



City of Palo Alto

City Council Staff Report

(ID # 9277)

Report Type: Informational Report

Meeting Date: 6/11/2018

Summary Title: Energy Risk Management Report

Title: City of Palo Alto's Energy Risk Management Report for the First Half of Fiscal Year 2018

From: City Manager

Lead Department: Administrative Services

Recommendation

This is an informational report and no City Council action is required.

Executive Summary

Staff continues to purchase electricity and gas in compliance with the City's Energy Risk Management Policies, Guidelines, and Procedures. This report is based on market prices and load and supply data as of December 31, 2017, the end of the first half of Fiscal Year (FY) 2018.

The projected cost of the City's fixed-price electricity purchases is \$0.09 million lower than the market value of that electricity as of December 31, 2017 for the 12-month period beginning January 1, 2018. In the first half of FY 2018 (July 1, 2017 through December 31, 2017) the City's credit exposure to fixed price contracts is minimal. The projected Electric Supply Operations Reserve is above the FY 2018 minimum guideline reserve level and the projected gas reserve is also above the FY 2018 guideline reserve level range.

There were no exceptions to the Energy Risk Management Policies, Guidelines, or Procedures to report during the first half of FY 2018.

Background

The purpose of this report is to inform the Council about the status of the City's energy portfolio and transactions executed with energy suppliers as of the end of the first half of FY 2018. The City's Energy Risk Management Policy requires that staff report on a quarterly basis but due to lower trading activity levels the Utility Risk Oversight Coordinating Committee (UROCC) has approved providing this report on a semi-annual basis to Council on: 1) the City's energy portfolio; 2) the City's credit and market risk profile; 3) portfolio performance; and 4) other key market and risk information.

The City's Energy Risk Management Policy describes the management organization, authority, and processes to monitor, measure, and control market risks. "Market risks" include price and counterparty credit risk. These are risks that the City is exposed to on a regular basis in procuring electric supplies, and to a lesser extent for gas supplies which are purchased at market rates via a monthly index price. The energy risk management section is located in the Treasury Division of the Administrative Services Department. Its role is to monitor and mitigate these risks.

This first half of FY 2018 energy risk management report contains information on the following:

- Electric Supplies
- Hydroelectricity
- Fixed-Price Forward Electricity Purchases
- Gas Supplies
- Credit Risk
- Electric Forward Mark-to-Market Values
- Electric and Gas Supply Operations Reserves Adequacy
- Exceptions to Energy Risk Management Policies, Guidelines, or Procedures

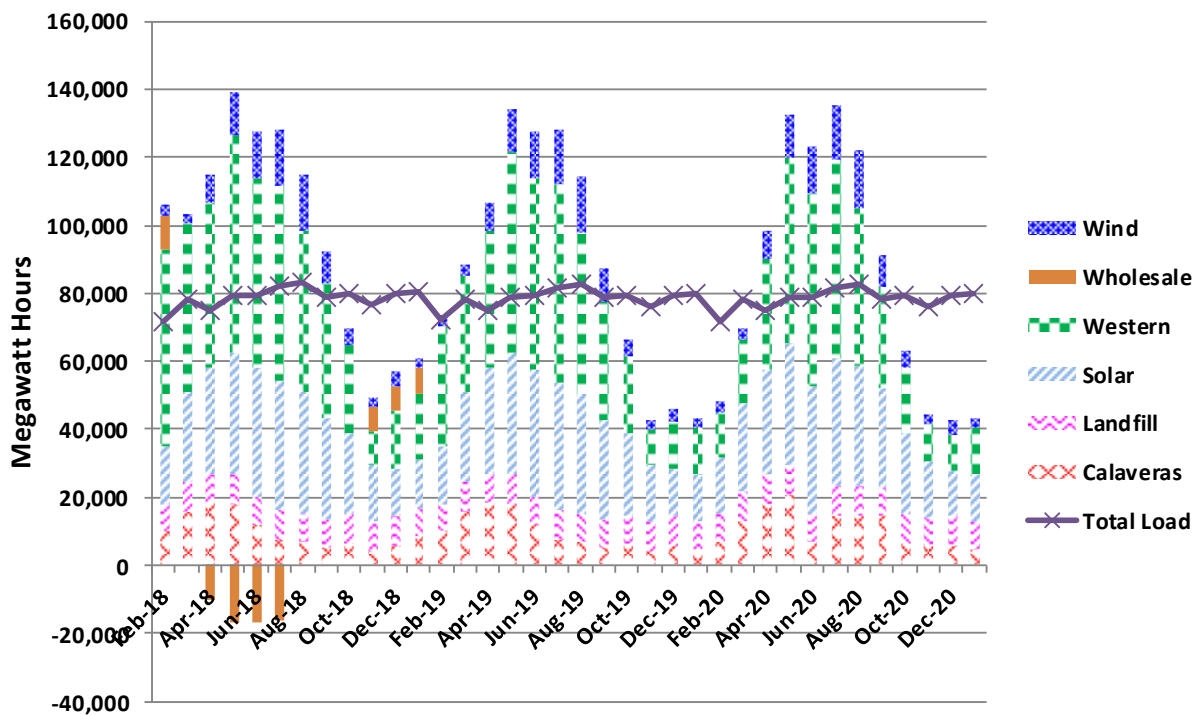
Discussion

Electric Supplies

In order to serve the City's electric supply demands, the City obtains electricity from: hydroelectric resources (from Western and Calaveras Hydroelectric Projects); long-term renewable energy contracts (from landfill gas converted to electricity, wind, and solar projects); wholesale purchases which are carried out via fixed-priced forward market purchase contracts; and the electric spot market.

Figure 1 below illustrates the projected sources and expected purchases of electricity supplies by month for the 36 months from January 1, 2018 to December 31, 2020, in megawatt-hours (MWh). Sales of surplus energy in the summer months are typical due to the seasonal profile of the City's generating portfolio as a result of renewable energy power from hydroelectricity, solar, and wind.

Figure 1 - Electric Balance



Hydroelectricity

The cost of hydroelectricity received from Western over the 12-month period ending December 31, 2017 is lower than the market value of electricity by \$5.1 million. Hydroelectric power from Calaveras was expected to cost \$6.7 million (as of December 31, 2017) more than the market value of electricity. Note that Calaveras provides benefits not reflected in the mark-to-market (MTM) calculation, including, for example, ancillary services (e.g., the ability to regulate energy output when the electric grid needs change), and that much of the above-market costs are related to debt service on the cost of constructing the dam. This debt is due to be retired in 2032, and retirement will substantially improve the value of the project relative to the market price of electricity.

Fixed-Price Forward Electricity Purchases

The City as of December 31, 2017 has purchased and/or sold fixed-priced supplies of electricity totaling 103,370 MWh for delivery in FY 2018 with an average price of \$35.06 per MWh. The City contracted for these purchases with three of its approved counterparties: Powerex, Exelon, and NextEra Energy Resources. The 12-month MTM value of the City's forward transactions for wholesale power was \$0.09 million at the end of the first half of FY 2018. In other words, the purchase cost (contract price) for these transactions was lower than the market value as of December 31, 2017. The City tracks the mark to market value of its forward contracts to measure the value that would be lost due to a counterparty failing to deliver on its contractual commitments, forcing the City to purchase replacement electricity in the market. The exposure

listed above is well within risk management guidelines and presents little risk to the City's financial outlook.

The figures below represent the electric forward volumes (Figure 2) and MTM positions (Figure 3) for each electric supplier by month of delivery for all forward fixed-price electricity contracts over the 12-month period ending December 31, 2018.

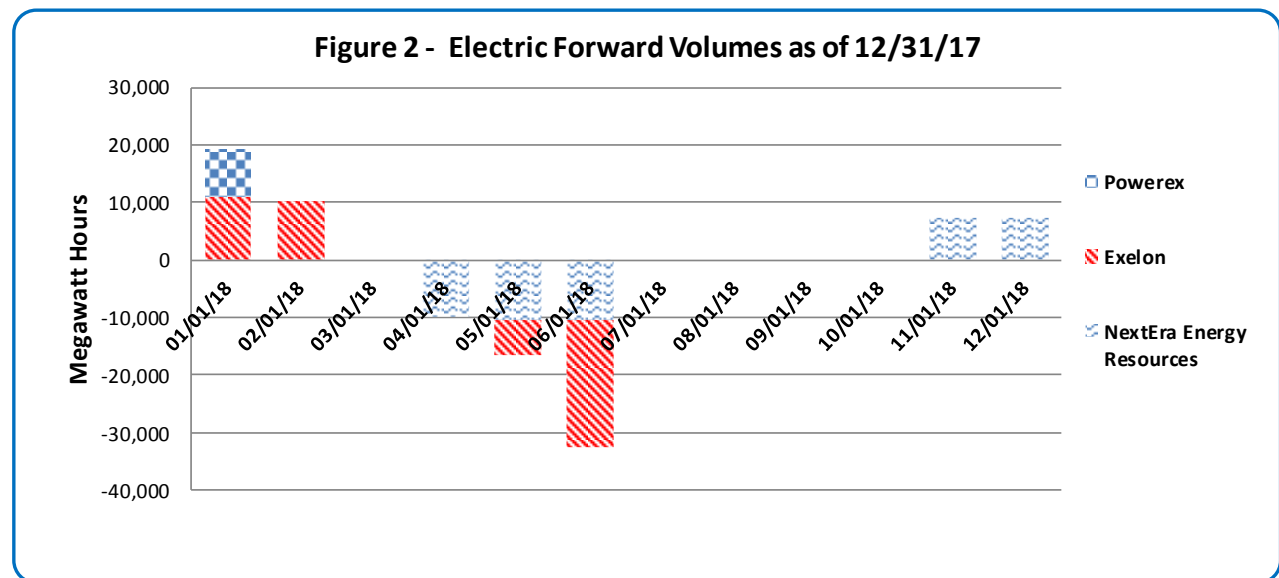
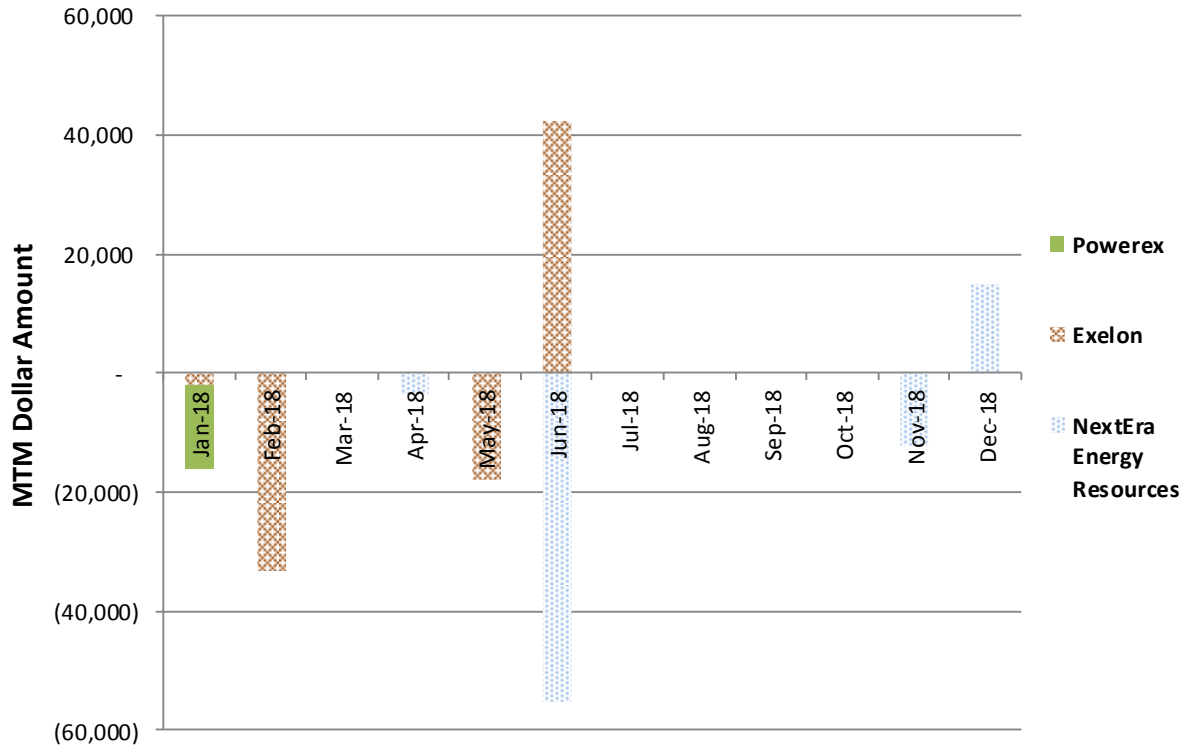


Figure 3 - Electric Mark-to-Market Values as of 12/31/2017



Gas Supplies

In order to serve the City's natural gas needs, the City purchases gas on the monthly and daily spot markets. The City purchases all of its forecasted gas needs for the month ahead at a price based on the published *monthly* spot market index price for that month. Within the month, the City's gas operator buys and sells gas to match the City's daily needs if the actual daily usage is different from the forecasted daily usage. Those daily transactions are made at an average price based on the published *daily* spot market index. These costs are passed through directly to customers using a monthly rate adjustment mechanism, leaving the City with little or no price risk or counterparty risk exposure for the gas utility.

Credit Risk

Staff monitors and reports on counterparty credit risk based on the major credit rating agencies (S&P and Moody's) scores, Ameresco has a 0.68 percent Expected Default Frequency (EDF) which is higher than the recommended EDF level. As May 2018, this has declined to 0.45 percent so there has been an improvement. Staff is continuing to monitor Ameresco's EDF and will continue to report back to City Council. Table 1 below shows the EDF values for the City's renewable energy counterparties. Table 2 below shows the EDF values and credit exposure for the City's electric suppliers. There is virtually no credit exposure to the City's gas suppliers since the supplies are purchased on a short-term basis.

Table 1 - Renewable Counterparties Credit Ratings and EDFs as of 12/31/17

Renewable Counterparty	S&P Credit Rating	Current Expected Default Frequency	Moody's (EDF) Implied Rating
Ameresco	n/a	0.68%	B2
Avangrid (formerly Iberdrola)	BBB+	0.24%	Aa2

Source: CreditEdge website

Table 2 - Credit Exposure and Expected Default Frequency of Electric Suppliers as of 12/31/17

Electric Counterparty	Cost of Transaction	Market Value of Transaction	Cost vs. Market to Market (MTM) Value	S&P Credit Rating	Current Expected Default Frequency	Moody's (EDF) Implied Rating	Expected Loss (MTM x Expected Default Frequency)
Exelon	\$ 1,831,232	\$ 1,755,823	\$ (75,409)	BBB	0.06%	Baa3	\$ -
Powerex	272,240	258,136	(14,104)	AAA	n/a	n/a	n/a
NextEra	1,520,573	1,598,127	77,554	A-	0.03%	Aa1	23
Totals	\$ 3,624,045	\$ 3,612,086	\$ (11,959)				\$ 23

Electric Forward Mark-to-Market Values

It is important to note that, for renewable energy companies, Council waived the investment grade credit rating requirement of Section 2.30.340(d) of the Palo Alto Municipal Code, which applies to energy companies that do business with the City. In addition, the City does not pay for renewable energy until it is received, thereby reducing risk.

An EDF of 0.08% or below indicates supplier's current expected default frequency falls within the investment grade range. An EDF above 0.08% indicates the supplier may have financial issues that require monitoring.

Electric and Gas Supply Operations Reserves Adequacy

As shown in Table 3 below, the Electric Supply Operations reserve's unaudited balance as of December 31, 2017 is \$13.9 million, which is \$2.3 million below the minimum reserve guideline level. By year end, transfers from the rate stabilization and other reserves are expected to bring this to the middle of the reserve guideline. This balance is above the immediate 12-month credit, hydro, and other risks that have been identified, and are estimated at \$3.2 million. The unaudited Gas Operations reserve balance as of December 31, 2017 is \$12.1 million, which is \$5.9 million above the minimum reserve guideline level.

Table 3 - Electric Supply Operations and Gas Operations Reserve Levels for FY 2018
(Preliminary unaudited figures from City's Financial System)

Fund	Reserve for Operations Balance as of 07/01/2017 (\$ Millions)	Changes to the Reserves for Operations (\$ Millions)	Unaudited Projected Reserve for Operations Balance as of 12/31/17 * (\$ Millions)	FY 2018	
				Minimum Guideline Reserve Level (\$ Millions)	Maximum Guideline Reserve Level (\$ Millions)
Electric	\$12.9	\$1.0	\$13.9	\$16.2	\$32.3
Gas	\$13.5	(\$1.4)	\$12.1	\$6.2	\$12.4

* The accounting activity to date reflects what has been booked into the City's financial system. These figures are preliminary until outside auditors have completed their review and the Comprehensive Annual Financial Report is produced. There could be significant changes to the supply operation reserve balances based on year-end adjustments that have not been booked yet.

Exceptions to Energy Risk Management Policies, Guidelines, or Procedures

There were no exceptions to the Energy Risk Management Policies, Guidelines, or Procedures to report during the first half of FY 2018.