

# **Sustainable Vision Statement**

## **Monroe County Green Initiative Task Force**

**September 2010**



### **Recommendations to the Monroe County Board of County Commissioners**

---



# I. Table of Contents

|                  |   |    |    |
|------------------|---|----|----|
| I.               | Table of Contents .....                                     | 2  |    |
| II.              | Introduction.....   | 3  |    |
|                  | 1. The Green Initiative Task Force.....                     | 3  |    |
|                  | 2. Task Force Vision .....                                  | 3  |    |
|                  | 3. Associated Monroe County Actions.....                    | 4  |    |
|                  | 4. Climate Change Overview and Vulnerability .....          | 5  |    |
| III.             | Task Force Recommended Actions.....                         | 6  |    |
|                  | 1. Policy & Coordination.....                               | 6  |    |
|                  | 2. Natural & Urban Landscape.....                           | 8  |    |
|                  | 3. Infrastructure Master Planning .....                     | 9  |    |
|                  | 4. Water Resources & Wastewater.....                        | 10 |    |
|                  | 5. Modeling, Monitoring, & Mapping .....                    | 12 |    |
|                  | 6. Zoning & Building Codes .....                            | 13 |    |
|                  | 7. Mass Transit/Vehicle Miles Travelled .....               | 14 |    |
|                  | 8. Renewable & Alternative Energy.....                      | 15 |    |
|                  | 9. Recycling & Zero Waste .....                             | 17 |    |
|                  | 10. Business and Workforce Development .....                | 19 |    |
| IV.              | Conclusion .....  | 19 |    |
| APPENDIX         |   |    |    |
| A.               | Green Initiative Task Force Membership & Staff Support..... | 20 |    |
| REFERENCES ..... |   |    | 21 |

## **II. Introduction**

The purpose of this document is to highlight opportunities for Monroe County--its agencies, businesses and residents--to develop a climate change mitigation and adaptation strategy to reduce greenhouse gas emissions, more efficiently use energy and water sources and minimize the potential impacts of sea-level rise and hurricane intensity on the built and natural environment and the communities and economy of the Florida Keys. This Report is a product of two years of research and is meant to serve as a guide to green principals for the Monroe County Board of County Commissioners (BOCC). Monroe County has always been about innovation and strategic planning, this guide the Green Initiatives Task Force has created is one more facet of how Monroe County can innovate in the need for sustainability and efficiency. One measure of our success in this endeavor will be the inclusion of pertinent recommendations in future versions of the County's Comprehensive and Strategic Operational Plans.

### **1. The Green Initiative Task Force**

The Green Initiative Task Force was created on June 18, 2008 (Resolution No. 177-2008) by the Monroe County Board of County Commissioners. Originally called the Green Building Code Task Force, the name was officially changed with the adoption of Resolution 121-2009 on April 15, 2009.

The task force is coordinated by the Extension Services under the office of the County Administrator. The scope of the task force is to provide recommendations to the BOCC of environmentally sound practices and techniques to protect the citizens and environment as well as address climate change mitigation and adaptation needs.

Membership of the task force consists of two (2) appointments made by each commissioner (the BOCC has the discretion to nominate one member from their own district and one member from the County at large), and one (1) member from each of the municipalities, utilities and the Navy (Resolution 024-2010). The task force has a sunset date of October 1, 2010 (Resolution 345-2008).

### **2. Task Force Vision**

*The Green Initiative Task Force vision is: "To encourage the implementation of green practices in new construction, existing buildings, neighborhood communities, and government operations and to educate the Monroe County community and leaders on green principles."*

Guiding Principles:

1. Reduce energy consumption, pollution generation, and contribution to climate change.
2. Implement methods for waste reduction and environmentally friendly waste
3. Incorporate pollution prevention strategies in all County operations to meet reduction goals.
4. Research and create incentives for existing industries to adopt green principles and create green jobs.
5. Attract new sustainable industries and green jobs with incentives and programs.

6. Educate the community and county staff about energy efficiency, green principles, green practices, and sustainability.
7. Establish partnerships and facilitate collaborations around a green agenda.
8. Develop planning, land use and redevelopment policies, and standards and incentives that support a green agenda.
9. Determine how the County will institute green building standards.
10. Develop a green procurement policy for the County.

### **3. Associated Monroe County Actions**

Resolutions and Actions taken:

US Mayors Agreement on Climate Change - 2007 (Resolution 235-2007)

Resolution of the Board of County Commissioners of Monroe County, Florida endorsing the U.S. Mayors Climate Protection Agreement as amended to reduce global warming pollution; Authorizing full membership in the ICLEI local governments for sustainability and participation in the Cities for Climate Protection Campaign.

Establish the Green Building Code Task Force - 2008 (Resolution 177-2008)

A resolution by the Monroe County Board of County Commissioners establishing a Green Building Code Task Force to recommend green standards for new building codes.

Establish a sunset date for the Green Building Code Task Force - 2008 (Resolution 345-2008)

A resolution by the Monroe County Board of County Commissioners amending resolution number 177-2008 to change the terms and sunset date of the Green Building Code Task Force to October 1, 2010.

Establish the Green Initiative Task Force - 2009 (Resolution 121-2009)

A resolution of the Board of County Commissioners of Monroe County renaming the Green Building Code Task Force to the Green Initiative Task Force; Changing that the recommendations be made to the Board of County Commissioners rather than the Building Department and that the Task Force provide recommendations not on local technical amendments but on green standards for implementation in Monroe County to improve local quality of life and create a more efficient government.

Assign Extension Services in the Office of the County Administrator as Staff Liaison to the Green Initiative Task Force – 2009 (Resolution No 446 2009)

A resolution by the Monroe County Board of County Commissioners amending resolution 177-2008 to change the designated staff members who will support the Green Initiative Task Force.

Establishment of the Monroe County Employee Green Team – December, 2009

The Monroe County Board of County Commissioners approved the establishment of an Employee Green Team to develop a government operations climate action plan.

#### Southeast Florida Regional Climate Compact - 2010 (Resolution 022-2010)

A resolution of the Board of County Commissioners of Monroe County Florida pledging their commitment to appropriate staff resources and expertise within budget constraints to participate in the regional climate team with Miami-Dade, Palm Beach and Broward counties toward the development of a Southeast Florida Regional Climate Change Action Plan.

#### Appointing the US Navy to the Green Initiative Task Force - 2010 (Resolution 024-2010)

A resolution by the Monroe County Board of County Commissioners combining provisions of the four previous resolutions into one resolution, adding climate change recommendations to the duties of the taskforce, allowing each county commissioner to nominate one member at large, adding the U.S. Navy as a non-voting member and repealing the former resolutions number 177-2008, 345-2008, 121-2009 and 446-2009.

#### Greenhouse Gas Target for County Operations - 2010 (Resolution 067-2010)

Resolution of the Board of County Commissioners of Monroe County Florida adopting a goal for reduction of greenhouse gas emissions to 20% by 2020 as measured from a 2005 baseline inventory.

#### Florida Green Building Coalition Commercial Building Standard - 2010 (Resolution 147-2010)

Resolution of the Board of County Commissioners of Monroe County, Florida adopting the Florida Green Building Coalition's green commercial building standard for county buildings in addition to the Florida Building Code as the standard to be used for construction of all public buildings from the date of this resolution.

#### Support for Multi-jurisdictional Financing Energy Assessment grant - July, 2010

Approval of letter of support to City of Lantana for application to the Environmental Protection Agency for the Climate Showcase Communities Grant to establish a multi-jurisdictional Financing Energy Assessment Program.

## **4. Overview of Climate Change and Vulnerability**

The Florida Keys are on the front lines of climate change impacts such as sea level rise and increased hurricane intensity. While greenhouse gas emissions produced within the Monroe County region constitute only a small percentage of national and global quantities, Monroe County, because of its unique vulnerabilities to sea-level rise and our international presence as a premier tourist destination, has an opportunity to demonstrate leadership on this global issue by implementing the critical policies, practices and investments that will eventually reduce greenhouse gas (GHG) emissions and prepare us for some unavoidable impacts of climate change. We clearly have the most to lose. If sea-level rise is not curtailed by immediate reductions in greenhouse gases, the Florida Keys may eventually become unlivable.

The burning of fossil fuels and deforestation are causing an increase in greenhouse gases in the Earth's atmosphere, and there is a consensus among climatology scientists that this is driving unprecedented climate change. Post-industrial human activity has cumulatively created an unprecedented negative impact on global climate processes resulting in accelerated changes in climate change patterns that could threaten the future security and stability of sovereign nations

and human society.<sup>1,2</sup> The consequences are dramatic and they are already being witnessed through increases in the melting of Arctic sea ice<sup>3</sup>, an expansion of the tropical zone poleward<sup>4</sup> and the rate of sea level rise caused by melting glaciers<sup>5</sup>, the heating (thermal expansion) of the oceans<sup>6</sup> and melting ice sheets in Greenland and Antarctica<sup>7</sup>. For instance, in the last 80 years, there has been an average 9” sea level rise in south Florida.<sup>8</sup>

Numerous estimates of future sea-levels have been made on both global<sup>9</sup> and regional scales with regional South Florida planning guidance available from the US Army Corps of Engineers<sup>10</sup>, the South Florida Water Management District<sup>11,12</sup>, Miami-Dade Climate Change Task Force<sup>13</sup>, Science and Technology Committee, Broward County Climate Change Task Force Science and Technical Subcommittee<sup>14</sup> and Florida Atlantic University<sup>15</sup>.

Planning decisions for future public and private projects and adaptation efforts should base their decisions on anticipation of having to deal with sea-level rise. The regional and local sea-level rise estimates provided to date can not account for future increases in ice-sheet melting and it may be prudent to consider current estimates to be conservative and optimistic. Planning decisions should take into consideration medium to extreme sea level rise predictions.

The long-term costs of having to implement adaptation measures intended to help cope with climate change impacts due to inaction and the subsequent negative consequences to the economy, social structure and environment make it necessary to implement mitigation actions now to avoid or minimize long-term adaptation costs; even though mitigation may be costly in the short-term. We do have a chance now to prevent the worst impacts of climate change. If we act effectively, we should be able to limit both the magnitude of climate change and the severity of its impacts. The two major approaches to addressing the potential negative aspects of climate change are mitigation and adaptation. Mitigation involves actions to reduce GHG emissions to reduce the amount and speed of climate change. Adaptation involves actions to reduce the impacts of climate change on existing society and the environment. Both mitigation and adaptation strategies are contained within this document.

### **III. Task Force Recommended Actions**

The following goals and actions cover 10 subject areas that the Task Force deems significant in the implementation of green practices.

#### **1: POLICY AND COORDINATION**

***Goal 1: Create collaborative intergovernmental practices in Monroe County that serve as a tool for the County, municipalities, and other entities to reduce countywide greenhouse gas emissions to at least 20% below 2005 levels by 2020.***

##### **Action 1.1: Establish a Monroe County Office of Sustainability.**

Monroe County should establish a Sustainability Office to oversee the implementation of energy and climate change policies, initiatives, and sustainability programs, provide assistance in the coordination of local sustainability programs, and provide countywide coordination to local governments, through an identified point of contact, to develop climate mitigation and adaptation plans and implementation strategies, to aid in quantifying costs and cost-benefits for climate

change initiatives, and serve as a liaison and support for multi-county climate change strategies and agencies in which Monroe County participates. Savings from energy efficiency measures and grant monies are projected to easily fund a Sustainability Office with no adverse impact on ad-valorem taxes.

**Action 1.2: Continue support for the Monroe County Employee Green Team greenhouse gas emission reduction efforts to achieve at least 20% below 2005 levels by 2020 target adopted by the BOCC for government operations.**

Monroe County should continue support for the Monroe Employee Green Team efforts to address baseline and carbon footprint; educate employees; identify sources for future grants; and provide/advise/encourage sustainability actions, best management practices, and energy efficiency for all Monroe County government operations. A major goal of the Employee Green Team would be completion of a Climate Action Plan for governmental operations.

**Action 1.3: Continue the Green Initiative Task Force.**

Monroe County should support continuation of the Monroe County Green Initiative Task Force, or a successor entity, to assist and advise elected officials in the decision making process, to be comprised of County and municipal officials, scientists knowledgeable in the field of climate change, planning authorities and other knowledgeable individuals and guided by a staff liaison or sustainability coordinator. A community task force similar to the existing one is an ideal forum for intergovernmental coordination in the important area of addressing climate change needs in Monroe County.

**Action 1.4: Complete development of Monroe County Climate Action Plan and support the development of Regional Collaborative Climate Action Plans.**

Monroe County should complete development of its Government Operations and Community Climate Action Plans based on the recommendations of this document. The County also should continue to actively support the development of a Regional Collaborative Climate Action Plan with the neighboring counties through the Southeast Florida Regional Climate Compact to address the impacts of sea-level rise, storm events, and related climate change pressures.

**Action 1.5: Encourage all agencies and utilities operating within Monroe County to adopt sustainability plans to minimize greenhouse gas emissions.**

An example of such an effort might be to work with local utilities to research incorporation of “smart metering” and “smart load management” devices. The electric utilities should consider implementation of aggressive “demand-side” energy conservation incentive programs. Similarly, the Florida Keys Aqueduct Authority should be encouraged to implement innovation measures for increasing their energy efficiencies and reducing water withdrawals for consumptive uses.

**Action 1.6: Provide advocacy leadership for adoption of climate change policies and legislation with Local, State, and Federal entities.**

Monroe County should collaborate with local municipalities and other public and private entities to assist in the coordination, development, and implementation of a suite of planning tools and climate change mitigation and adaptation strategies. This should include establishing

action targets and reaching agreement on one or more standardized methodologies for emissions measurement and reporting.

Monroe County should continue to demonstrate leadership in advocacy for climate change issues and legislation to the National Association of Counties, Florida Association of Counties and the Florida League of Cities, and in Washington, DC and Tallahassee. Support proactive environmental and climate change public policies and standards that support adaptation funding to meet those needs.

***Goal 2: Include climate change adaptation and mitigation strategies in the Monroe County Comprehensive Plan.***

**Action 2.1: Revise Monroe County Comprehensive Plan to address strategic planning related to climate change mitigation and adaptation needs on an ongoing basis.**

The Monroe County Comprehensive Plan should include strategies to address the impacts of climate change. Adaptive management principles should be used to continually review and revise climate mitigation and adaptation policies, objectives, and Land Development Regulations. Revisions to the Plan may include:

- Create a Climate Change Element or Sub-Element within the Monroe County Comprehensive Plan which can be a model to other local government efforts.
- Address greenhouse gas reduction and energy conservation strategies that promote compact, bicycle and pedestrian-friendly development; increase public transportation; reduce reliance on automobiles, the construction of energy efficient buildings; and address the potential effects of rising sea levels, tropical storms, storm surge, and other climate change issues.
- Consider climate change impacts as a factor in determining appropriate levels of development in vulnerable areas.

**Action 2.2: Promote livable communities as identified in the Communi-Keys Master Plan.**

Monroe County should continue to support the livable communities concept which promotes functional, walk-able mixed use development designs and projects by providing flexibility in development review for these projects, revising the zoning and land development codes to allow and encourage these projects, establishing incentives for this type of development, and adopting specific goals in the Comprehensive Plan to support and establish sustainable development patterns ([www.monroecounty-fl.gov/DocumentView.aspx?DID=173](http://www.monroecounty-fl.gov/DocumentView.aspx?DID=173)).

## **2: NATURAL AND URBAN LANDSCAPE**

***Goal 1: Identify and evaluate natural environmental resources vulnerable to climate change impacts and implement mitigation and adaptation management strategies.***

**Action 1.1: Coordinate with state/regional/national strategic planning efforts on impacts of climate change to the natural environment.**

Monroe County should coordinate with other state, regional and national strategic planning efforts to prepare for climate variability and change.

**Action 1.2: Promote natural systems adaptation education.**

Promote an active communication and education strategy to help ensure the general public understands the nature of the natural system responses to climate change, the potential for decline in health of a habitat and the rationale for decisions made to tolerate or adapt to those changes. Educate residents and commercial interests on existing rules, ordinances, etc., and promote Florida-Friendly Landscaping (<http://www.floridayards.org>) along with national and international programs with appropriate non-governmental organizations.

**Action 1.3: Review climate change impacts to Everglades and marine ecosystems; support mitigation and adaptive management.**

Monroe County should review, in coordination with appropriate agencies, the impacts of climate change and sea-level rise on the Everglades and marine ecosystem and support adaptive management efforts to mitigate impacts.

**Action 1.4: Support programs to remove invasive exotic species.**

Identify and evaluate existing programs for terrestrial (plant, insect, & wildlife), freshwater and marine exotic and nuisance species management. Develop strategies to respond to potential increases in undesirable exotic and invasive species.

***Goal 2: Promote sustainable landscape practices.***

**Action 2.1: Encourage the planting and proper long-term maintenance of native flora throughout the County through amendments to the County’s Land Development Regulations.**

This will increase carbon sequestration and to help reduce energy costs. Review current buffer requirements to encourage a balance of trees, understory, shrubs, and groundcover. Reduce pea-rock and turf grass on rights of way whenever possible and replace with native ground cover, plants, and trees.

**Action 2.2: Encourage creation of new community gardens and produce markets.**

Adopt policies relating to community gardens which encourage their creation by reducing barriers and cost.

**3: INFRASTRUCTURE MASTER PLANNING**

***Goal 1: Ensure that adaptations to climate change impacts, especially sea-level rise, are incorporated into the planning of public infrastructure.***

**Action 1.1: Adopt adaptation standards for all new, renovated and rehabilitated public buildings by considering climate change and sea-level rise in their design.**

Monroe County should ensure that new, renovated and replacement public facilities and infrastructure such as streets and bridges, water and wastewater treatment plants, hospitals, city

halls, police and fire stations, and power generation facilities are designed in a manner which takes into consideration the impacts from global climate change, including rising sea-level, in coordination with sustainability.

**Action 1.2: Inventory the County-owned infrastructure at-risk and assess climate change impacts.**

Monroe County should inventory the County-owned public works infrastructure at-risk from the impacts of climate change. County agencies (and agencies that receive County funding for significant infrastructure or built investments) should assess climate impacts on the agency's/entity's responsibilities. This assessment should be incorporated into their infrastructure master planning process. The assessment should include the impact of sea-level rise and other adaptation impacts on all public investments and identification of vulnerabilities in order to produce strategies for mitigation and adaptation and a determination as to whether, when, and where projected impacts from climate change might be significant.

**Action 1.3: Evaluate coordination of regional transportation adaptation policies.**

Monroe County should evaluate coordinating transportation-related adaptation policies across jurisdictional boundaries.

## **4: WATER RESOURCES & WASTEWATER**

***Goal 1: Support conservation strategies for protection of water resources.***

**Action 1.1: Support climate change and conservation strategies of FCAA and SFWMD to protect the existing freshwater supply for Monroe County.**

Monroe County should support the inclusion of adaptation measures that address impacts from climate change in future updates of the FCAA Water Plan ([http://www.fcaa.com/alt\\_supply\\_plan.htm](http://www.fcaa.com/alt_supply_plan.htm)), the South Florida Water Management District's Lower East Coast Regional Water Supply Plan (<http://www.sfwmd.gov/portal/page/portal/xweb%20-%20release%203%20water%20supply/water%20supply%20planning>) and other regional water management activities to ensure that Monroe County's source of potable water supply is conserved and protected.

**Action 1.2: Protect Wastewater Treatment Plants and collection systems from infiltration and inflow.**

Monroe County should work in coordination with all utilities and municipalities to maintain infrastructure protection and adaptation through infiltration and inflow program development to prevent loss of groundwater and reduce the need for additional treatment requirements.

**Action 1.3: Continually evaluate the reclamation and reuse of treated wastewater relative to potential benefits in addressing climate change impacts.**

Monroe County should work in coordination with all utilities and municipalities to evaluate current plans for utilization of treated wastewater for reclamation and reuse. Reuse reduces total water withdrawals from the aquifer well fields. Wastewater infrastructure should utilize the most energy efficient technology available and feasible. The County should also evaluate technologies to better utilize wastewater byproducts to produce renewable energy.

**Actions 1.4: Encourage the use of soon-to-be-abandoned septic tanks and convert them to non-potable rainwater collection cisterns in accordance with established Florida Department of Health procedures.**

The thousands of gallons of stormwater-sequestering containers that exist in the form of soon-to-be-abandoned septic tanks are a valuable resource for reducing overall water consumption at minimal cost. Rainwater harvesting should be fully encouraged to diminish stormwater effects and to increase the supply of secure, widely distributed fresh water.

**Action 1.5: Provide support to implement water conservation measures.**

Monroe County should provide resources to assist local governments in implementing regional water conservation strategies as a water supply demand management tool.

Increase the scope and fully promote government and public water-use audits to establish a baseline and identify efficiency and conservation opportunities utilizing state-of-the-art leak detection technology among other strategies.

Work with the Monroe County Health Department to encourage and facilitate gray water use.

Require that new and replacement toilets, showerheads, and other water fixtures purchased by the County must be low-flow consistent with EPA's *WaterSense* ([www.epa.gov/WaterSense](http://www.epa.gov/WaterSense)) or *Energy Star* ([www.energystar.gov](http://www.energystar.gov)) programs.

Promote partnerships and consistent conservation policies and reduced per-capita-use goals with all users within the County including homeowner's and condominium associations.

**Action 1.6: Encourage partnerships with FKAA and all county wastewater utilities to implement energy efficiency measures.**

It takes massive amounts of water to produce energy, and it takes a lot of energy to treat and distribute water—Water is Energy. It is important for our wastewater, water and electric utilities to work to complement each others' conservation efforts to further reduce energy consumption and greenhouse gas emissions.

**Action 1.7: Support of legislation and ordinances that encourage rain water harvesting.**

Recognition of the potential and encouragement of the practice of rainwater harvesting to supplement non-potable and potable water supply should be encouraged by all levels of government. While decreasing demand through water efficiency and conservation are the primary means to protect the aquifer and reduce the associated energy consumption, harvesting rainwater can and should be fully exploited to increase the supply of water.

**Action 1.8: Require installation of rain detection system on all large irrigation systems to cease irrigation during periods of rainfall.**

Irrigation of landscape should be curtailed during rainy periods. For systems that are capable of incorporating such, rain-detection systems should be installed.

**Action 1.9: Encourage use of solar hot water systems to decrease the energy component of water use.**

Since water is energy, using solar heating for hot water production contributes to conservation.

## **5: MODELING, MONITORING AND MAPPING**

***Goal 1: Provide the Monroe County Board of County Commissioners with scientific and technical information to use in developing strategies to mitigate and adapt to the potential impacts of climate change.***

**Action 1.1: Encourage dedicated state & federal funding for modeling efforts.**

Encourage dedicated state and federal funding for modeling efforts and data gathering including monitoring of scientific data that improves our knowledge of climate change impacts for Southeast Florida and the down-scaling of global climate models to enable increased awareness of climate change predictions for Monroe County.

**Action 1.2: Participate in long-term regional modeling.**

Monroe County should participate in the long-term and regional monitoring of critical parameters to support related modeling efforts including:

- water quality (especially temperature)
- hydrologic, geologic, and groundwater quality and levels
- precipitation
- groundwater withdrawals

**Action 1.3: Support improving inundation mapping capabilities.**

Monroe County should support improved analysis and mapping capabilities for identifying areas of the county vulnerable to sea-level rise by utilizing the most recent LiDAR (Light Detection and Ranging) data. Map potential impacts of sea-level rise to the natural and built environments of Monroe County at various levels of increase (For example, 1-foot, 2-foot, and 3-foot SLR levels) and consider this information in long-term planning. Acquire updated LiDAR data or state-of-the-art elevation data every 10 years to improve available information needed to make informed decisions regarding adapting to the impacts of climate change.

**Action 1.4: Incorporate sea-level rise/storm surge impacts into maps of hazard areas.**

Monroe County should work with the Florida Division of Emergency Management and other agencies to incorporate sea-level rise and increasing storm surge impacts into its efforts to remap potential hazard areas in coastal zones. Revised coastal hazard area designations should better reflect the risks to communities associated with climate change and allow reevaluation of suitability for development in these areas. Monroe County should seek help from appropriate state agencies to examine impacts of sea-level rise on storm surges and evacuation times.

**Action 1.5: Incorporate technical support of federal and state agencies and universities on climate change scenarios.**

Monroe County should engage the support of federal agencies, such as NOAA, USGS, Federal Emergency Management Agency (FEMA), the U.S. Department of Interior, the U.S. Army Corps of Engineers (USACE), and universities that can provide technological and logistical support and work with state, county, and local planning bodies to develop regional scenarios of climate change and analyze potential changes in vulnerability.

## **6: ZONING AND BUILDING CODES**

***Goal 1: Identify measures to reduce greenhouse gas emissions through changes in building codes and practices.***

### **Action 1.1: Support Energy Code changes.**

Monroe County should support changes to Florida's Residential Energy Code recommended within the report "Effectiveness of Florida's Residential Energy Code: 1979-2009" completed by the Florida Solar Energy Center on June 15, 2009 for the Florida Department of Community Affairs ([www.fsec.ucf.edu/en/publications/pdf/FSEC-CR-1806.pdf](http://www.fsec.ucf.edu/en/publications/pdf/FSEC-CR-1806.pdf)). The Report recommends that all home energy uses be covered by the Code and that additional measures be required to increase energy efficiency in new residential construction.

### **Action 1.2: Adopt policies to encourage renewable energy projects and to incentivize projects that achieve net-zero or low levels of energy use that exceed the Florida Building Code requirements.**

Homeowners, businesses and builders need guidance and assistance in creating homes and offices that minimize the use of non-renewable energy. The creation of net-zero buildings is the right goal for Monroe County residents that can only be facilitated by appropriate policies and assistance from local governments, their departments, and the local utilities.

### **Action 1.3: Explore permitting fee incentives for renewable and alternative energy installations.**

Implement expedited permitting processes, such as checklists, to minimize time delays in the permitting, construction and inspection aspects associated with energy-related projects.

Develop an incentive program within the Monroe County Building Department permit fee schedule to reduce permit fees for renewable and alternative energy installations for a minimum of 5 years. Identify any permitting issues that may inhibit development of alternative and renewable energy installations such as solar and work to remove barriers.

### **Action 1.4: Encourage green and climate impact resistance construction practices.**

Monroe County should encourage greener, more efficient, and more durable construction practices locally by establishing an ongoing process to address local zoning and building code requirements that recommend the following:

1. Adopt a municipal green building ordinance similar in scope to the Florida State Green Building Model Ordinance which addresses incentives for green building and adaptation for climate change ([www.southernbuildings.org/resources/pdfs/Model\\_Green\\_Building\\_Ord.pdf](http://www.southernbuildings.org/resources/pdfs/Model_Green_Building_Ord.pdf)).

2. Encourage builders to construct all new and renovated buildings to meet green building standards to be developed in the green building ordinance;
3. Encourage each municipal building department to have at least one "green" accredited official on staff within a two-year time frame;
4. Encourage licensed personnel in each building department to have continuing education units (CEUs) of emerging energy efficiency and renewable energy technologies with the next two-year cycle;
5. Incorporate RFP specifications that will require accredited individuals on design teams and incorporation of green building practices.

***Goal 2: Incorporate energy efficient design, construction, maintenance standards and waste reduction through the use of regulation, education and incentives.***

**Action 2.1: Encourage Green Practices in Florida Building Code.**

Encourage a group of practitioners in energy efficiency and renewable energy technology to identify barriers to approval/installation/industry construction practices in the current code and propose recommendations for removal of these barriers from the state code.

**Action 2.2: Develop and implement adaptive planning and zoning policies, regulations and programs to ensure that appropriate land use, construction and redevelopment activities address the potential impacts of sea-level rise and hurricane intensity on Monroe County's economy and infrastructure.**

Establish an ongoing process to review local and regional zoning and building code requirements implemented by other counties, determine their applicability to Monroe County, and adopt as a local code when appropriate regarding the need for resilience of existing and proposed structures in areas at risk to inundation and climate change.

## **7: MASS TRANSIT/VEHICLE MILES TRAVELED**

The overall vision of this element is to have a functional mass transportation system throughout Monroe County for travel from island to island and low-carbon transportation alternatives within each of the island communities.

***Goal 1: Support programs and infrastructure that will reduce the current level of vehicle miles travelled and the amount of carbon emissions.***

The more the County is able to encourage transit use, the less people will be dependent on cars, which will result in a reduction in CO<sub>2</sub> emissions. Economic and energy savings for travelers will occur because dependency on oil for personal transportation will be reduced.

**Action 1.1: Create a functional mass transportation system with a dedicated source of funding.**

Monroe County should create a functional mass transportation system by:

1. Creating a dedicated funding source for public mass transit, supporting existing state and federal funding efforts, and pursuing additional local transit funding opportunities.
2. Coordinating with the municipalities and the South Florida Regional Transportation Authority to improve the mass transit system functions on a regional level allowing Keys residents effective mass transit access to the entire county and mainland locations;
3. Providing the infrastructure and support facilities to encourage and enhance the use of mass transportation.

**Action 1.2: Establish video conferencing facilities to allow residents and employees to participate in advisory and commission meetings without having to drive long distances.**

This action would significantly reduce miles traveled within the county and travel costs for both residents and employees. The time saved would also increase government and business productivity.

**Action 1.3: Enhance bicycle and pedestrian use and safety.**

1. Develop a countywide bicycle/pedestrian plan integrated with the FDEP Overseas Heritage Trail.
2. Provide more bicycle routes and bike racks throughout the County.
3. Provide bicycle and pedestrian ways for connecting residential areas to recreational areas, schools, shopping areas and employment areas.
4. Promote a bike share program.

**Action 1.4: Encourage creation of a Florida Keys Electric Highway.**

The installation of fast-charging stations throughout the Florida Keys along US 1 would facilitate the increase use of electric vehicles by both residents and tourists. The creation of a Florida Keys Electric Highway would greatly complement the current designations of the Florida Keys Scenic Highway and the Overseas Heritage Trail.

## **8: RENEWABLE AND ALTERNATIVE ENERGY**

***Goal 1: Support the expansion of renewable and alternative energy sources and remove the barriers to projects that support sustainability.***

**Action 1.1: Support legislation to establish a minimum 20% renewable portfolio standard.**

Monroe County should support state legislation which is consistent with the 2008 Florida Energy and Climate Change Action Plan to establish a 20% renewable portfolio standard for 2020. Additionally support a “carve out” of a certain percentage of the Renewable Portfolio Standard for distributive and solar energy as “Renewable Distributive.”

**Action 1.2: Encourage use of alternative fuels and alternative fuel vehicles.**

1. Promote electric vehicles or shuttle services for within island transportation and provide leadership by adopting electric vehicles in the mc fleet.

2. Encourage accessible “plug in” locations for electric vehicles in new development projects or major renovations.
3. Encourage use of alternative or lower carbon fuels and synthetic oils in existing vehicles.

***Goal 2: Promote and support actions to increase the proportion of electricity generated by alternative and renewable energy, including, but not limited to solar power from residential, commercial and municipal properties within Monroe County’s geographic boundaries.***

**Action 2.1: Implement a Property Assessed Clean Energy Program for Monroe County residents and businesses.**

In 2010, the State of Florida established the framework for dependent special districts, municipalities and county governments to implement low-interest PACE (Property Assessed Clean Energy) financing programs to advance implementation of renewable energy, energy efficiencies, and hurricane mitigation measures on homes and businesses through HB 7179, amending Chapter 163, F.S. A PACE program in Monroe County would significantly create local jobs, increase property values and reduce greenhouse gas emissions within the county.

**Action 2.2: Evaluate feasibility for installation of renewable energy systems on all County owned facilities.**

This effort could involve collaborations with utilities or other agencies.

**Action 2.3: Encourage the electrical utilities, Florida Keys Electric Cooperative and Keys Energy Services to adopt practices to increase use of renewable energy.**

The utilities should be encouraged to implement incentive programs to increase the use of renewable energy within the county and minimize the use of coal as a fuel source immediately. Of all the available fossil fuels, coal burning for electrical generations emits, by far, the most greenhouse gas into the atmosphere. Recognize and support local utilities which build their own renewable energy facilities such as Florida Keys Electric Cooperative’s simply solar program (<http://www.fkec.com/Green/SimpleSolar.cfm>).

***Goal 3: Assess feasibility of generation of electricity by wind, geothermal and ocean energy technologies.***

**Action 3.1: Support local alternative energy research.**

Support efforts to research and implement all alternative energy technologies that have the potential to reduce greenhouse gas emissions.

**Action 3.2: Encourage wind studies and remove barriers to wind projects as appropriate.**

Evaluation of wind potential in Monroe County is needed. Our proximity to the prevailing ocean breezes may make both onshore and offshore wind energy feasible. Determine if development or other permitting inhibits increased use of onshore and offshore wind installations and work to remove barriers. Work cooperatively with municipalities and other agencies to develop consistent permitting requirements for wind projects.

## **9: RECYCLING & ZERO SOLID WASTE**

### ***Goal 1: Reduce waste disposal 75% by 2020 based on 2005 levels.***

This goal will be tracked as part of the ongoing greenhouse gas monitoring program established by Monroe County.

#### **Action 1.1: Adopt environmentally preferable purchasing policies within Monroe County government operations and encourage the same among other agencies and local businesses.**

Monroe County should adopt Environmentally Preferable Purchasing Policies that utilize the collective buying power of local governments to purchase products made with recycled materials and reduce packaging and toxicity, and provide a model for business and other organizations.

#### **Action 1.2: Adopt a Zero Waste 10-year Bridge Plan to establish goals and set time frames for implementation.**

Consider adoption of the Zero Waste 10-year Bridge Plan as developed by Eco-cycle in Colorado ([www.ecocycle.org](http://www.ecocycle.org)).

#### **Action 1.3: Support extension of U.S. EPA's WasteWise partnership.**

Support extension of U.S. EPA's WasteWise partnership program to Monroe municipalities, educational institutions and businesses (<http://www.epa.gov/epawaste/partnerships/wastewise/index.htm>).

#### **Action 1.4: Recognize the EPA waste hierarchy for establishing waste handling priorities.**

Officially recognize EPA Waste Hierarchy that designates priorities for handling waste: source reduction, reuse, recycling, waste-to-energy, disposal, and encourage all Monroe municipalities to adopt same ([www.epa.gov/wastes/nonhaz/municipal/index.htm](http://www.epa.gov/wastes/nonhaz/municipal/index.htm)).

#### **Action 1.5: Support Extended Producer Responsibility programs.**

Support Extended Producer Responsibility programs that make manufacturers of certain consumer products responsible for them at the end of life. Target electronics, fluorescents, household hazardous wastes, paint, etc. ([http://en.wikipedia.org/wiki/Extended\\_producer\\_responsibility](http://en.wikipedia.org/wiki/Extended_producer_responsibility)).

#### **Action 1.6: Implement plan to increase residential, organic and commercial recycling rate to at least 50% based on a 2005 baseline rate**

([http://www.dep.state.fl.us/waste/categories/recycling/SWreportdata/08\\_data.htm](http://www.dep.state.fl.us/waste/categories/recycling/SWreportdata/08_data.htm)).

To further achieve a recycling rate of 50%, Monroe County, in collaboration with all its municipalities, should consider these additional measures, including those which ensure consistency with Monroe County's Comprehensive Plan proposed Solid Waste element ([www.monroecounty-fl.gov/DocumentView.aspx?DID=32](http://www.monroecounty-fl.gov/DocumentView.aspx?DID=32)).

## Residential Recycling

1. Implement use of residential recycling incentives, such as the programs, RecycleBank (<http://www.recyclebank.com/about-us>) and Recycle Rewards (<http://www.rrewards.com>).
2. Develop and implement actions that provide for increased on-site recycling at multi-family properties.
3. Consider and review adoption of mandatory residential participation ordinances.
4. Expand network of municipal recycling drop-off centers to supplement curbside recycling and on-site multi-family recycling efforts.
5. Support state and federal beverage container deposit initiatives (e.g., Bottle Bills--<http://www.bottlebill.org>) which include linkage of unredeemed deposits dedicated to Recovered Material Processing Facilities (MRF) and municipal recycling program recovery efforts.
6. Expand electronics recycling recovery and services through an increase in electronics recycling-Household Hazardous Waste joint events, electronics-only events, permanent public drop-off sites and promotion of alternate electronics recycling options (retailer take-back) (<http://www.epa.gov/osw/consERVE/materials/ecycling/donate.htm>).
7. Establish 1-1-1 (once weekly garbage, recyclables and yard waste collections), or variable rate (Pay as You Throw or "PAYT") solid waste and recycling collection systems. (<http://www.epa.gov/epawaste/consERVE/tools/payt/index.htm>).

## Organic Waste Recycling

1. Establish organics processing and markets infrastructure to accept green waste, woody wastes and other organics Support composting and mulching.
2. Extend green waste recycling to residences through modification of municipal solid waste franchise agreements to provide separate collections of yard waste and possibly other organics (food waste and contaminated paper). Establish and support increased recycling of yard waste at residential drop-offs.
3. Establish programs to implement food waste recycling and composting programs including food generated by supermarkets, schools, institutions or large commercial food preparation settings to appropriate facilities for composting.
4. Direct the processing and recycling of green and woody waste generated from road and right-of-way maintenance.

## Business and Institutional Recycling

1. Enhance or establish recycling programs at Monroe County agencies, Key West and Marathon Airports, Monroe County Public Schools, municipal government buildings and facilities, and other public institutions.
2. Expand or establish recycling at commercial establishments through, incorporation of commercial recycling service rates into municipal franchise agreements and allowance for "right-sizing" of commercial solid waste service through revision of ordinances (if necessary).
3. Extend or expand public place recycling including at parks, sports venues, tourist destinations, beaches, transportation hubs, shopping areas, streetscapes, etc.
4. Require food and beverage container recycling and possibly food waste recycling at all bars, restaurants and institutions with food services (schools, college campuses, hospitals and prisons).

## Construction and Demolition (C&D) Debris Recycling

1. Require pre-processing of C&D as an element of franchise/license agreements, building permits or ordinances with possible incentives (fee rebates). Link C&D recycling (on-site or off-site), and use of recycled building materials within a pre-disposal processing requirement with extension of green building credits.

## **10: BUSINESS AND WORKFORCE DEVELOPMENT**

***Goal 1: Expand local green workforce and business opportunities through training and business development initiatives.***

### **Action 1.1: Explore enhancement of Workforce Development in energy-related areas.**

Green industries grow the local economy. Therefore, green job training and retraining must be priority issues for the County. Look for funding opportunities to support curriculum development to assist the FKCC in developing a two-year pilot program to train students in energy management and installation of renewable energy, especially photovoltaic and thermal solar technology.

### **Action 1.2: Enhance Sustainable Business Development.**

Initiate a Sustainable Business Development effort to encourage growth of green businesses. This could include evaluation of opportunities to provide incentives for green business development and to create economic and similar other incentives to encourage environmental (green) businesses to relocate to the county. Coordinate and partner with local chambers of commerce to establish “green” initiatives.

## **IV. Conclusion**

Counties across the nation are embracing sustainability by investing in renewable energy, updating and expanding their recycling programs, transitioning their vehicles to electric and bio-fuel sources, purchasing green products, creating green spaces, and transitioning to local and organic food sources. These investments allow counties to remain competitive in a global market, protect their environments, and strengthen their communities.

The adoption of this document will be an important tool in moving forward with the community climate action plan. The climate action plan will use the goals identified in this document to make specific and measureable recommendations for actions on the community level. The completion of the Monroe County Climate Action Plan will help the County to qualify for federal and state funding to address sustainability and climate issues. The Green Initiative Task Force unanimously supports the items in this document and recommends adoption by the Board of County Commissioners.

# APPENDIX A

The Green Initiative Task Force:

## Advisory Board Members

|                         |            |                     |                              |
|-------------------------|------------|---------------------|------------------------------|
| Les Faust               | District 1 | Geraldine Zahn      | City of Key Colony Beach     |
| Christopher Fogarty     | District 1 | Thomas Bray         | City of Layton               |
| Chuck Sherman           | District 2 | Gerry Albertson     | Village of Islamorada        |
| David Tuttle            | District 2 | Annalise Mannix     | City of Key West             |
| Jedde V. Regante, Chair | District 3 | Lynne Tejada        | Keys Energy Services         |
| Donna Windle            | District 3 | Julie Cheon         | Fla. Keys Aqueduct Authority |
| Steven Grasley          | District 4 | Patti Childress     | City of Marathon             |
| Jeffrey Pinkus          | District 4 | TJ Patterson        | Florida Keys Electric Coop   |
| Joel Reed, Vice Chair   | District 5 | Michael Giardino    | United States Navy           |
| John Hammerstrom        | District 5 | Mayor Sylvia Murphy | MC BOCC                      |

## Staff Support

|                   |   |
|-------------------|---|
| Alicia Betancourt | Community Development Extension Service Agent                             |
| Abra Campo        | Senior Administrative Assistant, Office of County Administrator           |
| Nat Cassel        | Assistant County Attorney   |
| Doug Gregory      | Extension Service Director ( <i>primary contact: drg@ufl.edu</i> )        |
| Rich Jones        | Marine Resources Director (Green Building Task Force)                     |
| Linda Painter     | Administrative Assistant, Building Department (Green Building Task Force) |
| Joe Paskalik      | Senior Building Official (Green Building Task Force)                      |
| Michael Roberts   | Environmental Resources Senior Administrator                              |
| Robert Stone      | Middle Keys Public Works Director   |

# REFERENCES

---

- <sup>1</sup> Global Business Network. 2007. Impacts of climate change: A system vulnerability approach to consider the potential impacts to 2050 of a mid-level greenhouse gas emissions scenario. Copies available at <http://www.gbn.com/articles/pdfs/GBN%20Acting%20on%20Climate%20Change.exec%20summary.pdf>.
- <sup>2</sup> The CNA Corporation. 2007. National security and the threat of climate change. Available from [www.securityandclimate.cna.org](http://www.securityandclimate.cna.org).
- <sup>3</sup> Vermeer, M. and S. Rahmstorf. 2009. Global sea level linked to global temperature. PNAS 106(5):21527-21532.
- <sup>4</sup> Seidel, D.J., Q. Fu, W. J. Randall, T. J. Reichler. 2008. Widening of the tropical belt in a changing climate. Nature Geoscience 1:21-24
- <sup>5</sup> Milne, G. A., W. R. Gehreis, C. W. Hughes and M. E. Tamisiea. 2009. Identifying the causes of sea-level change. Nature Geoscience. 2:471-478
- <sup>6</sup> Bindoff, N.L. and others. 2007. Observations: Oceanic climate change and sea level. In Climate change 2007: The physical science basis. Contributions of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Solomon, S. and others (eds.) Cambridge University Press.
- <sup>7</sup> Cazenave, A. And W. Llovel. 2010. Contemporary sea level rise. Annual Reviews in Marine Science. 2:145-173.
- <sup>8</sup> Miami-Dade County Climate Change Task Force, Science and Technology Committee. 2008. Statement on sea level in the coming century. 9 pages.
- <sup>9</sup> Bindoff, N.L. and others. 2007. Observations: Oceanic climate change and sea level. In Climate change 2007: The physical science basis. Contributions of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Solomon, S. and others (eds.) Cambridge University Press.
- <sup>10</sup> US Army Corps of Engineers. 2009. Water resource policies and authorities incorporating sea-level change considerations in civil works programs. US Army Corps of Engineers Circular 1165-2-211.
- <sup>11</sup> South Florida Water Management District and U. S. Army Corps of Engineers. 2004. CERP Guidance Memorandum: Sea level rise considerations for formulation and evaluation of CERP protocols. CGM 016-00. 9 pages.
- <sup>12</sup> South Florida Water Management District. 2009. Climate change and water management in South Florida.. Interdepartmental Climate Change Group, South Florida Water Management District. 20 pages.
- <sup>13</sup> Miami-Dade County Climate Change Task Force, Science and Technology Committee. 2008. Statement on sea level in the coming century. 9 pages.
- <sup>14</sup> Anonymous. 2009. Recommendations on sea level rise. Broward County Climate Change Task Force Science and Technical Subcommittee Report. 14 pages.
- <sup>15</sup> Heimlich, B. N., Bloetscher, F., Meeroff, D. E., & Murley, J. 2009. Southeast Florida's resilient water resources: Adaptation to sea level rise and other climate change impacts. Florida Atlantic University. [http://www.ces.fau.edu/files/projects/climate\\_change/SE\\_Florida\\_Resilient\\_Water\\_Resources.pdf](http://www.ces.fau.edu/files/projects/climate_change/SE_Florida_Resilient_Water_Resources.pdf)