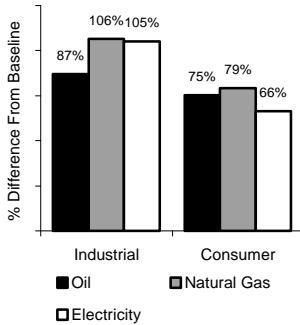




# Global Warming: The High Cost of the Kyoto Protocol *Impact on Phoenix, Arizona*

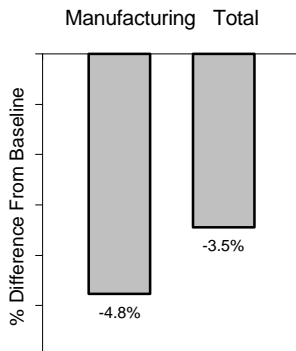
## Energy Prices

*Phoenix manufacturers would see natural gas prices approximately double.*



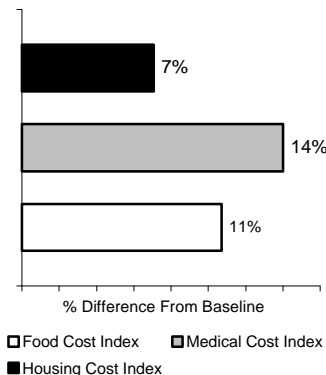
## Employment

*Manufacturing and total employment will decline by 4.8% and 3.5% respectively.*



## Consumer Income and Prices

*The cost of housing, medical care, and food would rise.*



In December 1997, the Clinton Administration agreed to the Kyoto Protocol, an international treaty that would legally bind industrialized countries to reduce their greenhouse gas emissions. US emissions would be limited to 7% below 1990 levels by late next decade. Meeting this goal would be a daunting task, as carbon emissions from the energy sector are expected to exceed the Kyoto goal by more than 37%. WEFA estimates that to achieve the Kyoto goal would require a carbon permit fee of \$265 per metric ton added to energy prices, resulting in:

- A hike in gasoline prices of nearly 65 cents a gallon
- A doubling of electricity and energy prices for consumers and businesses

## US Would Suffer Slower Economic Growth and Lost Jobs

The Kyoto Protocol is supposed to be an international agreement, but 134 of 160 negotiating nations said that the US and other industrialized countries should bear the entire burden. China and India were particularly emphatic, saying that they will never participate in a global effort to reduce greenhouse gas emissions. If key developing nations continue to exempt themselves from the Kyoto Protocol, WEFA estimates that by 2010 the US would:

- Lose 2.4 million jobs
- Lose \$300 billion (92\$) annually, a 3.2% drop in U.S. annual output (GDP), or more than total expenditures on elementary and secondary education

## Phoenix Would Lose 68,000 Jobs

The Kyoto Protocol would substantially raise energy costs and reduce economic performance by late next decade. All consumers and businesses would feel the impact. In Phoenix, there would be significant job losses, as energy price increases borne here and in other industrialized nations are not matched by developing economies. The losses for Phoenix in 2010 would be:

- A total loss of 68,000 jobs for all sectors
- A decline of 4.8% in manufacturing employment (9,800 jobs)

## Phoenix Would Bear Part of the Loss of \$1.7 Billion in Arizona Tax Revenues

Local communities rely on federal and state tax transfers to supplement their own sources of revenues. These funds are used to maintain infrastructure and provide for schools, hospitals and social services. As economic prosperity declined under the Kyoto Protocol, in 2010:

- City and county tax revenues would decline as metro area output falls 4.6%
- Arizona's loss of \$1.7 billion (92\$) in tax revenue, a 9.4% decline, would result in reduced transfers to metropolitan areas
- The federal government would collect \$94 billion (92\$) less in tax revenue, a 5% decline, which would reduce its ability to transfer funds to state and local governments

## The Kyoto Protocol Is Not the Only Option

WEFA's analysis shows severe economic consequences for US consumers if the Kyoto Protocol is implemented. Only near-term catastrophic global climate change would justify imposing these costs on US businesses and consumers. As global warming may be gradual and largely due to natural forces, a better strategy may be the use of longer-term opportunities, such as:

- Expanding voluntary efforts to limit greenhouse gas emissions
- Supporting scientific research and educational programs on climate
- Investing in the development and deployment of new technologies

## Business Impacts: Phoenix

**Ten thousand manufacturing jobs would be lost by 2010, due to reduced international competitiveness.**

Phoenix's manufacturing sector would be harmed more than the US average. Manufacturing employment would decline by 4.8% (9,800 jobs) in Phoenix by 2010 relative to the baseline forecast, while the national average would fall 3.3%. The competitive position of manufacturers located in the state would be eroded due to rising costs, especially relative to non-participating developing countries. Industrial electricity prices would rise 105% by 2010 relative to the baseline (i.e., the price level without the emissions-reduction policy). Capital goods and export industries play an increasing role in Phoenix's economy, and these sectors will suffer.

**Natural gas prices would rise by 107% in 2010 versus the baseline.**

### Energy Prices

Sharp increases in fuel and electricity prices would be felt across the nation. Industrial firms in Phoenix would be burdened in the global competition for markets with price increases of 107% for delivered natural gas and 105% for electricity by 2010 versus baseline levels.

### Output

Imposition of carbon permit fees would significantly impact the overall level of output as well as the composition of output. Hardest hit among the industries would be manufacturing, as apparel makers experience increased cost of power and move jobs from the region. Real output in the manufacturing sector would fall by 4.6% in 2010. Manufacturing losses would cause producers to reduce their purchases of labor and services. Sharply higher energy prices would shift Phoenix toward an even greater reliance on service industries.

**Phoenix would lose 68,000 jobs by 2010 relative to the baseline, with the manufacturing bearing the brunt of losses.**

### Employment

Total employment is projected to fall 68,000 jobs below the baseline in 2010. The decline would be largest in manufacturing jobs. The largest decline in percentage terms outside of manufacturing would occur in transportation.

**Real wages and salaries in manufacturing would decline by 2.4% in 2010 versus the baseline projection.**

### Wages & Salaries

Wages and salaries would fall under the imposition of a carbon permit fee. Rising costs must be offset by lower real wages as economies attempt to retain their competitive position. In Arizona, real manufacturing wages would decline by 2.4% in 2010 relative to the baseline. Real private non-manufacturing wages would fall 2.2% below the baseline forecast.

## Consumer Impacts: Phoenix

Consumers are squeezed by slower increases in income and the rising costs of basic necessities and other goods and services. Due to the severe loss of employment under the Kyoto Protocol, real personal income in Phoenix would decline. Meanwhile the cost of energy to consumers would increase dramatically. Prices of home heating oil, natural gas, and electricity would escalate along with the costs of non-energy goods and services such as medical care, food, and housing. The cumulative result would be a continued erosion of consumers' purchasing power.

### Energy Prices

**Residential energy prices would increase by at least 66% in Phoenix relative to the baseline.**

Residential consumers would face a substantially higher energy bill under the proposed measure. Residential prices for energy would rise significantly above baseline levels in 2010: natural gas (79%), electricity (66%) and home heating oil (75%). The price of motor gasoline would also increase 44% relative to the baseline.

### Medical Expense

**Medical costs would rise by 14% relative to the baseline in 2010.**

Under the carbon abatement scenario, a comparable set of medical services would cost 14% more relative to the baseline projection. Higher medical care prices would lower purchases and the health of the average consumer would suffer as a result.

### Food

**Food costs would be 11% higher in 2010 than in the baseline.**

Under the carbon limit scenario, food prices would be 11% higher than the baseline in 2010. Because food is a necessity, there would be little decline in the amount purchased per household. Therefore, most households would bear the total increase in food costs.

### Housing

**Housing prices would be 7.1% higher by 2010 relative to the baseline.**

Housing prices are also projected to increase faster under the carbon abatement scenario. Housing prices would increase by 7.1% more than they would in the baseline projection. In Arizona, housing prices would escalate at a slower rate than the national average, thus reflecting the net out-migration projected for the state due to the more severe loss of employment opportunities.

## Revenue Impacts: Phoenix

Metropolitan area governments rely on federal, state and own sources of funds to maintain and expand infrastructure, provide for schools, hospitals and basic services, and provide social services to lower and middle income families. If the Kyoto Protocol were implemented, the loss of economic prosperity would significantly reduce metro areas own sources of funds and funds distributed by the federal government. Reductions in state tax revenues would severely impact metropolitan areas, as a large percentage of these funds are distributed to local governments.

### Arizona Would Lose \$1.7 Billion in Tax Revenue

**Arizona tax revenues would be reduced by \$1.7 billion and the unemployment rate would approach 5.7% in 2010.**

Arizona would face a possibly significant decline in tax revenue associated with the imposition of policies aimed at meeting the Kyoto Protocol target. Federal, state, and local tax revenues could decline 9% below baseline projections in 2010. This has significant implications for public policy, which would be exacerbated by the possibility of increased unemployment. Specifically, Arizona's unemployment rate is expected to approach 5.7% in 2010. With increases in unemployment and decreases in revenue, the state would be confronted with a daunting problem: how to provide support for its unemployed workers.

**Tax revenues would fall by 9.4% in 2010.**

As a result of the imposition of a global agreement to limit carbon emissions, real tax revenues in Arizona would fall 9.4% below the baseline projection in 2010. As a percentage of gross state product, baseline tax revenues would be 11%. This assumes no changes in tax policy in Arizona. If taxes were raised to offset the projected loss of tax revenues, its competitiveness relative to other states would decline and further reduce economic activity in the state.