

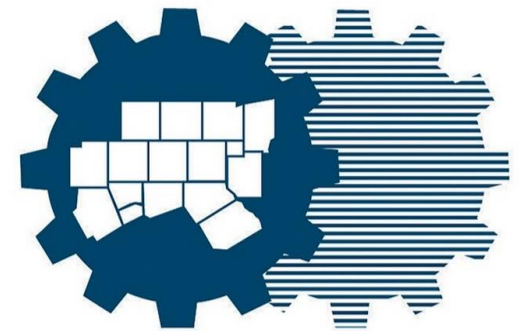


Energy Resiliency Roundtable

Garrett Colony
August 29, 2023
NCTCOG

North Central Texas Council of Governments (NCTCOG)

- Voluntary association of, by, and for local governments
- Regional Planning Agency for the 16-county region
- Metropolitan Planning Organization (MPO) for 12 counties
- Assists local governments in:
 - Planning for common needs
 - Cooperating for mutual benefit
 - Recognizing regional opportunity
 - Resolving regional programs
 - Making joint decisions



**North Central Texas
Council of Governments**

[North Central Texas Council of Governments \(nctcog.org\)](http://nctcog.org)



Texas State Energy Conservation Office (SECO) Energy Management Program

NCTCOG receives funding through SECO to work on energy management and efficiency projects within the region.

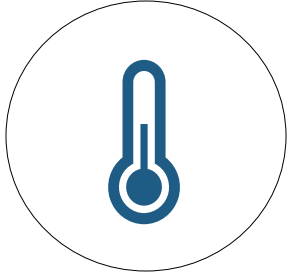
As part of this work, we have provided webinars and technical assistance on a variety of energy management, energy efficiency, and renewable energy topics.



www.nctcog.org/envir/natural-resources/energy-efficiency



Background



Climate

In 2021 and 2022, Winter storms threatened grid stability

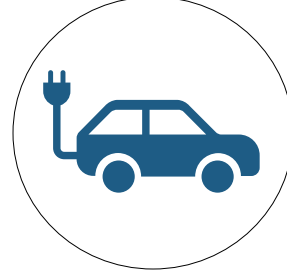
Increasing and extreme heat will continue to prompt grid-straining loads



Population

In 2022, the DFW area had the largest population growth of any metropolitan area

The region now exceeds eight million residents, over 26 percent of the entire Texas population



Electric Vehicles

The DFW area is projected to be one of the regions with highest adoption of EVs

The DFW metro area has the highest light-duty EV registration numbers of any metro area in Texas

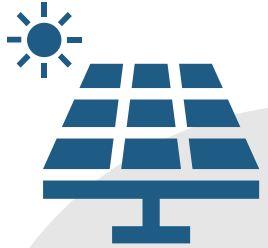


Inland Port

The region includes the nation's largest inland port, four major interstates, 27 airports, and operations of 600 motor/trucking carriers and 100 freight forwarders



Energy Resilience Technologies



Solar – Reduces grid strain and enables off-grid power for greater resiliency when combined with other technology like battery storage or generators.



Microgrids – Local grids that disconnect from the main grid to operate autonomously, in the event of a main grid failure.



Storage – Utilize batteries that store electricity to allow off-grid power for facilities or equipment.



Strategies

Strengthen grid resiliency and implement strategies at critical facilities to address Continuity of Operation Plans (COOP) and Hazard Mitigation Planning.

- Energy Efficiency and Conservation
 - Increased energy efficiency and conservation can save money, reduce emissions, and reduce grid strain
 - Efficiency: Facility retrofits, weatherization, utilization of Energy Star certified equipment, etc.
 - Conservation: Develop rules and best practices for facility operations
 - Understand your baseline
 - [Preliminary Energy Assessments \(PEAs\) from SECO](#)
 - Annual energy report
 - Utilize [Energy Star Portfolio Manager](#) to benchmark your facilities' energy performance and earn recognition
 - Develop an Energy Plan
 - Guides activities and initiatives
 - Creates a commitment and timeline to take action and reach goals
 - More info and template energy plan: [White Paper: Effective Energy Management Strategies for North Texas Communities | Conserve North Texas](#)



Strategies

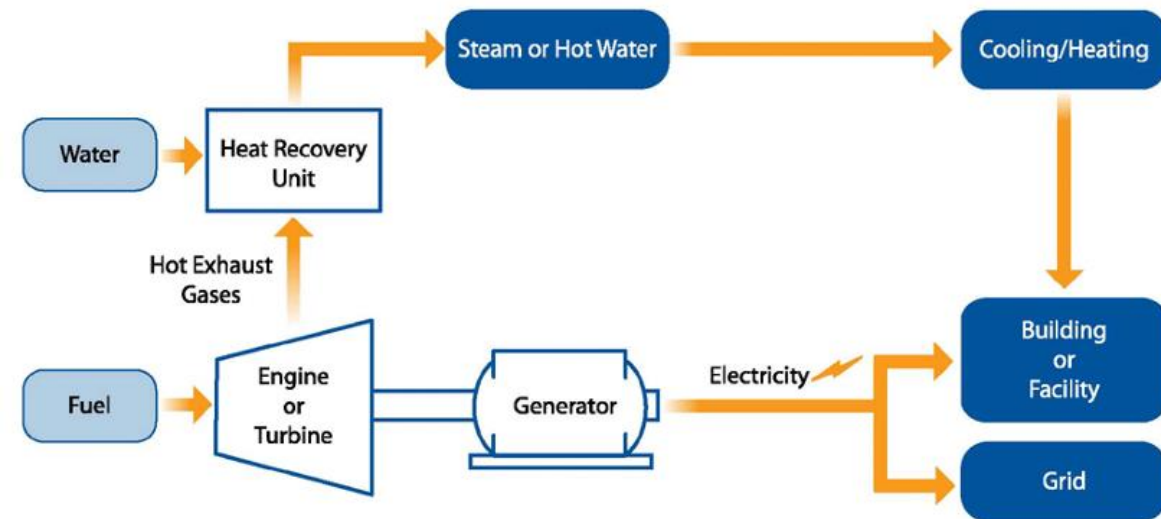
- Distributed Energy Resources (DERs)
 - Provide electricity generation, storage or other energy services and are typically connected to the lower-voltage distribution grid – the part of the system that distributes electric power for local use.
 - Microgrids, solar, battery storage, smart thermostats, vehicle to grid, etc.
- Solar Energy
 - Add solar and integrate battery storage to provide temporary back-up power to critical facilities or infrastructure.
 - SolSmart Technical Assistance and Designation
 - Visit <https://www.gosolartexas.org/solsmart> to get started.
 - SolSmart TA Provider for NTX: Zach Greene, Zach.Greene@wri.org
 - For information on solar energy in the region, visit www.gosolartexas.org.



Combined Heat and Power (CHP)

Combined Heat and Power (CHP)...

- Produces electricity and thermal energy at high efficiencies
- Can be paired with DERs like solar and energy storage
- Is more efficient, has lower operational cost, and reduces grid strain compared to separate heating/cooling and electricity generation systems
- Maintains power supply during outages
- Integrates into microgrids for a diverse generation mix
- Requires capital investment
 - Visit [CHP Policies and Incentives | US EPA](#) to begin exploring funding options



Example CHP Configuration - Combustion Turbine, or Reciprocating Engine, with Heat Recovery Unit.
[What Is CHP? | US EPA](#)

Resources

[About CHP | Better Buildings Initiative \(energy.gov\)](#)

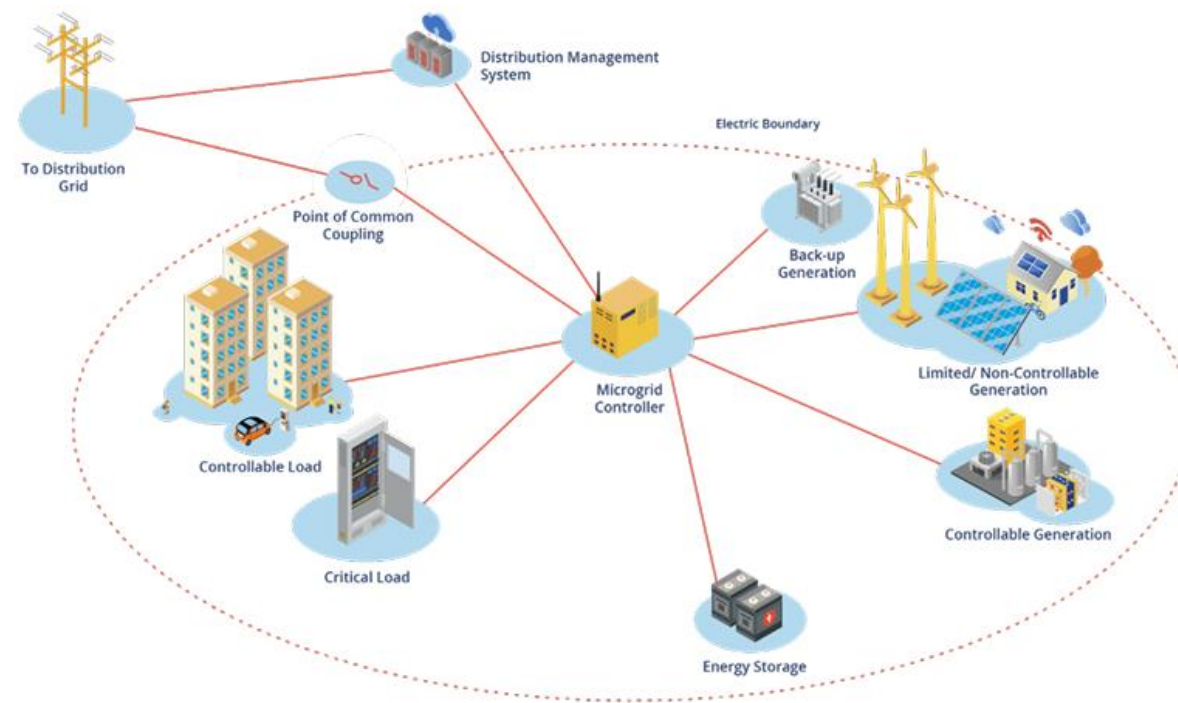
[CHP Fact Sheet from the DOE](#)



Microgrids

A microgrid is a group of interconnected loads and DERs located within defined electrical boundaries that act as a single controllable entity with respect to the grid.

- Interconnected loads can include a group of buildings, critical facilities, a Wastewater Treatment Plant, etc.
- DERs can include:
 - Solar Photovoltaics (PV)
 - Battery storage
 - Microturbines
 - Combustion turbines
 - Natural gas-fired CHP reciprocating engines
- Benefits: increased energy efficiency, reduced grid strain, and energy resilience.
- Consider issues of jurisdiction, connection to the larger grid, siting, and ownership, as well as the finances and economics.
- Visit [Grid Systems | Department of Energy](#) to learn more.



Example Microgrid

[Microgrids for Fleet Electrification | SEPA \(sepapower.org\)](#)



Resources

Funding Opportunities

- [NCTCOG.org/AQfunding](https://www.nctcog.org/AQfunding) - See "Funding for Clean Energy and Energy Efficiency Projects"
- EPA Clean Energy Programs - [Clean Energy Programs | US EPA](#)
- [DSIRE \(dsireusa.org\)](https://www.dsireusa.org) - Provides info on federal and state programs related to renewables, fuel cells, and energy efficiency
- Federal financial assistance opportunities for resilience activities from the DOE - [Federal Financial Assistance Programs for Resilience Activities | Department of Energy](#)

Additional Resources

- White paper on energy resilience and hazard mitigation planning developed by NCTCOG for SECO: [Integration-of-Energy-Resilience-into-Hazard-Mitigation-Planning.pdf \(conservenorthtexas.org\)](#)
- Information on Distributed Energy Resources for Local Governments from WRI: [US Distributed Energy Resources \(DERs\), Explained | World Resources Institute \(wri.org\)](#)
- Oncor's energy efficiency programs and opportunities: <https://www.oncor.com/takealoadoftexas/>



DOE Ride and Drive FOA

Topic 1: Enhancing EV Charging Resiliency

- Development of the North Texas Resilient EV Charging Plan
 - Address concerns over grid reliability, continued access to EV charging during outages
 - Provide guidance for COOP, Hazard Mitigation Planning
- Application submitted August 25, award selections expected in December



Energy Resiliency Roundtable

ONCOR Electric Delivery



Sarah Andrews
Manager for Corporate Strategy
ONCOR
Sarah.Andrews@oncor.com



Energy Resilience at DFW Airport

James Wood, Ph.D. ENV SP
Sustainability Project Manager
Dallas Fort Worth International Airport

Energy Trends

FY2006 vs FY2022



+28%

Passengers

-40%

Energy Cost (\$)

-2%

Total Consumption

+58%

Renewables

NOTE: Includes electricity, transportation fuels, heating fuels, and fire training fuels

DFW's Sustainability and Energy Goals

Net Zero Carbon Generation by 2030



Transition to Renewable Energy
(Wind, Solar, RNG)

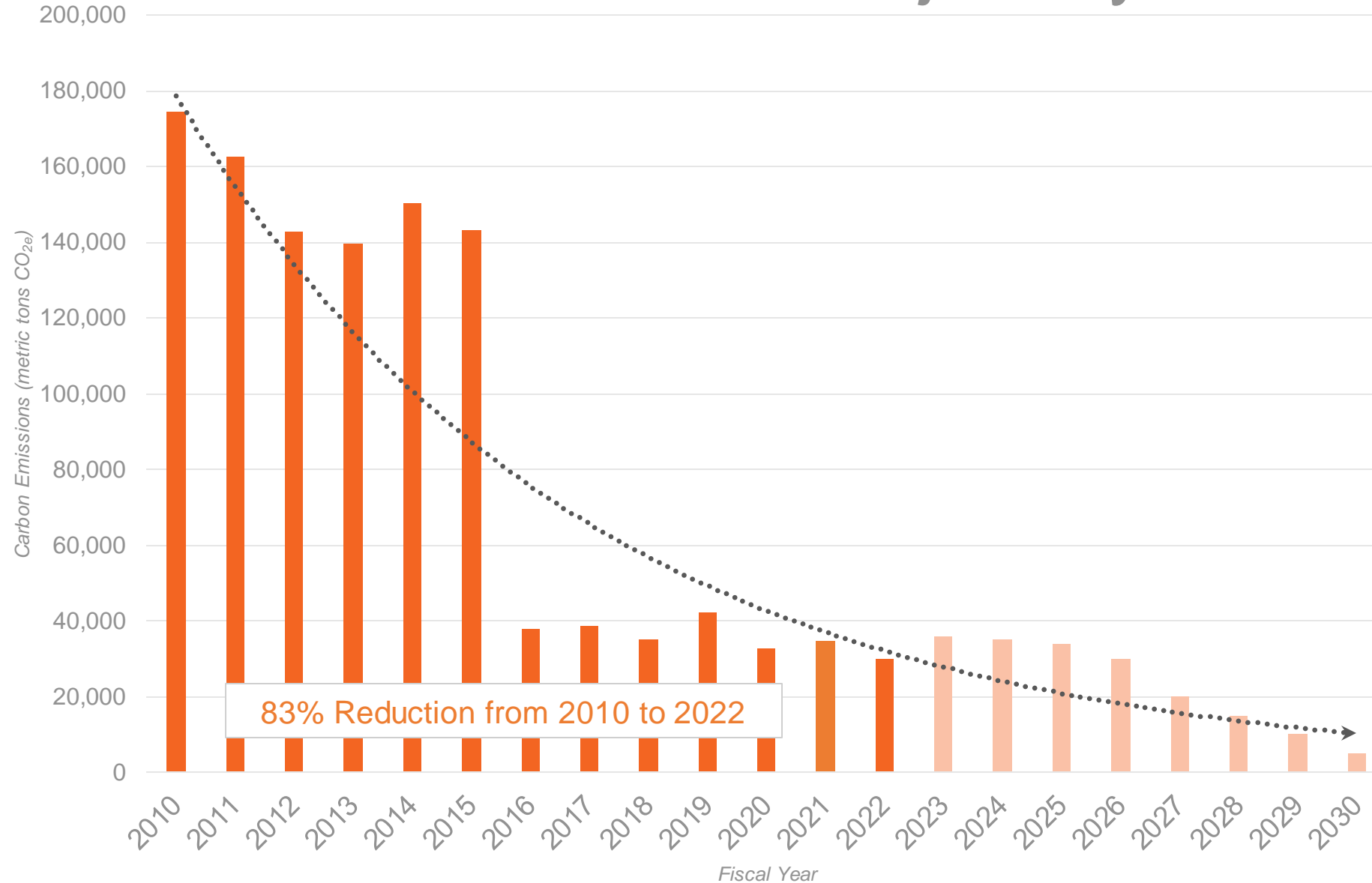


Energy Efficient Buildings & Vehicles
(>90% of the Net Zero Goal)



Carbon Removal
(<10% of the Net Zero Goal)

Net Zero Trajectory



83% Reduction from 2010 to 2022

Residual emissions will be addressed through carbon removal technologies.

Energy Efficiency at DFW Airport

Challenges

Climate & Resiliency

- Rising Summer Temperatures
- Severe Winter Weather Events

Booming Travel Demand

- Post-COVID Travel Bump
- Growth as an AA Hub

Alternative Energy

- Electric & HFC-powered Aircraft
- EV Adoption & Charger Demand

Opportunities

Building Efficiencies

- View Glass (20% HVAC Savings)
- LEED and Envision Projects

Electric CUP

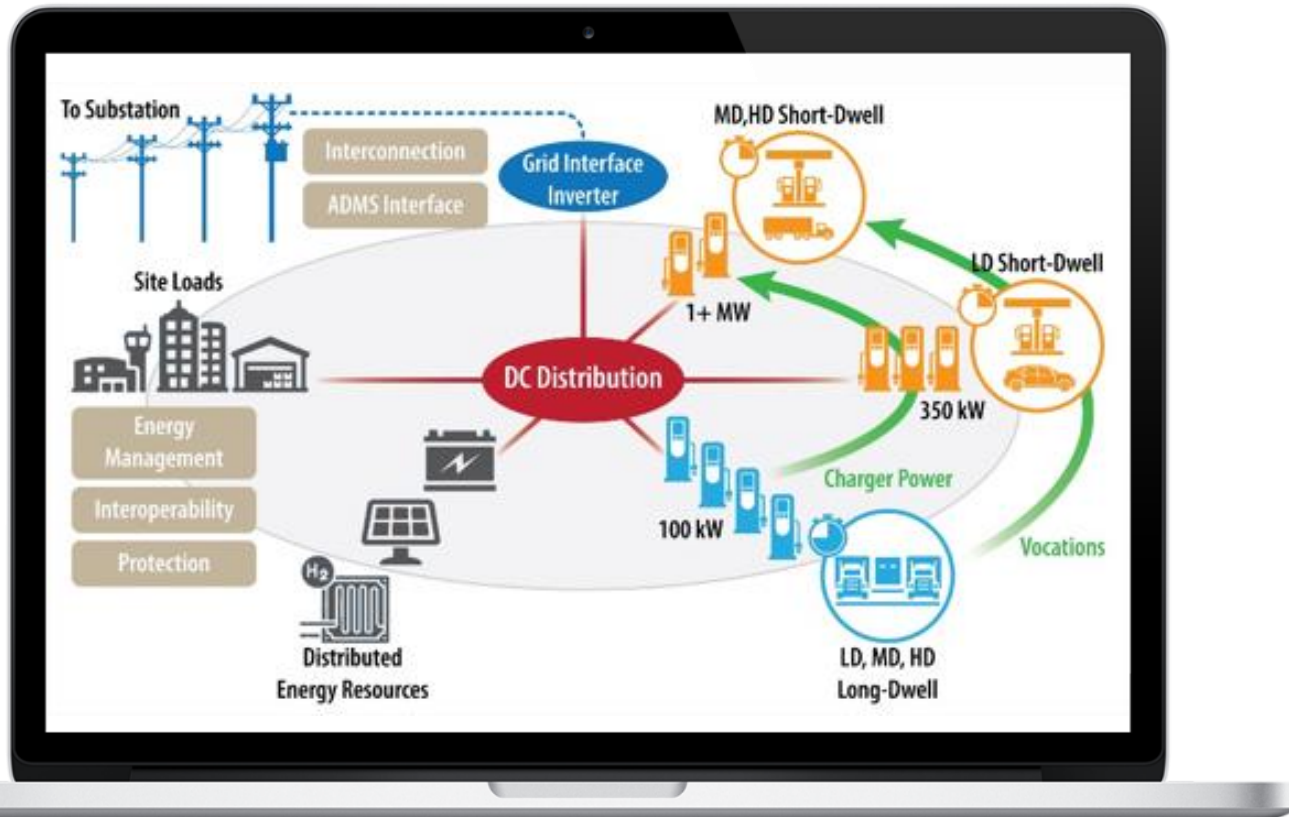
- Next Gen HVAC Technology
- 90% Emissions Reduction

Fleet Electrification

- Hybrid or EV Buses and Trucks
- Expanded Charger Network

Ongoing Work at DFW

- EV Blueprint (2023)
 - Plan for fleet electrification
- EV Roadmap (2023-24)
 - Plan for EV charging infrastructure
- Project Athena 1.0 (2021) and Athena ZEV (2023+)
 - Digital modeling of DFW's energy demand/usage in real time
 - Identify optimal charging loads and processes for EVs at DFW



Thank You



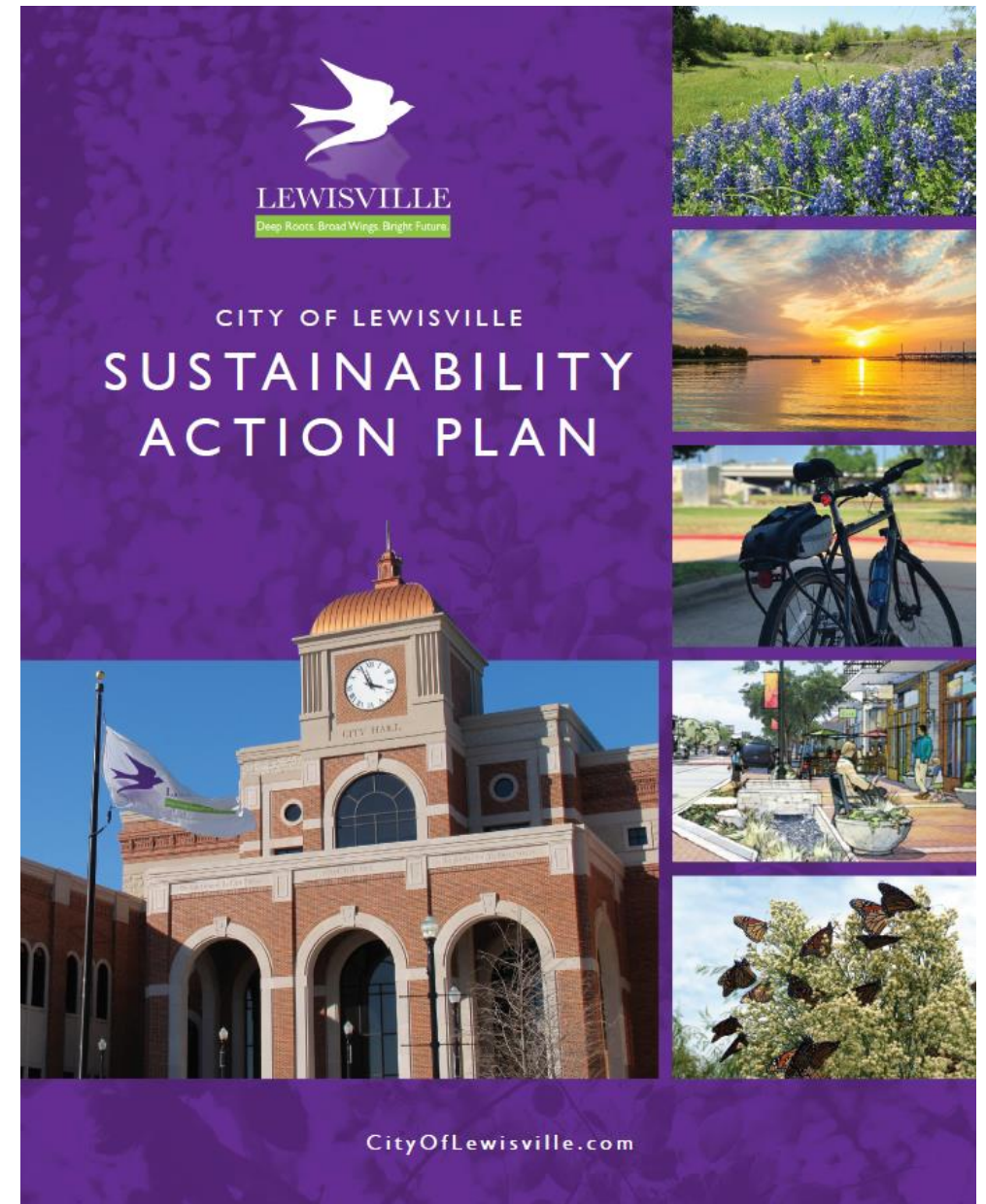
CITY OF LEWISVILLE

ENERGY RESILIENCY STRATEGIES

FOCUS AREAS

- Energy
- Water
- Waste & Resource Management
- Equity & Inclusiveness
- Health & Wellness
- Transportation
- Green Space
- Community Outreach & Education

*Plan adopted May 2021



SPECIFIC ENERGY STRATEGIES FROM THE SAP

- Advance energy performance of City facilities and properties
- Develop a community-wide renewable energy strategy
- Increase building efficiency within the community
- Increase renewable energy generation at City facilities
- Improve average overall fleet efficiency of City vehicles
- Implement policies that impact and lower City energy costs



SPECIFIC ENERGY STRATEGIES

- Economic Development
 - Sustainability elements tied to ED agreements
 - PACE financing for commercial, nonprofit, faith-based properties
- Neighborhood Services/Community Development
 - Property Enhancement Program
 - Minor Housing Rehab Program

EXPLORING FUTURE PROGRAMS AND OPPORTUNITIES

- EECBG funding
- Demand Response programs (internally and with commercial partners)
- Bidirectional EV charging, solar powered EV charging
- Growing partnership with Solar United Neighbors to increase residential solar installations in Lewisville
- Installation of solar at city facilities, particularly public works (covered parking awnings for equipment)
- Resource hubs to increase understanding of energy resiliency issues and connect businesses and residents with educational and fiscal resources to implement changes
- Development of formal energy management plan
- Creation of community resilience hub through Serve Lewisville nonprofit center

RESOURCES

- Texas Clean Energy Hub (HARC) <https://energyhub.harcresearch.org/>
- Texas Energy Poverty Research Institute (TEPRI) <https://tepri.org/>
- City Efficiency Leadership Council/South-central Partnership for Energy Efficiency as a Resource (SPEER) <https://eepartnership.org/program-areas/local-government/citieseeproject/>
 - 2023 SPEER Policy and Industry Workshop- September 14-15, Austin
 - <https://eepartnership.org/2023-policy-industry-workshop/>
- World Resources Institute (WRI) <https://www.wri.org/energy>
- Rocky Mountain Institute (RMI) <https://rmi.org/>
- National Renewable Energy Laboratory (NREL) <https://www.nrel.gov/>

City of Dallas



Travis Houston
Assistant Emergency
Management
Coordinator, Office of
Emergency Management
City of Dallas
travis.houston@dallas.gov



Carlos Evans
Director of Environmental
Quality & Sustainability, Office
of Environmental Quality and
Sustainability
City of Dallas
carlos.evans@dallas.gov



Open Discussion

- Why is energy resilience important to the local community and each participating organization?
- How is an Energy Management Policy or Plan beneficial to implementing energy resilience strategies?
- What are the energy resiliency planning needs at the regional level?
- What energy resilience strategies work best in hazard mitigation planning? Continuation of operations planning?



Upcoming Events

Roundtable: Energy Sector Strategies to Improve Air Quality in North Texas

Assist in identifying energy strategies to improve air quality, enhance sustainability and promote equity in North Texas. Strategies identified will be incorporated into deliverables for the Climate Pollution Reduction Grants (CPRG), the Texas State Implementation Plan (SIP), and other plans developed by NCTCOG.

- **Date:** Monday, September 18
- **Time:** 1:00 PM – 3:00 PM
- **Location:** In person at NCTCOG offices, 616 Six Flags Drive, CenterPoint Two, Arlington, TX 76011 or virtual via Zoom. *In person attendance is encouraged.*
- **Register Here:** [Climate Pollution Reduction Grants - PublicInput](#)



Energy Resiliency Roundtable

Annual Public Works Roundup

NCTCOG's Public Works Council will host this annual event, which serves as an opportunity to communicate and coordinate on regional public works issues, and to learn about emerging technologies that communities can leverage in their operations. View the agenda [here](#).

- **Date:** Friday, September 29
- **Time:** 8:30 AM – 4:00 PM
- **Location:** Grapevine Convention Center
- **Register Here:** [North Central Texas Council of Governments - Annual Public Works Roundup \(nctcog.org\)](#)

Participants in the FY23 Regional Public Works Program may attend for free. If your community is not on the list, the cost is \$50/person.

Contact Us



Garrett Colony
Air Quality Planner II
NCTCOG/DFWCC
gcolony@nctcog.org
(817) 704-5675



**North Central Texas
Council of Governments**



NCTCOG.org



energy@nctcog.org



Energy Resiliency Roundtable