. As part of the development review process and to the extent permitted, the Office of Climate Action should consider the emergency management implications of electrical vehicle charging infrastructure, including types of chargers, spacing, locations, emergency egress, and fire access.

This adoption creates the Green Building Plan Chapter of the City's Master Plan in accordance with Section 9.05 of the Charter of the City of Alexandria, Virginia.

2. This resolution shall be signed by the Chairman of the Planning Commission and attested by its secretary, and a true copy of this resolution forwarded and certified to the City Council.

ADOPTED the **6th day of January, 2026.**



Chair, Alexandria Planning Commission

ATTEST:



Paul Stoddard, Secretary

RESOLUTION NO. MPA #2025-00004

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ADOPTED the **6th day of January, 2026.**



Chair, Alexandria Planning Commission

ATTEST:



Paul Stoddard, Secretary

**Name**  
Neil A Snyder

**Organization**

**Submitted Comment**

There are two points I'd like to make:

- 1) The cities emphasis on single family homes probably yields the least amount of return for the dollar. I live in a 220 unit, 16 story condo, in the West End that is in desperate need of upgrading (windows, doors, heating, cooling, energy use...). The density of issues could yield greater results if there were city policies that helped condos like mine.
- 2) Green doesn't always mean better. I know a lot about classroom acoustics. Noisy environments are poor learning environments. Building a green school may make parents happy but they can still be poor learning environments. However, many energy saving materials and techniques, if deployed properly, can have a dual acoustical benefit as well. I would urge the city to consider acoustics when designing city owned spaces.

Thank you.

**Name**  
Deborah Dimon

**Organization**  
Alexandria City Resident

**Submitted Comment**  
My question is why the Green Building Policy excludes building units from having recycle options onsite with a size and number of collection bins for trash and recycling onsite. I think that city buildings should have compost collection bins, especially high-density buildings like city Hall and Mark Center Drive. The volume of food wastes that are in trash must be great and there is a productive and impactful way of reducing methane. Restaurants should also be required to have this onsite or per block to all contribute to.

**Name**  
Lina Daniel

**Organization**  
Jones Lang LaSalle

**Submitted Comment**  
I heavily encourage the policy to continue using third-party certifications such as LEED, WELL, Fitwel, Living Building Challenge, Energy Star, etc. to measure sustainability progress. Alexandria would benefit significantly to using these recognized standards rather than focusing more narrowly on specific requirements around EUI or building electrification.

Jake Torok

Sustainable Building Parters Compliance Option 1: Standard

Comment #1: Its unclear if Option 1 is a design-phase requirement or if there will be a post-occupancy verification, performance-bonding, or any other accountability mechanism. A design-based requirement would require extensive quality control and enforcement from individuals that are directly trained in predictive modeling. Those without direct building energy modeling experience will have a difficult time adequately enforcing this type of modeling approach.

Comment #2: ASHRAE 90.1-2010 Appendix G and 90.1-2019 Appendix G are ONLY intended for standardized & comparative benchmarking, not predictive modeling. Section G.1.2 #2 clearly states "neither the proposed building performance nor the baseline building performance are predictions of the actual energy consumption...". Appendix G can be adapted for predictive modeling, but not without thoughtful and intentional adapting of the energy modeling inputs and processes including but not limited to verified operating schedules, realistic load assumptions & diversity, non-TMY3 weather data, actual equipment performance curves, accounting for pipe/duct losses (excluded from Appendix G analyses), etc. This process can easily be 'gamed' and would thus require explicit modeling guidelines and subsequent enforcement of these guidelines.

Comment #3: There may need to be exemptions added to address unique circumstances that could inflate energy consumption. For example, a multifamily residential that caters towards retirees would have substantially higher consumption than a traditional multifamily with a working population. An inflated EUI in this scenario is not necessarily an indicator of a poor design but rather a drastically different usage profile within the same building classification. Other examples would be an on-site data center within an office building, a 24/7 call center tenant within an office building, etc.

Comment #4: A pathway for speculative buildings (core and shell) where the tenant is not yet known (primarily office and retail) would need to be directly addressed. It would be very easy to 'game' the requirement by assuming "light use" tenants and artificially reducing energy consumption.

Abhishek Lal

Meridian Consulting, LLC  
Compliance Option 2: Certification  
Please see comments in the uploaded PDF.

Thank you for the leadership shown by the Office of Climate Action (OCA) in developing the draft Green Building Policy (GBP). My comments are included in the attached document.

Peabody|Fine Architects

David Peabody

See attached document

JBG SMITH Properties

Kimberly Pexton

I recommend that LEED remain firmly as a compliance path. Removing LEED would remove the accountability that comes from third-party verification and the holistic sustainability and resilience benefits of LEED.

Sustainable Building Partners

Neha Vyas

Matthew Young

ASHRAE National Capital  
Chapter

On behalf of the ASHRAE National Capital Chapter as the Government Affairs Chair, I would like to submit the following information as the city considers improvements to the Green Building Building Policy. These comments do not reflect a comment submission from the society level.

ASHRAE is a global professional society of over 55,000 members, committed to serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration and their allied fields (HVAC&R). ASHRAE position documents are approved by the Board of Directors and express the views of the Society on specific issues.

Attached is ASHRAE's well-known position document on building decarbonization, which recommends embracing building decarbonization strategies to reduce building greenhouse gas (GHG) emissions. ASHRAE produces many consensus base standards that would be relevant to the city's green building policy, including: ASHRAE Standard 90.1-2022 Energy Standard for Buildings Except Low-Rise Residential Buildings, ASHRAE Standard 100-2018 Energy Efficiency in Existing Buildings, or ASHRAE Standard 240 Quantification of Life Cycle Greenhouse Gas Emissions of Buildings.

In addition to these standards, ASHRAE also recommends:

Research, Standards, and Guidelines Development

- Promote research and development programs that investigate and adopt building decarbonization strategies that lower GHG emissions and increase grid flexibility without compromising indoor environmental quality and safety.
- Promote research and development of heat pump technology.
- Support the development, update, and adoption of relevant standards and guidelines that facilitate the whole-life-cycle reduction of GHG emissions from new and existing buildings.
- Encourage standardization of measurement and labeling of embodied carbon in building materials, systems, and equipment.

Improved Design and Equipment Applications

- Balance safety, energy efficiency, cost, and environmental impacts to achieve building decarbonization.
- Advance the design, development, and application of HVAC&R equipment and systems that minimize GHG emissions during the life of the equipment.
- Encourage greater collaboration and the development of standards and guidelines among the

Sandra Leibowitz

Sustainable Design  
Consulting, LLC

The proposed update has omitted LEED and Green Globes from Compliance Option 2: Certification - and I am struggling to find any substantiated reason why. LEED, in particular, is the most well-known and widely used green building rating system, and its groundbreaking v5 has just been released. As Green Globes has evolved, it has taken shape in ways that are more closely aligned with LEED. While I understand the proposed strategy of having prescriptive options, and I recognize the inclusion of LEED in Compliance Option 3: Affordable Housing, its exclusion from the most obvious category of Certification, which includes all the other commercial and institutional buildings for which LEED was designed, seems incoherent.

By contrast, the inclusion in Compliance Option 2: Certification of Passive House Institute US (PHIUS) Certification or Passive House Institute (PHI) Certification, Living Building Challenge Certification, U.S. DOE Zero Emissions Building, or U.S. DOE Zero Energy Ready Homes is at cross-purposes with the stated goal of "(3) reducing unnecessary costs associated with a certification requirement", as these are much less understood by the building industry and its marketplace of professionals.

Furthermore, given the priorities of the current federal administration, it seems imprudent to include reliance upon any federal programs such as those listed above by U.S. DOE or the ENERGY STAR program, as they may be eliminated as options.

Finally, while I recognize the statement of applicability of this draft policy as for "New private development and major renovations that require a Development Site Plan (DSP) or a Development Special Use Permit (DSUP)", there is no mention of the requirements for Public Projects except to state "The 2019 Green Building Policy requires public projects to be net zero energy through onsite renewable energy generation if meeting net zero energy through onsite renewable energy generation is infeasible, the Climate Action Officer may provide flexibility to allow the project to meet net zero energy through renewable energy produced onsite." This represents only one aspect of a green building requirement for public projects, while not only is the City currently demonstrating leadership via LEED Gold-level certification, but it is required by state law to implement a green building program that includes certification for applicable public facilities. As such, this aspect of the 2019 Green Building Policy should be restored and, if anything, expanded upon.

Scott E. Pedowitz

Apartment and Office  
Building Association of  
Metropolitan Washington

Please see attached letter.

Steve Walz	Faith Alliance for Climate Solutions Alexandria Hub	Thanks for the opportunity to comment. The FACS Alexandria Hub's comments are attached.
Bryna Dunn	Moseley	uploaded via PDF file
Kathie Hoekstra	Sustain ALX	see attached
Cindy Wasser	Home Innovation Research Labs	On behalf of Home Innovation Research Labs, I submit comments from President/CEO, Michael Luzier, regarding the City of Alexandria Draft 2025 Green Building Policy.  We strongly assert that the draft policy addresses green building in a fragmented way and without the quality assurance and technical support afforded through third-party verification and certification.  We urge the City to expand acceptance of the multi-attribute green building programs included under Section III and for all project types.
Gracie Tilman	U.S. Green Building Council	Please see attached.
Ilana Judah	ARUP US, Inc.	Please see attached PDF for comment
Scott Barstow	Build Our Future	Attached please find a comment letter on the draft Green Building Policy from Build Our Future.

Rishabh Juneja

Grassroots Alexandria

- 2a. How do the EUI metrics proposed compared to other cities adopting ambitious climate action plans? From the presentation, it seems the most ambitious EUI goal will increase construction costs by 5%? What are the limits on construction costs before citizens of Alexandria feel the effects significantly--can the cost be pushed higher than 5% thereby allowing for even more ambitious EUI targets? Can the city subsidize the costs to some degree?
- 2b. How was the "3%" metric for renewable energy determined? Generating 3% renewable energy is clearly not enough, but if the idea is to begin seeding the practice to pair new construction with solar, I suppose it's a fine start; however, a higher target would be ideal. Additionally, solar is an intermittent form of renewable energy, so this solar should be paired with some sort of energy storage for added grid resilience.
- 2c. Does this imply the combustion of natural gas for heating during winter time is not permitted?
- 2f. Is it possible to recommend other water conservation methods, such as rain harvesting?
5. I like that adaptive reuse of buildings is being encouraged by the city. Is it clear what efficiency options apply, if any, in the case that new appliances or fixtures are not added?
6. A grid flexibility/ grid responsive condition in addition to the onsite requirement would also be beneficial.

## Introduction

The City of Alexandria has ambitious goals included in the Environmental Action Plan 2040<sup>1</sup>. Achieving those goals requires a shared commitment from the community, developers, builders, and design community. This update to the Green Building Policy is one more step on the pathway to a carbon-free, sustainable community.

The current Green Building Policy, adopted in 2019, established requirements that relied upon third-party certification programs. This policy was successful in elevating the sustainability of impacted developments. However, the use of third-party certifications introduced levels of uncertainty, and created a broad focus on sustainability, often at a higher cost while not meeting the key intent of reducing energy use and creating more resilient buildings.

The 2025 Policy Update provides a narrower set of requirements, focusing specifically on improving air quality, reducing environmental impact, and ensuring that developments add to, rather than negatively impact, the City's utility and community resilience. The Policy achieves this with a significant focus on Energy Use Intensity (EUI), renewable energy generation, and building electrification.

This update is intended to provide clear guidance on what outcomes the City expects in new developments, to create more regulatory certainty, and to reduce unnecessary costs for the sake of certification.

Compliance Option 1 criteria in the draft policy doesn't include material measures. Consider material measures such as construction waste management planning, framing efficiency for wood-framed buildings and a certified wood requirement for tropical wood products.

<sup>1</sup> The City of Alexandria's Environmental Action Plan 2040: <https://www.alexandriava.gov/eco-city-alexandria/environmental-action-plan-2040>

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DRAFT

## ***I. Policy Application***

New private development and major renovations that require a Development Site Plan (DSP) or a Development Special Use Permit (DSUP) are subject to comply with the Green Building Policy. The 2019 Green Building Policy will be sunset on September 30, 2025. The 2025 Green Building Policy is in effect for DSP and DSUP applications submitted on or after October 01, 2025. DSP and DSUP applications submitted between June 30, 2025 and September 30, 2025 may opt to comply with either the 2019 Green Building Policy or the 2025 Green Building Policy.

For flexibility considerations, see **Section 5, Compliance Option 4: Flexibility Requests.**

## ***II. Compliance Option 1: Standard***

### **a. Energy Use Intensity**

Energy Use Intensity (EUI) is a metric used to measure the energy efficiency of a building. It represents the amount of energy consumed per unit of gross floor area over a specific time, typically expressed in energy use per square foot (sq. ft.) per year.

Buildings with lower EUIs increase grid resiliency, help lessen utility burden, and contribute to improved regional outdoor air quality for Alexandria’s residents by avoiding fuel combustion required for increased electricity demand.

Site EUI targets by property type are shown in Table 1 below. Predictive modeling shall be used to calculate annual energy use in accordance with ASHRAE 90.1-2010, Appendix G. In lieu of 90.1-2010, ASHRAE 90.1-2019, Appendix G may be used. The annual energy use shall include all energy used for the building systems and its anticipated occupancies.

*Table 1. Site EUI by Property Type*

<b>Property Use</b>	<b>Site EUI Target (kBtu/ft<sup>2</sup>)</b>
Single unit residential	31
Multi-unit residential	38
Mixed use	Determined based on a ratio of the building’s property use types
Commercial/office	40
Hotel	83
Retail	40
Restaurants	289

**For property types not listed in Table 1**, the project’s Site EUI target should be determined using local benchmarked EUIs accessed using the Department of Energy’s [Building Performance Database](#) (BPD).

Once a building type is identified, a filter may be created under the ‘Building Classification’ tab. The location should be limited to Maryland, the District of Columbia, and Virginia. If more data points are needed, the geography may be expanded to Climate Zone 4A (Baltimore, MD). Limit the ‘Year Built’ to 2010 and later. Once the desired building type and observations are identified, then find the median site EUI for the building type. The project should aim to demonstrate an EUI which is 15% lower than the median for that building type.

Consider an option for a W/sf threshold of roof for solar installation. Some projects have limited roof and so a criteria based on production may not be feasible. Suggest 1.5-2 W/sf of available roof area.

## **b. Renewable Energy**

Generating renewable energy locally promotes lower operating costs, local grid stability, job creation and skill training, energy independence, and greenhouse gas emission reductions, helping to mitigate climate change and reduce air pollution within the City of Alexandria.

All buildings shall be designed to be solar-ready and shall meet one of the following Options:

Option 1: Generate at least 3% of project’s anticipated total annual energy use with on-site renewable energy. Anticipated total annual energy use shall be estimated using the same methodology used to calculate EUI.

Option 2: Contribute to the City of Alexandria’s Clean Energy Fund an amount equal to at least 90 percent of the cost to meet Renewable Energy Option 1.

Option 3: Any combination of Option 1 and Option 2.

## **c. Electrification**

Building electrification improves indoor and outdoor air quality, building safety, and reduces greenhouse gas emissions from the built environment as the grid transitions toward more generation from renewable sources over time.

### ***i. Permitted Combustion Uses.***

Buildings should evaluate and prioritize eliminating combustion onsite. The following combustion uses are permitted when controlled with occupancy sensors or automated timers as to prohibit combustion when not in use by building occupants:

1. Amenities (Fireplaces, firepits, or grilles) in multi-unit residential or hotel projects
2. Commercial kitchens and laundry
3. Emergency generators

Consider allowing natural gas as backup heating for DOAS units to avoid inefficient electric resistance heating as the backup.

## **d. Energy and Water Meters**

Install new or use existing building-level energy and water meters, or submeters that can be aggregated to provide building-level data representing total building energy consumption (e.g., electricity, natural gas, chilled water, steam, fuel oil, propane, biomass) and total building water

consumption. Utility-owned meters capable of aggregating building-level resource use are acceptable.

### e. Indoor Water Conservation

All newly installed plumbing fixtures that are eligible for labeling must be WaterSense<sup>2</sup> labeled. Newly installed plumbing fixtures shall not exceed the following maximum flow/flush rates:

- Water closets (toilets): 1.28 gallons per flush (gpf) Reduce to 0.125 gpf
  - Urinals: 0.25 gpf ←
  - Public lavatory faucets: 0.35 gallons per minute (gpm)
  - Private lavatory faucets: 0.5 gpm
  - Kitchen faucets: 1.5 gpm
  - Showerheads: 2.0 gpm
  - Prerinse spray valves: 1.3 gpm Reduce to 1.75 gpm
- Increase to 1 gpm for residential projects. This flow rate isn't typical for either low flow application and is too low for residential projects.

### f. Outdoor Water Conservation.

Meet one of the following Options:

Option 1: Do not install a permanent irrigation system.

Option 2: Reduce the project's landscape irrigation water requirement by at least 50% from the calculated baseline for the site's peak watering month. Reductions must be achieved through plant species selection and irrigation system efficiency, as calculated by the EPA's WaterSense Water Budget Tool.<sup>3</sup>

### g. Energy-Efficient Appliances

Newly installed appliances shall meet the following standards:

- Residential clothes washer: ENERGY STAR<sup>4</sup>
- Residential clothes dryer: ENERGY STAR
- Residential dishwasher: ENERGY STAR
- Residential refrigerators: ENERGY STAR
- Ice machines: ENERGY STAR
- Commercial clothes washers: CEE Tier 3A

<sup>2</sup> WaterSense Fixtures: <https://www.epa.gov/watersense/watersense-products>

<sup>3</sup> EPA's WaterSense Water Budget Tool can be accessed: <https://www.epa.gov/watersense/water-budget-tool>

<sup>4</sup> ENERGY STAR appliances: <https://www.energystar.gov/products>

**h. Electric Vehicle (EV) Charging Infrastructure*****i. Townhouses, Duplexes, Stacked Townhouses, and Single-unit Residential Projects:***

Provide two empty slots in the electrical panel for future Level 2 charging and pull wire ready conduit from the electrical panel to the garaged parking spaces. Install and label the conduit outlet in each garage prior to receiving the Certificate of Occupancy.

Option 1 for All Other Project Types: Provide EV chargers for at least five percent of the required parking spaces, consisting of Level 2, Level 3 DC Fast Chargers (DCFCs), or a combination thereof, rounded up to the next whole number parking space. At least 25 of parking spaces shall be EV charger-ready.

Option 2 for All Other Project Types: Install at least one publicly accessible electric vehicle DCFC, prior to issuance of the final Certificate of Occupancy. The DCFC space(s) would not be in addition to the off-street parking required under the Zoning Ordinance.

**i. Low Emitting Materials**

Meet the requirements equivalent to earning at least 2 points for the LEED v4.1 BC+C New Construction – Low-Emitting Materials credit.<sup>5</sup> Three of the following building interior product categories may be pursued: paints and coatings, adhesives and sealants, flooring, wall panels, ceilings, insulation, and composite wood.

**j. Pre-Occupancy Flush or Indoor Air Quality Testing**

Meet one of the following options after construction and before occupancy:

Option 1: Flush building during and shortly after installing products that are known sources of contaminants (e.g., cabinets, carpet padding, painting) and for 48 hours prior to occupancy.

Option 2: Meet the requirements to earn at least 1 point for Option 2 of the LEED v4.1 BD+C New Construction: Indoor Air Quality Assessment credit.<sup>6</sup>

**III. Compliance Option 2: Certification**

Projects that pursue one of the following certifications are considered compliant with the Policy. These certifications push projects to incorporate market-leading sustainability strategies, support

<sup>5</sup> Reference the LEED Credit Library for specific requirements: <https://www.usgbc.org/credits/new-construction-core-and-shell-schools-new-construction-retail-new-construction-data-38?return=/credits/New%20Construction/v4.1/Indoor%20environmental%20quality>

<sup>6</sup> Reference the LEED Credit Library for specific requirements: <https://www.usgbc.org/credits/new-construction-schools-new-construction-retail-new-construction-healthcare-data-centers-17?return=/credits/New%20Construction/v4.1/Indoor%20environmental%20quality>

workforce development, and take advantage of federally available incentives. Projects using this compliance option must use the current version of the certification or standard available at the time of DSP or DSUP submission: Passive House Institute US (PHIUS) Certification or Passive House Institute (PHI) Certification, Living Building Challenge Certification, U.S. DOE Zero Emissions Building, or U.S. DOE Zero Energy Ready Home.

#### ***IV. Compliance Option 3: Affordable Housing Projects***

Projects which use this compliance option must comply with the current version of the rating system or standard available at the time of DSP or DSUP submission. Projects utilizing Virginia Housing Development Authority Low Income Housing Tax Credit financing or City of Alexandria Housing Opportunity Funds must be compliant with VHDA-required baseline energy performance requirements and obtain one additional green certification:

- Baseline energy performance requirement: HERS Rating or Energy Star Compliance
- Additional green certification: LEED, EarthCraft, National Green Building Standard or Enterprise

#### ***V. Compliance Option 4: Flexibility Requests***

##### **k. Adaptive Reuse**

The City strongly supports the conversion or "adaptive reuse" of existing buildings to achieve significant environmental benefit over the construction of new buildings. Proposals including adaptive reuse of existing buildings may seek waivers or reductions of the required EUI and renewable energy targets of the Green Building Policy. Waivers will be approved by the Director of Planning & Zoning and the Climate Action Officer.

##### **l. Interim Uses, Residential Projects with 4 or Fewer Units, or Projects <25k Gross Floor Area**

In lieu of Compliance Options 1, 2, or 3, meet the following:

**Water Conservation:** All newly installed plumbing fixtures that are eligible for labeling must be WaterSense<sup>7</sup> labeled. Newly installed plumbing fixtures shall not exceed the following maximum flow/flush rates:

- Water closets (toilets): 1.28 gallons per flush (gpf)
- Urinals: 0.25 gpf
- Public lavatory faucets: 0.35 gallons per minute (gpm)
- Private lavatory faucets: 0.5 gpm

<sup>7</sup> WaterSense Fixtures: <https://www.epa.gov/watersense/watersense-products>

- Kitchen faucets: 1.5 gpm
- Showerheads: 2.0 gpm
- Prerinse spray valves: 1.3 gpm

**No or Low Flow Irrigation:** Use no permanently installed irrigation system. Or all newly installed irrigation systems must use drip, mist, or other low-impact irrigation methods.

**Energy-Efficient Appliances:** Newly installed appliances shall meet the following standards:

- Residential clothes washer: ENERGY STAR<sup>8</sup>
- Residential clothes dryer: ENERGY STAR
- Residential dishwasher: ENERGY STAR
- Residential refrigerators: ENERGY STAR
- Ice machines: ENERGY STAR
- Commercial clothes washers: CEE Tier 3A

**Electric Vehicle Charging Infrastructure:** Meet the requirements of Section 2,H as applicable.

**Solar-Ready Roof and Electrical Design:** Demonstrate that the roof(s) are solar ready, with the necessary conduit and available electrical panel area to enable future solar panel installation, on the project's Final Site Plan.

### **m. General Flexibility**

Additional flexibility from the Green Building Policy will be considered on a case-by-case basis. Other measures proposed by applicants which incorporate sustainable building design and construction significantly beyond commonly utilized design and construction techniques will be considered.

If additional flexibility is requested, the City's Climate Action Officer and Director of Planning and Zoning will consider the project size, proposed use, and the proposed green building practices by the applicant to determine if the request is justified.

## **VI. Public Projects**

The 2019 Green Building Policy requires public projects to be net zero energy through onsite renewable energy generation. If meeting net zero energy through onsite renewable energy generation is infeasible, the Climate Action Officer may provide flexibility to allow the project to meet net zero energy through renewable energy produced offsite.

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<sup>8</sup> ENERGY STAR appliances: <https://www.energystar.gov/products>

## ***VII. Submissions & Future Updates***

The City’s Office of Climate Action is directed to create a process for reviewing development submissions and periodically updating the Green Building Policy’s application in the City’s development process, administratively and as necessary, to accommodate swift, accurate, and effective submission review and Green Building Policy implementation.

DRAFT

## **Comments on the Draft Green Building Policy**

Thank you for the leadership shown by the Office of Climate Action (OCA) in developing the draft Green Building Policy (GBP). The inclusion of Energy Use Intensity (EUI) as the basic metric for evaluating building performance marks a major step forward. EUI is clear, measurable, and avoids the weaknesses of point-based systems that can be gamed. Like MPG for cars or FAR for zoning, it communicates performance simply and objectively. This approach will save time for City staff and money for developers.

I also support the GBP's requirements for all-electric buildings, onsite renewable energy, and EV readiness. These are foundational elements of a sound climate policy. Similarly, its measures addressing water conservation, healthy materials, and air quality are essential for sustainable and equitable growth.

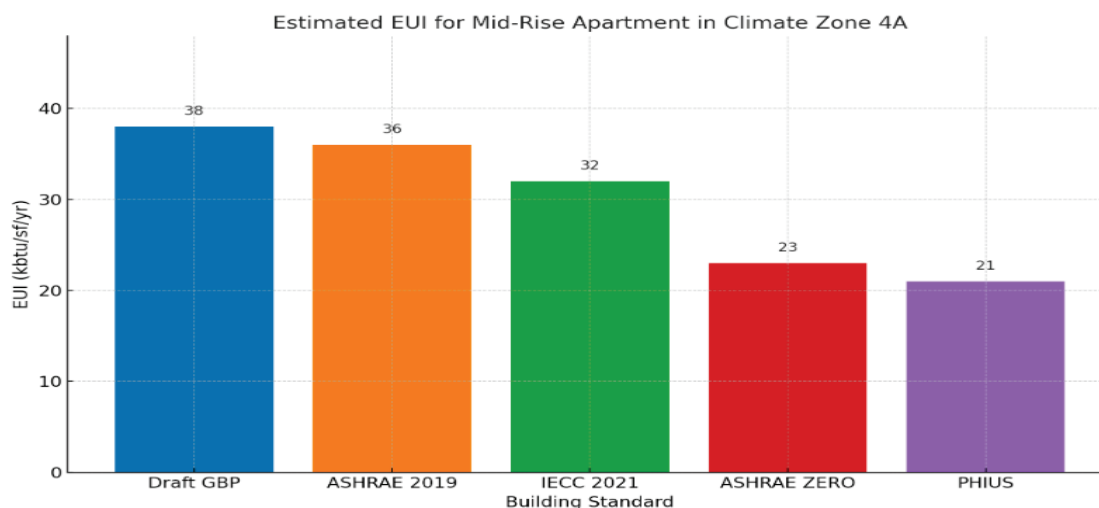
However, to meet the Council's stated goal of a 50% emissions reduction from 2008 levels by 2030, the current draft policy does not go far enough. Specifically, two areas need strengthening:

- 1. More Ambitious EUI Benchmarks**
- 2. Design Requirements that Enable Scalable Solar and Battery Storage**

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### **1. The EUI Benchmark Must Be Lower**

As you can see from the chart below, the proposed EUI target of 38 kBtu/sf/yr for multifamily housing sets a weaker energy performance standard than what is already required for multifamily buildings under Virginia's current energy code (which allows compliance through ASHRAE 90.1-2019 or IECC 2021).



The bases for the EUI numbers in the graph are studies by DOE and Pacific Northwest National Labs. These can be found [here](#) on pages ix and x. While my comments here specifically address multifamily housing, they are just as relevant to EUI's for other building types.

The rationale for the 38 EUI multifamily housing target appears to come from Cadmus, the City's sustainability consultant, who estimated a 4.27% cost premium to meet a 31 EUI standard. The chart below shows their method in reaching this estimate.

**Table 9. Phase 2. GBP Analysis - Multifamily Measure Packages**

Multifamily Measure Package	Measures included	Energy Use Intensity (EUI in kBtu/sq ft)	Percent Reduction from Baseline	Incremental Cost of Measure Package (\$/sq ft)
Baseline	New Construction standard per local code	42.00	0%	N/A(average baseline cost of \$350)-
Good	Increase roof insulation by 30%, Increase exterior wall insulation by 30%, Improve window's U-Value to 1.2 and Solar Heat Gain Coefficient (SHGC) to 0.25, Increase cooling COP to 4.5, and Increase motor efficiency to 96%	38.50	8%	\$3.37 (1%)
Better	All improvements in the Good Package, plus Reduce elevator load by 10%, Install daylight sensors in corridors, Electrify Space Heating	35.70	15%	\$9.31 (3.6)
Best	Increase roof insulation by 30%, Increase exterior wall insulation by 30%, Increase motor efficiency to 96%, Electrify Domestic Hot Water with Heat Pump Water Heater	30.98	26%	\$2.28 (4.27)

Good: First 10% site energy use reduction target

Better: Second target with fully electrified space heat (includes all measures from "Good" package)

Best: Third target with fully electrified DHW (three efficiency measures + DHW electrification)

The "add-on" design method they use—starting with a standard building and incrementally improving it until you get it to the desired performance level—is flawed and suggests a lack of familiarity with well-established industry best practices. High-performance buildings are not designed this way. Instead, designers start with the performance goal and develop an optimized, cost-effective solution from the beginning. That is the beauty of the Passive House approach and of the EUI approach: you give the developers the goal and let [them](#) figure out how to get there. They will always find the most affordable way. This is borne out by actual cost and performance results from numerous

completed small and large Passive residential buildings. The results cited below from webinars hosted by *Build Our Future* and from public cost data on Passive House construction belie Cadmus's 4.27% figure and point to a far lower cost premium.

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- In **Massachusetts**, eight affordable multifamily projects (541 units) showed an average cost increase of **2.21%**. An additional four Boston projects averaged just **1.15%**. (Source: [Passive House Network Report of 2023](#))
  - In **New York**, [33 Passive House projects](#) (3,234 units) averaged a **3.7–4%** increase. The city now has two of the largest Passive House affordable housing projects in North America: the 34-story Sendero Verde ( **1.5%** cost increase over standard construction) and 26-story 425 Grand Concourse (**2.2%** higher). Both are covered in the BOF webinar [Tall Buildings, Small Energy Bills: Passive House at Scale](#).
  - In **Pennsylvania**, cost premiums dropped from 5.8% to **1.6%** after one year. In subsequent years some Passive projects even cost **less than code-compliant buildings**. This is fully detailed in the 2022 BOF webinar [Affordable Housing: The Case for Passive House Design and Net Zero Energy](#).
- 

Because of the relatively minor cost hurdle involved to achieve Passive House level performance, **there is no reason not to impose the more stringent EUI of 31 kBtu/sf/yr in 2025, stepping that down incrementally to 23 kBtu/sf/yr by 2030**. The final 2030 level is consistent with best practices and aligns with performance levels from the ASHRAE Advanced Energy Design Guide and the PHIUS standard. Most importantly, it aligns with the City's 2030 goal that new construction adhere to net-zero energy performance.

A lower EUI will bring us not just more efficient buildings; it will generate buildings that are ready for the future energy landscape. That future is already visible:

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- The energy system will be **electric**;
  - The cost of **onsite solar** will fall below the bare transmission cost of centralized power;
  - **Battery storage** costs will continue to decline in the same fashion;
  - **Electric and autonomous vehicles** will replace internal combustion engines.
- 

These changes are being driven by economics, not ideology, and they are underway globally. **Low EUI buildings allow owners and occupants to take greater advantage of the coming economies of solar generation**. The simplest example: a solar roof that can cover 20% of a building's needs at 40 EUI could cover 40% or more at 20 EUI. That difference will matter deeply, particularly to the pocketbooks of low-income residents—and to the grid. This leads to my second recommendation.

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## 2. Buildings Must Be Designed for Future Solar + Battery Readiness

As the new energy landscape emerges, and solar and battery costs continue to decline, the economics of local, onsite energy generation will only strengthen. But developers, who typically do not operate the buildings they build, have no financial incentive to create

buildings that can take advantage of these changes. That’s where City policy must step in. If it does not, its residents will be excluded from the economies of onsite solar power generation. This is particularly important for those living in affordable multifamily housing.

For these reasons I recommend the following solar-readiness provisions for all new construction:

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- **10% minimum onsite energy generation at occupancy**
  - **60% of total roof area designed and reserved for future solar installation**
  - **Designated onsite space for battery storage corresponding to that solar capacity**
  - **Required conduit, grid interconnection and structural infrastructure to support these systems**
- 

Developers’ inevitable arguments about rooftop space conflicts between mechanical systems, terraces and green roofs are solvable. Solar canopies are now being deployed above HVAC systems, above terraces, and even above green roofs. The point is not to require full solar buildout immediately, but to **preserve and facilitate the future option**—at low cost and high benefit to residents, the City, and the utility.

### 3. Side benefits

**The co-benefit of making high performance, affordable low EUI buildings is health.** To achieve sub-30 levels of EUI, buildings must be airtight and extremely well-ventilated. This eliminates condensation-induced mold and other particulates and translates into healthier buildings with far lower incidences of childhood asthma and other respiratory diseases. A [current study](#) by the National Center for Healthy Housing is now quantifying these exact benefits in affordable multifamily housing.

**The co-benefit of making high performance low EUI buildings with robust onsite solar energy generation and storage is resilience.** “Passive survivability” is a term that has come into use with the growing appreciation of how well low-EUI buildings perform when the grid goes down. Because of their increased insulation, they stay warm longer in the winter and cool longer in the summer, riding out out blackouts, heat waves and winter storms. And with onsite solar and battery storage powering critical electrical circuits, they can endure such events indefinitely.

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### In Summary, A Policy That Plans for the Future

The worldwide energy trends are clear, regardless of who occupies the White House, and our Green Building Policy must align with those trends. If we allow developers to continue building to today’s energy standards and today’s energy infrastructure—without preparing for what’s coming—our residents will be left behind, unable to participate in the coming energy economy. By adopting a truly future-focused Green Building Policy, the City can deliver lower costs, healthier and more efficient buildings, and greater energy resilience to all its citizens.

David Peabody, FAIA

## Recommendation

Focus on establishing EUI targets first, followed by electrification strategies by a future date. Electric vehicle considerations can be addressed post-occupancy based on actual usage data. Conversations with key stakeholders with Dominion Energy need to be consulted to ensure capacity can be met.

We would like to offer the following comments and reasons for consideration regarding the proposed 2025 Alexandria Green Building Policy update.

## Considerations for EUI

- **Energy Use Intensity (EUI)** should account for different multifamily building configurations, as there are significant differences between garden-style, mid-rise, and high-rise buildings.
- Illustrations of this can be found in a large multifamily building throughout the DC Metro area that have restaurants and/or grocers on the ground floor of the building. There can be as much as 15% difference in EUI when ground floor spaces are included in the whole building calculation. Consider exemption of ground floor spaces from the EUI calculation.

## Target EUIs

- The target EUIs represent a **20-30%** difference between current code and the Green Building Performance (GBP) standards (IECC 2021/ASHRAE 90.1 2019). Achievement of these EUIs is a challenge to achieve on both technology and first cost. This challenge is exacerbated by electrification and increased EV capacity requirements.

## Renewable Energy Requirements

- Generate **3%** of a project's anticipated total annual energy. Clarification needed on whether this refers to 3% of roof area. The table focuses on square footage remaining after solar installation, suggesting a square footage requirement rather than a load requirement.
  - Note that the taller the building the more challenging it is to achieve a 3% offset of their energy load.
  - It is unclear where the referenced modeled load numbers originated and do not appear accurate.
- The most cost-effective installation method is a **ballasted system**; however, introducing steel dunnage and support structures significantly increases costs without proportional output gains.
- In most cases, achieving 3% generation may require covering the entire roof. Achievement would mean that an elevated structure would be needed increasing the cost of solar installation while not increasing the solar output.

- Cost contributions to a “fund” should be based solely on the cost per square foot of solar panels rather than the entire system.
- This approach may be prohibitive without tangible benefits; funds could instead enhance overall building energy efficiency.
- Suggest reframing the load requirements to focus on emergency lighting and apartment refrigeration as part of a resilience strategy.
- The cost per watt installed for solar systems is estimated at **\$3/W for ballasted systems only**.

### Cost Considerations

- The electrification requirement for Dedicated Outdoor Air Systems (DOAS) is deemed untenable, potentially increasing the EUI and making it difficult to meet stated thresholds.
- Dominion Energy should be included in discussions regarding energy planning.
- Planning for electric vehicle (EV) charging infrastructure that does not yet exist may increase the EUI, complicating compliance with established targets.

### General Flexibility and Administration Challenges

- Adaptive reuse projects may seek waivers for EUI and renewable energy requirements, though no comments were provided on this aspect.
- General flexibility regarding EUI appears negotiable, but this can lead to challenges in administration and uncertainty for developers about necessary actions.
- Each building presents unique characteristics, leading to inconsistent results and significantly increased review times.

### Notes Regarding the Modeling Study Used as a Policy Setting Tool

- The modeling study for the three building prototypes (medium office, midrise multifamily, highrise multifamily) does not include fully electric buildings, including DOAS, with the desired EV loads.
- Modeling results are known to differ by approximately **20%** from actual operational performance.
- Modeled prototypes used do not represent market buildings in Alexandria.
- ENERGYSTAR and local benchmarking data sets are not limited to fully electric buildings only.
- It appears the simulation-based analysis base case for the prototypes meet all the prescriptive requirements of the code. Developers utilize the performance model to demonstrate

compliance because the building design does not meet all prescriptive code requirements. The prototypes should represent real world conditions.



May 30, 2025

Dustin Smith  
 Green Building Manager  
 City of Alexandria Department of Planning and Zoning  
 301 King Street, Room 2100  
 Alexandria, VA 22314

Dear Mr. Smith:

The Apartment and Office Building Association of Metropolitan Washington (AOBA) is eager for property developers and owners to have successful experiences delivering high-efficiency projects under Alexandria's proposed Green Building Policy (GBP). We therefore encourage the City to take a more analytical approach to the proposed site energy use intensity (EUI) targets to ensure that the incremental costs are commensurate with the incentives. Additionally, we encourage providing additional clarity on the adaptive reuse pathway and streamlining project requirements for equipment standards and utility services.

As you know, AOBA is the premier non-profit organization representing owners and managers of more than 480,000 apartment units and 157 million square feet of office space in the District, Maryland, and Virginia. Of that portfolio, more than 2.85 million square feet of office space and 30,000 multifamily residential units are located in Alexandria. Our members play a critical role in building and operating the commercial and residential buildings that will accommodate the economy and workforce of the future. As such, our member companies consider themselves part of the Alexandria community and maintain a vested stake in the city's long-term sustainability and well-being.

AOBA recommends either using statistically representative Commercial Building Energy Consumption Survey (CBECS) and Residential Energy Consumption Survey (RECS) data in calculating site EUI targets or reducing the required reduction from the Building Performance Database (BPD) median to 10%, rather than the proposed 15%. The BPD will create overly aggressive targets for other building typologies as it is not intended to be a statistically representative sample of the building stock. Moreover, the cost impacts used to justify the targets are out-of-date and do not reflect current or future construction costs.

Additionally, Cadmus's technical models for the GBP did not include offices, mid-rise residential, or high-rise residential building typologies, and these higher density building typologies all have higher total energy use than a low-rise multifamily building. As a result, developers and owners of these building types may feel these EUI targets are unachievable. We are also unclear about the methodology for estimating the incremental costs for offices to meet the GBP and are concerned that they may be unattainable.

We encourage detailing the adaptive reuse compliance option, rather than applying customized proposals to achieve this pathway. Although customization allows flexibility, undefined pathways require negotiation between developers, owners, and City staff, which creates uncertainty, increases project schedules, and raises costs. The adaptive reuse pathway will benefit from a clearer definition of its required EUI reductions relative to the targets found elsewhere in the policy, offering guidance on the amount of relaxation of EUI standards that would be allowed for adaptive reuse projects. We would also appreciate providing more clarity on the renewable energy targets for adaptive reuse.

AOBA suggests defining equipment efficiency levels in the GBP based on the current ENERGY STAR and WaterSense requirements. As currently constructed, the proposed GBP has over-defined programmatic requirements around water fixtures in sections 1.e, 1.g, and 5.I. In addition, section 1.g and 5.I require WaterSense fixtures and meeting specific flow or flush rates. Also, owing to uncertainty around the future of ENERGY STAR, we recommend specifying performance thresholds in line with current ENERGY STAR and WaterSense program guidance to give developers and owners a way to meet these requirements that is robust to future changes in these programs.





While we recognize the advantages of whole property energy use, we recommend removing the requirement that developers and owners prove that they capture whole-building meter data. Nearly all buildings built today receive utility services in a way that allows their energy use to be aggregated at a whole-building level already. We suggest an alternative approach of demonstrating compliance with this requirement only if a project site would have a demonstrated need for submeters.

We also recommend several minor clarifications to facilitate the GBP's implementation. One such clarification is to ensure that its applicability to "major renovations" is defined with a reference to Commonwealth of Virginia or City of Alexandria code, so it is clear when the GBP applies. We also recommend delaying implementation of the new GBP to account for the extended comment period and extending the period where either the 2019 or 2025 versions of the GBP can be used. The proposed 90-day period where developers and owners can use either the 2019 or 2025 GBP is much tighter than similar code transitions, which have allowed between 6 and 12 months before the new code takes effect. A longer timeframe will allow developers and owners to evaluate the two versions and to determine how best for their projects to proceed.

We thank you for your consideration of our comments and look forward to continuing to engage with you on future drafts and the implementation of the GBP.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott E. Pedowitz". The signature is fluid and cursive.

Scott E. Pedowitz  
Director of Government Affairs, Virginia  
Apartment and Office Building Association of Metropolitan Washington (AOBA)





May 30, 2025

Dustin Smith  
Green Building Manager  
Alexandria Office of Climate Action  
City Hall  
301 King Street  
Alexandria, VA 22314

Dear Dustin,

The Faith Alliance for Climate Solutions, Alexandria Hub, is writing to express our support for the direction taken in the 2025 proposed update to the City's Green Building Policy, and ask that the proposed policy be strengthened in key areas.

We are pleased to see the changes such as establishing Energy Use Intensity (EUI) levels by building type, providing clear guidance on building electrification, setting a minimum level of EV charging infrastructure, incorporating more efficient water appliances, establishing that public buildings can use off-site renewables, and offering multiple compliance paths.

However, the site EUI targets are too modest and do not move new building performance in Alexandria sufficiently forward to meet the City's climate goals. Alexandria should set a standard that buildings meeting the Green Building Policy requirements be in the top quartile of EUIs for buildings in the Washington metropolitan region. Strengthening the required EUI will lead to more efficient new buildings with lower year-after-year energy costs at a modest construction cost increase.

For example, building simulations in the PNNL report<sup>1</sup> commissioned by the City show the EUIs for office and multi-family buildings constructed under the current and future building codes are below both the proposed EUI standards and the top quartile of buildings built in the region since 2010. The proposed EUI standard of 40 for office buildings and the proposed EUI for multi-family residential buildings of 38 should both be reduced to 25. The EUIs for other building types should also be reduced.

Many criticisms of more rigorous green building standards cite increased building costs as a reason to set less rigorous standards. In fact, use of more rigorous green building standards can be cost effective. For example, the Cadmus report<sup>2</sup> commissioned by the City found that multifamily low-rise buildings in Alexandria, with an average cost of \$350/square foot for construction, would see an incremental cost increase of less than \$10/square foot. This is only 2.86% of the current average construction cost. Further the report found that a building at a 15% reduction from baseline EUI would only see a 3.6% incremental cost increase.

The Environmental Policy Commission recommended that the City define a "zero emission building" directly in the policy rather than using the federal definition adopted by the US Department of Energy. Additionally, the proposed Green Building Policy references federal ENERGY STAR and WaterSense standards. Relying on federal definitions and standards may

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<sup>1</sup> [https://www.alexandriava.gov/sites/default/files/2025-04/pnnl\\_memo\\_data\\_and\\_analysis\\_for\\_target\\_setting\\_alexandria\\_va\\_7.18.24.pdf](https://www.alexandriava.gov/sites/default/files/2025-04/pnnl_memo_data_and_analysis_for_target_setting_alexandria_va_7.18.24.pdf)

<sup>2</sup> [https://www.alexandriava.gov/sites/default/files/2025-04/cadmus\\_city\\_of\\_alexandria\\_gbp\\_report\\_3.14.25.pdf](https://www.alexandriava.gov/sites/default/files/2025-04/cadmus_city_of_alexandria_gbp_report_3.14.25.pdf)

Dustin Smith  
May 30, 2025

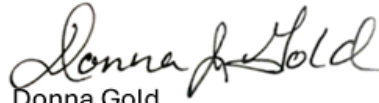
not be useful if the changes proposed by the federal Department of Energy and Environmental Protection Agency are enacted. The Green Building Policy should include definitions in the policy or cite specific ENERGY STAR and WaterSense standards, not standards in general, to protect against the proposed federal actions.

Thank you for the opportunity to comment on the proposed 2025 Green Building Policy.

Sincerely,



Steve Walz  
Co-Coordinator, Alexandria Hub  
Faith Alliance for Climate Solutions



Donna Gold  
Co-Coordinator, Alexandria Hub  
Faith Alliance for Climate Solutions

Thank you for considering the following comments as relates to the 2025 Green Building Policy – DRAFT dated 4/8/2025. The City of Alexandria is an established leader in setting green building policy, so any changes made to your current policy are likely to have an impact well outside of your community. These comments are offered as encouragement to continue to keep the bar high and to provide consistency in expectations for building performance moving forward.

The stated objectives of “reducing energy use and creating more resilient buildings” are important, but truly sustainable buildings must also address human and environmental wellness, as well as a full range of decarbonization strategies (not just reduced energy use during the project’s operational phase). For this reason, it is curious that the most recognizable green building certification program, LEED, which just launched v5, has been omitted from this policy. It is also curious that Green Globes, which has made improvements over the years and is also now widely recognized as a competitor to LEED, has also been omitted. If the goal of this policy is to not “introduce levels of uncertainty at a higher cost”, then it would follow that pointing to the two most widely known and utilized green building frameworks, and relying on their expert staff to verify compliance, would be important.

In terms of policy application, the previous (2019) policy applied to both private and government owned buildings, including public schools. It appears this new policy does not apply to local government buildings, including public schools, with the exception of a short statement about public buildings and net zero energy through onsite renewable energy generation. This statement does not unambiguously require net zero energy for public buildings, though, as the Climate Action Officer can waive that requirement. Further, this paragraph about public projects does not acknowledge the High Performance Buildings Act ([§ 15.2-1804.1. \(For applicability, see Acts 2021, Sp. Sess. I, c. 473, cl. 2\) Building by locality; high performance standards](#)), which does require public buildings greater than 5,000 square feet to meet specific green building requirements including third party certification, electric vehicle charging infrastructure, energy metering, on site renewable energy, energy storage, and resilience features.

The 2025 policy makes many references to ENERGY STAR and Water Sense, which are programs that may be eliminated under the current administration. It seems prudent that the 2025 policy offer an alternate compliance path should the referenced federal programs become obsolete. The 2025 policy also makes reference in a few places to LEED v4.1. This version of the rating system is slated to be sunset in March 2026. It would seem that the 2025 policy would reference the most current version of the rating system, v5, so that it can stay aligned with current best practices. In fact, the 2025 policy also references an

obsolete version of ASHRAE 90.1 by pointing to the 2010 version. Again, it would seem that the 2025 policy would point to a current version of ASHRAE 90.1 to stay aligned with current best practices. It probably goes without saying, but while energy modeling is important to designing an efficient building, energy performance also relies on the quality of construction which should be confirmed through a robust third-party commissioning effort (both MEP and envelope commissioning).

Although the stated intention of the 2025 policy is to focus on energy efficiency and resilience, it does minimally address human health through the low emitting materials requirement (although the reference to LEED v4.1 should be updated to LEED v5) and by addressing pre-occupancy flush out or indoor air quality testing. The flush out option should be re-evaluated, as simply participating in a flush out does not identify whether there was an IAQ problem to begin with, it does not confirm that any potential problems were solved, nor does it prevent a new problem from being created (in the event the flush out air is not adequately dehumidified). Engaging in indoor air quality testing is a more data driven approach that doesn't potentially waste energy and does have the potential to identify specific problems that would need to be remedied. It would be beneficial, however, for the policy to offer more robust guidance about the importance of indoor environmental quality in the built environment.

The 2025 policy may also be enhanced by defining expectations for what "EV charger-ready" and "solar ready" mean. There seems to be some potential guidance related to EV charger-ready (although it is unclear if the slots in the panel and the wire-ready conduit would only apply to structured parking situations), however, the entire section about EV charging infrastructure could be further clarified (for example, in option 1, is the requirement both 5% of spaces including L2 and/or L3 DCFCs and another 25 spaces being EV charger ready?). It also seems that EV charging infrastructure option 2 is substantially easier to comply with than option 1. The solar ready guidance does not address the structural capacity of the building to hold an array, nor does it address the impacts of new ASCE 7-22 requirements. These are important considerations related to on-site renewable energy and should be addressed.

There are a few topic areas related to decarbonization and resilience that may also be beneficial to consider before issuing the final policy. Regarding decarbonization, please consider addressing both the impacts of refrigerants/refrigerants leakage and of embodied carbon on climate change. It may be appropriate to include requirements around these topics. Planning for resilience is also important, and it may be appropriate to require projects to understand and address the primary hazards their projects may face during the life of those buildings (referencing the Commonwealth of Virginia Hazard Mitigation Plan,

March 2023, the Northern Virginia Hazard Mitigation Plan, July 2022, or the City of Alexandria Annex to the NOVA Hazard Mitigation Plan, November 2022, may be helpful in this regard).

Finally, there are a few typos in the draft policy that it would be appropriate to correct. In the reference to LEED v4.1 in (i) Low Emitting Materials, BD+C is misspelled as BC+C. And in two locations, the phrase “in lieu of” is misspelled as “in leu of”.

Thank you, again, for considering these comments. And thank you, of course, for your ongoing leadership role and commitment to a more sustainable and resilient future.

May 31, 2025

I support the Environmental Policy Commission's letter in the backing of, but with amendments to, the proposed Draft Green Building Policy with one critical exception – the draft Policy should abide by the 2008 Alexandria Eco-City Charter<sup>1</sup> and **“require best in practice measures...” with an EUI of 25 for multifamily buildings. This currently achievable EUI level should be required since there is verifiable data supporting an increase of 0 to an average of 2% higher for those buildings achieving an EUI of under 25.**<sup>2</sup> Given the rollback by the current Federal government to protect the world for future generations, the City and its developers must at least do its achievable share. Reducing the EUI level today is also consistent with the values for the City including: Increasing the Quality and Affordability of Housing and Eliminating Community Disparities.

Over the last 30 years, the City has enacted multiple Policies, Ordinances, Declarations and Action Plans - all to address the impacts from the climate crisis such as flooding, increasing childhood asthma rates from air pollution, oppressive heat effects in low-income neighborhoods, lack of affordable housing partially due to high electric bills, and unhealthy homes from lack of proper ventilation and/or poor quality building envelopes. Each of these documents has cost the City a great deal of time and money – both by City staff and its volunteers.

Unfortunately, the impacts from the climate crisis continue to get worse and the costs to address them continue to impact the City's budget as they grow larger and larger. The City can slow this budget drain by directly addressing the problem with existing, well-documented solutions. It must be noted that adding to a problem has **NEVER** been the solution. The less efficient buildings you build, the higher the costs of remedies in the future will be.

The City should adopt the “best practice” EUI for multifamily buildings outlined in the 2022 Advanced Energy Design Guide for Multifamily Buildings. The information in this Guide was developed by representatives of ASHRAE (a national professional association of experts in building codes and energy efficiency), the American Institute of Architects, the US Green Building Council, the US Department of Energy and the Illuminating Engineering Society. On page 27, Table 3-1, it indicates the best practice and achievable target for EUI in multifamily buildings in this climate zone is 22.9. The Guide says this EUI target applies to

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<sup>1</sup> In 2008, the City passed the Eco-City Charter and stated, “Adopt and maintain initiatives that require best in practice measures to reduce overall environmental impact of renovation, redevelopment, and new development.”

<sup>2</sup> See Build Our Future Webinar: <https://buildourfuture.org/wp-content/uploads/2022/03/Timothy-McDonald-Affordable-housing-and-Passive-House-presentation-3.2.2022-.pdf> - slides 96- 106

any buildings from 4 to 20 stories. If the City is going to honor its Eco-City Charter “best practice” language it must enact this EUI target or explain why it has decided to “pay more later” as outlined in the Climate Emergency Declaration because it chose to do less today.

Unlike the City’s consultant’s Cadmus report that appears to just add separate items to determine added costs and more efficiency, this Design Guide indicates the process to be used by developers to achieve this 22.9 target **must** be – set the target and then design the building around that target vs. designing via “business as usual” and then adding extras to achieve a lower EUI per the Cadmus report.<sup>3</sup> Building design teams and developers can achieve great results as exemplified by developers in Philadelphia and New York who have designed, financed and developed multifamily buildings over the last 10+ years with EUIs far below the “best” level cited in the Cadmus report and costing the same or on average only 2% higher than “business as usual buildings.” (See Build Our Future Webinar: <https://buildourfuture.org/wp-content/uploads/2022/03/Timothy-McDonald-Affordable-housing-and-Passive-House-presentation-3.2.2022-.pdf> - slides 96- 106.) Thus, the question remains: why does designing, financing and building an energy efficient building in Alexandria cost much more per Cadmus and still only achieve multifamily buildings with an EUI of 30 vs. ones at or below 23 in Philly or NY? What is so different about developers here vs. those just down the road? Is it a failure of our developers or of the method used by Cadmus on how to achieve energy efficient buildings for the lowest additional cost?

Even if one assumes the added costs for an energy efficient building of up to 2% per the Guide, why has the City spent so much extra to incentivize developers on other issues, but fails to consider incentivizing developers when it comes to reducing the impacts to so many of our residents caused or made worse by the climate crisis? Why are we not factoring in the added benefits of reducing local pollution and the energy burden of Alexandrians or the benefits of making the buildings more resilient during power outages and the elimination of most of the concerns raised by those who participated in the Healthy Homes program?<sup>4</sup>

The City has invested a great deal of time and money on the Eco-City Charter [2008], Environmental Action Plans 2030 & 2040 [2009 & 2018], the Climate Emergency Declaration [2019], and Energy and Climate Change Action Plans [2012 & 2023]. With this most recently amended version of the Green Building Policy, the critical question is whether we will implement an adequate response to those Declarations, Targets and Goals

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<sup>3</sup> What is the technical expertise of the Cadmus contributors? Are any of them architects or building designers so they understand how energy efficient buildings are designed using the Design Guide process?

<sup>4</sup> The city’s Healthy Homes project lists several conditions that made their homes unhealthy including mold or moisture, pests, smoke, or not warm or cool enough.

in those documents, or will we decide that they no longer represent our values or that other options rank higher?

Will we continue to contend that we have a moral obligation to protect the world for future generations and believe the longer we wait – the more it will cost as outlined in the Climate Emergency Declaration of 2019? This is NOT a choice of continuing to develop and build new buildings **or not** – it is a choice of who decides how comfortable and healthy our residents will be. Will developers be asked to change how they design and build or continue “business as usual” with minor tweaks to show they are doing something?

Like all the other times the City has incentivized developers to further the City’s values, it’s now time for the City to set a low EUI of 25 for multifamily buildings and explore every option in how to encourage developers to design and build the most energy efficient buildings in Alexandria. Creating a vision or a plan is an excellent first step, but implementation is what matters. Will we truly “move the needle” with this amended Policy or just nibble around the edges?

If you have any questions, please let me know.

Kathie Hoekstra



June 1, 2025

City of Alexandria  
Office of Climate Action  
Attn: Dustin Smith, Green Building Manager  
301 King Street  
Alexandria, VA 22314

Submitted electronically via

<https://app.smartsheet.com/b/form/6aa0defd353a492ea4b7ca9ba22f2c93>

CC: [Dustin.Smith@AlexandriaVA.gov](mailto:Dustin.Smith@AlexandriaVA.gov)

Dear Mr. Smith:

On behalf of Home Innovation Research Labs, I am pleased to submit comments regarding the City of Alexandria Draft 2025 Green Building Policy.

We strongly assert that the draft policy addresses green building in a fragmented way and without the quality assurance and technical support afforded through third-party verification and certification.

We urge the City to expand acceptance of the multi-attribute green building programs included under Section III and for all project types.

### **Cost of Third-Party Green Certification**

The forward to the draft policy cites that the 2019 policy that relied upon third-party certification programs “introduced levels of uncertainty, created a broad focus on sustainability, often at higher cost while not meeting the key intent of reducing energy use and creating more resilient buildings.”

It is ironic that the 2025 Policy Update expresses that green building programs are too costly but would continue to allow such programs for affordable housing—when affordable housing has tighter construction budgets compared to public and market-rate projects!

**It is widely accepted that third-party green certifications are typically achieved for less than 2% added upfront cost, and they offer efficiency benefits throughout the lifetime of the building. Further, third-party green building certification can position a project team to unlock important financing incentives that can offer both upfront and long-term savings.** (Many of the third-party programs recognized within the 2019 Policy are recognized for federal, GSE, and state/local financing. )

To highlight the scale of the financing incentives available, I share a case study from the Denver-area. [West 38](#) in Wheat Ridge, Colorado achieved NGBS Green Certification at the Silver level to meet financing requirements of the HUD Green Mortgage Insurance Premium Reduction, an incentive offered through HUD to promote green building. For West 38, the project team met the NGBS Green requirements with minimal upfront costs. The financing resulted in about \$90,000 annual MIP savings for the life of the loan, or approximately \$3.6 million and a ROI of 2,000%!

By accepting third-party green certification for affordable housing projects, the City indicates that they only considered the requirements of the affordable housing financing. In reality, both market-rate and affordable housing teams build complicated capital stacks, with many funding sources that incentivize or require third-party green building certification. All area developers—not just affordable housing developers—would benefit from a Green Building Policy that is aligned with other policies and financing programs.

### **Fragmented Approach to Sustainable Construction**

**The 2025 Policy Update addresses green building elements in a piecemeal approach, rather than through the holistic framework of a green building rating system.** This approach may lead to increased costs, especially considering that project teams would be designing for the policy elements without the guidance of a third-party building science expert who understands the synergies and trade-offs for sustainable construction goals.

All elements included under Compliance Option 1 have corresponding items within the 2020 National Green Building Standard (NGBS)<sup>1</sup>. By accepting third-party green building certifications, the City would gain these benefits as well as ensure that buildings are higher-performing across multiple other areas of sustainable construction, including lot design and development, material use, resilience, and operations/maintenance.

### **Value of Third-Party Certification**

**The change from third-party certification to prescriptive measures means that the City and area developers are deprived of the quality assurance, technical support, and marketing benefits afforded through the verification and certification processes.**

By participating in a third-party green building program, builders and developers gain access to specialized tools and resources that guide them in designing and constructing high-quality and efficiently-operating buildings. The extent of these services and resources would be time-intensive and expensive for an affordable housing agency to develop and maintain.

During the design phase, a project team works with a consultant or verifier/rater to guide them through the certification process and verify compliance. These professionals will typically meet with project teams in the design phase to help them score their project to their desired certification level and ensure proper details are reflected in plans and other construction documents. Some professionals will also offer specialized training to project teams and trades to ensure that all team members understand the project goals and how their efforts contribute toward certification achievement.

Throughout construction, the project must undergo independent, third-party inspection to verify that all green design and construction practices claimed by the builders are incorporated correctly. Most projects require at least two inspections. These inspections are guided by extensive verification protocols, comprehensive scoring tools, and technical assistance from building science experts.

Once construction is complete, the completed verification report is submitted to for final review and certification. Building owners and developers receive a green certificate and ready-made marketing materials to help them in marketing their building's high-performance attributes to that they can get added value, regardless of their reason for pursuing certification.

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<sup>1</sup> See Table 1

### **Green Building Certification for All Project Types**

**We respectfully request the City of Alexandria to accept the green building certifications included under Option III under Option II, making them available for all project types.**

Specifically, we request that NGBS Green, LEED, and EarthCraft be recognized at the Gold level and Enterprise Green Communities at the “Plus” certification tier.

In particular, we advocate for wider acceptance of the NGBS because it is rigorous while flexible and affordable for residential development.

### **National Green Building Standard**

The NGBS was the first residential green building rating system to undergo the full consensus process and receive approval from the American National Standards Institute (ANSI), ensuring it was developed by the industry, for the industry. Since 2008, each version of the NGBS has been ANSI-approved, reflecting the expertise and commitment of housing professionals. The 2008, 2012, and 2020 versions were developed with support from the National Association of Home Builders (NAHB) and the International Code Council (ICC). This industry-driven collaboration solidifies the NGBS as the leading green standard for residential construction, providing builders with practical, flexible, and cost-effective pathways to high-performance homes.

The NGBS is also the first solely residential high-performance building standard to be one of the ICC suites of I-codes that form a complete set of comprehensive and coordinated building codes.

As one of the I-Codes, the NGBS is written in code language to make it easy for industry professionals and contractors to understand. I believe this is one reason the NGBS has been successful even in areas where it is not part of the building code and is used as an above-code program. For a residential building to comply, the building must contain enough practices from each of the six categories to meet the required threshold points.

The six categories of green practices are:

- Lot & Site Development
- Resource Efficiency
- Energy Efficiency
- Water Efficiency
- Indoor Environmental Quality
- Homeowner Education

A program like NGBS Green aligns with a market-driven approach because it is industry-accepted, practical, affordable, and avoids burdensome mandates. As one of the I-Codes, the NGBS is written in clear, code-compliant language, making it easy for industry professionals and contractors to apply without excessive government red tape. Unlike rigid regulations, the NGBS succeeds even in areas where it is not required, demonstrating that voluntary, performance-based solutions can drive widespread adoption.

By allowing flexibility in how builders achieve high-performance homes- while ensuring key green building principles are met- the NGBS supports innovation, job creation, and local decision-making. This approach promotes economic growth, homeowner choice, and long-term savings, making it a commonsense solution that benefits both the housing industry and communities.

Homes and multifamily buildings can attain one of four potential certification levels: Bronze, Silver, Gold, or Emerald. The NGBS was specifically designed so that no one category of practice is weighed as more important than another.

Unlike other green building rating systems, the NGBS contains an expansive array of green building practices aimed at all phases of the development process: design, construction, verification, and operation. This provides the flexibility builders and developers need to ensure their green projects reflect their geographic location, climatic region, cost constraints, and the type of project they are constructing.

### **About Home Innovation Research Labs**

Home Innovation Research Labs serves as Adopting Entity and provides certification services to the NGBS. Home Innovation is a 60-year-old internationally recognized research facility located in Upper Marlboro, Maryland. Our Laboratory Services Division is an ISO-accredited third-party test lab, inspection agency, and certification body. Our work is solely focused on the residential construction industry, and our mission is to improve the affordability, performance, and durability of housing by helping overcome barriers to innovation. Our core competency is as an independent, third-party product testing and certification lab, making us uniquely suited to administer a green certification program for residential buildings. Our staff is comprised of mechanical, structural, and electrical engineers; planners; economists; architects; former builders, remodelers, and contractors; and lab technicians. Combined, they possess an unparalleled depth of knowledge and experience in all facets of market analysis and building

science research and testing. Why is this important? Because behind every building seeking NGBS compliance, stands a team of experts on a mission to help them succeed. Participation in NGBS Green brings our building science expertise to each project team at no additional cost.

### **Program Statistics to Date**

Home Innovation has certified 18,335 multifamily buildings, representing 643,168 dwelling units, and 31,835 single-family homes. Currently, there are 8,008 multifamily buildings in progress, representing an additional 367,509 dwelling units, and 9,116 single-family homes. I believe that this indicates we have been successful in designing a green certification program that is affordable and flexible, while remaining rigorous.

### **Local Certification Activity**

Area building professionals are familiar with the NGBS and Home Innovation's certification process.

Virginia consistently ranks among the top ten states for annual NGBS Green certification activity. In 2024, Virginia was #6 for multifamily certification volume and #3 for single-family certification volume<sup>2</sup>.

Within the City of Alexandria alone, we have certified 29 multifamily buildings, representing 1,622 apartments, and 238 single-family homes. There are currently 5 multifamily buildings, representing 1,325 apartments, and 29 single-family homes in process for certification.

### **Summary**

We greatly appreciate the opportunity to provide feedback on the draft Green Building Policy. Again, we believe that the updated policy addresses green building concepts in a fragmented way and deprives the City and area developers of myriad third-party verification and certification benefits. We urge the City to accept the third-party green building programs included under Section III for all building types, not just affordable housing.

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<sup>2</sup> <https://www.ngbs.com/documents/2024%20Annual%20Report.pdf>

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We are happy to discuss this further with you or your staff. Please do not hesitate to contact Michelle Foster ([mfoster@homeinnovation.com](mailto:mfoster@homeinnovation.com) or 301.430.6205), our Vice President of Sustainability, directly if she can be of further assistance.

Thank you for your consideration. I look forward to working with you in support of a lower-carbon and sustainable Alexandria!

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Luzier". The signature is fluid and cursive, with the first name "Michael" being more prominent than the last name "Luzier".

Michael Luzier  
President and CEO

**Table 1:**

<b>Compliance Option 1 Elements</b>	<b>Corresponding NGBS Practice(s)</b>
a. Energy Use Intensity	702 Performance Path
b. Renewable Energy	706.2 Renewable Energy Service Plan 7065 On-Site Renewable Energy System
c. Electrification	703.3 HVAC - points for electric heating, cooling, and water heating efficiency 901.2.2 No solid burning fireplaces
d. Energy and Water Meters	705.7 Submetering System 802.3 Water Usage Metering
e. Indoor Water Conservation	802.5.4 Water Closets and Urinals 802.5. Faucets 802.4 Showerheads 13106 Commercial Water Efficiency and Conservation
f. Outdoor water conservation	802.6.4 No irrigation and landscape plan is developed 503.5(4) EPA WaterSense Budget Tool or equivalent used
g. Energy Efficient Appliances	703.6.2 Appliances 802.2 Water-conserving Appliances
h. EV charging infrastructure	505.6 Multi-Unit Plug-In Electric Vehicle Charging 706.8 Electrical Vehicle Charging Station
i. Low Emitting Materials	901.4 Wood Materials 901.5 Cabinets 901.6 Carpets 901.7 Floor Materials 901.8 Wall Coverings 901.9 Interior Architectural Coatings 901.10 Interior Adhesives and Sealants 901.11 Insulation 901.12 Furniture and Furnishings
j. Indoor Air Quality Testing	904 Indoor Air Quality



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June 1, 2025

Mr. Dustin Smith  
 Green Building Manager  
 City of Alexandria  
 Dustin.Smith@AlexandriaVA.gov

### RE: USGBC Comments on City of Alexandria 2025 Green Building Policy

Dear Mr. Smith,

On behalf of the [U.S. Green Building Council](https://www.usgbc.org/) (USGBC) and our strong green building community in Virginia, thank you for the opportunity to comment on the proposed City of Alexandria 2025 Green Building Policy Update.

USGBC is a nonprofit organization dedicated to transforming the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous world. For over 30 years, we have pursued this vision through our flagship program Leadership in Energy & Environmental Design (LEED), a third-party green building certification system that verifies the achievement of best practices in sustainable building design, construction, operations and maintenance.

With undertaking an update to the longstanding Green Building Policy, the City seeks to focus on the most impactful solutions “improving air quality, reducing environmental impact, and ensuring that developments add to...utility and community resilience;” to move from prescriptive to performance-based particularly in energy, carbon, and renewable energy as objective results identifiable at the onset of a project; and to reduce unnecessary project costs for private developers. The City proposes to achieve these goals with a new standard for all projects, a certification option, and compliance options for affordable housing and providing for flexibility in special circumstances.

We applaud Alexandria’s efforts to consider the market, current conditions, and its specific goals. As Alexandria’s major developments shift towards multi-family residential, mixed-use commercial, adaptive reuse, and financial conditions change, it is prudent to revisit the policy. We urge the City, however, to reevaluate the proposed policy’s move away from green building certification. The City’s draft policy introduction asserts that while third-party green building certifications were successful at increasing sustainability in prior iterations of the policy, they are now seen as introducing uncertainty, adding cost, and “not meeting the key intent of reducing energy use and creating more resilient buildings.” We believe that the City will benefit even more from leaning into green building certifications now. With

the local ecosystem of building professionals, green building certifications help both the City and project developers avoid uncertainty by planning early in the project to meet efficiency requirements – and having those plans verified independently. The integrated planning inherent in green building also can save cost, for example by avoiding costly change orders, and enabling better coordination among building systems. Finally, the holistic approach of green building delivers benefits for resilience as well as health, water resources, and other desired outcomes.

For reasons outlined herein, we offer several comments to further refine the policy so that it can meet the stated goals.

1. Compliance Option 1 - Standard
  - a. Consider adding other metrics that are important to low carbon buildings, including peak thermal load reduction, refrigerant management, and reducing embodied carbon. In these cases, the City could reference LEED credits as the proposal does for low-emitting materials and indoor air quality testing.
  - b. Consider adding a resilience assessment and resilience best practices that may be valuable to the City, such as building-grid services. (See LEED v5 credit: Grid Interactive, for examples such as energy storage, demand response, and others).
  
2. Compliance Option 2 – Green Building Certification
  - a. Reevaluate the options against the City's stated goals. The identified systems do not equally contribute to air quality and resilience. If this option is meant to trade off those outcomes in favor of operational energy, that should be further evaluated and clarified. Embodied carbon should also be considered
  - b. Include LEED certification as a core compliance pathway for private development. Detailed information on the nexus with LEED and the City's goals is provided below. (We note LEED remains a core pathway for public projects).

LEED certification has been driving meaningful impact on real estate in Alexandria since 2004.

As of May 2025, there are [146 LEED-certified buildings in Alexandria](#) totaling more than 24 million square feet and resulting in measurable achievement of high levels of energy performance, indoor air quality, water efficiency, waste reduction, and more. LEED projects such as the [APTA Centennial Center](#), [Patrick Henry K-8 School and Recreation Center](#), and [Parc Meridian at](#)



[Eisenhower Station](#) have transformed the real estate in the area and serve as models of Alexandria's leadership on climate and above-code construction.

LEED has been so successful in Alexandria in part because it has been a core component of the City's Green Building Policy since inception. In 2004, the City adopted LEED as the standard for all new public projects and in 2009 launched the Green Building Policy for both public and private development using LEED as the compliance mechanism. The 2019 policy update continued to leverage LEED certification, underscoring the historic value of LEED on Alexandria's green building progress.

The City of Alexandria also was the first Virginia city to achieve [LEED Gold certification](#), through USGBC's [\(USGBC\) LEED for Cities rating system](#). The rating system evaluates cities' performance against key climate change action metrics in areas of energy, water, waste, transportation, education, health, safety, prosperity and equitability.

Outside of Alexandria, LEED is backed by a strong community of practice in the entire DMV region, with DC, Maryland, and Virginia all receiving recognition on the [2024 Top 10 States for LEED](#) list. There are strong policies and incentives for LEED in neighboring communities such as Arlington, Fairfax County, DC, and other localities. Furthermore, over [7,000 professionals](#) hold a LEED credential in Virginia. Removing LEED from the Green Building Policy would thereby add inconsistencies with nearby standards that include LEED as a key feature, causing uncertainty for developers and practitioners working regionally in the DMV. As such, retaining LEED certification as a compliance pathway will provide the Alexandria real estate community with a familiar, predictable solution to comply with the Green Building Policy and reduce uncertainty.

Similarly, LEED is moving to a five-year development cycle beginning with LEED v5, meaning a new version of LEED will be released every five years. This greatly increases predictability for the market and would make it easier than ever for City staff to update the policy on a standard, certain timeline.

[LEED v5 prioritizes building decarbonization through new energy and carbon credits and fully addresses Alexandria's energy efficiency, renewable energy, and electrification goals.](#)

The newest version of LEED – [LEED v5](#) – puts decarbonization at the heart of the rating system, aligns with Alexandria's Environmental Action Plan and Energy & Climate Change Action Plan, and will help Alexandria be a leader on climate. For the first time, all LEED v5 projects must undergo a carbon



assessment that projects the building's direct and indirect carbon emissions over a 25-year horizon, giving project teams critical information on a project's long-term carbon emissions and a plan for decarbonization. All projects also must take steps to reduce the risk of leaks of harmful global warming refrigerants.

LEED v5 also targets emissions reductions across all aspects of a building's life cycle, including operations, embodied carbon, refrigerants, and transportation. Additional Energy and Atmosphere credits such as Enhanced Energy Efficiency, Renewable Energy, and Electrification provide a clear framework for energy-efficient, all-electric buildings that run on renewable energy; these credits are required for all LEED v5 Platinum projects and/or could be directed through the Green Building Policy, ensuring the City's decarbonization priorities are fully covered.

As a whole, LEED v5 moves more toward rewarding performance rather than prescriptive strategies. It is a comprehensive framework designed to drive the market towards a near-zero carbon reality that is equitable, resilient, and promotes the wise, safe use of all resources. LEED v5 pushes beyond building code to drive decarbonization and efficiency and is a clear and proven tool that can be used to help Alexandria continue to lead on climate.

Third-party certification lowers costs of verifying compliance and ensures accountability.

Compliance Option 1 in the 2025 Draft Green Building Policy references ten different individual standards, ranging from energy efficiency to indoor air quality, which will add costs and capacity constraints for the City to verify that a project has complied with the policy. In fact, two of the standards reference LEED credits without requiring third-party certification from GBCI, meaning there is no accountability mechanism to verify that a project met the requirements of the policy. To add that accountability without certification, the City would need to add staff or contract third-party experts who could inspect the documentation, which would add costs to the City and/or significantly increase the staff time spent on managing the policy.

As a public body funded by taxpayer dollars, Alexandria has a responsibility to clearly demonstrate that the policy has been met – that is the value of LEED. In fact, LEED certification has a small fee because it comes with independent, third-party verification through GBCI, providing the value of accountability. Leveraging LEED certification ultimately supports the integrity of the policy and helps reduce City costs for oversight.



LEED is a holistic approach to sustainable building and addresses related City priorities such as climate resilience and healthy homes.

As Alexandria is a waterfront community, the City is already experiencing direct impacts from climate change such as flooding and extreme heat. Yet, the 2025 Draft Green Building Policy focuses almost exclusively on climate mitigation through energy efficiency and renewable energy. We recommend the City also give attention to how green building supports its climate goals through holistic emissions reductions (such as peak demand reduction and refrigerant management, as noted above) and adaptation benefits (by applying proven resilience strategies).

LEED v5 is uniquely situated to help Alexandria take the Green Building Policy to the next level and plan for resilient buildings in addition to low-carbon buildings. In LEED v5, all projects must undergo a Climate Resilience Assessment that identifies current and future natural hazards that could affect the site as well as two priority hazards that could be addressed through design strategies. This comprehensive analysis includes drought, extreme heat, extreme cold, flooding, hurricanes and high winds, hail, landslides, sea-level rise and storm surge, tornadoes, tsunamis, wildfires and smoke, winter storms, and other relevant hazards such as earthquakes. Additional optional credits such as the Resilience Pathway encourage projects to design for all high-risk climate hazards and invest in distributed energy resources that can ensure continuous operations during a grid outage. With its robust resilience strategies,

Furthermore, LEED v5 supports human health through the Fundamental Air Quality and No Smoking prerequisites as well as credits such as Air Quality Testing and Monitoring, Occupant Experience, and Enhanced Air Quality. These strategies and LEED's overall attention to occupant health align with Alexandria's Healthy Homes Initiative, ensuring City residents are breathing clean air in the buildings where they spend most of their time. Because LEED is a holistic rating system, it can help Alexandria meet related goals for health and resilience that are not outwardly stated in the Green Building Policy.

Overall, Alexandria has been a leader on climate and green building for decades, and we urge the City to continue to leverage the proven, familiar, accountable LEED certification program to verify private building projects have complied with the Green Building Policy. LEED v5 aligns with the City's climate goals, provides a clear framework for green building, and minimizes costs of verifying policy



compliance. USGBC appreciates the opportunity to comment on the proposed policy update and looks forward to working with you to ensure successful implementation of this policy.

Sincerely,

*Gracie Tilman*

Gracie Tilman  
Advocacy Partnerships Associate  
U.S. Green Building Council  
[gtilman@usgbc.org](mailto:gtilman@usgbc.org)

cc: Liz Beardsley, Senior Policy Counsel, USGBC



# Memorandum

**To** City of Alexandria  
**Date** June 1, 2025  
**Copies**

**From** Ilana Judah, Arup Americas Climate and Sustainability Leader

**Subject** City of Alexandria Green Building Policy Updates

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This memo provides feedback and recommendations for further refinement that could enhance clarity, equity and long-term impact for the City of Alexandria’s 2025 Green Building Policy (GBP) update, based on Arup’s technical project experience in sustainable building and EV infrastructure.

Overall, the GBP updates are primarily focused on operational energy/carbon performance and are less impactful from a holistic sustainability perspective. Beneficial outcomes for embodied carbon, biodiversity and resilience are notably missing in this update.

Arup has the following recommendations on specific sections of the update:

## **Compliance Option 1: Standard**

### **a. Energy Use Intensity (EUI)**

While it is appreciated that further detail for the whole building energy model simulations was provided to inform the Site EUI targets, the building typologies used were limited and not always representative of the building stock throughout the City. Additionally, the prescriptive EUI limits will create a need for City oversight and review of nuanced conditions that may require exemptions. The general lack of public understanding of EUI will also be a challenge within this current structure, as many projects will have mixed programming and a weighted blending of EUIs.

Arup encourages further integration of the PNNL energy analysis and breakdown of property uses to include both mid-rise multifamily and high-rise multifamily typologies.

### **b. Renewable Energy**

A standard 3% of annual energy use metric does not appropriately respond to different property uses and subsequent physical space constraints for on-site generation. Many other regulations reference a percentage of available roof space excluding mechanical area. It should also be encouraged to implement hybrid green roof + PV systems for mutually beneficial outcomes.

Option 2 needs further clarity and additional requirements for demonstrating the ‘cost to meet Option 1.’ The City should either provide an annual \$/Watt figure to be used, or a methodology by which pricing is to be provided (including level of detail for infrastructure, inverters, labor costs, etc.).

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**c. Electrification**

Occupancy sensors and timers are not typical for use with emergency generators and may compromise life safety functions.

**h. Electric Vehicle Charging Infrastructure**

Residential project language should say two empty ‘circuit breaker slots’ in the electrical panel and note a minimum of 20 amps each.

Structure is confusing as currently written in draft format for Option 1 & 2 of All Other Project Types, and it is recommended to use sub-headers for more clear distinction.

In Option 1, it is recommended to reduce the threshold to 5% EV chargers + 15% EV ready to more closely align with DC’s 20% EV ready regulation and reduce dependence on single occupant vehicle use.

We recommend that Option 2 only be permitted for mixed use properties and also be associated with a percentage of total parking, as the grid demand for DCFC is inappropriate for multifamily properties where vehicles are parked for longer durations.

**h. Low Emitting Materials**

Without requiring LEED certification, there is no established technical enforcement of compliance to ensure all contributing materials in each category are tracked properly. A clearer directive referencing VOC limits from SCAQMD and tVOC testing with CDPH standards would be aligned with other prescriptive elements of this update.

**Compliance Option 2: Certification**

LEED v5 certification at the Gold or Platinum level is recommended to be included within this certification compliance pathway. It should be noted that beneficial updates to the LEED program now include important elements in prerequisites and credits to address climate resilience, social equity, decarbonization and biodiversity.

It is also unclear if only full Living Building Challenge certification is included in this pathway, or if other International Living Future Institute programs such as CORE and Zero Carbon are also eligible.

# BUILD OUR FUTURE

June 1, 2025

Ryan Freed  
Climate Action Officer  
City of Alexandria  
301 King Street  
Alexandria, VA 22314

Dear Mr. Freed:

We write to comment on the draft Green Building Policy (GBP) prepared by the Office of Climate Action. We greatly appreciate both the work you and your colleagues have put in to develop this proposal, and the opportunity to provide our feedback on the draft.

There is much we support in the draft Green Building Policy. We strongly support the establishment of Energy Use Intensity (EUI) as the core metric for evaluating building performance. EUI is clear, measurable, and avoids the pitfalls of point-based systems. Like MPG for cars or FAR in zoning, it communicates performance simply and objectively, saving time for City staff and money for developers. We also support the policy's requirements for all-electric buildings, on-site renewable energy, and EV readiness. These elements are essential for a sound climate strategy. Likewise, the provisions on water conservation, healthy materials, and air quality are critical for sustainable, equitable growth.

However, to align with our city's longstanding goal of reducing greenhouse gas emissions 50% below 2008 levels by 2030, the current policy must go further in two key areas. First, it must set EUI requirements consistent with net zero performance. Second, it must require that development include both solar and battery infrastructure to maximize on-site renewable energy use, improve resiliency, and facilitate the development of decentralized power generation, distributed energy resources, microgrids, and virtual power plants.

## **1. Require an EUI for multi-family buildings of 23 kBtu/sf/yr, and comparable EUI requirements for other building types**

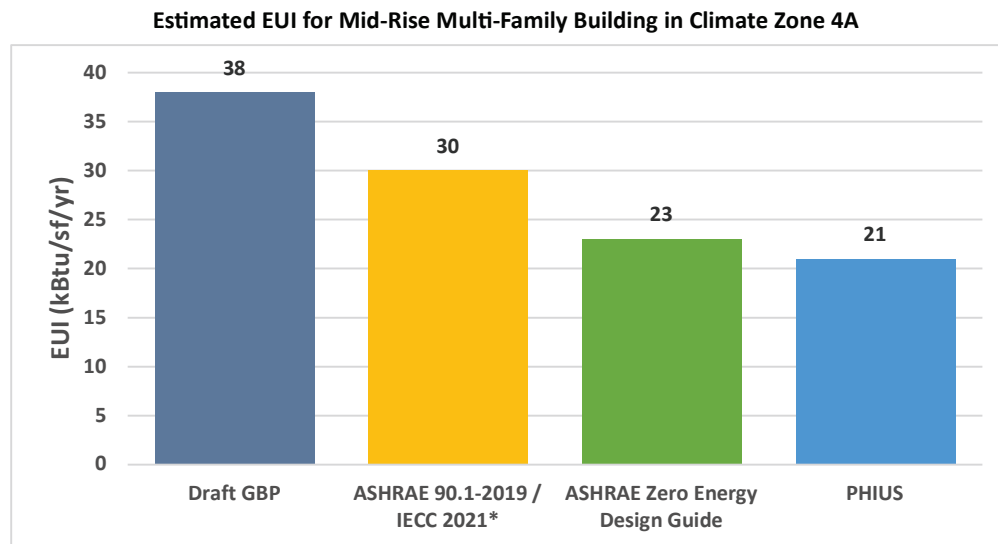
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Alexandria's Energy and Climate Change Action Plan set a key implementation milestone of requiring that at least 95% of new buildings be net zero ready beginning in 2025. To achieve that goal we need a far lower EUI than the 38 EUI proposed in the draft. Three years ago, ASHRAE collaborated with the American Institute of Architects, the U.S. Green Building Council, and the U.S. Department of Energy in developing the Advanced Energy Design Guide for Multifamily Buildings: Achieving Zero Energy. The design guide states that "[a]chieving very low energy use intensity (EUI) is the primary goal, whether or not on-site renewable energy is feasible in the near or long term." The guide sets an EUI target for our climate zone of 23 kBtu/sf/yr.

As the chart below shows, the proposed 38 EUI target sets a weaker energy performance standard than modeled for multifamily buildings under Virginia's current energy code (ASHRAE 90.1-2019 or IECC 2021). The July 2024 target setting analysis conducted by the Pacific Northwest National

Laboratory (PNNL) for Alexandria found that the top 25% of local mid-rise multifamily benchmark buildings built over the last 15 years achieved an EUI lower than 29.

Code compliance should be the floor, not the end goal. If the City is serious about meeting its 2030 climate commitments, it must require “green” buildings to perform better than the current ASHRAE 90.1-2019/IECC-2021 code requirements.



\* As modeled by Pacific Northwest National Laboratory, Data and Analysis for Alexandria Target Setting  
NOTE: PHIUS is the acronym for the Passive House Institute, U.S., the most widely applicable passive building standard.

An EUI target of 23 is eminently achievable now, and aligns with the City’s stated 2030 net-zero construction goal—a goal first specified in 2009, as part of the original Environmental Action Plan.

It is critical that staff and Council understand that requiring strong energy efficiency performance will provide real, if in some ways difficult to quantify, benefits to Alexandrians living in buildings designed to current best practices. These include:

- **Health:** Low-EUI buildings require airtight construction and continuous ventilation—drastically reducing mold and airborne pollutants. This results in healthier indoor environments and lower asthma rates, especially for children. The National Center for Healthy Housing is currently studying these effects in affordable housing.
- **Affordability:** Energy bills in high-performance units can be just 25% of those in standard units. For low-income tenants, this can mean the difference between paying for medicine or food and keeping the lights on. Energy consumption in Northern Virginia, which is home to over half of the nation’s data centers, is surging. As a result Dominion Energy projects a more than 50% increase in its rate base by 2030, and scenarios suggest residential electricity costs could rise by as much as 69% within the decade. Faced with such costs, Alexandrians may be unable to afford to use air conditioning as temperatures increase and heat waves become more intense and frequent.
- **Resilience:** Low-EUI buildings stay warm longer in winter and cooler in summer during power outages. Combined with solar and battery storage, they provide "passive

survivability"—maintaining livable conditions and powering critical systems during blackouts and extreme weather.

Current “best practice” development meeting these EUI targets is happening now, at very low cost premiums. This shown by the following real-world results described by developers in webinars hosted by *Build Our Future*, and listed in public cost data on construction meeting Passive House performance standards:

- In **Massachusetts**, eight affordable multifamily projects (541 units) with EUI numbers in the low twenties were constructed at an average cost increase of **2.21%** above standard construction. An additional four Boston projects meeting Passive House certification standards, with similarly low EUI numbers, were constructed at an average cost increase of just **1.15%**. (Source: [Passive House Network Report of 2023](#))
- In **New York**, [33 Passive House projects](#) (3,234 units) were constructed averaging a **3.7–4%** cost increase over standard construction. New York City now has two of the largest Passive House affordable housing projects in North America: the 34-story Sendero Verde (at a **1.5%** cost increase over standard construction) and the 26-story 425 Grand Concourse (**2.2%** higher construction cost). Both are described in the Build Our Future webinar entitled [Tall Buildings, Small Energy Bills: Passive House at Scale](#).
- In **Pennsylvania**, cost premiums for Passive House certified construction dropped from 5.8% to just **1.6%** after one year. In subsequent years **some Passive projects even cost less than energy-wasteful “code-compliant” buildings**. This is fully detailed in the 2022 Build Our Future webinar [Affordable Housing: The Case for Passive House Design and Net Zero Energy](#).

Cadmus, a sustainability consultant hired by the City, estimated that developers would face a 4.27% cost premium to meet a 31 EUI standard. We believe this significantly overestimates the cost of energy efficient development. Cadmus’s “add-on” design method—starting with a standard building and incrementally improving it until you get it to the desired performance level—is flawed, as it is not representative of the way in which high performance buildings are designed. Instead, designers start with the performance goal in mind, then develop an optimized, cost-effective pathway to achieving it.

## **2. Require That Buildings Be Solar Operational and Battery Ready Upon Occupation**

As solar and battery costs decline, on-site generation and storage will become the norm. But because developers typically don’t operate the buildings they construct, they lack financial incentive to prepare for this future. That’s where City policy must lead.

We recommend the following solar- and battery-readiness provisions for all new construction:

- **10% minimum onsite energy generation at occupancy**
- **60% of total roof area available and designed to support future solar installation**
- **Designated onsite space for battery storage corresponding to that solar capacity**
- **Required conduit and grid interconnection infrastructure to support these systems.**

Developer concerns about rooftop competition (HVAC, terraces, green roofs) are solvable. Solar canopies now span rooftops, HVAC systems, and even green roofs. The goal isn’t full solar buildout on day one; rather, it is to preserve the future option, at low cost, for the long-term benefit of all our residents and the grid. This interconnected infrastructure and storage capacity will be critically

June 1, 2025  
Page 4

important for enabling Alexandria to participate in the development and implementation of new demand-side energy resources and grid optimization tools.

### **A Policy That Protects our Citizens and Plans for the Future**

For years developers have claimed we must choose between affordable housing and profitable development on the one hand, and high-performing, energy efficient buildings on the other. These claims have consistently ended debate and allowed buildings to go up that barely exceed minimum code, taking us further and further away from achieving our 2030 and 2050 climate goals.

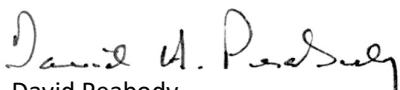
But who bears the true cost of these lower-performing buildings?

- **Residents**, who face utility bills 4x higher than those of high-performance buildings—especially residents of "affordable" housing.
- **Families**, who suffer from poor indoor air quality, higher medical costs and lost work days.
- **The City**, which misses the economic and environmental benefits of buildings that move us closer to our targets for reducing energy use and greenhouse gas emissions. Every single building that does not meet net-zero standards is one more building that Alexandria will need to retrofit in the future.

Letting developers continue to use long outdated design and construction techniques externalizes these costs onto residents and Alexandria taxpayers over the entire lifetime of the buildings. The only way to reduce these social costs to our city, and to reach our long-term climate goals, is for them to adopt the energy efficiency development best practices we know are possible, and profitable.

We urge Alexandria to adopt a meaningful, future-ready Green Building Policy that includes lower EUI benchmarks and requires readiness for solar and battery systems.

Sincerely,

  
David Peabody

  
Scott Barstow

  
Stephen Koenig

Key Challenge - EUI Considerations: Cadmus and PNNL prototype EUI versus desired design excellence EUI. Additionally, the proposed EUI threshold does not address building use variations.

Attachment #4

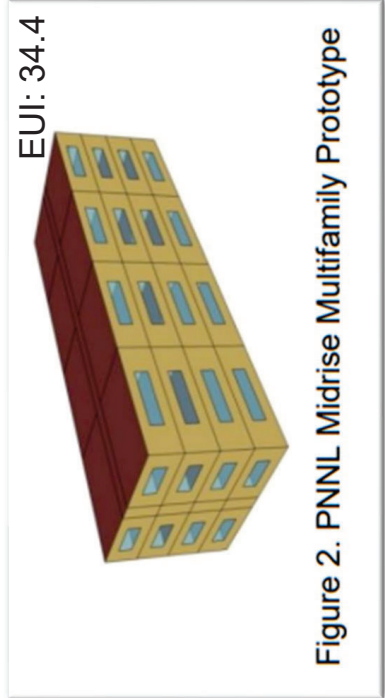
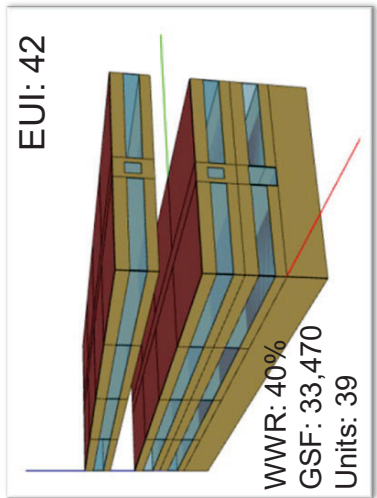


Figure 2. PNNL Midrise Multifamily Prototype

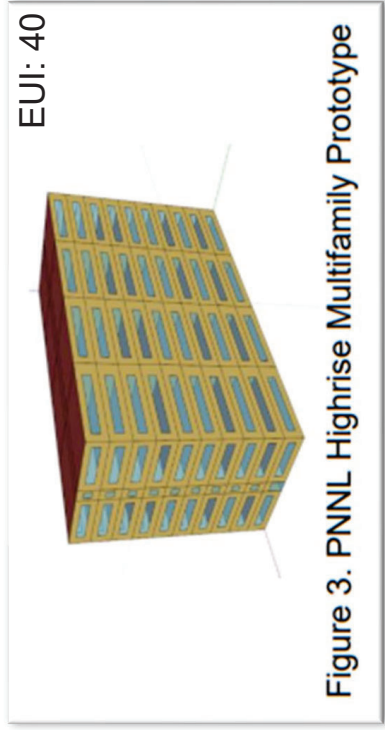


Figure 3. PNNL Highrise Multifamily Prototype

**Note: all prototypes are created using prescriptive guidance**

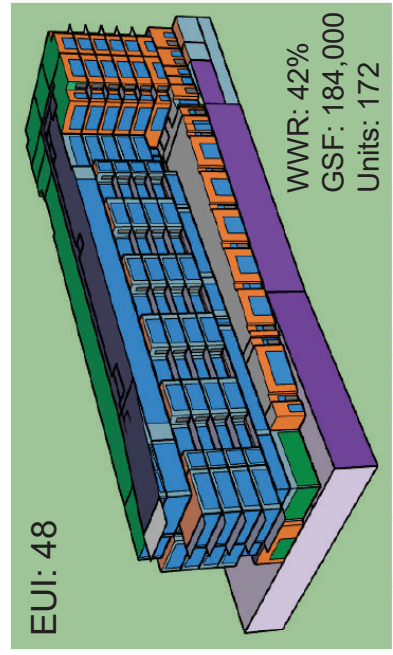


Figure 1: Energy Model Rendering of Yard Block 15

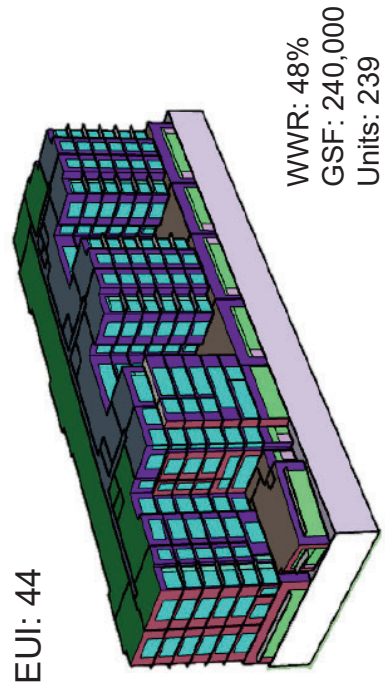


Figure 1: Energy Model Rendering of Yard Block 19

**Note: actual project designs are used to created performance-based models**



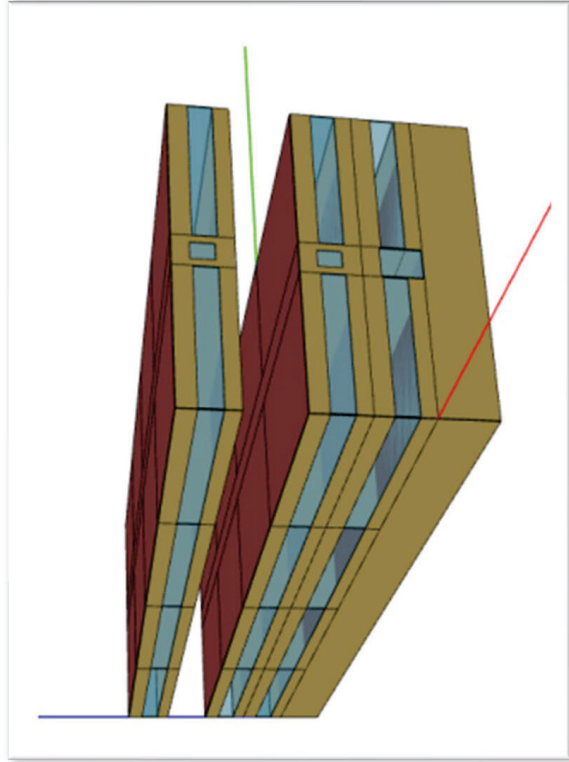
Key Challenge - Electrification and EV charging: Cadmus study used a low density, low-rise box that is not full electric, assumes low WWR, and does not account for any EV charging stations.

Attachment #4

Table 1. Summary of Modeled Site EUJs and Improved Targets

Building Type	Modeled EUI Baseline (kBtu/sq ft)	Improved EUI Target (kBtu/sq ft - 10% better)	Modeled EUI Achieved (kBtu/sq ft)
Single-Family <sup>a</sup>	35	31	31.8
Hotel	92	83	88.4
Restaurant	305	274	289
Retail	45	40	40.4
Multifamily	42	38	38.5

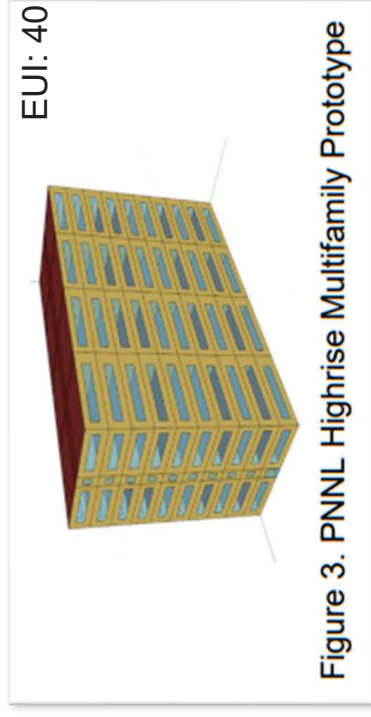
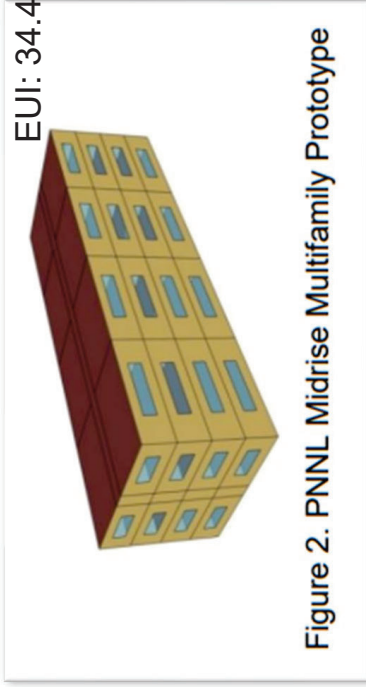
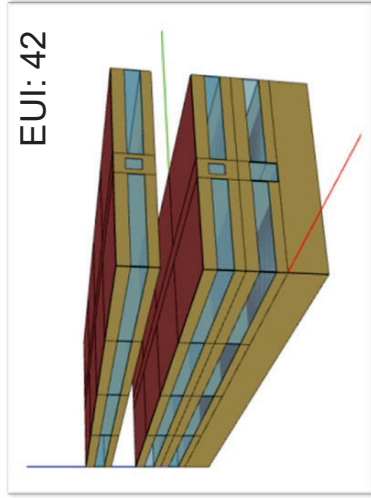
<sup>a</sup> Cadmus developed the single-family model in BEopt, which uses the EnergyPlus engine.



Type Index Building Type	Building Simulation Model Inputs				
	1	2	3	4	5
Single Family Homes (townhome)	Single Family Homes (townhome)	Multifamily Low Rise (1-4 Stories)	Hotel	Retail	Restaurants
Baseline Code	IECC 2021/ASHRAE 90.1 2019				
Vintage	New Construction				
Weather File (CZ4)	Washington-DC-Reagan-AP VA USA TMY3				
Number of floors (Above Grade)	2	4	4	1	1
Spaces	3 Bedrooms, 2 Bathrooms	39 Units, 1 Office	183 Guest rooms, Retail, Dining, Office	Retail Space, Point of Sale	Kitchen, Dining
Total Building Sq. Ft.	1,680	33,740	122,120	24,692	5,502
HVAC	Central AC and Gas-fired furnace	Split AC (with gas heating)	VAV with Reheat plus DOAS with ERV in guest rooms (Includes Economizer)	Unitary AC with gas heating coil	Unitary AC with gas heating coil
Hot water (DHW)	Storage Water Heater, Gas	Electric Water Heater	Storage Water Heater, Gas	Storage Water Heater, Gas	Storage Water Heater, Gas
Heating Efficiency (AFUE)	0.8	0.8	0.8	0.8	0.8
Cooling System Efficiency (SEER/EE/COP)	SEER 14	SEER 14	SEER 14	SEER 14	SEER 14
Heating Set Point (F)	70	70	70	70	70
Cooling Set Point (F)	73	73	73	73	73
Wall Construction (exterior)	Insulated Wood Framed(R-20)	Insulated Wood Framed(R-20)	Insulated Metal Building Wall (R-13.89)	Insulated Exterior Mass Wall (R-9.62)	Insulated Steel Framed (R-15.63)
Roof Construction	Insulated Attic (R-60)	IEAD Roof (R-31.25)	IEAD Roof (R-31.25)	IEAD Roof (R-31.25)	IEAD Roof (R-31.25)
Foundation Construction	Unconditioned Basement (Whole Wall- R10)	Unconditioned Basement (Whole Wall- R10)	Unconditioned Basement	Slab on Grade (F-Factor 0.52 Btu/hr.ft.R)	Slab on Grade (F-Factor 0.52 Btu/hr.ft.R)
Model Window to wall ratio	20%	40%	27%	20%	18%
Window U-Factor / SHGC	0.3U / 0.4 SHGC	0.36U / 0.36 SHGC	0.36U / 0.36 SHGC	0.36U / 0.36 SHGC	0.36U / 0.36 SHGC

Key Challenge - Modeling Limitations: EUI for prototypes is well below current top tier actual building performance as seen in the ENERGYSTAR constituents.

Attachment #4



Note: all **prototypes** were created using prescriptive code guidance

Type	Proposed EUI	Top 25% EUI*
Commercial	40	43.83
Multifamily	38	61.49 - High Rise 52.58 - Low-Rise

Note that ENERGYSTAR data is not third party verified and should not be taken as fact.

*\*Top 25% of reverse scoring across ENERGYSTAR constituents representing actual building performance. Recent study by EPA's ENERGYSTAR Program administration team published in March 2025.*

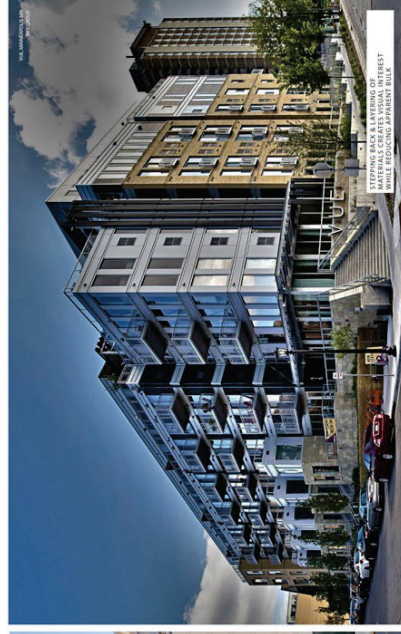
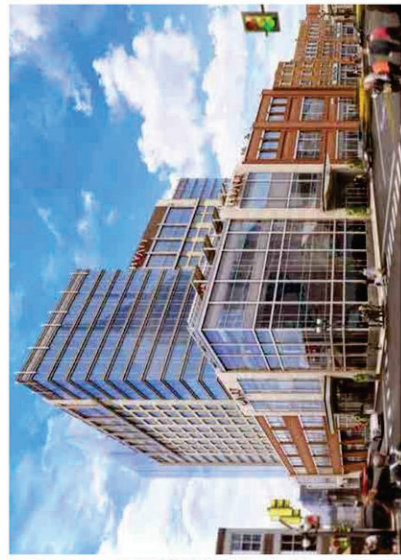
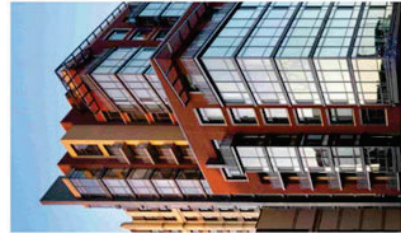
Design Excellence is desired in Alexandria

Attachment #4



EISENHOWER BLOCK 3

*F. Additional Design Recommendations 1. Large unrelieved planes and simple slab-like massing should be avoided. 2. The exterior skin of the building should be articulated with durable materials such as brick, stone, tile, precast concrete, or metal. 3. Vertical fenestration on the building is recommended. 4. A signature architectural feature should be integrated into the building design at the corner of Telegraph Road and Pershing Avenue.*



NPY SAP Page 5 and 49

NPY Design Excellence Overlay Pages 15, 78, and 79



Key Challenge - Solar: The Cadmus study is not representative of a typical multifamily building, which has a higher electricity demand offset for 3%-5%, more limited roof area, and higher cost of installation. Attachment #4

Table 10. Phase 2. GBP Analysis - Solar Analysis by Building Type

Building Type	Offset Target	System Size DC (kW)	System Area (sq ft)	Total Available Roof Space (sq ft)	Roof area available for HVAC (sq ft)	Annual Electricity Production (kWh)	Estimated Module Count	Estimated Install Cost (Low: \$1.8/W)	Estimated Install Cost (High: \$2.34/W)
Multifamily	3%	10.0	513	8,435	7,922	13,321	30	\$18,000	\$23,400
Multifamily	5%	17.0	872	8,435	7,563	22,646	50	\$30,600	\$39,780

Recent pricing for solar installations:

Ballasted racking system - \$3.38/watt not including required interconnection equipment and engineering

Dunnage racking system (canopy framing) - \$11.50/watt not including required interconnection equipment and engineering.

Cadmus and PNNL studies reference RS Means for pricing estimates. Pricing should be sought from local market installers that would perform the work and have data on material costs.



## **Comments on the Draft Green Building Policy**

Thank you for the leadership shown by the Office of Climate Action (OCA) in developing the draft Green Building Policy (GBP). The inclusion of Energy Use Intensity (EUI) as the basic metric for evaluating building performance marks a major step forward. EUI is clear, measurable, and avoids the weaknesses of point-based systems that can be gamed. Like MPG for cars or FAR for zoning, it communicates performance simply and objectively. This approach will save time for City staff and money for developers.

I also support the GBP's requirements for all-electric buildings, onsite renewable energy, and EV readiness. These are foundational elements of a sound climate policy. Similarly, its measures addressing water conservation, healthy materials, and air quality are essential for sustainable and equitable growth.

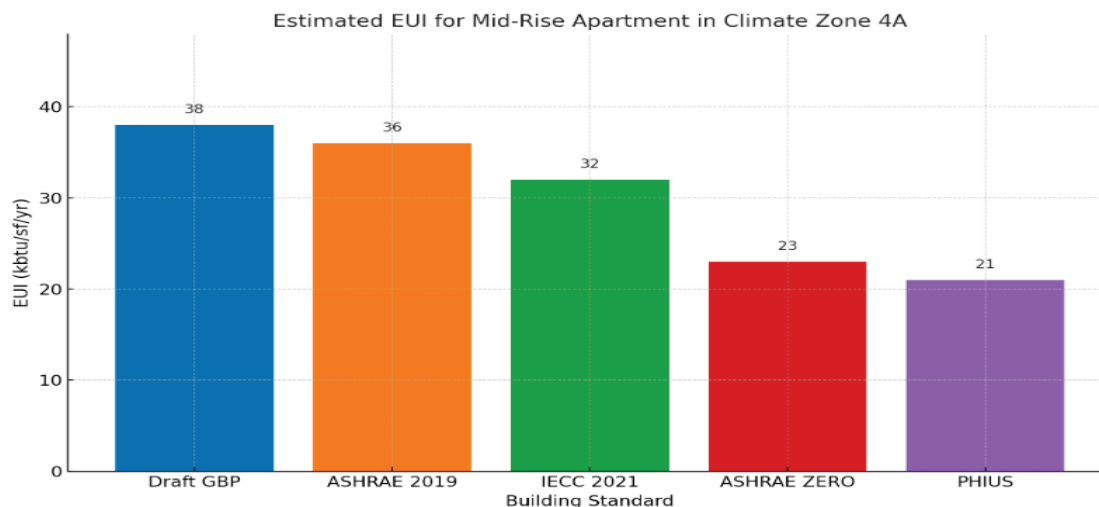
However, to meet the Council's stated goal of a 50% emissions reduction from 2008 levels by 2030, the current draft policy does not go far enough. Specifically, two areas need strengthening:

- 1. More Ambitious EUI Benchmarks**
- 2. Design Requirements that Enable Scalable Solar and Battery Storage**

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### **1. The EUI Benchmark Must Be Lower**

As you can see from the chart below, the proposed EUI target of 38 kBtu/sf/yr for multifamily housing sets a weaker energy performance standard than what is already required for multifamily buildings under Virginia's current energy code (which allows compliance through ASHRAE 90.1-2019 or IECC 2021).



The bases for the EUI numbers in the graph are studies by DOE and Pacific Northwest National Labs. These can be found [here](#) on pages ix and x. While my comments here specifically address multifamily housing, they are just as relevant to EUI's for other building types.

The rationale for the 38 EUI multifamily housing target appears to come from Cadmus, the City's sustainability consultant, who estimated a 4.27% cost premium to meet a 31 EUI standard. The chart below shows their method in reaching this estimate.

**Table 9. Phase 2. GBP Analysis - Multifamily Measure Packages**

Multifamily Measure Package	Measures included	Energy Use Intensity (EUI in kBtu/sq ft)	Percent Reduction from Baseline	Incremental Cost of Measure Package (\$/sq ft)
Baseline	New Construction standard per local code	42.00	0%	N/A(average baseline cost of \$350)-
Good	Increase roof insulation by 30%, Increase exterior wall insulation by 30%, Improve window's U-Value to 1.2 and Solar Heat Gain Coefficient (SHGC) to 0.25, Increase cooling COP to 4.5, and Increase motor efficiency to 96%	38.50	8%	\$3.37 (1%)
Better	All improvements in the Good Package, plus Reduce elevator load by 10%, Install daylight sensors in corridors, Electrify Space Heating	35.70	15%	\$9.31 (3.6)
Best	Increase roof insulation by 30%, Increase exterior wall insulation by 30%, Increase motor efficiency to 96%, Electrify Domestic Hot Water with Heat Pump Water Heater	30.98	26%	\$2.28 (4.27)

Good: First 10% site energy use reduction target

Better: Second target with fully electrified space heat (includes all measures from "Good" package)

Best: Third target with fully electrified DHW (three efficiency measures + DHW electrification)

The "add-on" design method they use—starting with a standard building and incrementally improving it until you get it to the desired performance level—is flawed and suggests a lack of familiarity with well-established industry best practices. High-performance buildings are not designed this way. Instead, designers start with the performance goal and develop an optimized, cost-effective solution from the beginning. That is the beauty of the Passive House approach and of the EUI approach: you give the developers the goal and let [them](#) figure out how to get there. They will always find the most affordable way. This is borne out by actual cost and performance results from numerous

completed small and large Passive residential buildings. The results cited below from webinars hosted by *Build Our Future* and from public cost data on Passive House construction belie Cadmus's 4.27% figure and point to a far lower cost premium.

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- In **Massachusetts**, eight affordable multifamily projects (541 units) showed an average cost increase of **2.21%**. An additional four Boston projects averaged just **1.15%**. (Source: [Passive House Network Report of 2023](#))
  - In **New York**, [33 Passive House projects](#) (3,234 units) averaged a **3.7–4%** increase. The city now has two of the largest Passive House affordable housing projects in North America: the 34-story Sendero Verde ( **1.5%** cost increase over standard construction) and 26-story 425 Grand Concourse (**2.2%** higher). Both are covered in the BOF webinar [Tall Buildings, Small Energy Bills: Passive House at Scale](#).
  - In **Pennsylvania**, cost premiums dropped from 5.8% to **1.6%** after one year. In subsequent years some Passive projects even cost **less than code-compliant buildings**. This is fully detailed in the 2022 BOF webinar [Affordable Housing: The Case for Passive House Design and Net Zero Energy](#).
- 

Because of the relatively minor cost hurdle involved to achieve Passive House level performance, **there is no reason not to impose the more stringent EUI of 31 kBtu/sf/yr in 2025, stepping that down incrementally to 23 kBtu/sf/yr by 2030**. The final 2030 level is consistent with best practices and aligns with performance levels from the ASHRAE Advanced Energy Design Guide and the PHIUS standard. Most importantly, it aligns with the City's 2030 goal that new construction adhere to net-zero energy performance.

A lower EUI will bring us not just more efficient buildings; it will generate buildings that are ready for the future energy landscape. That future is already visible:

---

- The energy system will be **electric**;
  - The cost of **onsite solar** will fall below the bare transmission cost of centralized power;
  - **Battery storage** costs will continue to decline in the same fashion;
  - **Electric and autonomous vehicles** will replace internal combustion engines.
- 

These changes are being driven by economics, not ideology, and they are underway globally. **Low EUI buildings allow owners and occupants to take greater advantage of the coming economies of solar generation**. The simplest example: a solar roof that can cover 20% of a building's needs at 40 EUI could cover 40% or more at 20 EUI. That difference will matter deeply, particularly to the pocketbooks of low-income residents—and to the grid. This leads to my second recommendation.

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## 2. Buildings Must Be Designed for Future Solar + Battery Readiness

As the new energy landscape emerges, and solar and battery costs continue to decline, the economics of local, onsite energy generation will only strengthen. But developers, who typically do not operate the buildings they build, have no financial incentive to create

buildings that can take advantage of these changes. That’s where City policy must step in. If it does not, its residents will be excluded from the economies of onsite solar power generation. This is particularly important for those living in affordable multifamily housing.

For these reasons I recommend the following solar-readiness provisions for all new construction:

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- **10% minimum onsite energy generation at occupancy**
  - **60% of total roof area designed and reserved for future solar installation**
  - **Designated onsite space for battery storage corresponding to that solar capacity**
  - **Required conduit, grid interconnection and structural infrastructure to support these systems**
- 

Developers’ inevitable arguments about rooftop space conflicts between mechanical systems, terraces and green roofs are solvable. Solar canopies are now being deployed above HVAC systems, above terraces, and even above green roofs. The point is not to require full solar buildout immediately, but to **preserve and facilitate the future option**—at low cost and high benefit to residents, the City, and the utility.

### 3. Side benefits

**The co-benefit of making high performance, affordable low EUI buildings is health.** To achieve sub-30 levels of EUI, buildings must be airtight and extremely well-ventilated. This eliminates condensation-induced mold and other particulates and translates into healthier buildings with far lower incidences of childhood asthma and other respiratory diseases. A [current study](#) by the National Center for Healthy Housing is now quantifying these exact benefits in affordable multifamily housing.

**The co-benefit of making high performance low EUI buildings with robust onsite solar energy generation and storage is resilience.** “Passive survivability” is a term that has come into use with the growing appreciation of how well low-EUI buildings perform when the grid goes down. Because of their increased insulation, they stay warm longer in the winter and cool longer in the summer, riding out out blackouts, heat waves and winter storms. And with onsite solar and battery storage powering critical electrical circuits, they can endure such events indefinitely.

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### In Summary, A Policy That Plans for the Future

The worldwide energy trends are clear, regardless of who occupies the White House, and our Green Building Policy must align with those trends. If we allow developers to continue building to today’s energy standards and today’s energy infrastructure—without preparing for what’s coming—our residents will be left behind, unable to participate in the coming energy economy. By adopting a truly future-focused Green Building Policy, the City can deliver lower costs, healthier and more efficient buildings, and greater energy resilience to all its citizens.

David Peabody, FAIA

1. Introduction
2. Definitions
  - a. Energy Use Intensity
  - b. Net vs Gross EUI
  - c. Modeled EUI
  - d. Actual EUI
  - e. Blended EUI
  - f. Building Electrification
  - g. Onsite Renewable Energy
  - h. Offsite Renewable Energy
  - i. Clean Energy Fund
  - j. Net Zero Energy Building
  - k. Zero Energy Ready
  - l. Solar Ready
  - m. Building Use Type/"Property Type"
  - n. Window-To-Wall Ratio
  - o. EV Charger Ready
  - p. Publicly-accessible EV charging
  - q. Benchmarking
3. Policy Application
  - a. Transition from 2019 GBP to Updated Policy
  - b. Based on DSUP submission date
    - b.i. Are grandfathered and may must comply under 2019 GBP only?
  - c. Flexibility Clause / Alternative Compliance (e.g. Passive House Certification) See Appendix 3
4. Energy Use Intensity
  - a. Explanation – What is this and why is this important?
  - b. EUI Target per Building Use Type
    - i. Reference "Property Types" as defined by Energy Star Portfolio Manager
    - ii. Reference Appendix 1
  - c. Compliance Options
    - i. Option 1: Design EUI – Submit modeling reports preoccupancy
    - ii. Option 2: Actual EUI – Requires performance bond payment and post-occupancy benchmarking/reporting via Energy Star Portfolio Manger to demonstrate compliance.

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- d. Considerations:
  - i. Gross vs Net EUI
  - ii. Regulated vs Non-regulated Loads
  - iii. Omit Loads for EV Charging
  - iv. Submission Standards
- 5. Renewable Energy
  - a. Explanation – What is this and why is this important?
  - b. Step 1: Solar Feasibility Study Requirement
  - c. Step 2: Renewable Energy Options
    - i. Option 1 - 3% of project’s anticipated total annual energy use
    - ii. Option 2 - XX% watts per square foot of roof area - Provide on-site solar generation (or other acceptable forms of renewable energy) equal to at least 2.0 watts per square foot of the roof area (including mechanical area)
    - iii. Option 3 - Co-locate an integrated vegetated roof and solar (whereby vegetated roof meets Virginia DEQ BMP standards) and is equal to at least 12% of the roof area (including mechanical area) -and- on-site solar generation (or other acceptable forms of renewable energy) is equal to at least 1.5 watts per square foot of the roof area (including mechanical area)
    - iv. Option 4: City of Alexandria Clean Energy Fund Contribution
- 6. Electrification
  - a. Explanation – What is this and why is it important?
  - b. Allowable Combustion Uses
  - c. All-Electric Incentives
    - i. EUI Flexibility (Section 4 above)
- 7. Other Sustainability & Resilience Requirements
  - a. Building Level Energy and Water Meters
  - b. Indoor Water Conservation
  - c. Outdoor Water Conservation
  - d. EnergyStar Appliances
  - e. Light Pollution
  - f. Heat Island
  - g. EV Chargers
  - h. Indoor Environmental Quality
    - i. Low Emitting Materials
    - ii. Pre-Occupancy Flush Out or Indoor Air Quality Testing

- 8. Incentives
  - a. Expedited Permitting
  - b. Parking Reductions
  - c. FAR (probably not)
  - d. Property Tax Abatement
  
- 9. Submissions & Future Updates
  - a. OCA is directed to create a process for reviewing development submissions and periodically updating the process – as necessary – to accommodate swift, accurate, and effective submission review.
  - b. Future Periodic/As-Needed GBP Updates
  
- 10. Appendix 1: EUI Target Per Building Use Type
  
- 11. Appendix 2: Submission Schedule – What is submitted and when?
  - a. Concept 1
  - b. Concept 2
  - c. Preliminary Site Plan
  - d. Final Site Plan
  - e. Building Permit
  - f. Certificate Of Occupancy
  
- 12. Appendix 3: Flexibility Options
  - a. Passive House
  - b. Phius
  - c. Living Building Challenge
  - d. Other Ideas Proposed by Applicants for Climate Action Officer & P&Z Director consideration
  - e. Affordable Financing
    - i. Flexibility for projects exceeding inclusionary zoning and utilizing affordable financing such as tax credits, tax-exempt bonds, block grants, to comply with required baseline energy performance and obtain one (1) additional green certification
    - ii. Baseline energy performance: HERS Rating or Energy Star Compliance
    - iii. Additional Green Certification: LEED, Earthcraft, NGBS and Enterprise

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October 17, 2025

Re: **Support for Updated Green Building Policy**

To: Mayor Gaskins, Vice Mayor Bagel, and City Councilmembers

CC: Jim Parajon, Ryan Freed, Dustin Smith

Dear Mayor, Vice Mayor, and City Council,

The Environmental Policy Commission is earnestly sharing a letter of support for the updated Green Building Policy, as released in Fall of 2025.

We believe the policy strikes a pragmatic balance that recognizes the challenging economics the industry is facing while also acknowledging the importance of advancing sustainability of developments in our community. We particularly applaud the focus on Energy Use Intensity (EUI, energy use per square foot) as a core performance metric, while still offering flexibility through alternate compliance paths. Prioritizing energy performance also supports affordability during operations – a lower building EUI ties directly to lower utility bills for multifamily residents and office/retail tenants. The policy is a step in the direction we'd like the City to go in its overall efforts to encourage climate action and building decarbonization.

Our support comes with one condition: that the City hold true to the policy's commitment to undergo a review at least every 2 years, with the intent that the EUI targets be on a trajectory that decreases over time.

Please do not hesitate to reach out with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Marta Schantz".

Marta Schantz, Chair  
Alexandria Environmental Policy Commission



## ALEXANDRIA PLANNING COMMISSION

301 King Street, #2100  
Alexandria, VA 22314

703.746.4666  
www.alexandriava.gov/planning

June 23, 2025

Dear Ryan Freed and the Alexandria Office of Climate Action,

The Planning Commission wishes to commend and strongly support Council’s recent efforts to bring forward an updated and stronger Green Building Policy for new development. In the hope that it will in no way diminish our appreciation of work done to-date, the Commission requests that the Office of Climate Action consider **two small but important changes** to advance the effectiveness of the Policy update. **First**, we recommend that the Energy Use Intensity (EUI) target for multifamily residential buildings be lowered to 30 EUI today, ramping down to 23 EUI by 2030. **Second**, we recommend that the Onsite Renewables Annual Energy Offset target of 3% be increased to 5%, and that the option of paying into a fund instead be increased from 90% of the onsite cost to 120% of that cost. A more complete discussion of the basis for these recommendations follows.

### **Background**

In February 2022, the Planning Commission, the Environmental Policy Commission, and the Transportation Commission provided Council with a joint letter declaring their shared concern that more must be done, and sooner, to address the [climate emergency](#)<sup>1</sup>. Of their five key recommendations, the first two pertained to sustainable new building development by both the public and private sectors. The letter highlighted how the 2019 Green Building Policy limited our ability to achieve adopted Environmental Action Plan 2040 targets for citywide greenhouse gas emissions reductions.

In February 2023, the Planning Commission and Environmental Policy Commission delivered another [joint letter](#) in which they focused guidance on how planning tools could bring us more sustainable new building development: improvements to our master plans and small area plans, the Green Building Policy, Coordinated Development District Concept Plans, and Development Special Use Permits.

The Office of Climate Action has now put forward a proposed Green Building Policy Update (the “Update”), focused first and foremost on energy use intensity, or EUI, as the cornerstone of sustainable building design. This performance-based approach ensures developers have the most flexibility possible within their design process, while also making the standard of performance clear. The Update’s further commitments to building electrification, the option to off-site a portion of renewable energy generation for the City’s net-zero buildings, and the provision of several alternative compliance paths provide a more effective green building framework for new development. The Update also smartly acknowledges the special cost and efficiency considerations of affordable housing projects and building conversions, offering nuance that is needed for community development priorities.

<sup>1</sup> Council’s Emergency Declaration: [https://www.alexandriava.gov/news\\_display.aspx?id=111923](https://www.alexandriava.gov/news_display.aspx?id=111923)

## Recommendations

There are **two key areas** where the Update could do more to help Alexandria reduce GHG emissions 50% by 2030 (from a 2005 baseline) and 80-100% by 2050.<sup>2</sup> If approved, we believe these recommendations would better enable the Green Building Policy to mitigate the negative climate impacts of development.

1. **Stronger EUI Target for Multifamily Buildings.** The project team considered a range of options for EUI targets for new multifamily development and then selected 38 EUI as a step up from the baseline of how all existing multifamily development performs today. Unfortunately, that small step, just an 8% reduction from today's energy use baseline, is not going to be enough. Their analysis uses a baseline of all existing buildings, including ones built under antiquated energy codes, rather than looking at the EUI of recent development as the baseline upon which to improve. The average minimum performance required under today's energy code in Alexandria is 32 EUI for multifamily buildings.<sup>3</sup> The top 25% of multifamily buildings built in Alexandria in the last 15 years average 30 EUI.<sup>4</sup> We recommend the Update set a threshold of **30 EUI now** based on the top-performing buildings that are already being built. We also recommend that the policy establish a schedule for reductions in the EUI target ramping down to **23 EUI<sup>5</sup> by 2030**, to align with reaching the city's net zero energy building goal.
2. **Larger On-site Renewables Annual Energy Offset.** We recommend that this offset be made larger, in recognition that the offset becomes a smaller total amount of energy generation the more energy-efficient the building design. The Update suggests that buildings only provide 3% of the energy requirement through onsite renewables. We find this too modest a goal to address the climate emergency. We think that with the efficiencies of new buildings, developers should be able to produce **5%** of required building energy through onsite renewables.

In addition, the Update provides developers the option to pay into a fund rather than install the renewables on-site as part of their project. The Update suggests they only pay 90% of the installation cost as this in-lieu payment. In fact, this alternative path should **exceed the foregone onsite cost by a modest amount, perhaps 20%**. This is in part to discourage use of the fund option in preference for more timely installation on-site. Further, administering a fund to build improvements elsewhere comes with overhead and logistics challenges for the city to bear, apart from the fact that such delay in implementation will reduce the relative value of the payment through inflation and similar factors. As with EUI, we recommend that the Update establish a schedule for incremental increases in the expected percentage of on-site energy generation over time, and that the policy provide a foundation for discussion of necessary on-site storage capacity as distributed energy generation becomes more prevalent in the future.

In closing, our **two key recommendations** help to ensure that new development in the City of Alexandria is responsive to established environmental goals and that the direct and embodied emissions impacts of new buildings are mitigated to the extent possible through adherence to a strong, clear, and flexible Green Building Policy. The Planning Commission understands that property developers are working within economic constraints and that the macro national and even international pressures on their business change over time. Nonetheless, the climate emergency Council acknowledged in their declaration of 2019 continues to be one of the greatest challenges of our time. We thank you for the opportunity to comment on this important piece of public policy.

<sup>2</sup> This goal is promulgated in both the [Environmental Action Plan 2040](#) updated in 2019 and the [Energy and Climate Change Action Plan](#) from 2023.

<sup>3</sup> Data and Analysis for Alexandria Target Setting, Pacific Northwest National Laboratory, table 5, page 5.

<sup>4</sup> Data and Analysis for Alexandria Target Setting, Pacific Northwest National Laboratory, table 4, page 4.

<sup>5</sup> This target meets current best practice represented by "Achieving Zero Energy: Advanced Energy Design Guide for Multifamily Buildings, ASHRAE 2022", Figure 3-1, page 27.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Melissa McMahon', with a stylized, flowing script.

Melissa McMahon, Chair, Alexandria Planning Commission

cc:

Alexandria Planning Commission

Jim Parajon, City Manager

Karl Moritz, Planning Director



## EPC Letter in Support of the Draft 2025 Green Building Policy Update May 23, 2025

Dear Mayor Gaskins, Vice Mayor Bagley, and Members of City Council,


The Alexandria Environmental Policy Commission (EPC) voted to express our strong support for the proposed 2025 update to the City’s Green Building Policy, as we asked for this update in our 2023 joint Planning Commission + Environmental Policy Commission letter to Council on strategies to advance more sustainable new developments. We commend the City for the significant progress represented in this draft update and are particularly pleased to see the policy’s alignment with Alexandria’s climate goals, including the 2030 targets previously approved by Council.

We are especially encouraged by the policy’s focus on measurable energy performance through Energy Use Intensity (EUI) thresholds, the inclusion of clear guidance on electrification, the clarification allowing public buildings to use off-site renewables, and the flexibility offering multiple compliance paths for different stakeholder types. This update reduces the need for project-by-project negotiations around key sustainability features, and provides performance-based guidelines that allow developers to achieve the targets as they see fit.

To further strengthen the impact and transparency of this policy, and to support developers in long-term planning, we respectfully offer recommendations on two elements: **EUI** and **Renewables**.

### 1. Start with Lower EUI Targets, Establish a Defined Phase-Down Path for EUI Targets to 2030, and Clarify Zero Emissions Building Criteria

The EPC supports the policy’s use of a performance-based approach to EUI. We recommend the “Better” performance option over the City-proposed “Good” option as the starting point for all projects. Figure 1 shows the Baseline, Good, Better, and Best EIUs analyzed.



**Initial Recommendation: Energy Use Intensity  
(EUI = Energy Use/Square Foot)**

• Baseline construction cost estimate for multi unit residential: \$350 per square foot

Multi Unit Residential Packages	EUI (Lower = Less Energy)	Percent Reduction from Baseline	Cost Estimate of Measure Package: \$/ sq ft (Percentage Cost Increase over Baseline)
Baseline	42.00	0%	- *
Good	38.50	8%	\$3.37 (1%)
Better	35.70	15%	\$12.68 (3.6%)
Best	30.98	26%	\$14.96 (4.27%)

Less Energy Consumed Per Square Foot

Figure 1: Green Building Policy Update February 14, 2025 - Slide 7



“Good” is simply not good enough. We appreciate that economic constraints were considered the analyses, and believe that developers are capable of achieving the “Better” EUI given today’s market and technologies available. The Build Our Future initiative in Alexandria (<https://buildourfuture.org/>) has featured webinars of multiple low-EUI new developments that showcase the technical feasibility and business case for achieving and exceeding these performance levels.

To align with Alexandria’s goal of net-zero new construction by 2030, we recommend that the City establish a starting point of the “Better” 35 EUI for new multifamily buildings in 2025. From there, the policy should clearly outline a phased reduction in EUIs annually, reaching “Zero Energy Ready” 25 EUI as the maximum allowable EUI by 2030. Including this trajectory explicitly in the policy will provide developers with the clarity they need to plan and design buildings that meet the City’s long-term sustainability goals. Figure 2 shows the Alx Baseline value compared to the New Buildings Institute’s zero energy-ready building targets where we recommend the trajectory end.

Property Use Type	ALX Baseline	Zero Energy-Ready Building Target
Single Unit Residential	35 <sup>2</sup>	20
Multi Unit Residential	42 <sup>2</sup>	25 <sup>3</sup>
Commercial Office	47 <sup>4</sup>	22 <sup>3</sup>
Hotel	92 <sup>2</sup>	36 <sup>3</sup>
Retail	45 <sup>2</sup>	25 <sup>3</sup>
Restaurants	305 <sup>2</sup>	

Figure 2: Green Building Policy Update February 14, 2025 – Slide 8

In addition, we recommend the City define a “zero emissions building” directly within the policy, using the federal definition adopted by the U.S. Department of Energy: highly energy efficient, free of on-site emissions from energy use, and powered solely by clean energy. Embedding this definition, rather than pointing externally, will reduce ambiguity and reinforce the City’s commitment to its own targets.

## **2. Increase the On-Site Renewable Energy Requirement, and Adjust Fund Contribution Option**

We appreciate the policy’s tiered approach to renewable energy compliance and recommend increasing the minimum requirement for on-site renewable generation from 3% to 5% of a project’s anticipated total annual energy use. Given that the EUI requirements outlined above will result in more efficient buildings, achieving 5% on-site generation is both feasible and reasonable since the overall energy consumption is lower.

Recent studies and case examples from the DOE’s Zero Energy Ready Homes program, along with projects certified under PHIUS and LEED Zero standards, demonstrate that new buildings, particularly mid-rise and garden-style multifamily developments, can reliably meet or exceed on-site energy production targets when paired with high-performance envelope design and efficient systems. This indicates that a 5% minimum requirement is achievable and aligned with



*emerging industry best practices. Increasing the minimum on-site solar requirement would bring Alexandria's policy in line with current best practices while still maintaining flexibility for site-constrained projects through the Clean Energy Fund.*

*Additionally, we recommend increasing the contribution alternative to the City's Clean Energy Fund from 90% to at least 100% of the estimated cost of meeting the on-site requirement, plus administrative costs. As currently proposed, the 90% contribution unintentionally incentivizes developers to opt out of on-site solar, undermining the City's intent of on-site clean energy. Setting the contribution amount at or above full cost is essential to creating true parity between compliance pathways and ensuring that on-site renewable energy remains the more attractive option whenever feasible.*

In summary, the EPC supports the direction and framework of the 2025 Green Building Policy update and sees it as a critical step toward a more sustainable built environment in Alexandria. We respectfully encourage the City to consider the above recommendations to further align the policy with the City's 2030 climate goals and to provide developers with the transparency needed to plan effectively. Alexandria deserves better buildings; the updated GBP with our recommendations would spur development of them in our community.

We appreciate the opportunity to provide feedback and are available to discuss these recommendations further should that be helpful.

Sincerely,

A handwritten signature in black ink, appearing to read "Marta Schantz".

Marta Schantz  
Chair, Alexandria Environmental Policy Commission



**ALEXANDRIA PLANNING COMMISSION  
ALEXANDRIA ENVIRONMENTAL POLICY COMMISSION**

Alexandriava.gov

301 King Street  
Alexandria, VA 22301

Phone (703) 746-4357

February 7, 2023

Dear Mr. Mayor, Madam Vice Mayor, City Council Members and City Manager,

Following our February 2, 2022 joint letter to City Council with recommendations for Sustainable Developments and High Performance Buildings, the Planning Commission and Environmental Policy Commission worked jointly to identify opportunities to better link the City's climate plans and policies to the City's entitlements approval process for **new** development. Our Commissions agree that the immediate, short- and long-term strategies listed below are the most actionable, feasible, and impactful to engage development in the City to combat the climate crisis. Our Commissions urge Council to budget for permanent, ongoing support that links climate policy with the entitlements approval process for new development. We believe partial funding for these efforts can come from the \$1.85M already reserved by the City Manager to take climate action in the short term.

According to the City's Draft Energy & Climate Change Action Plan, 91 percent of Alexandria's greenhouse gas emissions come from two sources: **community buildings** (new and existing), and **transportation**. Therefore, any mitigation strategies must address those two elements. The Draft Plan identifies the enormity of proposed solutions and offers limited implementation strategies including:

- 95 percent of all new buildings to be net zero ready by 2025;
- 32,835 (43 percent) of the City's current 76,361 existing residential units be retrofitted with energy efficiency and/or electrification by 2025;
- Rapid shift to electric vehicles with nearly all new vehicles sold in Alexandria in the near-term to be electric, a proposed solution with far more aggressive EV sales targets than in California.

We again express our concerns for rapid and effective updates to development approval processes to meet Alexandria's 2019 **Declaration of a Climate Emergency commitments** and **Environmental Action Plan (EAP) 2040**. In our opinion, the City presently lacks adequate policies to require or encourage new developments to exercise best practice building standards to meet these commitments and targets through the City's entitlements process.

The most cost-efficient method to "move the needle" and reduce greenhouse gas (GHG) emissions from new construction is to make buildings well insulated and airtight,<sup>1</sup> with balanced ventilation. One example of a best practice on energy efficiency is Passive House Standards<sup>2</sup>. In addition to reducing the fuel needed to heat/cool the buildings, this approach significantly improves air quality, reduces the adverse health effects to children and

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<sup>1</sup> Link to Measurements of Levels of Air Leakage: <https://www.alexandriava.gov/sites/default/files/2023-01/Measured%20Air%20Leakage%20Requirements%20in%20Context%20-%20Building%20Enclosure.pdf> and link to How to measure air leakage: <https://www.alexandriava.gov/sites/default/files/2023-01/Test-Results-and-Sample-Test-Forms-Guide-.pdf>

<sup>2</sup> Link to Passive House standards for various building types: <https://www.phius.org/standards>. This is only one example.

families, increases building resiliency in cases of power outages, and reduces the operating cost of buildings over time.

Like floor area ratio (FAR) or miles per gallon (MPG) standards, **the best method to measure a building's energy efficiency is Energy Use Intensity (EUI).**<sup>3</sup> There are numerous examples of buildings across the northeast with an EUI of 20 or less that have been designed, built, and are being operated. The City's current Green Building Policy (GBP) does not have an explicit EUI standard and, as a result, recent projects have been designed to achieve an average EUI of 40-45<sup>4</sup> for multi-family residential units, more than double that of buildings in other cities are achieving. Staff initially estimated in 2019 that the GBP would reduce GHG emission in Alexandria by **only 3 percent.**<sup>5</sup> No achievable climate plan demonstrates how Alexandria could meet its pollution reduction targets without amending the GBP to better address energy efficiency since adding to a problem never makes it better.

To ensure all parts of the entitlement process work smoothly together, we recommend the use of a systems approach. Our proposed recommendations aim to establish a common understanding of the issues and ensure we all speak the same language to avoid confusion. The proposed refinements below reflect the nuances of Alexandria's entitlements process, moving from general to specific, and recommend refinements within existing authorities, incentives, and new requirements through plans, policies, and development permit approvals. We trust that the following integrated refinements to strategically selected aspects of our planning processes may serve as a framework for directly linking climate policy with the entitlements process for new development.

### **Recommended Refinements to Plans, Policies and Requirements**

We recommend addressing these needs through refinements to the City's existing Master Plan and Small Areas Plans; the Green Building Policy; Coordinated Development District Concept plans; and Development Special Use Permit conditions. We recognize the City will need to determine the specific targets and implementation approach for each refinement consistent with established entitlement processes, authorities, and budgets. However, we've referenced industry standard best practices throughout the recommendations to provide illustrative possible benchmarks that are feasible and have been implemented in other jurisdictions. Our specific suggestions appear below:

#### **1. Master Plan and Small Area Plans**

**The Master Plan and most Small Area Plans do not adequately address or include reference to community environmental goals/targets.** Use the existing amendment process and current planning process such as the Alexandria West Small Area Plan<sup>6</sup> and others to:

- A. Establish a means or principle** by which EAP2040 GHG reduction **targets** and Climate Emergency Declaration **commitments** become binding on new development.
- B. As part of the master plan/small area plans, require developers to submit an Action Plan** for Carbon Neutral Buildings by 2030 and Carbon Neutral Sites by 2040 to achieve GHG emission targets and Climate Declaration commitments. The plans should consider funding available from the federal Inflation Reduction Act of 2022 and other funding streams.<sup>7</sup>

#### **2. Green Building Policy**

<sup>3</sup> Energy Use Intensity is defined as a simple quotient of energy delivered to a building divided by its area (typically expressed in British Thermal Units (BTU) per square foot per year (BTU/sq.-yr.).

<sup>4</sup> See Slide #20 on PRGS presentation to EPC on November 21, 2022 [https://www.alexandriava.gov/sites/default/files/2022-11/20221121\\_EPC%20Meeting%20FINAL\\_G\\_compressed.pdf](https://www.alexandriava.gov/sites/default/files/2022-11/20221121_EPC%20Meeting%20FINAL_G_compressed.pdf)

<sup>5</sup> The EAP2040 calls for a reduction of 50 % GHG emissions by 2030 and 80-100 % by 2050 based upon 2005 levels.

<sup>6</sup> <https://www.alexandriava.gov/AlexandriaWest>

<sup>7</sup> [https://www.usgbc.org/sites/default/files/2022-12/USGBC\\_IRA-Fact-Sheet-Existing\\_v4\\_FINAL.pdf](https://www.usgbc.org/sites/default/files/2022-12/USGBC_IRA-Fact-Sheet-Existing_v4_FINAL.pdf)

The current **voluntary** GBP guidance does not adequately address energy, emissions, and resilience. Amend the GBP to:

- A. **Set a specific date by which all new buildings** above 50,000 square feet **must meet a Net Zero Energy performance standard.** For example, like the District of Columbia, Alexandria could amend its GBP to require new buildings to meet a Net Zero Energy standard defined as: 1) using the current best practice to increase energy efficiency to the highest level, 2) require the most on-site renewable<sup>8</sup> energy as possible and 3) require the remaining energy needed from offsite renewable sources.
- B. **Set energy use intensity requirements by building type, with progressive reductions in EUI targets over time.** The City's requirements could use authoritative sources such as ASHRAE Advanced Energy Design Guides<sup>9</sup> for each building type.<sup>10</sup>
- C. **Set renewable energy requirements for onsite energy generation and onsite electrical storage, with progressive increases in requirements over time combining solar and green roof whenever possible.** For example, the GBP could require new buildings to include a minimum percentage of on-site renewable energy with a **suggested** amount of battery storage and a timeline to increase the storage until it can replace 1-for-1 backup fossil fuel emergency generators.
- D. **Set annual recording (benchmarking) of energy usage.** This could include a requirement that new buildings over 50,000 square feet must input their fossil fuel and electric energy usage in the **free** EPA's Energy Star Portfolio Manager software **to** enable the City to better track energy usage and changes.

### 3. Coordinated Development District Concept Plan

**Current CDD Concept Plan requirements do not adequately address energy, emissions, and resilience.** We recommend updating our existing CDD approval process to require an **Energy and Resilience Concept Plan for each new or revised CDD Concept Plan** like the one included for the former Landmark Mall site (now "WestEnd Alexandria") that includes data necessary to evaluate these elements:

- A. **Energy use intensity by building type**
- B. **Site wide energy demand and emissions**
- C. **Consideration and/or use of on-site district energy**
- D. **On-site renewable energy in kW + electrical storage in kW**
- E. **Consideration and/or use of a site-wide microgrid**
- F. **Total embodied carbon<sup>11</sup>**

### 4. Development Special Use Permits

**DSUP Sustainability Conditions are effective at incrementally improving project performance.** Using the current iterative development review process by City staff, continue the purposeful evolution toward more energy efficiency and the complete elimination of fossil fuels by requesting at the Concept stage:

- A. **All electric buildings:** A SMART<sup>12</sup> plan that shows the elimination of all fossil fuels from the site
- B. **Renewable energy:** A SMART plan describing renewable energy features of the site, such as 'solar operational' infrastructure.

<sup>8</sup> Renewable energy includes solar, wind and water that does not require a cost for the energy source

<sup>9</sup> Link to ASHRAE's Three Zero Energy Design Guides: <https://www.ashrae.org/technical-resources/aedgs/zero-energy-aedg-free-download>

<sup>10</sup> See [Achieving Zero Energy Advanced Energy Design Guide for Multifamily Buildings](https://aedg.ashrae.org/) 2022 link <https://aedg.ashrae.org/>

<sup>11</sup> Embodied carbon could be addressed by using a carbon calculator like the one found at:

<https://www.buildingtransparency.org/>

<sup>12</sup> SMART plans – are plans that include Specific, Measurable, Achievable, Repeatable, Time-bound actions

- C. **Energy use intensity:** A SMART plan for projected EUI performance and energy modeling
- D. **Greenhouse gas emissions:** Require a projection of estimated GHG emissions
- E. **Operational performance:** Expand reporting requirements (benchmarking) for actual energy use after construction for the lifetime of the building.

### Implementation Needs

**Given the financial costs of delaying implementation of our recommendations, we urge the City to follow a timeline to complete full implement of our recommendations as soon as practical, but at a minimum no later than by the end of FY2024.** Over the past 3 years we have already watched the approval of several major developments, each with hundreds of residential units, thus adding to the existing retrofit building stock required to eliminate GHG emissions by 2050. Every new developmental permit issued today without meeting our recommended requirements increases the burden on future generations.

The Commissions believe that many of the above amendments can use existing staff resources given the newly created Office of Climate Action. However, it is critical that sufficient staff and/or consultant resources be available to develop and implement these concepts given the urgency of the climate crisis and its increasing costs.

We note with concern that the Interdepartmental Long-Range Planning Work Program proposal advanced by staff for FY24 does not propose to address these issues. Our commissions strongly believe we must remedy this deficiency through additional budget and staffing to support implementation of these objectives in FY24, and ongoing staffing for implementation in future years.

For example, we recognize that research is required to determine financially viable EUI standards. This research could inform decision-makers on when best to use optional financial incentives for “catalyst” buildings such as those used in the Eisenhower West/Landmark Van Dorn Small Area Plan. In addition, attorneys must inform when the City can use Virginia energy efficiency standards such as VA 58.1-3221.2 Classification of Certain Energy – Efficient Buildings for Tax Purposes<sup>13</sup>. However, if designed progressively to follow government authoritative sources such as the ASHRAE standard cited, it is probable that this research will involve one-time costs, with future changes made as part of a regular standards review process.

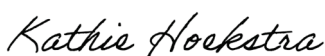
Our commissions believe that the City must budget for permanent, ongoing support linking climate policy with the entitlements approval process for new development as part of its equity, environmental justice and transparency principles. The Office of Climate Action or Department of Planning and Zoning could assume this role in coordination with the other, but regardless of who leads the process, it should be a standing effort of the City’s Interdepartmental Long-Range Planning Work Program.

We strongly encourage Council’s leadership to devote the necessary time and resources to support this effort to address the climate emergency. Our commissions stand ready to support Council in implementing these recommendations.

Sincerely,



Nathan M. Macek, Chair  
Planning Commission



Kathie Hoekstra, Chair  
Environmental Policy Commission

<sup>13</sup> <https://law.lis.virginia.gov/vacode/title58.1/chapter32/section58.1-3221.2/>