





# Growing Greener Every Day

City of Key West Sustainability  
Advisory Board Briefing

October 14, 2021

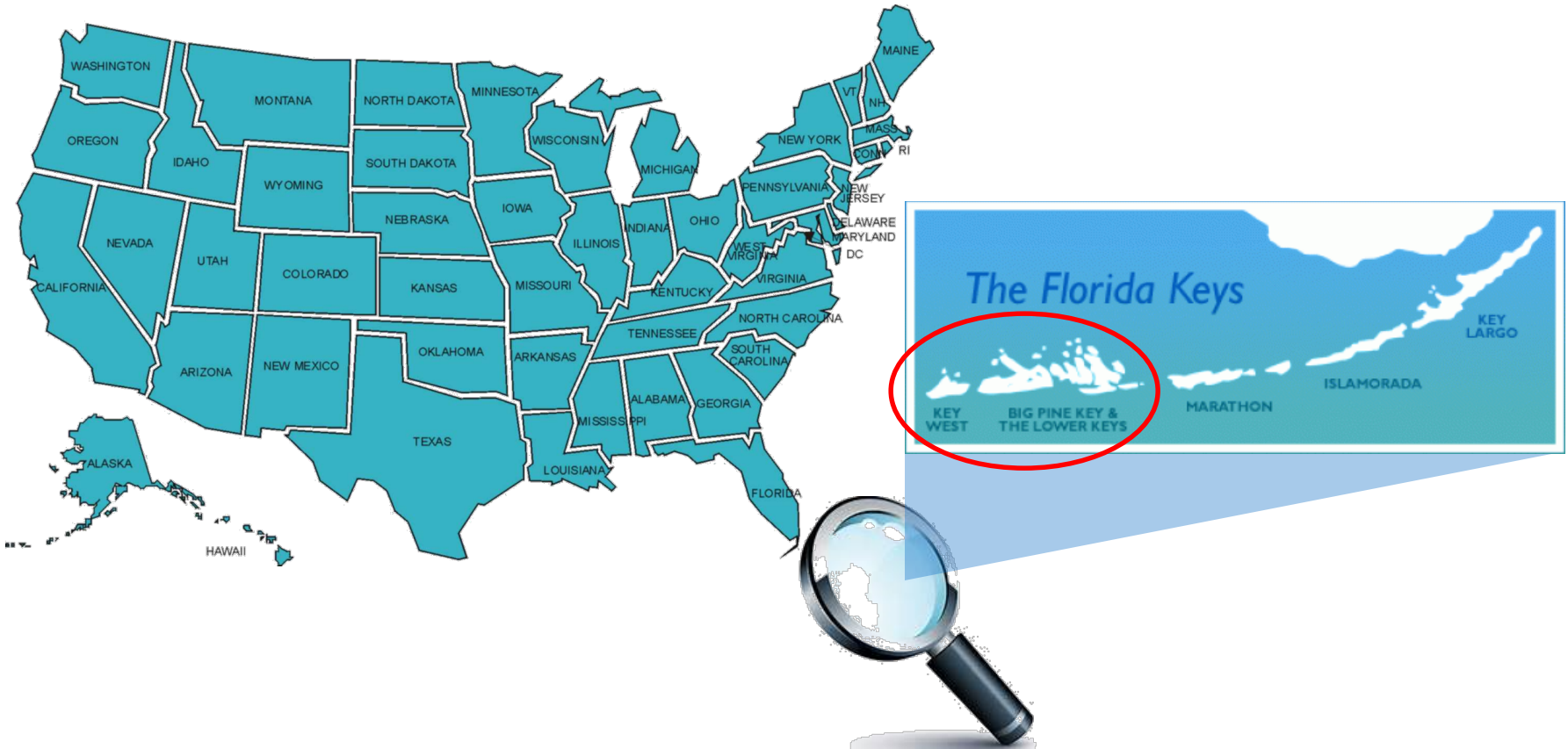
# Topics

- KEYS & Power Background
- Strategic Goals
- Solar in the Lower Florida Keys
- Electric Vehicle Preparedness
- Additional Green Initiatives



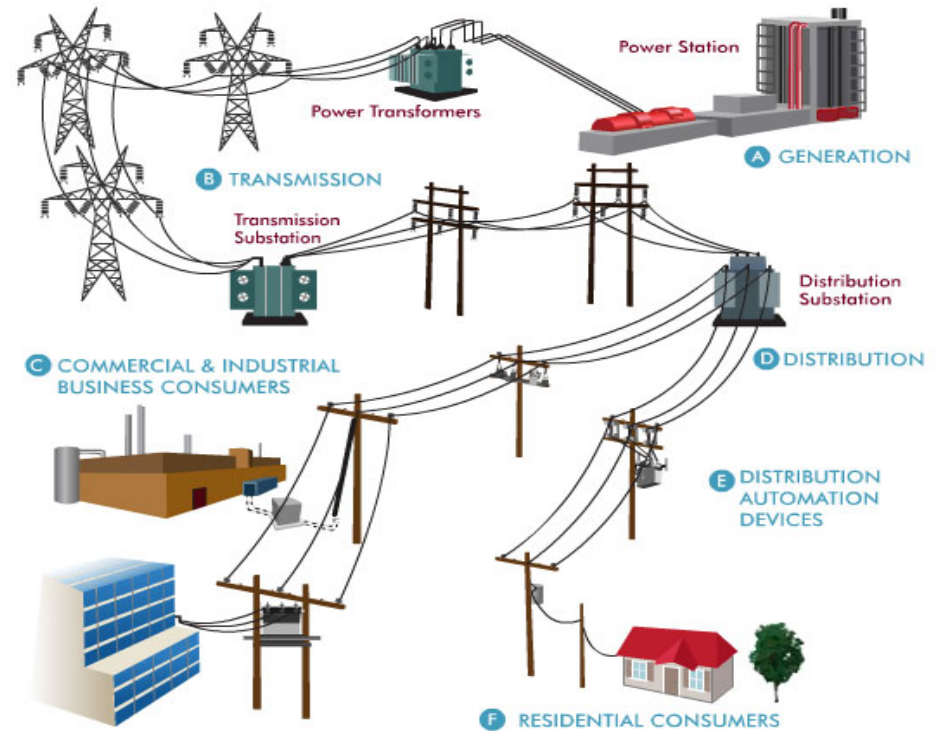
# KEYS & Power Background

# KEYS' Service Area



# Power Grid 101

- Transmission (TIELINE)
  - Transmits bulk electricity to Substations
- Substations
  - Step down bulk electricity from Transmission voltage to a Distribution voltage
- Distribution
  - Distribute electricity to customers from the Substation
- Transformers
  - Step down bulk electricity from Distribution voltage to the appropriate levels for homes and businesses

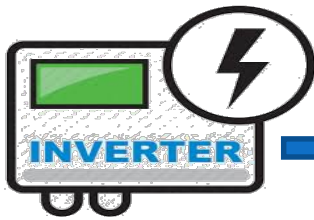


# Solar 101

**1** Solar array converts energy from sunlight to electricity



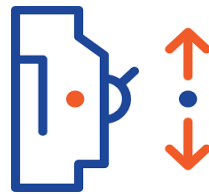
**2** Inverter converts direct current (DC) to alternating current (AC)



**3** RGS Output Meter measures total kWh produced by the solar system



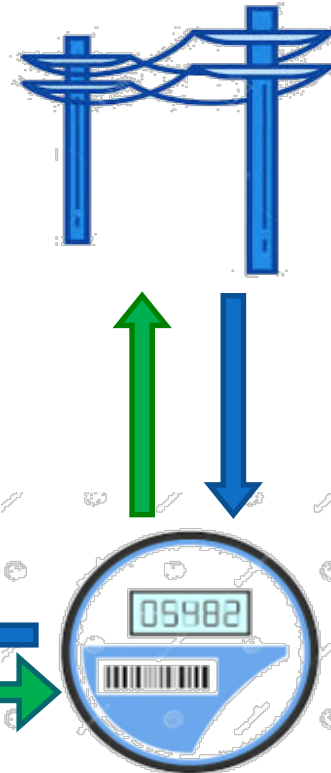
**4** Manual PV Disconnect



**5** Solar energy is used in your home



**6** Bi-directional meter measures energy provided to the home from the grid and excess energy from the RGS supplied to the grid



# Solar Noteworthy Terms

- **Net-Metering** - A system in which solar panels or other renewable energy generators are connected to a public-utility power grid and surplus power is transferred onto the grid, allowing customers to offset the cost of power drawn from the utility.
- **Retail Rate** - Retail rate solar customers do not pay for infrastructure, service, and administration related costs via their net-metering agreement.
- **Avoided Cost** - Avoided cost solar customers pay for their share of infrastructure, service, and administration related costs via their net-metering agreement.







# Strategic Goals

# Strategic Plan

- **Mission:** Provide safe, reliable energy with excellent customer service at the lowest reasonable cost
- **Vision:** Enrich our customers' lives by providing energy services in a safe, reliable, affordable, sustainable manner while exploring new avenues to benefit our community
- **Value:** Environment – We will take steps to care for the unique Florida Keys environment and our planet.
- **Goal:** Reduce reliance on fossil fuels
  - Establish KEYS Solar Goal
  - Develop an Electric Vehicle Program
  - Expand Customer Conservation Education Efforts





# Solar in the Lower Florida Keys

# Net-Metering

- **2008** - Implemented a pilot program offering net-metering with excess generation reimbursement at full retail rates.
- **2009** – Created a Net Metering Tariff, building on the 2008 pilot program, to incentivize first 75 residential and small commercial customers interconnecting to the grid with full retail rates.

# Net-Metering

- **2017** – KEYS grandfathered initial net-metering customers to continue receiving full retail rate for excess generation.
  - Retail rate for excess generation will sunset February 1, 2037.
- All customers enrolling in net-metering as October 1, 2017, receive KEYS' avoided cost rate for excess generation.



# Net-Metering Program Requirements

1. Receive service from KEYS at their premises;
2. Renewable Generating System (RGS) must be located on the premises with a capacity not exceeding 2 MW and primarily intended to offset part or all of the customer's own electric requirements;
3. RGS interconnected and operated in parallel with KEYS' electric distribution system; and
4. Provides KEYS' with executed Standard Interconnection and Tri-Party Net-Metering Power Purchase Agreements.



# Net Metering Interconnection Process

- Complete Application for Interconnection
- Submit One-Line Electrical Drawing
- Submit Application Fees as follows:
  - Tier 1- No Application fee; no study fee
  - Tier 2- \$320.00 application fee; no study fee
  - Tier 3- \$470.00 application fee and interconnection study fee



# Net-Metering Interconnection Process

- Upon approval of application by KEYS, the RGS Owner:
  - May proceed with the RGS installation.
  - Must obtain all necessary permits from the local code authorities.
  - Will be required to install an additional meter enclosure for the RGS output meter at their expense.

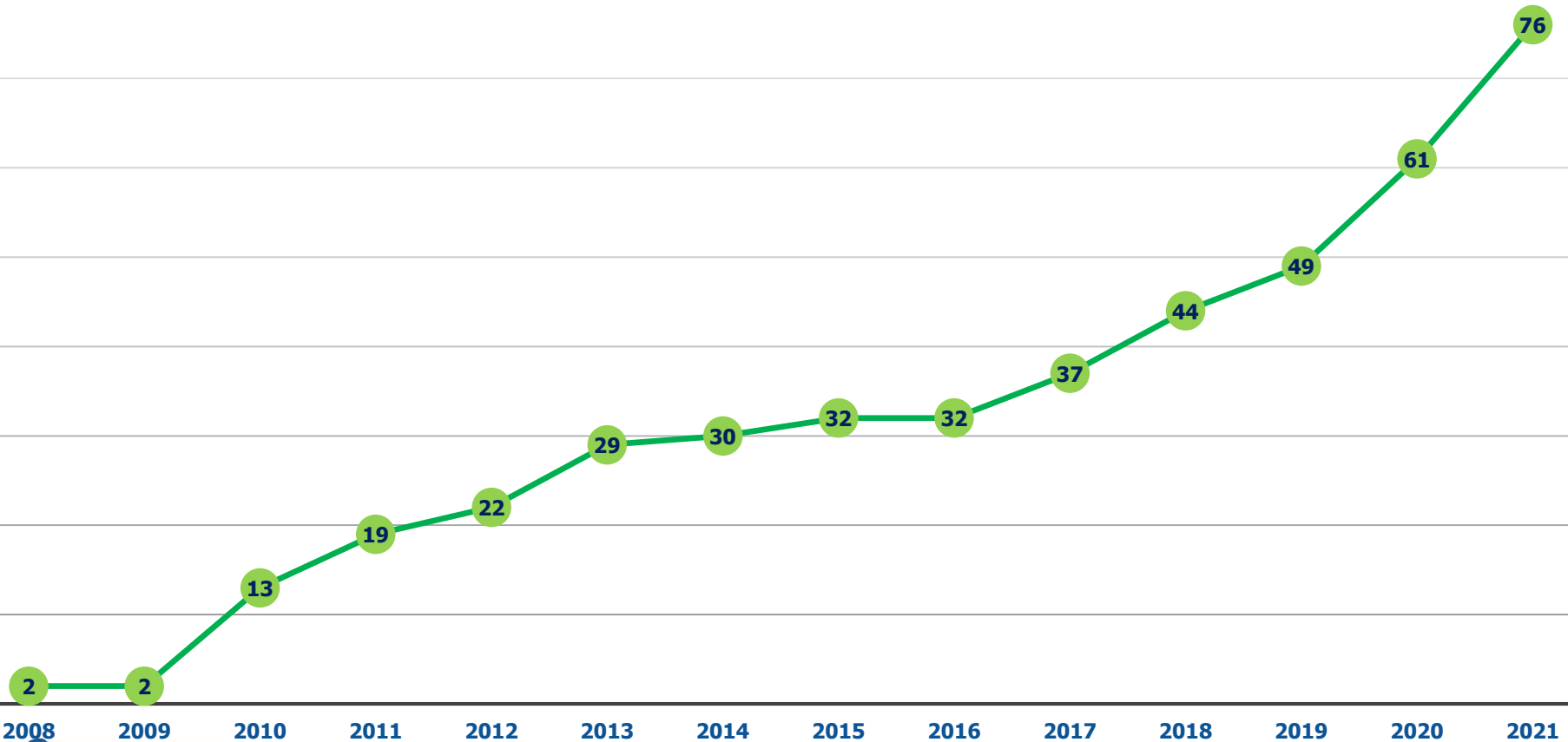


# Net-Metering Interconnection Process

- Submit proof of general liability insurance.
- Submit official local building code inspection and certification of installation in writing.
- Upon final approval by KEYS:
  - KEYS will install a bi-directional meter and RGS output meter.
  - RGS Owner may commence parallel operation once meters have been installed.



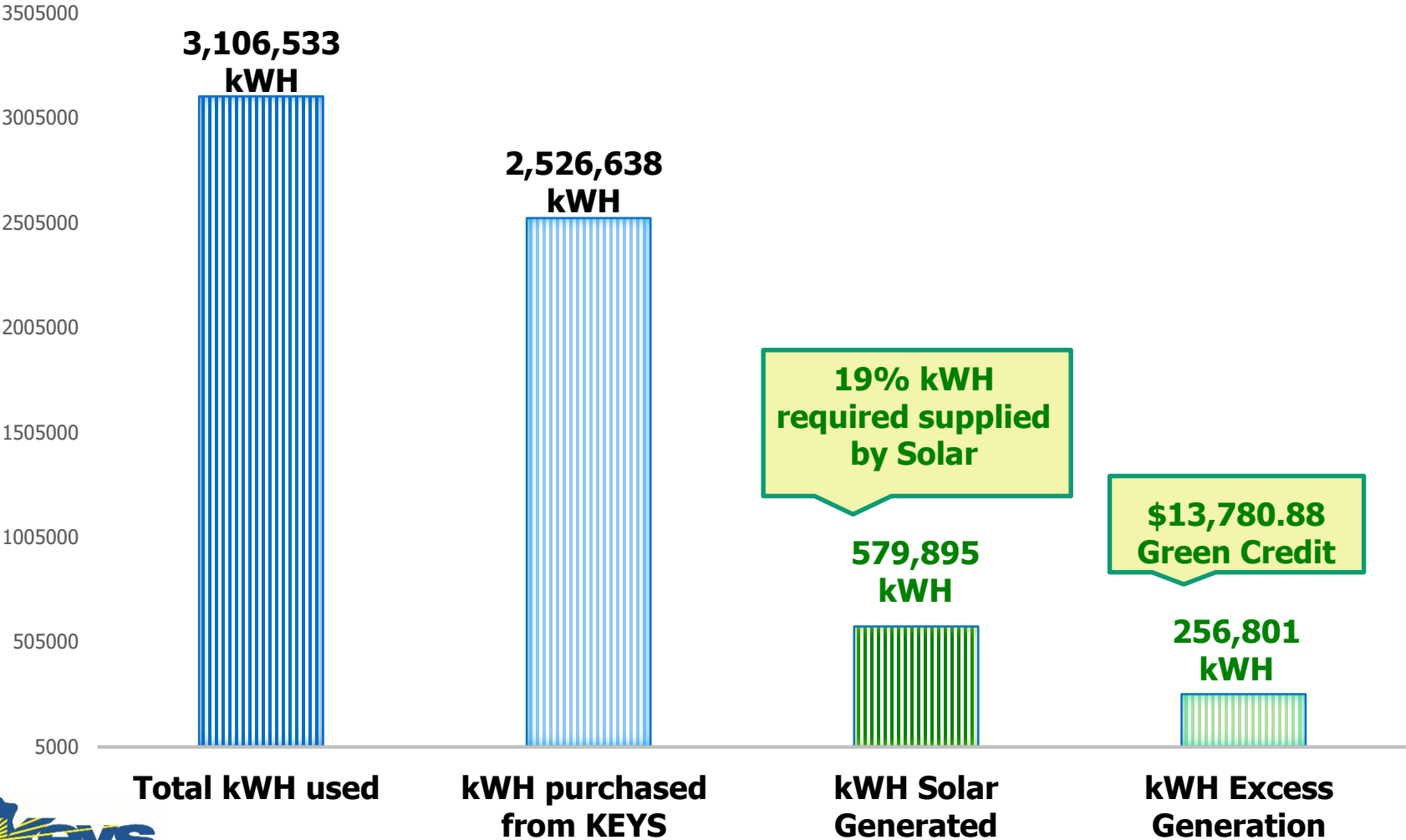
# Net-Metering Enrollment



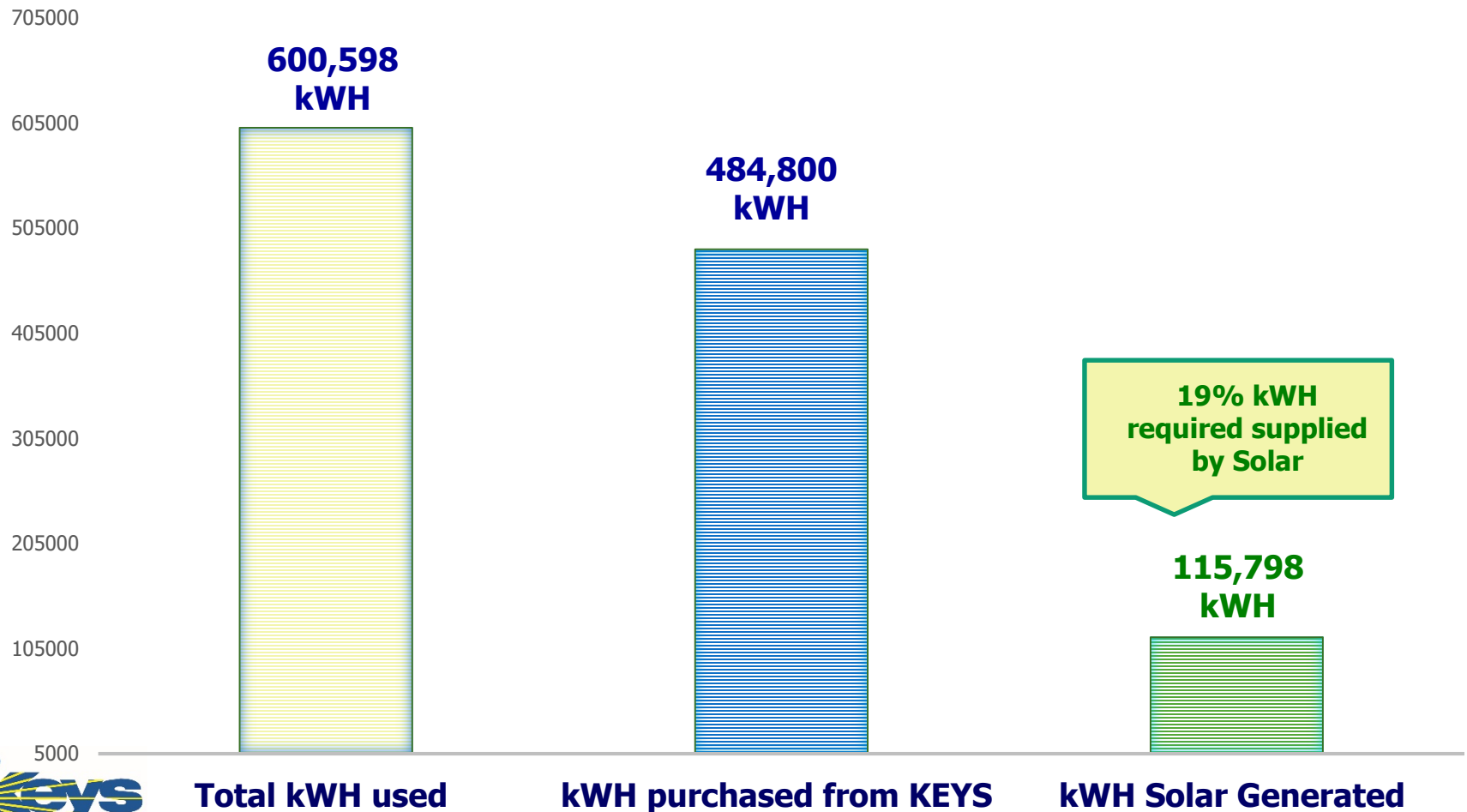
Fiscal Year



# Interconnected RGS 2021 Usage



# Key West City Hall 2021 Usage



# KEYS' Solar Investments

- **2010** – Partner in Florida Keys Eco-Discovery Center 25.5 kW system.



# KEYS' Solar Investments

- **2016** – Partner in 60 kW system at Key West City Hall.
  - KEYS Donated \$240,000 for panels.



# KEYS' Solar Investments

- **2017** – Installed 75 kW system on KEYS' Ralph Garcia Building in Stock Island.
  - The largest interconnected solar array in KEYS' service area.



# KEYS' Solar Investments

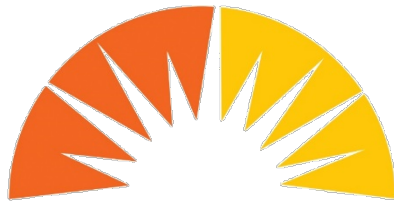
- **2018** – KEYS announced participation in 223.5 MW Florida Municipal Solar Project (FMSP).
  - KEYS portion: 5 MW





# KEYS' Solar Investments

- **2019** – KEYS announced participation in 149.8 MW phase two of FMSP.
  - KEYS portion: 25 MW
- When complete, KEYS portions of phase one (2020) and phase two (2023) will constitute 10% of KEYS energy portfolio.



**FLORIDA MUNICIPAL  
SOLAR PROJECT**

# KEYS' Solar Investments





# Electric Vehicle (EV) Preparedness

# EV Program Goals

- Goal 1: Maintain grid resilience and reliable electric service while minimizing costs for customers.
- Goal 2: Support customer knowledge and education regarding transportation electrification.
- Goal 3: Support broader KEYS efforts to reduce reliance on fossil fuels.
- Goal 4: Remain flexible to evolving customer EV needs and enhance KEYS preparedness for impacts of future EV charging.

# EV Goal 1

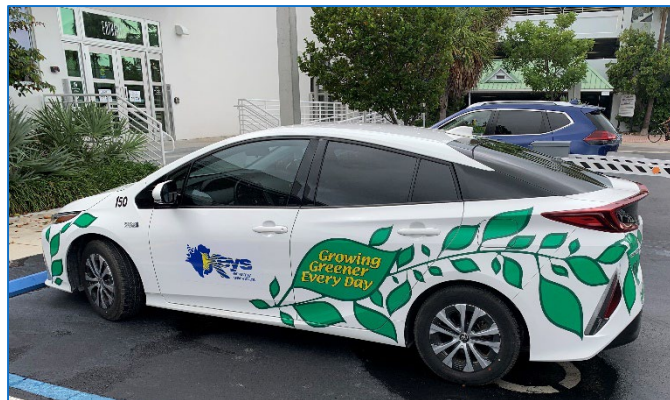
- **Provide EV customers with clear guidance of when and where to charge** in order to manage the grid impact of added grid load due to transportation electrification.
- **Develop a strategic plan for grid investments** that will be necessary in areas where grid capacity may not be sufficient to accommodate future EV demand.
- Perform a grid analysis to **quantify the potential impacts of EV adoption on KEYS electric grid.**

# EV Goal 2

- **Conduct outreach and facilitate awareness regarding transportation electrification**, including EV charging practices and infrastructure.
- **Support commercial and local government customers interested in fleet electrification** through targeted knowledge-sharing of how and when to best charge.

# EV Goal 3

- Include data regarding **carbon reduction benefits of EVs** versus internal combustion engine vehicles in educational materials.
- As KEYS fleet of vehicles reach the end of their lease and/or useful life, **look to replace them with hybrid or electric vehicles.**
  - We currently have two EV's in our fleet and seven Hybrid bucket trucks that utilize rechargeable battery operated booms.



# EV Goal 4

- Develop a KEYS EV program that meets customer and utility needs through effective processes and infrastructure services.
- Align EV Program efforts with KEYS' future growth initiatives.
- Develop EV rebates and other purchase incentives.





# Additional Green Initiatives

# Additional Green Initiatives

- FREE Home Energy Audits
  - Since 1980s
- Native Shade Tree Giveaway
  - Given away over 40,000 trees since 1994
- Energy Efficient Appliance Rebates
  - Provided over \$1.1-million since 2008



