Advancing Solar Energy Best Practices in the Alamo Area

January 28, 2025

What We'll Share Today

- Welcome & Introductions
- About SolSmart
- Overview of Solar Best Practices
- Upcoming AACOG Cohort Opportunity
- Ask Us Anything

Who You'll Hear From

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About SolSmart

Acknowledgement and Disclaimer

- Acknowledgment: This material is based upon work supported by the Department of Energy, Office of Energy Efficiency and Renewable Energy (EERE), under Award Numbers DE-EE0009950 & DE-EE0009951.

- Disclaimer: This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Energy Ready

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A Suite of Designation Programs

- Energy-Ready.org
- FREE technical assistance

About SolSmart

SolSmart is a national **designation** and **technical assistance** program funded by the U.S. Department of Energy's Solar Energy Technologies Office (SETO) to help local governments nationwide make it faster, easier, and more affordable for residents and businesses to go solar.

What is it?

- SolSmart is a national designation and technical assistance program that has helped over 540 local governments make it faster, easier, and more affordable for residents and businesses to go solar.

A SolSmart designation:

- Recognizes communities that have taken key steps to address local barriers to solar energy and foster the growth of mature local solar markets. Demonstrates that a community is “open for solar business,” making it attractive to solar companies and other business development.

SolSmart's Role in Solar Development

- SolSmart helps local governments take action to remove barriers to solar energy growth and make it easier for residents and businesses to go solar
- The program offers **no-cost technical assistance and resources** that help communities become national solar energy leaders
- SolSmart helps communities reduce "soft costs" — the costs of solar development that are unrelated to hardware

"Soft costs" represent 65% of the total cost of a solar PV system and they arise from:

- Permitting and inspection processes;
- Zoning and design requirements
- Customer acquisition;
- Gaps in financing; and more!

SolSmart's Role in Solar Development

Helps local governments:

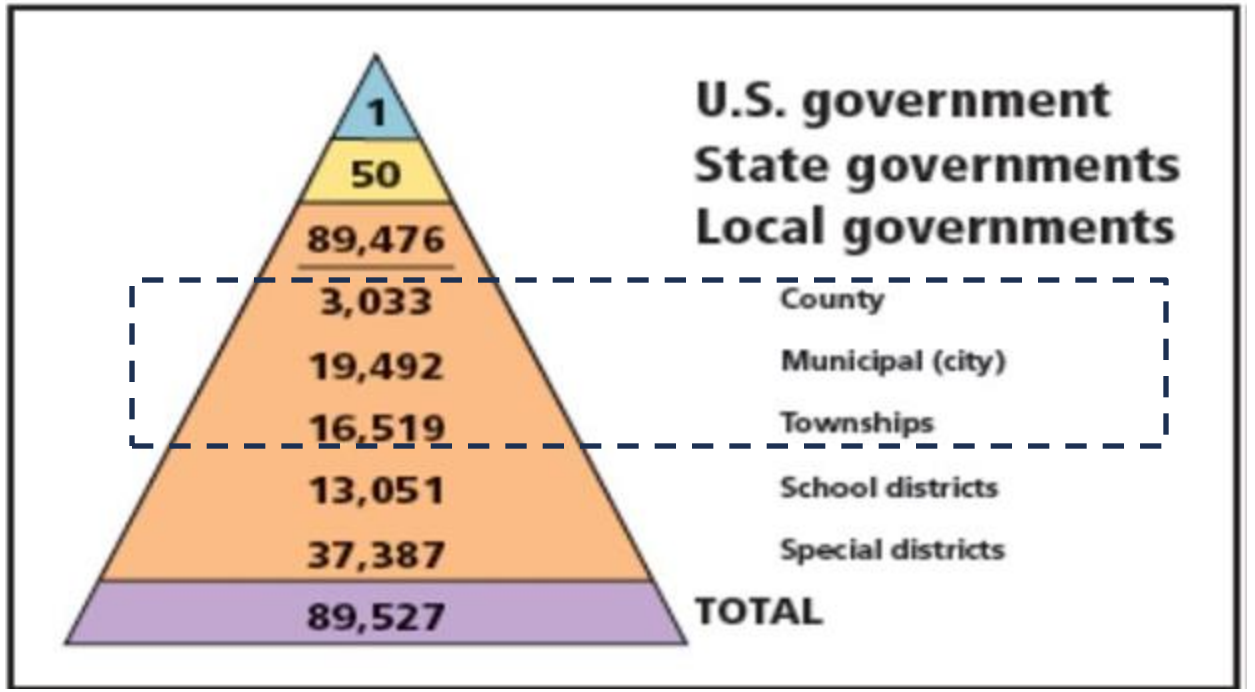
1.
Removes Barriers for Solar

2.
Free Technical Assistance & Resources

3.
Reduces solar "soft costs"

Impact of Local Governments

39,044 city, town, and county governments, most with jurisdiction over land use



U.S. Census Bureau, 2017 Census - Table Results

SolSmart By the Numbers

Active in communities across the country:

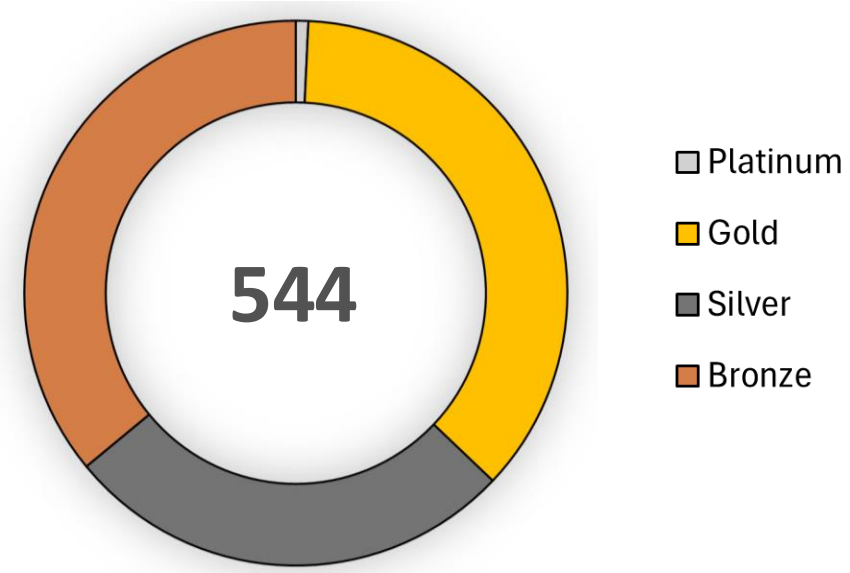
- 43 states + District of Columbia, Puerto Rico, U.S. Virgin Islands
- 117 million people (over 1 in 3 U.S. residents)

4

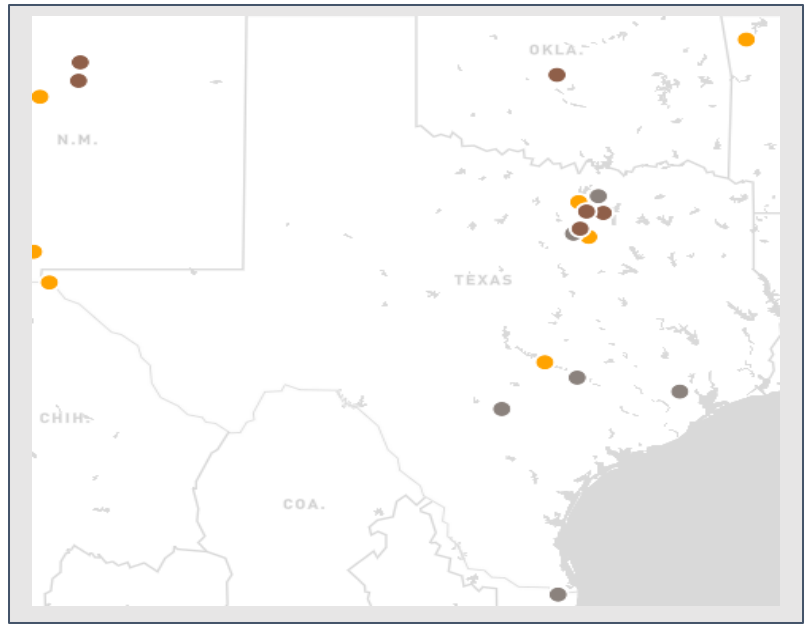
197

148

195



SolSmart in TX



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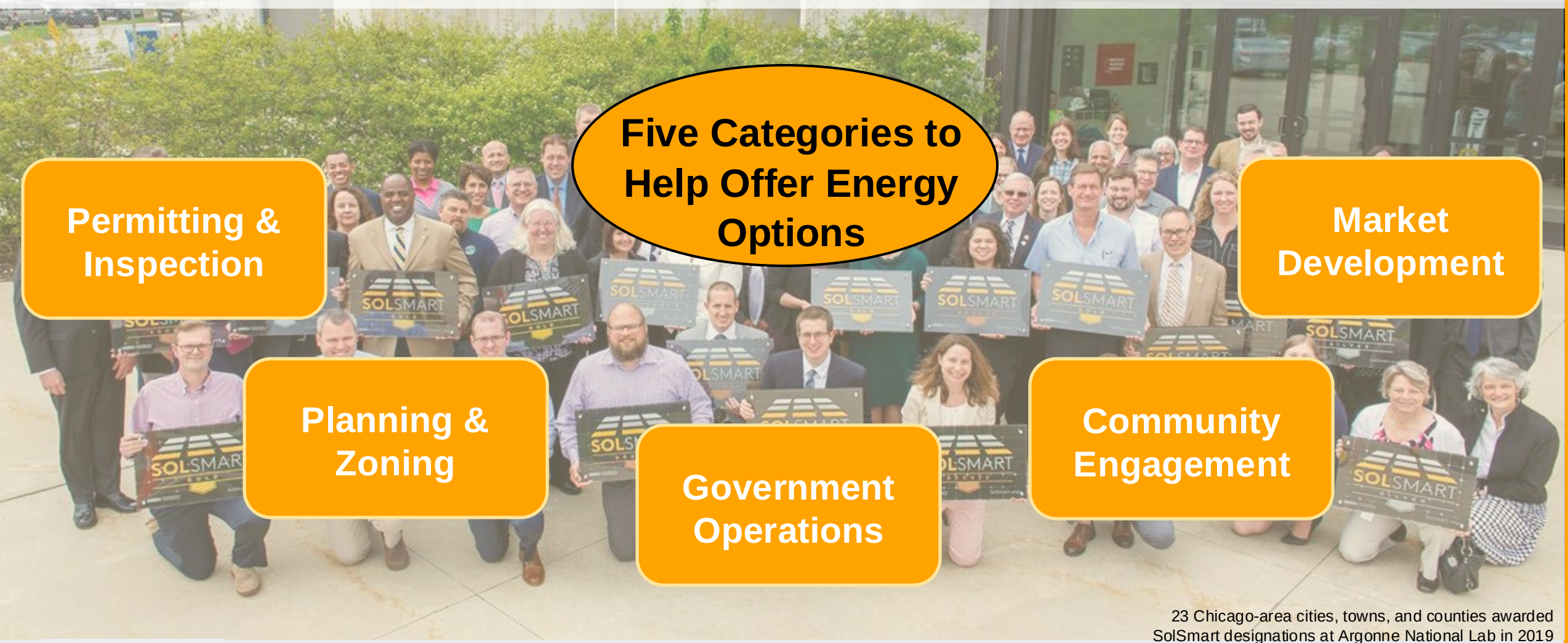
SolSmart: A Roadmap to Advance Solar Locally



23 Chicago-area cities, towns, and counties awarded SolSmart designations at Argonne National Lab in 2019

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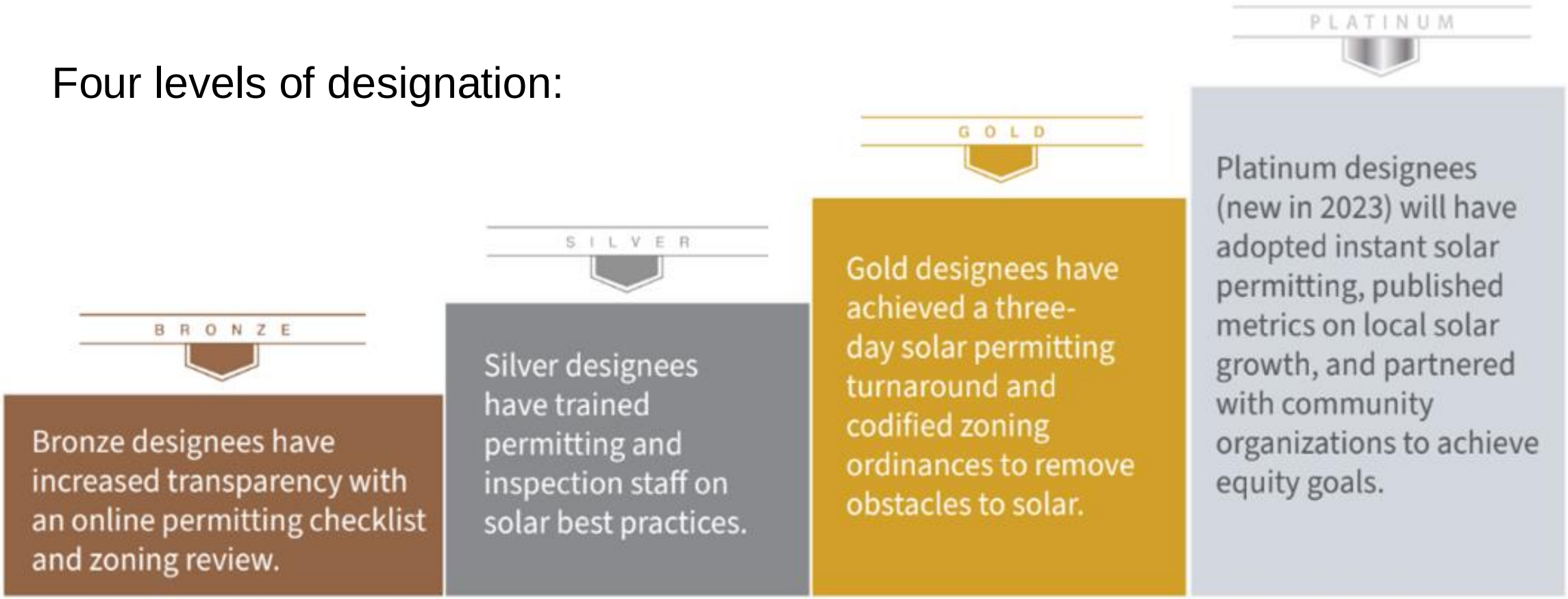
Designation Structure

Four levels of designation:



Technical Assistance Examples

- Planning and zoning
- Feasibility assessments
- Permitting and inspection
- Policy and market expertise
- Procurement
- Financing
- Solar PV system design
- Stakeholder Engagement

Best Practice Resources & Customized Support

The SolSmart Program Guides summarize best practices for local governments, counties and regional governments.

Technical Assistance is tailored around the goals and priorities of your community. It can include expert review of materials, webinars, trainings and 1:1 consultations.

Templates and Examples

Communities are provided with templates, checklists, community examples and guidance documents.


SolSmart Guidance and Template

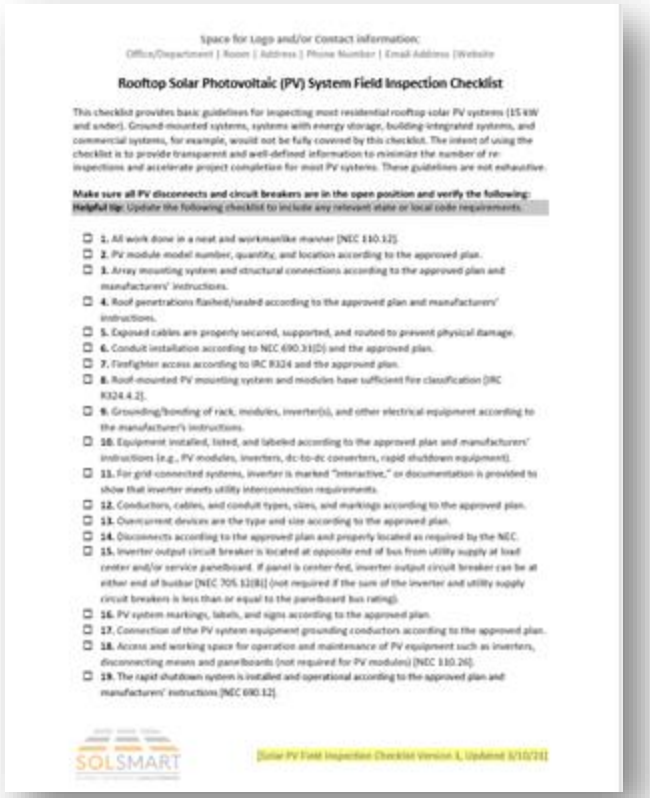
SOLSMART

CE-1

Post a solar landing page on local government's website with information that may include the community's solar goals, educational materials and tools that promote solar, and resources for solar development (e.g. permitting checklist, application forms, zoning regulations, etc.). (Required for Silver)

Objective:
A solar landing page is a way to provide residents, businesses, and solar installers with important information about your community's solar energy policies, processes, goals, and metrics from one centralized location. It is also a way to educate community members about solar energy topics like financing options and consumer protection best practices. Information and resources posted should be made available in multiple languages, as appropriate for your community, and should be available to community members in print form if requested.

The CE-1 criteria is completed when the solar landing page is publicly accessible on the local government's webpage. Opportunities for the community to achieve additional points have been called out via comments throughout the template.


Space for Logo and/or Contact information:

Rooftop Solar Photovoltaic (PV) System Field Inspection Checklist

This checklist provides basic guidelines for inspecting most residential rooftop solar PV systems (15 kW and under). Ground-mounted systems, systems with energy storage, building-integrated systems, and commercial systems, for example, would not be fully covered by this checklist. The intent of using the checklist is to provide transparent and well-defined information to minimize the number of re-inspections and accelerate project completion for most PV systems. These guidelines are not exhaustive.

Make sure all PV disconnects and circuit breakers are in the open position and verify the following:
Helpful tip: Update the following checklist to include any relevant state or local code requirements.

- ☐ 1. All work done in a neat and workmanlike manner [NEC 110.12].
- ☐ 2. PV module model number, quantity, and location according to the approved plan.
- ☐ 3. Array mounting system and structural connections according to the approved plan and manufacturers' instructions.
- ☐ 4. Roof penetrations flashed/sealed according to the approved plan and manufacturers' instructions.
- ☐ 5. Exposed cables are properly secured, supported, and routed to prevent physical damage.
- ☐ 6. Conduit installation according to NEC 690.31(D) and the approved plan.
- ☐ 7. Firefighter access according to IRC R324 and the approved plan.
- ☐ 8. Roof-mounted PV mounting system and modules have sufficient fire classification [IRC R324.4.2].
- ☐ 9. Grounding/bonding of rack, modules, inverter(s), and other electrical equipment according to the manufacturer's instructions.
- ☐ 10. Equipment installed, listed, and labeled according to the approved plan and manufacturers' instructions (e.g., PV modules, inverters, dc-to-dc converters, rapid shutdown equipment).
- ☐ 11. For grid-connected systems, inverter is marked "interactive," or documentation is provided to show that inverter meets utility interconnection requirements.
- ☐ 12. Conductors, cables, and conduit types, sizes, and markings according to the approved plan.
- ☐ 13. Overcurrent devices are the type and size according to the approved plan.
- ☐ 14. Disconnects according to the approved plan and properly located as required by the NEC.
- ☐ 15. Inverter output circuit breaker is located at opposite end of bus from utility supply at load center and/or service panelboard. If panel is center-fed, inverter output circuit breaker can be at either end of busbar [NEC 705.12(B)] (not required if the sum of the inverter and utility supply circuit breakers is less than or equal to the panelboard bus rating).
- ☐ 16. PV system markings, labels, and signs according to the approved plan.
- ☐ 17. Connection of the PV system equipment grounding conductors according to the approved plan.
- ☐ 18. Access and working space for operation and maintenance of PV equipment such as inverters, disconnecting means and panelboards (not required for PV modules) [NEC 110.26].
- ☐ 19. The rapid shutdown system is installed and operational according to the approved plan and manufacturers' instructions [NEC 690.12].

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[Solar PV Field Inspection Checklist Version 1, Updated 3/15/21]

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Overview of Solar Best Practices

Permitting & Inspection Category

28 criteria including:

Post a solar permitting checklist online (Pre-requisite, 0 points)

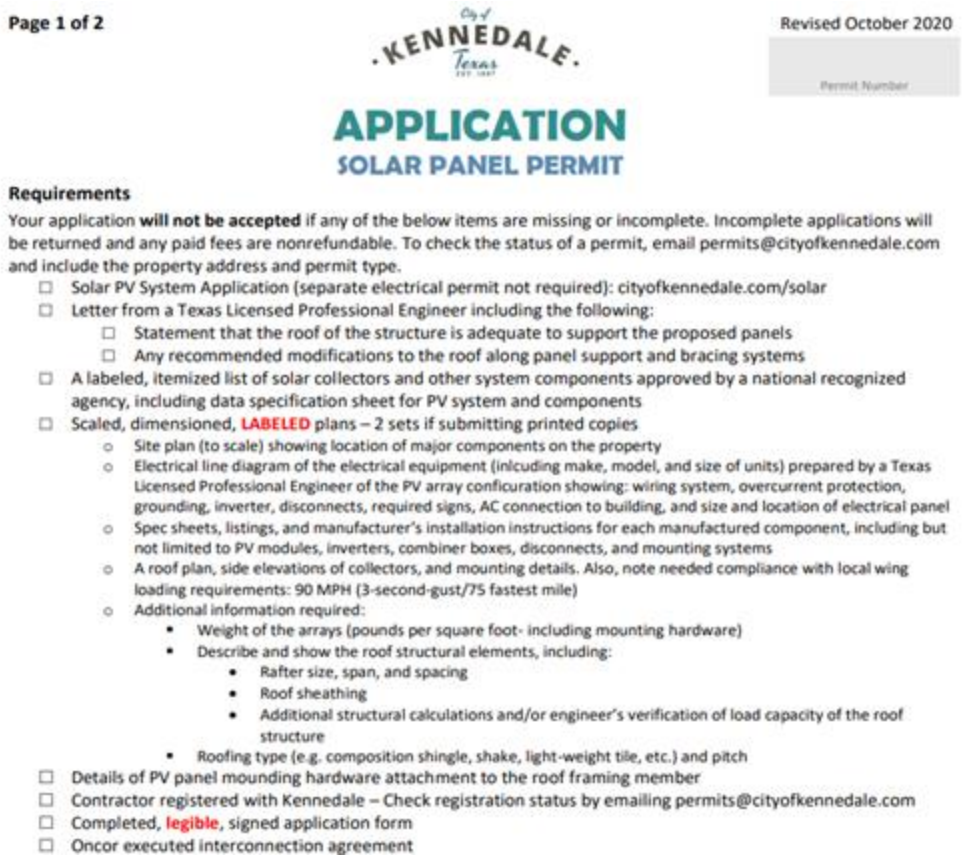
Post solar field inspection requirements online, detailing the inspection process and what inspectors will review (10 points)

Post solar field inspection requirements or checklist online, detailing the inspection process and what inspectors will review (10 points)

Demonstrate pathway for instant/automatic approval of residential rooftop solar PV systems (e.g., SolarAPP+) (20 points)

Source: Greater Cincinnati Energy Alliance

Kennedale, TX (SolSmart Silver)



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KENNEDALE, Texas

Revised October 2020

Permit Number

APPLICATION
SOLAR PANEL PERMIT

Requirements

Your application **will not be accepted** if any of the below items are missing or incomplete. Incomplete applications will be returned and any paid fees are nonrefundable. To check the status of a permit, email permits@cityofkennedale.com and include the property address and permit type.

- ☐ Solar PV System Application (separate electrical permit not required): cityofkennedale.com/solar
- ☐ Letter from a Texas Licensed Professional Engineer including the following:
  - ☐ Statement that the roof of the structure is adequate to support the proposed panels
  - ☐ Any recommended modifications to the roof along panel support and bracing systems
- ☐ A labeled, itemized list of solar collectors and other system components approved by a national recognized agency, including data specification sheet for PV system and components
- ☐ Scaled, dimensioned, **LABELED** plans – 2 sets if submitting printed copies
  - Site plan (to scale) showing location of major components on the property
  - Electrical line diagram of the electrical equipment (inlcuding make, model, and size of units) prepared by a Texas Licensed Professional Engineer of the PV array conficuration showing: wiring system, overcurrent protection, grounding, inverter, disconnects, required signs, AC connection to building, and size and location of electrical panel
  - Spec sheets, listings, and manufacturer's installation instructions for each manufactured component, including but not limited to PV modules, inverters, combiner boxes, disconnects, and mounting systems
  - A roof plan, side elevations of collectors, and mounting details. Also, note needed compliance with local wing loading requirements: 90 MPH (3-second-gust/75 fastest mile)
  - Additional information required:
    - Weight of the arrays (pounds per square foot- including mounting hardware)
    - Describe and show the roof structural elements, including:
      - Rafter size, span, and spacing
      - Roof sheathing
      - Additional structural calculations and/or engineer's verification of load capacity of the roof structure
    - Roofing type (e.g. composition shingle, shake, light-weight tile, etc.) and pitch
- ☐ Details of PV panel mounding hardware attachment to the roof framing member
- ☐ Contractor registered with Kennedale – Check registration status by emailing permits@cityofkennedale.com
- ☐ Completed, **legible**, signed application form
- ☐ Oncor executed interconnection agreement

Solar-Panel Application (cityofkennedale.com)

Planning & Zoning Category

26 criteria including:

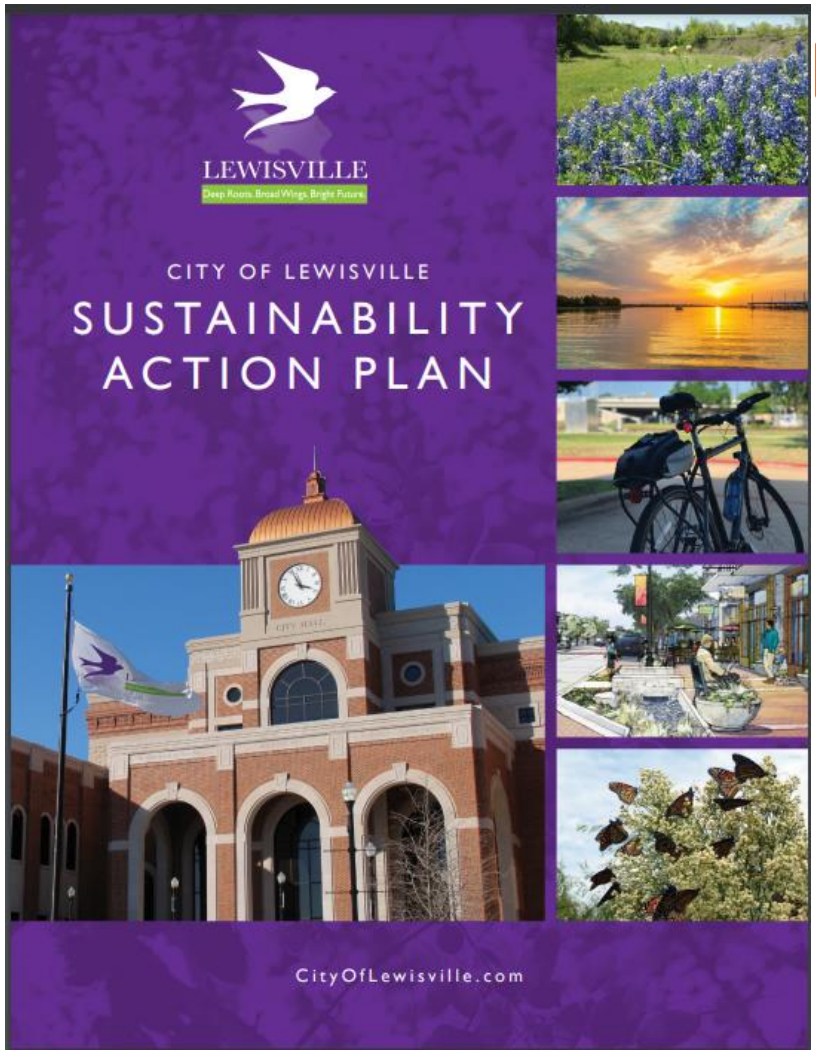
Review zoning code to identify restrictions that prohibit solar PV. (Pre-requisite, 0 points)

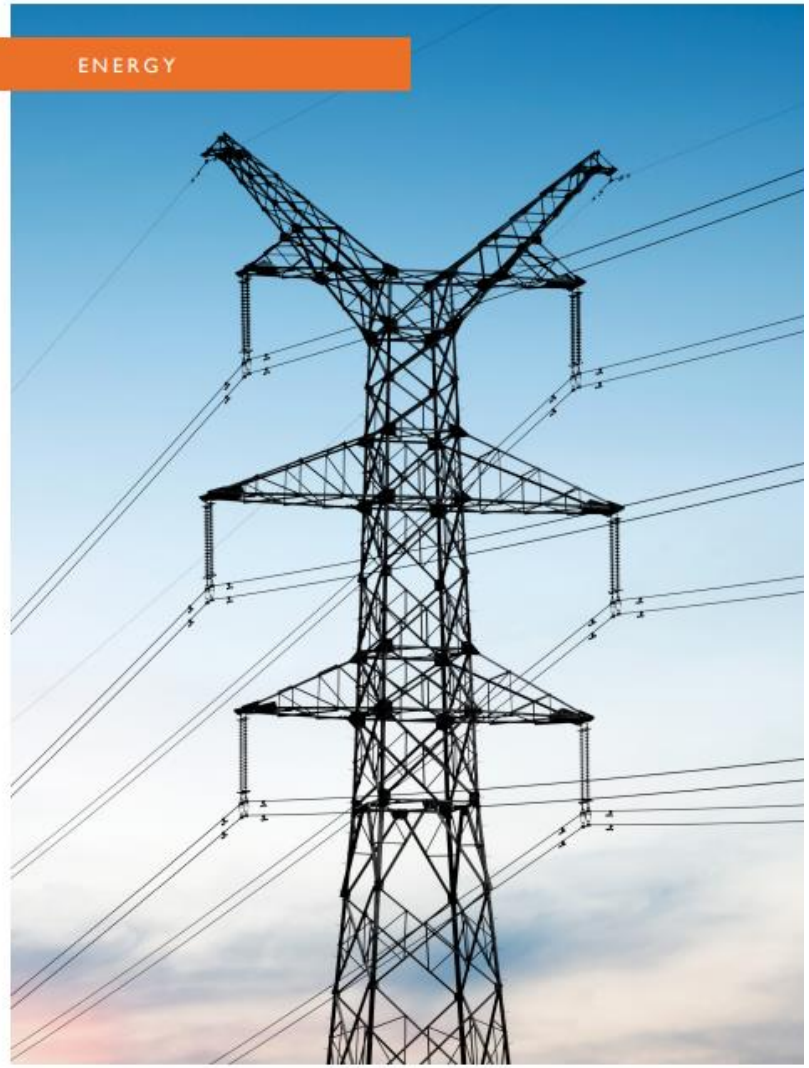
Establish specific solar PV goals, metrics, and strategies in the most current local government plans (10 points)

Codify that rooftop solar PV is explicitly allowed “by-right” in all major zones (10 points)

Ensure that large-scale solar PV can be “co-located” with agricultural uses such as grazing, apiaries, or crops (agrivoltaics) (5 points)

Lewisville, TX (SolSmart Bronze)





Energy consumption and resilience touch every aspect of City operations and directly impact those who live or work in the City of Lewisville. The Lewisville 2025 plan prioritizes meeting the anticipated energy needs of the City and the community with initiatives directed at conservation, energy efficiency, renewable sources, and energy generation. With the continued growth in the DFW region, energy demand continues to expand. It will be essential to consider energy efficiency and alternative energy policies and programs at the local level to address limited available energy supply in the coming years. Additionally, Lewisville has the opportunity to influence future energy usage through careful and strategic planning in the design of both public and private facilities. This could include elements such as removing barriers to solar implementation, supporting electric vehicles through the addition of public and private charging infrastructure, and increased energy efficiency expectations within the community.

Strategy #1: Advance Energy Performance of City Facilities and Properties

— The design phase presents the best opportunity to influence energy performance of City facilities and properties, and new facilities should be designed with energy efficiency in mind. Additionally, the City should identify energy efficiency alternatives when performing building updates. It is a best practice when setting future energy goals to use past energy performance programs to help set a baseline. The City should also consider innovative approaches to reducing energy consumption, such as evaluating the feasibility of demand/response programs to mitigate the impact of the City's energy usage on the state grid during periods of high demand.

Strategy #2: Develop a Community-Wide Renewable Energy Strategy

— Many communities are approaching renewable energy by utilizing a community-wide lens to identify implementation opportunities. Lewisville should consider hiring a consultant to work with City staff and community stakeholders to develop an overall renewable energy strategy for Lewisville.

Strategy #3: Increase Building Efficiency Within the Community

— The City can serve both as a resource and as a collaborator on programs that help improve building energy efficiency in the community. This could include low- and no-cost energy efficiency incentives such as third-party energy audits. Sustainability staff should work with Economic Development staff to identify opportunities to include building efficiency components into the City's Economic Development Policy and/or Chapter 380 agreements to incentivize the development of energy efficient buildings. Additionally, the City should consider incentivizing above-code programs such as Green Built Texas, LEED, and Enterprise Green Communities to encourage additional energy efficiency designs.

Strategy #4: Increase Renewable Energy Generation at City Facilities

— In order to increase renewable energy generation at City facilities, staff will need to identify and target the most appropriate city facilities for feasible implementation. This may include solar, wind, or other renewable energy sources as recommended by third party energy consultants.

Strategy #5: Improve Average Overall Fleet Efficiency of City Vehicles

— The City of Lewisville has prioritized improving fleet efficiency of city vehicles over the past several years. The City will strive to continue implementing successful clean fleet strategies, including increasing the number of low-carbon vehicles (such as electric vehicles) and right-sizing vehicles based on departmental functions and priorities. Through these efforts, Lewisville will seek to maintain the North Central Texas Council of Governments' Clean Fleet Gold level designation through the DFW Clean Cities program and set annual goals for continual improvement of fleet efficiency.

Government Operations Category

14 criteria including:

Install solar on local government facility or controlled land (Pre-requisite, 20 points)

Coordinate with regional orgs and/or local governments to engage utilities on advancing solar policies such as… (10 points)

Procure solar energy for municipal operations through an offsite physical PPA, virtual PPA, green tariff or similar structure (10 points)

Discuss community goals for solar PV, net metering, community solar, and/or interconnection processes with the local utility and explore areas for future collaboration (10 points)

Credit: RMI

Cedar Hill, TX (SolSmart Gold)

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Community Engagement Category

13 criteria including:

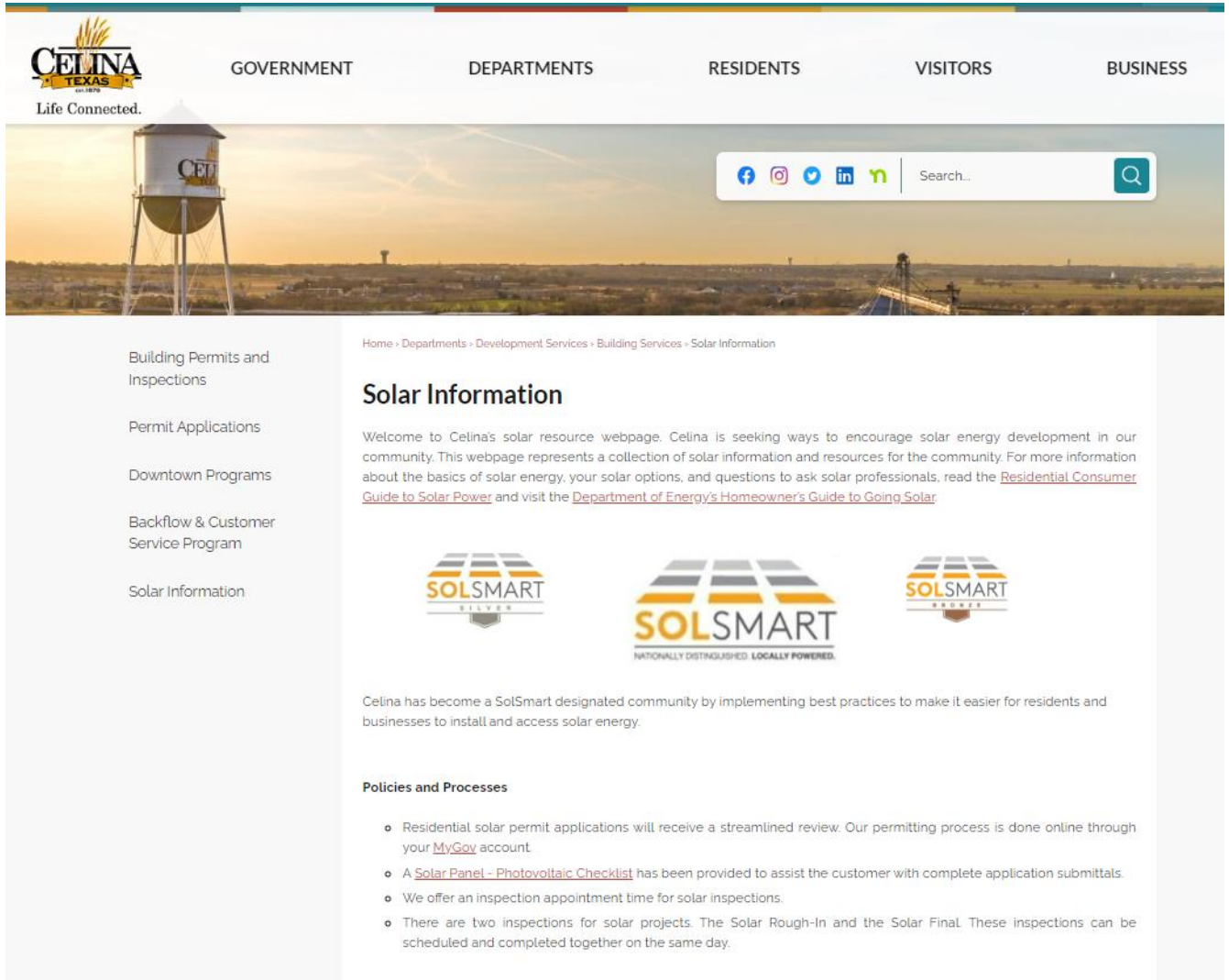
Post a solar landing page on local government's website with information that may include the community's solar goals, educational materials and tools that promote solar (Pre-requisite, 10 points)

Support a solar information session and/or solar tour (10 points)

Distribute solar job training and career opportunities in coordination with local colleges and/or workforce development orgs (5 points)

Establish partnerships with local CBOs to define your community's solar goals, develop implementation strategies, and establish a plan for tracking and reporting on progress (20 points)

Celina, TX (SolSmart Gold)



Our Solar Commitment

The City of Celina's Building & Planning Departments are committed to exceptional customer services as it relates to solar processes. To promote the continued advancement of solar in our community we are committed to the following:

- Providing clear guidelines about the solar permitting and inspection process in our Solar Panel - Photovoltaic Checklist and outlining solar requirements in our planning and zoning Solar Fact Sheet.
- Processing small rooftop solar PV permits applications in less than 10 business days.
- Offering inspection appointment times for solar projects.
- The City of Celina has incorporated solar in our 2040 Comprehensive Plan outlined in our Planning and Zoning Handbook.
- We have indicated that Alternate Energy/Solar Panels & Devices, as both primary and, more specifically, accessory uses, are interpreted to be permitted by right in all zoning districts and is clarified in the Advisory Determination of Use Letter.

Solar Benefits

Solar energy uses a renewable energy source – the sun – and provides many benefits for individuals and the community. It improves environmental quality by reducing carbon emissions and air pollution, supports local solar companies in Texas, saves money on energy costs as the price continues to drop from technological developments, and improves electric grid resilience during peak demand and other stresses to the system.

Solar Potential

Investigate your property's solar potential by clicking here. You can also estimate the performance of potential PV projects using the National Renewable Energy Laboratory's PVWatts Calculator.

Finding a Contractor and Going Solar

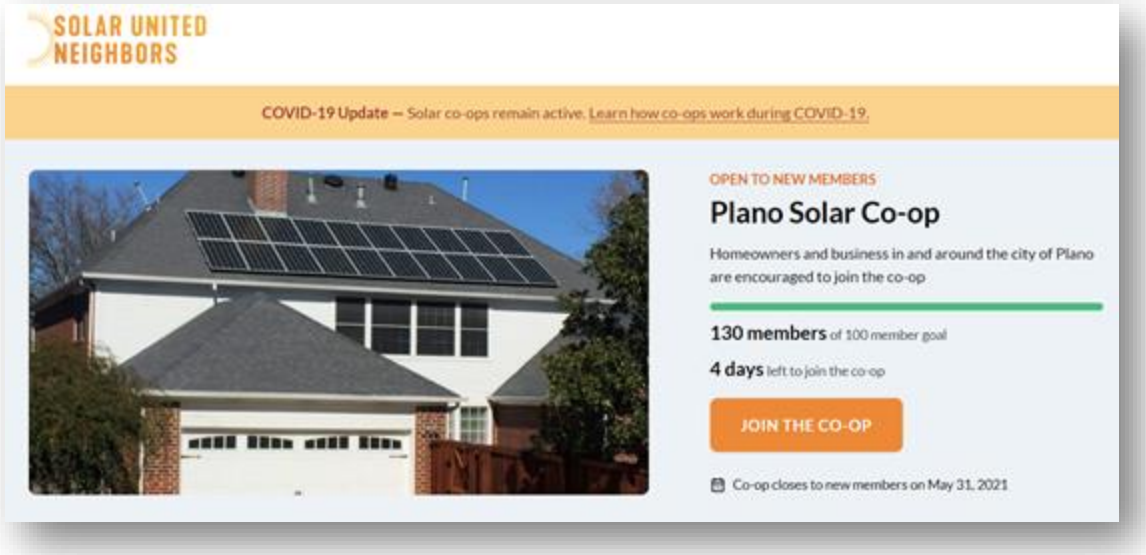
Find a solar contractor (or two) to assess your home for solar energy and provide a quote.

- Certified practitioners can be found through NABCEP.
- Visit EnergySage to learn about solar energy and submit for solar quotes from a network of pre-screened, local solar installers.
- Consumer Solar Checklist – a checklist for residential consumers considering solar energy from IREC, the Interstate Renewable Energy Council.
- Clean Energy Consumer Bill of Rights – ensure a positive consumer experience by addressing important issues from IREC, the Interstate Renewable Energy Council.
- Solar Customer Resource Portal – various resources from SEIA, the Solar Energy Industries Association.

Market Development Category

10 criteria including:

Support a solarize or solar co-op campaign (20 points)

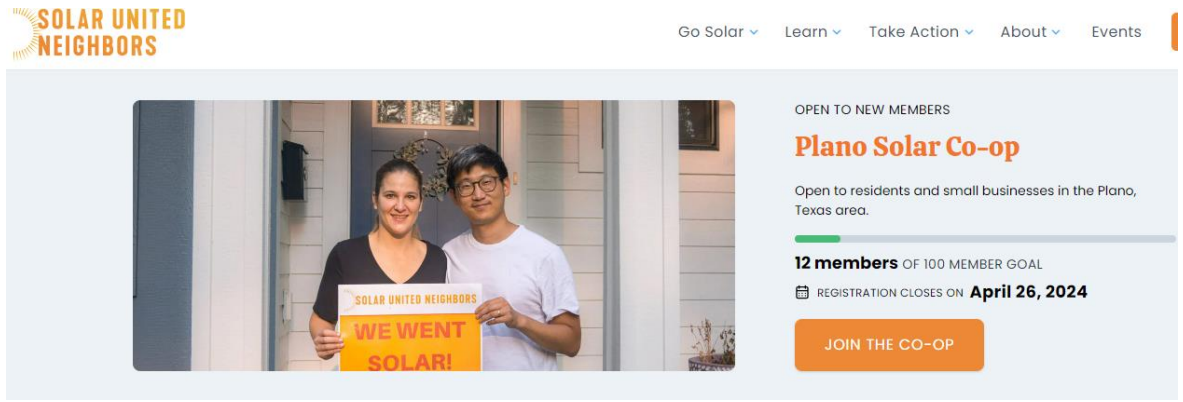


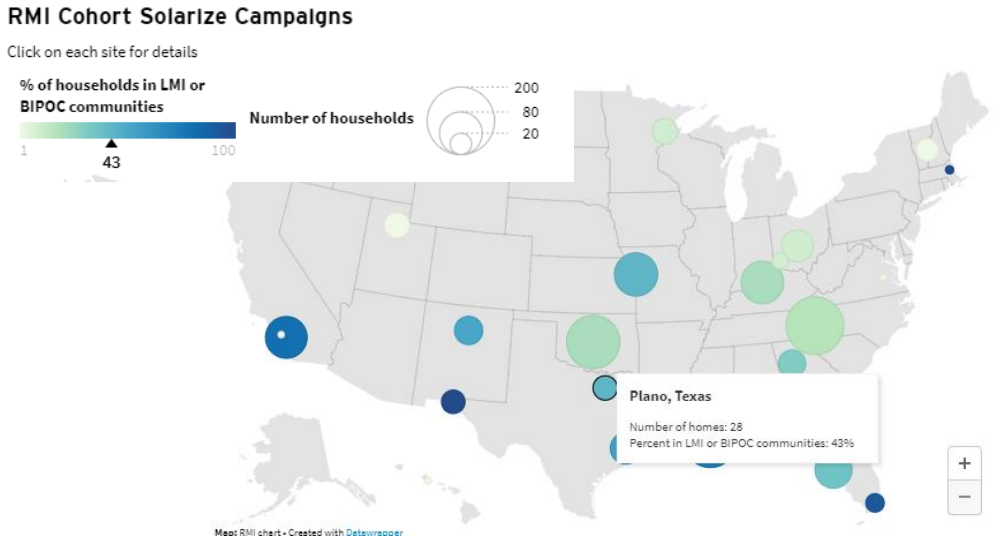
Partner with financial institutions and/or foundations to offer loans, rebates, grants, or other incentives for solar PV projects (20 points)

Support a community solar program (20 points)

Provide local incentives or locally-enabled finance (e.g., a revolving loan fund) for solar PV and/or solar PV + technologies (e.g., battery storage and/or electric vehicle charging) (20 points)

Plano, TX (SolSmart Bronze)





"The City of Plano supports and applauds Solar United Neighbors for facilitating the Plano Solar Co-Op. Not only do co-op members learn about solar energy, they leverage their participation numbers to get competitive pricing and quality solar installations. SUN works closely with the co-op members every step along the process to ensure the members are supported and have guidance."

- Heather Harrington, Plano's sustainability and environmental education supervisor

Sources: https://www.solarunitedneighbors.org/co-ops/texas/plano-solar-co-op-2/; https://rmi.org/bringing-solar-power-to-the-people/; https://planomagazine.com/plano-solar-coop/

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Upcoming AAOG Cohort Opportunity

AACOG is launching a new cohort for communities to achieve SolSmart designation

What is a cohort?

- A "cohort" is a series of workshops that leverage peer dialogues and education from subject matter experts to help participants better understand and/or act on an issue.

Who can participate?

- Any local government within the AACOG region that is seeking initial designation or wants to level-up to a higher tier of designation.

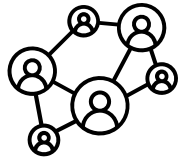
What are the key objectives?

- To deliver education and support local action on adopting solar best practices.
- To enable peers from across local governments to engage with one another and with subject matter experts.
- To support participating local governments achieve their desired tier of designation.

Why Participate in the Cohort?

Gain a deeper understanding of solar best practices and emerging issues, such as federal funding opportunities

Earn a nationally recognized designation from the U.S. Department of Energy and other media acknowledgement



Connect with your peers from other local governments in the region to hear about their efforts, successes, and lessons learned

Work through the SolSmart program in an expedited way with a curated session structure and pathway to designation.

Cohort Structure & Timeline

Session #1: Setting the stage for solar development

Overview of regional and state energy context

Session 3: Permitting & inspection for solar

Training on best practices for permitting and inspecting solar arrays

Session 5: Wrap up & next steps

Address any outstanding questions and chart a pathway forward

March 27, 2025

June 5, 2025

February 27, 2025

April 24, 2025

July 9, 2025

Session 2: Planning for solar

Best practice guidance for planning and zoning of small and large-scale solar arrays

Session 4: Community engagement & municipal operations

Guidance on how to support residents, businesses, and your own operations teams as they consider adopting solar

Access to 1-on-1 technical assistance support

Next Steps for Communities Interested in Participating in the Cohort

1. Discuss the opportunity with your team and community leadership.
2. Engage with permitting/inspection and planning/zoning staff who will need to attend sessions.
3. Commit to the cohort by submitting a "Solar Statement" (or by sending an email) to Lyle Hufstetler (lhufstetler@aacog.gov) and Andrew Light (andrew.light@wri.org) **by February 10th. 2025.**
    - Share the name(s) and contact information of other participating staff, too, so they can be included in relevant outreach and calendar invitations.
4. The SolSmart team will use public information to conduct a baseline analysis of your community's solar efforts to date and zoning ordinance, and the results will be shared before the second session.
5. Let us know if you have near-term technical assistance needs.

If you have any questions, please send an email copying Lyle Hufstetler (lhufstetler@aacog.gov) and Andrew Light (andrew.light@wri.org)

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