Draft MVC Energy Policy for Developments of Regional Impact

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1. Why is the policy being proposed now?

The accelerating climate crisis sets a clear imperative for communities around the world to quickly and significantly reduce their consumption of fossil fuels. Although the impact of fossil fuels on the changing global environment has been understood for some time, increased public awareness of the urgency of the situation has led to demand for changes in policy.

The draft Energy Policy aligns with the Climate Crisis Resolution that the MVC adopted in December 2019, agreeing to pursue policies that address climate change, and support efforts to eliminate fossil fuel use on the Island by 2040.

2. How is this different than the current MVC policy for energy and environmental building?

The current policy, Energy and Environmental Building, was approved by the Commission in 2008. The focus of both the earlier and revised policies is energy efficiency and renewable energy generation, although the revised policy relies more on existing building standards and all-electric design, and does not involve energy rating systems such as LEED, which has not been shown to guarantee improved energy efficiency. The draft policy also condenses the planning and design principles that are included in the current version, updates the policy context regarding climate change, and sets forth a clearer framework based on three policy goals (see question 3).

3. If approved, will this policy be legally binding on the MVC or applicants?

This policy is not legally binding, but will be used by Commissioners in weighing the benefits and detriments of DRI proposals. It sets forth a variety of strategies, techniques, and methodologies that may be used to assist in achieving the following policy goals:

1) Reduce or eliminate the consumption of fossil fuels, and the emission of greenhouse gases, associated with Developments of Regional Impact (DRIs)
2) Maximize the energy efficiency of DRI buildings, parking lots, and other structures
3) Improve energy resilience

Applicants can choose from a menu of options to meet the three goals stated above. None of the options is mandatory, although the Commission will assess the applicant's proposals to meet the three goals, along with other aspects of the proposal, in determining whether to approve the project. The Cape Cod Regional Policy Plan takes a similar approach.

4. Who is impacted if the policy is adopted?

This policy will apply to projects that come before the MVC as DRIs, and involve new residential or commercial construction, or parking areas. DRI applicants will need to submit plans and a project narrative that demonstrate that their project will achieve the goals of this policy.

The policy is intended to benefit the Island as a whole by moving us toward a future without fossil fuels. It will also benefit the owners and users of DRI-approved buildings and parking lots, since the energy efficiency measures outlined in the policy will lead to better designed, more efficient, and more cost-effective buildings.

5. Is the technology to move away from fossil fuels in buildings currently available?

Yes. The local building industry has already moved mostly toward all-electric design for reasons of cost and efficiency, and equipment such as air source heat pumps for heating and cooling are readily available. (Despite the colder climate, heat pumps are often used in northern New England, without the need for backup electric heat.) Other energy efficiency measures such as superinsulation and advanced energy modeling software for buildings, are widely used. Residential, commercial, and municipal solar systems have been installed across the Island, including large arrays in Chilmark, Edgartown, Tisbury, and West Tisbury. In addition, utilities in Massachusetts are required to increase their portion of renewably generated energy each year.

6. Are electric heat pumps as efficient as oil or propane heaters?

Heat pumps deliver more than 2.5 times the heating for every unit of energy consumed as compared to fossil fuel combustion systems for space heating and domestic hot water. This provides a significant greenhouse gas reduction over the use of propane or oil boilers today, and the advantage will grow as the Commonwealth's electricity supply tilts toward renewable generation (per statute). Electric systems can also be powered by onsite and locally generated renewable energy, cutting emissions and long-term energy costs even more.

There are other opportunities to use more efficient, electrically-driven appliances as well. Heat pump clothes dryers are substantially more efficient than traditional electric and propane dryers, and don't need to be vented to the outdoors. Gas cooktops and ovens can be replaced by electric induction cooktops, increasing efficiency by over 2:1. And heat pump pool heaters provide a significant reduction in both operating cost and emissions load, although the initial heat-up takes longer.

7. How do the capital and operating costs of electric heating and cooling compare to those of gas and propane?

Heat pumps for interior spaces cost less and use less energy to operate than fossil fuel systems, saving money and energy over the life of the building. Installation costs are comparable, and less than a system that includes fossil fuel heating and a separate air conditioning system. (Cape Light Compact and MassSave offer residential rebates for the installation of heat pumps and other efficiency measures.) Heat pump water heaters and heat pump pool heaters also represent significant cost and emissions savings, especially in places like the Vineyard where water loads are highest in the summer, since heat pump water heaters are more efficient in warm weather. Operating costs for heat pump systems are about 50% lower – even in New England – than propane systems.

8. What is the cost of solar power?

The cost of a solar system depends on the system size and other factors. On-site solar with a typical system size of 8.2 kW, and up-front costs of about $20,000 after incentives, has a payback time of less than five years in Massachusetts. The 25-year lifespan for a typical system translates to about $100,000 in total savings. Incentive programs for solar systems, including the Solar Massachusetts Renewable Target (SMART) Program, along with loan programs and state and federal tax credits, can drive down the cost of installing and operating a solar system.

9. What additional costs will be borne by applicants as a result of this policy?

Additional capital costs to applicants may include the following:

- Energy modeling of buildings in the design phase*
- Purchase and installation of heat pumps (when replacing existing equipment)
- Purchase and installation of solar equipment, or alternative proposal

The additional costs would be unique to each project, depending on the energy load, existing conditions, and other factors. An air-tightness test for houses is already required under the MA Stretch and Building codes, and the cost of heat pumps is comparable to fossil fuel systems in new construction. In many cases, the largest cost would be the additional energy modeling, which could range from about $2,000 to $20,000, depending on the size and complexity of the building. However, it's important to note that increased building efficiency can lead to significantly lower energy costs over time.

**The MA Stretch Code applies to houses, and the houses are modeled in HERS (Home Energy Rating System) energy software, so this cost is already existing. For smaller commercial buildings that are similar to houses, the cost is likely similar to the HERS cost, and higher for larger and more complex buildings.*

10. Are there skilled workers on-Island to install and maintain fossil fuel-free heating equipment?

Yes, but there will likely need to be more. Proper installation of heat pumps is essential, and many installers lack the required education and/or experience, which can lead to detriments such as the escape of refrigerants into the atmosphere. We hope this policy will increase the number of qualified heat pump installers, and encourage more installers to become certified.

11. What are the options for an applicant if onsite renewable energy is not feasible or desirable?

The MVC will consider various alternative approaches that further the development of Island renewable energy sources. Alternatives may include payments to an on-Island renewable energy cooperative or nonprofit working to expand renewable energy on the Island; the addition of renewable energy-generating equipment on another site; or other measures proposed by the applicant. Purchasing "green power" through the grid is not seen as an equivalent alternative, since it will not lead to more on-Island renewable energy generation.

12. Why are cooking and generators excluded from the policy?

Exemptions for cooking and generators allow for intensive or specialty uses for which heat pumps may be inadequate. Many homeowners also prefer gas ranges for cooking. The exemptions apply to code-required emergency power and other optional backup power, since electric equipment would be unable to operate during a power outage. Applicants would be encouraged to use batteries or biofuels as an alternative to gas-powered generators.

13. Does this take into account the Attorney General's decision regarding Brookline?

We are aware of the Attorney General's recent decision to deny the proposed bylaw in Brookline that would ban natural gas infrastructure in new construction. While this DRI policy is framed as guidance for applicants, we have consulted with MVC's legal counsel and are confident the policy does not conflict with existing statewide uniform regulations such as the Building Code and Gas Code.

14. What is Energy Star Portfolio Manager? What does it cost for applicants?

Various benchmarking tools were explored for the commercial section of this policy. Energy Star Portfolio tracks energy consumption and GHG emissions for any building, including 17 different commercial property types. It applies a score of 1–100, with 50 representing median energy performance, and 75 and above eligible for Energy Star certification. Developers of many commercial building types can get certified in the design phase (Designed to Earn the Energy Star certification, or DEES). To earn DEES certification, a building must be at least 5,000 square feet (except for offices, banks, warehouses, and some other uses), operate at least 30 hours per week, and meet other criteria, including having construction documents that are at least 95% complete. Third-party modeling software is used to estimate the energy use of the building. There is no cost to apply for the DEES certification, and it takes about 2 weeks for Energy Star to review an application. The DEES certification is not available for renovations or additions that amount to less than 50% of the square footage of an existing property.

15. What about modifications that are less than 50% of the floor area or assessed value?

Residential projects of this scope are asked to comply with the MA Stretch Energy Code in towns where it has been adopted (or the MA Building Code in towns that have not adopted the Stretch Code); install no additional fossil fuel-using equipment, and provide onsite solar for 100% of additional annual electricity usage (or an alternative proposal).

Commercial projects of this scope are asked to comply with the International Energy Conservation Code (IECC); install no additional fossil fuel-using equipment; and provide the IECC preliminary commissioning report to the MVC. Depending on the project, commercial applicants may also be asked to conduct additional design review as part of their application materials; and to provide an affidavit by a registered building professional regarding IECC compliance.

In addition, all residential and commercial applicants are asked to provide data for the development's post-occupancy actual energy use (annual and monthly) for the first 3 years.

16. What about modifications that are more than 50% of the floor area or assessed value?

Projects of this scope will receive the same policy guidance as projects that amount to less than 50% of the floor area or assessed value (see question 15), with the following additions:

- Commercial projects will be asked to earn Energy Star design certification, provide onsite solar for 100% of annual electricity usage (or an alternative), and provide a master plan for transitioning to all-electric power in the future.

- Residential and commercial applicants may be asked to provide additional design review as part of their application materials, and/or a post-construction air-tightness test.

17. Will implementing this policy have any meaningful benefit for the Island?

Reducing fossil fuel emissions by any amount benefits the environment and communities by reducing the amount of heat-trapping gasses that cause global warming. This policy applies to only a small portion of development on the Island, but our hope is that it will help establish a standard for Island towns to pursue in terms of zoning bylaws or other measures to reduce greenhouse gas emissions in the building sector. Over the life of a building (especially large commercial buildings that would likely come before the MVC), energy efficiency measures can reduce emissions by hundreds of tons of CO_2. The policy will also help accelerate the adoption of electric vehicles on the Island by encouraging charging infrastructure for residential and fleet vehicles. The potential benefits also extend beyond greenhouse gas reduction, to include better indoor air quality, and better designed and more cost-effective buildings in general.

Some of the information in this document was adapted from the MVC Climate Action Task Force's working paper on energy use in the building sector. The paper is available here, along with the Task Force's other working papers developed in 2020.