



# RESILIENCY FOR MCRD PARRIS ISLAND

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December 10, 2019

INVESTING IN  
CLIMATE CHANGE  
**SOLUTIONS**



# OUR PROFILE

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**HASI**  
**LISTED**  
**NYSE**

First U.S. public company  
solely dedicated to investments  
in climate change solutions

## Principal Investor

~\$1 Billion  
Invested Annually

~\$2 Billion  
Balance Sheet Assets

\$5.7 Billion  
Managed Assets

## Markets & Asset Classes



### Behind-The-Meter

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Energy Efficiency  
Distributed Generation  
Storage



### Grid-Connected

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Wind  
Solar  
Storage



### Sustainable Infrastructure

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Stormwater Remediation  
Environmental Restoration  
Transmission & Distribution



## Remember the Rule of 3s:

- 3 Minutes without Air
  - 3 Days without Water
  - 3 Weeks without Food
- Bear Grylls

# DOD PROACTIVE APPROACH TO RESILIENCY

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- Department of Defense Climate and Weather Impact on Installations:<sup>1</sup>
  - Recurrent Flooding
  - Drought
  - Desertification
  - Wildfires
    - Including mudslides & erosion if heavy rains follow fires
  - Thawing Permafrost



<sup>1</sup> "Report on Effects of a Changing Climate to the Department of Defense," Office of the Under Secretary of Defense for Acquisition and Sustainment, January 2019. Page 16.

<sup>2</sup> Soldiers dismantling a temporary floating bridge at Cache Creek Regional Park in Yolo Co., CA. The bridge was constructed to support firefighting efforts with the 2018 Northern California wildfires. Sgt. Siguenza, Edward. "Pull Team." U.S. Department of Defense Photo Gallery, July 14, 2018.

<https://www.defense.gov/observe/photo-gallery/igphoto/2002040502/>.

# PARRIS ISLAND ENERGY RESILIENCE AND COMBAT EFFECTIVENESS

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## Training Disruptions

- Operations are affected 10 days each year due to tidal flooding in low-lying areas.<sup>1</sup>
- Hurricane Matthew forced an evacuation in 2016.

## Affect to Infrastructure & Mission Effectiveness

- Transit routes to the mainland and the southern portion of the island could be compromised.



# PARRIS ISLAND RESILIENCY PROJECT

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Base-wide energy resiliency project

# CENTRAL PLANT REPLACEMENT

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- Installed 3.5 MW capacity CHP plant
  - Including:
    - 3.5 MW natural gas turbine
    - Heat Recovery Steam Generator
    - 3.5 MW of backup diesel generators
- Resiliency Measure:
  - Physical plant elevated by 8ft to counter Carolina low-country geography
  - 30 days of fuel storage for security and curtailment
  - Black start capacity and backup power and steam production functions

# SOLAR ARRAYS

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- 6.7 MW capacity across two locations:
  - Carport system (1.6 MW)
  - Ground mount system (5.1 MW)
- PV system displaces electricity demand from the public utility system and provides shade for vehicles & PT.
- Provides intermittent power, not resiliency.



# BATTERY ARRAY

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- 4.0 MW/8.1 MWh battery energy storage system (BESS) provides true resiliency.
- Provides enhanced on-site grid integrity.
- Excess power generated is stored for later use, thus reducing need for additional energy purchases from the public utility.
- Able to annually store 1,120,000 kWh of excess energy from PV generation.

# PROJECT SAVINGS

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- Fence-to-Fence (Whole Base) Application:
  - 121 buildings (3.1 million GSF)
  - 20 energy conservation measures
    - Energy management control system
    - Over 29,000 LEDs installed
    - Reduced water consumption by 27% through increased efficient usage
- Total Project Cost: \$91.1 million
  - Hannon Armstrong financed \$85 million.
  - Ameresco will operate the facility for 22 years.

Annual Energy Consumption Reduction:

384,962 million BTUs (79%)

Annual Water Consumption Reduction:

74.6 million gallons (27%)

Combined Annual Carbon Reduction:

37,165 metric tons of CO<sub>2</sub>

Estimated Annual Energy Savings:

\$6 million

# TYPES OF RISK TO MITIGATE

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## Technology

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- Where and how has the technology been used before with success
- Previous experience with the technology
- Contractor guaranty



## Credit

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- Obligor - US Government
- Engineer/Construction Contractor - Ameresco

## Contractual

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- Contract Authority and IDIQ
- Contractor guaranty
- Termination
- Step in Rights of the Financier

## Performance

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- Savings Guarantees
- Operations & Maintenance
- System availability



# THANK YOU

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