WHAT THE HECK IS A REC?

THE LOWDOWN ON RENEWABLE ENERGY CERTIFICATES

A PRESENTATION TO THE SUSTAINABLE MADISON COMMITTEE

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RENEW WISCONSIN

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AVAILABLE PATHWAYS FOR 100% RENEWABLE ELECTRICITY

- Self-supply (behind the meter)
- Purchase output from an off-site renewable project through a utility tariff (MGE's Renewable Energy Rider)
- Purchase green power provided by the local utility (MGE's Middleton shared solar project)
- Purchase renewable energy certificates (from RE project owners)

DEFINITION OF REC'S

- **Renewable Energy Certificates** (**RECs**), also known as **Green tags**, **Renewable Energy Credits**, **Renewable Electricity Certificates**, or **Tradable Renewable Certificates** (**TRC**s), are tradable, non-tangible energy commodities in the United States that represent proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource (renewable electricity) and was fed into the shared system of power lines which transport energy.

From Wikipedia

PUT ANOTHER WAY …

Power on the grid comes from all sorts of sources: coal, nuclear, natural gas, renewables. Once it's on the grid, it's all blended together. So, as an end user, you can't really tell where that exact megawatt hour you're using comes from. ***RECs are a way for businesses to certify that they have a valid claim to the carbon reductions from a specific project.*** These certificates provide verification that a business' support for renewable energy had an impact on the grid.

From EnergySMART

https://www.energysmart.enernoc.com/practical-guide-renewable-energy-terms-what-are-ppas-virtual-ppas-and-recs

REC'S COME IN TWO FLAVORS

Bundled with electricity

(a/k/a "green power")

Example: MGE's Green Power Tomorrow program or shared solar project

Unbundled from electricity

(a/k/a "green tags")

Example: Organic Valley's contract with OneEnergy

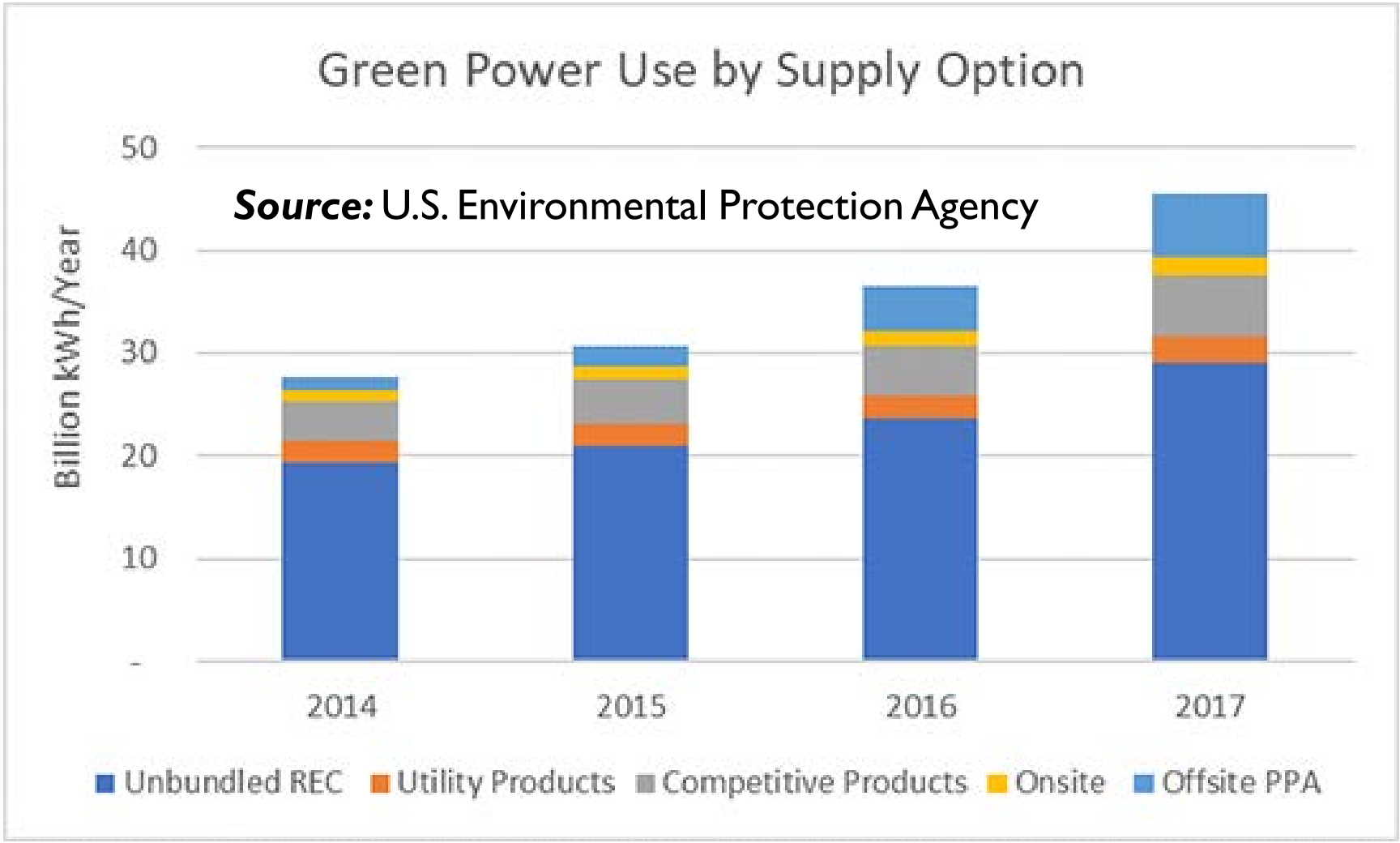
UNBUNDLED REC'S ARE …

- Measurable (I MWH is the unit)
- Scalable (to the customer's desire)
- Trackable (via M-RETS)
- Tradable
- Verifiable (by a third party)

This is a mature and transparent commodity market

ADVANTAGES OF REC PURCHASES

- Inexpensive way of accessing RE
- Speedier acquisition process
- Purchaser can target resource type, location
- Not regulated by Public Service Commission



Unbundled REC's account for two-thirds of the renewable electricity marketplace.

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WHO SELLS OR TRADES REC'S?

- RE project owners
- Utilities (in accordance w/ state RPS's)
- National aggregators (Arcadia Power)

ENVIRONMENTAL ATTRIBUTES OF CLEAN ENERGY FOLLOW THE RECS

1 MWH REC

$$

CITY OF MADISON WISCONSIN

CAN REC PURCHASES LEVERAGE NEW GENERATION?

Yes. Depending on the contract structure, REC purchases can provide a revenue stream that makes a solar or wind project financeable.

Downsville, WI

WHAT WOULD THE CITY OF MADISON LOOK FOR IN A REC PURCHASE?

ADDITIONALITY

DEFINITION OF ADDITIONALITY --

But for the purchase of REC's associated with a particular project's output, that project would not have been built.

INSERT ORGANIC VALLEY SLIDES HERE

Organic Valley distribution center, Cashton, WI

REC PURCHASES CAN BE OFFSET THROUGH EFFICIENCY

City of Madison's electric consumption

- 53 million kWh/year – 53,000 MWH/year

Annual cost of electricity

- X 12 cents/kWh = $6,360,000

Annual savings from 1% reduction in electricity use

- 1% of 53 million kWh = 530,000 kWh/yr
- At 12 cents/kWh, a 1% reduction in energy use saves $63,600/yr

REC Purchases

- 1 REC from OneEnergy = $4/MWH or $0.004/kWh (similar price to what Organic Valley will pay each year over a 25-year period).

HOW MANY RECEC'S CAN MADISON PURCHASE WITH $63,000 ANNUALLY?

$63,600 / $4 = 15,900 MWH (15,900,000 kWh)

15,900 / 53,000 = 0.30

Therefore, a 1% reduction in energy use produces savings that offset a REC purchase covering 30% of City of Madison's electricity use!