Introduction

The City of Alexandria has ambitious goals included in the Environmental Action Plan 2040[1], which is a policy document adopted on July 9, 2019 by City Council. Achieving those goals requires a shared commitment from residents, developers, builders, and the design community. This update to the Green Building Policy is one more step on the pathway to a carbon-free, sustainable community.

The 2019 Green Building Policy established requirements that relied upon third-party certification programs. This 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 Green Building Policy provides a narrower set of requirements, focusing specifically on improving air quality, reducing environmental impact, mitigating the impacts of increased energy use, 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.

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

Table of Contents

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 shall sunset and expire on December 31, 2025. The 2025 Green Building Policy shall be effective for DSP and DSUP applications submitted on or after January 01, 2026. DSP and DSUP applications submitted between October 30, 2025 and December 31, 2025 may opt to comply with either the 2019 Green Building Policy or the 2025 Green Building Policy.

a. General Flexibility & Permitted Modifications

The Climate Action Officer may approve modifications to the Green Building Policy on a case-by-case basis, provided the proposed changes uphold the spirit and functional intent of the Green Building Policy. Proposals for modifications must incorporate sustainable building design and construction practices that significantly exceed standard industry techniques. Upon receipt of a modification request, the Climate Action Officer shall consult with the Director of Planning & Zoning regarding the request and they shall consider the project size, proposed use, the green building practices proposed by the applicant, and whether alternatives meet the requirements of this section, to determine if the request is justified.

Applicants seeking a modification to the Green Building Policy shall provide the Climate Action Officer with a written narrative outlining the reasons for the request and evidence of how the proposed alternative meets or exceeds the Green Building Policy's goals.

b. Compliance Options for Projects

This policy outlines four (4) compliance options for projects subject to DSP and DSUP review:

Compliance Option 1 – Standard Compliance

- Requires projects to meet specific performance standards for Energy Use Intensity, renewable energy, building electrification, water conservation, and electric vehicle charging infrastructure, etc. based upon the nature of the project.

Compliance Option 2 – Green Building Certifications

- In lieu of complying with other options, Compliance Option 2 permits projects to satisfy a green building certification requirement.

Compliance Option 3 – Affordable Housing

- In lieu of complying with other options, Compliance Option 3 allows affordable housing projects to satisfy development criteria set by Virginia Housing (VH).

Compliance Option 4 – Small Projects and Adaptive Reuse

- In lieu of complying with other options, Compliance Option 4 allows certain small projects to satisfy different standards tailored to their scope.

II. Compliance Option 1: Standard Compliance

Energy Use Intensity (EUI)

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.

Projects shall meet the site EUI targets by property type as shown in Table 1 below.

EUI is a common measure of a building's energy performance, and is referenced in the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) standards, which are the standards incorporated into the Uniform Statewide Building Code.

Predictive modeling shall be used to calculate annual energy use in accordance with ASHRAE standard 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.

These EUI targets reflect projected annual energy demand for each building type, proportionate to the expected load of each use. By establishing targets informed by the ASHRAE framework, new development is informed by both present standards and the evolving energy needs of the City of Alexandria.

Table 1. Site EUI by Property Type

Property Use	Site EUI Target
Single unit residential	31
Multi-unit residential – High-rise	38
Multi-unit residential - Other	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 will be determined by the Climate Action Officer or their designee. To determine this, the Officer and applicant may use sources such as local benchmarked EUIs accessed using the Department of Energy's Building Performance Database (BPD), ASHRAE performance standards, or other data available through trusted and government sources.

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 air pollution impacts related to new development within the City of Alexandria. Generating renewable energy on-site, or within the City of Alexandria, enhances the resilience and reliability of the electric grid, while reducing reliance on fossil fuels.

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 based on the formula below. The Clean Energy Fund will be used for investment in projects that have similar impact by either reducing energy use or increasing availability of renewable energy within the City of Alexandria. The maximum contribution to the Clean Energy Fund shall not exceed $150,000 per building or, in the case of townhomes, per development. The contribution will be calculated based on the following formula:

Step 1: Multiply the project's modeled Total Annual Energy Use (kWh) by 0.03. This is the project's Total Renewable Energy Requirement (kWh).

Step 2: Determine the System Size (kW). Divide the Total Renewable Energy Requirement (kWh) by the Assumed Production-Size Ratio (kWh per kW) of the renewable energy system installed: assumed to be 1332 kWh per kW in Alexandria. This produces the Installation Capacity Requirement (kW).

Step 3: Convert the Installation Capacity Requirement (kW) into Watts by multiplying the Installation Capacity Requirement (kWh) by 1000.

Step 4: Determine the Clean Energy Fund Contribution by multiplying the Installation Capacity Requirement in Watts by the Solar Benchmark Price of $3.38 per watt. This is the project's Clean Energy Fund Contribution amount and may not exceed $150,000.

Table 2. Renewable Energy Terms

Term	Unit	Notes
Total Annual Energy Use	kWh	Modeled from Section II,A: *Energy Use Intensity*
Total Renewable Energy Requirement	3%	
Assumed Production-Size Ratio[2]	kWh per kW of renewable energy system installed	Assumed to be 1332 kWh per kW in Alexandria
Installation Capacity Requirement	kW	
Solar Benchmark Price	$3.36 per watt	
Clean Energy Fund	$	Contributions shall not exceed $150,000

Option 3: Any combination of Option 1 and Option 2.
Applicants may install on-site renewable energy that equals less than the 3% requirement of the Green Building Policy, if the remaining renewable energy requirement is achieved by contributing to the Clean Energy Fund using the above calculations.

[22] The Production-Size Ratio is most heavily influenced by the location and orientation of the solar panels. The value shows how many kWh of usable energy is likely to be gained from each kW of rated power. For example, a PV installation of 10kW will produce more kWh when panels are installed facing South in a desert versus facing North in a rainy city like Seattle.

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.

Permitted Combustion Uses.

Buildings should evaluate and prioritize eliminating combustion onsite. However, some combustion uses are less conducive to non-combustion replacements. 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:

- Amenities (Fireplaces, firepits, or grills) in multi-unit residential or hotel projects;
- Commercial kitchens;
- Laundry & centralized domestic hot water in multi-unit residential or hotel projects,
- Emergency generators; and
- Dedicated Outdoor Air Systems (DOAS) may be permitted, by approval of the Climate Action Officer or their designee, in cases where climate benefits can be demonstrated over an all-electric system.

Energy and Water Meters

These energy and water meter standards allow for whole-building benchmarking and allow the EUI targets to be verified.

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.

Indoor Water Conservation

These indoor water conservation standards are intended to create less demand on potable water supply and wastewater treatment infrastructure while lowering utility bills for building owners and occupants.

All newly installed plumbing fixtures eligible for labeling must be WaterSense[3] labeled and 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
- Kitchen faucets: 1.5 gpm
- Showerheads: 2.0 gpm
- Prerinse spray valves: 1.3 gpm

Outdoor Water Conservation.

These outdoor water conservation standards are intended to create less demand on water supply and wastewater treatment infrastructure, and reduce contaminants in the environment, while lowering utility bills for building owners and occupants.

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.[4]

Energy-Efficient Appliances

Newly installed appliances below shall have the ENERGY STAR[5] label:

- Residential clothes washer
- Residential clothes dryer
- Residential dishwasher
- Residential refrigerators
- Ice machines

[3] The WaterSense label is a certification program run by the U.S. Environmental Protection Agency (EPA). It identifies products that meet EPA criteria for water efficiency and performance. WaterSense Fixtures: https://www.epa.gov/watersense/watersense-products

[4] EPA's WaterSense Water Budget Tool can be accessed: https://www.epa.gov/watersense/water-budget-tool

[5] The ENERGYSTAR label is a certification program run by the U.S. Environmental Protection Agency (EPA) in partnership with the U.S. Department of Energy (DOE). It identifies products that meet EPA criteria for energy efficiency. ENERGY STAR appliances: https://www.energystar.gov/products

Electric Vehicle (EV) Charging Infrastructure

Townhouses, Duplexes, Stacked Townhouses, and Single-unit Residential Projects:

If off-street parking is required, provide two empty slots in each household 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.

All Other Project Types:

Option 1 for All Other Project Types: Provide EV chargers for at least five percent (5%) 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 per these requirements.

a. Size and install the conduit correctly based on the number and location of future chargers. A combination of Level 1 *[multi-unit only]*, Level 2, and DCFCs may be used; based on the estimated demand for charging and planned usage.

b. Label parking space location junction box for the future electric vehicle charger.

c. Provide available physical space within the utility closet for future cabinetry required to add vehicle chargers to the electrical panel.

d. Additional conduit does not need to account for transformer sizing.

e. EV chargers may encroach in the required parking space dimension.

Option 2 for All Other Project Types: Install at least one (1) publicly accessible electric vehicle DC Fast Charger (DCFC), prior to issuance of the final Certificate of Occupancy. The DCFC space(s) would count toward Zoning Ordinance off-street parking requirements.

Low Emitting Materials

New materials, such as paint and flooring, in occupied spaces may emit toxic or otherwise unhealthy particles to residents, this requirement reduces the negative health impacts of new construction and materials. Meet the requirements equivalent to earning at least 2

points for the LEED v4.1 BC+C New Construction – Low-Emitting Materials credit.[6] 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.

Pre-Occupancy Flush or Indoor Air Quality Testing

The process of construction, and the installation of new materials may create health contaminants in the air. This requirement is intended to create a safer indoor environment prior to occupancy. 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.[7]

Flexibility for Adaptive Reuse Projects

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, and are subject to the Green Building Policy, may seek waivers or reductions of the required EUI and renewable energy targets of the Green Building Policy. Waivers will be approved by the Climate Action Officer in consultation with the Director of Planning & Zoning.

III. Compliance Option 2: Green Building Certifications

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 workforce development, and take advantage of federally available

[6] 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

[7] 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

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
- Passive House Institute (PHI) Certification
- Living Building Challenge Certification
- U.S. DOE Zero Emissions Building
- U.S. DOE Zero Energy Ready Home
- U.S. Green Building Council LEED Zero

IV. Compliance Option 3: Affordable Housing Projects

Existing requirements for projects receiving Virgina Housing Low Income Housing Tax Credit (LIHTC) financing or City of Alexandria Housing Opportunity Funds typically meet or exceed the established energy performance requirements in this Policy.

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 LIHTC financing or City of Alexandria Housing Opportunity Funds must be compliant with VH-required baseline energy performance requirements and obtain one of the following additional green certifications: LEED, EarthCraft, National Green Building Standard, or Enterprise.

V. Compliance Option 4: Small Projects

Residential Projects with 4 or Fewer Units, or Projects <25k Gross Floor Area

Such projects are exempt from Compliance Options 1, 2, and 3, but shall meet the following:

Water Conservation:

All newly installed plumbing fixtures must meet the criteria to be WaterSense[8] labeled and not exceed the following maximum flow/flush rates:

- Water closets (toilets): 1.28 gallons per flush (gpf)
- Urinals: 0.25 gpf

[8] WaterSense Fixtures: https://www.epa.gov/watersense/watersense-products

- 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

No or Low Flow Irrigation: All newly installed irrigation systems must use drip, mist, or other low-impact irrigation methods.

Energy-Efficient Appliances: The following newly installed appliances shall be ENERGY STAR-rated[9]:

- Residential clothes washer
- Residential clothes dryer
- Residential dishwasher
- Residential refrigerators
- Ice machines

Electric Vehicle Charging Infrastructure: Meet the requirements of Compliance Option 2: Electric Vehicle Charging Infrastructure 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.

VI. Public Projects

In addition to the minimum performance requirements included in this policy, public development will meet the following criteria:

- Stormwater: 100% of the required stormwater treatment will be through green infrastructure.
- Net-Zero Energy: The actual annual energy consumed is less than or equal to the renewable energy produced either on-site at the property, or at another site owned by the applicant.

For renovations of City-owned buildings that do not require a DSP or DSUP, the City will apply LEED Interior Design & Construction (ID+C) and LEED Operations & Maintenance (O&M) rating systems as a guideline for interior design and construction projects and targeted renovations of individual buildings systems (e.g., HVAC, roof, windows, plumbing, etc.). Actual third-party certification may be used when technically and financially feasible.

[9] 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. The Office of Climate Action will, at least every two years, review the standards set in this policy, particularly EUI and renewable energy, and recommend any changes to City Council.

VIII. Appendix 1: Context for EUI Target Setting and Renewable Energy Cost Estimates

Appendix 1 includes reports used by staff to provide context for determining appropriate EUI targets for various property use types based on local benchmarking data from neighboring jurisdictions, predictive modeling, and an as-designed energy model from a large multifamily building in Alexandria. Revised onsite renewable energy cost estimates are included in the third report from Cadmus dated August 18, 2025. The appendix includes the following three reports:

- PNNL memo entitled *Data and Analysis for Alexandria Target Setting*, dated July 18, 2024
- Cadmus memo entitled *City of Alexandria Green Building Policy Analysis*, dated March 14, 2025
- Cadmus memo entitled *Additional Modeling Scope*, dated August 18, 2025