

Environmental Policy Commission Proposed Environmental Action Plan Updates Cafe 2018

Topic/s: Climate Change

Accountable City Departments: All

Goal: Institutionalize planning to facilitate the reduction of community greenhouse gas emissions in support of the City's climate mitigation goals.

Target: By 2022, reduce per capita greenhouse gas emissions in Alexandria to 10 metric tons per year. After 2022, target annual emissions reductions of at least 4% in order to meet the City's longstanding goal of reducing emissions 80% below 2005 levels by 2050.

Short Term Actions:

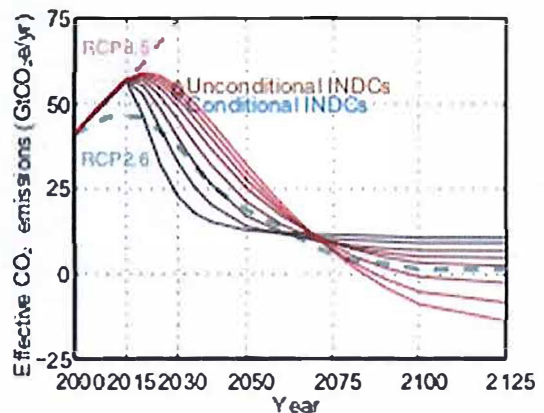
1. By 2020, City to establish a Climate Change Coordinating Commission (including city staff and members of the Environmental Policy Commission, the Transportation Commission, the Planning Commission, the Budget and Fiscal Affairs Advisory Committee, and the Public Health Advisory Commission) to advise and make recommendations to City Council, carry out policy analysis, and provide community engagement necessary to meet community-wide greenhouse gas reduction objectives.
2. By 2021, City Manager's office to adopt policies and guidelines for estimating the long-term costs associated with greenhouse gas emissions, for capital improvement projects and programs likely to have a significant impact on community-wide greenhouse gas emissions.
3. By 2022, develop an energy and climate change action plan, including recommendations for financing mechanisms, to achieve community-wide greenhouse gas emissions reductions over the subsequent five years that are consistent with the city's goal of reducing emissions 80% below 2005 levels by 2050.

Implementation Assessment: The City's ability to implement the short-term actions is "HIGH"; the main constraint would be budgetary, given the costs involved in coordinating the city's efforts to lead significant reductions in greenhouse gas emissions. Although community-wide greenhouse gas emissions are influenced by federal and state governments and private actors (e.g., Dominion Energy), Alexandria has substantial influence over transportation and building energy use, which are two primary sources of greenhouse gas emissions.

Justification:

1. *Climate change presents an existential threat to the future livability of Alexandria and the rest of the planet.* Climate science has confirmed that greenhouse gas emissions must be rapidly eliminated in order to avoid a greater than 2°C increase in global average temperatures.¹
2. *It is consistent with the City's commitment to addressing climate change and identity as a leader in environmental policy.* By signing onto the Mayor's National Climate Action Agreement (MNCAA) in 2017, Alexandria committed to "intensify efforts to meet [its] current climate goals".²

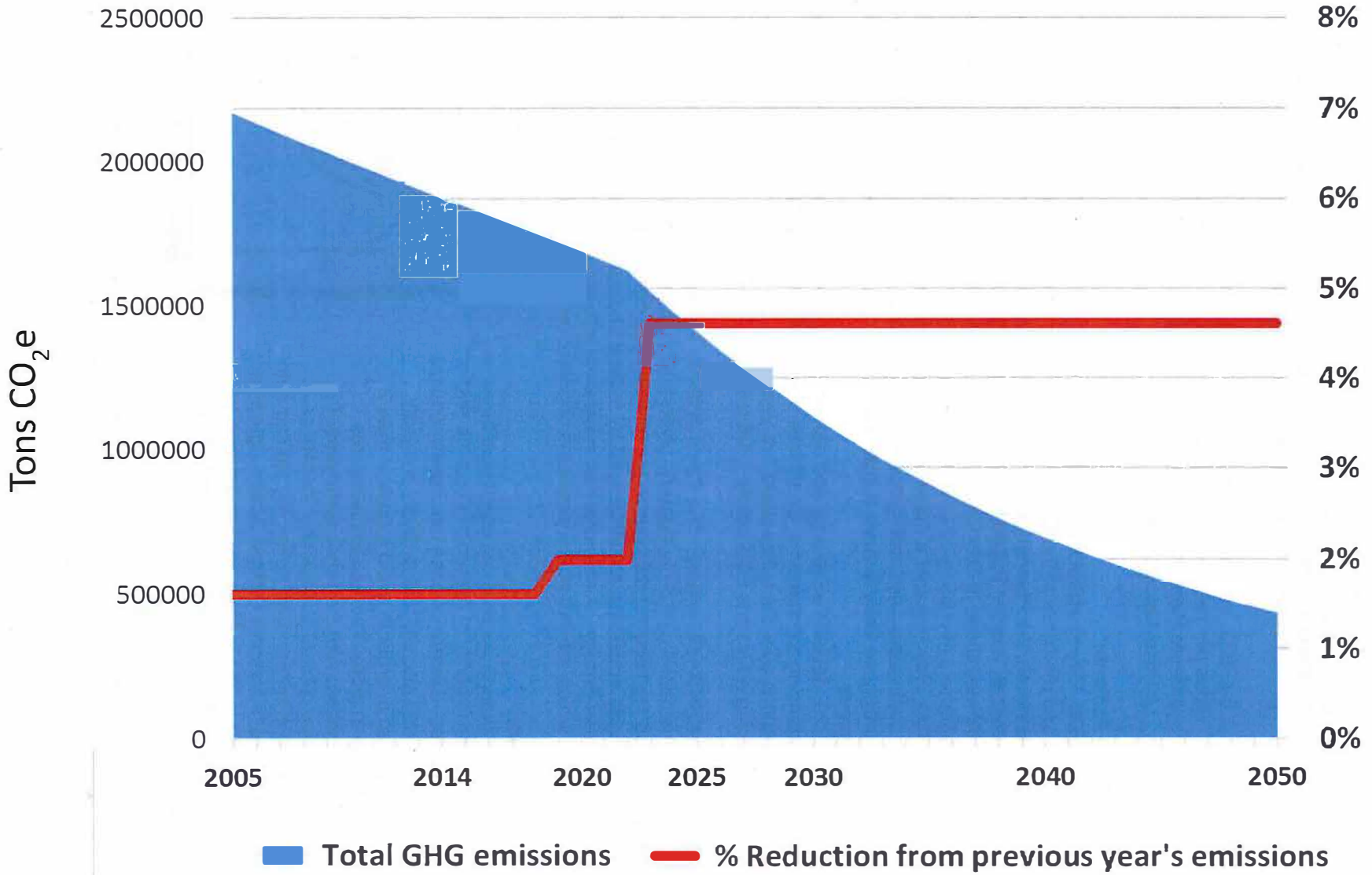
(c) 66% chance of peaking $\leq 2^\circ\text{C}$ warming



¹ See image from Figure 14.3 of the Climate Science Special Report: <https://science2017.globalchange.gov>

² 382 US Climate Mayors commit to adopt, honor and uphold Paris Climate Agreement goals.
<http://climatemayors.org/actions/paris-climate-agreement/>

Annual Greenhouse Gas Emissions Trends for Meeting Alexandria's 2050 Reduction Goal



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Topic/s: Climate Change- Adaptation

Accountable City Departments: Transportation & Env. Services, Health, Planning & Zoning.

Goal: Make Alexandria resilient and sustainable to climate change impacts.

Target: By 2023, Alexandria will institutionalize climate change into long-term planning.

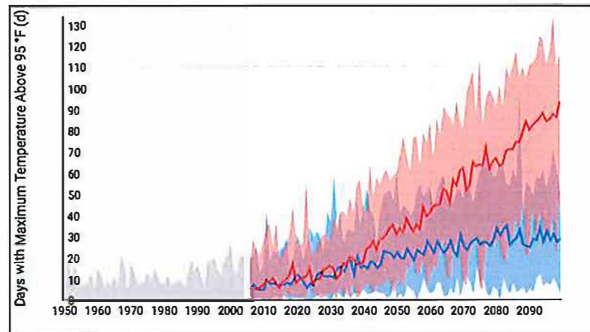
Short Term Actions:

1. Alexandria will continue to support an ongoing study¹ by the Metropolitan Washington Council of Governments (MWCOC) and the U.S. Army Corps of Engineers (USACE) on ways to address coastal flooding and storm damage, taking into account projected rise in sea level. The study is scheduled to be completed by 2021, and Alexandria committed approximately \$300,000 over the duration of the study.
2. By 2023, Alexandria will conduct a study, either independently or in cooperation with regional partners, of public health impacts of climate change and strategies for addressing extreme heat events, air quality impacts, vector-borne illnesses, and other potential threats.²
3. Pursue a strategy to maintain class 6 Community Rating System (CRS) rating for flood insurance as FEMA's criteria are updated.³

Implementation Assessment: The City's ability to implement these recommendations is "HIGH" since the City is already doing some of the short-term actions and has full authority to achieve the others.

Justification:

1. *Extreme Heat and Sea Level Rise are dire threats to Alexandria residents by the middle of this century even if aggressive carbon emissions reduction is successful.*⁴
2. *It is consistent with the City's commitments to addressing climate change. The short-term actions above match actions in the MWCOC Regional Climate and Energy Action Plan.*⁵
3. *With valuable resources along the Potomac waterfront, Alexandria must be a regional leader in flood protection. Alexandria's class 6 CRS rating places it second behind only Prince George's County in the region.*⁶



¹ The 2017 announcement of the MWCOC/USACE study: <https://goo.gl/jf2ynb>

² See *The Impacts of Climate Change and Human Health in the United States: A Scientific Assessment*: <https://health2016.globalchange.gov>

³ See <https://www.fema.gov/national-flood-insurance-program-community-rating-system>

⁴ Image 1 and 2 show 4 ft sea level rise from <https://coast.noaa.gov/digitalcoast/tools/slr>; Image 3 is projection of extreme heat from <https://toolkit.climate.gov/tools/climate-explorer>

⁵ MWCOC, *Regional Climate and Energy Action Plan*, p.24. goo.gl/GmDkzh

⁶ See FEMA's Community Ratings: <https://goo.gl/QCqx5b>

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Topic/s: Energy - Efficiency

Accountable City Departments: General Services, Transportation & Environmental Services.

Goal: Accelerate implementation of all feasible energy efficiency and emission reduction measures for City-owned buildings and infrastructure, and City-affiliated transportation.

Target: By 2020, the City-owned building and infrastructure should use 7% less energy on average (per square foot or relevant normalized metric) as compared to 2007 levels of energy use.

Short Term Actions:

1. By 2019, accelerate and implement energy efficiency measures at City-owned buildings and infrastructure, considering the use of outside financing such as third party Energy Savings Performance Contracts if needed to overcome capital constraints.¹
2. By 2021, initiate electric vehicle pilot programs for DASH, ACPS, and the City vehicle fleet in order to evaluate costs, benefits, technical feasibility, and implementation opportunities to transition City fleet vehicles to electric vehicle technology, and vehicle charging infrastructure at City facilities.²
3. By 2020, complete retrofits of all City facilities conventional lighting with LED lighting and by 2023 retrofit 100% of streetlights and outdoor lighting to LED technology subject to the availability of a suitable, safe LED solution and zoning constraints.

Implementation Assessment: The City's ability to implement these recommendations is "HIGH" since it involves City-owned property. The main constraint would be budgetary.

Justification:

1. *Existing City goals are piecemeal and lack a hard target for reducing energy use within the City.* The original EAP included a short-term action to "limit the projected growth in all sectors of citywide energy use to 4% by 2011 [and] ... evaluate consistency with MWCOG Energy Strategic Plan." In 2017, MWCOG set a target to reduce total energy consumption 5 percent from 2015 to 2020, so the EAP goal is out of date.³
2. *It is consistent with the City's commitment to addressing climate change.* By signing onto the Mayor's National Climate Action Agreement (MNCAA) in 2017, Alexandria committed to "intensify efforts to meet [its] current climate goals".⁴ Implementing energy efficiency measures is a means by which the City can follow through meaningfully on this commitment.
3. *It makes economic sense.* Improving energy efficiency in the City buildings and infrastructure improves the City's economic competitiveness in the region, creates new jobs, and supports economic growth.⁵

Market Context:

- Arlington County established a goal that by 2050, non-residential building stock, community-wide, should use 60% less energy on average (per square foot) as compared to 2007 levels of energy use, with an intermediate reduction target of 5% by 2020.⁶

¹ <https://www.ipmorgans.com/ipmpdf/1320603368599.pdf>; The U.S. Conference of Mayors partnered with Philips to form the Mayors' Lighting Partnership as a practical resource to provide mayors with access to lighting technology solutions and creative ideas for financing projects, <http://www.usa.lighting.philips.com/services/philips-lighting-capital>.

² Pilot programs for DASH and ACPS would be subject to approval by the applicable boards.

³ MWCOG, 2017-2020 Regional Climate and Energy Action Plan, p. 9.

⁴ 382 US Climate Mayors commit to adopt, honor and uphold Paris Climate Agreement goals. <http://climatemayors.org/actions/paris-climate-agreement/>

⁵ <https://www.epa.gov/statelocalenergy/state-energy-efficiency-benefits-and-opportunities>; <http://www.ase.org/resources/top-5-reasons-be-energy-efficient>.

⁶ Arlington Community Energy Plan, p. 10.

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- Huntington, NY (pop. 203,264) realized an annual costs savings of \$151,000 from replacing 2,400 street lights with high efficiency fixtures.⁷

⁷ <https://energy.gov/articles/finding-six-figure-roi-energy-efficiency>

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Topic/s: Energy - Renewable

Accountable City Departments: General Services, Transportation & Environmental Services.

Goal: Transition Alexandria City Government Facilities to 100% clean energy to mitigate Alexandria's contribution toward climate change.

Target: By 2023, supply all City-operated buildings and facilities with 100 percent renewable energy.

Short Term Actions:

1. By 2019, increase Renewable Energy Certificate (REC) purchases to offset 100% of City government facilities electricity use. This is meant to be a temporary measure that is phased down or phased out as direct purchasing¹ and onsite generation represent an increasing share of City electricity supply over time with RECs offsetting the balance.
2. By 2019, come to an agreement to pursue joint procurement of renewable energy with other regional entities with sufficient combined electricity use to procure an offsite renewable energy Power Purchase Agreement.
3. By 2019, set a carbon-free energy goal of at least 80% of City total energy use, including needs currently met by electricity, natural gas, and vehicle fuels, by 2030 and 100% by 2035.
4. By 2020, Adopt policies and guidelines for incorporating the social cost of carbon and other greenhouse gas emissions into city budgeting processes, including accountability for meeting greenhouse gas emissions reduction targets.
5. By 2021, ensure that onsite renewable electricity generation² combined with direct purchasing of offsite renewable electricity account for at least 80% of electricity use at all City-operated buildings and facilities.

Implementation Assessment: The City's ability to implement these recommendations is "HIGH" since the City has budgetary control over its purchase of energy for City-owned facilities. The main constraint would be budgetary (e.g. increasing REC purchases to 100% would cost less than \$100,000). There may be a challenge to implementing Action 2 if the City is not able to identify partners for joint procurement. Action 3 is expected to occur in the Phase 2 EAP update.

Justification:

1. *Climate change presents an existential threat to the future livability of Alexandria and the rest of the planet.* Climate science has confirmed that greenhouse gas emissions must be rapidly eliminated in order to avoid a greater than 2°C increase in global average temperatures.³
2. *Existing City goals are not ambitious enough with respect to energy used at City-owned facilities.* The original EAP included a mid- to long-term (2012-2030) action that "at least 50% of the City's energy portfolio will come from renewable and clean energy sources by 2020, and raise that percentage to at least 80% by 2030." In the 2016 Eco-City Progress Report, it was reported that "19% of the City government's electricity use was offset or generated by renewable energy sources."⁴
3. *It is consistent with the City's commitment to addressing climate change and identity as a leader in environmental policy.* By signing onto the Mayor's National Climate Action

¹ Direct purchasing includes wholesale transactions such as an offsite PPA, voluntary purchases via a utility-run green tariff program, or other methods which are able to demonstrate additionality.

² Within the technical potential of onsite renewable electricity generation.

³ See image from Figure 14.3 of the Climate Science Special Report: <https://science2017.globalchange.gov>

⁴ 2016 Eco-City Progress Report & Key Environmental Indicators, p. 5 (2017)

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Agreement (MNCAA) in 2017, Alexandria committed to “intensify efforts to meet [its] current climate goals”.⁵ Accelerating use of renewable energy at City-owned facilities is a means by which the City can follow through meaningfully on this commitment.

Market Context:

- More than 50 cities in the U.S. have committed to or are already powered by 100% renewable energy.⁶ Many of these cities will be or are currently relying on renewable energy generated onsite.
- In November 2017, NVRC announced that it had partnered with Customer First Renewables to identify one or more shovel-ready, large scale renewable energy projects to present to NVRC’s member governments for a possible virtual PPA.⁷

⁵ 382 US Climate Mayors commit to adopt, honor and uphold Paris Climate Agreement goals. <http://climatemayors.org/actions/paris-climate-agreement/>

⁶ <https://www.sierraclub.org/ready-for-100/commitments>.

⁷ NVRC Meeting Minutes, p. 1 (Jan. 25, 2018); <https://powerforthepeopleva.com/2017/11/17/northern-virginia-governments-look-at-major-renewable-energy-energy-purchase/>.