

1                    **MVC POLICY FOR DRI REVIEW – DRAFT FOR REVIEW**  
2                    **4. Energy and Environmental Building**  
3

4                    *Note: There will be a public hearing on this draft of the revised Energy and Environmental Building DRI Policy on December 4, 2008. Comments may be submitted in writing before the hearing or until Monday, December 10, 2008 at noon to the Martha's Vineyard Commission, P.O. Box 1447, 33 New York Avenue, Oak Bluffs, MA, 02557. A copy of this draft is available on the MVC website; enter "Energy DRI Policy" and press return. For further information, contact Bill Veno, 508-693-3453-18 or veno@mvcommission.org.*

5                    *"Having an affordable, environmentally sound, reliable, and safe supply of energy is essential to the general welfare of all communities and is critical to Martha's Vineyard."*  
6                    *MVC Energy Policy adopted May 11, 2006*  
7  
8

9                    This policy gives guidance to applicants seeking approval of Developments of Regional Impact (DRIs) by the Martha's Vineyard Commission regarding energy use and green-building. The aim is to ensure that projects are designed to minimize fossil fuel use, by employing energy efficiency techniques and by renewable energy sources. It also seeks to encourage use of environmentally sound "green-building" design techniques. This document describes the procedure for evaluating projects from this point of view.  
10  
11  
12  
13  
14  
15

***This policy is one of a series prepared to help Applicants and members of the public understand how the Martha's Vineyard Commission evaluates proposed Developments of Regional Impact (DRI), 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 (www.mvcommission.org/DRI) or office (508-693-3453) to obtain the other documents. This policy reflects MVC practices in reviewing subdivisions and development 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 the DRI if it is approved. It should therefore be used by the Applicant 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's DRI Coordinator and Commission 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.***

16  
17  
18  
19  
20  
21  
22  
23  
24

## Table of Contents

---

- 1 Background
- 2 Goal and Objectives
- 3 Policy
- 4 Application of the Policy and Submittal Requirements

# 1 BACKGROUND

**Energy Use on Martha’s Vineyard:** The environmental effect of using fossil fuels has emerged as a nearly universal concern. James Hansen, NASA climatologist, recently stated that a 2°F rise in temperature is the limit "to avoid our living on a different planet." At the present rate of rise – *much* faster than scientists had been predicting – he predicts that we have 10 years in which to make significant changes.

The dependability of energy supplies has long been a particularly important matter to our island community and the environmental impacts of energy use are of growing concern across the world. Energy is one of the Vineyard’s main imports, with about 65% of the energy used in heating and cooling, lighting, and other electricity-dependant functions, and the remainder used in transportation. Our present sources of energy are oil, propane, gasoline, and electricity - produced primarily from natural gas, nuclear, coal and oil (in that order).

**Why Reducing the Use of Non-Renewable Energy is Important:** Having an affordable, environmentally sound, reliable, and safe supply of energy is essential to the general welfare of Martha's Vineyard.

- **Reliability of Supply:** Because we depend almost entirely on imported energy, we face increased risks, higher costs and concerns about interruption of supply. Fuel shipped by ferry or barge exposes the island to hazards and accidents. The depletion of fossil fuel sources worldwide increase the potential of supply shortages and price fluctuations beyond our control. Transmitting electricity by underwater cables and overhead wires exposes us to periodic interruptions.
- **Economic Impacts:** Energy costs on the Vineyard are very high and contribute substantially to our higher cost of living. Island gasoline prices are among the highest in the nation. Both the Vineyard’s year-round community and visitor-based economy are particularly sensitive to high energy costs. Most of the energy dollars spent on-island do not benefit our local economy: they do not get spent on local goods nor expand business opportunities.

- Environmental Consequences: Burning fossil fuels results in air and water pollution that is changing the natural environment and endangering public health. The Cape and Islands already experience among the poorest summer air quality in Massachusetts. The Vineyard is especially vulnerable to the predicted Climate Change impacts of rising sea levels, more severe weather, and increased health risks from insect-borne diseases.

**Energy Targets:** In setting this policy, the Commission seeks to establish a clear energy-efficiency target for projects reviewed as DRI's by the MVC. The Commission seeks a target commensurate with the challenge we are facing. It also seeks a methodology that is as standardized and widely used as possible, and that places the least administrative burden on applicants. However, it appears that many different entities use different standards and techniques for similar objectives. Therefore, as outlined in section 3.3, 4, and 5, this interim policy includes the choice of several techniques, depending on the scale of the project.

- Relation to Mass Energy Code: This provides the minimal energy efficiency target, requiring a percentage by which a project must surpass the Code. It involves providing the energy calculations that all builders are required to do to obtain a building permit.
- Energy Star Certification: This provides a more comprehensive set of energy objectives, and requires project certification by a third party. Energy Star includes energy-saving features such as increased insulation, high performance windows, tight construction and ducts, efficient heating and cooling that typically make them 20–30% more efficient than standard buildings.
- LEED: The Leadership in Energy and Environmental Design Green Building Rating System™, administered by the non-profit U.S. Green Building Council, outlines sustainable green building and development practices. Its performance criteria cover five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. It requires certification after project completion. LEED offers four levels of certification: basic, silver, gold, and platinum. Since it is possible to get LEED certification without meeting very high energy standards, this policy's use of LEED is in addition to meeting energy standards. (Note that while LEED criteria include water resources, they are not addressed here because they are dealt with in the MVC's Water Resources DRI Policy.)

The 2030 Challenge, proposed by architect Ed Mazria in response to Hansen and other scientific data, recommends that all new buildings, developments and major renovations be designed to meet a fossil fuel energy consumption performance standard of 50% of the regional average for that building type. It further suggests that the fossil fuel reduction standard for all new buildings be increased 10% every 5 years so that by 2030, communities are achieving a standard of carbon-neutrality (using no fossil-fuel greenhouse gas emitting energy to operate). The 2030 Challenge also suggests that, at a minimum, as existing buildings are renovated, that they meet a fossil-fuel, energy-consumption performance standard of 50% of the regional average for that building type through innovative design strategies, the application of renewable technologies and/or the purchase of renewable energy – the latter of which should not be credited for more than 20% of the reduced fossil-fuel consumption. In the future, the MVC might move to these higher targets.

93  
94 To begin to encourage greater energy awareness and improved energy practices, this Policy:  
95 - uses a target related to the Mass Energy Code for all proposals;  
96 - requires Energy Star certification for most projects, as is being used with increased frequency  
97 throughout the United States;  
98 - requires LEED certification for large projects, also being required in many municipalities for larger  
99 building projects.

100  
101 **Environmental Design:** In addition to concerns about energy, there is broad concern about the  
102 environmental impact of building construction techniques and materials: especially relevant on the  
103 Vineyard, given the constraints of our being an island with constraints on transportation of new and  
104 used materials, constraints on disposition of waste, and other limits.  
105  
106  
107  
108

## 109 2 GOALS AND OBJECTIVES

110  
111 **Goal:** The goal of this policy is to reduce the consumption of fossil fuels, to promote  
112 the use of renewable sources of energy, and to encourage use of environmentally  
113 sound building techniques on Martha's Vineyard.  
114

115 **Objectives:** The Energy and Environmental Design Policy seeks to promote the responsible use of  
116 limited energy resources through the following objectives.

- 117 ▪ Encourage energy conservation.
- 118 ▪ Improve energy efficiency.
- 119 ▪ Stimulate investment in renewable energy resources.
- 120 ▪ Manage land use to maximize energy efficiency.
- 121 ▪ Minimize wasteful consumption of resources.

122  
123 It seeks to promote environmental building techniques, particularly through the following objectives.

- 124 ▪ Promote the use of sustainable sites.
- 125 ▪ Minimize demolition of existing buildings or scrapping of building materials
- 126 ▪ Use environmentally sound building practices.
- 127 ▪ Minimize the generation of construction waste and disposing of it in the best possible way.
- 128 ▪ Ensure the highest indoor environmental quality
- 129 ▪ Reduce light pollution.

130

131

132  
133  
134  
135

137

## 3 POLICY

138 **In order to determine the benefits and detriments of a DRI application with regards to**  
139 **energy and environmental design, Commissioners will evaluate the extent to which**  
140 **applications incorporate the following criteria.**

141

142 All proposals should address the qualitative issues in this policy as well as meet the quantitative  
143 standard for energy efficiency described in section 3.3.

144

145 In addition, all non-residential projects with a total floor area greater than 3000 square feet and  
146 residential projects of four or more units should be certified by Energy Star.

147

148 Projects with a total floor area greater than 6,000 square feet and residential projects of twenty or more  
149 units should meet the standards for LEED certification, at least at the certified level and at higher levels if  
150 possible.

151

### 3.1 Energy – Minimize Energy Consumption Through Planning and Design

---

152

#### 3.1.1. **Location:** Locate development to minimize auto use and encourage walking.

154

- 155 ▪ In or within walking distance of town centers and/or stores
- 156 ▪ Within walking distance of public transit
- 157 ▪ Within walking distance of a school
- 158 ▪ Close to bicycle paths.

159

#### 3.1.2. **Land Uses:** Incorporate mixed uses to minimize auto use and encourage walking.

160

- 161 ▪ Projects that combine housing with commercial activities
- 162 ▪ Home work spaces in residential developments
- 163 ▪ Daycare in or near projects with a concentration of employees

164

#### 3.1.3. **Transportation:** Encourage use of public transit, bicycles, and walking as well as fuel-efficient vehicles.

165

- 166 ▪ For commercial, office, and institutional projects, provide automobile parking outside the  
167 town center and provide employee transportation.
- 168 ▪ Plan for pedestrian circulation within the project.
- 169 ▪ Integrate with or add to existing/planned area pedestrian trails and multi-use paths, where  
170 appropriate.
- 171 ▪ Consider bike lanes to promote the use of bicycles for transportation.
- 172 ▪ Incorporate pedestrian and bicycle amenities such as rest areas, bike parking, and signage.
- 173
- 174

- 175       ▪ Provide pedestrian access to transit, and bus lay-bys and/or bus shelters where appropriate.
- 176       ▪ Provide employees incentives to use public transit (e.g. free bus passes).
- 177       ▪ Design the site or adopt programs that promote the use of fuel-efficient vehicles and
- 178           carpooling. These might include a purchase/rental program of fuel-efficient vehicles for
- 179           building occupants, a carpooling program, and the provision of preferred parking spaces
- 180           for fuel-efficient and carpool vehicles.
- 181       ▪ Does not provide more parking than is required by code.

## 182 183 **3.2 Energy – Consider Energy in Site Layout and Landscaping**

---

### 184 185 **3.2.1. Site Design: Incorporate or Provide for Renewable Energy Generation.**

- 186       ▪ Designate an area for the incorporation, either now or in the future, of renewable energy
- 187           generation – such as an array of solar panels, a wind turbine, or geo-thermal – which allow
- 188           for greater energy self-sufficiency.
- 189       ▪ Consider energy generation shared among several properties.
- 190       ▪ Cluster buildings to facilitate use of renewable energy sources – both on individual
- 191           properties and shared facilities.

### 192 193 **3.2.2 Building Location and Orientation: Locate and orient buildings to maximize**

- 194           **winter solar gain, solar energy generation, and daylighting opportunities.**
- 195       ▪ Locate buildings on parts of the site with fewer trees to the south, to allow maximum winter
- 196           heat gain.
- 197       ▪ Orient the building to maximize south-facing windows and southern exposure to the extent
- 198           that site or historic considerations allow.

### 199 200 **3.2.3. Landscaping: Make landscaping choices with energy concerns in mind.**

- 201       ▪ Keep or plant deciduous trees to provide shade and natural cooling in the summer and
- 202           maximum sun penetration in the winter.
- 203       ▪ Keep or plant evergreen trees to serve as wind breaks against winter winds and thereby
- 204           reduce heating loads.
- 205       ▪ Minimize watering, operation of pumps, and mowing by limiting managed turf areas; by
- 206           using native, native-adapted, or other low-maintenance species; by using root-zone and drip
- 207           irrigation; and by using rainwater and graywater collection for irrigation.

## 208 209 **3.3 Energy - Design Buildings to Reduce the Use of Fossil-Fuel-Based Energy**

---

### 210 211 **3.3.1 Building Efficiency: Buildings shall be designed and constructed to exceed the**

### 212 **Massachusetts Building Code by at least 20% and, if so determined by the**

### 213 **Commission, to also meet federal Energy Star standards.**

214 Note that if its not possible to meet this standard, the excess may be offset by incorporating

215 renewable energy generation into the project, and/or by providing off-site mitigation, as

216 described in sections 3.3.2, 3.3.3, and section 4. The objective is to reduce the net fossil-fuel

217 energy use, equal to the total energy use minus the energy generated from renewable sources or  
218 by off-site mitigation.

219

220 The following are among the techniques that can improve a building's energy performance:

221

- 222 ▪ Non-mechanical building design features such as:
  - 223 - Concentrating windows on the south facade
  - 224 - Additional summer shading for east and west facing facades
  - 225 - Large roof overhangs on south-facing walls to minimize summer solar gain while  
226 allowing winter solar gain
  - 227 - Light-colored roofs
  - 228 - Natural cooling measures such as cross-ventilation
  - 229 - Measures utilizing natural lighting (daylighting)
- 230 ▪ Air-tight building techniques and increased levels of insulation, combined with heat recovery  
231 mechanical ventilation
- 232 ▪ More efficient windows and doors
- 233 ▪ High-efficiency heating, air conditioning and water heating
- 234 ▪ High-efficiency lighting indoors and out
- 235 ▪ Timers and motion detectors
- 236 ▪ Water efficient equipment
- 237 ▪ Energy Star rated appliances or better

237

238 *Note: If a project does not meet the energy efficiency standards of section 3.3.1, the applicant can*  
239 *offset the excess by incorporating renewable energy generation techniques.*

240

### 241 **3.3.2. Renewable Energy: Design and construct all buildings to provide for the** 242 **incorporation - now or in the future - of renewable energy.**

243

- 244 ▪ Design all buildings to allow for installation of solar-hot-water and/or solar-electric panels on  
245 the roof, unless this is not possible or appropriate because of site conditions or historic  
246 context.
    - 247 - Provide a large, unshaded, uninterrupted expanse of south-facing roof (within 30 degrees  
248 of true south). Provide insulated copper piping from the roof to the basement for solar hot  
249 water and conduit for solar electric conductors, in accordance with the National Electric  
250 Code requirements.
    - 251 - Alternatively, provide a south-facing, unshaded ground area able to receive a solar array.
  - 252 ▪ For heated swimming pools:
    - 253 - Provide solar pool heating for swimming pools adequate to meet their heating demand; or
    - 254 - Provide solar hot water collectors to provide heat for the house in the winter and heat for  
255 the pool in the summer with the assistance of a heat exchanger; or
    - 256 - Provide sufficient on-site renewable energy to offset, at a minimum, the electrical use of  
257 heating pool water with electric water heaters or ground source heat pumps.
- 258 *Note: Sites employing solar pool heating technologies should have reasonably unobstructed*  
*solar access from the south from 9 a.m. to 3 p.m. and be close to the pool equipment area.*
- 259 ▪ Consider the use of renewable energy sources – solar hot water, solar electric, wind turbines  
260 and geo-thermal.

- 261
- 262
- 263
- 264 ▪ Consider the use for space heating of clean and efficient solid fuels (e.g. wood and pellet
  - 265 burning stoves) that meet safety and EPA emission standards.

266

267

268

269

270

271

272

273

274

275

276

277

**3.3.3. Off-Site Mitigation: Under certain circumstances, up to 20% of a project’s energy use may be offset with off-site mitigation.**

If attempts by the applicant fail to meet the energy efficiency limit (section 3.3.1) even after subtracting the portion of energy generated on-site from renewable sources (section 3.3.2), the Commission may consider measures by the applicant to offset the excess energy demand – up to 20% of the total energy use – in one of three ways:

- 270 ▪ Installation at the Applicant’s expense of equivalent energy efficiency measures or
- 271 renewable energy generation in another Island location, particularly for a public building or
- 272 affordable housing project,
- 273 ▪ A financial contribution of an equivalent value to a Vineyard public entity or not-for-profit
- 274 organization for use for installation of energy efficiency or renewable energy, or
- 275 ▪ A contract to purchase an equivalent value of Green Power Credits on Martha's Vineyard
- 276 or, if not available, as close to the Vineyard as possible.

278

279

**3.4 Environmental Building – Use Environmentally Sound Building Practices**

---

280 *Note: This section is based on those sections of the LEED program not covered by other parts of this*

281 *policy, or other DRI Policies such as Water Quality and Open Space.*

282

283

284

**3.4.1 Sustainable Sites: Projects should, where possible, be located on sustainable sites and be laid out in a sustainable way.**

285 Sustainable site selection and development criteria include the following.

- 286 • Avoid development of inappropriate sites or parts of sites such as prime farmland, habitat
- 287 for rare or endangered species, located within 100 feet of wetlands, or is a non-water-
- 288 related use within 50’ of a water body. (See also DRI Policy on Open Space.)
- 289 • Favor sites that were previously developed.
- 290 • Favor sites in town or village areas, within a half mile of basic services (including a grocery
- 291 store, a general store, a pharmacy, a school, a restaurant, and a post office) or within a half
- 292 mile of higher density residential areas.
- 293 • Provide shading for a considerable proportion of parking lots and other hard surface areas.
- 294 • Minimize exterior lighting from the building and site to areas and times needed for safety,
- 295 and ensure that there is no up-lighting, glare, or direct lighting beyond the property line.

296

297

298

299

**3.4.2 Materials and Resources: Reduce the waste of materials and use environmentally sound materials, both in project construction and ongoing use.**

Appropriate practices include the following.

- 300 • Maximize reuse of existing buildings. If an existing building cannot be preserved, it should
- 301 preferably be moved and reused in another location. Failing that, as many the building
- 302 elements and materials should be preserved and reused, either on site or in another project.
- 303 • Use environmentally sound construction materials such as salvaged, refurbished, or reused
- 304 materials, materials incorporating recycled content, regional materials, rapidly renewable

- 305 materials, and certified wood. Incorporate materials that are durable, non-toxic and require  
306 no finishes.
- 307 • Develop and implement a construction waste management plan to divert construction,  
308 demolition, and land-clearing debris from disposal in landfills.
  - 309 • Provide an easily accessible area dedicated to the collection and storage of materials for  
310 recycling.

311

312 **3.4.3 Indoor Environmental Quality: Enhance indoor air quality in buildings, thus**  
313 **contributing to the comfort and well-being of occupants.**

314 Appropriate practices include the following.

- 315 • Ensure that interior spaces, both during construction and after occupancy, are well ventilated  
316 favoring use of naturally ventilated spaces. Design and construct for moisture, mold, and  
317 mildew prevention (utilizing air barriers, drainage, sealed basements/ crawl spaces).  
318 Design and construct for future radon mitigation if it becomes necessary;
- 319 • Reduce the quantity of indoor air contaminants from adhesives, sealants, paints, coatings,  
320 carpeting, composite wood and agrifiber products and from hazardous gases or chemicals.
- 321 • Provide a high level of lighting system control and of thermal comfort system control by  
322 individual occupants or groups.
- 323 • Maximize building occupants' view of the outdoors and daylight.

324  
325  
326

327 **4 APPLICATION OF THE POLICY AND SUBMITTAL REQUIREMENTS**

328 This section describes the key steps for designing a project in accordance with the Energy Policy.  
329 Applicants are encouraged to consult the staff of the Martha's Vineyard Commission for assistance in  
330 application of the policy to their projects.

331

332 **Step 1: Determine the Standards to Apply**

333 The applicant should submit a description of the scope of the project to the Commission in order to  
334 allow determination of which standard will apply. This will be determined by the Land Use Planning  
335 Committee at the Pre-Application Meeting.

336

337 **Step 2: Address the Qualitative Sections of the Policy**

338 Prepare a brief narrative that outlines how the proposal addresses the qualitative sections of this policy.

339

340 **Step 3: Calculate the Energy Efficiency and Offsets**

341 Calculate the energy efficiency of the proposal using RES-Check or COM-Check. If the energy efficiency  
342 does not meet the target, increase the energy-efficiency measures to improve compliance. If it is still  
343 impossible to meet the target, outline on-site renewable generation or offset mitigation measures as  
344 described in the policy.

345

346 **Step 4: Provide application information for Energy Star or LEED**

347 If the project is required to get Energy Star or LEED certification, submit the application form as part of  
348 the building application. The final certification should be filed with the Commission upon receipt. The  
349 Commission may make issuance of the Certificate of Occupancy subject to the receipt of certification.

350

351 In weighing the benefits and detriments of a project, the Commission will consider it a benefit if the  
352 building is designed so that it exceeds this minimum standard, either through efficiency measures or  
353 through use of renewable energy.

354

355 In the case of a Development of Regional Impact where the Commission will not be reviewing building  
356 plans are not being reviewed by the Commission (e.g. a residential subdivision), this policy shall  
357 nevertheless apply to all future buildings. In such cases, builders of such subsequent buildings would  
358 have to show to the Commission that they are adhering to this policy.

359

360 The following materials should be submitted as part of the DRI application:

- 361 • Narrative outlining how all the elements of this policy are addressed.
- 362 • Calculation of energy efficiency using COM-Check or RES-Check.
- 363 • Application for Energy Star or LEED, if required.

364

365 The final Energy Star or LEED certification, if required, should be submitted according to the conditions  
366 of the Commission approval.

367

368

369

370

371  
372  
373  
374  
375  
376  
377  
378  
379  
380  
381  
382  
383  
384  
385  
386  
387  
388  
389  
390  
391  
392  
393  
394  
395  
396  
397  
398  
399  
400  
401  
402  
403  
404  
405  
406  
407  
408  
409  
410  
411  
412  
413  
414



**MARTHA'S VINEYARD COMMISSION**  
BOX 1447 OAK BLUFFS MA 02557  
PHONE: 508-693-3453 FAX: 508-693-7894  
E-MAIL: [INFO@MVCOMMISSION.ORG](mailto:INFO@MVCOMMISSION.ORG)  
WEBSITE : [WWW.MVCOMMISSION.ORG](http://WWW.MVCOMMISSION.ORG)