

Making a Power Purchase Agreement Work

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Why Install Solar ?

- Budget reductions
- Environmental considerations
- Community input
- District vision – aligning with renewable standards

Ever Changing Environment –

- Electric rates (costs)
- Utility rebates
- Manufacturers of panels, inverters, mounting systems, designers
- Economics – tax incentives (energy tax credits & depreciation) to world-wide demand

Potential Problems

- Time – from the time enter into agreement to finalize contracts
 - Suppliers won't hold equipment
 - Financial backing within the companies participating in the PPA
 - Other commitments
- Design and production guarantees
 - Different equipment
 - Changes
- Communication
 - Coordinating between the PM and the Schools

How To Start A Project

- Understanding electric bill is key
 - Two components in most commercial buildings – unlike a residential bill
 - Consumption – kWh
 - Demand – kW
 - Rates and riders – Xcel's bill
 - Which part of the bill affects kWh and kW?
 - Guessing the future
 - Do our electric rates ever decline?

Xcel Energy Rates and Riders

Colorado Commercial and Industrial Customers

Secondary General Rates since January 1, 2010					
Summer Demand Charge period is June, July, August, and September					
Winter Demand Charge period is October through May					
Secondary General		Effective	Effective	Effective	Effective
Schedule SG		1/1/2010	4/1/2010	6/1/2010	7/1/2010
		Rate	Rate	Rate	Rate
Base Rates:					
Service and Facility Charge		\$25.00	\$25.00	\$40.00	\$40.00
Energy Charge		\$0.00288/kWh	\$0.00288/kWh	\$0.00473/kWh	\$0.00473/kWh
G&T Demand Charge - Summer		\$9.58/kW	\$9.58/kW	\$10.96/kW	\$10.96/kW
G&T Demand Charge - Winter		\$8.40/kW	\$8.40/kW	\$8.00/kW	\$8.00/kW
Distribution Demand		\$0	\$0	\$4.84/kW	\$4.84/kW
GRSA		45.01%	45.01%	-0.54%	-0.54%
Riders:					
DSMCA		\$0.43/kW	\$0.43/kW	\$0.43/kW	\$0.25/kW
PCCA		\$3.91/kW	\$3.91/kW	\$3.91/kW	\$3.91/kW
ECA		\$0.02934/kWh	\$0.03738/kWh	\$0.03738/kWh	\$0.03237/kWh
RESA		2.00%	2.00%	2.00%	2.00%
AQIR		\$0.00/kWh	\$0.00/kWh	\$0.00/kWh	\$0.00/kWh
TCA		\$0.02/kW	\$0.02/kW	\$-0.03/kW	\$-0.03/kW

Actual Bill from Mandalay Middle School

Customer Name		Service Address		Premise Number	Date Due	Premise Total
JCPSMANDALAY MIDDLE 67400		9651 PIERCE ST UNIT ELEC		301284667	Aug 27, 2010	\$9,223.59
JEFFERSON COUNTY SCHOOL DISTRICT		WESTMINSTER, CO 80021-6437				
Electric Service - Account Summary						
Invoice Number	334507790			Secondary General	44640 kWh x 0.004730	\$211.15
Meter No	44485745			GRSA		-\$31.82
Rate	SG	Secondary General		Gen&Transm Demand	357kW x 10.960000	\$3,912.72
Days in Bill Period	29			Trans Cost Adj	357kW x -0.030000	-\$10.71
Current Reading	11606	Actual 8/12/2010		Elec Commodity Adj	44640 kWh x 0.032370	\$1,445.00
Previous Reading	11327	Actual 7/14/2010		Distribution Demand	357kW x 4.840000	\$1,727.88
Multiplier	160			Demand Side Mgmt Cost	357kW x 0.250000	\$89.25
Measured Usage	279			Purch Cap Cost Adj	357kW x 3.910000	\$1,395.87
Kilowatt-Hours Used	44640			Service & Facility		\$40.00
Measured Demand	2.231	kW	Actual	Renew. Energy Std Adj		\$175.60
Billed Demand	357	kW		Subtotal		\$8,954.94
				Franchise Fee	3.00%	\$268.65
				Sales Tax		\$0.00
				Total Amount		\$9,223.59

Bill Calculations

	Rates effective		kWh	44,640		
	7/1/2010		kW	357.0	kWh	kW
Base Rate		Applies to:				
Service and Facility Charge	\$ 40.00			\$ 40.00	\$ 40.00	
Energy Charge	\$ 0.00473	kWh		\$ 211.15	\$ 211.15	
Demand Charge - Winter	\$ 8.00	kW				
Demand Charge - Summer	\$ 10.96	kW		\$ 3,912.72		\$ 3,912.72
Distribution Demand	\$ 4.84	kW		\$ 1,727.88		\$ 1,727.88
General Rate Schedule Adjustment (GRSA)	-0.54%	entire cost		\$ (31.82)	\$ 251.15	\$ 5,640.60
					4.26%	95.74%
					\$ (1.36)	\$ (30.46)
Riders						
Demand Side Management Cost Adjustment (DSMCA)	\$ 0.25	kW		\$ 89.25		\$ 89.25
Purchased Capacity Cost Adjustment (PCCA)	\$ 3.91	kW		\$ 1,395.87		\$ 1,395.87
Electric Commodity Cost Adjustment (ECA)	\$ 0.03237	kWh		\$ 1,445.00	\$ 1,445.00	
Air Quality Improvement Rider (AQIR)	\$ -	kWh		\$ -		
Transmission Cost Adjustment (TCA)	\$ (0.03)	kW		\$ (10.71)		\$ (10.71)
		kWh Charges		\$ 1,694.79	\$ 1,694.79	
		kW Charges		\$ 7,084.55		\$ 7,084.55
		Sub-total		\$ 8,779.34		
Renewable Energy Standard Adjustment (RESA)	2.00%	RESA		\$ 175.59	\$ 33.90	\$ 141.69
				\$ 8,954.93	\$ 1,728.68	\$ 7,226.24
Franchise Fee	3%	Franchise Fee		\$ 268.65	\$ 51.86	\$ 216.79
		Total		\$ 9,223.57	\$ 1,780.54	\$ 7,443.03
		rate per kWh		= $\$1,780.54/44,640$		\$ 0.0399
		rate per kW		= $\$7,443.03/357.0$		\$ 20.85
		Average kWh		= $\$7,443.03/44,640$		\$ 0.1667

Understanding a Power Purchase Agreement

- The RFP Process
 - A. Mandatory Vendor Meeting
 - B. Streamlining the Vendors Response
 - Transmittal Letter – Limit 2 pages
 - Management Summary – Limit 4 pages
 - Supplier Profile – Limit 4 pages
 - Technical Summary & Equipment Offering – Limit 15 pages
 - Schedule & Implementation Plan – Limit 5 pages

RFP Evaluation Criteria

- RFP Evaluation Criteria
 - Management Summary
 - Supplier Profile
 - Pricing – Note: Must be cost neutral or better for the District
 - Technical Summary & Equipment Offering
 - Schedule and Implementation Plan
 - Previous work experience

Internal Contractual Objectives

- Flexibility
- Non-exclusivity
- Must be Tabor Compliant

Understanding a Power Purchase Agreement

- Time and cost
- The 'Team'
 - Financial backing
 - System designer
 - Electrical contractor
 - System installer
 - Production guarantee
 - Operations and maintenance
- Options
 - Length of contract
 - Buy outs
 - Pricing and escalation

Xcel's Process

- Most schools will be in the Medium Program
 - >10kW to <100kW
- Reservation Letter
- Interconnection Agreement
- Line Diagram
- SO REC Contract (owner or developer)
 - Energy credits are declining – currently \$35/MWh generated
- Rebate Contract (owner or developer)
 - \$2.00 per watt

Site Selection

- Building orientation
- Age and condition of roof
- Type of system – self ballasted, ballasted or mechanically fastened
- Weight of system – proper engineering
- Political issues
- Staff Involvement

Selecting a team

- District
- Curriculum support and teacher training
- Contractors
- Communication
 - Internal and External

Problems

- Changes to equipment
 - Almost all contracts say “or equivalent” when specifying components
 - Manufacturers’ delays
- Do you have liquidated damages?
 - Are you hurt by a delay in getting systems operated?
- Schools
 - Construction during the school day/year

Questions?