

CECAP Discussion Starter – Energy Subgroup | December 2020

Background

ICF and the Metropolitan Washington Council of Governments (COG) are supporting Fairfax County's development of a Community-wide Energy and Climate Action Plan (CECAP). At Fairfax County's September Task Force meeting, community representatives continued to make progress toward development of the CECAP by establishing greenhouse gas (GHG) reduction goals including a long-term target goal and an two interim year goals, one of which was defined during the meeting. The goals established during the meeting include:

Long-term goal: Carbon neutrality by 2050, with at least 87% coming from emissions reductions from a 2005 base year

Interim goal: 50% reduction by 2030 from a 2005 base year

Purpose of this Document

The purpose of this document is to provide background information and a starting list of sector-specific strategies to guide and inform CECAP Working Group sector-specific discussions. Below, ICF has outlined sector specific ideas based on ICF's prior plans and feedback received through CECAP stakeholder engagement and public outreach. CECAP stakeholders have been split into two groups with the goal of facilitating discussions. The two group are:

- An energy group focusing on efficiency, renewables, generation and supply. This group will be tightly focused on energy issues with minor consideration of external variables.
- A transportation, land use policy, solid waste and wastewater group. This group will have a more diverse focus.

Setting the Stage

As a next step, sector-specific subgroups of the CECAP Working Group will meet to determine and prioritize the strategies that Fairfax County will use to reach emission reduction goals. ICF has provided an initial set of possible strategies, however this list is not comprehensive. It is intended to support discussion and to help guide and inform stakeholder priorities. In the December meetings, members will use this document to guide conversations and refine specific strategies, actions, and implementation measures for inclusion in the plan.

Throughout the document, ICF has used the terms Sectors, Strategies, Actions, and Implementation in the ways defined below:

Sector: An area of emissions focus or an economic sector which generates carbon emissions from its energy use or economic activity.

Strategy: A broader set of actions or set of sub-sector work that can be modeled to understand emissions reductions.

Action: A project or specific technology that impacts greenhouse gas emissions within a strategy or sector.

Implementation: Programs or policies that support realization of actions.

Within the Implementation section of each strategy, we've categorized specific implementation methods to indicate where the ability to impact change might exist. Within each strategy, implementation items are divided based on the following categories.

Category 1: Implementation programs and policies currently available to county:

Measures and voluntary programs that the county can do right now.

Category 2: Implementation programs and policies that might become available to the county in the future: Programs and policies that the county might someday be able to do with state enabling legislation. Items in this section is work that the county and its stakeholders can advocate for at the state level.

Category 3: Implementation programs and policies that need Regional, State or Federal

Action: State and Federal measures and programs that the county will likely not have the authority to do on its own. Items in this section is work that the county and its stakeholders can advocate for the state, regional or federal to do to support county goals.

Connecting to Fairfax Values

Based on the sector subgroup meetings, ICF will update this list of strategies and actions and develop recommendations for sector level goals that support Fairfax County's long-term and interim goals. Additionally, ICF will work to connect strategies and actions to Fairfax County values. [One Fairfax](#) is a framework—or "lens"—that will be used to consider equity in decision-making and in the development and delivery of future policies, programs and services. In this planning process, it will help county to look intentionally, comprehensively, and systematically at barriers that may be creating gaps in opportunity. Through the CECAP process, opportunities exist to ensure that ICF will work to create a plan that incorporates social and racial equity, economic opportunities, and health and environmental justice impacts. In the December meetings we will continue this discussion.

Social and Racial Equity: Strategies shall have connections to social and racial equity in alignment with the One Fairfax policy.

Economic Opportunity: Strategies shall contain an economic screen to understand the affordability of the measures and how they might create economic opportunities for the county. Costs and/or savings will be provided for each strategy later in the CECAP process.

Health and Environmental Justice: Strategies will also reflect health and environmental justice issues relevant to county residents and businesses. Pollutant reductions will be provided for each strategy later in the CECAP process.

December Meeting Discussion Framework for Sectors and Strategies

Buildings and Energy Efficiency

Strategy #1: Increase energy efficiency and conservation in existing buildings

Strategy #2: Pursue beneficial electrification in existing buildings

Strategy #3: Implement green building standards for new buildings

Energy Supply

Strategy #4: Increase renewable energy in grid mix

Strategy #5: Increase production of onsite renewable energy

Strategy #6: Increase energy supply from renewable natural gas (RNG), hydrogen, and power-to-gas

Transportation

Strategy #7: Increase electric vehicle (EV) adoption

Strategy #8: Support efficient land use, active transportation, public transportation, and transportation demand management (TDM) to reduce vehicle miles traveled

Strategy #9: Increase fuel economy and use of low carbon fuels for transportation

Waste

Strategy #10: Reduce the amount of waste generated and divert waste from landfills and incinerators

Strategy #11: Responsibly manage all waste streams

Forestry and Land Use

Strategy #12: Support preservation and expansion of quality natural resources

Buildings and Energy Efficiency

Strategy #1: Increase energy efficiency and conservation in existing buildings

Actions:

- **Action 1a:** Upgrade lighting to LED through existing residential and commercial buildings
- **Action 1b:** Weatherize, insulate and explore other building envelope improvements in existing residential and commercial buildings
- **Action 1c:** Upgrade commercial building control systems and install high-efficiency HVAC systems, motor systems, air compressors, materials handling equipment, process improvements, operational reviews and improvements (e.g., reducing operating hours for specific equipment, outreach and training) in existing commercial buildings
- **Action 1d:** Upgrade residential buildings with smart thermostats and install high-efficiency HVAC systems and other high-efficiency appliances in existing residential buildings
- **Action 1e:** Upgrade local government existing buildings and streetlights. Upgrade building control systems, and install high-efficiency HVAC systems, motor systems, air compressors, materials handling equipment, process improvements, operational reviews, and improvements (e.g., reducing operating hours for specific equipment, outreach, and training). Retrofit government-owned streetlights to LEDs.
- **Action 1f:** Improve monitoring and evaluation for commercial and residential existing building energy consumption.
- **Action 1g:** Develop and/or expand gas and electricity efficiency, load management programs, demand response capabilities both with and without battery storage.
- **Emerging Technologies:** Examples include microgrid systems, advanced refrigerants, fuel cells, façade controls, etc.

Implementation:

- **Category 1:**
 - Implementation of the [County Operational Energy Strategy](#)
 - Incentive programs
 - Existing residential and commercial incentive programs include Virginia's property tax exemption for energy efficient buildings and WarmWise Home Savings Program.
 - New programs could be established by the county (i.e., grants, rebates, and tax credits). Examples include high performance building density zoning bonuses, permit streamlining, and property tax incentives.
 - Enforcement and verification of energy codes
 - Encourage and allow use of [stretch codes](#) in local development projects
 - Develop county code enforcement officer training
 - Financing tools
 - Use of existing public/private partnerships for loan provision or other [financing tools](#), such as the Virginia SAVES Green Community Programs and Commercial Property Assessed Clean Energy (C-PACE)
- **Category 2:**
 - Support ability to establish building energy performance programs
 - Energy benchmarking disclosure programs
 - Building energy retuning programs

- Energy efficiency retrofit requirements
 - Residential and Commercial energy use disclosure at time of sale
 - Support ability to establish new financing tools
 - Establishment of a local green bank or financing program to facilitate local projects
- **Category 3:**
 - Support updates to a more stringent building codes
 - Support new or expanded state-level incentive programs
 - Support development and expansion of utility-sponsored programs through Virginia's Grid Transformation and Security Act of 2018 (GTSA) and Virginia Clean Economy Act (VCEA) and use of RGGI funding
 - Support new financing tools
 - Advocate for Residential Property Assessed Clean Energy (R-PACE) to be passed at the state level

Buildings and Energy Efficiency

Strategy #2: Pursue beneficial electrification in existing buildings

Actions:

- **Action 2a:** Retrofit existing residential buildings through heat pumps, split systems, ground source heat pumps (geothermal) and other cost-effective electrification technologies
- **Action 2b:** Retrofit existing commercial buildings through heat pumps, VRF systems, and hybrid (electricity/ gas) furnaces
- **Emerging Technologies:** Examples include: Hybrid and next generation heat pumps

Implementation:

- **Category 1:**
 - Incentive programs
 - New programs to be established by the county
 - Financing tools
- **Category 2:**
 - Support local ability in implement [building electrification](#) programs and requirements
- **Category 3:**
 - Support next generation refrigerants and refrigerant management systems
 - Support new utility programs focused on beneficial electrification

Buildings and Energy Efficiency

Strategy #3: Implement green building standards for new buildings

Actions:

- **Action 3a:** Increase building code stringency for residential and commercial buildings
- **Action 3b:** Encourage new residential and commercial construction to be all-electric
- **Emerging Technologies** (To be determined)

Implementation:

- **Category 1:**
 - Incentive programs (see above)
 - Pursue adaptive reuse of buildings and infrastructure
 - Energy codes
 - Education of code officials on code enforcement
 - Continue to lead by example within county buildings through [Fairfax's Green Building policies](#)
- **Category 2:**
 - Support local energy code adoption.
 - Support ability to adopt LEED building standards, net zero building policies or other green building policies
 - Support ability to make energy modeling requirements for new buildings
 - Support ability to establish municipal impact fees or escrows to ensure compliance with CECAP.
- **Category 3:**
 - Support statewide adoption of more stringent building codes
 - Support new green building programs at state:
 - Updates to siting and permitting regulations to set GHG emission requirements for new residential and commercial buildings

Energy Supply

Strategy #4: Increase renewable energy in grid mix

Actions:

- **Action 4a:** Expand large offsite grid renewable energy in region including solar, on and offshore wind, hydroelectric and other emerging technologies.
- **Emerging Technologies** (To be determined)

Implementation:

- **Category 1:**
 - Support purchase of renewable energy projects and products by county government operations, local residents and businesses through PPAs, and REC purchases
- **Category 3:**
 - Support continued participation in RGGI and other carbon electricity pricing schemes
 - Support grid mix requirements set forth by the Virginia Clean Economy Act (VCEA)
 - Support accelerated grid transformation that goes beyond the renewable energy requirements set forth by the VCEA

Energy Supply

Strategy #5: Increase production of onsite renewable energy

Actions:

- **Actions 5a:** Install solar PV on existing buildings
- **Actions 5b:** Encourage solar PV or solar PV ready in all new construction
- **Emerging Technologies** (To be determined)

Implementation:

- **Category 1:**
 - Pursue incentives such as tax credits or grants for installing onsite renewables (including solar photovoltaic cells)
 - Continue to pursue programs that lower soft costs of solar PV by streamlining permitting, lowering permit fees, and maintaining by-right zoning
- **Category 3:**
 - Support policies at the state, regional and federal level that facilitate connections between onsite renewable installations and the broader grid

Energy Supply

Strategy #6: Increase energy supply from renewable natural gas (RNG), hydrogen, and power-to-gas

Actions:

- **Actions 6a:** Expand supply and use of renewable natural gas, hydrogen, and power-to-gas opportunities
- **Emerging Technologies** (To be determined)

Implementation:

- **Category 1:**
 - Encourage pilot and demonstration projects that accelerate development of low carbon fuels
- **Category 3:**
 - Support accelerated decarbonization of natural gas supply through a gas renewable portfolio standard or other state level/federal policies
 - Support policies for “green hydrogen” (hydrogen produced through electrolysis of water using renewably sourced electricity) and power-to-gas (P2G) technologies to increase carbon-neutral energy generation at the state and federal level.