



DRAFT
Sept. 26, 2013



FLORIDA ENERGY RESILIENCY REPORT

2013

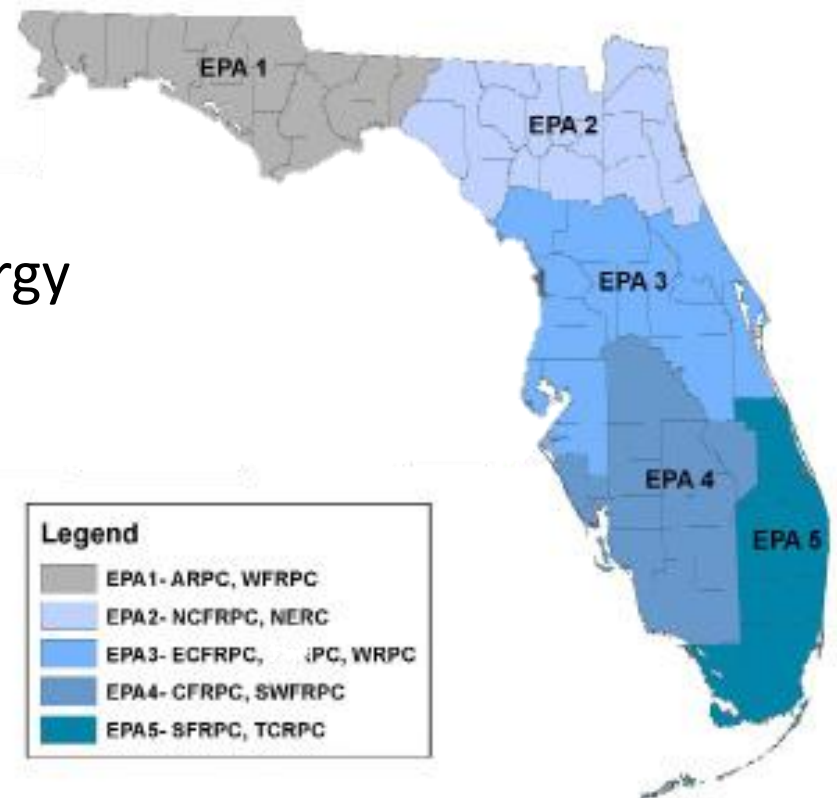
ECONOMIC ANALYSIS, CASE STUDIES, AND
STRATEGY RECOMMENDATIONS



Energy Resiliency Strategy

TBRPC Economic Development District received funding to perform a statewide analysis on Energy Resiliency

- Economic Development Administration (EDA)
- Additional funding from FL Energy Office for a separate report
- 2 Year project concluded at the end of 2013



Energy Report Structure



Surveys Workshops

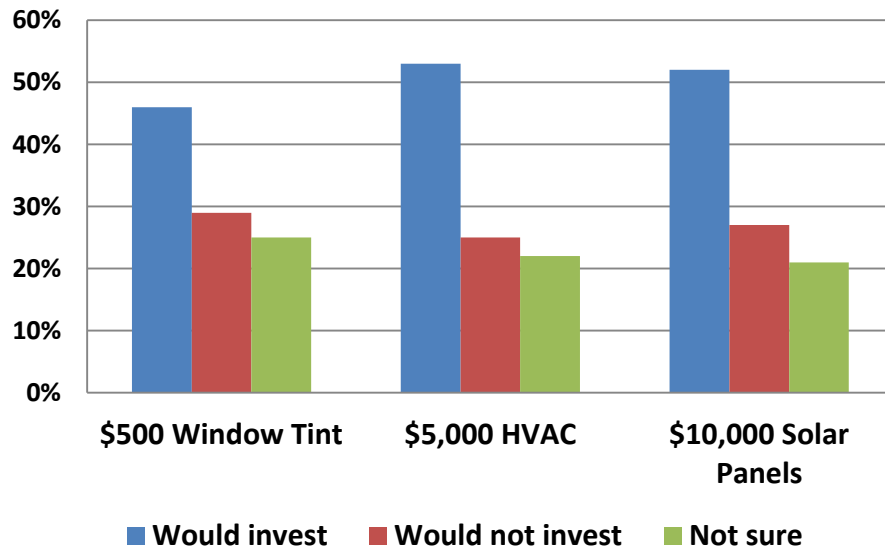
Survey

- Business and Residential Residents were surveyed
 - Statistically valid Phone Survey
 - 1,500 Respondents
 - Results are by EPA and Statewide
 - 95% confidence interval
 - Web based Survey
 - Over 1,000 Respondents
 - Demographic was vastly different
 - Similar responses on majority of questions

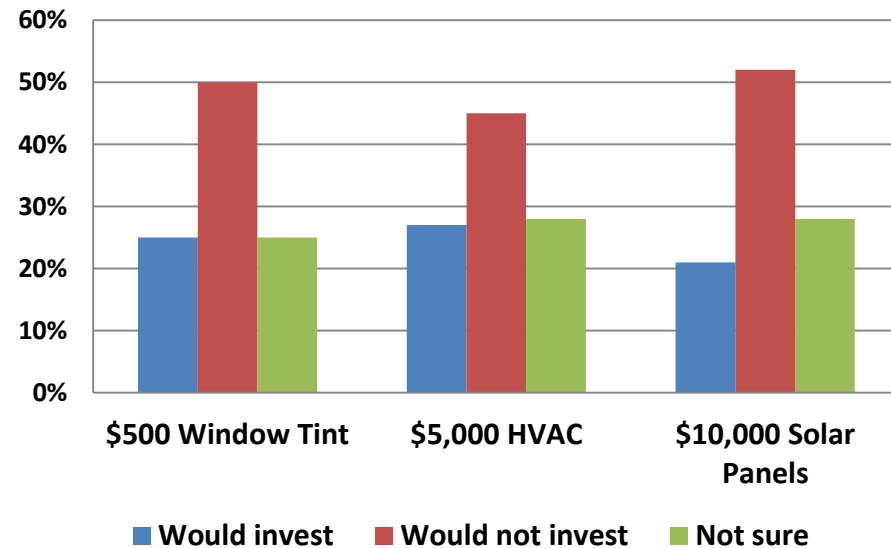
Survey Results

Likelihood to make Energy Saving Investment if Payback Period was Met

Residential Surveys



Business Surveys

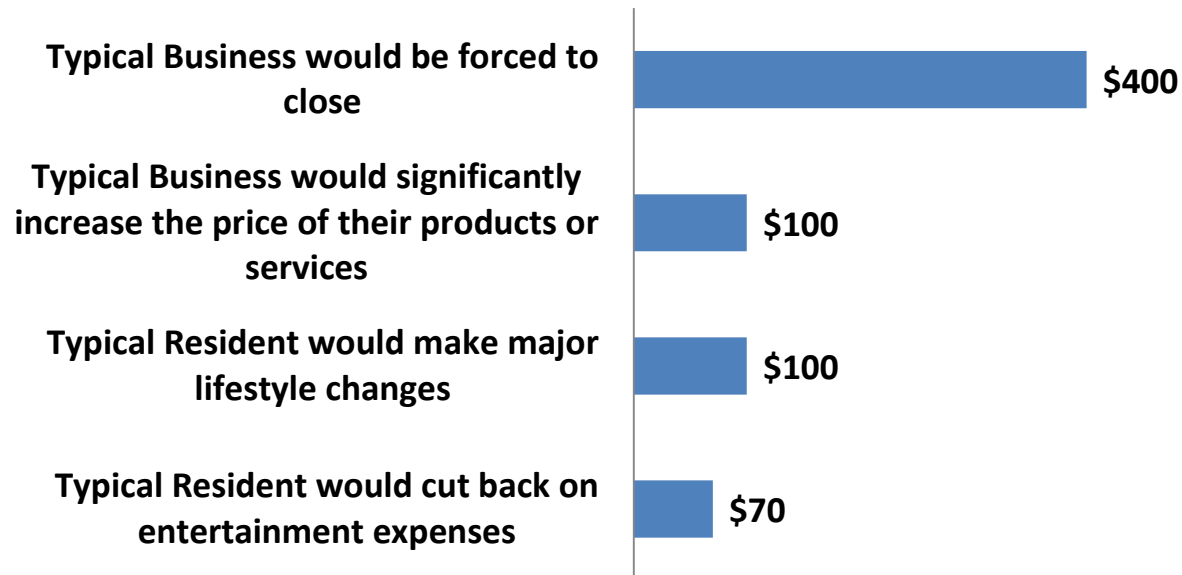


Survey Results

Impact of Utility Bill Increases

- The Typical Resident had a monthly utility bill of \$150
- The Typical Business spends \$400 per month on heating and air conditioning and other non-transportation energy costs

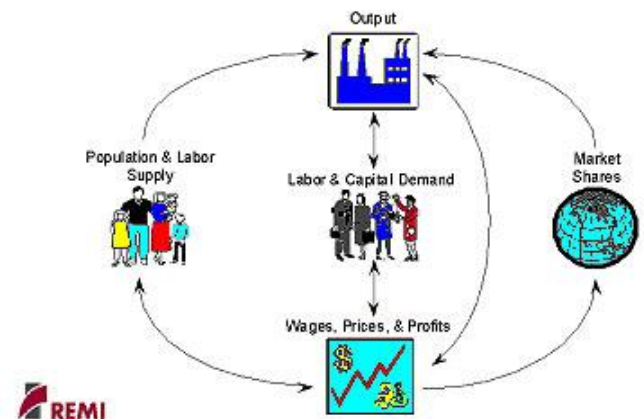
\$ Increase in Utility Bill Provoking Residents and Businesses to Make a Change



Scenarios

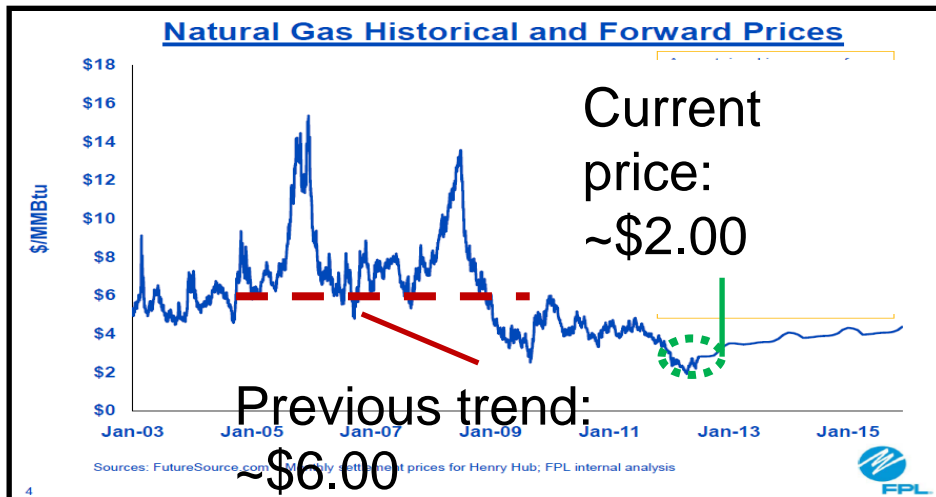
- Using REMI PI+ to test a few real world scenarios to measure impacts
 - Natural Gas Price Increase or Supply Disruption
 - Gasoline Price Increase or Supply Disruption
 - Renewable Portfolio Standard
 - Biofuel Development
 - Electric Cars Adoption
 - Commercial rooftop PV Installation

Simplified Economic Structure of the Key Interactions in Regional Economies



Scenario Example

Natural Gas Price Increase or Supply Disruption



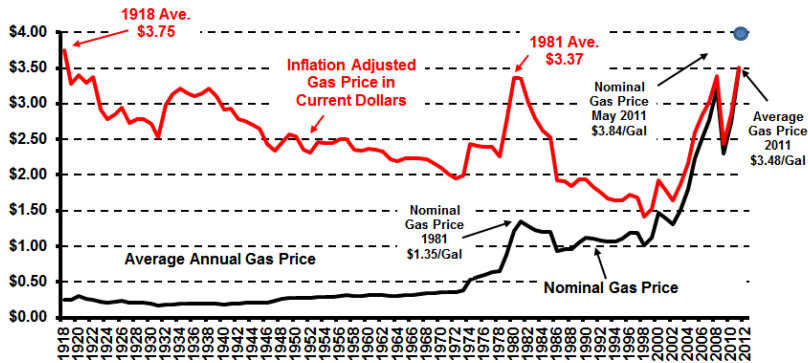
Annual Impacts if Natural Gas price reverts back to early 2000's level of \$6

FL Employment	-81,000
Percent of Employment	-1%
FL GDP(2012 \$Bil)	- \$7
FL Income('12 \$Bil)	- \$15

Scenario Example

Gasoline Price Increase or Supply Disruption Scenario

Annual Average Gasoline Prices
1918 - Current
Adjusted for January 2012 Inflation
© 2012 InflationData.com
Prepared By Timothy McMahon
Updated 2/27/12



Annual Losses if Gasoline hits \$5.00/gallon

FL Employment	-322,000
Percent of Employment	-3.06%
FL GDP(2012 \$Bil)	- \$28
FL Income('12 \$Bil)	- \$15

Note: Prices are Average Annual prices not Peak Prices so peaks are smoothed out considerably

Source of Data: US Energy Information Administration
CPI-U Inflation index- www.bls.gov



Scenario Example

Produce Sugarcane as a Biofuel in the three Florida RACECs

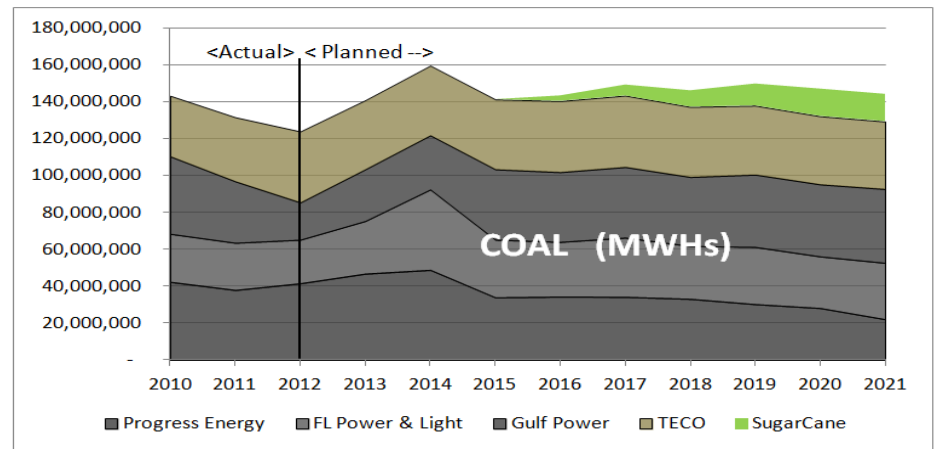
Replace future planned additional coal production with biomass

Production would occur in the three RACECs to utilize inexpensive land and labor

Reduce Coal Production by 1,700 MWHs annually

Begin Cane Harvesting in 2016, full production by 2020

Would reduce CO2 emissions by 34 Thousand Tons of Pollutants Annually at full build out



RACEC Region	2015	2020	2025	2030
Employment Change				
Opportunity FL	466	3,409	3,163	2,925
N FL EDP	343	3,804	3,510	3,234
FL Heartland	181	1,133	996	892
Florida Total	1,412	10,688	10,567	10,082

Case Studies

- Identified real world examples of Energy Resilient Efforts existing throughout the State
- Case Studies from every EPA
- Examined purpose, experience, costs, advantages, and disadvantages
- Analyzed ROI – Return on Investment

Case Study Example

Saddle Creek Logistics Services Compressed Natural Gas Fleet Conversion



- Third Party provider of warehousing, transportation, packaging, and fulfillment services located in Lakeland
- Replaced 40 Diesel tractors with CNG Tractors
- New fueling station in Lakeland
- Reductions
 - Fueling costs decreased by 50%
 - CNG Tractors last 10 years, diesel 6-7 Years
- 550 mile range, allows roundtrips to Miami, Jacksonville, Tampa, Orlando
- Plans to convert an additional 60 tractors next year

Case Study Example

Florida Gulf Coast University Solar Install

- Installed 2 MW Solar System
 - 2nd Largest University array in US
 - Over 10,000 Panels
- Cost: \$11.2 Million
 - Will save FGCU ~\$750k/year
 - Payback is 15 Years



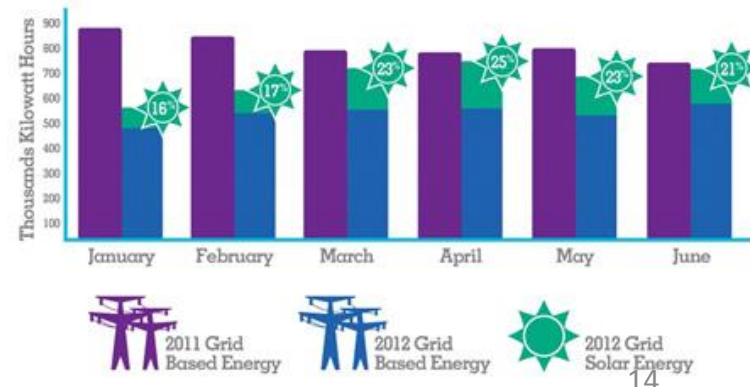
Case Study Example

Darden Restaurant Support Center

- World's Largest Full Service Restaurant Company
 - Olive Garden, Longhorn, Red Lobster, etc
 - 2,000 Restaurants w over 185,000 employees
 - Serve over 400 million meals a year
- Largest LEED Gold Corporate Headquarters in Florida
- Home to 1,500 Employees
- Installed 1.1 MW Solar Panel on parking garage
 - 4,404 Solar Panels
 - 1.9 million KW hours/year
 - Supplies between 15%-20% of electricity
 - \$5.6 Million investment
 - Payback is 10-12 Years

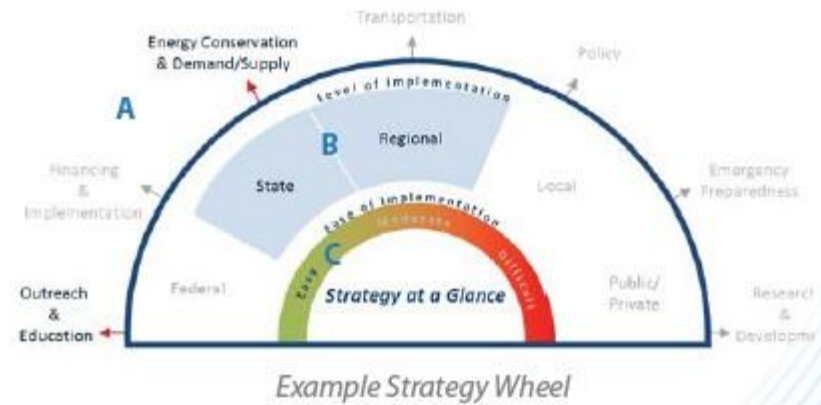


Darden RSC Energy Consumption by Source



Strategies

- List of strategies developed from workshops, surveys, confabs, and analysis to help make Florida more resilient
- Each Strategy contains Strategy Wheel
 - Identifies Category of Strategy
 - Level of Implementation
 - Ease of Implementation
- Provides Strategy at a Glance
- Quick Navigation through Strategies



Strategy Example

Allow and encourage third-party energy sales and power purchase agreements

Would allow private investors to build solar arrays and sell at market rate

- Likely scenario would be commercial owners selling energy to commercial tenants for less than market
- Would create more competition in market and decrease costs of goods sold
- Would diversify energy source
- Could be a possible energy source after traditional power disruption



Strategy Example

Increase energy efficiency education for appraisers, builders, buyers, sellers, and renters and require energy efficiency ratings (such as HERS ratings) to be posted on all new buildings, and on all existing buildings at time of sale or rental.

- Similar to the Energy Star Program
- Would allow buyers and renters to more accurately assess future energy costs
- Would encourage more energy efficient purchases, construction, and renovations by both landlords and owners



Strategy Example

Research the viability of a distributed power generation and storage network, composed of semi-autonomous power blocks, possibly centered on disaster shelters or other community venues

- Would provide disaster readiness and redundancy
- Under normal conditions, could be supplied with off peak power generation and then drained during peak loads to reduce energy generation costs



Implementation Steps

Identified the top 5 strategies, in terms of effectiveness and facilitation:

1 – Provide comprehensive education on the goals, costs and benefits, obstacles, and quality of life implications related to energy efficient community design and planning.

2 - Adopt a broad-based program to promote efficiency and conservation using all available tools, and market a consistent message of energy efficiency and conservation through comprehensive planning and school district curricula.

Implementation Steps (cont)

3 - Continue to conduct public opinion polling and economic modeling to support the adoption of renewable energy goals by the state and its public and private partners.

4 - Encourage innovative energy project development through collaboration of universities, entrepreneurs, and regional expertise.

5 - Develop and encourage Property Assessed Clean Energy (PACE) and other locally established financing programs for energy efficiency, energy conservation, and energy generation improvement programs and make available to all sectors (residential, commercial, industrial, government, institutional, etc.).

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