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# **Committee on Energy**

**Tuesday, October 2, 2007  
1:00 PM – 4:00 PM  
Reed Hall**

**Marco Rubio  
Speaker**

**Paige Kreegel  
Chair**



# The Florida House of Representatives

## Environment & Natural Resources Council

### Committee on Energy

**Marco Rubio**  
Speaker

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Chair

#### AGENDA

**October 2, 2007**  
**1:00 P.M. – 4:00 P.M.**  
**Reed Hall**

- I. Opening Remarks by Chair Kreegel
- II. Introduction of Committee Members
- III. Status report on energy initiatives from the following agencies:

***Jay Levenstein, Deputy Commissioner***  
Florida Department of Agriculture & Consumer Services

***Janice Browning, Director***  
***Division of Housing and Community Development***  
Florida Department of Community Affairs

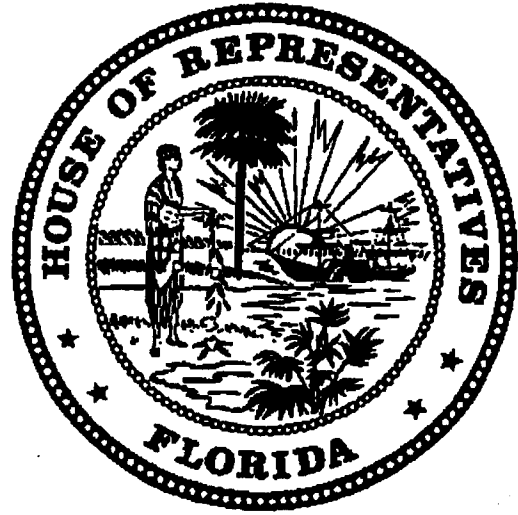
***Jeremy Susac, Director***  
***Florida Energy Office***  
Florida Department of Environmental Protection

***Lisa Polak Edgar, Chairman***  
Florida Public Service Commission

***Cindy Littlejohn, Director***  
***Governmental Affairs and Lecturer***  
University of Florida/Institute of Food and Agricultural Sciences (IFAS)

- IV. Closing Remarks by Chair Kreegel





## **Conference Report On**

### **Senate Bill 2800**

# **General Appropriations Act for Fiscal Year 2007-2008**

SECTION 39. The unexpended balance of the funds appropriated in Specific Appropriation 2233A of chapter 2006-25, Laws of Florida, to the Department of Highway Safety and Motor Vehicles related to the Fraudulent and Counterfeit Identification Documents grant shall revert immediately and is appropriated for the 2007-2008 fiscal year to the Department of Highway Safety and Motor Vehicles for the original purpose.

SECTION 40. The unexpended balance of the funds appropriated in Specific Appropriation 2233A of chapter 2006-25, Laws of Florida, to the Department of Highway Safety and Motor Vehicles related to the Florida Public Entity Seaport Security Terror Threat Protection grant shall revert immediately and is appropriated for the 2007-2008 fiscal year to the Department of Highway Safety and Motor Vehicles for the original purpose.

SECTION 41. The unexpended balance of funds provided in Specific Appropriations 2263, 2265, 2269, 2272, 2275, 2276 and 2289 of chapter 2006-25, Laws of Florida, for the Florida Rebuilds Program, shall revert immediately and is appropriated for the 2007-2008 fiscal year for the purpose of the original appropriation within the Agency for Workforce Innovation.

SECTION 42. The unexpended balance of the funds appropriated in Specific Appropriation 2309 of chapter 2006-25, Laws of Florida, to the Agency for Workforce Innovation related to the Early Learning Information System Development (ELIS) shall revert and is appropriated for the 2007-2008 fiscal year to the Agency for Workforce Innovation for the original purpose.

SECTION 43. The unexpended balance of funds provided in Specific Appropriation 2091A of chapter 2002-394, Laws of Florida, to the Department of Transportation which have been certified forward in the Public Transportation budget entity, Transportation Outreach Program appropriation category shall revert immediately and is appropriated for the same purpose for fiscal year 2007-2008 to the Department of Transportation, Transportation Systems Development budget entity for the purposes of the Transportation Outreach Program.

SECTION 44. The sum of \$2.1 million non-recurring funds is appropriated from the General Revenue Fund to the Division of Emergency Management for site preparation for emergency shelter operations. This section shall take effect immediately upon becoming law.

SECTION 45. The unexpended funds provided to the Department of Community Affairs for domestic security issues in Specific Appropriation 2233A of chapter 2006-25, Laws of Florida, and subsequently distributed to the Department of Community Affairs pursuant to budget amendments EOG# B2007-0014, and section 49 of chapter 2006-25, Laws of Florida, shall revert immediately and are appropriated for the 2007-2008 fiscal year to the Department of Community Affairs for the purpose of the original appropriations or reallocations between any of the funded projects approved by the Domestic Security Oversight Board.

SECTION 46. From the unexpended balance of Specific Appropriation 2238A of chapter 2006-25, Laws of Florida, \$31,500,000 from non-recurring general revenue funds shall revert immediately and is appropriated to the Department of Community Affairs for the state match on all open federally declared disasters.

SECTION 47. The Chief Financial Officer is hereby authorized to transfer \$105,200,000 in general revenue funds to the Budget Stabilization Fund for Fiscal Year 2007-2008 as required in section 19(g), Article III of the Constitution of the State of Florida.

SECTION 48. The sum of \$20 million in non-recurring funds is appropriated from the General Revenue Fund to the University of Florida, Institute of Food and Agricultural Sciences, for the purpose of establishing a research and demonstration cellulosic ethanol plant.

SECTION 49. The sum of \$12.5 million in non-recurring funds is appropriated from the General Revenue Fund to the Department of Environmental Protection for the purpose of funding the Renewable Energy Technologies Grants Program authorized in section 377.804(1)-(5), Florida Statutes.

SECTION 50. The sum of \$3.5 million in non-recurring funds is appropriated from the General Revenue Fund to the Department of Environmental Protection for the purpose of funding the Solar Energy

System Incentives Program authorized in section 377.806, Florida Statutes.

SECTION 51. The sum of \$25 million in non-recurring funds is appropriated from the General Revenue Fund to the Department of Agriculture and Consumer Services for the purpose of funding the Farm-to-Fuel Grants Program authorized in Senate Bill 2802.

SECTION 52. The sum of \$100,000 in non-recurring funds is appropriated from the General Revenue Fund to the Department of Community Affairs for the purposes of convening a workgroup to develop a model residential energy efficiency ordinance and to review the cost-effectiveness of energy efficiency measures in the construction of certain buildings as provided for in Senate Bill 2802.

SECTION 53. The sum of \$250,000 in non-recurring funds is appropriated from the General Revenue Fund to the Department of Community Affairs for the purposes of developing and implementing a public awareness campaign that promotes energy efficiency and the benefits of building green as provided for in Senate Bill 2802.

SECTION 54. The sum of \$250,000 in non-recurring funds is appropriated from the General Revenue Fund to the Department of Environmental Protection for the purposes of developing and implementing a public awareness campaign as provided for in Senate Bill 2802.

SECTION 55. The sum of \$400,000 in non-recurring funds is appropriated from the General Revenue Fund to the University of South Florida - Sarasota/Manatee to establish a center on energy research. The center shall be responsible for the collection and maintenance of current information on state-of-the-art energy technology.

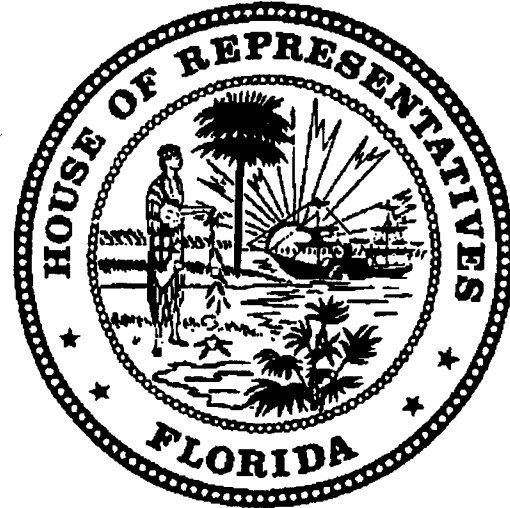
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SECTION 56. The Board of Trustees of the Internal Improvement Trust Fund shall continue to lease to the Florida State University the parcel of property identified as parcel number 410327 A0040, Leon County Florida.

SECTION 57. Any section of this act, or any appropriation herein contained, if found to be invalid shall in no way affect other sections or specific appropriations contained in this act.

SECTION 58. Except as otherwise provided herein, this act shall take effect July 1, 2007, or upon becoming law, whichever occurs later; however, if this act becomes law after July 1, 2007, then it shall operate retroactively to July 1, 2007.

|                                                |               |
|------------------------------------------------|---------------|
| TOTAL THIS GENERAL APPROPRIATION ACT POSITIONS | 114,756.74    |
| FROM GENERAL REVENUE FUND . . . . .            | 29214,960,192 |
| FROM TRUST FUNDS . . . . .                     | 42738,351,288 |
| TOTAL ALL FUNDS . . . . .                      | 71953,311,480 |
| TOTAL APPROVED SALARY RATE . . . . .           | 4676,093,488  |



# **Conference Reports**

## **Appropriations Implementing and Conforming Bills**

### **Fiscal Year 2007-2008**

- SB 2802 – Appropriations Implementing**
- CS/CS/SB 450 – Florida Teachers Lead Program Stipend**
- CS/SB 1046 – Education**
- CS/SB 1060 – Educational Facilities**
- CS/SB 1064 – Facility Enhancement Challenge Grant Program**
- CS/SB 1088 – Due Process**
- CS/SB 1100 – Securities Transactions Regulation**
- CS/SB 1104 – Vessels/Registration Fee**
- CS/SB 1116 – Health Care**
- CS/SB 1124 Home Services/Persons with Disabilities**
- CS/SB 1126 – Statewide Tobacco Education and Prevention**
- CS/SB 1134 – Transportation**
- CS/SB 1420 – State Employment**
- HB 7063 – Excise Taxes on Fuel and Other Pollutants**
- HB 7065 -- Medicaid**
- HB 7069 – Pari-mutuel Wagering Trust Fund**
- HB 7085 – Retirement**

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1 use those books provided by the department. This subsection  
2 expires July 1, 2008.



3 Section 47. In order to implement Section 51 of the  
4 2007-2008 General Appropriations Act, section 570.957, Florida  
5 Statutes, is created to read:

6 570.957 Farm-to-Fuel Grants Program.--

7 (1) As used in this section, the term:

8 (a) "Bioenergy" means useful, renewable energy  
9 produced from organic matter through the conversion of the  
10 complex carbohydrates in organic matter to energy. Organic  
11 matter may either be used directly as a fuel, processed into  
12 liquids and gases, or be a residue of processing and  
13 conversion.

14 (b) "Department" means the Department of Agriculture  
15 and Consumer Services.

16 (c) "Person" means an individual, partnership, joint  
17 venture, private or public corporation, association, firm,  
18 public service company, or any other public or private entity.

19 (d) "Renewable energy" means electrical, mechanical,  
20 or thermal energy produced from a method that uses one or more  
21 of the following fuels or energy sources: hydrogen, biomass,  
22 solar energy, geothermal energy, wind energy, ocean energy,  
23 waste heat, or hydroelectric power.

24 (2) The Farm-to-Fuel Grants Program is established  
25 within the department to provide renewable energy matching  
26 grants for demonstration, commercialization, research, and  
27 development projects relating to bioenergy projects.

28 (a) Matching grants for bioenergy demonstration,  
29 commercialization, research, and development projects may be  
30 made to any of the following:

31 1. Municipalities and county governments.



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1           2. Established for-profit companies licensed to do  
2 business in the state.

3           3. Universities and colleges in the state.

4           4. Utilities located and operating within the state.

5           5. Not-for-profit organizations.

6           6. Other qualified persons, as determined by the  
7 Department of Agriculture and Consumer Services.

8           (b) The department may adopt rules to provide for  
9 allocation of grant funds by project type, application  
10 requirements, ranking of applications, and awarding of grants  
11 under this program.

12           (c) Factors for consideration in awarding grants may  
13 include, but are not limited to, the degree to which:

14           1. The project produces bioenergy from Florida-grown  
15 crops or biomass.

16           2. The project demonstrates efficient use of energy  
17 and material resources.

18           3. Matching funds and in-kind contributions from an  
19 applicant are available.

20           4. The project has a reasonable assurance of enhancing  
21 the value of agricultural products or will expand agribusiness  
22 in the state.

23           5. Preliminary market and feasibility research has  
24 been conducted by the applicant or others and shows there is a  
25 reasonable assurance of a potential market.

26           6. The project stimulates in-state capital investment  
27 and economic development in metropolitan and rural areas,  
28 including the creation of jobs and the future development of a  
29 commercial market for bioenergy.

30           7. The project incorporates an innovative new  
31 technology or an innovative application of an existing

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1 technology.

2 (d) In evaluating and awarding grants under this  
3 section, the department shall consult with and solicit input  
4 from the Department of Environmental Protection.

5 (e) In determining the technical feasibility of grant  
6 applications, the department shall coordinate and actively  
7 consult with persons having expertise in renewable energy  
8 technologies.

9 (f) In determining the economic feasibility of  
10 bioenergy grant applications, the department shall consult  
11 with the Office of Tourism, Trade, and Economic Development.

12 (3) This section expires July 1, 2008.

13 Section 48. In order to implement Sections 52, 53, and  
14 54 of the 2007-2008 General Appropriations Act:

15 (1) The Florida Building Commission shall convene a  
16 workgroup comprised of representatives from the Florida Energy  
17 Commission, the Department of Community Affairs, the Building  
18 Officials Association of Florida, the Florida Energy Office,  
19 the Florida Home Builders Association, the Association of  
20 Counties, the League of Cities, and other stakeholders to  
21 develop a model residential energy efficiency ordinance that  
22 provides incentives to meet energy efficiency standards. The  
23 commission must report back to the Legislature with a  
24 developed ordinance by March 1, 2008.

25 (2) The Florida Building Commission shall, in  
26 consultation with the Florida Energy Commission, the Building  
27 Officials Association of Florida, the Florida Energy Office,  
28 the Florida Home Builders Association, the Association of  
29 Counties, the League of Cities, and other stakeholders, review  
30 the Florida Energy Code for Building Construction.

31 Specifically, the commission shall revisit the analysis of

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1 cost-effectiveness that serves as the basis for energy  
2 efficiency levels for residential buildings, identify  
3 cost-effective means to improve energy efficiency in  
4 commercial buildings, and compare the code to the  
5 International Energy Conservation Code and the American  
6 Society of Heating Air-Conditioning and Refrigeration  
7 Engineers Standards 90.1 and 90.2. The commission shall  
8 provide a report with a standard to the Legislature by March  
9 1, 2008, that may be adopted for the construction of all new  
10 residential, commercial, and government buildings.

11 (3) The Florida Building Commission, in consultation  
12 with the Florida Solar Energy Center, the Florida Energy  
13 Commission, the Florida Energy Office, the United States  
14 Department of Energy, and the Florida Home Builders  
15 Association, shall develop and implement a public awareness  
16 campaign that promotes energy efficiency and the benefits of  
17 building green by January 1, 2008. The campaign shall include  
18 enhancement of an existing web site from which all citizens  
19 can obtain information pertaining to green building practices,  
20 calculate anticipated savings from use of those options, as  
21 well as learn about energy efficiency strategies that may be  
22 used in their existing home or when building a home. The  
23 campaign shall focus on the benefits of promoting energy  
24 efficiency to the purchasers of new homes, the various green  
25 building ratings available, and the promotion of various  
26 energy-efficient products through existing trade shows. The  
27 campaign shall also include strategies for utilizing print  
28 advertising, press releases, and television advertising to  
29 promote voluntary utilization of green building practices.

30 (4) The Department of Environmental Protection shall  
31 develop a public awareness campaign that promotes the

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1 effective use of energy in the state and discourages all forms  
2 of energy waste. The campaign shall also include strategies  
3 for utilizing print advertising, press releases, and  
4 television advertising to promote energy education and the  
5 public dissemination of information on energy and its  
6 environmental, economic, and social impact.

7 (5) This section expires July 1, 2008.

8 Section 49. In order to implement Section 48 of of the  
9 2007-2008 General Appropriations Act:

10 (1) Research and demonstration cellulosic ethanol  
11 plant.--There shall be constructed a multifaceted research and  
12 demonstration cellulosic ethanol plant designed to conduct  
13 research and to demonstrate and advance the commercialization  
14 of cellulose-to-ethanol technology, including technology  
15 licensed from the University of Florida, and to facilitate  
16 further research and testing of multiple cellulosic feedstocks  
17 in the state.

18 (2) The University of Florida shall act as the owner  
19 and proprietor of the facility, which shall include a  
20 permanent research and development laboratory operated as a  
21 satellite facility of the Institute of Food and Agricultural  
22 Sciences at the University of Florida. This facility shall be  
23 used to convert the initially treated material to the final  
24 ethanol product.

25 (3) The facility shall be located near an industrial  
26 site with infrastructure already developed to avoid or reduce  
27 significant capital costs for waste treatment and roads, shall  
28 be served by a range of suppliers and transportation  
29 companies, and shall be in good proximity to gasoline and  
30 ethanol blending facilities on either coast of the state. The  
31 industrial site shall have the capacity to provide steam and

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1 electric power, waste treatment, and a steady stream of  
2 feedstocks, including, but not limited to, bagasse, woody  
3 biomass, and cane field residues, to allow a commercial scale  
4 plant to operate year around.

5 (4) The facility shall be located near preexisting  
6 onsite technical support staff and other resources for  
7 electrical, mechanical, and instrumentation services. In  
8 addition, the facility shall have access to preexisting onsite  
9 laboratory facilities and scientific personnel and shall  
10 include the critical aspects of connecting to existing  
11 facilities and meeting construction codes and permit  
12 requirements.

13 (5) There shall be a scientific and technical advisory  
14 panel to advise on the technology to be applied.

15 (6) Subject to the rights of any third parties arising  
16 under any licenses granted by the university or its affiliates  
17 prior to the effective date of this act, ownership of all  
18 patents, copyrights, trademarks, licenses, and rights or  
19 interests shall vest in the university on behalf of the state.  
20 The university, pursuant to s. 1004.23, Florida Statutes,  
21 shall have the right to use and the right to retain derived  
22 revenues subject to the continuing approval of the  
23 Legislature.

24 (7) The Senior Vice President for the Institute of  
25 Food and Agricultural Sciences at the University of Florida  
26 shall ensure that applicable, nonproprietary research results  
27 and technologies from the plant authorized under this  
28 initiative are adapted, made available, and disseminated  
29 through its respective services, as appropriate.

30 (8) Within 2 years after enactment of this act, the  
31 Senior Vice President for the Institute of Food and

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1 Agricultural Sciences at the University of Florida shall  
2 submit to the President of the Senate and the Speaker of the  
3 House of Representatives a report on the activities conducted  
4 under this section.

5 (9) This section expires on July 1, 2008.

6 Section 50. In order to implement Section 49 of the  
7 2007-2008 General Appropriations Act, subsection (6) of  
8 section 377.804, Florida Statutes, is amended to read:

9 377.804 Renewable Energy Technologies Grants  
10 Program.--

11 ~~(6) The department shall coordinate and actively~~  
12 ~~consult with the Department of Agriculture and Consumer~~  
13 ~~Services during the review and approval process of grants~~  
14 ~~relating to bioenergy projects for renewable energy~~  
15 ~~technology, and the departments shall jointly determine the~~  
16 ~~grant awards to these bioenergy projects. No grant funding~~  
17 ~~shall be awarded to any bioenergy project without such joint~~  
18 ~~approval. Factors for consideration in awarding grants may~~  
19 ~~include, but are not limited to, the degree to which:~~

20 ~~(a) The project stimulates in state capital investment~~  
21 ~~and economic development in metropolitan and rural areas,~~  
22 ~~including the creation of jobs and the future development of a~~  
23 ~~commercial market for bioenergy.~~

24 ~~(b) The project produces bioenergy from Florida grown~~  
25 ~~crops or biomass.~~

26 ~~(c) The project demonstrates efficient use of energy~~  
27 ~~and material resources.~~

28 ~~(d) The project fosters overall understanding and~~  
29 ~~appreciation of bioenergy technologies.~~

30 ~~(e) Matching funds and in kind contributions from an~~  
31 ~~applicant are available.~~

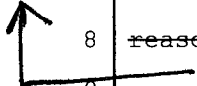
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1 ~~(f) The project duration and the timeline for~~  
2 ~~expenditures are acceptable.~~

3 ~~(g) The project has a reasonable assurance of~~  
4 ~~enhancing the value of agricultural products or will expand~~  
5 ~~agribusiness in the state.~~

6 ~~(h) Preliminary market and feasibility research has~~  
7 ~~been conducted by the applicant or others and shows there is a~~  
8 ~~reasonable assurance of a potential market.~~



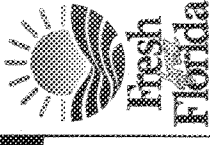
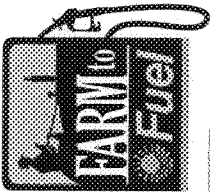
9 Section 51. In order to implement Specific  
10 Appropriations 2659, 2661, 2662, and 2665 of the 2007-2008  
11 General Appropriations Act, for the 2007-2008 fiscal year only  
12 and notwithstanding any conflicting requirements of section 4  
13 of chapter 2006-12, Laws of Florida, the Department of  
14 Financial Services may expend \$846,021 of the funds  
15 appropriated by section 4 of chapter 2006-12, Laws of Florida,  
16 for salaries and related expenses.

17 Section 52. The amendments to s. 377.804, Florida  
18 Statutes, made by this act shall expire July 1, 2008, and the  
19 text of that section shall revert to that in existence on June  
20 30, 2007, except that any amendments to such text enacted  
21 other than by this act shall be preserved and continue to  
22 operate to the extent that such amendments are not dependent  
23 upon the portions of such text which expire pursuant to this  
24 section.

25 Section 53. A section of this act that implements a  
26 specific appropriation or specifically identified proviso  
27 language in the 2007-2008 General Appropriations Act is void  
28 if the specific appropriation or specifically identified  
29 proviso language is vetoed. A section of this act that  
30 implements more than one specific appropriation or more than  
31 one portion of specifically identified proviso language in the





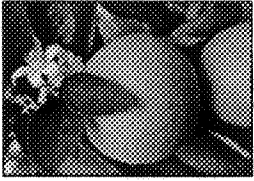
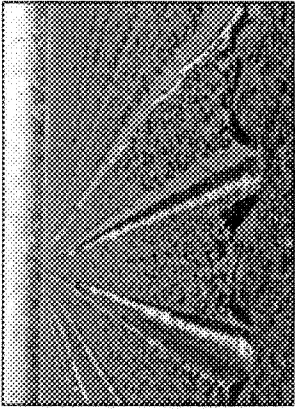
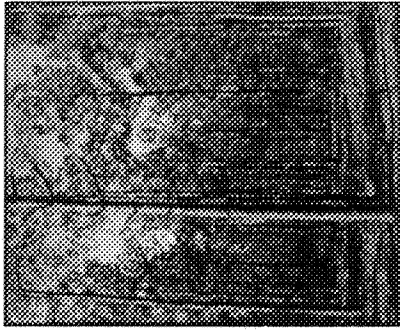


# Committee on Energy

October 2, 2007

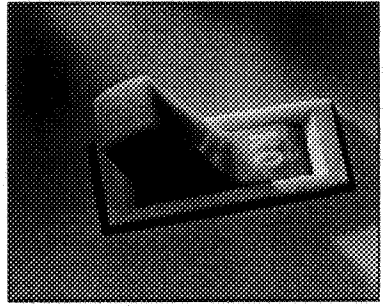
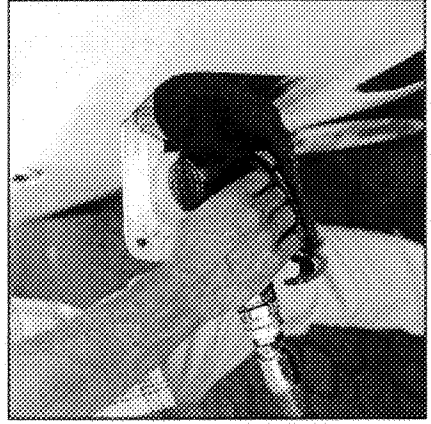
# Farm to Fuel Status Report

Jay S. Levenstein, Deputy Commissioner  
Florida Department of Agriculture  
and Consumer Services  
**CHARLES H. BRONSON COMMISSIONER**



**WHY FARM**

**TO FUEL?**



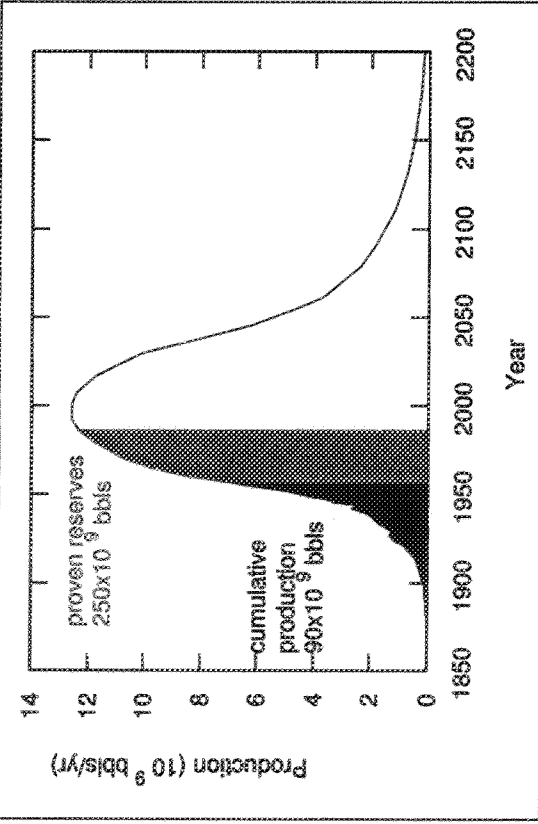


Image: Hubbert Peak Oil from Wikipedia

# Peak Oil

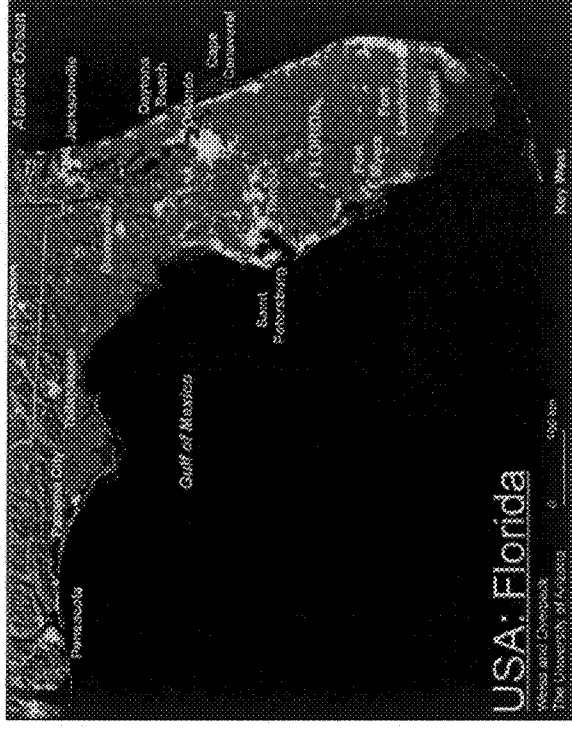
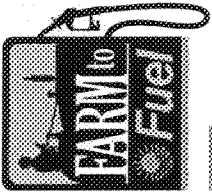
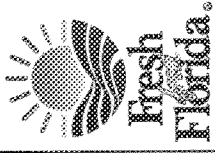


Image: Weiss and Overpeck, The University of Arizona

# Global Warming



# FLORIDA FUEL

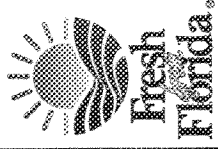
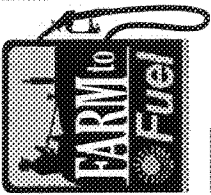


## Transportation Fuel

- Florida depends almost exclusively on other states and nations for supplies of oil and gasoline
- Florida consumes more than 10 billion gallons of gasoline and diesel fuel per year
- Florida is the 3rd largest consumer of gas in the U.S.
- No ethanol production
- Limited biodiesel production
- Limited ethanol/biodiesel availability

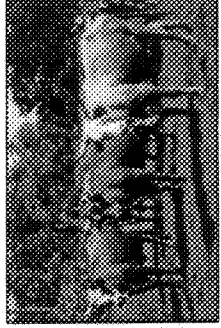
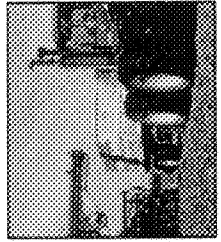
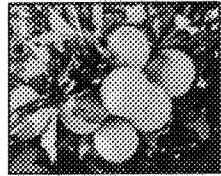
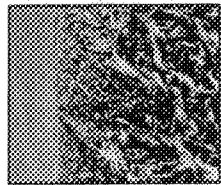
## Electricity

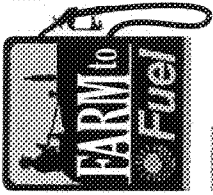
- Florida's per-household consumption of electricity is among the highest in the United States (5.1%)
- More petroleum-fired electricity is generated in Florida than in any other State (15.8%)
- Florida's natural gas-fired electricity generation accounts for 11.4% of US share
- Renewables represent 3% of electricity generation
- More than 70% from fossil fuels



# FLORIDA FARMS

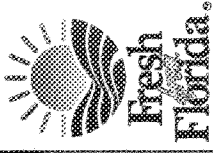
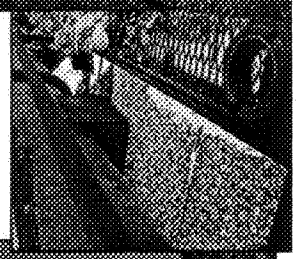
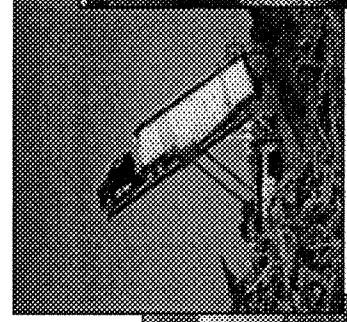
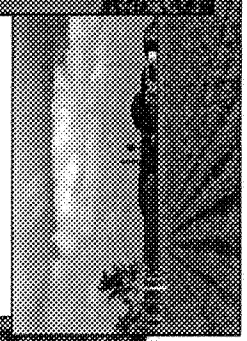
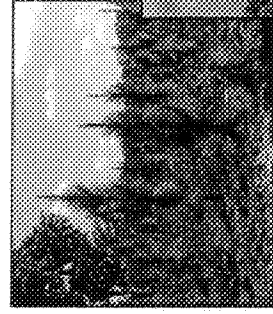
- Total economic impact of \$97.84 billion
- Florida ranks 1<sup>st</sup> in the U.S. in the value of production of:
  - oranges (67%)
  - grapefruit (61%)
  - tangerines (52%)
  - sugarcane for sugar and seed (47%)
  - fresh market tomatoes (35%)
  - cucumbers (30%)
  - watermelons (26%)
  - sweet corn, snap beans
- Florida ranked 2<sup>nd</sup> in the U.S. in sales of:
  - greenhouse and nursery products
  - bell peppers (32%), squash, strawberries
- 82 million trees are planted each year in Florida, making it one of the top four tree planting states in the nation
- Nationally, Florida ranks 11<sup>th</sup> in beef cows and 18<sup>th</sup> in total cattle.

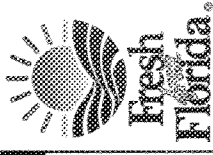
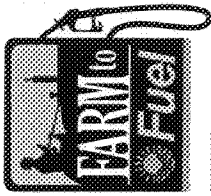




# Biomass in Florida

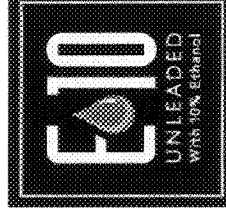
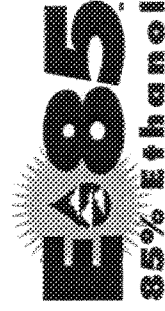
- 41,000 farms and ranches
- 10 million acres cropland
- 15.5 million acres of timberland
- 3.4 million acres of pastureland
- Marginal land can be used to grow energy crops
- Fast-growing trees and crops
- Agricultural residues
- Animal manures
- Forest debris and thinnings, undergrowth in timber stands
- Leftover materials from the wood products industry
- Urban wood waste
- Invasive species

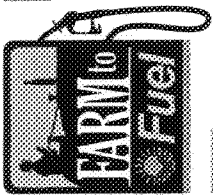




# Ethanol

- An alcohol-based alternative fuel **typically** produced by fermenting and distilling starch crops that have been converted into simple sugars.
- **Cellulosic Ethanol** - A blend of ethanol that can be produced from a great diversity of biomass including waste from urban, agricultural, and forestry sources.
- Ethanol can be blended with gasoline to create E85, a blend of 85% ethanol and 15% gasoline or up to 10% for use in all vehicles.

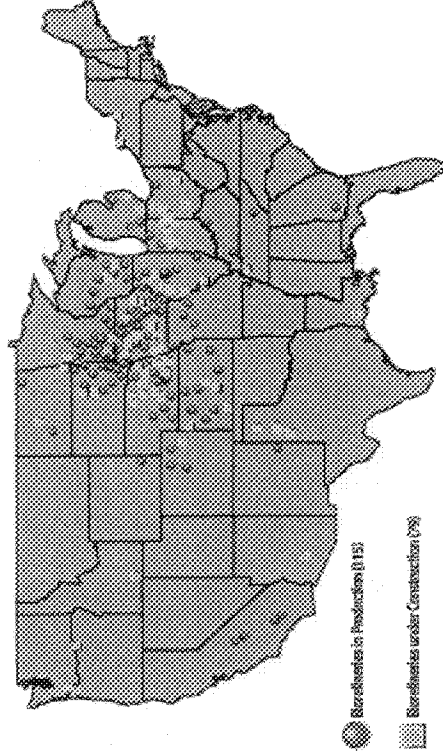




# U.S. Ethanol Industry

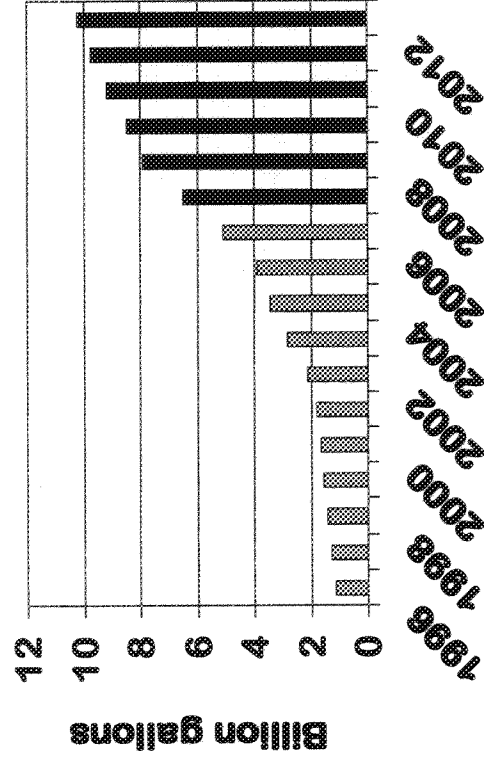
(as of June 2007)

- 128 plants with more than 6.7 bgy capacity
- 77 plants under construction and 7 expansions will add more than 6.6 bgy of new production in 2009
- Less than 5% of market
- No Florida plants....yet

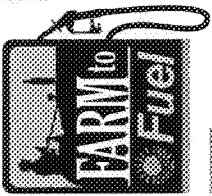


Source: Renewable Fuels Association 4/2007

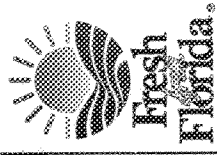
### U.S. Ethanol Production





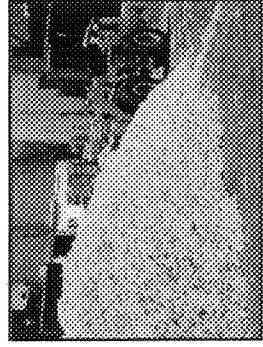


## Potential Ethanol Feedstocks



### Citrus Peel

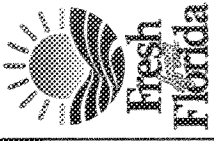
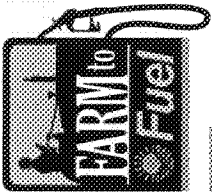
Florida's citrus processing plants produce 5 million tons of citrus waste annually which can be used to produce millions of gallons of ethanol per year.



### Bagasse

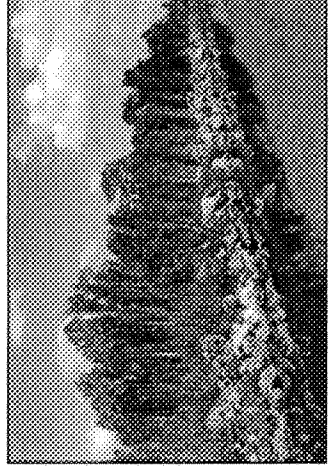
Over one million tons of bagasse are annually produced by the Florida Sugar Industry and used as boiler fuel for steam and power cogeneration. Its value can be upgraded by converting it to ethanol.

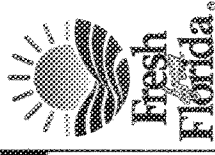
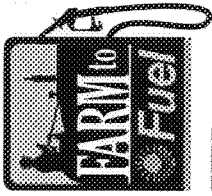




# Invasive Species

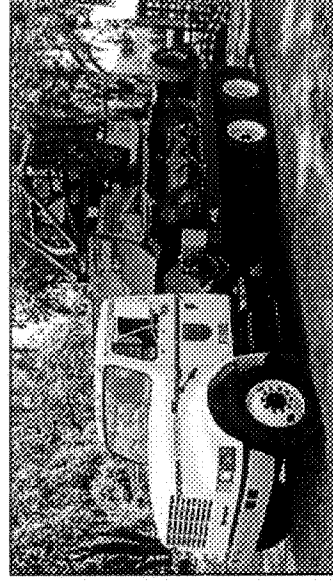
Florida's thousands of acres of invasive species are a potential source of energy or fuel. Melaleuca infests approximately 500,000 acres in the Everglades region and Brazilian Pepper occupies more than 700,000 acres.

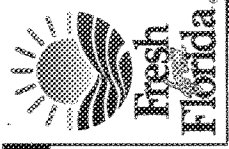
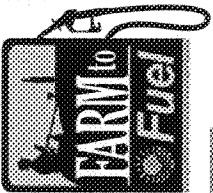




# Biodiesel

- Biodiesel means the mono-alkyl esters of long-chain fatty acids derived from plant or animal matter for use as a source of energy.
- Biodiesel can be blended with diesel to create a blend for use in all diesel powered vehicles.
- Most prevalent feedstock is soybean although others show promise.

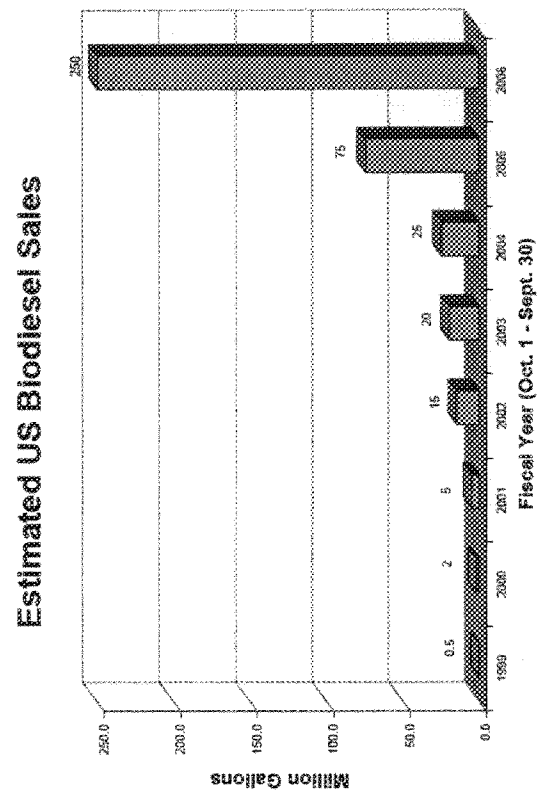
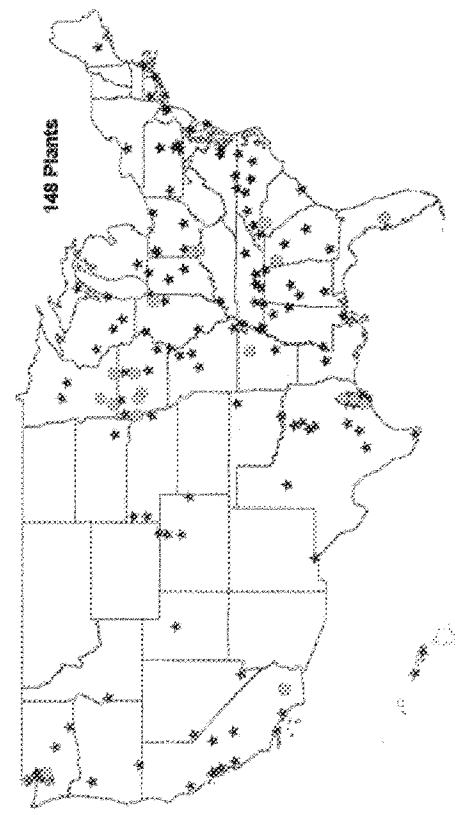


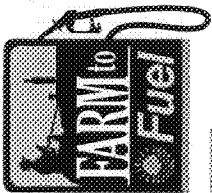


# U.S. Biodiesel Industry

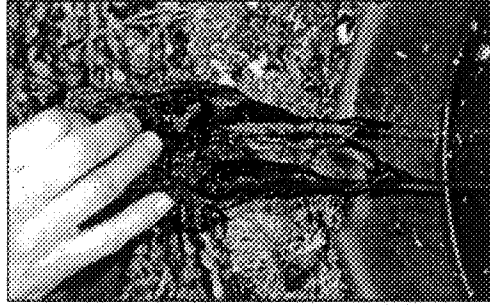
(as of June 2007)

- 148 plants with over 1.39 bgy capacity
- 96 plants under construction and 5 expansions will add 1.89 bgy
- 2 Florida plants





# Potential Biodiesel Feedstocks



## Algae

Some species of algae are ideally suited to biodiesel production due to their high oil content and extremely fast growth rates.

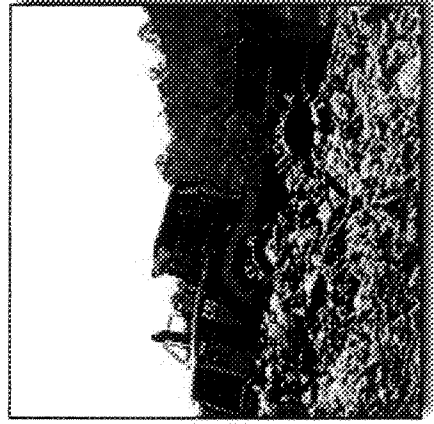
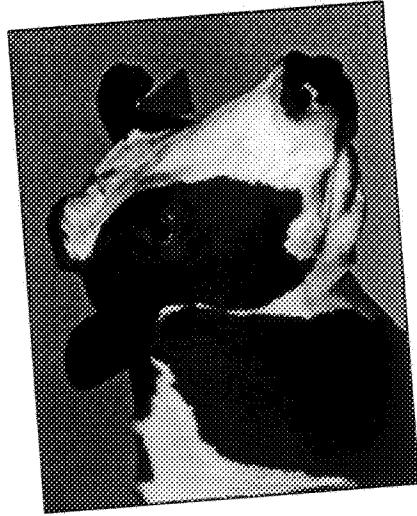


## Jatropha

Jatropha can produce more than 1,000 gallons of biodiesel per acre per year. It is resistant to drought and thrives on any type of soil.

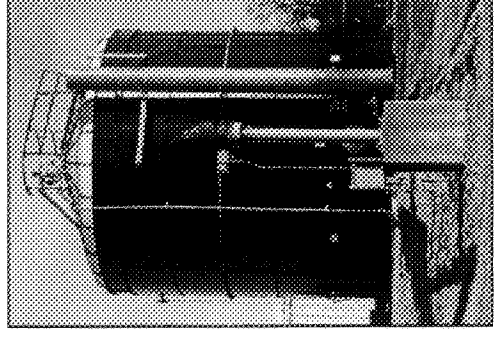
# Biogas

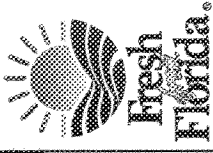
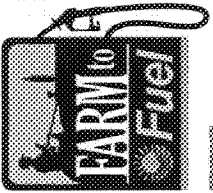
- Biogas typically refers to a (biofuel) gas produced by the anaerobic digestion or fermentation of organic matter including manure, sewage sludge, municipal solid waste, biodegradable waste or any other biodegradable feedstock, under anaerobic conditions. Biogas is comprised primarily of methane and carbon dioxide.



# Anaerobic Digesters

- **Benefits**
  - Reduced pathogens
  - Reduced odors
  - Production of "green energy"
  - One day's manure from 100 cows has about the same energy content as 1 barrel of oil
  - Improved water quality
  - High quality byproducts
- **Barriers**
  - Initial capital costs
  - Cost for a digester is ~\$550 per cow
  - Requires modifying lagoons or installing new digester tanks
  - Interconnection issues
  - Compensation for excess power



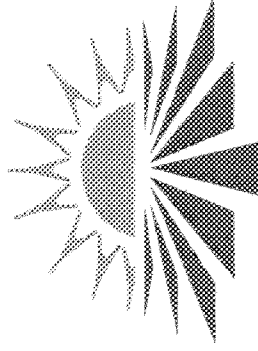


## **25x'25 VISION:**

***By the year 2025, America's farms, ranches and forests will provide 25 percent of the total energy consumed in the U.S. while continuing to produce safe, abundant and affordable food, feed and fiber.***

### **Endorsed by:**

- Florida Department of Agriculture and Consumer Services
- Florida Cabinet (2006)
- Florida Legislature (2007)
- University of Florida
- Florida Farm Bureau Federation
- Florida Fruit and Vegetable Association
- Florida Forestry Association
- Florida International University
- Taylor County Board of Commissioners

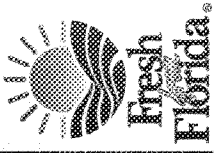
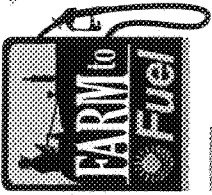


**25x'25**

**AMERICA'S  
ENERGY FUTURE**

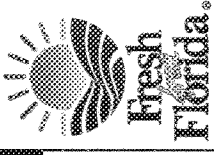
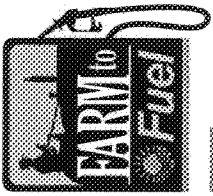
**[www.25x25.org](http://www.25x25.org)**





# 25x'25 goal will be met by...

- Producing transportation fuels
  - 86 billion gallons of ethanol
  - 1.1 billion gallons of biodiesel
- Harnessing wind energy
- Converting biogas emissions
- Capturing solar energy
- Providing biomass for generating heat and power
  - 932 billion kwh of electricity
  - 15.45 quads of energy



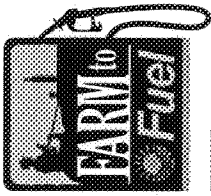
# Farm to Fuel Initiative

(s. 570.954, Florida Statutes)

(1) The department may develop a farm-to-fuel initiative to enhance the market for and promote the production and distribution of renewable energy from Florida-grown crops, agricultural wastes and residues, and other biomass and to enhance the value of agricultural products or expand agribusiness in the state.

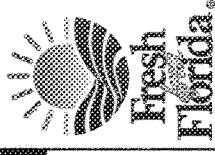
(2) The department may conduct a statewide comprehensive information and education program aimed at educating the general public about the benefits of renewable energy and the use of alternative fuels.



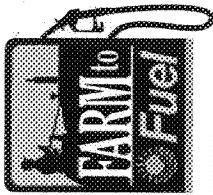


# **Farm-to-Fuel Grants Program**

## **(s. 570.957, Florida Statutes)**



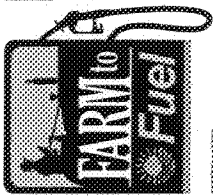
- Established within FDACS to provide renewable energy matching grants for demonstration, commercialization, research, and development projects relating to bioenergy.
- Matching grants may be made to any of the following:
  - Municipalities and county governments
  - Established for-profit companies licensed to do business in the state
  - Universities and colleges in the state
  - Utilities located and operating within the state
  - Not-for-profit organizations



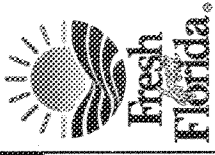
# Farm-to-Fuel Grants Program



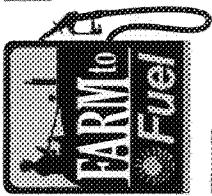
- Factors for consideration in awarding grants may include, but are not limited to:
  - Use of Florida-Grown Biomass
  - Energy Efficiency
  - Cost Share Percentage
  - Enhances the value of agricultural products or expands agribusiness
  - Market Potential
  - Economic Development (Commercial)
  - Innovative Technology
  - Project Progress and Timelines (Commercial)
- Funded at \$25 million
- Expires July 1, 2008



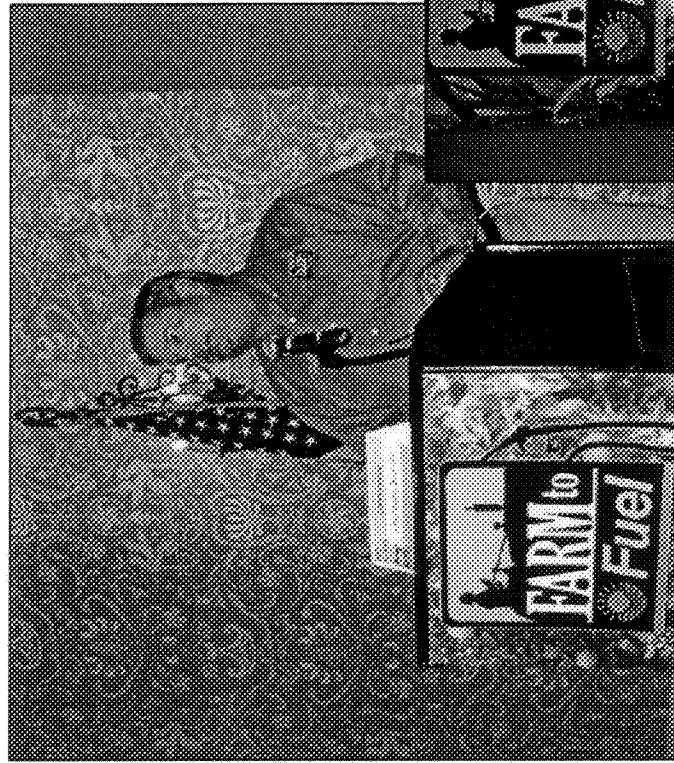
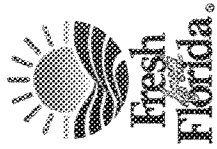
# Farm-to-Fuel Grants Program



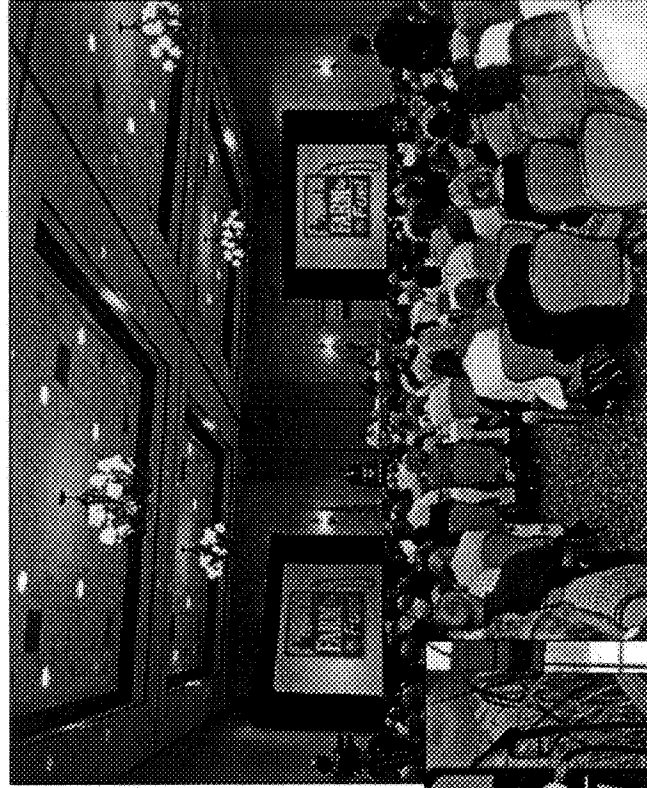
- \$22 Million for Commercialization Projects
  - \$250,000 minimum, \$7 million maximum
  - 2 year duration
- \$3 Million for Research, Development and Demonstration Projects
  - \$100,000 minimum, \$500,000 maximum
  - 3 year duration
- Minimum allowable match to be eligible for consideration for award shall be 25% of the total project costs
- Commercialization projects must be technically feasible based on:
  - pilot project demonstrations,
  - laboratory testing,
  - scientific modeling,
  - proven commercial production or engineering, or
  - chemical theory that supports the proposal
- Projects reviewed and scored by FDACS, DEP, and OTTED
- Application Deadline October 26, 2006
- Award Announcement January 15, 2008?
- <http://www.floridafarmtofuel.com/grant.htm>



# 2007 Farm to Fuel Summit

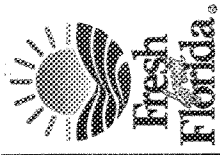
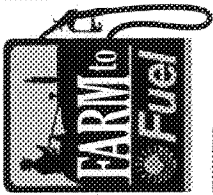


**St. Petersburg  
July 18-20, 2007**



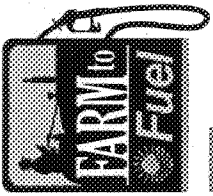
**450 Participants**





# **2008 Florida State Fair**

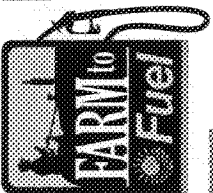
**Farm to Fuel  
Renewable Energy Exhibit  
February 7-18, 2008**



## House Bill 7123 (2007) VETOED

- Established the Biofuel Production Incentive Program and Biofuel Retail Sales Incentive Program
  - Created targets for biofuel consumption beginning at 3% for 2008 ramping up to 10% by 2012
- Expanded the Florida Renewable Energy Production tax credit so that it may be earned both for electricity sold and electricity used by the producer.
- Established standards for ethanol and diesel fuel purchases for use by state-owned vehicles
- Established standards for the use of biodiesel fuels by school district transportation services
- Required a study to be conducted to recommend an appropriate renewable portfolio standard for the state
- Required a study to be conducted to recommend the establishment of an energy efficiency and solar energy initiative (including net metering).





***Thank You!***

**[www.floridafarmtofuel.com](http://www.floridafarmtofuel.com)**



# Florida Building Commission

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## 2007 Legislative Assignments (SB 2802)

- ❖ Green Building Ordinance
- ❖ Public Awareness Campaign
- ❖ Energy Code Evaluation
- ❖ Report to Legislature

# Florida Building Commission

## 2007 Legislative Assignments

- "Green Building" Ordinance - model for local government
- Public awareness campaign - plan and implement in coordination with DEP
- Evaluate the Florida Energy Code - enhancement of minimum building efficiency standards
- Report to the Legislature February 2008

# Florida Building Commission

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## "Green Building" Initiative

- Joint Effort of the Commission, Cities, Counties, Energy Commission, DEP and Industry
- Utilizing the Florida Building Commission Stakeholder Consensus Process
  - Building Commission Workgroup to be created – October 2-3

# Florida Building Commission

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## "Green Building" Initiative (Continued)

- Green Building Forum in Tampa - October 1, 2007
- Stakeholder Workgroup Meetings
  - October – Gainesville
  - November – West Palm Beach
  - December - TBD
- Building Commission Recommendations - January 2008
- Report Delivered to Legislature - February 2008

# Florida Building Commission

## Public Awareness Campaign

### Joint Energy Office and Building Commission Initiative

- \$250,000 Appropriation to DEP/Energy Office
- \$250,000 Appropriation to DCA/Florida Building Commission
  - Additional resources from Commission outreach initiative

# Florida Building Commission

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## Public Awareness: Commission Focus

- Facilitate Development of Campaign with Stakeholder Groups and DEP Energy Office
- Green Building Website to be developed with an Energy Use Calculator for consumers.



# Florida Building Commission

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## Florida Energy Code Evaluation

- Compare to National Standards and Model Codes
  - Building Commission conducted a study in 2006 prior to development of 2007 Florida Building Code
- Energy and Economic Analysis being conducted by Florida Solar Energy Center to Identify Maximum Cost Effective Criteria
- Report to Legislature - February 2008

# Florida Building Commission

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Janice Browning, Director  
Division of Housing & Community Development  
Department of Community Affairs

[janice.browning@dca.state.fl.us](mailto:janice.browning@dca.state.fl.us)

850-922-1746





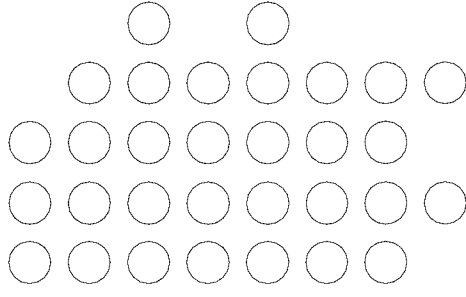
*The Florida Energy Office, the  
Florida Energy Act and Fiscal Year  
2007-2008 Funding*

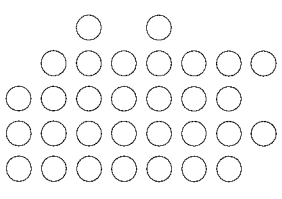
*House Energy Committee  
October 2, 2007*

*Jeremy Susac, Director*

*Florida Energy Office*

*Department of Environmental Protection*

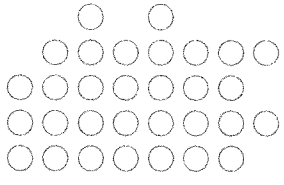




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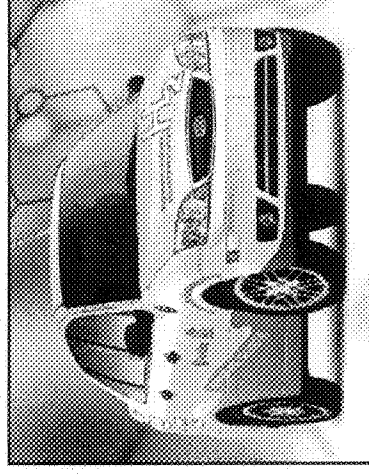
# *Agenda*

- Overview of the Florida Energy Office
- Implementation of the Florida Energy Act
- Fiscal Year 2007-2008 Energy Budget

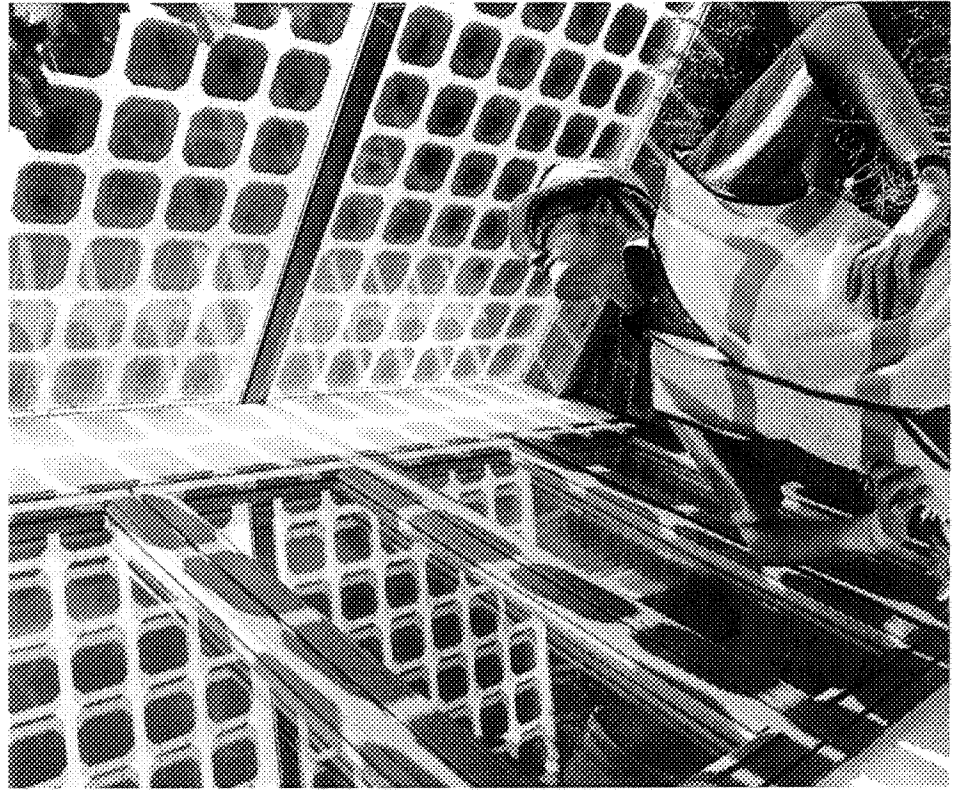
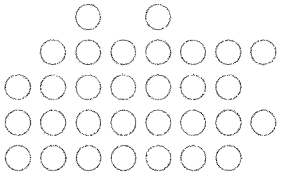


# *State Energy Program*

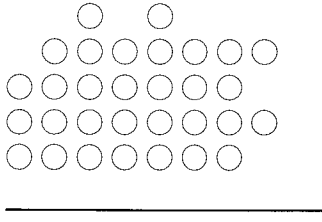
- Areas within the State Energy Program include:
  - Energy Efficiency
  - Bioenergy
  - Solar and Wind
  - Hydrogen
  - Other Renewable Energy
- During hurricane season and other natural disasters, the Florida Energy Office coordinates fuel supply and requests by local governments, law enforcement and healthcare facilities across Florida.



# Siting Coordination Program

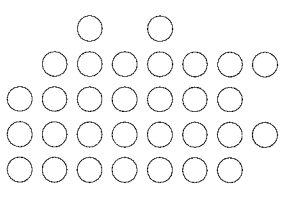


- The mission of the Siting Coordination program is to coordinate the review of siting applications submitted to the Department of Environmental Protection.
- Applications are submitted for specific projects:
  - Electrical Power Plants
  - Transmission Lines
  - High Speed Rails
  - Hazardous Waste Facilities
  - Natural Gas Pipelines
- Florida Statutes detail the specific projects that require siting coordination by the Florida Energy Office.



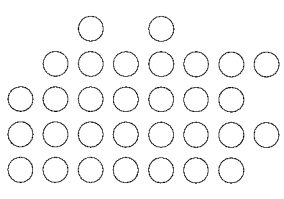
# *Implementation of the Florida Energy Act Fiscal Year 2007-2008 Energy Funding*





# *Florida Energy Act Implementation*

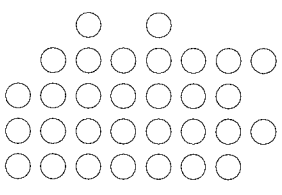
- Implementation by the Florida Energy Office:
  - Renewable Energy Grant Program
  - Renewable Energy Corporate Tax Program
    - Sales Tax Refund
    - Investment Tax Credit
  - Solar Energy Rebate Program



## *Renewable Energy Grant Program*

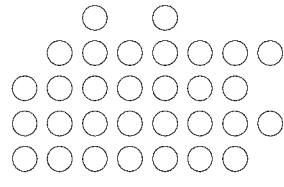
- **FY 2006-2007: \$15 million**
  - Included Bioenergy Grant Program
  - Eight grant recipients announced in February 2007
  - Funding currently awarded to four of the eight grant recipients
  - Projects are geographically diverse
- **FY 2007-2008: \$12.5 million**
  - Bioenergy Grant Program/Farm-to-Fuel transferred to the Department of Agriculture and Consumer Services in 2007
  - Grant proposals due October 18, 2007

# *Renewable Energy Corporate Tax Program – Sales Tax*

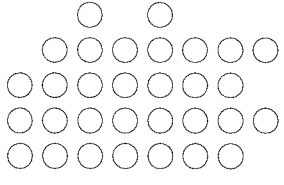


- The sale or use of specific “clean fuels” in Florida are sales tax exempt up to a specified threshold.
- The Department of Revenue has a Rule Development Workshop scheduled for October 8, 2007.
- The Florida Energy Office is responsible for reviewing, evaluating and issuing a written certification document for approved expenses that the applicant can submit to the Department of Revenue.
- To date, one application has been received.

# *Renewable Energy Corporate Tax Program – Investment Tax Credit*

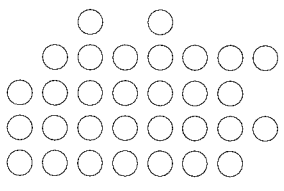


- The eligible costs for this program are 75 percent of all capital costs, operation and maintenance costs, and research and development costs incurred between July 1, 2006, and June 30, 2010, for hydrogen vehicles, fueling infrastructure, stationary hydrogen fuel cells, biodiesel and ethanol.
- The Florida Energy Office is responsible for evaluating applications and issuing a written certification document that the applicant can file with the Department of Revenue.
- Applicants may submit the credit with their 2007 state tax return.
- To date, two applications have been received.



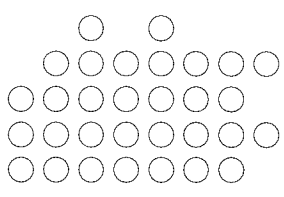
# *Solar Energy Rebate Program*

- **The Solar Energy Rebate Program began in July 2006. To date:**
  - Over \$3.9 million in rebates have been issued
  - 4,243 rebate applications have been received
  - 3,413 rebates have been approved
  - Approximately 24.3 megawatts annually will be deferred through these solar energy installations
  - Equivalent of approximately 34,973 homes would be removed from the grid through these solar energy installations
- **FY 2006-2007: \$2.5 million**
  - Funds were expended by May 2006
  - More than 2,200 rebates were issued
  - Almost 450 rebate applications were “carried over” to the 2007-2008 fiscal year
- **FY 2007-2008: \$3.5 million**
  - 1,177 rebates have been processed since July 2007



## *Public Outreach Campaign*

- Currently finalizing a Request for Proposal (RFP) to assist in designing and implementing an energy efficiency, conservation, and alternative fuel education campaign.
- The RFP will be released in October 2007.



## *Contact*

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**HOUSE ENERGY COMMITTEE**  
**October 2, 2007**

**Lisa Polak Edgar, Chairman**  
**Florida Public Service Commission**

**MISSION OF THE PSC**

- The PSC is committed to making sure that Florida's consumers receive their electric, natural gas, telephone, water and wastewater services in a safe, affordable, and reliable manner.

**REGULATORY AUTHORITY OF THE PSC OVER ELECTRIC UTILITIES**

- The PSC has complete ratemaking authority over the investor-owned electric companies in the state, establishing the rates they are allowed to charge to recover prudently incurred expenses and to earn a return on their investments.
- The PSC addresses long-range electric power supply issues (including the need for additional plants, conservation, renewable generation, and fuel diversity) and power plant and transmission line siting.
- The PSC conducts an annual proceeding to determine the appropriate amount of prudently incurred costs to be flowed through the cost recovery clauses: fuel, capacity, conservation, and environmental.

**ENERGY ACTIVITIES SINCE THE 2007 LEGISLATIVE SESSION**

**Storm Hardening** – The PSC has worked aggressively with the state's utilities to identify ways to improve the durability, resilience, and restoration capabilities of Florida's transmission and distribution system.

- Held second annual presentation by Florida electric utilities regarding storm preparedness activities prior to start of hurricane season.
- Conducted its initial review of utility storm hardening plans, and hearings are scheduled for October 2-4, 2007.

**Renewable Energy** – The PSC continues its efforts to advance the development of additional renewable energy sources in Florida:

- Approved standard offer contracts by Florida's investor-owned utilities to continuously offer to purchase capacity and energy from renewable generators.

- Held initial workshop to develop information on Renewable Portfolio Standards (RPS) (July 26, 2007).
- Held two follow-up technical staff workshops on RPS issue development (August 23 and September 27, 2007).
- Conducted a rule development workshop on net metering and interconnection standards for customer-owned renewable generating resources (August 30, 2007).

**Electric Generation Capacity – The PSC continues to balance the growing demand for energy with the importance of expanding energy security, conservation and diversification.**

- Implementing HB 549 which directed rulemaking on recovery of prudently incurred construction costs of IGCC plants.
- In June, 2007, after evidentiary hearings, denied FPL's need determination application for two 980 MW coal plants proposed in Glades County.
- Reviewed regulated utilities' ten-year site plans to assess the utilities' abilities to meet Florida's energy needs over a ten-year planning horizon.
- Held hearing on application for determination of need for pulverized coal generating plant proposed in Taylor County. Application has been withdrawn.



# **Bioenergy at UF/IFAS**

- **Florida can lead the nation in the Bioenergy sector of our nation's economy.**
  
- **Florida can be a technology leader for the development and commercialization of renewable fuels.**
  
- **Florida has made a significant public investment since the early 1980s. Currently:**
  - **UF/IFAS has more than 100 scientists working in bioenergy research, teaching, and extension**
  - **Dr. Lonnie Ingram and his team have 20 patents for cellulosic ethanol**

- Dr. Ingram patented a discovery that uses a strain of the *E. coli* bacteria to convert agricultural biomass and wastes into ethanol, which is a biofuel.
- Diversa which uses UF's patented enzymes, is the only company that has a demonstration/pilot plant in production in the world. It is in Japan and uses wood scraps from torn down houses for its feedstock.
- Under a new Center of Excellence for Bioenergy at UF, there is under construction in Gainesville a Biofuel Pilot Plant (\$2.25 million) to study biodiesel, cellulosic ethanol, other biogases.
- The state is building a new Research and Demonstration Cellulosic Ethanol Plant (\$20 million) near South Bay in Palm Beach County to be in full operation by February 2009.

- **Florida produces more biomass than any other state in the nation.**

- **Florida's 10 Million acres of Agricultural land and over 16 million acres of forestry land.**
- **Florida's climate.**

## ■ **What is Biomass?**

- **Biomass is defined as plant matter such as trees, grasses, agricultural crops or other biological material.**
- **Biomass can be used as a solid fuel or converted into liquid or gaseous forms for the production of electric power, heat, chemicals, or fuels.**
- **Cellulosic technology is not yet finalized for ethanol.**

# The Overall Objective

- To accelerate commercial development of bioenergy production in Florida:
  - by maximizing the amount of bioenergy produced per unit of biomass
  - by maximizing the amount of biomass produced per acre
  - by maintaining sustainability while minimizing the costs of production

# Two Parts to the Puzzle

## 1. The Conversion Process

- The process of making ethanol has four-parts: the pre-treatment, the enzymatic process; the plant construction itself (engineering); and the handling of the residues.

## 2. The Feedstocks (Biomass)



## **Why do we Need a Research and Demonstration Cellulosic Ethanol Plant?**

- Industry groups need an initial investment of \$120+ million to build a biomass ethanol plant.
- Needed are research/demonstration plant facilities to test, validate, develop, and implement current and new technologies with Florida feedstocks and bio-wastes.
- Needed are testing on process steps such as:
  1. Size reduction and storage and handling
  2. High temperature pretreatment
  3. Liquid-solid separations
  4. Seed tanks for growth of biocatalysts
  5. Fermentation, distillation, dewatering and water treatment

- The plant is also designed to focus on testing at a commercial scale level multiple feedstocks such as:
  - Woody biomass (forest thinnings, municipal green waste, and inedible crop residues (cane bagasse, peanut hulls, etc.).
    - “Every year there are about 45 million tons of woody waste dropped to the ground.”
  - Feedstocks containing soluble sugars (cane juice, cane molasses, citrus molasses, sweet sorghum) or starchy substrates such as corn using conventional yeast as biocatalysts.
  - Citrus waste and waste from food crops such as potatoes as supplemental feedstocks.
  - Invasive plants such as Brazilian pepper, maleleuca, etc.

# Status of the Research and Demonstration Cellulosic Ethanol Plant

- A site selection committee received 6 applications and recommended to negotiate with Florida Crystals for the location of the plant in Palm Beach County near South Bay, Florida.
- A Facilities Planning and Construction Committee is currently evaluating applications for companies for designing and building the plant.
- Planning is under way for the full operation of the plant by February, 2009

# Research Planned for the Cellulosic Ethanol Plant and the Center of Excellence Biofuel Plant

1. Develop energy crops (agricultural and forestry crops and waste, new varieties)
2. Process research and development (hydrolysis, fermentation, co-products of those processes)
3. Environmental impacts and sustainability (water, waste, climate, energy balance)
4. Economics and policy (incentives, C credits, rural development—to prepare us to advise landowners and industrial entrepreneurs)

# Research for New Varieties

- **Maximizing the Production of Biomass Energy Crops through New Varieties**
  - Tall grasses (elephantgrass, energycane) for energy
  - High starch potato varieties for ethanol production
  - Functional genomics of sugarcane to improve biomass yield and quality
  - Metabolic engineering of switchgrass for enhanced biomass quality
  - Short-rotation tree crops for energy
  - Genetically change some of the more promising feedstocks for even more efficient conversion, faster growth rates, bigger yields, etc.

Florida's overall goal?

To develop bioenergy crops, perfect and refine the processes and production steps, and at the same time demonstrate commercial viability of bioenergy production for Florida.

What does Florida get for Its Additional Public Investment?

New private investment in commercial plant facilities, conversion of green space to bioenergy plant production; new crops for our farmers, and accompanying economic development for all of Florida—both urban and rural.

# Further Opportunities for Florida

1. Additional opportunities for outside research funding from federal and private sources
2. Using the UF patented enzymes will guarantee a steady stream of royalty revenue back into the state for many years to come.
3. Most petroleum based products such as what we use to make Styrofoam cups and plastics, can be duplicated using biomass. Dr. Ingram and his team of scientists are already working on using Florida's biomass to make these materials, as well.