THE REPORT OF THE AUSTIN GENERATION RESOURCE PLANNING TASK FORCE

JULY 2014

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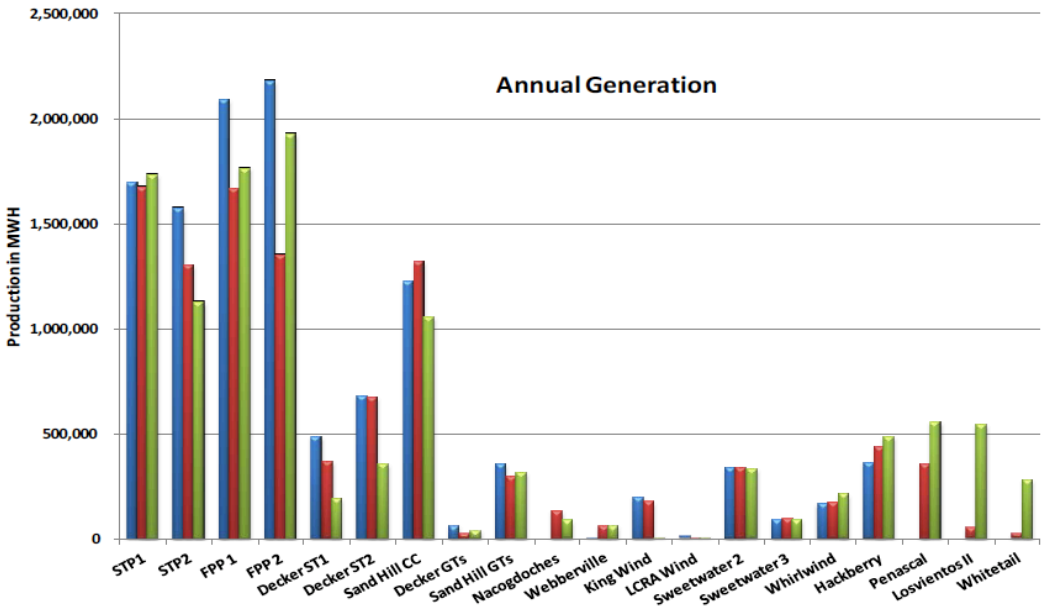


INTRODUCTION

The City Council adopted the Austin Climate Protection Plan (ACPP) in 2007 to build a more sustainable community. Every City department was subsequently tasked to create action plans intended to ensure that departmental operations were consistent with the ACPP. Austin Energy developed a Resource, Generation, and Climate Protection Plan to 2020 (the Plan) to meet these objectives, which was approved in 2010 and 2011 by the Austin City Council. As part of that plan, Austin Energy was tasked with updating the flexible Plan every few years. In April of 2014, the City Council named a nine-member Austin Generation Resource Planning Task Force to review and update the Plan and make initial recommendations by June 30, 2014.

In addition, through a separate resolution, City Council directed that a new climate protection plan with a net-zero goal for carbon emissions by 2050 be developed. As part of that plan, one of the sectors that must come up with final and interim goals is energy, with Austin Energy taking a lead. The resolution specifically calls on the Task Force to make recommendations on interim goals.

This document represents the product of 14 meetings held each week by the Austin Generation Resource Planning Task Force since its creation in April.

The Task Force has received numerous briefings from Austin Energy which can be found on our website. We have also provided the most relevant pages of those presentations in the appendices section.

During these meetings, we have heard from planners at ERCOT, from Pecan Street Inc., and from various providers in the renewable, demand response, and storage industries. These presentations are also available on the website.

At the end of May, after a day of presentations by Task Force Members, we opened the meeting up to the public where we heard from a host of speakers who spoke passionately and eloquently about the importance of the work of the Task Force. Video of this public input can also be found on the website.

Unlike previous reports of this nature, the Task Force has not prescribed a mix of resources. Instead we have applied Council's newly created net zero resolution as a primary metric to generation.

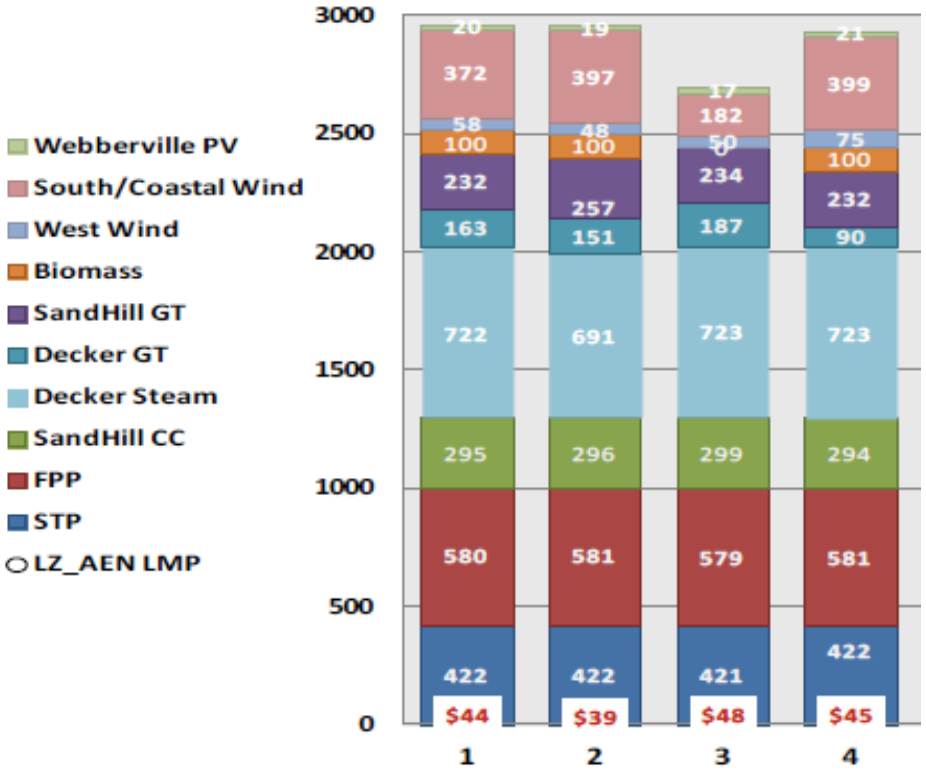
We have based this report on the three pillars of Sustainability, on the things we think we know, but we don't, the constant tension between generation and efficiency, and the methods and models we must examine in order to maintain a profitable electric utility into an energy future that is changing rapidly.

These recommendations from the Task Force are both wide-ranging and incremental. We believe that given the evidence we were provided, they are achievable, affordable, and effective.

We applaud the Council for its leadership and vision, and we applaud Austin Energy for its accomplishment of reaching our renewable energy goals years ahead of schedule. It's our hope that this work will contribute to a dialogue that keeps Austin a leader in clean, affordable, and equitable energy.

WEBSITE

http://www.austintexas.gov/cityclerk/boards_commissions/meetings/128_1.htm



TOP 4 PEAK DAYS 2013

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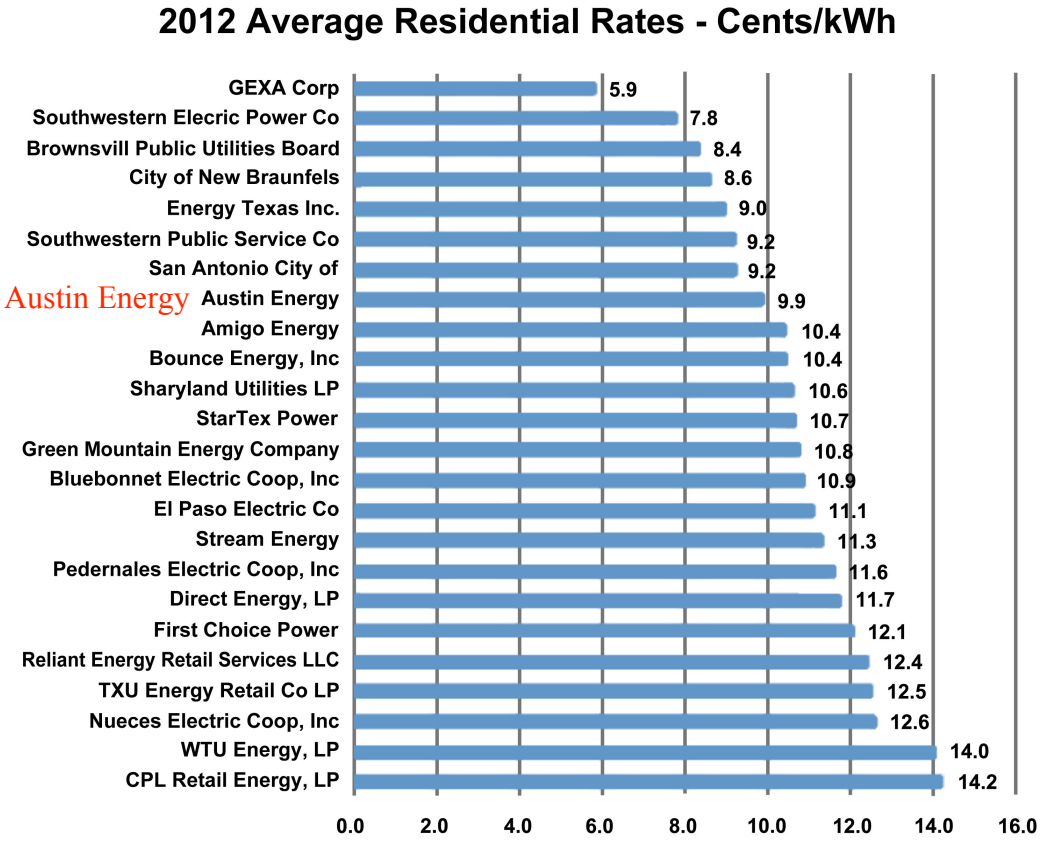
THE PILLARS OF SUSTAINABILITY

ECONOMICS

The term economic, with regard to the work of this Task Force, addresses the costs or expenses, benefits, risks and overall value of spending financial capital for the purpose of providing clean, affordable, and reliable energy. Economic issues are universal to all members of a community, but how those members precisely define them may differ greatly. The Task Force's challenge is to consider all of these viewpoints and make recommendations that result in a high return on economic investment, affordable rates, environmental protection and restoration and equitable availability and delivery of all benefits to all customer classes, ultimately resulting in a resilient, green local economy. This report intends to identify recommendations that are economically viable for the customer, the utility, and the overall community.

An economic decision is one that is based on all the costs of an alternative. Costs and benefits should always be weighed heavily in the decision making process. With respect to electricity generation, cost-benefit analysis must take into account capital, fuel, operation and maintenance, transmission and distribution, decommissioning, environmental compliance and impact to climate change, public health, and social equity. With respect to purchasing electricity, it must take into account the rates, taxes, and fees paid to the utility and the ability to reduce demand through energy-efficiency programs, demand response, and the ability to generate and store power through on-site renewable generation systems. The two broad considerations of cost are providing affordable electricity for all customers and maintaining a financially healthy utility.



Additionally, the economic considerations of a generation resource decision must take into account community goals for affordability, environmental protection, water conservation, job creation, economic development, customer protection, and equity. Procurement decisions must be set within the context of resulting in a return of benefits that exceeds the costs of a capital investment. Benefits should be heavily weighed against costs. Both costs and benefits should align with community goals and should be equitably distributed to all members of a community. The benefits of clean, affordable, reliable energy include lower customer bills that result in economic capital available for other investments, reduced air pollution and healthier ecosystems, increased job creation, reduced demand on infrastructure, and improved overall public health.

Affordability in Austin

More than half of Austin Energy's residential customers are defined as low-income or low-moderate income households. As the Austin population grows and the housing market booms, property taxes, rent, the cost of living and the cost of doing business continue to rise, affordability is an extremely important and timely issue.

RECOMMENDATION

Austin Energy should continue to adhere to the affordability goal as passed by the Austin City Council in February of 2011.

ENVIRONMENT

Environmental impacts from electric generation are of importance to the long-term health and stability of the planet at large, and to the immediate health, wellbeing and prosperity of residents in Austin and surrounding areas in the short-term. The health and lifestyle benefits that come with access to reliable electricity can be offset by costly health problems and extreme weather if electric generation is not done responsibly.

Health Impacts of Air Pollution

Both coal- and gas-fired power plants contribute to air pollution that is harmful to human health. In 2013, Austin Energy's portion of the coal-fired Fayette Power Project emitted over 2,000 tons of nitrogen oxides and over 400 tons of sulfur dioxide into the air. Nitrogen oxides, which contribute to the creation of ozone, and sulfur dioxide cause and worsen respiratory diseases.

The annual cost of health problems and the resulting emergency room visits, hospital admissions and even deaths from the pollution from the Fayette coal plant are about $55.5 million (Clean Air Task Force). The health impacts include:

- Asthma Attacks
- Chronic Bronchitis
- Heart Attacks

The Decker gas-fired power plant is located within Austin city limits and therefore directly impacts a large number of people.

Climate Change Costs Our Communities

Global climate change has accelerated and the impacts are being felt across Texas, including in Austin. The Texas drought of 2011 caused agricultural losses of $7.62 billion, making it the most costly drought in history, according to Texas A&M AgriLife economists. That drought also led to devastating wildfires, taking lives and property. Over 31,000 fires burned over 4 million acres across Texas. Total damage due to loss of property, timber and agriculture exceeded $750 million.

The Onion Creek flood in 2013 destroyed over 600 homes and caused over $30 million in insured losses. This tragedy resulted from intense rainfall on already saturated soils. Many homeowners in that low-lying area have been or are being bought out with tens of millions of dollars of city, county, and federal money.

While no single weather event can be definitively attributed to climate change, the vast preponderance of evidence shows that higher global temperatures increase the likelihood of prolonged drought, more severe storms and intense rainfall events.

Although Austin Energy cannot combat global climate change on its own, it can do its part to not contribute further to the problem and can serve as a model for other utilities to take similar action.

In 2013, Austin Energy was directly responsible for over 4.8 million metric tons of carbon dioxide emissions, which cause climate change. Methane emissions from the extraction, processing and transportation of the natural gas burned in Austin Energy's plants is not included in that figure, but makes a significant contribution to climate change because methane is a much more powerful greenhouse gas than carbon dioxide. Over a 20-year period, the total climate change impact of using natural gas is almost as significant as that of using coal.

Because it is beyond Austin Energy's ability to control these emissions and comprehensive and effective regulation to stop methane emissions is unlikely in the near-term, especially in Texas, the utility should wean itself from natural gas as quickly as possible.

The Austin City Council passed a resolution establishing a goal of achieving net zero greenhouse gas emissions city-wide by 2050, or sooner, if possible. In that resolution, Council recognized that some sectors might have more difficulty meeting that goal than others. Austin's electric sector is uniquely poised to eliminate all greenhouse gas emissions on an earlier timeline because its sources of greenhouse gas pollution are centralized and controlled by Austin Energy. In contrast, thousands of individuals with internal combustion engine vehicles contribute to the city's transportation-related greenhouse gas emissions.

Drought-Proof Energy Sources

Climate change projections indicate that the western and central parts of Texas, including Austin, are likely to become even drier in the decades to come.

Water shortages being experienced now may be the new norm.

With water becoming ever more rare and precious, every effort should be taken to ensure that it is used sparingly. Electric production from coal, nuclear and natural gas plants require significant quantities of water. Austin Energy's portion of the Fayette coal plant needs 1.3 billion gallons of water to operate annually and its portion of the South Texas Nuclear Project needs 1.85 billion gallons. While the utility's natural gas plants use less water in their operations, hydraulic fracturing to extract the natural gas uses water that is then injected into disposal wells and removed from the hydrological cycle.

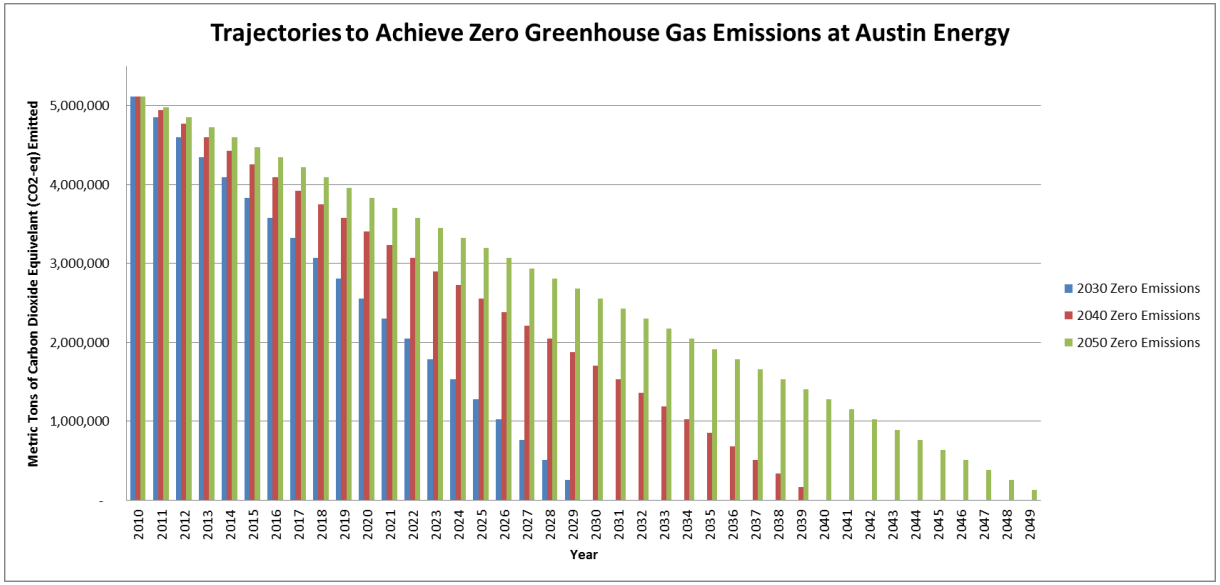
In contrast, wind turbines require no water to operate and solar farms use only a very small amount for occasional cleaning of the solar panels.

Relying on large quantities of water for electricity production poses a reliability risk as well. If water is not available or becomes too warm to provide cooling, power plants are forced to shut down. This occurred in other parts of Texas during 2010 and 2011.

Accelerating the Transition

Austin Energy has made great strides in expanding its use of renewable energy resources and now is the time to build on that success by establishing a 2030 zero greenhouse gas emissions goal, with interim goals to ensure progress.

Robust energy efficiency, demand response, and renewable energy goals will keep Austin Energy focused on making investments to achieve this goal affordably.



RECOMMENDATION

Austin Energy should abide by Council Resolution and reduce CO2 emissions to zero as early as 2030 providing affordability metrics are maintained.

EQUITY

Equity is to utility policy as economic justice is to broader social policy. It is a concept in which economic policies must result in equal distribution of benefits to all. A difference is that in a utility system all customers pay into the system through the rate structure. Services, programs and policies need to be structured to assure equal access to service and an equitable distribution of benefits to all customers and to prevent subsidies to wealthier customers being paid for by lower-income consumers. Equity places a greater emphasis on economic justice and fairness than on economic efficiency.

Well over half – 64% – of Austin Energy's residential customers are very poor or working poor living from paycheck to paycheck. There is little evidence that Austin Energy's energy efficiency and solar programs will provide benefits for these customers unlikely to invest in energy efficiency due to lack of income.

- 38% (131,501) low-income households served by Austin Energy have income below 200% of the Federal Poverty Guideline (FPG)
- 26% (87,576) low-moderate income households served by Austin Energy have income between 200 and 400% of the FPG or $47,700 to $95,400 for a family of four.
- The Economic Policy Institute estimates a subsistence income level for a family of four in the Austin-Round Rock Area at $66,670.

A national study concludes that low-income customers tend to live in smaller older homes that use 28% more energy per square foot than homes occupied by average and upper income households. Pecan Street Inc. reports that older homes that have energy retrofits use 29% less electricity for cooling than homes with no retrofit. While lowering bills and making utilities more affordable for low-income families, weatherization programs:

- reduce the utility's peak demand avoiding the cost of new power plants
- save kilowatt-hours reducing fuel use and emissions
- create local jobs and further stimulate the local economy through the multiplier effect
- reduce utility, debt, and collection costs
- enhance property value, extend the lifetime of the dwelling, and lower the number of fires
- provide residents with a healthier home thereby reducing societal and economic costs caused by illness

Because all Austin Energy customers pay for energy efficiency, all AE residential customers should have access to a weatherization program. Austin Energy has only a small low-income weatherization program with very low performance and no program for low-moderate income consumers. Prior to 2020 and with Council approval, Austin Energy should accomplish the following:

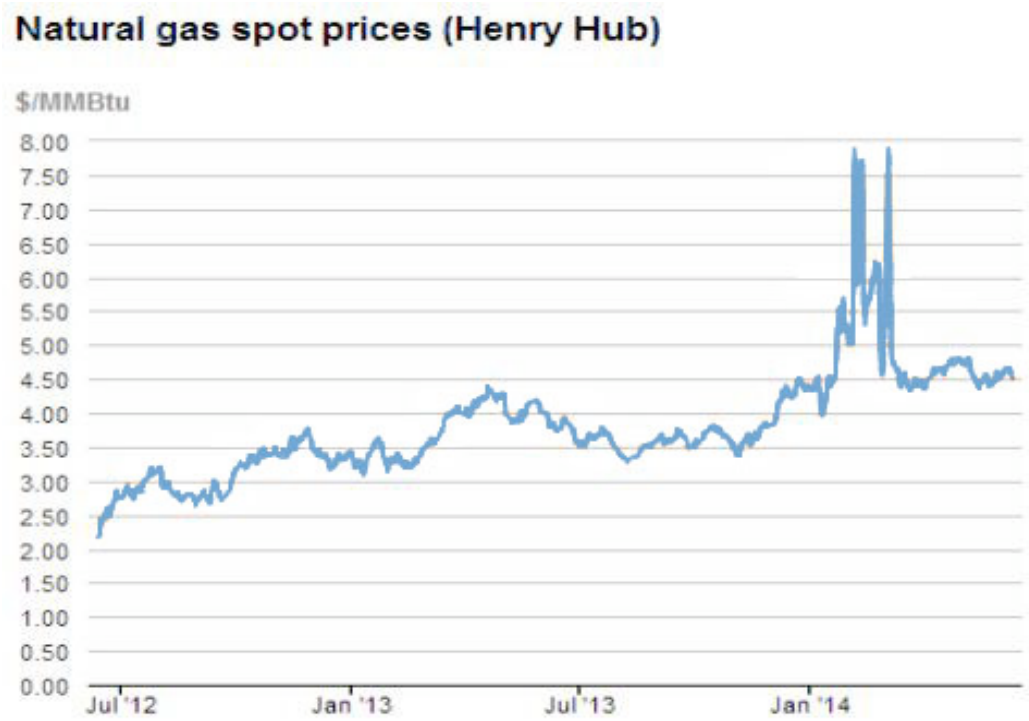
- At a minimum, fund the current weatherization program modeled after the federal stimulus program at the Recovery Act budget level for FY 2011.
- Provide weatherization and other energy efficiency programs targeted to low- and low-moderate income households to meet 10% of its energy efficiency demand reduction goal through these programs.
- Provide new renewable generation resources to underserved customers.
- Insure low and low-moderate income program budgets are efficiently spent with minimal administrative expense.
- Provide quarterly reports on its EE programs for underserved programs.
- Survey all customers participating in an energy efficiency program to measure the level of customer satisfaction and collect demographic data such as income, race, and education level.

Austin Energy and the City need to take deliberate steps to reach its goal for net zero energy growth and achieve efficiency savings that will lower the bills of households paying an above average percentage of their income for electricity. The following are concepts the City should thoroughly explore.

- **Determine the amount of incentive payments on an income sensitive sliding scale**. The sliding scale of incentives can be applied to every AE residential program by offering 100% of cost as an incentive to those below the 200% Guideline and reducing the incentive as income increases.
- **Neighborhood based energy efficiency programs**. Conduct energy efficiency programs that are geographically targeted to underserved neighborhoods. Preferably this should be a joint effort with Neighborhood Housing to maximize the number of homes retrofitted. It is not uncommon for homes to be disqualified for energy efficiency improvements because of a significant need for ancillary repairs. Having a remedy for needed home repairs will help families the most and maximize the energy saving benefits of the program.
- **Combine community and city resources to effectively deliver programs** (e.g. single point of contact), identify the underserved (e.g. door-to-door outreach) and deliver energy efficiency and renewable energy program benefits to them.
- **Create a consumer committee** with contractor participation to make recommendations to Austin Energy and City Council regarding thedevelopment and design of energy efficiency and renewable energy programs for underserved residential consumers.

RECOMMENDATION

Council should set a new Energy Efficiency Goal for saving energy in the underserved customer population.



UNKNOWN KNOWNS

THE PRICE OF GAS

In the big picture, the Generation Task Force of 2014 is faced with a relatively simple analysis. As a community, the choices to meet our growth and the environmental goals we have set for ourselves, as well as future EPA regulations, range between using more natural gas, buying more solar and wind, implementing more demand response and energy efficiency, and using more market purchases.

There has been no real consideration given to building more coal plants or expanding our nuclear facilities.

Therefore in determining our energy future, the biggest **unknown known** is the actual cost of natural gas over the next 30 years. There are many who view that future quite brightly.

According to the Oil & Gas Industry and their proponents, "fracking" will provide the US with energy security, low energy prices for the foreseeable future, more than a million jobs, and economic growth.

"There's no doubt that we're seeing an industrial revolution… taking place because of the shale revolution."–Ed Morse, Global Head of Commodities Research at Citigroup

"[the biggest thing economically to hit Ohio, since maybe the plow."–Former Chesapeake CEO Aubrey McClendon

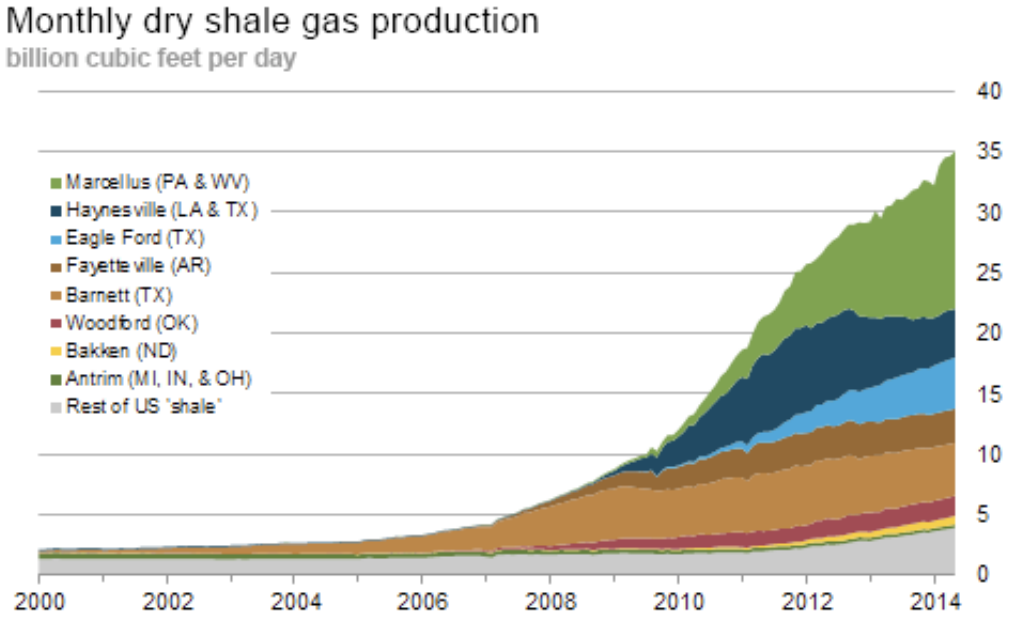
"[The surge of U.S. oil and gas production] is the biggest change in the energy world since World War II."–Fatih Birol, Chief Economist at the IEA

However as Bloomberg reports:

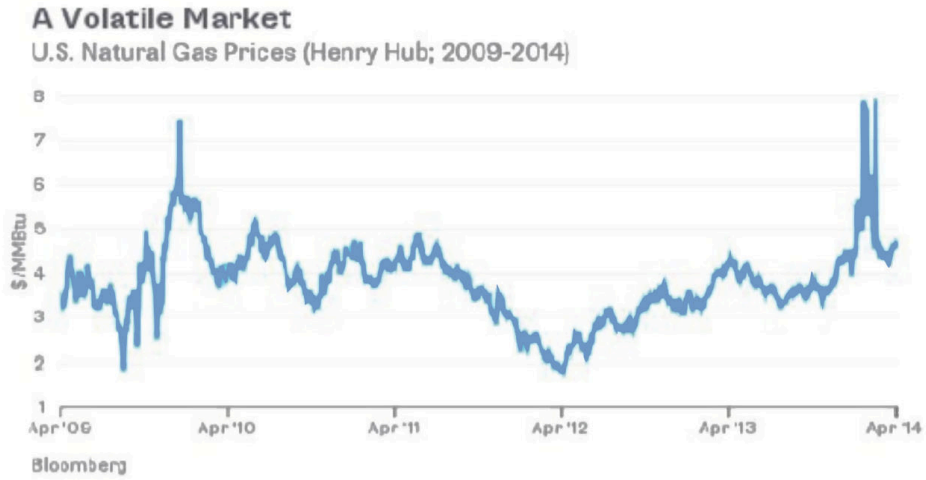
"Among drilling critics and the press, contentious talk of a "shale bubble" and the threat of a sudden collapse of America's oil and gas boom have been percolating for some time. While the most dire of these warnings are probably overstated, a host of geological and economic realities increasingly suggest that the party might not last as long as most Americans think."

"The problems arise when you look at how quickly production from these new, unconventional wells dries up. David Hughes, a 32-year veteran with the Geological Survey of Canada notes that the average decline of the world's conventional oil fields is about 5 percent per year. By comparison, the average decline of oil wells in North Dakota's booming Bakken shale oil field is 44 percent per year. Individual wells can see production declines of 70 percent or more in the first year.

"Currently, natural gas is moving at about $4.50 per MMBtu, -a welcome uptick, but by no means ideal for producers. Even if that climbed to $6, Hughes estimates that shale gas growth would last only another four years or so, at which point even higher prices would be needed to maintain production, let alone keep it growing."



EIA



This decline in growth can already be seen in four of the early shale plays. In Texas, even as the Eagle Ford shale play continues to grow, the Barnett shale is in decline according to the Bureau of Economic Geology.

In Austin Energy's presentations to the Task Force, they have relied on gas forecasts from Wood Mackenzie. The base case in this forecast shows that natural gas prices will reach $5.00/ mcf in 2019. Henry Hub prices went to $8.00 last January before retreating to the 4.50 to $5.00 range since.

Using optimistic low gas prices makes new gas plants look profitable and it skews the value of both utility and distributed solar downward.

Austin Energy presented to the Task Force that generation costs for all of our gas generation units is in the 80.00/ MWh range. Generation from all gas units in 2012 was 2.6 TWhs.

At heat rates of 10,000 BTUs/kWh, which Decker does not achieve, each dollar increase in natural gas prices increases generation costs by 10.00 dollars/ MWh.

Any runs or cost comparisons by Austin Energy that includes even the medium case scenarios provided to the Task Force may be susceptible to significant error due to forward gas price forecasts inaccuracies.

RECOMMENDATION

Council should not approve any future gas plant or value of solar tariff without seeking broad expert advice and counsel on the long-term gas price outlook.

For many years, advocates of clean solar energy talked about the day when solar energy would be less than a nickel a kWh. That day arrived with Austin Energy's most recent RFP for solar which resulted in a 150 MW purchase at prices below 5 cents/kWh.

These prices for solar are the results of many years of research and development and commodity cost reductions.

Estimated 30 Year Levelized Cost of New Dispatchable Resources, 2015 ($/MWh)

Plant type Dispatachable Technologies	Average Capacity Factor (%)	Fuel Type	Overnight Capital Cost 2014$ ($/KW)	Heat Rate Btu/kWh	Base: Levelized Capital Cost	Base: Levelized O&M	Base: Levelized Fuel	Base: Levelized Total	Low	High
Advanced Coal	85%	Coal	3,059	8,800	55.23	10.83	27.39	102.79	92.83	114.00
Advanced Nuclear	85%	Uranium	5,765	10,000	104.09	18.35	7.47	129.91	116.92	155.89
Biomass	85%	Wood Waste	3,002	13,500	54.21	24.32	49.81	128.33	102.67	154.00
Geothermal	50%	Heat	3,183	N/A	97.70	28.56	0.00	126.26	101.01	151.51
Natural Gas-Fired										
Advanced Combined Cycle	55%	Natural Gas	1,066	6,430	29.76	8.08	32.15	69.99	61.53	91.38
Advanced Combustion Turbine	10%	Natural Gas	705	9,750	108.16	23.02	48.75	179.93	167.10	212.36
Combined Heat/Power (CHP)	85%	Natural Gas	2,133	6,430	44.64	12.12	32.15	88.91	74.39	97.44
Compressed Air Energy Storage (CAES)	40%	Gas/Air	1,000	4,300	38.37	32.72	21.50	92.59	76.27	111.11
Fuel Cell	85%	Natural Gas	7,410	9,500	133.79	53.78	47.50	235.08	207.07	268.09

Estimated 30 Year Levelized Cost of New Non-Dispatchable Resources, 2015 ($/MWh)

Plant type Non-Dispatachable Technologies	Average Capacity Factor (%)	Fuel Type	Overnight Capital Cost 2014$ ($/KW)	Heat Rate Btu/kWh	Base: Levelized Capital Cost	Base: Levelized O&M	Base: Levelized Fuel	Base: Levelized Total (Base)	Low	High
Onshore Wind (West Texas)	40%	Wind	See Note 1	N/A	27.94	7.06	0.00	36.75	26.25	61.55
Onshore Wind (South Texas)	30%	Sun	See Note 1	N/A	30.59	9.41	0.00	44.00	36.00	75.41
Photovoltaic (>50 MW West Texas)	30%	Sun	See Note 1	N/A	46.38	5.88	0.00	52.26	45.00	114.23
Photovoltaic (<20 MW Local)	20%	Sun	See Note 1	N/A	93.10	19.81	0.00	112.91	90.33	213.30
Solar Thermal	50%	Sun	3,697	N/A	141.87	24.01	0.00	165.88	132.70	199.06
Demand-Side	30%	N/A	See Note 1	N/A	70.00	0.00	0.00	70.00	56.00	84.00

In the last five years, silicon costs alone have dropped from $270.00/Kilogram to less than $15.00/Kg. Balance of system costs such as inverters have been reduced five fold. As the Industry matures, the cost of capital has dropped.

And not only have prices dropped, but also the Solar Industry has matured. Companies like First Solar now provide prediction services that are 88% accurate, and with advanced power electronics, solar power plants can provide stability services to the grid.

The "unknown known" is whether or not prices will go even lower in the future, even as tax benefits do or do not expire at the end of 2016.

Unlike the gas market, the solar market is fixed and prices can be locked in. The issue is the opportunity costs of even lower prices and whether or not a unique buying opportunity exists over the next six months.

Using Austin Energy's low case, levelized costs for new generation using West Texas PV is $45.00/MWh. The low case for an advanced natural gas combined cycle technology is $69.99. Currently, gas generation averages around 80.00/MWh. Levelized cost for advanced combustion turbine generation is $167.00/MWh.

Based on Austin Energy's experience with our first utility plant in Webberville, solar capacity factors on summer peak days are approaching 70%. For solar plants in far West Texas, that factor will be higher due to higher insolation values and longitudinal time differences.

At prices under 5 cents/Kwh, solar energy generation is now less than the marginal cost of gas generation at gas prices of $5.00/mcf and heat rates of 10,000 Btus/ kWh. It is a fixed hedge against rising gas prices and future carbon costs.

Local solar investments can also aid in local economic development. A 2012 study by Solar Austin found that the solar industry employed over 615 people in the Austin area with an annual payroll of over $20 million making it the 40th largest industry in the city

RECOMMENDATION

Solar Energy generation should become the default new generation resource through 2024.

Furthermore, Austin Energy should consider acquiring additional solar if a unique buying opportunity for solar exists between now and 2016.

The Task Force endorses the report of the Local Solar Advisory Committee establishing a goal of 200 MW of local solar by 2020.

Austin Energy should develop a comprehensive long-term strategy to facilitate the deployment and use of local solar to the fullest extent.

THE PRICE OF CARBON

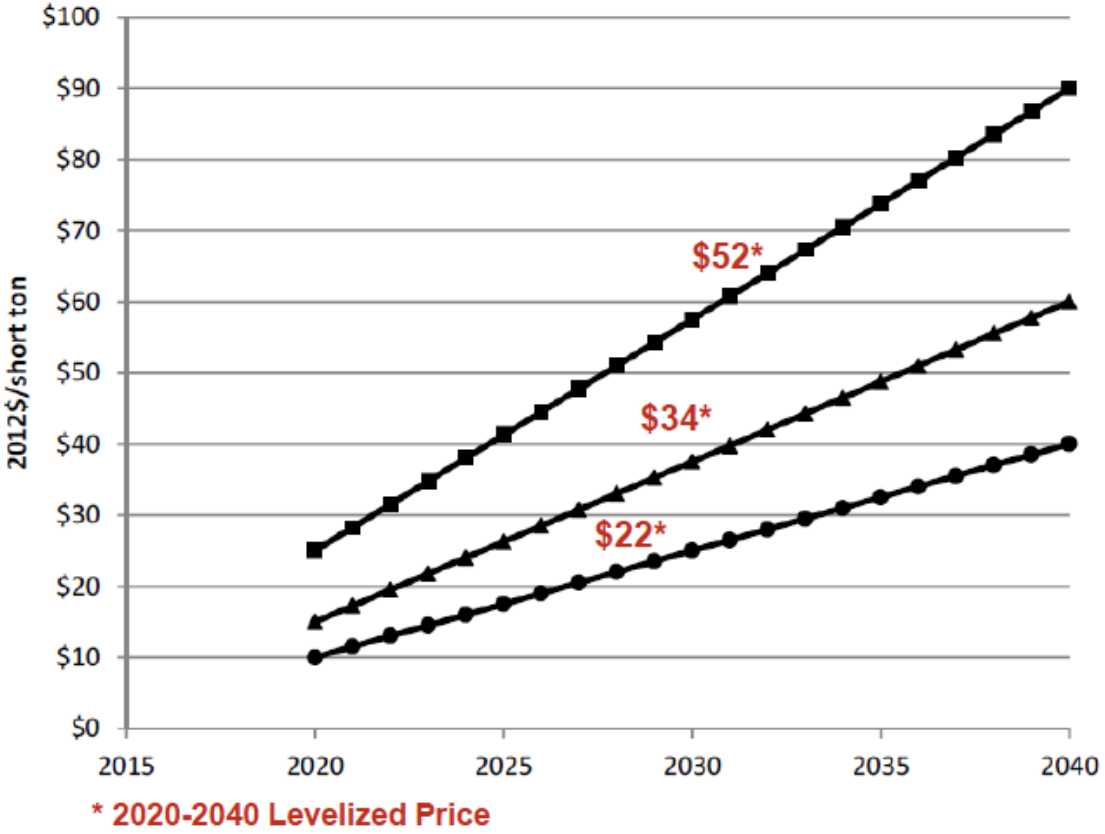
On June 2, President Obama outlined a proposal to dramatically slash carbon dioxide emissions from the nation's existing power plants in the coming decades. The plan, to be overseen by the U.S. Environmental Protection Agency, represents the Obama administration's most ambitious effort to address climate change.

Texas will have to make more drastic reductions in carbon emissions from its power plants than many other states, according to the current proposal**.** Texas power plants emit about 1261 lbs. per MWh according to EPA and the newly proposed carbon rules would require CO2 emissions from old coal plants to be reduced to 791 lbs. per MWh.

How and when these rules will take effect is important to Austin and Austin Energy.

The EPA says the power industry could spend up to $8.8 billion annually by 2030 to comply with the rules, and that doesn't include monitoring, reporting or record-keeping. But, it adds, that's less than 5 percent of the total projected annual spending by the industry in 2030. The EPA also estimates that electricity prices would rise between 3 and 6 percent by 2020 under the proposed rules, but Americans' electricity bills would actually decrease by 2025 because of energy efficiency measures.

High, Medium, Low Case for Carbon



RECOMMENDATION

Austin is an early adopter of climate protection and we must insure that state rules are written that do not punish early action.

WATER

While the Generation Task Force was conducting its work, another Task Force on water was also meeting. The results from the Water Task Force have just been published. The Generation Task Force received an update from the vice chair of the Water Task Force.

In addition, the Task Force heard from a UT climate change professor who spoke about water resources in the Colorado Basin over the next 50 years.

And the results do not look encouraging.

The Colorado River basin that provides Austin's water used to provide a million acre-feet of water a year. Now, that average may be half of that. In the last two years it has been a quarter of that historical average. In 2011, the lowest inflow year on record, it was 10% of the average. Five of the nine lowest inflow years ever have occurred in the last six years. Inflows from January through May of 2014 are the sixth lowest on record for that five-month period.

Lakes Travis and Buchanan, the region's water supply reservoirs, gained more than 76,000 acre-feet in combined storage in May, more than in the first four months of 2014 combined, but the inflows were still only 38% of averages for May.

Currently, Lakes Travis and Buchanan stand at 40% of capacity as the region heads into what is forecast to be a dry summer.

Combined storage in Lakes Travis and Buchanan could drop below 600,000 acre-feet, or 30% of capacity, later this year. If that occurs, the Lower Colorado River Authority Board of Directors would issue a Drought Worse than the Drought of Record declaration. Following a state-approved plan, LCRA would then require cities, industries and other firm customers to reduce their water use by 20%, and would cut off all Highland Lakes water to interruptible customers.

At this writing, Austin Energy's chart of water use per plant is still under construction in their performance review of 2013, but other filings indicate that AE's total water use is 450 gallons MWh. At 10 TWhs of thermal generation, total water use would then be 4.5 billion gallons annually or approximately 14,000 acre-feet, or about 10% of total city use.

RECOMMENDATION

Austin Energy should strive to reduce water use and aid in water management.

MEGAWATTS VS NEGAWATTS

REPLACING DECKER

Decker Creek Power Station is a 927 MW natural gas facility located in northeast Austin. It was commissioned in 1970 with additions as recent as 1988. It is the oldest power plant in the Austin Energy fleet. Austin Energy is considering retiring the plant in 2017.

It has two steam turbines rated at 315 MW and 420 MW.

There are also four 48 MW gas turbines.

Since 2011, use of Decker's steam turbines has decreased from 1.2 TWhs to .53 TWhs in 2013. Use of the combustion turbines has declined to 34,000 MWs or slightly more than half of the production from the Webberville solar plant. Decker's steam turbine cost range from $80.00 to $95.00/MWh, and Decker's combustion turbines range from $150.00 to $200.00/MWh.

Consequently, costs at Decker on the steam units are about the same as the biomass plant, and the costs on the combustion turbines are roughly equivalent to the Webberville solar plant. ($165/MWh). In 2013, the biomass plant only ran 9% of the time, generating about 80,000 MWhs.

In the most recent year, the Decker steam units ran mostly from June through September,

averaging from 80,000 to 120,000 MWhs per month. The combustion turbines follow the same summer use pattern.

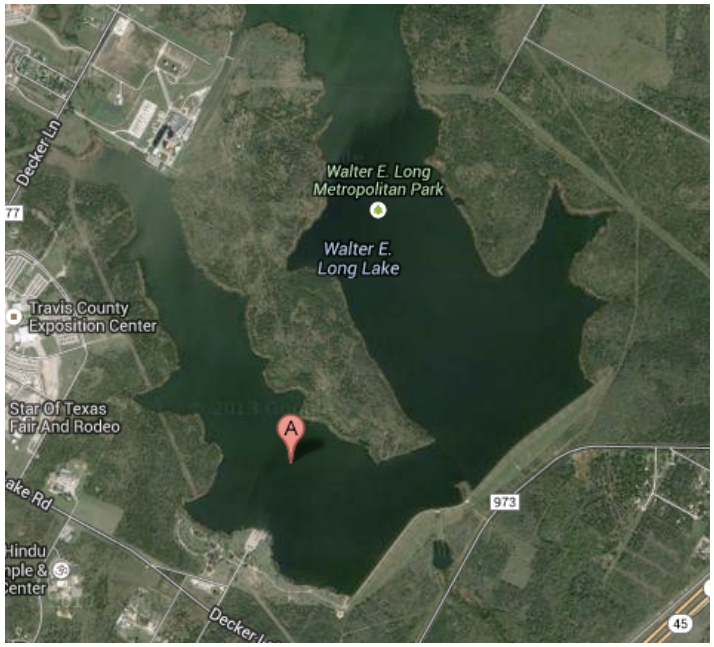
In old utility parlance, the Decker steam units would be considered "intermediate" units and the combustion turbines would be considered "peakers."

To replace last years summer use with solar would require about 600 MWs of west Texas solar. Such a plant or portfolio of plants would produce more than 1.2 GWhs annually and would therefore provide the same amount of energy that Decker provided in 2012.

At solar prices below $50.00/MWh, replacing the $90.00/MWh plant could save $40.00/MWh.

And there will be big environmental benefits. According to University of Texas researchers, the fastest and cheapest way to reduce the nitrogen dioxides that cause the ozone bloom over Austin is to shut down and replace the Decker steam turbines.

A retired Decker would also free up the 1200-acre Walter E Long Lake for potential water management. A repurposed plant site could support several hundred megawatts of solar.



RECOMMENDATION

Replace the Decker Creek Power Plant with 600 MWs of west Texas solar PV before 2016.

BEYOND COAL

Coal plants are being retired across the country because of a combination of factors such as lower priced natural gas, environmental impact, inefficiencies, water constraints and because it is difficult for them to respond to changes in electric demand. As of the summer of 2014, 167 coal plants across the nation have announced their plans to retire and America is moving beyond coal toward a cleaner energy future.

"We are clearly witnessing the end of our dependency on coal and the move toward a cleaner energy future," said Mike Bloomberg, former mayor of New York and well-known owner of one of the nation's premier business news agencies. "Coal-fired power plants and the pollution they produce—including mercury—are the number one threat to our public health and the environment. This is an issue of the American people's public health versus a narrow special interest. And we will not stop until we have achieved our goal."

According to the Clean Air Task Force, the removal of 112 coal-fired power plants translates into the prevention of around 2,166 deaths, 3,426 heart attacks, and 35,210 asthma attacks every year.

The Fayette plant is Austin's largest source of carbon dioxide emissions. It has a book value as of 2012 of $278 million.

The facility is located on a 10-square-mile site seven miles east of La Grange. It comprises three units capable of generating up to 1,625 megawatts (MW) of electricity. That's enough to serve about 406,000 typical Central Texas homes.

Austin Energy owns 50 percent of units 1 and 2, which comprise the Sam K. Seymour Generating Station. In 2013, units 1 and 2 generated 1.75 TWhs and 1.9 TWhs. In 2012 the two units generated 1.65 and 1.35 TWhs. In 2011, they produced 2.08 and 2.17 TWhs.

In our current generation plan, the plan envisions that the use of coal would be ramped down as renewables are ramped up. Instead, the use of gas has ramped down as gas fuel costs dropped from $250,000,000 in 2008 to $148,000,000 in 2012.

During that same period, renewable energy purchases grew from $26,000,000 to $97,000,000.

In the economic dispatch model that is the basis of the Texas Nodal Market, the cheapest units are dispatched not necessarily the cleanest. If carbon is priced at $20/T, then at the rate of 2,000 lbs./MWh, each MWh of coal generation will increase by $20.

Currently, Fayette generation runs between $42.00 and $44.00/MWh. With the addition of this carbon adder, generation costs will move above $60.00/MWh, and both wind and solar will become even more economic as more of the externalized costs of coal generation are priced into the market.

When this happens, Fayette can be ramped down with less serious rate increase consequences. And if Austin owned one unit completely instead of half of both units, this ramp down could be effected.

However, the partnership agreement between LCRA and Austin makes this action by Austin very difficult due to the terms in the agreement that disallow either party to sell or divide the property.

This clause in the partnership agreement might be a "restraint on alienation". Such an attempt in a deed or will to prevent the sale or other transfer of real property either forever or for an extremely long period of time is generally unlawful.

RECOMMENDATION

To begin the retirement process independent of LCRA, Austin should seek 100% ownership of one of the Fayette units by directing AE to begin negotiations and provide an initial report no later than Dec. 31, 2014

ENERGY EFFICIENCY AND DEMAND RESPONSE

Between 1982 and 2006, energy efficiency programs administered by Austin Energy offset the need to build a 700 MW power plant. In 2007, Austin Energy kicked off a new goal with the Austin Climate Protection Plan to offset another 800 MW of peak energy demand by 2020. Austin Energy has achieved 371 MW of the 800 MW goal.

Currently Austin Energy offers a menu of programs for residential and nonresidential customers. Their energy efficiency and demand response programs are beneficial to the utility, the customer, the environment and the economy. The overall benefit cost ratio to Austin Energy is 2.3 avoiding the need to build new capacity and buy fuel. For customers who participate in the programs, the overall return is 4.3 providing the benefit of lower electricity bills. Every year energy efficiency programs avoid an estimated 63,000 metric tons of carbon dioxide emissions and create jobs in our community. The American Council for an Energy Efficient Economy estimates that a $1 million investment in energy efficiency created 20 jobs compared to 17 in a business as usual scenario.

New more energy efficient products and equipment are continually being developed that use less electricity to operate than older models. The old fashioned incandescent light bulb gave way to the compact fluorescent which is now giving way to the light emitting diode (LED). Under an agreement reached in January 2010 at the U.S. Department of Energy by the air conditioning industry and other groups the minimum standard for split system air conditioners in the South will increase to SEER 14 effective January 1, 2015. The development and adoption of smart meter technology is providing the capacity to give customers more information about the way they use electricity and greater ability to control that usage during peak demand hours.

There is an assumption in Austin Energy's current energy efficiency and demand response program planning that the cost effective energy efficiency options are mostly used up and that increasing the goals for energy efficiency would be too costly. Another viewpoint expressed by members of the community is that there is plenty of cost effective energy efficiency potential in Austin and that the programs need to be revamped in order to tap into that potential. Specifically, the air conditioner rebate and other programs need to be restructured to promote the highest equipment efficiency levels and the Energy Conservation Audit and Disclosure Ordinance should be fully enforced and amended if needed.

Energy efficiency is a customer's best insurance policy against rising energy costs and should be a first priority for the utility and is a first step in reaching the City's net-zero energy goal.

RECOMMENDATION

The existing 800 MW goal of energy efficiency should be increased to 1200 MWs by 2024 with 200 MW of the goal being met by demand response.

ZERO ENERGY BUILDINGS

As the cost of solar cells and panels continue to plummet to wholesale prices around 50 cents/watt, prices for installed systems on homes and businesses follow. Consequently, Austin Energy rebates for residential systems have also been reduced. During the time of these Task Force Meetings, the residential rate was reduced to 1.10/watt and the commercial rate was reduced to 9 cents/kWh.

At present, there are about 3500 buildings in Austin with solar installed on their rooftops. Although many of these structures use solar to reduce their bills, almost 400 or 15% of them actually produce more electricity than they use.

These zero energy (electric) buildings are not necessarily modern state of the art structures. Many, in fact, are relatively straightforward suburban homes with good insulation, good windows, smart thermostats, and smart owners.

One member of the Task Force owns a 2,000 square foot home that used 6,000 kWhs last year The solar system on the roof produced 6300 kWhs, thus providing 104% of the home use.

Another citizen who follows the meetings of the Task Force has very similar numbers with his house, but his slightly larger system also powers his electric Leaf vehicle.

These early adopters demonstrate that zero energy buildings are not just the future, they have now become **the present**.

A 2009 report for Austin Energy found that the potential solar generation from existing rooftops in Austin was 2,324 MWs and that these systems could produce about 27.6% of our annual energy needs.

Currently, there are at least five builders offering net zero energy homes in the city. These net zero energy buildings are created through a combination of efficient design strategies and technologies that reduce demand and employ on-site photovoltaics to produce the remaining energy required.

Austin has a policy that requires all new homes to be net zero energy capable by 2015, but an update to that policy will allow Austin Energy to more fully harvest the full benefits of the advances in green building.

RECOMMENDATIONS

Council should adopt a zero energy building ordinance that accelerates distributed solar through third party leasing, on-bill financing, and other financial mechanisms.

City Council should adopt a policy that builders of all new single family homes built after 2019 should offer buyers an optional solar package, either on the rooftop or as part of a community solar project

A task force should be formed to research and provide recommendations on achieving net zero energy for all new buildings.

METHODS AND MODELS

NODAL PRICING

On December 1st, 2010, the Electric Reliability Council of Texas began operation of its nodal wholesale market with over 4,000 nodes or points of potential energy price differentiation. For the first time in our Texas electric grid, the ERCOT nodal system introduced a centralized, day ahead energy auction market that exists in addition to the bilateral market that is available to qualified scheduling entities (QSE).

This means that all generators sell into this market at the local node price and then buy energy back at the node of purchase. This local marginal price (LMP) may or may not be the same price. It might be higher or it might be lower. Over the last few years because of higher use and congestion in the oil play areas in west Texas, LMP prices have been significantly higher than at the Austin load zone.

Consequently, the QSE might make more money than it paid for the energy.

Likewise, in the evenings when energy is less in demand, wind facilities in the west push the LMP very low, sometimes into prices below zero. In these cases, the QSE might lose money on the delta between the LMP price and the contract price.

Sometimes a transmission line goes down and local congestion moves LMP prices. On occasion, a power plant drops off line and LMP prices suddenly move up so that other power plants in the area can respond by bringing up more generation.

But in the vast majority of time, LMP at the place of energy insertion is the same price as the place of delivery. The Austin Energy QSE sells into ERCOT and then it buys it right back at the same price. This happens with approximately 85% of the energy we use. The other 15% is a market purchase. That means that out of the 13 TWhs that AE sells to its customers about 2 TWhs are market purchases.

Because AE is a generator and a retail provider, LMP pricing is not part of the cost equation for us 85% of the time. In this equation, the LMP sell/buy event cancels itself out leaving our actual energy costs as the real costs that our customers must pay.

Curiously, when Austin Energy values wind or solar projects simply based on the projected LMP at the insertion point rather than the delta between the two points and the decremental value of buying from the market instead of running our gas plants, results do not accurately reflect the situation they are trying to model.

Moreover, in modeling the value of new generation, it should be compared with the cost of other new generation, not the value in the nodal market.

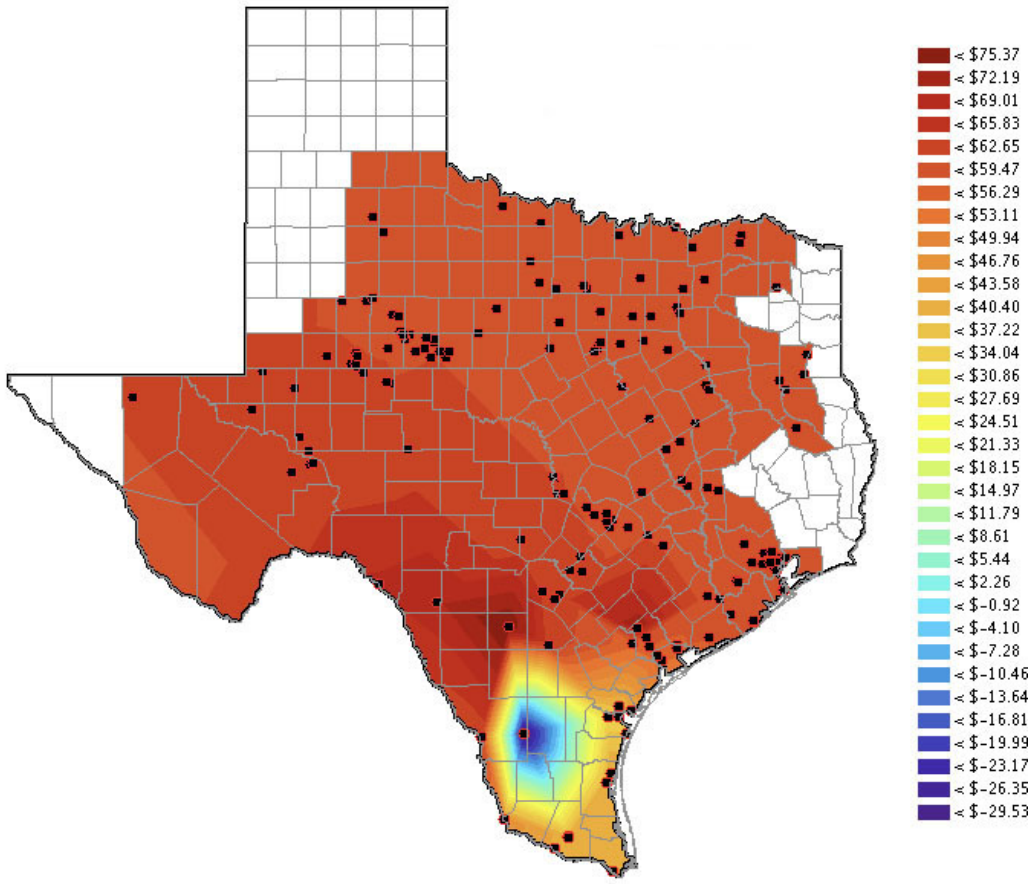
If Austin Energy places a new gas plant on the generation plan, then comparisons should be made against the costs of that projected generation.

Using AE's own data, this flawed methodology shows that our gas plants lost $14,000,000 in 2012 and $81,000,000 when you include gas hedging.

The methodology further shows that our recent 150 MW, $48.00/MWh solar purchase would have lost $7,000,000 in 2012. Given that our average cost of production for the entire system was $51.00/MWh in 2012, the flaw in the methodology becomes even more apparent.

Because of this methodological flaw, the Task Force will not ask Austin Energy to run any generation scenarios even though certain individuals or groups may.

ERCOT Contour Map



RECOMMENDATION

Austin Energy should return to a planning methodology that compares generation alternatives to actual generation costs not nodal market income alone.

STORAGE

While doing its work, the Task Force heard from several storage vendors and proponents. The presentations range from CAES projects to battery technologies. One involved the splitting of water into hydrogen and oxygen. Another presented how electrical energy can be converted into chilled water and then used to reduce demand in the afternoon as buildings use that chilled water instead of electricity for cooling. That is precisely what Austin Energy does with its District Cooling systems downtown, at Mueller and at the Domain.

Except for the CAES presentation, very few presenters had actual prices to quote. However, in Austin Energy's technology cost chart, CAES is priced in the $74.00 to $97.00/MWh range.

It is generally believed that as penetrations of renewable energy increase, storage must be provided to stabilize the grid. And in large percentages this is true.

But in the ERCOT market, ERCOT is responsible for grid stability. And there are many other techniques for providing energy into the grid besides using stored energy. You can start a gas turbine. You can bring up a combined cycle unit. You can use the emerging smart grid to control demand.

Another approach is to use the transportation sector and the building sector.

The former top electric regulator in this country and a leading proponent of smart grid applications that provide demand response agrees.

"FERC chairman: **Let EV owners sell juice to grid.**" (Source: CNET)

"The top regulator of the wholesale electricity markets said that electric-vehicle drivers should be able to make money selling services to grid operators.

"Federal Energy Regulatory Commission (FERC) Chairman Jon Wellinghoff today said electric-car owners could make as much as $3,000 a year providing what are called ancillary services, such as frequency regulation, to stabilize the wholesale electric market."

"Those types of services are technically possible today but regulations need to be changed and new businesses need to be formed before EV owners are active sellers into the grid, Wellinghoff said. But he predicted that within three to five years, vehicle-to-grid services will be available throughout the U.S."

Mr. Wellinghoff's vision is the vision that Austin Energy has promoted and explored through its Plug-in Electric Vehicle campaign efforts.

One presenter to the Task Force represented that using the transportation sector could possibly provide significant storage.

To this end, Elon Musk of Tesla is building his lithium ion battery gigafactory for this very purpose.

There are others who are working on solid-state storage that could revolutionize the energy markets with storage technologies that are as important as the flash drive was to computing.

However, given that the numbers for CAES storage are actually below the numbers for combustion turbines in the Austin Energy analysis, we believe that Austin Energy should consider 200 MWhs of storage to aid in extending both our wind and solar portfolios.

RECOMMENDATION

AE should develop a comprehensive strategy for the deployment and use of storage technologies with a target of a minimum of 200 MWs of fast response storage resources by 2024.

THE INTEGRATED UTILITY

Austin Energy is one of the premier electric utilities in the country. It is known for its leadership in energy efficiency, renewables, and green building. By reaching the 35% renewable energy goal by 2016, and by being on track to reach our 1600 MW efficiency goal on schedule by 2020, it is a leader in clean, affordable, and reliable energy.

But these are demanding, challenging times for the Electric Utility Industry and for Austin Energy.

Just last month in Barron's, they reported that "Barclays has downgraded the entire electric sector of the US high-grade bond market, largely over evidence that solar and other disruptive energy technologies are proving to be increasingly viable competition."

"They are not the first people to say this. The former Duke Energy CEO says he'd want to work in solar if he was starting out today. Some utilities are making decisive moves away from fossil fuels, and financial giants ranging from Norway's sovereign wealth fund to the Bank of England are hearing murmurings about a potential "carbon bubble".

As Barclay's credit strategy team emphasizes, this is less about solar alone, and more about a confluence of technologies—most notably solar and battery storage combined—which have the potential to fundamentally reshape how energy is produced, distributed and used (or not used):

"In the 100+ year history of the electric utility industry, there has never before been a truly cost-competitive substitute available for grid power. We believe that solar + storage could reconfigure the organization and regulation of the electric power business over the coming decade. We see near-term risks to credit from regulators and utilities falling behind the solar + storage adoption curve and long-term risks from a comprehensive re-imagining of the role utilities play in providing electric power."

"In a world where some of the utilities' most profitable corporate customers—from Apple to Ikea to Mars—are investing massively in their own electricity generation capacity (and imposing carbon prices on themselves); where smart home technology promises to cut bills, even for those folks who can't be bothered in programming their thermostat; where LEDs are becoming so cheap they are a no-brainer, even for the anti-environmental crowd; where solar prices keep dropping dramatically and battery-storage innovation is just ramping up, there's good reason for investors to consider alternative options to traditionally "safe" investment in utilities."

The marker for a safe investment or bond rating is moving away from the former conventional wisdom.

Just as denial of climate science does not change the physics of climate change, denial of the coming reality where demand response and zero energy structures begin to weather away growth, will not change the reality of the coming pressure on kWh sales.

Austin Energy must face these challenges and see the opportunities that reside within them.

As the transportation sector becomes more and more fueled by the product that AE sells, there will be opportunities that fall outside of the traditional utility model. As distributed solar penetration moves from 3,000 structures to 100,000 structures, and panels become roof toppings, building siding, and fenestration, there will be opportunities for the utility to provide service and/or capital.

Some of these new opportunities will require regulatory or statutory fixes or third party workarounds.

Austin and its citizens deserve a community utility that can meet the challenges of the future with intelligence and creativity.

The Austin Generation Resource Planning Task Force offers this report to the City Council and the Citizens of Austin in that spirit.

As Paul Valery, the French poet and philosopher said in his 1937 essay "Notre Destin et Les Lettres",

"The future is not what it used to be."

RECOMMENDATION

Austin Energy should transform itself into an integrated utility that employs an expanded business model that goes beyond the traditional utility model of selling kWhs.

RECOMMENDATIONS

Austin Energy should continue to adhere to the affordability goal as passed by the Austin City Council in February of 2011.

Austin Energy should abide by Council Resolution and reduce CO2 emissions to zero as early as 2030 providing affordability metrics are maintained.

Council should set a new Energy Efficiency Goal for saving energy in the underserved customer population.

Council should not approve any future gas plant or value of solar tariff without seeking broad expert advice and counsel on the long-term gas price outlook.

Solar Energy generation should become the default new generation resource through 2024. Furthermore, Austin Energy should consider acquiring additional solar if a unique buying opportunity for solar exists between now and 2016.

The Task Force endorses the LSAC report establishing a goal of 200MW of local solar by 2020.

Austin Energy should develop a comprehensive long-term strategy to facilitate the deployment and use of local solar to the fullest extent.

Austin is an early adopter of climate protection and we must insure that state rules are written that do not punish early action.

Austin Energy should strive to reduce water use and aid in water management.

AE should replace the Decker Creek Power Plant with 600 MWs of West Texas solar PV before 2016.

To begin the retirement process independent of LCRA, Austin should seek 100% ownership of one of the Fayette units by directing AE to begin negotiations and provide an initial report no later than Dec. 31, 2014.

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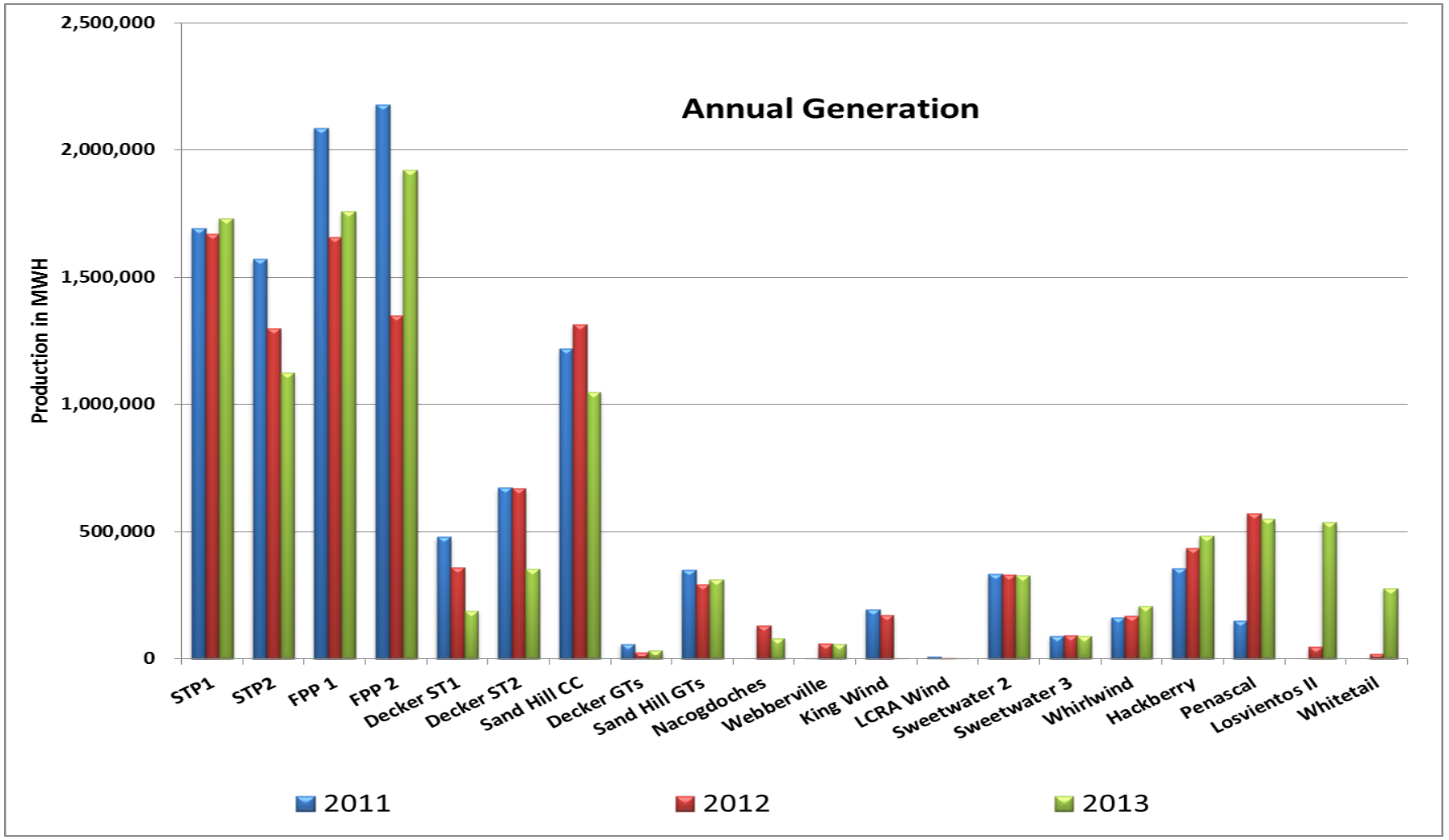
Austin Energy should transform itself into an integrated utility that employs an expanded business model that goes beyond the traditional utility model of selling kWhs.

GREEN CHOICE RECOMMENDATION

Austin Energy should redesign GreenChoice and clarify the desired role of a broader set of voluntary utility programs.

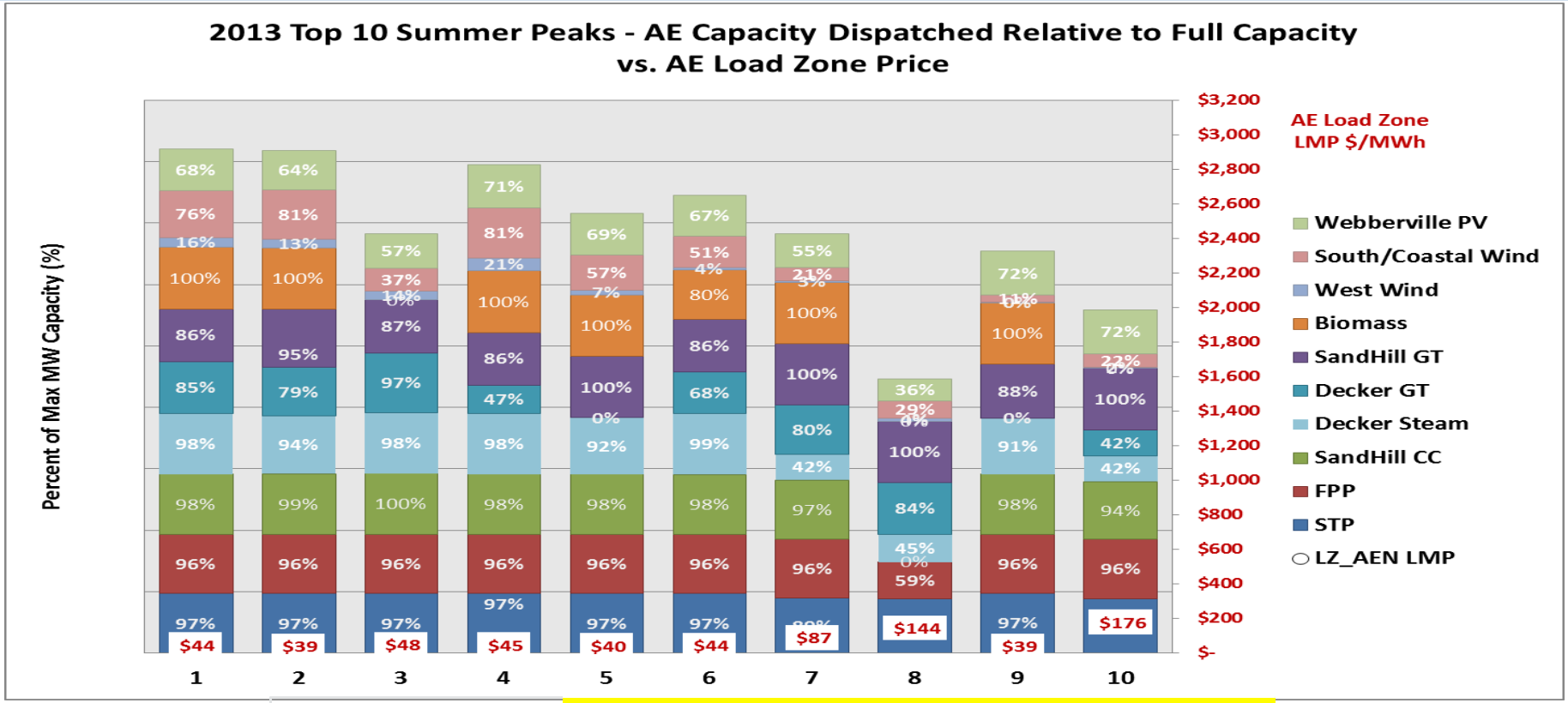
APPENDICES

Austin Energy Historical Generation for all resources (2011 - 2013)

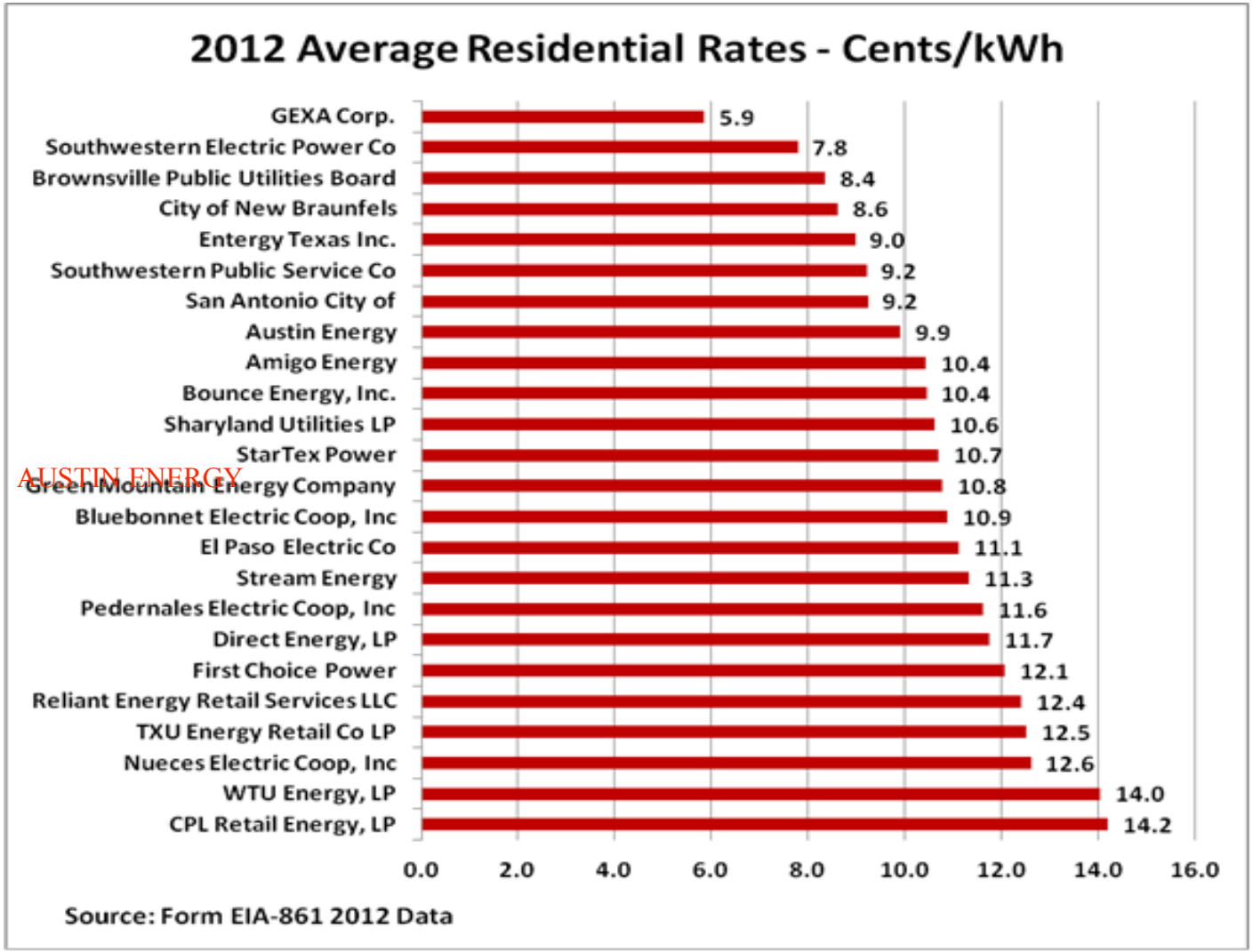


2013 Top 10 Summer Peaks

(Generation output (MW) & Generation relative to Full Capacity(%) statistics)



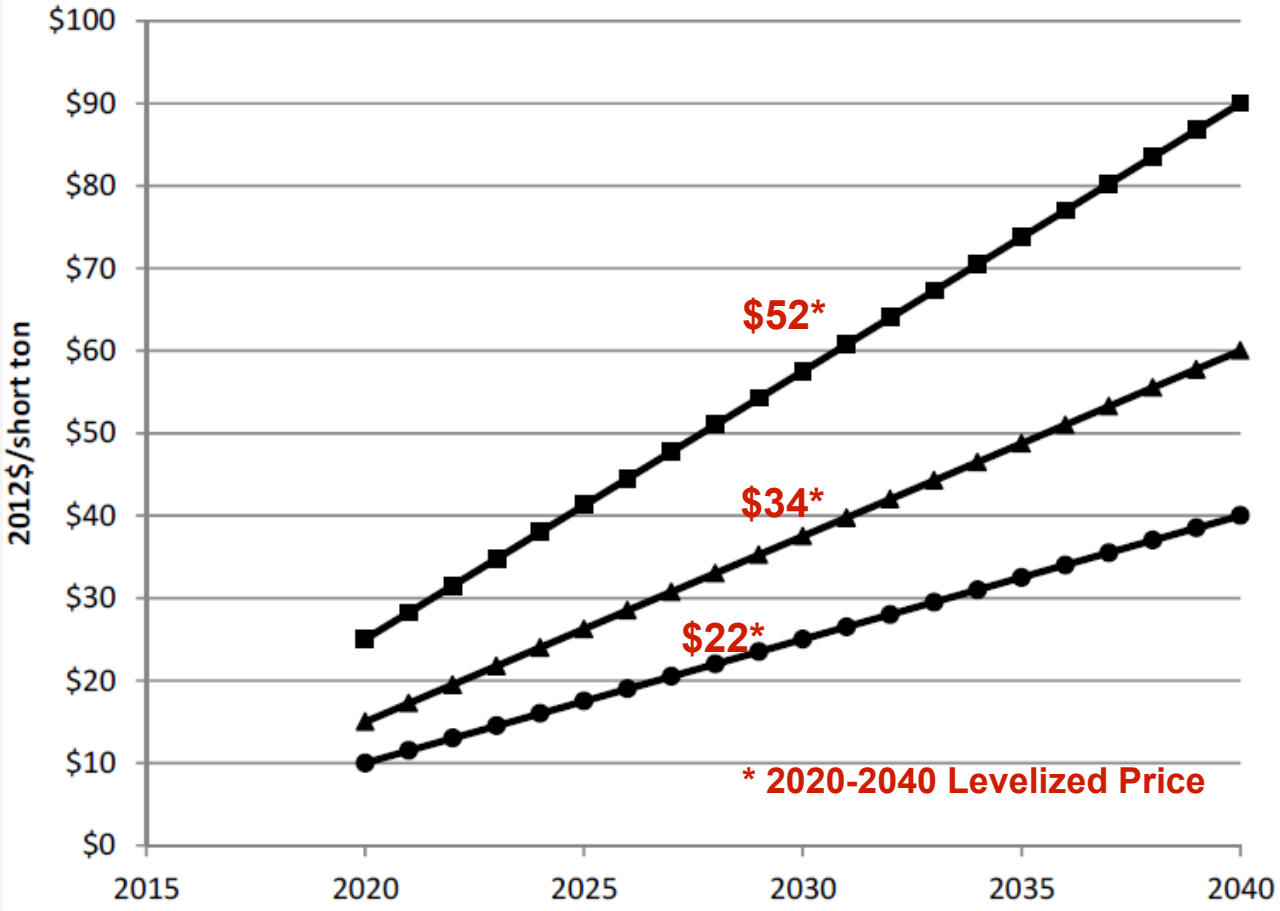
	Statistics (%) - 2013 top 10 Summer Peaks				
	Average	Median	Min	Max	Stdev
STP	94%	97%	89%	97%	4%
FPP	93%	96%	59%	96%	12%
SandHill CC	88%	98%	0%	100%	31%
Decker Steam	80%	93%	42%	99%	26%
Decker GT	58%	73%	0%	97%	35%
SandHill GT	93%	92%	86%	100%	7%
Biomass	68%	100%	0%	100%	47%
Webberville PV	63%	67%	36%	72%	11%
West Wind	8%	6%	0%	21%	7%
South/Coastal Wind	47%	44%	11%	81%	26%



Environmental Assumptions

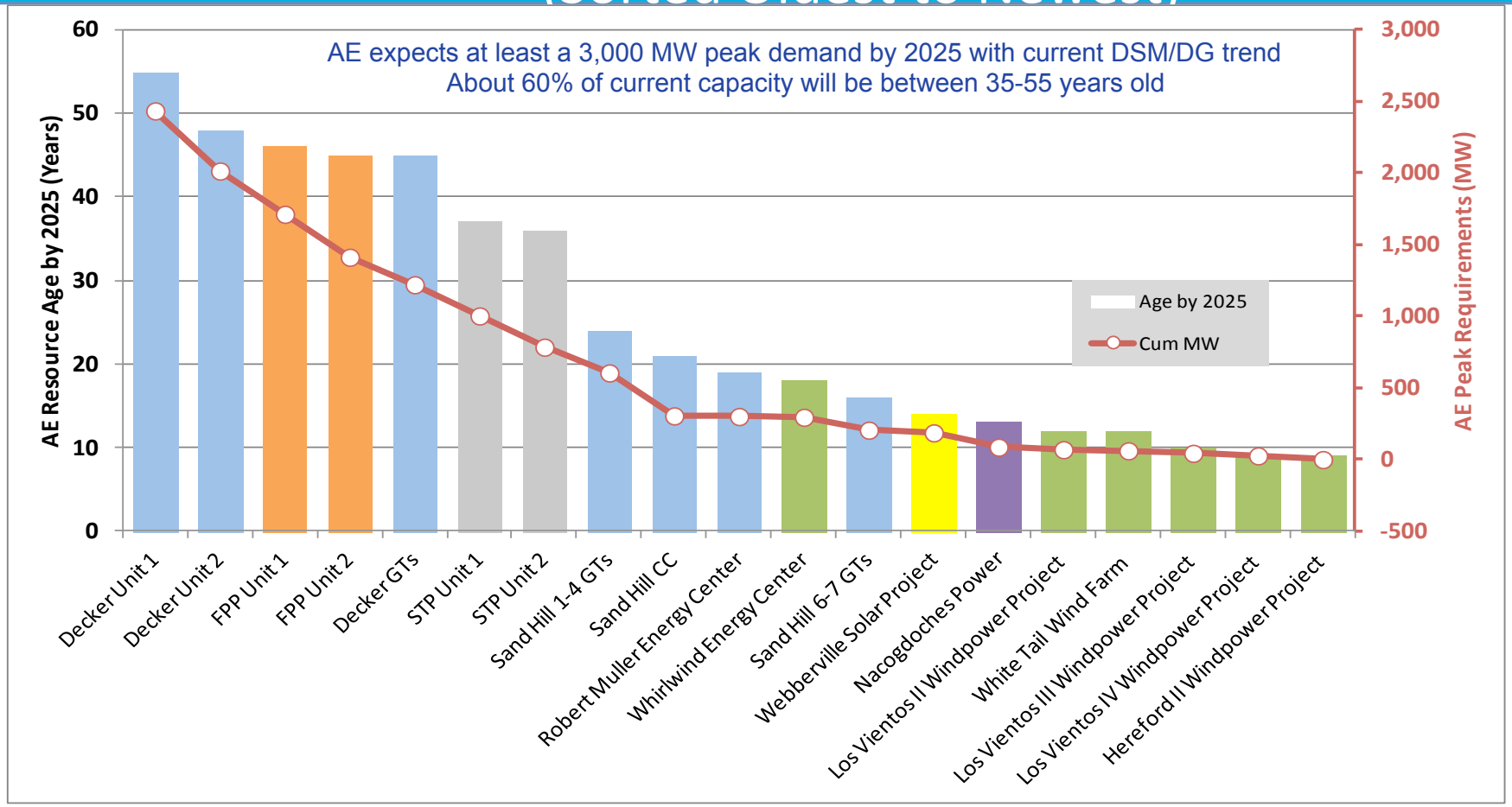
- ERCOT 2014 Long Term System Assessment (LTSA) Report
- Source: Synapse Energy Economics
  - Eventual Federal Cap and Trade due to regional and state inconsistency
  - Emission abatement cost per Energy Modeling Forum (EMF) research
  - Forecast range from 28 utility IRPs

1: Synapse 2013 CO_2 Price Trajectories



Note: We found from our discussions with ERCOT that the LTSA assumptions for CO2 may have changed somewhat and we are attempting to verify what and how ERCOT is actually using. If we are not comfortable with their modeling assumptions, we will let the task force know what we intend to use and seek their input.

Age of AE Owned Assets/Contracts vs. MW Capacity (Sorted Oldest to Newest)



- Kunitz & Hackberry Wind PPA are not included in this chart as the contracts expire before 2025
- The150 MW of new solar that is under negotiation is not represented in the chart.
- Wind contributions to the peak is based on ERCOT CDR assumption i.e. 8.75%
- Solar contributions to the peak is based on AE 2014 VOS Estimates i.e. 62%

Age of AE Resources

AE Resources Age by 2025 Sorted Oldest to Newest

Resource	Type	Age	MW
Decker Unit 1	Gas	55	315
Decker Unit 2	Gas	48	420
FPP Unit 1	Coal	46	302
FPP Unit 2	Coal	45	300
Decker GTs	Gas	45	192
STP Unit 1	Nuke	37	218
STP Unit 2	Nuke	36	218
Sand Hill 1-4 GTs	Gas	24	180
Sand Hill CC	Gas	21	300
Robert Muller Energy Center	CHP	19	5
Whirlwind Energy Center	Wind	18	5
Sand Hill 6-7 GTs	Gas	16	90
Webberville Solar Project	SolarPV	14	19
Nacogdoches Power	Biomass	13	100
Los Vientos II Windpower Project	Wind	12	18
White Tail Wind Farm	Wind	12	8
Los Vientos III Windpower Project	Wind	10	18
Los Vientos IV Windpower Project	Wind	9	18
Hereford II Windpower Project	Wind	9	26

Austin Energy Generation Overview Sorted by Fuel

Resources/PPA	Rating	Fuel	Ownership / PPA	Install Year/ First year of commercial operation	PPA Expiration date
STP1	218	Nuclear	16% Ownership	1988	
STP2	218	Nuclear	16% Ownership	1989	
FPP 1	302	Coal	50% Ownership	1979	
FPP 2	300	Coal	50% Ownership	1980	
Decker ST1	315	Gas	100% Ownership	1970	
Decker ST2	420	Gas	100% Ownership	1977	
Decker GT1	48	Gas	100% Ownership	1988	
Decker GT2	48	Gas	100% Ownership	1988	
Decker GT3	48	Gas	100% Ownership	1988	
Decker GT4	48	Gas	100% Ownership	1988	
Sand Hill GT1	45	Gas	100% Ownership	2001	
Sand Hill GT2	45	Gas	100% Ownership	2001	
Sand Hill GT3	45	Gas	100% Ownership	2001	
Sand Hill GT4	45	Gas	100% Ownership	2001	
Sand Hill CC	300	Gas	100% Ownership	2004	
Sand Hill GT6	45	Gas	100% Ownership	2010	
Sand Hill GT7	45	Gas	100% Ownership	2010	
Nacogdoches	100	Biomass	PPA	2012	2032
Webberville	30	Solar	PPA	2011	2036
LCRA Wind	10	Wind	PPA	1995	2020
Sweetwater 2	92	Wind	PPA	2005	2017
Sweetwater 3	35	Wind	PPA	2006	2017
Whirlwind	60	Wind	PPA	2007	2027
Hackberry	166	Wind	PPA	2008	2023
Penascal	196	Wind	PPA	2011	2015
Losvientos II	202	Wind	PPA	2013	2037
Whitetail	92	Wind	PPA	2013	2037
Losvientos III	200	Wind	PPA	2015	2040
Losvientos IV	200	Wind	PPA	2016	2041
Hereford II/Jumbo Road	300	Wind	PPA	2016	2035

New Wind

- Does not include the 150 MW Solar currently under negotiation

INVESTING IN A CLEAN FUTURE April 30, 2014 1

Emissions by Unit

CO2 emissions by unit in metric tonnes per year

Unit	2005	2006	2007	2008	2009	2010	2011	2012	2013
Decker 1	236,913	402,737	272,360	431,130	321,558	258,481	284,459	218,698	111,251
Decker 2	308,434	367,785	349,898	515,441	520,480	437,046	413,055	416,677	217,787
Decker GT1	10,674	14,463	11,869	8,537	9,021	10,126	11,159	4,363	6,289
Decker GT2	9,351	12,707	20,200	15,080	8,276	7,499	13,104	5,177	7,880
Decker GT3	10,217	14,243	18,154	21,937	15,620	4,634	4,982	4,439	9,271
Decker GT4	8,449	18,381	13,936	16,536	9,655	7,198	15,102	5,143	7,137
Holly 3	96,983	150,007	132,229	0	0	0	0	0	0
Holly 4	143,786	159,755	113,840	0	0	0	0	0	0
SHEC 1	44,466	37,391	31,937	25,228	28,622	21,771	28,839	22,517	23,081
SHEC 2	44,449	36,794	22,309	40,589	22,656	31,927	30,068	28,571	33,028
SHEC 3	44,160	35,280	17,011	41,487	23,346	27,653	31,847	27,177	28,222
SHEC 4	43,657	28,900	38,747	33,320	25,438	29,627	28,575	24,952	22,736
SHEC 5	578,793	506,702	611,531	651,557	668,927	616,716	512,471	552,505	435,670
SHEC 6			0	0	0	10,077	19,544	15,729	28,329
SHEC 7			0	0	0	10,894	18,721	16,005	28,990
FPP 1	1,939,771	1,835,907	2,162,490	2,035,501	1,925,037	1,671,170	2,082,192	1,757,843	1,778,049
FPP 2	2,018,123	1,803,285	2,247,933	2,017,993	1,890,264	1,938,278	2,321,753	1,519,239	2,121,782

CO2 emissions by facility in metric tonnes per year

Facility	2005	2006	2007	2008	2009	2010	2011	2012	2013
Decker Creek (Gas)	584,038	830,317	686,418	1,008,662	884,609	724,983	741,860	654,498	359,613
Holly Street (Retired)	240,769	309,762	246,069	0	0	0	0	0	0
Sand Hill (Gas)	755,526	645,066	721,535	792,182	768,988	748,663	670,065	687,455	600,057
Fayette Power Project (Coal)	3,957,894	3,639,192	4,410,423	4,053,494	3,815,301	3,609,448	4,403,946	3,277,082	3,899,831
Total	**5,538,227**	**5,424,337**	**6,064,444**	**5,854,338**	**5,468,898**	**5,083,094**	**5,815,871**	**4,619,035**	**4,859,502**

Austin Energy Historical Generation for 2013

Resources/PPA	Rating	2013 Austin Energy Generation in MWH													Capacity Factor
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
STP1	218	160,577	145,495	160,613	152,926	129,170	153,272	158,268	152,250	128,728	75,771	156,390	158,626	1,732,088	91%
STP2	218	20,579	0	0	41,600	157,525	153,106	158,071	157,929	152,643	158,492	82,486	43,280	1,125,711	59%
FPP 1	302	138,087	122,630	170,856	185,665	187,618	182,673	175,844	150,763	179,962	140,469	0	123,693	1,758,261	66%
FPP 2	300	123,092	72,085	120,183	143,814	189,850	187,919	179,455	168,174	187,903	179,051	167,922	201,890	1,921,337	73%
Decker ST1	315	0	0	6,026	145	7,596	46,337	28,521	60,133	30,464	7,199	0	1,596	188,015	7%
Decker ST2	420	0	0	18,862	4,204	12,141	78,830	62,756	63,959	51,716	26,095	10,981	23,331	352,876	10%
Decker GT1	48	23	91	247	386	461	2,162	1,626	576	207	109	755	163	6,807	2%
Decker GT2	48	5	37	6	282	24	1,423	2,317	2,634	1,286	30	400	535	8,979	2%
Decker GT3	48	59	143	394	417	423	2,045	1,773	2,117	972	936	856	294	10,429	2%
Decker GT4	48	68	102	13	296	267	1,926	2,198	1,647	535	330	311	56	7,748	2%
Sand Hill GT1	45	82	1,235	1,665	1,637	2,759	8,557	1,630	8,336	8,349	2,659	3,770	5,798	46,477	12%
Sand Hill GT2	45	91	346	1,159	3,226	3,606	10,079	11,352	11,938	8,887	1,719	3,836	3,208	59,446	15%
Sand Hill GT3	45	94	902	1,317	2,848	3,630	8,840	10,560	10,252	7,358	1,461	815	3,387	51,465	13%
Sand Hill GT4	45	157	594	859	1,755	3,150	2,858	1,228	11,309	8,669	3,904	4,365	5,876	44,722	11%
Sand Hill CC	300	131,452	94,994	82,499	0	0	32,268	170,117	176,139	83,256	83,386	77,801	116,800	1,048,711	40%
Sand Hill GT6	45	974	2,204	942	2,206	3,004	7,424	9,819	11,118	8,017	2,631	2,323	3,675	54,336	14%
Sand Hill GT7	45	793	1,580	1,079	2,460	2,889	8,139	9,983	10,897	8,217	2,634	2,794	4,385	55,850	14%
Nacogdoches	100	0	0	0	4,618	0	9,094	0	57,323	46	0	0	10,170	81,252	9%
Webberville	30	3,297	4,110	6,112	5,017	6,069	5,862	6,218	6,449	5,281	4,639	3,112	2,944	59,110	22%
King Wind	77	2,445	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,445	4%
LCRA Wind	10	361	430	332	452	333	128	78	59	45	61	108	0	2,388	3%
Sweetwater 2	92	23,772	24,790	35,508	37,167	38,693	28,460	17,932	19,032	16,961	31,425	29,256	24,285	327,280	41%
Sweetwater 3	35	7,038	7,889	9,437	10,235	10,184	7,356	4,314	4,584	4,404	8,215	7,959	6,954	88,570	29%
Whirlwind	60	17,140	3,846	18,357	18,442	22,326	20,333	16,214	13,854	14,798	21,896	19,512	21,869	208,587	40%
Hackberry	166	34,152	43,818	46,887	46,590	57,728	43,486	30,160	27,212	25,879	44,317	44,137	37,675	482,041	33%
Penascal	196	28,687	47,154	60,276	62,701	71,665	52,697	45,735	34,884	29,416	40,946	39,284	36,246	549,690	32%
Losvientos II	202	33,959	38,297	66,077	63,830	66,078	46,642	46,821	35,646	26,897	43,220	40,053	31,084	538,603	30%
Whitetail	92	22,037	23,367	30,876	26,087	32,770	29,186	25,064	20,152	10,599	22,371	19,037	16,096	277,642	34%

Historical Fuel Costs by Type

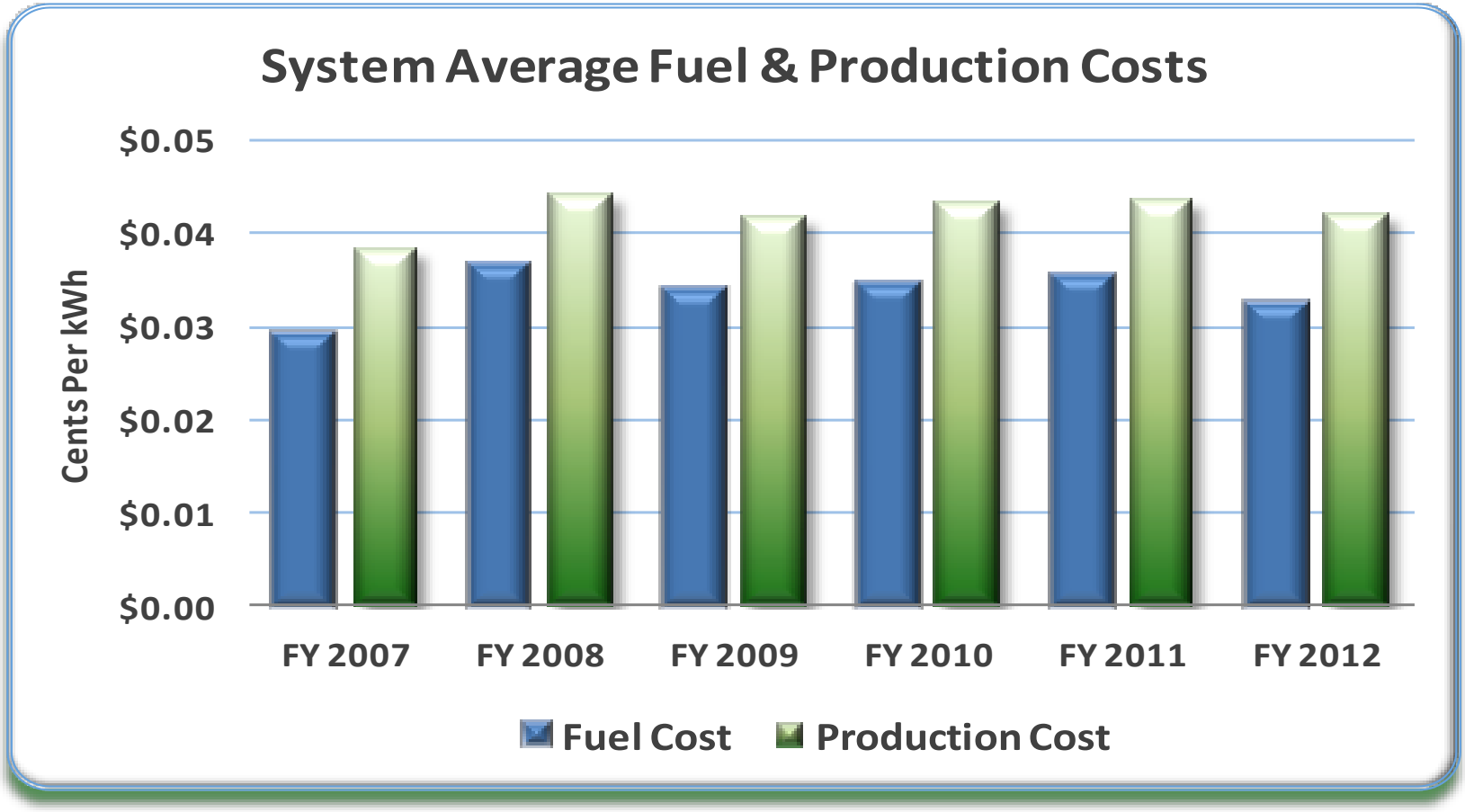
- Costs allowed in the fuel tariff include commodity, purchase power, and ERCOT-related charges.

Table 38: Fuel Costs

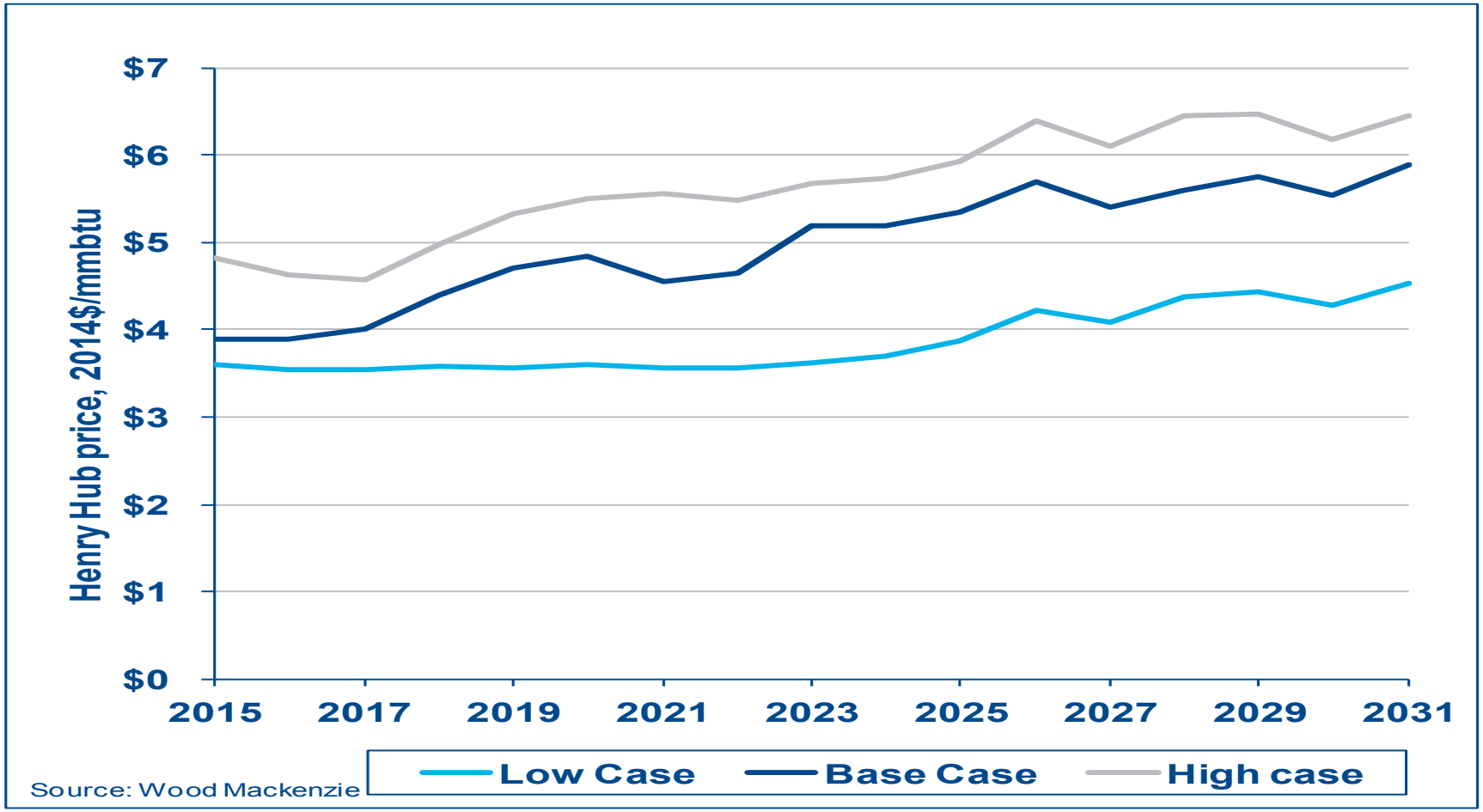
Fuel Cost	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Gas	$250,721,680	$214,711,985	$203,976,741	$190,320,211	$148,047,838
Coal	$87,063,860	$84,635,000	$91,590,706	$88,068,421	$85,032,243
Nuclear	$15,823,059	$16,866,183	$16,655,851	$18,295,747	$14,087,793
Fuel Oil	$420,142	$566,981	$2,405,166	$2,698,718	$897,703
Purchase Power	$90,621,318	$54,863,996	$53,409,677	$57,820,582	$10,831,546
ERCOT*	$10,165,180	$21,889,298	$21,617,196	$66,372,518	$69,831,165
Renewable	$26,183,662	$49,567,759	$48,631,116	$48,212,653	$97,167,511
Total	**$480,998,901**	**$443,101,202**	**$438,286,453**	**$471,788,849**	**$425,895,800**

*Through FY12, the ERCOT line item includes fees and charges from ERCOT such as net power costs and administrative and nodal fees. Beginning in FY13, those administrative and nodal fees associated with power supply adjustment customers are recovered through the regulatory charge.

Historical Average Fuel & Production Costs

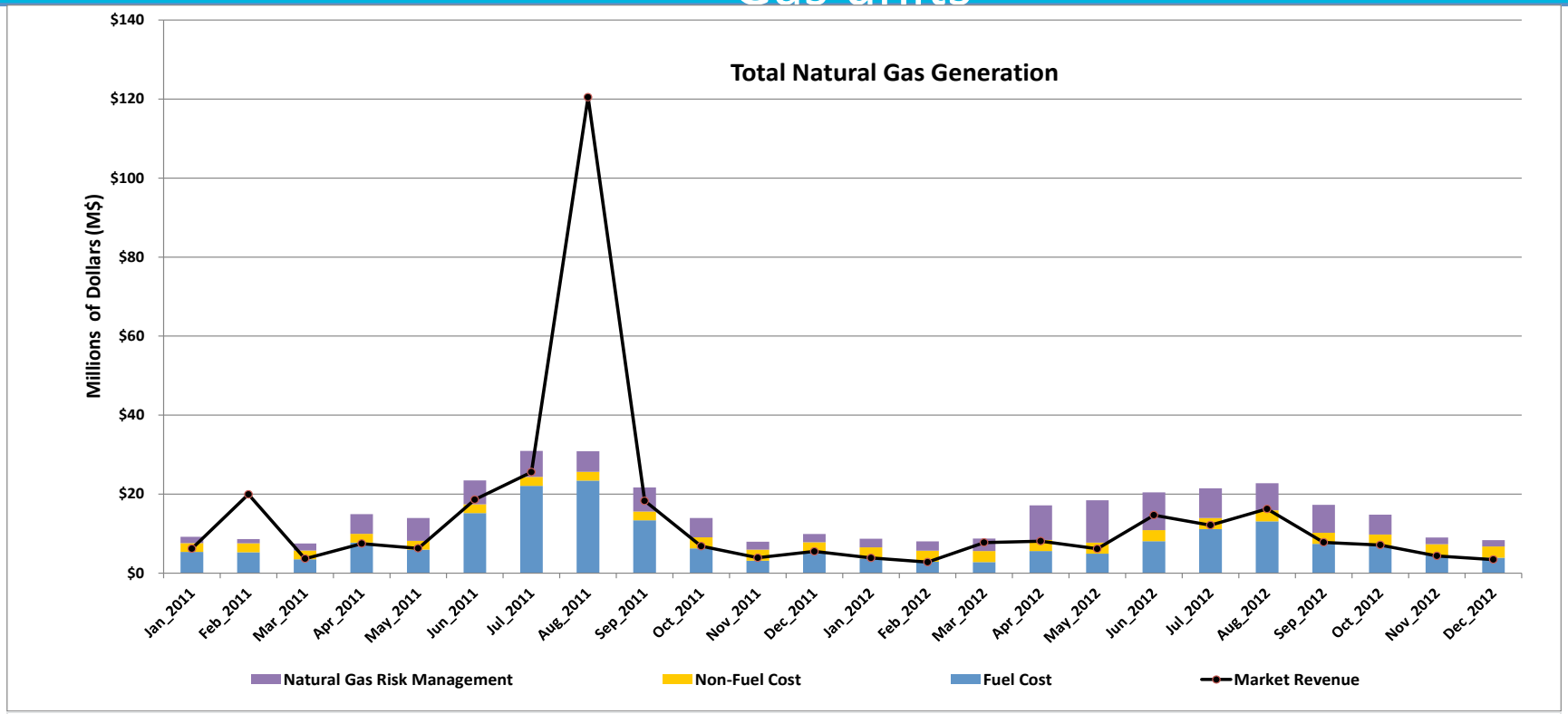


Fuel Price Forecasts (Preliminary)



- First 2 years will be replaced by NYMEX futures.

Austin Energy All in Production Cost/Revenue for Gas units

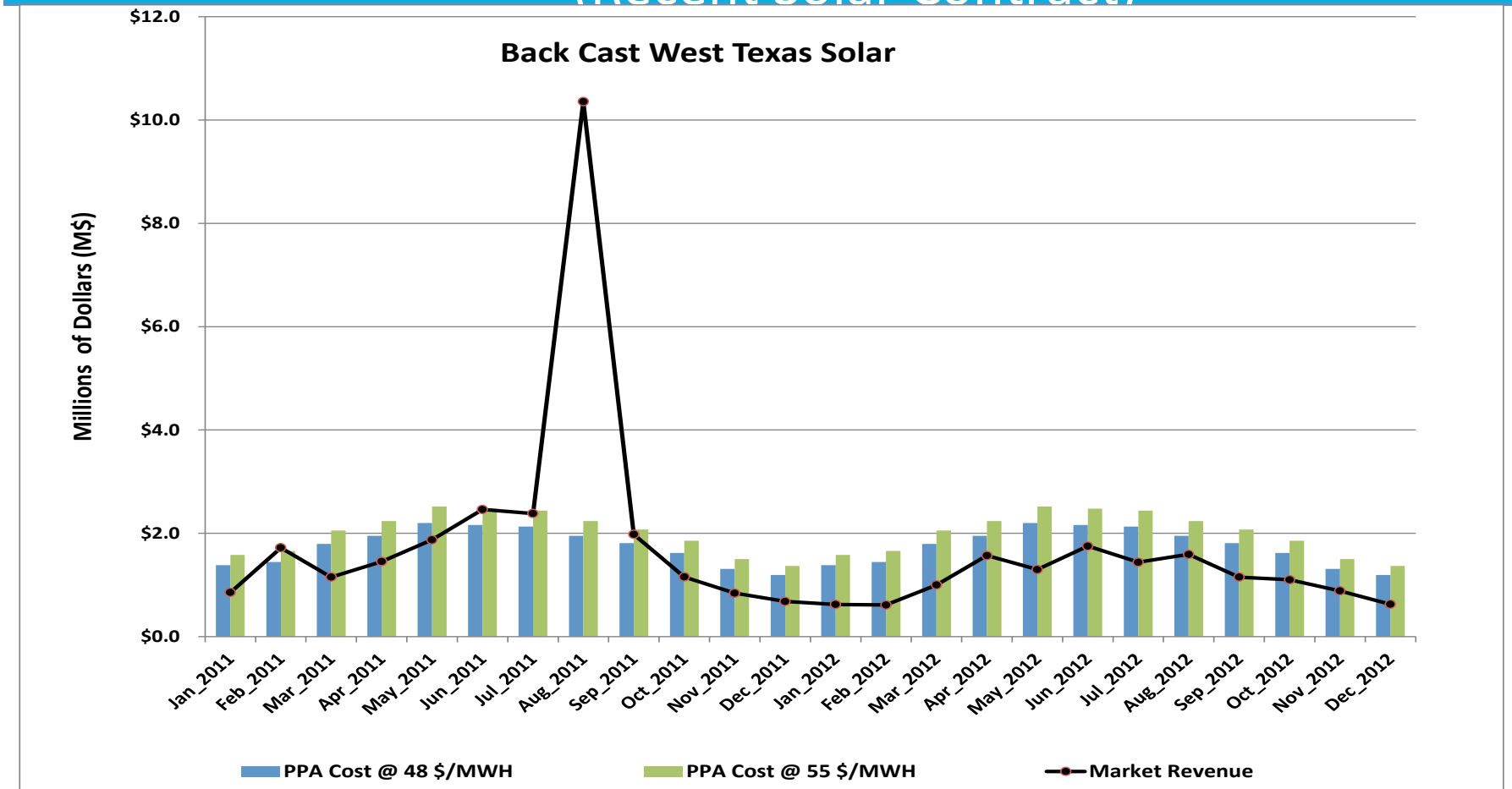


Summary

	Generation MWh	Fuel Cost ($Million)	Non-Fuel Cost ($Million)	Total Cost ($Million)	Total Cost ($/MWH)	Total Revenue ($Million)	Total Revenue ($/MWH)	Natural Gas Risk Management Cost ($Million)	Net Revenue/Cost without Risk Management ($Million)	Net Revenue/Cost without Risk Management ($/MWH)	Net Revenue/Cost with Risk Management ($Million)	Net Revenue/Cost with Risk Management ($/MWH)
CY 2011	1,760,176	$116.3	$28.6	$144.8	$82.28	$242.7	$137.87	$48.12	$97.8	$55.59	$49.7	$28.26
CY 2012	1,388,101	$75.0	$33.7	$108.7	$78.32	$94.3	$67.95	$66.61	($14.4)	($10.37)	($81.0)	($58.36)

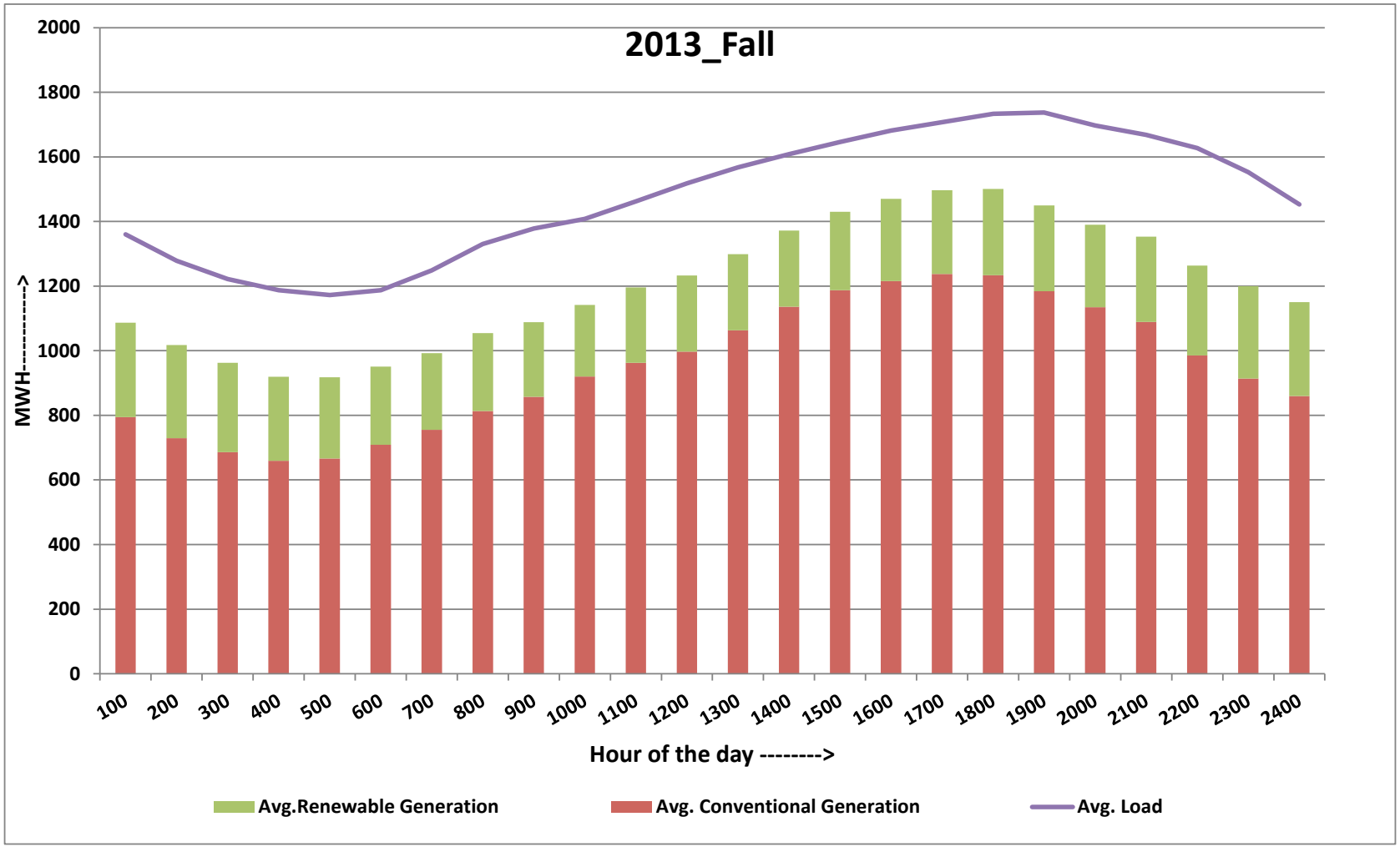
Note: Risk Management cost is a cost associated with load and has nothing to do with Generation

Back cast of West Texas Solar (Recent Solar Contract)



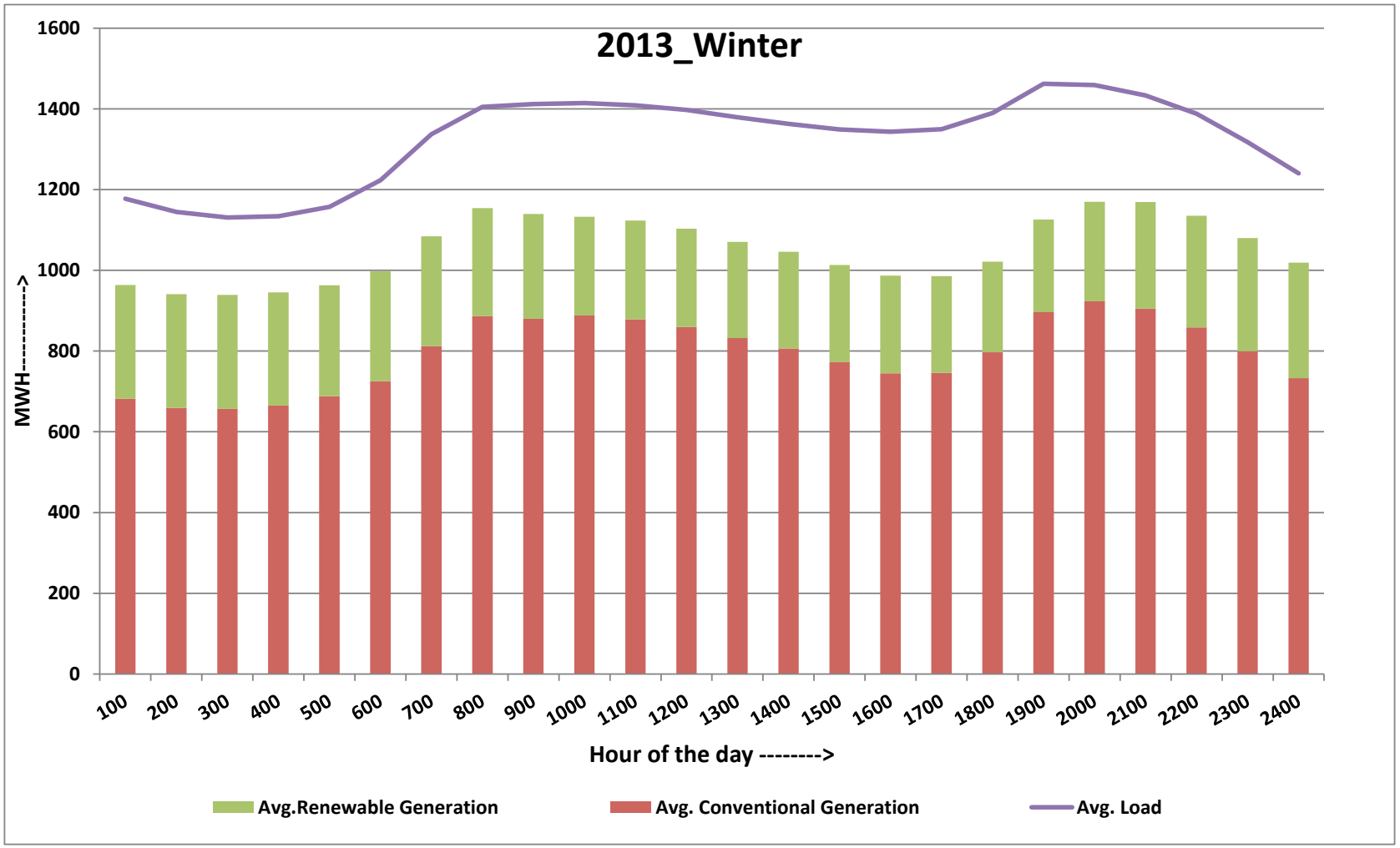
	Generation MWh	PPA Cost @ 48 $/MWH ($Million)	PPA Cost @ 55 $/MWH ($Million)	Total Revenue ($Million)	Net Revenue @ 48/MWH ($ Million)	Net Revenue @ 55/MWH ($ Million)	Net Revenue/Cost @ 48/MWH ($ /MWH)	Net Revenue/Cost @ 55/MWH ($ /MWH)
CY2011	436,235	$20.9	$24.0	$26.9	$6.0	$2.9	$13.66	$6.66
CY 2012	436,235	$20.9	$24.0	$13.6	($7.3)	($10.4)	($16.73)	($23.73)

Hourly Average Generation & Load for 2013 Fall



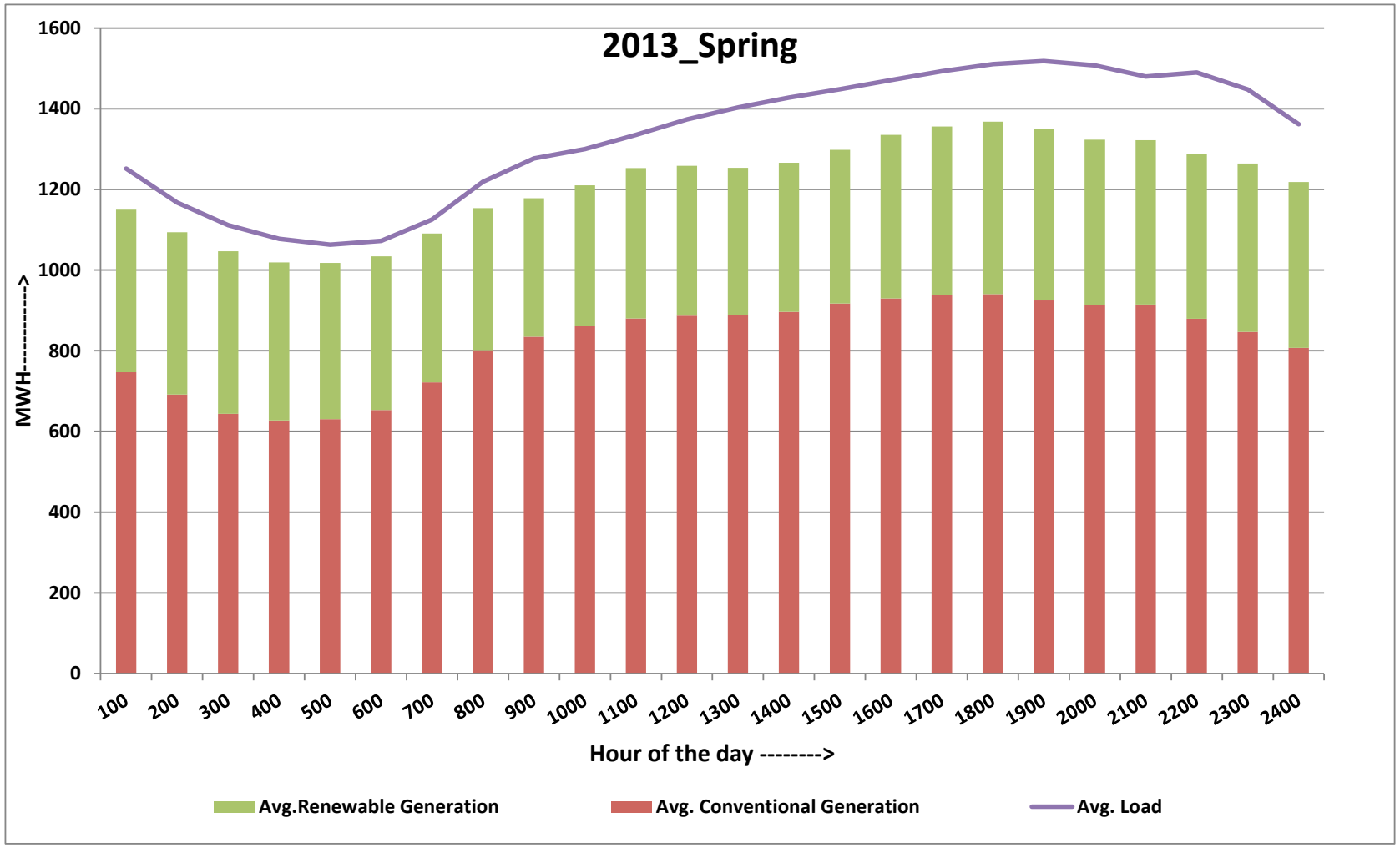
Fall Covers months – Sept, Oct, Nov

Hourly Average Generation & Load for 2013 Winter



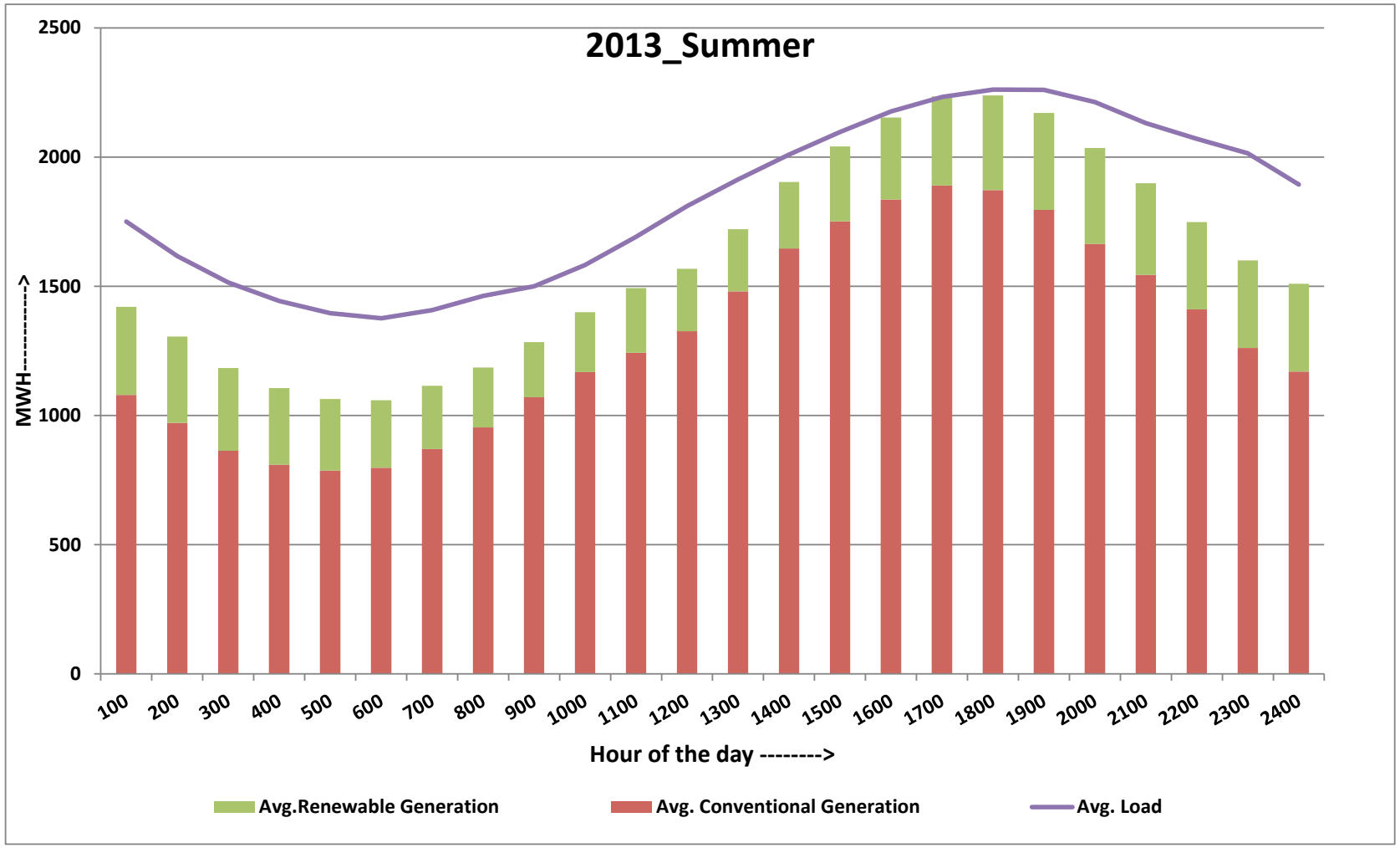
Winter Covers months – Dec, Jan, Feb

Hourly Average Generation & Load for 2013 Spring



Spring Covers months – Mar, Apr, May

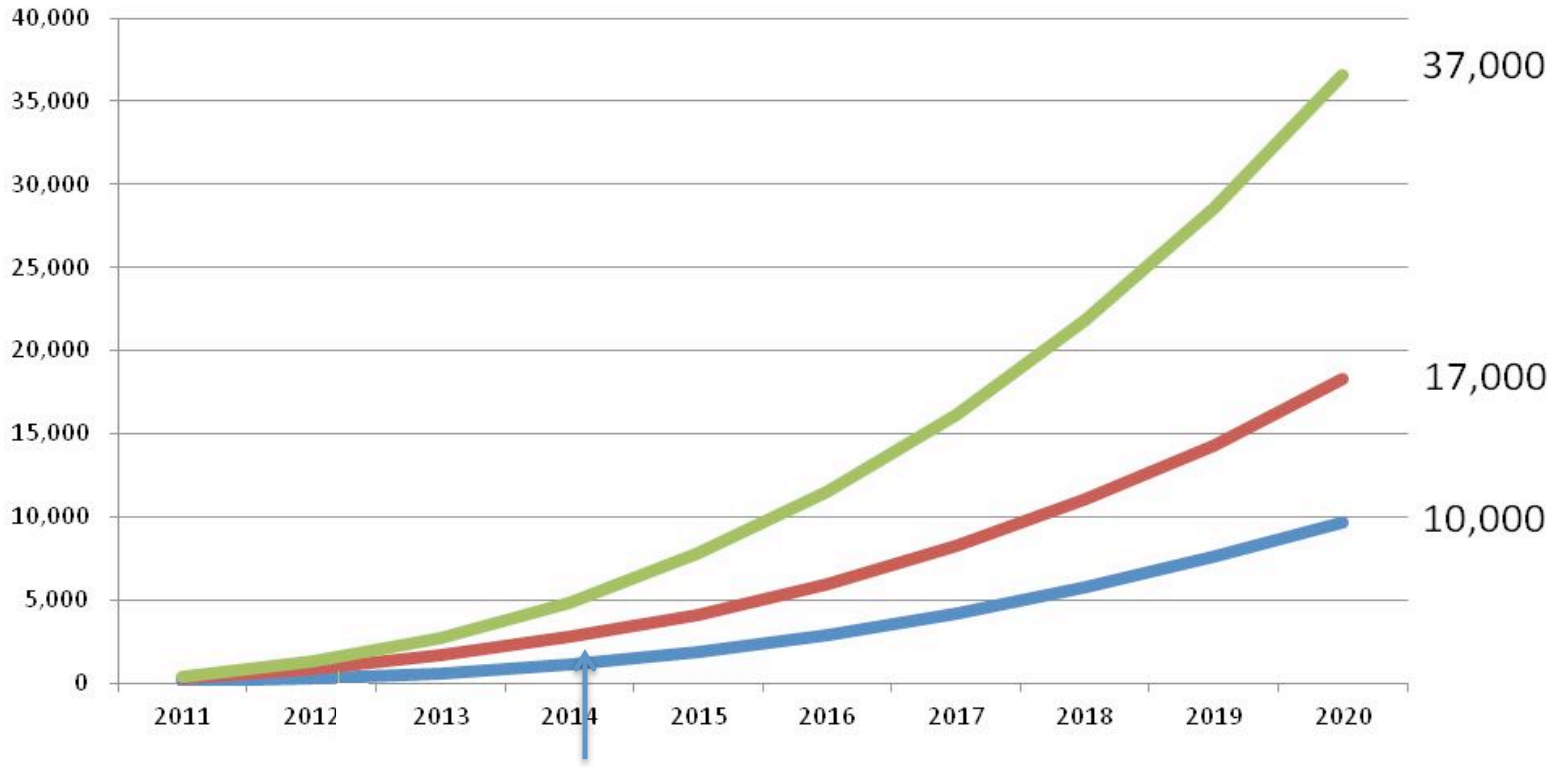
Hourly Average Generation & Load for 2013 Summer



Summer Covers months – Jun, Jul, Aug

Adoption Curves (Low, Med, High)

Electric Power Research Institute (EPRI)
Plug-In Electric Austin Forecast

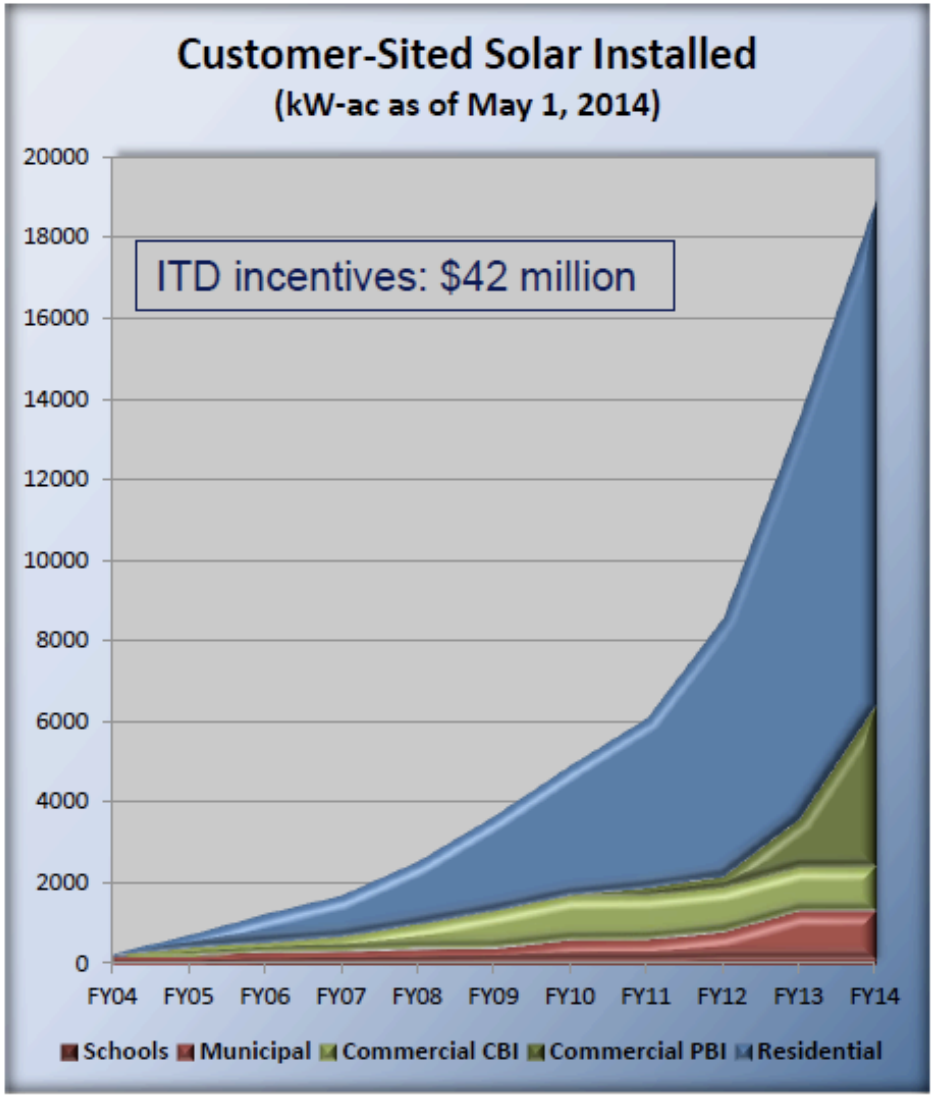


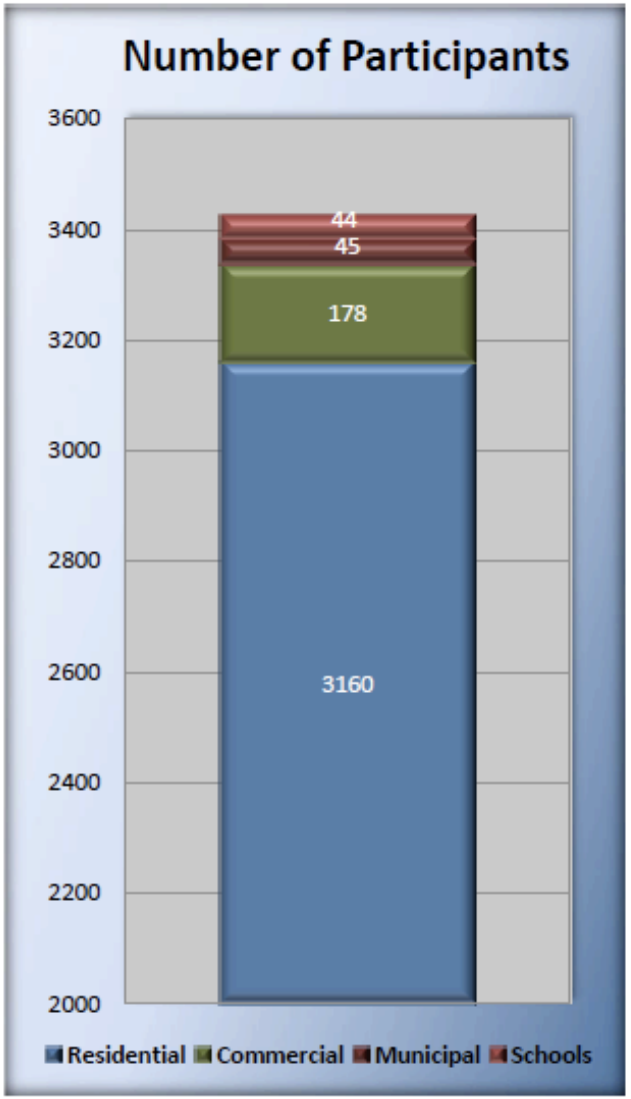
1,132 PEVs on Austin Area Roads as of Mar 2014

1

www.austinenergy.com

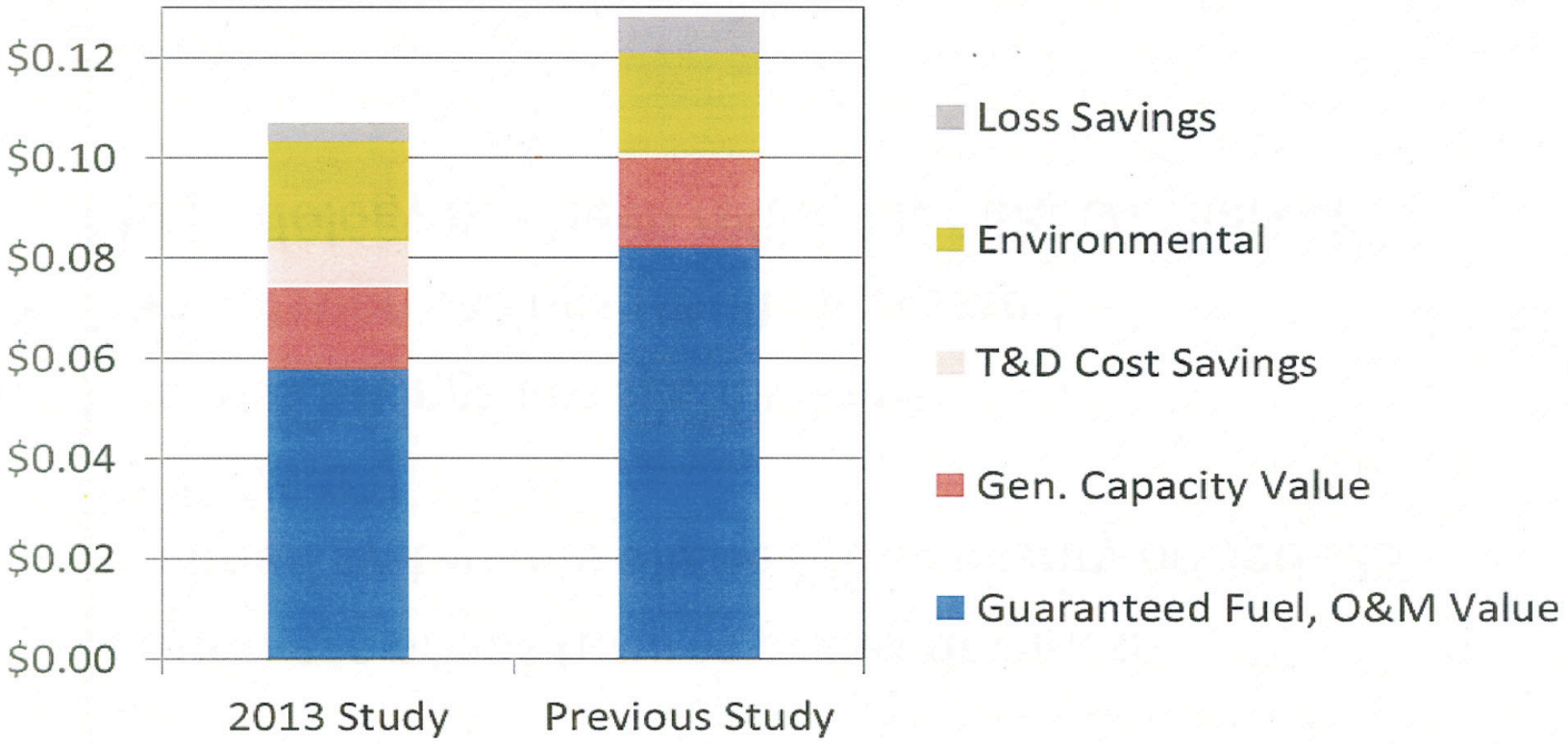
Customer-Sited Solar





Data as of May 1, 2014

How Do 2013 Results Compare to Previous Study?



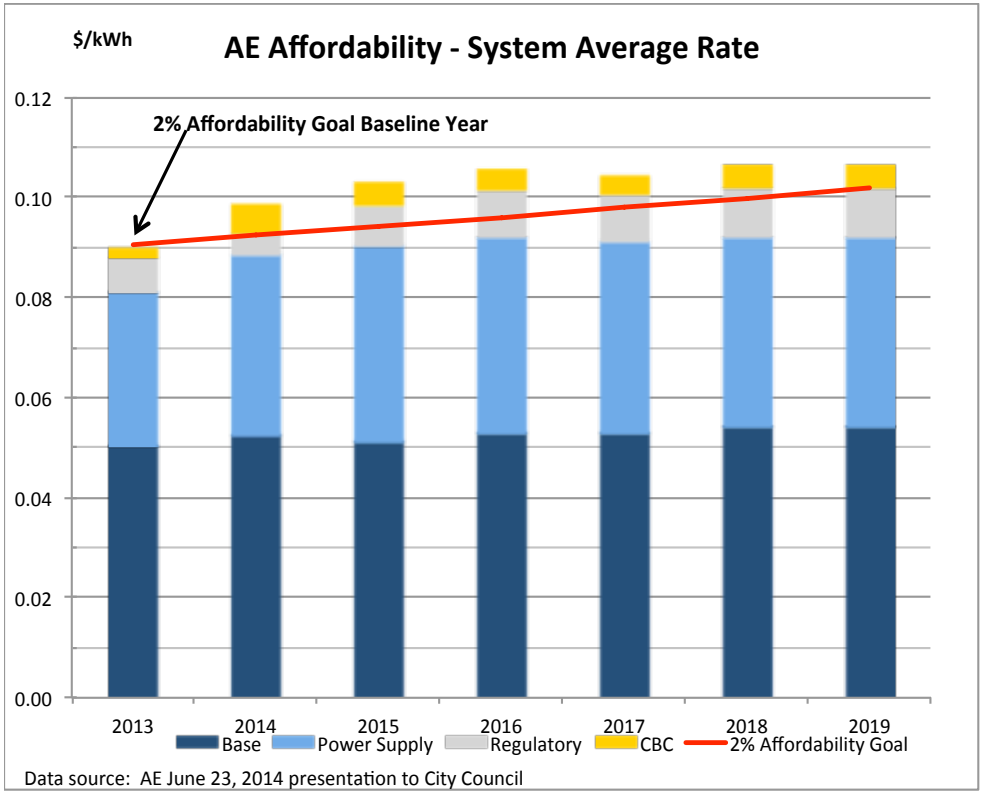
Value of Solar Calculation

Appendix addition for Michele Van Hyfte and Barry Dreyling

Affordability

On the premise that people need access to reasonably priced energy, Austin Energy should meet and maintain these affordability goals:

- Customer bill cost increases <2%/year
- Customer costs in bottom 50% of ERCOT key areas – major cities and areas surrounding Austin
- Applies to "all in" customer bill cost
- Applies to all customer classes – residential, commercial, industrial
- Regular benchmarking of rates (residential, commercial and industrial) in ERCOT key areas
- Austin Energy continue to provide/update affordability projections 5 years into the future



Data source: AE June 23, 2014 presentation to City Council

Equitable distribution of energy rebate funds

In order for the energy efficiency goals to be met there must be a large participation by the commercial industrial sector. The goal cannot be met solely by the residential sector. As shown below there is an inequity in how rebates are awarded. We request that Austin Energy take steps eliminate or reduce this inequity.

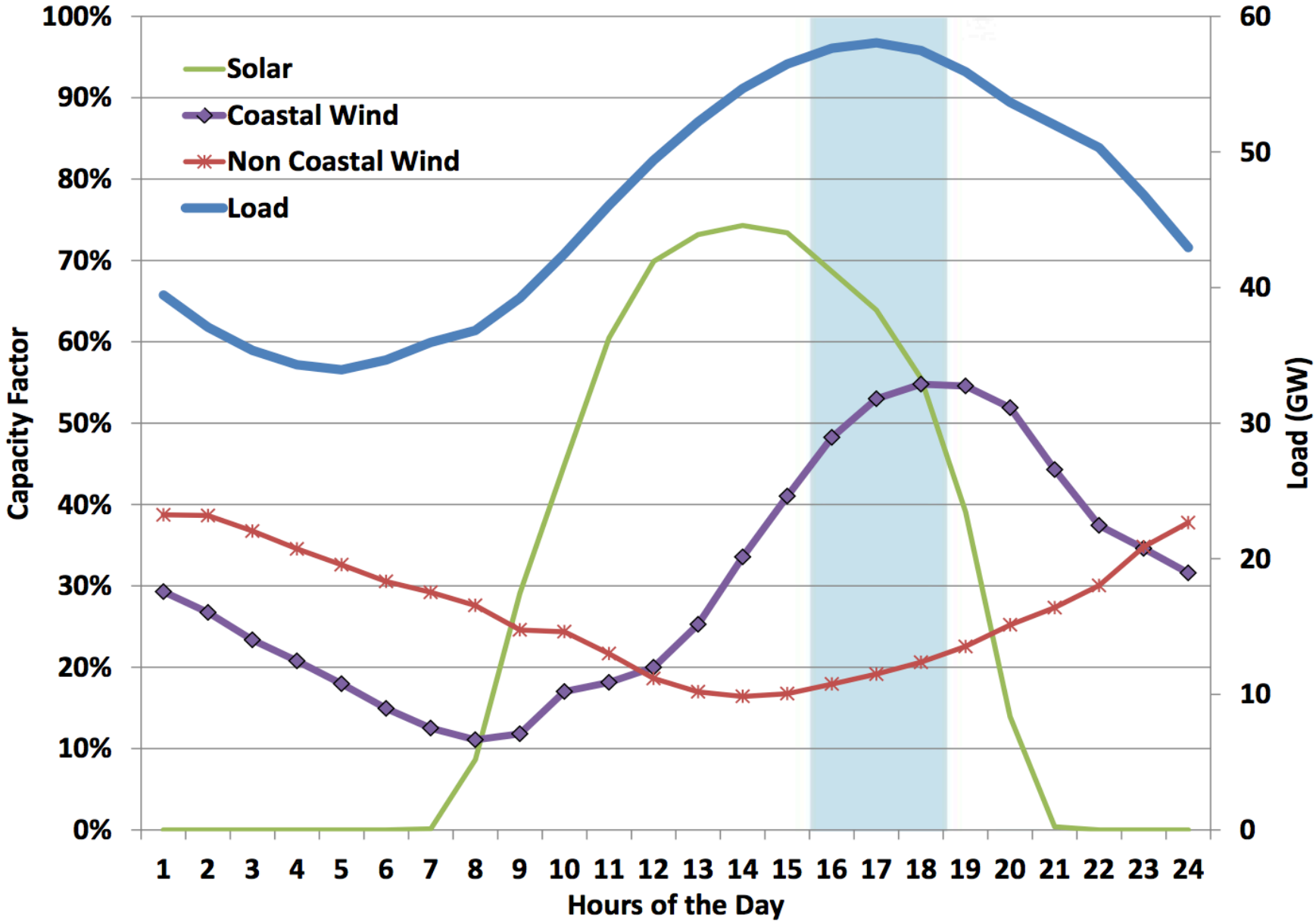
From page 14 (Table 17) of AE 2012 Performance Report (latest report available) you can see that 2012 rebate rates ($ /KWH) for residential vs. commercial class are:

- 6.1X for all rebates not including Green Building (4.65¢/KWH vs. 0.76¢/KWH)
- 3.7X for all rebates including Green Building (2.50¢/KWH vs. 0.67¢/KWH)

Table 17: Residential and Commercial Rebates

Fiscal Year	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Residential					
Rebate	$7,679,457	$8,473,066	$9,708,953	$8,369,205	$8,033,355
No. of rebates	44,177	37,911	37,267	26,438	29,759
Avg. Rebate	$174	$223	$261	$317	$270
$/kW	$304	$436	$515	$541	$520
$/kW with GB	$223	$341	$417	$355	$341
¢/kWh	2.06	2.52	3.99	4.24	4.65
¢/kWh with GB	1.55	2.02	3.18	2.92	2.50
Commercial					
Rebate	$4,085,367	$3,403,767	$4,026,588	$3,995,799	$3,673,254
No. of rebates*	2,527	1,572	1,629	1,151	909
Avg. Rebate	$1,617	$2,165	$2,471	$3,472	$4,041
$/kW	$207	$174	$270	$189	$174
$/kW with GB	$138	$124	$224	$160	$147
¢/kWh	1.07	1.28	1.12	0.72	0.76
¢/kWh with GB	0.67	0.78	0.92	0.58	0.67
Total Rebate	**$11,764,824**	**$11,876,833**	**$13,735,541**	**$12,365,004**	**$11,706,609**

Figure 54: Summer Renewable Production



TASK FORCE MEMBER CYRUS REED

Dear Michael,

Thanks for all your guidance and help on this Task Force report. I am generally pleased with it. You guys did a lot of great work and I regret not being there at the June 23rd meeting at which the recommendations were discussed. That being said, I will be making four specific "amendments" to the proposed text on Wednesday, all of which contain specific recommendations. These are all issues I raised last Wednesday. I do not expect to take a long time, but feel like I must recommend these changes.

The four issues are:

1. A specific statement on an overall renewable goal; 2. A specific local solar component; 3. More specific language on energy storage, including recommendations about future RFPs; and 4. An affirmation of an underserved customer demand reduction goal, but a softening of the specific 10% energy reduction goal for underserved customers.

My understanding is that two of my issues will be dealt with in some way based on last week's discussion, and there may or may not be support for the other two issues. I will respect the will of the task force and will be supporting the overall recommendations regardless.

FROM TASK FORCE MEMBER SLOAN

I appreciate all the hard work that has been devoted by Task Force members and Chairman Osborne in producing an impressive draft report. Below are comments and suggested modifications on topics I would like for the Task Force to consider tomorrow.

1 Adding New Generation Resources:

In a rapidly evolving energy landscape, it may be shortsighted to limit additions to any specific resource. I am comfortable "targeting" very substantial solar additions, but believe that final selection should be proven through a criteria-based (e.g. carbon neutral, water neutral, etc) competitive solicitation, especially when there are so many other technologies our Task Force has identified as desirable, if affordable (e.g. storage, demand response/automated DSM, coastal wind).

Due to substantial uncertainties for the future of federal incentives for both wind and solar and the looming reality of MW limitations for wind & solar development before CREZ lines become congested, there is a compelling reason for Austin to consider substantial additions of clean resources by 2016. This effort should not be predicated on shutting down Decker.

Suggested substitution for Recommendation on page 16:
Austin Energy should target acquiring substantial additions of up to 600 MW of solar energy by 2016.

Future Resource Solicitations for Austin should be criteria driven, encourage creative solutions from a variety of sources, and seek long-term value for the local community. All demand and supply options should be consistently evaluated on the basis of Revenue Requirement impact.

2 Local Distributed Solar and Innovative Demand Side Options

If Austin strives for the cleanest, most affordable, lowest risk options through 2024, it is local demand side options, such as Automated DSM, demand response and rooftop solar. Although it challenges the utility industry status quo, this area is the most exciting and important impacting the electric industry today. Our Task Force should encourage Austin Energy to play a leadership role in facilitating these customer-friendly options.

Suggested recommendations, such as on page 22 (modifies Cyrus's suggestions):

Austin Energy should adopt the Local Solar Advisory Committee levels of 100 MW of distributed local solar and an additional commitment to 100 MWs of other local solar by 2020 as a minimum goal for Austin.

Austin should develop a comprehensive, long-term strategy to facilitate the deployment and use of local solar to the fullest extent that benefits the community.

3 GreenChoice / Voluntary programs:

AE should return to the guiding design principal of providing value to customers who select options that benefit the community. More broadly, the city should decide on the desired role of voluntary programs (e.g. community solar, behind the meter solar, EV & UPS storage, etc) which, if embraced and encouraged by AE, can become substantial and possibly the highest value resources per unit of revenue requirement investment for AE's customers.

Suggested addition for Recommendation on page 5:
Re-design GreenChoice and clarify the desired role of a broader set of voluntary utility programs to enhance affordability for all customers.

4 Storage:

I support the general concept but believe it should be more open ended (not specify a hard number) since the value of storage is closely linked to the composition of Austin's future portfolio. Areas that offer much promise include new programs that tap the capabilities of EV & UPS batteries, including any Tesla giga-factory that may be in our area. If Austin is able to think big enough, there likewise may be viable "storage" synergies where Austin Energy plays a role in electric mass transit and desalinization for water supply.

Suggested substitution for Recommendation on page 26, modifying Cyrus suggestion:
Austin Energy should develop a comprehensive strategy for the deployment and use of energy storage technologies, which may include options such as electric mass transit and desalinization for water supply, with a target of 200 MW of fast-response storage resources by 2024.

Austin should seek proposals and develop voluntary programs that encourage the use of distributed storage in the community such as batteries in electric vehicles (EV) and uninterruptible power supplies (UPS) .

5 Numbers:

The report, which had to be produced in a very short time window, would benefit from more analysis. I will save elaboration on this for a "member report". There are a few numerical items in today's draft I believe are erroneous. I have discussed some of these with Osborne and can identify them tomorrow as needed.

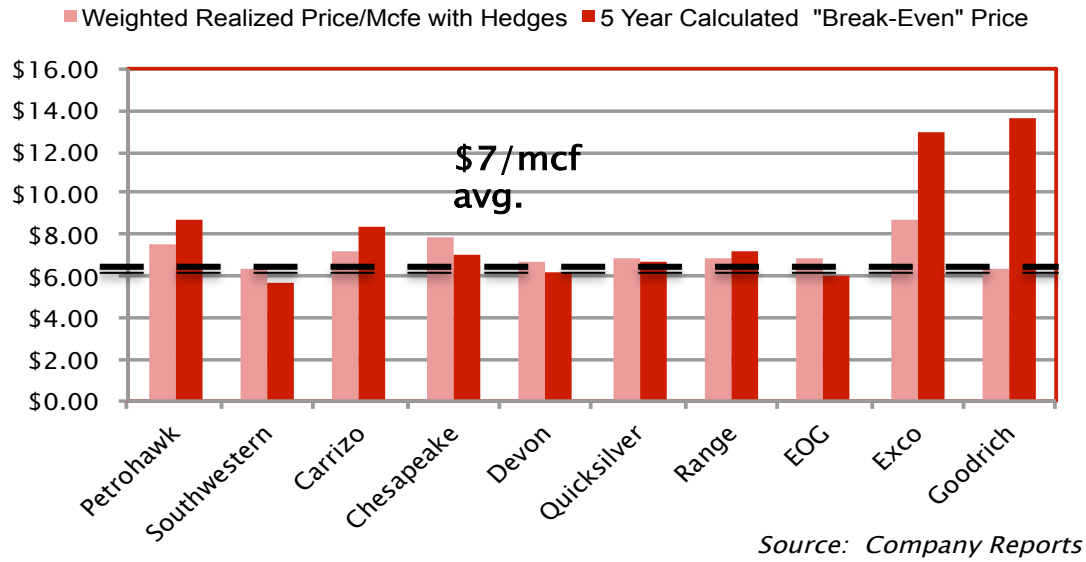
If more math is needed, a suggested Recommendation for page 24:

Austin should develop one or more simplified analyses that examine the long-term risks and benefits of different generation options to supplement the detailed scenario analysis conducted by Austin Energy.

CITIZEN INPUT (all Citizen Input resides on the web site)
http://www.austintexas.gov/cityclerk/boards_commissions/meetings/128_1.htm

Natural Gas Cost Understated: True Break-Even Price is $7.00/mcf

Selected Company 5 Year Imputed Production Costs/ Mcfe



Source: Company Reports

- Claims of profitability at less than $5.00/mscf are based largely on point-forward economics at odds with costs reported to SEC in 10-K filings—all sunk costs written off.
- Price must rise to meet the true break-even cost.
- Several executives recently said 6/mcf is a minimum threshold to justify more drilling.

Arthur Berman, Labyrinth Consulting Services, Inc.
Duke University Nicholas School of the Environment

7/9/2014

Members of the Task Force:

I sent you a detailed letter yesterday criticizing the Equity section of your draft report. As it stands, a number of its facts and recommendation are questionable.

Given the short time I have, I will name 6 revisions that are the most important. If I were you, I would take more time to get everything right. After all, its going to have your name on it.

1. Remove the specific income levels that define the "working poor." Trying to call a household making $95,000 a year the working poor would be funny if it weren't so embarrassing.

2. Remove the requirement for 10% of demand to be met by serving low and moderate income people. If you define this in terms of Austin's Free Weatherization program, it would result in a dramatic increase in global warming emissions. The 10% figure has been justified by convoluted comparisons between Austin Energy and other utilities that have much less aggressive goals.

3. Remove or alter the proposal for sliding scale rebates. This has a host of potential problems, and has probably not been vetted by the contractors, who are the major sales force for residential programs.

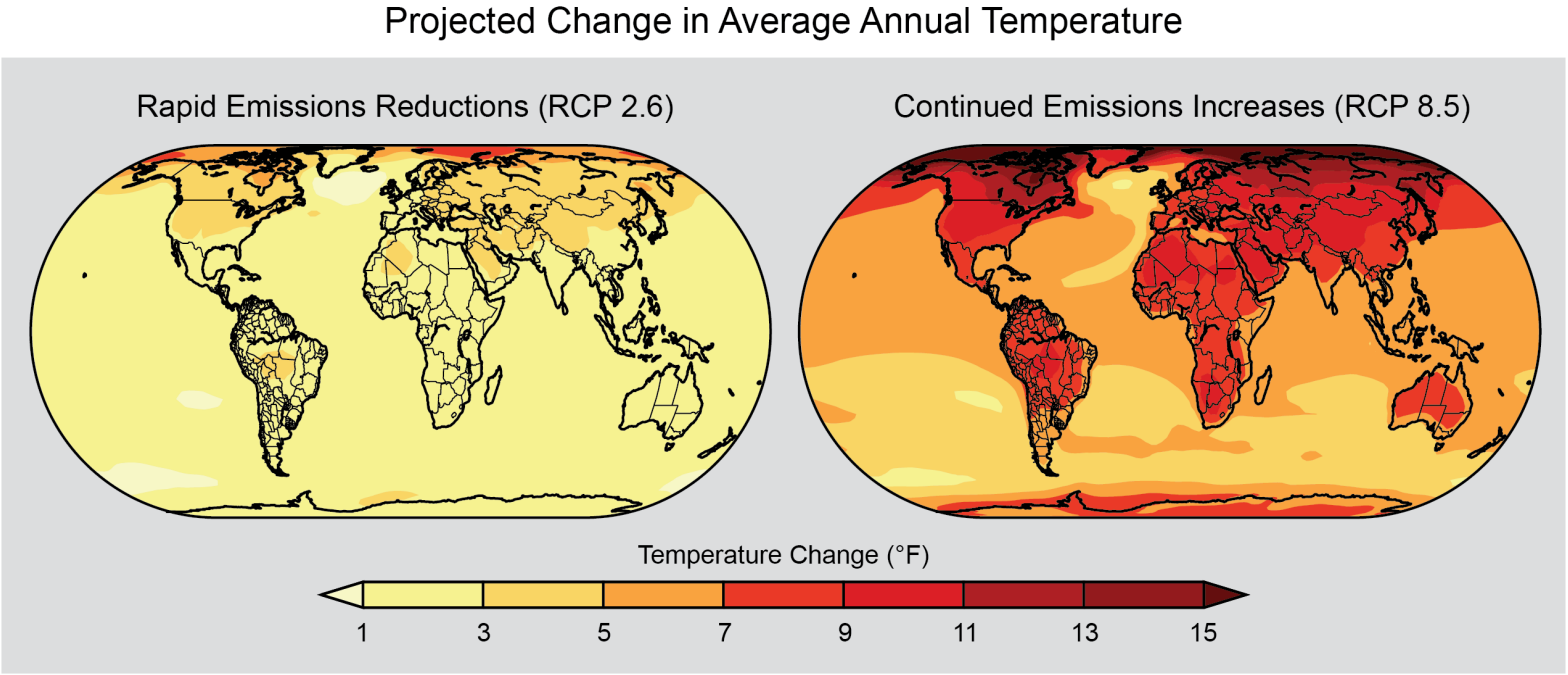
4. Insert a phrase that all new funding for low and moderate income programs above the current level of funding for Free Weatherization be cost effective for both participants and non-participants. Most economically disadvantaged ratepayers will never go through the Free Weatherization Program, and if the new program funding has a Benefit/Cost ratio of less than 1.0, they lose money.

5. Remove or alter language implying that residential programs besides Free Weatherization do not serve low and moderate income people. At this point, this assumption is not proven.

6. Remove the gratuitous dig about low performing low-income programs. On a historical basis, I do not believe this is the case. Personal grudges have no place in your report.

Paul Robbins

Which world will we leave our children?



Changes in average annual temperature 2071-2099 (compared to 1970-1999). Compares a low emissions scenario assuming we make rapid reductions in concentrations of heat-trapping gases vs a scenario with continued increases in emissions. Figure source: NOAA NCDC/CICS-NC)

Third National Climate Assessment, May 2014
U.S. Global Change Research Program