

POLICIES PROMOTING ENERGY EFFICIENCY



Energy Conservation and Management Division
Energy Minerals and Natural Resources Dept.

State of New Mexico

www.cleanenergynm.org

NEW MEXICO “CLEAN ENERGY STATE”

- 20 % electricity from renewables by 2020
- First state renewable energy transmission authority
- Commuter rail to serve half the state’s people
- Aggressive clean energy industry incentives
- Western Climate Initiative seeks agreement among Western states and provinces in the United States, Canada and Mexico on a market-based cap-and-trade aimed at reducing greenhouse gas emissions fifteen percent below 2005 levels by 2020; and
- New Mexico’s clean cars program conforms with California’s fuel economy standards.

PROPOSED STATE, NATIONAL AND INTERNATIONAL INITIATIVES

- Emphasize low- and zero-petroleum plug in vehicles;
- Push fuel economy standards for conventionally fueled vehicles to 50 miles per gallon (21 km per liter) by 2020;
- Sharply advance the most energy-efficient renewable fuels as well as plug-in hybrid technologies to power not only cars but trains, planes, ships, and heavy trucks;
- Emplace smart growth and transit options to create more energy efficient and livable communities;
- Diversify our electrical sector;
- Create a national energy innovation trust fund; and
- Return to the international negotiating table as a responsible and leading nation and supporting mandatory limits on global warming pollution.

THE TASK: CUT ENERGY USE 20% BY 2020

- Governor Richardson's November 2007 energy efficiency executive order requires a ten percent energy reduction in 2005 per capita levels by 2012 and twenty percent by 2020. The State of New Mexico has also produced a climate action plan that quantifies potential reductions in greenhouse gas emissions and measures cost effectiveness of a range of policies. Meeting these carbon and energy reduction targets require bold, aggressive measures to be adopted soon. Given a range of policy alternatives, New Mexico communities can choose options best suited to their local circumstances.
- The Energy Conservation and Management Division contracted with the Southwest Energy Efficiency Project to report on a strategy on how to meet the twenty percent goal. A copy of the report is at www.cleanenergynm.org.

Primary Energy Savings by Option

Option	Savings Potential (trillion Btu/yr)		
<i>*Recommended for Near Term Action</i>	2012	2020	2025
Electricity demand side management*	8.5	36.8	50.6
Building code upgrades*	2.4	11.6	20.6
Lamp efficiency standards	2.5	14.0	17.3
Natural gas demand side management*	2.0	9.9	13.8
Reduced driving*	2.1	10.0	16.1
Industrial energy efficiency*	2.0	8.8	13.5
Clean car and updated CAFE standards	2.1	16.4	26.8
Feebates	1.2	4.0	5.1
Local government and K-12 schools*	0.8	2.7	4.2
Public education campaign*	4.5	4.3	4.2

PRIMARY ENERGY SAVINGS BY OPTION

Combined heat and power*	1.8	3.4	3.4
Low-income home retrofit*	0.6	2.1	3.0
Residential energy conservation ordinance	0.5	2.1	2.7
Pay-as-you-drive insurance	1.0	4.4	4.6
Replacement tire efficiency standards	2.4	2.3	2.4
State government initiatives*	0.4	1.1	1.4
Better enforce speed limits	1.5	1.4	1.5
Building and HVAC tax credits	0.1	0.6	1.0
Innovative electricity rates	0.4	0.5	0.5
Accelerated vehicle retirement program	1.2	0.5	0.0
TOTAL	39.0	136.9	192.7

UTILITY DEMAND-SIDE MANAGEMENT PROGRAMS AND PRICING POLICIES

- Option 1: Expand Electric Utility Demand-Side Management Programs
- Option 2: Adopt Decoupling and/or Shareholder Incentives to Stimulate Greater Utility Support for Energy Efficiency Improvements
- Option 3: Adopt Innovative Electricity Rates in Order to Stimulate Greater Electricity Conservation and Peak Demand Reduction
- Option 4: Expand Natural Gas Utility Energy Efficiency Programs and Establish Energy Savings Targets for these Programs

ELECTRIC UTILITY ENERGY EFFICIENCY PROGRAMS

- **Near Term Action:** PRC Rulemaking & utility energy efficiency program filings
- Study Actions: exceed minimum targets set in the Efficient Use of Energy law that require utilities to cut electric use 5% by 2014 , 10% by 2020
- Ramp up by 2014 to acquire all cost-effective measures
- Resulting demand reduction would save 1115MW, or 12%, by 2020 from projected electricity use, equivalent to two peak load power plants

STIMULATE UTILITY SUPPORT FOR ENERGY EFFICIENCY IMPROVEMENTS

- Free or deeply-discounted electricity savings measures for low-income households,
- Rebates for consumers that purchase ENERGY STAR products or undertake home retrofits,
- Incentives for high-efficiency evaporative coolers and air conditioners, air conditioner tune-ups, and proper air conditioner sizing and installation,
- Audits for and rebates to businesses that upgrade the efficiency of their heating, cooling, and lighting equipment as well as their building envelope,
- Technical and financial assistance to industries;
- Grants to pay a portion of the cost for energy savings projects
- Training, certification, and outreach to increase the skills of builders

NATURAL GAS ENERGY EFFICIENCY PROGRAMS

- Near Term Action** via PRC rulemaking and utility energy efficiency program filings:
- Ramp up gas DSM programs by setting gas savings targets of 5% of sales by 2015 and 10% by 2020
 - Provide performance-based incentives for efficiency tied to decoupling revenue and sales

Program Options:

- Energy audits
- Incentives for home retrofit
- Fund low-income energy efficiency
- Incentives for high efficiency furnaces, water heaters, and appliances
- Incentives for efficient new homes and commercial buildings

BUILDINGS AND APPLIANCES POLICIES

- Option 5: Upgrade Building Energy Codes and Provide Funding for Code Training and Enforcement Activities
- Option 6: Adopt Residential Energy Conservation Ordinances (RECOs) to Upgrade the Energy Efficiency of Existing Homes
- Option 7: Lamp Efficiency Standards
- Option 8: Expand Retrofit of Homes Occupied by Low-Income Families
- Option 9: Tax Credits for Highly-Efficient New Homes, Commercial Buildings, and Heating and Cooling Equipment

LOW-INCOME ENERGY EFFICIENCY ASSISTANCE

- **Study Action:** Increase state funding \$15 million per year to allow retrofit of 5,000 single and multifamily homes per year, reaching 80,000 homes by 2025. Cost per unit \$800 – \$3,000
- **Near Term Action:** 2009 Legislation: \$18 million for low income energy efficiency and bill payments (LIHEAP)
- **Options:**
 - Set up substantive recurring revenue source, such as 2007 earmarks or 2008's SB189
 - Obtain one-time funds that don't revert for 5 years
 - Develop a LIHEAP-linked energy efficiency program akin to Colorado's

BUILDING ENERGY CODES AND CODE TRAINING/ENFORCEMENT

○ **Study Actions:**

- \$400,000 per year for code update, training and compliance

○ **Near-Term and Study Action:**

- E.O. directing CIC to develop EE performance measures, such as HERS rating on all new homes; 70 by 2012, 50 by 2020, and commissioning on all new commercial buildings

○ **Near-Term Actions:**

- \$900,000 funding request by Construction Industries Division for a Green Building Bureau
- Amendments to Sustainable Buildings Tax Credit to allow use by non-profits and to update credits with standards

REQUIRE ENERGY EFFICIENCY UPDATES WHEN HOMES RESELL

- Require that an existing home achieve a certain level of energy efficiency within one year of its sale.
- Or, establish a home sales feebate program.
- Or, post in the home sale ads a home energy rating. Typically, an existing home's HERS rating is 140, compared to rating of 100 for a new home built to current code. If, as many predict, information on how well a home is insulated and other efficiency measures matters to homebuyers, bringing homes energy efficient will become commonplace.

INDUSTRIAL POLICIES

- Option 10: Undertake an Industry Challenge and Recognition Program to Stimulate Industrial Energy Intensity Reductions
- Option 11: Remove Barriers and Provide Incentives to Stimulate Greater Adoption of Combined Heat and Power
- Option 12: Increase Energy Efficiency in the Oil and Gas Sector

COMBINED HEAT AND POWER SYSTEMS

- **Near Term Action:**
2009 Legislation \$150,000 special appropriations request
- **Study Actions:**
 - Remove regulatory barriers at PRC
 - CHP 101 to educate and train commercial, industrial, institutional, wastewater and solid waste facility managers
- Tax incentives to non-utility CHP owners, at \$600/kW
- Authorize utility ownership of CHP systems
- Promote industrial CHP through peer-to-peer roundtables, technical workshops, energy efficiency plans, and awards

INDUSTRY CHALLENGE AND RECOGNITION PROGRAM

○ **Near Term**

Action: 2009

Legislation \$150,000
special appropriations
request

○ **Study Actions:**

- Challenge industrial firms to voluntarily establish energy intensity reduction goals and to commit to cost-effective energy efficiency projects

- Honor firms that have made exemplary efforts to reduce energy intensity and achieve significant energy savings
- Increase scope and impact of utility financial and technical assistance programs for the industrial sector
- Could dovetail with the Green Zia Program

PUBLIC SECTOR POLICIES

- Option 13: Adopt Energy Efficiency Requirements for Public Colleges and Universities and Extend the Requirements for State Buildings
- Option 14: Support Energy Efficiency Improvements by Local Governments and K-12 Schools
- Option 15: Implement Energy Efficiency Education in K-12 Schools

STATE ENERGY EFFICIENCY REQUIREMENTS

- **Study Actions:**
- Benchmarking tools to help identify highest priority buildings
- Clean energy revenue bonds (\$20 million available)
- Do energy-savings projects without government funding: performance contracting, and tax-exempt lease-purchase agreements
- Energy efficient product purchases only
- No/low-cost measures such as computer power management
- Hire and train internal energy managers
- Lifecycle cost-based construction contract awards
- Allow agencies to keep portion of \$ from energy saving projects

LOCAL GOVERNMENT AND SCHOOLS ENERGY EFFICIENCY

○ Study Actions:

- Require local governments and K-12 school districts to adopt and meet energy savings goals, now in place for state agencies, as condition for receiving state funds
- Put in place clean energy revenue bond rules to finance K-12 school projects
- Increase in '09 Session funding for EMNRD's Clean Energy Program
- 1 FTE for TA to schools and local governments

○ Near-Term Actions:

- 2009 Legislation: increase funding for Higher Education Department's energy efficiency projects
- Increase funding for energy efficiency projects in K-12 Schools

TRANSPORTATION POLICIES

- Option 16: Higher Fuel Economy Standards for New Cars and Light Trucks
- Option 17: Clean Car Standards for New Cars, Light Trucks
- Option 18: Adopt Incentives to Stimulate Purchase of More Efficient Cars and Light Trucks
- Option 19: Adopt Pay-As-You-Drive (PAYD) Auto Insurance
- Option 20: Reduce Vehicle-Miles Traveled Through Improved Transportation and Land Use Planning
- Option 21: Improve Enforcement of Highway Speed Limits
- Option 22: Replacement Tire Efficiency Standards
- Option 23: Accelerated Retirement of Inefficient Cars and Light Trucks

STABILIZE VEHICLE MILES TRAVELED

- **Study Action:** \$500,000 per year to local and regional planning organizations for analysis and plan development required to achieve VMT reduction by 1%/year
- Funding used to evaluate alternatives to car-oriented modes of travel; promote transit, biking and walking; and promote transit-oriented development
- **Near Term Action:** Executive Order to require relevant groups to devise and coordinate regulatory, financing and permitting processes, so that NM can jointly plan its housing, transportation, and climate change needs
- **Prize:** permits and funding approved for those adopting smart growth-based plans

MORE EFFICIENT CARS AND LIGHT TRUCKS

- Adjust fees or excise taxes to charge more for energy inefficient vehicles, charge less or waive fees or taxes on energy sipping vehicles
- A state “feebate “would be most effective if several other states were adopting the program as well. Yet, a single-state program could improve efficiency because in the absence of a manufacturer response, consumers will have substantial incentive to switch to more efficient models. A New Mexico-only feebate program would improve the fuel economy of new vehicles by 2 percent relative to business-as-usual. But if we joined a group of states comprising $\frac{1}{4}$ of the vehicle market to adopt feebates, fuel economy would improve by 9 %.

ACCELERATED RETIREMENT PROGRAM FOR INEFFICIENT VEHICLES

- Provide incentives to retire vehicles
 - in drivable condition
 - currently registered in New Mexico, and
 - have had a fuel economy rating of 15 miles per gallon or less when new
- Vouchers for crushed vehicles to buy car >30mpg
 - 2005 +: \$6,000
 - 2002-2004: \$4,000
 - 1999-2001: \$2,000
 - Pre 1998: \$500

PAY-AS-YOU-DRIVE INSURANCE

- Alternative approaches:
 - Pilot program with incentives to insurance agencies to write PAYD policies
 - Add cost of car insurance at the pump
- Future alternative approach to gas tax?

CROSS-CUTTING POLICIES

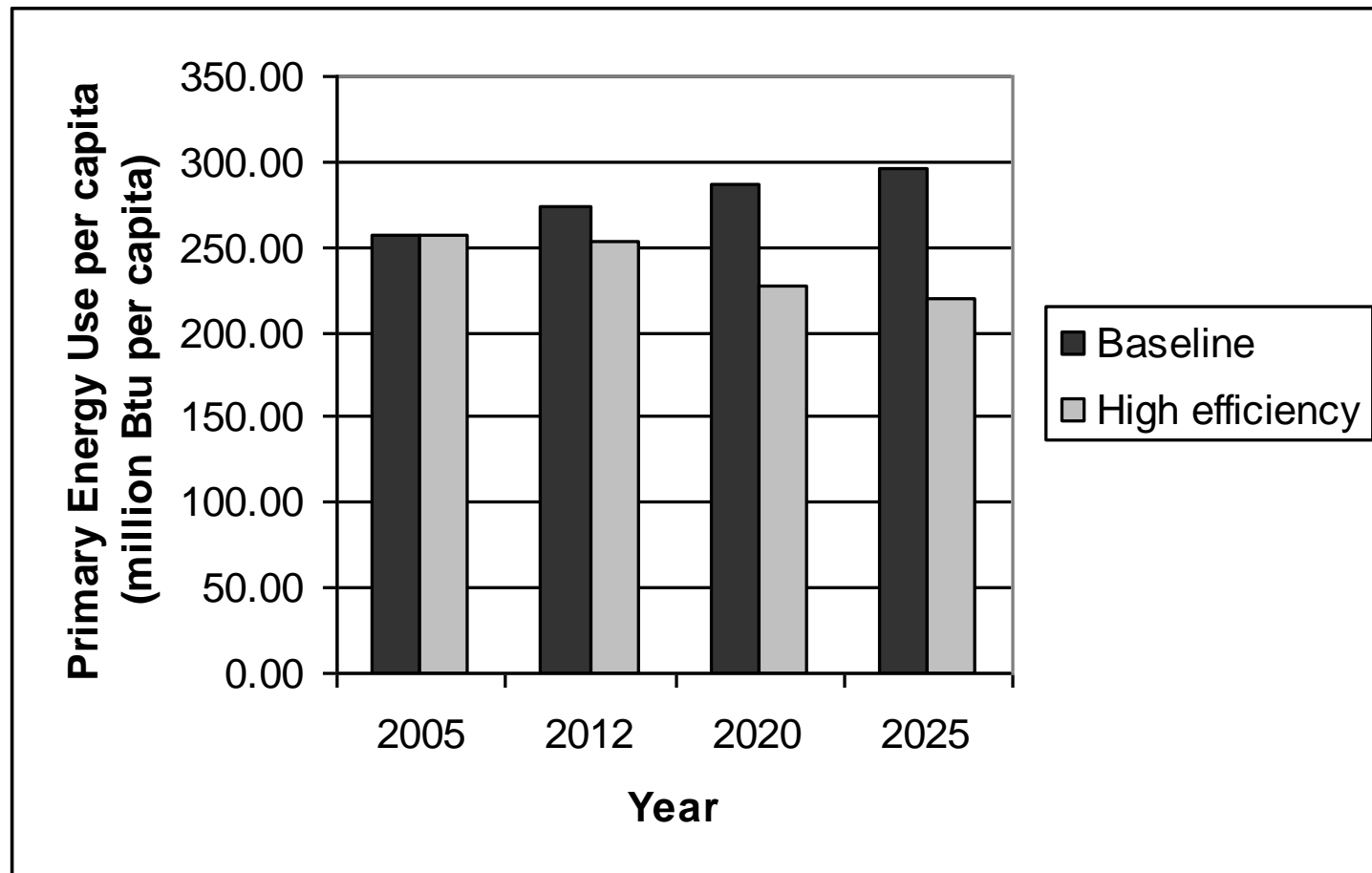
- Option 24: Undertake a Broad-Based Public Education Campaign
- Option 25: Increase Energy Efficiency Expertise through Training and Certification

In other words, get the word out through a “Climate Corps”

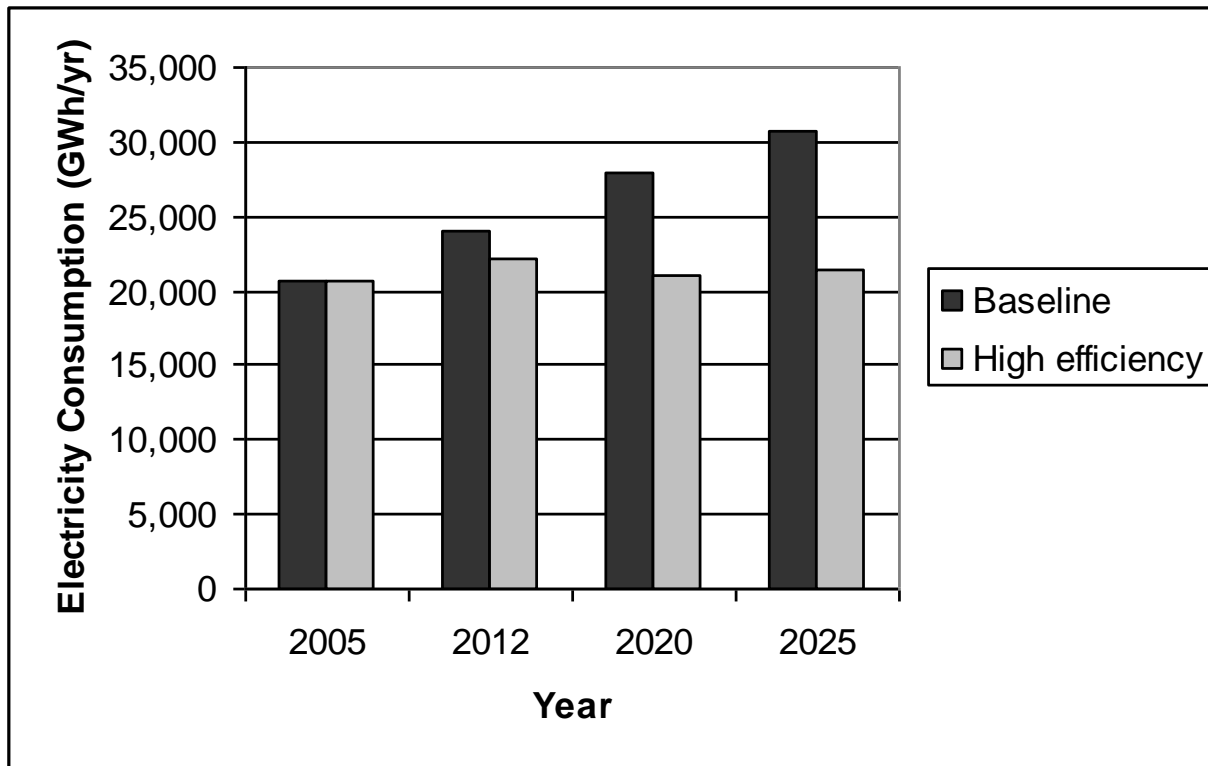
BOTTOM LINE

Primary Energy Consumption or Savings (trillion Btu per year)				
	2005	2012	2020	2025
Baseline Scenario	430.4	489.6	536.8	567.8
High Efficiency Scenario	430.4	450.0	406.3	389.6
Energy use per capita – Baseline Scenario	223.2	231.1	230.5	231.8
Energy use per capita – High Efficiency Scenario	223.2	212.4	174.4	159.0
Savings in High Efficiency Scenario (%)	0.0	8.1	24.3	31.4
Reduction from 2005 level in high efficiency scenario (%)	0.0	4.9	21.9	28.8

ENERGY USE PER CAPITA BY SCENARIO

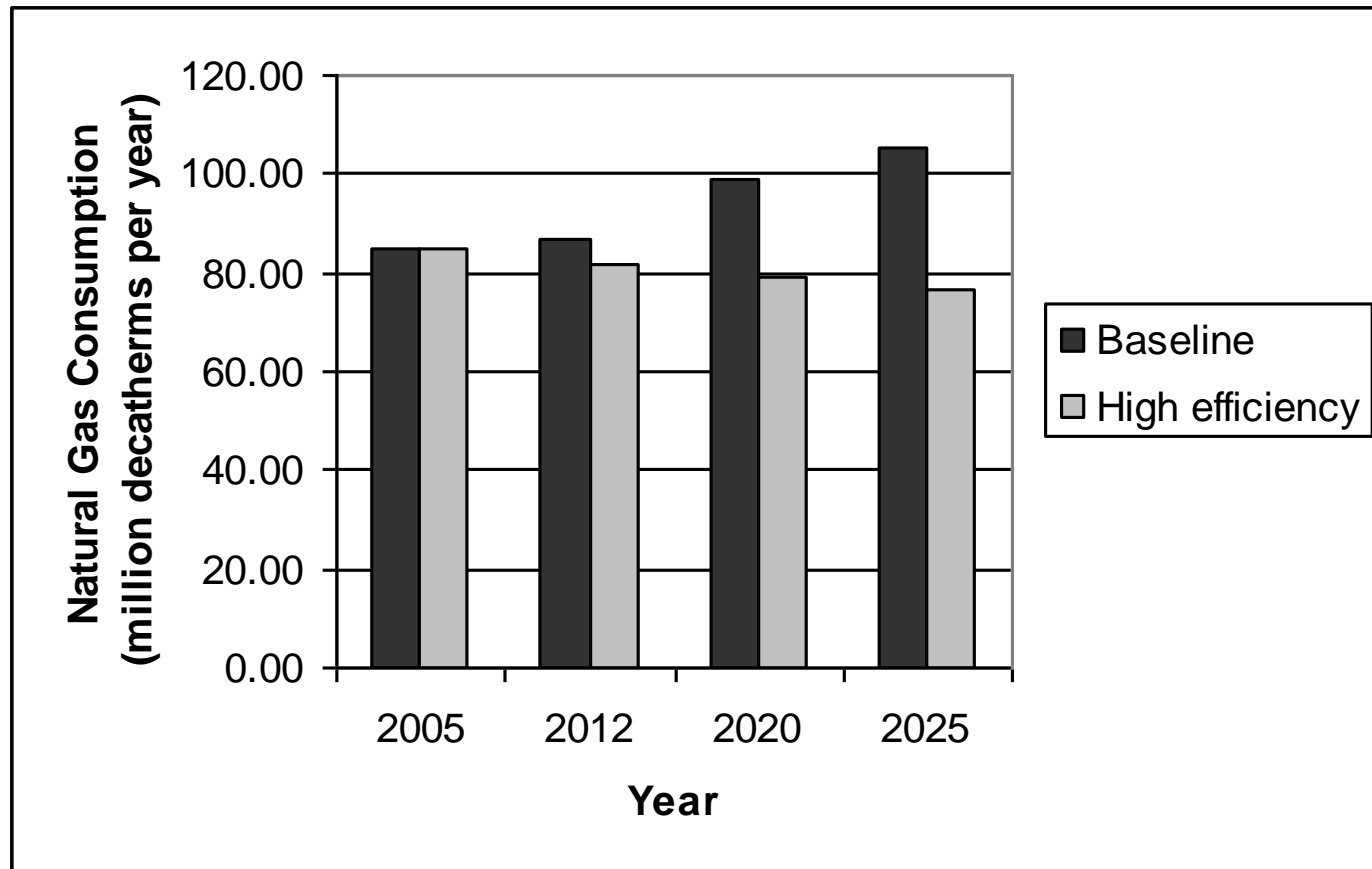


ELECTRICITY SAVINGS POTENTIAL



Big ones: expanded electricity DSM programs and lamp efficiency standards

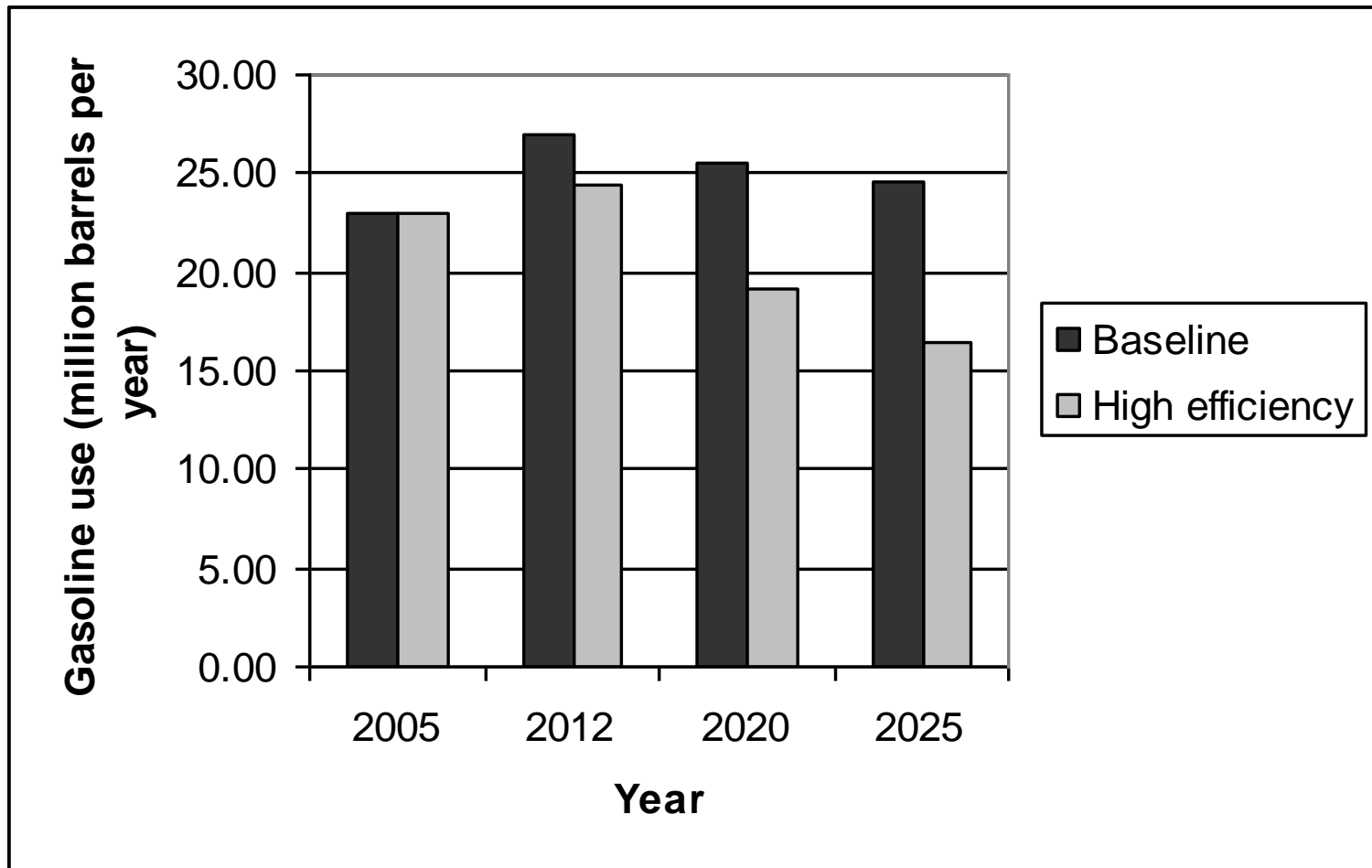
NATURAL GAS SAVINGS POTENTIAL



Big ones: gas utility DSM programs, building energy codes, and the industrial challenge and recognition program



GASOLINE SAVINGS POTENTIAL

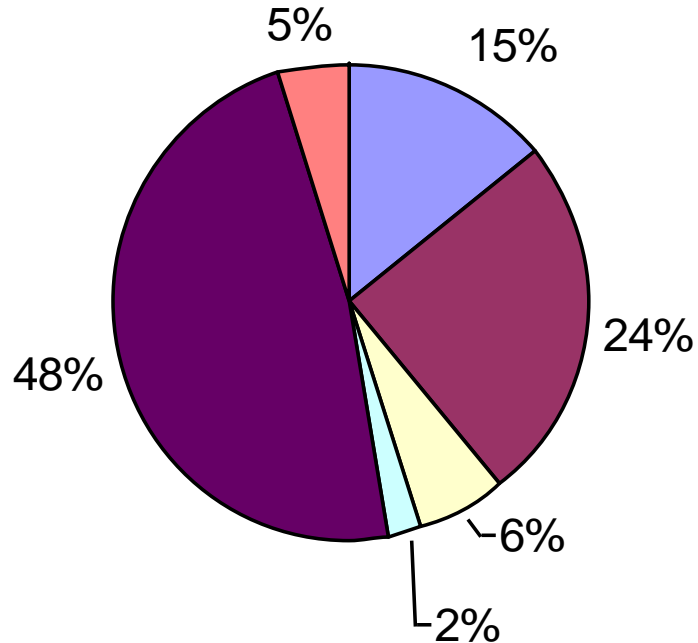


Big ones: clean car standards and reducing driving



ECONOMIC BENEFIT

Total Economic Benefit - \$5.6 billion

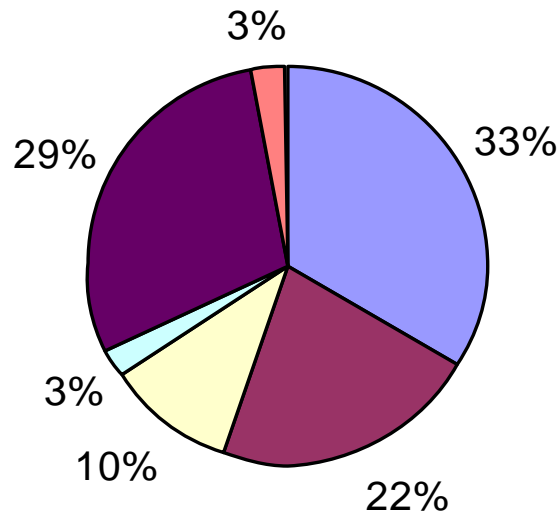


- DSM options
- Building and appliance options
- Industrial options
- Public sector options
- Transportation options
- Education options



EMISSIONS BENEFIT

**Total CO2 Emissions Reduction in 2020 -
8.3 million metric tons per year**



- DSM options
- Building and appliance options
- Industrial options
- Public sector options
- Transportation options
- Education options



CONCLUSION

- New Mexico will save a large amount of energy if it adopts the 25 energy efficiency policy options described and analyzed in this study.
- By 2020, electricity use could be reduced by 24 percent, natural gas use by nearly 20 percent, and gasoline use by 26 percent, all in comparison to otherwise forecasted levels of per capita energy use that year.