




May 23th, 2022 Meeting


Backup Materials

Contents:

- Presentation: *Advancing Solar: Broward Solar Co-op* {Laura Tellez, Solar United Neighbors}
- Presentation: *Getting Started LEED v4.1 for Cities* {Glen Hadwen, Sustainability Manager, Solar United Neighbors}



Advancing Solar Broward Solar Co-op



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WHAT IS SOLAR UNITED NEIGHBORS?

We're a vendor neutral, national 501(c)(3) nonprofit.

2



WHAT IS SOLAR UNITED NEIGHBORS?

We help people go solar, join together, & fight for their energy rights.

3

Our Theory of Change

- 1. Go solar**
Support with new/existing system
- 2. Join together**
Resources, solar tour, happy hours
- 3. Fight for energy rights**
Net metering, HOAs represent solar owners

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How SUN got started

2007


- 50 homes in Mt. Pleasant neighborhood Washington, DC



SUN founder, Anya!

2015-16

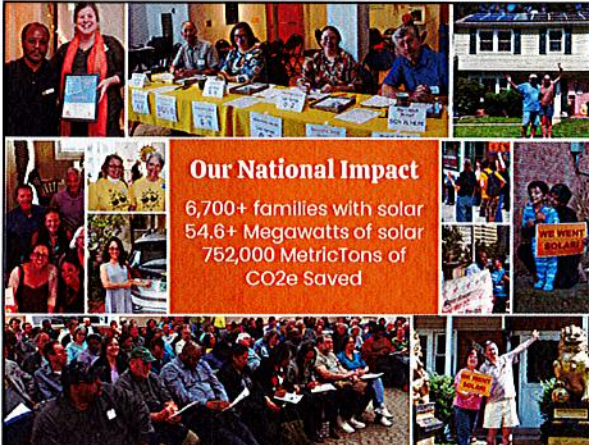
- Volunteers began in Florida
- Launched 1st official FL Co-op



2022

- members in 50 states
- 307 solar co-ops run
- 6,500+ homes have gone solar

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Our National Impact

- 6,700+ families with solar
- 54.6+ Megawatts of solar
- 752,000 MetricTons of CO2e Saved

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Florida's Program's impact since 2016

- 2,100+ people gone solar w SUN
- 20.9 MW installed capacity
- \$49.2 M invested in local solar
- \$88.3 M elec. bill savings 25 yrs
- 335 solar jobs created
- 324,331 metric tons of lifetime CO2e offsets

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What we'll cover today

- 1 Solar Technology
- 2 Solar Economics
- 3 How Solar Co-ops Work

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1 Solar Technology

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How do solar panels work?

Solar photovoltaic (PV) converts solar energy to electricity.

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System Components: Panels

- Frame
- Glass
- Encapsulant
- Solar Cells
- Encapsulant
- Backsheet
- Junction Box

Panel / Module
Image Source: DuPont

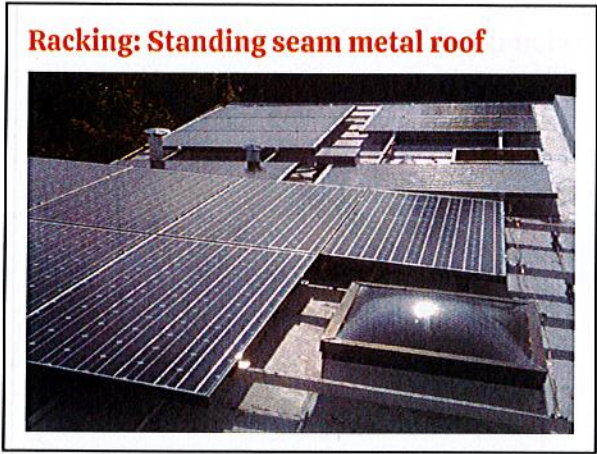
Solar Array

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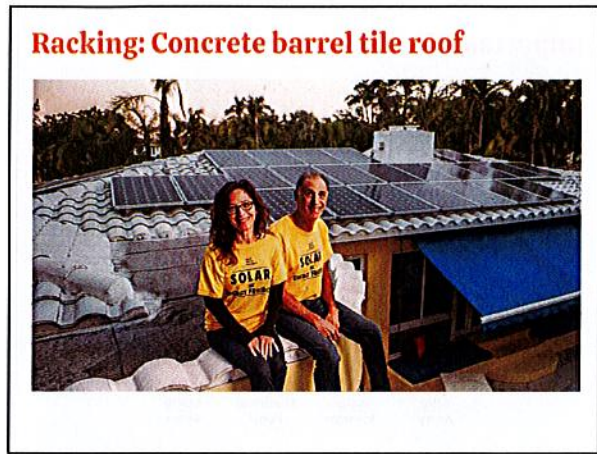
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System Components: Racking

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System Components: Inverters



String Inverter
Mostly used for ground mounts & commercial



String inverter & DC optimizers

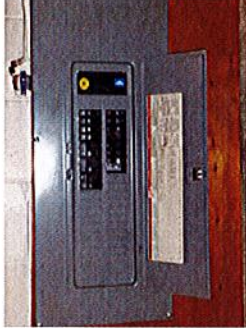


Microinverters

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System Components: Electrical Panel



How does my solar connect to my electrical panel?


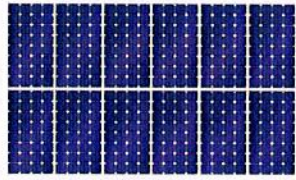
- Simple connection in panel
- Most home electric systems don't need upgrades before solar

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Important Terminology

- **Kilowatts (kW):** System measured in kW
- **Kilowatt-hours (kWh):** Electricity production in kWh
- **Average size:** 4 kW - 12, size based on site & goals (budget, covering 100% consumption)


4.2kW Solar Panel Array to scale using 350W panels
(350w x 12 panels = 4,200 watts or 4.2 kW)

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What's a good roof for solar?


1

Roof Orientation



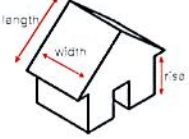
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Little or no shading

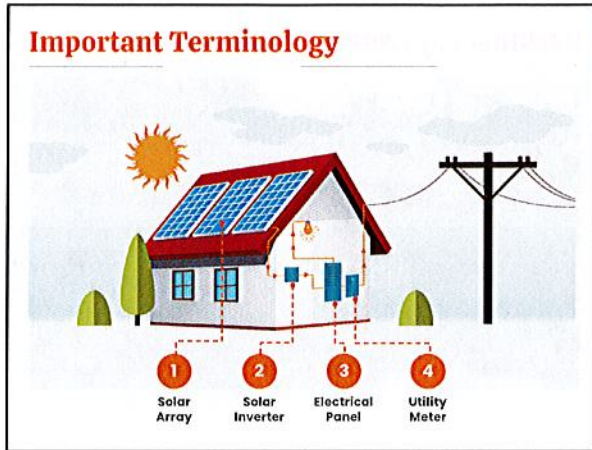


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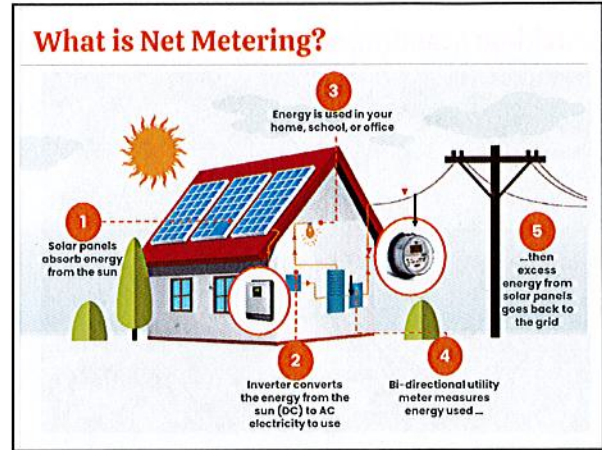
Enough space to mount panels



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What will your electric bill look like?

Example Electrical Bill	
Electricity used from the grid	300 kWh
- Electricity exported	200 kWh
= Amount of electricity you pay for on your bill	100 kWh

*Your bill may have a service fee or minimum charge
Many electric bills do NOT reflect your self usage. This means that the 200 kWh exported above is what goes to the grid **after your self consumption

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System Component: Batteries

Mypanhandle.com Hurricane Sally

What happens when the power goes out?

- When grid is down, solar shuts off (safety mechanism)
- Need batteries if you want you want power during outages

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Value of Battery Storage

You might want storage if...

- Frequent utility outages
- Critical loads at home (i.e. well pumps, medical equipment)
- Emergency/disaster preparedness

BACKUP POWER FOR YOU
SAVE MONEY OR GET PAID TO HELP THE GRID*

*This is coming! How fast depends on where you live.

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Battery Storage for Homeowners Guide


solarunitedneighbors.org/storage

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Example of Battery

13.5 kWh Battery Bank

- Fully re-charged by solar (6kW) daily
- Without sun shining only have 1 day of power



What will run when the power is out:

- Refrigerator; microwave
- Some lights & outlets
- Cable modem
- Small window air conditioner

The Johnsons lose power several times of year. Each time the power is out for the entire day.

What they chose not to power:

- Stove; dryer; electric water heater

\$16,500 Retail Solar Array 6kW
\$11,500 Battery Storage 13.5 kWh
 (Lithium ion battery w/ PV installation)

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Frequently Asked Questions

- Warranties?
- Homeowners' insurance?
- Maintenance?
- How long do systems last?
- Will HOA allow solar on my home?
- What if I'm In a historic district?

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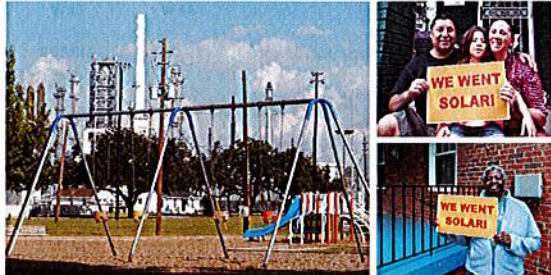
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Solar Economics

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Working for Equity



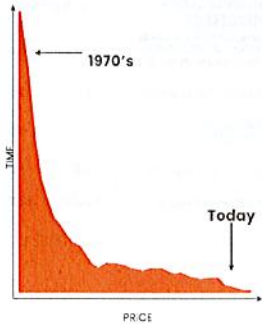
We're working toward a new energy system – one that is fair and equitable.

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Solar Economics

Solar is a great investment!

- Costs have dropped 73% since 2010
- No longer a specialty or boutique project
- Excellent ROI
- 26% federal tax credit (steps down after 2022)

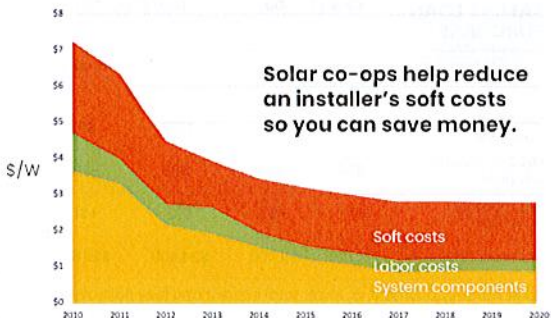


1970's

Today

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Breaking down the cost of solar



Solar co-ops help reduce an installer's soft costs so you can save money.

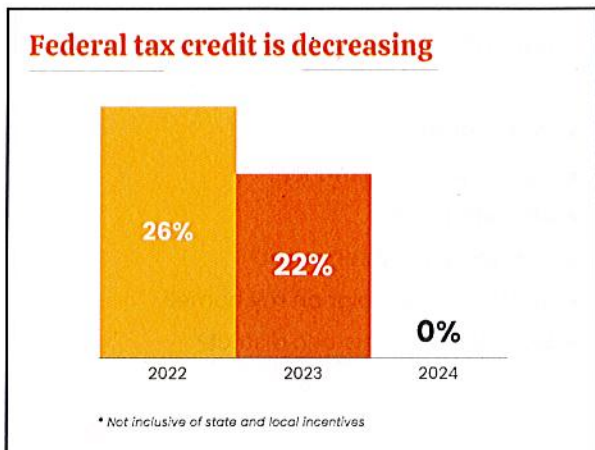
Soft costs

Labor costs

System components

Source: NREL's "Quarterly Solar Industry Updates" & SEIA's "Solar Mechanical Power & Renewables" U.S. Solar Market Insight" reports

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Pricing & Sizing – How Many Panels?

26 Panels
8 kW
40% of the kWh usage

26 Panels
6.7 kW
100% of the kWh usage

- System measured in kW (compare to horsepower)
- Electricity production in kWh (compare to mph)
- Most homeowners install between 4 kW – 12 kW

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Example Pricing

SAMPLE CASH PURCHASE	4kW	8kW
Average FL solar co-op price (\$2.25/watt)	\$9,000	\$18,000
26% Federal tax credit	-\$2,340	-\$4,680
Net Cost	\$6,660	\$13,320
Estimated year 1 electricity savings*	\$675	\$1,351
Estimated year 10 savings (cumulative)*	\$7,225	\$14,449
Estimated lifetime savings (25 years)*	\$20,277	\$40,554
Net Profit	\$13,617	\$27,234

EXAMPLE PRICING ONLY. ACTUAL SYSTEM SIZES WILL VARY.

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Example Pricing

	4kW	8kW	12kW
Average FL solar co-op pricing (\$2.25/watt)	\$9,000	\$18,000	\$27,000
26% Federal tax credit	-\$2,340	-\$4,680	-\$7,020
Net Cost	\$6,660	\$13,320	\$19,980
Estimated year 1 electricity savings*	\$675	\$1,351	\$2,026
Estimated year 10 savings (cumulative)*	\$7,225	\$14,449	\$21,674
Estimated lifetime savings (25 yrs)*	\$20,277	\$40,554	\$60,831
Net Profit	\$13,617	\$27,234	\$40,851

EXAMPLE PRICING ONLY. ACTUAL SYSTEM SIZES WILL VARY.

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Example Financing

SAMPLE LOAN PURCHASE <small>Home equity line of credit, interest rate 4%, 26% down (then take the tax credit)</small>	4kW (\$11,000)		8kW (\$22,000)	
	10 year	15 year	10 year	15 year
Monthly Loan payment	\$67	\$49	\$135	\$99
Monthly electric savings**	-\$56	-\$56	-\$113	-\$113
Net monthly payment	\$11	+\$7	\$22	+\$14
Net Profit (25 years)	\$12,200	\$11,400	\$24,400	\$22,800

Lower monthly payment vs. lower total interest and fees paid overall.

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Example Financing

SAMPLE LOAN PURCHASE <small>Home equity line of credit, interest rate 4%, 26% down (then take the tax credit)</small>	4kW (\$9,000)		8kW (\$18,000)		12kW (\$27,000)	
	10 year	15 year	10 year	15 year	10 year	15 year
Monthly Loan payment	\$67	\$49	\$135	\$99	\$202	\$148
Monthly electric savings**	-\$56	-\$56	-\$113	-\$113	-\$169	-\$169
Net monthly payment	\$11	+\$7	\$22	+\$14	\$33	+\$21
Net Profit (25 years)	\$12,200	\$11,400	\$24,400	\$22,800	\$36,600	\$34,200

Lower monthly payment vs. lower total interest paid

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Example Financing

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Lower monthly payment vs. lower total interest and fees paid overall.



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Financing Options

Cash Grants

- o USDA Rural Energy for America Program (REAP)
- o Agricultural producers or Small Businesses in eligible rural areas

Loans

- o Learn more about national and local options: Solarunitedneighbors.org/financing
- o Paying For Your Panels Flyer



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Loans

- Go through through installer or on your own
- Home equity line of credit (HELOC), mortgage refinance and include solar
- Installer financing (through installer's financing company)
- Banks & Credit Unions: Admirals Bank, SeaCoast Bank, Climate First Bank, Clean Energy Credit Union or Community 1st Credit Union* (open to SUN members)
- SELF Solar Energy Loan Fund - CDFI non-profit community lender SolarEnergyLoanFund.org



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How Solar Co-ops Work

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Why join a solar co-op?

- Best value on installation
- Support throughout the process
- Connect with fellow solar enthusiasts
- Become part of growing solar movement



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Selection Committee: Member driven process

We're a vendor neutral, national 501(c)(3) nonprofit.

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How does the co-op work?

...AND AT A DISCOUNT!

SOLAR CO-OP

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The solar co-op process

Months 1-2	Month 3	Months 4-8
<p>1 LEARN Attend a free solar co-op info session.</p> <p>2 SIGN UP ONLINE Become a co-op member! It's free to sign up.</p> <p>3 SPREAD THE WORD Invite neighbors & friends to join!</p>	<p>4 SELECT INSTALLER Once the co-op has 30 members, they choose the solar installer.</p> <p>Solar United Neighbors issues a competitive RFP for solar installers on behalf of the solar co-op. We review bids & check references.</p> <p>Then volunteer co-op members review bids & select one installer.</p>	<p>SIGN UP DEADLINE Last chance to join.</p> <p>5 PROPOSAL Co-op pricing, customized for you.</p> <p>6 SIGN CONTRACT with the installer</p> <p>7 INSTALLATION</p> <p>8 PARTY! Celebrate & meet your solar neighbors.</p>

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Solar Co-ops benefits:

- Best value on installation
- Support throughout the process from neighbors and a neutral, unbiased advocate
- Become part of the growing solar movement

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Helping Floridians Go Solar

Co-op/group purchase

- 100+ neighbors
- Group decision process
- 5 - 8 month process
- Bulk negotiation for best pricing
- Sign individual contract
- No cost to join co-op

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Help spread the sunshine!

GO Solar
WITH YOUR NEIGHBORS.
JOIN A SOLAR CO-OP!
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Events actively promoted via Facebook, partner newsletters, commissioner e-blasts, newspaper placement through municipalities, NextDoor and tabling events.

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The EVs are here.

Charge your EV with sunshine for \$.01/mile.

That's \$.27/gallon equivalent in gasoline!

= 15% ROI

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Solar Makes \$ and Sense

Before Solar

Amount of your bill	134.44
Payment received - Thank you!	-134.44
Balance before new charges	00.00
NEW CHARGES	
Rate - \$5.1 RESIDENTIAL SERVICE	
Customer charge	\$7.87
Nat'l Fuel (100 kWh @ \$0.1700)	\$17.39
Fuel (100 kWh @ \$0.1700)	\$17.39
Electric service amount	\$32.79
Storm charge	1.39
Grid-relief tax	2.45
Franchise charge	0.50
Utility tax	1.13
Taxes and charges	\$17.53
Total new charges	\$110.29
Total amount you owe	\$110.29

After Solar. 😊

Amount of your bill	0.43
Payment received - Thank you!	-0.43
Balance before new charges	00.00
NEW CHARGES	
Rate - \$5.1 RESIDENTIAL SERVICE	
Customer charge	\$7.87
Nat'l Fuel charge (per kWh)	\$1.0000
Per kWh	\$1.0000
Over 1000 kWh	\$1.0000
Full charge	\$1.0000
Per kWh	\$1.0000
Over 1000 kWh	\$1.0000
Electric service amount	7.87
Storm charge	0.39
Grid-relief tax	0.45
Franchise charge	0.45
Utility tax	0.44
Taxes and charges	1.95
Total new charges	\$9.43
Total amount you owe	\$9.43

Results vary based on roof size, electrical use, and budget.

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Join The Co-Op!

Help up promote info sessions!

Join the co-op with your neighbors
It's free to sign up and there's no obligation to go solar through the co-op.

SolarUnitedNeighbors.org/Waitlist
www.SolarUnitedNeighbors.org/Broward



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Learn about solar

Solar 101 Info Session
Thursday, June 23 at 6pm

Learn about solar technology, the co-op process and solar economics. Ask live questions

It's free to sign up and there's no obligation to go solar through the co-op.

www.SolarUnitedNeighbors.org/Events

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What's next?

Join Our Open Solar Co-ops:
SolarUnitedNeighbors.org/Waitlist

Broward Co-op coming up in July!



Tell your friends and neighbors about the co-op!

Join our network!



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Thank You!

Laura Tellez
Solar United Neighbors of Florida
FLTeam@solarunitedneighbors.org



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Getting Started

LEED v4.1 for Cities and Communities: Existing

An introduction to the framework and certification program

U.S. Green Building Council

1

What is LEED for Cities and Communities?

LEED for Cities and Communities is the leading global rating system and certification program for evaluating the sustainability and quality of life in a city or community.

It takes a multi-stakeholder approach and serves as a catalyst and transformative tool toward more sustainable, equitable and resilient communities around the world.

2

LEED Program Goals for Cities and Communities

- Inspire leadership, transformation and innovation in urban sustainability.
- Protect biodiversity and regenerate ecosystem services.
- Meet and exceed net zero carbon, energy, waste and water.
- Achieve livability, choice and access for all, where people live, work and play.
- Raise the standard of living and quality of life for humans all around the globe.

3

4

Integrative Process

5

INTEGRATIVE PROCESS		Cities	Communities
Credit	Integrative Planning and Leadership	1	1
Credit	Green Building Policy and Incentives	4	4


5 points available

6



7

NATURAL SYSTEMS AND ECOLOGY		Cities	Communities
Prereq	Ecosystem Assessment	REQUIRED	REQUIRED
Credit	Green Spaces	2	2
Credit	Natural Resources Conservation and Restoration	5	5
Credit	Light Pollution Reduction	1	1
Credit	Resilience Planning	4	4


 12 points available

8



9

TRANSPORTATION AND LAND USE		Cities	Communities
Prereq	Transportation Performance	6	6
Credit	Compact, Mixed Use and Transit Oriented Development	2	2
Credit	Access to Quality Transit	1	1
Credit	Alternative Fuel Vehicles	2	2
Credit	Smart Mobility and Transportation Policy	2	2
Credit	High Priority Sites	2	2

 15 points available

10



11

WATER EFFICIENCY		Cities	Communities
Prereq	Water Access and Quality	REQUIRED	REQUIRED
Prereq	Water Performance	6	6
Credit	Integrated Water Management	1	1
Credit	Stormwater Management	2	2
Credit	Smart Water Systems	2	2

 11 points available

12



13

ENERGY AND GREENHOUSE GAS EMISSIONS		Cities	Communities
Prereq	Power Access, Reliability and Resiliency	REQUIRED	REQUIRED
Prereq	Energy and Greenhouse Gas Emissions Management	14	18
Credit	Energy Efficiency	4	4
Credit	Renewable Energy	6	6
Credit	Low Carbon Economy	4	-
Credit	Grid Harmonization	2	2


 30 points available

14



15

MATERIALS AND RESOURCES		Cities	Communities
Prereq	Solid Waste Management	REQUIRED	REQUIRED
Prereq	Waste Performance	4	5
Credit	Special Waste Streams Management	1	1
Credit	Responsible Sourcing for Infrastructure	2	2
Credit	Material Recovery	1	-
Credit	Smart Waste Management Systems	2	2


 10 points available

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17

QUALITY OF LIFE		Cities	Communities
Prereq	Demographic Assessment	REQUIRED	REQUIRED
Prereq	Quality of Life Performance	6	6
Credit	Trend Improvements	4	4
Credit	Distributional Equity	4	4
Credit	Environmental Justice	1	1
Credit	Housing and Transportation Affordability	2	2
Credit	Civic and Community Engagement	2	2
Credit	Civil and Human Rights	1	1


 20 points available

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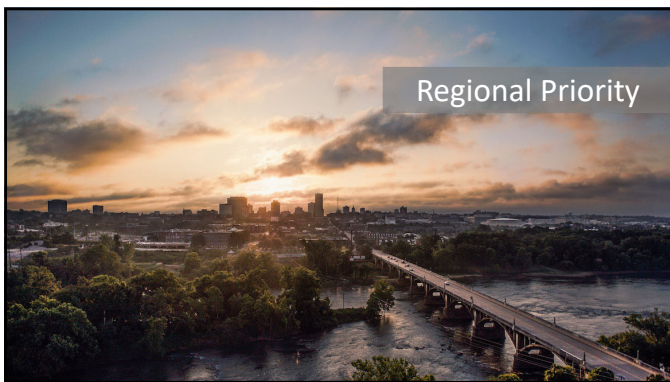


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INNOVATION		Cities	Communities
Credit	Innovation	6	6


 6 points available

20



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REGIONAL PRIORITY		Cities	Communities
Credit	Regional Priority	4	4

 4 points available

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