

Community Solar in the Lone Star State

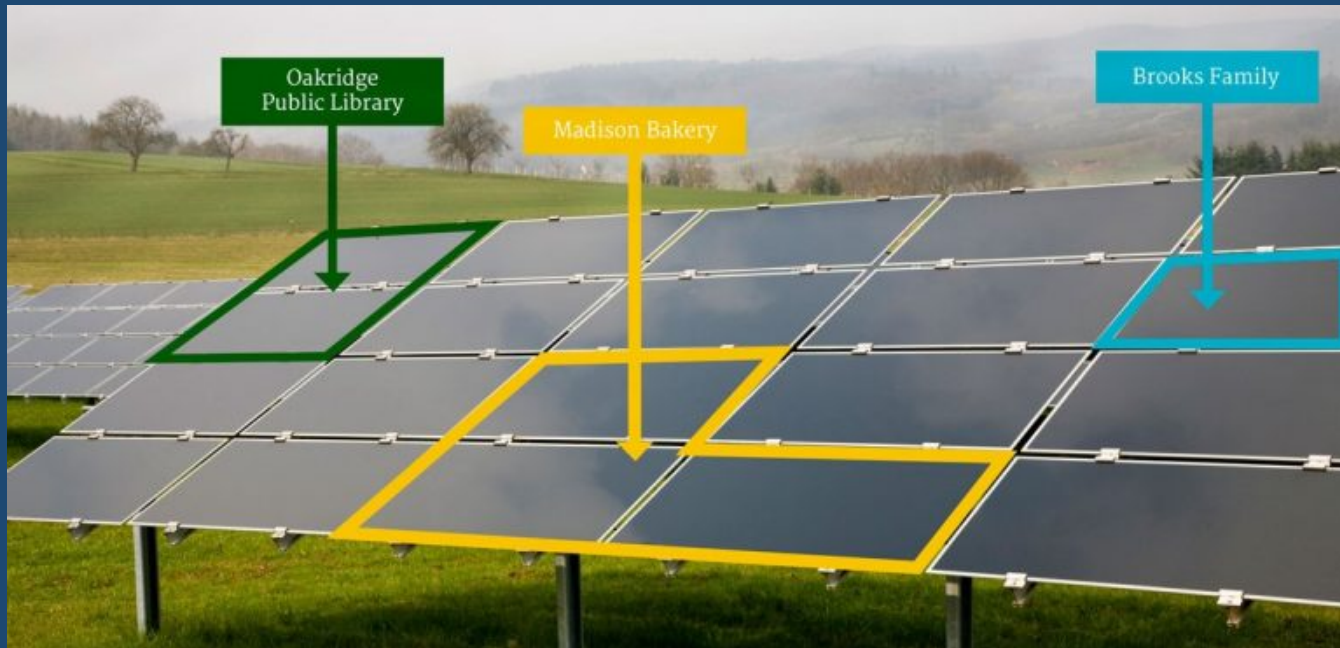


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What is Community Solar?

Electric customers voluntarily purchase or subscribe to part of a solar array

In return, customers receive credits on their electric bill



What is Community Solar?

Residential
5 to 10 kW



Commercial
10 to 100+ kW



Community Scale
1 to 5+ MW



Utility Scale
50 to 500+ MW

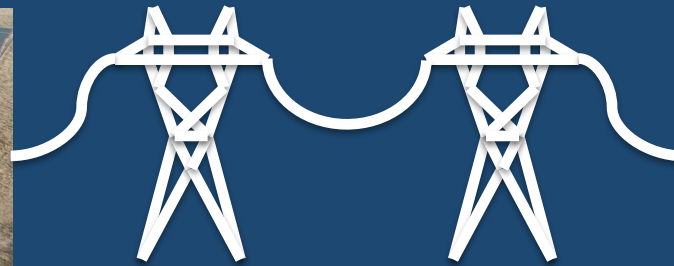


Community Solar is Local

Utility Scale
50 to 500+ MW



Transmission



Local
Substation



Distribution



Residential
5 to 10 kW



Commercial
10 to 100+ kW



Community Scale
1 to 5+ MW



Whom Does Community Solar Serve?

RESIDENTIAL:

Less than 25% of US households have both the unshaded roof and the financial means to access rooftop solar.



Whom Does Community Solar Serve?

COMMERCIAL:
Less than half (49%) of businesses
can access roof space to supply
just 20% of their electricity.



National Market

26 states and counting

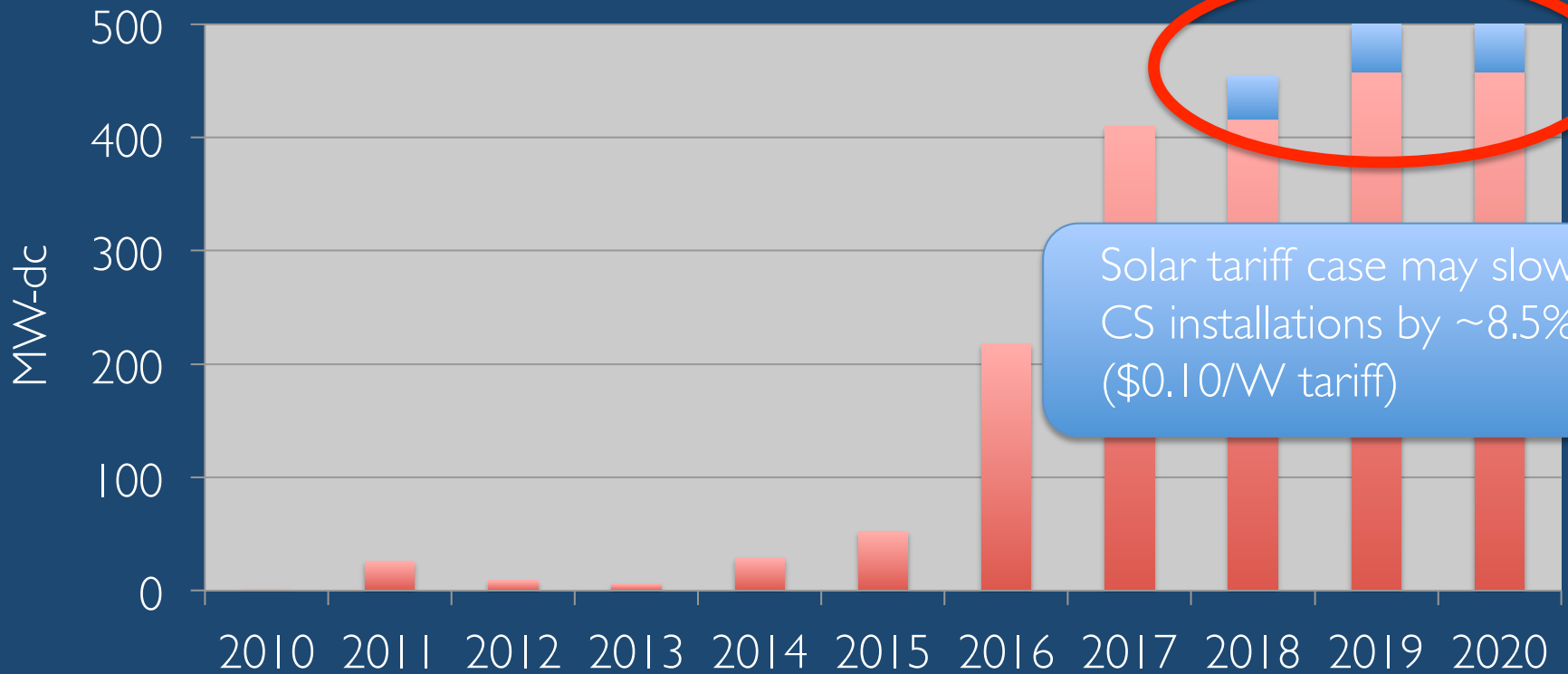
~400 megawatts in 2017

>2,000 megawatts cumulative by 2020



National Market: History and Forecasts

Annual Installations, MW



Source: Greentech Media.

Estimated

Pros

Cons

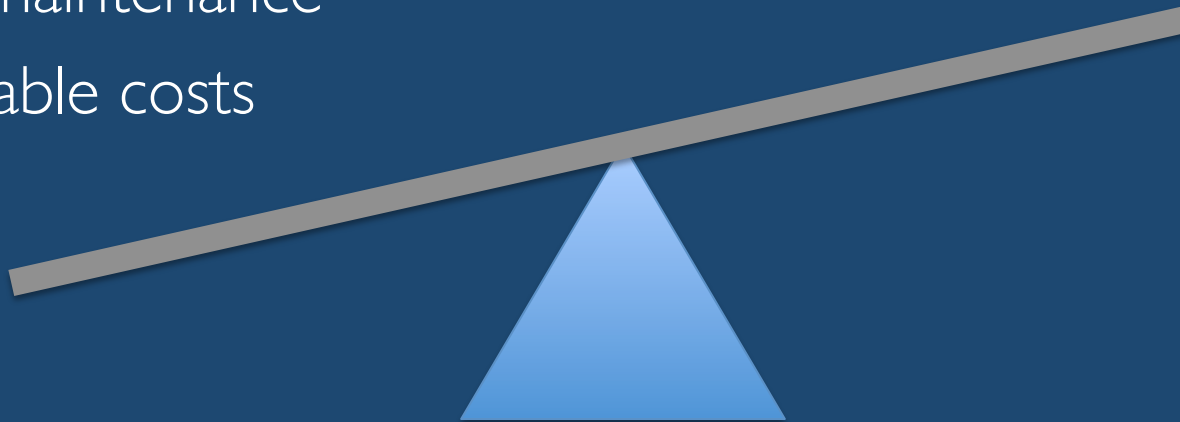
CUSTOMER:

Economies of scale

Minimal upfront costs

No maintenance

Stable costs



Pros

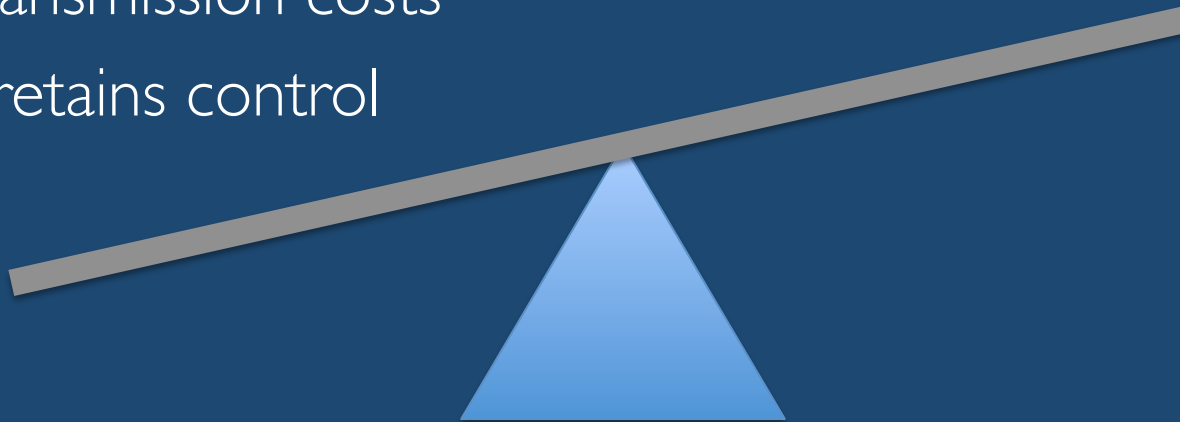
UTILITY:

Open to ALL customers
Avoids transmission costs
Utility retains control

Cons

UTILITY / DEVELOPER:

Requires “virtual net metering”
Complex financial / tax issues
Immature market
No single “best-practice”
business model



Business Models

Roles:

- Construction
- Ownership
- Maintenance
- Billing and customer management

Private investors and 501c nonprofits led early efforts

Now, utilities and developers lead

Business Models

Key factors that determine business model and ownership structure:

STATE LEGISLATION:

Virtual Net Metering

Mandates and
Production Incentives

Multiple-owner Limits

UTILITY TYPE:

IOU

Co-op

Muni

Nonprofit
(requires for-profit
partner for tax credits)

Program Design

OWNERSHIP:

Pay
Upfront

Loan

Lease-
to-
Own

Contract length
Max purchase

SUBSCRIPTION:

Rate

Blocks
(kWh)

Lease

“Price lock” period
Contract length
Min / max subscription
Enrollment / cancellation fees

Texas Electric Utility Landscape

We've got it all:

- Four grids, dominated by ERCOT
- Nonprofit cooperatives (co-ops) – regulated and deregulated
- Nonprofit municipally owned utilities (Munis)
- Investor-owned utilities (IOUs) – regulated and deregulated, generation / transmission & distribution / retail

Texas Electric Utility Landscape

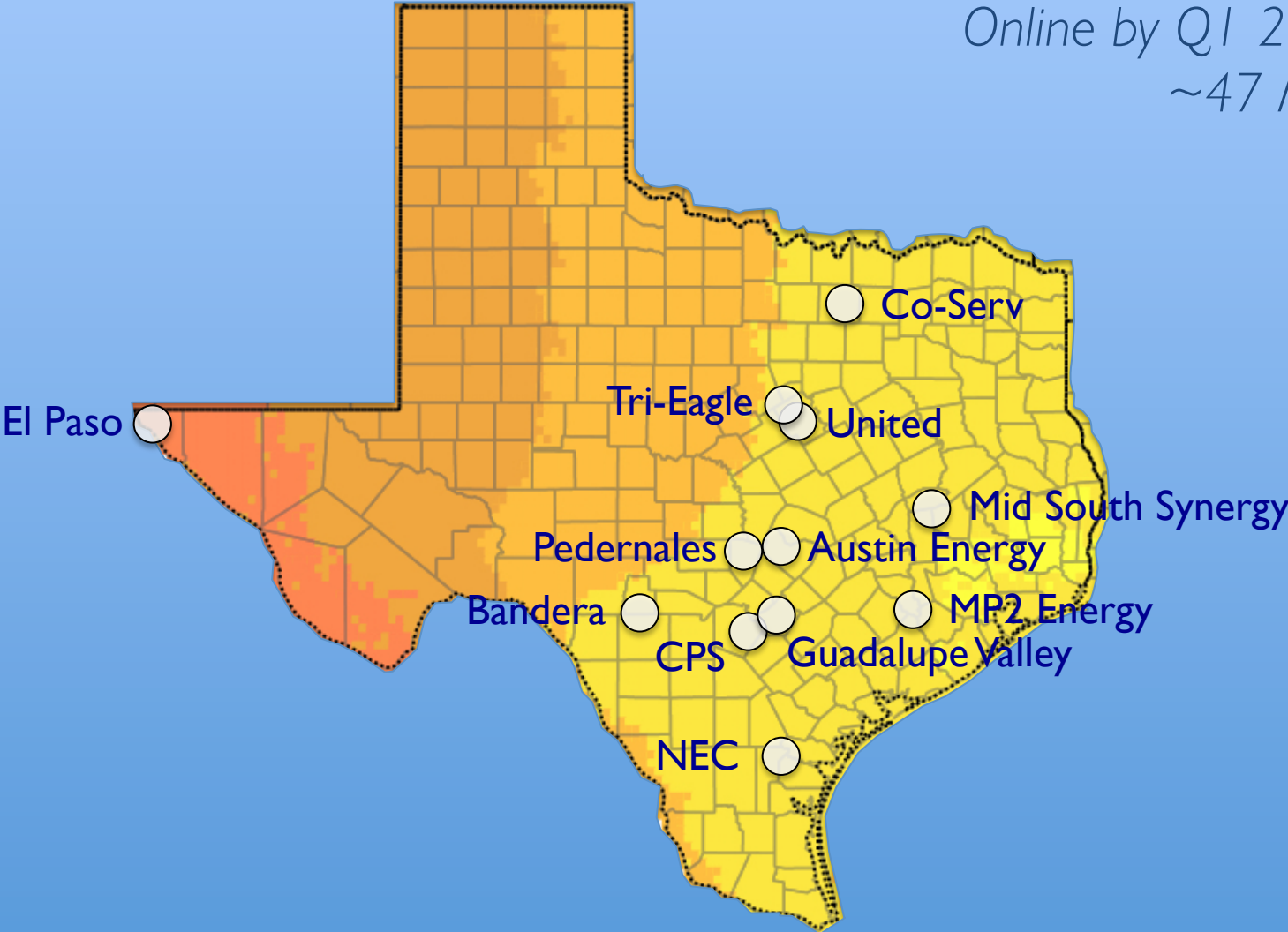
Put simply, it's complicated.

- No statewide legislation
- No single business model or program design works everywhere
- Utilities and developers must lead the way

THEY ARE.

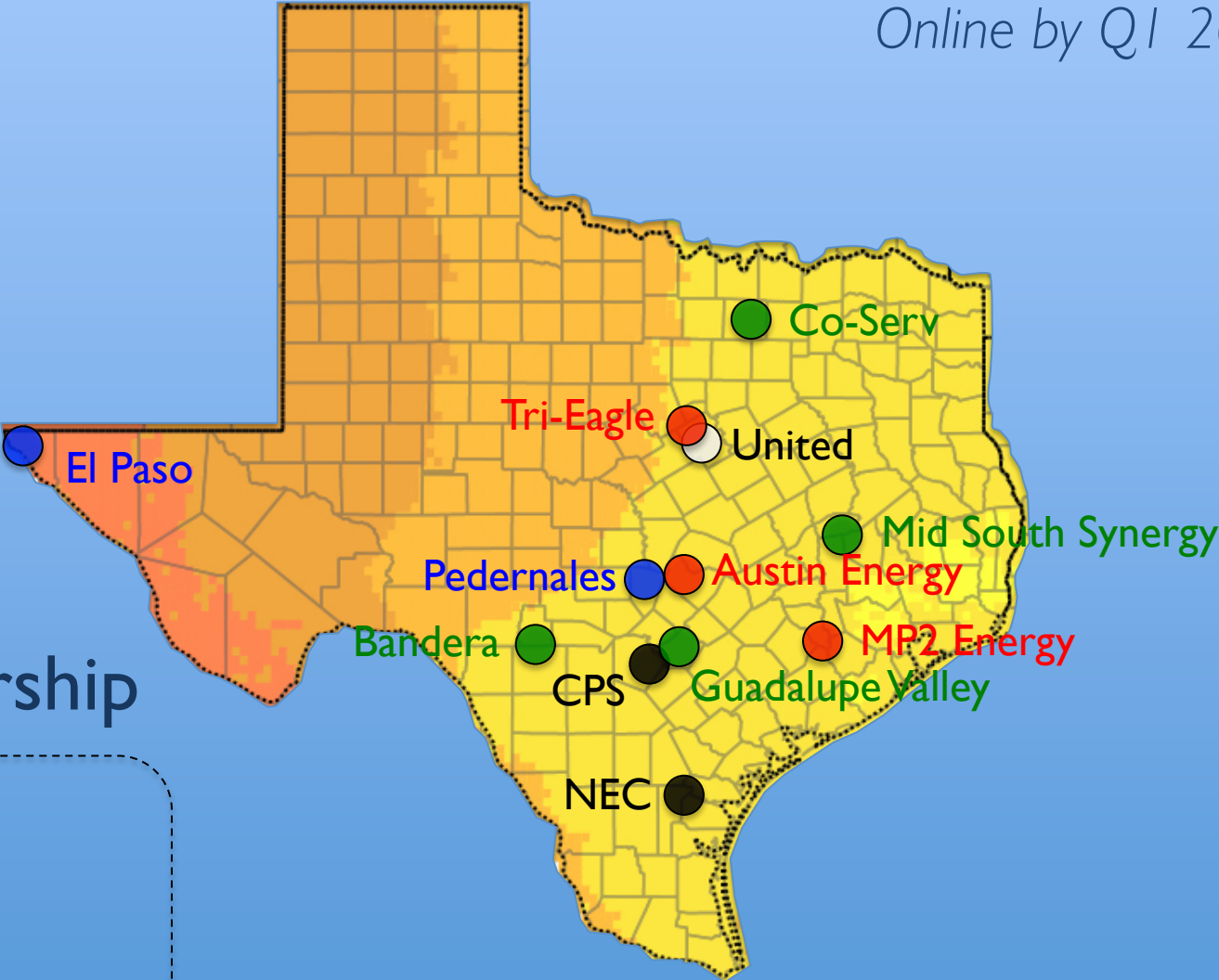
Community Solar Programs in Texas

Online by Q1 2018
~47 MW



Community Solar Programs in Texas

Online by Q1 2018



Ownership

Rate

Blocks

Lease

Does Community Solar Cost More?

Purchase programs offer long-term payout

Subscription programs charge premium up to ~3 cents/kWh

Pedernales does not charge a premium for community solar under current rate structure.

Read Date	01/18/2017	02/14/2017	Consumption
Read	58121	58376	255
	Reading Difference		255
	Total Consumption in KWH		255
COA - Electric Residential			
Customer Charge			\$10.00
Tier 1 first 255 kWh at \$0.02801 per kWh			\$7.14
Regulatory Charges 255 kWh at \$0.01343 per kWh			\$3.42
Community Benefit Charges			\$1.43
Community Solar 255 kWh at \$0.0427 per kWh			\$10.89
Residential Sales Tax			
Taxable Amount			\$32.88
City Sales Tax 1%			\$0.33
TOTAL CURRENT CHARGES			\$33.21

Cost Reduction Strategies

Non-hardware “soft costs” comprise majority of project costs

Utilities and developers can collaborate to reduce soft costs

<u>Strategy</u>	<u>Savings (c/kWh)</u>
Aggregation (i.e., grouping small projects)	1 to 1.5 c/kWh
Utility-Supported Development (e.g., securing land)	0.3 to 0.5 c/kWh

Outlook

Despite complexity, community solar is growing rapidly
Subscription programs are popular, cost-competitive, and
egalitarian

**Community solar expands access to affordable
solar energy for ALL customers**



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