Renewable Energy Planning & Procurement
for *Cost Savings and Budget Certainty*

November 1, 2018
Presented at North Central Texas Council of Governments
Arlington, Texas

North Central Texas
Council of Governments

Speaker Introductions

TJ Ermoian – TEA President & Founder

Mike Bendewald – TEA Chief Operating Officer

Dan Seif – Principal, Seif Consulting

TexasEnergy Aggregation Brokers Consultants

Disclaimers & Disclosures

1. *The North Central Texas Council of Governments does not endorse or recommend any energy provider, pool or purchasing method, and the material presented here today is for educational purposes.*
2. *Texas Energy Aggregation (TEA) is providing this information today at our own expense.*
3. *TEA is compensated by energy providers chosen through an RFP process meeting State purchasing standards. Compensation method for any service provided is listed on the Comptroller's TXSmartBuy web site.*
4. *TEA is only compensated if we are successful in helping a client obtain an energy agreement.*
5. *If you have interest in utilizing any of TEA's services, we would be happy to discuss further specifics with you at another date.*

Questions?

Meeting intention and objectives

Intention: Provide NCTCOG members knowledge of opportunities to reduce cost and create long-term budget certainty through renewable energy purchasing agreements.

Objectives:

1. To understand the fundamental economics of how renewables save energy cost and create budget certainty
2. To be able to summarize and simplify the contracting options and process of procurement
3. To increase collaboration among peers and trust in the process
4. To identify common goals for aggregation potential

Tell us about yourself

- **Your name, title and organization**
- **What you hope to get out of today's workshop**
- **Current electricity purchasing method (if you know or would like to share)**
  - Run your own RFP
  - State program (Comptroller or GLO)
  - Interlocal agreement (such as TASB, TIPS, TCAP)
  - Other method?

State Contract Design and Organization

Texas Comptroller, Statewide Procurement Division designs and releases RFP in 2017 for **Electricity Sourcing Services** interlocal purchasing contract

The **State Energy Conservation Office** is chosen to oversee this contract and the RFP process

Any State agency, municipality, school district, college or university may use this contract through the TXSmartBuy portal

2018 - State approval of **Texas Power Pool** through **Electricity Sourcing Services** contract terms

Non-profit **Rocky Mountain Institute** is included as renewables consultant

2017 **Texas Energy Aggregation** wins RFP as selected aggregator/facili-tator/consultant

Facilitated by
the Texas Comptroller's
Statewide Procurement Division

Purpose: To provide a simplified method for public entities to:

- Participate in renewable energy buys
- Achieve the lowest historical fixed energy rates
- Ensure adherence to safe, legal State purchasing guidelines
- Access to other comprehensive services in a simplified, unified contract, including:
  - Demand Response programs (voluntary load shedding or dispatch of backup generation assets) for additional revenue/cost reductions
  - On-site solar to reduce regulated delivery costs
  - Includes regulated areas

TexasEnergy Aggregation Brokers Consultants

Ground Rules

- Be present
- Confidentiality
- Step forward, step backward

Today's agenda

- [2:00–2:20] Welcome
- [2:20–2:55] State of the market
- [2:55–3:10] Experiences*
- [3:10–3:25] Break
- [3:25–4:00] Options for procurement
- [4:00–4:30] Action planning*

* Includes small group discussion

Today's agenda

[2:00–2:20] Welcome

[2:20–2:55] State of the market

[2:55–3:10] Experiences*

[3:10–3:25] Break

[3:25–4:00] Options for procurement

[4:00–4:30] Action planning*

* Includes small group discussion

Two types of renewables: utility scale and distributed

	Description	Recent Trends
Utility Scale	• Greater than 10MW; most often 50+MW • Solar and wind farms • Often located in west and north Texas	• Corporates are driving demand, largely in Texas • Long-term renewable contracts beat the market price • Aggregations forming to achieve better pricing
Distributed Scale	• Less than 10MW / most often less than 1 MW • Typically solar • Located on site of the buyer's facility	• Transmission costs have been on the rise, creating tremendous economic case • Regulated-region customers can work with local co-op or muni

Two types of renewables: utility scale and distributed

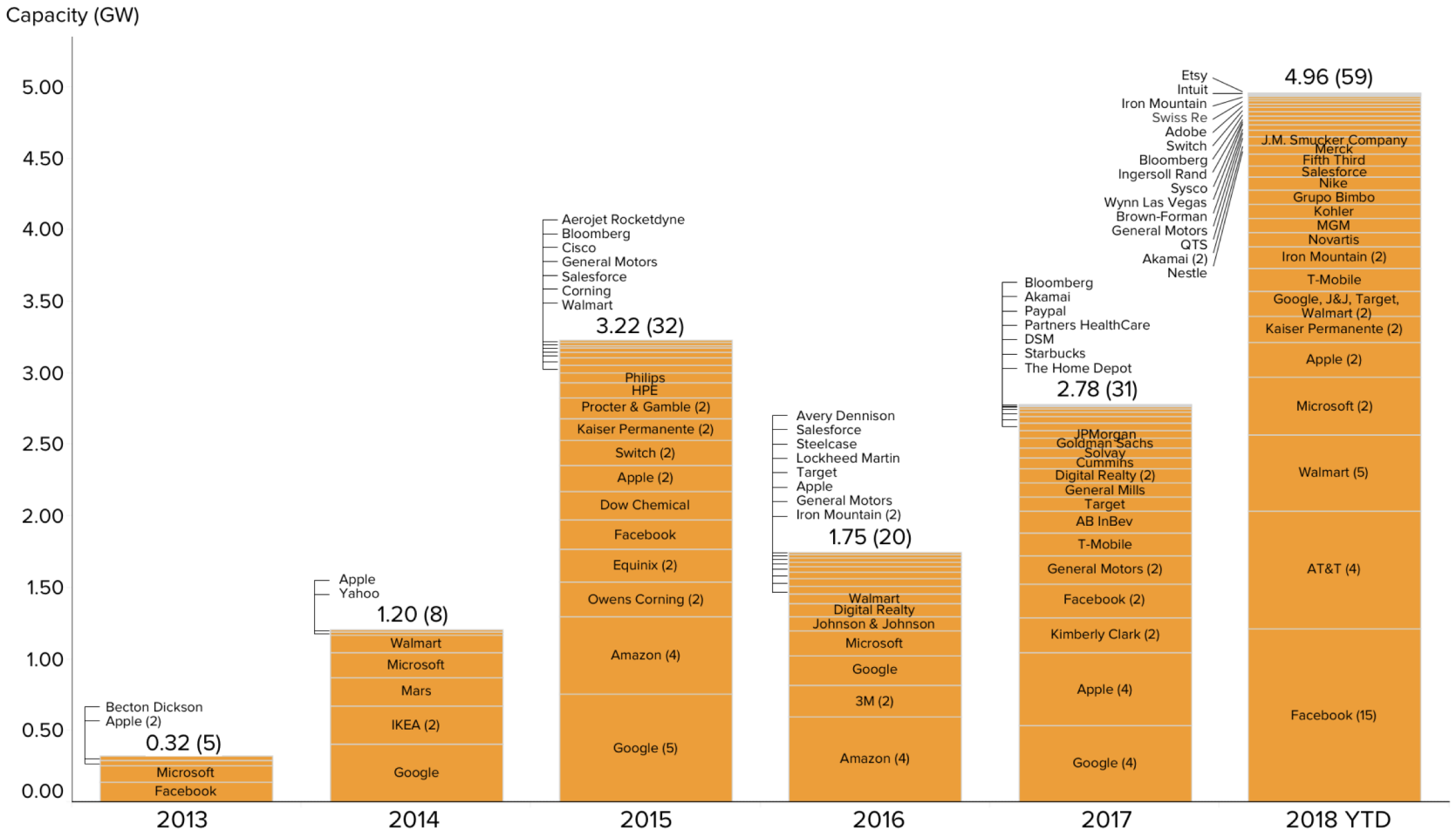
	Description	Recent Trends
Utility Scale	• Greater than 10MW; most often 50+MW • Solar and wind farms • Often located in west and north Texas	• Corporates are driving demand, largely in Texas • Long-term renewable contracts beat the market price • Aggregations forming to achieve better pricing
Distributed Scale	• Less than 10MW / most often less than 1 MW • Typically solar • Located on site of the buyer's facility	• Transmission costs have been on the rise, creating tremendous economic case • Regulated-region customers can work with local co-op or muni

Corporates are driving much of the demand for utility-scale power purchase agreements

BUSINESS RENEWABLES CENTER

Corporate Renewable Deals

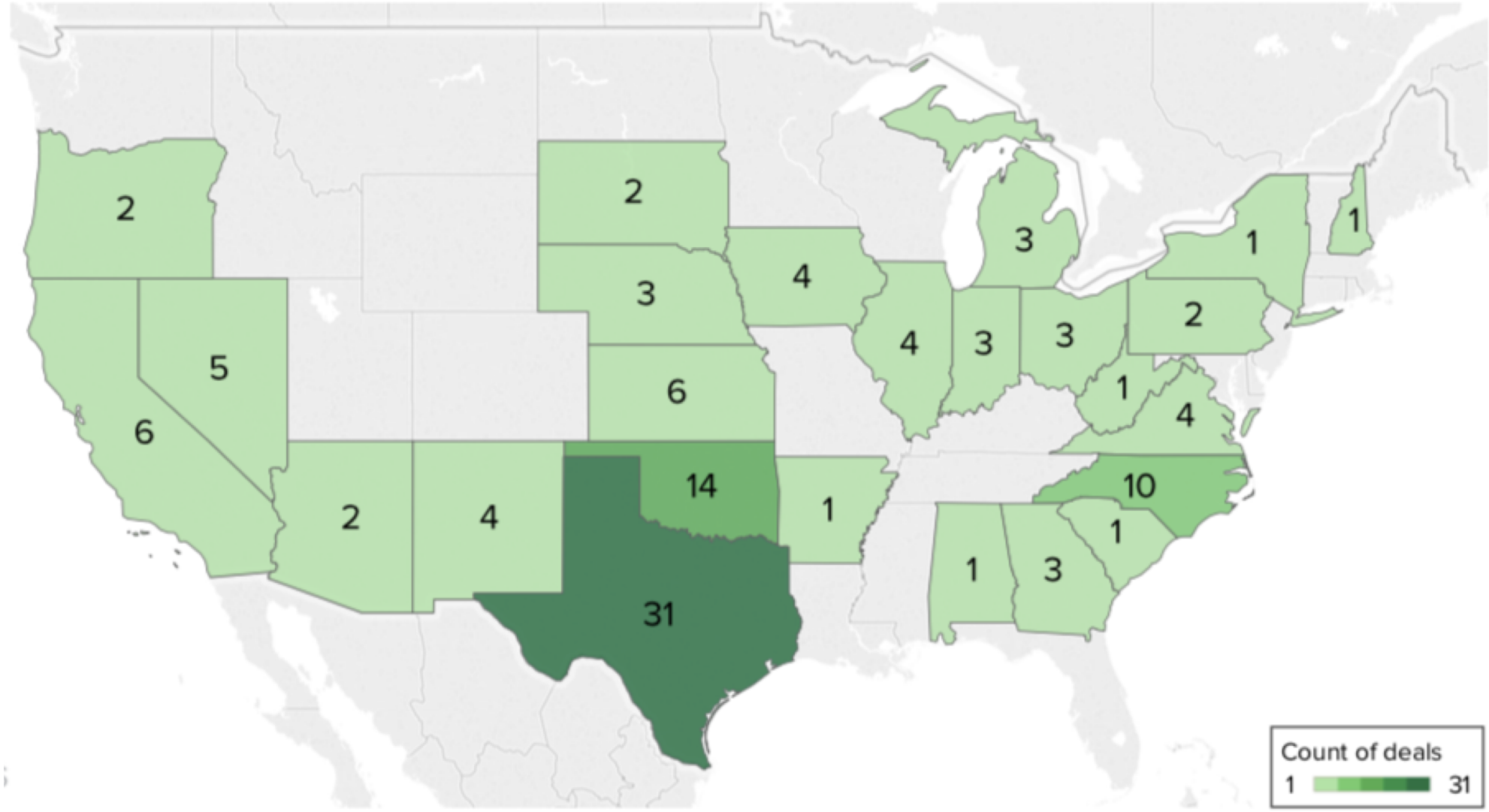
2013 – 2018 YTD



As of October 17, 2018. Publicly announced contracted capacity of corporate Power Purchase Agreements, Green Power Purchases, Green Tariffs, and Outright Project Ownership in the US, 2013 – 2018 YTD. Excludes on-site generation (e.g., rooftop solar PV) and deals with operating plants. (#) indicates number of deals each year by individual companies.

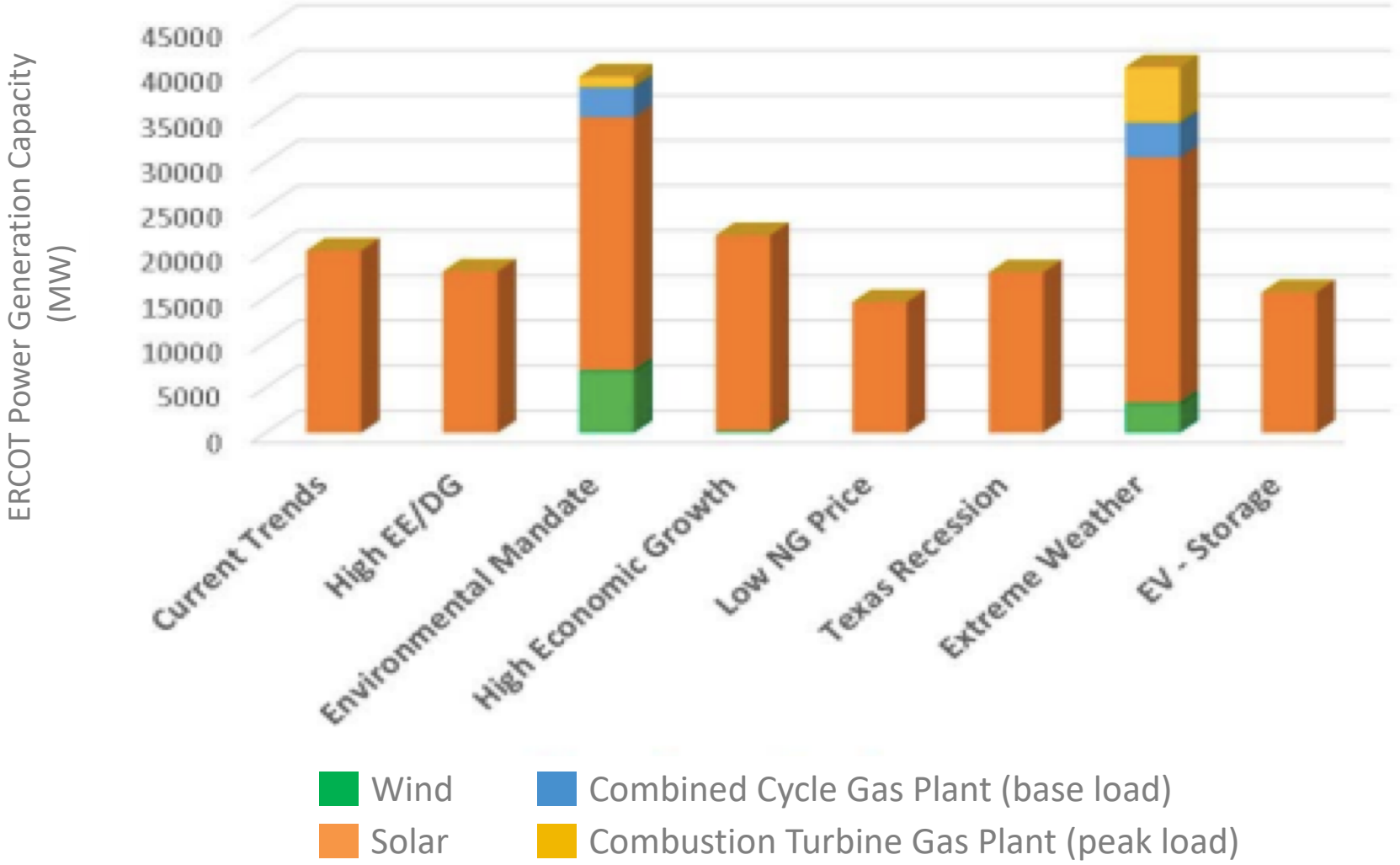
sEnergy Aggregation Brokers Consultants

Most deals are getting done in Texas



Source: Business Renewables Center

ERCOT's outlook on new-build generation concludes solar is most cost effective the next 20 years



Source: Long term assessment for the ERCOT region, http://www.ercot.com/content/wcm/lists/89476/2016_Long_Term_System_Assessment_for_the_ERCOT_Region.pdf

City of Houston — off-site solar generation

Description

- "SolaireHolman" 50 MW solar array
- PPA executed in 2016, online in 2017
- 20 year contract
- Meets 10.5% of Houston's municipally owned load

203,840 panels, assembled by 148 workers, power….

Lessons

- Long-term (>15 years) necessary for cost savings
- Node for this project has been poorly priced
- Cost savings are somewhat difficult to track
- May be possible to increase project sizes if more power demand viable

Zoo | Bob Lanier Public Works Bldg. | IAH Terminals | WWT Plants

Benefits

- ~$2m/yr average savings over term
- Budget certainty for 10.5% of energy-portion of power bill
- #1 US EPA ranking for local government green power users
- #7 ranking by US EPA for overall green power users

"As the nation's largest municipal purchaser of green power, we are living proof that large, industrial cities like Houston can have a robust economy but also help fight climate change"

- Houston Mayor Sylvester Turner

TexasEnergy Aggregation Brokers Consultants

University aggregation case study

Description

- Aggregation of George Washington University (GW), American University (AU) and the George Washington University Hospital (GWUH)
- 53.5 MW of solar

Lessons

- Signed a 20-year power purchase agreement
- ~50% of power consumption is met by solar, remainder is market power

Benefits

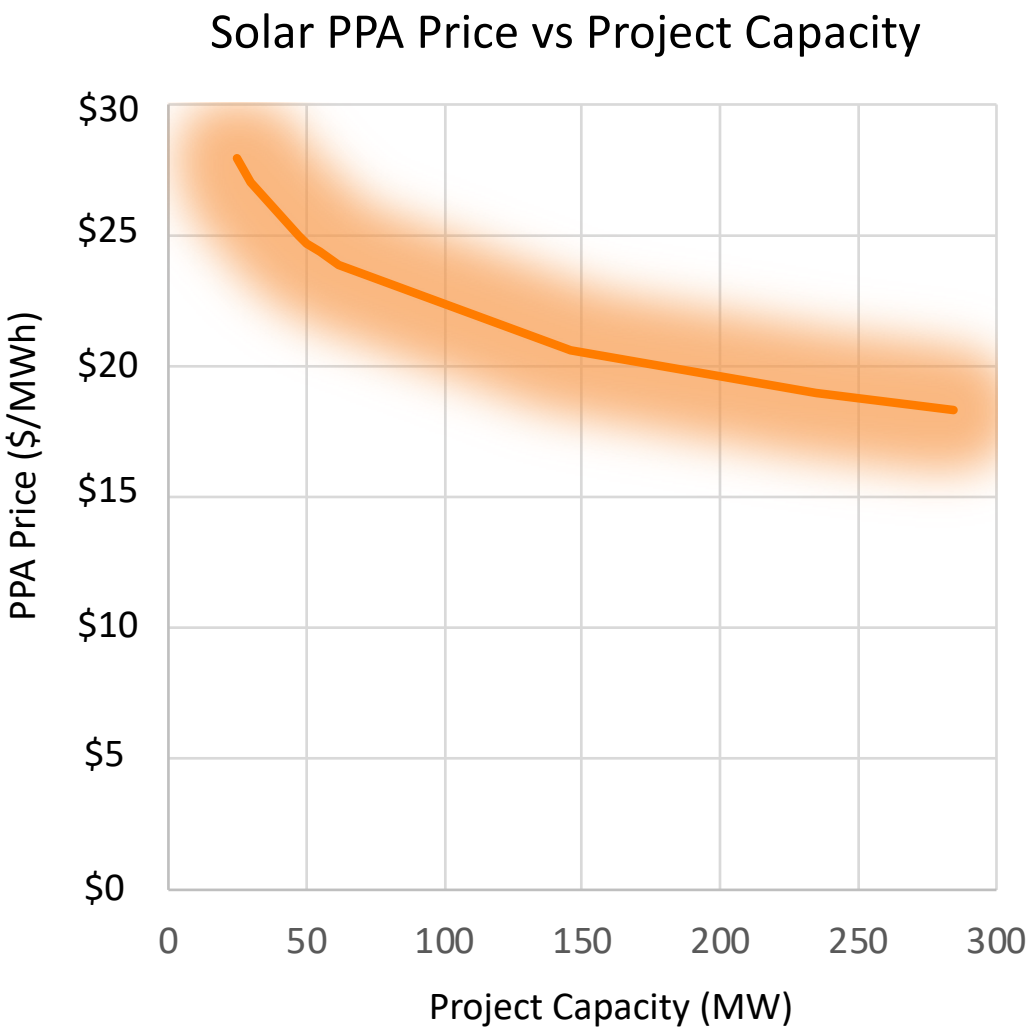
- Reach carbon reduction goal
- Economic savings over time

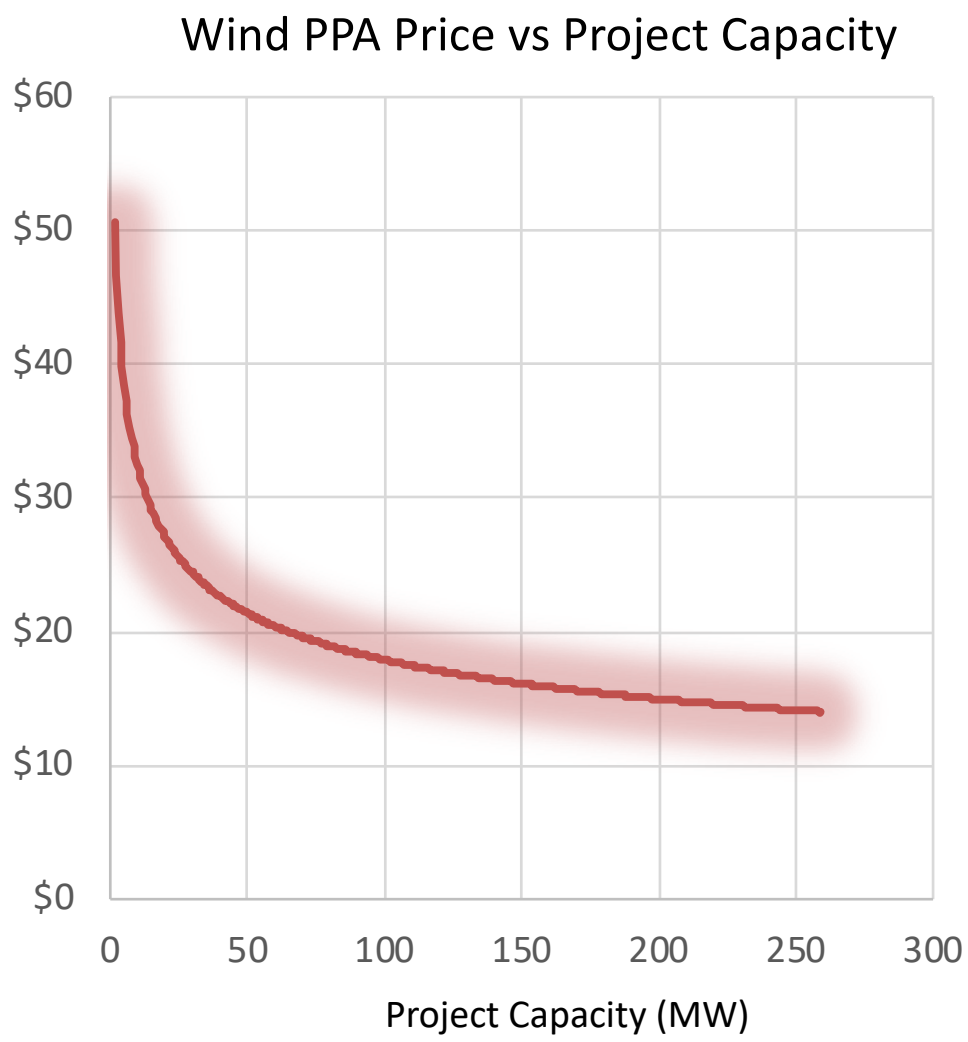
"It really is a model for what universities and other institutions can do together to build capacity for alternative energy."

— Steven Knapp, GW President, during remarks to celebrate the one-year anniversary of the project completion

Source: https://sustainability.gwu.edu/capital-partners-solar-project

PPA price variability: Bigger projects offer lower pricing





Data source: Lawrence Berkeley National Lab; data does not distinguish between hub and zone settlement; assume +/- $4/MWh margin of error

Move quickly or wait?

Current Status

- Solar and wind PPAs at all time low pricing
- Imposition of panel trade tariffs in early 2018 have caused solar PPA pricing plateau, but not increase
- Presumption that wind and solar PPAs only get cheaper is not accurate – Wind PPAs got *more expensive* for 6 consecutive years (2003–2009)
- Immediate savings available

Risks of Waiting

- Elimination-or-reduction of TX Section 313 property tax abatements by Comptroller
- Increases in solar/wind (and related materials like steel) tariffs
- Increase in power market futures prices (projects will then sell at market *and not* cost)—market prices currently near *record lows*
- Tax credits are coming to an end—last opportunity is 2020 for wind and 2020–2023 for solar (steps down over 3 years from 30% to 10%)