

MVC Policy for DRI Review

Energy

Introduction

This policy gives guidance to applicants seeking approval of Developments of Regional Impact (DRIs) by the Martha's Vineyard Commission (MVC). The aim is to ensure that projects are designed to help mitigate the effects of climate change by minimizing greenhouse gas emissions and increasing energy resiliency and efficiency. This document describes the procedure for evaluating projects from this perspective.

[Sidebar]

This policy is one of a series prepared to help applicants and members of the public understand how the MVC evaluates proposed Developments of Regional Impact (DRIs), as mandated by its enabling legislation, Chapter 831 of the Acts of 1977 as amended.

The Commission is mandated to weigh the benefits and detriments of certain proposals to determine whether they should be approved, approved with conditions, or denied. Consult the Commission's website (mvcommission.org/DRI), or call the office at (508) 693-3453, to obtain the other necessary documents. This policy reflects MVC practices in reviewing developments over the past generation. It is set forth in order to assist applicants in preparing proposals that address the Commission's concerns.

The Commission will use this policy during review of the benefits and detriments of a DRI, and to formulate conditions attached to DRIs that are approved. It should therefore be used by applicants to help design projects, and could serve as the basis of proposals or "offers" to offset anticipated detriments. Applicants are invited to consult the MVC staff for help in identifying which policies apply to their project.

This policy is generally a good indication of the Commission's concerns and can help the Commission evaluate the merits of a proposal. However, the Commission weighs the overall benefits and detriments of all aspects of a project, and evaluates each proposal on its own merits. Based on the particular circumstances of each proposal, the Commission could deny a project that respects some or even all of the policy, or might approve one that does not meet all parts of the policy. The Commission recognizes that there might be special circumstances whereby deviations from the policy are appropriate.

Commented [AE1]: This policy applies only to DRIs, which make up a small portion of all development on the Island. Our hope is that the goals of the policy will set a standard for other towns to pursue in terms of zoning bylaws or other measures to reduce greenhouse gas emissions in the building sector. The current policy, Energy and Environmental Building, was approved by the Commission in 2008.

In drafting this policy, the MVC energy policy committee met 20 times between November 2019 and September 2020, and spoke with building code experts Michael Brown (former member of the energy efficiency advisory group to the BBRS) and Stephen Turner (building commissioner specializing in commercial projects, chair of the RI energy code commission and a member of the RI Building Code Commission).

There is some overlap among three of the current DRI policies: Energy and Environmental Building, Site Design and Landscape, and Built Environment. This will need to be addressed in future revisions.

Concerns surrounding carbon capture and the CO₂ absorption value of land on the Vineyard will likely be addressed by way of revisions to the Open Space Preservation Policy. MVC staff has begun identifying methods for calculating the CO₂ absorption value of forests, wetlands and other land types on the Island.

Commented [AE2]: This language is generally the same for all DRI policies: Open Space Preservation (2006), Energy and Environmental Building (2008), Site Design and Landscape (2012), Built Environment (2015), Demolition of Historic Structures (2017), Water Quality (2018), and Housing (2019).

Table of Contents

1. Background
2. Goals and objectives
3. Policy
4. Planning and design principles
5. Application of the policy, and submittal requirements

1. **Background**

Energy Use on Martha's Vineyard

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 gravity and urgency of the situation has led to demand for changes in policy. The MVC has issued this policy in response to the increasing need to reduce our consumption of fossil fuels. Energy sources on the Vineyard include oil, propane, gasoline, diesel, jet fuel, and electricity, with at least one third of that energy used for the heating and cooling of buildings.¹

Changes in the Island's energy mix over time are dictated by cost, technology, policies, regulations, and other factors. As of 2020, about 7.7 percent of the electricity on Martha's Vineyard was generated by on-Island renewable sources, and the rest by off-Island natural gas, nuclear, coal, oil, hydroelectric, and renewable sources. However, legislation adopted in Massachusetts requires utilities to provide an increasing portion of their energy from renewable sources over the coming years.² In addition, the Global Warming Solutions Act (GWSA) of 2008 requires the state to reduce its greenhouse gas emissions 25% below 1990 levels by 2020, and 80% by 2050. Other pending legislation would set even more ambitious goals to address the crisis. Guided by various laws, regulations, and executive orders that build on the GWSA, the state is on track to meet the goal for 2020, but much more is required to meet the goal for 2050.

In 2019, the Martha's Vineyard Commission adopted an Emergency Climate Crisis Resolution (see attachment), agreeing to develop a framework for reviewing DRIs in light of the potential impacts of climate change on the Island, and to pursue official policies to that end.

Reducing our consumption of fossil fuels benefits the Island in several ways:

¹ As of 2020, the MVC estimates that the heating and cooling of buildings (with heating oil and propane) accounts for about 31.8% of the Island's total energy use; electricity from on- and off-Island sources accounts for about 22.7%, and transportation about 45.5%. Energy use related to electricity and transportation are generally beyond the scope of the DRI Checklist, but may still be considered in regard to MVC planning initiatives.

² More information is available here: [Massachusetts Renewable Energy Portfolio Standard](#); [Alternative Energy Portfolio Standard](#); [Clean Energy Standard](#).

Commented [AE3]: The MVC Climate Action Task Force has recently completed a series of working papers on the Island's energy use, including one on buildings and HVAC. [Click here.](#)

- Climate change mitigation: Widespread energy and greenhouse-gas emissions reduction by way of efficiency, conservation, reduced fossil fuel use, and renewable energy generation will help reduce the effects of climate change, which include more frequent and severe storms and flooding, the loss of coastal areas and infrastructure to sea-level rise, higher average temperatures, increased drought, and the risk of increased vector-borne diseases including Lyme disease.
- Reliability of supply: Because the Island depends almost entirely on imported energy, we face higher energy costs, and concerns about reliability. For example, fossil fuel prices are subject to fluctuation and volatility, and increased storms and flooding expose us to periodic interruptions in the power supply. On a longer timescale, the depletion of fossil fuels worldwide increases the potential of supply shortages and further price fluctuations that are beyond our control.
- Economic impacts: Energy costs on the Vineyard are especially high, and contribute significantly to our higher cost of living. Island gasoline prices are among the highest in the nation, and oil and propane bills are among the primary expenses for Island households. Furthermore, money spent on fossil fuel energy could instead be spent on local goods including renewable energy, and expanding business opportunities and renewable energy development on the Island.
- Other environmental and health consequences: Burning fossil fuels, in addition to exacerbating climate change, results in air and water pollution that is changing the natural environment and endangering public health. In the past, the Cape and Islands have experienced some of the poorest summer air quality in Massachusetts.

2. Policy Goals and Objectives

The goals of this policy are to 1) reduce or eliminate the consumption of fossil fuels, and the emission of greenhouse gases, associated with DRIs, 2) maximize the energy efficiency of DRI buildings, parking lots, and other structures, and 3) improve energy resilience. The MVC recognizes that these three goals cannot be achieved in one fell swoop. Accordingly, this policy sets forth a variety of strategies, techniques, and methodologies that may be used to assist in achieving the goals over time, including the following:

- Design and implement all-electric systems.
- Design for energy efficiency by employing widely used standards.
- Advance the development of on-Island renewable energy, by incorporating onsite solar and/or equivalent on-Island renewable generation.
- Facilitate the adoption of electric vehicles.

Targets and Approaches

In setting this policy, the MVC establishes clear energy-efficiency targets that are commensurate with the challenges we face. It also relies on methodologies that are as standardized and widely used as possible, and aims not to overburden applicants. To encourage improved energy practices, this policy establishes the following targets:

- All-electric design for new residential and commercial construction (while also discouraging onsite fossil fuel use for residential and commercial renovations).

Commented [AE4]: This approach was taken in part so as not to conflict with the State Building Code, which is known to supersede local ordinances and bylaws. Applicants can choose from a menu of options to meet the three goals stated above. None of the options are mandatory, although meeting the three goals (enough to satisfy the commission) is. The Cape Cod Regional Policy Plan takes a similar approach.

We are aware of the AG'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 to make sure the policy does not conflict with existing statewide uniform regulations such as the Building Code and Gas Code.

The current policy from 2008 does include requirements that go beyond the Building Code, but the policy has remained largely unused and therefore unchallenged.

It is our understanding that the local building industry has moved mostly toward all-electric design for reasons of cost and efficiency, so the all-electric component of the policy is unlikely to be a hard sell in that regard.

Commented [AE5]: These are listed in order of importance.

Commented [AE6]: A central goal from the outset was to encourage all-electric design for buildings, in part because MA utilities are required to increase their portion of renewable energy each year, and electric power is more efficient than fossil fuels in terms of travel to and from the Island. The Island has no natural gas pipelines.

The MVC Climate Action Task Force has partnered with a team of Eversource engineers on long-term planning surrounding the Island's electricity usage and what that will mean for infrastructure needs in the future.

- Energy efficiency targets based on established and widely used standards: the Massachusetts Stretch Energy Code (and Building Code), the International Energy Conservation Code (IECC) as adopted by Massachusetts, and the Environmental Protection Agency Energy Star program.
- Onsite renewable energy for 100% of the building's projected electrical usage (100% of *additional* electrical usage for major renovations).
- Pedestal-ready (or full) electric vehicle charging stations for parking spots.

Commented [AE7]: Adoption of the MA Stretch Code is a requirement for Green Communities Act designation, which four Island towns have achieved. (Edgartown and Oak Bluffs are working toward the designation.) Massachusetts has adopted the 2018 IECC.

We had originally proposed a HERS rating of 0 for all new residential construction, in part because that would require 100% onsite renewable generation. However, we decided that the all-electric and onsite renewable provisions would achieve the same goals. (Complying only with the Stretch Code would equal a HERS rating of about 55.)

The committee considered applying other rating systems such as LEED, Green Globes, and EarthCraft; and various building codes including the 2018 International Green Construction Code, and AHRAE Standards 90.1 and 189.1. Proving compliance with 189.1 could be especially expensive for developers, and AHRAE standards are generally only applied in communities that have formally adopted them.

Various benchmarking tools were explored for the commercial section of this policy, including Commercial Prototype Building Models, EnergyPlus, Energy Star Portfolio Manager, FirstView, and others.

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.

The MVC can use the annual and monthly data that applicants provide post-occupancy to calculate whether DEES-certified buildings would still qualify for Energy Star certification based on actual energy usage.

3. Policy

In determining whether or not to approve a DRI project, the MVC assesses the overall benefits and detriment of the project. When assessing the energy impact, the MVC will evaluate the extent to which the application supports the goals of this policy, including the project's ability to achieve the energy targets set out below.

[TABLE]

4. Planning and Design Principles

In addition to energy efficiency and greenhouse-gas reduction associated with a building's operation, all DRI applicants should aim to minimize their project's energy consumption by considering the following planning and design elements.³

- **Location and land use:** Locate development (and incorporate mixed land uses such as commercial and residential development) to minimize reliance on vehicles and encourage walking and biking.
- **Transportation:** Encourage use of public transit, cycling, walking, and fuel-efficient vehicles.
- **Siting:** Wherever possible, preserve open space, locate projects on previously developed sites, or within a half-mile of basic services, and design a sustainable layout, in terms of shading, lighting, etc.
- **Building location and orientation:** Locate and orient buildings to maximize solar gain for heating, daylighting, and generating electricity.
- **Solar-ready design:** Design all buildings to allow for the installation of solar hot water and/or solar electric panels on the roof (either now or in the future), unless doing so would be impossible or inappropriate due to site conditions or historic context.
- **Landscaping:** Make landscaping choices with energy concerns in mind (shading, wind breaks, minimal irrigation and mowing, etc.).
- **Materials and resources:** Reduce building material waste and use environmentally sound materials, both in project construction and ongoing use.

5. Application of the Policy, and Submittal Requirements

This section describes the key steps for designing a project in accordance with the Energy Policy. Applicants are encouraged to consult the MVC staff for assistance in applying the policy to their projects.

In the case of a DRI where the MVC will not be reviewing building plans (e.g. a residential subdivision), this policy shall nevertheless apply to all future buildings on the site. In such cases, the applicant should outline a procedure by which the builders of subsequent buildings, or a qualified building performance analyst, will

Commented [AE8]: Evaluating the extent to which a DRI project aligns with the policy will likely require additional training for MVC staff and/or commissioners. It may also be necessary to assemble a team of at-large building professionals to call upon as needed during DRI reviews.

Commented [AE9]: This section is adapted from the 2008 policy, with the main points condensed for clarity. The focus of both the earlier and revised policies is energy efficiency and renewable energy generation. Future changes to this and other DRI policies may address planning and design principles more concretely.

The size of a building is perhaps the largest factor in determining its carbon footprint, but we left that out. Proposed changes to the DRI Checklist that focus on building size (section 4.2) are currently on hold while the rest of the changes are reviewed. Checklist item 4.2 will likely be addressed within the next 2-3 years.

Commented [AE10]: The MA Stretch Code already requires solar-ready construction for residential projects.

Commented [AE11]: This policy intentionally does not aim to regulate building materials, for which there is no clear-cut standard for tracking their carbon footprint. Future iterations of the policy may tackle this issue more directly.

³ Additional guidance and resource can be found on the MVC website. [LINK]

demonstrate to the MVC that they are adhering to this policy. The MVC may also stipulate this measure in its conditions of approval.

Step 1: Determine the standards that apply.

The applicant should submit a description of the scope of the project to the MVC in order to allow determination of which standards apply. MVC staff will meet with the applicant to evaluate the scope and applicable criteria prior to MVC review. **If appropriate, this step may occur prior to the filing of a DRI application.** Applicants will be required to submit a narrative outline of how each element of this policy is addressed.

Commented [AE12]: We encourage potential applicants to consult with MVC staff as early in the design phase as possible, in order to avoid major revisions further down the road.

Step 2: Calculate and confirm the energy efficiency of the project (if applicable).

For residential projects, and residential components of multi-use projects:

Design to achieve compliance with the MA Stretch Energy Code or MA Building Code, as applicable. Applicants should provide the Building or Stretch Code certification to the MVC as part of the application materials.

Commented [AE13]: Commercial buildings smaller than 100,000 square feet currently have no additional requirements beyond the State Building Code, so other standards were identified for this policy. The HERS system also does not apply to commercial buildings. At least off-Island, commercial buildings smaller than 100,000 square feet typically undergo some sort of energy modeling as part of their design, which amounts to "flexible compliance" with the MA Stretch Code. However, that is probably not the case for Island projects, and some building professionals have argued that the modeling that does occur on the Island is often incorrect.

For commercial projects:

Design to achieve compliance with the International Energy Conservation Code and obtain the EPA "Designed to Earn the Energy Star" (DEES) certification by employing a qualified building performance analyst during the design phase of the project. (DEES certification does not apply to modifications that affect less than 50% of the total floor area.) If it is not possible to meet the DEES certification requirements, describe the limitations and outline other measures that will support the goals of this policy. Applicants should provide the appropriate Energy Star certification and/or an affidavit by a registered building professional regarding IECC compliance (as applicable) to the MVC as part of the application materials.

The 2018 IECC was adopted in Massachusetts, and the next version is expected in 2021. Some groups are advocating for the 2021 version to support a zero-energy stretch code approach and include an amendment clarifying a path to zero-energy for commercial buildings. The BBRS is reportedly pushing back against those efforts.

For energy-intensive commercial or residential projects, the MVC may require additional design review and/or energy modeling by an independent building performance analyst as part of the application materials.⁴

Most of the approximately 85 DRIs in the last 5 years have involved housing, food service, retail, storage, or office space. Housing topped the list, with 14 separate projects, followed by restaurant, retail, storage/warehouse, and office uses. There were 2 parking lot projects, and a handful of very large buildings such as the hospital, museum, and Stop and Shop. (Hospitals do not qualify for the DEES certification.)

Commented [AE14]: This would allow the MVC to confirm compliance prior to the preliminary commissioning report. The IECC currently does not provide an avenue for doing that. We recognize that for certain smaller projects, engagement of a design professional may not be worth the trouble.

Commented [AE15]: This could take the form of a 10-item checklist. It is also worth noting that this step would not necessarily tread on the State Building Code or other existing regulations.

⁴ MVC staff will work with applicants to identify a qualified building performance analyst.

Step 3: Provide plans showing all-electric design specifications and/or onsite renewable energy generation (if applicable), or outline mitigation measures.

Applicants should provide documentation as to how they have addressed the power source preferences (see section 3). For projects with existing onsite fossil-fuel-powered equipment, applicants must provide a master plan for the replacement of existing equipment at the end of its life, consistent with the goals of this policy and the targets set out in section 3.

If compliance with 100% onsite energy generation is not possible, applicants should provide for equivalent renewable generation capacity elsewhere on the Island, in an amount equal to 100% of the projected use not covered by onsite renewable generation.⁵

Step 4: Provide a description of how the planning and design elements in section 4 of this policy have been addressed.

The planning and design elements outlined in section 4 should be described in a one- or two-page narrative submitted with the DRI application. In developing this narrative, the applicant may also consider the embodied carbon, or overall carbon footprint, of the proposed materials.

Step 5: Provide a plan for electric-vehicle charging stations (parking areas only).

All parking spots for fleet vehicles, and/or residential units, including multi-unit or mixed-use buildings, should include pedestal-ready infrastructure for electric-vehicle charging stations (or full stations). For parking spots that will be used for other purposes, the MVC may require the applicant to provide a plan for the future installation of electric-vehicle charging stations and/or the necessary infrastructure. All lighting for parking areas must be LED.

Post-approval steps

- **Conduct air-tightness test of all building enclosures.** If not offered by the applicant, the MVC may require the applicant to conduct an air-tightness test following the completion of construction, to demonstrate the integrity of the building enclosures. The results of the test should be provided to the MVC within one month after construction is complete.

⁵ The MVC is open to considering various approaches advanced by the applicant and will assess how effective they are in furthering 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 and approved by the MVC. Purchasing “green power” through the grid is not an equivalent alternative.

Commented [AE16]: Exemptions for cooking and generators apply to certain intensive or specialty uses for which heat pumps may be inadequate. They would also apply to code-required emergency power and other optional backup power. Applicants would be encouraged to use battery generation, although we acknowledge that recent changes in fire safety standards such as NFPA have made it more difficult to install residential battery storage systems. Biofuels are also an alternative for gas-powered generators.

Commented [AE17]: We originally proposed payments into a community solar fund, but the logistics of setting up and maintaining such a fund remain an obstacle. The MVC may revisit this possibility in the future.

Commented [AE18]: Lighting specifications are not included in the sections on residential and commercial buildings, since the committee felt that lighting efficiency is adequately covered by the State Building Code and IECC. Incandescent lights are no longer the norm for residential building interiors.

Commented [AE19]: The committee felt that an air-tightness test (without requiring a specific result) would be effective in increasing building efficiency, in part by giving applicants something concrete to think about. It was important to specify when in the process the test should occur. An air tightness test would capture whatever imperfections occurred during construction and help compare the final result with the project as designed.

An air-tightness test for commercial developments is currently optional under both the State Building Code and IECC. Depending on compliance, the Energy Policy could be revised in the future to ask applicants to select that option in the IECC. We recognize that requiring an air-tightness test may not always be useful, as it can be difficult to isolate the new construction portions of some projects. These tests will be requested on a case by case basis.

- **Submit IECC preliminary commissioning report.** The applicant shall provide the IECC preliminary commissioning report to the MVC prior to final inspection.
- **Provide annual data for building energy use.** The MVC may require applicants for residential and commercial DRIs that involve new construction or significant renovations (more than 50 percent of the building floor area or assessed value), to provide the MVC with annual reports that show each building's actual post-occupancy monthly energy use by fuel type. Such reports, if required, must be provided annually for the first three years of operation, and in the form requested.

Commented [AE20]: This is required under the IECC.

Commented [AE21]: This would serve largely to allow the MVC to develop a database of energy use over time, which would in turn inform later versions of the policy and GHG-reduction strategies for the building sector more broadly.

Submittal Requirements

The following materials, as they apply to the project, should be submitted as part of the DRI application:

- Narrative outline of how each element of this policy is addressed (see step 1)
- MA Building Code, MA Stretch Code, or "Designed to Earn the Energy Star" certification; and/or affidavit regarding IECC compliance (see step 2)
- Plans showing all-electric design specifications and onsite renewable energy generation (see step 3)
- Narrative of the planning and design elements (see step 4)
- Plans for the development of electric vehicle infrastructure (see step 5)

Martha's Vineyard Commission 2019 Climate Crisis Resolution

The continued burning of fossil fuels, resulting in the emission of greenhouse gases, and the consequences of unsustainable development and extraction of resources are having a detrimental impact on the environment and are threatening the livability of our planet and, more relevantly, our island. Specifically, these factors are contributing to rising sea levels; extreme climate disruption; ocean acidification; adverse health impacts; economic destabilization; increased pollution and, ultimately, human survivability.

Chapter 831 of the Massachusetts 1977 Acts and Resolves, as amended, vests in the Martha's Vineyard Commission authority to protect the Island's "unique natural, historical, ecological, scientific, cultural, and other values." Chapter 831 recognizes that "[t]hese values are being threatened and may be irreversibly damaged by uncoordinated or inappropriate uses of the land". The Commission believes it is necessary and appropriate to exercise its authority to protect Island values in the face of the climate crisis.

Accordingly, the Commission RESOLVES to:

Develop a framework to enable the Commission to factor into its review and consideration of Developments of Regional Impact and regional policy and planning initiatives the imperative to reduce the detrimental impacts of the climate crisis on the Island and to secure the benefits of policies designed to minimize those impacts – to the intent of protecting the Island values, its people, economy and environment.

Support the non-binding resolution, to be presented at the spring Town Meeting of each Island Town by each Town's Energy Committee, the goals of which are to:

- Reduce fossil fuel use on the Island (from a 2018 baseline) by 50% by 2030 and by 100% by 2040;
- Increase the fraction of our electricity use that is renewable by 50% by 2030 and by 100% by 2040; and
- Foster biosphere carbon capture through:
 - Adoption of regenerative agriculture and landscaping;
 - Protection and expansion of wetlands; and
 - Preservation of woodland resources.

Draft a Commission Master Energy Plan that is consistent with the goals set out in the non-binding resolution and that will assist the Island in meeting those goals.

Draft a Commission Master Adaptation Plan that will facilitate both Town and regional planning and implementation initiatives designed to improve resiliency in the face of the climate crisis.