



“Energy” and Our Region: A synopsis of where we are as a Region in Northeast Florida

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An overview of Energy is not an easy task. Energy encompasses a myriad of elements and topics. An attempt has been made to address a few topics related to Energy. Ultimately the Northeast Florida Region must begin to think of the energy issues facing our region and ultimately how we affect the state of Florida. Florida’s Governor has set new initiatives toward energy which will require the Region to react to state legislation as it unfolds. The preparation for this lies in our Region’s collective efforts to identify the issues important to the region and to begin a process to address “Energy”. This paper is the starting point.

INTRODUCTION

“Citizens of the Sunshine State spend less per person on energy than any other state in the country – about 20% less than the national average. Florida is a testing ground for the hydrogen economy offering tax incentives for businesses that invest in hydrogen technologies. The state is also home to three nuclear power plants, and a consortium-led effort to develop one of the cleanest coal-fired power plants in the world.” (U.S. Department of Energy).

The above statement has not made the Sunshine State complacent; it has begun to contemplate its role in Energy. The State of Florida has its concerns and responsibilities toward “Energy” which stem from the following facts:

- A) Florida’s energy usage is in part for transportation and electric power generation
- B) The State depends on petroleum, ranking the **third** after California and Texas
- C) The State’s dependency on electricity ranks **third** in all states
- D) Florida is one of the nation’s **largest net fossil fuels consumers**.

The Northeast Florida Regional Council *boundary* consists of seven counties, which include Nassau, Duval, St. Johns, Flagler, Putnam, Clay and Baker. As a Region, if we are to continue the aforesaid trend, as stated by the Department of Energy above, then we are to continue to conserve, reuse and increase energy efficiency. This paper is the beginning of the Council’s attempt to engage regional, local, private, business and environmental entities into thinking “Energy”. Energy is essential in every aspect of our lives and for the success of the Northeast Florida region. The environment’s health, our social habits and the economic impacts in our region are qualitative¹ and quantitative² measures. These qualitative and quantitative measures can not, all the time, be put into a statistical format to justify why “Energy” is an important issue for our Region. With the State’s initiatives toward Energy our Region must begin to ascertain what we must do. There are

long term and short term energy challenges. *This is a beginning and also the starting point for our Region.* This issue paper’s intent is to begin the process of addressing energy issues facing our region; it is a short summary of topics. The term “Energy” is a very broad term and has many facets to be a topic of discussion for one issue paper such as this one. The selection of topics below were merely random and additional topics may be added with the demands and necessities dictated with time. Below are some topics that are pertinent to our region. The following section briefly outlines eight topics and may be followed by more detailed research papers for each topic at later time.

TOPICS

1. Agriculture and Farming Communities role in Energy

Increasingly, agriculture is also now being looked to as a source of energy. Bio-energy crops, or agricultural products that can be converted to solid or liquid fuel, can offer a lower carbon emitting source of energy. In particular, interest and investment in bio-fuels, liquid transport fuels produced from arable crops, is gaining momentum especially in the policies of industrialized countries and the markets of developing nations. The development of bio-fuel technology has intensified the need to examine energy use in agricultural production systems, as the suitability of bio-fuels depends on the overall energy efficiency with which potential bio-fuel crops can be grown, processed, and distributed and the existence of other environmental impacts. Agriculture alone is a relatively small user of energy. However, when considering energy use in all stages of food production and distribution, from the manufacturing and transport of farm inputs to the processing, storage, and dissemination of final products, the whole food system makes up a large percentage of energy consumption in many countries.

Agriculture and food systems can play an important role in fossil fuel and energy consumption. In the long term, using local food decreases the long-term energy costs, reduces urban island effects and ultimately reduces the greenhouse gas effect. The Region must begin to look in to renewable energy

alternatives and sources that will benefit the environment and provide economic incentives to the farming communities within our Region. Currently there are credits given to small agricultural business that venture into bio-diesel and ethanol producing options in Florida. As a Region we will need to look at the quantitative analysis of energy expenditures and efficiencies coupled with a qualitative analysis that measures individual and societal benefits of farming practices.

2. Energy Conservation in our Region

Conserving energy is the easiest way to preserve our regions' energy supply and to protect our environment. Each of us plays a role in energy conservation, as business owners, employees, employers and consumers. Below are some energy efficient steps the Governor of Florida and the Northeast Florida Regional Council have recently taken.

“Leadership by Example”

Governor's House

What can you do? Florida Governor's Mansion Becoming More Energy Efficient. Pool heating system will save \$45,000 over 10 years.

August 2007: The People's House, where the governor of Florida lives, is becoming more energy efficient.

Florida Governor Charlie Crist announced that a hydrogen fuel cell and a solar pool heating system have been installed at the governor's mansion in Tallahassee. The HELIOCOL solar pool heating system will reduce the mansion's carbon emissions by 22,000 pounds per year. The fuel cell will supply 5 kilowatts of electric power to the mansion, which is also known as [The People's House](#).

The solar pool heating system will replace the current natural gas system and produce 20% less emissions. The People's House will save about \$3,500 on its energy bills the first year and an estimated \$45,000 over a 10-year period.

"As the Sunshine State, Florida should be a leader in expanding solar technology to every home and business. Businesses and homeowners alike can take advantage of Florida's solar energy rebate program," said Governor Crist. For details, see the [governor's July 17 press release](#).

Northeast Florida Regional Council

The Northeast Florida Regional Council (NEFRC) has taken steps to attempt to recognize and respond to the spirit of the Executive Order 05-241 on Energy Efficiency and Conservation in state buildings (please note this does not directly apply to NEFRC). As an agency the NEFRC has taken two steps to addressing energy conservation, the first is policy oriented and the other is facility operations management. The NEFRC has participated in educating, promoting and participating in Energy Star and Green Building related activities in partnership with various organizations within the region. It has also added a component of the green building and energy star into the Affordable Housing Task force. It has hosted many presentations to the NEFRC Board on energy which included water. NEFRC is reviewing the prospect of adding a process to adding Energy Star into the DRI process.

In the facility management and operations, the Council has the intent to replace all appliances with Energy Star rated appliances. Any updates being made to the building consideration is given to energy star and water star options. The Council adheres to the JEA Think 2 policy. The upgrading of the sprinkler system includes timers, deleting zones where not needed and also needed repairs in leaks etc. The building has 28 different HVAC systems. The replacement of these HVAC systems will be upgraded to Energy Star with thermostats that are programmable with timers. The lights in the building are managed to optimize on energy efficiency and conservation.

3. Green Buildings (inclusive of hospitals, offices, multi-family units and residential unit communities).

Florida is a non-union state so materials can make up a higher percentage of development costs than in some areas of the state and our region. As a region and State we are behind on the green development in many ways. The additional cost for a green building is approximately 3 to 10 percent. This additional cost includes building materials, appliances, AC/Heating, plumbing etc. Also shipping green materials and construction products in low volume is expensive. A good start would be with Multi-family units where the volume of materials needed is higher and the cost is at bulk rate. Table 1 on the following page is the State of Florida's Building Codes for green buildings.



The **NORTHEAST FLORIDA REGIONAL COUNCIL** is an association of seven counties (Baker, Clay, Duval, Flagler, Nassau, Putnam, and St. Johns) and 27 municipalities. As a dynamic network of local governance, it provides visionary leadership and coordination between counties and governmental agencies to preserve and enhance the quality of Northeast Florida's natural, man-made, economic, and social environment.

Residential

Commercial

Statewide Residential Code:

State Specific Code

Statewide Commercial Code:

State Specific Code

State Amendments:

Yes

State Amendments:

Yes

Adoption by Local County/Jurisdiction:

Mandatory

Adoption by Local County/Jurisdiction:

Mandatory

Can use REScheck to show compliance:

No

Can use COMcheck to show compliance:

No

Notes on the State's Residential Code:

State-developed code (Chapter 13 of the Florida Building Code), which exceeds 2006 IECC is mandatory statewide.

Notes on the State's Commercial Code:

State-developed code, which meets or exceeds ASHRAE/IESNA 90.1-2004, is mandatory statewide.

Approximate Stringency:

More stringent than the 2006 IECC

Approximate Stringency:

More stringent than the ASHRAE 04

Current Status Comments:

Chapter 13 of the FBC is the statewide uniform standard for energy efficiency in the thermal design and operation of all buildings in the state of Florida. As such, the energy code is uniform throughout the state and cannot be made more lenient or stringent by local government. It applies to all new buildings; additions to existing buildings and manufactured homes; renovations to existing buildings, both public and private, with certain exceptions; changes of occupancy type; and site-installed components and features of manufactured homes for initial setup. New building systems added to existing buildings (heating, cooling, water heating, lighting, and motors) must also meet minimum code requirements. This does not include buildings for which federal mandatory standards preempt the state energy code.

4. The Region's Energy demand, energy consumption, energy cost and population growth.

A technical paper addressing each of the aforesaid topics per county within the region would be a start. Currently the Region does not have data sets or statistical information to formulate a relationship between the topics outlined. In order to fully understand where we stand as a region it would be feasible to begin the process of addressing the region's plan in addressing State legislation on Energy. Without a thorough understating of our region we will not know what role we will need to play in the future.

5. Greenhouse gas reduction strategies in the Region.

As a Region with partnership from other entities the Region must begin to address how to reduce the greenhouse gas effects within our Region. This is important because the State government is working to reduce emissions 10 percent by 2012, 25 percent by 2017, and 40 percent by 2025. Governor Crist directed the adoption of maximum emission levels of greenhouse gases for electric utilities. The standard will require a reduction of emissions to 2000 levels by 2017, to 1990 levels by 2025, and by 80 percent of 1990 levels by 2050. Florida will also adopt the California motor vehicle emission standards, pending approval of the U.S. Environmental Protection Agency waiver. The standard is a 22-percent reduction in vehicle emissions by 2012 and a 30-percent reduction by 2016.

6. Alternative Fuel Sources for our Region

Renewable energy resources are naturally replenished in a relatively short period of time. They include biomass, hydropower, geothermal energy, wind energy, and solar energy. *Alternative transportation fuels* are fuels used for transportation other than gasoline or diesel. Some alternative transportation fuels, such as ethanol and bio-diesel, are renewable while others, such as propane and natural gas, are non-renewable. The above graphic indicates some of North Florida's alternative and Renewable fuel sites, none of which are in the Region.



Bringing Communities Together to Advance the Regional Agenda

7. Effect on energy resulting from individual land use decisions (small scales)

There have been few models or research efforts associated with this topic. Several Geographic Information System (GIS) technologies and models have been discussed or are being developed. These technologies are dependent on resources and are complex. A simpler way of addressing this topic is if local governments influence their local communities through land use policy initiatives. Elected local government officials, planners, engineers, and developers affect energy through a myriad of long-lived decisions about community and regional growth, urban form, transportation and infrastructure, local energy generation, and building construction and retrofits. Land use decisions can have wide-ranging implications for energy use resulting local government finances, greenhouse gas emissions from transportation, community livability, and other local priorities. Planning with energy in mind can mean substantial economic, environmental, and social benefits for the community. For example

- Homes are closer to destinations like work, school, and shopping, as well as to public transit, which encourages alternative transportation choices
- Residents own fewer cars and drive less for weekday urban trips (accounting for the average number of people and income per household).
- Households produce correspondingly fewer greenhouse gas emissions from weekday urban driving.

8. The Northeast Florida Regional Coalition for an Energy Plan

The Northeast Florida Regional Coalition for an Energy Plan would be a new Regional initiative to open the forum for Energy in our region to be discussed and debated. It is an attempt to receive input and interests in various energy elements; this paper is the beginning of such a forum. A proposed series of workshops and Charettes will be the ground breaking efforts of our region to come to common ground on a "Regional Plan" that perhaps in the future can be implemented at a local level. The energy elements are a preliminary list and can be added to as the workshops progress and as local governments, private industries, the public and other agencies converge together to establish a plan for our Region. Before any papers are written this participation process should be our Region's first step in addressing the issue of "Energy". "Energy" as it pertains to our region must be defined in order to move forward. *A collective effort such as what is being proposed for the region will provide a more significant result in achieving a common goal on energy.*

Reader's feedback:-

- What are the possible short term goals?
- What are the possible long-term goals?
- What other topics could be added?
- Is the Northeast Florida Regional Coalition for an Energy Plan a good idea?

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Resource Guide

- Florida Energy Office
- The Climate Registry
- U.S. EPA
- U.S. Energy Information Administration (EIA)
- National Park Service
- U.S. Department of Energy
- Intergovernmental Panel on Climate Change
- Energy Incentive Programs
- Florida Renewable Energy Technologies Grant Program
- The National Oceanographic and Atmospheric Administration
- A Consumer's Guide to Energy Efficiency
- Energy and Fuel – U.S. Government
- Energy Star
- Savings Starts at Home
- The Weatherization Assistance Program
- Landscaping for Energy Efficiency
- USDA
- Climate Change Research Division
- U.S. Climate Change Science Program
- U.S. Global Change Research Program
- Florida Department of Agriculture and Consumer Service
- Florida Green lodging
- National Wildlife Federation
- Environmental Defense
- Pew Center
- The Center for Climate Strategies
- The Green Guide – National Geographic
- NRDC
- PATH
- Florida Wildlife Federation