

Presentation of Whitepaper on Integrating Energy Resilience into Hazard Mitigation Planning

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

AUGUST 3, 2022



North Central Texas
Council of Governments

Welcome & Housekeeping

Please keep your line on mute until the end of the presentations.

We will have an open Q&A session at the end of all the presentations.
Please type your question in the chat box or type in your request to speak.

The webinar slides and recording will be posted on the Conserve North Texas website under News/Events → Event Archive at the link below.
Follow-up emails to come. <http://conservenorthtexas.org/event-archive>

Agenda

- Welcome and Housekeeping

- Q&A

Energy Resilience as Emergency Preparedness Strategy

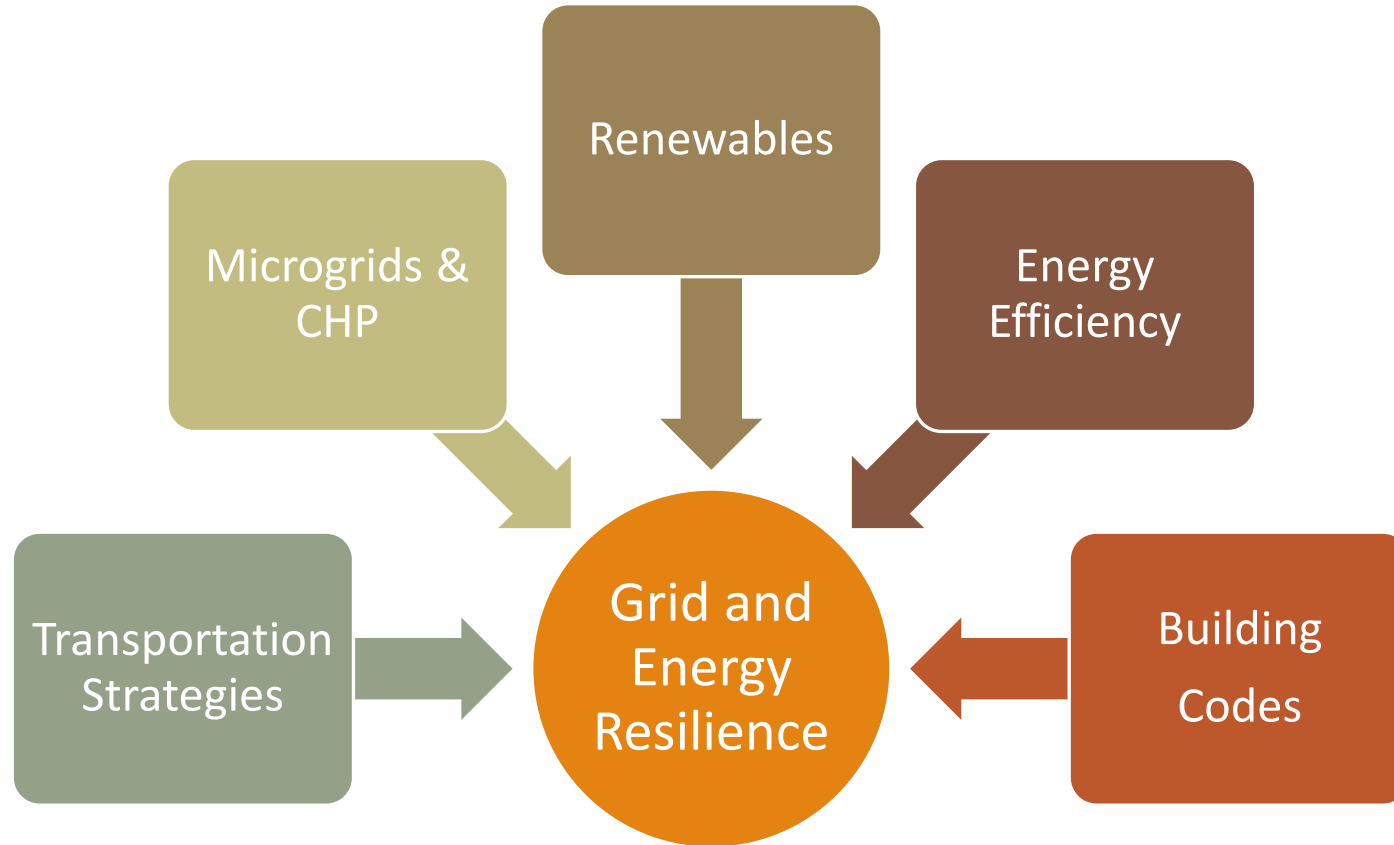
Background

NCTCOG has received funding through the State Energy Conservation Office (SECO) to work on energy management and efficiency projects within the region. As part of our scope of work, we're working on ways to incorporate energy efficiency and grid resiliency planning into hazard mitigation plans.

Winter storm Uri and the current summer heat waves are great reminders of the need to have different options available for energy resiliency.

Our Goal: Develop suggested language to go into the hazard mitigation plans and action tables and provide a menu of things that are achievable - ranging from what can be done with a more extensive budget and time to what can be done on a more limited budget and shorter timeline.

Energy Resiliency and Emergency Management



Examples of Microgrid Projects

Bronzeville, IL Microgrid Project

Project:

- Reduces system outages from natural hazards
- Improves overall system performance, reliability, and resilience for customers within the service area, and potentially neighboring customer areas
- Improves energy security, resilience to future conditions, and sustainability.
- Provides grid modernization and “smart city” technologies to improve community livability.

Addressed (FEMA) Hazards:

- All hazards (Primary)
- Inland flooding
- Winter storms

Technology:

Solar, battery storage, control systems to island from main grid, ability to cluster with another nearby microgrid

Blue Lake Rancheria Tribe Microgrid

Project:

- Targets a low-income community facing impacts from future conditions
- Less frequent physical damage to system components, less frequent system outages from natural hazards, and better overall system performance and resiliency
- Lowers costs for meter readings and usage monitoring
- Provides social benefits associated with reliable electric power
- Allows for better business continuity following major disasters that would otherwise typically have caused outages for days/weeks

Addressed (FEMA) Hazards:

- All hazards (Primary)
- Inland flooding
- Wildfires

Technology:

Solar, battery storage, control systems to island from main grid

Poll Questions

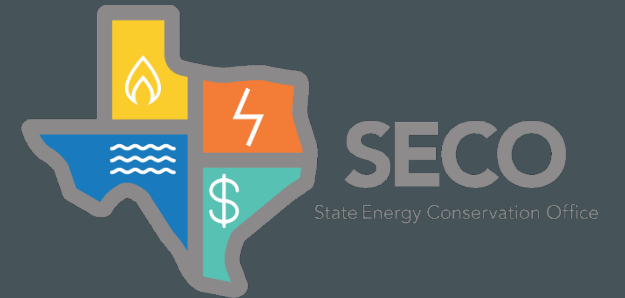
To participate in poll questions:

1. Go to Pollev.com
2. Enter NCTCOGENV444

COMBINED HEAT AND POWER IN TEXAS

ROUNDTABLE ON INTEGRATING ENERGY RESILIENCE INTO HAZARD MITIGATION PLANNING

OCTOBER 2021



Statutory Requirements

Technical Assistance and Training

Clean Energy Incubation



LoanSTAR Loan Program

Watt Watchers of Texas

Energy Codes

STATE ENERGY CONSERVATION OFFICE

SECO partners with Texas local governments, county governments, public K-12 schools, public institutions of higher education and state agencies, to reduce utility costs and maximize efficiency. SECO also adopts energy codes for single-family residential, commercial, and state-funded buildings.



News and Announcements

- Applications for [LoanSTAR Program](#) must be received by August 31, 2021 at 2 p.m. CT.



Funding & Incentives

[SECO Funding Opportunities](#)
[LoanSTAR Revolving Loan Program](#)
[Other Funding Resources](#)



Programs

[Alternative Fuels Program](#)
[Clean Energy Incubators](#)
[Industrial Energy Efficiency](#)
[Innovative Energy Demonstration Program](#)
[Local Governments Program](#)
[Schools Program](#)
[State Agency and Higher Ed. Program](#)
[Pantex Program](#)
[Watt Watchers](#)



Energy Codes

[Training & Code Compliance](#)
[Energy Code Adoption Process](#)
[Code Contacts](#)
[Commercial & Multi-Family Construction](#)
[Single-Family Construction](#)
[State-Funded Buildings](#)
[Local Ordinances](#)
[Texas Water Conservation Standards](#)



Energy Reporting

[State Agencies and Institutions of Higher Ed.](#)
[Local Government](#)
[Utilities](#)
[Schools](#)



Resources

[Combined Heat and Power in Texas](#)
[Energy Efficiency Best Practices Guide](#)
[Energy Savings Performance Contracting](#)
[ESPC Education](#)



About Us

[Contact Us](#)
[Contract Portal](#)
[Sign up to receive updates](#)

STATUTE
10 TGC 2311.003

Sec. 2311.002.

COMBINED HEATING AND POWER SYSTEMS.

(a) When constructing or extensively renovating a critical governmental facility or replacing major heating, ventilation, and air-conditioning equipment for a critical governmental facility,

the entity with charge and control of the facility shall evaluate whether equipping the facility with a combined heating and power system would result in expected energy savings that would exceed the expected costs of purchasing, operating, and maintaining the system over a 20-year period.

Notwithstanding Chapter 2302 (**Cogeneration**), the entity may equip the facility with a combined heating and power system if the expected energy savings exceed the expected costs.

(b) The State Energy Conservation Office shall establish guidelines for the evaluation under Subsection (a).

GUIDELINES

Evaluation Guidelines

The Texas Government Code ([10 Tex. Govt. Code §2311.002](#)) requires entities responsible for all critical governmental facilities to formally consider the feasibility of implementing combined heat and power (CHP) technology prior to the construction, extensive renovation or replacement of major heating, ventilation and air conditioning equipment in critical buildings and facilities

SECO has established a set of guidelines for evaluating critical government facilities for CHP purpose

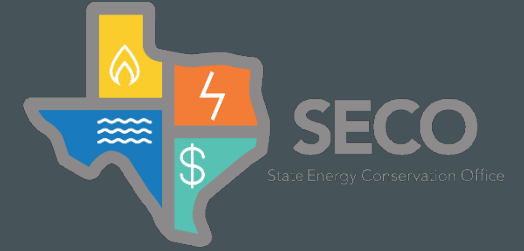
 [Download the CHP Evaluation Guidelines \(PDF\)](#)

Technical Assistance Partnership

The [Houston Advanced Research Center \(HARC\)](#) is part of a team that supports the U.S. Department of Energy's [Southcentral Combined Heat and Power Technical Assistance Partnership \(CHP TAP\)](#). This initiative promotes, assists and seeks to transform the market for combined heat and power in the nation's southcentral region. The center provides resources and expertise to help industrial, commercial, federal, institutional and other large energy users consider and evaluate CHP for their facilities. The center also assists them throughout the project development process, from initial CHP screening to installation. Center staff also work with engineers, architects, city planners, project developers, state agencies and policymakers to increase understanding and awareness of CHP including its technology, benefits, applications, regulatory requirements and other project-specific information.

For more information about this program, visit [HARC's website](#).

CONTACTS



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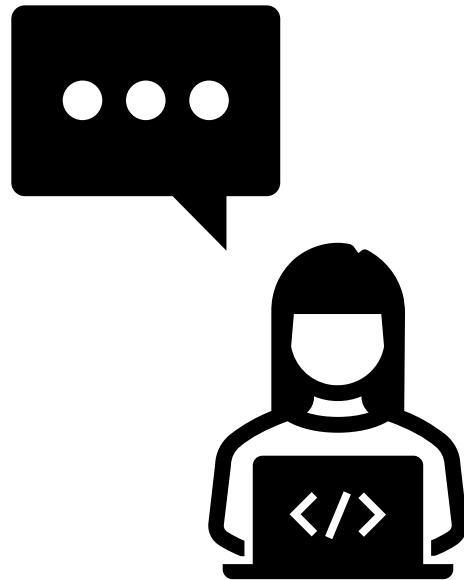
512-475-0753

fred.yebra@cpa.texas.gov

www.seco.cpa.texas.gov

Q&A Roundtable

Have a question? Please raise your “hand” and unmute your line or place your question in the chat.



What's Next?

- Microgrid Tour - 2022
- Develop case studies and best practices
- Develop a selection of achievable energy efficiency options and suggested language for inclusion in HazMAP plans and action tables

Webinar Recording and Presentation Slides

- Today's presentation slides and recording will be posted on the Conserve North Texas website under News/Events → Event Archive located here: <http://conservenorthtexas.org/event-archive>
- Follow-up emails to come to all registrants.
- Please email Crysta Guzman, cguzman@nctcog.org, if you did not register but would like to be added to follow-up emails.

FOR MORE INFORMATION

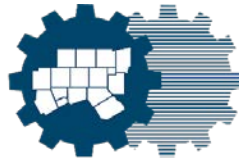
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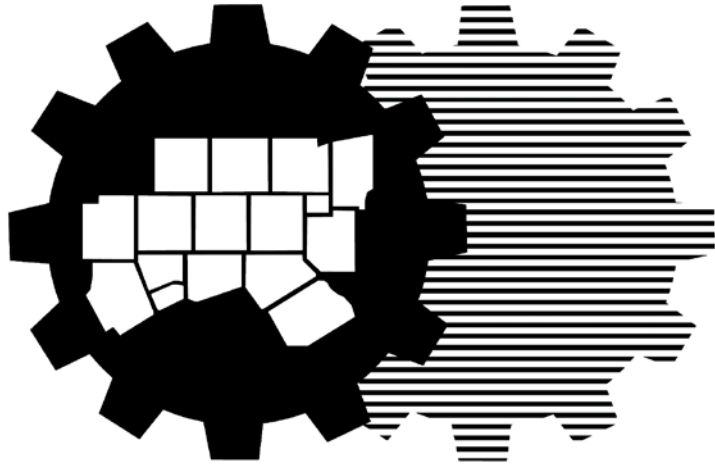
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<https://www.nctcog.org/envir/natural-resources/energy-efficiency>



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NCTCOG Resources

Conserve North Texas




Clearinghouse of Energy Efficiency, Water Conservation, and Transportation Resources



Resource Types:

- Programs
- Tools
- Calculators
- Case Studies

www.conservenorthtexas.org

Topic		
		
Water	Energy	Fuel
Find resources to reduce water use and increase water conservation within the public and private sector.	Search resources that help reduce energy consumption and increase energy efficiency across all sectors.	Explore resources to reduce energy and fuel intensity within the transportation sector.

Go Solar Texas

Texas-Specific Information about Solar

Key Resource Types:

- Best Management Practices
- Cost Benefit Analysis
- Trainings
- Case Studies
- Meeting-in-a-Box

www.gosolartexas.org

Go Solar Texas



Solar power is an emerging clean energy option that can positively impact North Texas' environment and save consumers money on their electric bills. Dallas-Fort Worth is a prime location for solar technology and its growth due to the region's climate and geography. Solar power can provide much of the needed electricity when electricity demand is highest - when it's hot and the sun is shining.

With proper implementation, solar energy will help to improve air quality.



Solar 101

Learn the basics about solar energy, terminology, and equipment.



Steps for Going Solar

Considering installing a solar energy system? Now what? Steps for Going Solar provides details on solar energy systems, costs, tools for determining if solar is right for your property, and more.





SECO

State Energy Conservation Office

SECO Resources

About SECO



Mission Statement: To Increase the Efficient Use of Energy and Water While Protecting the Environment

Focus on Public Sector Facilities – Indirectly Benefitting Taxpayers

Support for Energy and Water Efficiency Project Implementation

- Education and Training
- Technical Assistance
- Project Financing

U.S. Department of Energy State-Level Program Conduit

- State Energy Program (SEP)

SECO Support



Training/Education

- Energy Codes (Workshops & [Adoption Toolkit](#))

Technical Assistance

- Preliminary Energy Audits (K-12 & Local Governments)
- Virtual Energy Audits

Financing

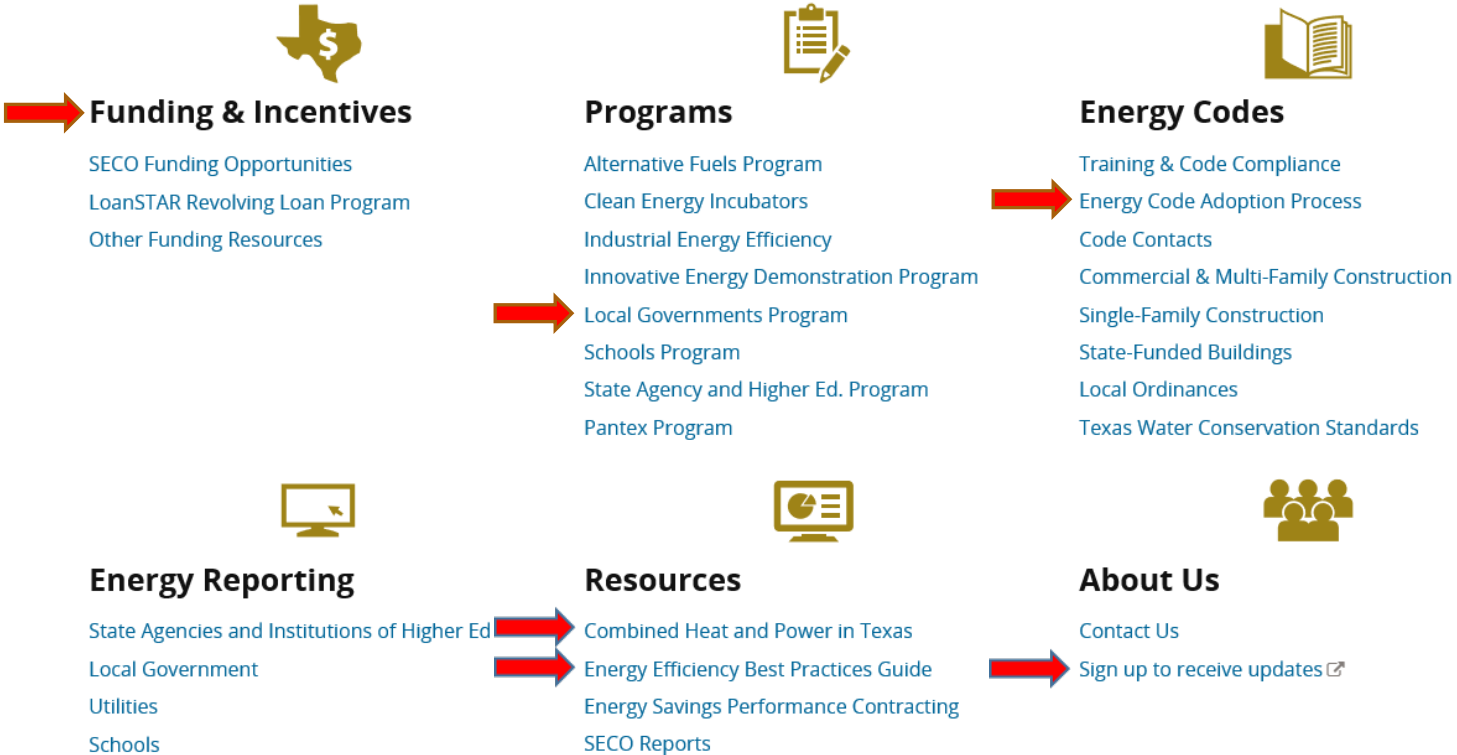
- LoanSTAR Revolving Loan Program
- Energy Savings Performance Contract Guidelines & Education

Programs



STATE ENERGY CONSERVATION OFFICE

SECO partners with Texas local governments, county governments, public K-12 schools, public institutions of higher education and state agencies, to reduce utility costs and maximize efficiency. SECO also adopts energy codes for single- family residential, commercial, and state-funded buildings.



LoanSTAR Revolving Loan



Finances Projects that Reduce Energy/Water/Utility Costs

- Simple Payback Period of 15 Years or Less
- 2% Loan Interest Rate; 1% if Choose ARRA Funds with More Reporting
- Maximum \$8 Million Loan Per Application
- Maximum 3 Loans per Entity

Program Page:

<https://comptroller.texas.gov/programs/seco/funding/loanstar/>

Program Overview:

https://www.youtube.com/watch?v=4IFuj_5ZeGI

Other Energy Resiliency Planning Resources

Local Government Energy Assurance Guidelines

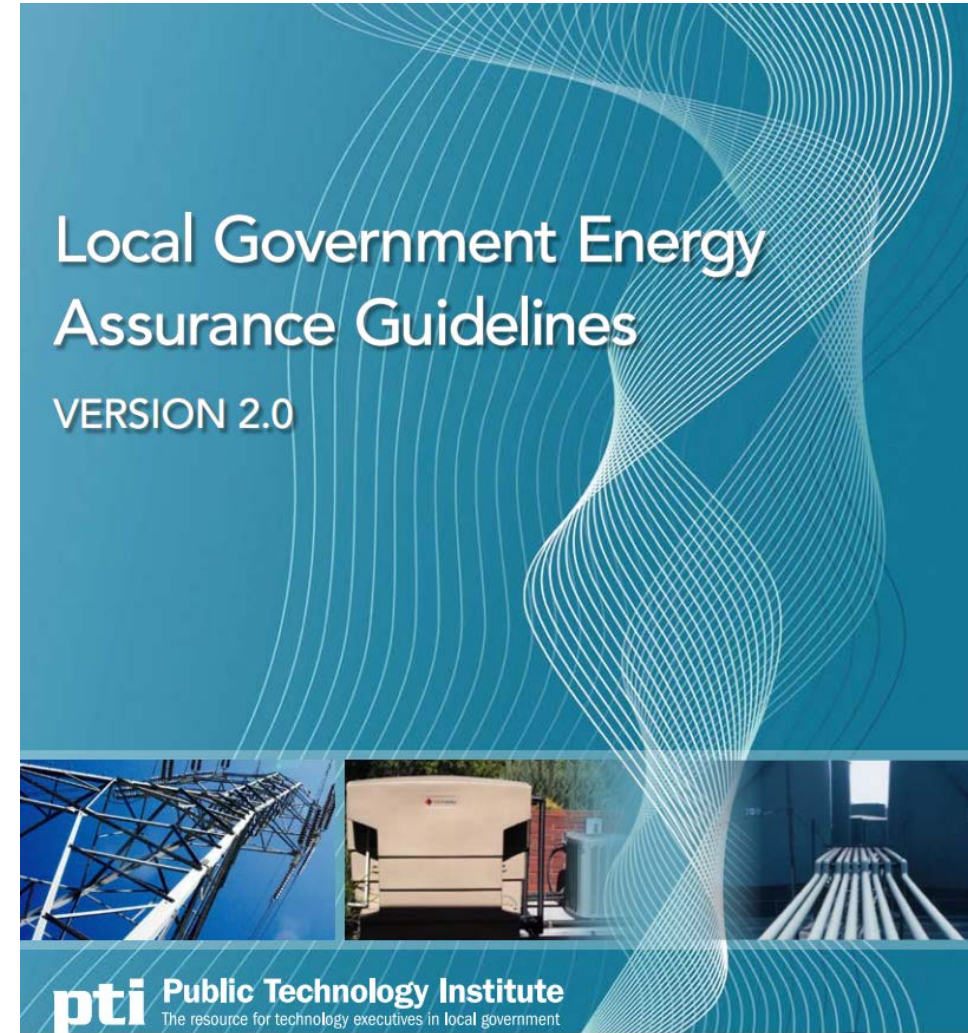
Public Technology Institute

- The goal is to enable communities to make the transition to a pre-disaster planning and risk reduction approach.
- Assist local governments in planning for as well as responding to natural and man-made events and emergencies, often resulting in a decrease or total outage of energy that is needed to sustain critical functions and essential services within a community.
- Assist jurisdictions in the recovery phase, in which energy services vital to the health, welfare, and safety of the resident population are restored.
- Produced because very few local governments have a response and recovery plan that is specific to energy emergencies.

https://www.naseo.org/Data/Sites/1/documents/energyassurance/documents/pti_local_government_energy_guidelines.pdf

Local Government Energy Assurance Planning Resources

<https://sites.google.com/site/ptileap/publications> <http://www.energyassurance.us/>



American Council for an Energy-Efficient Economy (ACEEE):

Enhancing Community Resilience through Energy Efficiency

Enhancing Community Resilience through Energy Efficiency

: Discusses ways in which energy efficiency can increase the resilience of energy systems and the communities they serve. It reviews the resilience-related benefits of:

- efficiency measures
- incorporation of efficiency into resilience planning
- presents four case studies showing how local governments and utilities can leverage energy efficiency to increase community resiliency

Table ES1. Resilience benefits of energy efficiency

Benefit type	Energy efficiency outcome	Resilience benefit
Emergency response and recovery	Reduced electric demand	Increased reliability during times of stress on electric system and increased ability to respond to system emergencies
	Backup power supply from combined heat and power (CHP) and microgrids	Ability to maintain energy supply during emergency or disruption
	Efficient buildings that maintain temperatures	Residents can shelter in place as long as buildings' structural integrity is maintained.
Social and economic	Multiple modes of transportation and efficient vehicles	Several travel options that can be used during evacuations and disruptions
	Local economic resources may stay in the community	Stronger local economy that is less susceptible to hazards and disruptions
	Reduced exposure to energy price volatility	Economy is better positioned to manage energy price increases, and households and businesses are better able to plan for future.
	Reduced spending on energy	Ability to spend income on other needs, increasing disposable income (especially important for low-income families)
Climate mitigation and adaptation	Improved indoor air quality and emission of fewer local pollutants	Fewer public health stressors
	Reduced greenhouse gas emissions from power sector	Mitigation of climate change
	Cost-effective efficiency investments	More leeway to maximize investment in resilient redundancy measures, including adaptation measures

National Institute of Standards and Technology (NIST) Community Resilience Planning Guide for Buildings and Infrastructure Systems

Helps communities develop consistent resilience goals into their comprehensive, economic development, zoning, mitigation, and other local planning activities that impact buildings, public utilities, and other infrastructure systems

Volume I

Describes the six-step planning process

Volume II

Elaborates on how to characterize the social and economic dimensions of the community, any potential impacts and the infrastructure/building performance.

<https://www.nist.gov/topics/community-resilience/planning-guide>



Department of Energy (DOE) Better Buildings



Distributed Generation for Resilience Planning Guide

The U.S. Department of Energy Better Buildings Initiative developed the [Distributed Generation \(DG\) for Resilience Planning Guide](#) to provide information on how DG, with a focus on combined heat and power (CHP), can aid communities to meet their resiliency goals. The guide can be used by a variety of users, including decision makers, state and local policy makers and utilities to gain a better understanding on the role that DG and critical infrastructure (CI) in resiliency planning.

The Efficiency-Resilience Nexus

The [Better Buildings Efficiency-Resilience Nexus](#) describes energy-efficient technologies and practices that contribute to and increase resiliency.

Department of Energy (DOE)

Southcentral Technical Assistance Program with HARC

Promotes Combined Heat and Power (CHP) technology solutions for the industrial and manufacturing sector, critical infrastructure, institutions, commercial facilities, and utilities seeking to reap the many benefits of CHP.

CHP is increasingly recognized as a way to make facilities more resilient against power outages.

Houston Advanced Research Center (HARC) in The Woodlands, Texas has been awarded funding from the U.S. Department of Energy (DOE) to assist public and private entities considering CHP.

More information or to fill out interest survey:

https://www.harcresearch.org/work/CHP_TAP

Financial Tools & Resources



[Better Buildings Financing Navigator](#)

THIS NAVIGATOR HELPS YOU AVOID THE COMPLEXITY ASSOCIATED WITH SECURING APPROPRIATE FINANCING FOR YOUR ENERGY EFFICIENCY PROJECTS



[Commercial property assessed clean energy \(CPACE\) Financing for Resiliency Toolkit](#)

LEARN ABOUT AVAILABLE FINANCING THAT CAN BE USED TO FUND RESILIENCY IMPROVEMENTS TO MAKE BUILDINGS MORE RESISTANT TO NATURAL DISASTERS OR THREATS

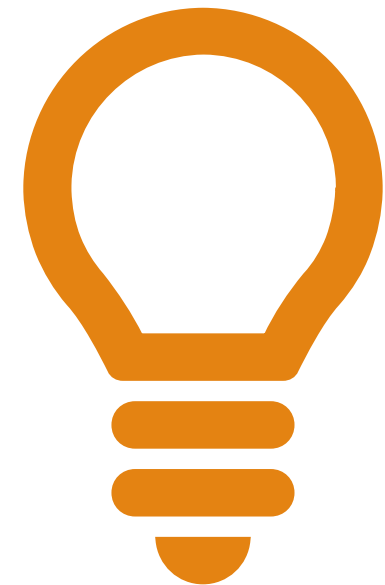
Additional Resources

[Department of Energy \(DOE\) State and Local Solution Center](#)

- ❖ Explore resources related to energy planning, financing energy initiatives, accessing energy data and designing energy programs.

[National Renewable Energy Laboratory's REopt Lite Tool](#)

- ❖ This free tool evaluates the viability of on-site grid-connected photovoltaic, wind, and battery storage, potential battery dispatch and size, and the critical load a system can sustain during a grid outage.



Texas Property Assessed Clean Energy (TX-PACE) Program

TX-PACE facilitates the use of private capital to finance water conservation, **energy efficiency**, **resiliency**, and **distributed generation** projects to eligible properties

PACE is a voluntary program that can be used for the following property types.

ELIGIBLE PROPERTIES



COMMERCIAL REAL PROPERTY

Including non-profit real property such as private schools, medical facilities, churches, etc.



INDUSTRIAL REAL PROPERTY

Including privately owned agricultural real property.

[Industrial Flyer](#)



MULTIFAMILY RESIDENTIAL REAL PROPERTY

Residential real property with five or more dwelling units.

As of August 2021, PACE in North Texas Programs:

- Corinth
- Dallas
- Farmers Branch
- Princeton
- Prosper
- Erath County
- Navarro County
- Tarrant County

Eligible Improvements:

Chillers, boilers, and furnaces • HVAC, BMS, BAS, EMS controls • Lighting • Water heating systems • Energy management systems and controls • Roofing • Windows • Doors • Insulation • Elevator modernization • Pool equipment • Cogeneration or combined heat and power • Heat recovery and steam traps • Solar panels • Wind turbines • Water management systems and controls • Irrigation equipment • Rainwater collection systems • Toilets • Faucets • Greywater systems... and more!