

# Space Coast Energy Consortium: Building a Clean Energy Economy on the Space Coast

Florida Redevelopment Association

October 20, 2011

# What is the Space Coast Energy Consortium?

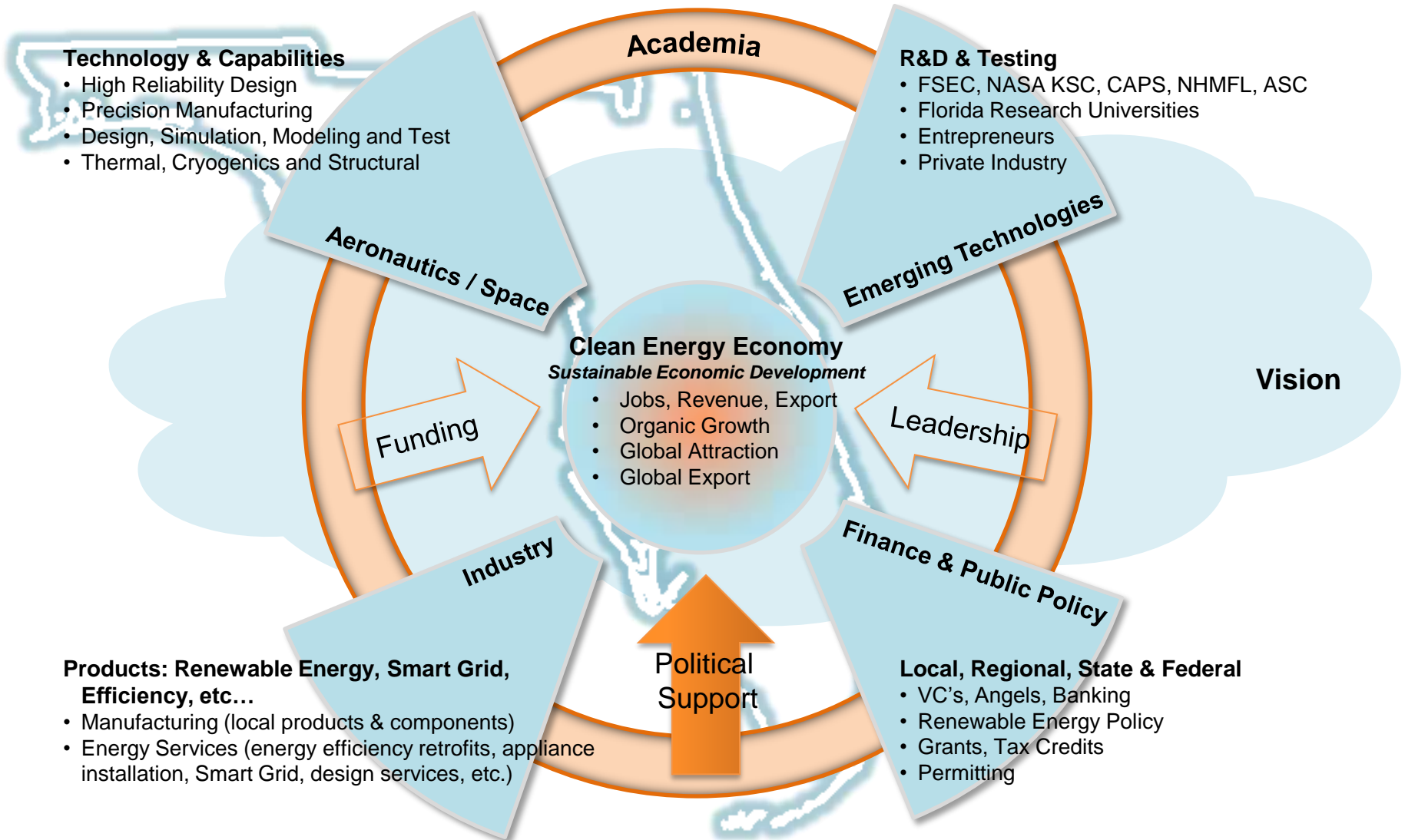
- Group of local businesses and community leaders devoted to:
  - Develop and foster a new “innovation ecosystem” in the Space Coast and Central Florida region focused on energy-related products and services
  - Build a clean, high-growth and sustainable energy economy with global impact!
  - Assist the transformation of the Space Coast region and Central Florida by redeploying assets to be competitive in today’s global knowledge economy



# Where did the SCEC come from?

- Result of Brevard's Strategic Doing Forum
  - Identified “Energy” as a desired focus for a clean and emerging industry on the Space Coast.
- Focused on accelerating the process, a small group of volunteers committed to forming an Energy Consortium
- Accelerated very quickly:
  - Organized Energy Symposium on September 14, 2010
  - Formal incorporation of the Consortium as a non-profit in late September
  - Space Coast Energy Launch Event in January 2011 inaugurated Consortium Working Groups
  - Florida Energy Policy Forum - February 2011
  - Pathways to Energy Careers for the KSC Workforce - April 2011
  - Clean Energy Emerging Company Workshops – May & August 2011

# SCEC - Vision



# Areas of Focus

## Conservation

- Energy Efficiency Programs
- Generate Demand, Drive Development of Local Energy Economy
- Save \$\$\$

## Generation

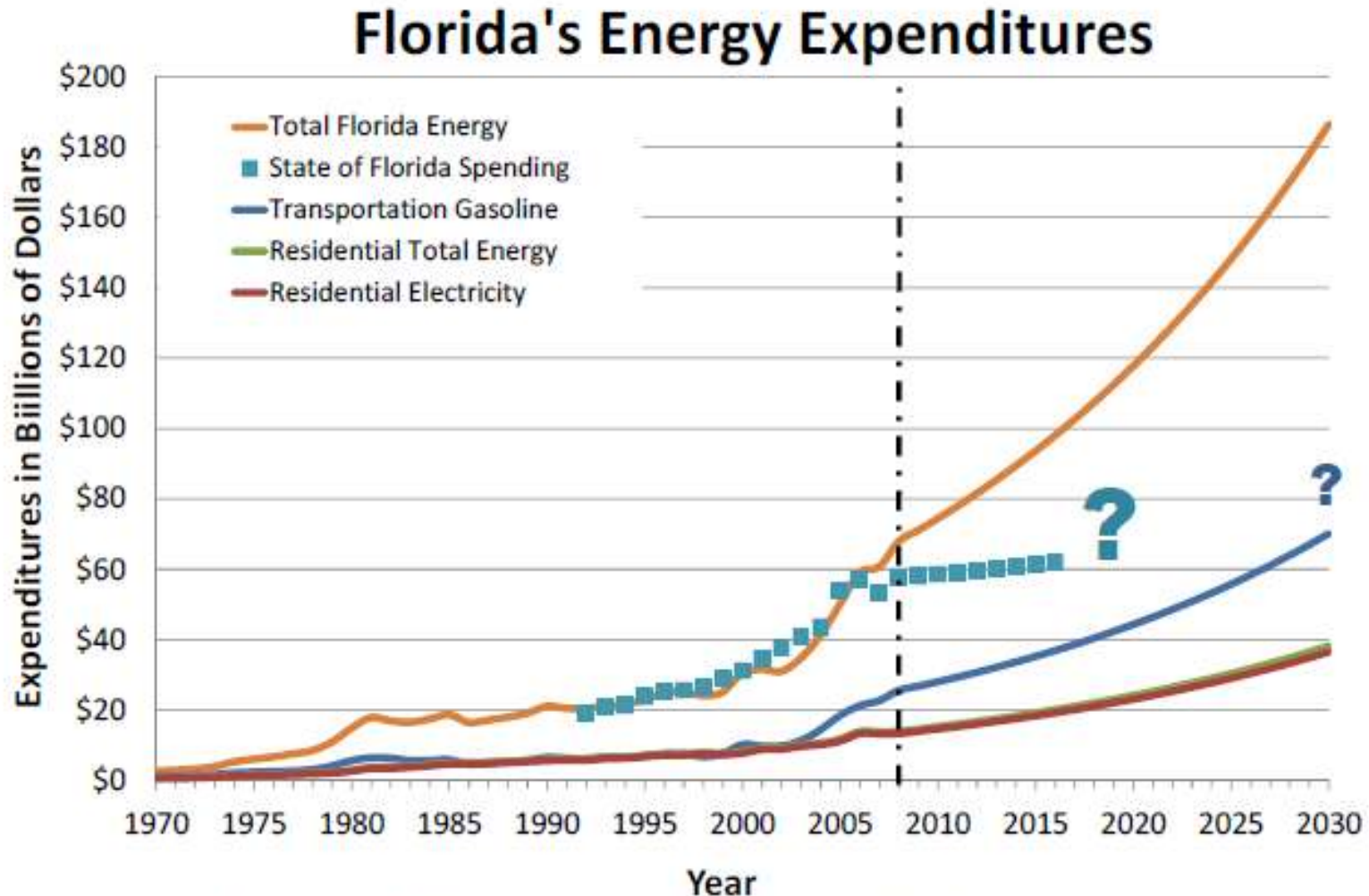
- Develop clean energy sources/sectors
- Improve existing technologies

## Transmission & Distribution

- Interactive Metering/Smart Grid
- Integrate distributed generation sources
- Develop “backbone” for offshore wind/Gulf Stream generation
- Efficient high power conversion and transmission
- Integrate Storage Solutions



# Florida Spends \$60 Billion per year on Energy Costs



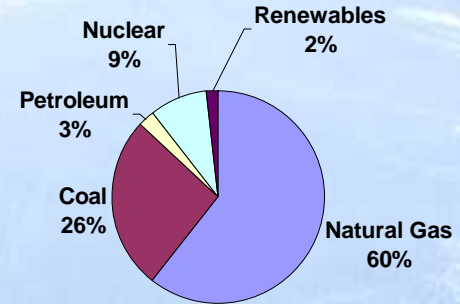
EIA Energy Price Data and usgovernmentsspending.com for State of Florida Spending

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# Global Energy – A “Hungry” Market

Existing and expanding global economies have a large appetite for Energy...  
 ...with no signs of letting up!

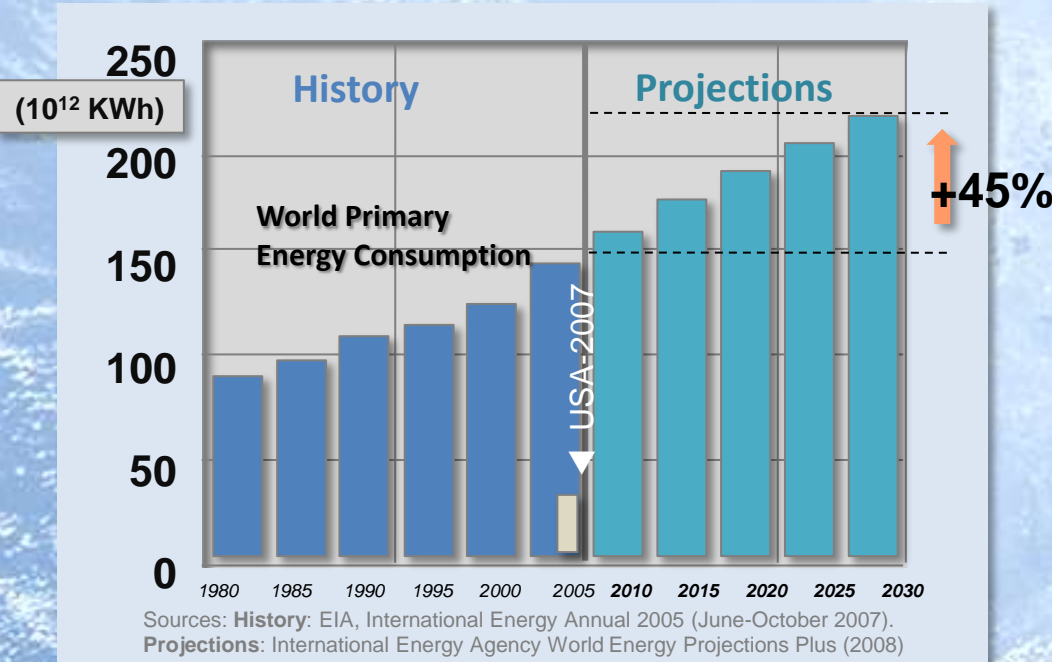
Florida Electricity Generation, May 2010  
 56 GW peak capacity - 19.6 GWh generated



All Fuels except Renewables imported from out-of-state

Source: EIA State Profiles 2010

- Florida will need **76% more energy** by 2030 in order to meet the needs of its population and projected economic growth (Florida Chamber)
- Florida is #2 in Electrical Generation and #5 in CO2 Emissions
- Major Demand: Residential Electricity & Transportation



*“In order to meet the 45% increase in projected demand, an investment of over \$26 trillion will be required ...”*

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# An Energy Action Plan

- Three Pillars:
  - Energy Efficiency & Conservation
    - Residential Electricity
    - Building Efficiency
  - Energy Generation
    - “Florida Fuels”
    - Streamline permitting, adopt best practices – Sun Shot
  - Transportation
    - Alternative Fuels/Hybrids
    - Electrification

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# Potential for Growth in Clean Energy Jobs

- 2009 there were 3,800 FL clean energy businesses with 31,100 existing jobs.
- By 2023, the American Council for an Energy-Efficient Economy found by using energy efficiency strategies, Florida could:
  - save \$28 billion;
  - offset the state's entire future growth in electric demand and carbon footprint; and
  - create more than 14,000 new jobs

# Projected Space Coast Clean Energy Jobs

Prepared by

Florida State University – Center for Economic Forecasting and Analysis

Clean Energy Industry Sector	Projected Hiring Needs 2011-2015	Projected Hiring Needs 2011-2015 (incl. 4% GDP growth)
Biomass	291	634
Solar	1,394	1,704
Hydropower*	1	1
Wind	1,241	2,115
Ocean Energy**	4	7
Geothermal	238	362
Waste to Energy	9	131
Total	3,178	4,954

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# How do we measure “Success”?

<p><b>JOBS</b> Created or re-purposed toward energy-related goods and services</p>	<p><b>\$\$ Saved</b> Lower energy costs, revenue generated from income streams</p>
<p><b>\$\$ Multiplier</b> Investments Retained savings Earnings</p>	<p><b>Programmatic Goals</b> Progress in establishing programs Meeting strategic plan goals</p>
<p><b>Process Goals</b> Number of forums Connections made</p>	<p><b>Results!</b></p>

# Get Involved!

- Consortium Membership
  - Open to all local businesses, organizations (including municipalities) and individuals who are interested in helping to build an energy economy in our region
  - Visit [www.SpaceCoastEnergy.org](http://www.SpaceCoastEnergy.org) for more information
- Participate in our Events
- Join our Mailing List
  - Weekly News Digest
  - Calendar of Energy-Related Events & Conferences



# Leading the Future



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# Questions

- Thank you!
- For more information:  
[www.SpaceCoastEnergy.org](http://www.SpaceCoastEnergy.org)

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**Thank You!**

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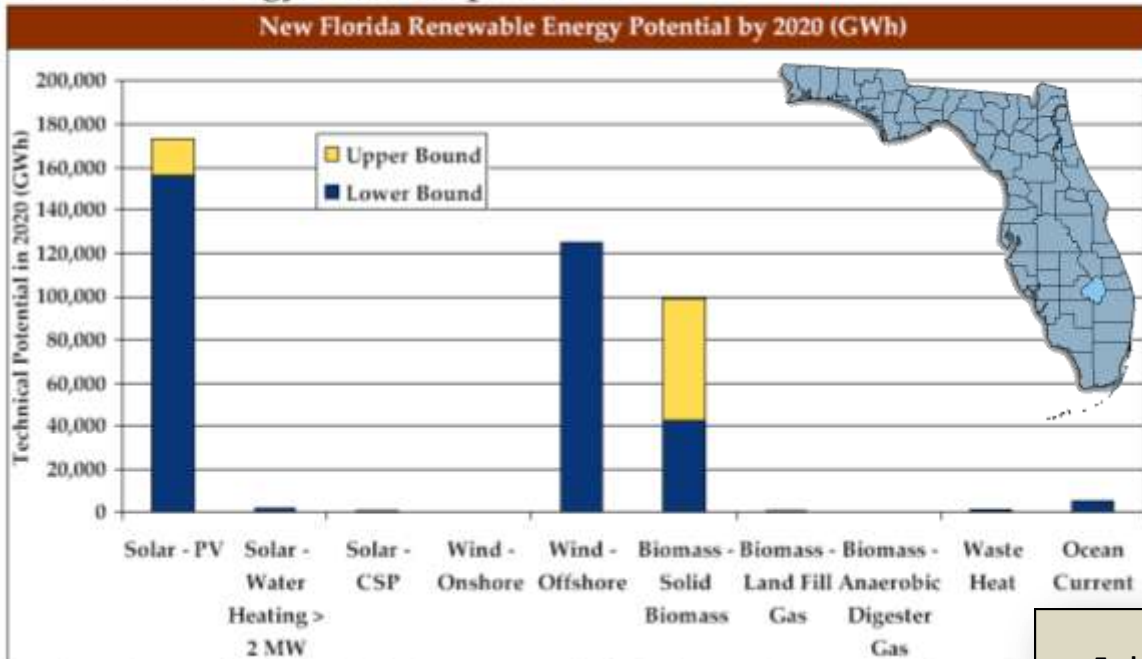
# Extra Slides

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# Florida's Renewable Energy Assets

PV, solid biomass and offshore wind provide most of Florida's renewable energy technical potential.



Note: A range for some technologies is given either because of resource level variations across the state or variations in conversion technology. Solar water heating results in  $GW_{th}$ .

◀ Renewable Energy Supply

Total Energy Demand ▶

Florida		
End-Use Sector	Energy Use (GWh)	Share of US
Residential	390,785	6.4%
Commercial	312,583	6.0%
Industrial	169,745	1.8%
Transportation	477,472	5.7%

Source: EIA, US Government 2006

# Segments of the Energy Industry

- Batteries and Capacitors
- Biofuels and Biomass
- Carbon Capture
- Catalysts
- Climate Change
- Co-generation
- Coatings
- Combustion
- Concentrated Solar Power
- Desalination
- Digital Signal Processing
- Distributed Power Generation
- Economic Impact Analysis
- Education and Outreach
- Electric/Hybrid Vehicles
- Electroceramic Materials
- Energy Conservation and Efficiency
- Energy Markets
- Energy Systems
- Environmental Systems
- Fuel Cell
- Gas Turbines
- Genomics
- Hydrogen
- Kinetics
- Life Cycle Assessment
- Light Emitting Diodes
- Materials and/or Polymers
- Modeling
- Nanotechnology
- Natural Resources
- Nuclear Power & Fuels
- Ocean Energy
- Optimization
- Photovoltaics
- Piezoelectronics
- Policy
- Power Modulation
- Quantum Dynamics
- Rectenna
- Risk Assessment
- Semiconductors and Ferroelectronics
- Sensors
- Smart Grid
- Solar Thermal
- Superconductors
- Surface Science
- Thermal Managements
- Thermoelectrics
- Transmission
- Urban Design
- Waste to Energy
- Water Resources;
- Wind Energy

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# Who is Involved?

## Business Partners

Industry leaders in Energy, Space,  
R & D, Manufacturing, Small Business and Entrepreneurs

Florida Solar Energy Center

Florida Institute of Technology

University of Central Florida

Embry-Riddle

Rollins College

Brevard Community College

EDC of the Space Coast

Brevard Workforce

Space Florida

Engaged citizens

Local Government

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# Current Assets



- Florida Solar Energy Center
  - Largest clean energy research center in the Southeast
  - Many energy-related training & certification programs
- Technology & Manufacturing
  - Emerging Technologies
  - High-End Textiles
  - Automobiles
  - Missile & Comm Systems
  - Algal fuel technologies
  - Composite Materials & Coatings
  - Next-generation lighting
  - Aerospace components
  - Gas Turbine Manufacturing
  - Solar Water Heating systems

# Current Assets

- Kennedy Space Center
  - Hydrogen Generation & Storage
  - Life Sciences research
  - Solar PV integration
  - Highly complex integration and engineering solutions
- Academic Research & Training
  - University of Central Florida
  - Florida Tech
  - Brevard Community College
  - State-wide STEM Education Initiatives (FL Energy Workforce, STEMflorida, Gates Fdn. Learn & Earn)
- National Spotlight due to Space Shuttle Transition



# Kennedy Space & Energy Center

Space Center  
Launch  
Operations

Provide workforce capabilities, facilities  
Applications for new technology

Energy  
Projects and  
Research

Diversification of activity & applications  
Greater utilization of existing resources

- Launch Services (Commercial & Deep Space Exploration)
- Advanced Technology Applications (Superconducting, Storage, Fuel Cells)
- Higher Utilization => Lower Unit Costs

- Anchor of new “Silicon Valley” - Energy Innovation Ecosystem in Central Florida
- Energy Solutions for Current & Future Challenges
- Technology/Application Demonstration
- Collaborative Research – wider \$\$ base

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