Resilience Roundtable Part 1:
Finding the Balance between Resiliency, Storage + Renewables, and Energy Efficiency

Thursday, July 11, 2019
9:00-10:30 AM
Speakers

- Krystal Laymon, U.S. Department of Energy
- Anne Hampson, ICF
- Eric Coffman, Montgomery County, MD
- Dennis Gonzalez, Puerto Rico Public Housing Administration
Snapshot: Federal Resiliency Activities

JUNE 2019
Weatherization & Intergovernmental Programs (WIP) Office

WIP's mission is to enable strategic investments in energy efficiency and renewable energy technologies through the use of innovative practices across the United States by a wide range of stakeholders, in partnership with state and local organizations and community-based nonprofits.
Commonwealth of Northern Mariana Islands (CNMI)  Puerto Rico
Puerto Rico Solar Photovoltaic (PV) Pilot Program

- Puerto Rico’s State Office of Energy Policy requested DOE WAP funding be dedicated, to provide photovoltaic (PV) and battery storage to WAP-eligible single-family homes.

- DOE’s SEP 2 solar PV and battery storage in Mona Island, a natural reserve where research is conducted. Remaining funds used for residential PV project.
CNMI’s Care Package Deployment

- CNMI’s Energy Division was able to receive support from the State Energy Program to deliver over 950 relief care packages to those affected by the storm.
- Care packages included portable burner butane stoves so people could still cook food for their families, baby wipes, and toilet tissue.
Statewide Assistance for Energy Reliability and Resiliency, (SAFER²) Wisconsin

Overview:

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<tbody>
<tr>
<td>Cost Match: 20%</td>
<td></td>
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</tbody>
</table>

Project Goals:

Impact:
Financing Advanced Microgrids, New Jersey

Overview:

<table>
<thead>
<tr>
<th>DOE Funding: $299,840</th>
<th>Partners: New Jersey Institute of Technology, Rutgers University, New Jersey Clean Cities Coalition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Match: 29%</td>
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</table>

Project Goals:

Impact:
Disaster Recovery Reform Act of 2018

Established more than 50 new authorities and requirements across FEMA:

- Building Resilient Infrastructure and Communities (BRIC)
- Building Codes and Enforcement
- Wildfire Prevention
- Hazard Mitigation Grant Program for Earthquakes

Now Released!

Clean Energy for Low Income Communities Accelerator (CELICA) Online Toolkit

CELICA PROGRAM DEVELOPMENT ACTIVITIES

Program development refers to the planning and implementation actions program administrators take to create and manage a program.

CELICA PROGRAM MODELS

Program model refers to the defining features of a program, such as target market, key product and service attributes, terms and conditions, resource flows and benefits.
Clean Energy for Low Income Communities (CELICA): Outcomes

Partners successfully leveraged resources to commit up to $335 million to help 155,000 low income households access energy efficiency and renewable energy benefits, and demonstrated promising program models for:

**Single Family**

*Example: State of Connecticut* and CT Green Bank’s bundled energy efficiency and solar program has been so successful that solar PV systems are owned by households in low income communities as much as those in non-low-income areas.

**Multifamily Affordable**

*Example: District of Columbia* is incentivizing building owners to serve 100,000 low income households with 240-300MW solar PV.

**Low Income Community Solar**

*Example: State of Michigan* Energy Office’s low income community solar program partnered with utilities to deliver $350/yr in additional savings for participating, previously weatherized, low income households.
Launched - Low-income Energy Affordability Data (LEAD) Tool

Goal: Help stakeholders make data-driven decisions on energy goals and program planning by improving their understanding of low income and moderate income household energy characteristics.

https://www.energy.gov/eere/slsc/maps/lead-tool
Questions?

Krystal Laymon
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U.S. Department of Energy
Krystal.Laymon@ee.doe.gov
What is CHP and How Does it Increase Resilience?

What is CHP?
- CHP, or cogeneration, is the production of electricity and capture of waste heat to provide useful thermal energy for space heating, cooling, DHW, or industrial processes (recip. engines, steam turbines, microturbines, fuel cells)

How Does CHP Increase Resilience?
- For end users:
  - Provides continuous supply of electricity and thermal energy for critical loads
  - Can be configured to automatically switch to “island mode” during a utility outage, and to “black start” without grid power
  - Ability to withstand long, multiday outages
- For utilities:
  - Enhances grid stability and relieves grid congestion
  - Enables microgrid deployment for balancing renewable power and providing a diverse generation mix
- For communities:
  - Keeps critical facilities like hospitals and emergency services operating and responsive to community needs
Purpose:
- Incorporate consideration of CHP into resiliency planning efforts at the city, state, and utility levels
- Collaborate with Partners to:
  - Assess opportunities for CHP to maintain critical operations
  - Document Partner process for replicability

Key Materials Developed:
1. DG for Resiliency Planning Guide
2. CHP for Resiliency Screening Tool
3. DER Matrix – Issue Brief
4. Partner Profiles

https://betterbuildingsinitiative.energy.gov/accelerators/combined-heat-and-power-resiliency
The Distributed Generation (DG) for Resilience Planning Guide

Web-based guide that provides information and resources on how distributed generation (w/a focus on CHP), can help communities meet resilience goals and ensure critical infrastructure remains operational regardless of external events.

Available at: https://resilienceguide.dg.industrialenergytools.com/
Two Main Sections to the Guide

Stakeholder Take Action Pages

• Information and resources for resiliency planners to actively use to incorporate CHP/DERs in their planning process
  • Decision Makers
  • Utilities
  • Take Action
  • Resource Library

101 Background Information Pages

• Background information on critical infrastructure, DERs, and how to apply in end-use sectors
  • Critical Infrastructure
  • Combined Heat and Power
  • Solar + Energy Storage
  • Microgrids
  • Applying CHP in Critical Infrastructure
  • Case Studies
DG for Resilience Planning Guide: Take Action

- Provides user with an efficient approach to quickly assess a critical infrastructure portfolio for potential DG deployment, and/or;
- Provide a framework for reviewing existing resiliency strategies and policies, and developing new programs.

**Steps 1 & 2: Identify and Rank CI Sectors and Subsectors Conducive to DG Technologies**

Provides users with criteria for identifying and prioritizing CI sectors conducive to DG technologies.

**Step 3: Individual Site Assessments and Next Steps**

**Individual Site Assessments:** Tools that can be used to perform individual site assessment of DG technologies are provided for users: CHP Site Screening Tool, Solar + Storage Screening Tool, Microgrid Modeling Tools.

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**Table 2: Critical Infrastructure Sub-Sectors Conducive to CHP**

<table>
<thead>
<tr>
<th>CI Sector</th>
<th>Sub-sector Conducive to CHP</th>
</tr>
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<tbody>
<tr>
<td>Transportation</td>
<td>Airports</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Data Centers</td>
</tr>
<tr>
<td>Government Facilities</td>
<td>College/Universities</td>
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<tr>
<td></td>
<td>Schools</td>
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<td></td>
<td>Prisons</td>
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<td></td>
<td>Military Bases</td>
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<tr>
<td>Emergency Services</td>
<td>Police Stations</td>
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<tr>
<td></td>
<td>Fire Stations</td>
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<tr>
<td>Water and Wastewater Systems</td>
<td>Waste Water Treatment Plants</td>
</tr>
<tr>
<td>Food and Agriculture</td>
<td>Food Processing</td>
</tr>
<tr>
<td></td>
<td>Food Distribution Centers</td>
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<tr>
<td></td>
<td>Supermarkets</td>
</tr>
<tr>
<td>Commercial Facilities</td>
<td>Lodging</td>
</tr>
<tr>
<td></td>
<td>Multi-Family Buildings</td>
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<tr>
<td>Healthcare and Public Health</td>
<td>Hospitals</td>
</tr>
<tr>
<td></td>
<td>Nursing Homes</td>
</tr>
<tr>
<td>Healthcare and Public Health</td>
<td>Chemicals / Pharmaceuticals</td>
</tr>
<tr>
<td></td>
<td>Food Processing</td>
</tr>
</tbody>
</table>
CHP for Resilience Screening Tool

Allows users to screen and rank individual sites or portfolios of buildings based on a variety of resilience metrics and their suitability for CHP.

**Resiliency Screening**
- **Inputs:** User-defined critical infrastructure ranking criteria, as well as microgrid and load factor ranking assessments.
- **Results:** Users receive a resiliency score, microgrid score, load factor score, historical CHP uptake, and combined total resilience score.

**CHP Screening**
- **Inputs:** Resiliency score (from resiliency screening), site location, energy consumption data, and energy price data.
- **Results:** Estimated CHP size and stoplight screening assessment (taking into account resiliency screening).

**Stoplight Screening Assessment**
- **This site has a high potential for CHP:** contact your CHP TAP for more information.
- **This site has medium potential for CHP:** contact your CHP TAP for more information.
- **Limited CHP Potential**
Resiliency Screening Factors: Government Continuity, Locational Ranking, Leverage/Scalability, Life Safety, Economic Impact, Microgrid, and Load Factor

Access the tool at the accelerator website under “Featured Resources”:
https://betterbuildingsinitiative.energy.gov/accelerators/combined-heat-and-power-resiliency
CHP for Resilience Screening Tool: Valuing Resilience

Provides a framework for users to assign a value of resilience to individual sites, and understand the affects on overall potential

| **One-time Resilience Payment (\$)** | • Estimates the impact of placing a simple monetary value on resilience  
|                                      | • The University of Texas Medical Branch (UTMB) – Identified 6 CHP options compared to a base-case standby generators and assigned a premium cost for CHP based on resilience |

| **Energy Resilience Value (\$/kWh)** | • Cost of downtime to the facility, or the extra portion of electricity prices they would be willing to pay for assured resilience  
|                                      | • Downtown Cleveland Microgrid – Cleveland Thermal and Cuyahoga County are considering a 48 MW downtown microgrid, and are estimating paying 5 cents/kWh more for electricity for increased energy resilience |

| **Capacity Resilience Value (\$/kW)** | • Similar to capacity incentives for CHP systems, this determines the value of resilience based on system size  
|                                      | • Clemson University – Currently installing a 15 MW CHP system w/black start capability, and expecting to pay additional $12,500/month on extra facilities charges for upgraded electrical equipment |
Issue Brief – Examining the Performance of Different DERs in Disaster Events

- Explores how different DERs are impacted by various types of natural disasters (flooding, high winds, extreme temperature, etc.)

- Goal: To assist stakeholders in evaluating the technology options best able to meet their resilience priorities
Matrix of DER vulnerability to weather events

<table>
<thead>
<tr>
<th>Natural Disaster or Storm Events</th>
<th>Flooding</th>
<th>High Winds</th>
<th>Earthquakes</th>
<th>Wildfires</th>
<th>Snow/Ice</th>
<th>Extreme Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery Storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Biomass/Biogas CHP</td>
<td></td>
<td></td>
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<tr>
<td>Distributed Solar</td>
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<tr>
<td>Distributed Wind</td>
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<tr>
<td>Natural Gas CHP</td>
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<tr>
<td>Standby Generators</td>
<td></td>
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</tbody>
</table>
### Design considerations and other strategies to increase resilience of DERs

<table>
<thead>
<tr>
<th>Resource</th>
<th>Flooding</th>
<th>High Winds</th>
<th>Earthquakes</th>
<th>Wildfires</th>
<th>Snowstorms</th>
<th>Extreme Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery Storage</td>
<td>Insert equipment above flood and storm surge levels.&lt;br&gt;Use HEVRAE-rated enclosures to protect against water damage.&lt;br&gt;Freeze equipment repair or replacement in OEM plans.&lt;br&gt;Use NEMA-rated enclosures to protect exposed components.&lt;br&gt;Design redress to protect against visible light.</td>
<td>Use built-in fire suppression system.&lt;br&gt;Design enclosures to protect against visible light.</td>
<td>Maintain industry standards for facilities rated near seismic activity.&lt;br&gt;For batteries, use enclosures, fire protection, or containment strategies for fuel supply.</td>
<td>Design with a proper fire protection system design.</td>
<td>Use heating jackets designed for optimal temperatures and an adequate temperature monitoring system.</td>
<td>Ensure systems are designed for regional temperature ranges.</td>
</tr>
<tr>
<td>Biogas/Biomass CHP</td>
<td>Use biogas, use rigid covers to protect digesters safely.&lt;br&gt;For biomass, cover or protect equipment fuel supply stockpiles.&lt;br&gt;Use biogas, use rigid covers to protect digesters safely.&lt;br&gt;For biomass, cover or protect equipment fuel supply stockpiles.&lt;br&gt;Use biogas, use rigid covers to protect digesters safely.&lt;br&gt;For biomass, cover or protect equipment fuel supply stockpiles.</td>
<td>Use anthropic mechanical cleaning (biogas removal) and biomass gasification systems capable of allowing biomass from various sources to be used.</td>
<td>Ensures equipment design and equipment design standards on expected wind loads.</td>
<td>Ensure systems are designed for regional temperature ranges.</td>
<td>Use heating jackets designed for optimal temperatures and an adequate temperature monitoring system.</td>
<td>Ensure systems are designed for regional temperature ranges.</td>
</tr>
<tr>
<td>Distributed Solar</td>
<td>Design systems and framing for easy rain and drainage, especially for commercial rooftop systems with flat roofs.&lt;br&gt;For ground mount, avoid adding in flood zones.&lt;br&gt;Use biogas, use rigid covers to protect digesters safely.&lt;br&gt;For biomass, cover or protect equipment fuel supply stockpiles.</td>
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<td>Ensure systems are designed for regional temperature ranges.</td>
</tr>
<tr>
<td>Distributed Wind</td>
<td>Design foundation for conditions in high wind areas.&lt;br&gt;Ensure controls and electronics above flood and storm surge levels.&lt;br&gt;Use biogas, use rigid covers to protect digesters safely.&lt;br&gt;For biomass, cover or protect equipment fuel supply stockpiles.</td>
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<td>Use heating jackets designed for optimal temperatures and an adequate temperature monitoring system.</td>
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Partner Profiles

- Summary of individual partner achievements throughout the accelerator and future plans
- Short profiles containing:
  1. Partners’ approach to resiliency planning
  2. Program or project implementation related to CHP/DG
  3. Lessons learned and future plans
  4. Additional resources and information

### CHP FOR RESILIENCY ACCELERATOR PARTNER PROFILES

The partner summary table highlights key partner accomplishments, initiatives, and strategies related to resilience planning and implementing CHP or DG programs or projects. Please click on an individual partner to see more information in their individual partner profile. Partner profiles were completed through multiple interviews with each partner listed below and focus on 4 aspects: 1.) Resilience Planning, 2.) Program or Project Implementation, 3.) Lessons Learned, and 4.) Additional Information.

<table>
<thead>
<tr>
<th>Partner Name</th>
<th>Partner Type</th>
<th>Key Accomplishments</th>
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</thead>
<tbody>
<tr>
<td>City of Boston</td>
<td>City</td>
<td>Coordinated a pilot project for a multi-user CHP district energy microgrid and Community Energy Study</td>
</tr>
<tr>
<td>Healthcare Without Harm</td>
<td>Non-Profit Organization</td>
<td>Helped develop tools and initiatives focused on resilient healthcare facilities for the US Department of Health and Human Services’ (HHS)</td>
</tr>
<tr>
<td>Hoboken, NJ</td>
<td>City</td>
<td>Completing a feasibility study for the development of a city-wide microgrid to connect and power critical and community facilities</td>
</tr>
<tr>
<td>International District Energy Association (DEA)</td>
<td>Non-Profit Organization</td>
<td>Organizes stakeholder engagement events that highlight the importance of CHP, microgrids, and district energy in increasing energy resilience</td>
</tr>
<tr>
<td>Maryland Energy Administration</td>
<td>State Agency</td>
<td>Administers a CHP grant program designed to encourage the growth of CHP to improve end-user resilience throughout the state</td>
</tr>
<tr>
<td>Massachusetts Department of Energy Resources</td>
<td>State Agency</td>
<td>Provided project implementation support to add resiliency capabilities to clean energy technologies at hospitals</td>
</tr>
<tr>
<td>Miami-Dade Water and Sewer Department</td>
<td>City</td>
<td>Increasing the capacity of cogeneration units at two wastewater facilities studying of individual facilities to evaluate CHP and DER options</td>
</tr>
<tr>
<td>Missouri Department of Economic Development, Division of Energy</td>
<td>State Agency</td>
<td>Collaborated with Spire on several initiatives, such as co-hosting CHP summits focused on energy resiliency for critical facilities</td>
</tr>
<tr>
<td>Montgomery County, MD</td>
<td>County</td>
<td>Leading implementation of two pilot projects to enhance resiliency of individual facilities and the electric system with CHP</td>
</tr>
<tr>
<td>National Grid</td>
<td>Utility</td>
<td>Facilitated the interconnection of 900 MW of DERs for customers, and examining the feasibility of community microgrids in New York</td>
</tr>
</tbody>
</table>
CHP Technical Assistance Partnerships (TAPs) Are Here to Help

Northwest
www.northwestCHPTAP.org
David Van Hoide, P.E.
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207-581-2338

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MONTGOMERY COUNTY
RESILIENT PUBLIC INFRASTRUCTURE

Eric R. Coffman
Chief – Office of Energy and Sustainability
Department of General Services
Montgomery County, Maryland

One department, One mission:
Delivering Green Service
About Montgomery County

- Montgomery County, Maryland
- Outskirts of the National Capital Region
- Approximately 1.1 million people
- High tech knowledge based economy
- 400+ County government facilities
- Part of the national capital region emergency management system
Growing Threats and Vulnerabilities
Resilient Infrastructure

- Identify vulnerabilities in County portfolio of services
- Focus on singular or priority assets
- Facilities that have thermal load for CHP heating/cooling
- Sufficient volume to justify a P3
- Combine with efficiency improvements
- Priorities include:
  - Communications and command and control
  - Transportation and mobility services
  - Key shelter sites without natural gas fired generation
  - Animal shelter
  - Select fire stations and police stations
Public Safety Headquarters Microgrid Project

- EV DC Fast Charging
- 2 MW Canopy Mounted Solar
- CHP Integrated Added to Existing Generator Bank
- Cooling Towers
- Absorption Chillers
- Controls and CyberSecurity
- Cooling Towers
- Absorption Chillers
- Controls and CyberSecurity
**Project Summary**

- Public Safety Headquarters, Correctional Facility, Upcoming Recreation Center/Shelter and Animal Shelter
- “Microgrid as a Service” Third party designs, finances, builds, maintains and operates
- Duke Energy Renewables owns the generation facilities
  Schneider Electric built and maintains the system
- County purchases electricity for 25 years
- Models that can be replicated across the County’s portfolio and other governments
- Commissioning, energy assurance and continual testing plan
- Multiple contingencies and “bounce back” options
- Storage Ready
- Extensive commissioning an annual energy assurance testing
PSHQ BLUE SKY OPERATING CONDITION (EXAMPLE)

Export to Grid of Virtually Net Meter

CHP Electrical and Thermal Baseload

Small amount of utility power for balancing etc.
PSHQ OUTAGE EVENT

- < 1 min generators online
- < 5 minutes CHP comes back online
- < 10 minutes solar starts paralleling
- 168 hours plus of grid independent operation

Energy Generation kW/Hour

- Natural Gas Generator
- Combined Heat and Power
- Solar
- Building Energy Use
What’s Next for Montgomery County

- Expand on Microgrid Concept
  - Upscale to community/public purpose
  - Downscale to smaller facilities
  - Update design standards to microgrid ready for crucial facilities
- Implement parallel efficiency projects
- Smart Energy Transit Depot Project
- Resiliency Hub Pilot
- Green Government Center Study
Thank You

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www.montgomerycountymd.gov/dgs-oes
Twitter @MoCoOES
Facebook @MocoGreenDGS
FUND SOURCES

PUBLIC ASSIST.

PR REBUILDS

CDBG DR

RECOVERY STATUS
PUBLIC ASSISTANCE
STEP PROGRAM | CURRENT STATUS

>108,000
Task Orders for Repairs Completed

~$1,129M
Cost of Task Orders

$10,409.05
Average Cost per Home

$1,354 M
Funds Obligated for Repair and Program Administration
### STEP PROGRAM | DISBURSEMENTS

<table>
<thead>
<tr>
<th>Invoiced Amounts</th>
<th>FEMA Approved Disbursements</th>
</tr>
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<tbody>
<tr>
<td><strong>$1,087.73M</strong></td>
<td><strong>$978.63M</strong></td>
</tr>
<tr>
<td>Repair Works</td>
<td>Repair Works</td>
</tr>
<tr>
<td><strong>$179.04M</strong></td>
<td><strong>$162.85M</strong></td>
</tr>
<tr>
<td>Administration</td>
<td>Administration</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Program Total</th>
<th>Program Total</th>
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<tbody>
<tr>
<td><strong>$1,266.77M</strong></td>
<td><strong>$1,141.49M</strong></td>
</tr>
<tr>
<td></td>
<td>No Findings!</td>
</tr>
</tbody>
</table>
“Constant Coordination”

“Building Recovery Programs”

“Developing Controls”

“Monitoring & Compliance”
CDBG-DR | ACTION PLANS

ACTION PLAN
$1.5 BILLION
- FEDERAL REGISTER NOTICE
  FEBRUARY 9, 2018
- ACTION PLAN APPROVED
  JULY 29, 2018
- SIGNED GRANT AGREEMENT
  SEPTEMBER 20, 2018

ACTION PLAN 1ST AMENDMENT
$8.2 BILLION
- FEDERAL REGISTER NOTICE
  AUGUST 20, 2018
- ACTION PLAN AMENDMENT
  PUBLISHED FOR PUBLIC COMMENT
  SEPT 21, 2018
- PUBLIC COMMENT PERIOD
  SEPT 21 – OCT 21, 2018
- ACTION PLAN AMENDMENT
  SUBMITTED TO HUD FOR FINAL APPROVAL
  NOVEMBER 16, 2018
- ACTION PLAN AMENDMENT
  APPROVED
  FEBRUARY 28, 2019

FUTURE ACTION PLAN AMENDMENTS
RELATIVE TO FUTURE REGISTER NOTICE
POWER GRID
~$1.9 BILLION
MITIGATION FUNDS
$8.3 BILLION

ESTIMATED TOTAL
$19.9 BILLION

THESE AMOUNTS ARE ESTIMATED AND SUBJECT TO CHANGE
CDBG-DR | PROCUREMENT

PROCUREMENT TYPES

46

1 GSA
3 IFB
1 NOFA
14 MP
15 SP
10 RFP
2 RFQ

RECOVERY STATUS
CDBG-DR | PROCUREMENT

PROCUREMENT STATUS

42

10 Pending Award $586,332,257.30

32 Awarded $263,287,042.08

RECOVERY STATUS
<table>
<thead>
<tr>
<th>SECTOR</th>
<th>1ST AP(1)</th>
<th>2ND AP(1)</th>
<th>TOTAL(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>$75.3</td>
<td>$411.0</td>
<td>$486.3</td>
</tr>
<tr>
<td>Planning</td>
<td>$175.3</td>
<td>$309.7</td>
<td>$485.0</td>
</tr>
<tr>
<td>Housing</td>
<td>$1,011.6</td>
<td>$2,750.0</td>
<td>$3,761.6</td>
</tr>
<tr>
<td>Econ. Dev.</td>
<td>$145.0</td>
<td>$1,285.0</td>
<td>$1,430.0</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>$100.0</td>
<td>$1,375.0</td>
<td>$1,475.0</td>
</tr>
<tr>
<td>Multi-Sector</td>
<td>$0.0</td>
<td>$1,900.0</td>
<td>$1,900.0</td>
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<tr>
<td>Unallocated(2)</td>
<td>$0.0</td>
<td>$190.0</td>
<td>$190.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$1,507.2</td>
<td>$8,220.7</td>
<td>$9,727.9</td>
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</tbody>
</table>

Notes:
(1) All amounts in millions of dollars.
(2) Unallocated amounts are due to HUD’s declined of the Mortgage Catchup Program and increase of funds to the Tourism & Business Marketing Program.
1. **ENERGY STAR**
2. Enterprise Green Building Standard
3. LEED
4. ICC-700
5. EPA Indoor Air Plus
6. PR Green Permit

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a. *Green Building Standard for Replacement and New Construction of Residential Housing.* Grantees must meet the Green Building Standard in this subparagraph for: (i) All new construction of residential buildings and (ii) all replacement of substantially damaged residential buildings.
<table>
<thead>
<tr>
<th>Program</th>
<th>Sub-Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Repair, Reconstruction, or Relocation</td>
<td>$2,175,570,050</td>
</tr>
<tr>
<td>Title Clearance</td>
<td>$40,000,000</td>
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<tr>
<td>Mortgage Catch-Up</td>
<td>NOT APPROVED BY HUD</td>
</tr>
<tr>
<td>Social Interest Housing</td>
<td>$32,500,000</td>
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<tr>
<td>Housing Counseling</td>
<td>$17,500,000</td>
</tr>
<tr>
<td>CDBG-DR Gap to LIHTC</td>
<td>$400,000,000</td>
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<tr>
<td>Rental Assistance</td>
<td>$10,000,000</td>
</tr>
<tr>
<td>Community Energy &amp; Water Resilience Installations</td>
<td>$436,000,000</td>
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<tr>
<td>F.K.A. Home Energy Resilience</td>
<td></td>
</tr>
<tr>
<td>NEW Multi-Family Reconstruction, Repair &amp; Resilience Program</td>
<td>$300,000,000</td>
</tr>
<tr>
<td>NEW Homebuyer Assistance Program</td>
<td>$350,000,000</td>
</tr>
</tbody>
</table>

*Subject to Change*
<table>
<thead>
<tr>
<th>Program</th>
<th>Sub-Total</th>
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</thead>
<tbody>
<tr>
<td>Small Business Financing</td>
<td>$200,000,000</td>
</tr>
<tr>
<td>Small Business Incubators and Accelerators</td>
<td>$35,000,000</td>
</tr>
<tr>
<td>Workforce Training</td>
<td>$20,000,000</td>
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<tr>
<td>Construction and Commercial Revolving Loan</td>
<td>$100,000,000</td>
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<tr>
<td>Strategic Projects &amp; Commercial Development</td>
<td>$150,000,000</td>
</tr>
<tr>
<td>Tourism &amp; Business Marketing</td>
<td>$25,000,000</td>
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<tr>
<td>NEW Economic Development Investment Portfolio for Growth</td>
<td>$800,000,000</td>
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<tr>
<td>NEW Re-Grow PR Urban – Rural Agriculture</td>
<td>$100,000,000</td>
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</tbody>
</table>

$1,430,000,000 Sub-Total Allocation

*Subject to Change
## INFRASTRUCTURE PORTFOLIO

<table>
<thead>
<tr>
<th>Program</th>
<th>Sub-Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEMA Coordination</td>
<td>$1,000,000,000</td>
</tr>
<tr>
<td><strong>NEW</strong> Critical Infrastructure Resilience</td>
<td>$400,000,000</td>
</tr>
<tr>
<td><strong>NEW</strong> Community Resilience Centers</td>
<td>$75,000,000</td>
</tr>
</tbody>
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**Sub-Total Allocation:** $1,475,000,000

*Subject to Change*
<table>
<thead>
<tr>
<th>Program</th>
<th>Sub-Total</th>
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<tbody>
<tr>
<td>NEW City Revitalization</td>
<td>$1,200,000,000</td>
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<td>NEW Puerto Rico by Design</td>
<td>$700,000,000</td>
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</tbody>
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*Subject to Change

$1,900,000,000 Sub-Total Allocation
<table>
<thead>
<tr>
<th>Program</th>
<th>Sub-Total</th>
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</thead>
<tbody>
<tr>
<td>Whole Community Resilience Planning</td>
<td>$55,000,000</td>
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<tr>
<td>Agency Planning Initiatives</td>
<td>$50,000,000</td>
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<tr>
<td>Economic Recovery Planning</td>
<td>$22,500,000</td>
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<tr>
<td>Home Resilience Innovation Competition</td>
<td>$5,750,000</td>
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<tr>
<td>Programs Planning</td>
<td>$351,743,850</td>
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</tbody>
</table>

$484,993,850 Sub-Total Allocation

*Subject to Change*
Dennis González PE
Disaster Recovery Deputy Secretary
CDBG-DR Program
Puerto Rico Department of Housing

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