

FSEC Advisory Board Meeting

June 5, 2025



Agenda

Time	Description	Speaker
9:30 a.m.	Welcome	Jeff Juger, Vice Chair, FSEC Advisory Board; Deputy General Manager, JinkoSolar
	Introductions (Roll Call)	Sherri Shields, Communications Director, FSEC
9:40 a.m.	Approval of October 25, 2024 Minutes	Jeff Juger, Vice Chair
9:45 a.m.	Status of FSEC Programs	Jim Fenton, Director, FSEC
10:30 a.m.	Solar for Everybody	Allena McKinley, ABM Manager, ESA Solar Sabrina Diniz, Public Relations Specialist, ESA Solar
10:50 a.m.	Break	10 Minutes
11:00 a.m.	Florida Energy Office Report	Tony Morgan, Deputy Director, Office of Energy, FDACS
11:10 a.m.	Florida Legislative Session Report	Louis Rotundo, Principal, Louis Rotundo and Associates
11:20 a.m.	Future of PV Manufacturing in Florida	Jeff Juger, Deputy General Manager, JinkoSolar
11:40 a.m.	Input to Strategic Plan and SWOT Analysis	Colleen Kettles, Workforce & Business Development Director, FSEC
11:55 a.m.	Federal Funding Discussion	Jim Fenton, Director, FSEC Jeff Juger, Vice Chair
12:10 p.m.	New Business 50 th Anniversary Celebration: October 4 th Next AB Meeting: October 3 rd	Jeff Juger, Vice Chair Sherri Shields, Communications Director, FSEC
12:25 p.m.	Adjourn to Lunch	All

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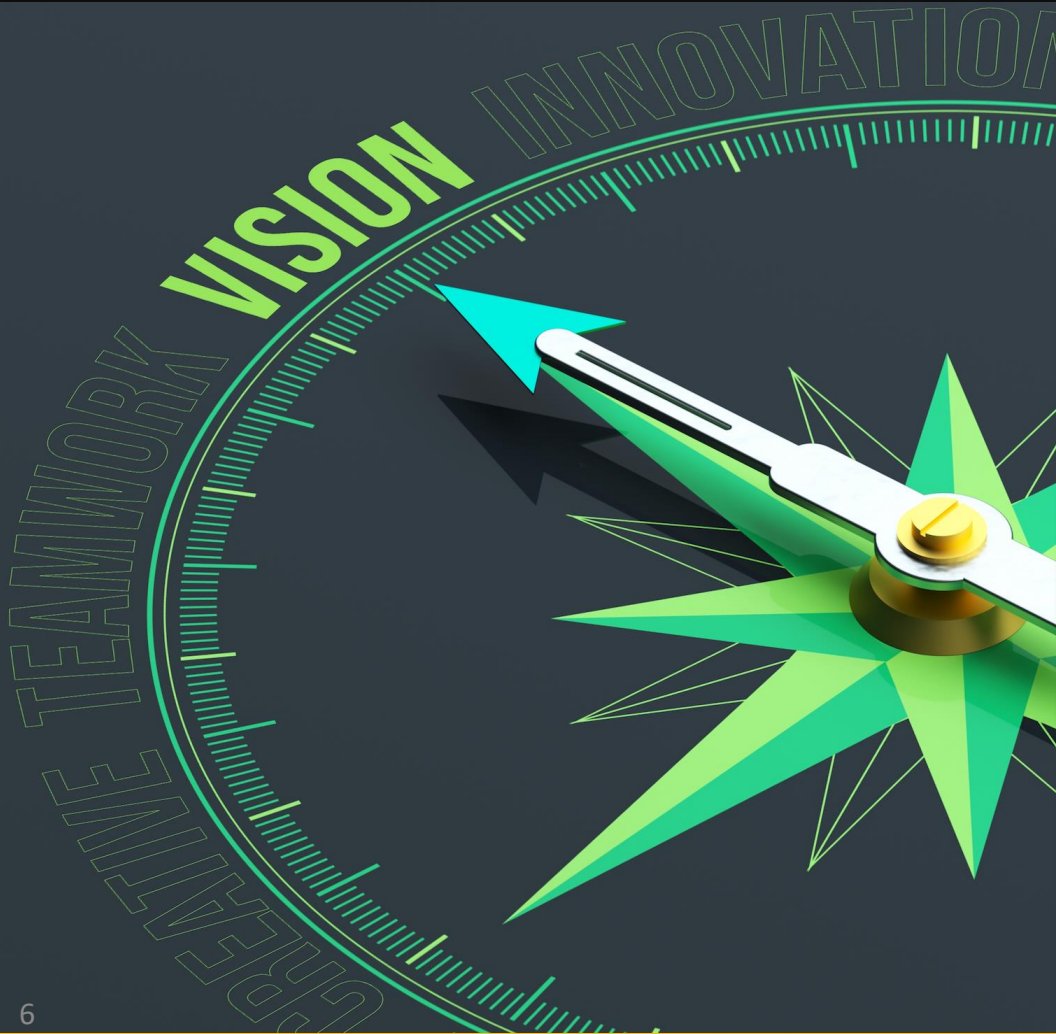
Status of FSEC Programs

Jim Fenton, Director

Advisory Board Meeting

June 5, 2025





FSEC VISION

Promote the rapid transition to a sustainable energy economy through renewable energy, energy efficiency, and sustainable transportation research, demonstration, and education. [2020]



FSEC MISSION

Develop, research, and evaluate energy technologies that enhance the environment and economy, and transfer the results to the public, students and practitioners. [2020]

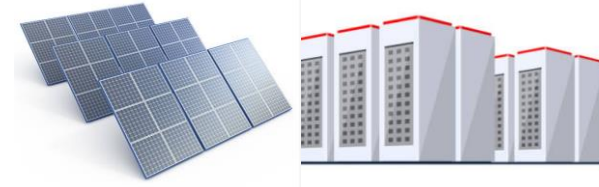
FSEC Principal Energy Programs



Energy Efficient Buildings



Grid Modernization/Energy Systems Integration



Solar Energy/Storage Systems



Electric Transportation



Hydrogen/Catalysis



Education, Service, Workforce Training, Policy

Advisory Board Partners

Consumers



Builders/ Consultants



Electric Utilities



Manufacturers



Associations/ Government



FSEC Project Current Partners



SEI Associates

Tactical Energy



NEW CONTRACT AWARDS — An Uncertain Future



Buildings



- **“EnergyPlus Software Development and Technical Assistance”**
| U.S. Department of Energy | 2/26/2025 – 2/20/2026 | \$160,104 | R. Raustad



- **“Zero Carbon Performance Code Implementation”**
U.S. Department of Energy | 9/24/2024-9/30/2025 | \$116,222 | K. Fenaughty



- **“Automation of Performance-based Compliance Quality Control and Reporting”** | Karpman Consulting [U.S. Department of Energy] | Subcontract | 10/1/2024 - 9/30/2028 | \$204,746 | B. Nigusse & M. Swami



- **“S-PRM Automation in Commonly Used Simulation Tools”** | Karpman Consulting [U.S. Department of Energy] | Subcontract | 1/1/25 - 12/30/2027 | \$466,281 | B. Nigusse & M. Swami | **Status: Pending**

Buildings

- **“Cost Benefit Analysis of the Residential 8th Edition Florida Building, Energy Conservation Code with IECC 2024”** | Florida Department of Business and Professional Regulation | 9/19/2024-6/30/2025 | \$12,987 | J. Sonne
- **“Southeast Energy Efficiency Alliance (SEEA) Task Order #2”** | NREL | 10/18/2024-4/30/2026 | \$210,000 | K. Fenaughty
- **“Trane Trace 3D Plus Software Development Support Task Order #9”** | S.E.I Associates | 7/17/2025-7/16/2026 | \$150,000 | R. Raustad
- **“Establishing and Testing a Building Codes and Resilience Field Study Methodology”** | National Association of State Energy Officials (NASEO) | Subcontract | 1/2025-6/2029 | \$415,000 | K. Fenaughty | **Status: Pending Sponsor Review**

Solar



- **“MANTIS: From Multiscale Metrology and Analysis to Next Generation Thin Film Module Inspection Systems”** | U.S. Department of Energy | 10/1/2024-3/31/2026 | \$70,280 | D. Colvin
- **“Historically Black Colleges and Universities (HBCU) Clean Energy Education Prize Partnerships Track: Phase 2”** | Albany State University [U.S. Department of Energy] | 11/18/2024-12/31/2026 | \$106,062 | H. Seigneur
- **“Duke Energy: Industry Innovation Pilot Program”**
| Internal Award | 11/1/2024-11/14/2025 | \$75,000 | M. Matam



Hydrogen/Catalysis

- **“Duke Energy: Industry Innovation Pilot Program”**
| Internal Award | 11/1/2024-11/14/2025 | \$75,000 | Y. Wang



- **"Engineering support for process development, fabrication, and methanol product testing"**
| M2X Energy, Inc flow through from U.S. Department of Energy | Subcontract |
11/01/2024 - 10/31/2027 | \$240,000 | J. Fenton | Status: Under Review by Sponsor



- **"Improving Energy Efficiency and Moisture Control Using Lower-Cost Construction Methods to Unvent Attics in Hot Humid Climates"** | U.S. Department of Energy | Prime | 01/01/2025 - 12/31/2027 | \$1,149,075 | C. Withers | Status: Award Anticipated: Under Sponsor Review,
Award Letter Received Oct. 2024



- **"Buried Ducts w/Vapor Vent Technical Assistance - SUB-2025-10112"**
| National Renewable Energy Laboratory | Prime | 04/04/2025 - 09/30/2025 | \$8,977 |
E. Martin | Status: Awarded: Contract Negotiations



- **"Mitigating Extreme Heat Events in Hot Humid Climates "** | U.S. Department of Energy | Prime | 06/01/2025 - 05/31/2028 | \$1,430,276 | D. Chasar | Status: Award Anticipated: **Under Contract Negotiations**
- **"Trane Trace 3D Plus Software Development Support Task Order #5** | S.E.I Associates | Prime | 07/17/2025 - 07/16/2026 | \$81,000 | R. Raustad | Status: Under Contract Negotiations
- **"EnergyPlus Software Development RFX-2025-10004** | National Renewable Energy Laboratory | Prime | 02/21/2026 - 02/20/2030 | New Master Agreement: No Current Budget Amount | R. Raustad | Status: Pending Sponsor Review

Concept Papers



- **"Farmers Empowered: Agrivoltaics Education and Support from Conception to Long-Term Operations"** | U.S. Department of Energy | Prime | 36 Months | \$1,000,000 | M. Matam | Status: Submitted. *No DOE Feedback on Concept Papers*



- **"D3Flex: Advanced Cable Management Solutions for Floating Solar Arrays"** | D3 Energy [U.S. Department of Energy] | Subcontract | 36 months | \$1,000,000 | M. Matam | Status: Submitted. *No DOE Feedback on Concept Papers*

CURRENT PROGRAMS

— Also An Uncertain Future



Buildings



- **"PV-GEMS: Photovoltaic Powered, Grid Enhanced Mechanical Solution. A pre-packaged approach providing high efficiency and resilient space conditioning, and water heating"** Budget Period 2, Phase 2 | U.S. Department of Energy | Prime | 07/01/2022 - 04/30/2025 | [Asking for extension to 12/31/2025](#) | \$3,068,940 | E. Martin | [Status: Approved: Waiting on Paperwork from DOE](#)
- **"FSEC Support of Ventamatic, LTD DOE SBIR Phase 2** | Ventamatic, Inc Flow Through from US Department of Energy | Subcontract | 11/01/2022 - 12/31/2024 | [Asking for Extension to 03/31/2026](#) | \$209,155 | J. Sonne | [Status: Ventamatic has sent request to DOE](#)
- **"Investigation of the Prevalence and Energy Impacts of Residential Comfort System Faults – Hot Humid and Hot Dry Climates"** | U.S. Department of Energy | 6/01/2019-6/30/2025 | \$876,754 | E. Martin
- **"Trane Trace 3D Plus Software Development Support Task Order #8"** | S.E.I Associates | 7/17/2024-7/16/2025 | \$170,397 | R. Raustad
- **"Buildings Upgrade Prize Technical Assistance"** | Alliance for Sustainable Energy LLC/ National Renewable Energy Laboratory (NREL) | 2/7/2024-9/30/2025 | \$9,908 | E. Martin



Buildings

- **“Update and Maintenance of RESNET National Building Registry Schemas”** | Residential Energy Service Network, Inc. (RESNET) | 6/18/2024-12/31/2026 | \$30,847 | P. Fairey
- **“2024 IECC Code Study (Task Order #6)”** | Residential Energy Service Network, Inc. (RESNET) | 9/18/2024-12/31/2026 | \$21,581 | P. Fairey
- **“Review and Consider Technical Changes Incorporated in HB 267 with respect to section R402 Energy Conservation Code Compliance with R20 Sealed Attics”** | Florida Department of Business and Professional Regulation | 7/1/2024-6/30/2025 | \$25,000 | R. Vieira

Hydrogen/Catalysis

- **“Demonstration of Integrated Hydrogen Production and Consumption for Improved Utility Operations”** | Orlando Utilities Commission [U.S. Department of Energy] | Subcontract | 10/21/2021-2/28/2027 | \$583,583 | J. Fenton | **Status: 6-month pause**
- **“Next Generation Process Development”** | M2X Energy | 4/5/2024-10/31/2025 | \$569,069 | V. Rigo



Solar & Storage

- **2023 Solar Roof Installation Research Project FSEC Flexible Residential Test Facility** | GAF Energy LLC | 5/17/23-10/31/25 | \$65,000 | J. Sonne
- **"Developing PID susceptibility models for Bifacial PV module technologies"** | U.S. Department of Energy | 08/01/2021 - **12/31/2025** | \$1,237,500 | H. Seigneur | **Status: Additional funding from DOE of \$300,000 is anticipated**
- **Gaining Fundamental Understanding of Critical Failure Modes and Degradation Mechanisms in Fielded Photovoltaic Modules via Multiscale Characterization** | U.S. Department of Energy | EOC: 2/28/2027 | \$62,076 | H. Seigneur
- **Materials Data Science for Stockpile Stewardship** | Case Western Reserve University | 9/15/2022-9/30/2027 | \$62,951 | M. Li
- **"Enabling Advanced Battery and Inverter Design and Integration with Permanent Demonstration Installation at FSEC"** | Smart Charging Technologies | 6/1/2022-8/30/2025 | \$150,000 | I. Batarseh

Transportation

- **“Equitable Mobility Powering Opportunities for Workplace Electrification Readiness (EMPOWER)”** | U.S. Department of Energy | EOC: 6/30/2025 | \$73,000 | C. Kettles

Workforce

- **“FLEXIBLE Load Adaptation Training for Energy Services Professionals”** | The Association of Energy Services Professionals (AESP) | \$38,342 | C. Kettles
- **"Pathways to Career Opportunities Grant (PCOG) Project"** | Florida Department of Education | Prime | 07/01/2024 - 06/30/2025 | **Asked for extension to 12/31/2025** | \$254,317 | C. Kettles
- **“Valencia College Energy Transition Plan”** | Hanson Professional Services LLC | 10/2/2023-6/30/2025 | \$15,000 | C. Kettles
- **“EnergyWhiz”** | Various Sponsors | 05/01/2018-6/30/2025 | \$288,432 | S. Schleith

Florida SOLAR ENERGY Apprenticeship Program

- Hands-on Labs at FSEC today – 20 participants
- Twenty-eight apprentices, twelve employers
- Solar For All - Workforce Development Requirement
- Tax Credit Benefits to Large Customers





IDEAS for Additional **REVENUE** Streams?

- FSEC to seek accreditation of PV Testing Laboratory to ISO/IEC 17025
- Previously accredited by A2LA for thermal and PV
- Goal: support growing demand for Product Qualification Programs and address industry testing needs for product innovations
- Revenue stream for FSEC





LEARN MORE

Don't see the designation you're looking for? Want to learn about additional giving options, like endowed gifts?

Please contact:

Garrett Preisser at 407.882.0098
or garrett.preisser@ucf.edu

FLORIDA SOLAR ENERGY CENTER (FSEC®)

Florida Solar Energy Center's (FSEC®) research, workforce development and education activities are preparing the next generation of sustainable energy leaders. Your contribution will support our annual EnergyWhiz competition for K-12 students, professional development for teachers and continuing education for energy practitioners. By helping us expand these activities, we can move closer to a sustainable energy future.

DONATION INFORMATION

Amount:

\$



EVENTS & NEWS



Middle School Science Bowl



When?

Saturday, February 22, 2025
8:30 a.m. to 5:00 p.m.

Where?

Florida Solar Energy Center (FSEC)
1679 Clearlake Road
Cocoa, FL 32922



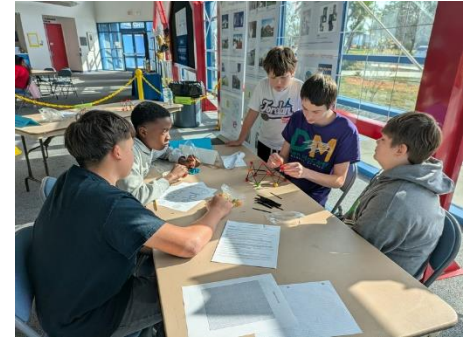
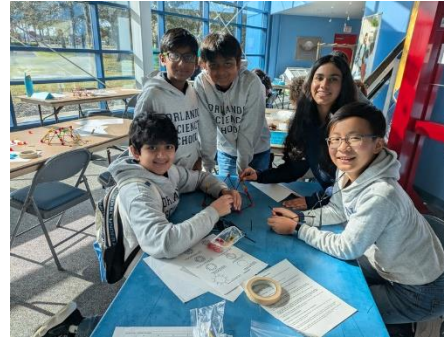
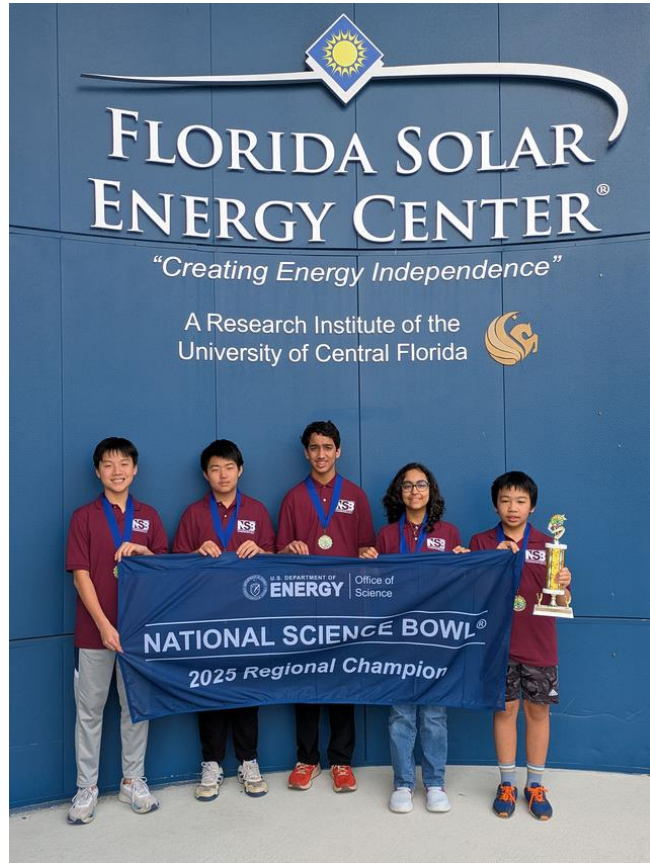
The **National Science Bowl for Middle School** is an activity of the U.S. Department of Energy's Office of Science, which encourages middle school students to excel in mathematics, science and engineering.

For more information: <https://science.osti.gov/wdts/nsb>

The **Space Coast Science Education Alliance (SCSEA) Florida Middle School Science Bowl** is one of 50 regional qualifying middle school science bowl competitions held throughout the U.S. The winning team from this regional event will then compete in the **National Science Bowl Finals** held April 24 - April 28, 2025.



Middle School Science Bowl Photos





Building Science Boogie Band

starring renowned building science researchers Eric Werling, Mike Lubliner, Bruce Harley, Nick Hurst, Kimberly Llewellyn, Collin Olson, and special guest, FSEC's Carlos Colon



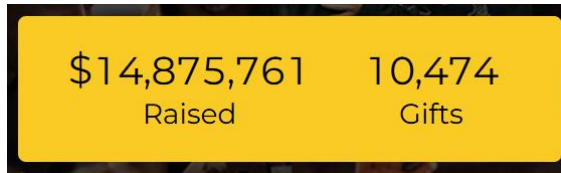
Tour FSEC* research facilities, enjoy dinner, beverages and live music

Proceeds go to support K-12 education and facilities.

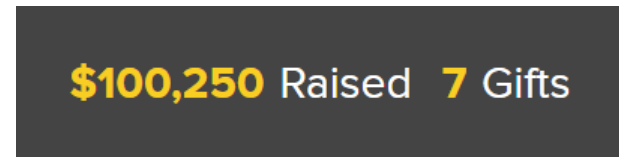




University Total Funds Raised



FSEC-Specific Funds Raised

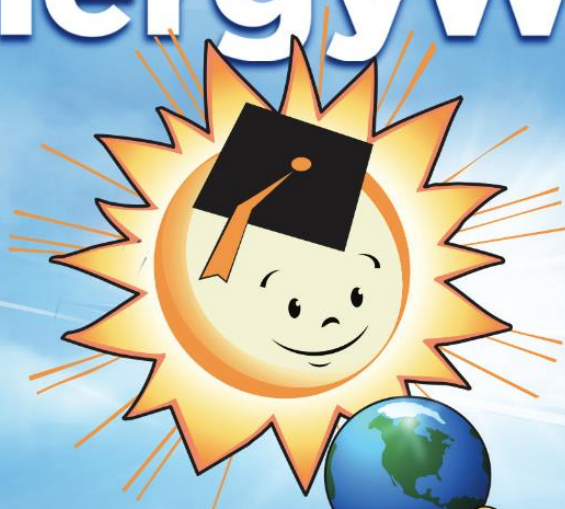


<https://foundation.ucf.edu/DonatetoFSEC>



EMPOWERING STUDENT INNOVATION FOR
A CLEAN ENERGY FUTURE

EnergyWhiz™



April 26, 2025 at FSEC



Produced by



UNIVERSITY OF
CENTRAL FLORIDA

In Partnership with



Supported by



SCAN TO LEARN MORE
ENERGYWHIZ.COM



- **Alireza Shantia**, Buildings Research – 3/31/25
 - **Christopher Hale**, Budget & Finance Manager – 3/31/25 (retirement replacement)
 - **Caio Folger**, Undergrad Intern – 4/14/25
 - **Khoi Nguyen**, Undergrad Intern – 5/9/25
 - **Jonathan Garriga**, CIT – 5/9/25 (retirement replacement)
 - **Erfan Asadipour**, Post Doc, Special Projects – 5/23/25
 - **Meghana Agnigundala**, EnergyGauge Software Developer – 5/23/25
 - **Joshua Currie**, EnergyGauge Software Developer – 5/23/25
 - **Pouria Ahmadi**, **Mechanical Engineering** – 07/03/25
-
- **Francis Chukwunta**, Special Projects, M2X – 3/31/25
 - **Matias Campos**, Undergrad Intern, M2X – 5/23/25
 - **Ethan Hunt**, Undergrad Intern, M2X – 5/23/25

Happy **RETIREMENT**

July 31, 2025

PHILIP FAIREY

Congratulations on your retirement!
Wishing you endless joy and
relaxation as you embark on this
exciting new chapter.



- **ScholarGPS** named **Nazim Muradov, PhD** a 2024 Highly Ranked Scholar.
- This honor places him in the top 0.05% of all scholars worldwide.
- Based on his accomplishments over his lifetime, Muradov ranks in the following categories:
 - [#5 Fossil fuel](#)
 - [#21 Hydrogen fuel](#)
 - [#658 Energy](#)

CONGRATULATIONS



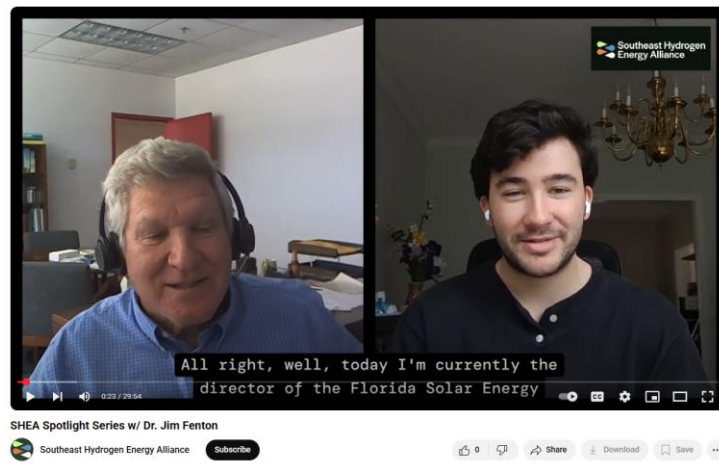
CONGRATULATIONS



- Kelly Stevens, FSEC Secondary Joint Appointment
- UCF 2025 Reach for the Star Honoree
- Assistant professor of public administration at [UCF's School of Public Administration](#) within its [College of Community Innovation and Education](#), and a member of [UCF's Resilient, Intelligent, and Sustainable Energy Systems \(RISES\) Faculty Cluster](#) and [FSEC Energy Research Center](#).



- Hydrogen's Future in the Southeast. SHEA Spotlight Series with Dr. Jim Fenton – [YouTube](#)
- [Florida Emerges as national leader in Solar energy workforce development](#)
- [Home energy expert dispels common myth about solar panels](#)





- Distributed to 3,542 recipients on May 13, 2025
- Spring 2019: Last issue of BR Post newsletter





Dr. Fenton elected as President of Electrochemical Society
effective May 20, 2025.

Visited U.S. Congress June 3rd - 4th

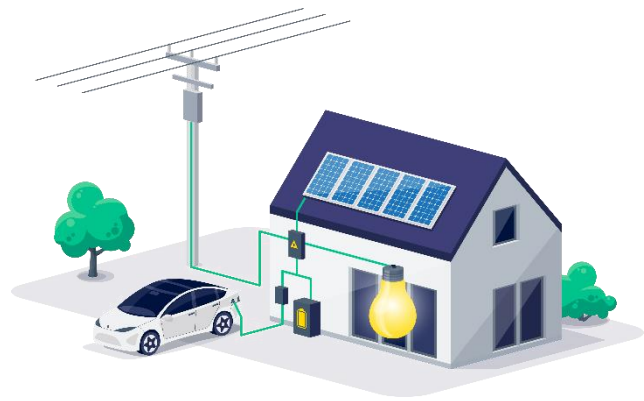


**Florida-Made Energy:
Where
Utilities, Home Owners, Vehicle Owners and Farmers
All Win!**

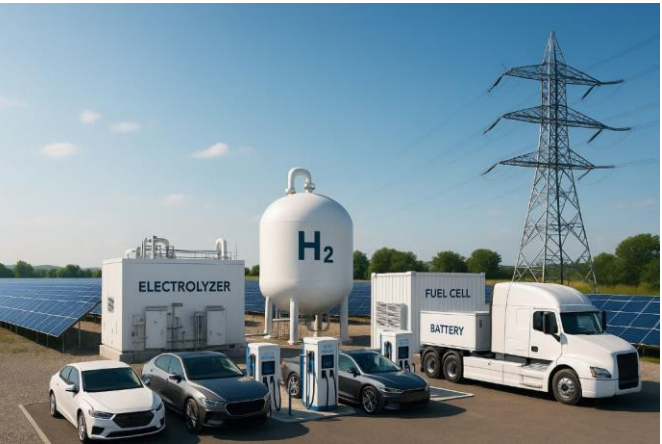


Zero Energy Homes and EVS with V2H (resilient)

92% of Energy Florida-Made, All Win



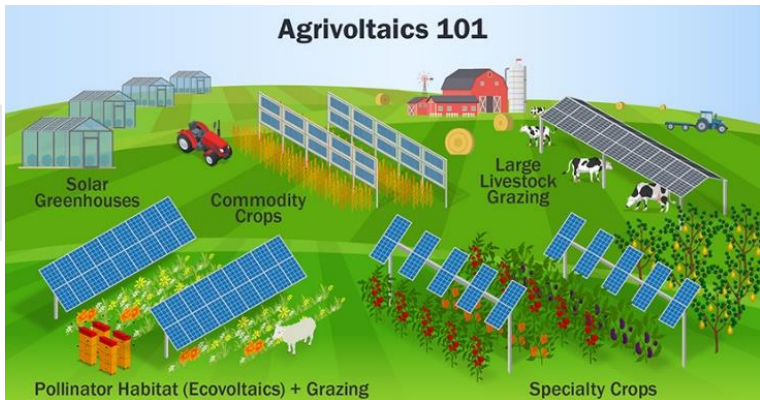
PV EV Transportation Fuel



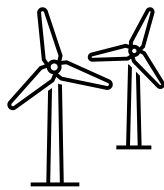
Vehicle Owners



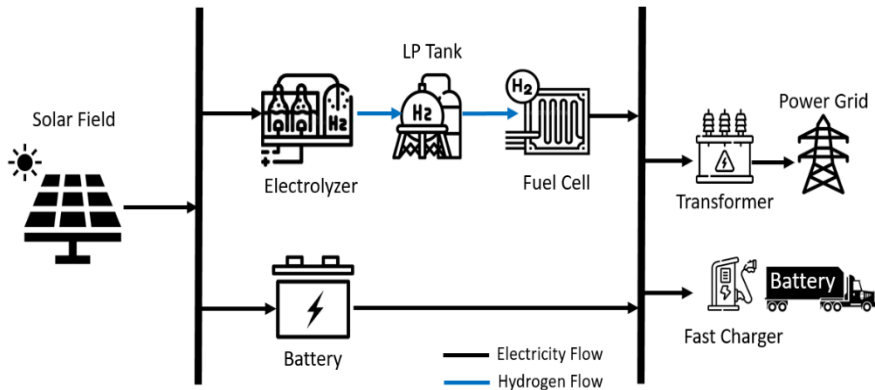
Farms Plant PV Double Profits



On-shore Wind



Utility PV Base Load Power Plants

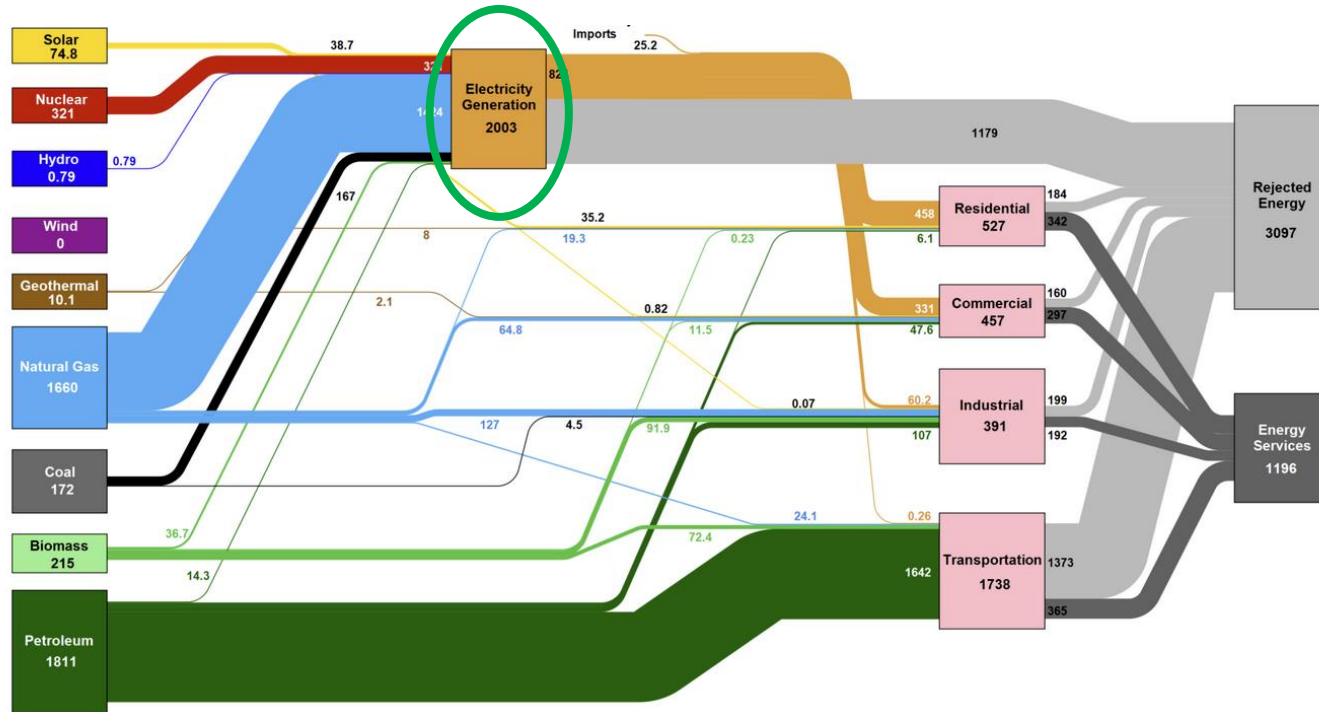


Florida's Greatest Economic and Energy Challenge:

Imported Energy We Waste

Electricity Made in Florida is produced from imported fuel

93% of
Primary
Energy is
Imported



73% of
Primary
Energy is
wasted

93% of the Primary Fuel is imported (assumes, solar and biomass all made in Florida)

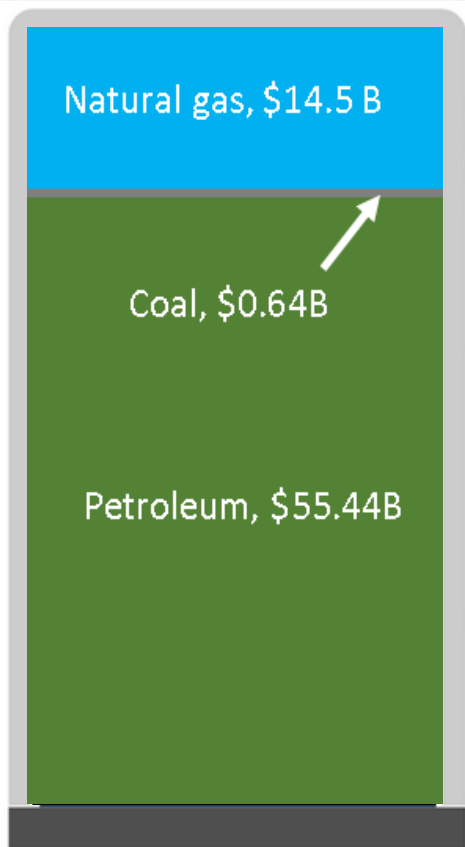
*2022 Latest Energy Flow Chart Available from LLNL <https://flowcharts.llnl.gov/commodities/energy>

Florida's Fuel Imports Roughly Equal Its State Budget

Florida's 2022 \$71B
Imported Energy Expense

Not Made in Florida, 73% Wasted

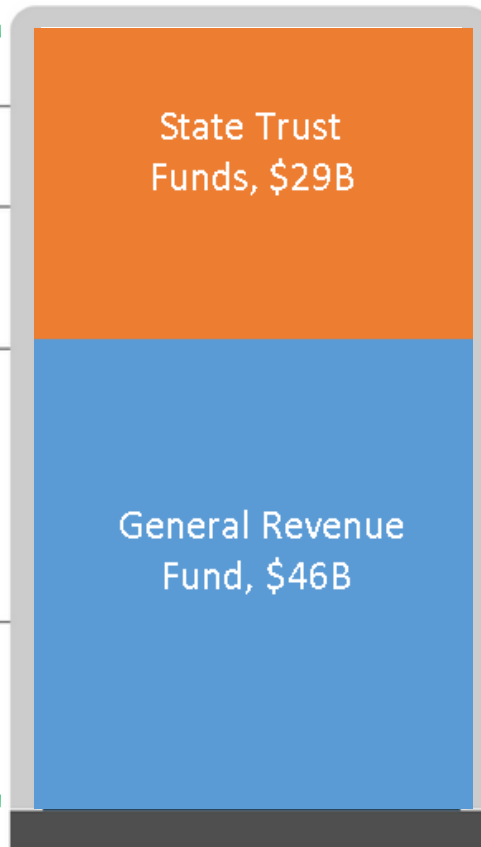
\$71B Leaves Florida



Florida's 2024-2025 Budget Revenue
w/o Federal Funds (\$76B = \$117B - \$41B)

Made in Florida

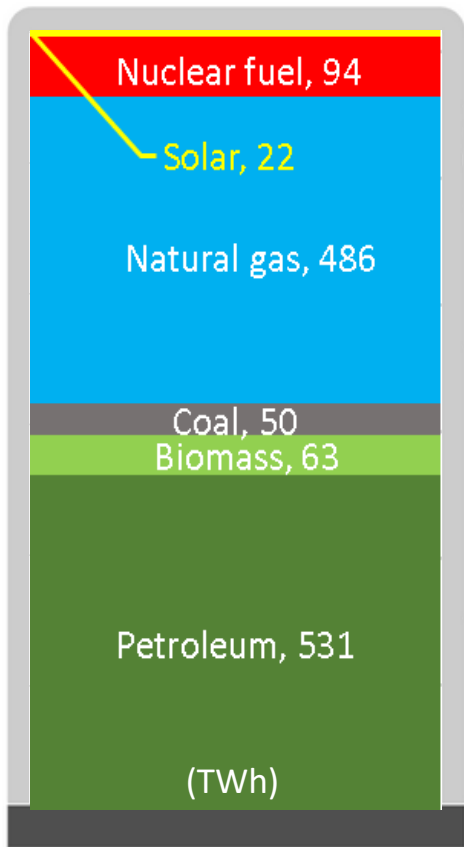
\$76B Stays in Florida



Inefficient Use of Florida Funds

Florida's 2022
1,267 TWh Total Energy Demand
(260 TWh Electricity Sales)

93% Not Made in Florida, 73% Wasted

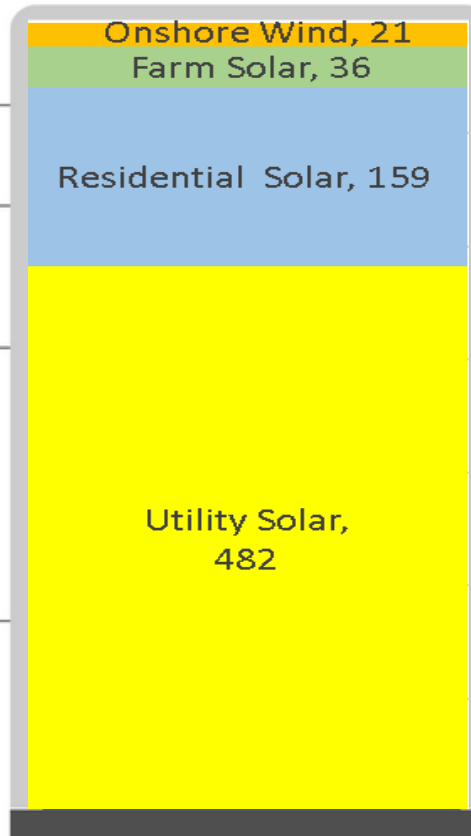


\$ 71B Leaves Florida

Efficient Use of Florida Funds

Florida-Made Energy 2050
759 TWh Energy Demand, TWh
703 TWh Electricity Sales

Made in Florida



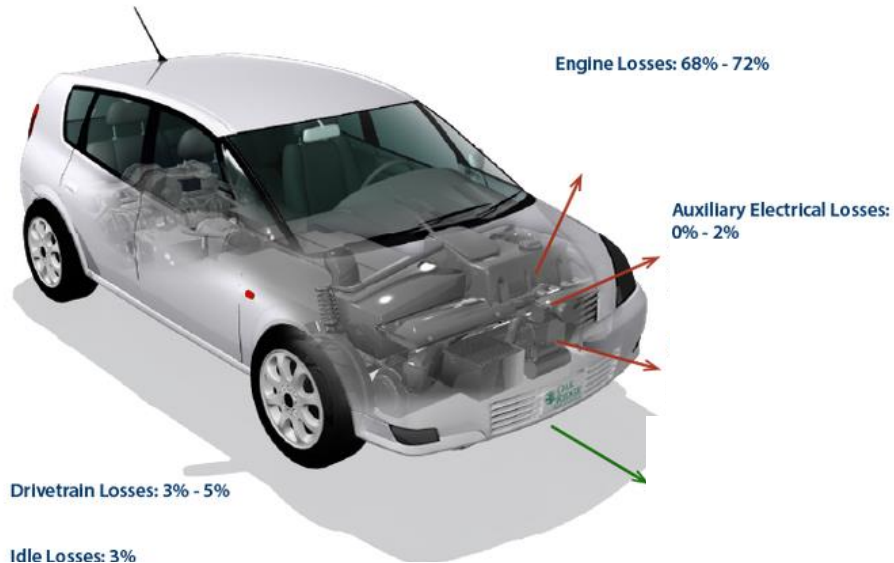
75% Increase
in Profits, 1.4%
of Farm Land

**\$71B, jobs and wealth
stay in Florida**

Replacing Gasoline Most Valuable use of Florida Made Electricity

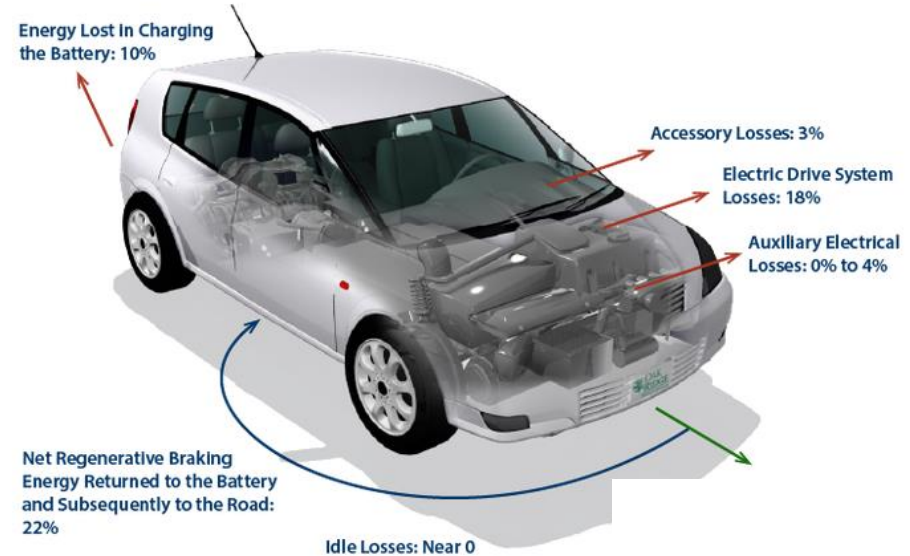
In 2022, 16.1 M Vehicles, **8.7 Billion Gallons** of Gasoline at **\$30.7 B**

Gasoline Vehicle



21% Wheel to Wheels Efficiency

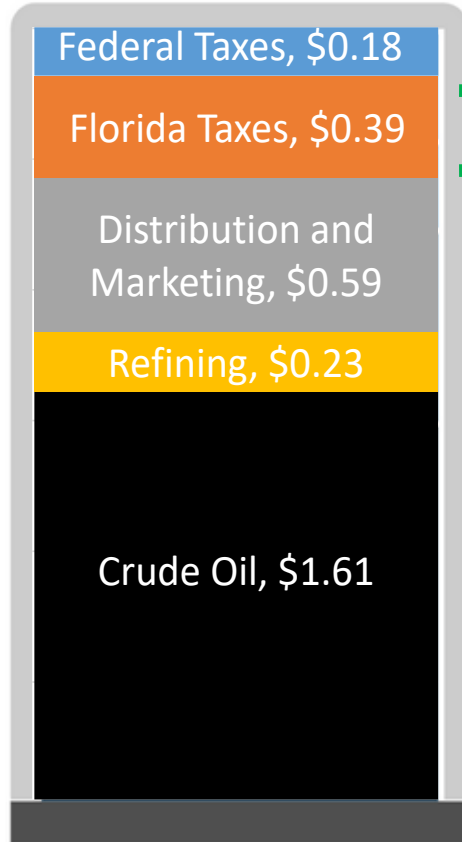
Electric Vehicle



89% Wheel to Wheels Efficiency

Regular Gasoline
Retail Price \$3.00/gal

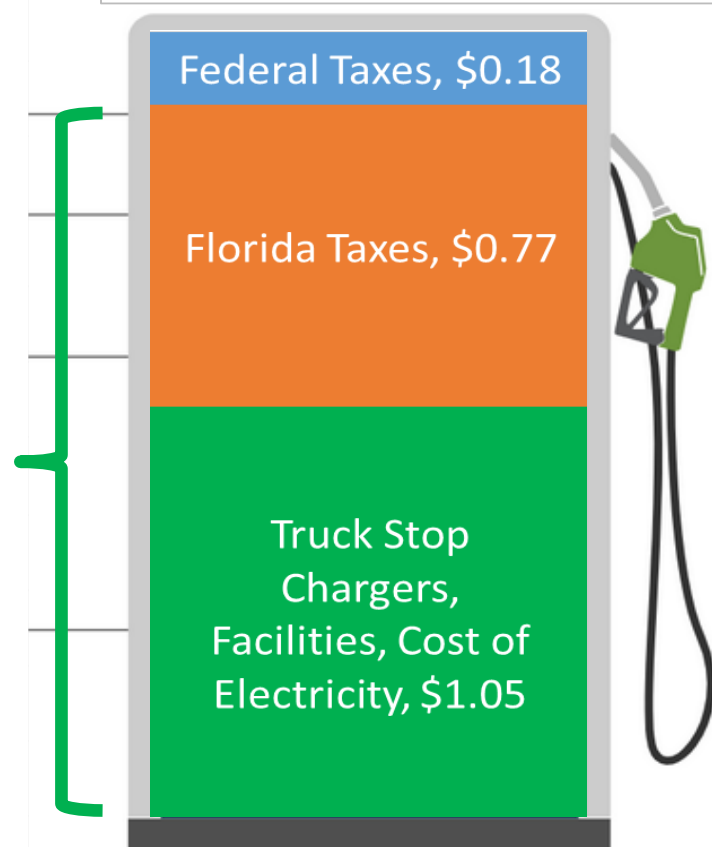
\$ 2.53/gal Leaves Florida



\$ 0.39/gal Stays in Florida

Florida Solar Gasoline Equivalent
Retail Price \$2.00/gal; \$0.264 /kWh

\$ 1.92/gal Stays in Florida



Economic Growth Now Depends on Electricity, Not Oil

Surging demand for electricity presents huge new investment needs and regulatory challenges

Top US Utility Says Gas Can Meet Only a Fraction of Power Demand

NextEra Energy Inc., the biggest US utility and No. 1 developer of wind and solar generation, believes power plants fueled by natural gas can meet only a sliver of the unprecedented electricity demand growth forecast through the end of the decade. Published Mar 10, 2025



Bloomberg News
Naureen S. Malik and Simon Casey

FINANCIAL POST

The New York Times

is Just Now U.S. Tariffs Major Moves Approval Ratings What Voters Think Lawsuits Tracker Disapp

Want Cheap Power, Fast? Solar and Wind Firms Have a Suggestion.

Renewable energy companies are shifting strategy under President Trump, emphasizing the economic benefits of low-carbon electricity.

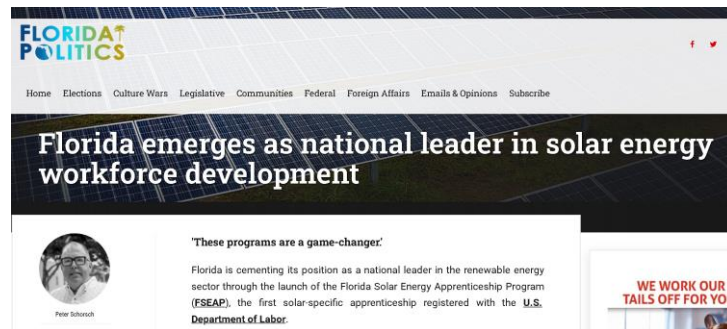
Florida Phoenix

EDUCATION HEALTH POLITICS & LAW ENVIRONMENT CULTURE & SOCIETY WORKING & THE ECONOMY

CLIMATE CHANGE ENERGY ENVIRONMENT

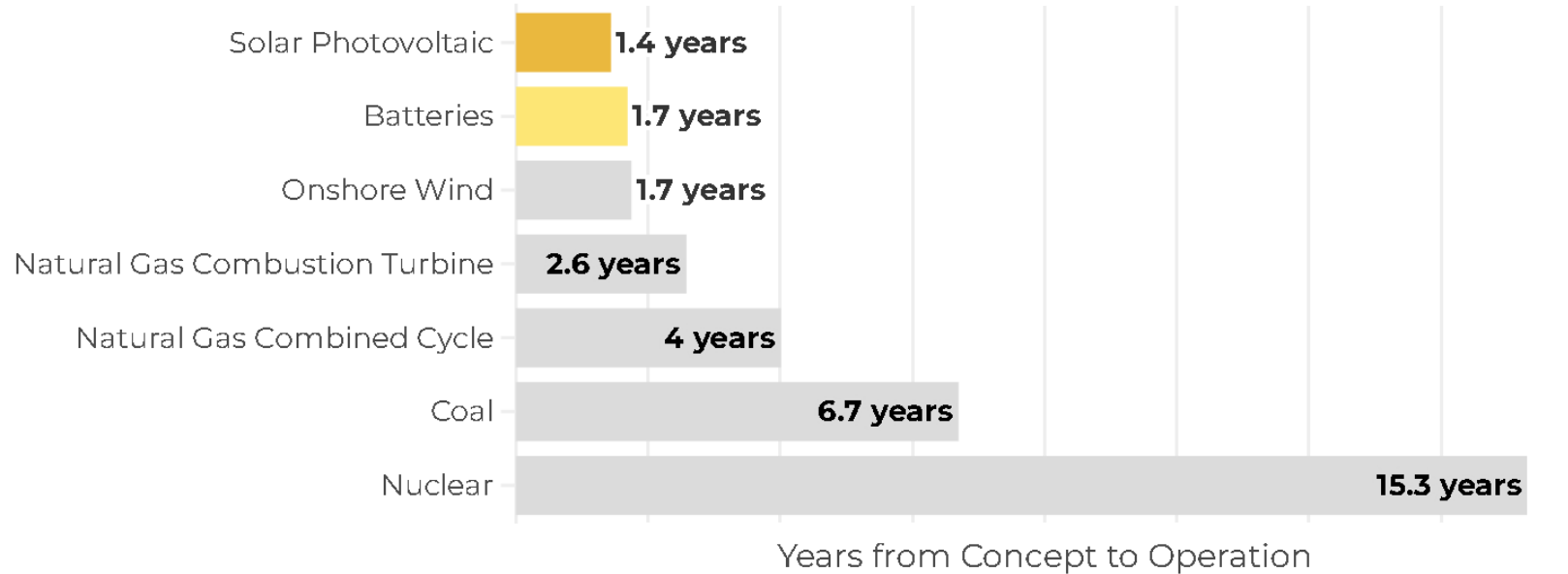
Florida has installed the second most solar power capacity in the country in 2024

Sunshine State predicted to take over as the top-ranked residential solar state in 2028



Solar and Batteries Deploy Faster

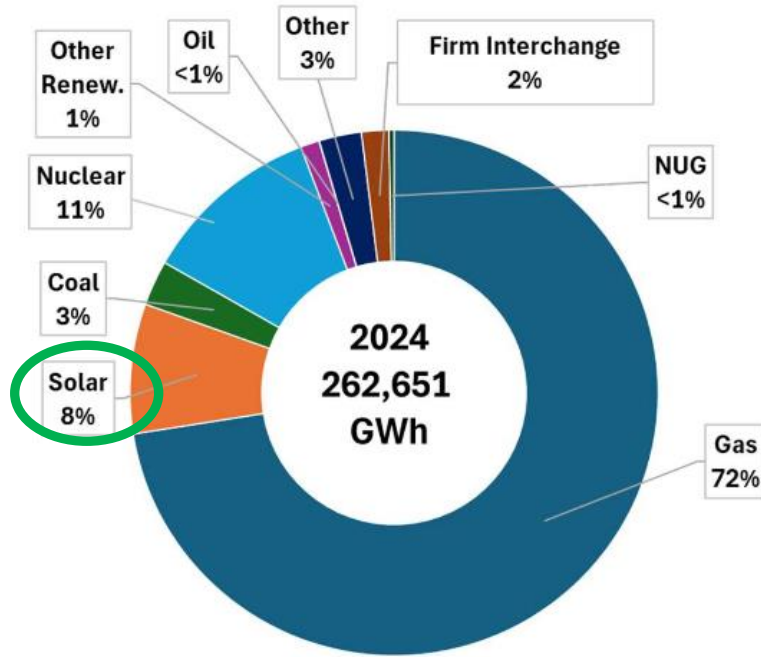
Average U.S. Power Plant Development Timeline



Source: SEIA analysis of EIA Form 860M data for plants that have started reporting to EIA prior to seeking regulatory approval and plants which have reached operating status. • Due to the low number of coal and nuclear plants developed over the past decade, additional desk research provided supplemental data for the last 3 nuclear facilities to come online and for all coal facilities commissioned since 2010.

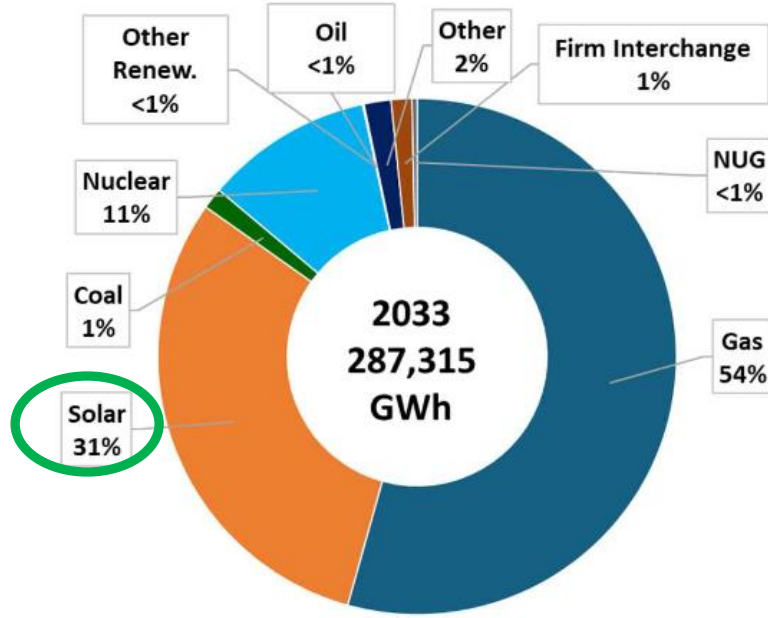
NextEra Energy CEO John Ketchum warned on March 10, 2025, that costs for gas-fired power generation have more than tripled (\$785/kw for some facilities in 2022 to as much as \$2,400/kw currently)

Solar Energy Increases, Gas Decreases



Daily Load = 720 GWh

Classification: Public



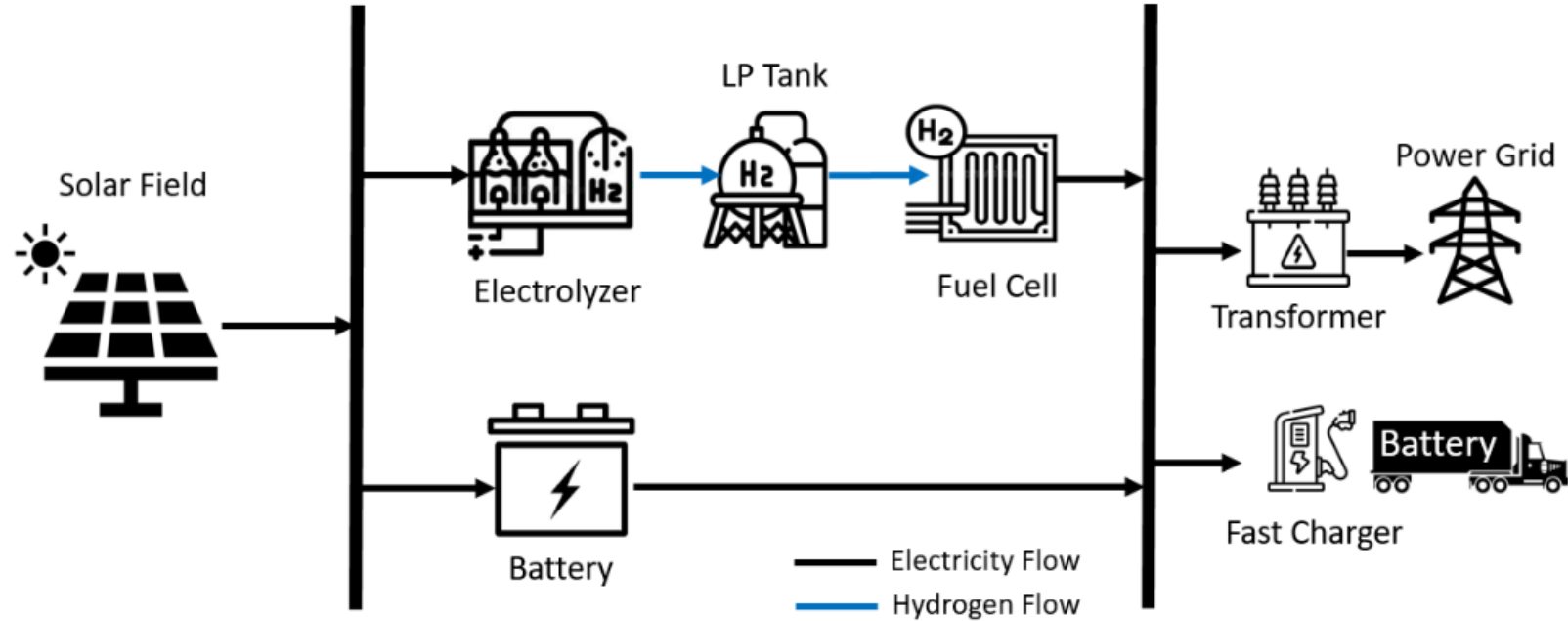
Daily Load = 787 GWh

14

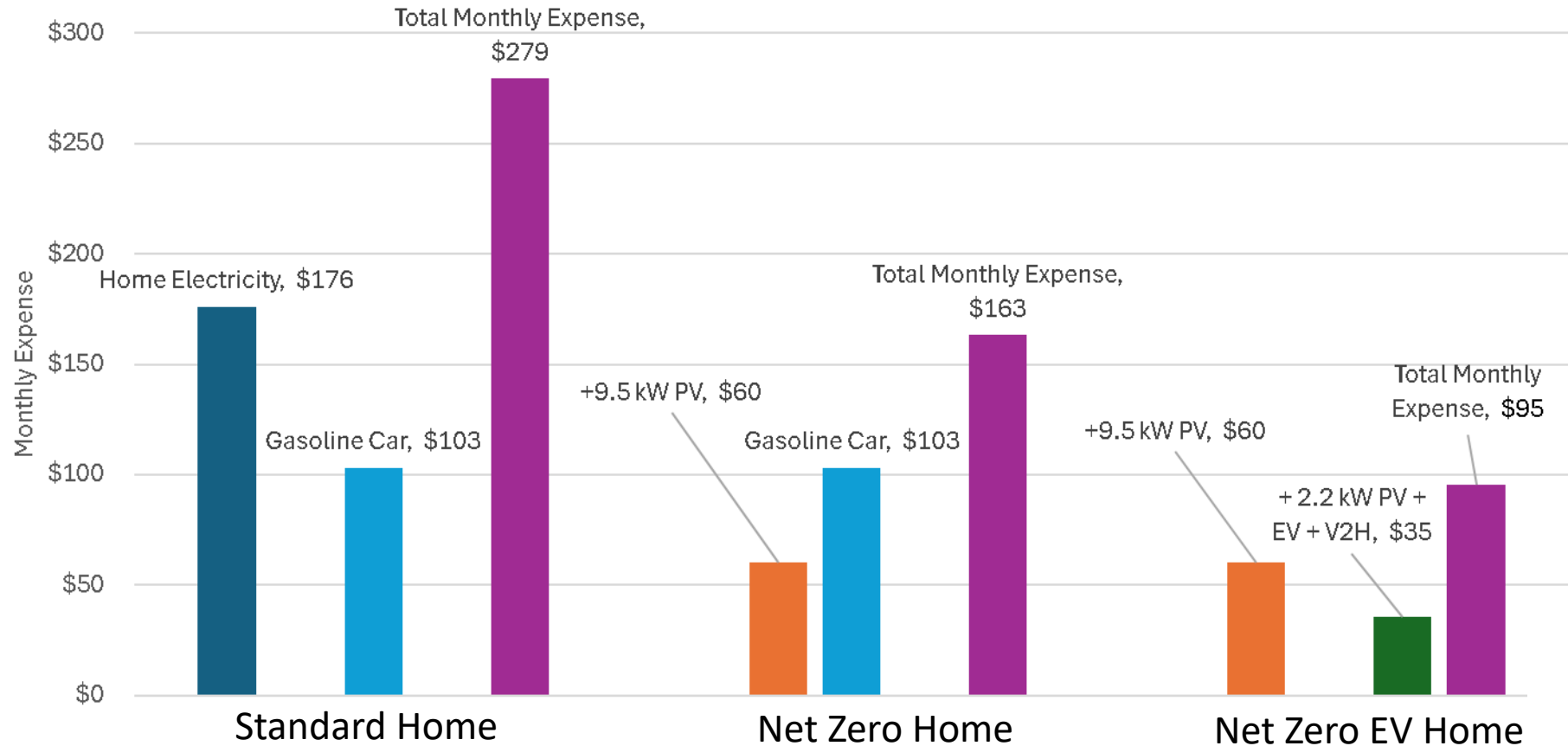
2024 Ten-Year Site Plans FRCC Overview Presentation, Vince Ordax, Sept 2024

https://www.floridapsc.com/pscfiles/website-files/PDF/Utilities/Electricgas/TenYearSitePlans//2024/FRCC_Presentation.pdf

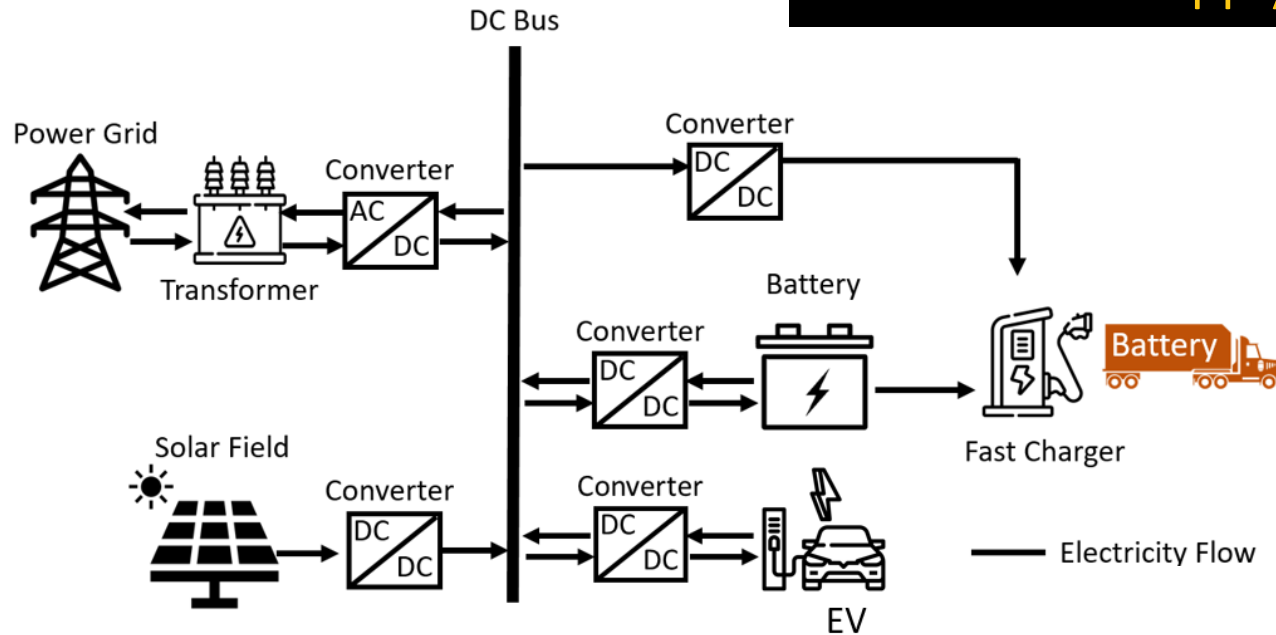
PV Base-Load Power Plant and Truckstop



Homeowner Wins



Vehicles Can Supply Florida Back-Up Power



16.1 M Vehicles

➔ 16.1 M EVs (220 mile range), 68.7 kWh battery capacity;
Daily Battery Capacity = 1,100 GWh

2024 Load

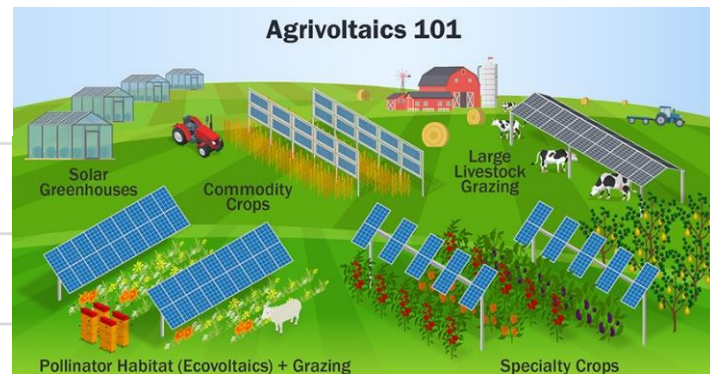
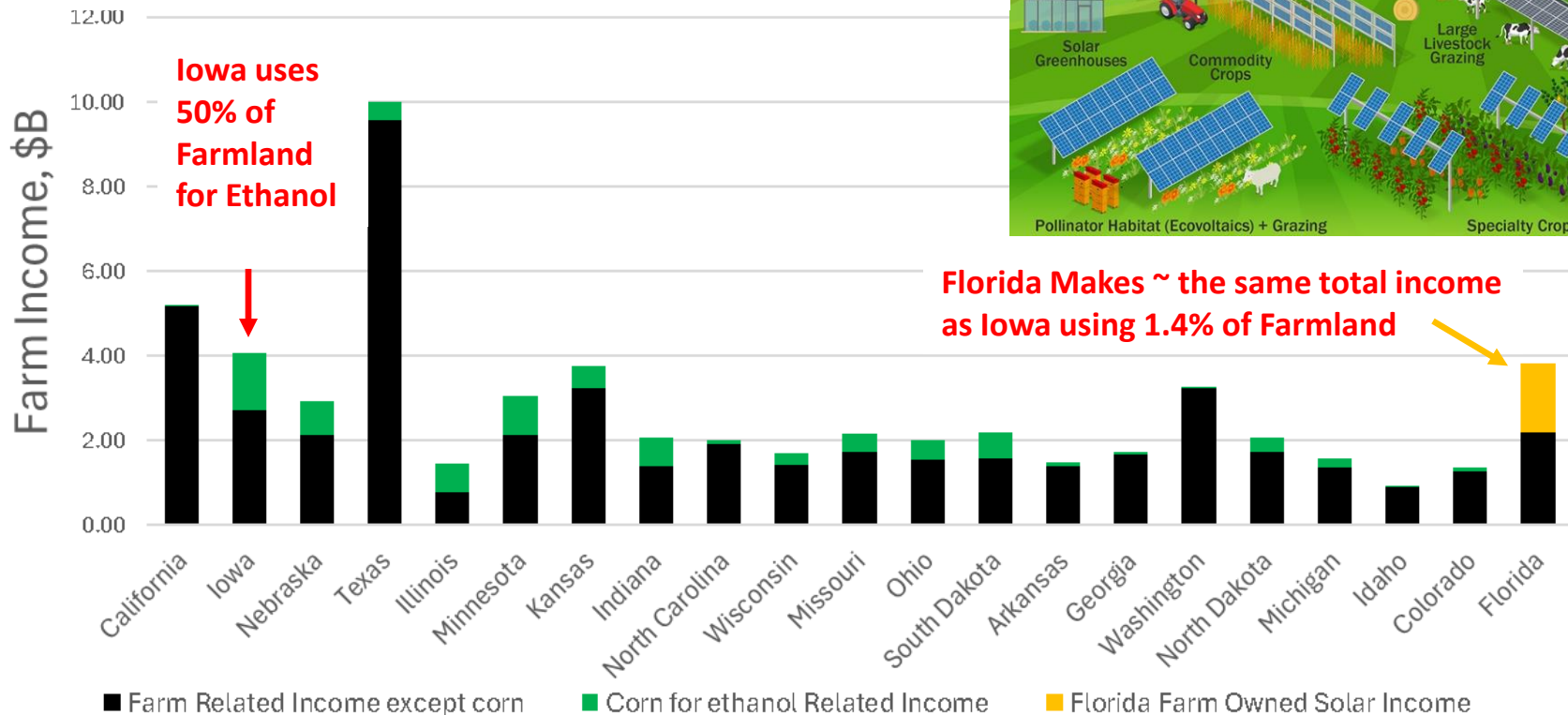
➔ **Daily Load = 720 GWh**

2033 Load


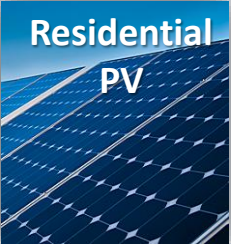
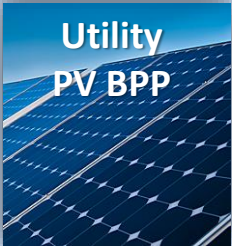
➔ **Daily Load = 787 GWh**

Planting Solar, Increased Profits: Farmers Win

Farm Income Including Corn Ethanol & Solar



Electron Fueled Vehicle Owners Win

	Fuel Efficiency	Fuel Price	Cost per Mile	Cost per 10,000 Miles
 Gasoline Car	24.2 mpg	\$3.00 per gal	12.4¢ per mile	\$1,240
 Residential PV	3.2 miles per kWh	5.4 ¢/kWh 41 ¢ gal equiv.)	1.7¢ per mile	\$170
 Utility PV BPP	3.2 miles per kWh	26.4 ¢/kWh (\$2.00 per gal equiv.) (Produced at 10 ¢/kWh, 80 ¢/gal)	8.25¢ per mile	\$825

EV range 220 miles, 68.7 kWh battery capacity (3.2 miles/kWh) Gasoline car 24.2 mpg

A pair of hands is shown from the wrists up, cupping a glowing, translucent globe of the Earth. The globe is illuminated from within, showing swirling patterns of blue, white, and yellow, representing clouds and landmasses. The hands are positioned symmetrically on either side of the globe, with fingers slightly curled. The background is dark, making the glowing globe and the hands stand out.

ALL WHO OWN SOLAR WIN
(Utilities, Homeowners, & Farmers)

ALL WHO OWN EVS WIN
(PV & EV, V2H Backup)

FARMERS DOUBLE PROFITS

**THE MONEY & THE JOBS
STAY IN FLORIDA!**



ALLENA MCKINLEY

Account Based Marketing Manager, ESA Solar

SABRINA DINIZ

Public Relations Specialist, ESA Solar



10-minute

BREAK



Agenda

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9:30 a.m.	Welcome	Jeff Juger, Vice Chair, FSEC Advisory Board; Deputy General Manager, JinkoSolar
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12:25 p.m.	Adjourn to Lunch	All

— HAPPY — Retirement



ALEXANDER MACK

PROGRAM ADMINISTRATOR

FLORIDA DEPARTMENT OF AGRICULTURE
AND CONSUMER SERVICES



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Jeff Juger

Deputy General Manager, JinkoSolar

FUTURE OF PV MANUFACTURING IN FLORIDA



Colleen Kettles

Workforce & Business Development Director, FSEC

INPUT TO STRATEGIC PLAN & SWOT ANALYSIS



FSEC Strategic Plan (2025-2030)

- Current FSEC Strategic Plan adopted by the FSEC Advisory Board in April 2020 for the 2020 to 2025 timeframe
- Status of updated plan for the period 2025 to 2030
 - SWOT factors developed by FSEC Strategic Planning Committee
 - SWOT survey distributed to FSEC staff and Advisory Board
 - Draft plan developed by FSEC Strategic Planning Committee for further input by FSEC Advisory Board
 - Plan to be adopted at Fall 2025 AB Meeting

FSEC Strategic Planning Committee

Luis Babilonia Hernandez	Facilities
Dylan Colvin	Solar Energy Research
Hamed Haggi	Special Projects
Colleen Kettles	Workforce & Business Development
Eric Martin	Buildings Research
Manjunath Matam	Solar Energy Research
Janet McIlvaine	Buildings Research
William Mollenkopf	Computing & Information Technology
Karthik Panchabikesan	Buildings Research
Susan Schroen	Business Affairs
Sherri Shields	Communications
Muthusamy Swami	Buildings Research

FSEC SWOT Analysis

STRENGTHS

Faculty Expertise
Facilities
Codes, Standards, Testing, Certification
Contract & Grant Activity
Partnerships & Collaboration
Education & Outreach

WEAKNESSES

Public Perception
Expertise in Emerging Technologies
Commercialization
Sharing Research Findings
Financial Support
Human Resources

OPPORTUNITIES

Collaborations
Commercialization
New Funding Sources
Innovative Research
Resiliency Focus
Talent Acquisition
New Partnerships
Workforce Development

THREATS

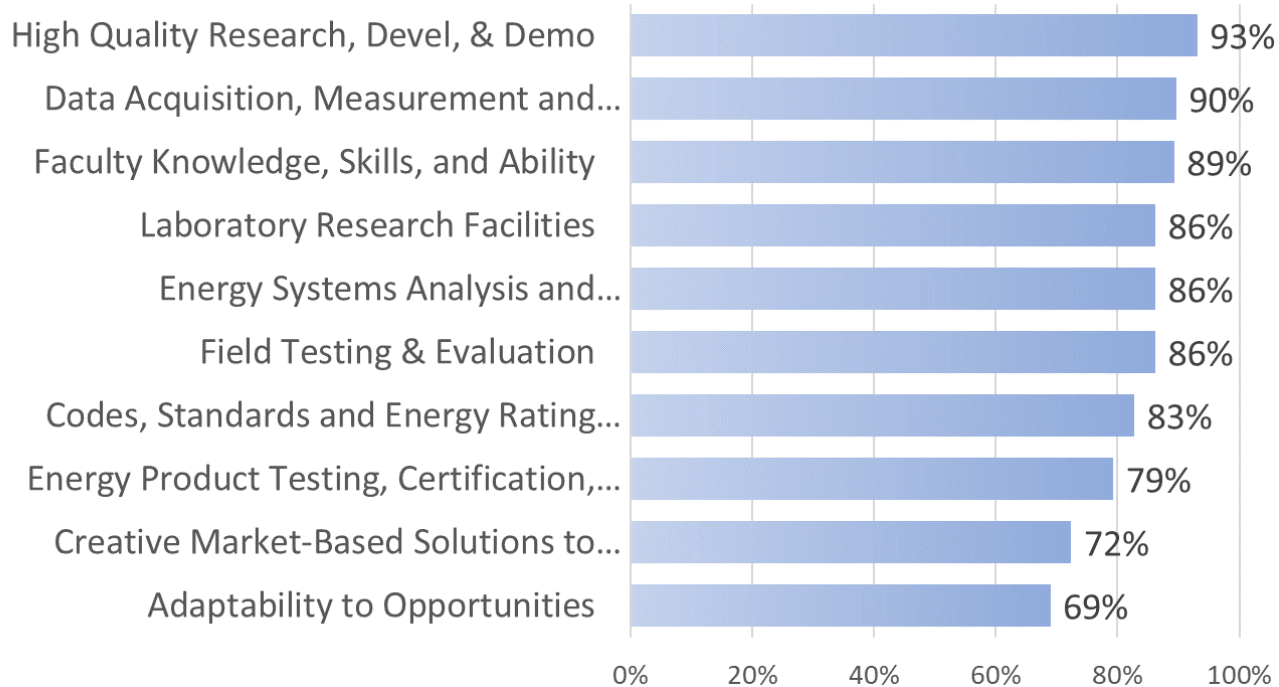
Competition for Funding
Loss of Federal Funding
Talent Retention



Strengths

Faculty knowledge, skills and ability
High quality Research, Development, and Demonstration
Laboratory Research Facilities
Data acquisition, measurement and analysis
Energy Systems Analysis and Integration
Energy product testing, certification, and evaluation
Field testing and evaluation
Codes, standards and energy rating systems development
Creative market-based solutions to energy challenges
Adaptability to Opportunities

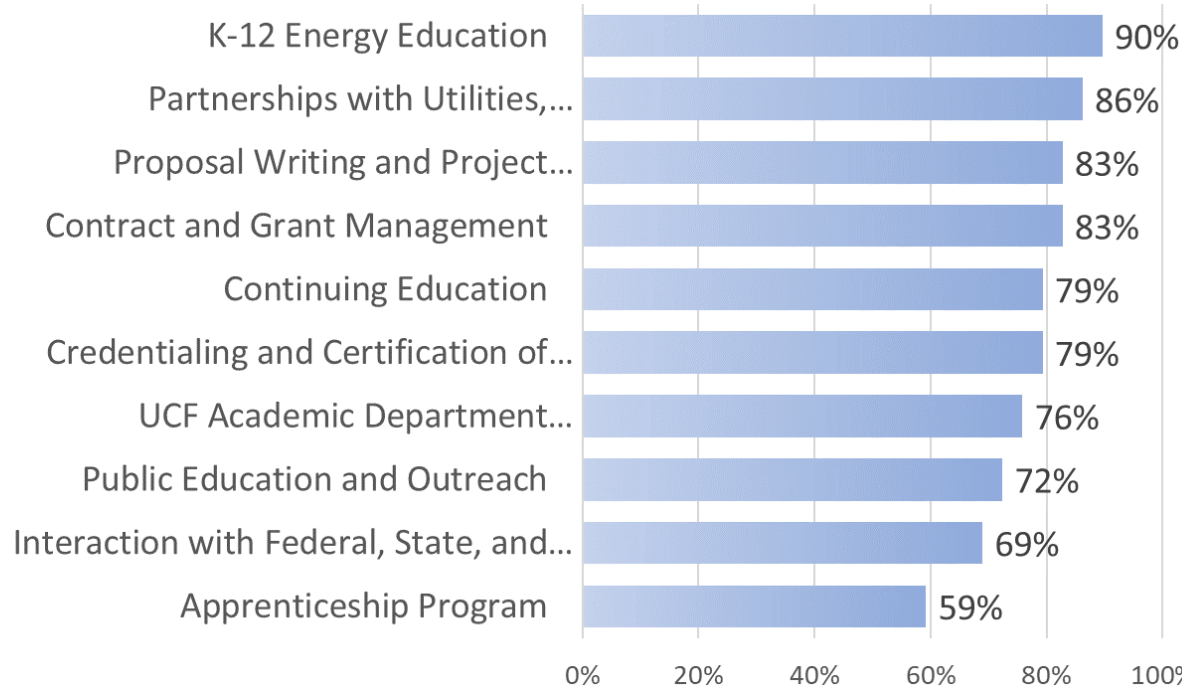
Strengths



Strengths

Proposal writing and project management
Contract and Grant management
UCF academic department collaboration
Interaction with federal, state and local governments agencies
Partnerships with utilities, industry, educators and NGOs
K-12 Energy Education
Continuing Education
Credentialing and Certification of Practitioners
Apprenticeship program
Public education and outreach

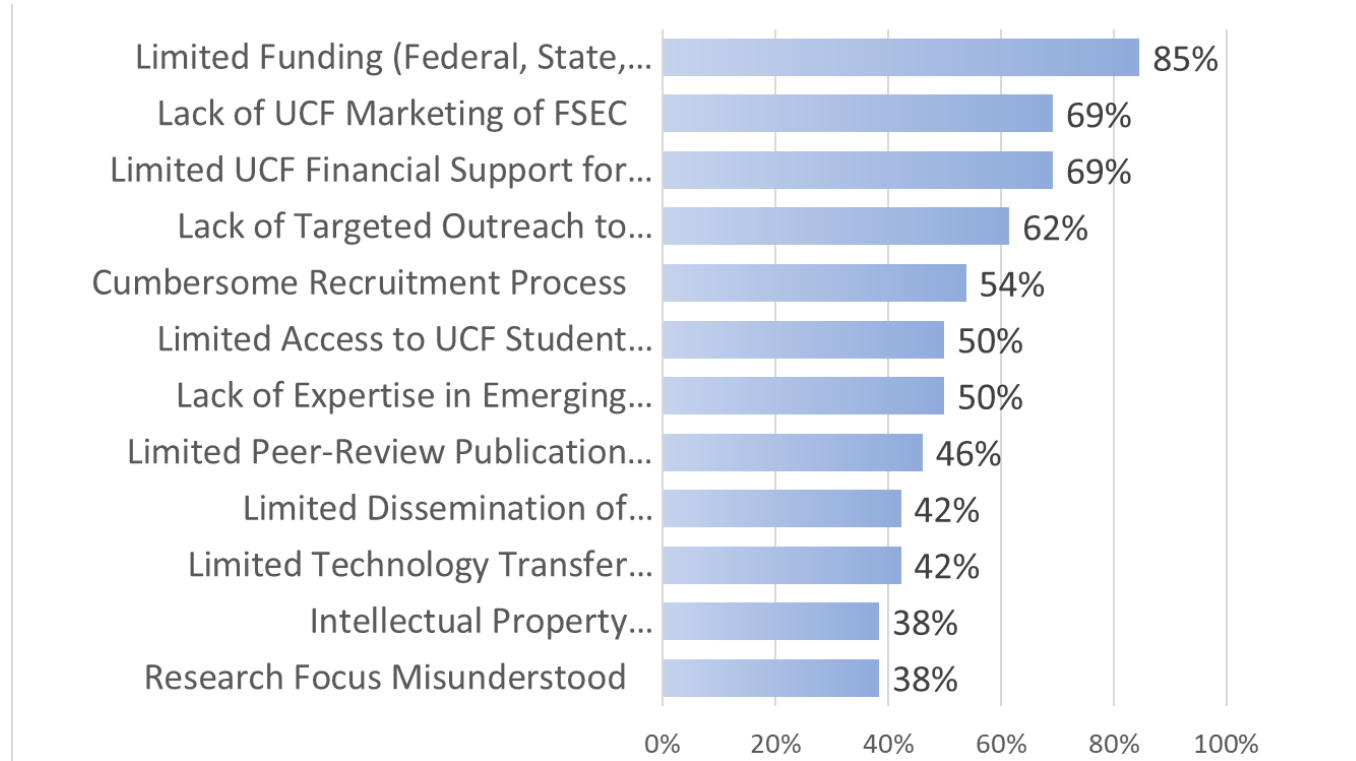
Strengths



Weaknesses

Research focus misunderstood
Expertise in emerging utility and commercial scale applications
Technology Transfer Opportunities for faculty
Intellectual Property Development
Dissemination of research, education and other program information
Peer-review publication opportunities
Targeted outreach to potential partners
Limited Funding (federal, state, industry, NGO)
UCF financial support for facilities, infrastructure, faculty/staff
Lack of UCF marketing of FSEC
Access to UCF student workforce
Cumbersome recruitment time-frames and processes

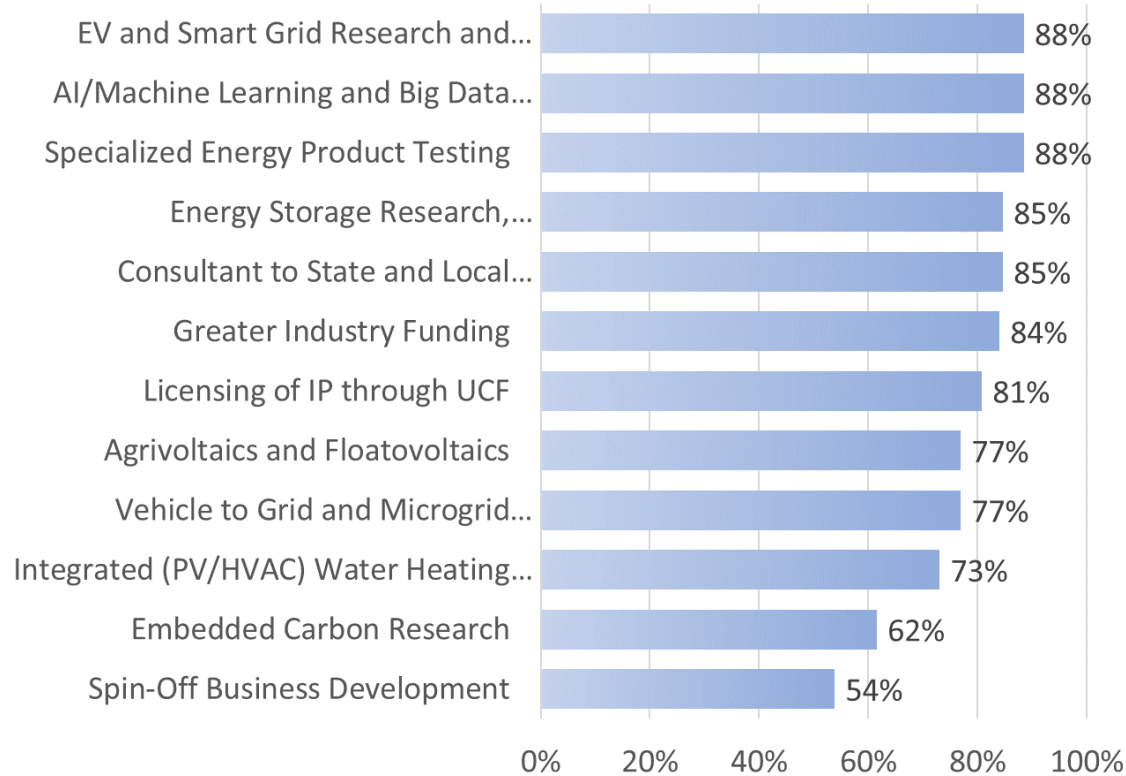
Weaknesses



Opportunities

Consultant to state and local government agencies and NGOs
Licensing of IP through UCF
Spin-off business development
Specialized product testing
Energy storage research, development and demonstration
Greater industry funding
Vehicle-to-grid and micro-grid applications
EV and Smart Grid research and demonstration
Integrated (PV/HVAC) Water Heating technologies
AI/Machine learning and Big Data research
Agrivoltaics and Floatovoltaics
Embedded Carbon research

Opportunities



Opportunities

New and early career faculty development

Recruitment of UCF student employees through academic departments

Expanded International presence

Collaboration with military

Cooperative program development with UCF academic departments

State Energy Program development with Office of Energy

Interdisciplinary research and proposal development within FSEC

Community energy resiliency and sustainability project development

Code Official training

Energy practitioner training

Clean energy workforce pipeline development (K-16 education)

Teacher training



Opportunities



Threats

Competition for funding from other non-profits, labs, and private companies

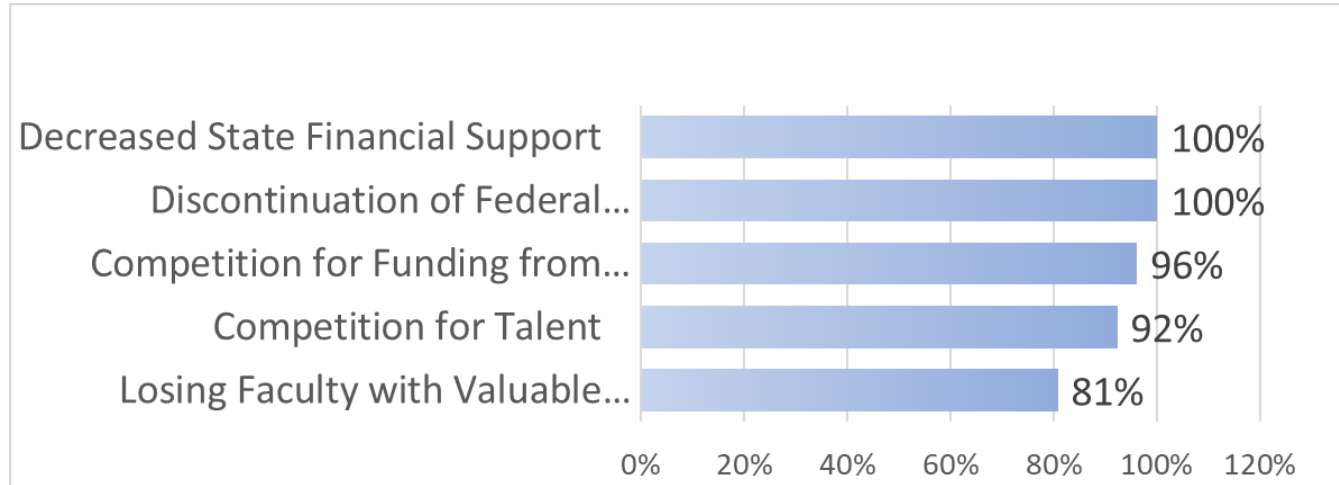
Continuation of federal government funding

Decreased state financial support

Losing faculty with valuable expertise and institutional knowledge

Competition for talent

Threats



DRAFT 2025-2030 Strategic Plan

- **Vision Statement**

- Accelerate the development of a resilient, sustainable, and renewable global energy economy.

- **Mission Statement**

- Develop, research, and evaluate energy technologies that enhance the environment and economy, and share the knowledge with the research community, students, practitioners, and the public.

DRAFT 2025-2030 Strategic Plan

Goals

1. Deploy FSEC's distinctive assets to enhance our prominence in sustainable energy research and development
2. Recruit and retain highly qualified faculty and staff to increase and support our research excellence
3. Elevate and expand FSEC's education and training programming
4. Diversify the partnership base that supports and funds FSEC's research, development, and education initiatives
5. Increase stakeholder and constituent engagement with FSEC to better inform its programs and services



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SAVE *the* DATE!

SATURDAY

OCTOBER 4, 2025

10 AM - 4 PM

Join

Florida Solar Energy Center's
50th Anniversary Celebration
and **Open House**

- Tours of FSEC
- Consumer Information Sessions
- Hands-on Educational Activities
- Ask-An-Energy-Expert Station
- Clean Fuel Vehicles
- Indoor & Outdoor Exhibits
- Food Trucks



Celebrating 50 Years Under the Sun



<https://energyresearch.ucf.edu/50th-anniversary/>

1679 Clearlake Road, Cocoa, FL 32922

Friday, October 3rd

Lunch Meeting: 1:00 p.m. – 4:00 p.m.

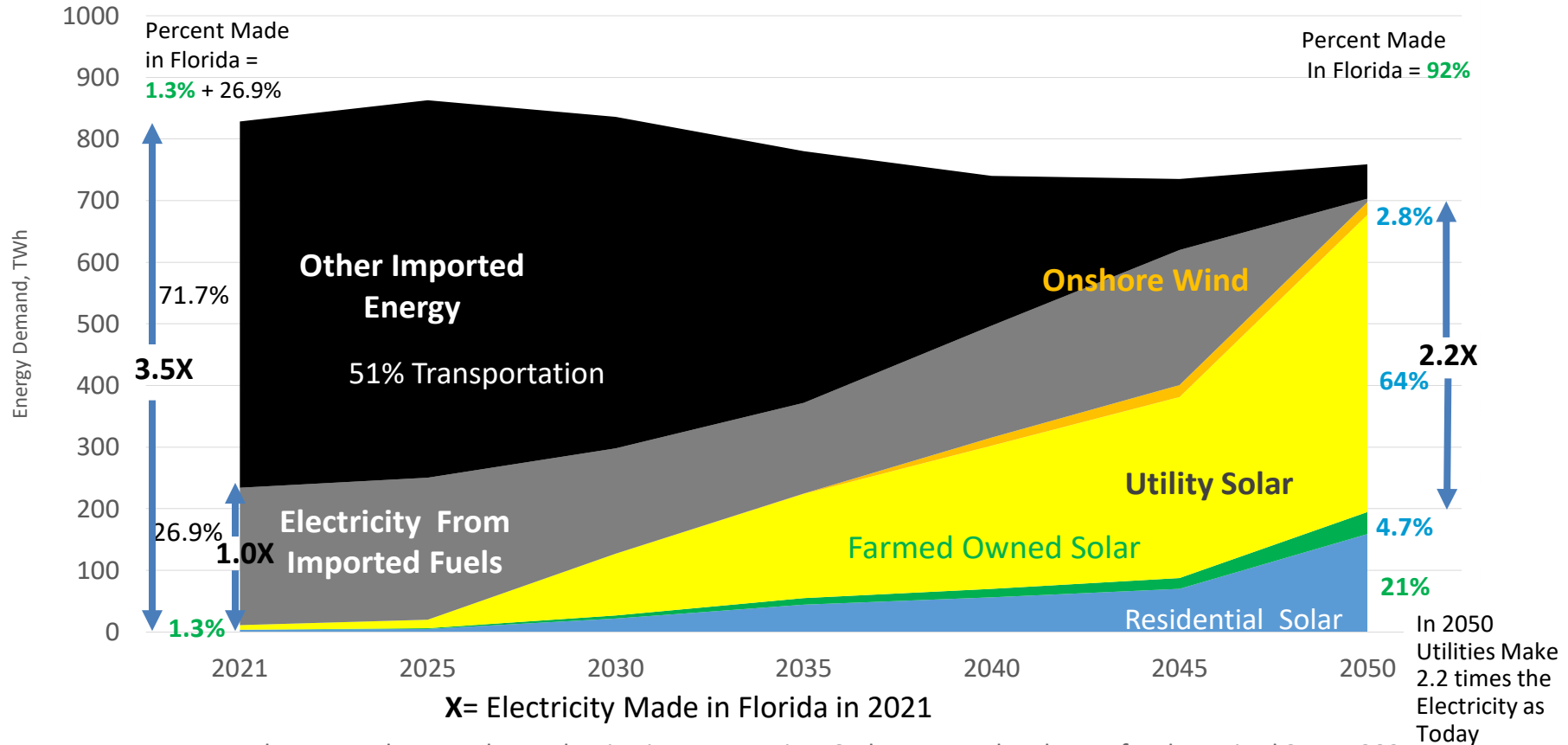
Dinner: Dutch Treat

NEXT ADVISORY BOARD MEETING



Florida-Made Energy Where All Win



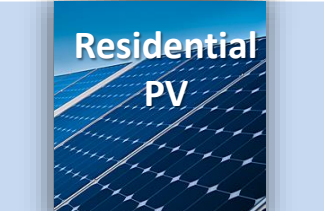
100% Made in Florida Energy Demand by 2050



Jones, R.A., Haley, B., et al., Annual Decarbonization Perspective: Carbon Neutral Pathways for the United States 2021-2050

Evolved Energy Research, 2024. <https://www.evolved.energy/us-adp-2024>

Electron Fueled Vehicle Owners Win

	Fuel Efficiency	Fuel Price	Cost per Mile	Cost per 10,000 Miles
 Gasoline Car	24.2 mpg	\$3.00 per gal	12.4¢ per mile	\$1,240
 Electric Car	3.2 miles per kWh	16.0 ¢/kWh (\$1.21 per gal equiv.)	5.0¢ per mile	\$500
 Residential PV	3.2 miles per kWh	5.4 ¢/kWh \$0.41 per gal equiv.)	1.7¢ per mile	\$170

EV range 220 miles, 68.7 kWh battery capacity (3.2 miles/kWh) Gasoline car 24.2 mpg

FSEC VISION

Promote the rapid transition to a sustainable energy economy through renewable energy, energy efficiency, and sustainable transportation research, demonstration, and education. [2020]

FSEC MISSION

Develop, research, and evaluate energy technologies that enhance the environment and economy, and transfer the results to the public, students and practitioners. [2020]