CITY OF ALBUQUERQUE CLIMATE ACTION PLAN [AUG.09]

Climate Action Task Force Recommendations to Mayor Martin J. Chávez

ALBUQUERQUEGREEN

Contents

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Letter to the Mayor

The Honorable Mayor Martin Chávez
City of Albuquerque

Dear Mayor Chávez:

Albuquerque has been recognized as a leading city in the United States in addressing sustainability issues. As Mayor, you have ensured that the Albuquerque City Government has been at the forefront of early efforts to embrace sustainability practices wherever possible.

Some examples of your support for sustainability are the requirement that any city purchase of motor vehicles are limited to alternative fuel vehicles and that city agencies would not purchase single-serving bottles of water. All City departments have green teams and the City government is the largest user of the local electric utility's wind energy purchase program.

Your philosophy to lead by example is demonstrated by your efforts within city government. Albuquerque's citizens understand that they need to do their part regarding sustainability, and many have on an individual basis. Now is the time to involve Albuquerque as a community in a concerted effort to reduce greenhouse gas emissions.

In August 2008, at your direction, Albuquerque's Climate Action Task Force (Task Force) formed to develop strategies to address global climate change in our community. The Task Force is comprised of 60 committed volunteers who represent government, industry, businesses and community interest groups that represent a range of stakeholders. The Task Force met as a whole and in separate work groups to focus on specific areas to develop the Climate Action Plan (Plan) for Albuquerque.

The result is a comprehensive plan to reduce greenhouse gas emissions over the short-, mid- and long-term time frames. The Plan represents the Task Force charter to develop a reasonable, measurable and implementable approach to greenhouse gas reductions.

Global climate change is an enormous challenge with far-reaching implications for Albuquerque. It is also an opportunity for our community to prosper in a sustainable manner.

How Albuquerque responds to the challenge of reducing greenhouse gas emissions may result in substantial benefits beyond just the laudable goal of emission reductions. It may also yield energy and financial savings, higher quality housing for our residents, more transportation choices, new businesses, employment opportunities and healthier citizens.

The recommendations in this Plan represent a consensus by members of the Task Force and its individual work groups. The objectives of this Plan are to:

- Adopt a policy that makes climate protection and greenhouse gas reductions a key factor in all decisions and actions by the City.
- Adopt the goal of reducing overall greenhouse gas emissions from all City sources.
- Provide the City with flexibility to implement greenhouse gas emission reduction strategies in a timely and workable manner.

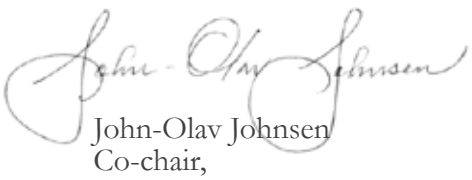
Empowering citizens to act is crucial. The goals we have set are not achievable without broad-based community support that will require public education and action on a grand scale.

The Task Force brings a wide range of interests and perspectives to the planning process. We appreciate the opportunity to serve on the City's Climate Action Task Force. We believe this Plan is a vitally important policy document. It reflects our view that the time for moving ahead with these actions is now.

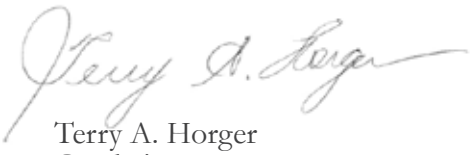
Albuquerque, along with many other communities across the nation and the world, is embarking on actions to reduce greenhouse gas emissions. Technology and regulatory initiatives to address climate change are evolving rapidly and it will be important to re-evaluate and fine-tune these actions—and even the goals—in the future.

We look forward to working with you and the entire community in an ongoing effort to ensure a positive environmental legacy for Albuquerque's future. We are pleased to furnish this Climate Action Plan to you and strongly recommend its adoption.

On behalf of the Climate Action Task Force,



John-Olav Johnsen
Co-chair,
Climate Action Task Force



Terry A. Horger
Co-chair,
Climate Action Task Force

About the Task Force

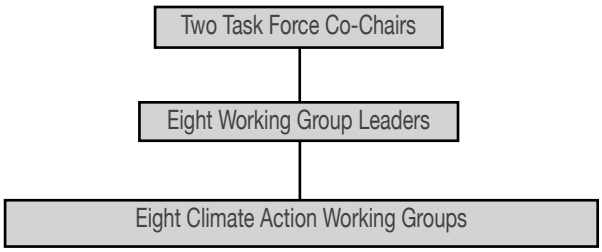
The Task Force is governed by the City of Albuquerque Climate Action Task Force Charter, which outlines the mission, organization and membership structure, protocols for other participants, deliverables and ground rules.

The Task Force is chartered with developing a plan that is **reasonable**, **achievable** and **measurable**.

A copy of the Task Force Charter is available to the public at www.cabq.gov/cap.

Developing the Recommendations

Two co-chairs oversee the general progress of the Task Force, which is divided into eight working groups that cover different sectors (buildings, transportation and so on). Each working group selected a group leader who met with the co-chairs to develop greenhouse gas reduction goals, communicate progress and serve as general points persons for their respective groups. The Task Force recommendations and reduction goals were developed between August 2008 and January 2009.



The Task Force is divided into eight functional working groups. Each group has an elected a leader. During the development phase, workgroup leaders met with co-chairs to develop the short-, mid- and long-term GHG reduction goals.

Preparing the Climate Action Plan

Once all working groups completed their recommendations, a Document Review Team formed to help complete the Climate Action Plan document. The Document Review Team comprised of volunteer representatives from each of the eight working groups.

Document Reviewers met weekly to review the plan as a whole, ensure consistency and continuity across all eight working group recommendations and serve as a points person to their full working group and to third party reviewers. The Document Review Team, Task Force Co-Chairs and City staff met weekly during February and March 2009.

Undergoing Third Party Review

Third party reviewers were asked to review the draft Plan with a particular emphasis on items that are unclear, confusing or incomplete or for claims that seem outlandish or lack foundation. Third party reviewers were directed not to add or remove content from the report, but merely to provide questions and suggestions for improving the report. Third party review occurred from March to May 2009.

A final review by internal City staff occurred in June and July 2009, and the comments and recommendations were re-reviewed by Task Force leaders for consideration. The final Plan was completed in late July 2009 and provided to the Mayor for review prior to publication.

About the Greenhouse Gas Inventory

This section provides a brief overview of the City's greenhouse gas inventory in order to provide context for the Climate Action Plan.

Readers who are interested in learning more may view the full GHG inventory, which will be available in early September 2009 at **www.cabq.gov/cap.**

Combustion of fossil fuels, transportation, and other human activities emit gases into the air. These gases aid in trapping energy from the sun in the earth's atmosphere. Although natural processes release these same gases, a buildup that exceeds the capacity of the earth to absorb them results in global warming, the gradual heating of the earth's atmosphere due to greenhouse gas (GHG) emissions.

Although this is a natural and useful process, excessive warming can cause undesired effects. Therefore, it is important to understand our contributions to this process. In New Mexico, higher temperatures, increased precipitation and more extreme conditions on hot and stormy days are likely. Warmer and wetter conditions can increase mosquito populations, and extreme weather events can cause an increase in rodent populations. Earlier and more intense precipitation events can lead to an inability to store flood waters for later use in the summer as well as reduced crop yields.

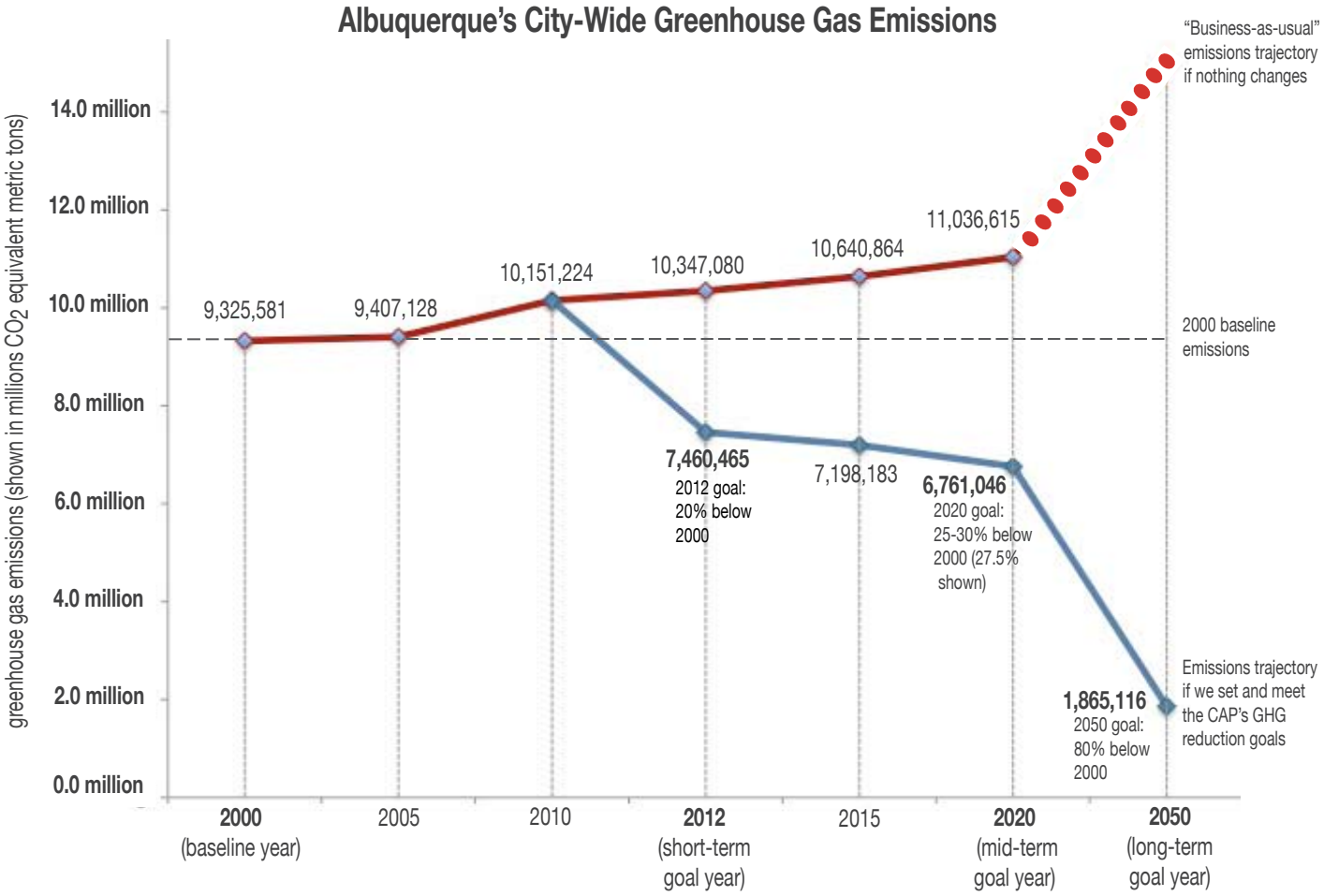
One of the contributors to global warming that can cause these changes is human activities that produce GHG emissions. For this reason, responding to global climate change is a priority for the City of Albuquerque.

What are Greenhouse Gases?

The GHGs accounted for in this inventory include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6). Reported emissions for all GHG emissions are expressed in metric tons of carbon equivalents (MTCE). MTCE weights each gas by **global warming potential (GWP)**.

The Intergovenmental Panel on Climate Change's 2001 report defines GWP as an index that approximates the warming effect of a given greenhouse gas in today's atmosphere, relative to that of carbon dioxide. In other words, the GWP provides a common measure for comparing the potency of all six greenhouse gases. The greenhouse gases included in the City's inventory are described below:

- **Carbon dioxide (CO_2)** is released to the atmosphere when fossil fuels (distillate and residual oil, natural gas, and coal), wood, and wood products are burned. It is the most prevalent of all GHGs, accounting for 82% of total emissions in the U.S. Carbon dioxide is produced in the County primarily by electricity usage and on-road transportation in the county and city (GWP = 1).
- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil; the process of decomposition of organic wastes in municipal solid waste landfills, and the raising of livestock. Methane accounts for 10% of GHG emissions in the U.S. Bernalillo County methane production is primarily from landfills (GWP = 21).
- **Hydrofluorocarbons (HFCs)** are gases used as a replacement for CFCs and HCFCs in refrigerant systems. Refrigerant systems are the main source of HFCs for the County, although a very small percentage of overall emissions (GWP=140 to 6,300).
- **Perfluorocarbons (PFCs)** are produced mainly as a byproduct of aluminum smelting and for some CFC replacements as well as semiconductor manufacturing—although there is no longer any documented semiconductor manufacturer in the county. (GWP = 6,500 to 9,200)
- **Sulfur hexafluoride (SF_6)** emissions in Bernalillo County are a result of electricity transformers as well as semiconductor manufacturing; however, no semiconductor facilities are located in Bernalillo County any longer (GWP = 23,900).
- **Nitrous oxide (N_2O)** is emitted during on-road transportation, agricultural combustion of solid waste, application of fertilizer and livestock manure management (GWP = 310).



Understanding the Impact of Action Versus Inaction

The business-as-usual trajectory (upper line) shows the current and projected greenhouse gas emissions estimates for the City of Albuquerque. The CAP goals trajectory (lower line) shows the current and projected greenhouse gas emissions reductions needed if the Climate Action Plan's recommended short-, mid- and long-term emissions reduction goals are established.

Figures reflect scope 1 (direct) emissions and scope 2 (indirect) emissions for the metropolitan Albuquerque area. Due to page space constraints, the emissions trajectories for years 2012 to 2050 are not shown to scale.

The Task Force provides initial greenhouse gas emissions reduction estimates for all 49 strategies in the *49 Strategies: An Overview* section of this publication, which begins on page eight.

The Task Force assumes that, upon approval of the Plan, a detailed analysis of the Plan's expected emissions reductions will be reviewed and quantified by subject matter experts.

Source data is from information contained in the City of Albuquerque greenhouse gas inventory, which is calculated using the best available data at the time of publication. It is anticipated that the GHG emissions provided in the inventory may change as more accurate and reliable data becomes available, and as emission calculation methodologies change. For these reasons, the inventory is expected to be updated as often as tri-annually. The GHG inventory will be available to the public in early September 2009 at www.cabq.gov/cap.

Core Contributors by Working Group

Business, Industry and Carbon Offset Strategies
Facilitator: Sheryl Stewart
Group Representatives: Carrie McChesney, Gail Ryba
Voting Members: Warren Cox, Michael Cranney, John Gallegos, Andrew Lieuwen, Doug Roark, Elizabeth Shields, Jim Peck, Jeff Zumwalt
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Document Review Team Leader: Carrie McChesney
Third-Party Review: Mike Aspelin, Amber Harris, Fred March

Carbon Neutral Buildings
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Group Representative: Lynne Anderson
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Group Representative: Jill Holbert
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City Staff and/or Guest Subject Matter Experts (non-voting): Leonard Garcia
Document Review Team Leader: Sandra Richardson
Third-Party Review: Jeffrey Zumwalt

Social Change
Facilitator: Jean Strozinski
Group Representative: Eva Thaddeus
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Document Review Team Leader: Shirley Gallegos, Eva Thaddeus
Third-Party Review: Jane Cudney

Transportation
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Group Representative: Savina Garcia
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Document Review Team Leaders: Frank Burcham and Sandra Richardson
Third-Party Review: Dan Grassham, Linda Pehkonen, Johnathan Sharp, Lucie Wang

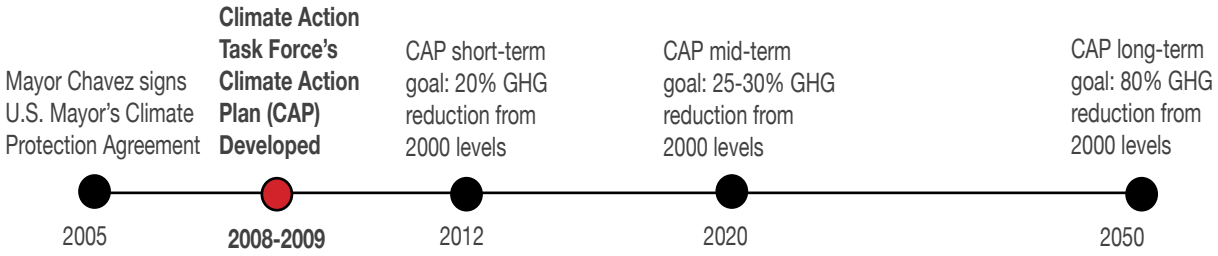
About the Climate Action Plan

Objective, Goals and Timing

Our objective is to develop an implementable climate change action plan that allows our community to reduce greenhouse gas emissions while balancing the environmental, social and economic interests of the citizens of Albuquerque.

Developed through the lens of "sustainability", our plan aims to reduce greenhouse gas emissions in a manner that strengthens our community, ensures our economic vitality and allows our natural environment to thrive.

To measure our progress, we set the following absolute greenhouse gas emissions reduction goals for the short-, mid- and long-term time frames.



The greenhouse gas reduction goals are based on the collective knowledge, research and input of all participants. We chose 2000 as a baseline year rather than 1990 because we felt there was less margin for error with more recent data. At the time we set these goals, the City's greenhouse gas inventory data was not available. To reach these figures, we drew upon several resources and precedents to determine our reduction goals (see sidebar to the right).

We based our **short-term goal (20% reductions by 2012)** on the City's current U.S. Climate Protection Agreement commitment to reduce emissions by 7% from 1990 levels. We extrapolated ten percent more emissions between 1990 and 2000 baseline years and rounded the figure up from 17% to 20% due to our expectation that energy efficiency and conservation will quickly reduce short-term emissions.

Our **mid-term goal (25-30% reductions by 2020)** is based on consensus agreement between workgroup leaders. While individual workgroups recommendations ranged from 10-30%, we felt that the Plan as a whole could net between 25-30% reductions by 2020 if implemented quickly and efficiently and if a federal-level climate policy is in place by 2012.

Our **long-term goal (80% reductions by 2050)** is based on the Intergovernmental Panel on Climate Change's April 2007 report that suggests a 70% reduction in greenhouse gas emissions by 2050 from 1990 levels. Again, we extrapolated a 10% increase of that amount, based on a 2000 baseline, to make the overall reduction goal an 80% decrease from 2000 levels by 2050.

Resources and precedents that informed the greenhouse gas reduction goals include New Mexico's current and projected renewable portfolio and energy efficiency standards, Western U.S. energy efficiency adoption studies and projected reductions, regional population trends, the Western Climate Initiative's framework, the City's commitment to the U.S. Mayor's Climate Protection Agreement, the Kyoto Protocol's recommended seven emissions reductions and the Intergovernmental Panel of Climate Change's Fourth Assessment Report.

Forty-Nine Strategies: An Overview

During the Document Review Phase, team representatives developed broad evaluative criteria to rank strategies by estimated implementation costs, greenhouse gas reductions, timing and feasibility.

We classified each strategy by aspect (policy, program, partnership or education/outreach) and itemized additional benefits beyond greenhouse gas reductions (green job creation, quality of life, water conservation or other). We also identified the stakeholders that are either most likely to be involved with implementing each strategy, or most likely to be influenced by each strategy's outcome.

The criteria represent our initial efforts to place each strategy within broad categorical bands so that readers may develop context for the individual strategies as well as the overall plan.

Our initial estimates are preliminary estimates that will be refined in subsequent due diligence and review processes by policy makers, emissions reductions experts and program costing specialists.

GROUP	STRATEGY	
Business, Industry and Carbon Offset Opportunities	1. **Incent and Educate**–Develop climate-friendly business practices in the City of Albuquerque.	
	2. **Prepare**–Develop a carbon offset strategy that is based on best practices and incorporates actions that are likely to be consistent with national climate policy.	
	3. **Standardize**–Create a greenhouse gas emissions reduction initiative for business and industry that includes standardized measurement and verification protocols.	
	4. **Partner**–Create partnerships to facilitate carbon offset opportunities and provide green collar job training.	
Carbon Neutral Buildings: Residential Buildings	1. Reduce energy consumption in residential new construction.	
	2. Reduce energy consumption in existing housing stock.	
	3. Create City programs that provide sustainable development incentives and streamline building processes.	
Carbon Neutral Buildings: Commercial Buildings	1. Increase energy efficiency of buildings in Albuquerque.	
	2. Implement incentives to increase energy savings and reduce greenhouse gas emissions.	
	3. Develop funding mechanisms for achieving carbon neutrality in new and retrofitted buildings.	
Carbon Neutral Buildings: Onsite Power Generation	1. Offer low- or no-interest loans to building owners to install onsite renewable energy systems for existing buildings.	
	2. Provide new construction loan guarantees to commercial and residential lenders for onsite renewable energy systems.	
	3. Add renewable energy and energy efficiency data to the Multiple Listing Service format.	
	4. Encourage state tax credits for installing onsite renewable energy systems on commercial buildings.	
	5. Encourage Bernalillo County to reduce property taxes for properties that have renewable energy systems installed on site.	
	6. Support the continued elimination of gross receipts taxes / sales taxes for purchasing and installing onsite renewable energy generation systems.	

KEY TO BALLPARK RANKINGS

Est. Total Costs	Est. Total GHG impact	Est. Timing/Payback	Est. Level of Effort
1 = $250,000 or less	**1** = 0–10% reduction	**1** = 5 years or less	**1** = Low
2 = $250,00–$1 million	**2** = 10–25% reduction	**2** = 5–15 years	**2** = Low–moderate
3 = $1–25 million	**3** = 25–50% reduction	**3** = 15–25 years	**3** = Moderate
4 = $25–200 million	**4** = 50–75% reduction	**4** = 25–50 years	**4** = Moderate–high
5 = $200 million or more	**5** = 75–100% reduction	**5** = 50 years or longer	**5** = High

		BALLPARK RANKINGS					ASPECTS					ADDITIONAL BENEFITS				
	STAKEHOLDERS		Costs (1-5)	GHG Reductions (1-5)	Timing (1-5)	Level of Effort (1-5)		Policy	Program	Partnership	Education/Outreach		Green Job Creation	Quality of Life	Water Conservation	Other
	Professional organizations, chambers of commerce, City public outreach and communications staff, other		2	2	1	1			•	•			•			
	High-emissions industries, environmental advocacy organizations, City Environmental staff, other		2	2	1	3				•			•			
	City Environmental staff, professional organizations, climate education and outreach specialists		2	1	1	3			•		•					
	National, state and local government, green jobs advocates, economic development groups		3	2	1	3				•			•			
	Home Builders Association of Central New Mexico, Green Build New Mexico, US Green Building Council		4	3	1	2		•			•		•	•	•	
	City Affordable Housing Program, Home Builders Association of Central New Mexico, Build Green New Mexico, homeowners		5	4	3	3		•			•		•	•	•	
	City Planning, Home Builders Association of Central New Mexico, neighborhood associations		1	1	1	2		•	•				•			
	City Planning, National Association of Industrial and Office Properties (NAIOP), US Green Building Council		5	2	2	3		•					•	•	•	
	State of New Mexico, real estate appraisers, gas and electric utilities, building industry		2	2	2	3		•	•							
	Banks, building industry, City, Certificate of Deposit Account Registry Service® (CDARS®)		3	1	2	3		•	•				•			
	Banks		1	1	2	3			•	•			•			
	Banks		1	1	2	3			•	•			•			
	New Mexico Board of Realtors, NAIOP, Home Builders Association of New Mexico, Build Green New Mexico, US Green Building Council		1	1	2	3		•	•	•			•			
	NAIOP, NM Taxation and Revenue		3	1	1	2			•							
	Bernalillo County Assessor, Home Builders Association of New Mexico, Build Green New Mexico, homeowners		3	1	1	2			•	•			•			
	NM Taxation and Revenue		1	1	1	2			•							

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GROUP	STRATEGY	
Carbon Neutral Buildings: Power Generation *(continued)*	7. Encourage the NM Public Regulation Commission to approve solar photovoltaic power purchase agreements for commercial buildings.	
	8. Encourage the NM Public Regulation Commission to allow third-party companies to lease onsite power generation equipment to commercial and residential property owners.	
	9. Reduce impact fees for qualified solar energy projects.	
	10. Retrofit City buildings with onsite renewable energy systems.	
Carbon Neutral Buildings: Green Grid	1. Partner with the State of New Mexico and the federal government to establish an initiative to develop, prototype and demonstrate green grid technology in New Mexico.	
Clean, Renewable Energy	1. Increase solar energy development and use from current levels of less than 1% to future levels of 70% of the Albuquerque metro area's renewable energy portfolio to help achieve the 2020 and 2050 GHG reduction goals.	
	2. Currently, wind energy comprises the vast majority of Albuquerque metro area's small renewable energy portfolio. When fully developed as the plan suggests, it will comprise approximately 20% of the metro region's renewable energy portfolio to achieve 2020 and 2050 GHG reduction goals.	
	3. Increase biomass development and use from current levels of less than 1% to future levels of 5% of the Albuquerque metro area's renewable energy portfolio to help achieve the 2020 and 2050 GHG reduction goals.	
	4. Increase development and use of geothermal energy from current non-existent levels to 5% of the Albuquerque metro area's renewable energy portfolio to help achieve the 2020 and 2050 GHG reduction goals.	
	5. Achieve a minimum of 30% reductions in greenhouse gases through energy efficiency to help meet the 2020 and 2050 GHG reduction goals.	
Complete, Livable Neighborhoods	1. Engage regional jurisdictions in a coordinated planning effort to develop a regional land use and climate performance strategy (regional strategy).	
	2. Accommodate growth in existing and new areas so as to structure the city around a network of centers and corridors that position dwellings within ¼ mile of an activity center or transit corridor (local strategy).	
	3. Accommodate levels of mixed-use and density that support convenient transit, walkability, jobs, recreation, civic spaces, a sense of community and housing diversity in the city's neighborhoods (local strategy).	
	4. Accommodate different housing options in existing and new neighborhoods, communities and activity centers (local strategy).	
Local Food and Agriculture	1. Increase the amount of food produced inside city limits.	
	2. Support the development of the food shed in New Mexico.	
	3. Incorporate food and agriculture in planning, landscaping and design.	
	4. Engage every City department in promoting local food production and consumption.	

STAKEHOLDERS	BALLPARK RANKINGS: Costs (1-5)	GHG Reductions (1-5)	Timing (1-5)	Level of Effort (1-5)	ASPECTS: Policy	Program	Partnership	Education/Outreach	ADDITIONAL BENEFITS: Green Job Creation	Quality of Life	Water Conservation	Other
NM Public Regulation Commission, solar photovoltaic industry	1	1	1	2		•			•			
NM Public Regulation Commissions, solar photovoltaic industry	1	1	2	3		•			•			
City Planning, NAIOP, Home Builders Association of Central New Mexico	2	1	1	2		•			•			
	3	1	2	3		•			•			
State of New Mexico, Department of Energy/ Sandia National Laboratories	4	1	2	3		•	•		•			
City of Albuquerque, business, industry, local electric utility, manufacturers, consumers	2	2	1	2	•		•	•	•	•		
City of Albuquerque, business, industry, local electric utility, manufacturers, consumers	2	2	1	2	•		•	•	•	•		
City of Albuquerque, business, industry, local electric utility, manufacturers, consumers	2	1	1	3			•	•	•	•		
City of Albuquerque, business, industry, local electric utility, manufacturers, consumers	3	2	2	3								
City of Albuquerque, business, industry, local electric utility, manufacturers, consumers	2	2	1	2	•		•	•	•	•		
Municipalities within the Middle Rio Grande Council of Governments (MRGCOG)	2	2	1	5	•		•		•	•	•	•
City Council, City Planning Commission, developers, neighborhood associations	3	3	1	3	•		•	•	•	•	•	•
City departments (Planning, Transit, Senior Affairs, Family, Parks and Recreation, etc.) neighborhood associations, libraries, developers	3	4	1	3	•		•	•	•	•	•	•
City Planning, City Council, neighborhood associations, developers, home builders	3	4	1	3	•	•	•	•	•	•	•	•
Workforce training, farmers markets	1	1	1	3		•	•	•	•	•	•	•
UNM Sustainability Studies program, NM Department of Agriculture, Governor's Climate Change Action Group's Agriculture and Forestry Technical Work Group members	2	2	1	1	•	•	•	•	•	•		
City Zoning, Chamber of Commerce, Mayors Office of Volunteer Engagement (MOVE)	1	2	1	1	•	•		•		•	•	
City department heads, City Council	2	2	1	1			•			•	•	•

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5 = $200 million or more	**5** = 75–100% reduction	**5** = 50 years or longer	**5** = High

GROUP	STRATEGY	
Recycling and Zero Waste	1. **Recycling Program**–Implement a commercial recycling program and increase residential recycling to achieve a recycling rate of 30% by 2020, exclusive of composting (see strategy three).	
	2. **Product Stewardship and Extended Producer Responsibility**–By 2020, provide incentives and motivation strategies to retailers and manufacturers doing business in Albuquerque to "take back" products and packaging at the end of their useful life.	
	3. **Organic Waste Management**–Implement a comprehensive organic waste management system for both residential and commercial customers by 2020.	
	4. **Materials Exchange**–Develop a materials exchange program and resource center where residents and businesses can donate unwanted but reusable materials for reuse by classrooms and non-profits.	
	5. **Waste-to-Energy**–Develop a waste-to-energy program that consumes no more than 50% of the waste stream by 2020.	
	6. **Partnerships and Coalitions**–Create working partnerships with producers and retailers, educational institutions, commercial and residential sectors, government and non-profits to achieve zero waste and recycling goals by 2020.	
Social Change	1. **Awareness**–Achieve a high public awareness of climate change issues and action opportunities as identified by the Climate Action Task Force plan.	
	2. **Understanding**–Empower leaders from key stakeholder groups to work together and with the City to address climate change issues as identified in the Climate Action Plan.	
	3. **Action**–Build many and diverse partnerships to assist in the education and social change agenda of the Climate Action Task Plan.	
	4. **Permanent Change**–Deliver targeted campaigns to those people and points of intervention whose emission-reducing behavior can be most readily affected by education on climate action issues identified in the Climate Action Plan.	
Transportation	1. Become the most walkable and bicycle-friendly city in the Southwest.	
	2. Offer the best transit service of any city in the Southwest.	
	3. Ensure that fuels sold in the city are increasingly clean (ethanol, biodiesel, natural gas, electricity and others) and that they reduce GHG emissions.	
	4. Encourage the use of more efficient modes of travel and transportation by simultaneously and strategically constraining the parking supply.	
	5. Develop streets in Albuquerque that meet a broad range of sustainability objectives.	
	6. Raise awareness and motivate citizens to pursue sustainable, low-emissions transportation choices.	

		BALLPARK RANKINGS					ASPECTS					ADDITIONAL BENEFITS				
	STAKEHOLDERS		Costs (1-5)	GHG Reductions (1-5)	Timing (1-5)	Level of Effort (1-5)		Policy	Program	Partnership	Education/Outreach		Green Job Creation	Quality of Life	Water Conservation	Other
	City Solid Waste, City Council, Albuquerque Public Schools, businesses, industry, retailers, neighborhood associations		3	3	1	3		•	•	•	•		•	•	•	•
	City Council, City Solid Waste, State legislature, retailers, manufacturers, Office of Neighborhood Coordination (ONC)		3	3	1	3		•	•	•	•		•	•	•	•
	City's Solid Waste and Environmental Health departments, New Mexico Restaurant Association, hotels, grocers, restaurants		3	3	1	4		•	•	•	•		•	•	•	•
	City's Solid Waste and Environmental Health departments, Albuquerque Public Schools, City website, NAIOP, churches, Keep New Mexico Beautiful, non-profits, civic organizations, residents, businesses		3	3	3	4		•	•	•	•		•	•	•	•
	City Solid Waste, City Council, New Mexico Association of Energy Engineers, energy industry, neighborhood associations		3	3	3	4		•	•	•	•		•	•	•	•
	City Solid Waste, Keep New Mexico Beautiful, NAIOP, New Mexico Restaurant Association, manufacturers, retailers, businesses		2	2	1	2		•	•	•	•			•		•
	Residents, businesses, media, schools, institutions, developers, transportation sector, designers and associations		1	1	1	2					•					
	Residents, businesses, media, schools, institutions, developers, transportation sector, designers and associations		1	1	1	1				•						
	Residents, businesses, media, schools, institutions, developers, transportation sector, designers and associations		1	1	1	2				•						
	Residents, businesses, media, schools, institutions, developers, transportation sector, designers and associations		1	2	1	2					•					
	City Council, City Transit, NAIOP, Walk Albuquerque, MRGCOG, City Department of Municipal Development (DMD), City Parks and Recreation		4	3	2	3		•	•	•	•			•		•
	City Council, City departments, MRGCOG, NAIOP, National Ambient Air Quality Standards (NAAQS)		4	4	3	5		•	•	•	•		•	•		•
	City Council, City departments, retailers, fuel industry		3	4	2	3		•	•	•	•			•		
	City Council, City Planning and Environmental Health, Office of Neighborhood Coordination, DMD, NAIOP, NAAQS		3	3	2	3		•		•	•			•		
	City Council, City Planning and Environmental Health departments, DMD, NAIOP, ONC, Walk Albuquerque, neighborhood associations		4	3	2	2		•		•	•			•		
	City Council, City Transit and Environmental Health departments, ONC, PRD, Walk Albuquerque, neighborhood associations, bicyclist groups		2	3	1	2		•	•	•	•			•		

Glossary of Terms

AASHTO: American Association of State Highway and Transportation Officials

ABCWUA: Albuquerque/Bernalillo County Water Utility Agency

ADA: American with Disabilities Act

AECC: Albuquerque Energy Conservation Code

ASHRAE: American Society of Heating, Refrigerating and Air-Conditioning Engineers

CAP: Climate Action Plan, the Plan

CATF: Climate Action Task Force, Task Force

DMD: Department of Municipal Development

EDD: Economic Development Department (City of Albuquerque)

GHG: Greenhouse gas

HERS: Home Energy Rating System

IPCC: Intergovernmental Panel on Climate Change

LED: Light-emitting diode

LEED: Leadership in Energy and Environmental Design, a third-party certification program for the design, construction and operation of high performance green buildings.

LEED-CI: LEED for Commercial Interiors

LEED-EB: LEED for Existing Buildings

LEED-NC: LEED for New Construction

LEED-ND: LEED for Neighborhood Development

MFA: Mortgage Finance Authority

MLS: Multiple Listing Service

MOVE: Mayor's Office of Volunteer Engagement

MRGCOG: Middle Rio Grande Council of Governments

NAAQS: National Ambient Air Quality Standards

NMDOT: New Mexico Department of Transportation

PGS: Planned Growth Strategy (City of Albuquerque)

PID: Public improvement district

PPA: Power purchase agreement

PRC: New Mexico Public Regulation Commission

RACE: Research, Action, Communication and Evaluation (communications process model)

SEER: Seasonal Energy Efficiency Ratio

TIDD: Tax increment development district

TIF: Tax increment financing

UL: Universal Laboratory, a quality standard used to ensure products. In this usage, refers to solar photovoltaic equipment.

WCI: Western Climate Initiative

Business, Industry and Carbon Offset Opportunities

Our recommendations acknowledge the lack of certainty regarding a federal climate policy and ambiguity this creates for business and industry. Rather than predict the outcomes and requirements of pending climate policy, we focus on strategies that prepare Albuquerque's business and industry sector for nationally regulated greenhouse gases, regardless of specific legislative outcomes.

We offer a suite of strategies designed to help business and industry understand, identify and act upon opportunities inherent in greenhouse gas reductions.

These opportunities may include cost reductions through energy efficiency measures, carbon offset partnerships with private, non-profit or government entities or positive recognition of voluntary efforts to reduce greenhouse gas emissions.

Our strategies are designed to work within current voluntary state and regional initiatives as well as pending national climate policy. For example, we address actions that support participation in the Western Climate Initiative's (WCI's) regional carbon cap-and-trade program, but we also recommend preliminary actions that help business and industry prepare for and even thrive in a carbon-constrained business environment.

We ask our City's leadership to implement the policies, programs and partnerships outlined in our recommendations. We ask businesses, watch groups and citizens to engage in the public dialog regarding climate change and follow the Climate Action Plan's progress to ensure that we act upon the strategies needed to meet our short-, mid- and long-term greenhouse gas reduction goals.

Once a national climate policy is enacted, we ask the City, businesses and Task Force members to revisit our recommendations and re-calibrate the Climate Action Plan so that it aligns with and even exceeds national mandates for reducing greenhouse gas emissions.

Strategy One

Incent and Educate–Develop climate-friendly business practices in the City of Albuquerque.

Strategy Two

Prepare–Develop a carbon offset strategy that is based on best practices and incorporates actions that are likely to be consistent with national climate policy.

Strategy Three

Standardize–Create a greenhouse gas emissions reduction initiative for business and industry that includes standardized measurement and verification protocols.

Strategy Four

Partner–Create partnerships to facilitate carbon offset opportunities and provide green collar job training.

1. Incent and Educate–Develop climate-friendly business practices in the City of Albuquerque.

- Coordinate with appropriate trade and industry groups to develop an energy efficiency education, outreach and training campaign targeted to business and industry.
- Establish a Sustainable Business Council of business, utility and government members to promote best practices and share success stories and cost savings related to greenhouse gas reductions. The Sustainable Business Council would serve as a clearing house for businesses to collaborate to reduce emissions and waste, identify waste stream markets within the region and discuss how to streamline distribution, establish manufacturing clusters, reduce transportation costs and establish rail and truck terminals in order to reduce greenhouse gas emissions.
- Develop shared systems (wind, solar, geothermal, waste-heat systems) for new industrial parks that house offices, manufacturers and business incubators. These parks will incorporate best practices for re-use of heating and cooling, closed-cycle water treatment, waste disposal, shared employee transport and mass transit. Provide tours so businesses can learn best practices, see the actual cost-benefit dollar amounts and adopt the parks' approaches. Publish annual reports that summarize best practices, accomplishments and provide success stories and recognition awards to the highest achievers.
- Actively advocate for a comprehensive local, state and regional energy policy that drives a sustainable energy infrastructure: smart grids, renewable energy, energy efficiency, state-of-the art technologies and infrastructure. Coordinate with the Public Regulation Commision to develop changes to utility policy that will encourage and enhance climate-friendly practices for Albuquerque businesses. Work with appropriate entities to deploy smart grid technologies within the city.
- Provide attractive loans to small businesses (such as zero-interest, low-interest and micro loans) to change business processes and energy usage. Work with local financial and banking institutions to develop a "green business loan" program that encourages lower energy consumption.
- Provide an education, outreach and training program for businesses. This program can be developed with the assistance of appropriate trade and industry organizations and administered in the Environmental Health Department. Develop public service announcements, informational films and podcasts for small businesses through partnerships with the Central New Mexico Community College (CNM) film crew.
- Develop a voluntary Green Business Certification program that includes education, training, ongoing support, recognition and incentives for early adopters who voluntarily reduce their greenhouse gas emissions through energy efficiency, renewable energy, resource efficiency and similar efforts.
- Develop a green purchasing program for City vendors that either operate low carbon businesses, provide environmentally sustainable products and services or demonstrate greenhouse gas emissions reductions through the Green Business Certification program or other means of measurement and verification.

2. Prepare–Develop a carbon offset strategy that is based on best practices and incorporates actions that are likely to be consistent with national climate policy.

- Investigate funding sources for carbon offset projects. City staff should advocate and obtain Western Climate Initiative offset credits, develop voluntary programs to generate income for local offset projects and encourage the creation of a local carbon offset company. The City should also develop a tiered incentive purchasing program for employees to purchase travel offsets from companies based in the City or state.
- Actively participate in Western Climate Initiative program and policy development by identifying City staff that will serve on the WCI steering committee. In order to meet this objective, the City must complete its greenhouse gas inventory and establish an emissions baseline as a prerequisite to strategic participation and policy creation.
- Identify potential ecosystem assets such as wetlands or forests that may qualify as carbon sinks for a carbon offset program. In order to accomplish this, the City must inventory its open spaces to identify potential eco-assets, establish an ongoing monitoring program and develop and maintain a database of potential offset projects.
- Prepare business and industry for a carbon offset market by hosting a conference that educates business and industry about the opportunities and risks of the WCI carbon cap-and-trade program and pending federal climate legislation prior to their implementation.
- Design large business programs in order to impact emissions reductions on a larger scale. These City-managed carbon offset programs focus on large businesses, their employees and their vehicle fleets. Some examples include a "junker" car program whereby the City purchases junker cars as an offset strategy, a carpooling program or promoting flex-time for employees.

What is a Carbon Offset?

A carbon offset is a financial instrument aimed at reducing greenhouse gas emissions. The basic idea of carbon offsets is to figure out your personal or business GHG emissions, "carbon footprint" and balance GHG emissions with GHG reductions. Purchasing offsets is a convenient mechanism to balance your carbon footprint.

A "carbon offset" is an emission reduction credit, from another organization's project, that results in less greenhouse gases in the atmosphere than would otherwise occur. Carbon offsets are measured in metric tons of carbon dioxide-equivalent (CO2e) and may represent six primary categories of greenhouse gases. By funding these reductions in greenhouse gas emissions, you balance, or offset, your own impact by an equivalent amount and your purchase funds additional GHG reductions projects.

3. Standardize–Create a greenhouse gas emissions reduction initiative for business and industry that includes standardized measurement and verification protocols.

- Ensure a funded and staffed entity to collect business and industry's annual greenhouse gas inventories, report annual absolute emissions reductions and serve as a liaison between the City and the business community. Initial actions include researching comparable municipal programs, identifying possible entities that could serve this role (non-profit, City agency, private business) and increasing the City's environmental staffing levels to match those of comparably sized cities.
- Propose standardized emissions accounting protocols for business and industry, consistent with the City's existing greenhouse gas accounting practices. To accomplish this, the City would first identify existing protocols and determine the feasibility of using these protocols for businesses and industries. The City would then solicit input from representative business and industry groups and develop a small pilot program to assess emissions accounting procedures.
- Identify and secure third-party verification for greenhouse gas inventories and progress reports. Research comparable practices and providers in other cities, identify possible entities that could serve this role and develop a proposal that provides a high-level overview of all options for third-party oversight.
- Baseline business and industry's greenhouse emissions and determine absolute emissions reductions needed to meet the Climate Action Plan's short-, mid- and long-term greenhouse gas emissions reduction goals. Initial efforts include an estimate of the 2000 baseline greenhouse gas emissions from Albuquerque business and industry and a determination of the absolute greenhouse gas emissions reductions required to meet the Climate Action Plan's emissions reduction goals.

4. Partner–Create partnerships to facilitate carbon offset opportunities and provide green collar job training.

- Partner with large greenhouse gas emitters to develop public policy that allows for large emitters to implement carbon offset partnership projects with residential, commercial, educational and governmental entities. In an offset partnership project, the large emitter would fund the offset project and receive credit for the greenhouse gas emissions reductions. The partnering benefits from the avoided cost of installing onsite renewable energy systems, deploying energy efficiency and demand-side management technologies or from initiating forestation projects.
- Partner with regional education institutions to develop green collar workforce training and educational opportunities that provide skilled labor for renewable energy, energy efficiency and other environmentally sustainable industries. Facilitate internships and provide green career pathways for trainees.

Carbon Neutral Buildings

The following principles guide the Carbon Neutral Buildings workgroup:

- Because buildings account for an estimated 37% of the nation's greenhouse gas emissions, carbon-efficient buildings are critical. (Source: *Emissions of Greenhouse Gases in the United States 2007*, U.S. Energy Information Administration, November 2008.)
- Mandated benchmarks for reducing carbon emissions are problematic when technological avenues to meet those mandates do not exist.
- Technology always improves. As technology improves, carbon neutral buildings become more technologically and economically viable.
- Short- and long-term goals provide a workable framework for the City and the public to achieve carbon neutrality.

Strategies at a Glance

Residential Buildings

1. Reduce energy consumption in residential new construction.
2. Reduce energy consumption in existing housing stock.
3. Create City programs that provide sustainable development incentives and streamline building processes.

Commercial Buildings

1. Increase energy efficiency of buildings.
2. Implement incentives to increase energy savings and reduce greenhouse gas emissions.
3. Provide funding mechanisms to achieve carbon neutral buildings, in both new development and retrofits.

Onsite Power Generation

1. Provide low- or no-interest loans to building owners to install onsite renewable energy systems for existing buildings.
2. Provide new construction loan guarantees to commercial and residential lenders for onsite renewable energy systems.
3. Add renewable energy and energy efficiency data to the Multiple Listing Service format.
4. Encourage state tax credits for installing onsite renewable energy systems on commercial buildings.
5. Encourage Bernalillo County to reduce property taxes for properties that have renewable energy systems installed on site.
6. Support the continued elimination of gross receipts taxes / sales taxes for purchasing and installing onsite renewable energy generation systems.
7. Encourage the NM Public Regulation Commission to approve solar photovoltaic power purchase agreements for commercial buildings.
8. Encourage the NM Public Regulation Commission to allow third-party companies to lease onsite power generation equipment to commercial and residential property owners.
9. Reduce impact fees for qualified solar energy projects.
10. Retrofit City buildings with onsite renewable energy systems.

Green Grid

1. Partner with the State of New Mexico and the federal government to establish an initiative to develop, prototype and demonstrate green grid technology in New Mexico.

About the Albuquerque Energy Conservation Code (AECC)

The City of Albuquerque, the Mayor's Office and the City Council are pleased to have developed the first comprehensive energy conservation code in the State of New Mexico. The 2007 Albuquerque energy conservation code reflects a concerted, combined effort between local government and those in the building and building-related industries to develop a code acceptable to all. An effective energy conservation code is essential to reduce the amount of greenhouse gases generated by buildings. It is estimated that the building industry generates 39% of carbon dioxide (CO_2) emissions and 48% of all greenhouse gas (GHG) emissions in the United States.

The 2007 Albuquerque Energy Conservation Code is one of the Mayor's efforts to achieve the Architecture 2030 Challenge goals to ensure that new buildings are carbon neutral by the year 2030. Green building standards reduce greenhouse gas emissions by advancing energy efficiency and renewable green energy. Green buildings are cost-effective, provide healthy places for people to live, learn and work while supporting municipal conservation and environmental goals.

The City will be developing incentives through its Green Building Program to encourage building designs that exceed the level set by the 2007 Albuquerque Energy Conservation Code. With guidance from the Green Ribbon Task Force, the 2007 Albuquerque Energy Conservation Code will be regularly amended to keep pace with new energy conservation technologies.

(Source: The Albuquerque Energy Conservation Code, Volume II, September 27, 2007.)

Carbon Neutral Buildings: Residential Buildings

Residential buildings emit greenhouse gases by burning fossil fuels that are used to heat and light buildings and power mechanical and other building operations.

We must thoroughly address energy consumption of existing housing stock. As with new construction, the best way to create significant energy reductions and code compliance is through incentives that provide economic assistance to builders and homeowners. This is the framework for our recommendations.

As the City of Albuquerque Climate Action Task Force has not been given a defined greenhouse gas emissions baseline upon which emissions reductions can be based, the Residential Subcommittee does not recommend a specific energy savings percentage goal or target.

1. Reduce energy consumption in residential new construction.

- Evaluate the Albuquerque Energy Conservation Code (AECC) every three years to ensure the code is updated to reflect new technology and to ensure that it complies national and international code standards. In the next AECC evaluation, add language that requires all newly constructed homes to post a Home Energy Rating System (HERS) rating and install energy monitors and feedback systems.
- Reduce impact fees based on HERS ratings. For example, HERS 60-rated projects (40% energy reduction) receive a 25% reduction of impact fees. HERS 50-rated projects and above (50% energy reduction or greater) receive a 50% reduction of impact fees.
- Provide 50% density bonuses for projects that fall within the boundaries defined by the City's Planned Growth Strategy and exceed the minimum zoning requirements for Green Path-permitted homes (homes built to green standards beyond the Albuquerque Energy Code Minimum standards) at the time the permit is given.
- Provide incentives to builders to stimulate green development projects for single- and multi-family workforce housing.

Position Statement Regarding the Albuquerque Energy Conservation Code

In 2007, the City of Albuquerque and stakeholders from the building development industry worked to create a comprehensive green building code. This code, the Albuquerque Energy Conservation Code (AECC), is expected to reduce the building sector's energy consumption by 20–30%.

The Residential Subcommittee urges the City to implement the AECC without the HVAC requirements in order to accrue, measure and monitor energy reductions in support of greenhouse gas reduction goals.

2. Reduce energy consumption in existing housing stock.

- Partner with Bernalillo County to create a Sustainable Remodeling Property Tax that is based on a sliding scale point system and includes a bonus to homeowners for bringing homes up to minimum AECC code requirements. The tax provides an incentive for homeowners to remodel existing homes (based on sustainable principles), decreases homeowners' energy usage and helps achieve the City's Architecture 2030 Challenge goals to reduce carbon emissions. A property tax reduction combined with energy reduction could create real savings.
- Create a gross receipts tax incentive based upon City inspections of residential buildings to ensure that energy-saving items, such as windows, lighting, appliances and some types of insulation are purchased and installed properly.
- The City of Albuquerque's Affordable Housing Program will create a soft second mortgage program that serves homeowners who meet the Mortgage Finance Authority's criteria for affordable housing. Participants will benefit from the ability to remodel their homes based on sustainable

3. Create City programs that provide sustainable development incentives and streamline building processes.

- Create a Sustainable Building Tax Increment Development District (TIDD) and enhance existing neighborhood Public Improvement District (PID) programs.
- Implement an annual awards program for "greenest home," "greenest remodel" and "greenest neighborhood" categories.
- Develop giveaway programs to encourage energy efficiency through distribution of compact fluorescent light bulbs and lighting fixture motion monitors for homes.
- Appoint a Code Review Task Force to identify and resolve potentially conflicting codes developed by different entities (City planners, City Councilors, Bernalillo County authorities and so on) within the same jurisdiction. For example, if a sector plan conflicts with a building code change, the Code Review Task Force would identify the conflict and recommend resolutions to the two regulating bodies. The Code Review Task Force will ensure that conflicting codes do not adversely impact the implementation of the Albuquerque Energy Conservation Code.

Carbon Neutral Buildings: Commercial Buildings

Our framework for reducing greenhouse gas emissions and achieving carbon-neutral buildings is threefold: increase energy efficiency in buildings, switch energy consumption to renewable and carbon-neutral sources as technology and transmission infrastructure allows and develop an emissions offset strategy.

To achieve carbon-neutral buildings, we strongly support efforts to promote financing conditions that encourage green building, building retrofits and efficiency management of existing buildings. Green building incentives should be implemented coextensively with the green building codes, not only to aid compliance, but more importantly, to reward those who proactively move beyond mandated building codes.

Rebates and other up front payments or discounts are proven means to increase market adoption of green building practices, and we encourage the City to expand these offerings to the commercial real estate sector. (Source: *Green Building Incentives That Work: A Look at How Local Governments Are Incentivizing Green Development*" (2007) by Jerry Yudelson, Yudelson Associates.)

We recommend a 20% reduction of 2000 greenhouse gas levels by 2020. This recommendation aligns with New Mexico reduction goals, the Western Climate Initiative goals and greenhouse gas reduction goals set by cities such as Chicago and London. (Sources: *Environmental News Service*: http://www.ens-newswire.com/ens/sep2008/2008-09-19-092.asp and *Siemens Releases Study on Sustainable Infrastructure in London*: http://www.siemens.co.uk/en/news_press/index/news_archive/siemensreleasesstudyonsustainableinfrastructureinlondon.htm)

What is a SEER Rating?
The efficiency of air conditioners is often rated by the Seasonal Energy Efficiency Ratio (SEER). The SEER rating is the Btu of cooling output during a typical cooling season divided by the total electric energy input in watt-hours during the same period.

(Source: wikipedia.org)

1. Increase the energy efficiency of buildings.

- Remove the requirement to have furnace types with a Seasonal Energy Efficiency Ratio (SEER) rating over the federal levels from the Albuquerque Energy Conservation Code (AECC) and implement the modified code.
- Establish a building sector greenhouse gas emissions baseline and review the AECC every three years from implementation to measure and verify subsequent greenhouse gas reductions that occur as a result of the new code.
- Require that commercial retrofits and remodeling projects that impact 50% or more of the building's square footage bring the entire building into compliance with the AECC.
- As part of the three-year AECC evaluation process, review the phase-in percentages for bringing existing buildings up to AECC code and develop phase-in periods for certain standards. Some examples include phase-in periods for replacing major mechanical systems such that they meet the newest American Society of Heating, Refrigerating and Air Conditioning Engineers' (ASHRAE) standards and/or the AECC. ASHRAE develops standards for both its members and others professionally concerned with refrigeration processes and the design and maintenance of indoor environments, and these are referenced in most state building codes and used as the code standard.

According to the Energy Efficiency & Renewable Energy Clearing House's "Solar Energy" report (published by U.S. Department of Energy's National Renewable Energy Laboratory), solar hot water systems cost twice as much or more to install in existing buildings as compared to new construction.

For this reason, we recommend that initial efforts to encourage solar hot water are restricted to new buildings.

- Initiate a study of commercial-scale tankless and solar hot water heaters to evaluate the potential energy savings, cost-payback and dependability of commercial-grade systems. Should these approaches prove viable, either phase in tankless and solar hot water heaters during code reviews or provide financial incentives for buildings to use the technology.

2. Implement incentives to increase energy savings and reduce greenhouse gas emissions.

What is LEED?
Leadership in Energy and Environmental Design (LEED): LEED is a third-party certification program for the design, construction and operation of high performance green buildings.

LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

(Source: *What is LEED©?*, US Green Building Council website, www.usgbc.org)

- For new development, provide incentives for achieving LEED New Construction (NC) ratings of LEED-NC Gold or higher through reduced impact fees, density bonuses or density credit trading.
- For remodeling and retrofit projects, provide incentives for LEED Commercial Interiors (CI) ratings of LEED-CI through waived permit fees or "fast track" approvals.
- Develop an annual recognition program for buildings that achieve LEED Gold ratings for LEED-NC, LEED Existing Buildings (EB) and LEED CI categories and an innovative, non-LEED category. Recipient projects are those that surpass basic code compliance and demonstrate the highest levels of energy efficiency and measurable greenhouse gas reductions.
- This recognition program could include a "parade of efficient energy buildings" including commercial and residential buildings, and perhaps an "X-Prize" for master-planned communities. The City could use its own buildings as models to illustrate the cost-benefit and to provide cost analyses of the upgrades, types of products and measurable GHG reductions.
- Create a partnership between the City and the local electric utility to do free energy audits of buildings and promote energy efficient methods of building and retrofitting.
- Partner with the State to influence the real estate appraisal and financing industries to factor green building benefits into its valuation methodologies, licensing and continuing education requirements. Modernized real estate valuation methodologies will largely aid new construction.

3. Develop funding mechanisms for achieving carbon neutrality in new and retrofitted buildings.

DOE Carbon Neutral Definition
"Carbon neutral" means that—through a transparent process of **measuring** emissions, **reducing** those emissions and **offsetting** any unavoidable emissions—the net calculated carbon emissions of a building equals zero.

(Source: http://www.energy.gov/6454.htm)

- Encourage City and State government to provide incentives for net metering systems for all buildings that generate onsite renewable energy so that excess electricity production can be exported back to the grid.
- Expand the Department of Energy's carbon neutral definition so that single projects can offset their excess energy purchases by financing offsite renewable energy installations. This would make the program more cost effective by helping finance large, utility-scale renewable energy installations to serve as zero net energy banking operations. Economies of scale would provide these larger systems at a much lower cost-per-watt than the alternative of numerous, small rooftop systems.
- Research a market-based strategy to improve energy efficiency in the built environment through green building carbon credits that could be used as emission reduction credits or offsets within a carbon cap-and-trade compliance market. Review comparable programs such as the Demand Side Abatement program of the Australian State of New South Wales, the Chicago Climate Exchange and Western Climate Initiative efforts as they relate to the building sector. (See *greenhousegas.nsw.gov.au/acp/energy-efficiency*, *chicagoclimateaction.org* and *westernclimateinitiative.org* for more information about these programs.)

Carbon Neutral Buildings: Onsite Power Generation

According to the Parliamentary Office of Science and Technology, the burning of fossil fuel for electricity generation creates the largest carbon footprint of any fuel source available for electric power generation. (Source: *Parliamentary Office of Science and Technology, Post note*, October 2006, No. 268 available at http://www.parliament.uk/documents/upload/postpn268.pdf.)

All buildings—commercial and residential—are significant users of electricity generated from fossil fuels. It is important, then, that buildings are able to produce their own electricity through carbon efficient means.

This, however, cannot be achieved in the near future without significant incentives from the United States Government, the State of New Mexico, Bernalillo County and the City of Albuquerque.

1. Provide low- or no-interest loans to building owners to install onsite renewable energy systems for existing buildings.

- Offer loans to building owners who install onsite, renewable power generating equipment. In exchange, owners repay the loan over twenty- to thirty-years as part of their property taxes.
- This loan structure eliminates the need for building owners to pay up-front cash to install renewable energy systems.
- If the owner sells the building before the loan is fully repaid, the new building owner assumes the loan repayments as well as the electricity savings.
- The City of Santa Fe has adopted, but not yet implemented a similar program in which the loan money is generated from municipal bond sales.

2. Provide new construction loan guarantees to commercial and residential lenders for purchasing onsite renewable energy systems.

- Provide lenders for commercial and residential properties with loan guarantees for any loan used to purchase onsite renewable power generation equipment.
- Provide loan guarantees for the additional amount of financing required to purchase properties with onsite power generation as compared with a property without renewable power. Without financing, it is almost impossible to purchase onsite renewable power generating equipment or to finance any green property that costs more than its appraised value.
  (Source: globest.com/news/1179_1179/insider/171766-1.html)

3. Add renewable energy and energy efficiency data to the Multiple Listing Service format.

- Encourage or mandate the Multiple Listing Service (MLS) listings to include comprehensive data regarding a home's energy efficiency and onsite renewable energy generation. MLS disclosures allow prospective buyers to compare potential home purchases based on the amount of onsite renewable energy generated and the estimated annual energy bill for the prop-

4. Encourage state tax credits for installing onsite renewable energy systems on commercial buildings.

- Encourage the State to offer income tax credits for commercial entities that install onsite renewable energy systems such as solar photovoltaic or solar thermal systems. If the commercial entity leases a building that has existing onsite renewable energy generation, offer income tax credits equal to the amount of the additional expense incurred by leasing a green building as compared to a traditional building.
  (For more information about cost comparisons between green and traditional leases, refer to: purechoice.com/downloads/industrynews/in_green-staying-power.pdf)

7. Encourage Bernalillo County to reduce property taxes for properties that have renewable energy systems installed on site.

- Encourage Bernalillo County to provide property tax reductions for commercial or residential properties that have installed renewable energy systems such as solar photovoltaic or solar thermal systems. Reduced property taxes could offset the additional loan money needed to purchase a commercial or residential building that has an onsite renewable energy system and could provide a basis for lending institutions to loan additional money above and beyond the property's appraised value.
  (Source: purechoice.com/downloads/industrynews/in_green-staying-power.pdf)

6. Support the continued elimination of gross receipts taxes / sales taxes for purchasing and installing onsite renewable energy generation systems.

- Encourage the State to continue to waive gross receipts taxes and sales taxes for renewable energy systems sold and installed at a building site.

7. Encourage the NM Public Regulation Commission to approve solar photovoltaic power purchase agreements for commercial buildings.

- Support the solar industry at the PRC in their efforts to enter into long-term purchase power agreements to lease roof tops for the installation of City-owned and operated onsite renewable power generation equipment. These agreements will provide an avenue for commercial entities to profit from their rooftops and shade canopies while encouraging the use of renewable power.

8. Encourage the NM Public Regulation Commission to allow third-party companies to lease onsite power generation equipment to commercial and residential property owners.

- Support the solar industry at the PRC in their efforts to allow third-party companies to lease onsite power generation equipment to commercial and residential property owners and allow the companies to sell that power to the property owner or other electrical customers. This effort would greatly reduce the up-front cost associated with renewable power.

9. Reduce impact fees for qualified solar energy projects.

- Reduce impact fees for qualified solar projects in order to encourage private developers to install onsite renewable energy systems.

10. Retrofit City buildings with onsite renewable energy systems.

- Purchase onsite renewable energy systems for all City-owned buildings. Lead by example by providing a renewable energy showcase for the general public and private enterprise to demonstrate the advantages and disadvantages of onsite renewable energy systems.

Carbon Neutral Buildings: Green Grid

A green grid initiative could involve participation from universities, national laboratories, industry and developers, utilities and communities.

By partnering broadly with state, regional, and federal entities, Albuquerque could establish itself as a leader in adopting emerging green grid technologies that will be essential for the nation's future.

Readers may learn more about green grids by reviewing the technical report, *Renewable Systems Interconnection: Executive Summary*, published by the National Renewable Energy Laboratory. The report is available at nrel.gov/docs/fy08osti/42292.pdf.

While renewable sources of electricity contribute to an ever-increasing percentage of our electrical power generation, our aging electrical grid is not configured to support large amounts of renewable electricity sources.

The primary technical challenges lie in the need to store electricity for times when the sun is not shining and the wind is not blowing, and the need to transmit power bidirectionally, so that homes and or substations can both consume and produce grid-tied power.

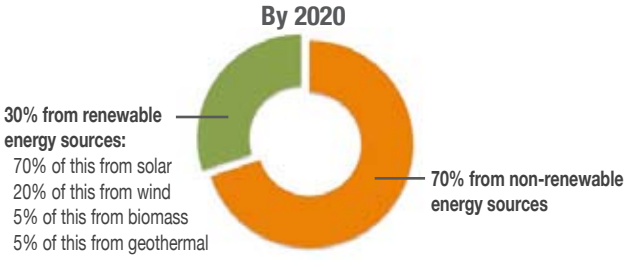
New Mexico can become a national leader in developing the next generation of intelligent electric grid, or "green grid." A green grid integrates renewable and often intermittent renewable energy sources, incorporates advanced control systems and utilizes a scalable and replicable architecture.

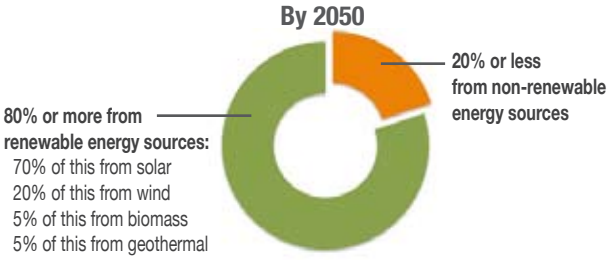
1. Partner with the State of New Mexico and the federal government to establish an initiative to develop, prototype and demonstrate green grid technology in New Mexico.

- Pilot green grid technology in a residential development of a few hundred homes. The pilot project would incorporate distributed solar photovoltaics; energy storage systems of several kilowatt-hours per home; next-generation load controls (such as smart inverters, smart appliances, smart metering and electrical management systems) and accommodations for plug-in hybrid and electric vehicles.
- Pilot a commercial-industrial distributed generation site that incorporates solar photovoltaic and solar heating systems as well as smart inverters and smart metering systems. Prototype energy storage systems sized at several hundred kilowatt-hours and demonstrate energy efficient construction at the site.
- Develop an electrical substation system that interfaces local grids to mid-range transmission systems. The substation would include a ground-based solar photovoltaic array of several hundred kilowatts, as well as smart switches and advanced micro-grid energy management systems. The substation would also incorporate feed protection circuitry, a communication infrastructure for security and would prototype energy storage systems sized at a few megawatt-hours.

Clean, Renewable Energy

Climate change is one of the most significant and critical challenges confronting the world today and implementing energy efficiency and renewable energy strategies is key to addressing this challenge. A first step in meeting this challenge is to establish a renewable energy portfolio for the Albuquerque metropolitan area. Our plan calls for 30% of the energy generated or used within its city limits to come from renewable energy sources by 2020. By 2050, that figure should rise to a minimum of 80%. (See *Carbon-Free and Nuclear-Free Energy Systems in the U.S.* by Dr. Arjun Makhijani.)





We define renewable energy as solar, wind, geothermal and biomass, based on Albuquerque's geography and local resources. We believe these resources will play a major role in the plan to reduce greenhouse gas emissions and the carbon footprint for the Albuquerque metropolitan area. The lion's share of greenhouse gas reductions will come from solar- and wind-generated electricity, implemented energy efficiency measures and behavior changes for energy conservation. Geothermal also has some real potential for efficiently heating and cooling homes and businesses, as does biomass.

In this report, we outline a variety of strategies for each of the four renewable energy resources available to Albuquerque. We also highlight energy efficiency strategies, stressing the vital importance of energy conservation. Energy efficiency is the easiest and least expensive way to achieve greenhouse gas mitigation.

Our recommendations are to identify clean, renewable energy options and strategies to significantly increase renewable energy use within the greater Albuquerque area over the next 40 years. We also want to increase energy efficiency in the same time frame in homes and in governmental, commercial and industrial operations throughout the greater Albuquerque area. Finally, we advocate for collaboration with educational institutions, national laboratories and industry to foster research and development of energy efficiency and renewable energy solutions in the greater Albuquerque area.

Strategy One

Increase solar energy development and use from current levels of less than 1% to future levels of 70% of the metro region's renewable energy portfolio to help achieve the 2020 and 2050 GHG reduction goals.

Strategy Two

Currently, wind energy comprises the vast majority of Albuquerque metro area's small renewable energy portfolio. When fully developed as the plan suggests, it will comprise approximately 20% of the metro region's renewable energy portfolio to achieve 2020 and 2050 GHG reduction goals.

Strategy Three

Increase biomass development and use from current levels of less than 1% to future levels of 5% of the metro region's renewable energy portfolio to help achieve the 2020 and 2050 GHG reduction goals.

Strategy Four

Increase development and use of geothermal energy from current non-existent levels to 5% of the metro region's renewable energy portfolio to help achieve the 2020 and 2050 GHG reduction goals.

Strategy Five

Achieve a minimum of 30% reductions in greenhouse gases through energy efficiency to help meet the 2020 and 2050 GHG reduction goals.

1. Increase solar energy development and use from current levels of less than 1% to future levels of 70% of the Albuquerque metropolitan area's renewable energy portfolio to help achieve the 2020 and 2050 GHG goals.

- The City leads by example by installing solar energy systems at highly visible City-operated facilities such as the airport, zoo, BioPark, museums and other facilities.
- Centralize sustainability and energy efficiency efforts and resources into one department that reports directly to the Mayor. Demonstrate commitment to greenhouse gas reduction by hiring people who understand the needs of the City and the technology. Pay staff a competitive salary to better ensure continuity, retention and development of dedicated professionals who will promote and monitor the implementation of renewable energy resources over the long-term.
- Recommend that the NM State legislature increase its greenhouse gas and energy efficiency goals to match the City of Albuquerque's goals.
- Prepare a comprehensive roof study to identify viable candidates for solar photovoltaic and solar thermal installations and identify carport parking that could include solar photovoltaic systems.
- Utilize Clean Renewable Energy Bonds to leverage for solar installation.
- Negotiate purchase power agreements (PPAs) to buy electricity from concentrated and photovoltaic solar facilities in the state.
- Offer low-interest loans to residents and businesses to install solar photovoltaic and solar thermal equipment on their rooftops and establish a revolving fund to finance the loan program.
- Tap into the new $3.1 billion Federal-State Energy fund to enable homes and businesses to pay up-front costs.
- Provide tax rebates and credits for building, manufacturing and buying solar technology. Tier the tax credits based on household income and provide 100% of the system to the lowest income residents.
- Base all installations on performance (energy generated by the system).
- Require that all installations utilize quality solar equipment. At a minimum, quality indicators require Universal Laboratory (UL) listed equipment.
- Consider feed-in tariffs to encourage residential and commercial distributed solar electric generation. Tariffs must be cost-competitive and must provide an incentive to conserve power. This may best be accomplished as an expansion of the Renewable Energy Certificate credit.
- Increase the City's Capital Improvement set-aside fund for energy efficiency and renewable energy from three to five %.
- Exempt solar thermal equipment manufactured within the City from sales tax.
- Retrofit all exterior city lights (streets, parks and parking lots as appropriate) to run on solar photovoltaic power in a manner consistent with lighting regulations.
- Work with Mesa del Sol and other developments to establish a pilot project that features solar-powered model buildings.
- Site large concentrated and photovoltaic solar installations close to Albuquerque for easy transmission.
- Modify existing planning, zoning and building codes to ensure that all new buildings have solar thermal hot water systems.
- Continue to work with Mesa del Sol and other developments to maximize cost-effective solar energy.
- Work with CNM, UNM and other educational institutions to encourage training programs for energy efficiency and renewable energy. If possible, provide grants hire program graduates.

2. Currently, wind energy comprises the vast majority of Albuquerque metro area's small renewable energy portfolio. When fully developed as the plan suggests, it will comprise approximately 20% of the metro region's renewable energy portfolio to achieve 2020 and 2050 GHG reduction goals.

- Negotiate wind power purchases from sites in Eastern New Mexico and other sites as they develop. Renegotiate with the local electric utility because it has an exclusive contract to provide electricity to the City of Albuquerque.
- Partner with the local electric utility to ensure transmission infrastructure is available for transmitting renewable energy to Albuquerque residents and businesses. Lobby the Public Regulation Commission and the Renewable Energy Transmission Authority to achieve these ends.
- Perform a siting survey to identify local microclimates in and around Albuquerque that would be suitable for small-scale wind energy installations.
- Initiate a wind energy pilot project to install wind energy on City buildings.

3. Increase biomass development and use from current levels of less than 1% to future levels of 5% of the Albuquerque metropolitan area's renewable energy portfolio to help achieve the 2020 and 2050 GHG reduction goals.

- Encourage cellulosic fuel crop development. Research and fund a pilot project that converts crops (cellulosic) into fuel.
- Expedite the permit process for companies that generate organic wastes so that the wastes could be transported to fuel processing centers.
- Consider ways to encourage algae producers to use marginal lands to develop algae as an oil-producing feedstock for biodiesel production.
- Provide tax credits to companies that implement biomass fuel programs.
- Research and fund a pilot project that converts salt cedar, Russian olive and other non-indigenous species into fuel.
- Consider combining biomass with solar energy generation at Mesa del Sol and other developments. Utilize City curbside green waste collection that includes the use of green waste with some generation systems.
- Provide funding or resources to support research and development efforts at local universities to develop improved biomass growth programs such as those that use the carbon dioxide from stack emissions to bubble through algae, which consumes the carbon dioxide and is then harvested and used for biodiesel fuel that replaces conventional fossil fuels.
- Expedite the permit process for companies that want to replace conventional fuels with biomass fuels.
- Expand the recovery of methane off-gases from landfill operations.
- Encourage the segregation of municipal solid waste, so that certain waste streams can be utilized for recycled material or as a fuel source that would replace conventional fuels. Otherwise, these materials would be landfilled and would eventually generate methane gas.

For additional information about algal biofuel research, development and demonstration in New Mexico, refer to the New Mexico State University's Agricultural Science Center program by entering "NMSU algae" in your web browser's search engine.

While electricity produced from biomass has great potential, environmental impacts of air emissions created from biomass must be carefully addressed. Clean-burning biomass technologies must be incorporated into any biomass facility planned for the Albuquerque region.

4. Increase development and use of geothermal energy from current non-existent levels to 5% of the Albuquerque metropolitan area's renewable energy portfolio to help achieve the 2020 and 2050 GHG reduction goals.

- Develop ground source heat pumps in Albuquerque.
- Offer rebates and tax credits to offset the initial cost of purchasing and installing geothermal systems.
- Work with the local electric utility to fund initial costs in a manner similar to that being done with non-refrigerated air cooling systems in Colorado.
- Install a demonstration project at the BioPark and give geothermal engineers and developers publicity and credit in exchange for design and installation work.
- Encourage geothermal technology training programs at higher learning institutions such as Central New Mexico Community College and the University of New Mexico.

5. Achieve a minimum of 30% reductions in greenhouse gases through energy efficiency to help meet the 2020 and 2050 GHG reduction goals.

A 24% savings in electricity consumption in New Mexico by 2020 is possible from energy conservation alone.

(Source: Southwest Energy Efficiency Project, NM Energy Efficiency Strategy, Nov. 2008.)

- Encourage energy audits for homes and commercial buildings.
- Work with the local electric utility to extend lighting rebate programs for homes and businesses.
- Install light-emmitting diode (LED) street lighting on City streets.
- Promote best-technology LED lighting at City facilities and in residential and commercial buildings.
- Builders and developers should work with the local electric utility to incorporate energy efficiency into buildings from design through completion. Reconsider refrigerated air and inoperable windows and encourage evaporative cooling, which works well in New Mexico and is three-to-five times more efficient than refrigerated air.
  (Source: *Evaporative Cooling Design Guidelines,* NM Department of Energy, Minerals and Natural Resources Department, December, 2002.)
- Incorporate Home Energy Rating System (HERS) standards for all new buildings now.
- Increase energy efficiency incentives for ENERGY STAR appliances such as refrigerators and washers. Expand existing incentive programs for energy efficient lighting and water conservation.
- Enforce stricter building codes by applying Leadership in Energy and Environmental Design-New Construction (LEED-NC) Gold Certification criteria to commercial and residential buildings.
- Exemplify City and State leadership by forming energy teams at every City and State building. Energy teams will include building maintenance and staff and incorporate energy management and conservation incentives for conserving energy.
- Follow the good sustainability example set by the Leadership in Energy and Environmental Design standards and require that new construction

increase the portion of renewable energy generated onsite.

- Incorporate better shading techniques for buildings' southern exposures. Shading is a simple and cost effective technique for conserving energy. City and State energy teams can identify shading opportunities at each building.
- Eliminate the urban "heat island effect" by incorporating green roofing and additional shading to City buildings. If green roofing is not possible, incorporate reflective roofing materials whenever possible.
- Incorporate alternative transportation fuels, hybrid and electric vehicles in the City's fleet and consider implementing "feebates" that charge fees for inefficient vehicles and provide rebates for efficient vehicles.
- Wherever possible, use natural daylighting in buildings instead of using conventional electrical lighting.
- Work with chain stores to reduce their carbon footprints.
- Research other municipal and institutional energy efficiency programs and consider employing successful approaches used by comparably sized cities in similar climate zones. Also consider successful programs of larger cities such as Portland, Houston and Los Angeles.
- Increase conservation education program in schools and fund additional programs aimed at fostering sustainable behaviors.
- Adopt new business models and economic frameworks that are increasingly based on renewable energy rather than fossil fuels.
- Make energy efficiency and renewable energy economically attractive to homeowners and building developers.
- Train employees to ensure that the workforce incorporates energy efficiency in all thinking and planning. Hold facility energy teams accountable for energy conservation and provide incentives to encourage results.
- Use peak demand reduction programs offered by demand response specialist firms such as EnerNOC and Converge.

Additional Resources and Information

Leadership in Energy and Environmental Design (LEED): LEED is a third-party certification program for the design, construction and operation of high performance green buildings. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. (Source: *What is LEED©?*, US Green Building Council website. For more information about LEED rating systems and certifications, refer to www.USGBC.org.)

The urban "heat island" effect: Caused by heat-absorbing, non-reflective surfaces such as concrete, asphalt and dark roofs that trap heat near the ground's surface. The result is higher ground temperatures in an urban area that contrast with cooler ground temperatures in surrounding rural areas. This causes a "heat island" that traps heat in the city. The excess heat poses a health threat during heat waves, requires the use of additional energy to cool buildings and affects regional weather pattens. Remedies include the use of vegetation and trees, shading strategies and reflective or light colored materials on ground and roof surfaces to reflect rather than absorb heat.

"Feebates": A feebate is an incentive policy that encourages the continuous improvement to automobile fuel economy and greenhouse gas emissions by providing incentives for manufacturers to build more efficient vehicles and rewarding consumers who purchase more efficient vehicles. The feebate is simple in concept: inefficient vehicles receive a surcharge (FEE-), and efficient vehicles are granted a rebate (–BATE). The fees on the inefficient vehicles pay for the rebates on the efficient vehicles. Thus, the feebate has the potential to accelerate the production and adoption of more efficient vehicles, ultimately reducing the United States' transportation fossil fuel consumption. (Source*: Feebates: A Legislative Option to Encourage Continuous Improvement to Automobile Efficiency, Rocky Mountain Institute,* Natalie Mims and Heidi Hauenstein, Feb 2008.)

Daylighting: Daylighting is a design technique that uses natural daylight to illuminate interior building spaces. Building siting, window locations, sky lights, other openings and reflective surfaces are some techniques used to maximize natural interior light in a building.

Complete, Livable Neighborhoods

Strategy One
Engage jurisdictions in the region in a coordinated planning effort to develop a regional land use and climate performance strategy (regional strategy).

Strategy Two
Accommodate growth in existing and new areas so as to structure the city around a network of centers and corridors that position dwellings within ¼ mile of an activity center or transit corridor (local strategy).

Strategy Three
Accommodate levels of mixed use and density that support convenient transit, walkability, jobs, recreation, civic spaces, a sense of community, and housing diversity in the city's neighborhoods (local strategy).

Strategy Four
Accommodate different housing options in existing and new neighborhoods, communities and activity centers (local strategy).

Today, many communities are designed in such a way that residents are living farther from places of work, school and services, fostering an ever-increasing dependence on motor vehicles. Such community design results in rising levels of pollution (including greenhouse gases) associated with higher rates of car travel.

Land use patterns shape transportation type and performance, and predicts required travel for such quality of life issues as raising a family, getting to school, commuting to work, operating a business, participating in community activities and aging in place.

Land use and land use policies will facilitate the entire City development and redevelopment into a viable network of transit-oriented, mixed-use and mixed-density, complete urban centers composed of livable neighborhoods.

Benefits to creating complete, livable neighborhoods are:

- Greater reduction of vehicle transportation needs and associated emissions.
- Reduced cost to taxpayers for providing infrastructure.
- More efficient infrastructure, especially alternative renewable energy infrastructure.
- Wider range of housing options that support all ages.
- Greater support for economically viable transit systems and alternative modes of transportation.
- Greater connectivity and support for neighborhood businesses as well as a local economy based on the critical density of shoppers and workers.
- Healthier residents and youth with more walking and bicycling options.

Our framework for recommended land use strategies to meet climate change goals

Centers and corridors (C&C) Create an organic structure of centers and corridors of urban density and commercial uses that knit together all neighborhoods in the City along major routes while preserving individual neighborhood character.

Density: Where appropriate, establish densities that support convenient transit and efficient district heating systems.

Mixed uses: Create a diversity in scope of uses that provides the creation of opportunities for living, working, shopping, playing and learning within the City's many neighborhood centers.

Urban centers: Create a grid of urban centers across the entire City along major corridors in between quieter residential neighborhoods.

Housing diversity: Promote greater choice of housing, offering a rich array of secondary dwelling units (such as suites, in-law apartments and coach houses) as gentle methods for bringing densities up to transit-supportive levels in existing neighborhoods. Housing diversity allows families to support wider range of ages around their home and diversity encourages affordability.

Complete, livable neighborhoods have a number of characteristics that support the goals of reducing resource use as well as contributing to the reduction of greenhouse gas emissions:

- Conservation of land, with sufficient density to support transit services and local business in designated centers and corridors.
- The inclusion of a mixture of high-density housing combined with workplaces, services and schools where appropriate in community activity centers and corridors.
- A range of housing choices that suit all types and sizes of households and incomes.
- An environment that promotes physical and mental health, is safe and offers a range of social inclusion.
- The integration with parks, playgrounds, plazas and greenways. Water-conserving trees and vegetation are a part of the design of the neighborhood and its housing, with xeric and vegetable gardens, courtyards, terraces and green roofs.
- Support multi-modal living through well-connected sustainable transportation modes such as walking, cycling and public transit.
- Use fewer natural resources, less energy and generate less waste.

What is "aging in place"?

Aging in place is a movement that supports the ability to live in one's own home for as long as confidently and comfortably possible For more information, refer to http://www.naipc.org.

(Source: http://www.aipathome.com)

The city's land-use patterns and policies can be the catalyst for facilitating the process of creating complete, livable neighborhoods that meet the diverse and unique needs of Albuquerque's rich and varied cultures. Furthermore, local government, residents and businesses can all benefit from the land use patterns and policies that not only encourage livable neighborhoods but also protect the open spaces and urban forest resources.

1. Engage regional jurisdictions in a coordinated planning effort to develop a regional land-use and climate performance strategy (regional strategy).

- Recommend to the State that it encourage contiguous jurisdictions to collaborate to implement transit-oriented development along the New Mexico Rail Runner Express (Rail Runner) corridor in order to reduce traffic and air pollution by increasing ridership.
- Ask the Governor and the state legislature to appropriate capital dollars to facilitate transit-oriented development along the Rail Runner corridor stations.
- Encourage the City's elected officials to direct the Planning Department to facilitate transit-oriented development through planning and zoning activities.
- Develop local public transit plans to connect Rail Runner stations to strategic
locations within the metropolitan area.
- Develop an Internet-based car pooling portal on the City's website in order to match interested drivers and riders.
- Use existing parking lots adjacent to transit routes for car poolers.

Strategy Two Goals

- 65% of dwellings by 2012
- 75% of dwellings by 2020
- 85% of dwellings by 2030

What are Form-Based Zones?

Form Based Zones is City legislation (O-08-58) that was passed by City Council in April 2009. The legislation is intended to redress the gap that exists between present development patterns and our community's aspirations as expressed in the City/County Comprehensive Plan and the Planned Growth Strategy.

One cause of this inconsistency is that Comprehensive Plan policies have not been adequately translated into changes in the structure of City law, regulations, procedures and financial charges. Albuquerque enacted its Zoning Code in 1959 without the guidance of a comprehensive plan. The Comprehensive Plan was adopted between 1964 and 1972.

Source: http://www.cabq.gov/council/completed-reports-and-studies/form-based-code.

2. Accommodate growth in existing and new areas to structure the City around a network of centers and corridors that position dwellings within one quarter of a mile of an activity center or transit corridor (local strategy).

According to the City of Albuquerque's Geographic Information Systems data for 2008, 56% of Albuquerque's housing units are currently located within ¼ mile of centers and corridors. Our goal is to increase these density figures so that 65% of dwellings are located within ¼ mile of centers and corridors by 2012, 75% by 2020 and 85% by 2030.

- Review and evaluate the City's Centers and Corridors map to ensure that designated centers and corridors will achieve the desired densities along key transit corridors to meet the climate change targets; implement the revised Centers and Corridors plan.
- Immediately pursue the planning and development of several of these villages as pilot projects.
- Provide incentives to implement form-based zones, Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) and green development in general.
- Extend the form-based zone work the City has developed extensively to support
  appropriate development at minimum densities.
- Provide incentives for high-density residential development in activity centers and along transit corridors.

3. Accommodate levels of mixed use and density that support convenient transit, walkability, jobs, recreation, civic spaces, a sense of community and housing diversity in the City's neighborhoods (local strategy).

Develop planning guidelines for density and mixed uses in centers and corridors to ensure the densities in these areas support convenient transit and provide a wide range of job opportunities and amenities. Actions include:

- Implement a city-wide analysis to assess zoning alignments with the City's Centers and Corridors plan and transit corridors, rather than the separate sector plan process that is currently used.
- Evaluate current ordinances, regulations, the Centers and Corridors plan and master and sector plans against LEED-ND criteria. Reassess and amend zoning and master plans to coordinate with future LEED-ND development projects.
- Establish minimum transit supportive density requirements within all centers and corridors.
- Incorporate and promote the use of existing programs and documents, including the City's Planned Growth Strategy, Centers and Corridors plan, Great Streets initiative and the City's Comprehensive Plan.

- Deploy widespread public outreach efforts about the quality of life value of the diversity and choice opportunities inherent in mixed-use, mixed-density, planned growth strategies, centers and corridors and smart growth principals.
- Establish a maximum walking distance radius for children to walk to school, helping to create a sense of community (Safe Routes to School program).
- Implement the Form-Based Zones legislation.
- Develop fast-track processes and other incentives for Form-Based Zone applications.
- Require coordination and communication among key City departments (including the Department of Municipal Development, the Capital Improvement Program the Department of Planning), in planning efforts to meet sustainability goals such as the Planned Growth Strategy and the Centers and Corridors plan.
- Prior to submitting an application, require developers to meet with the City's Planning department regarding the City's Planned Growth Strategy, Centers and Corridors plan and Form-Based Zones legislation.
- Explore options for providing outdoor public space and other public amenities in activity centers and along transit corridors to promote a healthy lifestyle.

4. Accommodate different housing options in existing and new neighborhoods, communities and activity centers (local strategy).

- Research successful examples of secondary housing from other cities.
- Consult with the community on housing issues and needs via home owners associations, neighborhood associations, and the Office of Neighborhood Coordination.
- Consult with Albuquerque real estate associations, chambers of commerce, industry and other governmental bodies.
- Refine existing city zoning, bylaws and policies to support infill housing and housing diversity including aging in place, affordable dwellings and affordable green dwellings.
- Fund and deploy widespread public information efforts to various targets including homeowners, developers, neighborhood associations and homeowners associations to minimize the misinformation and faulty perceptions of various aspects surrounding complete, livable neighborhoods.
- Rather than solely emphasizing density and numerical data, ensure that the visual character, quality and architecture of developments and redevelopments are equally emphasized.

TIFs and TIDDs are two of many tools available to the City for addressing infrastructure needs.

What is a TIF?

Tax Increment Financing (TIF), is a financing method that uses the additional taxes generated by a completed development to pay for development costs such as land acquisition and site improvements. The difference between taxes before the development occurs and after its completion is referred to as the 'increment'.

What is a TIDD?

Tax Increment Development Districts (TIDDs) are districts that are formed for the purposes of carrying out tax increment projects.

(Source: *Tax Increment Development Districts (TIDDs) Information Memo*, available at: cabq.gov/council/documents/tidds/tidd_info_memo pdf)

Local Food and Agriculture

Strategy One
Increase the amount of food produced inside city limits.

Strategy Two
Support the development of the food shed in New Mexico.

Strategy Three
Incorporate food and agriculture in planning, landscaping and design.

Strategy Four
Engage every City department in promoting local food production and consumption.

Food and agriculture account for over 20% of greenhouse gas emissions by city residents. These emissions come from burning fossil fuels in order to grow, process and deliver food. (Sources: M. Murphy, *New Mexico's Foodshed Alliance*, Southwest Climate Change Network, March 30, 2009, southwestclimatechange.org/feature-articles/foodshed-alliance; C. L. Weber and H. S. Mathews, *Food-Miles and the Relative Climate Impacts of Food Choices in the United States*, Environ. Sci. Technol. 2008, 42, 3508–3513; D. Pimentel, *Energy Inputs in Food Crop Production in Developing and Developed Nations*, Energies 2009, 2, 1-24; *Climate Change 2007: Synthesis Report*, editors R.K. Pachauri and A. Reisinger, Intergovernmental Panel on Climate Change, Geneva, Switzerland, 2007.)

In recognition of this, representatives from the Food and Agriculture workgroup coordinated with the University of New Mexico and the City of Albuquerque to create a "FoodPrint"—a carbon footprint of our food and agriculture infrastructure.

The Food and Agriculture workgroup believes the Plan thoroughly addresses the goals set forth for 2020 and if reevaluated every three years, will put the City on track for meeting these goals as they relate to the newly built infrastructure.

The Food and Agriculture workgroup recommends an energy savings target of 25% from 2000 levels by the year 2020. We urge the City to move forward with the FoodPrint calculation and more accurately estimate climate impacts of the food we eat. This will allow us to create a new food infrastructure baseline and start measuring these reductions.

The City should enact the codes needed to accomplish the Food and Agriculture workgroup's strategies as soon as possible in order to can create a baseline from which to measure achievements and monitor progress in meeting the 2012, 2020 and 2050 greenhouse gas reduction goals outlined in the Plan.

Energy consumption in existing food production is an issue that must be thoroughly addressed. The best way to create significant energy reductions and code compliance is through a thorough look at incentives that provide economic assistance to local growers and food retailers and encourage consumers to buy locally produced food.

Local Food and Agriculture Working Group Principles

- Food accounts for a significant amount of emissions by a city's inhabitants. It is critical that food and agriculture become carbon-efficient.
- It is problematic to mandate benchmarks without the technological avenue to meet those mandates.
- Technology always improves. As it does, carbon-neutral food production will become more technologically and economically viable.
- Achieving carbon neutrality requires the identification of both short- and long-term goals. Identifying the short-term goals and the long-term goals provides the City and the public with a reasonable framework to achieve carbon neutrality.
- We view the approaches recommended by the Food and Agriculture Workgroup as a local form of homeland security.

1. Increase the amount of food produced inside City limits.

Educate city residents on the benefits and methods of urban gardening.

- Provide gardening workshops through community and senior centers, libraries and neighborhood associations.
- Include gardening in curriculums for City-sponsored after-school and summer camp programs.
- Help community organizations to develop a network of garden educators who will help them acquire resources and maximize effectiveness.

Support the development of commercial urban farming and food production.

- Establish a task force to develop the value chain for commercial greenhouses inside the city.
- Support workforce training for urban farming and food processing jobs.
- Give incentives for high-density farming inside the city (e.g., low-cost land and removing impermeable surface impact fees for greenhouses and unused alleys).
- Establish a "buy local" preference for City food purchases.

2. Support the development of the food shed in New Mexico.

- Establish a "buy local" campaign that encourages local residents to buy food produced within 300 miles of Albuquerque.
- Establish a "buy New Mexico" preference for all City food purchases.
- Offer the City's collaboration to the Governor in implementing the recommendations on agriculture and forestry, published in the *New Mexico Climate Change Advisory Group Final Report: Final Report December 2006,* available at: nmclimatechange.us.

3. Incorporate food and agriculture in planning, landscaping and design.

Use land use policies to support food production.

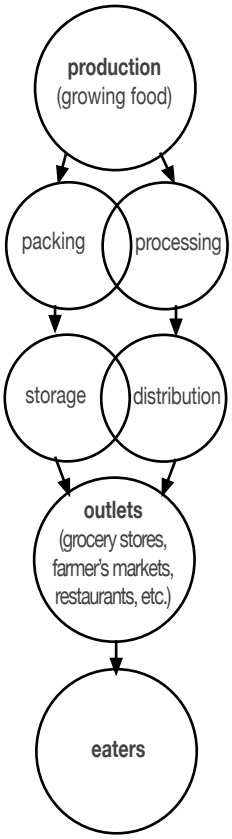
- Work with other government agencies to preserve agricultural lands.
- Require set-asides for community gardens in new developments (as is currently done for parks).
- Create an inter-agency task force to coordinate local food planning.
- Modify zone codes to allow agriculture land and open space to incorporate alternative energy structures such as solar and wind generation equipment.

Develop a comprehensive edible landscaping program for City facilities.

- Require all new City facilities to include a minimum of 25% edible landscaping (green roofs, for example).
- Phase in edible landscaping to existing City facilities—at least 25% of all City facilities should have edible landscaping by 2020.

What is the urban farming value chain?

A value chain represents the steps taken in providing a product. The value chain explains the costs and impacts of making that product.



A sustainable food system's value chain considers the physical, economic, political and socio-cultural impacts of the entire system.

(Illustration adopted from Ilana Blankman's *Farm to Table*. Readers may refer to www.farmtotablenm.org for more information.)

- Engage the Mayor's Office of Volunteer Engagement (MOVE) to develop a volunteer corps to assist city landscapers in harvesting and distributing edible landscaping produce to low-income communities and food banks.

Encourage edible landscaping on residential, commercial and industrial properties.

- Provide incentives to property owners to add edible landscaping on their land similar to those given for xeriscaping.
- Offer the services of the volunteer harvesting corps to harvest unwanted produce from private properties.
- Prorate impermeable surface impact fees for property owners who garden relative to the garden surface area.
- Provide tax incentives to property owners who build passive solar, cold-season hoop houses, greenhouses or cold frames.

4. Engage every City department in promoting local food production and consumption.

Develop an executive order or budget directive that directs City departments to use existing resources to develop a list/plan of actions that each department can take to promote of local food production. The list or plan should be submitted to the Mayor and City Council as soon as possible for the upcoming fiscal year. This list should include activities that facilitate local food production, including community gardens, increase edible landscape and encourage communities to take responsibility for the vitality and food sovereignty of their neighborhoods.

Department	Recommended Executive Order / Budget Directive
ABQ Ride	Ensure that routes pass by farmers' markets; add extra trips during farmers' market hours. Display information about gardening and buying local foods on screens inside of busses.
Animal Welfare	Pair adoption events with farmers' markets. Offer urban livestock care classes. Create small gardens at City-operated animal facilities.
Aviation	Use local foods in Sunport Concession purchasing. Have a seasonal fresh fruit and vegetable stand inside the terminal with local produce.
Cultural Services	Use the Heritage Farm to grow fruits and vegetables for use in the BioParks' restaurants and catering services. Favor vendors using local ingredients as events vendors. Dedicate a portion of BioPark educational activities to the value of agriculture and local foods. Make urban agriculture a regular focus of the Q-Hour. Highlight seasonal displays of gardening books at all libraries.
Economic Development	Ensure that Economic Development department (EDD) staff have training in agribusiness. Change the Job Trainings Incentive program to make it available to agribusinesses that are focused on local sales. Develop and disseminate a fact sheet on how EDD programs benefit agribusiness. Create an Agribusiness Investment Tax Credit similar to the Manufacturing Investment Tax Credit. Make agribusiness for local consumption a priority for EDD expansion assistance.
Environmental Health	Continue to assist entrepreneurs who are developing local food processing businesses. Catalogue gardens, urban farms and local food processing and evaluate associated environmental impacts.
Family and Community Services	Incorporate small gardens into early childhood development centers. Reach out and encourage urban food and agribusinesses to participate in Mayor's Youth Jobs Initiative. Add gardening classes to community and senior center offerings; establish community gardens at each City community center and multigenerational center.

Department	Recommended Executive Order / Budget Directive
Family and Community Services (cont'd)	Ensure that agricultural education is a component of City-sponsored after school programs (promote organizations and schools that include gardening education in the funding application process, for example). Create programs that enable edible landscaping and box gardens in all public housing. Encourage recipients of home rehabilitation loans to include edible landscaping and/or garden facilities and provide helpful resource lists and/or fact sheets. Recruit seniors to provide gardening classes for neighborhood residents and/or create gardening groups through the City's multigenerational centers.
Finance and Administrative Services	Create a purchasing priority for all City food purchases to buy from local producers. Ensure that the City's senior food buyers are trained on local food production and complete a tour of urban farms and food processors. Include locally produced value-added food products in the City's online store (www.albuquerquecitystore.com).
Fire	Empower fire department staff to organize community gardens attached to their fire stations.
Human Resources	Amend duties of staff in certain departments to include gardening tasks in job descriptions. Offer employee tuition assistance to achieve Master Gardener status or other training in local food production.
Office of Budget and Management	Specifically list food sovereignty (the right of a community to define its own food and agriculture systems) as a goal in the City's strategic plan.
Mayor's Office	Engage the Mayor's Office of Volunteer Engagement (MOVE) to facilitate the creation of volunteer groups that harvest produce from City and private properties. Enhance existing information about agriculture on the City's Albuquerque Green website, Agriculture and Forestry section or create a stand-alone section just for agriculture (refer to http://www.cabq.gov/albuquerquegreen/see-it-green-reporting for more information). Focus the City's forestry initiative on planting fruit trees. Add food and farming as an issue category on the MOVE website (refer to http://www.cabq.gov/move) and have MOVE do outreach to farms and gardens to use this resource. Create a City Gardener position.
Municipal Development	Put edible landscaping into all new developments. Include water harvesting for use in edible landscaping in all new development projects. Use existing City landscapers to maintain landscaping and seek out volunteers for any additional work. Consider planting edible trees in new landscaping, streets and parks. Collaborate with the Senior Affairs department and MOVE to develop a tree picking program. Similar to the City's public arts program (1% for the arts), develop a "1% for public food" program that funds community and regional garden projects
Parks and Recreation	Add gardening projects and activities to summer camp programs run by Parks and Recreation department. Continue to encourage farming and community gardening on open-space land. Include local foods in events and programs.
Planning	Help to identify land available for farming (refer to strategy #3 for additional recommendations).
Senior Affairs	Create gardening/gleaning programs at the City's senior centers. Enlist seniors to teach gardening classes and volunteer with school gardens. Coordinate these efforts with the State's New Mexico Aging and Long-Term Services department (http://www.nmaging.state.nm.us).
Solid Waste	Separate green waste and develop a compost program, then offer the compost at low cost to local farmers and gardeners.

Recycling and Zero Waste

Decomposition of solid waste is a significant contributor to greenhouse gas emissions. The City of Albuquerque is taking significant steps to reduce its waste through the adoption and implementation of a Zero Waste plan.

To reduce greenhouse gas emissions, Mayor Chávez has committed to the goal of closing the Albuquerque landfill by 2030 by diverting all material out of the waste stream or into a system to convert the waste to energy. This is a bold and ambitious goal.

In Fiscal Year 2009, the City landfilled over 700,000 tons of garbage—roughly 1,900 tons per day:

- Municipal collections comprised 53% of the total landfill. Of this amount, 45% is from residential customers and 55% is from commercial customers.
- Less than 7% of the residential waste stream is diverted by the existing residential curbside recycling program.
- Because there is no existing City-operated commercial recycling program, the City's overall landfill diversion rate—the amount of wastes diverted from the landfill through recycling or composting—is just 3.8% for all City-run programs.

In order to achieve the Zero Waste goal for Albuquerque, aggressive steps need to be taken now. Zero Waste can be achieved by recycling existing waste and reducing the need for recycling by reducing and reusing existing materials. Many of the following strategies do not prescribe a solution but recommend a framework for communities to find a solution.

What is Zero Waste?

Zero waste is based on the concept that wasting resources is inefficient and that we should work to use our natural resources efficiently. Zero waste requires that we **maximize our existing recycling and reuse efforts**; ensure that we **design products for the environment**; and, ensure the potential to repair, **reuse or recycle products**.

A successful zero waste initiative requires that we **redefine the concept of "waste"** in our society. In the past, waste was considered a natural by-product of our cultures. We must also **improve upon recycling and pollution prevention strategies** by providing a visionary endpoint that leads us to take larger, more innovative steps.

Strategy One

Recycling Program–Implement a commercial recycling program and increase residential recycling to achieve a recycling rate of 30% by 2020, exclusive of composting (see strategy three).

Strategy Two

Product Stewardship & Extended Producer Responsibility–By 2020, provide incentives and motivation strategies to retailers and manufacturers doing business in Albuquerque to take back products and packaging at the end of their useful life.

Strategy Three

Organic Waste Management– Implement a comprehensive organic waste management system for both residential and commercial customers by 2020.

Strategy Four

Materials Exchange–Develop a materials exchange program and resource center where residents and businesses can donate unwanted but reusable materials for reuse by classrooms and non-profits.

Strategy Five

Waste-to-Energy–Develop a waste-to-energy program that consumes no more than 50% of the waste stream by 2020.

Strategy Six

Partnership/Coalitions– Create working partnerships with producers and retailers, educational institutions, commercial and residential sectors, government and other non-profits to achieve zero waste and recycling goals by 2020.

1. Recycling Program–Implement a commercial recycling program and increase residential recycling to achieve a recycling rate of 30% by 2020, exclusive of composting (see strategy three).

Accomplish the following short-term actions by 2012

- Develop and implement public outreach and education, including creating an elementary education program about recycling similar to the Albuquerque/Bernalillo County Water Utility Agency's (ABCWUA) recent "1-2-3-2-1" watering initiative.
- Construct a new materials recovery facility within 12 months of adopting the Plan. The facility will be designed for planned growth to process 300,000 tons per year. Consider initiating the development through a public-private partnership.
- Create an advisory action committee comprised of stakeholders such as the business community, private recyclers, haulers and non-profits. The committee will develop a comprehensive commercial recycling collection program and address the role the City should play in collecting recyclables and providing program incentives.
- Implement a "pay as you throw" program in conjunction with a cart-based recycling program for residential refuse customers.
- Require rubberized asphalt (utilizing tires) in all Albuquerque paving projects. Seek a manufacturer of rubberized asphalt to relocate to Albuquerque.
- Develop and adopt a Zero Waste plan, including researching and evaluating incentive programs for reuse and recycling by 2012.

Accomplish the following mid-term actions by 2020

- Revise and update the 2012 Zero Waste plan by 2020.
- Develop a resource recovery park to increase the type and amount of materials collected for reuse and recycling by 2020. A resource recovery park is a facility that collects recyclable materials that are not accepted in a curbside recycling program.

Ongoing actions

- Develop a marketing plan to continually increase recycling efforts.
- Develop and maintain a Green Resource Guide (reuse and recycling resources database) for all City of Albuquerque Solid Waste residential and commercial customers available online, in the water bill and at all libraries.
- Address the following waste streams: yard waste, plastic recycling, paper recycling, aluminum and tin recycling, cardboard and glass.

In order for curbside and landfill recommendations to be successful, patrol and enforcement against illegal dumping is critical.

What is a pay as you throw program?
A pay as you throw program allows customers to choose the size of the refuse cart needed among several sizes.

This program provides an incentive to reduce wastes because a larger cart costs more and a smaller cart costs less.

The initiative encourages customers to recycle more and dispose of less waste.

Measuring Waste Reduction and Recycling Efforts

Many of the Recycling and Zero Waste recommendations are collaborations with multiple groups, which requires a standardized method for measuring waste reduction and recycling efforts. The Recycling and Zero Waste workgroup recommends the adoption of the U.S. Environmental Protection Agency's *Measuring Recycling: A Guide for State and Local Governments* publication as a standard.

Readers may learn more by dowloading the guide from: epa.gov/wastes/conserve/tools/recmeas/docs/guide.pdf.

Synergy with Business, Industry and Carbon Offset Opportunities

2. Product Stewardship and Extended Producer Responsibility–By 2020, provide incentives and motivation strategies to retailers and manufacturers doing business in Albuquerque to take back products and packaging at the end of their life.

What is a Beverage Container Deposit Program?
A beverage container deposit program requires the consumer to pay a deposit on beverage containers that can be later redeemed.

Once collected, beverage containers are recycled. A beverage container deposit program encourages consumers to recycle beverage containers and reduces littering.

Given the large number of programs to be implemented in the Zero Waste plan and the complexity of a product stewardship and extended producer responsibility initiative, a realistic implementation schedule could take until 2020 to be fully implemented.

Accomplish the following short-term actions by 2012

- Develop an advisory action committee comprised of stakeholders from state, business community, private recyclers and non-profits to propose a comprehensive beverage container deposit bill by 2012.
- Develop and expand a voluntary "take back" program for toxic waste as well as a retail program for items not covered by the curbside recycling program.
- Establish City procurement guidelines to include local preferences. Such contracts will require businesses to use "take back" packaging (e.g., furniture and computers) by 2012 or upon contract renewal. The City will encourage voluntary compliance if the contract is in place before 2012.
- Ensure that City concessions contracts include provisions that vendors develop and implement a sustainability plan to include 30% of all materials sold to be in recyclable packaging, take back these products for recycling and use recyclable and compostable products by 2012 or upon contract renewal.
- Encourage voluntary compliance with these guide lines if the contract is in place before 2012.
- Establish reporting requirements for materials diverted from the waste stream through product stewardship and extended producer responsibility. The City will require concessionaires and City suppliers to complete the reporting requirements.

Accomplish the following mid-term actions by 2020

- Investigate and implement product stewardship and extended producer responsibility incentives for retailers and manufacturers by 2020.
- Review reporting requirements for materials diverted from the waste stream through product stewardship and extended producer responsibility.
- Expand this program to include retailers and manufacturers.

Ongoing actions

- Include a section in the Green Resource Guide to address product take-back for glass containers (e.g., a regional glass crushing plant), plastic bags, tires, electronic waste and toxic waste (including all fluorescent bulbs and lamps).

Synergy with Food and Agriculture

3. Organic Waste Management–Implement a comprehensive organic waste management system for both residential and commercial customers by 2020.

In mid July 2008, the City Solid Waste Department hired a consultant to analyze the residential waste stream. Current estimates are that organic waste comprises up to 30% of the residential waste stream (9-16% from yard debris and 10-13% from compostable food waste). These figures do not include apartments or commercial food waste.

Because landfilled food waste has a much higher greenhouse gas potential, both residential and commercial food composting and collection initiatives are strongly recommended to reduce greenhouse gas emissions and avoid the permanent loss of landfill space and nutrient resources.

Accomplish the following short-term actions by 2012 (residential)

- Investigate and assess existing nationwide education programs within 12 months of adopting the Plan.
- Implement a "green" tipping fee by discounting the regular tipping fee by $2.00 for segregated clean green loads at the City's convenience centers within 12 months of adopting the Plan.
- By 2012, require all landscaping companies to segregate clean green loads, either by composting themselves, or by bringing to a composting facility.
- Ban all clean green loads from landfills by 2012.
- Implement a composting bin rebate program within 12 months of the Plan's adoption. Ensure that a maximum of $40.00 towards the cost of a bin is rebated to the resident (not including tax and shipping costs).
- Design the composting bin rebate program so that residents can buy a composting bin or worm bin from any retail store. Residents would obtain a proof of purchase (itemized receipt), then request a rebate by sending their original itemized, dated receipt along with proof of being a City of Albuquerque Solid Waste customer. The customer's rebate will be a credit on a future refuse bill.
- Residents participating in the composting bin rebate program will be strongly encouraged to attend a City-organized composting workshop.
- Provide one rebate per household for new composting bins or worm bins for receipts dated after the program's implementation date.
- Evaluate the effectiveness of the composting bin rebate program and food waste collection programs one year after implementing the programs.
- Perform the program evaluation by providing a survey to participants within 12 months of the Plan's adoption.
- The survey should include questions that assess the ease of the program, the program's value and the estimated gallons of green and food waste composted. The survey will also solicit suggested program improvements.
- Based upon the survey and outcome of the residential composting bin rebate program, determine whether or not a curbside green waste collection program that uses carts should be implemented for residents. If a curbside collection program is deemed necessary, begin implementing the program in targeted green waste collection areas with no xeriscape restrictions (NE, SE, NW, SW) by 2012.

What is a tipping fee?
A tipping fee is the fee charged at the gate of a landfill or waste convenience center.

What is a composting bin?
Backyard composting can take place with or without a bin, but a bin keeps the site neat and contained. Bins vary in design by manufacturer with the objective to hold compostable materials in a mass that is about 3' to 5' in each direction. Smaller sizes tend to not develop enough heat, and larger sizes may not allow adequate penetration of air and water.

What is a worm bin?
A worm bin is specifically constructed for composting with worms, called vermicomposting.

What is a food waste collection program?
When collected separately, food waste can be sent to a composting facility and made into a soil amendment. Food waste typically makes up nearly 15% of the commercial waste stream by weight.

Synergy with Food and Agriculture

Accomplish the following mid-term actions by 2020

Residential

- If the curbside green waste program is implemented, the City must develop a means to collect residential compost and organic waste.
- City leaders will evaluate the input, capacity, processing cost and location of a composting facility.
- If the City decides to create a curbside green waste program, an advisory committee should investigate uses for the compost waste collected through the program. Some uses for compost include City parks and medians, roadside erosion mitigation and use in the BioPark and community gardens.
- Create an ancillary market by selling compost and mulch. The proceeds from the sales of compost and mulch could be used to offset the composting facility's operating expenses.

Commercial

- Create an advisory action committee comprised of the business community, private composters and non-profit organizations to develop a comprehensive commercial food waste collection and composting program by 2020. The committee will address the role the City should play in the commercial food waste collection and composting program and consider incentives for this voluntary industry initiative, such as an annual awards program.
- Evaluate the effectiveness of the commercial food waste collection program and determine whether or not to expand program incentives. Program evaluations should be conducted by program stakeholders, such as commercial participants, third-party recipients and representatives from the City's Solid Waste department.
- Conduct the program evaluation one year after the incentive program begins.

Ongoing actions

Organize an annual composting workshop every spring (subcontract to a private composting business) to encourage and motivate the use of the City's residential backyard composting program. The workshop will be free to residents and will work in conjunction with the food waste collection program, beginning within 12 months of adopting the Plan.

- Organize an annual food waste collection workshop to encourage and motivate the use of food recycling by restaurants and businesses. The workshop will be free to businesses and will work in conjunction with the food waste collection program, beginning within 12 months of the Plan's adoption.
- Develop a Green Resource Guide for organic waste management that includes information about backyard composting, workshops, the existing green waste programs and the discounted green tipping fee at the City's convenience centers. The guide will be developed within 12 months the Plan's adoption.

Synergy with Business, Industry and Carbon Offset Opportunities

4. Materials Exchange–Develop a materials exchange program and resource center where residents and businesses can donate unwanted but reusable materials for reuse by classrooms and non-profits.

Accomplish the following short-term actions by 2012

- By the end of 2012, the City will develop a virtual materials exchange that includes links to non-profit organizations.
- Construction materials, furnishings and such could be linked to Habitat for Humanity's Restores, Barrett House and similar non-profits.
- Non-recyclable plastics, office supplies and paper products could be listed for use in classrooms, community centers, senior centers and such for "make and take" and other projects that require consumable goods.
- Teachers, program directors and others can list the products that they need, such as gallon jugs, empty paper towel rolls, magazines (for cutting), plastic containers and bags, so that donors identify and meet recipient needs.

Accomplish the following mid-term actions by 2020

- Develop an advisory action committee that includes the business community and organizations, educators, community leaders, private recyclers and non-profits.
- These stakeholders will work to implement one or more physical reuse centers, perhaps in quadrants, and then by City Council district by 2020.
- Address the role the City should play in collecting materials and providing incentives (such as an awards program).

Ongoing actions

- The City will create a Green Resource Guide to assist residents and businesses in participating in a materials exchange program instead of discarding reusable materials in the trash, which adds to the City's landfill.
- Promote synergy between teachers, program directors and non-profits with potential donors to maximize resources and minimize unnecessary landfill.

What is a Virtual Materials Exchange?

A virtual materials exchange functions as a "bulletin board" whereby donors and beneficiaries list large items, such as appliances, electronics or furniture as well as provide contact information for direct exchange. This operates in much the same way that St. Vincent de Paul, Goodwill and other non-profits take direct exchanges.

The advantages of creating and maintaining a virtual materials exchange with direct exchange between the donors and the non-profit recipients are:

- Eliminates the City's concern for product liability exposure.
- Reduces transportation and facilities costs.
- Enables users to post their needs and donors to review postings, select recipients and contact recipients directly.
- Creates and maintains partnerships between donors and recipients (such as classrooms).
- Eliminates issues of cleanliness, infestation and so on.

Synergy with Clean, Renewable Energy

5. Waste-to-Energy–Develop a waste-to-energy program that consumes no more than 50% of the waste stream by 2020.

The aim of the waste-to-energy strategy is not to divert recyclable and reusable materials to a waste-to-energy program, but to **address the materials remaining after waste diversion goals are met.**

The challenge of the Climate Action Plan is to reduce greenhouse gas emissions. Each goal must be evaluated in light of its impact on greenhouse gases—when actions compete, we must prioritize the actions in terms of their impact.

Waste reduction and recycling generally provide a greater net life cycle reduction in greenhouse gas emissions than waste-to-energy programs, and are therefore given higher priority. For materials that cannot be readily diverted from the landfill, waste-to-energy strategies are appropriate.

The aim of this waste-to-energy strategy is *not* to divert recyclable and reusable materials to a waste-to-energy program, but to *address the materials remaining after waste diversion goals are met*.

Accomplish the following mid-term actions by 2020

- By 2020, research emerging waste-to-energy technologies and evaluate them based on applicability, cost-effectiveness and environmental impact for Albuquerque.
- By 2020, convert the captured methane from the Cerro Colorado Landfill into power, using appropriate and cost-effective technology.

The waste-to-energy analysis should incorporate the following considerations:

- Capital costs of a waste-to-energy system
- Emissions and impacts of a waste-to-energy system
- Existing renewable energy credit incentives
- Energy production versus the cost of maintaining the system
- Return on investment and payback time frame
- Cost-to-benefit analysis
- Available grants to assist with capital costs

Synergy with Social Change

6. Partnership/Coalitions–Partner with producers and retailers, educational institutions, commercial and residential sectors, government and non-profits to achieve zero waste and recycling goals by 2020.

Accomplish the following short-term actions by 2012

- Designate a community liaison to commercial organizations for education and idea-sharing.
- Solicit commercial recyclers for program input for effective recycling strategies.
- Establish a community liaison to the Albuquerque Public Schools district and various chambers of commerce.
- Appoint a liaison to State agencies to keep them informed about the City's recycling progress.

Social Change

Inspiring social change in support of the City of Albuquerque's climate change goals requires commitment and action from all residents, institutions, businesses and City government. In this context, a comprehensive communications strategy is needed to effectively educate and encourage all stakeholders to take action.

The City of Albuquerque's goal is to promote an ongoing commitment among residents and businesses in Albuquerque to reduce their greenhouse gas emissions in their daily lives and business activities.

Our Goal is Behavior Change

The Social Change committee recommends four strategies to achieve its mission because effective education and social change require a model for implementation to reach targeted sectors in a systematic way.

Each of the four strategies are based on a communications process model that can be reduced to the RACE acronym: Research, Action, Communication and Evaluation.

The RACE model provides consistent plans and actions for each goal for their respective targets to ultimately achieve permanent change. This process has been successfully used by communications professionals in other public participation campaigns, including those aimed at eliminating smoking.

Ultimately, to sustain the changed behavior, the social change model must include rewards, role modeling, repeated behaviors resulting from changed laws, regulations and other incentives.

Strategy One
Awareness–Achieve a high public awareness of climate change issues and action opportunities, as identified by the Climate Action Plan.

Strategy Two
Understanding–Empower leaders from key stakeholder groups to work together and with the City to address climate change issues as identified in the Climate Action Plan.

Strategy Three
Action–Build many and diverse partnerships to assist in the education and social change agenda of the Climate Action Plan.

Strategy Four
Permanent Change–Deliver targeted campaigns to those people and points of intervention whose emission-reducing behavior can be most readily affected by education on issues identified in the Climate Action Plan.

1. Awareness–Achieve a high public awareness of climate change issues and action opportunities as identified by the Climate Action Plan.

This strategy targets the public.

Research

- Investigate other cities' or organizations' understanding of public awareness, methods to reach out to the public and key communication techniques. Survey the public's level of awareness of behaviors that affect greenhouse gas emissions.
- Investigate what is unique to Albuquerque in order to make the information relevant to our audience.
- Identify current levels or measurements for all topical areas and align to the Plan's short-, mid- and long-term GHG emissions reduction goals.

Action

One key issue in managing the negative is the naming of this effort. While we may believe "climate change" is the right "framing" of the concept, some people disagree that human activities contribute to the climate change.

Rather than fight this perception, we recommend that we reframe the campaign in terms of sustainability and quality of life.

Charter a learning and social change organization or department to design and develop a Climate Action Plan tool kit that follows the RACE model and the Social Change working group's strategies. Our goal is to motivate residents of Albuquerque to change behaviors in order to reduce greenhouse gas emissions.

- Conduct a stakeholder analysis to provide specific community contacts to address Climate Action Plan's strategies.
- Identify key messages that can be structured or supported across all communications and with all stakeholders. For example, "reduce, reuse, recycle" is a key message that may be communicated to students differently than it would be communicated to a business group.
- Plan a marketing campaign.
- Draft concept documents for printed media.

Communication

Communicate to the public how addressing climate change ties into their own priorities. Emphasize how to incorporate the new behavior or changes into their daily lives.

- Broadcast to target markets such as the general public and organizations.
- Collect and integrate communication priorities of the eight Climate Action Task Force working groups.

Evaluation

Measure and communicate progress in reducing emissions citywide and publicly celebrate accomplishments with Albuquerque residents.

2. Understanding–Empower a movement of leaders from key stakeholder groups to work together and with the city to address climate change issues identified in the Climate Action Plan.

This strategy targets people who are already invested in climate change issues.

Research

Identify stakeholders with the necessary expertise and commitment to achieve the Social Change workgroup's first strategy of achieving a high level of public awareness on climate change issues and action opportunities identified in the Climate Action Plan.

Actions

Assemble a standing stakeholder group that includes City staff, which will take the following actions to affect positive education and social change.

- Take actions that implement the Climate Action Plan's recommendations.
- Build partnerships and gather resources.
- Produce educational materials and reach out to key constituencies.

Communication

Communicate clear and consistent messages to key constituencies. Messages describe each group's responsibilities and resources for taking action. Engage constituents in designing their own plan and in mapping their plans' goals to action.

- Broadcast with targeted marketing to increase involvement of other related constituent groups.
- City communicates expectations, budget and resources.
- Constituents share information via their own communications channels and by tying into common channels such as the City's website.

To begin designing communications tools for each key constituency, the stakeholder group should identify the extent to which each constituency is currently practicing emissions-reducing behaviors.

Evaluation

Assess stakeholders' ability to link to and influence other partnerships and collaborations, stakeholder goals, actions and productivity. This networking effort will spread the messages and engage new stakeholders.

- Evaluate effect of GHG reduction efforts on public awareness and implementation of GHG reduction techniques.
- Assess stakeholder participation.
- Assess the effectiveness of partnerships, resources, materials and outreach.

3. Action–Build many and diverse partnerships to assist in the education and social change agenda of the Climate Action Plan.

Influential people who support the mission and have a following can contribute towards achieving these strategies by building momentum and support.

This strategy targets local leaders who have influence and resources.

Research

Identify needed resources.

Action

Develop a list of potential partners; provide stakeholders with a tool kit of communications messages and media (such as a website, Q&As, key facts and 10 easy ways to make a difference). These tools can support the key influencers in building partnerships, spreading the word and leading the changed behavior.

Communication

Stakeholders reach out to target groups and individuals to build partnerships.

- Broadcast to target markets such as the general public and organizations.
- Collect and integrate communication priorities of the eight Climate Action Task Force working groups.

Evaluation

- Determine whether key opinion leaders have reached the appropriate stakeholders.
- Assess the efficacy of partnerships and work to educate and develop understanding of climate change issues among people of influence and resources.
- Evaluate whether or not partners are committing their resources to the campaign.

Identifying Stakeholders

Below are some of the stakeholders identified by the Climate Action Task Force working groups. While communications to the general public will be ongoing, we recommend that the stakeholders be identified by their "readiness to change" to prioritize communications. Some stakeholders already identified are shown below.

Residents
- General public
- Parents and students
- Seniors
- Neighborhood associations
- Sports parents
- Hikers and bicyclists
- Homeowners
- Landlords
- Farmers
- Greenhouse builders
- Grocery shoppers

Businesses
- Utility leaders
- Business owners
- Green energy business owners
- Local farmers
- Grocery store owners

Media
- Key local leaders, reporters, editors

Schools
- University researchers
- Thought leaders

Institutions
- NM Dept. of Health
- NM Dept. of Agriculture

Development industry
- Future urban farmers

Transportation industry
- NM Department of Transportation
- City Transportation department
- Others

Designers
- Urban planners
- City inspectors
- Landscape architects
- Design engineers

Association leaders
- New Mexico Solar Energy Association
- Rebuild NM
- Sierra Club

Stakeholders can be reached through several means. Mass communications via traditional media, social media via Internet sites, the City website and partners' websites should weave through all the communications. In other words, these media serve as the "drumbeat" for building and sustaining support.

4. Permanent Change–Deliver targeted campaigns to those people/points of intervention whose emissions-reducing behavior can be most readily affected by education on climate action issues identified in the Climate Action Plan.

This strategy targets people whose behaviors affect greenhouse gas emissions, such as commuters and residents.

Research

- Identify priority people and points of intervention. For example, determine the one thing commuters can easily do to improve the environment, such as planning their day's traveling. Determine one thing residents can do, such as replacing incandescent light bulbs with compact florescent light bulbs.
- Gather data about people and points of intervention from the Climate Action Task Force working groups to establish baseline behaviors.

Action

- Motivate target audiences to change behaviors that affect greenhouse gas emissions.
- Work through the City's legal and executive offices to create incentives and develop regulations designed to guide behaviors that will help reduce greenhouse gas emissions.

Communication

Provide target audiences with necessary information that will help them adopt behaviors that contribute towards reduced greenhouse gas emissions.

Evaluation

Measure, quantify and communicate the effects of the changes by comparing changes from original baseline behaviors to new behaviors adopted as a result of the program.

This change process will take time. This is not an overnight or month-long advertising campaign.

Social change takes years of concerted effort. In our case, this is only the first phase of the effort.

Transportation

Strategy One
Become the most walkable and bicycle friendly city in the Southwest.

Strategy Two
Offer the best transit service of any city in the Southwest.

Strategy Three
Ensure that fuels sold in the City are increasingly clean (ethanol, biodiesel, natural gas, electricity and others) and that they reduce greenhouse gas emissions.

Strategy Four
Encourage the use of more efficient modes of travel and transportation by simultaneously and strategically constraining the parking supply.

Strategy Five
Develop streets in Albuquerque that meet a broad range of sustainability objectives.

Strategy Six
Raise awareness and motivate citizens to pursue sustainable, low-emissions transportation choices.

Transportation is the fastest growing source of U.S. greenhouse gas emissions, accounting for 47% of the net increase in total U.S. emissions since 1990. It has been estimated that transportation sources account for 29% to 59% of total U.S. greenhouse emissions in 2006.

In the U.S. economy, transportation is second only to electricity generation in terms of the volume and rate of growth of greenhouse gas emissions. (Sources: U.S. Environmental Protection Agency, Environmental Defense Fund, Pew Center on Global Climate Change.)

Personal automobiles are a primary source of emissions. Automobile use is a complex challenge with deep roots in socioeconomics, personal mobility, culture, status and values, safety, lifestyle patterns and expectations. Evolving to a more sustainable and low-emission transportation will take time, but with steady work it can be achieved.

A strategic shift of transportation priorities to alternate modes of transportation will assist the City of Albuquerque in achieving its sustainability and climate change strategies and short-, mid- and long-term goals.

The city also needs to systematically move from conventional fuels to alternative fuels to power its transportation network in order to achieve its energy and emissions reduction goals.

Reducing emissions from idling cars can be accomplished by ensuring steady traffic flow on arterials, through better planning and execution during road repairs and by City-wide anti-idling education and legislation.

Transportation Working Group's Framework

- **Alternatives to the automobile**: Provide alternatives to the automobile, including:
  - Pedestrian trails, amenities and infrastructure
  - Cycling networks, amenities and infrastructure
  - Car-pooling and car-sharing services
  - Transit systems
  - Land-use patterns that encourage walking and bicycling
  - Refining the City's land use policies to support convenient transit within a comfortable walking distance of every home and business within the city.
- **Vehicles and fuels**: Support more efficient vehicles and cleaner fuels.
- **Parking**: Address parking policies and parking supply to ensure that parking supports sustainability objectives.
- **Street design**: Refine street design standards to make the city safer and more pedestrian and bicycle-friendly.
- **Communications**: Promote education and new paradigms for Albuquerque residents and businesses on more sustainable transportation options.

Synergy with Complete, Livable Neighborhoods

1. Become the most walkable and bicycle friendly city in the Southwest.

Strategic action–Implement a plan for a pedestrian and bicyclist network that links all areas of the city in a fine-grained manner.

Actions to support this aim (some are already underway)

- Inventory the current bicycle and greenway network, identify key linkages to the regional and county network and establish key goals for the network.
- Develop design guidelines for the pedestrian and bicyclist network to ensure they maximize value and minimize cost.
- Develop a comprehensive plan for the pedestrian and bicyclist network and construct portions of the pedestrian and cyclists network every year until it is complete.
- Implement a broad public education effort regarding the pedestrian and bicyclist network. Education would include topics about crosswalks, bicyclist and pedestrian rights, location and maps of the network and similar information.
- Inventory the radius of children walking to school (footprint).

Targets

- Every child lives within a five-minute walk of a pedestrian and cyclist network. In synergy with the Complete, Livable Neighborhood working group and the NMDOT's Safe Routes to School initiative, we want to encourage the Albuquerque Public School district to be more environmentally and socially responsible by having students attend, as first choice, their neighborhood schools.
- Walking is 10% of the commuting mode share by 2030.
- Bicycling is 20% of the commuting mode share by 2030.
- Bicycling in Albuquerque moves from its current "bronze" status to "gold" status by 2030, as measured by the League of American Bicyclist's Bicycle Friendly Community campaign.

The City of Albuquerque has taken the lead in providing low-emission transportation options for the community of Albuquerque through the following actions:

- A diverse alternative fuel bus system that provides express transit across the fixed-route systems
- D-Ride services that support NM RailRunner (commuter rail) commuters with downtown destinations and link to Rapid Ride and other bus routes
- Fixed-route services that create interconnectivity with the NM RailRunner throughout the community and at high-density employment areas
- The Blue Line that connects Albuquerque's west side to the University of New Mexico and the University of New Mexico Hospital
- National recognition by the League of American Bicyclists for Albuquerque's "bronze" rated bicycle-friendly community, which is one of the most extensive bike trail systems in the country.
- Bike & Ride program to encourage cycling in conjunction with public transportation
- Accommodation of all public transportation modes for bicycles

In spite of the City of Albuquerque's previous initiatives, transportation emissions may still account for over half of Albuquerque's GHG emissions. Unless significant changes are implemented to reverse this situation, transportation's share of emissions is projected to grow over the next decade.

"Albuquerque has a Bike Safety education program that reaches approximately 10,000 children per year.

Albuquerque maintains a number of programs reaching out to the bicycle community, including: a bicycle locker program that provides secure bicycle parking to metro area employers to encourage bicycle commuting; a regularly updated metropolitan area bike map/commuter guide; partnering with local bicycle advocacy groups to provide bicycle education and promotion; bikes on buses program; multiple departments with a variety of programs dedicated to encouraging bicycling as a viable transportation alternative."

(Source: *The League of American Bicyclists' Bicycle Friendly Community Campaign description of the City of Albuquerque's Bronze level bicycle friendly activities.* Learn more at www.bikeleague.org)

Synergy with Complete, Livable Neighborhoods

2. Offer the best transit service of any city in the Southwest.

Strategic action–Implement a transit strategy that will transform the existing transit system into a highly convenient and highly used transit system.

Actions to support this aim

- Update the existing transit strategy so it includes sustainability goals and GHG emissions reduction targets. Provide continual updates on the City's Sustainability website (cabq.gov/sustainability).
- Coordinate the transit and land use strategies for the City to ensure land use over time supports the desired transit supply network.
- Promote transit pass programs with large institutions and employers.
- Provide education and easy-to-use tools that support transit ridership, such as an Internet-based trip planning service.

Targets

- Achieve a 100% diversified alternative fuel fleet (See the City's Sustainability website at: cabq.gov/sustainability for active updates.)
- Consider transition-oriented development strategies for new development or redevelopment.
- Expand existing business and partnership programs whereby private companies provide employee transit benefits such as partial and full subsidy of ABQ Ride monthly passes, showers for bicycling commuters and bicycle racks for parking.
- Deploy technologies that promote transit pass usage.
- Increase use of technology.
- Grow existing sources of City transportation project funding and secure new sources project funding from foundations and similar grant-awarding institutions.

3. Ensure that fuels sold in the City are increasingly clean (ethanol, biodiesel, natural gas, electricity and others) and that they reduce greenhouse gas emissions.

Synergy with Carbon Neutral Buildings, Business, Industry and Carbon Offset Opportunities, Clean, Renewable Energy, Complete, Livable Neighborhoods, Food and Agriculture and Recycling and Zero Waste.

Strategic action–Develop an alternative and clean fuels strategy for the City that ensures all residents and businesses have access to fuels with reduced emissions, including convenient electric vehicle charging locations.

Action to support this aim

- Work with stakeholders to expand existing clean fuel requirements and supply over time.

Targets to support this action

- Allow public access to the existing private alternative fuels infrastructure by lobbying the state legislature to pass legislation that addresses the liability issues and concerns that have impeded public access to alternative fuels.
- Strongly encourage and support the growth of alternative fuel stations that are open to the public within and around the city.
- Encourage permitting and approval for construction of alternative fuel facilities for production, storage and distribution of alternative fuels.
- Promote the expansion of publicly accessible electric charging facilities within the community.

Community acceptance of alternative fuel and electric vehicles hinges upon public access to alternative fueling stations and electric vehicle charging facilities throughout the city.

Action to support this aim

- Work with stakeholders to develop a City and community strategy to respond to "peak oil" concerns about reduced oil production world wide, projected rising energy costs and national energy security issues.

Targets to support this action

- Encourage and ensure diversity of alternative fuel infrastructure development and supply production throughout the community.
- Promote economic development activities that encourage alternative fuel production within the community.
- Maintain a flexible and diverse City fleet to better respond to changing market conditions.
- Develop City-wide anti-idling legislation for both commercial and privately operated vehicles. The legislation will initially focus on education, then will move toward enforceable regulations over time.

Synergy with Carbon Neutral Buildings, Business, Industry and Carbon Offset Opportunities, Clean, Renewable Energy and Complete, Livable Neighborhoods.

4. Encourage the use of more efficient modes of travel and transportation by simultaneously and strategically constraining the parking supply.

Strategic action–Implement a City parking strategy that promotes more efficient modes of transportation and simultaneously reduces parking requirements to only essential minimums and that addresses the design of parking areas to minimize negative impact.

Actions to support this aim

- Evaluate and implement parking areas specifically for transit hubs.
- Develop design guidelines to reduce the number of parking spaces based on the type of developments.
- Designate free parking areas for hybrid vehicles.
- Develop design guidelines for environmentally friendly parking area designs that manage runoff in an ecologically sensitive manner and that mitigate heat island impacts.
- Construct bicycle stations and facilities to complement parking requirements.

Targets

- New and existing developments and businesses.

5. Develop streets in Albuquerque that meet a broad range of sustainability objectives.

Strategic action–Implement "complete street" standards that address sustainability objectives of reduced energy use, mitigation of contaminants in runoff, increased pedestrian safety and other values.

What is the Great Sreets Initiative?

"Great Streets" has been a major initiative over several years with much citywide public input and support.

"Great Streets" was last heard at the EPC on Jan. 22, 2009. The Facility Plan Draft was heard by the EPC on Thursday, 9 April, 2009.

Readers can learn more by visiting the City's website at www.cabq.gov/planning/publications.

Actions to support this aim

- Meet and exceed standards set forth by the American Association of State Highway and Transportation Officials (AASHTO). Meet the minimum requirements outlined in the Americans with Disabilities Act (ADA).
- Research leading examples of innovative street designs such as Home Zones, radical streets and Seattle's C-streets.
- Develop a pilot project set of standards and develop some examples of innovative streets in new developments and in upgrading older neighborhood areas.
- Implement innovative design standards across the city. Some examples include the use of recycled materials for street construction and design.

Targets

- Restripe to retrofit existing neighborhood streets
- Implement the "Great Streets" initiative and make it a compliance requirement for all new developments (Planning Department) or street projects (Department of Municipal Development).
- Collaborate with federal, state and county planning departments to design streets that support sustainability objectives.

Synergy with Social Change

6. Raise awareness and motivate citizens to pursue sustainable, low-emissions transportation choices.

Education and outreach needs

- Public education and outreach regarding mass transportation use and options.
- Provide information about alternative fuels and their benefits.
- Educate and reassure parents on the benefits of children walking to school.
- Support existing transportation programs such as the Safe Routes to School program.
- Promote bicycle education in the schools.
- Educate the public about trails and bicycle routes.
- Provide public information about driver and bicyclist etiquette.
- Educate the public about the benefits of alternative vehicle use. For example, partner with the City of Albuquerque, the University of New Mexico, Central New Mexico Community College and other organization to disseminate information about free parking for alternative fuel vehicles.
- Provide vehicle maintenance training for the public. A properly maintained vehicle can improve gas mileage, which can reduce greenhouse gas emissions. Training will include information about how to change engine oil, replace spark plugs, wires and air filters as well as proper tire pressure settings. Training can be in-person, or it can be provided via podcasts, public service announcements or other means.

Intended target audiences

- Parents, Albuquerque Public School district administration, bicyclists, pedestrians, drivers, businesses, students, neighborhood associations, community leaders, Albuquerque Police Department and senior citizens.

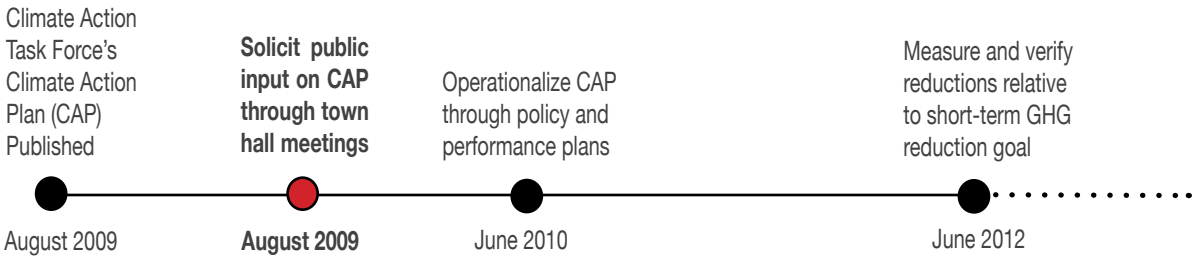
Expected outcomes of education and outreach

- Shared road etiquette, including bicycle conduct for new driver education.
- Increased use of mass transit options.
- Use more efficient, less-polluting modes of transportation.
- Defensive driving strategies.
- Walking and bicycling to school as a preferred transportation mode.

Baseline data that will measure the desired changes in behavior over time

- Auto vehicle accidents.
- Pedestrian accidents.
- Bicycle accidents.
- Bicycle commuting versus automobile commuting.
- Vehicle miles traveled per day.
- Types of vehicles via Motor Vehicle Department registration data.
- City greenhouse gas emissions inventory.

What's Next



Now that the work of the Climate Action Task Force is complete, we offer our strategies to the City officials and to the public for review, comments and discussion.

Through public dialog, town hall meetings and policy discussions, we look forward to discussing our recommendations and moving them from paper to policy.

The Plan is a dynamic document that will be periodically reviewed and updated through a long-term, ongoing process. We will develop measurement and verification processes to ensure that the Plan's strategies are reducing GHG emissions as intended.

Most importantly, we will revisit the Plan biannually to ensure that our greenhouse gas reduction strategies are still relevant.

In short, this is a living, dynamic document that will be periodically measured and revised to ensure that we achieve our short-, mid- and long-term greenhouse gas emissions reductions goals.

We invite you—the citizens of Albuquerque—to join us on this journey. Remain involved, watch our progress and participate in the public dialog about reducing greenhouse gas emissions for the social, economic and environmental health of our community.

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CITY OF ALBUQUERQUE CLIMATE ACTION PLAN [AUG.09]

Climate Action Task Force Recommendations to Mayor Martin J. Chávez

ALBUQUERQUEGREEN