Advancing Campus Sustainability

Initiatives, Efficiency, and Funding

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

JANUARY 16, 2025

North Central Texas Council of Governments

SPEER
The South-central Partnership for Energy Efficiency as a Resource


Welcome to the Vandergriff Conference Center, 1st Floor CenterPoint II.
North Central Texas Council of Governments

Welcome & Housekeeping

1. Please sign in using the sign-in sheet at the back of the room. We will send around a form attesting whether your time can be used for in-kind match.
2. We will have an open Q&A and roundtable discussion at the end.
3. The workshop slides and audio recording will be posted on the Conserve North Texas website under News/Events -> Event Archive at the link below. Follow-up emails to come.
   https://www.conservenorthtexas.org/event-archive
4. Additional information and resources are included in the printed materials at the back of the room. Please take a copy!

North Central Texas Council of Governments

Workshop Sponsor

NCTCOG receives funding through SECO to work on energy management and efficiency projects within the region. As part of this work, we have provided workshops, webinars, and technical assistance on a variety of energy management, energy efficiency, water efficiency, and renewable energy topics.

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

North Central Texas Council of Governments

Who We Are

How do we support energy management efforts for entities across the state?

North Central Texas Council of Governments

NCTCOG is a regional planning agency serving North Texas local governments on a variety of topics. NCTCOG's Regional Energy Management Program is an ongoing effort to identify energy management needs, increase awareness to the local government energy reporting requirements, and provide resources to assist local governments in energy conservation efforts.

SECO State Energy Conservation Office

SECO partners with local governments, public K-12 schools, public institutions of higher education and state agencies, across Texas to reduce utility costs and maximize energy efficiencies.

Who We Are

The South-central Partnership for Energy Efficiency as a Resource (SPEER) is the Regional Energy Efficiency Organization serving Texas and Oklahoma. Incorporated in 2011, SPEER aims to accelerate the adoption of advanced building systems and energy efficient products and services in our territory.

These two states include nearly 30 million people and many of the fastest growing cities in America. There is a tremendous opportunity to increase energy efficiency in the region through innovative policies, research, building codes, workforce development, and resource development to advance grid interactive buildings and improve energy optimization.

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Today's Agenda

1. University Sustainability Initiatives Panel
2. 5 Minute Break
3. University Recommissioning Panel
4. Roundtable Q&A
5. Upcoming Events
6. Resources and Funding

North Central Texas Council of Governments

01

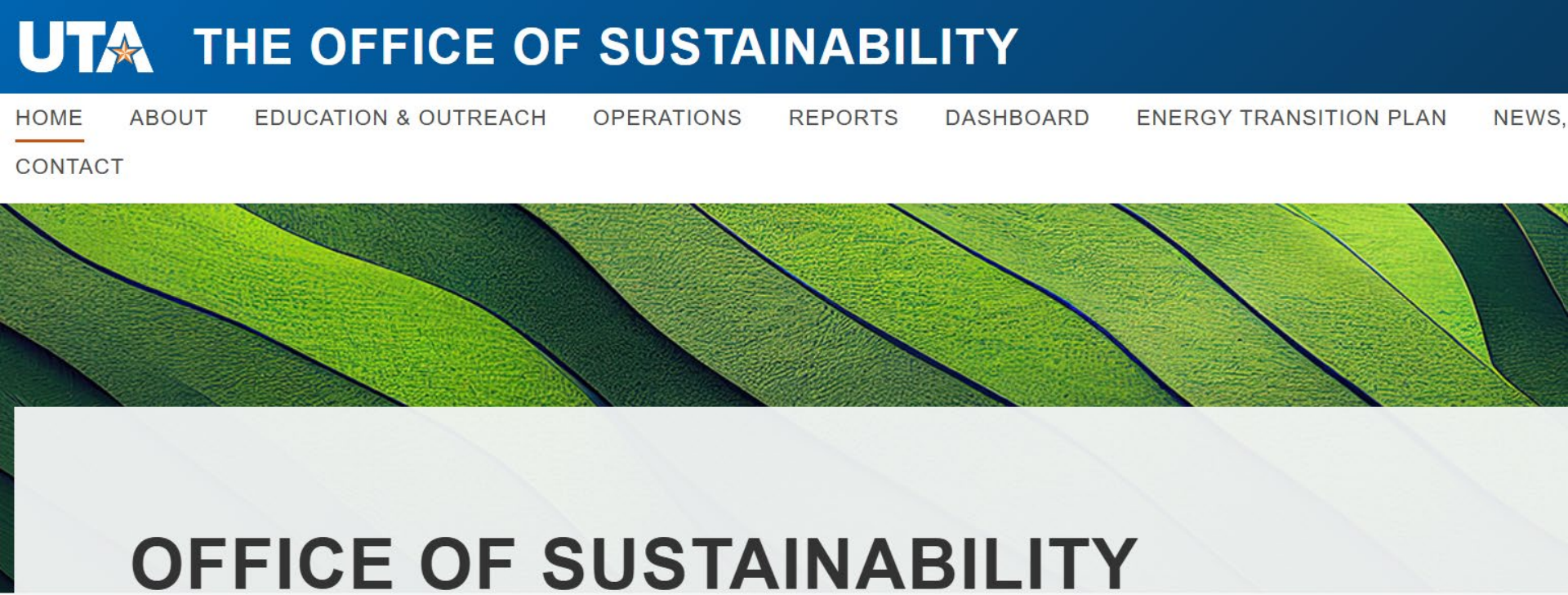
University Sustainability Initiatives

North Central Texas Council of Governments

Meghna Tare

Chief Sustainability and Economic Development Officer, University of Texas at Arlington

North Central Texas Council of Governments



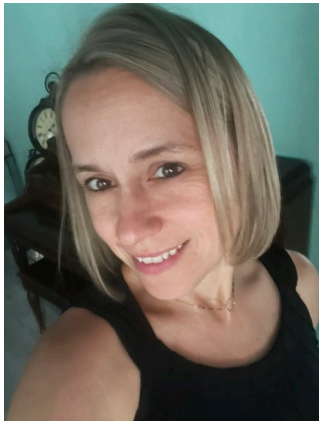
https://www.uta.edu/campus-ops/office-of-sustainability

Heidi Rae Cooley

Associate Professor, University of Texas at Dallas

Danielle Dunn

Sustainability Coordinator, University of Texas at Dallas



Dorothee Honhon

Associate Dean for Sustainability and Societal Impact, University of Texas at Dallas

North Central Texas Council of Governments

Sustainability at UT Dallas

Creating a better world by connecting education and expertise to principles of sustainability.

Presenters

Danielle Dunn
Sustainability Coordinator

Dorothee Honhon
Associate Dean for Sustainability & Societal Impact, Jindal School of Management

Heidi Cooley
Sustainability Committee Chair
Associate Professor
Bass School of Arts, Humanities and Technology

THE UNIVERSITY OF TEXAS AT DALLAS

SUSTAINABILITY IN

HIGHER EDUCATION

ACADEMICS AND RESEARCH

ADMINISTRATION POLICY & PLANNING

ENGAGEMENT

OPERATIONS

SUSTAINABILITY IN

ACADEMICS

AND RESEARCH

193 SUSTAINABILITY COURSES

SDG'S AND LOCAL ACTION

CAMPUS AS A LIVING LABRATORY

135 SUSTAINABILITY RESEARCHERS

SUSTAINABILITY RELATED PROGRAMS

Undergraduate

BA Interdisciplinary Studies, Concentration in Environmental Studies

BS, Public Policy and Political Economy

BS, Sustainable Earth and Environmental Sciences

BS, Geospatial Information Sciences

Minor in Environmental Studies

Minor is Sustainability in Business (coming soon)

Graduate

MS, Geospatial Information Sciences

MS, Sustainable Earth and Environmental Sciences

MS, Energy Management

Certificate in Sustainability Strategy Management in Aviation and Travel

Certificate is Sustainability in Business (coming soon)

SUSTAINABILITY RESEARCH

135 sustainability (SDG) researchers on campus.

Dr. Shalini Prasad - soil sensors that transmit soil health data in real time.

Dr. David Lary – Air quality monitoring

UTD Wind - wind energy systems

Dr. Inessa Yurchenko – Energy transition / Geoscience communications

Dr. Elias Cisneros – market and political shocks of land-use change, deforestation

Dr. June Jones - theories of sustainable political community

Dr. Ramesh Subramoniam – reverse supply chain / remanufacturing

Dr. Dorothee Honhon – Food waste minimization

Dr Habte Woldu – Sustainable Global Business Initiative – global development

SUSTAINABILITY IN

OPERATIONS

TREE CAMPUS HIGHER ED

ENERGY & WATER

WASTE REDUCTION

BIODIVERSITY

LEED CERTIFIED

AASHE STARS

ABOUT STARS

- 800+ participating institutions in 30+ countries
- 4 categories, 63 credits, 1,000+ data points, 321 pg. Technical Manual
- Academics, operations, engagement, and administration
- Awarded Reporter, Bronze, Silver, Gold, or Platinum according to points

Sustainability in Operations

WATER

Bottle refill stations, low-flush toilets and urinals, dual-flush toilets, low-flow faucets, efficient and strategically planned **landscape watering**.

BUILDINGS

Eight **LEED-certified buildings** (Student Services Building, School of Management addition, Edith O'Donnell Arts & Technology Building, RHW/DHW/RCW, Bioengineering and Science Building, Alumni Center, ECSW, Sciences Building).

RECYCLING

Specialty recycling programs (film plastics, batteries, e-waste, etc.), Campus Race to Zero Waste, recycling bins, move-in recycling.

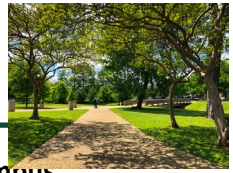
ENERGY

PS1 Photovoltaic panels, solar golf cart charging, ECSN solar panels, solar thermal, **electric vehicle charging**, LED lighting, reflective roofing.

COMPOST

Comet Composting program, food service composting, landscape waste composting.

LANDSCAPES



University Drive urban forest, **Tree Campus Higher Education**, ArbNet Arboretum Level 1, Pocket Prairie Restoration, UV Community Garden, Eco Hub.

SUSTAINABILITY IN

ADMINISTRATION

PARTNERSHIPS

GREEN OFFICES

AFFORDABILITY
& ACCESIBILITY

SUSTAINABILITY
COMMITEE

PLANNING & POLICY

SUSTAINABILITY COMMITTEE

Standing committee comprised of actively engaged students, staff and faculty at UT Dallas.

Charged with cultivating a culture of environmental responsibility and participation among the campus community

Examples of initiatives:

Have UT Dallas sign on to the Post-Landfill Action Network's Break Free from Plastic Pledge to initiate the gradual phase-out of single-use plastics on UTD campus.

Reduce food waste and reduce food insecurity by facilitating access to leftover food to students

Lori Lewis

Manager of Sustainability, Tarrant County College District

North Central Texas Council of Governments

Sustainability at Tarrant County College

Two-year plan: Projects & Analyses

Lori Lewis

Sustainability Plan
November 2022

Tarrant County College

https://storymaps.arcgis.com/stories/b54ffc15faa44a3491f804756bfb7c2a

Amie Lund

Director of Advanced Environmental Research Institute (AERI), University of North Texas

North Central Texas Council of Governments

UNT Sustainable Programs, Initiatives, and the Advanced Environmental Research Institute (AERI)

Amie Lund, Ph.D., Director, AERI

NCTCOG Advancing Campus Sustainability Workshop

January, 2025

UNT Facilities Initiatives

- UNT's power is 100% renewable at the main campus, provided by The Denton Municipal Electric
- The University Union became our sixth LEED-Certified building when it reopened in 2015.
- We have three wind turbines, each 100kW generating about 3-5% of the DATCU stadium consumption.
- DATCU Stadium was the first newly constructed collegiate football stadium in the nation to achieve LEED Platinum Certification

UNT Facilities Initiatives

- Under a 20-year energy savings contract, UNT has made 120 existing buildings more energy efficient and will save $3 million annually.
- SMALLER “FOODPRINT”: UNT is the nation’s first university to offer a vegan-only dining facility — Mean Greens Cafe — and serves 2.2 million meals a year using the freshest regionally sourced ingredients available.
- Currently, UNT Facilities is working on a feasibility study for a solar plant with 3MW Solar Canopies with charging stations for electric vehicles.

UNT “We Mean Green” funding initiative:

Provides funding to environmental projects at UNT through the Environmental Services Fee ($5/long semester)

A group of 10 students and 3 faculty/staff members vote on how those funds are allocated to said projects

Projects typically fall into one of the following areas:

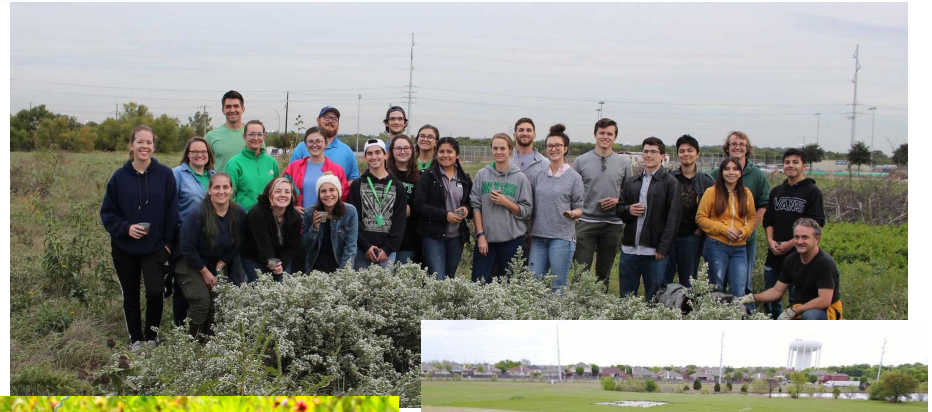
- Ecological preservation & restoration
- Waste management
- Green Energy
- Sustainable Transportation
- Community Engagement

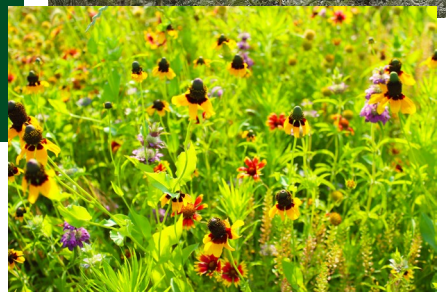
UNT Community Garden

- Fosters a community dedicated to food sovereignty
- Free access for students, faculty, and staff to grow food on campus
- Additional food and excess food is donated to the Campus Food Pantry

Pecan Creek Pollinative Prairie

- 4-acre space on Discovery Park campus that has been dedicated to prairie restoration
- Provides educational opportunities for the classroom and vital land management experience for students
- Working with local government agencies and developers on utilizing native plant species in greenspaces





Zero Waste Textile Initiative

- Spearheaded by faculty in the College of Merchandise, Hospitality, and Tourism as a way to reduce textile waste on campus
- Ultimately supporting the 'Diamond Eagle Clothing Closet' providing free access to second hand clothing on campus
- Items that fail to find new purpose at UNT will be shared with the Chickasaw Nation ReUse Center in Oklahoma and distributed to members of its community.

Bike Safety and the Mobile Bike Shop

- Increased access to free bike locks and bike engravings on campus, through partnership with the UNT police Department
- Mobile Bike Shop that offers free/reduced cost bicycle repairs to students on campus.

BICYCLE FRIENDLY UNIVERSITY
2022-2026
BRONZE
THE LEAGUE OF AMERICAN BICYCLISTS

Bee Campus USA Commitment and Bird Campus Committee

- Group of students, faculty, and staff dedicated to pollinator protection on campus:
- Includes creation of education signage and opportunities for the campus community
- Increasing native plant spaces on campus beneficial for pollinators and birds
- Research into native bee protection through the use of Campus Bee Boxes
- Implementation of bird boxes and habitat on campus

BEE CAMPUS USA™

Since 2016

UNT DIVISION OF STUDENT AFFAIRS
We Mean Green Fund

Advanced Environmental Research Institute (AERI)

Identify and investigate pressing environmental issues in North Texas and Worldwide.

Contribute to policy development and implementation to address or mitigate environmental and public health issues.

Provide education, research, and training opportunities for our trainees.

ADVANCED ENVIRONMENTAL RESEARCH INSTITUTE
UNT
EST. 1890

AERI Membership

40 Faculty members

- Across six colleges and 12 departments

Sr. Proposal Manager – Kelly Basinger

5 Team members (Tara Principato, Becky Petrusky, Danette Robertson, Amber Paschall, Richard Freiheit)

- Support travel, purchasing, event planning
- Support research and restoration at LLELA

ADVANCED ENVIRONMENTAL RESEARCH INSTITUTE

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AERI Research Funding

Over $19M in active funding

Federal, State, Local, Private, Foundations

- National Institute of Health (NIH)
- National Science Foundation (NSF)
- Department of Defense (DOD)
- National Aeronautics & Space Administration (NASA)
- National Oceanic and Atmospheric Administration (NOAA)
- Texas Parks & Wildlife
- Dixon Water Foundation,
- Cities of Lewisville, Denton, Austin
- Friends of LLELA
- Fidelity Foundation

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Current Areas of AERI Research

- Air Quality
- Remote Sensing
- Soil Quality/Assessment
- Biodiversity
- Climate Change
- Community Ecology
- Conservation Biology
- Environmental Toxicology
  - Air Pollution Toxicology
  - Aquatic Toxicology
  - Ecotoxicology
- Hazard / Pollution Mitigation
- Land Use
- Water Quality / Resource Management
- Public Health / Epidemiology
- Sustainable agriculture
- Sustainable and Equitable Urban Planning
- STEM Research & Education
- Citizen science
- Information dissemination
- Environmental justice

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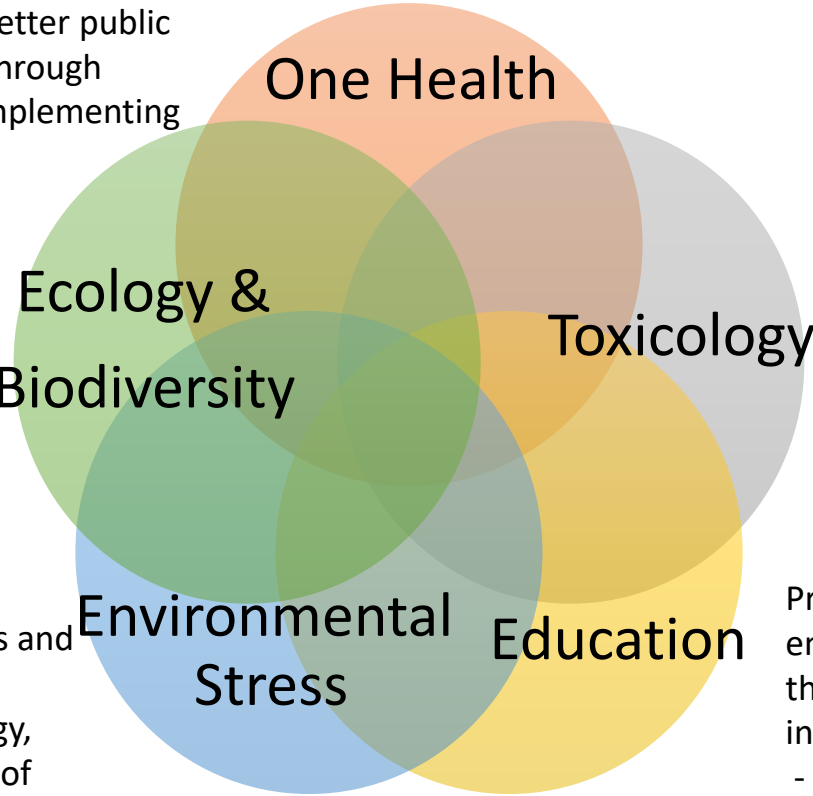
AERI Research Themes

Multidisciplinary research in which multiple sectors work together to achieve better public health and community outcomes through identifying issues, designing and implementing programs, policies, and legislation.



Investigation of the relationships between living organisms, including humans, and their physical environment.

Investigation of the impacts of environmental pollutants on species, ecosystems, and human health.

Investigation of how environmental stressors and pollutants impact the development, physiology, behaviors, and survival of species.

Providing access to STEAM and environmental education and the opportunity to participate in ecological restoration.
- Environmental documentaries

ADVANCED ENVIRONMENTAL RESEARCH INSTITUTE
UNT EST. 1890

AERI Facilities

AERI Facilities & Equipment span across multiple buildings and laboratories on UNT Denton Campus

- Environmental Chemistry
- Molecular Biology / Histology
- Physiology
- Toxicology
- Computational analyses
- Remote sensing
- Exposure facilities

Lewisville Lake Environmental Learning Area (LLELA)

Water Research Field Station

Pollinative Prairie

ADVANCED ENVIRONMENTAL RESEARCH INSTITUTE

UNT EST. 1890

AERI will be hosting an ESG Conference, “Sustainable Strategies for Industrial Growth: Leading the Way for a Greener Texas” on September 12, 2025 on UNT Denton campus.

For more information on AERI, please visit: aeri.unt.edu

Contact information: amie.lund@unt.edu

Thank you!

02

5 Minute Break

North Central Texas Council of Governments

03

University Recommissioning

Shaun Auckland, M.S.I.S, LEED Green Associate

Senior Manager, Government and Community Engagement, SPEER

North Central Texas Council of Governments

TEA UP

TEXAS ENERGY ADVOCATES - UNIVERSITY PROGRAM

Texas Energy Advocates- University Program

Shaun Marie Auckland, M.S.I.S.
Senior Manager, Government and Community Engagement

SPEER
The South-central Partnership for Energy Efficiency as a Resource

What is TEA-UP?

TEA-UP is a dynamic network uniting higher education programs across Texas to tackle critical energy challenges. A key role in shaping initiatives that promote energy efficiency, sustainability, and the development of future energy leaders.

- **Universities**
- **County Colleges**
- **Technical Colleges**

TEA UP
TEXAS ENERGY ADVOCATES - UNIVERSITY PROGRAM

*** Participating in this program is FREE, sponsored by State Energy Conservation Office.**

SPEER
The South-central Partnership for Energy Efficiency as a Resource

Why Join the TEA-UP Coalition?

As a committee member, you will:

- Collaborate with institutions across Texas to address pressing energy issues.
- Contribute to the development of training materials and workforce pathways for future energy leaders.
- Participate in **quarterly meetings** featuring expert speakers focused on higher education and energy sustainability.
- Engage in **higher education-focused events** throughout the year, including the highly anticipated **TEA-UP Conference**, where you can shape the agenda to reflect the topics most relevant to your campus.
- **Create partnerships** with the opportunity to further specific projects that align with your institution's energy and sustainability goals.

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The South-central Partnership for Energy Efficiency as a Resource

Upcoming Events

- **Advanced Campus Sustainability Workshop**: January 16, 2025, Arlington, TX
- **Quarterly Meetings**: Featuring industry experts and tailored discussions on higher education energy initiatives.
- **Texas Regional Association Campus Sustainability**:
- **TEA-UP Conference**: A flagship event bringing together thought leaders and innovators in energy advocacy and sustainability (Date and details coming soon!).
- These events provide invaluable opportunities to connect, collaborate, and create solutions for the energy challenges we face today.

SPEER
The South-central Partnership for Energy Efficiency as a Resource

Ready to Get Involved?

We’d love to have you on board! To apply, simply complete the form linked below:

Apply Here

Connect with us:

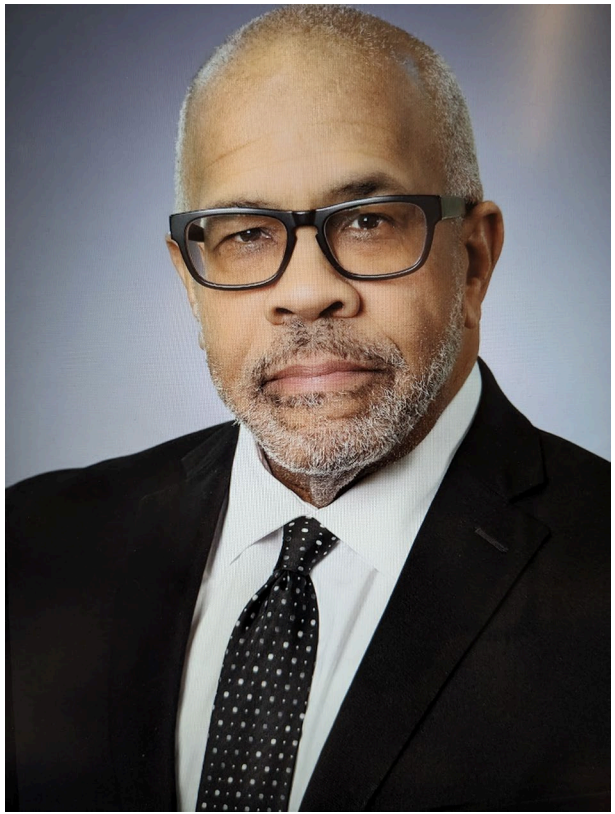
512-279-0750

eepartnership.org

@SPEER

@EEpartnership

SPEER
The South-central Partnership for Energy Efficiency as a Resource



Walter H. Williams III, P.E.

Director of Facilities Engineering, Tarrant County College District

North Central Texas Council of Governments

Re-Commissioning 101:

What It Is and What We've Learned

- **Objectives**
  - Context
  - What is Commissioning?
  - Discuss Re-Commissioning Flavors
  - Approach and Results
  - Lessons Learned

Context

- TCJC established 1965; now Tarrant County College
- 46,974 Students (Fall 2024)
- Five major campuses and four centers across Tarrant County in three cities
- 3.9 Million SF in 146 Buildings on 767 acres
- 10 CUPs – chilled water, heating water, domestic hot water and compressed air
- Electricity Contract for all facilities – 10 accounts - $4.6M/yr
- Water from FW, Hurst and Arlington – 15 accounts - $1.3M/yr
- Natural Gas from Texas GLO and Atmos – 8 accounts - $600K/yr
- Reliable, Andover and Trane BAS, nLight lighting controls, BaseLine irrigation controls
- Utility Sub-metering – 114 power / 37 domestic water / 24 thermal

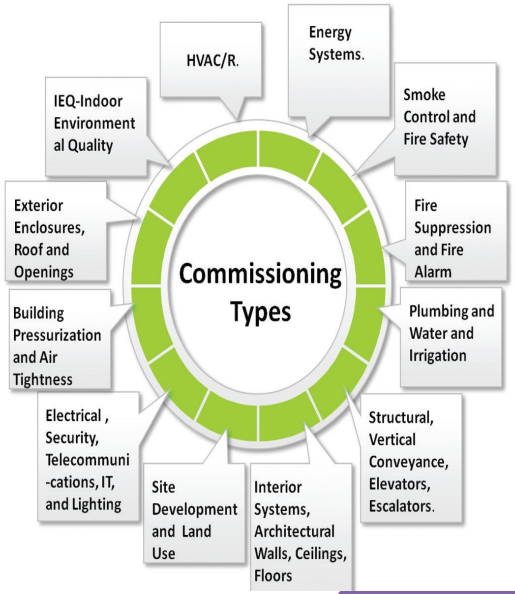
What is Commissioning?

- A **“quality-focused”, risk management** process for assuring the operation of a building and its supporting systems.

- The process verifying and documenting that all the **facility systems perform interactively as planned, designed, installed, tested, operated, and maintained to meet:**

  1) **The operating requirements of a new building or renovation.**

  2) **The requirements of an existing building.**



Re-Commissioning Flavors

- **Re-/On-going Commissioning**
  - Periodic “Tune-up” to original Project Requirements and Basis of Design
  - TCCD uses only with specialized systems
    - Indoor Firing Range
    - Laboratory Fume Hoods

- **Retro-Commissioning**
  - Commissioning of buildings which have not been commissioned previously.
  - TCCD uses on significant renovation projects; not unlike new construction commissioning.

- **Monitoring-Based Commissioning**
  - Utilizing field observation and Building Automation System data to confirm and optimize building performance (comfort and utility use)

TCCD has used CCx® extensively and successfully for over a decade.

Approach

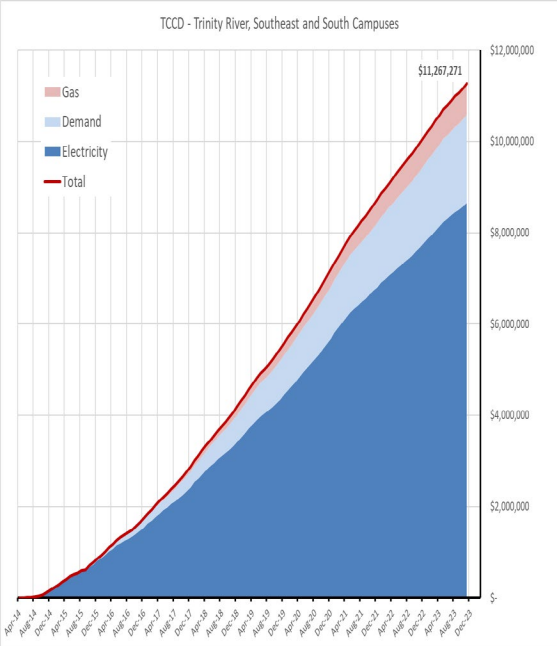
The Continuous Commissioning® process (CCx) has been successfully implemented formally at four of TCCD's five major campuses (between 2013 and 2016) and most recently, the Tarrant County Opportunity Center (2023).

By optimizing existing equipment, the significant efficiency increases can be achieved without significant capital expenditure.

CCx preceded a wave of capital investment upgrades (chiller and boiler plant upgrades) so there were other influences on utilities usage/cost but CCx was a major contributor to TCCD's EUI decreasing from 122 in 2012 to 72 currently.

Electricity rate reductions, increasing construction costs and funding model changes over time have further fueled TCCD's emphasis on operations-based approaches to reducing utility usage/cost.

Results


TCCD - Trinity River, Southeast and South Campuses
$11,267,271
Gas
Demand
Electricity
Total
$12,000,000
$10,000,000
$8,000,000
$6,000,000
$4,000,000
$2,000,000
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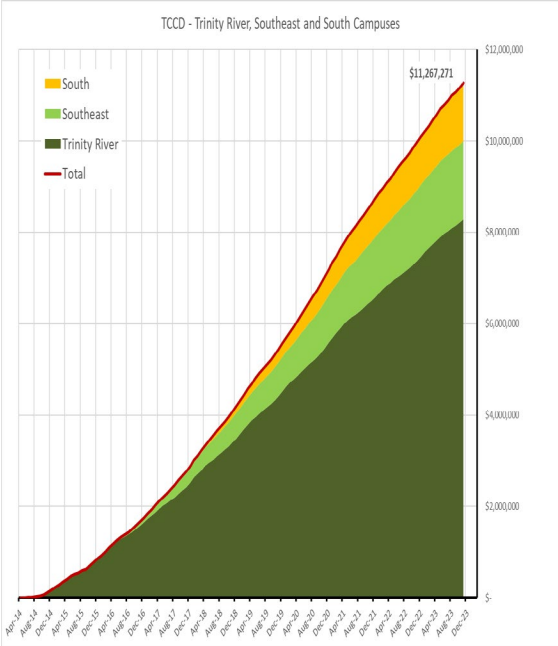
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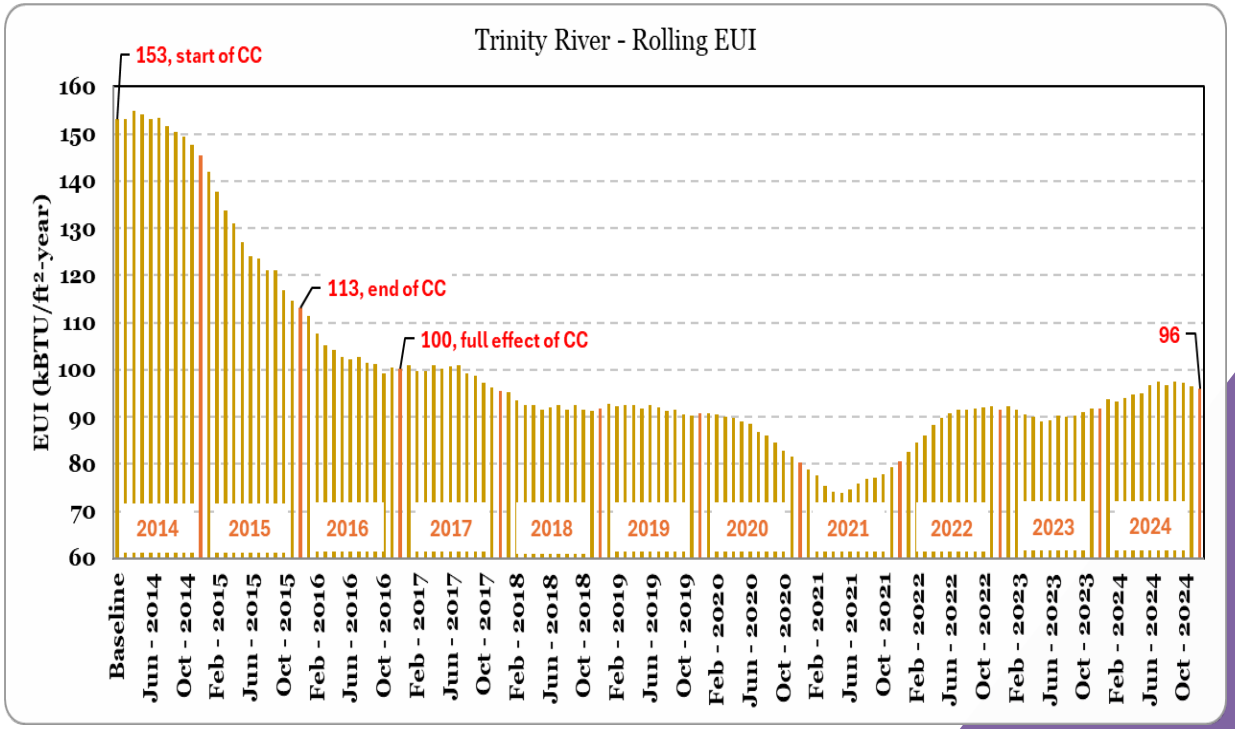
Lessons Learned



Lessons Learned

- **Cons**
  - Modeling/Predicting savings is improving but can be variable
  - Sustainability – in the absence of more sophisticated monitoring systems (Smart Building) or more intensive PM, benefits will likely fade over time.
  - Efforts need championing
  - Research orientation (CCx)

- **Pros**
  - World-class expertise (CCx)
  - World-class tools (trending, fault detection and diagnostics, data management/analytics) (CCx)
  - Reveals repair and calibration needs; should enhance occupant comfort
  - Cost effective; not capital intense
  - Standardization

- **KeyWord: Continuous!**
  - Currently assessing NE Campus for CCx
  - CCx of CUPs district-wide in progress
  - Smart Building Program/Pilot

Questions?

Thanks for your time and attention!!!

Danny Helm
Manager of Utilities and Energy
daniel.helm@tccd.edu
(817) 515-9226

Walter Williams
Director of Facilities Engineering
walter.williams@tccd.edu
(817) 515-9055

Daniel Helm

District Utility and Energy Manager,
Tarrant County College District

North Central Texas Council of Governments

Securing Buy-In: Funding and Selling Your Commissioning Vision

Strategies to Gain Support for Your Commissioning Project

Introduction

- Objective:

  - Present a compelling case for commissioning.

  - Identify funding opportunities and stakeholder engagement strategies.

- Importance:

  - Align commissioning efforts with organizational goals.

  - Address key concerns of stakeholders.

Why Commissioning Matters

- Key Benefits:

  - Enhances occupant comfort and satisfaction.

  - Reduces energy consumption and operational costs.

  - Extends equipment life and improves system reliability.

Identifying Key Stakeholders

- Who to Engage:
  - Administration, staff, maintenance and operations.
  - Financial officers and decision-makers.
- Tailoring the Message:
  - Highlight specific benefits relevant to each group.
  - Address potential concerns and objections.

Building a Compelling Case

- Key Elements:
  - Cost-benefit analysis: Projected savings vs. investment.
  - Real-world case studies and success stories.
  - Alignment with organizational sustainability goals.

- Delivering the Message:
  - Use clear visuals and data to support your case.
  - Simplify technical jargon for non-technical stakeholders.

Exploring Funding Options

Potential Sources:

- Internal budget allocations.
- Utility rebates and incentive programs.
- Grants from government or non-profits.

Overcoming Resistance

- Common Objections:
  - Perceived high upfront costs.
  - Disruption to operations during implementation.
  - Skepticism about projected savings.

- Strategies to Address Concerns:
  - Demonstrate ROI with tangible data.
  - Propose phased or pilot implementations.
  - Highlight non-financial benefits, e.g., teaming and training opportunities for operations staff

Effective Communication Strategies

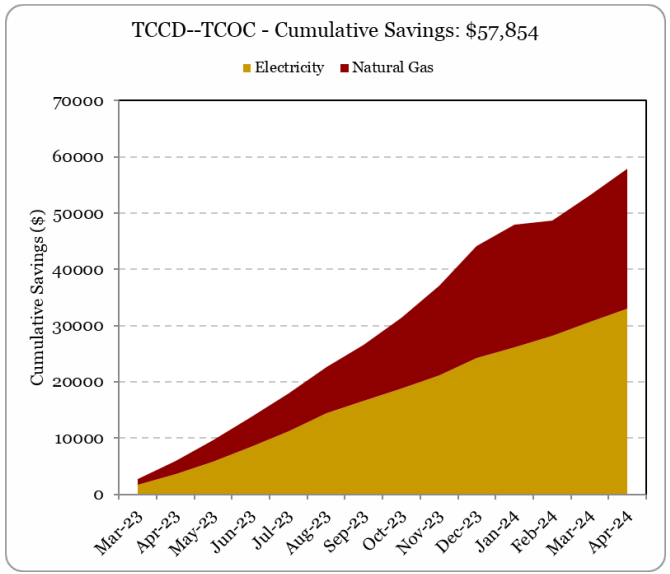
Tailoring Your Approach:

- Use visuals like charts, graphs, and case studies.
- Customize language and focus based on the audience.

Engagement Techniques:

- Host workshops or info sessions.
- Encourage stakeholder involvement in planning.

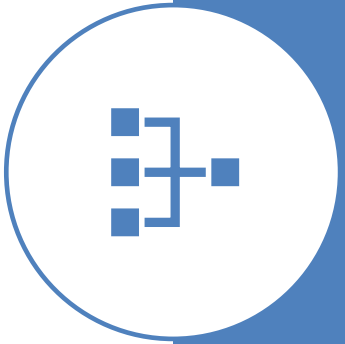
TCOC - Cumulative Savings



Period	Savings
CC (3/1/23 - 3/1/24)	**$ 48,748**
Electricity (58%)	$ 28,210
Natural Gas (42%)	$ 20,537
Year 1 (3/1/24 - 5/1/24)	**$ 9,106**
Electricity (52%)	$ 4,771
Natural Gas (48%)	$ 4,335
Total Savings:	**$ 57,854**

Action Plan for Stakeholders

- Steps to Take:
  - Conduct an initial assessment of building performance.
  - Identify and prioritize systems for commissioning.
  - Secure funding and develop a detailed plan.



- Maintaining Communication:
  - Schedule regular updates and reviews.
  - Measure and report on outcomes to build trust.

Closing and Next Steps

- Key Takeaways:
  - Commissioning offers significant financial and operational benefits.
  - Securing buy-in requires a tailored approach for each stakeholder.

- Where to Start:
  - Start by identifying a need
  - Identify key stakeholders and funding options.
  - Develop a strong case to drive support.

Garrett Rosser

Senior Director, Energy Management and Sustainability, Dallas College

North Central Texas Council of Governments

DALLAS COLLEGE

Retro-commissioning Efforts at Dallas College

Why Commission?

- Commissioning and Retro-commissioning building systems ensures correct operation and provides accountability for contractors and service providers
- Key outcomes:
  - Improved occupant comfort
  - Extended equipment lifecycles
  - Energy and cost savings

Where to Focus?

- Start big and work toward smaller components/functions
  - System-level sensors
    - Chillers, Boilers
      - Cooling Towers, Pumping Systems
        - Air Handling Units, Terminal Devices
- Consider Mechanical and Control Systems
  - Physical components as well as software and programming
  - Control Sequence of Operations – Are you "up to date?"
    - Have building operations changed since design or Certificate of Occupancy?
  - Trust your instincts and get the right people in the room

Identifying Opportunities

- Problem Areas – Comfort, noise, air balance, frequent equipment failure/repair
- Energy Use Benchmarking
- Interval Data Review – SmartMeterTexas.com, submeters
- Trend Studies through BAS
- Off-hours BAS review
- Off-hours site walk

Key Opportunities for Dallas College

- Scheduling – Do they exist? Do they contain actual schedules? Are they linked to the correct points?
- Sensor Accuracy, Maintenance, Replacement – OA Temperature, OA Humidity, Differential Pressure, Static Pressure
- Updated Seqeunces of Operation – Equipment staging and time delays, Differential Pressure Reset, Condenser Water Reset, Static Pressure Reset
- Incorporate functional testing into Preventative Maintenance

Case Study #1 – Construction Science Building

- Poor energy performance (LEED Silver)
- CHW Pump Failures
- Poor humidity control (DOAS + VRF and Chilled Beam)

Case Study #1 – Construction Science Building

- Interval Data and Trend Studies indicate multiple opportunities for improvement
  - CHW System Active 24/7
  - Isolation Valves closed with chillers/pumps still active
  - AHU Schedules Not Linked
  - DOAS Units lacked enthalpy control ("air tempering"), excessive OA for offices
  - VRF System not associated with any schedules
- Results:
  - Annual savings 331,888 KWh
  - 63.5 KBTU/SF to 51.2 KBTU/SF
  - $13,276 incentive from Oncor
  - Indoor humidity issues resolved
  - No further pump failures

Case Study #2 – Coppell Center

- Interval data indicates high overnight usage as well as excessive demand peak on startup
- Trend studies indicate short-cycling of lag chiller, pump speed instability ("hunting")
- Identified Issues:
  - 30+ series fan-powered boxes not associated with time schedules
  - Short Delay-On timer for lag chiller
  - Chilled water pumping using 2 process variables that both influence pump speed output

Case Study #2 – Coppell Center

- Results
  - Extended Time-On Delay reduces equipment cycling, especially on startup
  - Eliminated erratic pump control
  - Reduced occurrence of fan-powered box motor replacement
  - 24.8% annual demand reduction
  - 20.2% annual electricity consumption reduction
  - 26.4% annual electricity cost reduction

Case Study #3 – Service Center

- Benchmarking against portfolio indicates high electricity usage, but...
  - Data center operations may account for high usage (dedicated, free-standing CRAC units)
  - Data center energy use obscures interval data
  - Dated BAS presents limitations for trend studies
- After-hours BAS review shows CHW system active, but AHUs appear OFF
- Cooling tower is 2-speed control

Case Study #3 – Service Center

- Programming review shows CHW system is enable based on AHU Fan status and OA Temperature Low-limit lockout
- AHU-6 fan status remains ON even though Fan Command is OFF and Static Pressure is near 0.0 inWC
- Investigation of AHU-6 reveals jumper across fan status contact -> Results in a continuous, false ON status
- CHW System is enabled any time OA Temperature is above Low-limit lockout

Case Study #3 – Service Center

- Corrective Actions:
  - Current transducer added to AHU-6 VFD/Fan to provide a true status
  - Colling Tower was retrofitted with inverter-rated motor and VFD, and programmed with condenser water reset based on OA Wet-bulb Temperature
- Results:
  - 5% annual demand reduction
  - 17.7% annual electric consumption savings
    - August (-29.9%), September (-24.9%), October (-24.2%)

Contact Me

Garrett Rosser
Senior Director, Energy Management and Sustainability
garrettrosser@dallascollege.edu

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Roundtable Q&A

North Central Texas Council of Governments

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Upcoming Events

North Central Texas Council of Governments

Upcoming Events

Regional Integration of Sustainability Efforts (RISE) Coalition
Next meeting: Wednesday, January 29, 2025, at 9:30 a.m.
Location: Microsoft Teams
RSVP for Meeting

Visit the committee page to stay updated on meetings.

Learn more about the RISE Coalition on their program page.

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Stay Informed on Upcoming Events

Upcoming NCTCOG Events
Environment and Development: https://nctcog.org/envir/events
DFW Clean Cities: www.dfwcleancities.org/events

NCTCOG's Free E-Mail Lists and Committee Updates
General: https://www.nctcog.org/stay-informed?ext=
Environment & Development: https://www.nctcog.org/envir/mail
Transportation: https://publicinput.com/hub/Subscriptions/2768

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Funding and Resources

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NCTCOG Resources

Conserve North Texas (www.conservenorthtexas.org)

Recently Added Resource: Interstate Renewable Energy Council – The Energy Optimist Podcast

Go Solar Texas (www.gosolartexas.org)

Energy Management, Efficiency, and Renewable (www.nctcog.org/envir/natural-resources/energy-efficiency)

- Sign up for the Energy Mailing List: https://nctcog.activehosted.com/f/11
- Winter Energy Funding Digest: https://nctcog.activehosted.com/index.php?action=social&c=3965&m=4048

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SECO Resources

No-cost resources offered by SECO to aid entities in achieving their energy management or efficiency goals

SECO
State Energy Conservation Office

Technical Assistance

- Preliminary Energy Assessment (PEAs)
- Analysis of current systems, O&M programs
- Energy Management Policy development
- Funding options
- Prioritized project planning

WattWatchers of Texas

- Behavioral program for schools and families
- TEKS aligned STEM material

Local Government Energy Reporting

- Technical assistance for State-mandated energy efficiency and reporting

LoanSTAR

- 2.5% (1.5% for ARRA funds)
- Simple payback of 15 years or less

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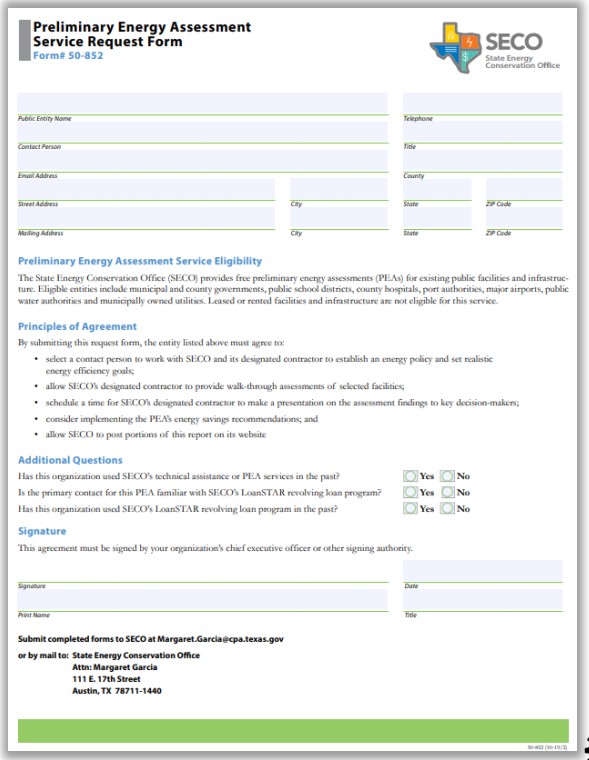
Preliminary Energy Assessments (PEAs)

Preliminary Energy Assessments (PEAs) are provided by the State Energy Conservation Office (SECO) and offer cost effective resource efficiency measures entities can implement to decrease energy consumption at **no cost to you!**

- Help guide the development of an energy management policy
- Provides facility benchmarking using ENERGY STAR Portfolio Manager
- Recommended maintenance procedures
- Develop efficiency level guidelines for equipment purchases



Preliminary Energy Assessment Service Request Form
Form# 50-852

SECO State Energy Conservation Office

Public Entity Name | Telephone
Contact Person | Title
Email Address | County
Street Address | City | State | ZIP Code
Mailing Address | City | State | ZIP Code

Preliminary Energy Assessment Service Eligibility

The State Energy Conservation Office (SECO) provides free preliminary energy assessments (PEAs) for existing public facilities and infrastructure. Eligible entities include municipal and county governments, public school districts, county hospitals, port authorities, major airports, public water authorities and municipally owned utilities. Leased or rented facilities and infrastructure are not eligible for this service.

Principles of Agreement

By submitting this request form, the entity listed above must agree to:

- select a contact person to work with SECO and its designated contractor to establish an energy policy and set realistic energy efficiency goals;
- allow SECO's designated contractor to provide walk-through assessments of selected facilities;
- schedule a time for SECO's designated contractor to make a presentation on the assessment findings to key decision-makers;
- consider implementing the PEA's energy savings recommendations; and
- allow SECO to post portions of this report on its website

Additional Questions

Has this organization used SECO's technical assistance or PEA services in the past? ◯ Yes ◯ No
Is the primary contact for this PEA familiar with SECO's LoanSTAR revolving loan program? ◯ Yes ◯ No
Has this organization used SECO's LoanSTAR revolving loan program in the past? ◯ Yes ◯ No

Signature

This agreement must be signed by your organization's chief executive officer or other signing authority.

Signature | Date
Print Name | Title

Submit completed forms to SECO at Margaret.Garcia@cpa.texas.gov

or by mail to: State Energy Conservation Office
Attn: Margaret Garcia
111 E. 17th Street
Austin, TX 78711-1440

50-852 (10-19/2)

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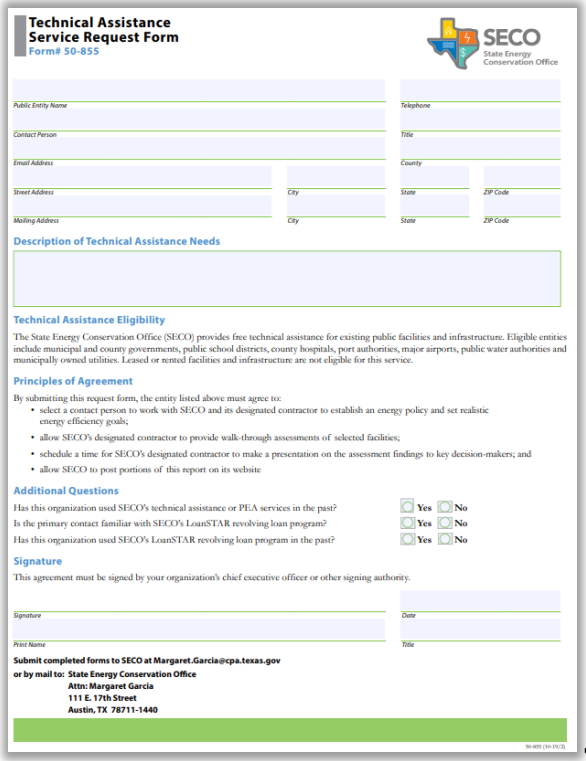
SECO No-Cost Technical Assistance

Through this program SECO contracts with engineering firms to provide customized, on-site, energy-related services ranging from basic consultation to feasibility studies.

Eligible entities may request assistance with either **energy** or **water**-related technical matters.

Upon determination that the requested services are reasonable and within the contractors' scope of work, SECO will assign an engineer to contact the entity officials to determine the level of service necessary to provide assistance.



Technical Assistance Service Request Form
Form# 50-855

SECO State Energy Conservation Office

Public Entity Name | Telephone
Contact Person | Title
Email Address | County
Street Address | City | State | ZIP Code
Mailing Address | City | State | ZIP Code

Description of Technical Assistance Needs

Technical Assistance Eligibility

The State Energy Conservation Office (SECO) provides free technical assistance for existing public facilities and infrastructure. Eligible entities include municipal and county governments, public school districts, county hospitals, port authorities, major airports, public water authorities and municipally owned utilities. Leased or rented facilities and infrastructure are not eligible for this service.

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Additional Questions

Has this organization used SECO's technical assistance or PEA services in the past? ◯ Yes ◯ No
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Texas LoanSTAR Revolving Fund

Finances Projects that Reduce Energy/Water/Utility Costs

- Simple Payback Period of **15 Years or Less**
- 2.5% Loan Interest Rate; 1.5% if you choose ARRA Funds with more reporting requirements

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

Open Enrollment CLOSED

- Maximum $6 Million Loan Per Application
- Maximum 1 Loan per Applicant

For more information visit the Notice of Loan Fund Availability

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Quick Links

www.conservenorthtexas.org

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

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Reminders

- Please complete the Workshop Evaluation
- Please Complete the In-Kind Attestation Form

North Central Texas Council of Governments

SECO and SPEER Contacts

Adam Mueller
Program Specialist
State Energy Conservation Office (SECO)
Adam.mueller@cpa.Texas.gov

Shaun Auckland
Senior Manager
The South-central Partnership for Energy Efficiency as a Resource (SPEER)
cities@eepartnership.org

NCTCOG Contacts

Joaquin Escalante
Planner
Transportation
817-704-5646
Jescalante@nctcog.org

Savana Nance
Air Quality Planner
Transportation
682-433-0488
snance@nctcog.org

Energy Team
energy@nctcog.org

Crysta Guzman
Senior Planner
Environment & Development
817-695-9107
cguzman@nctcog.org

Alyssa Knox
E&D Planner II
Environment & Development
817-695-9221
aknox@nctcog.org

Corinne Buckley
E&D Planner I
Environment & Development
817-704-2510
cbuckley@nctcog.org

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