Renewable Energy Planning & Procurement for Cost Savings and Budget Certainty

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

TJ Ermoian – TEA President & Founder

Mike Bendewald – TEA Chief Operating Officer

Dan Seif – Principal, Seif Consulting
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?
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.

2017 Texas Energy Aggregation wins RFP as selected aggregator/facilitator/consultant.

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

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

Rocky Mountain Institute

State Contract Design and Organization

T.E.X.A.S. 
State Energy Conservation Office

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State Contract Design and Organization

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State Energy Conservation Office
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
Ground Rules

• Be present
• Confidentiality
• Step forward, step backward
Today’s agenda

[2:00–2:20] Welcome
[2:55–3:10] Experiences*
[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


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Two types of renewables: utility scale and distributed

**Utility Scale**
- Greater than 10MW; most often 50+MW
- Solar and wind farms
- Often located in west and north Texas

**Distributed Scale**
- Less than 10MW / most often less than 1 MW
- Typically solar
- Located on site of the buyer’s facility

**Description**

**Recent Trends**
- Corporates are driving demand, largely in Texas
- Long-term renewable contracts beat the market price
- Aggregations forming to achieve better pricing
- 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

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

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. (F) indicates number of deals each year by individual companies.

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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

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

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

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

203,840 panels, assembled by 148 workers, power...
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%)
## Two types of renewables: utility scale and distributed

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| **Distributed Scale** | • Transmission costs have been on the rise, creating tremendous economic case  
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• Typically solar  
• Located on site of the buyer’s facility | |
ERCOT Transmission Charge Escalation

ERCOT 4CP Transmission Demand Charge ($/kW-yr)

Worsening Congestion Drives More Transmission

Source: PUCT

Source: ERCOT
ERCOT Transmission Charge Escalation

- Oncor transmission charges will closely follow ERCOT “Postage Stamp” Rate
- Slight discount to “Postage Stamp” rate due to cross-subsidization (small commercial and residential paying a little more than their fair share)

ERCOT “Postage Stamp” Rate = $53.58 / kW-yr = $4.47 / kW-mth
Sept. ‘18 Average Oncor Transmission Cost Recovery Factor (“TCRF”) = $47.48 / kW-yr = $3.96 / kW-mth

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<th>Class</th>
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<td>Primary &gt; 10 kW IDR</td>
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<tr>
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<td>Transmission IDR</td>
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On-site solar reduces transmission charges

Every 4CP moment has occurred between 3:45 and 5pm...

...No need to enroll in 4CP predictive services because the sun is shining >90% of time
Co-ops and muni’s are racing ahead with solar

City of Kerrville — utility-customer solar generation agreement

Description
• Local non-profits host solar arrays for municipal utility, KPUB
• Projects are front-of-the-meter (on distribution grid)
• Sized at 0.99 MW to capture transmission savings
• Hosts receive discounted power rates
• Remaining power provides lower rates to low income housing.
• KPUB developed tariff structure, determined hosting finalists, and awarded solar projects in 2018

Lessons
• Took a substantial time and internal resources for KPUB to find non-profit hosts and the solar provider
• Utility-scale renewables procurement is a lower resource burden for KPUB

Benefits
• Provides savings to KPUB via transmission (4CP) and energy cost savings – savings passed on to hosts and low-income housing
• Property tax payments of power projects stays within community

Source: Hill Country Community Journal
Comparing utility- and distributed-scale solar

**UTILITY SCALE versus DISTRIBUTED SCALE**

Solar PPA Prices Converted to Utility-Scale PPA-Equivalent ($/MWh)

- **UTILITY-SCALE**
  - (> 75 MW; located in Far West TX; priced at North LZ)
- **ON-SITE GROUND-MOUNTED**
  - (> 1 MW; DFW metro area; free land lease)
- **ROOFTOP SOLAR**
  - (DFW metro area; > 1 MW co-located; >0.1 MW per bldg.; flat roof)

- ~10%
- ~25%
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[2:55–3:10] Experiences*
[3:25–4:00] Options for procurement
[4:00–4:30] Action planning*

* Includes small group discussion
2:55–3:10

1. Form small groups
2. Share your experiences with renewables (10 min)
   a) Have you considered renewables? Why or why not?
   b) How did the renewable energy offers perform?
3. Sharing in the plenary (5 min)
   a) Volunteers share their discussions/insights
Framework: How do the renewables energy offers perform?

<table>
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<tr>
<th>Performance Indicator</th>
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<td></td>
<td>1 = very weak</td>
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<td>5 = very strong</td>
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## Framework: Rate your priorities

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Distributed Solar: Options for Procurement

1. Self-procurement
   - Release RFP
   - Evaluate bids and select a provider

2. Muni or Co-op
   - Work with local utility to procure the solar
   - Bilateral contract/tariff

3. Aggregation
   - Multiple entities release RFP together
   - Individual contracts

Description

Assessment

- Highly customized
- Proceed at your own pace
- Higher price

- Enables transmission cost savings for better economics
- Can be part of an aggregation
- Muni or co-op can be challenging to work with

- Can reduce cost by ~10% in relation to self-procurement
- Additional buyers can complicate the procurement
Aggregation of distributed solar saves 10% on PPA price

Cost Savings through Aggregation of Distributed Solar by State

- New Mexico
- Colorado
- Texas

Regional Portfolio (MW)

PPA Offer ($/MWh)

$70

$65

$60

$55

$50

$45

$40

0

10

20

30

40

50

10%
Utility-scale Renewables: Options for Procurement

**Description**

1. Retail Electricity Provider
   - Contract for “100% renewable” power
   - Fixed price, matches load
   - 2–10 year term

2. Power Purchase Agreement
   - Agreement with renewable project developer
   - Variable volume, fixed price
   - 15–20 year term

3. Public Power Blocks
   - Subscription to an aggregated power purchase
   - Fixed price block
   - 15–20 year term

RECS = Renewable Energy Certificates
Public Power Block is the biggest public entity renewables aggregation, offering low prices and budget certainty

**What it is**
- A 150+ MW block of power composed of new-build solar, new-build wind, and grid power (natural gas, coal, nuclear, and existing renewables)
- 15–20 year term, beginning mid-2020
- To be competitively bid on price and qualifications for the Texas Power Pool early 2019

**Why it matters**
- Immediate cost savings
- Reduced exposure to electricity market volatility
- Integrates with existing and future retail electricity provider contracts
- Enables 150–200 MW of new-build solar and/or wind
- Creates revenue for Texas university systems

**Target Customers**
- State of Texas entities or AA-rated-or-higher Texas municipal entities, ISDs and universities
- Minimum 20 million kWh annual power consumption
The Public Power Block (PPB) enables public entities to lock in historic low temporary pricing, but now for 15–20 years.

Source: Actual wholesale values are historical load zone settlement prices taken from ERCOT State of the Market reports.
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Action Planning

4:00–4:25

1. Form small groups
2. How can you overcome renewable energy procurement challenges? (5 min)
   a) What are your procurement challenges?
   b) What does success look like?
3. What are the most important steps to take? (10 min)
   a) What do you need to accomplish?
   b) Who should be involved?
   c) How will you know when you are making progress?
4. Sharing in the plenary (10 min)
   a) Volunteers share their discussions/insights
Concluding messages

• Texas Power Pool is a power purchasing option made available through the Comptroller Statewide Procurement Division

• Renewable energy is the lowest cost power in Texas if procured long-term

• No need to wait for your retail power contract to expire

• Renewable energy provides long term hedge against future prices

• Savings vs long-term market prices are not guaranteed, but most deals are done based on high probability
THANK YOU

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