



Austin Energy Plant Maintenance Contract

**Austin Energy Utility Oversight Committee
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Contract Fundamentals

- Sand Hill Energy Center
- Decker Creek Power Station
- Domain Energy Center
- Mueller Energy Center
- Paul Robbins Plant
- DCP Plant 2

- 24 months, \$5.4M authorization,
- 2 renewal options, \$16.2M total
- 2 companies, both contracts will be in compliance with Minority/Women Owned BE (Ch. 2-9C) program

- Mechanical & Electrical maintenance
- Boiler & High Energy piping support (code welding)
- General plant maintenance
- Small to medium project delivery
- Staff augmentation



Maintenance Strategies for Gas Units

- Maintenance strategies are set based on how assets are used
- For electric generation, AE uses assets based on their characteristics
- Three basic types of gas assets:
 - Simple Cycle (gas turbine)
 - Steam (steam turbine)
 - Combined Cycle (gas turbine + steam turbine)
- All units are dispatched to buy down energy costs and protect customers against market price volatility
- In-merit dispatch is defined as running generation when the variable cost to generate is less than market price (in real time, day ahead, or for financial transactions in AE's portfolio)



Maintenance Strategies

- All strategies focus on reliability, cost control & reduction of both variable and fixed costs of production
- Simple Cycle Strategy
 - Focus on high start reliability
 - Closely watch run hours, starts, & condition to predict needed maintenance/overhauls
- Combined Cycle Strategy
 - Focus on reliable production, short start times, flexible ramping, turndown and efficient operation
 - Monitor & address predictive/preventative maintenance needs, closely follow manufacturer's recommended maintenance activities
- Steam Cycle
 - Focus on cycling effectiveness, start up/shut down times, flexibility/turndown
 - Perform required "care & feeding" maintenance, no significant investments without full economic analysis

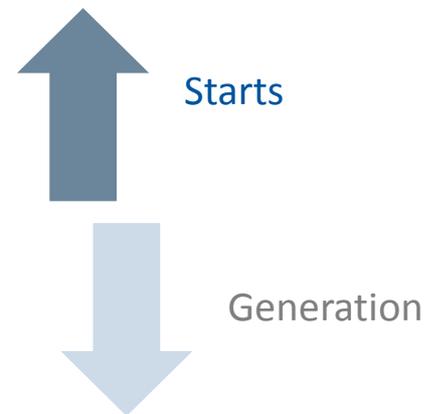


Maintenance = Reliability

- Maintenance is performed during low pricing months to prepare units for higher pricing periods
- Gas assets are dispatched (turned on) when market signals indicate that generating will create value (reduce customer costs)
- High reliability results in additional revenue generation which lowers the Power Supply Adjustment (PSA) for electric customers
- For chilled water (CW) customers, CW service agreements are predicated on reliability
- Each of our CW plants are “close coupled” to our customers and unplanned outages or reduction in service is not an option

Gas Unit Starts						
Unit	CY 2011	CY 2012	CY 2013	CY 2014	YTD 2015	5 Year Trend
CC	45	21	102	78	30	
Steam	45	47	166	121	188	
GT	1830	1401	1550	1565	1330	

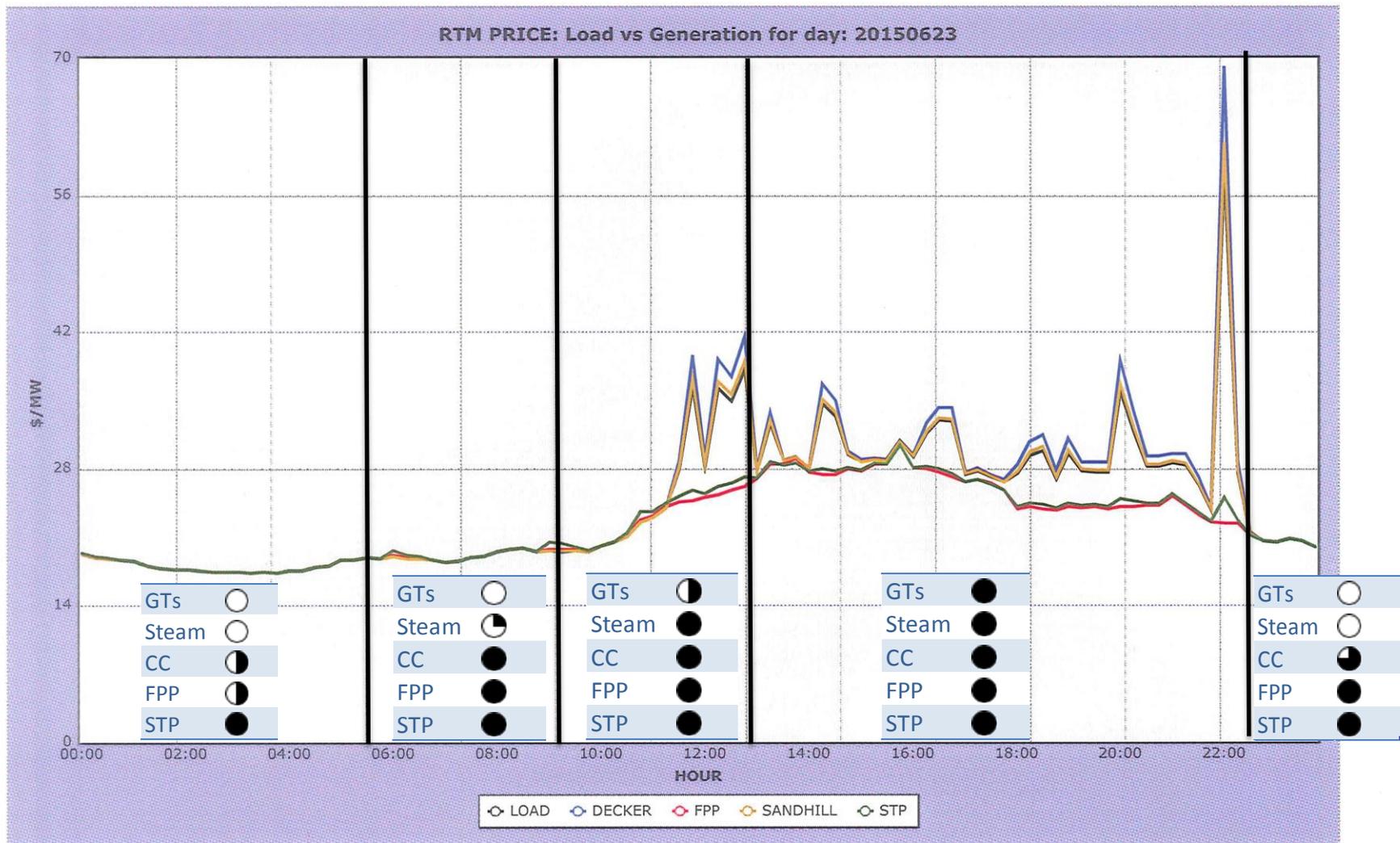
Gas Unit Gross Generation (MWhrs)						
Unit	CY2011	CY2012	CY2013	CY2014	YTD 2015	Trend
CC	1,259,171	1,354,725	1,078,817	997,283	1,150,001	
GT	428,777	330,781	361,112	302,887	324,145	
Steam	1,209,093	1,084,421	568,609	360,640	492,511	



- Dispatch of assets is based on market value (in-merit), not to follow load, or based on “displacement” by other assets
- Less-economic run time has been reduced by cycling/low load operations



Day in the Life of Gas Assets– 6/23/15

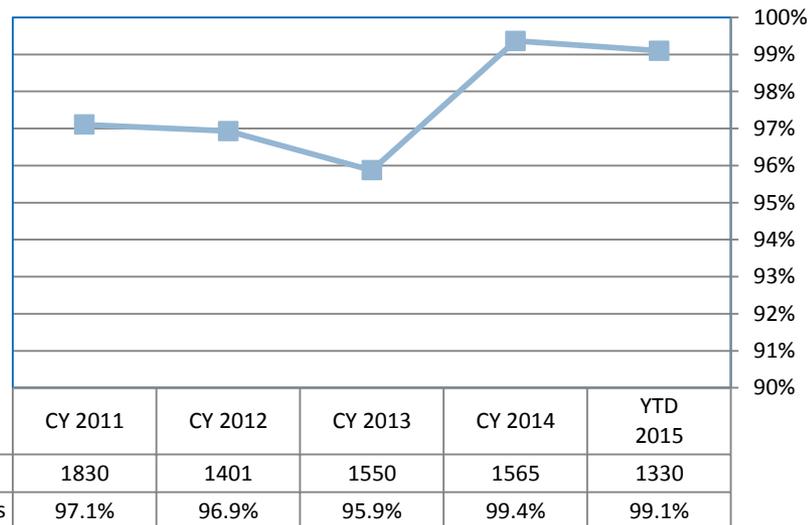




Commercial Availability/Start Reliability

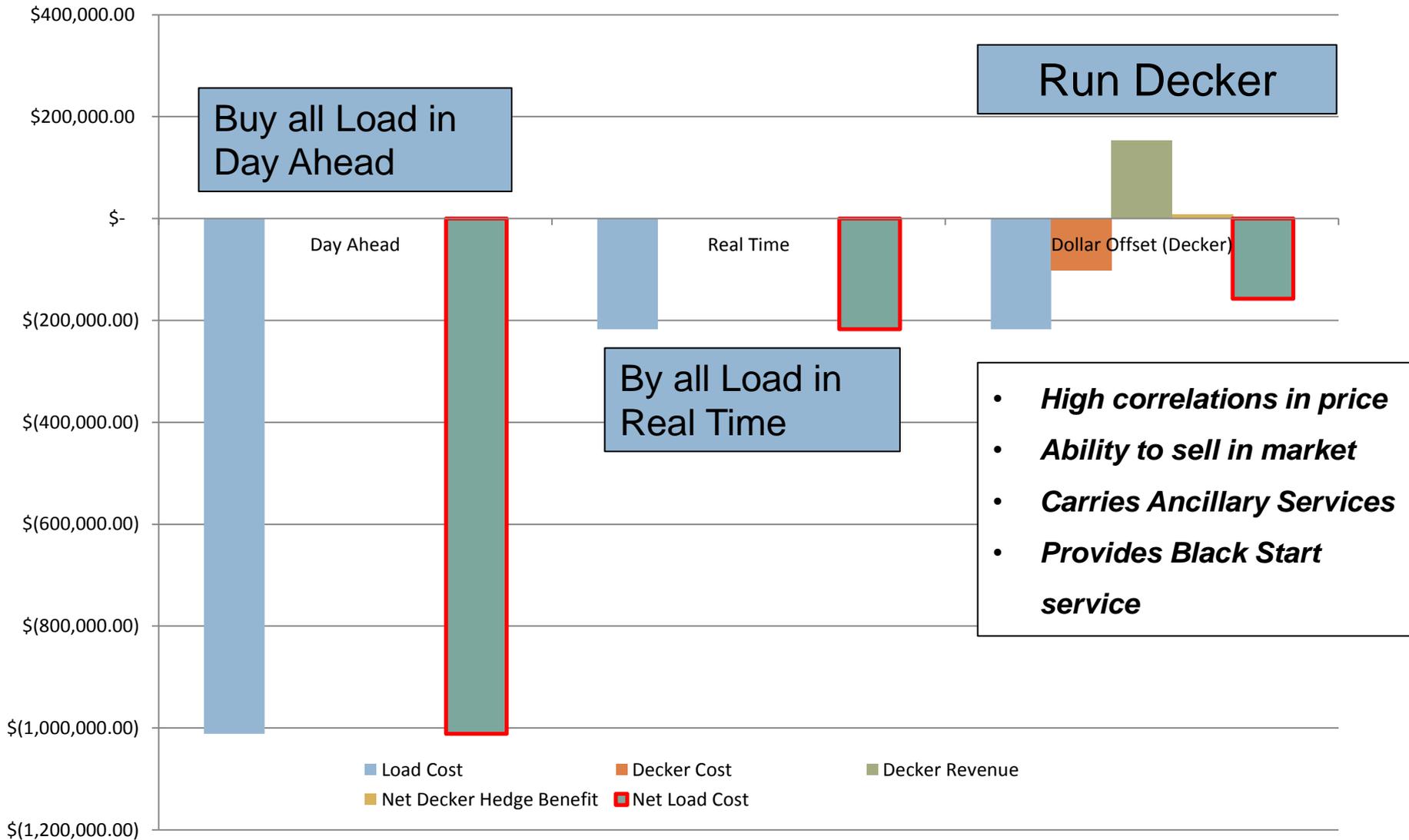
- We measure the effectiveness of our maintenance strategies in 2 ways
- **Commercial Availability** is % of time a generator is available when the price of generation is < than market price
- **Start Reliability** for simple cycle units is defined as the percentage of starts that are successful within 10 minutes of request
- High commercial availability and successful starts result in earned revenue and price protection for AE customers

GT (Simple Cycle) Start Success





Strategies for Managing Price Risk



- **High correlations in price**
- **Ability to sell in market**
- **Carries Ancillary Services**
- **Provides Black Start service**

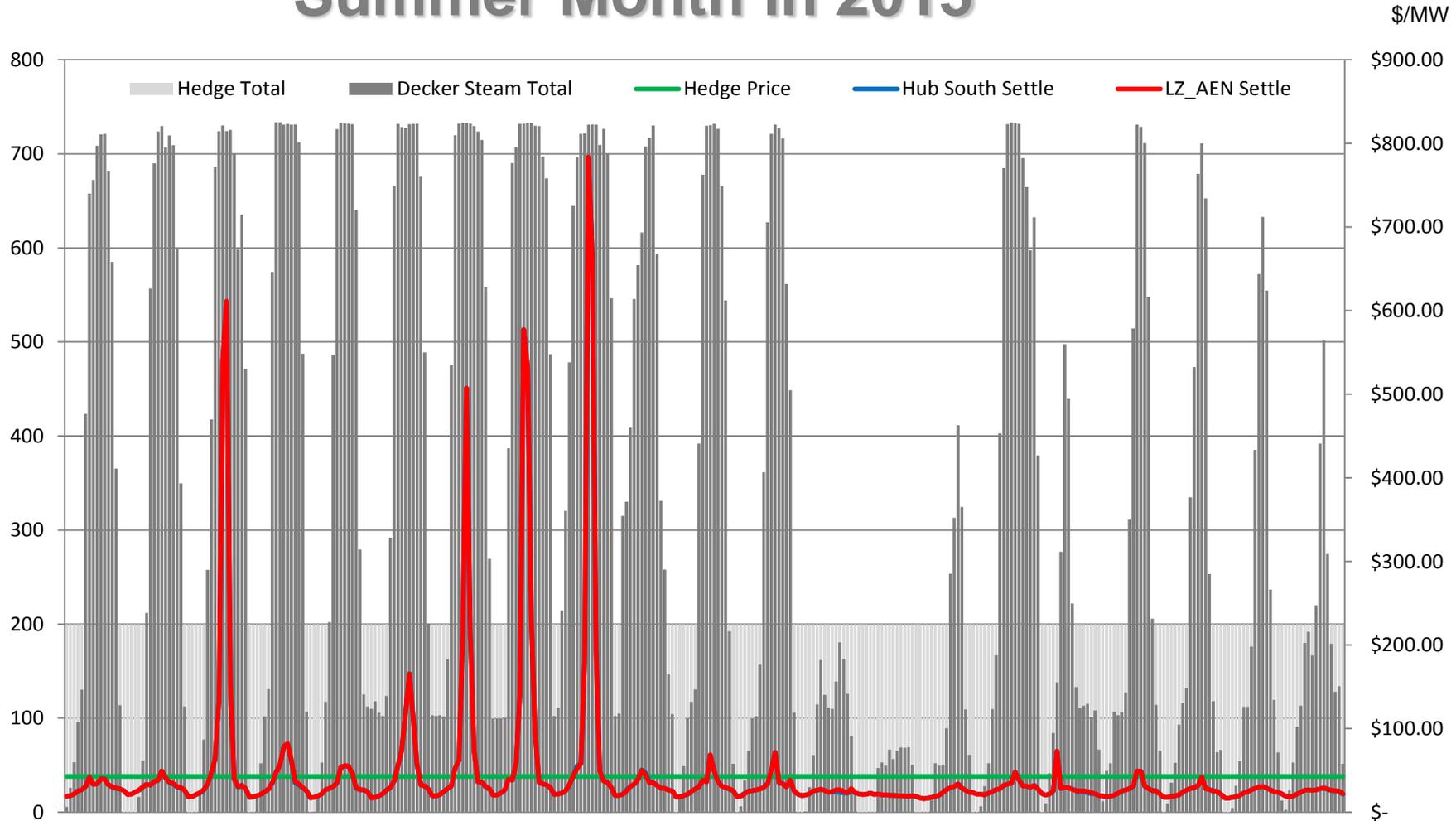


Decker Generation Hedge

June – Sept Decker Steam provided net ~ \$8M benefit to AE ratepayer

Summer Month in 2015

MW



* Net hedge revenue plus net generation revenue



Asset Value in the Nodal Market

- Use of gas units in the market
 - Gas units are flexible, can be brought on when the cost of the generation is less than real time or day ahead prices
 - Gas units can be (and are) dispatched off when the price signals change
- Gas unit financial value
 - All load is bought from ERCOT and is priced at the AE load zone (LMP) price
 - Revenue earned by generators is priced at their interconnection points
 - AE gas generation is close to the AE load zone
 - Load prices that AE pays to ERCOT, and the gas generation revenue that AE earns are highly correlated
 - Running gas assets in-merit and reliably, allows AE to capture value between Day Ahead and Real Time markets while providing protection against Real Time price exposure



Contract Summary

- Effective maintenance programs drive plant reliability which in turn reduces PSA costs
- These contracts will allow AE to continue to support high levels of plant reliability and market performance for the benefit of customers
- Targeting November 19, 2015 City Council consideration for approval