

# Fostering Effective Partnerships For Addressing Climate Change

## Waxman-Markey Bill's Implications For Florida

**Green Cities 2009**

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Partnerships For Addressing Climate Change

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# Why Do We Need Effective Partnerships?

**SPORTS AND GLOBAL WARMING**



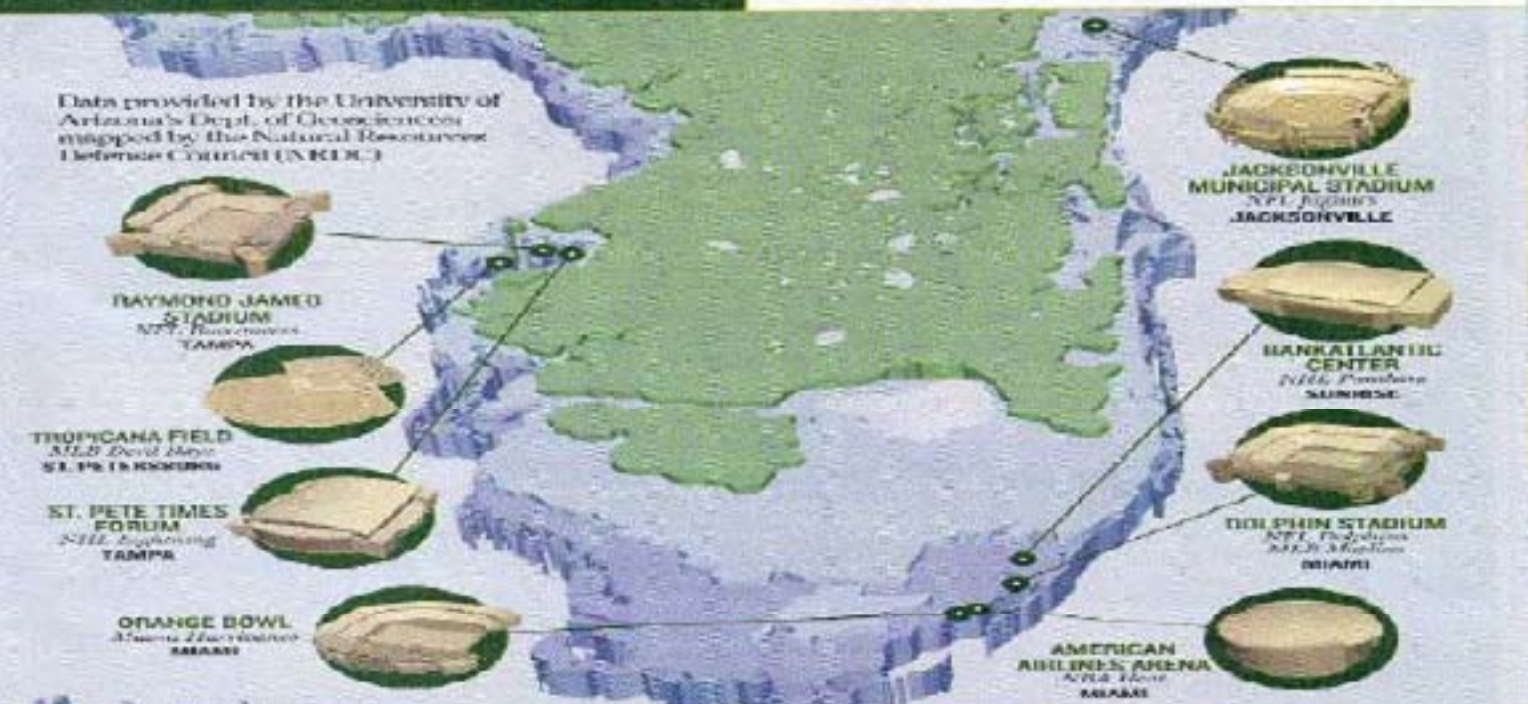
**WHAT IF...?**  
A warmer day might have helped Willie Mays of immortality


**VIC WESTER'S BLAST** would have been gone in its sixteenth inning ballpark. But the **Pale Greenies'** appearance on the field gave Willie Mays room to run down the 440-foot shot in Game 1 of the 1954 World Series. As it happened, the Giants went on to win the Series. According to newspaper accounts, it was 76° on Cooper's Ball Field in St. Petersburg, Fla., when Mays made his run-the-basis lead. By the calculations of University of Arizona meteorologist Allen Hurrell, had it been 77° (and according to the International Panel on Climate Change, the Earth is on average 1.7° warmer than it was in 1954), the ball would have traveled two inches farther in the less dense air, and that might have glided off the edge of Mays's outstretched glove. *David Sherman*

Because of the melting of glaciers and polar ice, and because water expands as it warms, oceans are rising. Research also expects an increase of up to a meter by 2100, enough to threaten some lands. In the last year and a half, scientists have noticed that even nonmountainous ice sheets on Greenland and Antarctica have begun to creep toward the sea. If we continue to spew greenhouse gases at the rate the world would become five degrees warmer this century. The last time Earth was that warm, three million years ago, sea level stood 30 feet higher than it does now. Scientists don't foresee such a rise for another 100, but they agree that a disturbing change in sea level will occur by 2100.

Global warming is also leading to more dramatic swings in the weather in some areas. Since the early 1980s, the amount of rain dropped in the biggest 1% of storms each year has risen 60%. A warming planet doesn't create hurricanes, but it does make them stronger and last longer. Tropical storms become more powerful once a sea-level shift, turning a category 4 storm,

Data provided by the University of Arizona's Dept. of Geosciences mapped by the Natural Resources Defense Council (NRDC)



-   
**RAYMOND JAMES STADIUM**  
*NFL, Buccaneers*  
**TAMPA**
-   
**TROPICANA FIELD**  
*MLB, Devil Rays*  
**ST. PETERSBURG**
-   
**ST. PETE TIMES FORUM**  
*NHL, Lightning*  
**TAMPA**
-   
**ORANGE BOWL**  
*College Football*  
**GAINESVILLE**
-   
**JACKSONVILLE MUNICIPAL STADIUM**  
*NFL, Jaguars*  
**JACKSONVILLE**
-   
**BANKLETT CENTER**  
*NHL, Panthers*  
**SUNSHINE**
-   
**DELOPHIN STADIUM**  
*NFL, Dolphins*  
**MIAMI**
-   
**AMERICAN AIRLINES ARENA**  
*NBA, Heat*  
**MIAMI**

# The Goals Of This Session

**This session aims for an open, honest discussion about:**

- The Issues
- The Solutions
- The Barriers To Implementation
- How Effective Partnerships Can Overcome Barriers

## **Climate Change Risks**

- Rising Sea Levels
- Economic Threats
  - Tourism – heat events
  - Agriculture – droughts, pestilence
  - Construction & Development – hurricanes / property insurance premiums
- Impending Costs Associated With Greenhouse Gas Emissions

## **Energy Dependence**

- National Security Risks
  - Pipelines
  - Nuclear
- Fuel Supply Risks
  - Oil / Natural Gas Delivery
- Price Volatility
  - Lack of Diversification
  - Import Most Of Our Energy

## The Issues - Florida Facts

**Florida generates over 80% of its energy from fossil-fuel, non-renewable sources.**

- The Governor's Action Team on Energy and Climate Change Phase 1 Report on Florida's Energy and Climate Change Action Plan (11/2007)

**Florida is the nation's largest generator of petroleum-fired generation. (U.S. EIA)**

**Florida is among highest states for consumption of transportation fuels and electricity**

**Natural Gas – supplied entirely by two major pipelines, significant exposure to threats from hurricanes, terrorism, etc.**

**“Florida’s resources, communities and economy are expected to experience significant impacts if the current trajectory of greenhouse gas emissions is not reversed.”**

- Governor’s Action Team on Energy & Climate Change – Phase 2 Report

# The Solutions

- 1. Energy Efficiency**
- 2. Renewable Energy**
- 3. Global Cap and Trade**

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# The Solutions – Waxman-Markey Bill

## **The single most important thing that people can do – push for passage of Waxman-Markey**

- Comprehensive energy and climate change legislation
- Currently undergoing mark-up in the U.S. House Energy & Commerce Committee
- Not a perfect bill – No one (environmentalists / industry / etc.) is 100% happy with it
- Represents a critical step to addressing global climate change

## Waxman-Markey - Major Features For Florida

### ▪ **Clean and Renewable Energy**

- Federal Renewable Energy / Energy Efficiency Portfolio Standard
- Clean Transportation – Electric Vehicle Infrastructure
- Smart Grids
- Study of Ocean Renewable Energy

### ▪ **Energy Efficiency**

- Building / Appliance Code Efficiency Higher Targets
- Transportation Efficiency / Tighter Emissions Standards
- Removes Limits to Energy Efficiency and Conservation Block Grant Program

### ▪ **Cap and Trade Program**

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# Waxman-Markey - Renewable Energy

- **Renewable Energy / Energy Efficiency Portfolio Standard**
  - Utilities must generate certain percentage of load with electricity from renewable energy and energy efficiency
    - 6% by 2012
    - 20% by 2020
  - One-fourth of requirement can be met with energy-efficiency
  - Renewable energy = wind, biomass, solar, certain hydropower, marine and hydrokinetic renewable energy, biogas and biofuels, landfill gas, wastewater treatment gas and qualified waste-to-energy
  - Utilities must submit one renewable electricity credit (REC) for each MWh produced from renewable energy.
  - Distributed Generation Multiplier incentive: Rooftop solar and small wind eligible for 3 RECs for each MWh
  - Efficiency credits relative to business-as-usual projections

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# The Solutions – Renewable Energy

## **Fact Or Fiction?**

- Florida Is Not Suited To Develop and Generate Renewable Energy?

## **Current Leading States:**

- California with 530.1 MW
- New Jersey with 70.2 MW
- Colorado with 35.7 MW and
- Nevada with 33.2 MW

## **Florida:**

- Poised To Go From Dead Last To Overtaking Every State Except California

## **Why?**

- Because the Legislature has authorized cost-recovery to utilities that build solar power plants

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# Solar Energy Technical Potential In Florida

Navigant Report to Florida PSC (11/08):

***Solar Technologies Have The Largest Renewable Energy  
Technical Potential In Florida:***

<u>Technology</u>	<u>Now (MW)</u>	<u>Technical Potential By 2020 (MW)</u>
Photovoltaic	1.8	<b>89,000</b> (52,000 Rooftop / 37,000 Ground Mounted)
Concentrating Solar Power	0	380
Solar Thermal	0	1,136

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# Renewable Energy Barriers

**High Up Front Cost**

**Recouping Long Term Investment**

**Uncertainty over third-party financing alternatives**

**Lack of state incentives**

**Legislature Dropped The Ball**

## **Innovative Community Programs**

### **▪Gainesville – First Feed In Tariff In U.S.**

- 0.32 cents / kWh paid to solar developers for energy produced by system
- 20 year guaranteed contract
- Designed to encourage financing plus reasonable rate of return
- Incredibly successful at driving investment into solar
- Maxed out its 4 MW per year cap before the program even began

### **▪Solar Financing Districts**

- Berkeley Model – Voluntary Special Assessment Model
- Cambridge Model – Third-Party Non-Profit Administrator of Community Program

## The Solutions: Energy Efficiency

- Low Hanging Fruit – most solutions are cost-negative
- California: From 1976 – 2005, U.S. per capita electricity consumption grew 60% while California's remained flat
  - Achieved this despite GDP growth amid energy intensive tech boom.
- Average cost in CA since 2004: 1.4 cents per kWh (compare to FL energy cost 11 – 13 cents per kWh)

# The Solutions - Energy Efficiency

## **Historically Implemented Through “Command and Control” And Market-Based Incentive Methods**

- Building Code Standards
- Technology Efficiency Standards – Energy Star

## **These Mechanisms Address Fundamental Issue –**

- Up-Front Cost
- Return On Investment (i.e., Time Horizon)

## **Addresses Question For Cities: Should Mandates Be Used?**

- Who Bears Cost? Owner / Developer
- Who Obtains Return On Investment? Owner / Buyer
- How Can Risk (Cost) Be Matched To Reward (ROI)?

## **Numerous Co-Benefits:**

- **Public Health Economic Savings**
  - Respiratory disease, allergies, sickness, etc.
- **Energy Savings**
- **Greenhouse Gas Emissions Reductions**
- **Improved Worker Performance**

## The Barriers To Energy Efficiency

- Key regulatory change: decouple utility profits from sale of electricity
- Additional incentives are needed to reward energy efficiency
- Lack of financing alternatives for long-term payback

## ▪Energy Efficiency Programs

### ▪ Building Code Efficiency Programs

- Consensus with code setting organizations
- 30% - 50% higher energy efficiency targets in 2010 and 2016
- Building Retrofit Programs
- Building Energy Performance Labeling Programs

### ▪ Appliance Energy Efficiency Programs

- Lighting, appliances, televisions, Energy Star certification

### ▪ Transportation Efficiency / Tighter Emissions Standards

- Tighter emissions and fuel economy standards
- New emissions standards from EPA for new marine vessels, locomotives and aircraft

### ▪ Community Programs

- Removes limits on funds received by communities to Energy Efficiency and Conservation Block Grant Program
- Funds can be used for revolving loan accounts
- Small communities can join with neighboring communities for joint programs

## ▪Major Findings by EPA:

- Energy consumption levels would be reached in 2015 vs. not until mid-century under a business as usual scenario

# Energy Efficiency Partnerships

## **Energy-Efficiency & Conservation Block Grant Program (EECBG) Alternatives - Use Grant Programs to Fact-Find:**

- Retrofit a model green building
- Perform a before-and-after energy audit
- Work with local vendors to install energy efficiency technologies
- Publicize community-specific findings
- Serve as an informational clearinghouse of the full range of practical, cost-effective options for achieving energy efficiency

## **EECBG Program Dollars Are Finite – But Other Options Provide Additional Capitalization / Deployment Options:**

- Berkeley FIRST model
- Cambridge Energy Alliance
- Establish Green Community Programs & Loan Funds Using Qualified Energy Conservation Bonds (QCEBs)

# The Solutions: Global Cap and Trade Program

## **What is a cap and trade program?**

**A “cap” is placed on emissions from “covered sources”**

**Covered sources must surrender used “credits” equal to emissions for a measurement/compliance period**

- Emissions credits are generally referred to as either “allowances” or as “offsets”:
  - An “allowance” generally refers to the type of credit that either allocated to, or created by, a covered source that has internally reduced emissions
  - An “offset credit” generally refers to the type of credit that arises from projects that demonstrate the potential to “reduce, remove or avoid GHG emissions”

**Covered sources can design their own compliance strategy:**

- Reduce emissions to the cap
- Reduce below cap and sell unused allowances to others
- Purchase offset credits and emit above cap

**Emitters and other project developers can create offset credits to be traded on an exchange**

**As a fungible commodity, credits can be used, banked or traded**

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## What is a “carbon offset credit”?

A carbon credit is:

- A tradable commodity
- With a market value
- Created pursuant to legal requirements
- In a voluntary or mandatory cap-and-trade scheme
- From a project in a non-covered sector (like agriculture or forestry)
- That represents a reduction, avoidance or sequestration
- Of 1 ton of CO<sub>2</sub> or equivalent greenhouse gas (GHG)

# Why Do Carbon Credits Have Value?

Carbon credits have a market value either because:

- Mandatory market: entities subject to cap may purchase offset credits to meet their compliance obligation:
  - Note distinction between “allowances” and “offset credits” in cap and trade program design
  - Waxman-Markey proposed House Bill would distinguish between domestic and international allowances and would impose fluctuating limits on offset usage towards cap
  - Boxer-Lieberman-Warner proposed Senate Bill would limit offset usage towards cap to 15% from domestic and 15% from international projects
  - WCI would allow a maximum of 49% of emission reductions between 2012 and 2029 may come from offsets or out-of-region allowances
  - RGGI permits use of Offsets to satisfy only 3.3% of cap (growing to 10% if certain allowance price thresholds are reached)
- Voluntary market: parties contractually agree to limit their emissions for various reasons (i.e., demonstrate commitment to the environment and to fight global climate change, become familiar with trading in anticipation of regulation, etc.)

## Waxman-Markey: Cap and Trade Program Main Provisions

### ▪ **Economy Wide Reductions**

- 97% of 2005 levels by 2012, 80% by 2020, 58% by 2030 and 17% by 2050
- Covered gases include carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, perfluorocarbons, and nitrogen trifluoride

### ▪ **Covered Sources**

- Electricity sources, fuel importers, and other large stationary sources that are covered under the Clean Air Act (> 25,000 tons)
- Smaller sources with emissions greater than 10,000 tons per year
- Compliance dates begin in 2013

### ▪ **Allowances v. Offsets**

- Allowances
  - Required of covered sources for each ton of CO<sub>2</sub>e GHG emitted
  - Mix of free allocation to covered sources and auction of remaining allowances
  - Unlimited banking permitted
- Offsets can be used in lieu of allowances subject to limits
  - 2 billion tons from EPA-approved domestic and international offset credits split evenly

### ▪ **Offset Rules**

- Must be verifiable, additional and permanent
- EPA will establish a list of eligible offset project types and methodologies
- Must account for additionality, establish baselines, measure performance, account for leakage, discount for uncertainty and address risk of reversals
- Requires third-party verification and random EPA audits
- International offsets – special rules for reduced deforestation

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## 1. Agriculture / Forestry

- Conservation Farming Techniques
- Afforestation / Reforestation
- Avoided Deforestation
- Sustainable Forestry Practices

## 2. Sustainable Land-Use and Development

- Preserve “Carbon Sinks”
- Holistic Design Elements
- Ongoing Management Mechanism to Promote Long-Term Sustainability of Development Project

# Greenhouse Gases Associated With Community Projects

▪ Greenhouse Gases (GHG) expressed in terms of Carbon Dioxide Equivalent (CO<sub>2</sub>e) (per Waxman-Markey) with 1 ton CO<sub>2</sub>e as the “currency” of Global Warming Potential (GWP), for example:

<b>CO<sub>2</sub> (Carbon Dioxide)</b>	<b>1</b>
<b>CH<sub>4</sub> (Methane)</b>	<b>25</b>
<b>N<sub>2</sub>O (Nitrous Oxide)</b>	<b>298</b>
<b>SF<sub>6</sub> (Sulphur hexafluoride)</b>	<b>22,800</b>

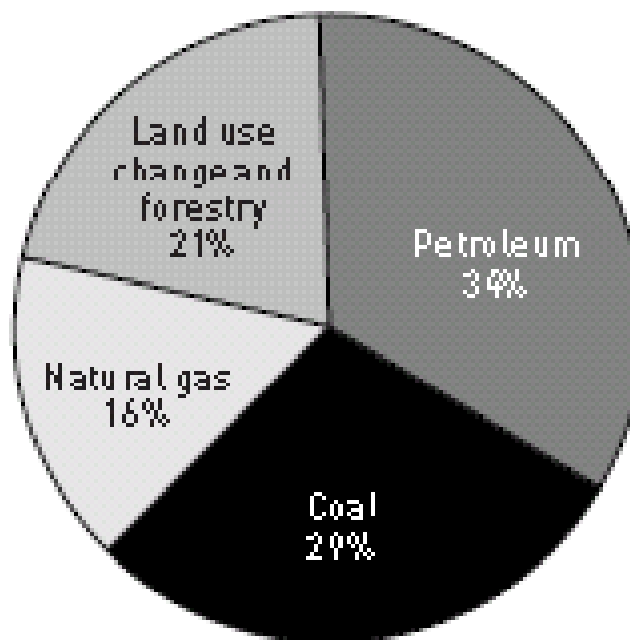
▪ Land use (e.g. agriculture, forestry) may serve as net “sinks” (i.e., sequester more carbon than they emit) or net “emitters”. Some examples:

- Biomass / Forests store CO<sub>2</sub> which may be released when cut down or burned
- Landfills and livestock operations (manure) emit CH<sub>4</sub> if not captured
- Soil stores CH<sub>4</sub>, N<sub>2</sub>O and CO<sub>2</sub> and may be released when tilled

# Impact Of Land Use Change On Global Greenhouse Gas Emissions

Mean global CO<sub>2</sub> emissions: deforestation vs. fossil fuels

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Source: Land use change and forestry emissions from IPCC, 2000. Fossil fuel emissions from USDOE, 1999.

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# Community Projects

## **Landfill Gas Sequestration / Waste Minimization and Management**

### **Land-Use Sequestration and Management:**

- Reduced tillage practices
- Winter cover or continuous cropping to increase biomass return to soil
- Convert cropland to rangeland or grassland (if non-forest use prior 10 years)
- Reduce use of nitrogen fertilizers
- Reduce frequency and duration of flooding rice paddies
- Reduce carbon emissions from organic soils

### **Forestry Activities:**

- Afforestation or Reforestation:
  - Restore forests from degraded land (agricultural, prairie or brownfield)
- Avoided Deforestation
- Improved forest / ecosystem management to improve carbon stocks

# Community Projects Must Be “Additional”

## Something More Than Business As Usual

- **Project Specific Test**
  - Regulatory Surplus (i.e., not undertaken as a result of legal mandate)
  - Implementation Barriers
    - Financial infeasibility in absence of credits
    - Technological infeasibility or difficult previously
    - Institutional barriers (not recognized under Kyoto)
  - Not common practice
    - Based upon regional common practice
    - Implies shifting standards with time – but once approved a project is grandfathered
  
- **Objective, Streamlined Tests (Performance Test / Technology Test)**
  - Regulatory Surplus plus:
  - Performance standard or New Technology for Location and Project Type

# Effective Community Partnerships

## **Holistic Strategy To Address:**

- Renewable Energy
- Energy Efficiency
- Reduced Carbon Footprint
- Offset Revenue Potential

## **Ideal to roll out in context of Energy-Efficiency & Conservation Block Grant Program (EECBG)**

## **Look To Future Capitalization Options:**

- Berkeley FIRST / Cambridge Energy Alliance models
- Establish Green Community Programs & Loan Funds Using Qualified Energy Conservation Bonds (QCEBs)
- Establish revolving loan funds
- Provide ongoing funding through carbon offset credits

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## **Always happy to answer questions:**

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