



Broward County Community Energy Strategic Plan (CESP)

The CESP sets goals, establishes prioritized objectives, and recommends immediate and short-term actions for the Broward community to address climate change through energy.



CESP Leadership Team
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Addendum A- Broward County Energy Profile

Addendum B – Broward County Renewable Energy Action Plan (REAP)



Introduction

Energy efficiency and increased use of renewable energy sources are required for significant community-wide reductions in fossil fuel energy use in Broward County. The Broward County Commission resolution 2014-054 sets goals for increasing energy efficiency 20% by 2020, and increasing the consumption of energy through renewable sources 20%. These goals are intended to reduce greenhouse gas (GHG) emissions and increase the County's resilience to climate change. Additionally, the goals serve to address the recommendations included in the Broward County Climate Action Plan, and the Regional Climate Action Plan developed by the Southeast Florida Regional Climate Change Compact.

The Community Energy Strategic Plan (CESP) presents a community energy profile, prioritizes goals and objectives, and recommends immediate and short-term actions for Broward County community-wide reduction of the overall energy use with proposed actions focused on increasing efficiency, encouraging use of renewable energy sources and effecting behavioral change related to transportation use.

The three key focal areas for action in the CESP are:

1. Increase in Energy Efficiency
2. Expansion of Renewable Energy Use
3. Multi-modal, Efficient and Sustainable Transportation

As part of the development process for the CESP, a team of community leaders met regularly to develop a strategy that incorporated the vision for an energy resilient community. The review of local and regional plans provided the basis for the prioritization of recommended actions that, if implemented, will help our community toward becoming a more energy efficient, environmentally conscious, and resilient to climate change. As such, the recommendations and actions in the CESP are consistent with current initiatives underway by the County and the Southeast Florida Regional Climate Compact.



Community Energy Strategy Development

Broward’s community energy strategic planning process began in 2013, with Broward County Environmental Planning and Community Resilience Division staff participating in the Department of Energy’s Community Energy Strategic Planning Academy, and the subsequent development of the Broward Energy Profile (Addendum A). The energy profile establishes a reasonably accurate energy baseline for the county.

Upon completion of the energy profile, a team of community stakeholders was formed, referred throughout this document as the “CESP Leadership Team.” The CESP Leadership Team was established to assimilate local knowledge and assure the goals and strategies presented in the plan reflect broad buy-in. Members represent a broad cross-section of the Broward community with representation from municipalities and concerned residents to the education sector, energy industry, transportation sector and the local utility.

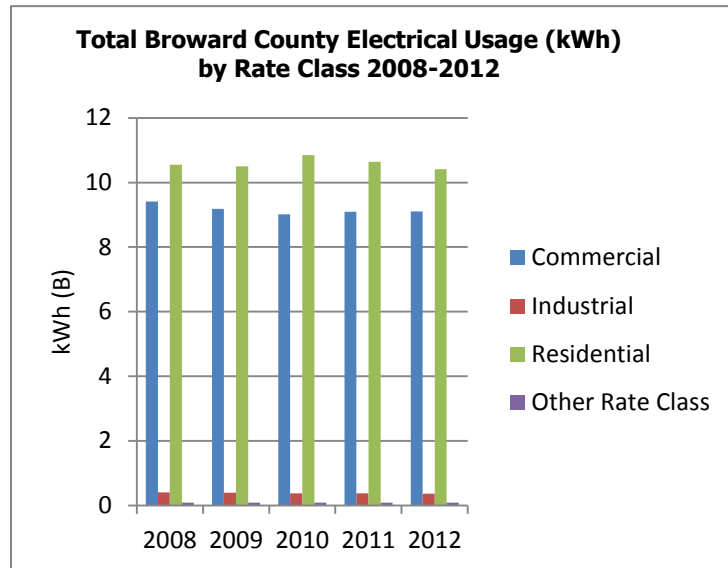


Figure 1 - Electricity consumption in Broward County for 2008-2012 (Source: FPL)

Beginning in March 2014, monthly workshops were convened for the CESP Leadership Team. Workshops were coordinated around themes consistent with the steps provided by the U.S. Department of Energy. Decisions and recommendations advanced with general consensus from the team. Discussions focused on energy and resources, strengthening operations, and ensuring a community-wide approach toward common goals. The team established agreement around intended outcomes/results that can be assessed and adjusted in response to a changing environment. For this reason, the CESP is meant to be an ongoing work-in-progress for the community with annual evaluations.

The CESP contains goals aligning local and regional plans, and recommendations for specific immediate and short-term action summarized under the following key themes: **energy efficiency**, **renewable energy** and **transportation**. It has been developed with the best information available to the CESP Leadership Team.



1.1 CESP Leadership Team

The development of the Community Energy Strategic Plan (CESP) was facilitated by staff from the Broward County Environmental Protection and Growth Management Department, Environmental Planning and Community Resilience Division (EPCRD).

CESP Leadership Team Members:

Broward County Climate Change Task Force Members:

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1.2 Community Vision for Energy Strategy

Broward County, as a community, has the potential to save a significant amount of energy through efficiency and conservation. And with a more balanced transportation system, people would have opportunities to make more trips by walking, bicycling, and riding transit and rely less on auto travel. If we are going to meet the community's greenhouse gas targets, all forms of energy (electricity and fuel) must be used wisely and efficiently so our buildings and vehicles can do more with less.

The CESP sets a vision for Broward County to demonstrate community climate resilience by implementing best practices promoting energy efficiency and conservation, and increasing use of renewable energy sources. A community that is climate resilient is better able to recover from disasters and disruptions in a sustainable way and adapt to a new sustainable state. For a community to be considered energy resilient it has to achieve greater energy independence by transitioning to renewable forms of energy, protecting against price spikes, and ensuring more reliable power during possible disruptions. An energy resilient community also includes energy efficiency and conservation programs for the community to help save energy and funds. An example of efficiency would be reducing the electricity-grid demand during severe weather events,

Broward County is evolving toward a climate resilient community by promoting a culture of energy conservation, efficiency and increased use of renewable energy sources.



during the summer months or post hurricanes. Moreover, an energy resilient community strengthens the local economy by ensuring reliable access to energy, safeguarding business, and creating jobs in the clean energy sector.

1.3 Alignment to Local and Regional Plans

On November 13, 2008, the Broward Board of County Commissioners adopted Resolution 2008-822, establishing a community-wide greenhouse gas (GHG) emissions target of 80% below the 2007 baseline by 2050, setting a total GHG emission target for Broward County of 4,721,729 tons of eCO₂. Subsequent commitments have included establishment of a regional GHG emissions reduction goal of eighty-two percent (82%) below 2010 levels by 2050 in the Climate Change Element of the Broward County Comprehensive Plan and support for renewable energy development in the County's Climate Change Action Plan and the Compact's Regional Climate Action Plan.

Since 2008, our community has achieved major milestones, such as conducting a greenhouse gas emissions analysis with baseline inventory and forecast, establishing a reduction target, developing a climate action plan, implementing a climate action plan, and monitoring progress and reporting results.

The Community Energy Strategic Plan (CESP) takes an integrated approach to aligning both regional and local plans and comes out of the Broward County Climate Change Task Force's desire to support the national movement on climate change. Recently, Broward County government enacted Resolution 2014-054 "supporting President Obama's Climate Action Plan, Congressional action on climate change, continued engagement with the Southeast Florida Regional Climate Change Compact and federal government, adding goals for using renewable energy, reduction of energy usage, and incorporating renewable energy projects into buildings and operations." The Resolution which passed on February 4, 2014, sets goals for 20% use of energy from renewable energy sources and for 2.5% annual improvements in the energy efficiency of County buildings by 2020. To advance the resolution, a Broward County Renewable Energy Action Plan was developed to advance and encourage future renewable energy projects within county operations symbiotically with the CESP. Both plans support Broward County goals through reduction in total energy use, and in furtherance of the community's greenhouse gas (GHG) targets.



Figure 2 - Local and Regional Plans Assessed for CESP



The CESP Leadership Team, working from a matrix of goals and objectives, ranked goals relating to energy and transportation, and then streamlined and prioritized objectives. The matrix was created concentrating goals from various plans including the Broward County Climate Action Plan, City of Fort Lauderdale Sustainability Action Plan, Greater Fort Lauderdale Alliance Six Pillars, Southeast Florida Regional Climate Action Plan, US Green Building Council South Florida Chapter Broward Branch 2030 Roadmap, and the South Florida Regional Planning Council Economic Development Strategy. These local and regional plans have been vetted within the community and are in various stages of implementation. Links to all the plans listed are available on the “Additional Resources” page at the end of this document.

Policy 19.3.1.	Additionally, the CESP supports the Climate Change Element, adopted by the Broward County Board of County Commissioners in February 2013, as part of the County’s Comprehensive Plan, and the County’s Land Use Plan with a climate amendment. The Element contains a broad range of policies that aim at protecting residents, businesses, property, natural resources, and key infrastructure from extreme weather and rising sea levels. The policies are designed to institutionalize these considerations as part of the capital improvement, planning and design processes in the areas of transportation, buildings and infrastructure to increase energy efficiency and reduce greenhouse gas emissions.
Policy 19.3.2.	
Policy 19.3.3.	
Policy 19.6.1.	The recommended actions in the CESP relate to several sections of the Climate Change Element from <i>Mitigation, Protection and Adaptation within the Built Environment, Greenhouse Gas Emissions Reduction, Renewable Energy Production and Distribution, Social Considerations, Public Health and Education Mitigation, to Protection and Adaptation within the Transportation System</i> . Furthermore, the actions support a number of specific policies within the Climate Change Element, see Figure 3 for the list of policy numbers relating to energy efficiency , renewable energy , and transportation .
Policy 19.1.3.	
Policy 19.8.1.	
Policy 19.8.2.	
Policy 19.2.1.	
Policy 19.2.2.	
Policy 19.2.3.	
Policy 19.2.5.	
Policy 19.2.7.	

Figure 3 - Climate Change Element Policies relating to CESP recommended actions.



2 Community Energy Strategic Plan Objectives

The CESP Leadership Team recognizes that meeting the goals and objectives in this plan requires the cooperation and teamwork of multiple sectors of the Broward community and economy. The CESP hopes to engage the entire community to empower and transform, from the public sector, civic sector, private sector and the various groups and agencies within those sectors.

Developing a sustainable funding and financing strategy will be imperative for future measures of the CESP. Fulfilling the objectives and reaching the overarching 20% efficiency and renewable goals will require conventional and innovative approaches to find alternative funding options which may include committed county budget support, grant and loan support from external sources or public-private partnerships. The stakeholders with financial interests that should be involved in developing the funding strategies include regional/state officials, utilities and representatives from local financial institutions, including banks, credit unions, foundations, and bonding authorities.

As a first step, the CESP aims to focus goals from various local and regional plans, stimulate communication and identify tools and best practices relevant to the local community for adapting to climate change. The CESP Leadership Team ensured all objectives, and actions recommended in the CESP align with Broward County Climate Action Plan (CCAP) goals. The CESP objectives are more long-term, whereas the actions identify short-term opportunities to reduce carbon emissions. The CESP prioritizes two principal objectives for the community under the categories of **energy efficiency**, **renewable energy** and **transportation**. Objectives are detailed in the following sections of the plan. It is important to note that action must be taken within each of these categories because addressing one alone is not sufficient to reach the goals.



Figure 4 – Summarized Objectives for Energy Efficiency, Renewable Energy and Transportation.



2.1 Energy Efficiency

Energy efficiency is using less energy to provide the same service. For example, replacing old appliances like an air conditioner with a newer high-efficiency model will provide the same service but use less energy to keep your home cool. Energy conservation, however, is reducing or going without a service to save energy. For instance, using natural daylight instead of turning on a light conserves energy. Both energy efficiency and conservation are by far the cheapest “source” of energy and by their nature directly contribute to lowering the community’s carbon footprint. A 20% reduction in energy use communitywide would reduce Broward’s carbon footprint by 2,481,346 tons of eCO₂.¹

The CESP Energy Efficiency Goal:

Reduce energy use 20% by 2020 countywide with efficiency and conservation measures through education, regulation, and incentives.

Reducing energy consumption across the county will take a combined effort from municipal, residential and commercial entities. Actions necessary fall into two categories: **1) building a culture of energy efficiency and conservation within the county’s municipal, commercial, institutional and residential communities, and 2) increasing the energy efficiency and conservation of municipal, residential, and commercial buildings.**

CESP Energy Efficiency Objective 1:

1. Launch energy awareness campaigns to enhance knowledge, in residential and commercial sectors, of consumption patterns, energy efficiency opportunities, and available funding sources. *(Relates to CCAP Goals: MI-1, MI-2, PC-1, RA-2, RZ-2, ZB-3)*

Awareness leads to knowledge which can lead to behavioral change, and changed consumption patterns, when mixed with education and incentives. Additionally, by reducing energy consumption and increasing efficiency it contributes to other local government environmental objectives, such as resource conservation. For example, installing an ENERGY STAR labeled dishwasher in a kitchen to reduce energy costs can also help reduce water utility bills and decrease the amount of water used.

- Adopting broad-based programs to promote efficiency and conservation, using all available tools and marketing consistent message through comprehensive planning and school district curricula is crucial. Programs that promote energy efficiency and conservation are an important part of attaining energy resilience.
- Financing solutions are emerging for property owners; it will be important for Broward to initiate new financing programs to help homeowners make vital energy efficiency upgrades. The CESP Leadership Team supports implementation of a countywide Property Assessed Clean Energy (PACE) Program. Encouraging incentives and/or rebates for energy conservation,

¹ Based on data from the Broward County Communitywide Greenhouse Gas (GHG) Emissions Inventory for 2010.



efficiency and renewable energy could also include rebate programs which might offer participants rebates per watt or for installation of energy efficient appliances. The local utility, Florida Power & Light, is an important partner in this effort by providing its customers with electricity demand reduction programs like free home energy audits, and assistance with efficient appliances and renewable energy installations.

CESP Energy Efficiency Objective 2:

2. Take steps to improve the energy efficiency and conservation of buildings across sectors through increased collaboration, education, and regulation. *(Relates to CCAP Goals: MI-1, ZB-1, ZB-3, ZB-3.1)*

From schools to large office buildings and local shops, commercial buildings can be improved to be more energy efficient. Although diverse in their size and structure, across building types energy efficiency and conservation concepts are consistent. Energy use in virtually any Florida building can be cost-effectively reduced by at least 15-30%, saving building owners thousands of dollars over the life of their buildings.²

- Promoting best practices in residential and non-residential buildings in energy efficiency through continued benchmarking and recognition. Maintaining an online hub for energy information, cataloging and sharing best practices online, and showcasing incentive programs.
- Researching local building codes may provide opportunities to increase efficiency measures. Energy consumption in buildings accounts for one-third of all the energy used in the United States and two-thirds of the total electricity demand.³ Energy benefits of building codes include saving on energy bills, reducing peak energy demand, and improving system reliability.

Future Action: This initial CESP covers a subset of energy efficiency related strategies to address GHG emissions reduction. Activities not mentioned in the CESP may also be underway and may be further elaborated in subsequent updates to this plan. Developing partnerships with the real estate industry to create a home rating system or further energy disclosure particularly in the sale of property may be a subject addressed in future actions of the CESP.

² According to the Florida Solar Energy Center <http://fsec.ucf.edu/en/consumer/buildings/>

³ Source is U.S. Environmental Protection Agency (EPA)



2.2 Renewable Energy

Renewable energy is energy from a source that is not depleted when used, such as wind or solar power. For instance, solar energy is a safe, clean, and abundant energy resource. It reduces dependence on fossil fuels, and eases demand on the power grid. Florida has 85% of the maximum solar photovoltaic (PV) potential of any place in the country.⁴

CESP Renewable Energy Goal:

Promote and support actions to increase the proportion of electricity generated by alternative and renewable energy, for residential, commercial and municipal properties 20% by 2020.

In order to begin our shift toward a renewable energy future, both community awareness and financial incentives must be initiated through two main strategies: **1) creating awareness for renewable energy through education and community installations**, and **2) increasing access to renewable energy**.

CESP Renewable Energy Objective 1:

1. Promote community awareness and education through public and private initiatives for renewable infrastructure installations. *(Relates to CCAP Goals: MI-1, PC-1, RA-1, RA-1.2, RA-2, ZB-3)*

There is a need to change public perception of renewable energy in our community. Instrumental to the success of the CESP will be a combined effort of community engagement and outreach to diverse stakeholders, including utilities, regulators, policymakers, planning and zoning officials, building officials, businesses, solar installers, and residents. Tackling public perception will require more than one effort, and persistent messaging.

- Coordinating the use of current renewable energy installations as teaching tools through educational and outreach elements, such as information kiosks, real-time online tracking, and tours of the facilities is needed. Installing solar energy systems at community gathering places such as local schools and universities, in parks, arenas, or malls could help advance local culture for renewable energy. A new voluntary, community-based, solar partnership pilot from Florida Power & Light (FPL) is being considered by the Florida Public Service Commission (PSC). If approved, FPL will install new solar-powered generating facilities in Florida communities, funded by voluntary contributions from FPL customers potentially supporting the construction of as many as 25 commercial-scale, distributed solar arrays.
- Promoting renewable energy through awareness campaigns is a major objective of the Go SOLAR program. Go SOLAR is an online, one-stop information portal for solar energy in the community. The site provides links to solar information resources; local policies, regulations,

⁴ According to the Florida Solar Energy Center http://fsec.ucf.edu/en/media/enews/2007/2007-04_Sunshine_state.htm



and permitting information. Collaborating with ongoing efforts for broader reach is essential; the GoSOLAR effort in Broward could be supplemented with renewable energy maps, local solar recognition programs, regular public workshops, and an awareness campaign dedicated to engaging the community to use the site. Additionally, an important addition should be the development of a solar curriculum in partnership with educators and local schools that could be made available through the GoSOLAR initiative.

CESP Renewable Energy Objective 2:

2. Remove barriers to renewable energy installations through local codes and guidelines, streamlined permitting process, and convenient, attractive financing options. *(Relates to CCAP Goals: MI-1, MI-2, RA-1, RA-1.3, RA-2, ZB-1, ZB-3, ZB-3.1)*

The installed cost of solar has dropped from \$11 per watt in 1998 to less than \$4 per watt in 2011,⁵ but a survey in Broward showed the cost of installing and maintaining a solar PV system remains the highest concern and continues to pose a major barrier to widespread adoption of renewable energy technology⁶. A range of financial incentives from federal, state, and local governments, as well as utilities, could help level the playing field for solar and offset the initial up-front costs of PV systems. These include grants, rebates, low-interest loans, and tax credits.

- Streamlining regulations and developing an expedited permitting process encourages the use of renewable energy, and is one of the objectives of the GoSOLAR Broward Rooftop Challenge program. GoSOLAR makes it easier for Broward County residents and businesses to convert to solar energy by reducing the cost and wait time associated with the installation of photovoltaic rooftop solar systems through its “ePermit” system. Promoting current programs and collaborating on outreach initiatives for a community-wide message and brand will help to remove barriers and allow for forward movement toward a clean energy future.
- Advocating for amendments to local building codes to promote and enhance solar implementation throughout the community. Locally, City of Wilton Manors amended unified land code entitled “Wilton Manors Green Building Program” by adding a section entitled “Renewable Energy Readiness” and creating a section entitled “Rooftop Photovoltaic Solar Systems.”

Future Action: This initial CESP covers a subset of renewable energy related strategies to address clean energy. Activities not mentioned in the CESP may also be underway and may be further elaborated in subsequent updates to this plan. Discussions from the CESP Leadership Team regarding a trend in “solarize” projects in cities like Asheville, Portland and Seattle reveal community solar projects which are collective purchasing of residential photovoltaic systems may be addressed in future actions of the CESP.

⁵ Database of State Incentives for Renewables and Efficiency (DSIRE)

⁶ Source is Go Solar Rooftop Solar Challenge Finance Committee Best Practice Report



2.3 Transportation

Transportation is the movement of people and goods. Broward County's population is expected to grow from 1,771,099 residents in 2013 to 1,850,809 residents in 2020, a four and a half percent (4.5%) increase⁷. Without changes in how people travel, it will not be possible to achieve fuel use reductions while continuing to meet the transportation needs of residents, visitors and business.

CESP Transportation Goal:

Transform to a more balanced, highly efficient, sustainable transportation system, which integrates land use and reduces emissions by decreasing fuel use 20% by 2020.

No one solution will achieve the desired objectives alone and the actions needed fall into at least two categories: **1) changing how people travel to reduce the use of vehicles while increasing non-auto modes of travel, and 2) changing how vehicles function to reduce fuel consumption.**

CESP Transportation Objective 1:

1. Improve the efficiency of the transportation system by providing access to alternative fuels, educating the community, increasing electric vehicle infrastructure, and dedicating a funding source. *(Relates to CCAP Goals: MI-1, MI-1.1, PC-2.3, PC-4.1, RA-1.2, RA-1.3, RA-2)*

To change how vehicles function relies on manufacturers to increase fuel efficiency, provide hybrid vehicle options, support plug-in electric vehicles (PEV) and those running on non-historical fuel sources (such as biodiesel, and compressed or liquefied natural gas). For these fuel sources, additional public and private resources and infrastructure is needed to support and expand their use.

- Charging and refueling stations will need to be more prevalent to provide drivers security they will not be stranded. Changes to development regulations and standards are needed to accommodate PEV charging in development projects and to address distribution, storage and transfers of other fuel sources. The locations of potential stations need to be made known to the general public, such as is done with the U.S. Department of Energy's Mobile Alternative Fueling Station Locator.

CESP Transportation Objective 2:

2. Take steps to create a fully functional transportation system in Broward County that provides travel by auto, transit, walking, and biking and is effectively linked with the regional transit system. *(Relates to CCAP Goals: MT-1, MT-1.1, MT-2, PC-2.3, PC-4.1, RA-1.2, RA-1.4)*

⁷ Source is Broward County Planning and Redevelopment Division: Traffic Analysis Zones and Municipal Forecasts Update 2014



To change how people travel so that they take fewer or shorter trips, use public transit or car/van pools, or walk and bicycle also is a complex undertaking.

- Taking fewer or shorter trips can entail making sure goods and services are available throughout the county, through mixed and balanced land use patterns. People can then live closer to work or near transit stops/stations, and can perform their daily trips by walking, bicycling or transit. Changing land uses to encourage more blending is a long-term process. New uses emerge only when old ones leave and revitalization of a site is frequently more appealing than wholesale redevelopment. However, as opportunities arise, Broward County will promote and coordinate with other jurisdictions on a desirable, sustainable and efficient land use pattern for the benefit and enjoyment of all Broward County residents, visitors and economic interests.
- Providing safe, comfortable, and convenient bicycling and pedestrian infrastructure is a particular focus of the Broward County Complete Streets Initiatives, being led by the Broward Metropolitan Planning Organization (MPO), and Broward County's Complete Streets Team. These programs promote the establishment and expansion of an integrated, convenient, safe and enjoyable pedestrian, bicycle and non-motorized facilities network. Several pilot projects have been undertaken and additional communities are interested in enhancing their facilities. Broward County will continue to seek and allocate funding to build and retrofit the bicycle and pedestrian transportation networks. Motivating people to walk and bicycle requires encouragement and programs to promote safety and comfort can encourage people to start walking and bicycling more.
- Providing a robust transit system within Broward County and connecting beyond is an objective of Broward County Transit, the regional transportation planning partners, including South Florida Regional Transportation Authority (Tri-Rail), the Florida Department of Transportation, and the Broward, Palm Beach and Miami-Dade MPOs. New premium services are being planned in downtown Fort Lauderdale (the Wave), All Aboard Florida intercity passenger service with a stop in Fort Lauderdale, and the Tri-Rail Coastal service that would add passenger, commuter service to the FEC railroad tracks. Providing transit services often hinge on available funding, primarily associated with operating (namely driving) the vehicles. To push beyond the current system will take innovative and additional revenue sources.

Future Action: This initial CESP covers a subset of transportation related strategies to address energy efficiency and GHG emissions reduction. Activities in other areas also are underway and may be further elaborated in subsequent updates to this plan. Two examples are: freight movement, and Transportation System Management and Operations (TSM&O) efforts which are geared toward maximizing the efficiency of the existing transportation system through techniques such as traffic signal coordination, dynamic message signs, and active arterial management.



3 Priority Actions by Sector

The CESP Leadership Team produced a list of thirteen recommended actions falling under the objectives for **energy efficiency**, **renewable energy** and **transportation** for implementation over the next 1-3 years. It is important to note that the targeted actions are the starting point moving forward prioritized objectives, and working toward the greenhouse gas (GHG) emission reduction goals set by the Broward Board of County Commissioners. The actions set specific results for the community to achieve using available resources. The CESP is a living document, requiring updates as actions are implemented and annual evaluations of the priorities and available resources. Developing a sustainable funding and financing strategy will be imperative for future measures of the CESP. Fulfilling the objectives and reaching the overarching 20% efficiency and renewable goals will require conventional and innovative approaches to find alternative funding options which may include committed county budget support, grant and loan support from external sources or public- private partnerships.

The list of actions, summarized below, is categorized by focus area, numbered according to precedence and prioritized by ease of implementation. “Easier” strategies can be implemented without requiring a change to State or Federal law or policy, implemented by building on or expanding existing systems and programs and started quickly without significant investment. In addition to ease of implementation the CESP Leadership Team evaluated each action by cost effectiveness, ability to address barriers, environmental impacts, energy savings potential and benefits to the local economy. For each of the sections below, the actions with the highest score are rated first.

Efficiency	Action	Host a countywide energy efficiency and conservation challenge
	Action	Propose amendments to local energy building code
	Action	Inventory community resources and increase stakeholder collaboration
	Action	Promote energy benchmarking guidelines for commercial buildings
	Action	Create and maintain an energy efficiency and conservation information hub
Renewable	Action	Develop a web-based community renewable energy toolkit
	Action	Promote solar financing options, specifically a county-wide PACE program
	Action	Engage the community on renewable energy through community awareness projects
Transportation	Action	Provide guidelines for PEV-ready residential and commercial (re)development
	Action	Improve outreach and incentives to increase car/vanpools and non-auto modes
	Action	Expand commercial use of alternative fuel and low-emitting fuel efficient vehicles
	Action	Support transit fare interoperability
	Action	Advance bike/pedestrian network strategy and greenways emphasizing access to transit



3.1 Energy Efficiency Priority Actions

This section lists the prioritized actions for the Energy Efficiency Sector from the CESP Leadership Team. Actions are listed in recommended order for implementation. Figure 5 below shows the **five priority actions** under Energy Efficiency, followed by each priority action and a brief description of what the CESP Leadership Team envisions for implementation.

Efficiency	Action 1 Host a countywide energy conservation challenge
	Action 2 Propose amendments to local energy building code
	Action 3 Inventory community resources and increase stakeholder collaboration
	Action 4 Promote energy benchmarking guidelines for commercial buildings
	Action 5 Create and maintain an energy efficiency and conservation information hub

Figure 5 - List of Priority Actions for the Energy Efficiency Sector

1. Host a countywide energy conservation challenge

Broward County in cooperation with community partners will host an energy efficiency and conservation challenge. Energy challenges consist of entities that commit to reduce energy use over a specified period. Those entities then share their energy data for the challenge period. Entities with the highest percentage energy reduction could win prizes and awards. A challenge can be implemented on any number of levels from departmental to organizational to citywide or countywide. Challenges generally focus on commercial, industrial, and institutional facilities but could possibly be modified to include the residential level. Energy challenges are beneficial for a number of reasons: a) require participating entities/individuals to look at and track their energy use, b) solicit a commitment from participants to reduce their energy use, c) reductions from behavior change are generally sustained beyond challenges, and d) challenges are a relatively low-cost method to obtain reductions in energy use.

2. Propose amendments to the local energy building code

Recommendations for the Florida Building Code could “stretch” the code accelerating integration of compliance that would save the most energy at the lowest cost in hopes of meeting strategic



climate resilience goals through increased energy efficiency. Today's homes and buildings will last 2-3 generations, so it is imperative as Broward County will see the effects of climate change within that timeframe to set regulation to support mitigation efforts. Energy conservation and efficiency measures are among most cost-effective means of GHG reduction. Recommendations will recognize energy efficiency as an important energy resource that can help meet future energy needs, while new no-and low-carbon energy sources are developed.

3. Inventory community resources and increase stakeholder collaboration

Inventory community resources from organizations to local leaders to collect information on what is already being done locally. Increase stakeholder collaboration by sharing resources and exchanging ideas with those organizations, community members, partners, and leaders working on energy efficiency and conservation, and work toward a consistent message. The outcome will be to enhance community awareness, increase the visibility of programs, broaden community support, and engage new partners through collaboration. Some examples of organizations are the Urban League, Hands on Broward, Conservation Pays and many others.

4. Promote energy benchmarking guidelines for commercial buildings

Promote energy benchmarking guidelines for commercial buildings by working with a pilot municipality to enact an energy benchmarking ordinance. Major municipalities leading in energy efficiency and conservation include Philadelphia, Orlando, Seattle, Austin and Washington D.C. which have enacted energy benchmarking ordinances. Many of the ordinances require owners/operators of buildings with more than 50,000 square feet of indoor floor space to disclose annual energy usage and water consumption, which is then made available online. Benchmarking and disclosure of building energy data could drive building energy improvements, promote transparency in the commercial real estate market, and produce potential savings for building owners and tenants.

5. Create and maintain an energy efficiency and conservation information hub

Adopt a broad based program to promote energy efficiency and conservation using all available tools and promote a consistent message. The website could host information on home energy auditors. There are currently various websites regarding energy efficiency and conservation locally, the objective of this action is to combine webpages into a single website to serve as a clearinghouse for energy outreach and to consider allowing community interaction through an online forum which could include green practices at home, best practices in business, upcoming events, and case studies.



3.2 Renewable Energy Priority Actions

This section lists the prioritized actions for the Renewable Energy Sector from the CESP Leadership Team. Actions are listed in recommended order for implementation. Figure 6 below shows the **three priority actions** under Renewable Energy, followed by each priority action and a brief description of what the CESP Leadership Team envisions for implementation.

Renewable	Action 1	Develop a web-based community renewable energy toolkit
	Action 2	Promote solar financing options, specifically a county-wide PACE program
	Action 3	Engage the community on renewable energy through community awareness projects

Figure 6 - List of Priority Actions for Renewable Energy Sector

1. *Develop web-based community renewable energy toolkit*

Develop a web-based community renewable energy toolkit working in conjunction with the GoSOLAR program. A renewable energy toolkit could consist of a mapping application allowing the community to view maps highlighting existing renewable energy installations (identifying locations, system sizes, and installers), and allowing users to enter an address to find a property's solar electric and water heating potential.

2. *Promote solar financing options, specifically a county-wide PACE program*

Promote solar financing options by educating the community on programs such as the Property Assessed Clean Energy (PACE) program, and incentives like the Florida Power & Light (FPL) solar thermal rebates. A PACE program offers financing for energy improvements through loans that are repaid through annual increases in property tax assessments. Enabling legislation was passed in Florida in 2010, and since several communities have implemented the PACE programs. Established programs within Florida are available in Leon County, and Miami Dade County in the cities of Cutler Bay, Miami, South Miami, Pinecrest, Pаметto Bay and Miami Shores. In Palm Beach County, the Towns of Lantana and Mangonia offer the PACE program for commercial only. In addition to a PACE program, Broward County could research employing other financing programs like Community Development Financial Institutions, and State/City-based financing models. Promotion and awareness of financing programs are vital; the CESP Leadership encourages the development of financing programs whether PACE or others, and supports the promotion of those resources to the community.



3. Encourage renewable energy through community awareness projects

Encourage renewable energy through community awareness projects as a creative way to engage the community in the conversation about renewable energy and climate change. A community art project incorporating renewable energy could help increase awareness of the importance and opportunities for renewable energy in Broward; it could also be a beautiful and captivating gathering place, where art and science meet to be appreciated and explored. Projects could include interpretive signage that explains how solar energy works.



Before



After

Ann Arbor, MI. Local artist Margaret Parker was invited to design an exhibit that would bring attention to the shower's energy source. The final design was a 60-foot long Sun Dragon that extends from the shower-head along the pipe then up to the roof towards the solar panels.



3.3 Transportation Priority Actions

This section lists the prioritized actions for the Transportation Sector from the CESP Leadership Team. Actions are listed in recommended order for implementation. Figure 7 below shows the **five priority actions** under Transportation, followed by each priority action and a brief description of what the CESP Leadership Team envisions for implementation.

Transportation	Action 1 Provide guidelines for PEV-ready residential and commercial
	Action 2 Improve outreach and incentives to increase use of car/vanpools and non-auto modes
	Action 3 Expand commercial use of alternative fuel and low-emitting fuel efficient vehicles
	Action 4 Support transit fare interoperability
	Action 5 Advance bike/pedestrian network strategy and greenways emphasizing access to transit

Figure 7 - List of Priority Actions for Transportation Sector

1. Provide guidelines for PEV-ready residential and commercial (re)development

Broward County should provide guidelines for Plug-in Electric Vehicle (PEV) ready residential and commercial (re)development. PEVs benefit local communities by bringing jobs, healthy air, a reduced carbon footprint, quieter streets, incentive funding and opportunities for leadership. Broward County can enact a resolution for the unincorporated areas and provide a template ordinance to municipalities for adoption. Guidelines could also be developed with straightforward information for homeowners and electrical contractors about residential and commercial electric vehicle supply equipment (EVSE) permitting requirements. With the growing adoption of PEVs there is increasing need for installing both residential and commercial PEV charging stations. In line with implementation of the Broward County Planning and Redevelopment’s Electric Vehicle Infrastructure Strategy the county should streamline permitting and inspection of residential and commercial PEV charging station installations.

2. Improve outreach and incentives to increase use of car/vanpool and non-auto modes

Broward County should promote and provide incentives to employees who choose not to drive alone, encouraging car/vanpooling, riding transit, bicycling or walking to work. As the largest employer in the area, the county has the power to spread awareness to its over 4,000 employees and set the example for other large employers at the same time. Incentives could include things such as tax benefits, transit discounts, preferred carpool parking, and access to bike racks or storage lockers.

Broward County should partner with South Florida Commuter Services (a program fully funded by the Florida Department of Transportation), which provides guidance, information, and marketing services to promote Transportation Demand Management (TDM) activities. Case studies and guidelines can be



developed, and published on the Broward County website, to assist other employers in undertaking similar efforts.

In addition, Broward County should adopt a TDM ordinance, and partner with the City of Fort Lauderdale to help reduce peak period traffic and to reduce single occupancy vehicle trips downtown. The goal is to lead the way in adopting the ordinance in anticipation of acceptance and adoption from all 31 municipalities within Broward County in the near future. A similar TDM ordinance exists in the City of Boca Raton today and has been very successful in encouraging commuters to switch from driving alone to other modes of travel.

Boca Raton, FL. The city adopted a Transportation Demand Management (TDM) Ordinance for downtown requiring businesses which employ more than 50 employees and residential developments with more than 30 units to implement a TDM plan. The plan would include things such as flex time, compressed work week, telecommuting, carpooling and van pooling, use of transit, walking and bike riding to reduce peak period traffic and to reduce single occupancy vehicle trips.

3. Expand commercial use of alternative fuel and low-emitting fuel efficient vehicles

Expand commercial use of alternate fuels and low-emitting fuel efficient vehicles by advancing the Broward County PEV Infrastructure Strategy. This action consists of working with auto manufacturers and local businesses to develop fleet opportunities for hybrid, CNG and electric vehicles. Also, encouraging rental car agencies to actively promote and offer electric vehicles, and promoting municipalities and private entities to build charging station infrastructure. Grow options for transportation around the county or within a municipality/downtown area by starting a “smart car” or “car2go” program which is a car sharing program for people to use and share collaboratively.

4. Support transit fare interoperability

Southeast Florida and Broward County have a variety of transit operators, such as Tri-Rail and Broward County Transit (BCT). With the exception of Tri-Rail and Miami-Dade Transit, each provider has its own fare collection and payment system, meaning that a rider uses multiple passes when traveling across counties and between systems. Most riders want to easily get to their desired destinations, and keeping track of the various fare and payment schemes can be confusing as

Bridgeport, CT. In an effort to increase bus ridership, Greater Bridgeport Transit’s Eco-pass Program has been adopted by the University of Bridgeport, Bridgeport Public Library and Bridgeport Adult Education Program to allow students, public library staff, and adult education night attendees unlimited access to the bus system.



well as complex. Encouraging transportation choices other than single-occupancy autos requires making those choices more convenient and comfortable. Support for a Transit Fare Interoperability program is proposed in cooperation with transportation planning partners and transit operators in the region. The first steps are an Easy Card pilot (2014-2015) and Mobile Ticketing pilot (2015-2016), with full deployments targeted for 2016 and 2017, respectively, and based on the information learned during the pilots. The Easy Card supports a single card in the wallet for payment and Mobile Ticketing is a step beyond, allowing fare payment from a mobile device such as a smart phone. Direct benefits of the program are more convenient payment leading to increased transit ridership. The system also should speed up vehicle boarding, thus reducing idling of transit vehicles and associated fuel consumption.

5. Advance bike/pedestrian network strategy and greenways emphasizing transit access

Promote public transit use and discourage auto travel by encouraging mixed and balanced land uses and effective implementation of transit oriented development (TOD). Walkability, in particular, is an essential element of TODs. The first steps are to review the Broward County Comprehensive Plan Transportation Element, and acknowledge and reach out to the Broward County Bicycling and Pedestrian Advisory Committee.

Work with the private sector to establish pedestrian-friendly (re)development projects addressing the placement of buildings and parking and incorporating infrastructure for pedestrians, bicyclists, and transit riders. Example infrastructure items are bicycle parking, showers, ample sidewalks with convenient access to buildings (including through parking lots), weather protection such as awnings and covered areas, and places or easements for transit shelters.

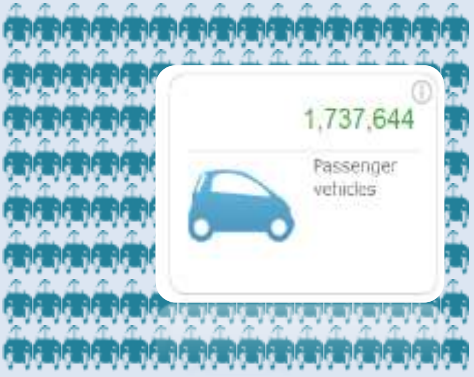
Undertake, promote, sponsor, or support programs and events that encourage people to walk and bicycle. These events could be led by governmental entities, such as Broward County, the Broward MPO, public health organizations, or by non-profit and non-governmental organizations, such as bike rider groups, civic organizations or AARP. The types of events or programs to be considered include:

- Bike rodeos or rides for children, adults or families
- Showcasing how to use the bicycle sharing B-Cycle system
- Ciclovía, either a permanent bike path or the closing of certain streets to automobiles for cyclists and pedestrians, a practice sometimes called open streets
- Walking audits or safety assessments to identify potential improvements
- Safe Routes to Schools, or Walking Buses and Bike Trains where adults guide a group of students to school, working in cooperation with the school district and neighborhoods
- Hosting bicycle valets at community events



Final Recommendations

The Community Energy Strategic Plan (CESP) provides a roadmap with a focus and “call-to-action” to guide community-wide efforts to share in a defined energy vision. The CESP challenges the community to thirteen actions over the next one to two years, necessary to meet the community’s greenhouse gas reduction goals. The energy vision and CESP initial actions are summarized below.

<p>Our Energy Vision</p>	<p>A 20% REDUCTION IN COMMUNITY- WIDE ELECTRICITY USE</p> 
<p>Broward County is evolving toward a climate resilient community promoting a culture of energy conservation, efficiency, and increased use of renewable energy sources.</p>	
<p>Efficiency</p>	<p>Action Host a countywide energy efficiency and conservation challenge</p>
	<p>Action Propose amendments to local energy building code</p>
	<p>Action Inventory community resources and increase stakeholder collaboration</p>
	<p>Action Promote energy benchmarking guidelines for commercial buildings</p>
	<p>Action Create and maintain an energy efficiency and conservation information hub</p>
<p>Renewable</p>	<p>Action Develop a web-based community renewable energy toolkit</p>
	<p>Action Promote solar financing options, specifically a PACE program</p>
	<p>Action Engage the community on renewable energy through community awareness projects</p>
<p>Transportation</p>	<p>Action Provide guidelines for PEV-ready residential and commercial (re)development</p>
	<p>Action Improve outreach and incentives to increase car/vanpools and non-auto modes</p>
	<p>Action Expand commercial use of alternative fuel and low-emitting fuel efficient vehicles</p>
	<p>Action Support transit fare interoperability</p>
	<p>Action Advance bike/pedestrian network strategy and greenways emphasizing access to transit</p>



Additional Community Resources

[Broward County Climate Action Plan](#)

[Southeast Florida Regional Climate Action Plan](#)

[City of Fort Lauderdale Sustainability Action Plan](#)

[Greater Fort Lauderdale Alliance Six Pillars](#)

[US Green Building Council South Florida Chapter Broward Branch 2030 Roadmap](#)

[South Florida Regional Planning Council Economic Development Strategy](#)

[Go Solar - Solar Financing Best Practices](#)

[Broward County Climate Change Element](#)

[Broward County Climate Change Element Supporting Documents](#)

[Broward County Green Initiatives Municipal Survey](#)

[Broward County Plug-in Electric Vehicle \(PEV\) Infrastructure Strategy](#)

