



Sustainable Santa Fe

Annual Report of 2010 Activities



*"To Prepare Santa Fe for a
Changed-Climate Future and
Reduce Our Contribution to
Greenhouse Gas Emissions"*

Sustainable Santa Fe

A project of the City of Santa Fe, New Mexico
P.O. Box 909
Santa Fe, New Mexico, 87504-0909

For more information call: 505-955-6608

Or visit: www.SantaFeNM.gov/SustainableSantaFe

Executive Summary

This is the second annual report on the efforts by the City of Santa Fe to prepare for a changed-climate future and reduce greenhouse gas emissions. Sustainable Santa Fe is a partnership of City of Santa Fe and individuals and groups within the community working on a variety of areas to move the community towards a sustainable vision. That vision is expressed in the Sustainable Santa Fe Plan adopted by the Santa Fe City Council on October 29, 2008.

Key accomplishments in 2010 include:

- 121 permits were approved through the Residential Green Building Code since its enactment on July 1, 2009 resulting in the avoidance of 664 tons of greenhouse gas emissions, the equivalent of permanently removing 237 cars from the road.
- 2.25 megawatts of solar panels were installed at the wastewater treatment plant through a power purchase agreement resulting in a cost-savings for electric power to the wastewater facility.
- Several policy resolutions were passed by both Santa Fe City and County to improve the local food system including calling for a statewide local food preference
- 2 new community gardens were opened in City parks and are now fully subscribed with a waiting list.
- The greenhouse gas baseline and progress of emission reduction was sufficiently completed that trends are now available.

Key objectives for 2011 include:

- Update the green building code for ease of use, efficacy and consistency and begin review of the City's development code
- Implementation of a pilot environmental management system for City operations using the Public Utilities Department
- Increase public information and involvement in sustainability
- Support Energy Task Force of the Regional Planning Authority's efforts toward creating a municipal utility and pursuing power purchase agreements

Thank You . . .

To all who have helped us towards reaching our sustainability goals including the Sustainable Santa Fe Commission; the Water Conservation Commission; the Santa Fe Food Policy Council; City staff; Mayor David Coss; the City Council; and to all city residents, businesses, nonprofits and other organizations engaged in the important work of preserving and improving the livability of our city.

Santa Fe Appointed
Groups Working on
Sustainability:

Sustainable Santa Fe Commission

www.santafenm.gov/SustainableSantaFe

Energy Task Force of the City of Santa Fe / Santa Fe County Regional Planning Authority

www.santafenm.gov/index.aspx?nid=1846

Water Conservation Committee

www.water2conserve.org

Santa Fe River Commission

www.santafenm.gov/index.aspx?nid=572

Bicycle and Trails Advisory Committee

www.santafenm.gov/index.aspx?NID=1452

Santa Fe Metropolitan Planning Organization Transportation Policy Board

santafempo.org

Santa Fe City and County Advisory Council on Food Policy

www.santafefoodpolicy.org

Table of Contents



Sustainable Santa Fe

Executive Summary	1
Changed Climate Future	4
Adaptation to Climate Change	5
Ecological Adaptation	6
The Big Picture of Food	7
Local Food Production	8
Greenhouse Gas Emissions	9
Green Building	10
Urban Design & Mobility	11
Renewable Energy	12
Water Conservation	13
Waste Reduction & Recycling	14
Green Economy	16
Sustainability in Education	17
2010 Sustainable Santa Fe Awards	18
References	20



Changed Climate Future

Projections of Climate in Santa Fe

The past decade was the warmest on record, and 2010 was tied with 2005 as the second warmest year since recording began.

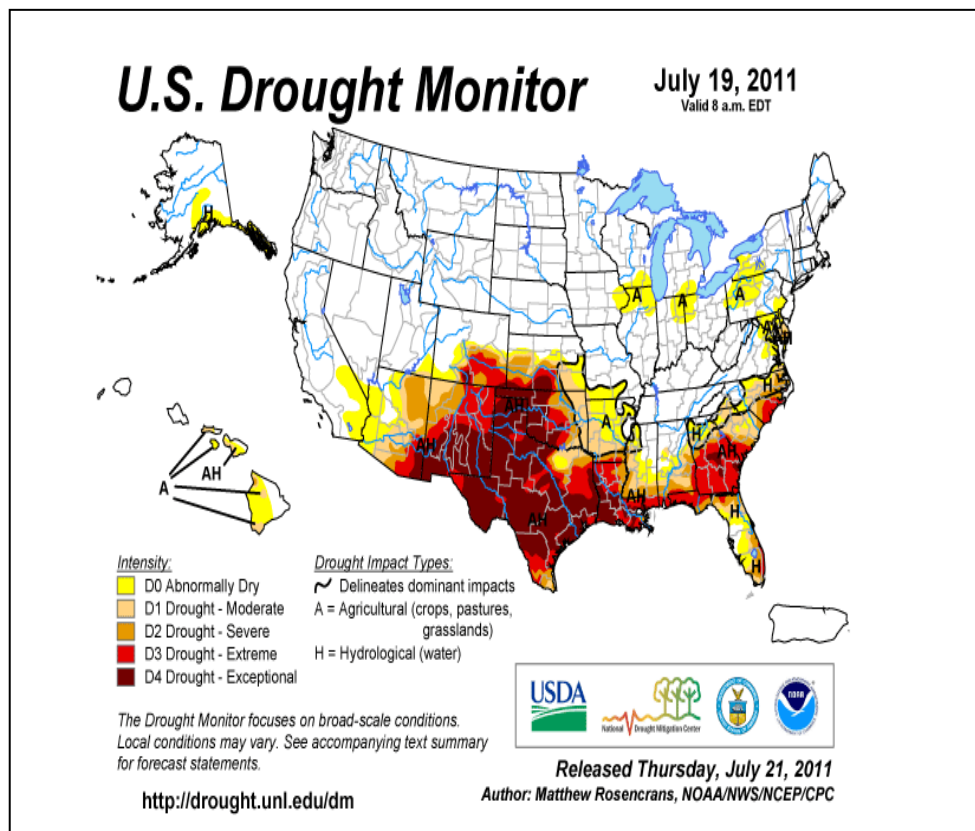
The timing of the changes to come are difficult to estimate, however, generally the weather in Santa Fe is projected to be warmer. It is also difficult to estimate how rainfall will be affected; however, the warmer temperatures will cause more evaporation of the precipitation we do get which is expected to result in dryer conditions.

Overtime our climate will begin to resemble those of communities that are at lower elevations and eventually our climate may look more like Las Cruces.

Trend Analysis

Trends throughout the southwest and within Santa Fe over the past several decades have shown rising mean annual temperatures since the early 20th century (Shepperd et al. 2002). Temperature increases impact our water supply and usage. Our historical reliance on slow snow melt to provide our water will become less stable as precipitation shifts to more rain than snow and the snow melts more rapidly. Additionally, our need for water increases with greater evaporation from higher temperatures.

Drought stressed ecosystems are subject to dieback, infestation, fire, erosion which then further reduces the ability of the ecosystem to store water increasing these effects further. (Grissino-Mayer et al. 2004, McKenzie et al, 2004, Westerling et al. 2006, Allen 2007, Allen & Breshears 1998, Breshears et al. 2005, Shaw et al. 2005)



Adaptation to Climate Change

Rising global temperatures and disruptions in wind and water patterns from climate change are already evident. Even with serious worldwide efforts to reduce greenhouse gas emissions, additional warming will inevitably occur.

The New Challenge

Since adoption of the Sustainable Santa Fe Plan in 2008, the adaptation focus has evolved from the need to rethink established land and water practices of ecological systems to multiple additional areas including capacity, public health, and emergency services, among others. (Hurd, 2011)

Governments Move to Include Adaptation

In the fall of last year, the White House initiated a National Climate Change Adaptation Strategy, requiring all Federal agencies to assume the responsibility of preparing for the complex implications of a changing climate. (White House, 2010) Numerous countries, states, and cities are also developing plans to build resiliency and reduce vulnerabilities. (SPUR, 2011)

Rising Needs for Santa Fe

Santa Fe's vulnerabilities, like those of the rest of the western U.S., include rising temperatures, increased likelihood of water shortages, increased likelihood of wildfires, increases in pests and pest-borne diseases, and increased cost of basic commodities and services. One example is food prices are expected to rise as extreme weather events such as heat, floods, and droughts damage agricultural crops. Another example is that increased heat waves can necessitate changes in buildings, requiring improved insulation, white roofs, etc. Adaptation has ramifications throughout every major sector of our city.

Targets

- ◆ Incorporate into City staff workshops information on the need for adaptation planning
- ◆ Publicize on the website some existing adaptation plans to raise awareness
- ◆ Initiate climate adaptation planning with community leaders and researchers.

What actions are "mitigation" (reducing emissions to slow climate change) and which are "adaptation" (adjusting to changes in climate)?

Example: Food Production and Distribution:

- ◆ **Mitigation:** *Reduce emissions* by encouraging local food production to significantly decrease emissions from food miles.
- ◆ **Adaptation:** *Prepare for rising food prices* by strengthening local food systems. ([www. ICLEIUSA.org](http://www.ICLEIUSA.org))



Youth learning to plant grain in the Railyard

Ecological Adaptation

Climate is a central factor controlling populations of all ecosystems and the species of which they are comprised. Thus, changes in climate will have large impacts on all species and may fundamentally change the composition of our ecosystems.

Climate Change Impacts on Other Species

Species need relative consistency in temperature, food sources, water, and other variables in order to survive. All over the world, plants and animals are moving away from their traditional areas (called “dispersal”) as climate changes, attempting to reach new, more suitable areas as their homes become too hot, too dry, etc. Different species possess different abilities in moving to new areas quickly. Thus, climate change will affect different species very differently. Because humans are changing the global environment at a prodigious pace, the key consideration becomes whether or not species will be able to cope with the fast *rate* at which the climate is changing.

Web Links and Resources

- ◆ <http://www.maweb.org/en/Index.aspx>



Native plants being planted along the Santa Fe River for restoration

Ecosystem Services

While many people would argue that other forms of life have *intrinsic* value (outside of their “utilitarian” value for human beings) other species are indeed important players in the cycles of life and renewal that humans have become deeply reliant upon. Scientists and ecologists call this *ecosystem services*. Ecosystem services include the purification of water through the hydrological cycle, stabilization of soil from plants (avoiding erosion) and the ability to hold carbon (“carbon sink”) which helps reduce climate change, microbial soils (providing nutrients for crop growth), and the complex predator/prey relationships in ecosystems which keeps ecosystems in a healthy balance. By recognizing the invaluable services that ecosystems and their individual members provide humans, we know the need to conserve other species is directly linked to the need to protect our own future.

2010 City & Community Activities

- ◆ Ongoing river restoration activities by Earth Works and others
- ◆ New Mexico Watershed Forum held
- ◆ Numerous films shown to increase awareness of the role of pollinators
- ◆ Wetland Restoration and Erosion Control training held

Targets

- ◆ Continue existing ambitious water conservation strategies
- ◆ Begin soil health and soil building campaign
- ◆ Incorporate adaptation planning into City planning processes
- ◆ Put adaptation information and resources on the website

The Big Picture of Food

Four Factors Driving up Food Costs

At least 4 factors are beginning to increase the price of food- climate change, Peak Oil, population growth, and deteriorating environment. The U.N.'s Food and Agricultural Organization anticipates a possible 40% increase in food prices over the next decade. (FAO)

- ◆ **Climate change and extreme weather-** rising temperatures, drought, fires, floods, and massive storms- are beginning to hit food growing, with even more extremes expected. As an example, two countries- Russia and Australia- were forced to stop exporting wheat due to the impacts of severe heat and drought, raising bread prices around the world.
- ◆ **Peak Oil-** As the price of oil inevitably increases, food prices rise for foods heavily dependent on oil- all large-scale chemically-dependent agriculture where food travels long distances. (Morrigan; Heinberg)
- ◆ **Population-** The more demand there is for food, the more prices rise, with billions more people expected in the coming decades. Over-fishing has already caused about a third of worldwide seafood species to have reached a “collapsed” state. Sixty three per cent of assessed fish stocks worldwide require rebuilding. (Worm et al)
- ◆ **Deteriorating environments-** Multiple environmental factors threaten food sources worldwide. Maintaining

biodiversity is critical to our food systems, with the rapid decline of pollinators, most likely from pesticides, as one example. Another huge concern is the acidification of our oceans. Billions of people are dependent on ocean foods, and carbon dioxide emissions are making oceans acidic, which if continues, will cause collapse of ocean food chains, with the loss of billions of pounds of fish food stocks. (UNEP) Stopping our CO₂ emissions is critical if we are to halt the dangerous acidification of the oceans.

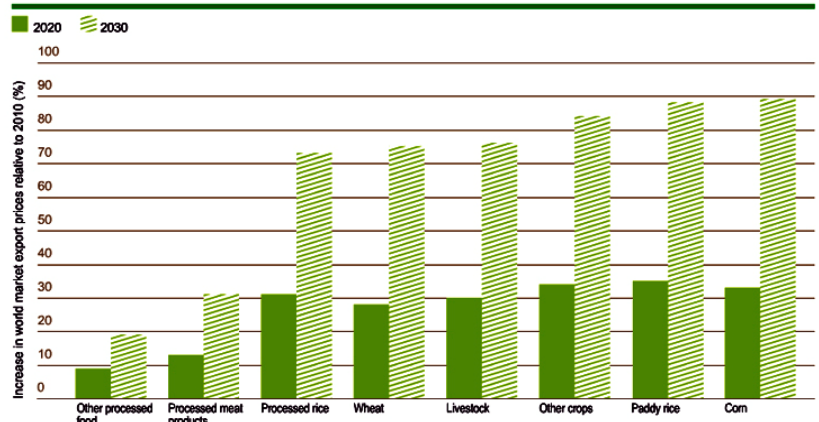
Trend Analysis

As these trends increase, there is an increasing recognition that today's chemical and oil dependent monoculture agriculture is threatened. While Federal subsidies have artificially propped up this current food system, increasing recognition of the need to develop more resilient food systems is building. Commodity Big Box foods are cheap because billions of Federal dollars prop up this system, and this Big Business model is now increasingly recognized as seriously flawed.

Growing diverse foods in organic soils high in carbon and microorganisms can weather climate extremes better. Local foods grown with local compost avoid most of any price increases in oil while providing local people income. When following sustainable practices, the most secure food system is the one right around you.

Food consumption is a heavy contributor to “indirect” or “embodied” emissions in products. The most recent studies suggest that the food system is responsible for up to 29 percent of global warming generated by the consumer economy in industrialized nations. (Kim, 2009)

Figure 7: Predicted increases in world food commodity prices



Oxfam predicts significant rises in food prices.

Local Food Production

Develop a Robust Local Food System

97% of the food grown and ranched in New Mexico is exported. Meat, dairy, alfalfa, chile, pecans, and onions all grown for export comprise over 95% of food produced in the state. We export \$2.5 billion dollars worth of agricultural revenues annually. Building a resilient local food system means increasing production, preserving and promoting agricultural land use, securing water resources for food production, training young farmers, and increasing demand for local food by educating the public and improving access to local healthy food for Santa Fe's underserved residents by reducing financial, transportation, and education barriers.

Target

- ◆ Increase the percentage of food grown and/or processed within the region to 25% percent by 2020. (Dreaming NM)

Trend Analysis

The cost of food is closely tied to fuel price fluctuations and environmental shocks. In 2010 a number of countries experienced food shortages. In the United States the price of food rose 4%. The price differentiation between local and non-local food products continues to be significant while more and more people struggle to put food on their tables. In Santa Fe 51.3% of children in the public schools qualify for free and reduced lunches and participation in food assistance benefits grew 18% in 2010.

The average age of a farmer at the SF Farmer's Market is 57. And 2010 saw a decline in vendors at the market from 162 to 147 due to aging farmers and prevailing economic issues.



2010 City & Community Activities

- ◆ In 2009, The City and County created the Santa Fe Advisory Council on Food Policy to advance food policy initiatives and conduct a regional food assessment as well as coordinate education, outreach, and food & health service efforts throughout the County.
- ◆ New Mexico Farmers' Marketing Association conducted the study *Community Action Food Project: Growing New Mexico's Food System by Empowering Low-Income Eaters*
- ◆ Santa Fe County passed an agricultural lands protection resolution
- ◆ The adopted Santa Fe County Sustainable Growth Management included goals to foster agriculture and ranching in the County
- ◆ 10% of food in NM is consumed through institutions. The State bill for 10% local procurement received local support and passed through both branches of the NM legislature, but ultimately was not signed by Governor Martinez.
- ◆ Farm to Restaurant expanded to serve over 40 restaurants generating \$70,000 worth of sales for local food producers
- ◆ Earth Care launched a Youth Food Cadre Program with nonprofit, school, and government partners leveraging over \$150,000 in federal funds to create 13 Americorps positions for young adults working to develop school & community gardens, food & health education, and support local producers & food orgs.
- ◆ The City's Community Gardens in Parks program expanded to include Sunny Slope.
- ◆ NM Home Grown was founded to teach urban homesteading skills.
- ◆ Food-related education occurred including movies on pollinators, etc. Also, grassroots skill sharing in gardening, food preservation and urban homesteading was conducted through a number of nonprofits and citizen's groups.

Web Links & Resources

- ◆ www.SantaFeFoodPolicy.org
- ◆ www.FarmToTable.org
- ◆ www.SantaFeFarmersMarket.com/Insititute
- ◆ www.FarmersMarketsNM.org
- ◆ www.earthcare.org/programs
- ◆ www.homegrownnewmexico.org

Greenhouse Gas Emissions

Reduce Carbon Emissions

Human activity is responsible for unprecedented amounts of carbon emissions which are threatening our weather and our very survival. In the US, transportation and coal-burning power plants are the largest producers of carbon emissions.

There's another way to look at emission sources- by what we consume. High percentages of emissions are associated with material goods including food, with all aspects of manufacturing (mining, power requirements, packaging, etc.), shipping, and disposal, which can generate methane.

By signing on to the US Mayors Climate Change agreement, Santa Fe agreed to try to reduced citywide greenhouse gas emissions to 7% below the 1990 levels by 2012. That goal is not achievable, however we are making advances.

Targets

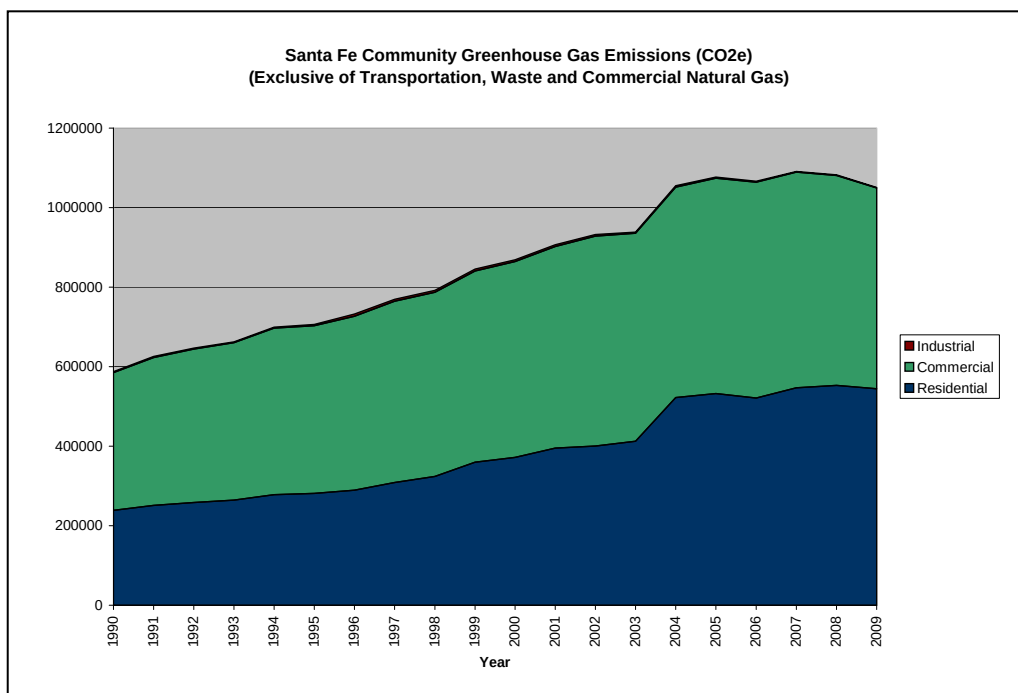
- ◆ Reduce greenhouse gas emissions from municipal operations
- ◆ Reduce citywide greenhouse gas emissions
- ◆ Reduce emissions from energy-intensive out-of-state products, such as food

Trend Analysis

Santa Fe began tracking its greenhouse gas emissions both from municipal operations and from the larger community in 2010 and updated that inventory in 2011. The trends to date indicate that while the emissions per capita have begun to go down, with increased population, the overall amount of emissions continues to go up albeit as at a lower rate.

City Council Resolutions

- ◆ In 2006 the Mayor and City Council signed on to the US Conference of Mayor's Climate Change Agreement which adopts the Kyoto Protocols of reducing greenhouse gas emissions to 7% below the 1990 levels by 2012
- ◆ In 2006 the City Council reappointed the Sustainable Santa Fe Commission with an updated mission.
- ◆ In 2008 the City Council adopted the Sustainable Santa Fe Plan
- ◆ In 2009 the City Council adopted a progressive Residential Green Building Code



Green Building

Reduce Energy Demand from Buildings

Buildings are responsible for nearly half of current greenhouse gas emissions. (Architecture 2030. 2009) They also represent the greatest opportunity for reducing greenhouse gas emissions with technology and methods that are currently available.

Voluntary programs have not shown to have the participation rate needed to make a substantial dent. Therefore, mandatory requirements that set the minimum bar that everyone must meet are necessary to achieve overall greenhouse gas emission goals.

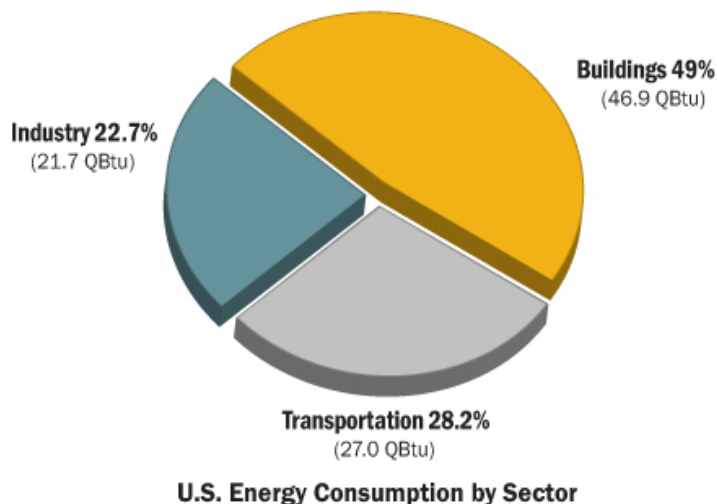
Trend Analysis

Santa Fe implemented a green building code for new single-family residential building effective 7/1/09. Through 2010, 121 permits were approved under the code. While the code reduces greenhouse gas emissions in several ways, data is only collected for the energy used in building operation. From that activity the code resulted in:

- ◆ avoiding 664 tons of greenhouse gas emissions each year
- ◆ The equivalent of permanently removing 237 cars from the road

Target

- ◆ Require building energy reductions that meet the 2030 Architecture Challenge of all buildings having net-zero energy requirements by 2030.
- ◆ Reduce City-owned building energy use.



Source: ©2010 2030, Inc. / Architecture 2030. All Rights Reserved.
Data Source: U.S. Energy Information Administration (2009).

2010 City & Community Activities

- ◆ In 1990 the City adopted the Residential Green Building Code which requires buildings to be 30% more efficient than the building code at a minimum.
- ◆ The City allocated the majority of the American Recovery and Reinvestment Act funds to municipal building energy efficiency projects.
- ◆ The City and Homewise Inc. partnered on a low-interest loan program for energy efficiency and renewable energy home installations for income qualified homeowners.
- ◆ Santa Fe County prepared a PACE loan program which the City signed on to that has subsequently been stalled at the federal level.
- ◆ The NM State Sustainable Building Tax Credit awarded 39 residential and 2 commercial tax credits for totals of \$376,954 and \$235,715 in Santa Fe County with statewide totals of 888 residential and 6 commercial for totals of \$7,564,092 and \$681,481 since the program's inception.

Web Links & Resources

- ◆ www.homewise.org

Urban Design & Mobility

Reduce Carbon Emissions

Transportation is the second greatest source of greenhouse gas emissions, including movement within Santa Fe and importing goods into the community (embodied transportation energy). While efforts to develop clean fuel vehicles may eventually help reduce transportation-related emissions, there are other options available to reduce the impacts of transportation in the shorter term.

Urban design plays a key role in the viability of emission-free transportation modes such as walking and biking. New Urbanism and Smart Growth strategies can further facilitate a community's ability to reach its sustainability goals.

Targets

- ◆ Reduce the number of vehicle miles traveled (VMT) per capita.
- ◆ Increase local capacity to produce consumer materials, especially for food and shelter, to reduce heavy embodied energy when brought in from out-of-state.

Web Links & Resources

- ◆ www.SantaFeNM.gov/index.aspx?NID=498
- ◆ www.SmartGrowth.org
- ◆ www.SantaFeMPO.org
- ◆ www.SantaFeMPO.org/bicycle-master-plan

Trend Analysis

- ◆ The City of Santa Fe started a project to re-examine a portion of St. Michael's Drive to change its current automobile-dominated character and improve walkability.
- ◆ Ridership of the Santa Fe Trails bus system has increased steadily. Prior to 2008 ridership increased around 7% per year but in 2008 and 2009 the increase was over 12%. The increase in 2010 was 8.2%.
- ◆ Ridership of the NM Rail Runner Express commuter train between Santa Fe and Albuquerque began on December 17, 2008. Service was free for the first 3 months. Ridership between 2009 and 2010 dropped 13.7 percent as a result.
- ◆ The Metropolitan Planning Organization adopted "complete street standards" and will encourage member organizations to do as well. (The City of Santa Fe already has complete street standards for new development.)
- ◆ The Metropolitan Planning Organization started a Bicycle Master Plan to guide development of bicycle infrastructure in the region.
- ◆ Santa Fe Trails began purchasing new buses with larger bicycle rack carrying capacity due to increased demand.



Sample section of St. Michaels Boulevard with New Urbanist planning concepts from visioning exercise

Renewable Energy

Facilitate Development of Clean Renewable Energy within the City

Power plant emissions, especially from coal-fueled plants, are the greatest single contributor to greenhouse gas emissions. Development of renewable sources of energy to replace existing sources is essential to arrest and reverse the effects of climate change.

Santa Fe has 320 sunny days per year making Santa Fe one of the best solar energy locations in the country.

Targets

- ◆ Increase the percentage of energy used in Santa Fe that is generated using clean, renewable sources
- ◆ Increase energy efficiency to significantly reduce energy demand

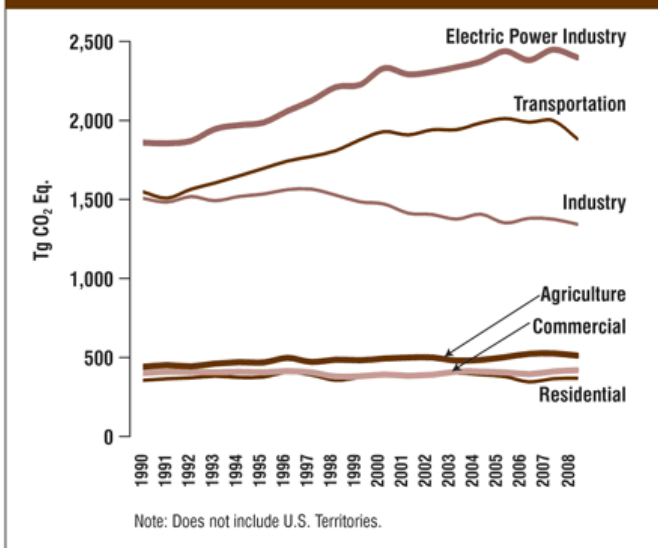
Trend Analysis

Recent federal and state tax rebates along with renewable energy credits (RECs) by PNM, the local electric utility, have resulted in a number of individuals and businesses electing to install photovoltaic panels. Similar incentives have resulted in installations of solar thermal systems and ground-source heat pumps.

In 2010, 121 residences and businesses in Santa Fe installed a total of 654 kw of grid-tied AC solar power.

NM Environmental Improvement Board established an important greenhouse gas emissions cap which will affect large emission producers, electricity generation being the largest. The Santa Fe non-profit New Energy Economy contributed key facts to the hearings.

Emissions Allocated to Economic Sectors



Reference: Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008, USEPA #430-R-10-006

Recent City & Community Activities

- ◆ The City contracted for lighting retrofits in 25 City buildings saving over 30,000 kWhs per month and voiding 30 metric tons of CO₂.
- ◆ The City also entered into an agreement to install 2.25 megawatts (direct current) of solar photovoltaic panels for the wastewater treatment plant.
- ◆ The State of New Mexico's Solar Tax Credit Program was used to install 851 photovoltaic and 107 solar thermal certified applications for a total of \$2.26 million in tax credits for PV and \$179,353.40 for solar thermal. For more information go to:

www.emnrd.state.nm.us/ECMD/CleanEnergyTaxIncentives/cleanenergytaxincentives.htm

Water Conservation

Water Conservation in Santa Fe

The City of Santa Fe's Water Conservation Office has actively pursued water conservation, including a water appliance rebate program, and has achieved significant water savings in recent years (see graph below)

The Water-Energy Nexus

Water and energy use are deeply interconnected, known as the "water-energy nexus". To produce energy from coal requires $\frac{1}{2}$ gallon for every 1 kilowatt-hour of power generated. The vast majority of the electricity in Santa Fe is produced from coal. Additionally, energy is required to extract, treat, and distribute water. The energy demand to get clean drinking water to Santa Fe will increase as the new Buckman diversion project comes on line. Solar PV is being installed to help offset some of this additional demand but will not offset all of it.

Sustainable Water Resource Management

Climate change is predicted to result in hotter, windier weather with prolonged droughts resulting in less snow pack in New Mexico. Approaching water conservation

from the broad view of sustainable development can result in innovative solutions with crosscutting benefits of energy efficiency, soil quality, ecosystem resilience, climate change mitigation/adaptation and human well-being.

2010 Milestones

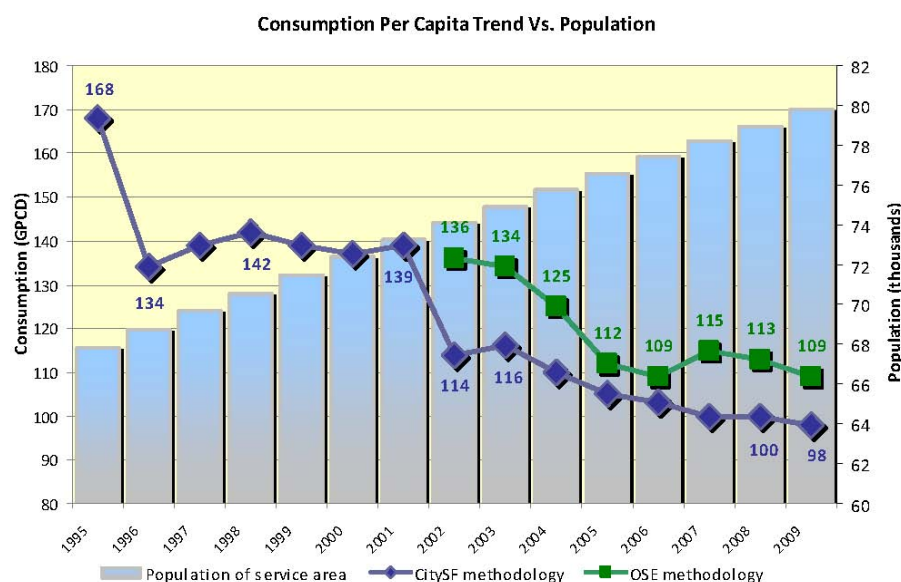
- ◆ The Residential Green Building Code requires further reductions to water consumption
- ◆ The City of Santa Fe uses treated effluent to water parks and golf courses
- ◆ The Water Conservation Committee proposed a resolution to incorporate climate change considerations into the City's Long Range Water Supply Plan.

Target

- ◆ Continue increasing water conservation strategies to reduce per capital water consumption.

Web Links & Resources

- ◆ www.Water2Conserve.com
- ◆ www.SantaFeNM.gov/WaterBudgetOffice



Source: Annual Water Report, City of Santa Fe, September 2010, Sangre de Cristo Water Department

Waste Reduction & Recycling

Reduce Carbon Emissions

The lifecycle of products we use in our daily lives impact GHG emissions from manufacturing to transportation to disposal. Waste reduction, and to a lesser degree, recycling reduce greenhouse gas emissions.

Trend Analysis

Waste generation in Santa Fe and across the nation has been declining since 2008 due to the economic downturn. The graphs below show the amount and types of waste and recycling brought to Santa Fe's Caja del Rio Landfill and Buckman Road Recycling and Transfer Station in 2007, 2008, 2009 and 2010. While waste has been declining, recycling has increased by approximately 10% each year.

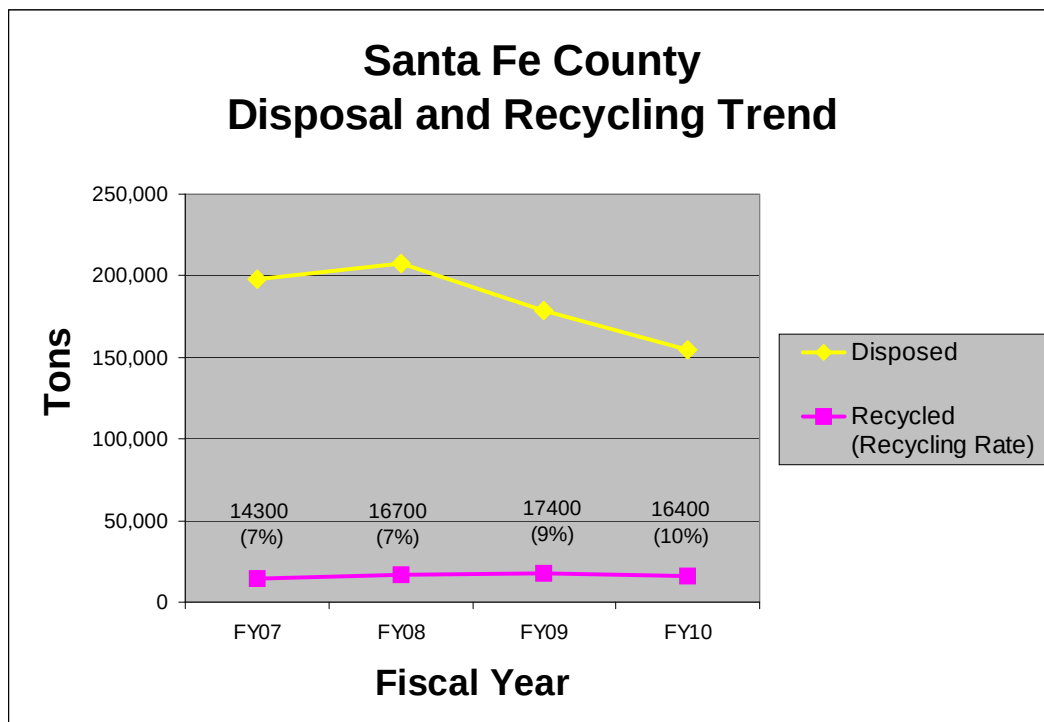
Despite increases in recycling, the rate of recycling in Santa Fe remains low at 11% in 2010. The average in the State of New Mexico is 13% and the national average is 33%. The low rate is likely due to a lack of awareness of available recycling services and failure of private recycling companies such as cardboard and scrap metal recyclers to report materials recycled.

2010 Accomplishments

- ◆ The Save A Ton public information and involvement campaign was launched by the Santa Fe New Mexican and City of Santa Fe to double recycling in Santa Fe.
- ◆ The Comprehensive Solid Waste Management Plan was driven by a community advisory council and adopted by City of Santa Fe, Santa Fe County and Santa Fe Solid Waste Management Agency (recommendations on next page)
- ◆ Keep Santa Fe Beautiful collected 33 tons of electronics for recycling
- ◆ The Santa Fe Community College adopted a zero-waste policy that was facilitated by Waste As Value (WAVlinks)
- ◆ WAVlinks developed a concept map showing how biomass resources could be used to fuel new businesses in northern NM.

Web Links & Resources

- ◆ www.newmexicorecycles.org
- ◆ www.santafenm.gov/recycle
- ◆ www.sfswma.org
- ◆ www.keepsantafebeautiful



Waste Reduction & Recycling Continued

Comprehensive Solid Waste Management Plan (CSWMP)

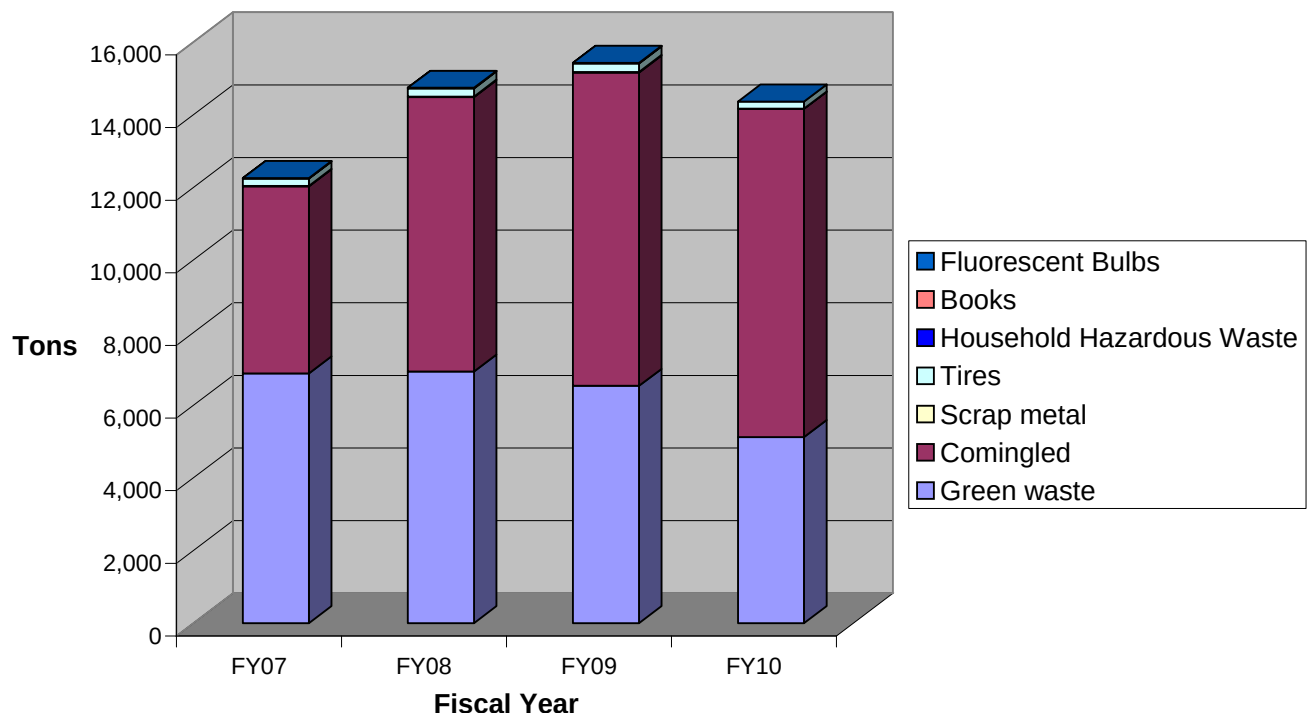
CSWMP key recommendations:

- ◆ Reduce environmental impact of waste through policies, programs & operations
 - Recycle additional materials
 - Increase convenience of recycling
 - Establish a reuse program
 - Increase collection of recyclables
 - Increase construction recycling
 - Ban some recyclables from landfill
- ◆ Provide reliable, long term, fiscally sound disposal services
 - Consider requiring trash & recycling collection in County
 - Fees should cover cost of services
 - All Santa Fe waste goes to our landfill
 - Accept out of County waste at landfill
 - Establish a multifaceted promotion and education program
- ◆ Establish a multifaceted promotion and education program.



Keep Santa Fe Beautiful
"Adopt a Median" Program

Santa Fe County Recycling



Green Economy

Create an Economy Where Sustainability is Integral to Business Interests

Where actions to reduce greenhouse gas emissions also reduce costs for businesses, it is easy to effect change. However, for other kinds of changes that don't result in a cost benefit, other types of incentives or benefits needs to be developed in order to ensure they happen and are sustained over time. To affect such changes, incentives need to be developed aimed at that specific goal. Such incentives could include assisting the development of a market strategy using awards or other forms of public recognition.

Targets

- ◆ Develop green business recognition programs in key industries in Santa Fe
- ◆ Publicize business development services available for starting or growing or greening businesses

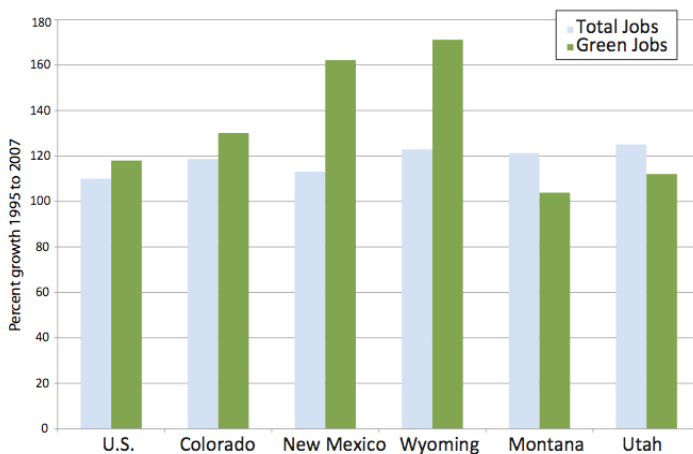
Trend Analysis

Green business programs are increasingly being launched nationwide to assist and to recognize businesses going green.

The energy efficiency financing program described in the energy section has resulted in increased economic activity for local installers.

The Farm to Restaurant program described in the Food Systems section has increased the economic activity of local farmers by creating a local market for their products.

Growth in Green Jobs v. Total Jobs, 1995-2007



Source: Green Establishment Database, Collaborative Economics

2010 Milestones

- ◆ Sustainable Santa Fe Awards program celebrated its second year
- ◆ Santa Fe Business Awards included a green category for the second year
- ◆ Santa Fe Alliance is running a Farm to Restaurant program with recognition given to participating restaurants
- ◆ Santa Fe Alliance held a Fresh Connections Expo networking local food growers and vendors

Web Links & Resources

- ◆ www.SantaFeAlliance.com
- ◆ www.SantaFeChamber.Com

Sustainability Education

K-12

- ◆ Sustainability Education Task Force launched.
- ◆ Santa Fe Public School district hired an Energy Conservation Program Coordinator who has instituted numerous energy conservation projects
- ◆ Earth Care and the Sustainable Santa Fe Commission confer Eco School Sustainable Santa Fe awards
- ◆ Board of Education passed an Energy Management resolution
- ◆ SFPS exploring a power purchase agreement for nearly 2 megawatts of solar energy
- ◆ All school buildings to be evaluated by DOE's Energy Star for Buildings rating
- ◆ Recycling programs are now at every school in the district
- ◆ School gardens are now at many of the 25 schools in the district
- ◆ Capital High started it's third year of the Capital Green project
- ◆ Santa Fe High installed greenhouses and 4 kilowatts of solar panels
- ◆ Most Santa Fe public schools participate in the Farm to School program bringing fresh local fruits and vegetables into schools

Higher Education

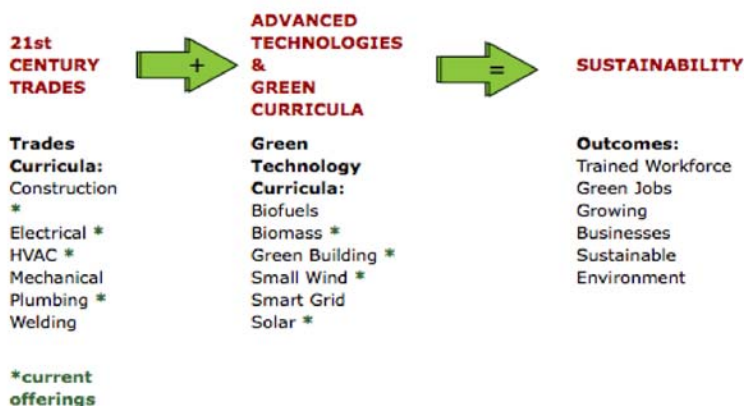
The Santa Fe Community College (SRCC) and Northern New Mexico College (NNMC) both offer coursework and degree programs addressing climate change objectives.

SSFC Activities in 2010:

- ◆ Began implementation of the Sustainability Plan, adopted by the Regents in April 2009.
- ◆ The District approved a bond including \$7 million in green projects for the campus.
- ◆ The Sustainable Technologies Center became its own school
- ◆ Construction of the Trades and Advanced Technologies Center progressed

NNMC Activities in 2010:

- ◆ Established the Green Jobs for Veteran's Program.
- ◆ Sustainability and green technologies continued to be integrated into curriculum for renewable energy, construction trades, environmental science, range ecology, pre-forestry, and sustainable agriculture.
- ◆ Piloted an internship program with a student assisting the City of Santa Fe to calculate community greenhouse gas emissions.
- ◆ Sostenga Center for Sustainable Food, Agriculture and Environment received funding to demonstrate a local, healthy food economy.



Web Links & Resources

- ◆ www.nnmc.edu
- ◆ www.sfcc.edu
- ◆ www.sfps.info

2010 Sustainable Santa Fe Awards

2010 was the second year that the Sustainable Santa Fe Awards were given. The awards are given to a project that represents an innovation or best practice in each of the areas of focus from the Sustainable Santa Fe Plan from the preceding year. In 2010 the winners were:

Youth-Led Project



Victoria Atencio and the Santa Fe Indian School for the Earth Appreciation Senior Honors Project to reduce the school's ecological footprint

Green Building



Faren Dancer for completing the Emerald Home to the City of Santa Fe Residential Green Building Code Emerald level and produces more energy than it uses

Living Small and Green



John Hesse for "greenstream" which is an old Airstream that was converted into a mobile green living classroom

Water Conservation



Ten Thousand Waves for installing a water recycling laundry facility

Alternative Transportation



Chainbreaker Collective for finding a new home to repair and maintain bikes for low income people to have a form of transportation

Renewable Energy



YouthWorks and the Santa Fe Community Housing Trust for "EnergyWorks", a program to perform energy efficiency improvements in low income neighborhoods

Solid Waste Reduction



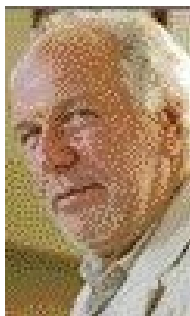
Mexica Calderon for launching the Santa Fe chapter of Food Not Bombs

Solid Waste Reduction



Saint Michaels High for winning the "Turning Over a New Leaf" competition to collect recyclables.

Education Program Development



Lou Schreiber for a lifetime of promoting sustainability education at the Santa Fe Community College

Both Lou Schreiber and Rose Simmons passed away in 2010. They will be missed.

Affordable Green Housing



YouthWorks, Santa Fe Area Homebuilders Association and Santa Fe Habitat for Humanity for building an affordable green home using at-risk youth

Sustainability Education



Green Fire Publications, LLC for launching the monthly "Green Fire Times"

Food Systems



Santa Fe Alliance for launching the "Food and Fuels" project connecting sustainable food and energy economies

Perpetual Spark of Inspiration



Rose Simmons for her work promoting sustainability with other youth

References

- Allen, D.D. and D.D. Breshears. 1998. Drought-induced shift of forest-woodland ecotone: rapid landscape response to climate variation. *Proceedings of the National Academy of Sciences USA* 95: 14839-42.
- Allen, Jason, Tim darden, Randy Floyd, Maggi Gallaher, Doug Jones, Kim Kistelnick, Kathy Kretz, Richard Lucero, Brad Musick, Rudy Romero, Barbara Toth, Mary Uhl and Lany Weaver. 2005. Potential Effects of Climate Change on New Mexico. Agency technical Work Group, State of New Mexico.
- Architecture 2030 website. www.architecture2030.org.
- Bailey, Robert. 2011. Growing a Better Future: Food Justice in a Resource-Constrained World. Oxfam.
- Breshears, D.D., Neil S. Cobb, Paul M. Rich, Kevin P. Price, Craig D. Allen, Randy G. Balice, William H. Romme, Jude H. Sastens, M. Lisa Floyd, Jayne Belnap, Jesse J. Anderson, Orrin B. Myers, and Clifton W. Meyer. 2005. regional vegetation die-off in response to global-change type drought. *Proceedings of the National Academy of Sciences (USA)* 102:15144-15148.
- Enquist, Carolyn and Dave Gori, 2008. A Climate Change Vulnerability Assessment for Biodiversity in New Mexico, Part I: Implications of Recent Climate Change on Conservation Priorities in New Mexico. The Nature Conservancy.
- Enquist, Carolyn, Evan H. Girvetz and Dave Gori, 2008. A Climate Change Vulnerability Assessment for Biodiversity in New Mexico, Part II: Conservation Implications of Emerging Moisture Stress due to Recent Climate Changes in New Mexico. The Nature Conservancy.
- FAO, OECD-FAO *Agricultural Outlook 2011-2020*
- Grissino-Mayer, H.D., W.H. Romme, M.L. Floyd, and D.D. Hanna. 2004. Climatic and human influence on fire regimes of the southern San Juan Mountains, Colorado, USA. *Ecology* 85: 1708-1724.
- Gutzler, David S. 2007. Climate Change and Water Resources in New Mexico. *New Mexico Earth Matters* [summer] 2007. New Mexico Bureau of Geology and Mineral Resources, A division of New Mexico Tech.
- Gutzler, David S, and Tessia O. robbins. 2010. Climate variability and projected change in the western United States: regional downscaled and drought statistics. *Clim Dyn* DOI 10.1007/s00382-010-0838-7.

Heinberg, Richard. March 11, 2011. *Why growth won't return – food*. Peak Oil News and Message Boards.

Hurd, Brian H. 2011. Strengthening Adaptive Capacity and Community Preparedness for Adverse Climate Events, Variability and Changes. *Invited Testimony Prepare and Presented to the US Senate Committee on Energy and Natural Resources*.

Kim, B., R. Neff. 2009. Measurement and communication of greenhouse gas emissions from U.S. food consumption via carbon calculators, *Ecological Economics*, koi:10.1016/j.ecolecon. 2009.08.017.

McKenzie, D. Z. Gedalof, D.L. Peteroson, and P. Mote. 2004. Climatic change, wildfire, and conservation. *Conservation Biology* 18: 890-902.

Morrigan, Taniel, October 2010. *Peak Energy, Climate Change, and the Collapse of Global Civilization: The Current Peak Oil Crisis*. Global Climate Change, Human Security and Democracy, Orfalea Center for Global and International Studies, University of California, Santa Barbara.

Robles, Marcos and Crolym Enquest. 2011. Managing Changing Landscapes I the Southwestern United States. The Southwest Climate Change Initiative of the Nature Conservancy.

Shaw, J.D., B.E. Steed, and L.T. DeBlander. 2005. Forest inventory and analysis (FIA) annual inventory answers the question: what is happening to pinyon-juniper woodlands? *Journal of Forestry* [September]: 280-285.

Sheppard, P.R., A.C. Comrie, G.D. Packin, K. Angersbach, M.K. Hughes. 2002, The climate of the U.S. Southwest. *Climate Research* 21: 219-238.

SPUR. Climate Change Hits Home. May 2011.

UNEP. 2010. *Environmental Consequences of Ocean Acidification- a Threat to Food Security*, UNEP

The White House Council on Environmental Quality. Progress Report of the Interagency Climate Change Adaptation Task Force: Recommended Actions in Support of a National Climate Change Adaptation Strategy. October 5, 2010.

Worm, Boris, et al. *Rebuilding Global Fisheries*. Science. 31 July 2009: Vol. 325 no. 5940 pp. 578-585

