

PARTNERS IN PROGRESS

City of Phoenix

Fifth largest US city serving over 1.5 million people
Operates within 517 square miles (larger than LA)
Over 80 current sustainability programs in water, energy and natural resource conservation

Sky Harbor International Airport

Eighth busiest in the US serving over 40 million passengers annually
Handles over 1 million take offs and landings annually
Serves more than 100 cities with flights worldwide

Arizona State University

Nation's first-ever School of Sustainability and Global Institute of Sustainability
Largest student enrollment in the US
Largest university installed solar generation capacity

Arizona Public Service

Arizona's largest and longest-serving electricity utility
Serves over 1.1 million customers
Partner in 280 MW solar power plant planned for 2012

Phoenix Union High School District

Incorporates 25,645 students in 17 schools
Diverse student body, including 78.2% Hispanic
Includes high ranking Bioscience and Tech high schools

Salt River Project

Provides electricity to nearly 930,000 retail customers
Operates or participates in 11 major power plants and numerous other generating stations
Targets 15% of retail sales through sustainable resources by fiscal year 2025

Maricopa Association of Governments

Serves as the regional planning agency for the metropolitan Phoenix area
Provides planning and policy decisions in transportation, air quality, water quality, and human services

Arizona Corporation Commission

Oversees the regulated electric power industry in Arizona
One of only seven state constitutionally formed "public service" commissions
Ruled that electric utilities must generate 15 percent of their energy from renewable resources by 2025

First Solar

Largest manufacturer of thin film solar modules
Manufacturing capacity of 735 MW in 2008; expected capacity more than 1 GW by the end of 2009
One of the fastest growing manufacturers of solar modules in the world

BrightSource Energy

Developer of large scale, low cost solar thermal plants at prices competitive with fossil fuels, for industrial and utility customers worldwide
Under contract with Southern California Edison (SCE) to provide 1,300 mw of solar thermal power

CH2M Hill

Global leader in engineering, procurement, construction, management and operations for energy clients
\$5.8 billion in revenue and 25,000+ employees
Expertise in energy, water, transportation, environmental, nuclear and industrial facilities

Green Ideas

Leading local consulting firm committed to the promotion of sustainable building practices, renewable technology and energy efficiency in the Green Building industry
Helped establish and operate the U.S. Green Building Council Chapter in Arizona

Maricopa Community Colleges

Comprises 10 individually accredited colleges, 2 skill centers and multiple education centers
One of the largest higher education systems in the world and the largest provider of health care workers and job training in Arizona

ASU ARIZONA STATE UNIVERSITY



GREEN PHOENIX

MEASURING SUCCESS – BECOMING AMERICA'S GREENEST CITY (Selected Examples)

Solar energy capacity created: 250MW (energy production capacity); current capacity 12.1MW

CO2 emissions reduction: 430,000 metric tons of CO2/YR; current emissions estimated at 25,500,000 metric tons

Energy actually generated through photovoltaic: 600 million kWh/yr

Energy cost savings from solar pv: \$57 million/yr

Cost savings through energy efficiencies: \$15 million/yr

Habitat restored or protected: 1,500-3,000 acres

Jobs created: 8,000-12,000 new jobs, 50% of which are "green jobs"; reduce current unemployment 13-20%

Sustainability education: All Phoenix high schools increase energy efficiency via student engagement

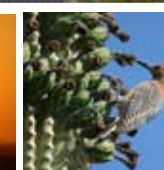
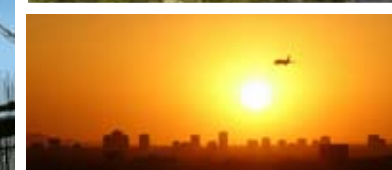
Water conserved in projects: 25% through audits and retrofits

Water reused in proposed projects: 85% of waste water reused

Water supply augmentation/resilience: Increase capacity of 10 million gallons/day through desalinization

SHARING AND LEVERAGING SUCCESS

- Collaborate with a collection of non-profit and public institutions, e.g. the National League of Cities, the US Department of Energy, and NASULGC, to develop an overall "lessons learned" communications program
- Launch regional, near term, city specific pilot programs modeled on successes of "Green Phoenix" to deploy renewable energy solutions that were proven to create jobs and yield a return on investment
- Develop re-training programs that produce skilled "green" workers needed to expand programs that were successful in Phoenix
- Create informed promotional campaigns that target the advantages of solarization and retrofitting of public and commercial buildings in cities with the most opportunity for job growth and energy savings
- Establish a series of successful policy-based strategies for private adoption of green attitudes and habits, including specialty financing and public incentives for greening of privately held property and telecommuting and recycling programs
- ASU will present a "Green Phoenix" progress report to over 40,000 attendees at the annual International Green Build Conference hosted in Phoenix in November 2009.



1. Greener Neighborhoods

Train unemployed workers to rehabilitate distressed homes for water and energy efficiency. Creates green jobs, improves performance of housing stock, increases housing affordability, reduces greenhouse gas emissions, stimulates housing market.



2. Solar City

Install solar PV and solar water heaters in existing public facilities, require in public new facilities, incentivize in residential and commercial sectors. Reengineer city landfill to accommodate public-private solar thermal generation plant. Increases green jobs, reduces greenhouse gas emissions, relieves peak load on power grid and utilities, reduces reliance on foreign oil.



3. Urban Mobility

Extend Phoenix Light Rail line, complete connector to Phoenix Sky Harbor airport, provide bicycle rentals at light rail stops, solarize stops and accompanying park and ride facilities, improve regional bus connectivity. Creates construction jobs, stimulates economic development, encourages urban infill, uses renewable energy, reduces GHG emissions.



4. Green Your Home and Business

Engage philanthropic or partnership strategies to develop energy and water audits of homes and small businesses; provide subsidies for insulation, replacement of old fixtures, solar PV, irrigation system timers; low-flow shower heads, CFL light bulbs, weather stripping. Increases green jobs, reduces energy waste, reduces water consumption and treatment, reduces expenditures for home and business owners.



5. Desert Hydroscape

Create unique sustainable desert water features that leverage existing water infrastructure such as canals, storm drainage, and water treatment; harvest rain water, reclaim air conditioning condensate, utilize hydropower energy. Creates multipurpose public spaces, upgrades neighborhoods, stimulates urban infill, attracts tourism, creates green and construction jobs.



7. Central City Green

Clean-up and redevelop brownfield sites in downtown; convert to mixed-use infill projects; augment natural and built shade. Decontaminates land, reduces toxic exposure, recycles land back into the market, adds value to blighted neighborhoods, creates green employment, provides remedies for environmental inequities.



6. Public Buildings LEED Retrofit

Bring public buildings up to new LEED equivalent retrofit standards. Reduces greenhouse gas emissions, reduces operational costs of public buildings, creates green jobs, provides high-visibility model for green redevelopment.



8. Discovery Triangle Smartscape

Deploy innovative, sustainable building design in blighted area of Discovery Triangle district using smart materials, landscaping, shading strategies through incentives for private developers. Creates green jobs, creates construction jobs, improves public health, reduces heat, reduces energy/water demand.



9. Renewable Energy

Go "beyond solar" by using untapped renewable energy sources such as landfill gas, waste heat, biomass, biodiesel, and photosynthetic algae to power businesses and public institutions. Reduces greenhouse gas emissions, creates green jobs, reduces load on power grid and utilities, extends landfill life.



10. Efficient City Lights

Convert public outside illumination to very high efficiency and dark skies compliant lighting; convert traffic signals to LED. Provides cost savings, enables night sky viewing, creates green jobs.



12. Canalscape

Develop Phoenix's canal system for recreation, green enterprise and multi-modal non-motorized transportation. Creates construction jobs, leverages heritage, improves recreation opportunities, raises property values.



13. Beyond Sustainable Schools

Educate and deploy students to develop sustainability assessments, recommendations and monitoring programs for area high schools. Creates entry-level jobs, reduces greenhouse gas emissions, reduces operating costs of public schools, educates next generation on sustainable practices.



14. Phoenix Regional Desalt

Enable a renewable source of water for the region by constructing a regional desalination facility using existing technologies to enhance water quality through removing dissolved salt from treated waste water and brackish groundwater. Creates construction and professional jobs, expands renewable water supply, recycles wastewater.

15. Transportation-ICT Synergy

Leverage current broadband penetration to develop joint planning, design, and management protocols that connect transportation, information and communications technology (ICT) systems to optimize travel, reduce travel time, reduce air pollution. Reduces traffic congestion, mitigates air quality issues, conserves energy/water resources, increases economic productivity.



16. Urban Riparian Waterways Rehab

Incorporate ecological principles into flood management and water delivery systems in riparian; retrofit homes and neighborhoods to capture runoff, redesign permeable storm water conveyance systems, install retention systems for filtration. Increases groundwater recharge, reduces water demand, improves flood control, improves water quality, creates recreation spaces and wildlife habitats.



17. Envision Sustainable Phoenix

Establish large-scale public consensus on a comprehensive sustainability plan through broad-based public engagement, community forums and town halls, widely disseminated multi-media visualizations of alternative futures, extensive policy analysis. Creates unity, leverages economies of scale, addresses inequalities, reduces ecological impact.

