Austin Energy Resource, Generation and Climate Protection Plan to 2025: An Update of the 2020 Plan

INTRODUCTION

The Austin 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 to meet these objectives, which was approved by City Council in 2010 and further refined in 2011 by Council by adding affordability metrics. As part of that plan, Austin Energy committed to update it every two years.

In April of 2014, City Council passed Resolution No. 20140410-024 (2014 ACPP) that recognized the need to further accelerate the reduction of greenhouse gas emissions beyond the 2007 ACPP standards and set a goal of reaching net zero community-wide greenhouse gas emissions by 2050 preferring to achieve this goal sooner if feasible. Moreover, in April of 2014, the City Council appointed the 2014 Austin Generation Resource Planning Task Force to make recommendations on the utility's generation mix to 2025 and to further set the energy sector of the City of Austin on a glide path to achieve the emissions standards set forth in the 2014 ACPP. On July 9, 2014, the Task Force approved recommendations for updating the Plan. In August of 2014, City Council approved Resolution No. 20140828-157 and Resolution No. 20140828-158, which placed several Task Force recommendations into policy, subject to affordability metrics. Subsequently, based upon the same modeling used for resource planning analysis, Austin Energy performed an affordability analysis of implementing Resolution 157. It showed it would likely result in exceeding Council's affordability metrics and could cost utility customers $550 million above a business-as-usual case over the next 10 years.

On October 9, 2014, Austin Energy presented the results of its resource planning update, as scheduled, recommending the 500+ Plan, which included many of the Task Force recommendations, expanded renewable generation and replaced the Decker Creek Power Station's steam units with a highly efficient combined cycle gas turbine unit by 2018. The 500+ Plan showed that local generation is critical to maintaining affordability by providing revenues back to the utility and by moderating local electric market prices.

This document represents recommendations for a resource plan that makes further refinements to the 500+ Plan presented in October and brings together generation and energy demand management options over the planning horizon to the year 2025. Developing the Plan involved extensive analysis by Austin Energy of the expected costs, risks and opportunities to meet the future demand for electricity services by a highly skilled and experienced staff with the help of a calibrated and tested production cost model. The Plan outlined in this document is based on the current understanding of technology and of national, state and local energy policies. The recommendations developed by Austin Energy staff benefited from substantial input from citizens, customer groups, representatives of private industry, utility advisory commissions and the members of the Task Force.

The recommendations are designed to be flexible and dynamic. As the circumstances change, the City and Austin Energy will maintain flexibility to modify elements to respond to a range of factors, including economic conditions, customer load, fuel prices and power supply availability, infrastructure build-out, technological development, law and regulations, policy direction, rate structures and customer

needs. Therefore, the Plan will need to be adapted and modified to manage risk, maintain system and service reliability, achieve policy goals and meet customer demand for excellence in all aspects of service. As each significant implementation step is undertaken, Austin Energy's recommendations to the City Council must be supported by assessment of impacts on all customers and by charting the progress each step will make toward achieving the goals outlined in this Plan.

Austin Energy will review its progress and issue a report on performance against the Plan. Austin Energy should continue to reassess the Plan in a public forum every two years. Every major resource decision and Plan change will, as always, be taken before the City Council for review and authorization.

AUSTIN ENERGY'S MISSION

Outlined below is a description of how the Plan meets each element of Austin Energy's mission *to deliver clean, affordable, reliable energy and excellent customer service*. This Plan demonstrates that customers and the Greater Austin community can indeed expect equitable, economic and environmentally responsible electric services.

Clean. Austin Energy recommends significant actions to promote its clean energy goals by the beginning of 2025. The initial implementation strategy to achieve these goals involves retiring the older, natural gas-fired Decker steam units, replacing them with a new and highly efficient gas plant, along with further investments in local storage, demand response, wind and solar. This new asset will provide the revenue required to escalate the use of renewables, increase energy efficiency, shift load, and begin further investments in energy storage. The Plan also establishes a process for ending the use of coal by starting the retirement of Austin Energy's share of the Fayette Power Project by the end of 2022, contingent upon setting aside a fund to pay off the outstanding debt. The recommended plan will reduce emission rates of nitrogen oxides (NOx), sulfur dioxide (SO_2) and volatile organic compound (VOC) emissions, and contribute positively to compliance with national ambient clean air standards. Finally, by shifting demand, investing in energy efficiency and storage and increasing the use of renewable resources, water use is also reduced, which is of particular importance given climatic change and the availability of water in the Central Texas region.

Affordable. Austin Energy will strive to optimize rates and services in a responsible manner. A fundamental benchmark that will guide implementation of the Plan is affordability. Austin Energy must be financially sound, the cost of electric service must be affordable for all classes of customers (with particular attention to the low income and underserved customers), and rates must be competitive to ensure the retention and attraction of businesses for a strong local economy. As Austin Energy moves forward with implementation of the Plan, customer bills will be compared to those for similar customers in other major metropolitan areas, including, Houston, San Antonio, Dallas-Fort Worth and other areas within the Austin Metropolitan Statistical Area (MSA). The Plan will be subject to keeping overall rates from rising more than 2 percent per year and maintaining a competitive posture. Available data (rates, average monthly bills for residential, commercial and industrial, and other affordability/competitive benchmarks) will be included in Austin Energy's Annual Performance Report.

Reliable. Implementation of the Plan will be guided by power quality and reliability requirements to meet the needs of Austin Energy's current and prospective customers. In serving as a road map, the Plan will respond to system needs, changing technologies and market conditions to ensure consistent power quality and reliability. Transmission and distribution reliability goals will be targeted to meet or exceed

current goals. Power quality and reliability will continue to be detailed in the Annual Performance Report.

Excellent Customer Service. The implementation and ongoing review of the Resource, Generation and Climate Protection Plan to 2025 will be transparent. Through the Annual Performance Report, biennial Plan reassessment and an informed decision making process, the City Council and Austin Energy customers will be provided vital information detailing progress toward goals and any necessary Plan adjustments. The goal in implementing this Plan is to consistently demonstrate, to the highest degree possible, that proposed actions further Austin Energy's mission of providing clean, affordable and reliable energy. Individual programs that help meet those goals—including demand reduction programs and local solar programs—must have easily accessible information available to all Austin residents.

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PLAN SUMMARY

The following is a summary of the recommended 2025 Generation Plan which provides a path forward for the next 10 years.

The 2025 Generation Plan balances affordability and risk management by using revenues and capacity created by a new 500 MW highly efficient combined cycle plant investment to allow for the retirement of older fossil fuel generation and to support an increase in the amount of renewable energy to 55 percent of customer demand, as well as, investments in local storage and demand response by 2025. This combination offers the potential to provide additional headroom within the affordability metrics to expand other important programs if desired.

The Plan adopts and acts immediately on:

1- Commencing a third party economic and environmental review to replace the Decker steam units and Fayette Power Plant as described in Appendix A.
2- Supporting creation of a cash reserve fund for Fayette Power Project retirement. Reserves would be approved through the budgeting process and targeted to retire Austin's share of the plant beginning in 2022. Retiring Austin's portion of Fayette is contingent upon cash available to pay off debts and other costs associated with retirement while maintaining affordability.
3- Issuing a Request for Proposal for up to 600MW of utility scale solar to commence the process towards a generation portfolio consisting of 55 percent renewable energy.
4- Maintaining the current goal of 800 MW of energy efficiency and Demand Response by 2020, and adding an incremental 100 MW of Demand Response to achieve a total of at least 900 MW of Demand Side Management (DSM) by 2025.
5- Developing an implementation plan for distribution connected local storage of at least 10 MW complemented by as much as 20 MW of thermal storage.

The Plan also recommends the following contingent upon further study, technological development, progress towards goals and rate adjustments or restructuring:

1- An additional 100 MW of Demand Response or energy efficiency to increase the DSM achieved to 1000 MW by 2025.
2- Issuing an RFI for 170 MW of large scale storage such as Compressed Air Energy Storage.

The table below shows the projected resource mix and timing of the recommended 2025 Generation Plan.

Year	Coal	Nuclear	Gas	Local Storage	Demand Response	Demand Side Management	Biomass	Solar	Local Solar	Wind	% Renewables
2015	602	436	1,497				112		63.0[5]	1041	28%
2016								200[4]	13.0[6]	754[7]	51%
2017				1				150	6.0[6]	(91.5)[8]	54%
2018			(235)[3]	1					7.0[6]	(34.5)[8]	53%
2019				1					9.0[6]		53%
2020	(235)[1]			1	100 (cumulative)	700 (cumulative)		200[4]	12.0[6]		57%
2021				1	20				14.0[6]		56%
2022				1	20				16.0[6]		55%
2023	(367)[2]			1	20				18.0[6]	(165.6)[8]	56%
2024				1	20				20.0[6]		52%
2025				2	20			200[4]	22.0[6]		56%
Total Resources	**0**	**436**	**1262**	**10**	**200**	**700**	**112**	**750**	**200[9]**	**1503**	

Note:

1) Equivalent MW reduction of AE's share of Fayette to achieve 20% below 2005 CO_2 levels
2) Retirement of AE's share of Fayette at the end of 2023
3) Net of Retirement of Decker Steam Units and addition of 500 MW Combined Cycle
4) New utility scale solar additions
5) Existing and new local solar additions
6) Total local solar additions including community solar
7) Net of committed wind and new additional wind
8) Expirations of existing wind contracts
9) Additional 90 MWs of Local Solar by 2025 contingent upon affordability evaluation

Fossil Fuel Retirements

This Plan establishes an expectation to reduce carbon dioxide emissions by retiring inefficient fossil fuel plants, beginning with the steam units at the Decker Creek Power Station, and then Austin Energy's share of the Fayette coal-powered plant.

Subject to ERCOT processes, and needed transmission upgrades, this Plan establishes the expected retirement date for the 735 MW of steam units at Decker by the end of 2018.

It is important to note that the analysis shows that it is not feasible to retire the Decker units and Austin Energy's share of the Fayette units without a replacement source within the Austin Energy load zone, which is critical to remaining within the Council's affordability metrics. Decker does not produce a lot of energy or revenue on an annual basis, but it provides a hedge against high prices and has a dampening effect on local energy prices, thus reducing customer bills.

The Fayette Power Project provides roughly 25 percent of Austin Energy's current energy routinely at costs below market prices which produce revenues that reduce customer bills. Reducing and ending Austin Energy's use of coal is contingent on paying off the debt associated with environmental investments that Austin Energy has made in the plant. The 2025 Generation Plan continues to establish a ramp down in production in 2020 to achieve established carbon goals, and anticipates the retirement process in 2022, if funds are available. The recommended Plan will require the establishment of a cash reserve retirement account in advance of the retirement to be funded with available cash as part of the annual budgeting process.

Fossil Fuel Additions

The Plan would add 500 MW of additional gas units by the beginning of 2018 at the Sand Hill Energy Center or Decker. Austin Energy will issue an RFP to select a consultant with the expertise to analyze the ERCOT nodal market using a production cost model to perform an independent review of the 500 MW investment to fully report benefits and risks of this strategy.

Solar

Under the Plan, installed solar capacity would increase to at least 950 MW by 2025, including 200 MW of local solar. To ensure affordability, the Plan recommends implementing a phase down of the residential and commercial incentive programs to achieve the first 110 MW of the local solar goal by 2020, including at least 70 MW of customer-sited solar. Current projected cost declines of solar, technology improvements and financing alternatives and the implementation of supportive solar policies shall be utilized to enable the City to reach the 200 MW goal—including at least 100 MW of customer-sited local solar—by 2025 absent further incentives.

In February 2009, the Council approved a 25-year contract under which Austin Energy purchases the annual output of a 30 MW solar farm built near Webberville on utility property, which went into operation in 2012. In addition, the Plan assumes full build-out of the announced 150 MW of solar power currently contracted with Recurrent Energy that is expected to be online by 2016.

The Plan recommends a new RFP be issued by Austin Energy for up to 600 MW of utility-scale solar in 2015. Austin Energy will contract for up to this amount by 2017, if available and affordable. If not, Austin Energy will continue to pursue the 600 MW of additional utility-scale solar within the 2025 Generation Plan. These additions bring a combined total of 750 MW of utility-scale solar.

Nuclear

The proposed scenario recognizes current ownership levels in the South Texas Project and assumes the

plant continues to provide power through 2025 at Austin Energy's current ownership level.

Biomass

No additional biomass is anticipated in later years. A total of 100 MW of existing biomass-fueled generation is included. The Council has approved a 20-year contract through which Austin Energy purchases the annual output of a 100 MW wood chip-fueled biomass plant northwest of Nacogdoches, Texas.

Demand Response and Energy Efficiency

The projected peak demand takes into account an increase from 800 MW of energy efficiency and load shifting proposed by 2020 to 900 MW by 2025, including 100 MW of additional demand response. However, if affordable and available, Austin Energy would attempt to obtain more energy efficiency and demand reduction and obtain at least 800 MW of energy efficiency and 200 MW of demand response—for a total of 1000 MW—by 2025. Any demand response that is contracted by other parties in Austin Energy's service territory will also count towards the goals established by this plan.

Wind

Austin Energy will continue to be a leader in contracting and using wind energy. Under the 2025 Plan, Austin Energy will pursue additional wind energy PPAs and ownership opportunities. Austin Energy expects to contract a minimum of 450 MW of additional coastal and western wind resources to reach at least 55 percent renewable energy goal by 2025.

Storage

With the recommended Plan, Austin Energy sets in place a comprehensive strategy to become a leader in energy storage. The Plan contemplates Austin Energy will obtain at least 30 MW of local thermal and electrical storage by 2025. In addition, Austin Energy will review additional local and utility-scale storage opportunities.

Additional Objectives and Initiatives

Both the Resource and Climate Protection Plan to 2020 and the 2025 Plan update benefited from review by customers, the Electric Utility Commission, the Resource Management Commission and a Council-appointed Generation Resource Planning Task Force in 2009 and 2014.

Affordability & Due Diligence

1. Austin Energy and this updated Plan will continue to adhere to the affordability goal for rates and services for all classes of customers as approved by City Council in February of 2011.
2. Prior to taking action to acquire a generation resource of 10 MW or more, or an aggregate of 10 MW from a single program, and to the extent practicable and consistent with sound management and financial responsibility, Austin Energy will present such action for approval at least once to each applicable commission and twice to City Council.
3. Promote robust community involvement in revisions to the Austin Energy business model.
4. Ensure that future resource planning advisory or stakeholder groups include representatives of residential and low-income customer advocacy organizations.

Customer Assistance

5. Evaluate the potential to expand energy efficiency and weatherization programs for low income citizens.

Energy Efficiency

6. Continue to evaluate energy efficiency and demand response potential and, if viable and cost-effective, increase the energy efficiency and demand response goal to 1200 MW by 2025.

7. Continue to evaluate the potential for demand response and if viable and cost-effective, increase the demand response goal from 100 MW to 300 MW.

Renewables

8. Study the feasibility to achieve a 65 percent renewable energy goal by 2025.

9. Develop a comprehensive strategy for the deployment and use of local energy storage technologies, including assessment of compressed air energy storage.

Coal

10. Austin Energy will strive to retire its share of the Fayette Power Project as soon as legally, economically and technologically possible. While Austin Energy should continue to talk with LCRA about retiring Units 1 and 2 as soon as economically and technologically feasible, Austin Energy will explore negotiation with LCRA for control of one unit to chart a path toward an early retirement of Austin Energy's share of Fayette starting in 2022.

Natural Gas

11. Continually assess the long-term risk of natural gas price fluctuations.

12. Austin Energy should study methane emissions associated with gas production and delivery and best practices to prevent methane and hydrocarbon leaks in the gas fields.

13. Austin Energy and the City Council should support further regulations in gas fields to prevent leaks and vents of methane because of its severe impacts on climate disruption.

14. Conduct an analysis of the community economic development impact of Austin Energy generation facilities and planned replacements.

15. Conduct an analysis of the use of water by Austin Energy's generation facilities and its impact on the community.

Complementary Strategies

16. Continue work to transform Austin Energy's basic business model to address and integrate increased deployment of distributed energy resources, including distributed energy generation. Among the issues that Austin Energy will address on an on-going basis are unbundled rate structures, service offerings that rely less on volumetric pricing structures, rationalization of fuel charge-related costs, modifications to GreenChoice® product offerings and products and services demonstrated in the Pecan Street Project Energy Internet Demonstration Project. Work to reflect business model changes and opportunities in upcoming reviews of electric rates.

17. Continue active participation in the development and deployment of smart grid technologies, and continue with an active and leadership role in the Pecan Street Project and other partnerships.

18. Continue, and as appropriate, expand efforts to increase electric vehicle utilization and facilitate integration of electric vehicles in the utility service area, and, as able, utilize these vehicles as a valid distributed storage technology.