Acting Locally on Global Warming

Ken Hughes, Department of Finance and Administration
Member, Climate Change Action Implementation Team
Global Warming - It’s Here

- Hurricanes
- Drought
- Arctic Ice Cap
- Siberian Tundra
- Species Extinction
- Ocean Temperatures
Global Warming is Us

• McMansions
• SUVs 10+ trips/day
• Planet Pluto and back/day
• Far Flung Food Sources
• Fossil Fuels for Breakfast
It’s Time to Act
Step One: Join the Cool Cities Campaign

- Sign the U.S. Mayors’ Climate Protection Agreement, based on the Kyoto Protocol
- Pledge to achieve 7% emission levels below 1990 levels by 2012

http://usmayors.org/climateprotection/
Step Two: Do the Numbers

- Calculate greenhouse gas emissions for a base year (e.g., 2000) and for a forecast year (e.g., 2015)
- Capture emissions levels from all municipal operations and from all community-related activities
- A benchmark for planning and monitoring progress
Step Three: Develop an Action Plan

- Timeline
- Financing mechanisms
- Assign responsibility to departments and staff
- Public awareness and education efforts
Step Four: Implement, Monitor

- Implement the policies and measures contained in the local action plan
- Monitor and verify progress
Cool Cities in New Mexico

- Alamogordo
- Albuquerque
- Capitan
- Las Cruces
- Ruidoso
- Taos
- Santa Fe*
  - 500 more in the U.S.
  - *Also adopted 2030 Architecture Challenge
Policy Options
Switch to the Most Efficient Use of Electricity

- Put outdoor lighting on an electricity diet
- Switch traffic lights to LED lamps
- Adopt low light standards
Do the Intersection Match

- Typical intersection costs $7,000 per year to power
- Roundabouts $0
- Costs per LED bulb
  - Green $144
  - Amber $81
  - Red $74
  - Green Arrow $121
  - Pedestrian Sign $360
Build Energy Efficient
High Performance Buildings

- Added costs, up to 2%, pay off in 4-5 years in reduced energy utility costs
- Focus on life cycle costs. Construction = 20-30% of a building’s total costs over 40 years
Set New Building Standards

- Orient buildings mindful of prevailing winds
- Use overhangs and light color roofs
- Plant deciduous trees on south and southwest sides, conifers on north and northeast sides
- Use daylighting to bring light into the interior
City of Mt. Airy, NC
High Performance Building
Energy Usage Reduction Comparison

![Energy Usage Comparison Chart]

- Mt. Airy Municipal Building: 116,241 Btu/sq ft/Year
- Mt. Airy Library: 23,149 Btu/sq ft/Year
- Elkin Public Library: 105,550 Btu/sq ft/Year

- Heating
- Lighting
- HVAC
- HWH
- Cooling
As the Construction Industry Gains Familiarity with Green Building, Added Costs Go to Zero

Clackamas High School, OR
LEED Silver ($117/ft² vs. $140 for traditional construction)
$69,000/yr. – energy utility bill savings
Adopt Leadership in Energy & Environmental Design (LEED) Certification

- The recognized standard for authenticating green buildings
- Point System for LEED Basic, Silver, Gold, and Platinum
- Standards exist for new buildings, renovations, residential, public schools, and neighborhoods
- Value of green buildings’ $ benefits is over 10X the added cost
Hit the (Solar) Roof

- Design new construction for solar or solar ready.
- Place solar on rooftops of all energy efficient public buildings.
- Devote 25% of rooftops to solar, for hot water, heat, “adsorption” space cooling, and electricity.
Adopt Mobility Goals

- Provide for Five Forms of Mobility: Foot, Bike, Transit, Shared Car, Auto
- Ensure Access to a Trail and Transit Within a Half Mile of Home, School, Job or Shop
Public Works for Public Walks

- Set aside one percent of CIP for sidewalk improvements
- Bury utilities
- Enliven and make safe all walks
Make Bicycling Happen

- Put in a bike trail system
- Ensure bike racks where needed
- Start a rent a bike program
- Offer bikes at the workplace
Enact a Town Center Ordinance
Pass Transit Oriented Development Zoning
Build Complete Neighborhoods

- Line parking lots, institutions, and big box buildings with retail and housing
- Add a coffee stand at the library
- Connect the ‘hood with trails, transit
Enact a Water Conservation Ordinance

[Diagram showing water management systems including gravel parking surfaces, infiltration trenches, and shade trees, with labels indicating surface flow of water, cross section, and vegetation filter strip.]
Green Up
Cool Cash – Funding Options
Energy Performance Contracting

- RFQ process to competitively select an Energy Services Company (ESCO)
- ESCO performs energy audits of municipal buildings
- Upon EMNRD approval, agreement established
- Example: Albuquerque funded 5 solar swimming pool systems
- Upshot: upgrade facilities and improve energy efficiency, without the upfront cost
State and Local Capital Outlay

- Water
- Transportation
- Buildings
- Economic Development
General Obligation Bonds

- Sidewalks
- Roundabouts
- Water harvesting
- Renewable and energy efficiency projects
Tax Increment Financing

- Buses, trolleys, train cars, tracks
- Transit oriented development infrastructure
- Pocket parks
- Bicycle trails and fleets
Real Estate Transfer Tax

- Location efficient mortgage underwriting of housing units within one-half mile of a transit stop
- Civic infrastructure
- Renewable and energy efficiency fund
Public Benefits Charge

- Energy Efficiency Improvements for Homes, Apartments and Businesses
- Public Facilities Improvements
- Solar Collectors for Hot Water, Heating, and Electricity
Assess fees to property owners based on estimated demands on streets
- Sidewalk improvements
- Roundabouts
- Road repairs and maintenance
- Connector trails and streets
The Future Is Now