



Austin Energy Resource, Generation, and Climate Protection Plan to 2020

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 this Resource, Generation, and Climate Protection Plan to 2020 (the Plan) to meet these objectives.

This document is a resource planning tool that brings together demand and energy management options over the planning horizon. Developing the Plan involved extensive analysis of the expected risks, costs, and opportunities to meet the future demand for electricity services. The goals outlined in this document are based on Austin Energy's current understanding of technology and of national, state and local energy policies. The Plan also benefited from substantial input from citizens, customer groups, utility advisory commissions and a Council appointed Taskforce. Much of this input is included under the "Additional Objectives and Initiatives" section of the Plan.

This Plan is designed to be flexible and dynamic. As circumstances change, the City must maintain the flexibility to modify elements to respond to a range of factors, including economic conditions, customer load, fuel prices and availability, infrastructure build-out, technological development, law and regulations, policy direction, and customer needs. Therefore, as conditions change, the Plan will 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 through contracts, purchases or other arrangements, Austin Energy's recommendations to the City Council will 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 the Plan annually and issue a report on performance against goals. An example of the format and kind of data that will be provided in these Annual Reports is included as Exhibit A. Austin Energy will 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 our community can indeed expect equitable, economic, and environmentally responsible electric services.

Clean. The Plan establishes clean energy goals to meet by 2020. The initial implementation strategy to achieve these goals is to escalate the use of renewables, increase energy efficiency, and load shifting. This will reduce current and future reliance on fossil fuel generation to meet Austin Energy customer load and will reduce CO₂ to better position the utility regarding probable future federal requirements. The Plan would also reduce nitrogen oxide (NO_x) and volatile organic compound (VOC) emissions, to help keep Austin in compliance with national ambient clean air standards.

Affordable. Austin Energy strives 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 disadvantaged), and rates must be competitive to ensure the retention and attraction of businesses for a strong local economy. As the City 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 MSA. An appropriate affordability measure will be established for each customer class in the upcoming financial analysis. Available data (rates, average monthly bills for residential, commercial, and industrial, and other affordability benchmarks) will be included in Austin Energy's Annual Report. Austin Energy will develop and adopt an affordability goal for rates and services for all classes of customers by no later than December 31, 2010 and prior to any new major resource acquisition of 10 MW or more or an aggregate of 10 MW from a single program.

Reliable. Implementation of the proposed plan will be guided by power quality and reliability requirements to meet the needs of our community. In serving as a road map, the recommended 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 history will be detailed in the Annual Report.

Excellent Customer Service. The process for implementation and ongoing review of the Resource, Generation, and Climate Protection Plan to 2020 will be transparent. Through the Annual Report, biennial Plan reassessment, and 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 the implementation of this Plan is to consistently demonstrate that proposed actions, to the highest degree possible, meet the goal of providing clean, affordable, and reliable energy.

GOALS SUMMARY

Austin Energy adopts the following changes and additions to its current resource planning goals, with a target of meeting these goals by 2020:

- Increase the energy efficiency goal from 700 MW to 800 MW
- Increase the renewable energy goal from 30% to 35%
- Increase the solar component of the renewable energy goal from 100 MW to 200 MW
- Establish a CO₂ reduction goal of 20% below 2005 level

Figure 1 shows a scenario developed and presented by Austin Energy during the public participation and Task Force discussions that demonstrates the type and pace of investments that may be followed in meeting these goals. Specific resource investments will be evaluated continually by Austin Energy, reinforcing that the plan is adaptable to changing legal/regulatory, market, and economic conditions. As explained further in this plan, however, each individual investment will be considered by the Council and subject to public review.

Austin Energy Recommendation						
Generation Resources in MW						
Year	Coal/Nuclear	Gas	Biomass	Wind	Solar	Renewable Energy %
2009	1,029	1,444	12	439	1	10%
2010		100			30	10%
2011				(77)* 200		15%
2012			100			17%
2013				150		25%
2014					30	25%
2015		200		100		28%
2016			50		20	30%
2017				(126)* 200	30	33%
2018					20	32%
2019					30	32%
2020				115	40	35%
Total	1,029	1,744	162	1,001	201	

* Wind contracts expire.

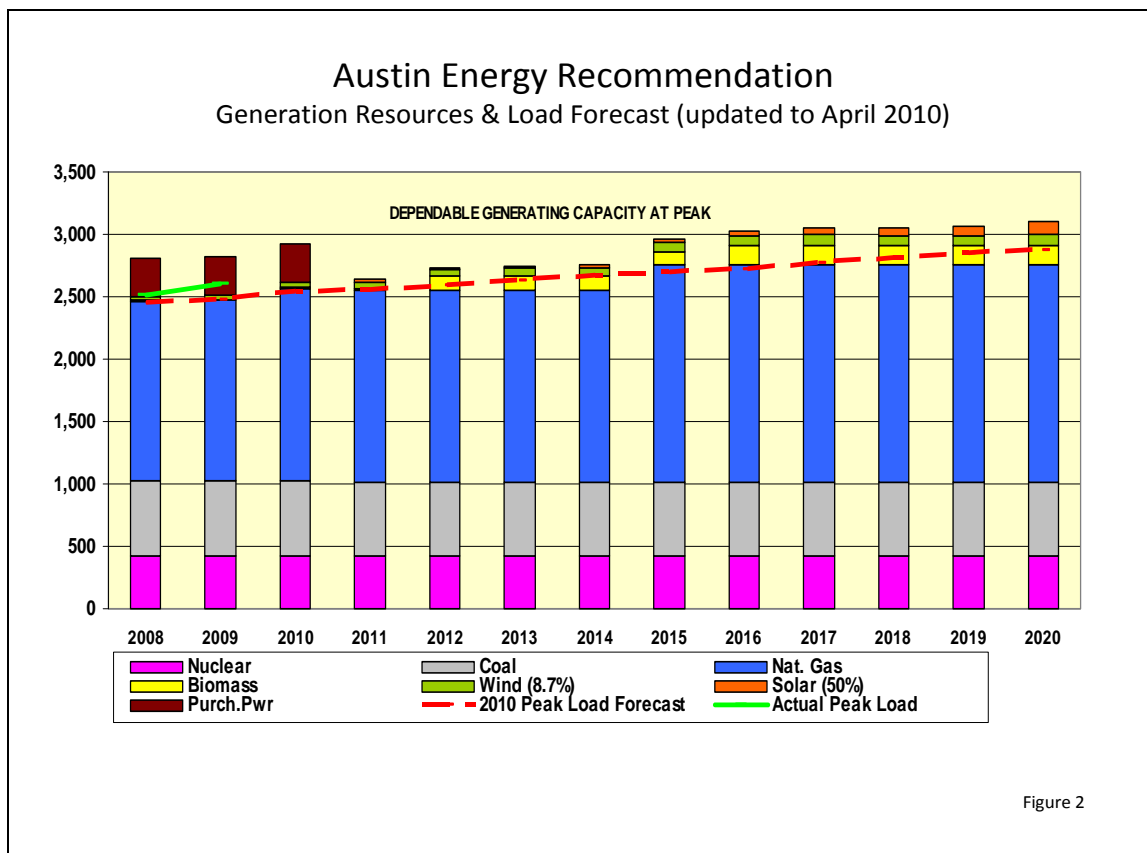
Figure 1

Coal/Nuclear. The Plan (Figure 1) recognizes current ownership levels in the South Texas Project (STP) and the Fayette Power Plant (FPP). Plan implementation would effectively reduce by about 24% the amount of energy Austin Energy receives from the FPP by 2020 to meet customer load. That reduction figures prominently in the Austin Energy goal to reduce its greenhouse gas emissions within the planning horizon by 20% from 2005 levels.

Natural gas. The proposed plan calls for the build out of the gas-fueled Sand Hill Energy Center to add 200 megawatts of combined cycle capacity. This is in addition to the installation underway of 100 MW of peaking units at the facility. That installation began last year and is expected to be completed by this summer.

Biomass. A total of 150 MW of biomass-fueled generation is projected to be developed. The Council has approved a 20-year contract through which Austin Energy will purchase the annual output of a 100 MW wood chip-fueled biomass plant currently under construction 10 miles northwest of Nacogdoches, Texas. The plant is being built by a Southern Company subsidiary and is expected to go online in 2012. An additional 50 MW of biomass is anticipated in later years.

Wind. The majority of the Austin Energy renewables goal will be met through wind-generated power. As an early adopter of wind energy resources, Austin Energy now has wind contracts for about 200 MW of wind capacity that will expire by 2020. The proposed Plan calls for total wind capacity by 2020 of 1,000 MW.



Solar. Installed solar capacity will increase from 100 MW to 200 MW by 2020. In February 2009, the Council approved a 25-year contract under which Austin Energy will purchase the annual output of a 30 MW solar farm to be built near Webberville on Austin Energy property. That project being built by Gemini Solar Development Company, is expected to be on line by 2011 and will be one of the nation’s largest solar projects.

Plan implementation (Figure 2) will provide a reserve versus projected peak demand through 2020. The projected peak demand, represented by the dotted red line, also takes into account an increase from 700 to 800 MW of energy efficiency and load shifting proposed by 2020.

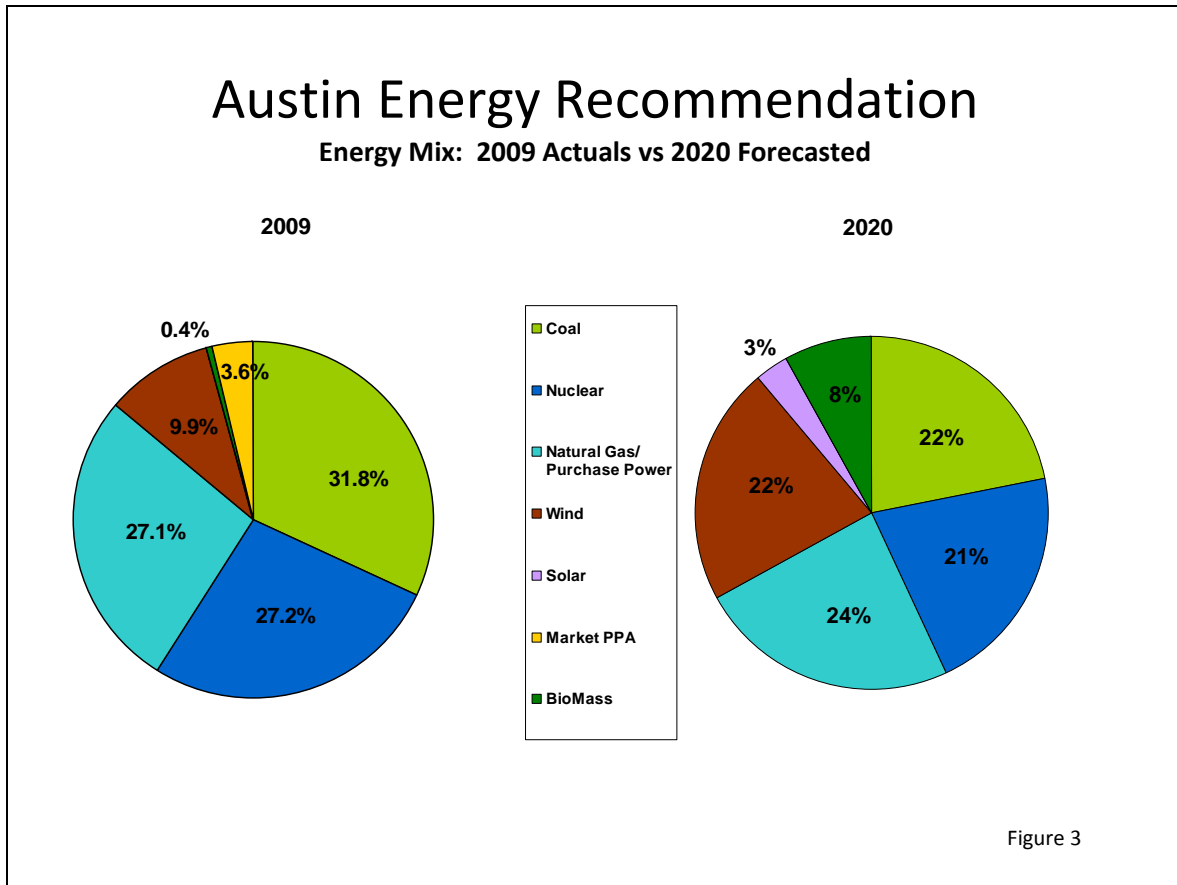


Figure 3

The generation mix by fuel type (Figure 3) that would result from Plan implementation reflects a decrease in natural gas use from about 30% today to 24% in 2020; 8% of power generated by biomass, 3% by solar with a drop in coal-generated power from 32% to 22% and a drop in the percentage of nuclear-generated power from 25% to 21%.

Additional Objectives and Initiatives

Austin Energy’s Resource and Climate Protection Plan benefited from review by customers, the City of Austin Electric Utility Commission, the City of Austin Resource Management Commission, and the Council Appointed Generation Resource Planning Task Force. Following

is a summary of this input. The status of each objective is listed as either “underway” (signifying that Austin Energy is already working toward accomplishing the initiative or is ready to launch) or “to be studied” (signifying work has not yet begun).

Affordability & Due Diligence

1. Develop and adopt an affordability goal for rates and services for all classes of customers by no later than December 31, 2010 and prior to any new major resource acquisition of 10 MW or more or an aggregate of 10 MW from a single program. (underway)
2. Work with stakeholders to develop a framework through which the utility will distribute information and receive feedback on each proposed future investment from Request For Proposal (RFP)/Bid development to delivery of a project recommendation for Council approval. This process will include provision of information sufficient to allow meaningful input from stakeholders over the planning horizon up through and in advance of the approval process for the Electric Utility Commission, Resource Management Commission, and City Council. (underway)
3. 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, present such action for approval at least once to each applicable commission and twice to City Council. (underway)
4. Promote robust community involvement in revisions to the Austin Energy business model. (underway)
5. Assist in Electric Utility Commission (EUC) hearings regarding whether the current ordinance defining what information Austin Energy considers competitive and therefore confidential should be amended. In addition to addressing specific stakeholder questions, the hearings will include a review of each item in the Competitive Matters ordinance to validate rationale for that item’s inclusion moving forward. A key test should be whether similar information is made available by other U.S. public power utilities. (underway)
6. Ensure that any future resource planning advisory or stakeholder groups include representatives of residential and low income customer advocacy organizations. (underway)

Customer Assistance

7. Evaluate the potential to expand energy efficiency and weatherization programs for low income citizens and explore the feasibility of providing these services to those with incomes at or below up to 400 percent of the federal poverty guideline. (underway)
8. Conduct a study to determine income levels, energy burden and population sizes for residential customers with household incomes up to 400 percent of the federal poverty guideline. (to be studied)

9. Develop a neighborhood-by-neighborhood approach for low-income energy efficiency program delivery where such an approach offers an opportunity to improve program delivery effectiveness, fairness, and efficiency and identifying and assisting the most energy intensive low income neighborhoods. (underway)

10. Evaluate the potential to establish distributed resource incentive programs tailored to low and medium income customers and identify available funding mechanisms to help offset the cost of such incentives. (to be studied)

11. Continue to design and implement programs that target and reach residential energy efficiency opportunities in residential rental living spaces. (to be studied)

Energy Efficiency

12. Energy efficiency will be the first priority in meeting new load growth. (underway)

13. Conduct an energy efficiency potential study and, if viable and cost effective, increase the energy efficiency goal from 800 MW to 1,000 MW. (to be studied)

14. Regularly review the maximum investments and incentives offered for energy efficiency-related customer improvements and make adjustments as appropriate to encourage customer participation, while ensuring fiscal responsibility. (underway)

15. Study the capability of increasing the maximum investment per KW or kWh of savings that Austin Energy is willing to make in customer improvements and increase or eliminate the cap for Austin Energy investment in individual customer improvements that both reduce peak and total demand for energy, so long as such investment is financially sound and not unduly risky. (underway)

16. Continue to explore and, as appropriate, implement innovative rate design changes for energy efficiency. (underway)

17. Investigate and, as appropriate, establish innovative methods for enhancing the cost-effectiveness of energy efficiency program delivery, including but not limited to, auction systems. (underway)

18. Continue to analyze and report on impacts and opportunities resulting from the Energy Conservation and Audit Disclosure (ECAD) Ordinance and make recommendations to the Council on improvements or modifications to the ordinance as may be warranted. (underway)

19. Develop, market and implement energy efficiency and conservation programs to convert the existing housing stock as nearly as possible to zero net energy capability. (underway)

20. Continue to develop for implementation, building code changes that progress toward achieving a Zero Energy Capable Homes standard by 2015. (underway)

21. Consider initiating a pilot project to measure and communicate to owners and tenants of rental properties the benefits of energy efficiency upgrades in rental housing, and the utilization of the results of the pilot to develop a program that will realize energy efficiency savings potential in both commercial and rental property, as warranted by the results of a comprehensive energy efficiency potential study. (to be studied)
22. Assess development of an auction system for a portion of Austin Energy's commercial efficiency and conservation programs targeted to obtaining the greatest DSM savings per dollar invested by Austin Energy. (to be studied)
23. Establish a system for the examination and vetting of new energy efficiency ideas and programs submitted from within the community or by industry experts. (to be studied)
24. Enhance existing and, as appropriate, establish new channels for obtaining and evaluating customer and stakeholder proposals for new or modified energy efficiency programs. (underway)
25. Continue to take a leadership role in evaluating, developing, and implementing renewables and energy efficiency programs under Texas House Bill 1937, which allows for innovative financing. (underway)
26. Develop a plan for distribution system efficiency improvements. (to be studied)
27. Examine the potential for refocusing energy efficiency programs to target base load efficiency programs that reduce carbon emissions. (underway)

Renewables

28. Undertake a comprehensive assessment of non-solar renewable energy resource options in the utility's service territory. (to be studied)

Wind

29. Seek to develop ownership rights in wind generation resources where this approach offers benefits over purchased power arrangements. (underway)
30. Develop a comprehensive strategy for the deployment and use of energy storage technologies including assessment of compressed air energy storage in order to effectively improve the value of wind energy generation. (to be studied)
31. Continue to explore non-traditional wind energy deployment options, including small- or community-scale wind farms, hybrid wind/solar generation facilities, and hybrid wind/storage projects. (underway)

32. Continue to support development of increased transmission capacity in the Electric Reliability Council of Texas where such development offers economic and operational benefits to Austin Energy. (underway)

Solar

33. Develop a portfolio approach to solar energy generation facility siting, financing and ownership. (underway)

34. Continue to develop and improve incentives and strategies aimed at increasing local solar energy technology manufacturing capacity. (to be studied)

35. Develop a plan for the development of the full potential for solar energy generation and conversion in the utility service territory.(to be studied)

36. Study and report on the potential for establishing a distributed renewable energy goal and an associated distributed renewable energy generation development plan. (to be studied)

37. Monitor and report on the development of the distributed renewable energy generation sector in Austin, including projects developed independently of Austin Energy program support. (to be studied)

38. Continue promotion of solar thermal hot water use. (underway)

Biomass

39. Study the opportunity to develop small scale biomass energy generation systems in and near the utility service territory. (to be studied)

Other Generation Resources

Coal

40. The expected impact of the proposed Resource & Climate Protection Plan is a reduction in the average annual capacity factor needed to serve AE's load from the Fayette Power Plant (FPP) to about 64%. Periodically review the plan with the target of accelerating the phase down and toward eventual closure of FPP by 2020, if economically and technologically feasible. This review will include an assessment of the following: (to be studied)

- revenue and operational savings from potential sale of the plant
- carbon reduction impacts and value upon closure
- projected revenues from wholesale market sales in ERCOT
- impact of criteria pollutant emissions on the potential for the Austin area falling into non-attainment with federal clean air standards and attendant costs

41. Evaluate whether generating revenue for the City through carbon-based “off-system” sales is consistent with the Austin Climate Protection Plan. (to be studied)

42. Continue to investigate and where appropriate, implement technologies and programs that result in NOx emissions reductions and capture and storage of CO₂ emissions associated with the Fayette Power Plant. (underway in part, capture and storage of CO₂ to be studied)

43. Continue to investigate the potential for biomass co-firing at the Fayette Power Plant. (underway)

Natural Gas

44. Continue with plans to add 200 MW of new combined-cycle gas-fired generation at the Sand Hill facility in order to realize fuel cost savings and carbon emissions reductions. (underway)

45. Continually assess whether the long term risk of natural gas price fluctuations has been sufficiently minimized due to shale gas or other factors that, subject to compliance with environmental regulations and goals, natural gas generation capacity should be substituted for other resources in order to substantially reduce costs. (underway)

46. Expand systems for utilization of reclaimed water for cooling generation equipment at the Sand Hill facility. (to be studied)

Nuclear

47. Continue participation in the operation and ownership of STP Units 1 and 2; Austin Energy will not participate in proposed STP Units 3 and 4. (underway)

48. Evaluate any cost-effective offers of power from nuclear energy facilities through purchased power agreements. (to be studied)

Other

49. Conduct an analysis of the community economic development impact of Austin Energy generation facilities and planned expansion. (to be studied)

50. Conduct an analysis of the use of water by Austin Energy’s generation facilities and its impact on the community. (to be studied)

51. Conduct a combined heat and power potential study. (to be studied)

52. Continue to investigate geothermal generation resource acquisitions. (to be studied)

CO₂ Reduction Goals

53. As an outcome of this Plan or at such time as a federal carbon cap is approved, Austin Energy will adopt a CO₂ cap consistent with the City Council's evolving guidance on the Plan. (to be studied)

54. Facilitate public participation and reassess the Resource and Climate Protection Plan at appropriate intervals to the extent practicable. (underway)

55. Attempt to substitute low- or zero-carbon emissions generation resources for carbon-emitting resources whenever such substitution is also consistent with the achievement of economic, financial, operational, reliability, and risk objectives. In determining consistency with these objectives, Austin Energy will consider and compare the long-term costs and benefits of resource options, and report the results of such analysis to the Council and Commissions in the course of securing approval for resource development or acquisition. (underway)

56. Through the plan, offset carbon emissions from any new generation resource, by a reduction in operating capacity of an existing resource, by reduction of energy use through demand-side management or distributed renewable energy or the purchase of carbon offsets. (to be studied)

57. Conduct a review based on current state of knowledge of the impact of carbon fuel emissions on global warming and impact of criteria pollutants from the plant on Austin area compliance with federal clean air standards and the attendant utility related cost if the community should fall into non-attainment. (to be studied)

Complementary Strategies

58. Continue work to transform its basic business model to effectively 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. (underway)

59. 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. (underway)

60. Continue and, as appropriate, expand efforts to increase electric vehicle utilization and facilitate integration of electric vehicles in the utility service area. (underway)

61. Maintain and enhance the utility's role in developing and implementing green collar job initiatives to grow and strengthen the local workforce. (underway)

62. Develop and implement plans for increasing local contractor, M/WBE contractor, and veterans opportunities in working with the utility. (underway)

RESOLUTION NO. 20070215-023

WHEREAS, the City of Austin's mission is to make Austin the most livable city in the country; and

WHEREAS, the Inter-Governmental Panel on Climate Change has found unequivocally that climate change constitutes a serious and growing threat and that human activities are the primary source of increased atmospheric concentrations of global warming gases; and

WHEREAS, global scientific consensus predicts as a consequence of global warming costly and dangerous disruptions, including increased risk of flooding, drought and coastal storms, accelerated spread of disease and invasive species, severe property damage, economic loss, and threat to human life; and

WHEREAS, the United States represents less than five percent of the world's population but contributes more than thirty percent of the world's greenhouse gas emissions; and

WHEREAS, climate change calls for national and international responses, but ultimately greenhouse gas emissions are generated locally; and

WHEREAS, the federal government has failed to enact meaningful responses to reverse the threat of global warming; and

WHEREAS, leading U.S. companies have called for immediate measures to halt and reverse the threat of global warming; and

WHEREAS, cities and states throughout the U.S. are adopting greenhouse gas emission reduction targets and strategies; and

WHEREAS, the City of Austin continues to take a leadership role in addressing worldwide environmental concerns; **NOW, THEREFORE**,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF AUSTIN:

That the City Council directs the City Manager to develop and implement, and to report to the City Council annually upon the implementation and progress of, such policies, procedures, timelines and targets as are necessary to make Austin the leading city in the nation in the effort to reduce and reverse the negative impacts of global warming, including but not limited to the following initiatives:

- 1) Make all City of Austin facilities, fleets and operations totally carbon-neutral by 2020 through measures including:
 - a. powering all City facilities with renewable energy by 2012;
 - b. making the entire City fleet of vehicles carbon neutral by 2020 through the use of electric power, non-petroleum fuels, new technologies, mitigation, and other measures as necessary, prioritizing the earliest possible conversion to such fuels and

technologies and establishing timelines and benchmarks for such conversions;

- c. developing and implementing departmental climate protection plans, including policies, procedures, targets, benchmarks and reporting for maximum achievable reduction of greenhouse gas emissions and energy consumption in all City departments;
- d. developing an employee climate protection education program, programs and incentives to help employees reduce their personal impact on climate change, and training to help employees engage in community outreach for climate protection.

2) Make Austin Energy the leading utility in the nation for greenhouse gas reductions through measures including:

- a. achieving 700 MW of new savings through energy efficiency and conservation efforts by 2020;
- b. meeting 30 percent of all energy needs through the use of renewable resources by 2020, including at least 100 MW of solar power;
- c. establishing a CO₂ cap and developing and implementing a CO₂ reduction plan for existing utility emissions;

- d. achieving carbon neutrality on any new generation units using carbon-based fuels through the utilization of lowest-emission technologies, carbon capture and sequestration if it is proven to be reliable, mitigation and other prudent measures.
- 3) Implement the most energy efficient building codes in the nation and aggressively pursue energy efficiency retrofits and upgrades to existing building stock through measures including:
- a. implementing building codes requiring all new single-family homes to be zero net energy capable by 2015;
 - b. implementing building codes to increase energy efficiency in all other new private and public sector buildings by at least 75 percent by 2015;
 - c. implementing policies identifying opportunities for energy efficiency retrofits and upgrades, and requiring all cost-effective retrofits and upgrades for all properties at the point of sale;
 - d. developing enhanced technical assistance and marketing incentives and standards for the Green Building Program, developing policies requiring achievement of upper-tier ratings in cases where green building is mandated as a product of City programs or negotiations, and developing an optional “Carbon Neutral” certification to accompany green building ratings.

- 4) Establish an interdepartmental City Climate Action Team responsible for creating an inventory of greenhouse gases generated from all sources community-wide, working with stakeholders and technical advisors, establishing short-term and long-term targets for reducing these emissions, and reporting back to the City Council in no more than one year with a comprehensive plan for meeting those targets. Key areas for study and policy development include but are not limited to:
 - a. transportation;
 - b. land use planning;
 - c. emerging technologies;
 - d. waste management;
 - e. natural areas, landscapes and other carbon sinks;
 - f. multi-generational community education.


- 5) Develop and implement a program to assist all citizens, businesses, organizations and visitors in achieving carbon neutrality through the following measures:
 - a. develop an Austin-specific online “carbon footprint calculator;”
 - b. make available individually-tailored carbon footprint appraisals to organizations as necessary;
 - c. develop a menu of greenhouse gas reduction strategies for local implementation that citizens and organizations can fund through the

purchase of "carbon offset" credits, thereby reducing their own carbon footprint;

- d. develop a program for recognition of households, businesses and other organizations achieving carbon neutrality;
 - e. promote carbon neutrality among visitors by providing mechanisms and incentives for the purchase of offset credits by travelers, conventions, tradeshow and festivals.
- 6) Cooperate with other local and regional entities to provide technical and investigational assistance and to coordinate region-wide greenhouse gas reduction strategies.
- 7) Support all appropriate Federal and State policies and legislation that will lead to the reduction of greenhouse gas emissions.

ADOPTED: February 15, 2007

ATTEST:


Shirley A. Gentry
City Clerk