



# Virgin Islands - Mitigating Energy Burden

Kyle Fleming - 3/28/2022



# USVI Energy Landscape

- VI Water & Power Authority
  - 2 Distinct Generation sites and 2 Distinct T&D Grids
    - St. Thomas and St. John Connected by undersea cable
  - Serves over 55,000 Customers Territory-Wide
    - Rates:
      - **We're #1 (And that's not a Good Thing)**
      - Residential: \$0.43/kWh
      - Commercial: \$0.45/kWh
  - Generation Mix:
    - LPG (Primary)
    - No. 2 Fuel Oil (Diesel)
    - 4 MW (STX) & 5 MW (STT)
  - STX: 41 MW Peak
    - Operates over 90% on Propane
  - STT & STJ: 50 MW Peak
    - Operates 75% on Propane
    - STJ: 7 MW Peak



# Energy Diversification: Submarine Cable

- Puerto Rico to St. Thomas Submarine Cable Link
  - 46.5 Mile Interconnect
  - **\$26 Million Project**
- Access High Renewable Resource availability through eastern interconnection point in Farardjo, PR
  - Over 125 MW Wind installed
  - 2GW of Solar Planned
  - Hydro-electric resource availability
  - Combined Fiber-Optic Link
- Overcome St. Thomas & St. John limited developable terrain for renewables



# Energy Diversification: Local Generation

- High Reliance on thermal generation fueled by volatile imported fuel cost & processed through inefficient generation infrastructure.
- STT-Wartsila Conversion
  - Installation of 4 Units (36 MW) Planned for 2022
    - \$95 Million
    - BESS 9 MW/ 18 MWh - Seeking to accelerate integration by Q3 2022
- STX - Renewable Integration
  - Currently Supported by Baseload of Leased Generation
    - 20MW RICE Array Supplemented by 20MW of Inefficient Turbines
  - Aggressively Developing Renewable Energy integration targets and deployment initiatives to offset burden of inefficient generation.
  - Over 20 MW of Utility Scale Solar plus Storage Projects have been proposed on favorable terrain on St. Croix
    - \$125 Million identified by FEMA
    - Techno-Economic Feasibility underway



# Energy Diversification: Distributed Generation

- Commercial/Industrial:
  - Relatively high penetration of primary on-site generation
    - (Micro-Grids) - First Megapack in Caribbean (Not Utility Operated)
- Residential:
  - High penetration of Solar and Solar plus Storage installations.
    - 15 MW Net Energy Metering
    - 5-10MW of Solar plus Storage Since 2017
      - 2017 Storms have significantly increased battery storage adoption.
- Currently DG Resources have limited dispatchable grid interaction
  - Need to Develop Resource Aggregation control system and market structure
  - VIEO Currently leveraging US DOI EIC Funds to explore technical and economical feasibility.



# USVI Energy Landscape: Transportation Electrification

- Transportation Electrification critical within remote island nations seeking to:
  - Reduce Total Cost of Ownership through EV transition
  - Leverage small land footprint to develop extensive Level 2 EV charging network
  - Mitigate high cost and volatile supply of imported Fossil Fuels
  - Bolster Transportation Resilience within High Hurricane risk section of Caribbean
  - Reduce emissions within highly sensitive & vulnerable tropical environment
  - Leverage GVI fleet investment to create consumer retail & service/support access
- US - DOI
  - \$2.15 Million Granted to VI Energy Office and VIWAPA
    - \$1.7 Million Allotted to Electric Vehicle Procurement
    - \$415,000 Allotted to EV Charging Station Infrastructure



Thank You

Questions?

