



SOLAR @SCALE

LOCAL GOVERNMENT STRATEGIES FOR IMPROVING LARGE-
SCALE SOLAR DEVELOPMENT OUTCOMES

MAY 5, 2023 – NCTCOG

Welcome and Introductions

SOLAR@SCALE



Solar in Your North Texas Community

Garrett Colony
Air Quality Planner

May 5, 2023

Workshop: Solar in Your Community

North Texas Regional Integration of Sustainability Efforts (RISE) Coalition

The Regional Integration of Sustainability Efforts (RISE) Coalition works to engage interested local governments in peer-exchange opportunities to support sustainability and environmental initiatives.

Coalition membership is open to all North Central Texas Council of Governments (NCTCOG) members. Non-voting and Participant membership options available.

www.nctcog.org/envir/development-excellence/rise-coalition



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.



SECO
State Energy
Conservation Office

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

Regional Energy Management

Overview

- Expand local government capabilities in energy management and compliance with energy reporting requirements
- Encourage energy efficiency, conservation, and management best practices

Deliverables

- Regional Energy Survey
- Local Government Energy Reporting
- Website Resources
- Workshops, trainings, roundtables, and white paper
 - [Weatherization Workshop](#) (3/2/2023)
 - [Energy Funding Roundtable](#) (4/7/2023)
 - Solar Workshop (5/5/2023)
 - Energy Codes Roundtable (6/1/2023) [Register Here](#)
 - Resilience and Hazard Mitigation Roundtable (TBD)
 - Energy Efficiency Workshops (TBD)
 - Building Retrofits Workshop (TBD)
 - Energy Plan White Paper (TBD)



SECO
State Energy
Conservation Office

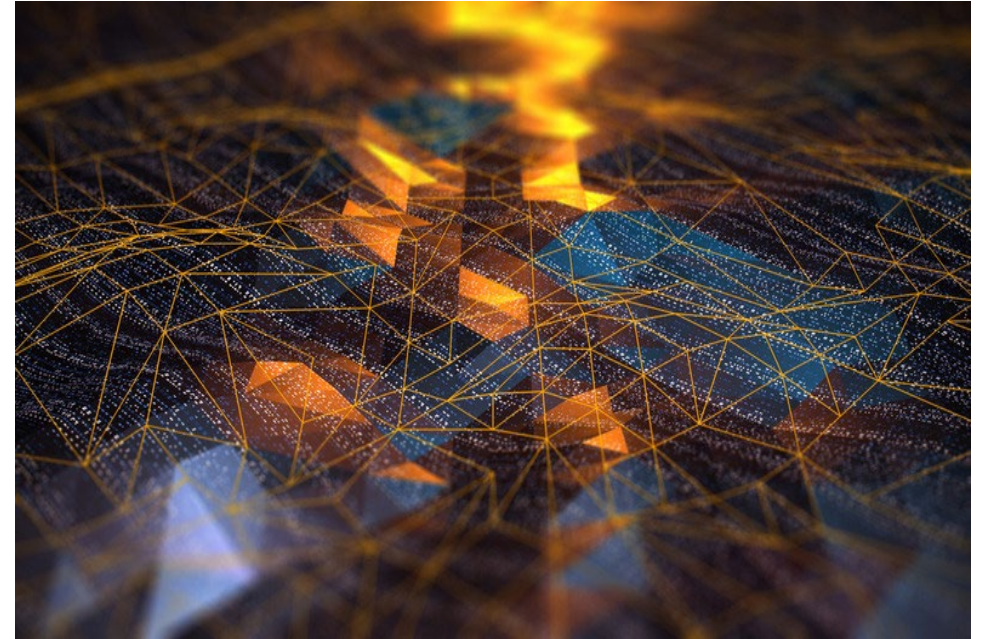


Solar in Your Community

Energy Integration

Energy Integration

- Transportation Electrification and Grid Impacts
 - Reduce strain on grid by improving energy efficiency and management
 - Encourage distributed energy generation
- Improve resilience against fuel or energy interruptions
- Key Activities:
 - Trainings, webinars, and educational sessions on energy topics, targeted at local government best practices
 - Outreach to local governments regarding energy consumption reporting requirements
 - Maintenance of website resources including:
 - Conserve North Texas: www.conservenorthtexas.org
 - Go Solar Texas: www.gosolartexas.org
 - [Air Quality Funding Webpage](#)



Energy Integration and Solar Programs

Ozone Nonattainment and Air Pollutant Emissions Reduction

- Emissions reductions are needed to achieve attainment of the Environmental Protection Agency's (EPA) ozone standards
- Population and economic growth pose challenge
- NCTCOG Strategic Plan – directs staff to identify and implement regional measures to reduce air pollutant emissions
- Increases in renewable energy production can:
 - Reduce emissions
 - Improve resiliency
 - Improve reliability of the grid
- Regional efforts to achieve solutions that conserve resources, improve reliability of the electrical grid, and support efforts to attain the ozone standard are necessary
- For more information on NCTCOG's work on energy efficiency and solar initiatives, visit:
 - <https://www.nctcog.org/trans/quality/air/for-everyone/energy-efficiency-clean-energy>



Solar Programs

SolSmart

- NCTCOG Regional Bronze Designation
- Regional Goals:
 - Compile and track renewable and solar data
 - Draft plan for increased solar deployment
 - Promote, leverage connections between solar PV and other regional goals
 - Develop, promote guidelines for solar ready construction
 - Secure SolSmart Designation for 10 additional North Texas cities
 - Increase deployment of solar in residential, commercial, and utility-scale sectors
- Go Solar Texas: <https://www.gosolartexas.org/solmart>



Funding Opportunities

Solar Funding Opportunities from the Department of Energy (DOE)

Sunny Awards for Equitable Community Solar: DOE's Solar Energy Technology Office (SETO) Sunny Awards prize competition aims to recognize community solar projects that employ or develop best practices to increase equitable access to benefits of community solar. Currently accepting applications until July 14, 2023. Up to 50 awards will be made under this competition.

[Register Here](#) for the upcoming informational webinar on May 9, 2023.

Eligibility and Application Information: <https://www.energy.gov/communitysolar/2023-sunny-awards-equitable-community-solar>

Community Power Accelerator Prize: DOE's National Community Solar Partnership (NCSP) prize competition to expand a robust ecosystem of community solar project developers by fast-tracking the efforts of new, emerging, and expanding solar developers and co-developers to learn, participate, and grow their operations. Phase 2 in progress, Phase 3 anticipated to open December 2023.

Eligibility and Registration Information: <https://www.herox.com/CommunityPowerAccelerator/teams>

Energy Efficiency and Conservation Block Grant (EECBG) Program: DOE's EECBG formula and competitive grant funding can be used for a wide range of energy projects, including community solar. Optional blueprints for recipients provide a helpful guide and ideas for how to use the funding. Blueprint 3b provides an outline of how to use EECBG funds for community solar projects. More info on the EECBG program and Blueprint 3b is available at the links below.

Eligibility and Application Information: <https://www.energy.gov/scep/energy-efficiency-and-conservation-block-grant-program>

Blueprint 3b – Community Solar: <https://www.energy.gov/scep/blueprint-3b-community-solar>



Contact Us



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**North Central Texas
Council of Governments**



GoSolarTexas.org



energy@nctcog.org



Solar in Your Community

Agenda Overview

SOLAR@SCALE

Agenda

9:00–9:10	Welcome and Introductions Remarks and Intro - NCTCOG
9:10–9:20	Solar@Scale Overview, Agenda Overview <ul style="list-style-type: none"> Presenter – Scott Annis, ICMA
9:20-9:55	Setting the stage <ul style="list-style-type: none"> State of solar in TX and other state programs 15 min – Michael Martin Defining Large-Scale Solar Development (10 Min – module 1) Understanding the Market for Large-Scale Solar Development (10 Min – module 2) <ul style="list-style-type: none"> Presenters – Michael Martin, MM Solar Advisory and Scott Annis, ICMA
9:55-10:00	Break
10:00–11:20	Community Planning for Large-Scale Solar Development (module 3) Improving Large-Scale Solar Development Decisions (module 5) <ul style="list-style-type: none"> Presenter – Chad Laurent, Principal, Cadmus
11:20-12:00	Lunch Provided - Networking
12:00-12:30	Lunchtime Presentation: Group Purchasing Presenter - Fred Wu, Director, Community Engagement, U.S. Solar · iChoosr
12:30–1:00	Farmers Branch, TX Case Study <ul style="list-style-type: none"> Presenter – Alex Pharmakis, Sustainability Manager
1:00-1:15	Discussion/Closing Remarks - NCTCOG

Program Overview

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Program Partners



INTERNATIONAL CITY/COUNTY
MANAGEMENT ASSOCIATION



American Planning Association

Creating Great Communities for All

WITH SUPPORT FROM



Office of **ENERGY EFFICIENCY
& RENEWABLE ENERGY**

SOLAR ENERGY TECHNOLOGIES OFFICE

Purpose

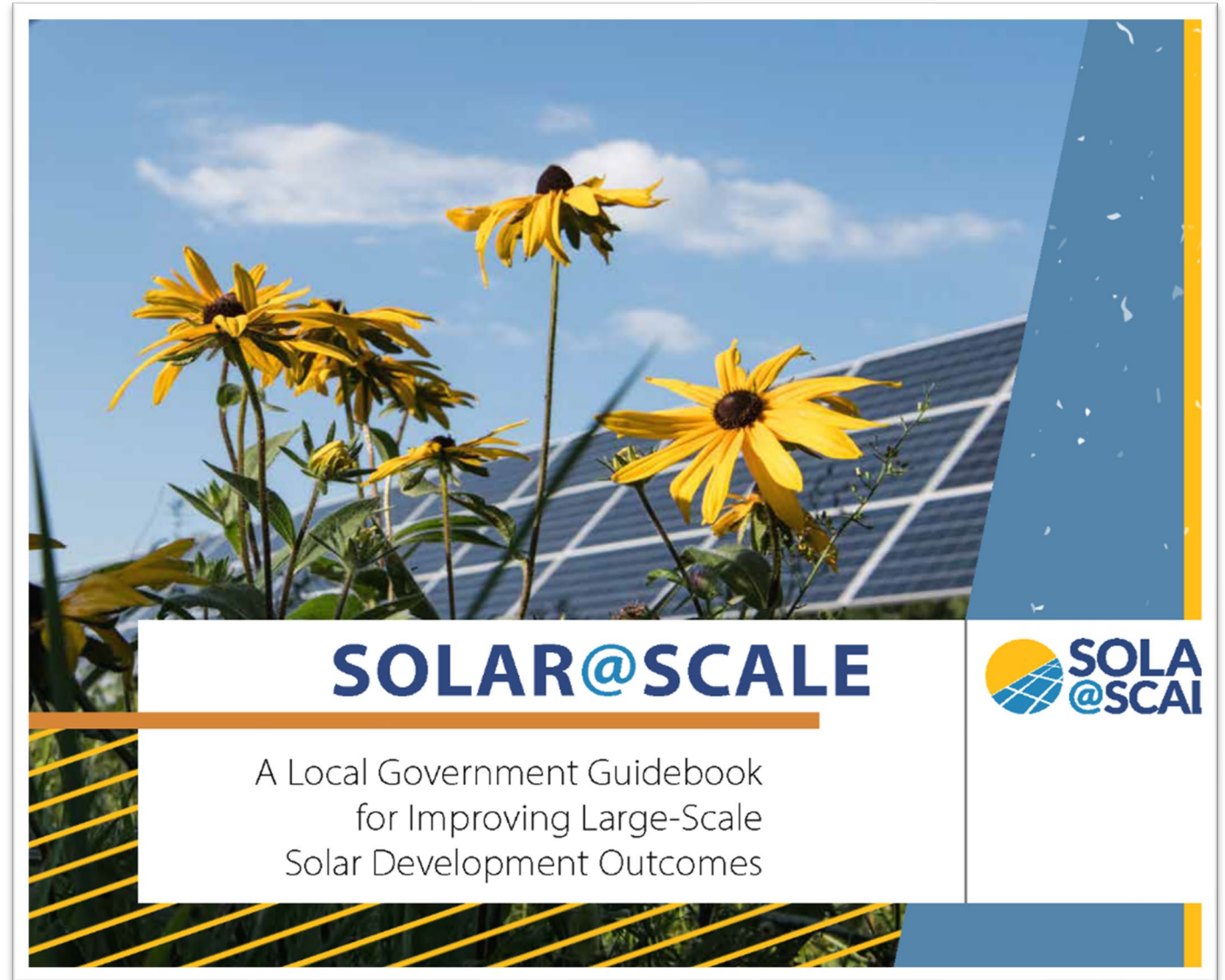
- Solar@Scale aims to reduce large-scale solar soft costs by bringing together public- and private-sector stakeholders to identify effective practices for local governments (including special districts) that have jurisdiction to install or issue land-use permits for large-scale solar projects.



Source: Dennis Schroeder / NREL

Free Download

bit.ly/3F5Wmwa



Contacts

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Other Solar@Scale Contacts		
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Alex Gomez	American Planning Association	agomez@planning.org

SolSmart



- National designation program
- Led by ICMA and IREC, funded by US DOE Solar Technologies Office.
- Helps localities implement best practices for all scales of solar that reduce barriers and soft costs
- Provides guidance to increase local operational efficiencies.
- www.solsmart.org

Designees in NCTCOG

- Denton, TX (Gold)
- Corinth, TX (Gold)
- Cedar Hill, TX (Gold)
- Kennedale, TX (Silver)
- Plano, TX (Bronze)
- Lewisville, TX (Bronze)
- NCTCOG (Bronze)

SolarAPP+



- SolarApp+ is a free, tool developed by NREL, UL Solutions, ICC and others to safely streamline local permitting by allowing localities to safely and quickly review and approve rooftop solar applications
- Integrates with a locality's existing permitting program
- Reduces permit review time to less than one day (practically instantaneous).
- More than 27 localities across the US use SolarAPP+, including Houston, TX piloting the program.
- Learn more at www.solarapp.nrel.gov

Setting the Stage

SOLAR IN TEXAS

Solar Today in the State of Texas

■ Utility

- 17,250 MW that can power 2M homes
 - #2 in USA today; expected to double in next 5 years and become #1 solar state
- 5% of state power in 2022
- Excellent complement to wind power that typically peaks night/early morning
- Issues: long application, review and permitting queues

■ Residential

- Fast growing market segment driven by rising prices and grid concerns
- Lots of solar companies marketing...consumer caution!

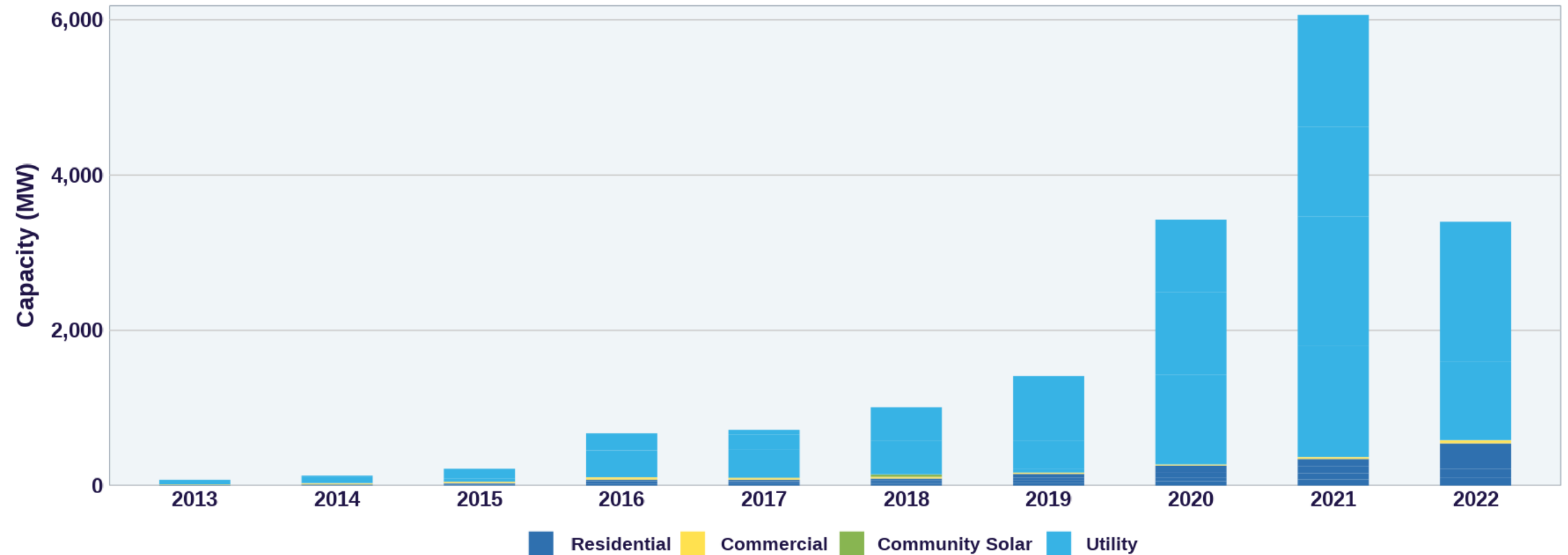
■ Commercial

- Early stage with substantial growth due to size of current/future built environment
- most sites are from large global corporate decisions (e.g. Target, IKEA, Walmart)

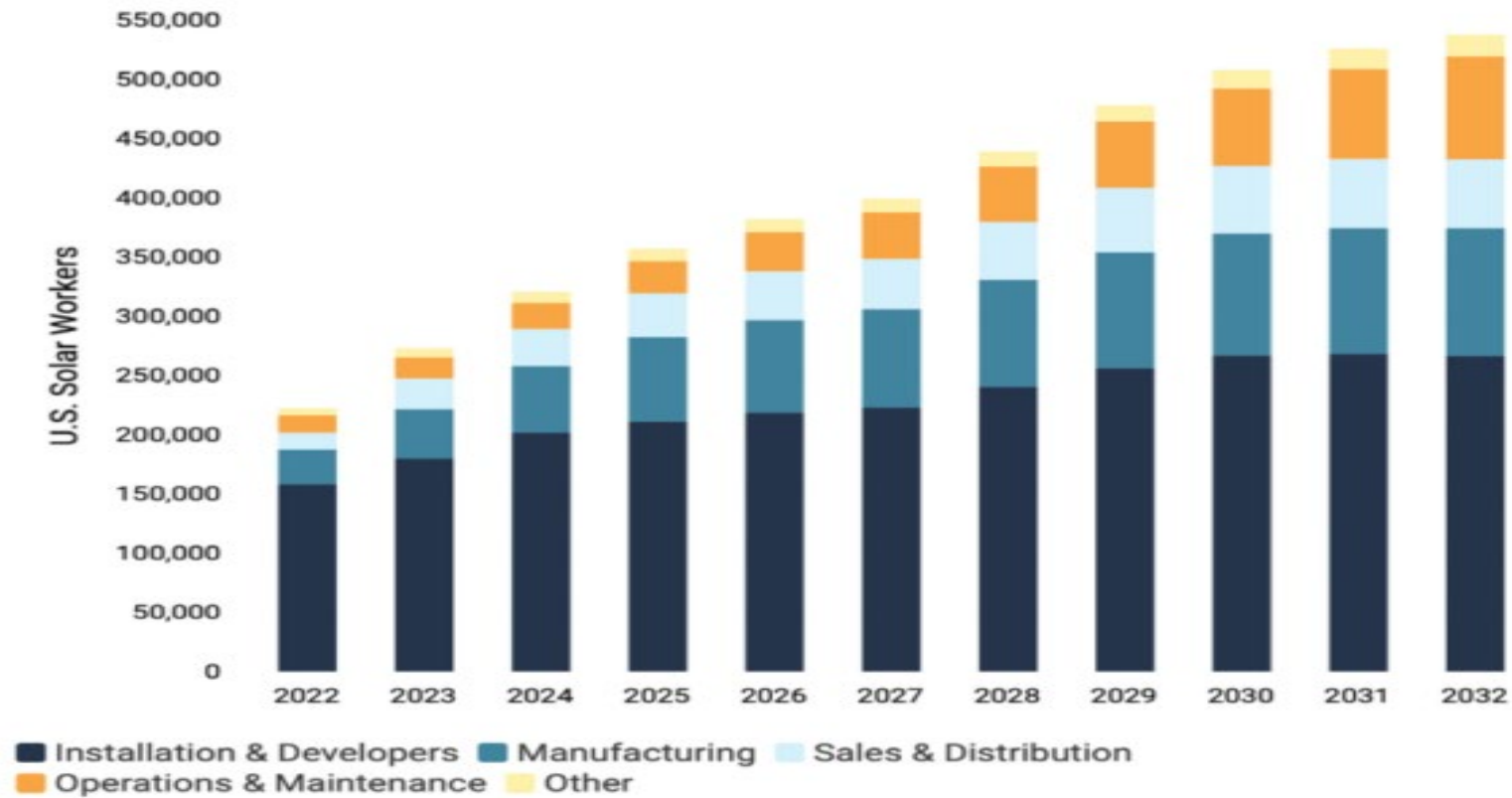
Solar Today in the State of Texas (cont'd)

- PUC/ERCOT/Legislature current deliberations
 - Pilot for use of Distributed Energy Resources (DER) to help the grid
- Employment
 - Estimated 10,350 solar workers per SEIA
 - 100% growth projection in this decade per SEIA
 - Pay is better than all occupations median wage per BLS
- Incentives
 - Incentives for solar in Texas –DSIRE database; dsireusa.org
 - Most are local by the REP or muni or coop
- Popularity
 - U of H February 2023 survey found “...64% of Texans favor expanding U.S. reliance on solar...”

Texas Annual Solar Installations



Solar Job Growth



Source: SEIA analysis based on data from Wood Mackenzie, IREC National Solar Jobs Census

Module 1: Defining Large-Scale Solar Development

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Understanding the Basics of Solar Development

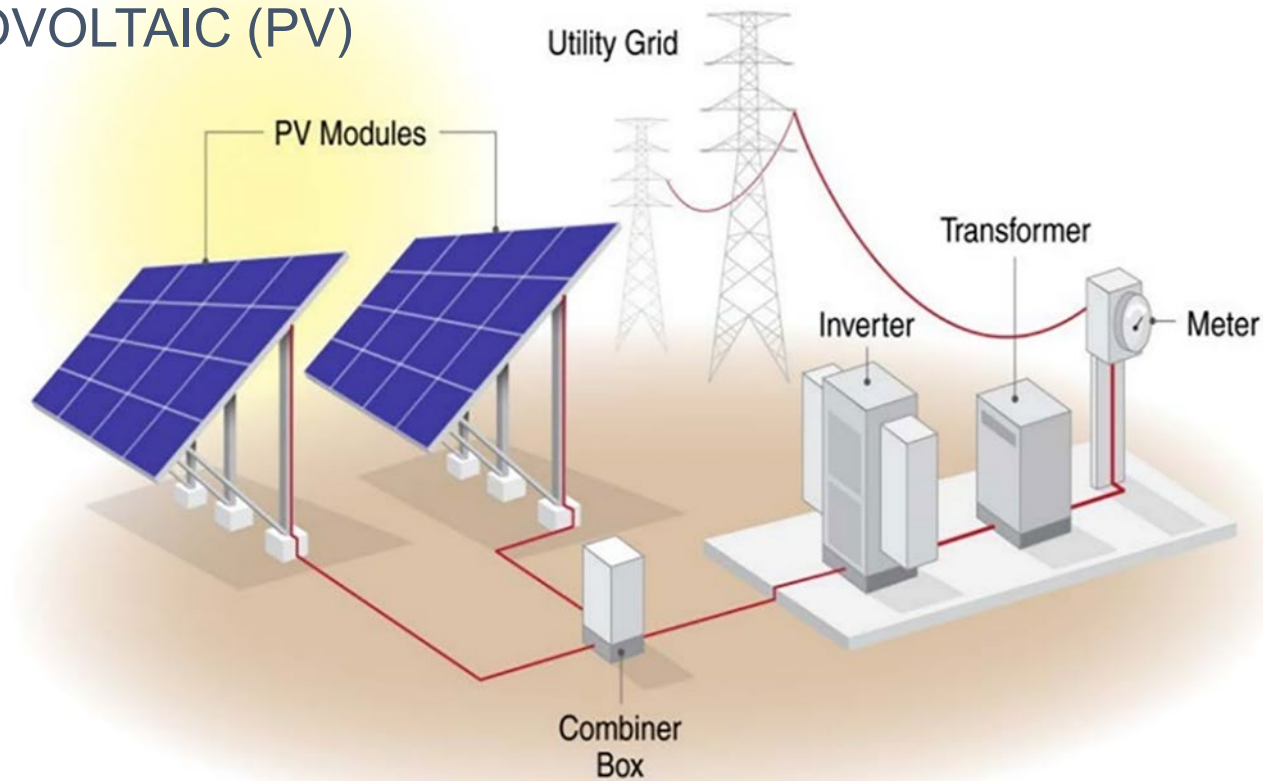
- Solar Technologies
- Relationship to the Grid
- Relationship to the Site



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

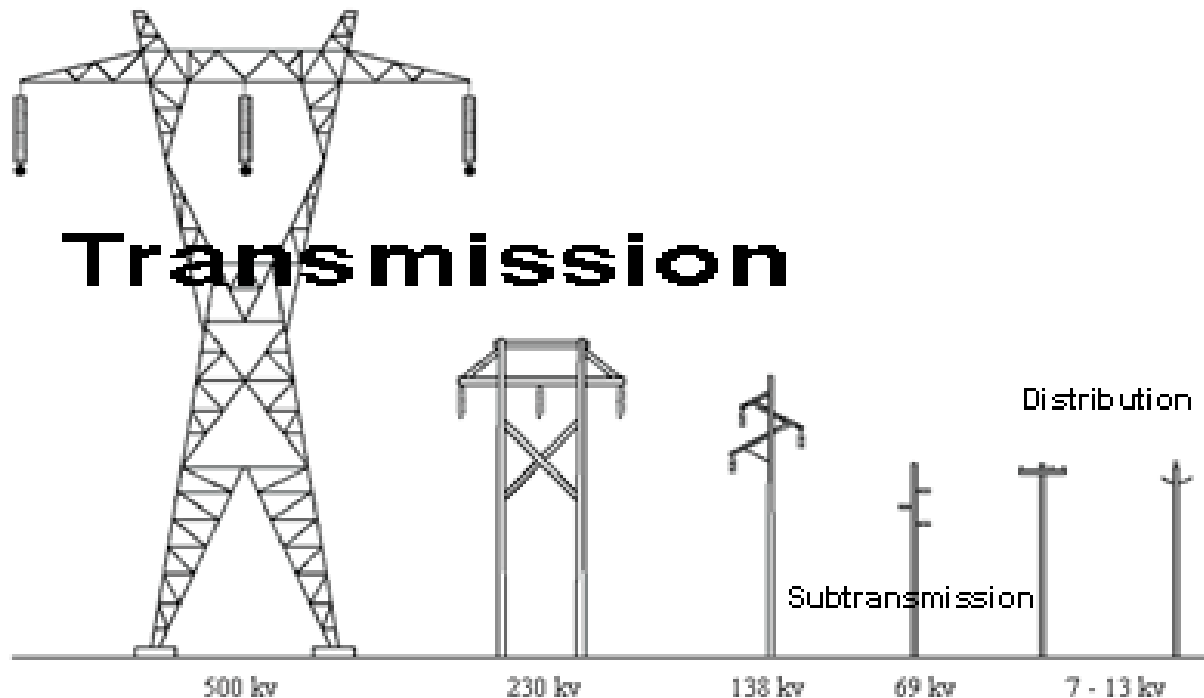
Solar Technologies

SOLAR PHOTOVOLTAIC (PV)



Source: National Renewable Energy Laboratory

Relationship to the Grid



Source: OSHA.gov

- Off-Grid
- Grid-connected
 - Behind-the-meter (i.e., demand side)
 - “Distributed generation” or DER
 - In-front-of-the-meter (i.e., supply side)
- Interconnection points:
 - Distribution network- shorter distance, lower voltage. Rule of Thumb- <69kilovolts (kv). <5 MW
 - Transmission network- long distance, high voltage. Rule of Thumb- >69kv, >5MW

Relationship to the Site

ROOFTOP SYSTEMS



Source: [Lucas Braun / Wikimedia](#) (CC BY-SA 3.0)

BUILDING-INTEGRATED SYSTEMS



Source: [Pollo / Wikimedia](#) (CC BY 3.0)

Relationship to the Site

GROUND-MOUNTED SYSTEMS



Source: [U.S. Department of Agriculture](#)

Putting Scale in Context

Large Scale:

- Community-Scale Solar
- Utility-Scale Solar



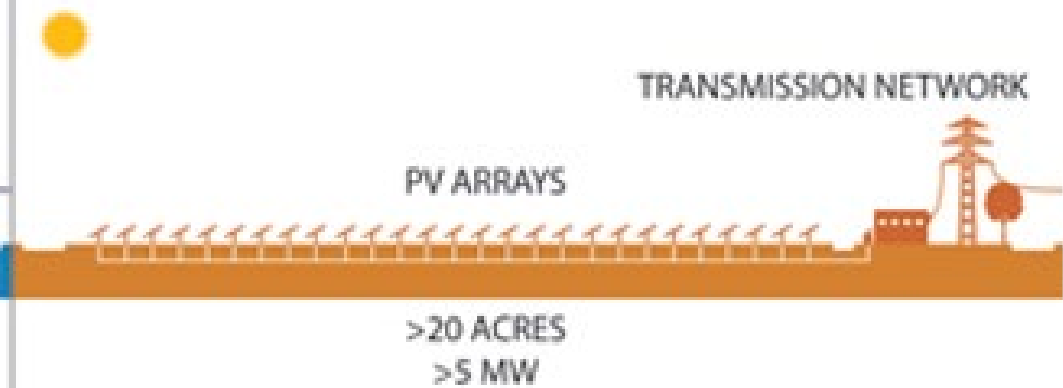
Community-Scale vs. Utility-Scale

Characteristics	Community-Scale Solar	Utility-Scale Solar
Technology	PV	PV or CSP
Relationship to the Grid	Connects to the distribution network either behind or in front of the meter	Connects to the transmission network in front of the meter
Relationship to the Site	Typically ground mounted and the principal land use, but can be sited on large rooftops	Ground mounted and typically the principal land use
Relationship to Existing Land Use and Development Pattern	Fits into the established lot or block pattern of the surrounding area	May require lot mergers, street removal, or new roads for site access
Site Area	1–20 acres	>20 acres
Rated Capacity	250 kW–5 MW	>5 MW

COMMUNITY-SCALE SOLAR



UTILITY-SCALE SOLAR



Source: [U.S. Department of Agriculture](https://www.usda.gov/energy)

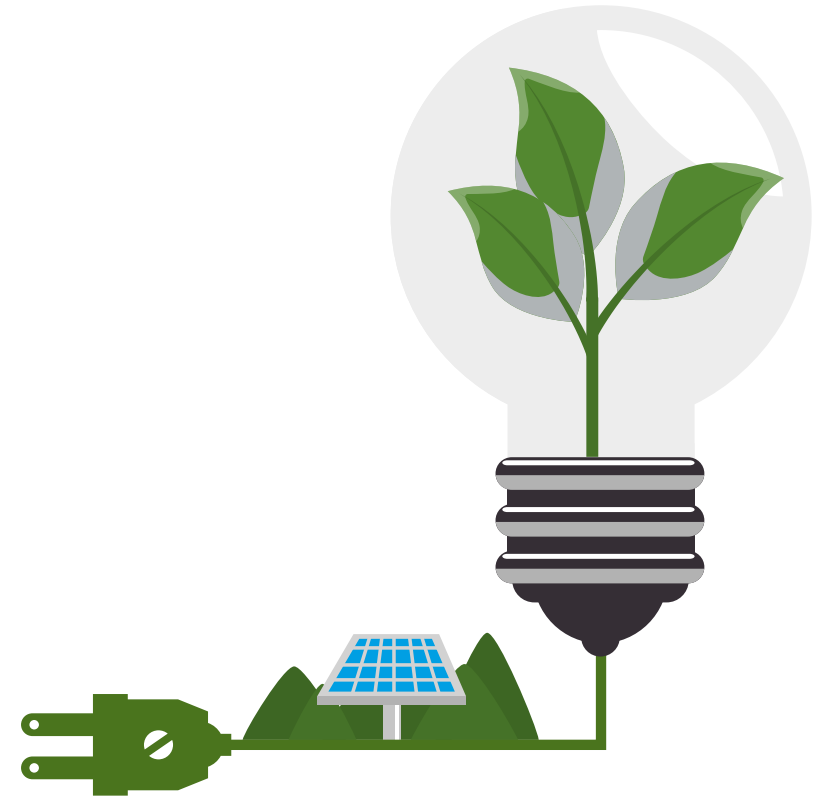
Understanding the Benefits and Tradeoffs of Solar Development



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Potential Benefits of Solar Development

- Clean Energy
- Economic development
- Tax revenue
- Land rents
- Jobs
- Stabilized prices
- Resilience



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Potential Tradeoffs of Solar Development

- Changes to Agricultural or Other Productive Land
- Effects on Cultural or Historic Sites
- Effects on Wildlands and Habitat
- Changes to Scenic Views



Module 2: Understanding the Market for Large-Scale Solar Development

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Identifying Solar Development Trends

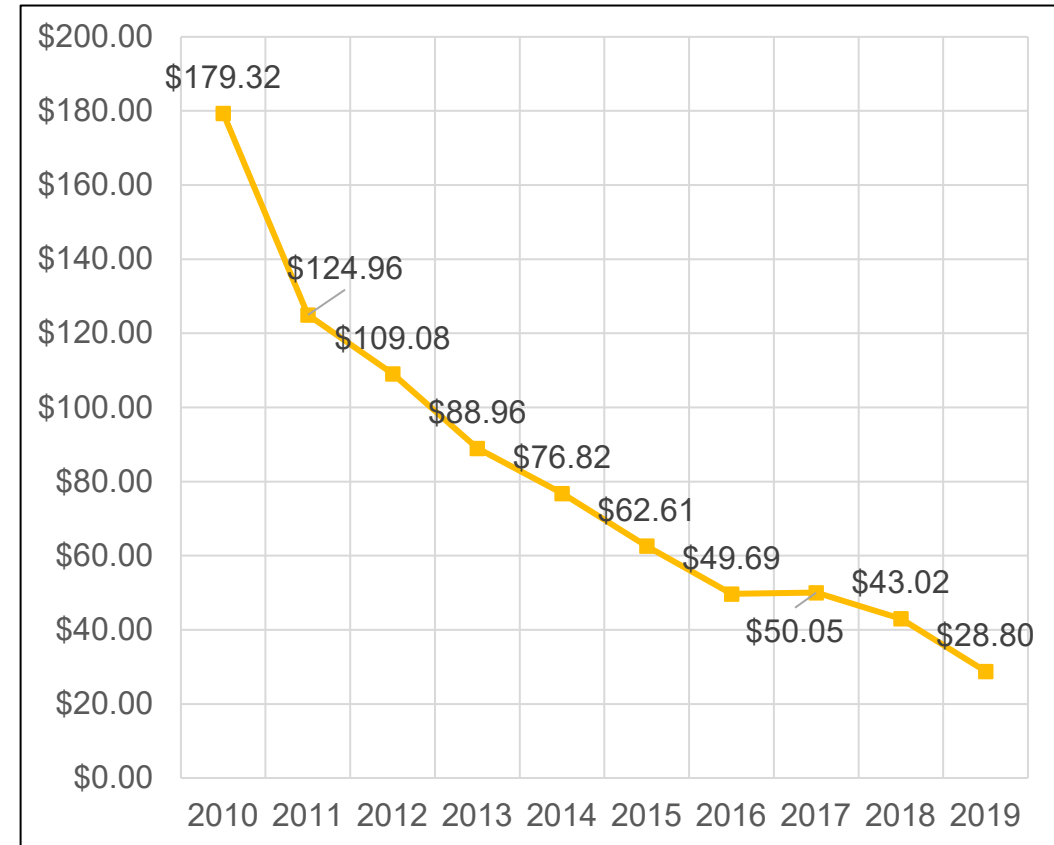
- Declining Costs
- Clean Energy and Climate Action Goals
- Growing Demand for Space



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Declining Costs

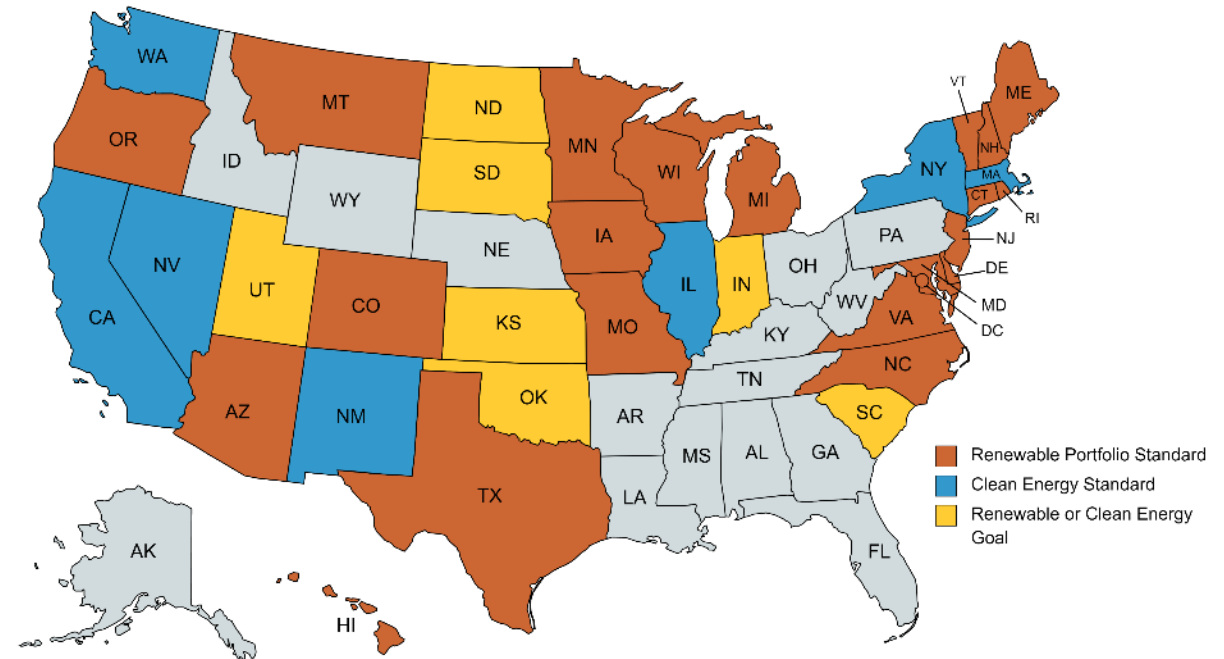
- Technology improvements
- Economies of scale
- Incentives



Median levelized cost of energy (LCOE) with 30% federal investment tax credit (ITC) for grid-connected PV systems with rated capacities ≥ 5 MW, 2010–2019 (Berkeley Lab 2020)

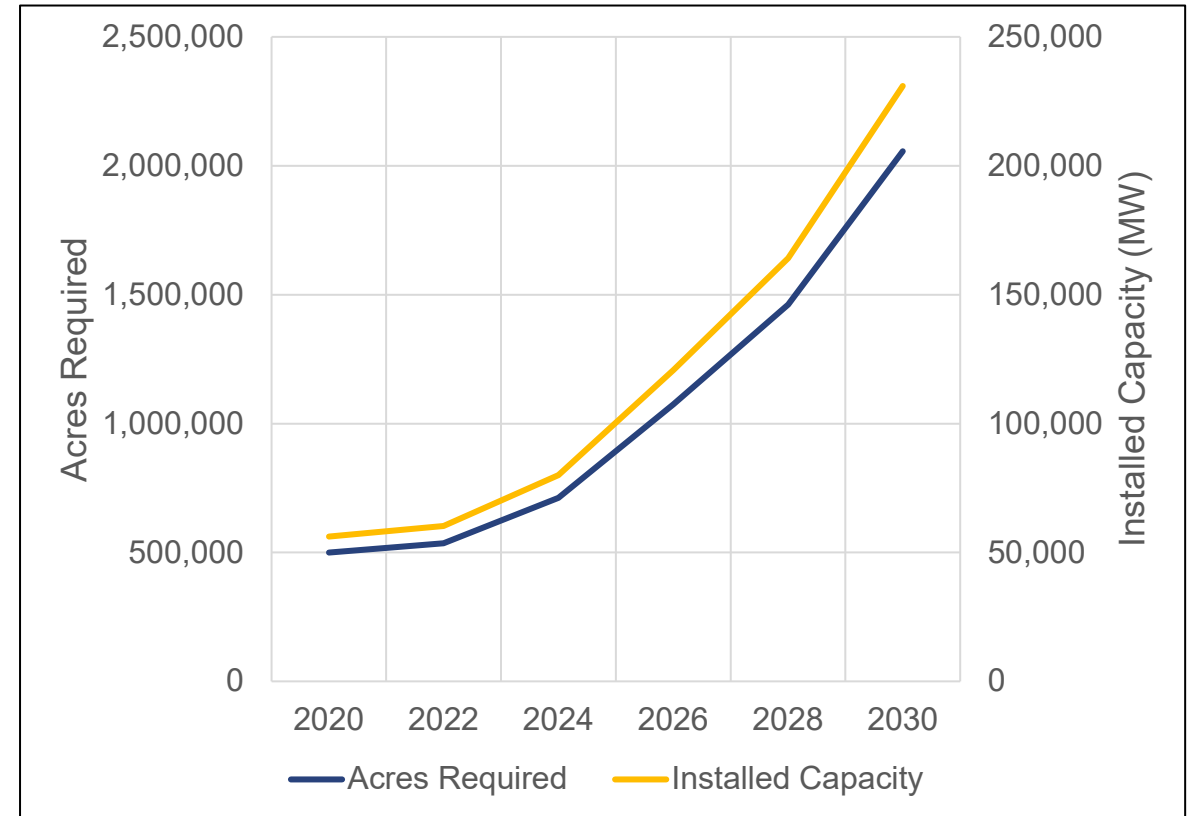
Clean Energy and Climate Action Goals

- Renewable portfolio or clean energy standards
- Climate action plans
- 100% clean energy or net zero emissions goals



Demand for Space

- Large-scale PV systems require an average of 7.5 acres per MW of rated capacity
- U.S. will likely need to devote an additional 4-10 million acres to large-scale solar PV development by 2050
 - Less than 1% of land in the U.S.



Installed capacity from NREL's [Cambium](#) tool business-as-usual (mid-case) scenario

Identifying Influences on Local Demand

- Federal Policy
- State Policy
- Local Policy and Action
- Utility Plans and Programs
- RTO Plans and Policies
- Major Corporation Interests
- Incentives

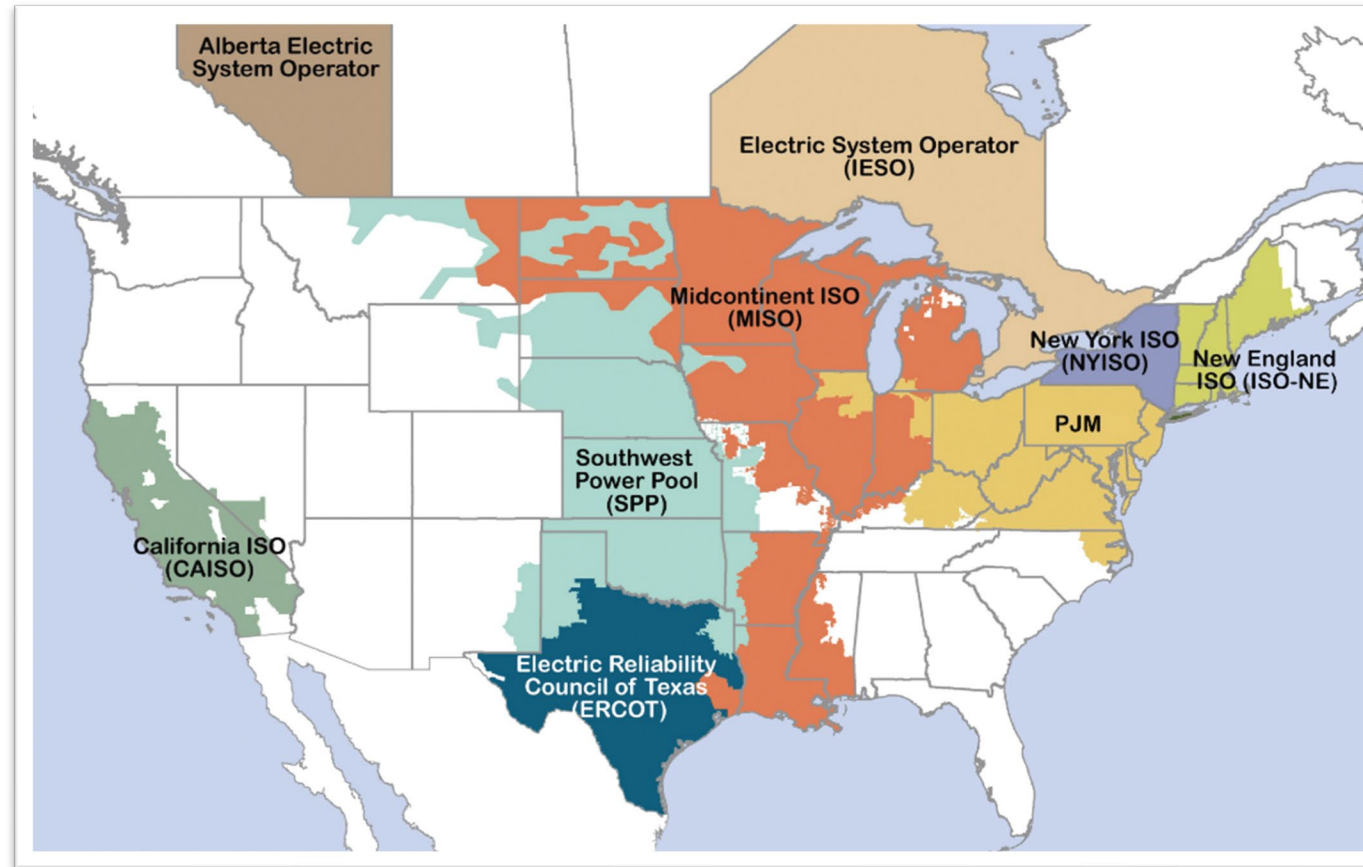


Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Common State Policies

- Renewable Portfolio Standards
- State property tax incentives
- State deregulation of utilities (not applicable in TX, mostly)
- Virtual net metering or shared solar (in progress)
- Incentive programs with locational considerations (in progress)

Regional Transmission Organization (RTO) Plans and Policies



Source: [BlckAssn / Wikimedia](#) (CC BY-SA 4.0))

Major Corporation Interests

Interest	Potential Effect on Local Demand
Clean energy commitments	Increases demand in the most cost-effective locations
Purchasing power for energy-intensive facilities (e.g., data centers)	Increases demand near energy-intensive facilities



Google Data Center in Council Bluffs, Iowa. Source: [Chad Davis / Flickr](#) (CC BY 2.0)

Oncor Solar Incentives

Residential Solar Incentive

- Up to \$9,000 per project
- System size between 3 kW and 15 kW DC
- Battery backup required for incentive

Commercial Solar Incentive

- Up to \$120,000 per project
- System size between 10 kW and 450 kW DC

Requirement

- Only approved service providers may submit projects for incentive
- Project must be submitted and funds reserved prior to construction to receive incentive

Links:

- Link to program manual and presentation here: [Solar Program Manual and Presentation](#)

Contact:

- Christopher Cook, P.E. – Solar Incentive Program Manager CHRISTOPHER.COOK@ONCOR.COM / 682-300-1698

Questions?

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Break

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Module 3: Community Planning for Large-Scale Solar Development

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Deciding to Make or Update a Plan

- Resolutions and Orders
- Comprehensive Plan
- Functional Plans
- Subarea Plans



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Resolutions and Orders

- Formal political support for new or updated plan
 - Local legislative body can issue resolution or policy statement
- A resolution or order should:
 - Express why solar energy is relevant or appropriate
 - Outline specific policies, plans, programs, and land-use regulations that impact large-scale solar development



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Development Moratoria

- A development moratorium is a local law temporarily suspending applications for one or more types of land-use approvals
- Articulate a time for a local jurisdiction to study land-use issues and thoughtfully craft plans and development regulations that address those issues
 - Set expiration date
 - Tied to protection of public health, safety, or welfare
- Proactive community planning is often the best strategy for avoiding a moratorium. If a comprehensive plan or zoning code is currently silent on large-scale solar development, local officials should roll this into the next plan or regulatory update.

The Comprehensive Plan

Explain that energy from the sun is a local resource.



Acknowledge the benefits of large-scale solar development.



Describe large-scale solar development opportunities and conflicts.



Articulate goals for local solar development

Example: Comprehensive Plan, Plano TX



Renewable Energy

An important energy conservation measure for buildings is reducing the dependence on non-renewable energy sources. The State of Texas ranks in the top of the nation in several renewable energy rankings. With an average of 232 days of sunshine a year, **solar** is the most viable option for our community. Drought and topography make other renewable energy sources less economically feasible. However, energy providers across the state produced 104.1 million megawatt-hours of renewable energy in 2020, over 2.5 times the amount generated in 2013¹. Consumers, including the city, have the ability to negotiate for higher percentages of these resources. Plano will increase the use of renewable energy sources for city operations and encourage residents and businesses to make improvements in energy efficiency.

Policy

Plano will increase the use of solar power and other renewable sources for city infrastructure, facilities, and operations and encourage residents and businesses to make renewable energy improvements that diversify the energy supply, reduce dependence on fossil fuels, improve air quality, and reduce greenhouse gas emissions.

Actions

REN1) Develop energy conservation education and energy efficiency retrofit programs and identify appropriate new financing opportunities for energy efficiency and solar energy installations for commercial, residential, and civic buildings.

REN2) Continue to implement a marketing campaign that increases awareness and participation with the city's Housing Rehabilitation Program and Great Update Rebate Program to provide homeowners and renters assistance in upgrading their homes to be more energy and water efficient.

REN3) Explore public/private partnerships for the development of energy efficiency programs with private utility companies.

REN4) Increase renewable energy participation with homeowners and business owners by supporting private initiatives such as Solarize Plano.

REN5) Evaluate the feasibility of using rooftops of public facilities and parking garages for renewable micro-power generation, such as solar.

REN6) Evaluate the feasibility of geothermal energy as an alternative energy source for public and private buildings.

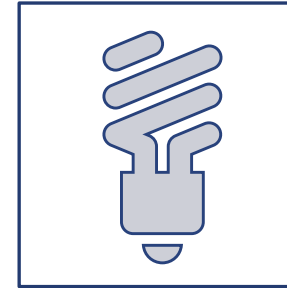
REN7) Negotiate higher renewable energy minimums with the city's electric providers at the time of contract expiration.

¹U.S. Energy Information Administration

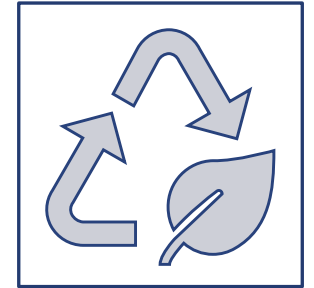
Functional Plans

- Standalone plans for systems or special topics
 - Energy plans, sustainability plans, or climate action plans

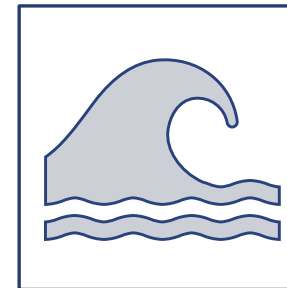
Energy



Sustainability



Climate Action



Community Resilience



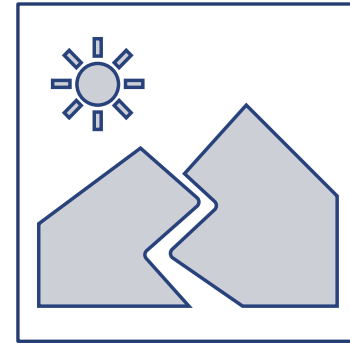
Subarea Plans

- Focuses on issues in a limited contiguous area within a jurisdiction

Neighborhood



Corridor



District



Sector



Fostering Authentic Public Participation

- Stakeholder Engagement
- Process Design



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Stakeholder Engagement

Where to start:

- Local elected officials
- Local government staff and appointed officials
- Representatives of neighboring jurisdictions



Source: Designed by sentavio / [Freepik](#)

Stakeholder Engagement

- **Groups that may have concerns about how solar development might affect their quality of life**
 - Residents
 - Business owners
 - Farmers and other large landowners
 - Land conservation organizations
 - Social equity and environmental justice organizations
- **Groups that may benefit directly from solar development**
 - Residents
 - Business owners
 - Landowners
 - Economic development organizations



Source: Designed by pch.vector / [Freepik](#)

Stakeholder Engagement

- **Individuals and organizations with specialized knowledge about technical or practical requirements of solar development**
 - Electric utilities
 - Solar industry
 - Regional transmission authorities (ERCOT)
 - State agencies
 - Policy experts



Designed by vectorjuice / [Freepik](#)

Process Design

- Treat planning process for solar like planning for all other forms of development
- Develop policies that are justifiable
- Assist in avoiding arbitrary legislative decisions
- Make recommendations in the absence of existing policy



Designed by katemangostar / [Freepik](#)

Process Design

- Focus on inclusivity
- Provide multiple ways to participate
 - Select appropriate tools and methods
 - Reduce barriers to participation
- Who is helped? Who is harmed? Who is missing?



Source: Designed by Macrovector_Official / [Freepik](#)

Process Design

Public participation tools & methods:

- In-person/online workshops
- In-person/online focus groups
- Printed/online surveys
- Interviews
- Neighborhood meetings
- Booths at community events
- Committees or task forces
- Project websites
- Social media

Stakeholder Engagement Activity

Scenario: Large scale solar is proposed on an old landfill that borders a low-income neighborhood, business district, and a major throughfare for the community.

Activity : Brainstorm stakeholders who should be at the table

Source: Designed by sentavio / [Freepik](#)

Assessing Current Conditions and Trends

- Electricity Consumption and Production
- Development Potential
- Existing Policy Framework
- Issue Identification and Prioritization

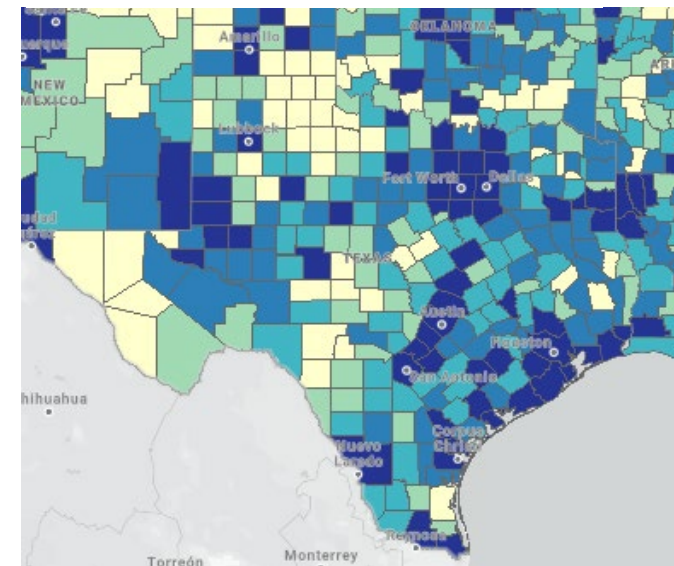


Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Electricity Consumption and Production

- Documenting local electricity consumption and production
 - How much power the community needs now
 - The sources of that power
 - How much power the community will need in the future
- Making informed decisions about the role large-scale solar development may play in meeting or offsetting local power demands

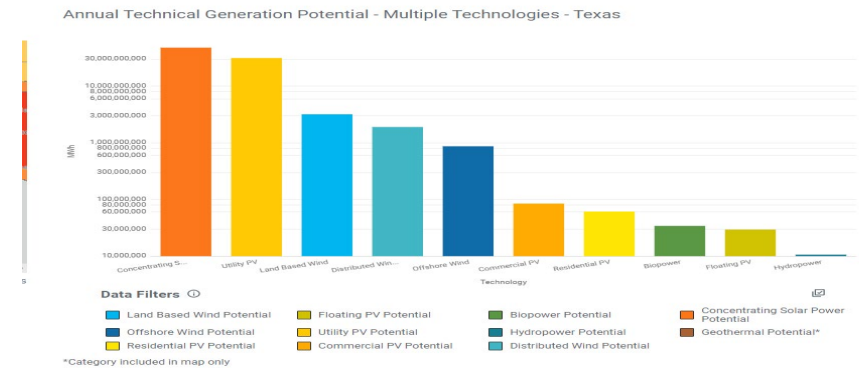
Aggregate Electricity & Natural Gas Consumption by County



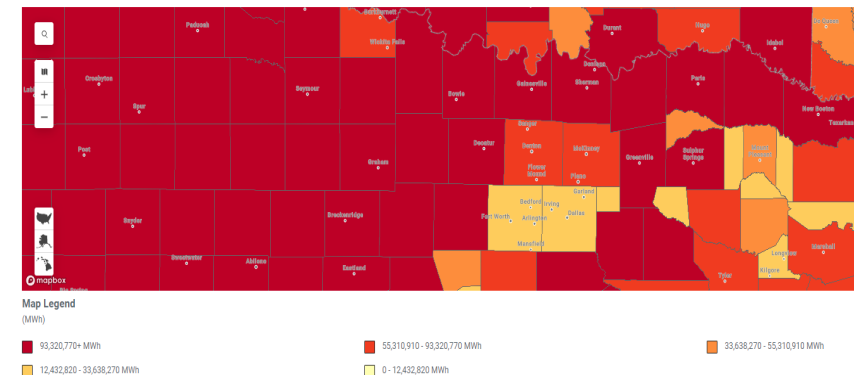
Source: [SLOPE: State and Local Planning for Energy](#)

Development Potential

- Documenting development potential can help planning process participants understand the limitations on number, size, and types of projects the community could accommodate
- Quality of local solar resource
- Location and capacity of local power distribution and transmission network
- Amount of available land near this network



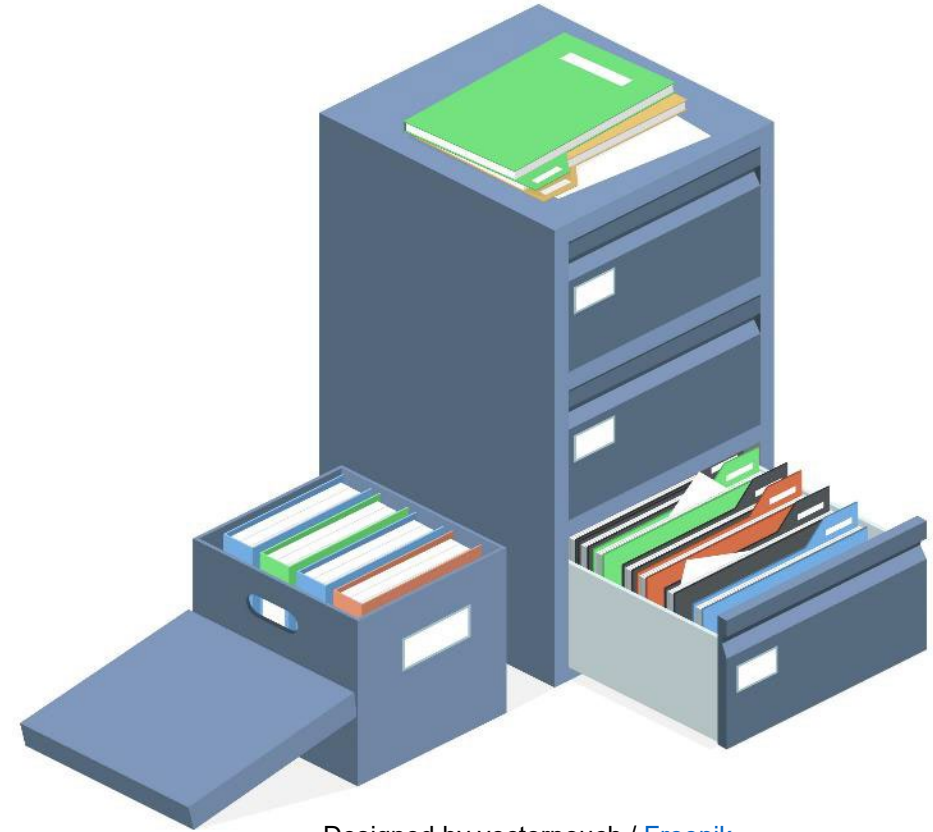
Modeled Annual Technical Generation Potential - Utility PV



Source: [SLOPE: State and Local Planning for Energy](#)

Understand the Existing Policy Framework

- Previously adopted federal, state, local, and utility plans or policies that affect the jurisdiction
- Reach out to counterparts in state energy offices, local utilities, policy experts, and regional planning agencies



Designed by vectorpouch / [Freepik](#)

Issue Identification and Prioritization

- Use the planning process to establish and define priorities
 - How might large-scale solar development benefit you, your organization, or the community?
 - What are your biggest concerns about large-scale solar development?
 - What are some strategies for overcoming these concerns?



Source: Werner Slocum / NREL

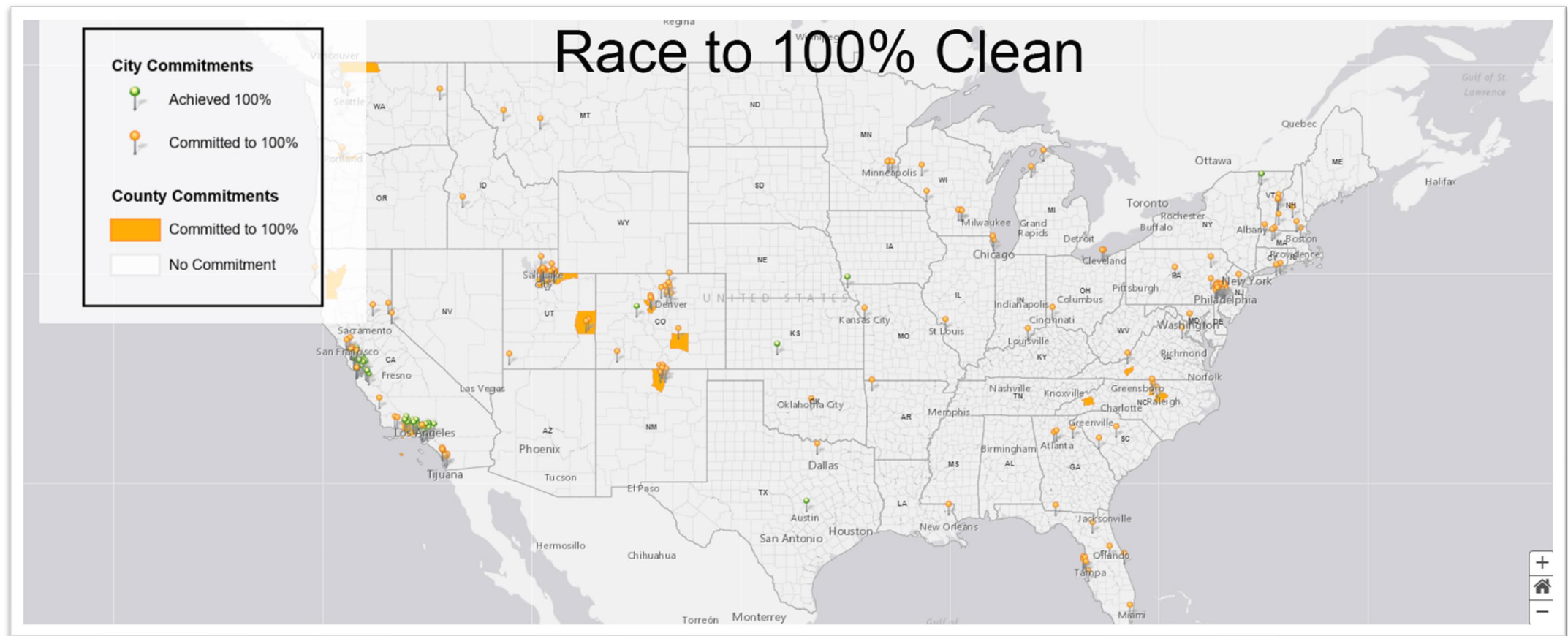
Setting Goals and Objectives

- Clean Energy Transition
- Low-Impact Siting and Design
- Equitable Development
- Community Resilience



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Clean Energy Transition



Source: [NRDC Race to 100% Clean](#)

Low-Impact Siting and Design

- Development that preserves or enhances ecologically functions, such as stormwater infiltration and wildlife habitat
- Local jurisdictions can prioritize new development on infill and previously developed sites over development on previously undeveloped sites, culturally or historically significant sites, and working farms or agricultural lands



Source: [Massachusetts Department of Environmental Protection / Flickr](#) (CC BY 2.0)

Equitable Development

- Recognizes the legacy of inequitable development outcomes due to policy and investment decisions
- Consider the disproportionate share of the harmful effects of new development projects instead of capturing the benefits of those projects



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Community Resilience (*Energy Independence*)

- Enhance local resilience to climate change and extreme weather events
- Large-scale solar development projects can incorporate energy storage or function as components of microgrids
- Variety of options



Source: [Idaho National Laboratory / Flickr](#) (CC BY 2.0)

Selecting Strategies

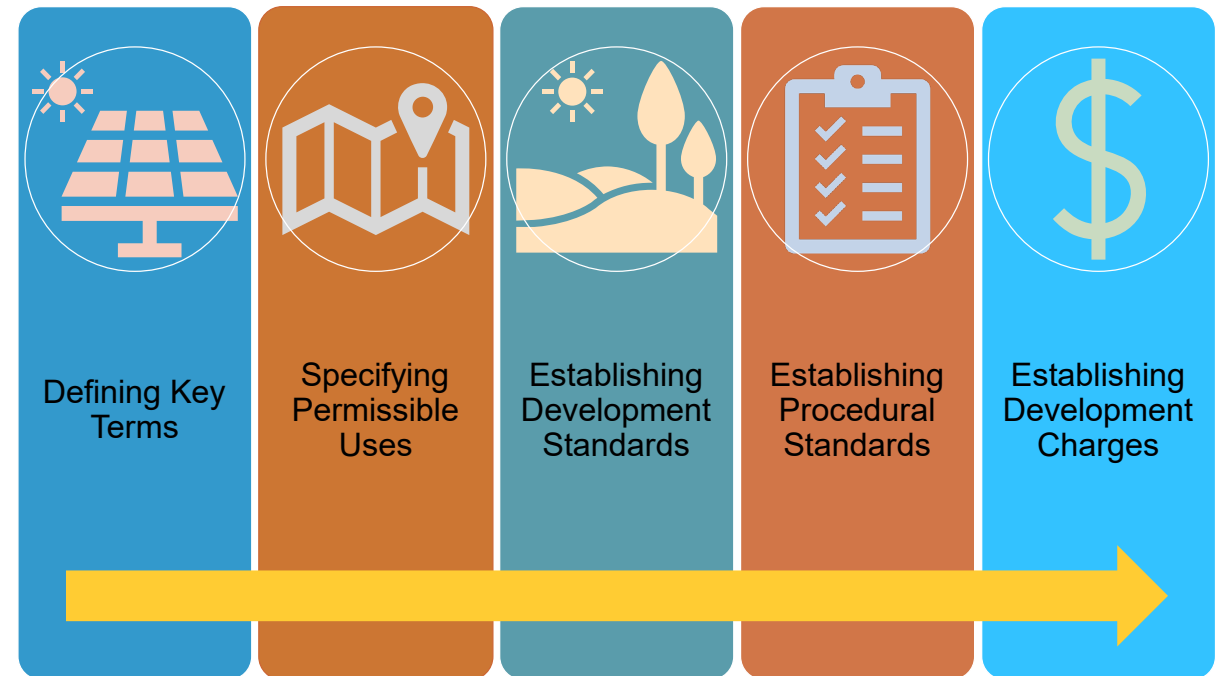
- Zoning Updates
- Process Improvements
- Development Partnerships



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

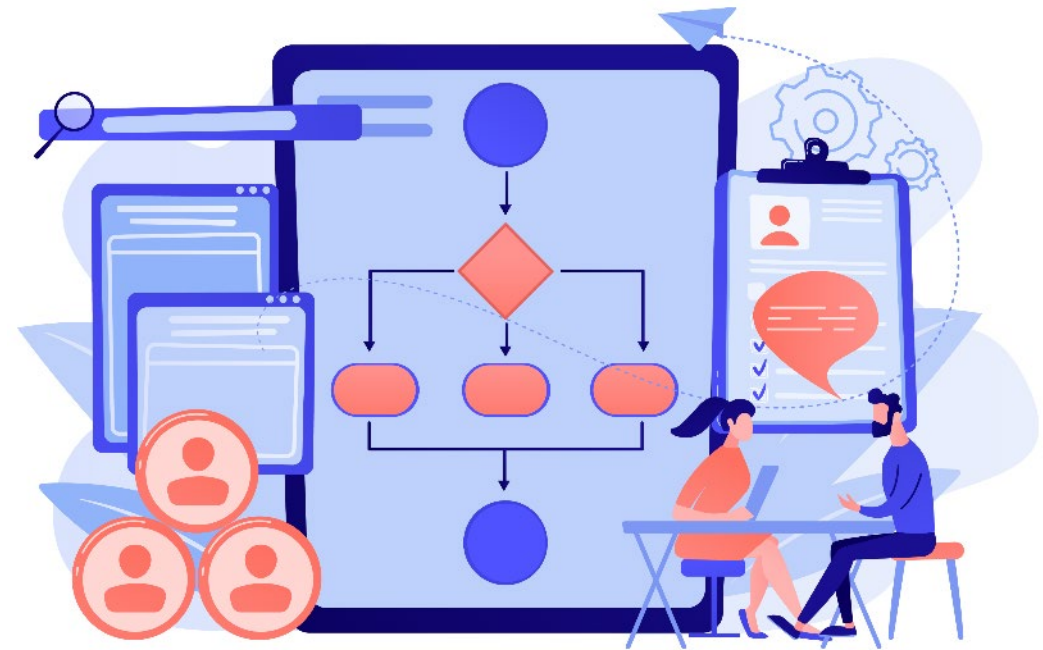
Zoning Updates

- Zoning can designate permissible locations and site design features for large-scale solar development
- Zoning updates may focus on:
 - Defining key terms
 - Specifying permissible uses
 - Establishing development and procedural standards and development charges



Process Improvements

- Discretionary land-use decision-making processes can increase the benefits and reduce the tradeoffs of large-scale solar development projects
- Process improvements may focus on:
 - Quality of applicant submissions
 - Development review procedures
 - Community benefits negotiations
 - Staff reports and written decisions
 - Project inspections



Designed by vectorjuice / [Freepik](#)

Strategic Partnerships

- Local jurisdictions may have opportunities to help meet large-scale solar development objectives by hosting large-scale projects on local government land



Source: [Gavin Newsom / Flickr](#) (CC BY-NC-SA 2.0)

Questions

Module 5: Improving Land-Use Decision-Making for Large-Scale Solar Development

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Improving Applicant Submissions

- Educational Materials
- Preapplication Meetings



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Educational Materials

- Supplemental materials that help developers prepare application packages, plan for public hearings, or begin scoping out a project
- Educational materials that can address large-scale solar development as a distinct project type include:
 - Fact sheets
 - Brochures
 - Guides
 - Web pages



Preapplication Meetings

- Provide opportunity to identify potential regulatory issues before developers submit project applications
- Planning and building department staff can suggest changes that help proposed project align with community vision
- Developer-led preapplication meetings can solicit feedback on project features before finalizing a site plan
- In developer-led meetings, local staff can connect developers to community-based organizations



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Reviewing Proposed Projects

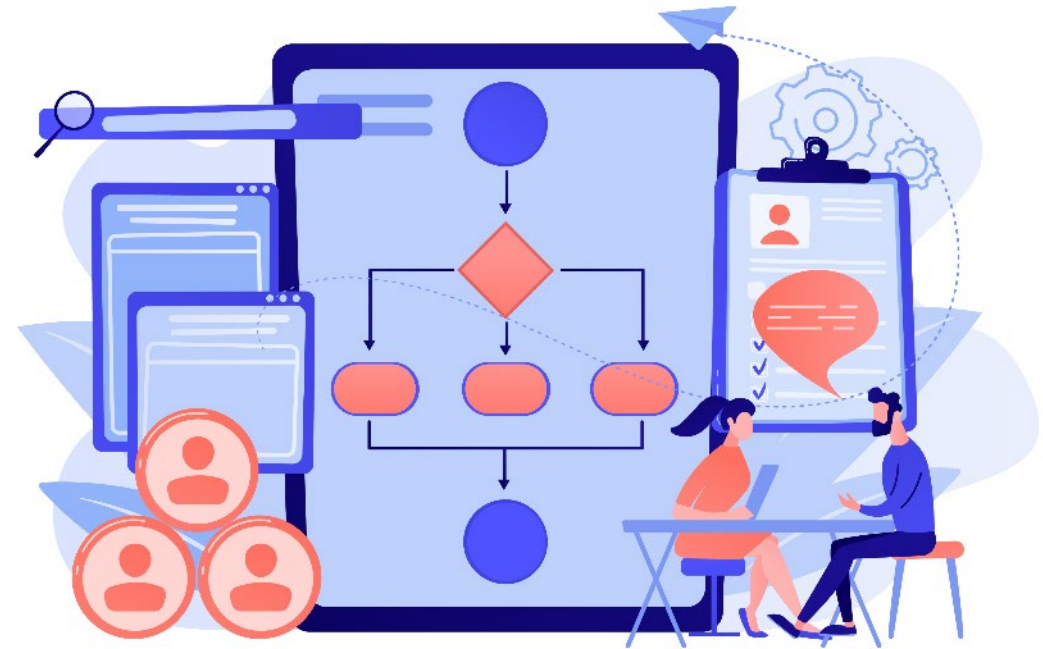
- Internal Coordination
- External Coordination
- Site Visits



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Internal Coordination

- Large or complex projects may be required to go through multiple separate departmental reviews
- The timeline for completion can be uncertain and applicants may receive confusing or contradictory feedback
- Streamlining development review processes:
 - “One-stop” permitting centers
 - “Concierge” approach



Designed by vectorjuice / [Freepik](#)

External Coordination

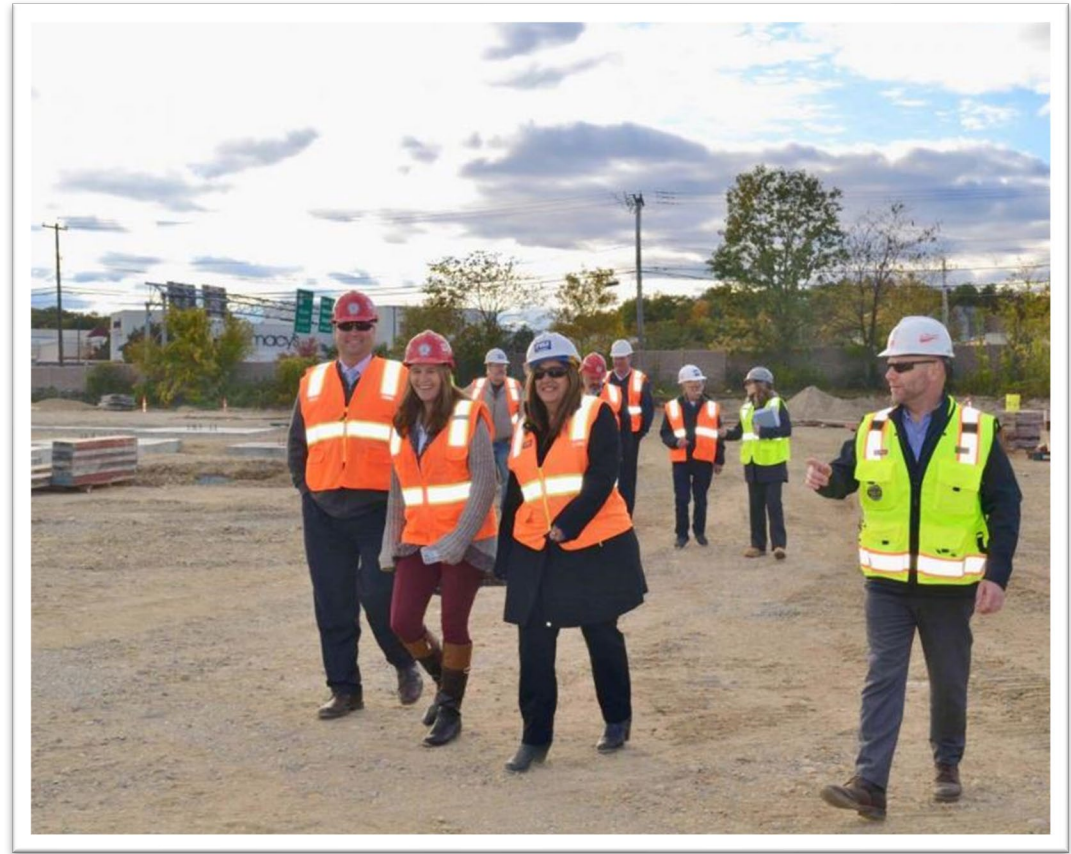
- Local reviews often require confirmation of external approvals, such as state and utility approvals
- Local staff should build better relationships with their external counterparts at local utility and state agencies
- Local staff expertise in external processes can allow for the alignment of local application requirements with external application requirements



Designed by stories / [Freepik](#)

Site Visits

- Site visits allow staff to:
 - Check for accuracy of information provided in the application package
 - Evaluate the likelihood of potential land-use conflicts
 - Investigate conditions on the site or the area that merit further analysis
- At a minimum, take note of:
 - Existing land uses and structures,
 - Topography and vegetation
 - Visible utility infrastructure



Town of Saugus, Massachusetts

Negotiating Community Benefits

- Development Agreements
- Community Benefits Agreements



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Development Agreements

- A contract between a developer and a local jurisdiction that establishes each party's rights and obligations related to a proposed development project
- These must be consistent with local comprehensive plan
- Local jurisdictions can ask for project features or public improvements required by zoning regulations, or desirable features that have not yet been added to zoning regulations



Designed by macrovector / [Freepik](#)

Community Benefits Agreements

- A contract between a developer and one or more community-based organizations or groups of community members affected by a specific development project
- They may include benefits beyond what a local government could legally require
- Local officials can encourage CBAs, but should refrain from negotiation the agreement to avoid legal involvement



Designed by pch.vector / [Freepik](#)

Preparing Staff Reports and Written Decisions

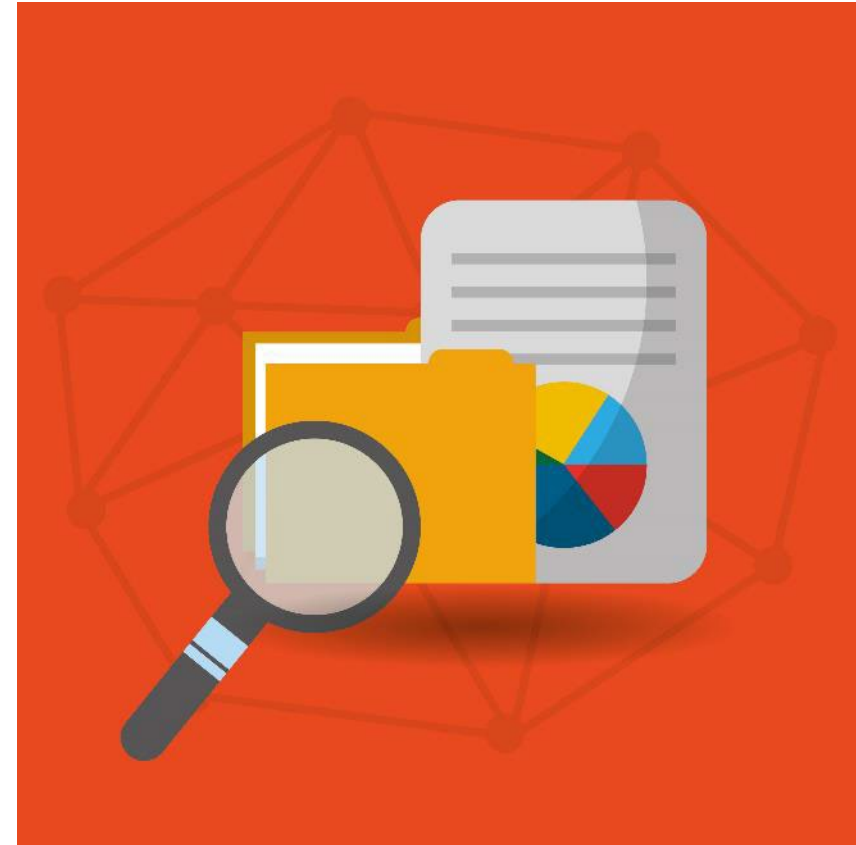
- Findings of Fact
- Conditions of Approval



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Findings of Fact

- Findings of fact are objective claims about the relationship of a project application to the adopted policies and regulations of the local jurisdiction
- Use plain language to explain how the project relates to each relevant zoning standard as well as any relevant language or maps in the local comprehensive plan



Designed by gstudioimagen / [Freepik](#)

Conditions of Approval

- Conditions (or stipulations) of approval are the formal terms of approval for a discretionary land-use decision, such as:
 - Modifications to a project's physical design or operations
 - Provision of offsite improvements or land dedications
 - Notice of a necessary approval from another permitting authority



Designed by [Freepik](#)

Inspecting Approved Projects

- Internal Coordination
- External Coordination



Source: Brookhaven National Laboratory (CC BY-NC-ND 2.0)

Internal Coordination

- At least two inspections should be required for large-scale solar installations:
 - During construction, inspectors view features that will be concealed once installation is complete
 - After construction, inspectors verify compliance with applicable codes and standards
- Additional inspections may be required
- Local jurisdictions that do not have staff capacity to undertake inspections should contract for inspection services or require applicants to secure and cover the costs of third-party inspectors



Source: Joe Verrengia / NREL

External Coordination

- Developers are typically responsible for securing all necessary state and utility inspections for their projects
- Local staff can contact local utility and state agencies that conduct field inspections for large-scale solar projects to learn more about their processes



Source: [Brookhaven National Laboratory / Flickr](#) (CC BY-NC-ND 2.0)

Module 5 Small-Group Activity

Scenario

The fictional Town of Sunnyside has received a request from a solar developer for a pre-application meeting to discuss a potential large-scale solar project in 225 acres of farmland in a rural zoning district.

Assignment

Compile a list of issues for staff to discuss with the potential applicant for each of the following project features:

- Site design
- Site conditions
- Project construction
- Project operations
- Project decommissioning

Key Takeaways

- Two of the most important proactive tools local government officials can use to improve application packages for large-scale solar projects are educational materials and preapplication meetings.
- When development review processes run smoothly, local government staff can efficiently evaluate whether an application supports the community vision for large-scale solar development.
- Local government officials may be able to secure specific local benefits by formalizing development agreements with solar developers or encouraging solar developers to negotiate community benefits agreements with community-based organizations.
- When drafting findings of fact for large-scale solar projects, planning officials should explain in plain language how the project relates to each relevant zoning standard as well as any relevant language or maps in the local comprehensive plan.
- When drafting conditions of approval for large-scale solar development projects, planning officials should limit stipulations to project features or issues addressed through use-specific development or procedural standards.
- Local jurisdictions that do not have sufficient staff capacity to handle inspections should contract for inspections or include third-party inspection requirements in conditions of project approval.

Lunch Break

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Group Purchasing

FRED WU, DIRECTOR, COMMUNITY ENGAGEMENT, U.S.
SOLAR · ICHOOSR

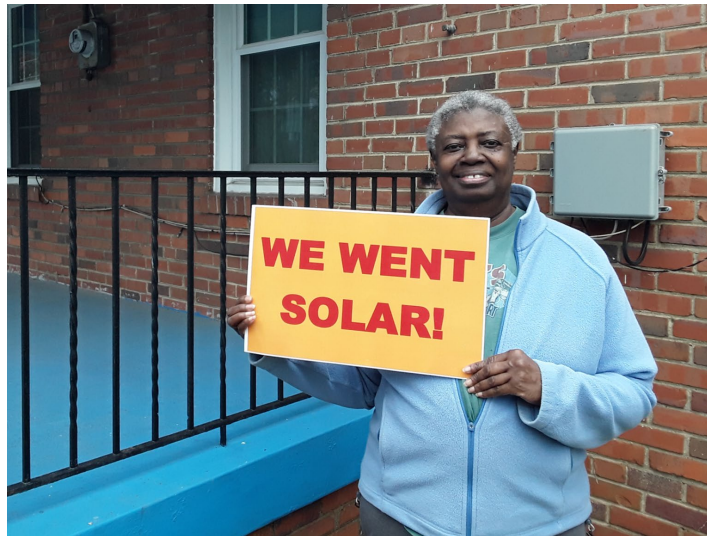


Solar Switch

Solar group buying
for homeowners and small businesses

Overview

- How does this group purchasing program work?
- What protections or safeguards are in place for consumers?
- Why do we partner with local governments?



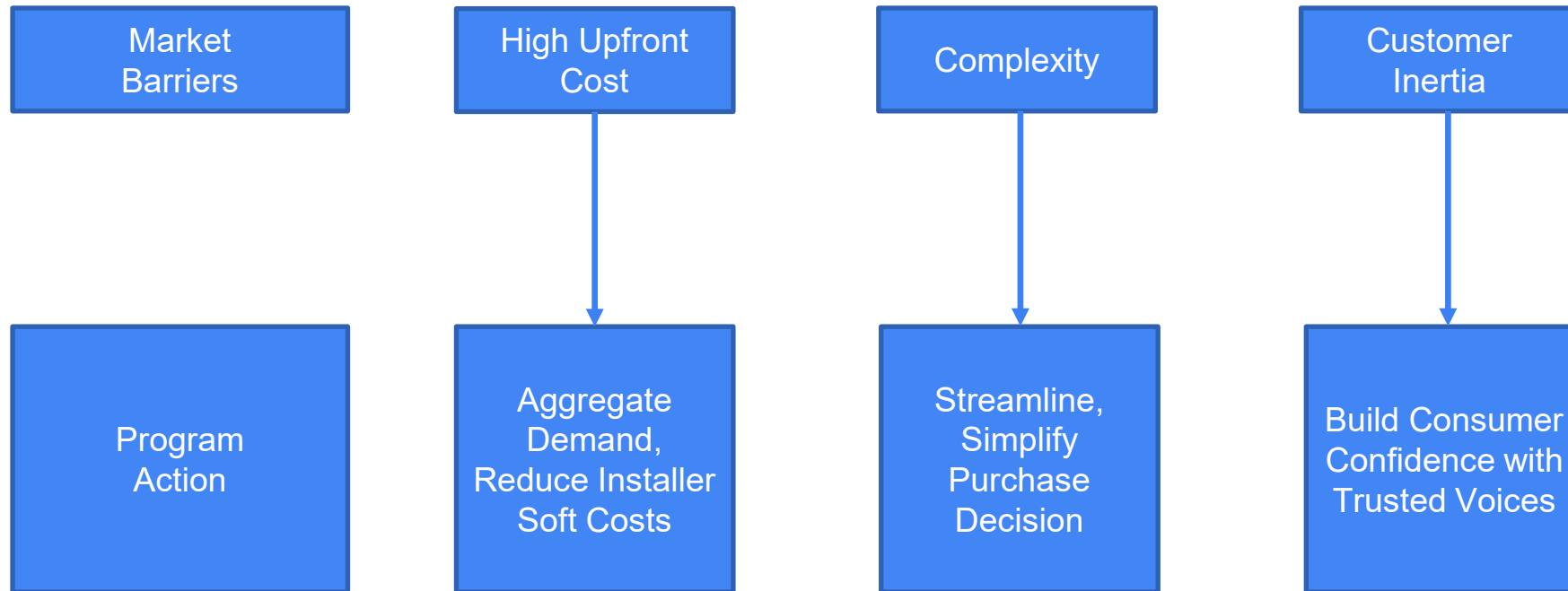
Steps for Going (Rooftop) Solar



www.GoSolarTexas.org

1. Energy Efficiency
2. Assess Potential & Size Your System
3. Financing
4. Choosing a Retail Electric Provider and a Certified Installer
5. Consider Other Options

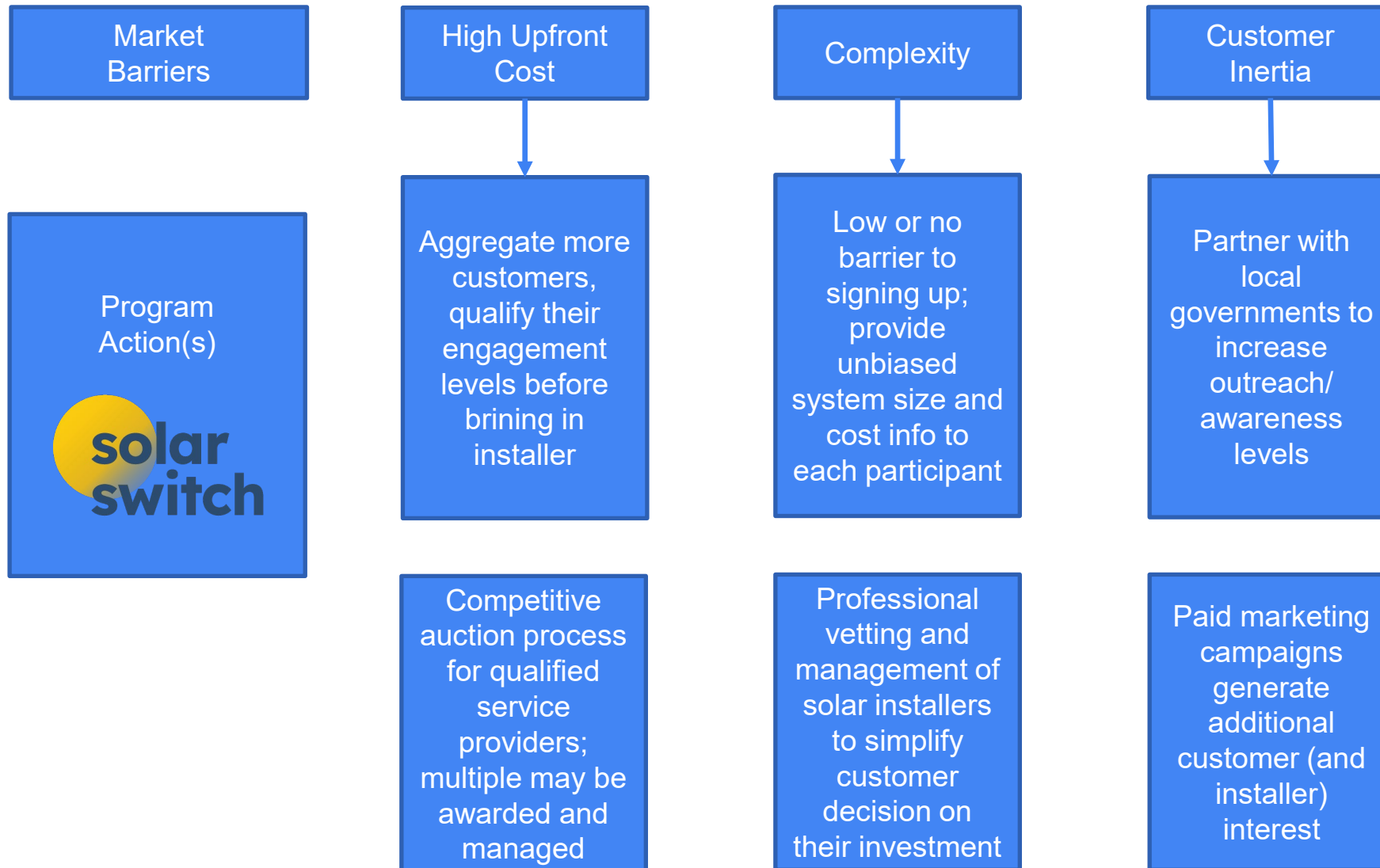
Program Theory/Logic



“The Solarize Guidebook”

<https://www.nrel.gov/docs/fy12osti/54738.pdf>

Program Theory/Logic



Installer Qualification Steps

Step 1 Pre-qualification

Residential solar experience
Relevant technical certifications
Regional/local presence
History/track record for local installs
Company size (FTEs, # install crews)
Online reviews (#, rating)
CRM software/system
Off site/design software
Quality products, warranties

Step 2 Qualification

Financial stability
Relevant insurance policies
Customer satisfaction rates/BBB
Method of approach
Project risk file

Step 3 Sign Contract

Installer Agreement with iChoosr

Program Timeline



1. Register



2. Auction



**3. Personal
Recommendation**



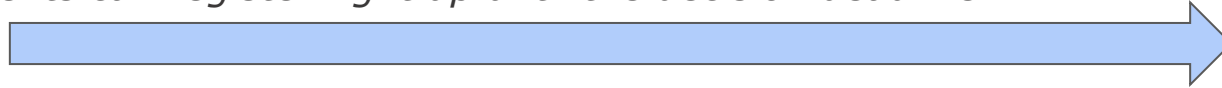
4. Decision



5. Install

Campaign: 4 months

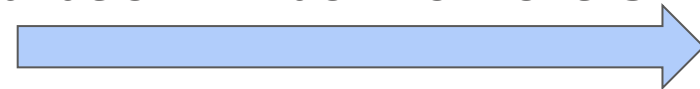
Residents can register right up until the decision deadline



Decision Window: 6 weeks




Installation Window: 6 months



Solar Switch Customer Experience Demo

www.solarswitch.com/texas



How does it work? ▾ Why join? About us ▾ Questions? ▾

Solar Switch

Group buying for solar panels


Find out if solar panels are interesting for you! Take our free roof test and receive an offer for a complete installation.

Your zip code







Your city or community

Choose one...

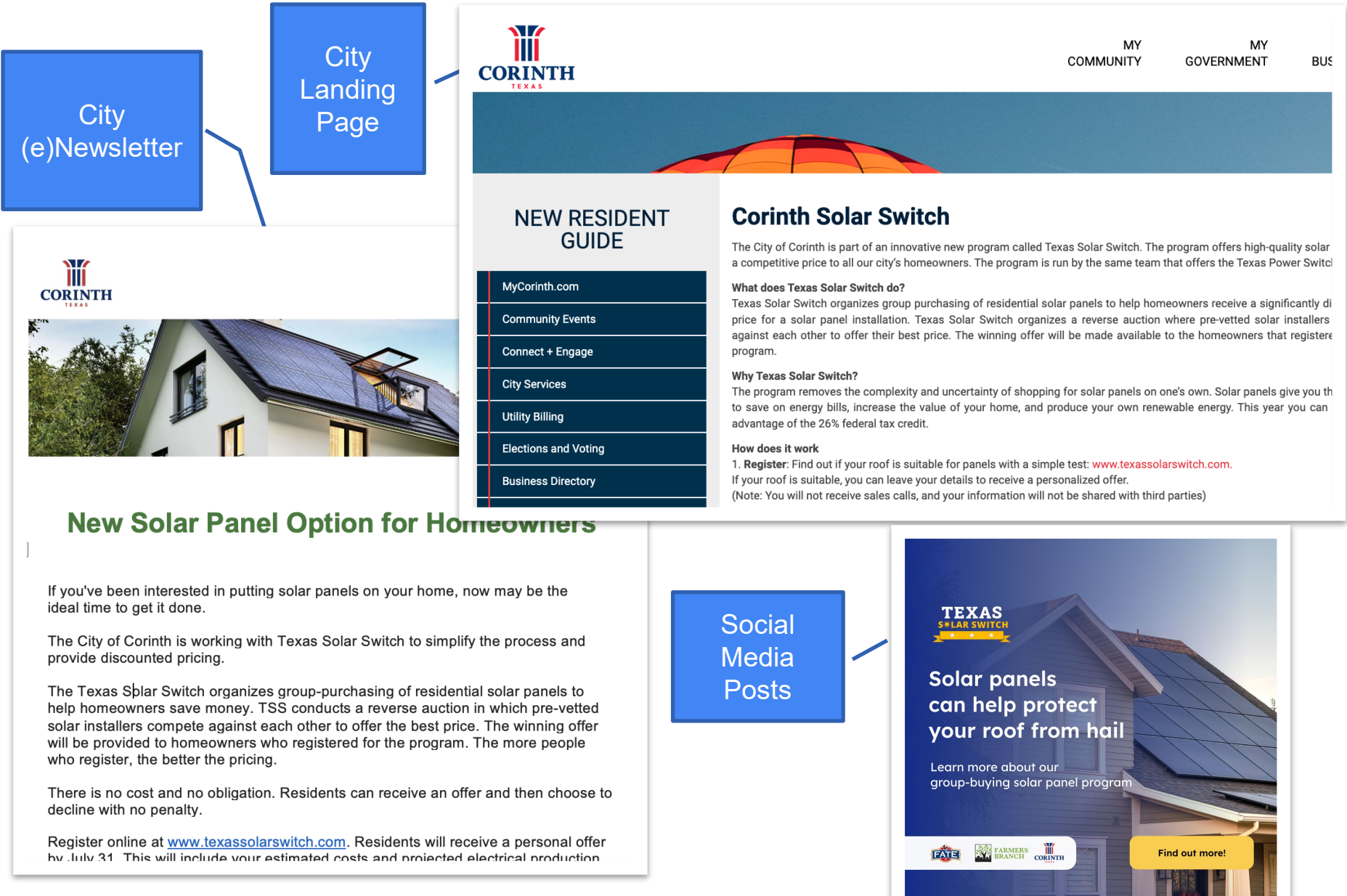
Continue >



Some of the partners we work with:



Online/Social Media Campaigns



Information Sessions

Registrants
can sign up
for virtual
information
sessions

Solar Switch Introduction

Virtual Information Session. Subscribe below.

Are you registered for the Texas Solar Switch?

☐ I understand that I may be emailed with updates about the webinar and the Texas Solar Switch Program.

Confirm sign-up

Co-presented/
recorded with
Solar United
Neighbors

Webinars will
include
winning
installer for
customer
Q&A post-
auction



WHAT WILL BE DISCUSSED?

We will discuss how our program works and address common questions about solar panels. You will also hear from our partner, Solar United Neighbors.



PRESENTATION BY:

Rachel Brown, Texas Solar Switch
Hanna Mitchell, Solar United Neighbors

You can view this webinar from your computer, tablet or mobile phone.

Share this webinar!



Program Implementation Team



- Support consumer education and protection
- Advocate for solar-friendly public policies
- Increase our community of solar advocates & supporters
- Local staff and experience with a proven track record



- Digital platform allows for scale across large customer groups and multiple installers
- Additional marketing resources & expertise to drive broader community engagement
- Installer vetting & management focuses on quality outcomes

Together, we intend to scale up rooftop solar adoption by making solar easier and more affordable

Solar Switch Texas – Spring 2023 Program

- Dallas–Ft. Worth Area and Houston Area
- 3 installers selected/awarded (24% discount from market)
- Preliminary results:
 - 1,950 registrations (final)
 - 285 accepted/paid deposit (final)
 - 100+ installations (TBD)
 - 1+ MW solar capacity added locally (TBD)



Solar Switch Texas – Fall 2023 Program

Goals:

- 3,000 registrations
- 450 accepted/paid deposit
- 225+ installations
- 2.1 MW solar capacity added (> 1 MW in DFW?)



Solar Switch Texas – Fall 2023 Program

Key Dates:

May 8, 2023	Program Open for Registration
May 31, 2023	Installer Auction
July 5, 2023	Personal Recommendations
Aug. 9, 2023	Decision Deadline
Jan. 5, 2024	All Installations Completed
November 2023	Program Open for Registration (Texas 11/2023 Auction) MOU Deadline for New Cities/Counties

Become a Local Government Partner

- Allowing use of your municipality or organization's logo to show your public support in the program (there is no cost to participating!)
- Each partner provided:
 - Logo placement on community-specific program registration website
 - Targeted online and offline marketing campaigns in your community
 - Targeted information sessions (online and in person)
 - Community-specific reporting on program impacts (registrations, completed installations, greenhouse gas reductions, etc.)



Thank You!

Fred Wu
Director Community Engagement
(512) 289-8644
fred.wu@ichoosr.com



Installer Vetting

Step 1. PRE-QUALIFICATION	<i>The basis for participation are key figures that show that experience has been built up within the solar world. Two most important pillars: customer satisfaction & quality.</i>
Residential Solar Experience	A mature company that has moved past the start-up phase. Track record of at least 500 - 1.000 residential solar installations.
Relevant Quality marks/Certificates	Meet market standards and should be able to show this by having the necessary certificates e.g. NABCEP.
History/ establishment	Experience in residential solar > 3 years
Company size FTE	Number of FTE > 15
Regional presence	Should have local / regional presence, e.g. with an office
Online reviews	Should have a good reputation on quality and customer service. E.g. significant amount of online reviews with on average at least 4 out 5.
CRM software	Should have sophisticated enough CRM system e.g. salesforce and software which they use to remotely design the solar system.
Off site/ design software	
Quality Products	We only work with installers that use quality components (Tier 1) that meet the market standards e.g. LONGi, Trina Solar, Canadian Solar, SolarEdge and Enphase.
Step 2. QUALIFICATION	<i>After a positive result from step 1 a more in-depth qualification of the solar installer will follow.</i>
Financial stability	e.g. Due Diligence / check annual audited accounts
Insurance policies	e.g. Installers need to have the necessary insurance
Customer Satisfaction Rates reports	e.g. Installers need to show reports of last two years
Method of Approach	e.g. Installers are asked to explain their method of approach when participating in a project, touching predefined topics that iChoosr deems relevant.
Project Risk file	e.g. Installers should identify potential risks and how to mitigate
Step 3. SIGN INSTALLER AGREEMENT	<i>After a positive result from step 1 and 2 the installer should commit to all requirements of the program by signing the installer agreement contract. Only after this, can they participate in the auction.</i> <i>NOTE: During the installation process we are working with solar installers to ensure customer expectations are being met or exceeded.</i>

Farmers Branch, TX

ALEX PHARMKIS, SUSTAINABILITY MANAGER



FARMERS
BRANCH

Farmers Branch Solar

NCTCOG Solar @ Scale

May 5, 2023



Solar Feasibility Study – April 2020

- Focus on city buildings with larger rooftops and closed landfill
- Provided estimates on system size and return on investment
- Information led City Council to allocate funding for solar installations on three City buildings



<u>Location</u>	<u>AC System Size</u>	<u>DC System Size</u>	<u>Year 1 kWh Performance</u>
City Hall	66.6 KWac	83.6 KWdc	129,711 kWh
Rec Center	200 KWac	270 KWdc	415,047 kWh
Natatorium	53.5 KWac	60.8 KWdc	94,583 kWh
Manske Library	200 KWac	218 KWdc	343,642 kWh
Fire Station	61.2 KWac	69.2 KWdc	100,403 kWh
Landfill	4,582 KWac	5,120 KWdc	7,291,000 kWh

Increasing Renewable Energy – Onsite Solar

- Solar installed on three City facilities in Spring 2021
 - Fire Station #2, Manske Library, and Rec Center
- Solar installed on Natatorium (Sept. 2022)
- Total cost of all installations: \$1,286,000
- Received Oncor incentive payment on first three sites
- Payback time: Approx. 10 years



Landfill Solar Sustainability

- Sustainability Plan alignment
 - Goal: Increased renewable energy
 - Recommended action: Pursue a 100% renewable electricity contract for City operations
- Sourcing electricity from solar would provide a significant reduction in the City's carbon emissions and air pollution associated with power production
 - 5,179 MTCO₂e (Equivalent to 5.7 million pounds of coal burned)
- Other benefits
 - Price stability, expansion of clean energy markets, local construction and energy jobs, and some grid resilience



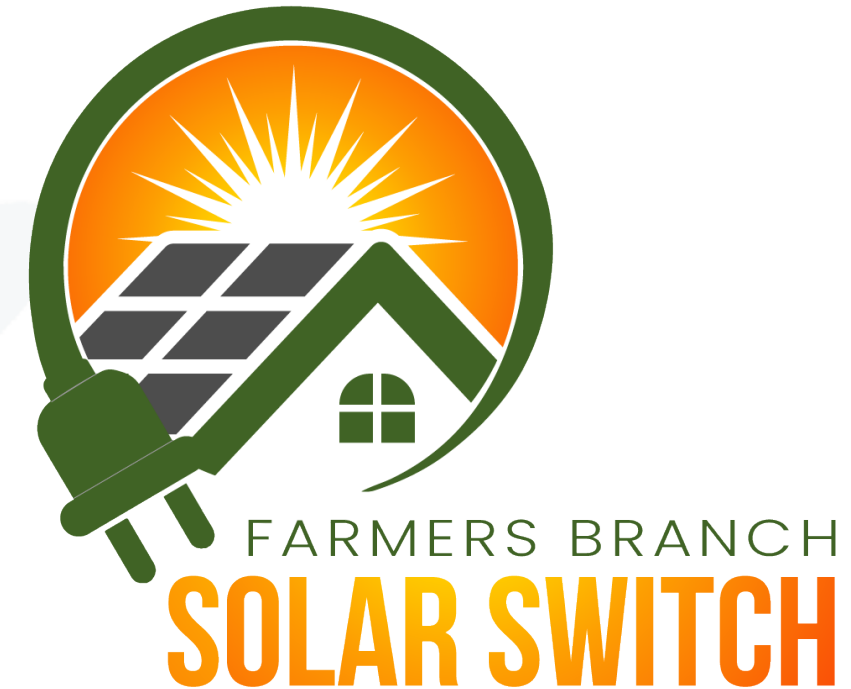
Landfill Solar Status

- Completed
 - Agreement signed with BQ Energy
 - Oncor Interconnection study
 - Site survey
- Next Steps
 - Finalize design
 - Permit approval
 - Identify retail electric provider
 - Enter power purchase agreement
- Estimated timeline
 - February 2024 – Construction begins
 - October 2024 – Project completed



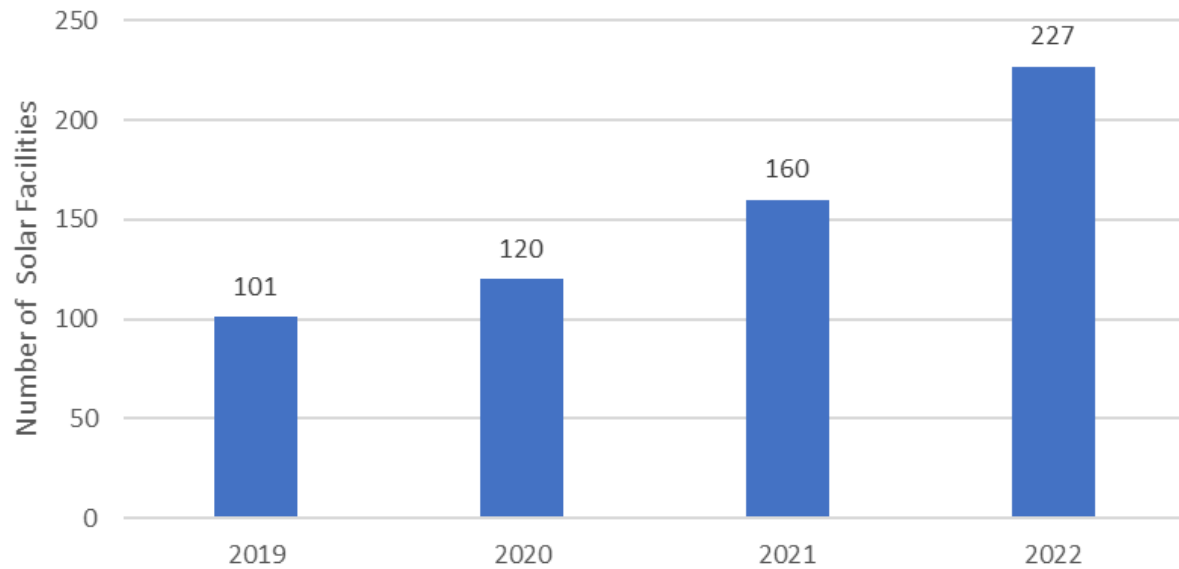
Increasing Residential Solar

- City contracts with iChoosr to facilitate a group purchase program for solar installations
 - Approved by City Council in April 2022
- Simplifies the process for purchasing and installing solar
- Provides a financing option for residents
- Group purchase can save money for homeowners
 - Economies of scale or “buying in bulk”
- No cost to City
- Two auctions have taken place so far
 - 342 registrations
 - 67 deposits
 - Estimated savings between \$3,800 - \$6,700 per install

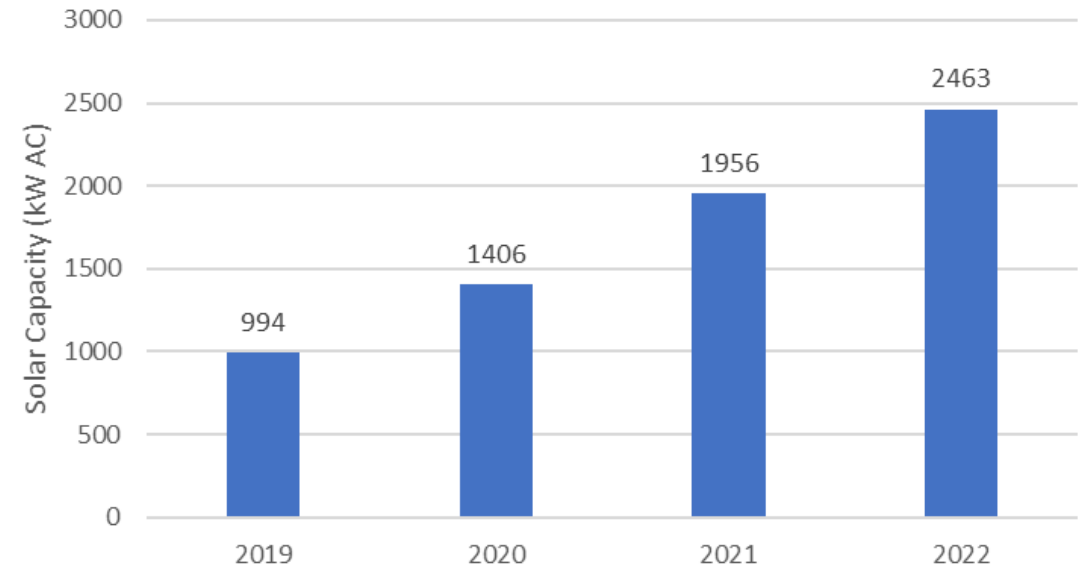


Solar Data

Farmers Branch: Total Installed Solar Facilities



Farmers Branch: Total Installed Solar Capacity



Future Work

- Solar Ready: new construction
 - Seeking input and direction from City Council
- SolSmart Designation
- Continue work on landfill solar project
- Continue Solar Switch program



A decorative graphic on the left side of the slide featuring stylized blue leaves of various shapes and sizes, arranged along a diagonal branch. The background is a solid dark blue, with a light blue horizontal bar at the top and a light green horizontal bar at the bottom.

Questions



Supplemental Slides

Capacity and Production Data

- Installation Capacity
 - Rec Center: 270 kW DC
 - Manske Library: 190.06 kW DC
 - Fire Station #2: 73.96 kW DC
 - Natatorium: 105.6 kW DC
- As of May 1, 2023
 - 1.36 million kWh produced
 - \$142,500 avoided cost of electricity
 - 964 MTCO₂e avoided
 - Equivalent to 1,000,000+ pounds of coal burned



Wrap Up and Closing Remarks

SOLAR@SCALE

PRESENTATION SLIDES AND SURVEY WILL BE EMAILED

Acknowledgements and Disclosure

This material is based upon work supported by the U.S. Department of energy's office of energy efficiency and renewable energy (EERE) under the solar energy technologies office award numbers DE-EE0009950 & DE-EE009951.

Full legal disclaimer

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