



MEMORANDUM

TO: Mayor and Council Members

CC: Marc Ott, City Manager

FROM: Roger Duncan, General Manager

DATE: August 17, 2009

SUBJECT: Recommendation for the Resource and Climate Protection Plan

I am pleased to present you with the Austin Energy Recommendation for the Resource and Climate Protection Plan to 2020. The Plan presents a bold and achievable enhancement to the Austin City Council's strategic guidance to the utility over the last several years, while directly meeting new challenges and seizing new opportunities. The economic, financial, technological, regulatory, and social characteristics of the environment in which we continue to provide world-class electric services to the people of our community are constantly evolving. From this context of change, we now discern the emergence of clear patterns that will shape our future, hence, the need for this update to our Plan. More detail is provided below, but several key themes characterize this Plan:

- **Responsible:** Climate change legislation is coming to the United States, with the assured result of major changes in our economy and the electric services industry. This Plan addresses that reality head on, reducing direct emissions to 20% below 2005 emissions—a level safely lower than our best current estimates for what regulation will require.
- **Smart:** Energy efficiency is our least cost, most robust resource for meeting demand for electric service. The Plan starts with a strengthened commitment to making Austin's home buildings and businesses more energy efficient—800 MW of demand reduction by 2020. In essence, all forecasted growth in residential and commercial demand is met with energy efficiency resource investments over the planning horizon.
- **Renewable:** Austin Energy has long been a leader in putting clean, secure renewable energy to work for the benefit of our community. Over the planning horizon, expected technological and cost improvements in solar, wind, and other renewable energy technologies will enable Austin Energy to set a new, more aggressive goal of obtaining 35% of our energy from these resources, including 1,000 MW of wind generation and a doubling of our commitment to solar energy.
- **Water Conscious:** Water availability for power plant cooling is an increasingly important concern facing the electric industry. The Plan's increasing reliance on energy efficiency

and renewable energy generation technologies like wind and solar means improvements in Austin Energy's total water use and the intensity of its water use. Total water use will decrease by 1 billion gallons by 2020. Water intensity (water used per unit of energy produced) will improve by 20% over the same period.

- **Reliable:** Electric service is a basic need for life in modern society. The Plan builds on an Austin Energy tradition of providing safe and reliable electric service from a diverse mix of coal, natural gas, nuclear, and other generation resources over a well-maintained, efficient grid network. We will continue to operate these plants and systems in a safe, efficient manner and deliver outstanding service over the Austin Energy grid. As we introduce more renewable energy into the system, we will reduce our dependence on carbon-intensive sources of generation, including the Fayette Power Plant and older gas-fired generation units. The Plan calls for essential expansion of our natural gas generation capacity with new, more efficient units, and the system will be enhanced through deployment of cutting edge smart grid technologies.
- **Affordable:** Regardless of the course of action, our analysis shows that the price customers must pay for reliable electric service will rise over the coming years. The Plan will enable us to deliver cleaner, more efficient, more advanced and more reliable electric service at an average increase of some 2% per year. Under the Austin Energy recommendation, the average residential bill will be about \$21 higher each month in the year 2020.

The Austin Energy Recommendation for the Resource and Climate Protection Plan to 2020 benefits from an unprecedented level of public and stakeholder engagement. Over the course of the last year, we have held dozens of meetings, answered hundreds of questions, shared reams of data and analysis, reviewed hundreds of survey submissions, shared information with thousands of web site visitors, and reviewed a dozen alternative plan scenarios recommended by energy experts and stakeholders. We have used detailed and expensive production cost modeling to enable "apples to apples" comparisons of scenario alternatives across a wide range of metrics. The Austin Energy Recommendation, while it most assuredly will not please every point of view, has certainly benefited from the committed engagement of hundreds of Austin residents and stakeholders.

My staff and I are justifiably proud of the results of our work over the past year. Still, there is more work to be done. We have identified the need for the development of subsidiary and associated plans to address a few issues. We believe the time has come to develop a comprehensive plan to harvest all the rooftop solar energy potential in our city, and the associated manufacturing, installation, and operations economic development and jobs benefits that come along with such a commitment. We need to update our detailed understanding of the energy efficiency potential in our city, including that within the transmission and distribution system itself, and to move aggressively to implement buildings codes and innovative rate designs. And we need to develop a comprehensive strategy around energy storage, especially in a system more heavily dependent on variable renewable energy resources.

We are confident that prompt and efficient execution of this Plan will deliver broad and lasting benefits to the people of Austin. The Plan establishes the electric services foundation for achieving Austin's vision of being the most livable city in the nation while meeting best management goals. It builds for the future while maintaining a solid and continuously improving

record of safe, reliable, and affordable delivery of electric services to support communities, government, and commerce. Increasing reliance on efficiency and renewables will make Austin's energy mix substantially greener, and can only be accomplished by all city departments and citizens pulling together. The Plan and the business model changes it addresses keep Austin Energy on a healthy financial footing, minimizing the risk associated with regulatory change while optimizing the utilization of advanced and emerging technologies. The Plan was developed by engaging the entire community and will be updated in coming years in the same open and transparent fashion. We ask for your approval and guidance on our movement forward.

An Executive Summary and a detailed presentation are attached. If you have any questions, please do not hesitate to contact me at 322-6157.

A handwritten signature in black ink, appearing to be 'RD', with a long horizontal flourish extending to the right.

Roger Duncan
General Manager



Executive Summary

Austin Energy Resource and Climate Protection Plan to 2020

The City Council established strategic energy policy for Austin Energy through its adoption of a strategic plan in 2003, and adoption of the Austin Climate Protection Plan (ACPP) in 2007. A key element of this policy framework is to reduce Austin Energy greenhouse gas emissions by offsetting the need for a 700 MW power plant by 2020 through energy efficiency, acquiring renewable resources (including 100 MW of solar) to deliver at least 30% of energy provided by 2020, and taking steps that allow the utility to become carbon neutral over time. These Council goals, while ambitious, are typical of those now being established by cities across the country. More importantly, they underscore the desire of our community to be a leader in these areas.

This past year, in planning future generation needs, Austin Energy developed a preliminary resource plan designed to ensure an adequate power supply through 2020 and meet the climate protection goals set by Council at a reasonable cost. A Public Participation Process was launched in October 2008 to seek feedback on the proposed generation plan as well as various options to that plan. This continuing process has included eight Town Hall meetings and 12 meetings with stakeholder groups, most notably large commercial and industrial customers and the environmental community. The plan options are also under review by a Council-appointed task force. In addition, Austin Energy has employed outside consultants to provide a cost and risk assessment of the various plan scenarios.

The Public Participation Process continues through September with additional Town Hall and stakeholder meetings as well as deliberations by the Austin Generation Resource Planning Task Force, Electric Utility Commission (EUC) and the Resource Management Commission (RMC). Austin Energy has developed a staff recommendation for review during this final phase of the Public Participation Process. We believe this recommendation will maximize the potential of energy efficiency gains and renewable resources, while balancing cost with a long-term reduction in carbon emissions.

The components of the staff recommendation are as follows:

Energy Efficiency

Increase peak demand reductions through energy efficiency and load shifting from 700 MW to 800 MW by 2020. Energy efficiency and load shifting are the least expensive way to address growth in peak energy use. On average, Austin Energy spends about \$350 per kilowatt (kW) of peak energy demand saved, a level far below the construction and operating cost of any type of new generation. Austin Energy's experience as well as the experience of numerous states shows that efficiency improvements on average costs about 3 cents per lifecycle (LCC) kilowatt-hour saved compared to about 7 cents to over 13 cents per kilowatt-hour for conventional electricity generation.

Between 1982 and 2003, Austin Energy customers offset the need for about 600 MW of peak demand through energy efficiency programs. Since 2005, our programs have offset

an additional 236 MW of peak demand, an average of 59 MW per year. Over the next decade Austin Energy's efficiency programs will increasingly be targeted to reducing climate impacts while increasing market penetration and reach. Austin Energy predicts that 800 MW by 2020 is achievable due to the following:

- City of Austin building code enhancements
- Energy Conservation and Audit Disclosure Ordinance
- Enhanced federal tax credits, Austin Energy/Texas Gas Service residential rebates
- Stimulus/other funding for home weatherization and municipal building efficiency improvements
- Enhanced efficiency/load shifting targeting of small businesses and commercial customers and increasing participation
- Thermostat cycling program (largest of its type in nation)
- Voluntary curtailment programs
- Ongoing development of Austin Energy's smart meter / smart grid infrastructure

Renewables

Increase from 30% to 35%, the percentage of power provided through renewable resources by 2020. Currently about 12% of the energy provided by Austin Energy is delivered from renewable resources. This figure is projected to increase to 13% when the 30 MW solar facility at Webberville goes on line at the end of 2010 and to 17% when the 100 MW biomass plant in east Texas goes on line in 2012. Austin Energy recommends the 35% goal based on the following actions:

- Increase wind capacity from the current 439 MW to 1,001 MW by 2020 through a combination of purchase power agreements and ownership, facilitated by transmission build out in West Texas.
- Increase solar capacity from 100 MW goal to 200 MW through the following:
 - Develop a portfolio of approaches for siting and financing solar.
 - A recent study funded by Department of Energy shows that rooftops within the Austin Energy service area are capable of accommodating 2,300 MW of solar capacity equivalent to 27% of current load; ground-mounted solar potential adds 1,700 MW.
 - Create a plan to develop all of Austin's solar energy generation potential, including incentives and strategies to attract local solar manufacturing with the associated economic development and jobs benefits.
 - The Pecan Street Project provides a vehicle for expanded use of distributed energy resources, smart grid technology, advanced vehicle concepts and other opportunities.
 - Develop joint solar/wind projects for transmission optimization
- Develop an energy storage capability for wind and energy storage capability for solar-generated power.
- Add 50 MW of biomass reflecting the limited nature of this resource in Texas.

Natural Gas

Expand the Sand Hill Energy Center (SHEC) by 200 MW of combined-cycle gas generation and maintain existing natural gas generation resources. New natural gas

discoveries and extraction technology have increased natural gas supplies.

Considerations:

- Infrastructure for SHEC expansion already in place
- Expansion of plant provides balancing services for intermittent renewables
- More efficient unit will generate fuel savings of approximately \$130 million by 2020
- More efficient unit will provide CO₂ savings of approximately 1 million tonnes by 2020
- Will utilize reclaimed water for cooling

Nuclear

Continue current participation in South Texas Project (STP), Units 1 and 2.

- As previously approved by City Council, no participation in Units 3 and 4
- Evaluate nuclear purchase power agreements offered

Coal

Goals related to renewables, energy efficiency and efficient natural gas should reduce capacity factor of Austin Energy-owned share of the Fayette Power Plant (FPP) to 60% by 2020, setting the stage for eventual sale or other disposition of Austin's share of the plant.

- Investigating with LCRA, the feasibility of co-firing the FPP with biomass or natural gas.
- Will complete installation of scrubbers on Units 1 and 2 to reduce SO₂ and investigate feasibility of additional NO_x reductions as well as carbon capture.

Considerations:

- LCRA has options to utilize Austin Energy-owned FPP capacity if unused by Austin Energy
- ERCOT can dispatch all power plants for grid reliability
- New nodal market design may impact plant operations
- ERCOT and LCRA must sign off on any plant closure
- Austin Energy may forgo off-system sales revenues under this course of action
- Purchase of CO₂ allowances or offsets may be less expensive alternative depending on expected federal legislation

CO₂ Plan

Reduce CO₂ emissions associated with generation to 20% below 2005 levels by 2020.

Can be achieved through proposed resource plan of additional renewables, energy efficiency and new more efficient gas generation:

Water Use

The Austin Energy recommended plan would reduce water use intensity by 20% from 724 gallons/kilowatt-hour (kWh) to 574 gallons/kWh. Water use by Austin Energy generation is currently 7 billion gallons annually. With implementation of this recommended plan, water use in 2020 is estimated at 6 billion gallons:

- Energy efficiency, solar PV, wind require no water
- Biomass, geothermal, solar thermal require water

- Natural gas units use reclaimed water
- Reduced capacity factor at FPP reduces water use

Cost

Pace Consulting Group analyzed 10 generation plan scenarios suggested through the Public Participation Process in addition to the original Austin Energy “strawman” proposal. The added cost of generation under these scenarios ranged from zero to as much as a 35% increase in average monthly residential electric bills under the most costly proposal by 2020.

The Austin Energy staff recommendation would increase residential electric bills by about 22% (\$21 on a monthly bill by 2020), placing this recommendation at about the halfway point of cost estimates – while achieving all goals and positioning the utility favorably for upcoming federal requirements related to carbon emissions.

Business Model

Changes in the business environment, increases in overall costs, and Austin’s energy supply transformation, as well as other factors, will require an updated business model. A new business model is necessary to ensure that Austin Energy collects sufficient revenues to maintain and operate its infrastructure, as well as the ability to implement technological advancement in areas such as smart grid development. Establishing the new business model will involve:

- Unbundling the rate structure to give Austin Energy the flexibility to design competitive tariffs and service offerings to meet the demands of a rapidly evolving electric services marketplace.
- Reviewing and resetting rates to address revenue erosion, new operational costs, and the demand for increased capital investment, through a rate case in 2012, resulting in new electric rates in FY2013.
- Addressing the fuel-related contribution to the General Fund transfer.

Vetting of these Recommendations

Austin Energy’s recommendations will be presented and feedback sought from the EUC, the RMC, and the Council-appointed Austin Generation Resource Planning Task Force, from Austin Energy customers during a Town Hall meeting on September 1 and large companies and environmentalists at a stakeholder meeting in September. Finally, a public hearing at the October 15 City Council meeting is being scheduled. Attached is a comprehensive presentation. Please let me know if you have any questions as we move through this process.



Roger Duncan
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