





Growing Greener Every Day: Solar Power

City of Key West Briefing
November 19, 2019

Topics

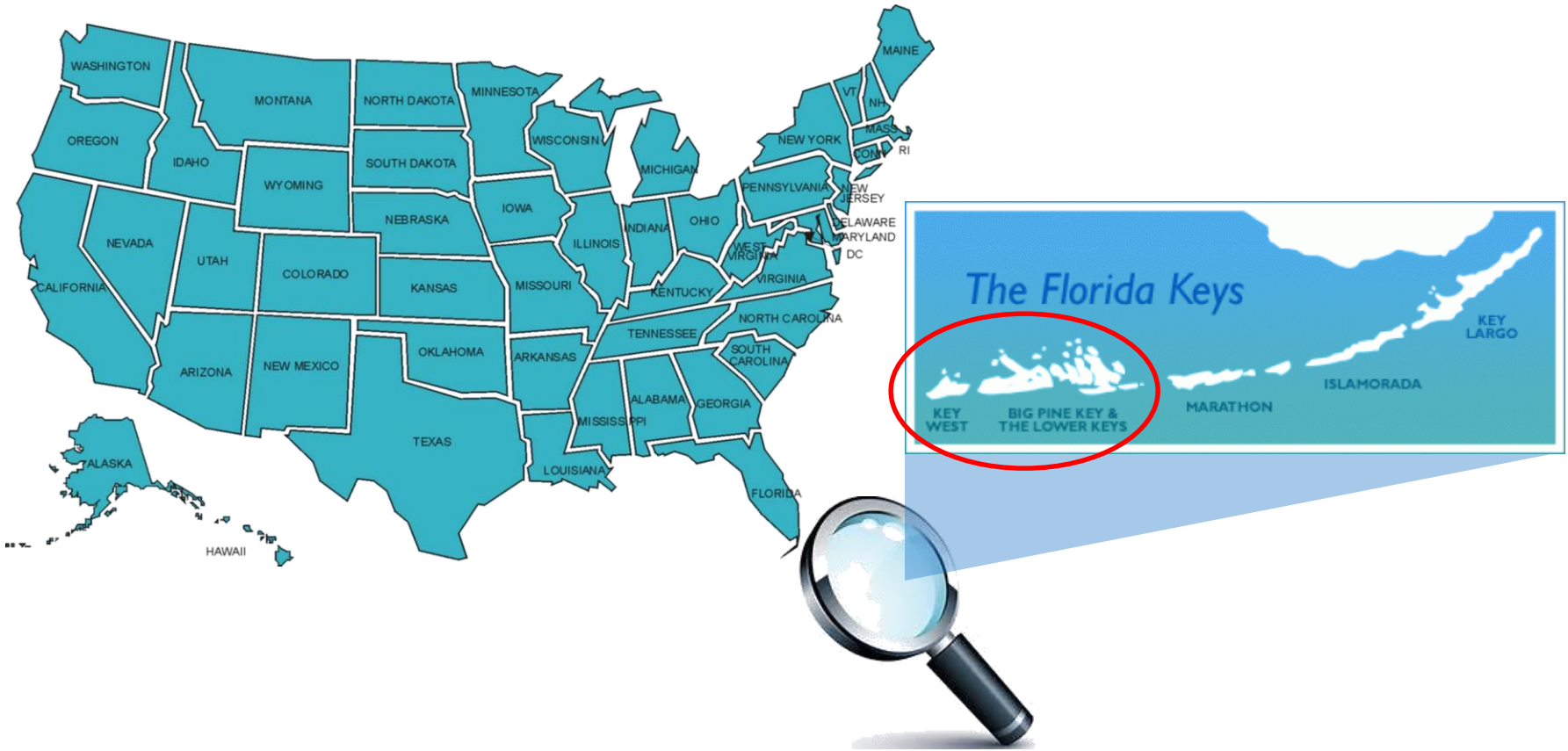
- KEYS & Power Background
- Solar in the Lower Florida Keys
- Additional Green Initiatives
- Local Resiliency





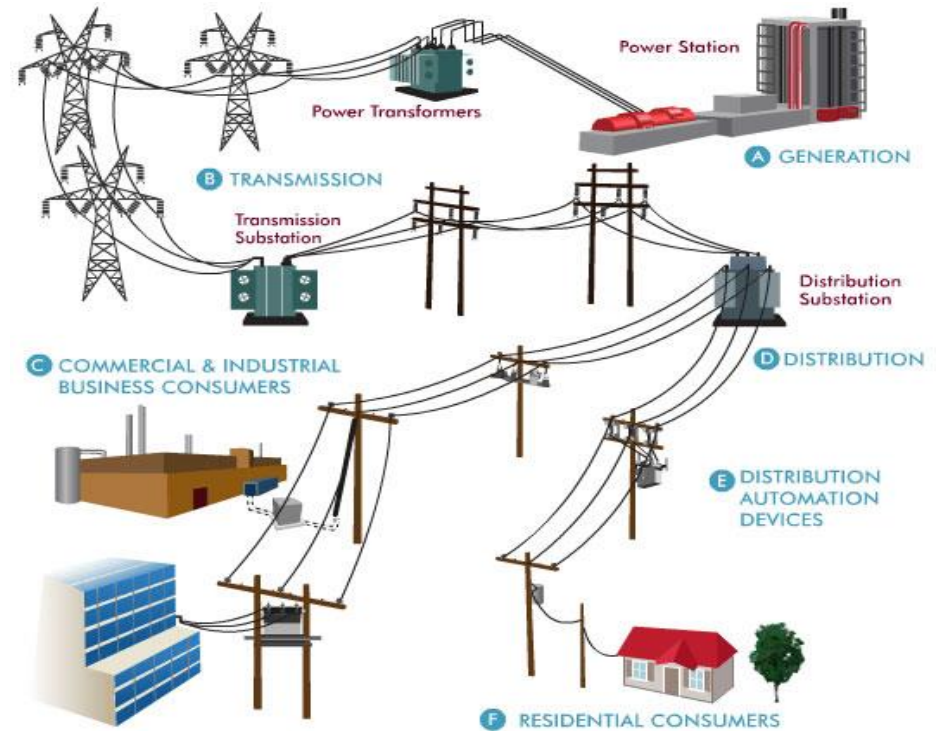
KEYS & Power Background

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



Energy Bill 101

- Energy bills are comprised of:
 - Charges for energy consumed, and
 - The costs that do not depend on the amount of energy used such as the operation and maintenance costs of the grid and other customer related costs involved in bringing power to customers.



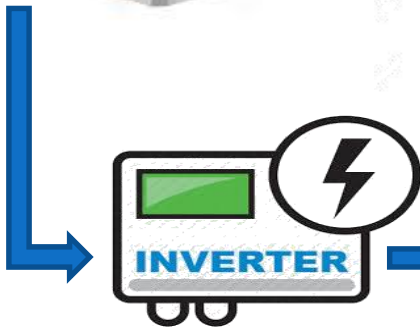
Solar Noteworthy Terms

- **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 related costs via their net-metering agreement.



Solar 101

1 Solar array converts energy from sunlight to electricity



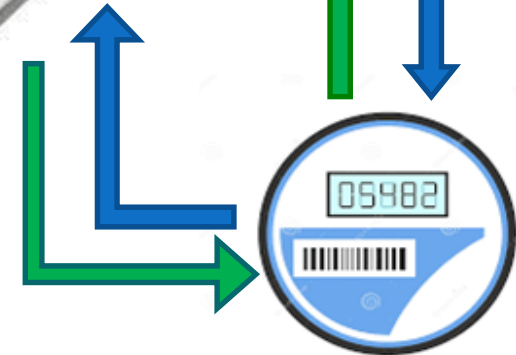
2 Inverter converts direct current (DC) to alternating current (AC)

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 in the Lower Florida Keys

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



KEYS Supports Solar

- **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.



KEYS' Solar Investments

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



KEYS' Solar Investments

- **2012** – Installed 38 kW system on KEYS' Materials Warehouse in Stock Island.



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 Supports Solar

- **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.



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



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

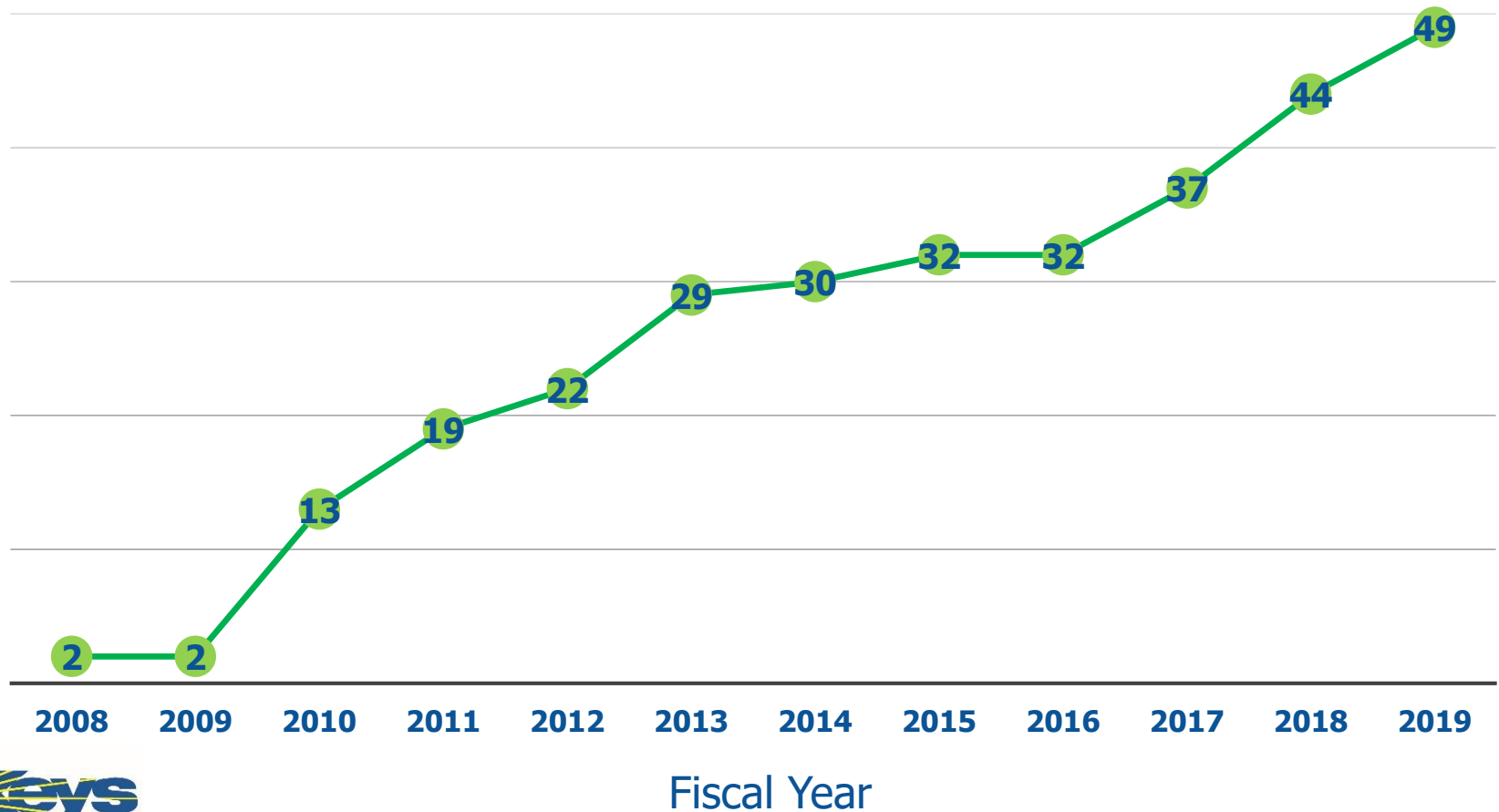
- Upon approval of application by KEYS, the RGS Owner:
 - May proceed with the RGS installation.
 - Must obtain all necessary permits from the local code authorities.
 - Will be required to install an additional meter enclosure for the RGS output meter at their expense.

Net-Metering Interconnection Process

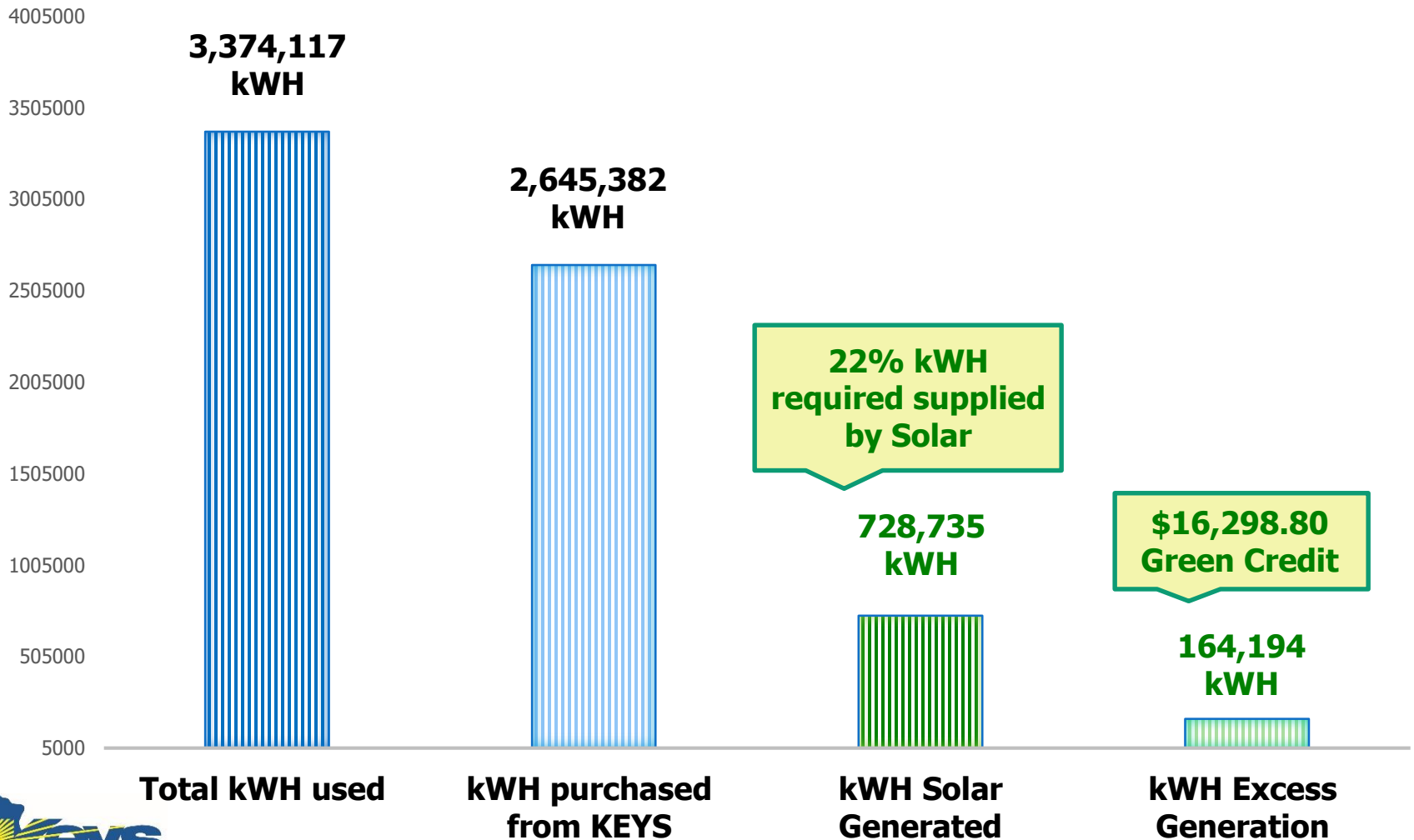
- Submit proof of general liability insurance.
- Submit official local building code inspection and certification of installation in writing.
- Upon final approval by KEYS:
 - KEYS will install a bi-directional meter and RGS output meter.
 - RGS Owner may commence parallel operation once meters have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



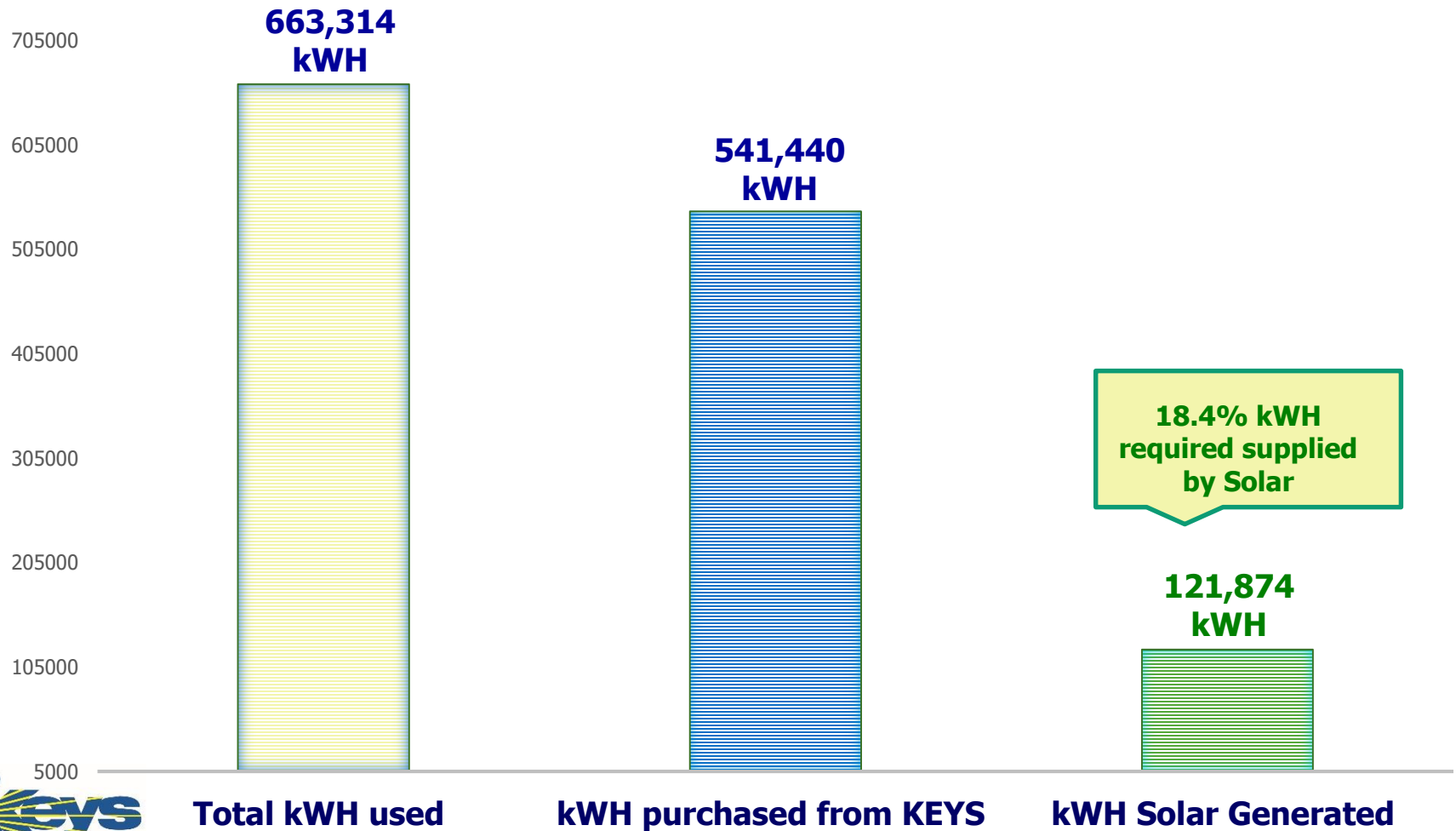
Net-Metering Enrollment



Interconnected RGS 2019 Usage



Key West City Hall 2019 Usage





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 \$989,000 since 2008
- Onboarding an Energy Advisor
- More offerings at KeysEnergy.com

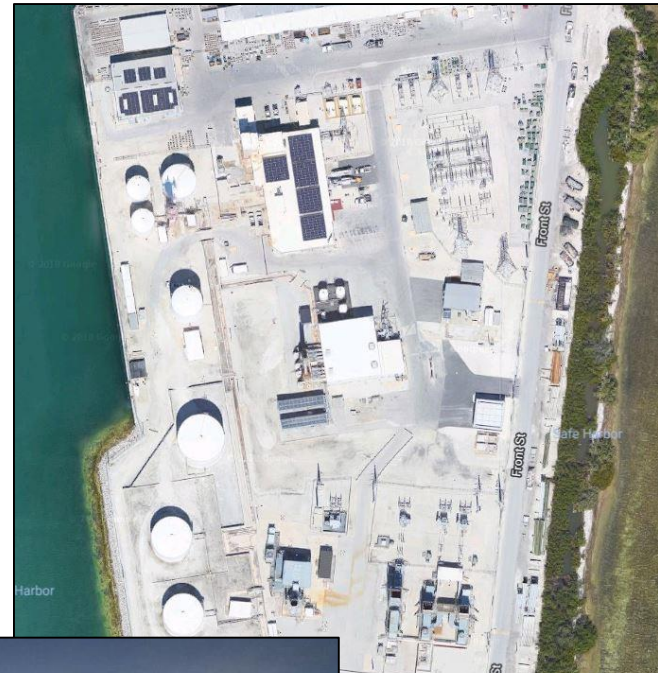




Local Resiliency

Local Generation Resiliency

- KEYS has 108 MW of local generation available if the transmission line is not available.
 - 60% On-Island Generation



Local Solar Resiliency

- Solar power can be helpful after a weather event if the infrastructure survives unscathed.
- After Hurricane Irma:
 - Five customer systems were inoperable for more than 6 months.
 - One customer system remains offline.
 - Four customer systems were damaged and removed completely.



