



U.S. Department of Energy  
Financing Mechanisms and  
Resilience Tools

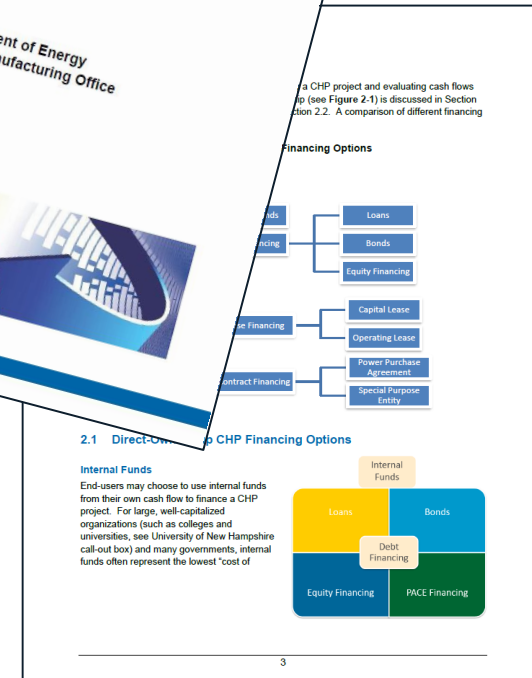
Anne Hampson  
ICF

# CHP Financing Primer

- Summary of financing options
- Considerations for what financing option is right for your project
- Case study examples for each option

Available at:

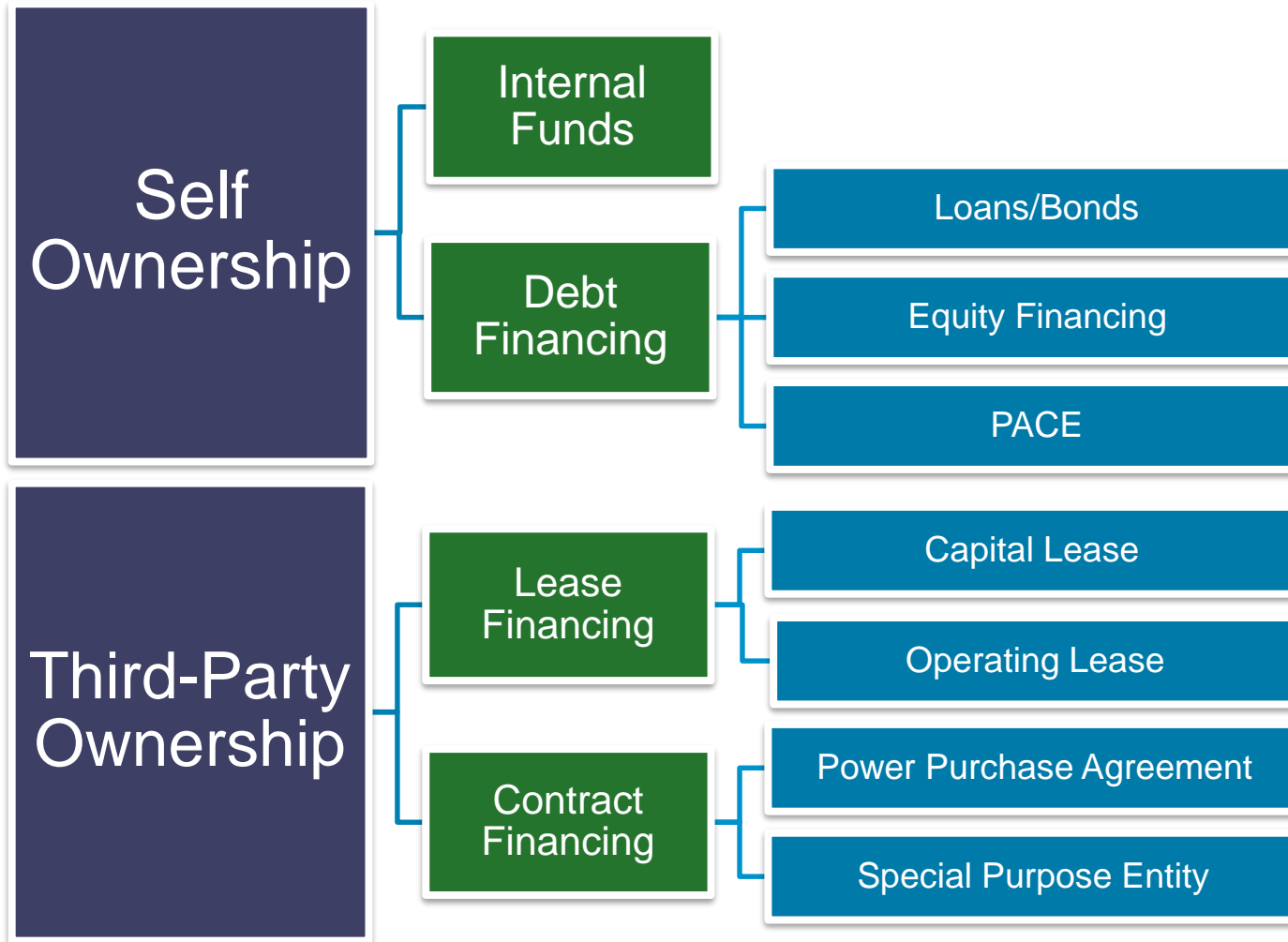
<https://www.energy.gov/eere/amo/downloads/combined-heat-and-power-chp-financing-primer-june-2017>



# Financing Goals

- CHP ownership and financing strategy is all about allocating project risks and responsibilities
- A thorough understanding of the goals of your project and the risks you are willing to take on will determine your best financing option
- Ownership strategies have changed over time and will continue to evolve

# CHP Financing Options

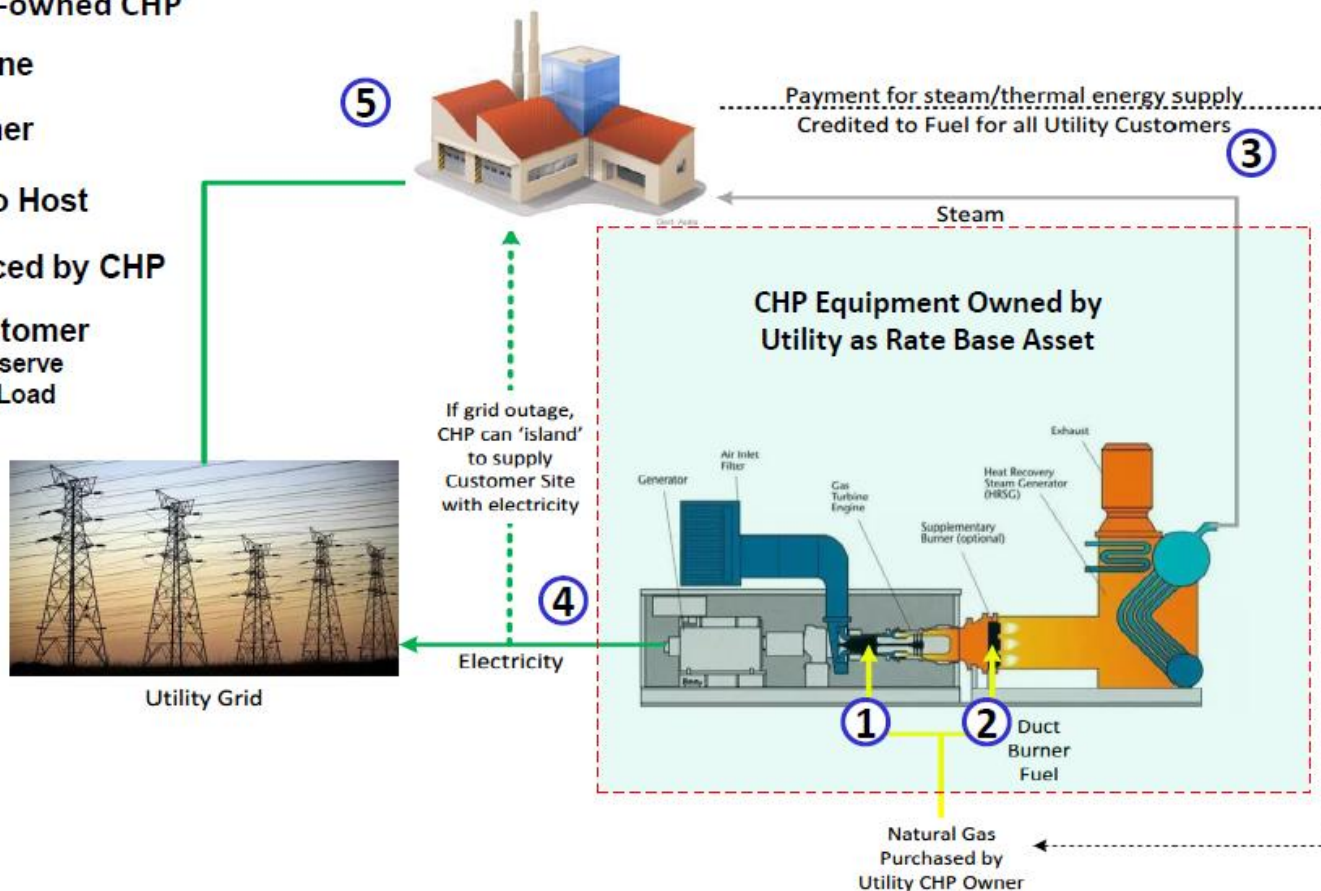


# Utility-Owned CHP Structure

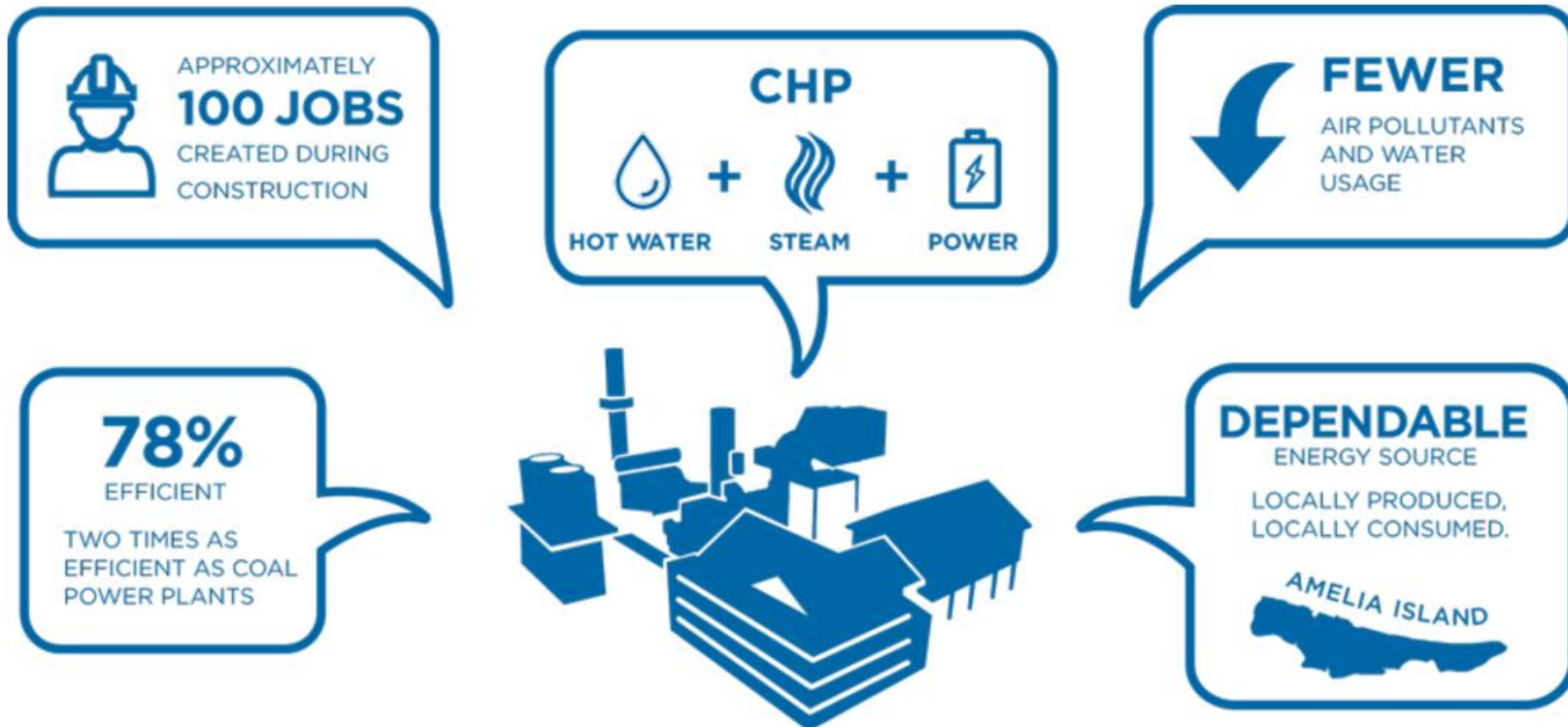
## Simplified Structure for Utility-Owned CHP

### Meter Points for Utility-owned CHP

- ① Fuel to Gas Turbine
- ② Fuel to Duct Burner
- ③ Steam/Thermal to Host
- ④ Electricity Produced by CHP
- ⑤ Electricity to Customer  
Utility continues to serve Customer Electric Load



# Florida Public Utilities / Rayonier 21 MW CHP Overview – Eight Flags CHP



## EIGHT FLAGS ENERGY CHP PLANT

[CHPK.COM/EIGHT-FLAGS-ENERGY](http://CHPK.COM/EIGHT-FLAGS-ENERGY)

# Typical Financing Timeframe

***Start-to-finish: 3 – 6 months***

½ – 1 ½ months

½ – 1 ½ months

1 – 2 months

1 – 2 months

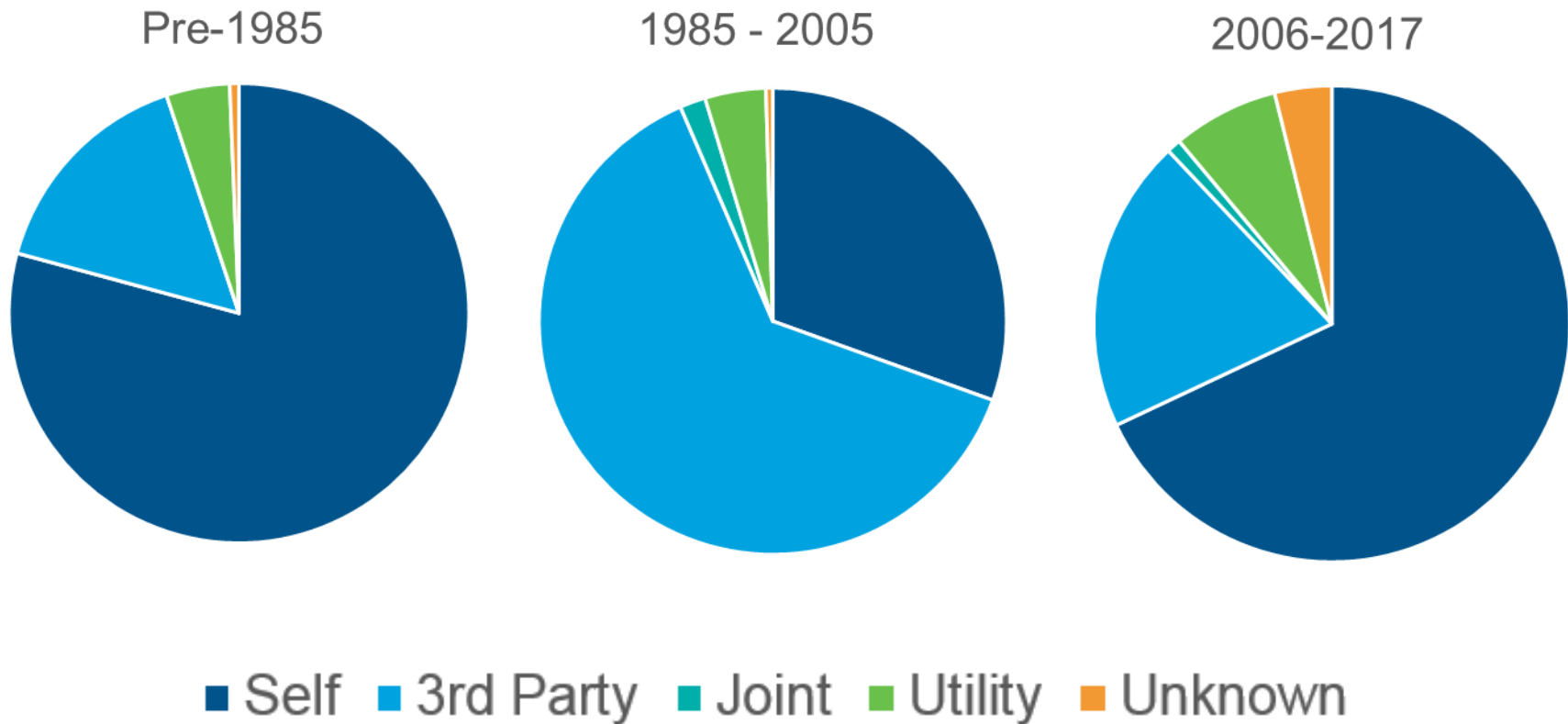
Identify lender  
to provide  
financing

Draft term  
sheet

Negotiate  
contract terms  
and conditions

Finalize contract  
language and  
obtain financing

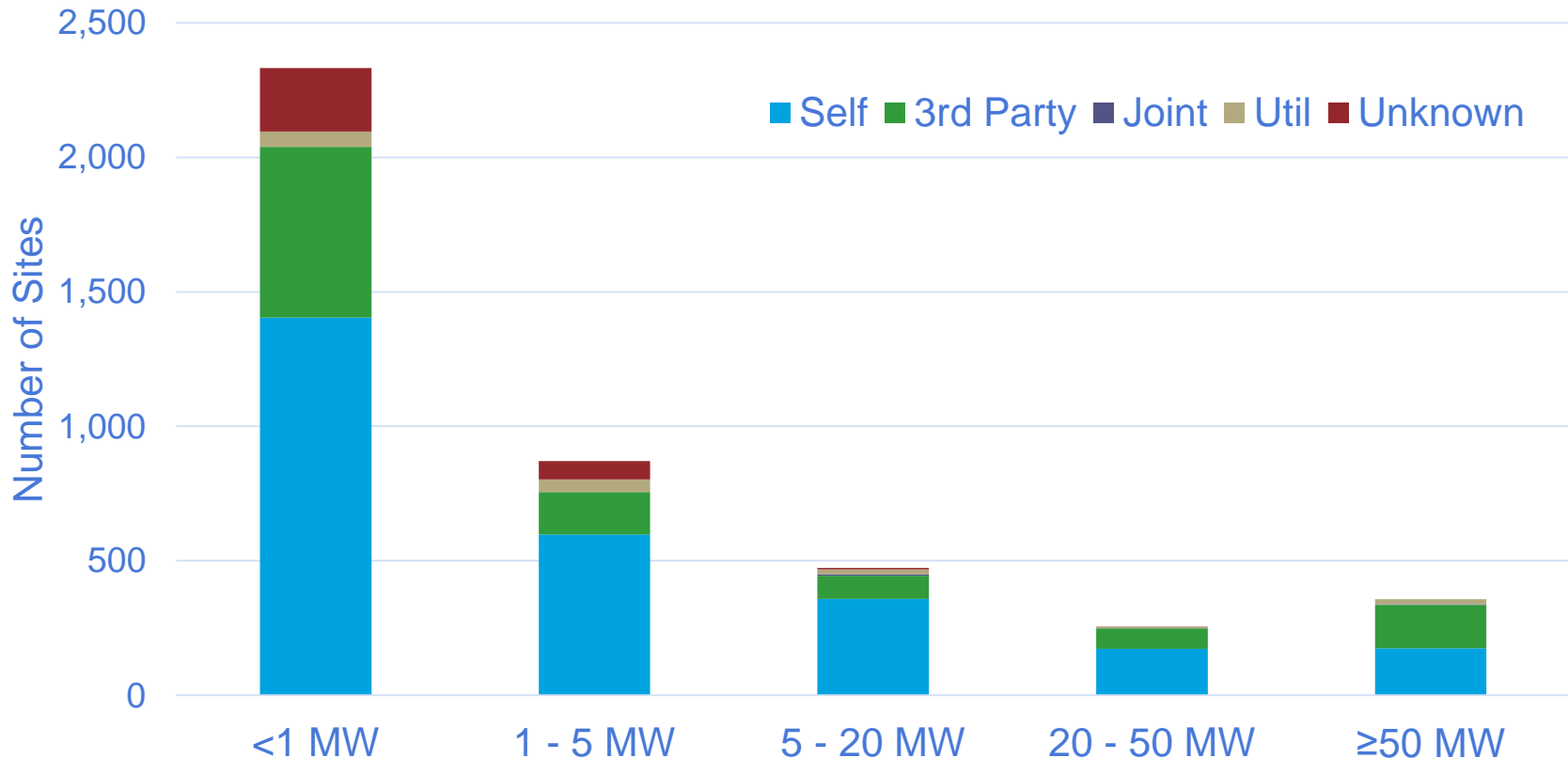
# CHP Capacity by Ownership





# CHP System Size Impact on Ownership

## CHP Installations by Size Range and Ownership



Source: DOE/ICF CHP Installation Database (U.S. installations as of Dec. 31, 2015)

# EPA dCHPP Database

- The CHP policies and incentives database is an online U.S. CHP policy database hosted by the Environmental Protection Agency
- dCHPP allows users to search for CHP policies and incentives at federal, state, and local levels
- Policy/incentive results include information such as:
  - Summary info
  - CHP eligibility requirements
- Information is updated annually

Available at:

<https://www.epa.gov/chp/dchpp-chp-policies-and-incentives-database>

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Webinars and Presentations

Documents and Tools

Frequent Questions

## dCHPP (CHP Policies and Incentives Database)

dCHPP (CHP Policies and incentives database) is an online database that allows users to search for CHP policies and incentives by state or at the federal level. dCHPP has two primary purposes:

- Policy makers and policy advocates can find useful information on significant state/federal policies and financial incentives affecting CHP.
- CHP project developers and others can easily find information about financial incentives and state/federal policies that influence project development.

The [glossary](#) contains definitions for the policy and incentive types included in dCHPP.

Please select one or both of the search filters to return the desired results. To select more than one option in a search filter (e. g., New York and Texas in the "Search by State" filter), hold down the Control key on the keyboard while selecting the options. You can then sort the results by selecting the desired column heading. To start over, select "Reset Filters."

Some links within dCHPP entries may exit the epa.gov site. [EXIT](#)

**Search by State:** Delaware, District of Columbia, Florida, Georgia

**Search by Policy/Incentive Type:** [Reset Filters >](#) Show All, Bond, Commercial PACE, Electric Utility Rate

### Solar and CHP Sales Tax Exemption

Last Updated	11/16/2012
Incentive Type	Tax
State/Federal	FL
Incentive Administrator/Contact Office	Florida Department of Revenue
Incentive Initiation Date	7/1/1997
Incentive Size and Funding Source	The state of Florida has created a permanent sales and use tax exemption for CHP systems.
Eligible Recipient	The exemption applies to owners of machinery and equipment used at a fixed location for the purpose of producing electrical or steam energy resulting from the burning of boiler fuels other than residual oil. However, such energy must be primarily used for manufacturing, processing, compounding or producing for sale items of tangible personal property in Florida. In facilities where machinery and equipment are necessary to burn both residual and non-residual fuels, the exemption is prorated.
Eligible Fuel	Does Not Specify
Eligible Project Size (MW)	Does Not Specify
Minimum Efficiency Required (%)	Does Not Specify
Website	<a href="https://programs.dor.fl.us/system/program/detail/243">https://programs.dor.fl.us/system/program/detail/243</a>
Additional Website 1	<a href="http://dor.myflorida.com/dor/">http://dor.myflorida.com/dor/</a>

# Timely Resiliency Incentives/Financing Programs

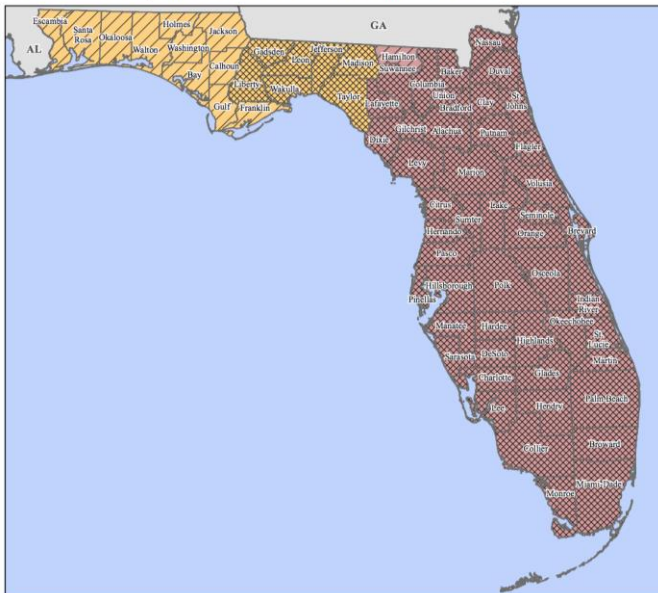


U.S. Economic  
Development  
Administration

## ***2018 Disaster Supplemental***



FEMA-4337-DR, Florida Disaster Declaration as of 01/10/2018



### Facts:

- Congress approved \$600 in FY2018 funding for economic recovery in disaster areas.
- Atlanta office \$147 million allocation
- EAA funds can be awarded to assist a wide variety of activities related to disaster recovery focused on economic development, including economic recovery strategic planning grants and construction assistance.
- Includes **“Resiliency projects to increase the ability of a community or region to anticipate, withstand, and bounce back from future economic injuries and disasters.”**
- More info:  
<https://www.eda.gov/programs/disaster-recovery/2018-supplemental/>

# Timely Resiliency Incentives/Financing Programs



## FEMA

### *2018 Pre-Disaster Mitigation Grant*

#### Facts:

- Congress approved \$235 million in FY2018 funding for economic recovery in disaster areas
- States receive \$575K allocation and remaining funds are awarded competitively
- Local governments are eligible subapplicants
- After natural hazard mitigation projects, FEMA will select projects to fund “**Generators for critical facilities identified in a FEMA-approved mitigation plan and meet the standards set by local building codes.**”
- Application period is Oct 1-Jan 31, 2019
- More info:
- <https://www.fema.gov/pre-disaster-mitigation-grant-program>

# Timely Resiliency Incentives/Financing Programs

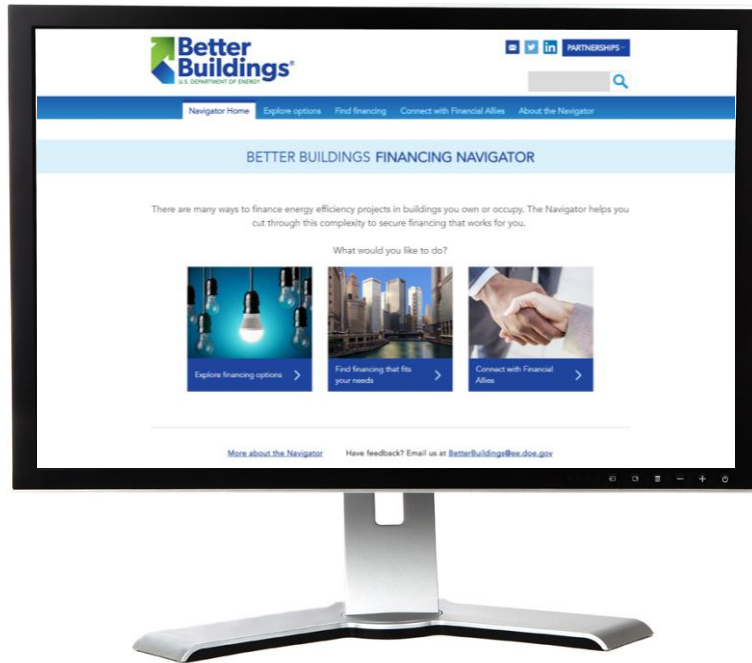


## Funding Opportunities:

- Building U.S. Communities' and Businesses' Resilience to Extreme Events – NOAA Climate Program Office
- EPA Smart Growth Grants and Other Funding
- FEMA Preparedness Grants
- FEMA Hazard Mitigation Assistance
- USDA Natural Resources Conservation Service
- More info:  
<https://toolkit.climate.gov/content/funding-opportunities>

# The Better Buildings Financing Navigator

The Navigator is an online tool that helps public and private organizations find financing solutions for energy efficiency projects.



With the Navigator, you can...

- 1 Explore:** Learn the basics of the efficiency financing market
- 2 Find:** Answer a few simple questions to see which financing options might be a fit for your project
- 3 Connect:** Speak to Better Buildings Financial Allies who may be able to finance your project

Available at: <https://betterbuildingsolutioncenter.energy.gov/financing-navigator>

# Who are the Better Buildings Financial Allies?

- 30+ leading financing companies that have committed to funding efficiency, renewables, and generation projects
- Primarily project financing companies
- Some institutional investors (e.g. Citi) and specialty providers (e.g. Energi)
- Active in all sectors including government, C&I, MUSH, multifamily, and residential across the U.S.
- Represent large, medium, and start-up companies
- They are available to help you!



# CHP for Resiliency Accelerator





# CHP for Resiliency Accelerator

- 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

The screenshot shows the 'Better Buildings' website header with the U.S. Department of Energy logo. A navigation menu includes 'SOLUTIONS', 'PROGRAMS & PARTNERS', 'SUMMIT & SWAP', and 'LEARN MORE'. Under 'SOLUTIONS', there are links for 'ACCELERATORS', 'ALLIANCE', 'BETTER PLANTS', 'CHALLENGE', 'CHP', 'COMMUNITIES', '50001 READY', 'HOME ENERGY SCORE', and 'WORKFORCE'. The main heading is 'COMBINED HEAT AND POWER FOR RESILIENCY'. Below this is a large image of a city street with an American flag. To the right of the image is a text box explaining the CHP for Resiliency Accelerator's purpose. Below the image and text are three columns of content: 'Get Involved' (webinars), 'Accelerators News' (latest news), and 'DG for Resiliency Guide' (information on Distributed Generation). Each column has a corresponding 'View events list', 'View announcements', or 'Learn More' button.

**Better Buildings**  
U.S. DEPARTMENT OF ENERGY

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ACCELERATORS ALLIANCE BETTER PLANTS CHALLENGE CHP COMMUNITIES 50001 READY HOME ENERGY SCORE WORKFORCE

## COMBINED HEAT AND POWER FOR RESILIENCY

The **Combined Heat and Power (CHP) for Resiliency Accelerator** will support and expand the consideration of CHP solutions to keep critical infrastructure operational every day and night regardless of external events. As a collaborative effort with states, communities, utilities, and other stakeholders, Partners will examine the perceptions of CHP among resiliency planners, identify gaps in current technologies or information relative to resiliency needs, and develop plans for communities to capitalize on CHP's strengths as a reliable, high efficiency, lower emissions electricity and heating/cooling source for critical infrastructure.

**Get Involved**  
Better Buildings programs host interactive webinars featuring a variety of topics exploring cost-effective ways to integrate energy savings into their daily building operations.

**Accelerators News**  
The latest Energy Department breaking news, announcements, and updates featuring Better Buildings Accelerators.

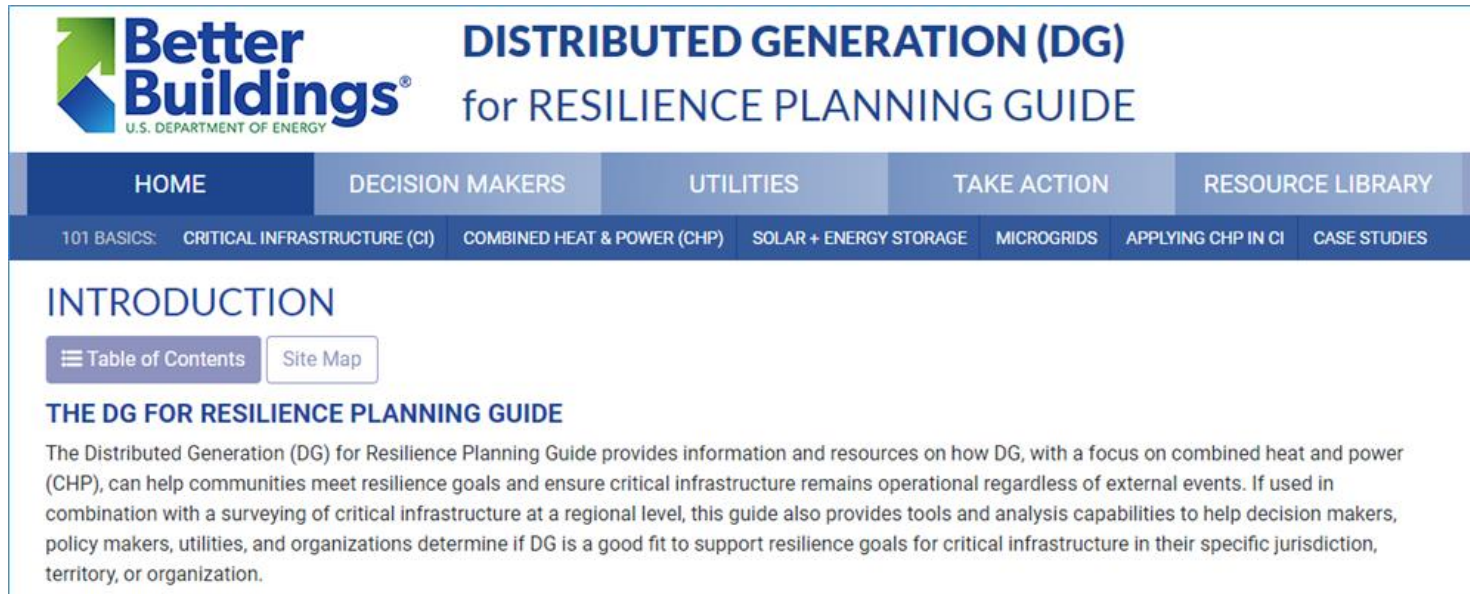
**DG for Resiliency Guide**  
This guide provides information and resources on how Distributed Generation (DG), with a focus on CHP, can help communities meet resiliency goals and ensure critical infrastructure remains operational regardless of external events.

[View events list](#) [View announcements](#) [Learn More](#)

<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.



The screenshot shows the homepage of the "Better Buildings Distributed Generation (DG) for Resilience Planning Guide". The header includes the Better Buildings logo (U.S. Department of Energy) and the title "DISTRIBUTED GENERATION (DG) for RESILIENCE PLANNING GUIDE". A navigation bar contains five main sections: HOME, DECISION MAKERS, UTILITIES, TAKE ACTION, and RESOURCE LIBRARY. Below this, a secondary navigation bar lists specific topics: 101 BASICS, CRITICAL INFRASTRUCTURE (CI), COMBINED HEAT & POWER (CHP), SOLAR + ENERGY STORAGE, MICROGRIDS, APPLYING CHP IN CI, and CASE STUDIES. The main content area is titled "INTRODUCTION" and includes a "Table of Contents" button and a "Site Map" button. Below these buttons is the heading "THE DG FOR RESILIENCE PLANNING GUIDE" followed by a paragraph of introductory text.

**Better Buildings**  
U.S. DEPARTMENT OF ENERGY

**DISTRIBUTED GENERATION (DG)**  
for RESILIENCE PLANNING GUIDE

HOME | DECISION MAKERS | UTILITIES | TAKE ACTION | RESOURCE LIBRARY

101 BASICS | CRITICAL INFRASTRUCTURE (CI) | COMBINED HEAT & POWER (CHP) | SOLAR + ENERGY STORAGE | MICROGRIDS | APPLYING CHP IN CI | CASE STUDIES

## INTRODUCTION

[Table of Contents](#) [Site Map](#)

### THE DG FOR RESILIENCE PLANNING GUIDE

The Distributed Generation (DG) for Resilience Planning Guide provides information and resources on how DG, with a focus on combined heat and power (CHP), can help communities meet resilience goals and ensure critical infrastructure remains operational regardless of external events. If used in combination with a surveying of critical infrastructure at a regional level, this guide also provides tools and analysis capabilities to help decision makers, policy makers, utilities, and organizations determine if DG is a good fit to support resilience goals for critical infrastructure in their specific jurisdiction, territory, or organization.

Available at: <https://resiliencyguide.dg.industrialenergytools.com/>

# Two Main Sections to the Guide

- Stakeholder Action Pages
  - Decision Makers
  - Utilities
  - Take Action
  - Resource Library
- Information and resources for resiliency planners to actively use to incorporate CHP in their planning process.
- 101 Pages: Background Information
  - Critical Infrastructure
  - Combined Heat and Power
  - Solar + Energy Storage
  - Microgrids
  - Applying CHP in Critical Infrastructure
  - Case Studies

# Take Action Page

- Provide 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

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

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

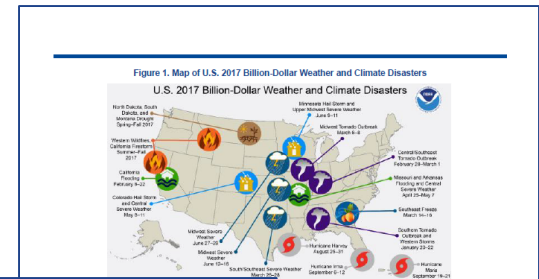
# CHP for Resilience Screening Tool

## ■ Live Demo



# 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





**Issue Brief**

**DISTRIBUTED ENERGY RESOURCES DISASTER MATRIX**

**How Do Natural Disasters Impact DER Performance?**  
 Widespread electrical outages are becoming more prevalent in the United States, typically caused by weather-related events. As shown in Figure 1 on the following page, in 2017 alone, communities across the country were impacted by 16 separate billion-dollar weather-related disaster events, leading to a growing need to protect against the risks of these disruptions.<sup>1</sup>

To address the increased risk of electricity system outages, communities and businesses are increasingly exploring options to invest in distributed energy resources (DERs) that can be strategically deployed to continue operations or restore power quickly in critical areas. Examples of different types of DERs include solar photovoltaic (PV), wind, combined heat and power (CHP), energy storage, demand response, electric vehicles, microgrids, and energy efficiency.<sup>2</sup>

This issue brief explores how different DERs are impacted by various types of natural disasters to assist stakeholders in evaluating the technology options best able to meet their resilience priorities. Each DER technology brings different capabilities and performance characteristics, as shown in Table 1. The combination of a controllable source of generation, such as CHP, and energy storage, along with the integration of other variable DERs, is most likely to deliver an optimal source of resilient power.

**Ranking Criteria**  
 Four basic criteria were used to estimate the vulnerability of a resource during each type of disaster event. They include the likelihood of experiencing:

1. a fuel supply interruption,
2. damage to equipment,
3. performance limitations, or
4. a planned or forced shutdown


○ indicates the resource is unlikely to experience any impacts  
 ◐ indicates the resource is likely to experience one, two, or three impacts  
 ◑ indicates the resource is likely to experience all four impacts

**Table 1. Matrix of DER Vulnerability to Weather Events**

Natural Disaster or Storm Events	Flooding	High Winds	Earthquakes	Wildfires	Snow/ice	Extreme Temperature
Battery Storage	◐	◐	◐	◐	◐	◐
Biomass/Biogas	◐	◐	◐	◐	◐	◐
CHP	◐	◐	◐	◐	◐	◐
Distributed Solar	◐	◐	◐	◐	◐	◐
Distributed Wind	◐	◐	◐	◐	◐	◐
Natural Gas CHP	◐	◐	◐	◐	◐	◐
Standby Generators	◐	◐	◐	◐	◐	◐

<sup>1</sup>National Oceanic and Atmospheric Administration. Climate. January 8, 2018. "2017 U.S. billion-dollar weather and climate disasters: a historic year in context." Available at <https://www.climate.gov/news-features/futures/beyond-data2017-us-billion-dollar-weather-and-climate-disasters-historic-year>  
<sup>2</sup>The National Association of Regulatory Utility Commissioners (NARUC). Distributed Energy Resources and Rate Design and Compensation. Available at <https://pubs.naruc.org/pub/19DF488-A457-5180-DBA1-8E26A23F7EAD>

Learn more at [energy.gov/betterbuildings](http://energy.gov/betterbuildings)



communications ability and energy storage coupled with generation technologies.











































The following sections summarize overall observations about each DER technology's performance, followed by Table 2, which highlights design strategies that could lower potential risks from disaster events discussed.

**Battery Storage**  
 Battery storage commercialization is relatively new, and therefore many considerations related to resilient operations and performance during disaster events have not been widely demonstrated. Standard enclosure designs generally protect batteries from extreme conditions. For example, two 10 MW battery systems in the Dominican Republic helped the grid operator maintain operations during high winds and heavy rain from Hurricane's Irma and Maria, when nearly half of the island's power plants stopped working. The Andres array (pictured in Figure 2) is a 30-minute duration storage system housed in a building enclosure in Santo Domingo that helped stabilize volatile fluctuations in grid frequency during the storm.<sup>3</sup>







<http://blog.fusionenergy.com/the-importance-of-grid-resilience-during-severe-storm-conditions>

ENERGY

# Matrix of DER vulnerability to weather events

Natural Disaster or Storm Events	Flooding	High Winds	Earthquakes	Wildfires	Snow/Ice	Extreme Temperature
						
Battery Storage						
Biomass/Biogas CHP						
Distributed Solar						
Distributed Wind						
Natural Gas CHP						
Standby Generators						

# Design considerations and other strategies to increase resilience of DERs

Natural Disaster or Storm Event	Flooding	High Winds	Earthquakes	Wildfires	Snow/Ice	Extreme Temperature
Resource						
Battery Storage	<ul style="list-style-type: none"> <li>Elevate equipment above flood and storm surge levels</li> <li>Use NEMA-rated enclosures that protect against water damage</li> <li>Factor equipment repair or replacement in O&amp;M plans</li> </ul>	<ul style="list-style-type: none"> <li>Use NEMA-rated enclosures to minimize exposure to debris</li> <li>Design EMS or protection systems to shut down at harmful wind speeds or conditions.</li> </ul>	<ul style="list-style-type: none"> <li>Utilize shock-mount system enclosures to maintain integrity of individual system components</li> </ul>	<ul style="list-style-type: none"> <li>Use built-in fire suppression system</li> </ul>	<ul style="list-style-type: none"> <li>Design enclosures to withstand snow/ice loads</li> <li>Design with sealings and venting to address moisture</li> <li>Use NEMA-rated enclosures to minimize exposure to moisture</li> </ul>	<ul style="list-style-type: none"> <li>Design protection or EMS to withstand extreme temperatures</li> <li>Design system to shut down to protect component integrity</li> </ul>
Biogas/Biomass CHP	<ul style="list-style-type: none"> <li>Elevate equipment and biomass stockpiles above flood levels</li> <li>For biogas, coordinate with the wastewater treatment on potential planned shutdowns</li> </ul>	<ul style="list-style-type: none"> <li>For biogas, use rigid covers to protect digester tanks</li> <li>For biomass, cover or protect onsite fuel supply stockpiles</li> </ul>	<ul style="list-style-type: none"> <li>Maintain industry standards for facilities sited near seismic activity</li> </ul>	<ul style="list-style-type: none"> <li>For biomass, use enclosures, fire protection, or containment strategies for fuel supply.</li> </ul>	<ul style="list-style-type: none"> <li>Design with proper freeze protection</li> <li>Protect biomass stockpiles from excess snow and ice</li> </ul>	<ul style="list-style-type: none"> <li>Use heating jackets designed for optimal temperatures and adequate thermal management systems</li> <li>Ensure systems are designed for regional temperature ranges</li> </ul>
Distributed Solar	<ul style="list-style-type: none"> <li>Design systems and framing for easy runoff and drainage, especially for commercial rooftop systems with flat roofs</li> <li>For ground mount, avoid siting in flood zones</li> </ul>	<ul style="list-style-type: none"> <li>Use secure, flush-mounted systems for rooftop solar</li> <li>Use flexible racking and anchoring systems</li> <li>Maintain ASCE standards for rooftop systems based on expected wind loads</li> </ul>	<ul style="list-style-type: none"> <li>Ensure roof mount design meets ASCE building code for seismic areas</li> </ul>	<ul style="list-style-type: none"> <li>If ground-mount, site in open areas away from flammable material (trees, shrubs, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Manually remove snow/ice to clear panels</li> <li>Automated mechanical cleaning (tiled removal)</li> <li>Install bifacial systems capable of absorbing irradiance on the back or front of panels</li> </ul>	<ul style="list-style-type: none"> <li>Site systems in applicable weather conditions</li> <li>Enhance design to maximize cooling and airflow in order to ensure optimal temperature conditions for modules and electrical components (inverters)</li> </ul>
Distributed Wind	<ul style="list-style-type: none"> <li>Design foundation for conditions in high water table</li> <li>Elevate controls and electronics above flood and storm surge levels</li> <li>Use site drainage strategy</li> </ul>	<ul style="list-style-type: none"> <li>Include design features and braking procedures to withstand hurricane force winds (feather blades, lock rotors, change orientation, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Design systems for ground acceleration rating based on typical seismic activity</li> </ul>	<ul style="list-style-type: none"> <li>Extend gravel apron around base of turbine</li> </ul>	<ul style="list-style-type: none"> <li>Install electro-thermal ice protection systems</li> <li>Use ice-resistant coating on blades</li> </ul>	<ul style="list-style-type: none"> <li>Design uninterruptible power supply to operate within adequate temperature range</li> <li>Add on "cold weather packages"</li> </ul>
Natural Gas CHP	<ul style="list-style-type: none"> <li>Elevate equipment above flood and storm surge levels</li> </ul>	<ul style="list-style-type: none"> <li>Locate systems indoors or protect with containers designed to withstand high wind and debris</li> </ul>	<ul style="list-style-type: none"> <li>Shock-mount system enclosures</li> <li>Maintain industry standards for pipelines sited near seismic activity</li> </ul>	<ul style="list-style-type: none"> <li>Use fire protection systems for above-ground facilities associated with gas delivery networks</li> </ul>	<ul style="list-style-type: none"> <li>No additional design consideration needed</li> </ul>	<ul style="list-style-type: none"> <li>To ensure fuel availability, purchase "firm supply" to avoid curtailment</li> </ul>
Standby Generators	<ul style="list-style-type: none"> <li>Elevate equipment above flood and storm surge levels</li> <li>Store enough fuel onsite to avoid delivery issues</li> </ul>	<ul style="list-style-type: none"> <li>Locate systems indoors or protect with containers designed to withstand high wind and debris</li> </ul>	<ul style="list-style-type: none"> <li>Purchase an earthquake-resistant model (IBC certified; subject to shake table testing)</li> </ul>	<ul style="list-style-type: none"> <li>Avoid siting in areas prone to wildfire</li> <li>Store enough fuel onsite to avoid delivery issues</li> </ul>	<ul style="list-style-type: none"> <li>Store enough fuel onsite to avoid delivery issues</li> </ul>	<ul style="list-style-type: none"> <li>Check generator batteries during cold weather</li> <li>Enclose the system to protect from temperatures.</li> <li>Store "winter diesel" fuel in cold climates with additives to prevent gelling</li> </ul>



# Other Resources: Packaged CHP Accelerator

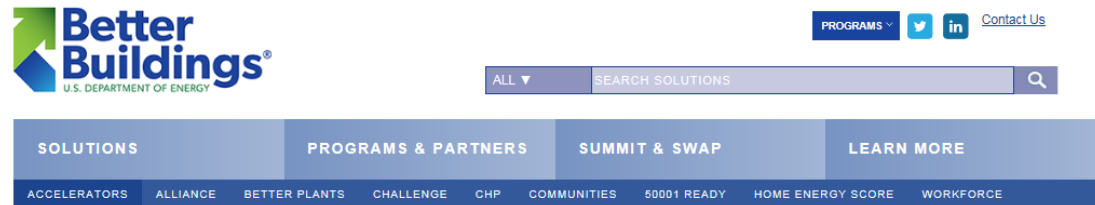
## ■ Goals

- Research and validate that total project costs and installation times for packaged CHP systems can be reduced by 20% or more
- Evaluate the integration of new technologies with packaged CHP systems and identify R&D challenges and opportunities around packaged CHP and related technologies

## • Partners

**CHP Supplier Partners** – CHP system packagers and solution providers participating in the national eCatalog of packaged CHP systems

**CHP Engagement Partners** – Utilities, federal agencies, states, cities or other market entities committed to promoting packaged CHP (via the eCatalog)



## PACKAGED COMBINED HEAT AND POWER



Standardized, packaged CHP systems can overcome numerous barriers to CHP installations in commercial, institutional, multifamily, light industrial, and Federal applications by reducing design errors, limiting uncertainty about projected performance, shortening project install time, streamlining permitting, and reducing the overall cost. Partners will validate that installation times and total project costs for pre-engineered, technically-validated packaged CHP systems can be reduced by 20% or more. Partners will also evaluate the integration of new technologies with packaged CHP systems and identify R&D challenges and opportunities around packaged CHP and related technologies.

Visit the Packaged CHP Accelerator Website:

<https://betterbuildingsinitiative.energy.gov/accelerators/packaged-chp>

# Other Resources: Sustainable Water Infrastructure of the Future (SWIFt) Accelerator

## ■ Goals

- Catalyze the adoption of innovative and best-practice approaches in data management, technologies, and financing for infrastructure improvement
- Improve the energy efficiency of the partners' participating water resource recovery facilities by at least 30% and integrate at least one resource recovery measure

## ● Accelerator Partners

- State, regional, and local agencies engaging with water resource recovery facilities in their jurisdiction to accelerate a pathway toward a sustainable infrastructure

## ● Energy Data Management Manual for the Wastewater Treatment Sector

- Step-by-step guide for wastewater treatment plants on how to appropriately track energy performance
- Describes the benefits of energy data management, and how it can help drive savings when linked to a strong energy management program



Visit the Sustainable Water Infrastructure of the Future (SWIFt) Accelerator Website:

<https://betterbuildingsinitiative.energy.gov/accelerators/package-chp>

# Questions?



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