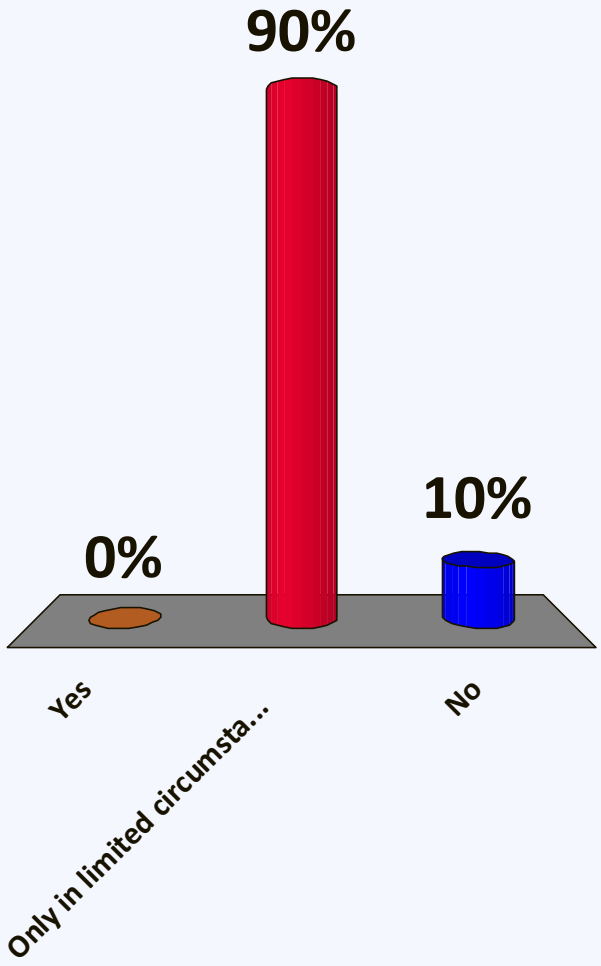
Visioning: Scales & Contexts

Poll

Is solar on historic structures appropriate for your community?

Solar in historic districts?

A. Yes
B. Only in limited circumstances
C. No



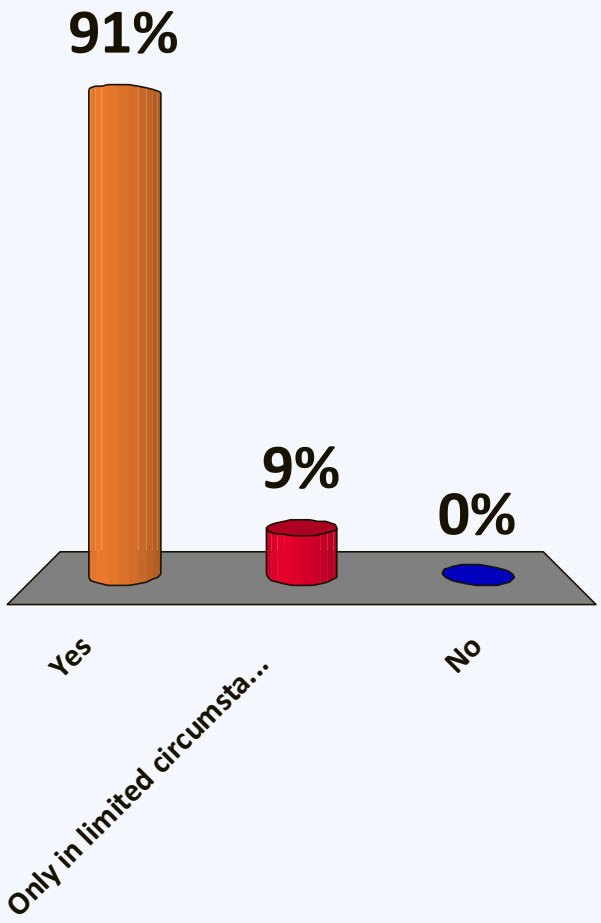
Visioning: Scales & Contexts

Poll

Is solar on brownfields appropriate for your community?

Brownfield solar?

A. Yes
B. Only in limited circumstances
C. No



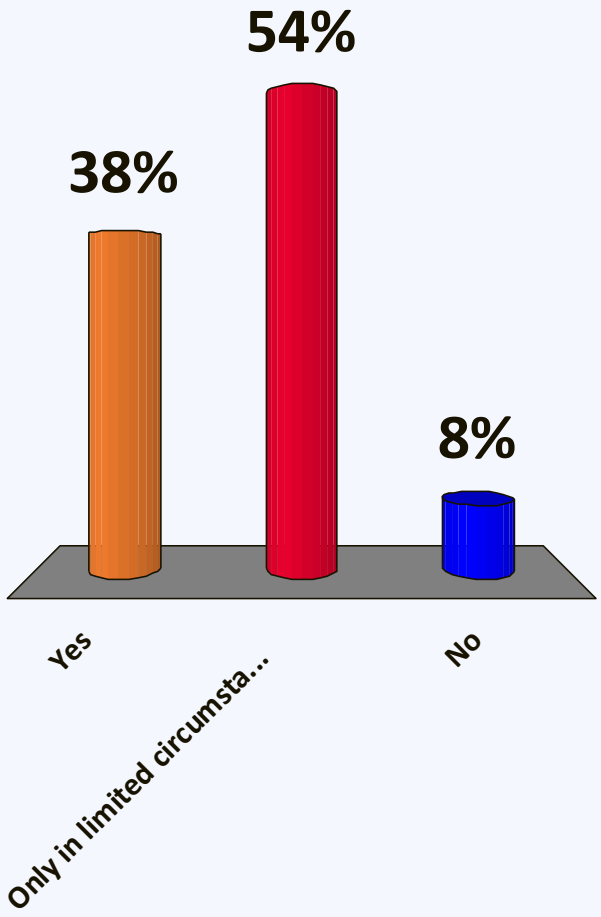
Visioning: Scales & Contexts

Poll

Is solar on greenfields appropriate for your community?

Greenfield solar?

A. Yes
B. Only in limited circumstances
C. No



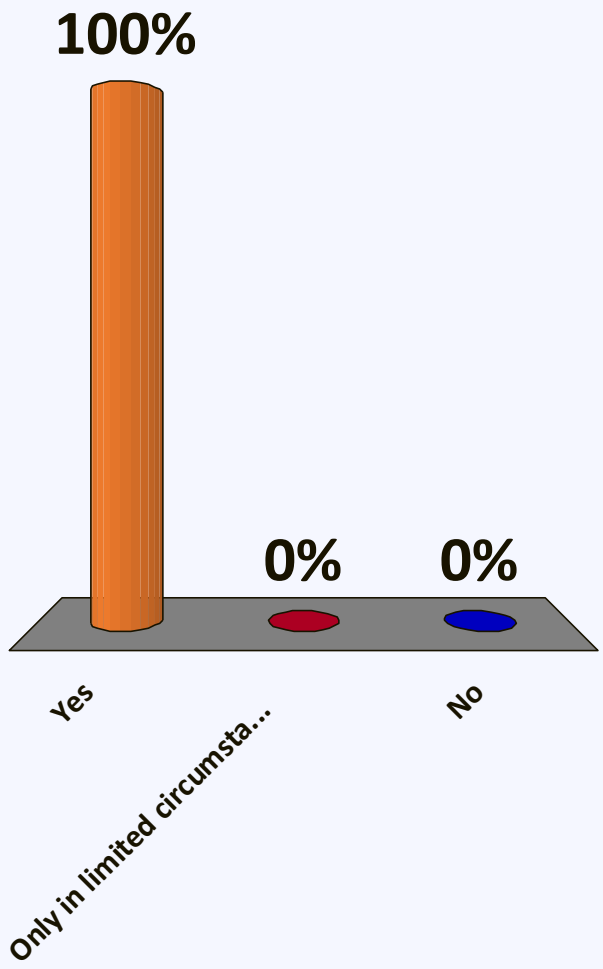
Visioning: Scales & Contexts

Poll

Is solar on parking lots appropriate for your community?

Solar on parking lots?

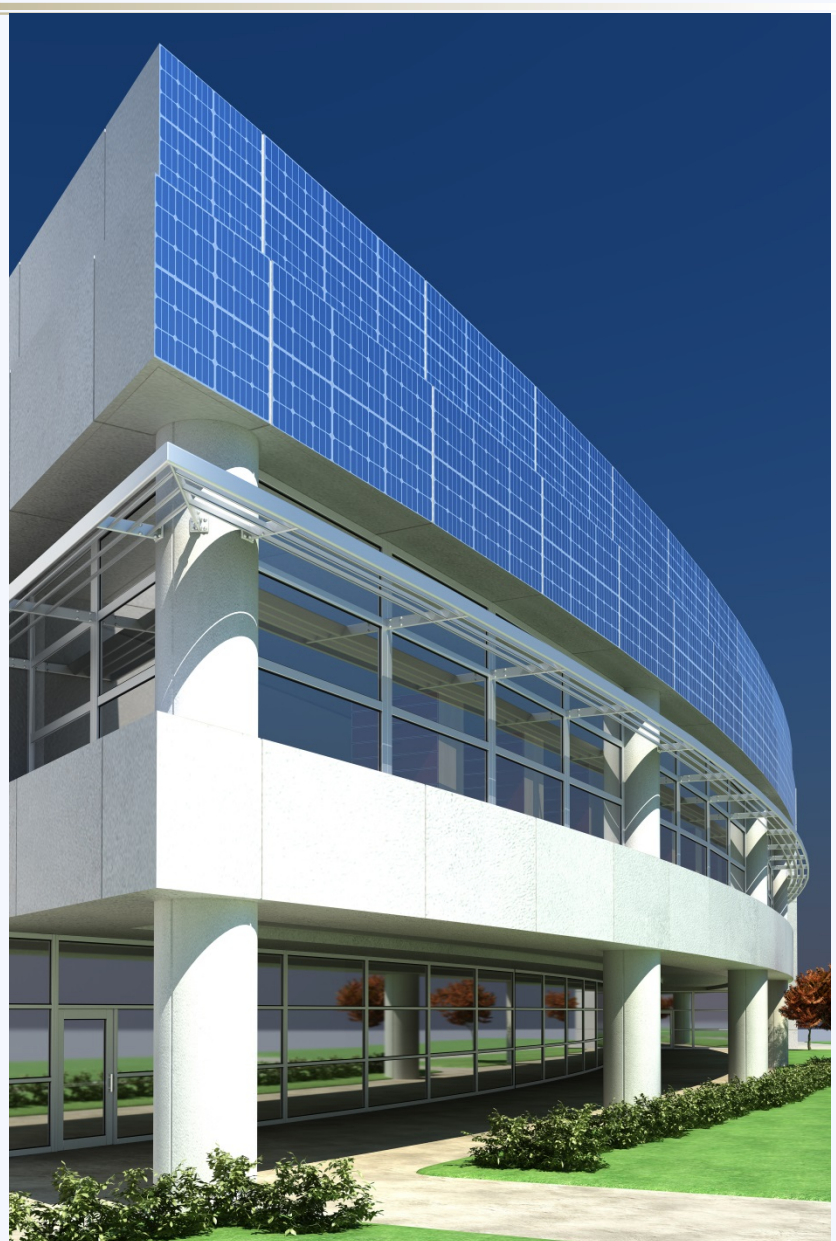
A. Yes
B. Only in limited circumstances
C. No



Visioning: Scales & Contexts

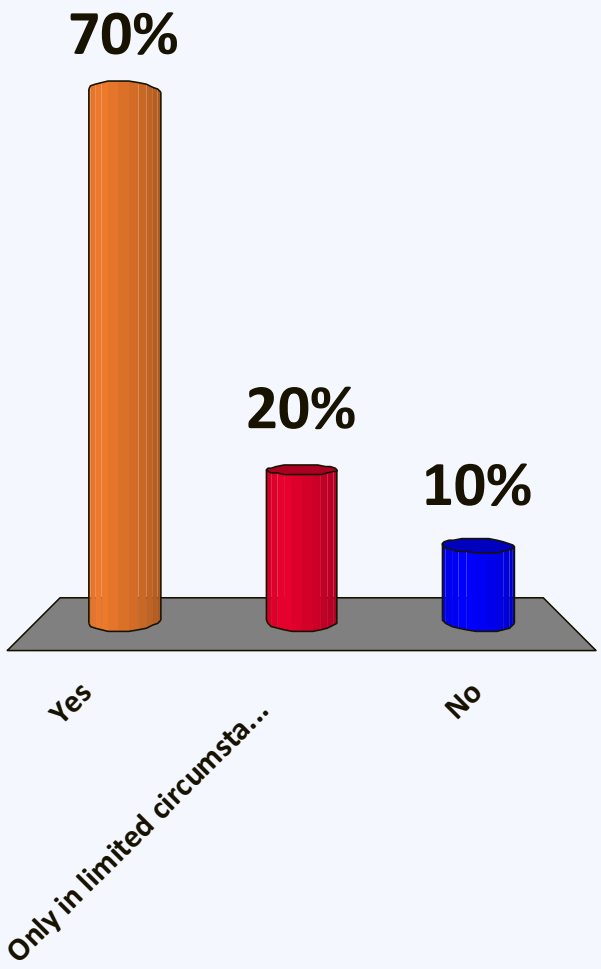
Poll

Is building-integrated solar appropriate for your community?



Building integrated solar?

A. Yes
B. Only in limited circumstances
C. No

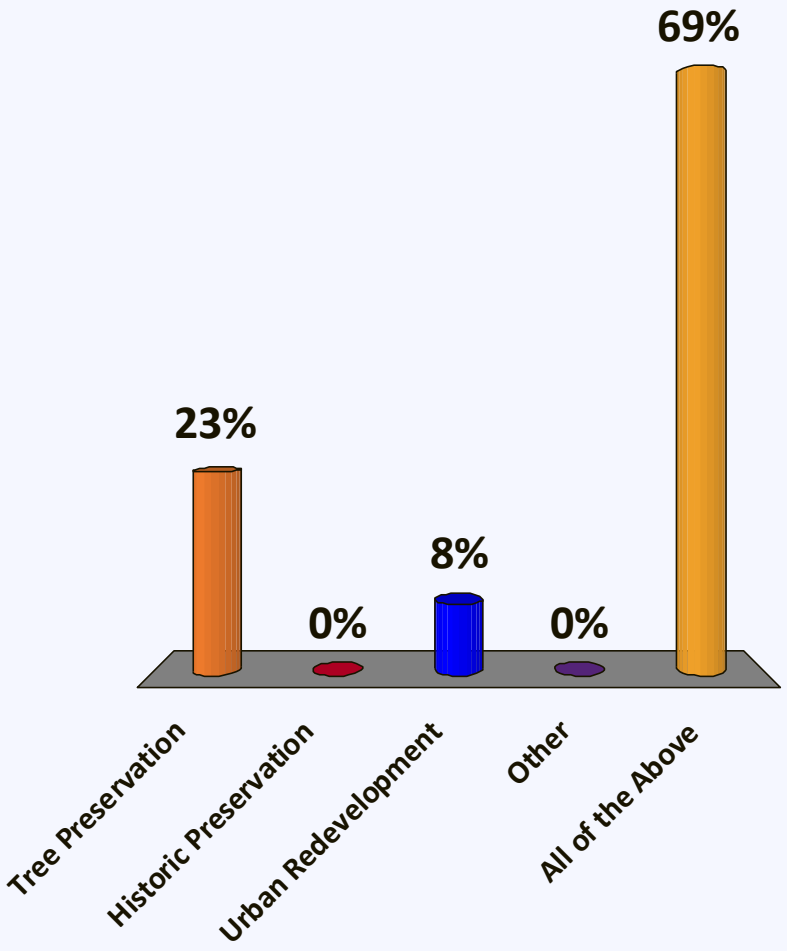


Poll

What interests might compete with the solar development opportunities you expressed interest in?

What interests might compete with solar?

A. Tree Preservation
B. Historic Preservation
C. Urban Redevelopment
D. Other
E. All of the Above



Tree Preservation

- Solar Access vs. Tree Protection
- How should the two interact?
  - 2008 California Solar Shade Control Act Amendment
- Procedures reflect community priorities

Historic Preservation

- Historic districts boost character and can raise property values
- Prevent permanent loss of "character defining" features
  - Aesthetic and design guidelines

Source: SolarCentury

Urban Redevelopment

- Long-term growth and development strategies
  - Density planning
  - Dispute resolution

Engage the Community

- Community members may have their own priorities
  - Involve key stakeholders in visioning before plans are formalized
  - Provides opportunity to prioritize interests and drive leadership

Leading Communities

- Solar in comprehensive plan
- As-of-right installations
- Transparent permitting and inspection processes
- Interconnection coordinated with utility
- Public-sector investment

- Are these aspects of leading communities present in your region, city or town?
  - Discuss in groups of 2-3 and present your thoughts to the group
  - Learn more about each option after the break!

Agenda

Solar and the Role of Local Governments

- Solar Technologies
- Solar and Local Governments

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- Group Activity and Discussion

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- Overview and Case Examples

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- Walkthrough with Hobart, IN Regulations

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Questions and Feedback

Planning for Solar Development

Communitywide Comprehensive Plan

Neighborhood Plans	Corridor Plans	Special District Plans
Green Infrastructure Plans	Energy Plan	Climate Action Plan

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Source: American Planning Association

Integrating Solar in Plans

Areas Identified by the APA:

1. Purpose
2. Existing Conditions
3. Goals and Objectives
4. Action Steps

ENERGY

INTRODUCTION

Energy is an important factor for the economic, environmental, and social well-being of our community. Practically every decision we make and action we take affects energy use and production. And, in turn, energy use and production affect our future decisions and actions.

Hartford relies heavily on fuels imported from outside our region. Therefore, most of the money spent on energy is exported from our local economy and does not return to create jobs or buy goods locally. In addition, foreign fuel sources are insecure and unstable and so are subject to huge price swings and supply shortages beyond our control.

Environmentally, air, soil, and water quality are affected by our energy use. On the global scale, energy production and use have caused large-scale environmental problems, such as large quantities of radioactive waste from nuclear power plants, contamination of ocean waters and land from oil spills, and global warming, which threatens to drown the world's coastal cities, reduce the productivity of agricultural zones, and subject many ecosystems to foundational change and possible extinction.

Hartford is impacted environmentally by energy used in other parts of the nation. Acid rain, a pollution brought to us from Midwestern coal plants, affects our lakes and forests. Though Hartford has no comparable heavy industry, our energy production and use affect not only our area, but surrounding areas as well. Responsible handling of energy decisions must, therefore, concern not only the needs of our immediate township but all regions affected by our energy production and use, not only for this year but for many generations to come.

Hartford's energy future is linked to energy policies and economic forces at the state, federal, and international levels. Though the Town has limited abilities to affect a national energy policy, the Town government can influence the local population. The Town is the unit of government closest to the citizens, and is, therefore, most accessible to the participation of every individual. By adopting and implementing this Town Energy Plan, the Town makes a public policy statement regarding energy issues and acknowledges the importance of energy planning in the overall development of the community and country.

This chapter and its recommendations will promote the creation of a sustainable energy future: one that minimizes environmental impact, supports our local economy, and emphasizes energy conservation, efficiency, and the increased use of local and regional renewable energy resources.

Introduction and purpose: To create a sustainable energy future for Hartford, VT including conservation, efficiency and local renewable energy

Sustainability and energy trends and progress in Lowell building the case for solar.

ENVIRONMENT

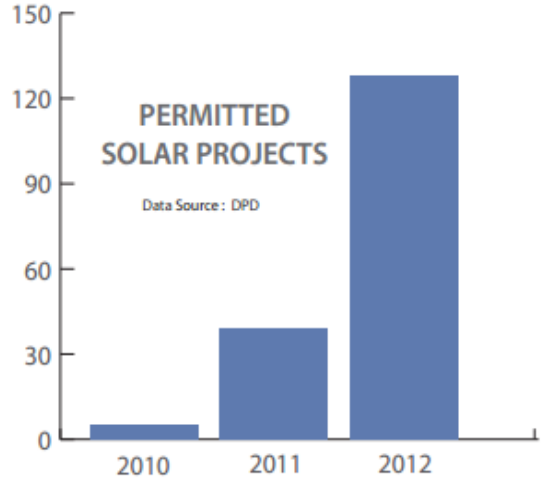
In the past ten years, Lowell has successfully modeled ways that older, industrial cities can integrate historic preservation with environmentally sustainable development. In 2011, the City received accolades from the State's Department of Energy Resources as a 'Leading by Example' award recipient, and continues to serve as a leader in renewable energy and energy efficiency investments, brownfields redevelopment, and transit-oriented development. Improvements to water quality and increasing support for local food access have also contributed to Lowell's emerging identity as a sustainable community.

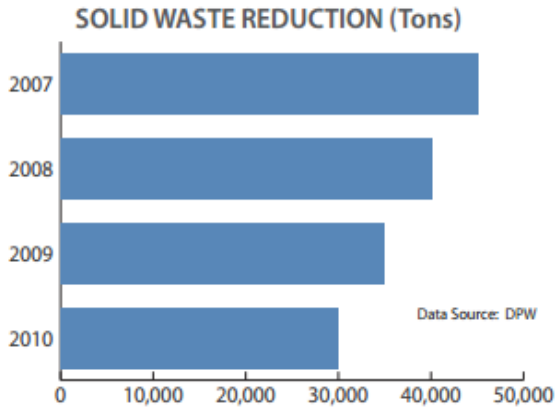
Consistent with its heritage, Lowell continues to be a leader in the production of renewable energy, with nearly 30 Megawatts of solar- and hydropower production capacity. Public and private investment in solar technologies in particular has increased tremendously in recent years. As a component of Lowell's $21 Million performance contract, the City has made renewable energy and energy efficiency enhancements in 47 city owned buildings, including installing solar arrays on four public schools and the Lowell Memorial Auditorium. The number of privately funded solar projects has also grown significantly, leaping from 5 projects in 2010 to over 125 in 2012.

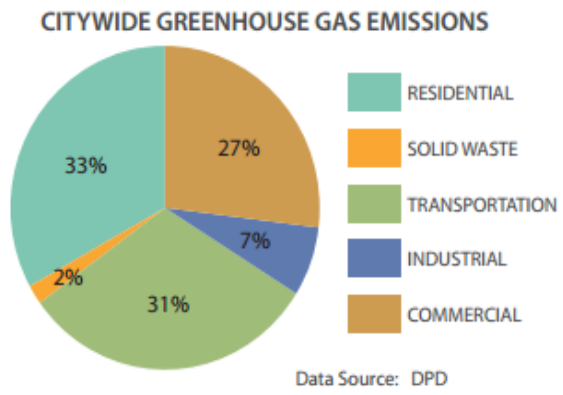
Since the City transitioned to a new bin collection system in 2008, the annual tonnage of solid waste being collected citywide has been reduced from 45,000 to 30,000, and recycling has increased proportionally.

Although Lowell has made great strides over the past decade to better preserve and protect its natural environment, further reduction of greenhouse gas emissions still remains a high major priority. A Greenhouse Gas Analysis conducted in 2008 by the Department of Planning and Development found that the majority of emissions were generated by transportation uses and commercial and residential properties. By implementing the goals and objectives laid out in this plan, however, the City is confident that Lowell will continue to reduce its emissions and leave its environment in a better condition for future generations.

Lowell, Massachusetts







Evanston Climate Action Plan

		array	
★	b) Encourage residents to consider and install solar thermal panels for hot water heating at their homes.	6,048 $MTCO_2E$ (3-panel systems)	COE Community Development
	c) Investigate the feasibility of purchasing solar power through a solar energy service provider as a way to finance solar electricity generation at City facilities.	1,951 $MTCO_2E$	COE Facilities
	d) Encourage businesses and institutions to install solar PV systems as feasible.	40,604 $MTCO_2E$	COE Community Development
	e) Consider the installation of solar thermal panels at City facilities that use large quantities of hot water, such as fire stations.	11 $MTCO_2E$	COE Facilities, IL DCEO, IL CECF
★	f) Address zoning and permitting barriers to the installation of renewable energy applications in the residential and commercial building sectors.		City Council, COE Community Development

★	**Reduce emissions related to electric and gas use in buildings through the use of renewable energy.**	**91,789-128,993 $MTCO_2E$**

Recommendation 2:

Design Municipal Solar Financial Incentives

Design municipal incentives that encourage residential and business installation of solar energy systems. Work in concert with the developing Ann Arbor Property Assessed Clean Energy program, DTE Energy incentives and the Michigan Saves program to maximize financial assistance. As most incentives are created at the state level and by utilities, advocating for best practices at these levels will also be an important strategy to encourage adoption of effective incentives.

Objective

WHY: Upfront and ongoing financial incentives have proved to be one of the most effective ways to encourage quick solar energy adoption.

Goal

HOW:

- *Promote and expand Property Assessed Clean Energy Program (PACE).* Build upon Ann Arbor's PACE program, expanding eligibility, available funds, and maximizing community education opportunities [see 4.3 e].
- *Advocate for state level policy change.* Strengthening the Renewable Portfolio Standard and offering incentives such as feed-in tariffs are two particularly effective ways to increase solar adoption [see Recommendation 4].
- *Offer an incentive for installation of solar hot water or solar PV systems.* Specifically incentivize types of installations that meet multiple goals, including the use of local products and installers, installations on energy efficient buildings, and the utilization of green jobs program trainees. Specific types of installation locations can also be incentivized, including nonprofits that are not eligible for federal tax credits, and low-income housing [see 4.3 a].
- *Add solar to property tax exemption.* Exempt solar thermal and solar PV from property taxes in Ann Arbor [see 4.3 d].
- *Continue exploring the viability of creating a municipal utility.* As a municipal utility would have the authority to implement innovative incentives like feed-in tariffs, an Ann Arbor municipal utility would be most able to aggressively pursue Ann Arbor's renewable energy goals.

Actions

See Appendix E: Financial Incentive Priorities for more information.

Buildings

Sector Plan

The Plan promotes compact and street oriented development that emphasizes the public realm and the pedestrian experience. Compatibility with adjacent residential neighbors is required. The Plan recommends:

- Development with front doors facing the street.
- Setting back upper floors from the street on buildings over 60 feet in height (4 – 5 stories) to reduce mass and bulk.
- Building setbacks to frame the sidewalk.
- Locating tallest buildings at transit stations with step downs towards existing residential communities.
- Achieving minimum building height of 3 stories, where feasible.

Guidelines

The guidelines further promote an urban character and a walkable environment with detailed guidance on building form, massing and height, facades and retail storefronts. The guidelines apply to all properties with the final location of buildings, size and architecture to be determined through regulatory review. Unique uses such as hospitals will need flexibility to ensure that their special functional needs are met.

Building Form

Evolve existing development patterns into an urban form with buildings lining streets and parking located to the rear or mid-block.

- Locate buildings to create building walls that define the street and sidewalk.
- Locate primary entrances at sidewalk level.
- Develop blocks with alleys for service areas and loading.

Massing and Height

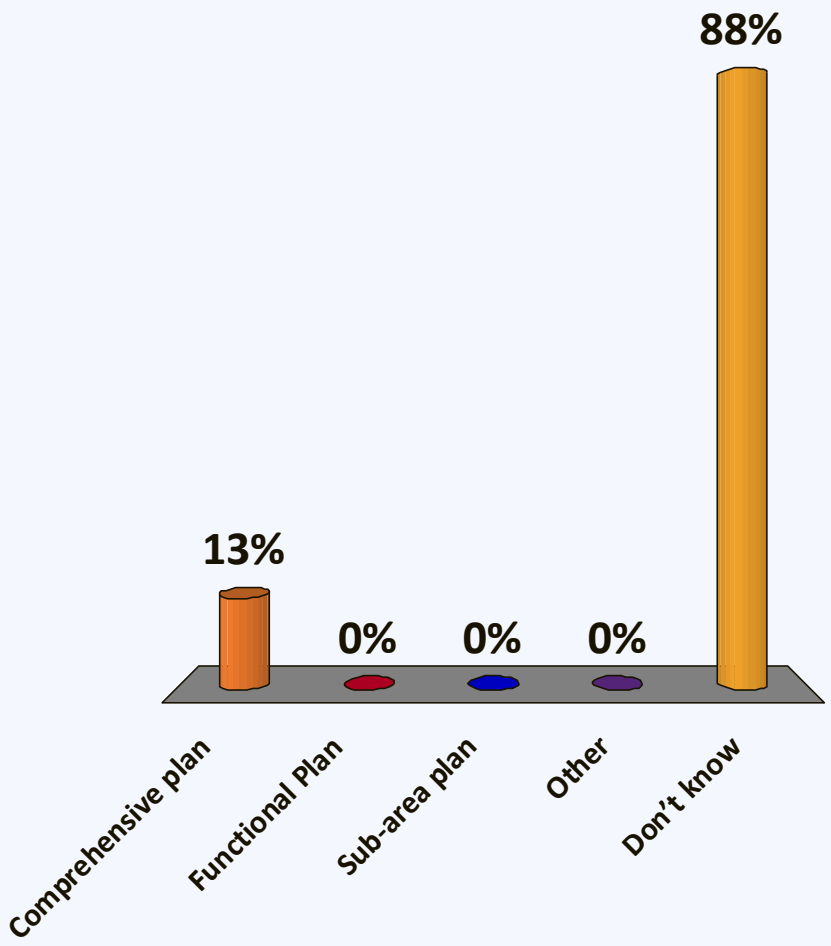
Germantown's seven districts should each have an identifiable center created by locating density in a core area.

- Cluster development around transit stations.
- Arrange buildings to define gathering places and urban plazas.
- Design buildings at street corners to facilitate pedestrian movement.
- Set back taller, high-rise towers to reduce shadows and mitigate building height.
- Design slender floor plates for buildings over five stories to avoid massive, bulky forms and shadows.
- Design buildings to disperse winds, avoid accelerating drafts, and protect pedestrians.
- Provide tall floor ceiling heights to accommodate a range of uses.
- Develop two to three story buildings, where feasible, if market conditions do not result in buildings using the allowable density.
- Vary building heights along a street.
- Step down building heights adjacent to residential communities to 35 feet (50 feet maximum including bonus density) to achieve compatible transitions unless the Plan identifies specific heights.
- Design for solar orientation.

Design standards and guidelines emphasizing solar orientation and walkability

Is solar already integrated into community plans? If so, which kinds?

A. Comprehensive plan
B. Functional Plan
C. Sub-area plan
D. Other
E. Don't know



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15-minute break

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Agenda

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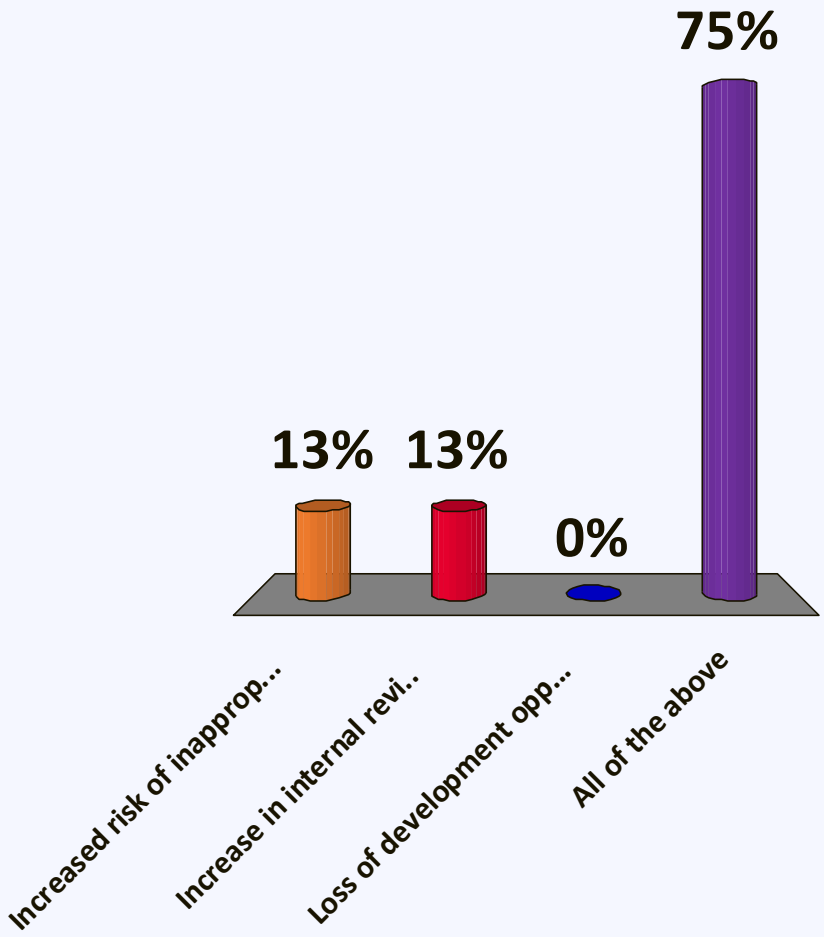
Poll

What is the cost of convoluted regulations or “regulatory silence”?

What is the cost of convoluted regulations or "regulatory silence"?

A. Increased risk of inappropriate development
B. Increase in internal review costs
C. Loss of development opportunities
D. All of the above



Regulations: Zoning Standards

Section	Topics to Address	
Definitions	Define technologies & terms	
Applicability	Primary vs. accessory use	
Dimensional Standards	• Height • Size	• Setbacks • Lot coverage
Design Standards	• Signage • Disconnect	• Screening • Fencing

Source: American Planning Association

Zoning Standards: Small Solar

Typical Requirements:

- Permitted as accessory use
- Minimize visibility if feasible
- Requirements:
  - District height
  - Lot coverage
  - Setback

Zoning Standards: Large Solar

Typical Requirements:

- Allowed for primary use in limited locations
- Requirements:
  - Height limits
  - Lot coverage
  - Setback
  - Fencing and Enclosure

Zoning Standards: Hobart, IN

Definition

- Technology types
- Broad and inclusive

SOLAR ENERGY SYSTEM. A set of devices whose primary purpose is to collect solar energy and convert and store it for useful purposes including heating and cooling buildings or other energy-using processes, or to produce generated power by means of any combination of collecting, transferring, or converting solar generated energy.

SUBSTATIONS. Any electrical facility designed to convert electricity produced by wind turbines to a voltage for interconnection with transmission lines.

TOTAL HEIGHT. The highest point, above ground level, reached by a rotor tip or any other part of the WECS.

TOTAL NAME PLATE CAPACITY. The total of the maximum rated output of the electrical power production equipment for a WECS project.

TOWER. Towers include vertical structures that support the electrical generator, rotor blades, or meteorological equipment.

TOWER HEIGHT. The total height of the WECS exclusive of the rotor blades.

TRACKING SOLAR ARRAY. A solar array that follows the path of the sun during the day to maximize the solar radiation it receives.

WECS - WIND ENERGY CONVERSION SYSTEM. A device such as a wind charger, windmill, or wind turbine and associated facilities that converts wind energy to electric energy, including, but not limited to: power lines, transformers, substations, and meteorological towers. The energy may be used on-site or distributed into the electrical grid.

Zoning Standards: Hobart, IN

§154.436 PERMITTED AND CONDITIONAL USES FOR SOLAR ENERGY SYSTEMS

Solar Farms will be permitted, conditionally permitted or not permitted based on the generating capacity and land use district as established in the table below; (P=Permitted, CU=Conditional Use, NP=Not Permitted):

	Large Solar Energy System	Accessory Solar Energy System
(1) A-1	CU	P
(2) R-1/2/3/4	CU	P
(3) OS-1 & B-1/2	CU	P
(4) B-3 & PBP	CU	P
(5) M-1/2	P	P

(A) *Standards for Solar Energy Systems, Accessory*

Solar energy systems are a permitted accessory use in all zoning districts, subject to the following standards:

Applicability

- Primary vs. Accessory use systems
- By-right in all zones for small systems

Zoning Standards: Hobart, IN

Dimensional Standards

- Large Solar Systems/ Solar Farms
  - Land Use and Conditional Use permits
  - Stormwater compliance
  - Underground power and communication lines
  - Engineering Approval
  - Code compliant
  - Pre-construction meeting
- Small Accessory Systems
  - Exempt from accessory buildings requirements
  - Setback requirements
  - No height exemption
  - Roof setback
  - Lot coverage restrictions
  - Electric code compliance
  - Utility notification
  - Minimize glare

Regulations: Building Code

Solar Ready Construction:

Preparing a building for solar at the outset can help make future solar installations easier and more cost effective.

Regulations: Building Code

Require builders to:

- ✓ Minimize rooftop equipment
- ✓ Plan for structure orientation to avoid shading
- ✓ Install a roof that will support the load of a solar array
- ✓ Record roof specifications on drawings
- ✓ Plan for wiring and inverter placement

Regulations: Solar Access

Solar Access Laws:

1. Increase the likelihood that properties will receive sunlight

2. Protect the rights of property owners to install solar

3. Reduce the risk that systems will be shaded after installation

Regulations: Solar Access

A landowner does not have any legal right to the free flow of light and air across the adjoining land of his neighbor

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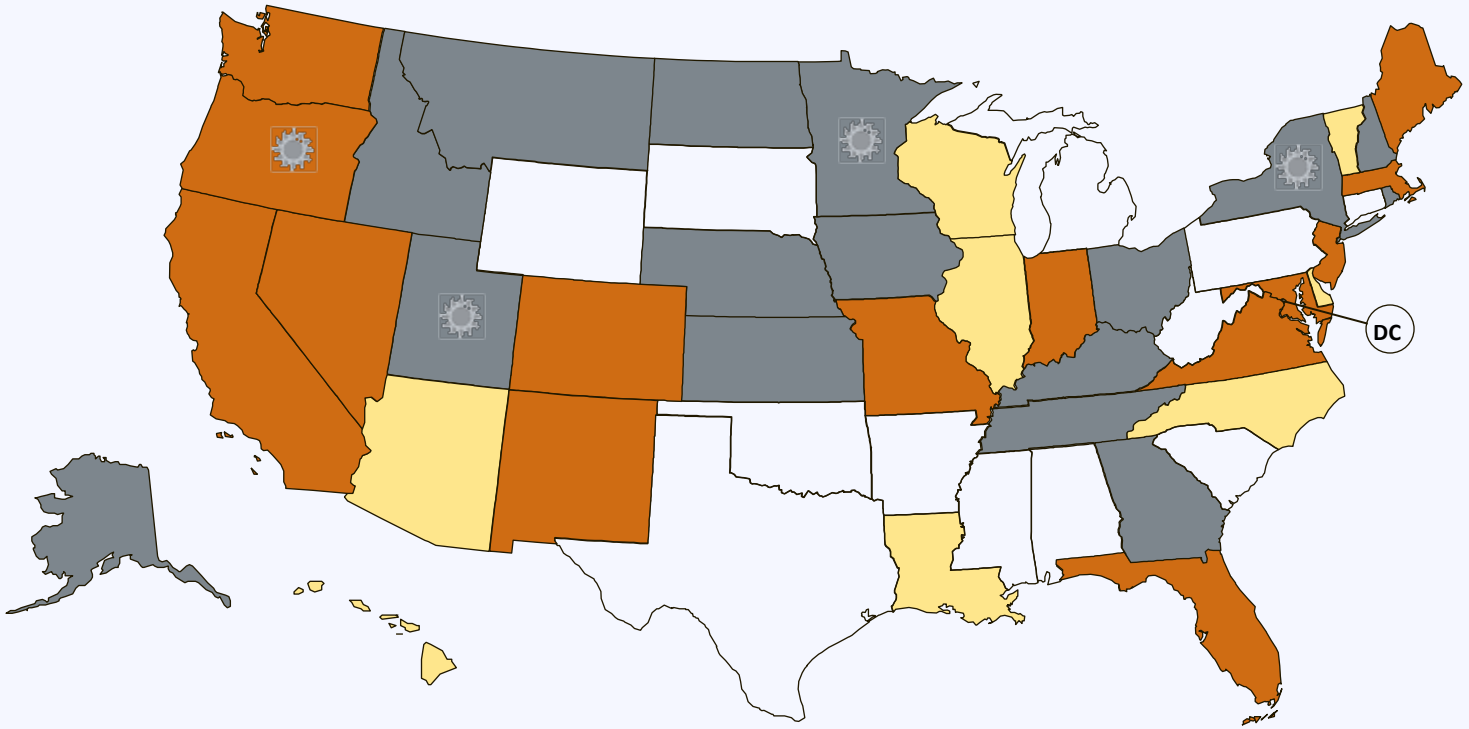
U.S. Department of Energy

Source: Google Earth

Regulations: Solar Access



Solar Easements Provision

Solar Rights Provision

Solar Easements and Solar Rights Provisions

U.S. Virgin Islands

Local option to create solar rights provision

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Source: DSIRE

Solar Rights in Indiana

1980

Indiana allows property owners to negotiate solar easements and for local authorities to regulate solar access

2002

Prevent planning and zoning covenants which prohibit or unreasonably restrict solar energy

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DSIRE, Indiana Solar Access Law, and Indiana State Code.

Solar Rights in Indiana

IC 36-7-2-1
Planning and zoning powers of reorganized units

Sec. 1. (a) Except as provided in subsection (b), this chapter applies to all units except townships.

(b) A unit consisting of:

(1) two (2) or more townships; and

(2) at least one (1) municipality;

that has reorganized under IC 36-1.5 may exercise planning and zoning power under IC 36-7-4 if the unit's plan of reorganization under IC 36-1.5 authorizes the unit to exercise planning and zoning powers.

As added by Acts 1980, P.L.211, SEC.2. Amended by P.L.202-2013, SEC.32.

IC 36-7-2-2
Planning and regulation of real property; access to solar energy

Sec. 2. A unit may plan for and regulate the use, improvement, and maintenance of real property and the location, condition, and maintenance of structures and other improvements. A unit may also regulate the platting and subdividing of real property and number the structures abutting public ways. In planning for and regulating the use of land or in regulating the platting or subdividing of real property, a unit may also regulate access to incident solar energy for all categories of land use.

As added by Acts 1980, P.L.211, SEC.2. Amended by Acts 1981, P.L.311, SEC.1.

As added by P.L.2-2002, SEC.8.

IC 32-23-4-5
Instrument; requisites

Sec. 5. An instrument that creates a solar easement must include the following:

(1) The vertical and horizontal angles, expressed in degrees, at which the solar easement extends over the real property that is subject to the solar easement, and a description of the real property to which the solar easement is appurtenant.

(2) Any terms and conditions under which the solar easement is granted or will be terminated.

As added by P.L.2-2002, SEC.8.

Solar Rights in Indiana

IC 36-7-2-8

Solar energy systems; ordinances; reasonable restrictions

Sec. 8. (a) As used in this section, "solar energy system" means either of the following:

(1) any solar collector or other solar energy device whose primary purpose is to provide for the collection, storage, and distribution of solar energy for space heating or cooling, or for water heating; or

(2) any structural design feature of a building, whose primary purpose is to provide for the collection, storage, and distribution of energy for space heating or cooling, or for water heating.

(b) A unit may not adopt any ordinance which has the effect of prohibiting or of unreasonably restricting the use of solar energy systems other than for the preservation or protection of the public health and safety.

(c) This section does not apply to ordinances which impose reasonable restrictions on solar energy systems. However, it is the policy of this state to promote and encourage the use of solar energy systems and to remove obstacles to their use. Reasonable restrictions on solar energy systems are those restrictions which:

(1) do not significantly increase the cost of the system or significantly decrease its efficiency; or

(2) allow for an alternative system of comparable cost and

Regulations: Solar Access

Solar Access Laws:

1. Solar Easements (State Law)
2. Solar Access Permits (Local Ordinance)
3. Solar fences (Zoning Provision)
4. Solar mandates (New construction)

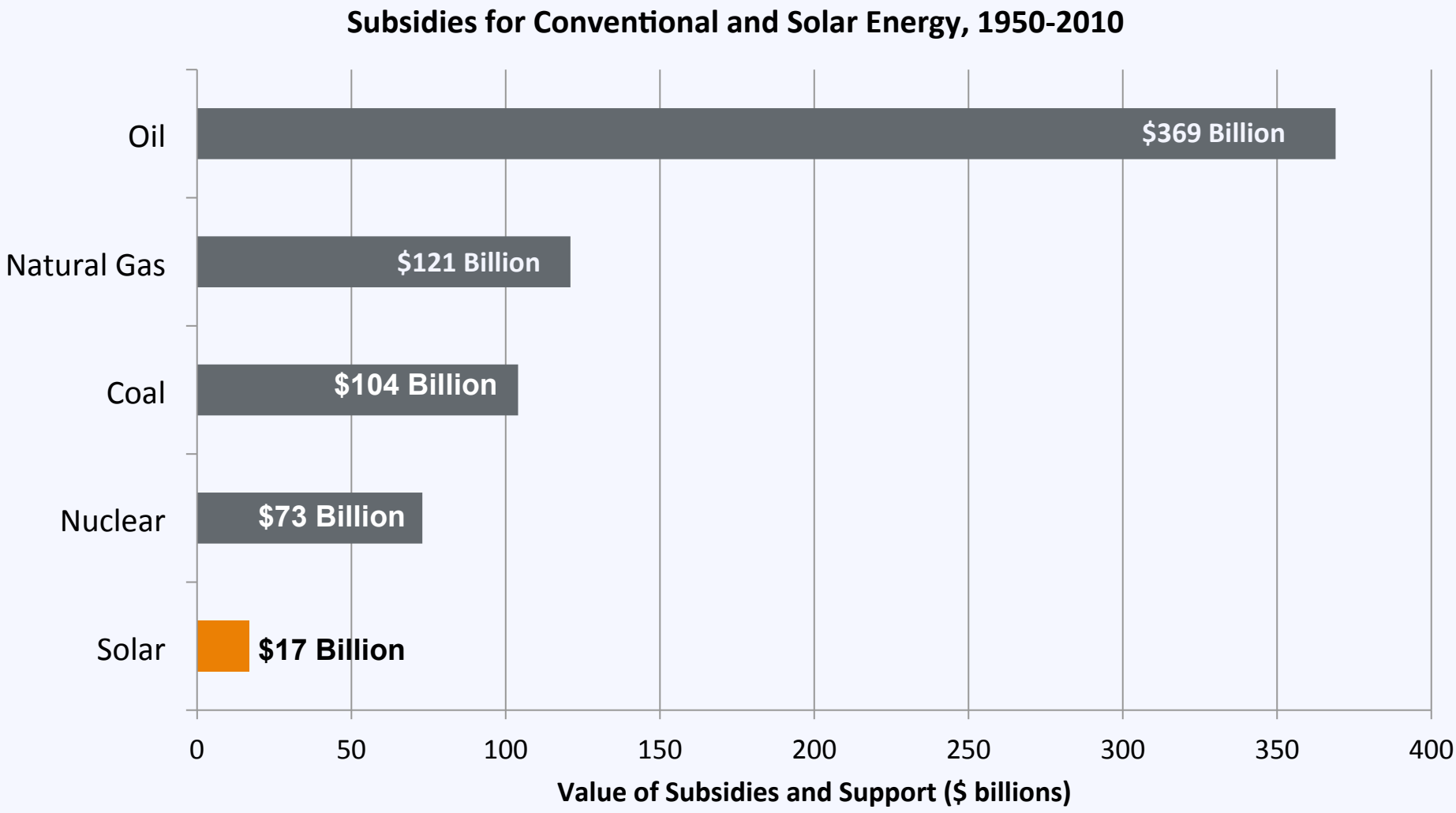
Regulations: Solar Access

Section	Topics to Address
Voiding Prohibitions	Render private restrictions unenforceable
Allowable Restrictions	Defines restrictions that are acceptable
Protections	Quantifiable standard *Example: restrictions cannot limit production by more than 10%*
Permit	Register systems to protect access

Incentives


Upfront incentives
Performance-based incentives
Finance
Tax-based incentives
Cash-based incentives
Municipal incentives
Solar Market

Subsidies and Support



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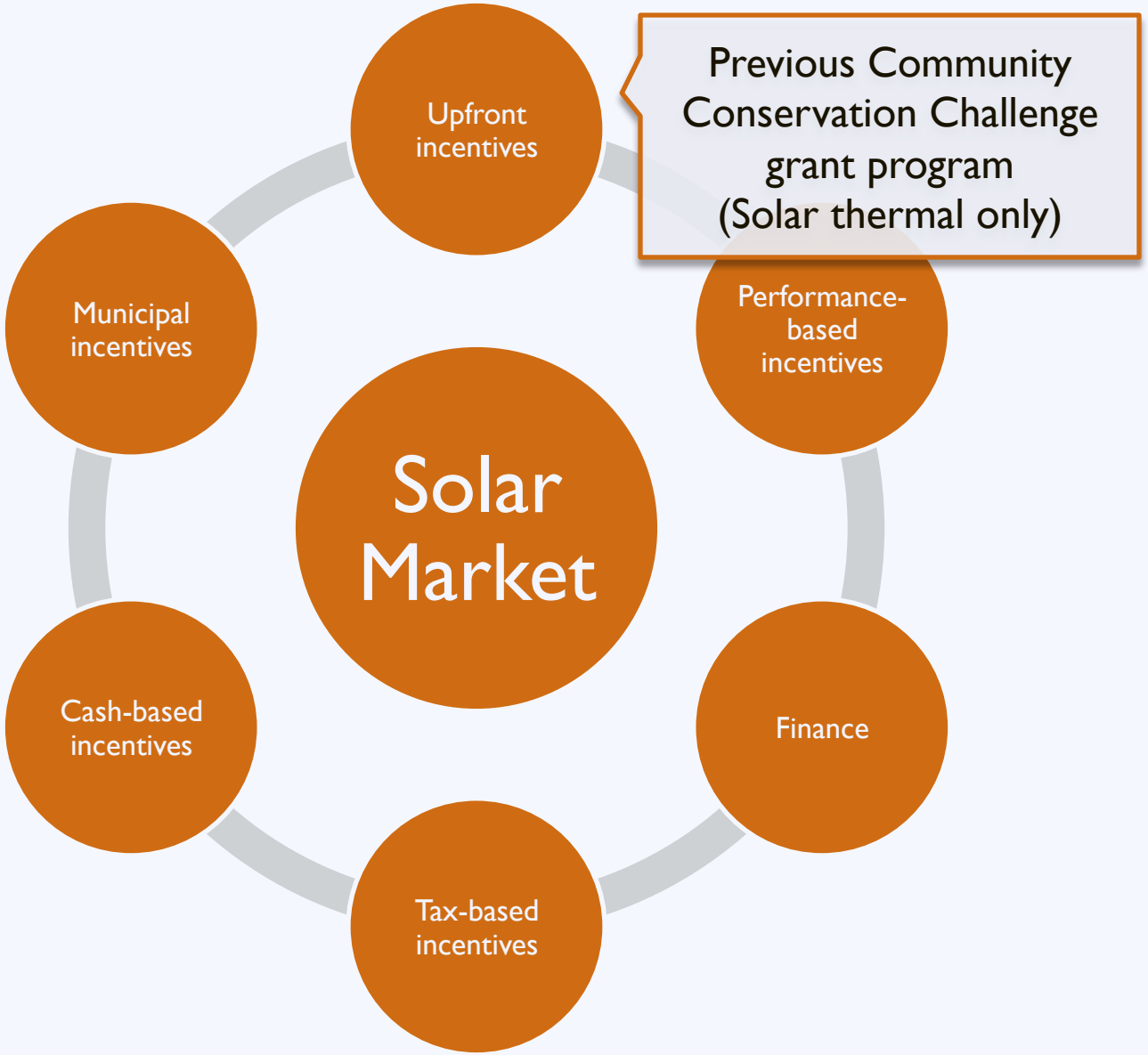
Source: Management Information Services, Inc. October 2011. *60 Years of Energy Incentives: Analysis of Federal Expenditures for Energy Development*; SEIA, May 1, 2012. *Federal Energy Incentives Report.*

Incentives



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Incentives

- NIPSCO Feed-in-Tariff Pilot Program
- Net metering

Net Metering: Overview

Morning

Net Metering: Overview

Afternoon

Net Metering: Overview

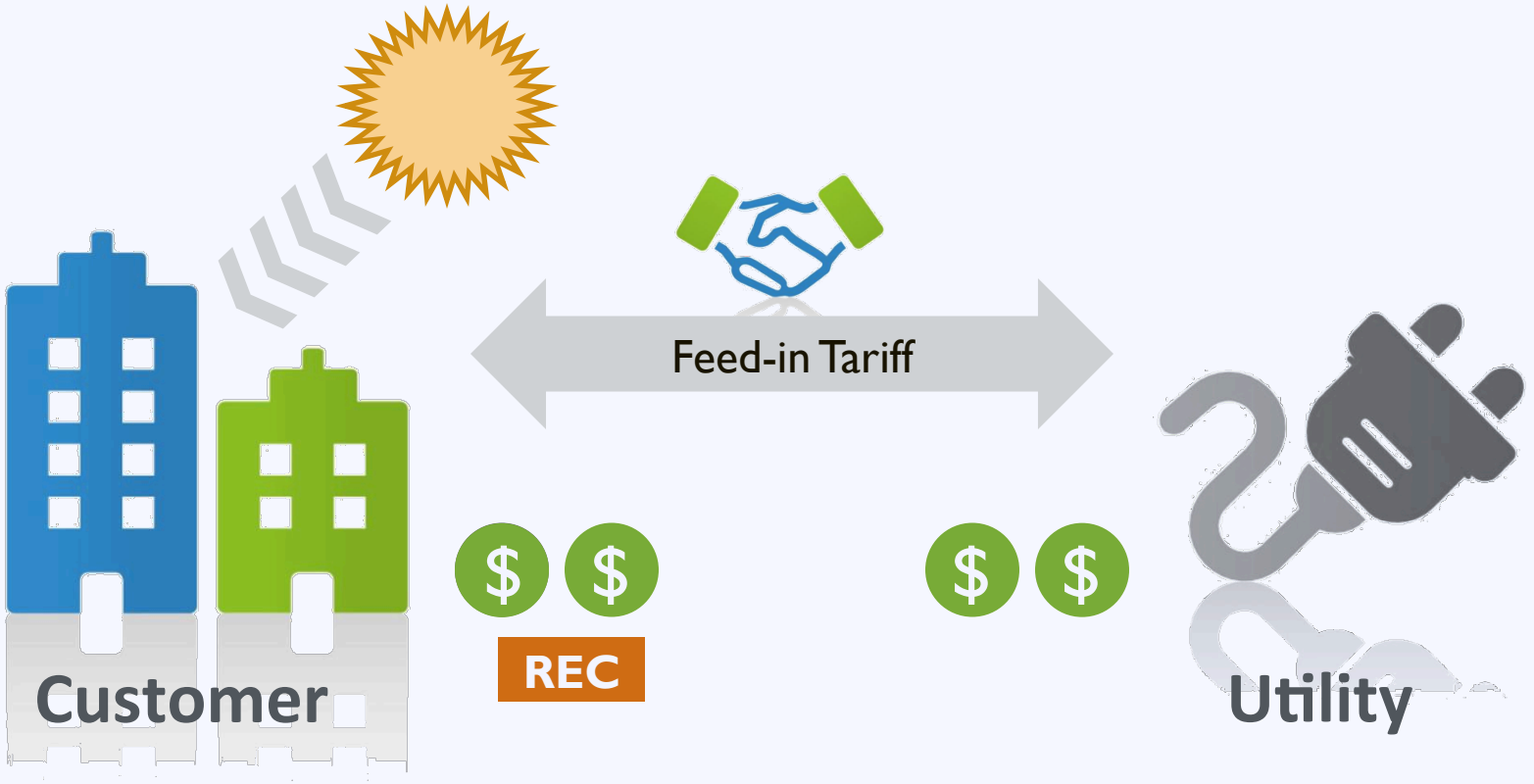
Night

Customer

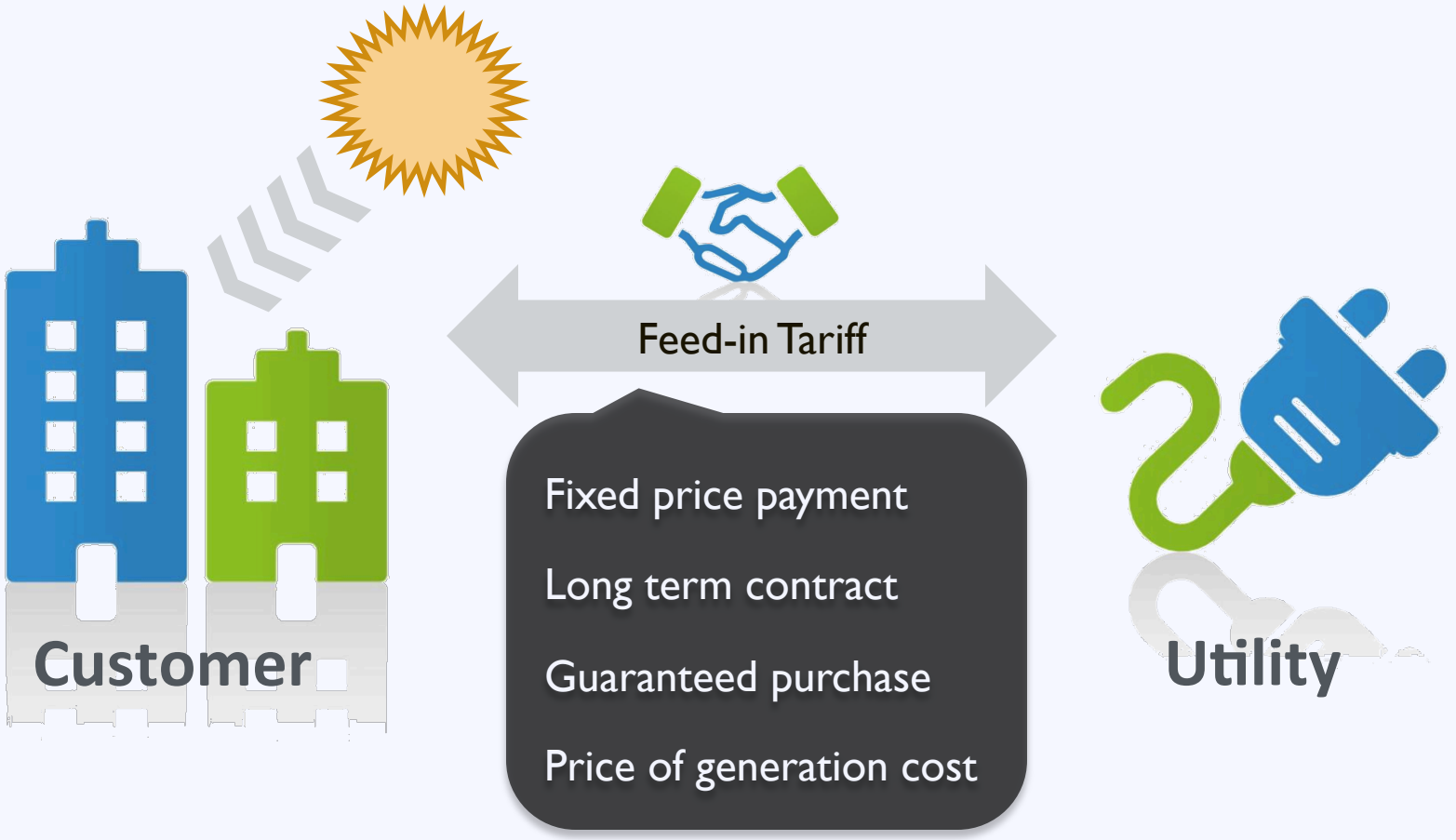
Utility

Solar covers 100% of the customer's load, even at night!

Feed in Tariff



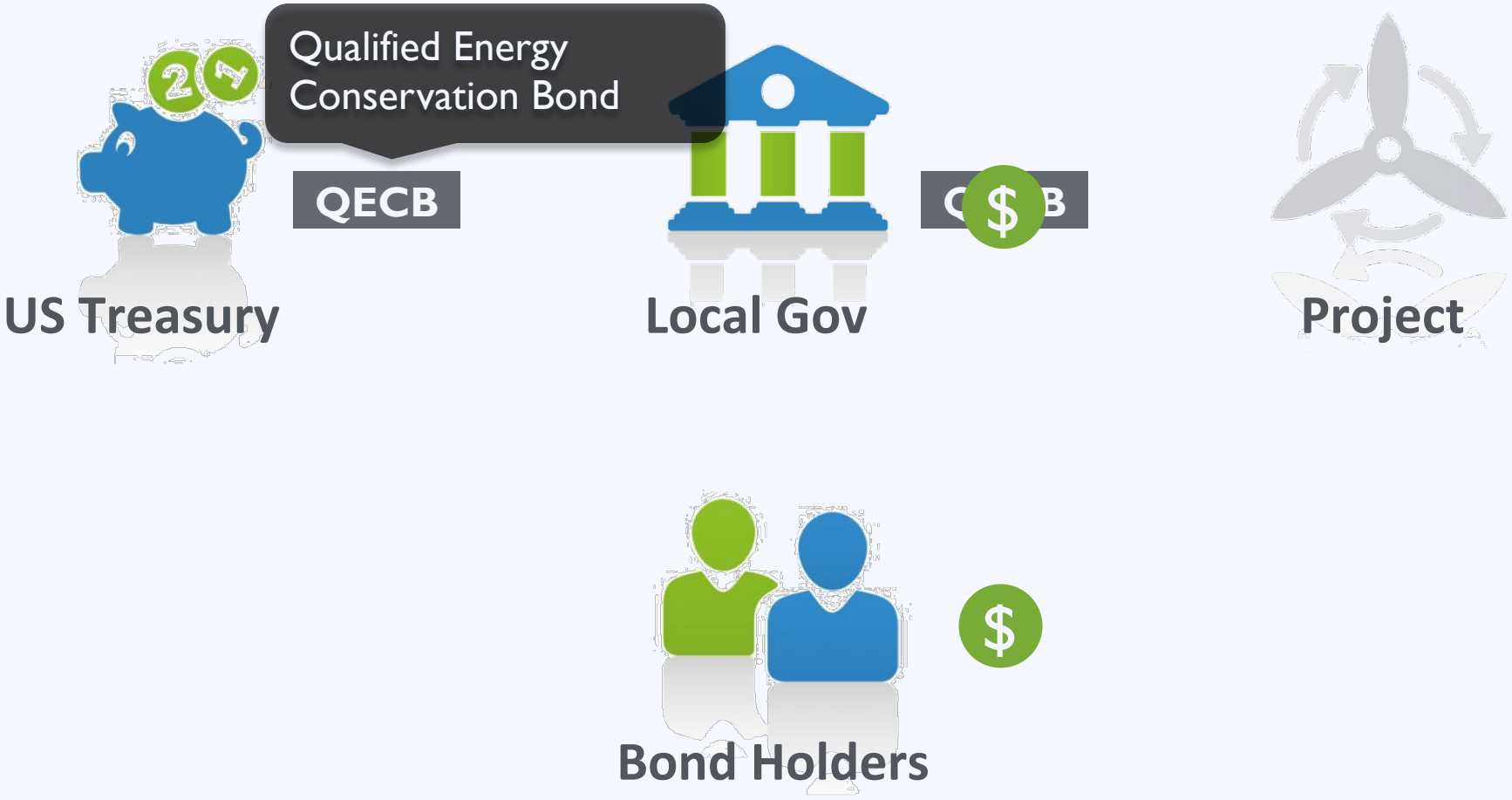
Feed in Tariff



Incentives

- QECB
- Debt Financing

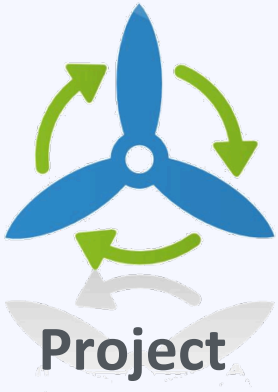
Qualified Energy Conservation Bond



Qualified Energy Conservation Bond

US Treasury

Local Gov

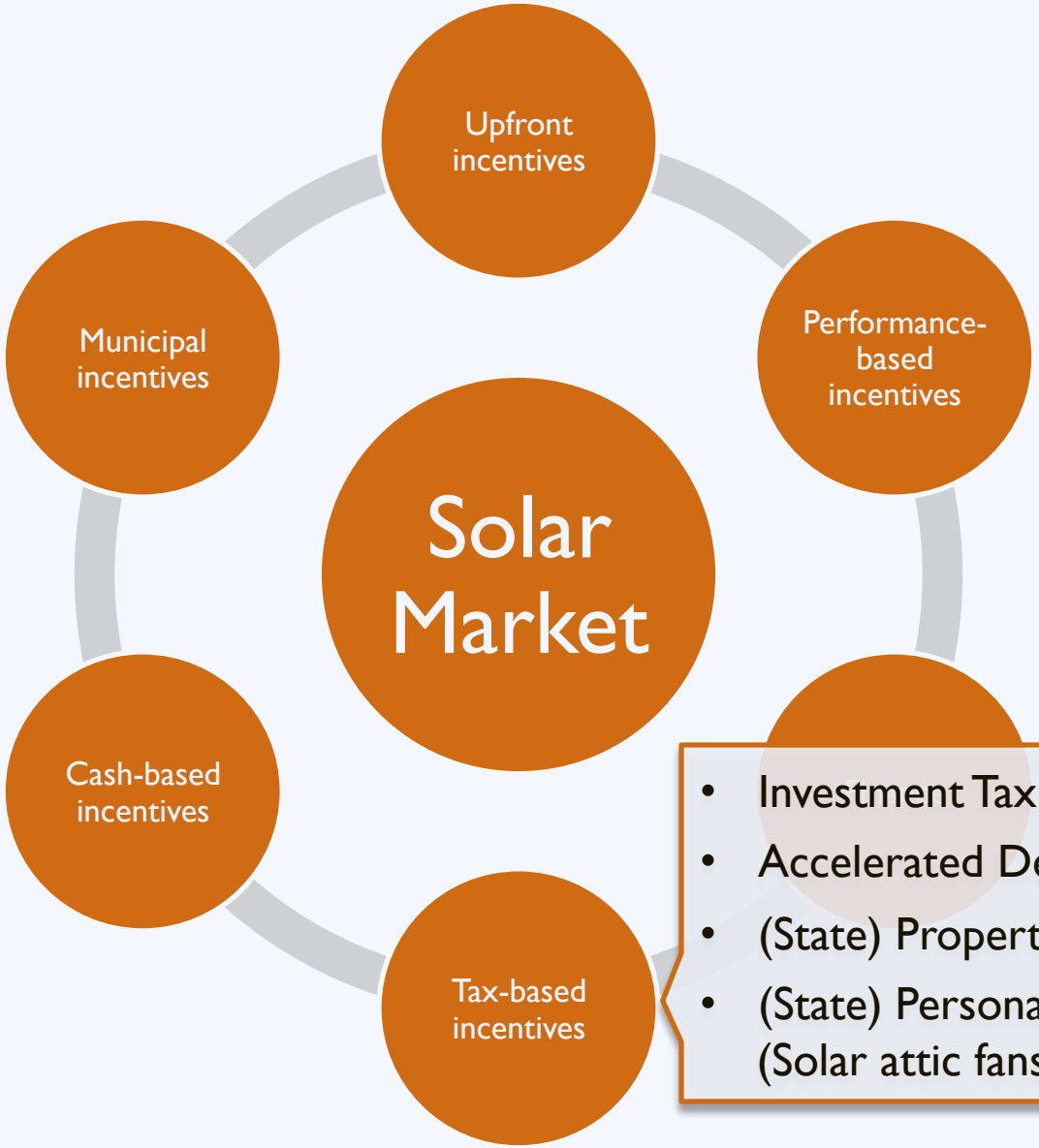


Project

QECB

Bond Holders

Incentives


Upfront incentives
Performance-based incentives
Municipal incentives
Solar Market
Cash-based incentives
Tax-based incentives
• Investment Tax Credit
• Accelerated Depreciation
• (State) Property Tax Deduction
• (State) Personal Deduction (Solar attic fans)

Investment Tax Credit

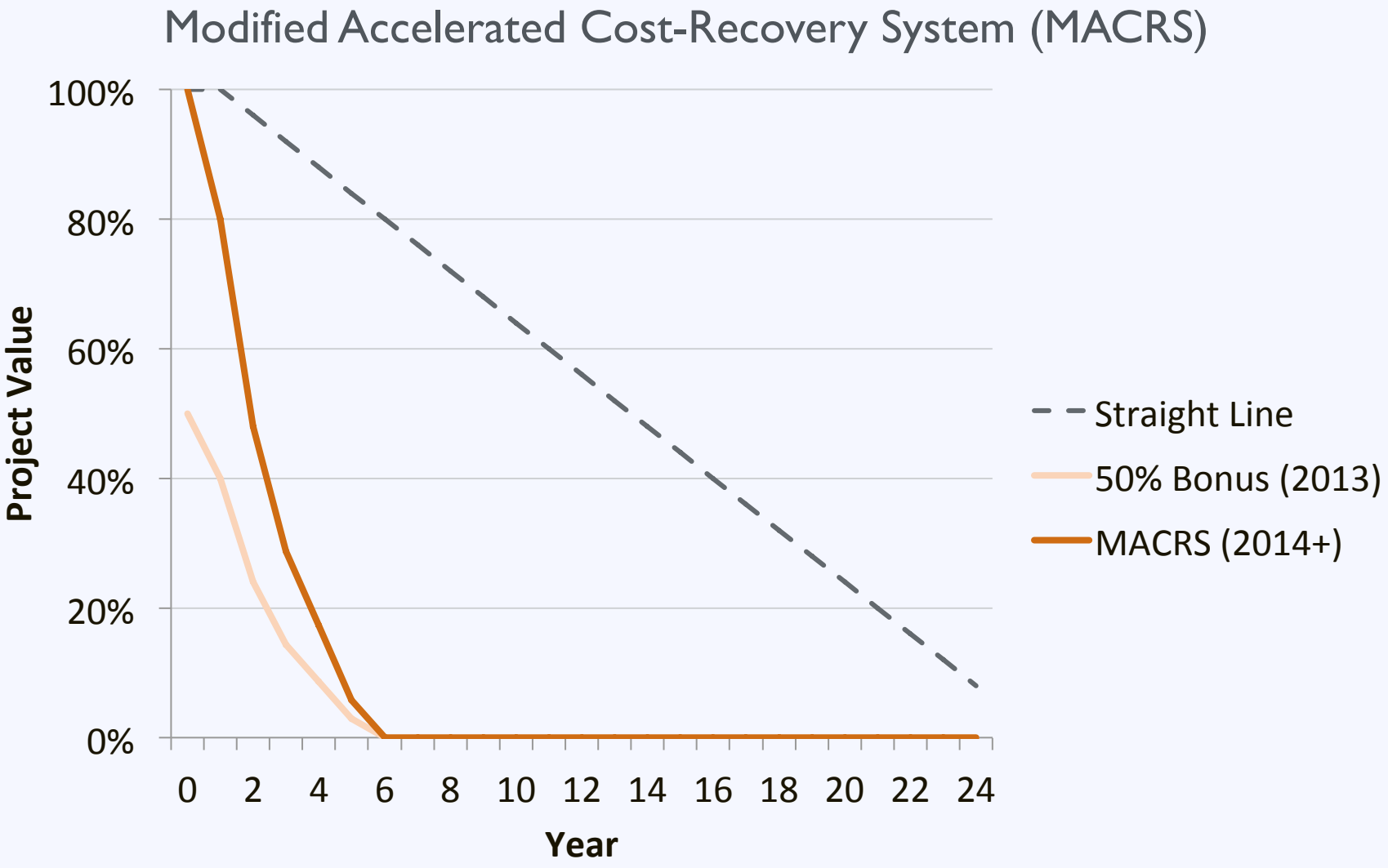
Type: Tax Credit

Eligibility: For-Profit Organization

Value: 30% of the installation cost

Availability: Through 2016

Accelerated Depreciation



Incentives

- Grants
- Rebates

Incentives

- Zoning Exemptions
- Zoning Bonus
- Permit Reform

Incentives : Expedited Permitting

Source: Forbes

Expedited Review

Expedited Review

Depth of Review

Expedient	**Expedient**	**Standard**
Within established design parameters		Outside of established design parameters
Impacts are well understood		Review necessary to understand impacts
Quick, Easy, Cheap		Flexible

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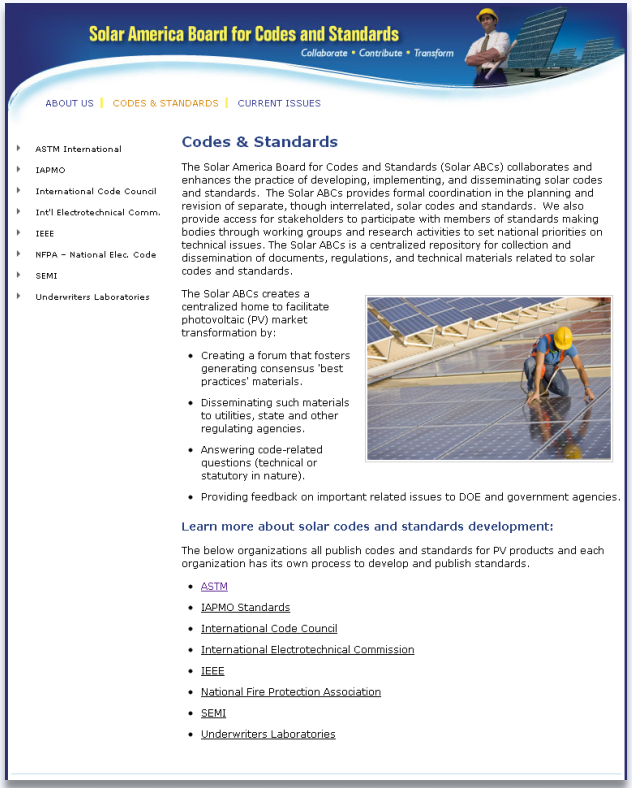
Model Permitting Process

Resource **Solar America Board for Codes & Standards**

Expedited Permitting:

- Simplifies requirements for PV applications
- Facilitates efficient review of content
- Minimize need for detailed studies and unnecessary delays



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Expedited Review

Depth of Review

Expedient | **Expedient** | **Standard**

Within established design parameters

Outside of established design parameters

1-1. Example Design Criteria:

- Size < 10-15 kW
- Code compliant
- Weight < 5 lb / sqft
- 4 strings or less

Review necessary to understand impacts

Flexible

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Expedited Review

No Permit Required

Only interconnection agreement required

Agenda

Solar and the Role of Local Governments

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- Introduction
- Walkthrough with Hobart, IN Regulations

Private and Public Development

Group Discussion and Wrap-up

- Planning Policy Audit

Questions and Feedback

Private and Public Development

Local Solar Market Development

Private Development

Public Investment

Public-Private Partnerships

Private and Public Development

Local Solar Market Development

Private Development

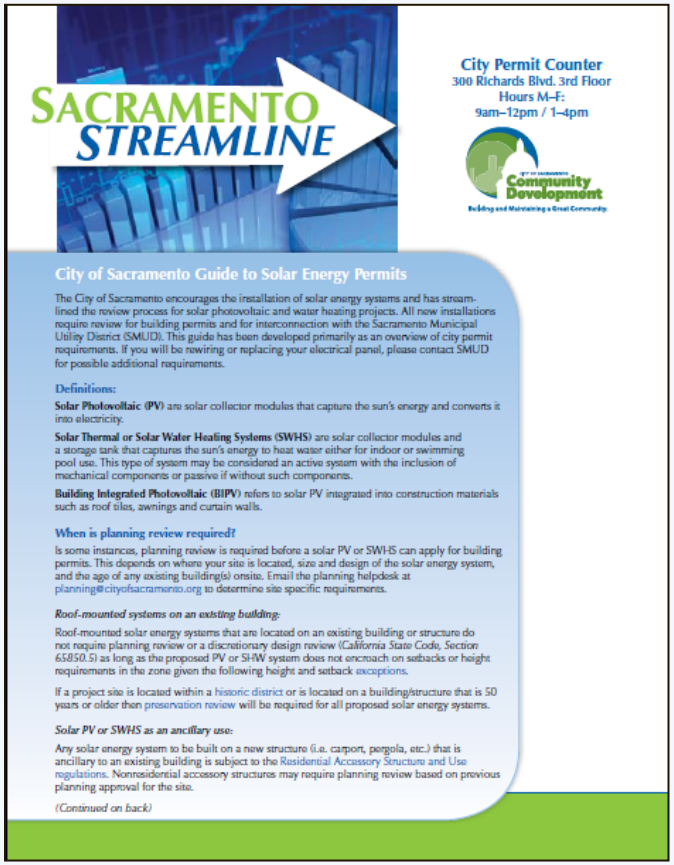
Public Investment

Public-Private Partnerships

Removing Barriers

Solar Permitting Best Practices

- Create solar permitting "checklist"
- Make solar approvals a "one-stop shop"
- Educate planning staff
- Appoint a solar ombudsman or point-of-contact


SACRAMENTO STREAMLINE

City Permit Counter
300 Richards Blvd. 3rd Floor
Hours M–F:
9am–12pm / 1–4pm

Community Development

City of Sacramento Guide to Solar Energy Permits

The City of Sacramento encourages the installation of solar energy systems and has streamlined the review process for solar photovoltaic and water heating projects. All new installations require review for building permits and for interconnection with the Sacramento Municipal Utility District (SMUD). This guide has been developed primarily as an overview of city permit requirements. If you will be rewiring or replacing your electrical panel, please contact SMUD for possible additional requirements.

Definitions:

Solar Photovoltaic (PV) are solar collector modules that capture the sun's energy and converts it into electricity.

Solar Thermal or Solar Water Heating Systems (SWHS) are solar collector modules and a storage tank that captures the sun's energy to heat water either for indoor or swimming pool use. This type of system may be considered an active system with the inclusion of mechanical components or passive if without such components.

Building Integrated Photovoltaic (BIPV) refers to solar PV integrated into construction materials such as roof tiles, awnings and curtain walls.

When is planning review required?

In some instances, planning review is required before a solar PV or SWHS can apply for building permits. This depends on where your site is located, size and design of the solar energy system, and the age of any existing building(s) onsite. Email the planning helpdesk at planning@cityofsacramento.org to determine site specific requirements.

Roof-mounted systems on an existing building:

Roof-mounted solar energy systems that are located on an existing building or structure do not require planning review or a discretionary design review (*California State Code, Section 65850.5*) as long as the proposed PV or SHW system does not encroach on setbacks or height requirements in the zone given the following height and setback exceptions.

If a project site is located within a historic district or is located on a building/structure that is 50 years or older then preservation review will be required for all proposed solar energy systems.

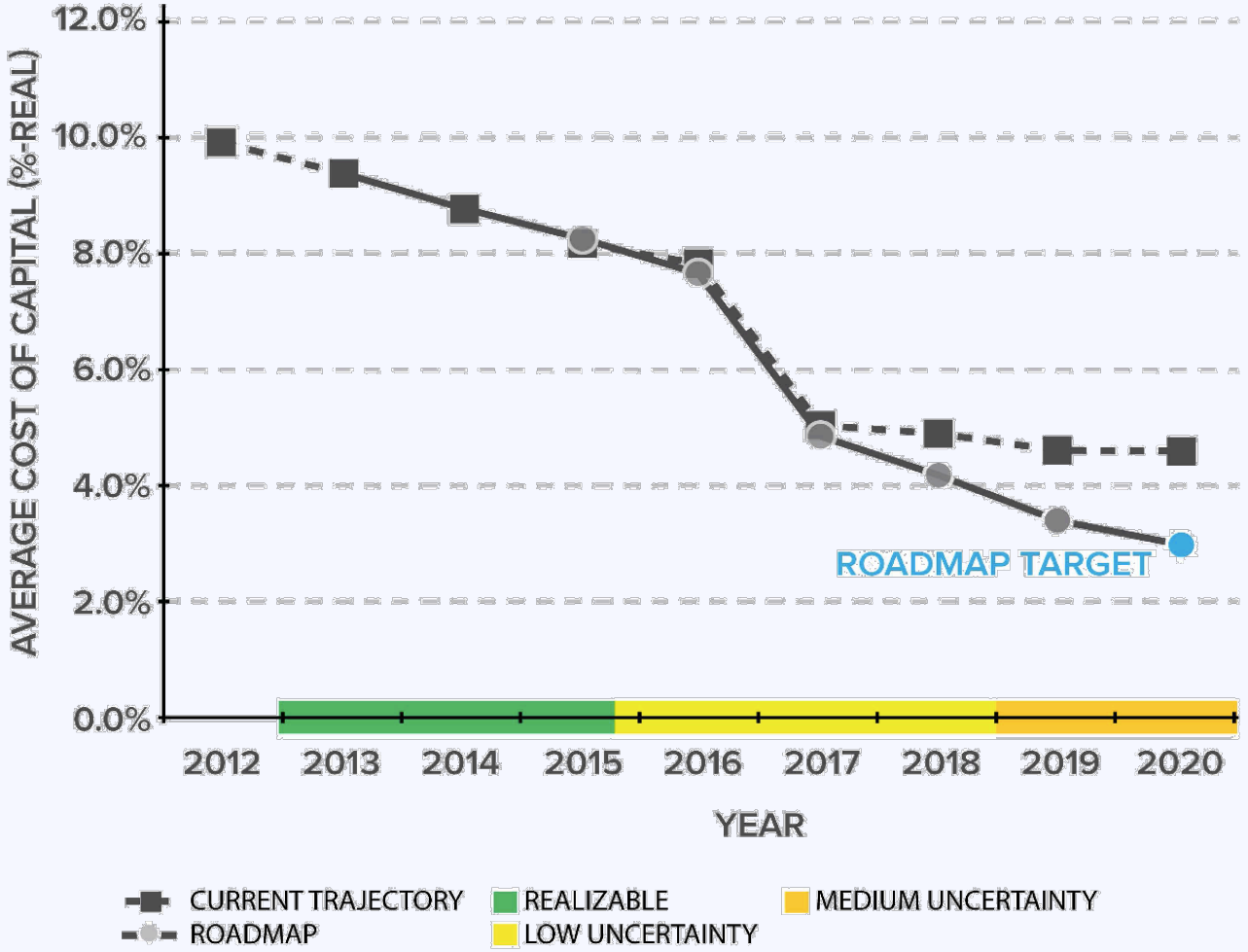
Solar PV or SWHS as an ancillary use:

Any solar energy system to be built on a new structure (i.e. carport, pergola, etc.) that is ancillary to an existing building is subject to the Residential Accessory Structure and Use regulations. Nonresidential accessory structures may require planning review based on previous planning approval for the site.

(Continued on back)

Sacramento, CA; Madison, WI; Miami, FL; Portland, OR

DOE WACC Targets

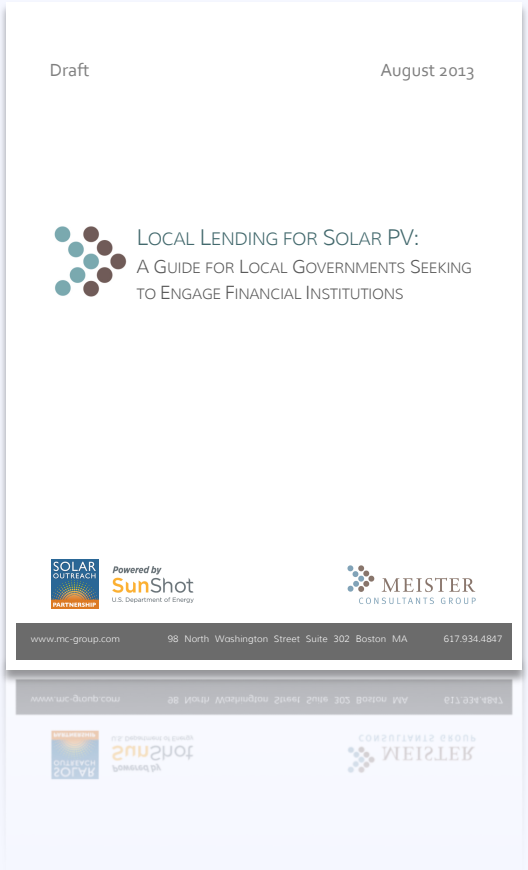


Source: National Renewable Energy Laboratory (NREL) 2013

Learn More

Resource **Local Lending for Solar PV**

A guide for local governments seeking to engage financial institutions.



www.solaroutreach.org

Private and Public Development

Local Solar Market Development

Private Development

Public Investment

Public-Private Partnerships

Public-Private Partnerships

Land development partnerships

- RFP processes
- Selling property
- Redevelopment plans
- Joint or co-development

Financial Partnerships

- Revolving loan funds
- Tax breaks
- Bonds

Private and Public Development

Local Solar Market Development

Private Development

Public Investment

Public-Private Partnerships

Public Investment

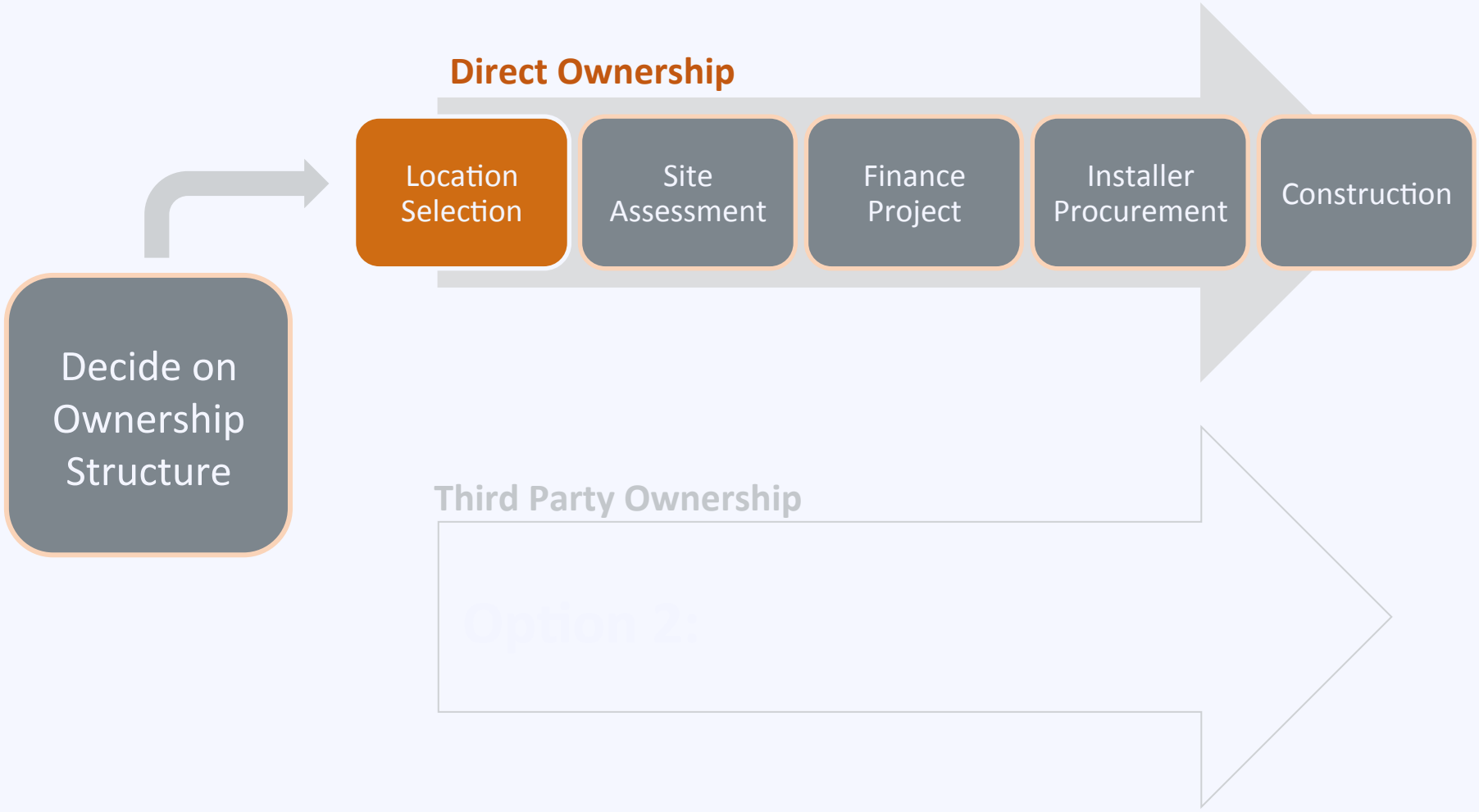
Option 1: Municipal solar

Option 2: Public awareness

Option 3: Vocational Education

Public Investment

Process


Direct Ownership
Location Selection
Site Assessment
Finance Project
Installer Procurement
Construction
Decide on Ownership Structure
Third Party Ownership
Option 2:

Step 1: Location Selection

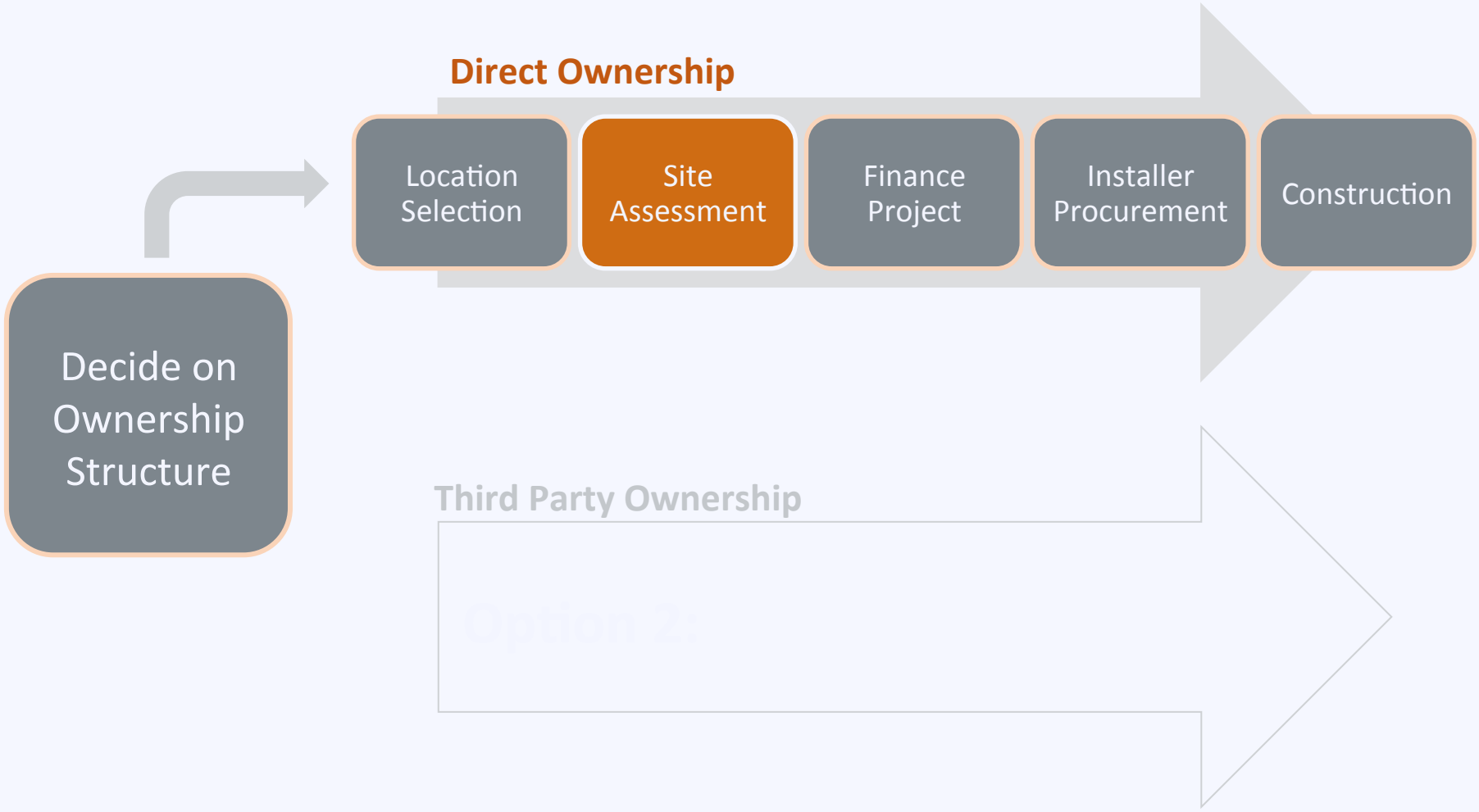
- Who is using the energy?
- Where is the energy being used?
- What is the user's energy load?
- What is the user's energy cost?

Step 1: Location Selection

Rooftop

Ground

Process


Direct Ownership
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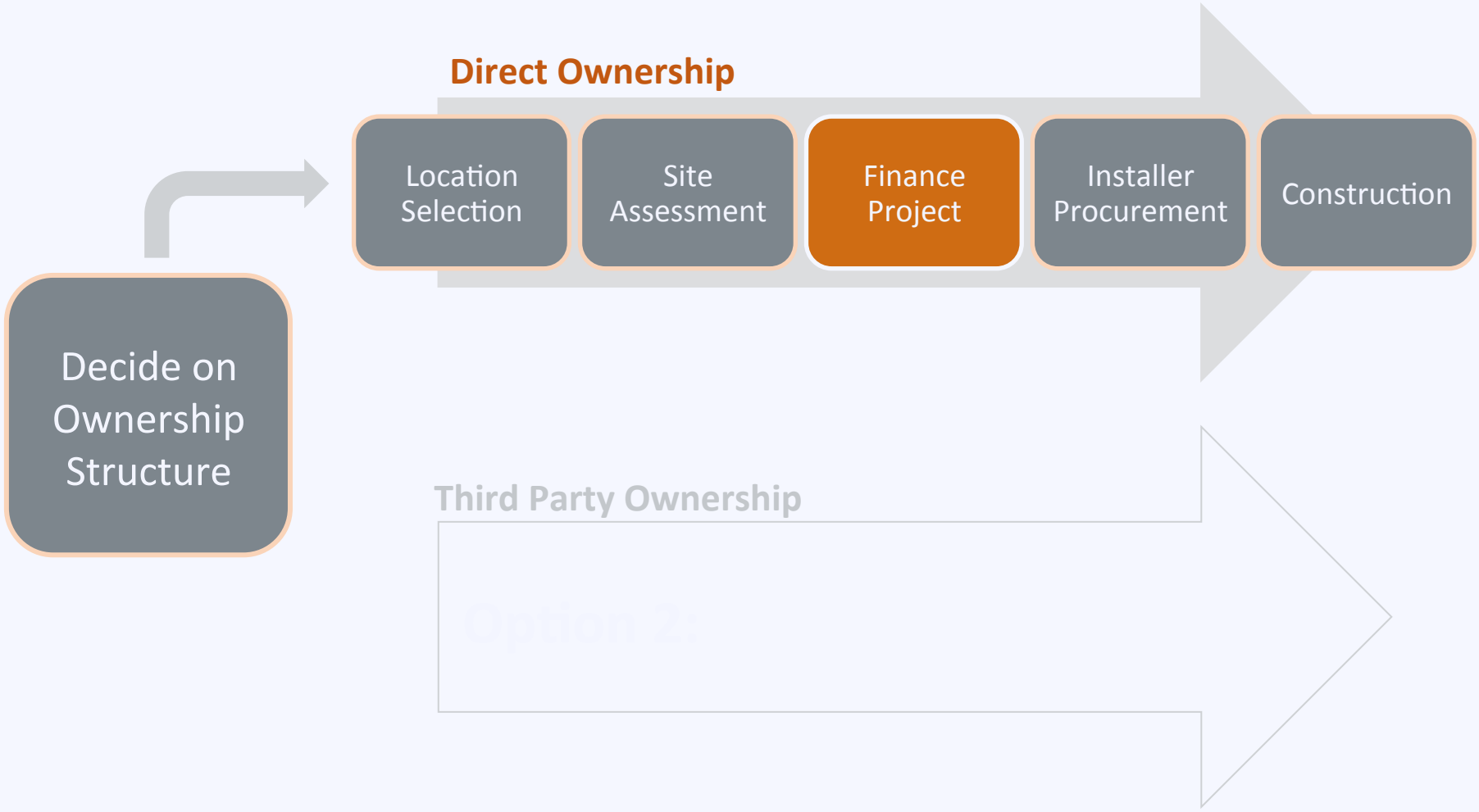
Step 2: Site Assessment

- Solar Access Rights
- Interconnection
- Wind loading
- Roof age, type, & warranty
- Electrical configuration
- Slope, Shading and orientation

Step 2: Site Assessment

- Usable acreage
- Slope
- Distance to transmission lines
- Distance to graded roads
- Conservation areas

Process


Direct Ownership
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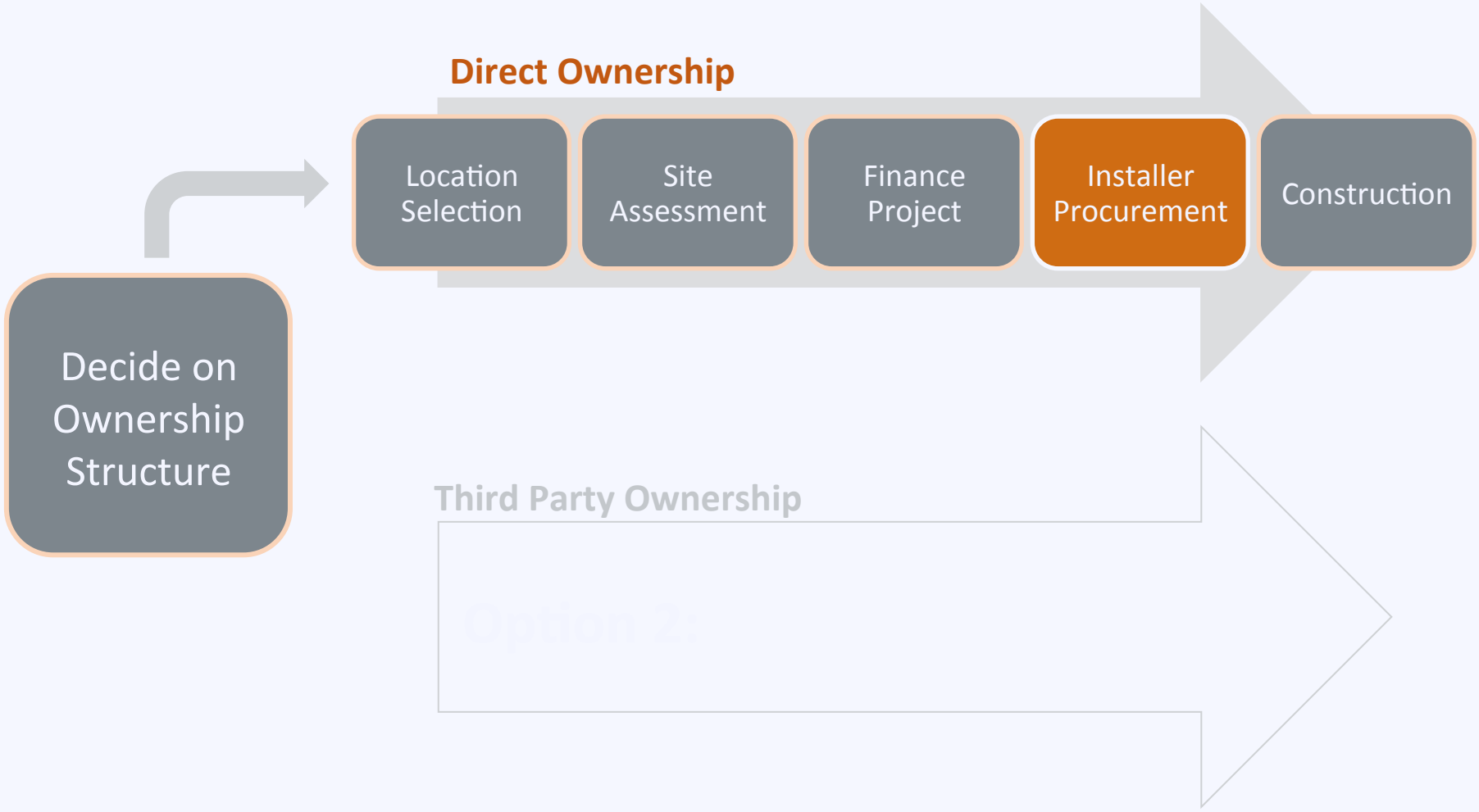
Third Party Ownership
Option 2:

Step 3: Finance Project

- Direct purchase
- Grant financed
- ESCO/performance contracting
- Loans
- Bonds

Process


Direct Ownership
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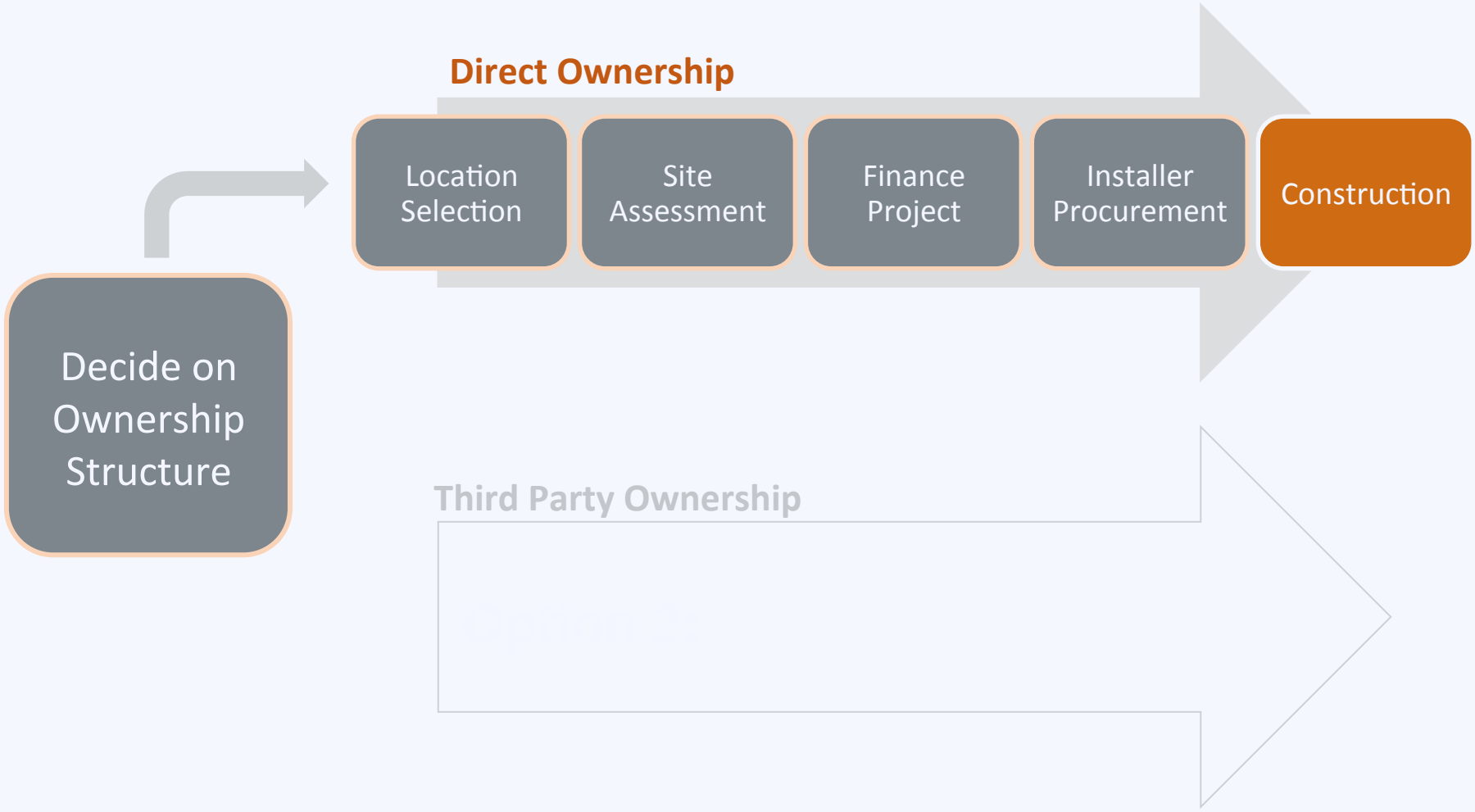
Construction
Decide on Ownership Structure
Third Party Ownership
Option 2:

Step 4: EPC Procurement

EPC = Engineer, Procure, Construct

- Designs the project
- Completes necessary permitting requirements
- Works with the utility to file for interconnection
- Assists in procuring components
- Applies for incentives
- Manages project construction

Process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Third Party Ownership
Option 2:

Direct Ownership

Pros

- Low – cost electricity
- Maximize underutilized spaces

Cons

- Large upfront cost
- Long term management
- Can't take all incentives
- Development risk
- Performance risk

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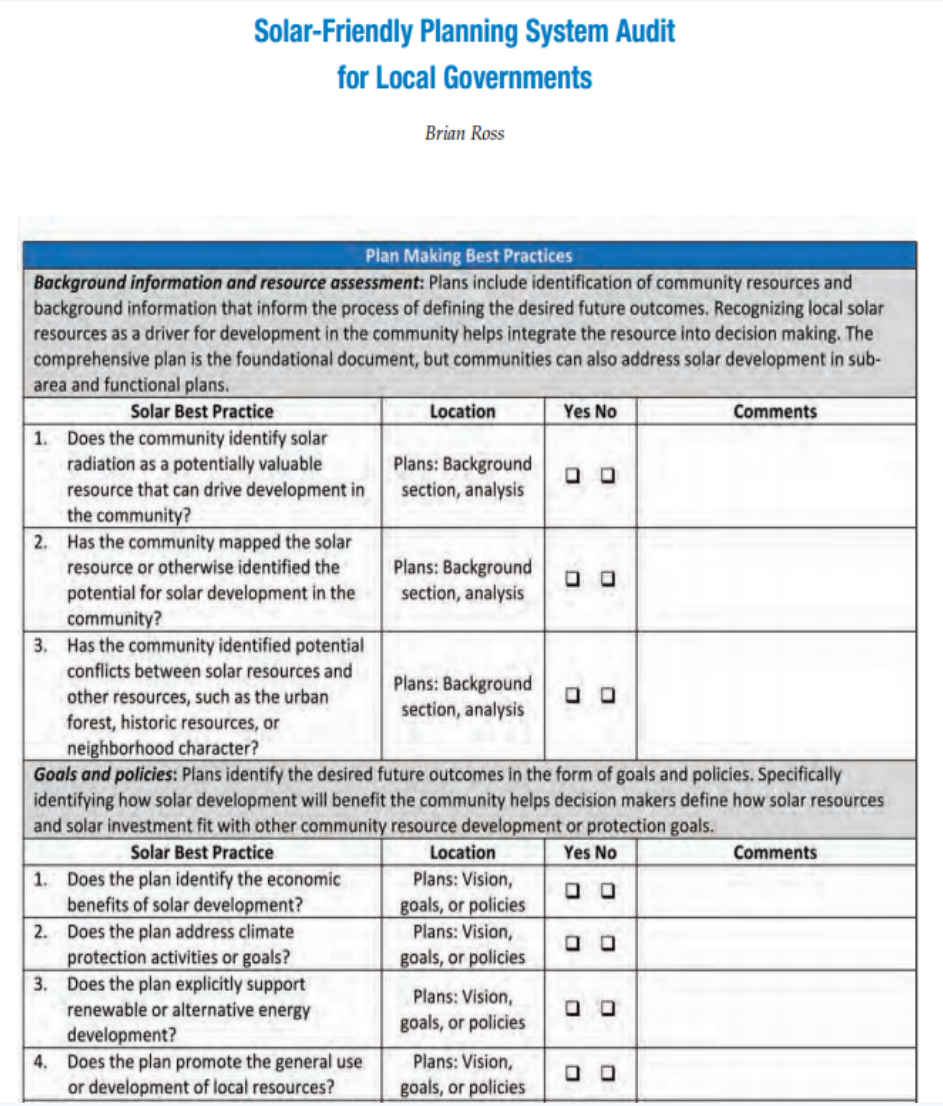
Group Discussion

- Solar in community plans
- Zoning and permitting standards for solar
- Streamlining municipal processes
- Municipal financial and development incentives
- Direct Public investment
- Encouraging private-sector development

- Discuss the following questions in groups of three for 10 minutes and select one spokesperson to report out to the group
  - Which aspects of encouraging solar development and planning to solar are you most interested in pursuing?
  - Has your town or municipality already implemented some of these options?
  - How difficult do you believe it will be to implement the actions you chose?

Solar-Friendly Planning Audit



Solar-Friendly Planning System Audit for Local Governments

Brian Ross

Plan Making Best Practices			
***Background information and resource assessment*:** Plans include identification of community resources and background information that inform the process of defining the desired future outcomes. Recognizing local solar resources as a driver for development in the community helps integrate the resource into decision making. The comprehensive plan is the foundational document, but communities can also address solar development in sub-area and functional plans.			
Solar Best Practice	**Location**	**Yes No**	**Comments**
1. Does the community identify solar radiation as a potentially valuable resource that can drive development in the community?	Plans: Background section, analysis	❑ ❑	
2. Has the community mapped the solar resource or otherwise identified the potential for solar development in the community?	Plans: Background section, analysis	❑ ❑	
3. Has the community identified potential conflicts between solar resources and other resources, such as the urban forest, historic resources, or neighborhood character?	Plans: Background section, analysis	❑ ❑	
***Goals and policies*:** Plans identify the desired future outcomes in the form of goals and policies. Specifically identifying how solar development will benefit the community helps decision makers define how solar resources and solar investment fit with other community resource development or protection goals.			
Solar Best Practice	**Location**	**Yes No**	**Comments**
1. Does the plan identify the economic benefits of solar development?	Plans: Vision, goals, or policies	❑ ❑	
2. Does the plan address climate protection activities or goals?	Plans: Vision, goals, or policies	❑ ❑	
3. Does the plan explicitly support renewable or alternative energy development?	Plans: Vision, goals, or policies	❑ ❑	
4. Does the plan promote the general use or development of local resources?	Plans: Vision, goals, or policies	❑ ❑	

- Please take a copy of the solar-friendly planning system audit
- Complete during lunch or on your own time to identify priority areas
- Reach out to your RPC to continue the discussion!

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Meister Consultants Group
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Key Takeaways

- Solar energy is a local resource
- Local solar markets are sensitive to policy
- Local plans guide solar energy use and deployment
- Regulatory silence is not the same as support
- Partnerships can expand local solar opportunities.