# Utah
## Economic Impact on the State from the Lieberman-Warner Proposed Legislation to Reduce Greenhouse Gas Emissions

Understanding the economic impacts of the Lieberman-Warner Climate Security Act[1] (L/W bill) can help guide choices on climate change policy.[2] In this study, the L/W bill was analyzed under low and high cost cases with respect to a baseline that projects the future in the absence of the bill. The L/W bill would enforce a nationwide cap and trade program for the emissions of greenhouse gases (GHGs) and would reduce GHG emissions covered by the bill to 4,992 Million Metric Tons of $CO_2$ ($MMTCO_2$) by 2020 and 3,856 $MMTCO_2$ by 2030 (Figure 1). L/W sets targets that would reduce GHG emissions to 15% below 2005 levels by 2020; 30% below 2005 levels by 2030; and 70% below 2005 levels by 2050. Covered emissions are assumed to include everything from combustion of fossil fuels in the United States, plus non-$CO_2$ GHG emissions included in the L/W cap. The price of carbon permits (what companies must pay to emit $CO_2$) could reach between $55 and $64 per metric ton of $CO_2$ (MT) by 2020 and could increase to between $227/MT and $271/MT by 2030.[3]

### Impact on Jobs

Under L/W, Utah would lose 10,227 to 15,384 jobs in 2020 and 28,155 to 37,479 jobs in 2030 (Figure 2). The primary cause of job losses would be lower industrial output due to higher energy prices, the high cost of complying with required emissions cuts, and greater competition from overseas manufacturers with lower energy costs.

### Decrease in Disposable Household Income

Higher energy prices would have ripple impacts on prices throughout the economy and would impose a financial cost on households. Utah would see disposable household income reduced by $919 to $2,979 per year by 2020 and $3,780 to $6,893 by 2030 (Figure 3).

### L/W's Impact on Energy Prices

Most energy prices would rise under L/W, particularly coal, oil, and natural gas. The price of gasoline in Utah would increase between 74% and 140% by 2030, while electricity prices would increase by 96% to 133%. Table 1 shows the increase in electricity, gasoline, and natural gas prices faced by a typical Utah household compared to national household increases. Utah residents would pay between 113% and 154% more for their natural gas by 2030.

**Figure 1. US CO2 Emissions and S. 2191 Targets**

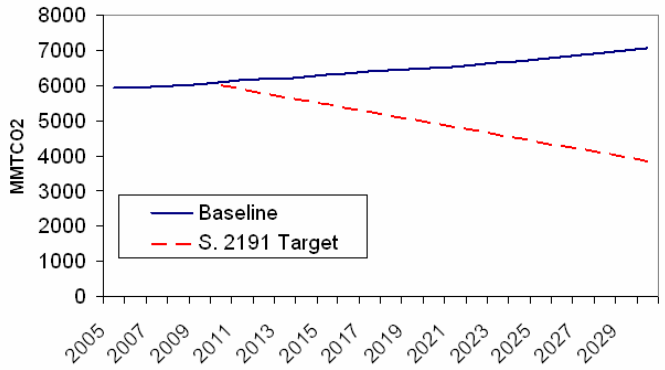



**Figure 2: Loss in Employment Relative to Baseline (Thousands of Jobs)**

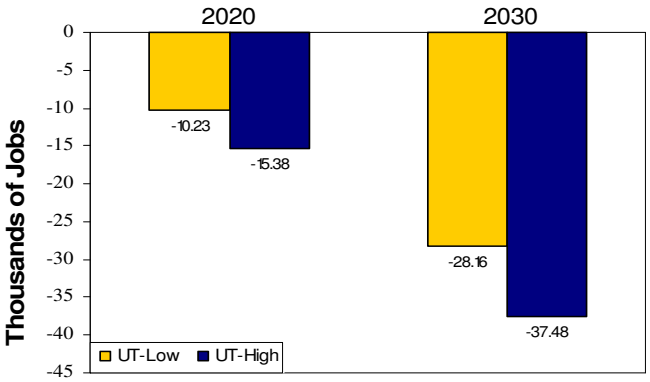
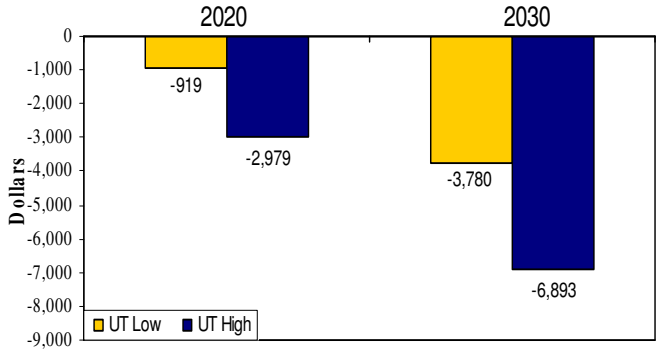



**Figure 3: Household Impact Relative to Baseline (Annual Dollars Lost per Household)**




[1] S. 2191

[2] The study used the National Energy Modeling System (NEMS) and assumptions provided by ACCF and NAM for this analysis. NEMS is used by the US Energy Information Administration for energy forecasting and policy analysis. "Low" refers to the Low Cost Case, which assumes higher nuclear capacity, less constraints on new generating technologies, etc. Both cases use higher capital costs than the baseline. "High" refers to the High Cost Case, which assumes low nuclear additions, constrained new generation technologies, high oil prices, etc. (See the full report for all assumptions).

[3] All dollar figures in this report are presented in constant 2007 dollars.

### Factors Contributing to Higher Electricity Prices

L/W would reduce GHG emissions from all sectors of the economy (transportation, residential, commercial, and industry); however, as the largest emitter of GHGs, the primary impact would fall on the electric sector. L/W would result in the electric industry shutting down most carbon-based generation and/or using expensive, as yet unproven technology, to capture and store $CO_2$. To meet the stringent goals of L/W, the electric industry would also have to substitute high cost technologies, such as biomass and wind, for conventional generation.

### Impact on Economic Growth

High energy prices, fewer jobs, and loss of industrial output are estimated to reduce Utah's gross state product (GSP) by between $1.1 and $1.5 billion per year by 2020 and $4 and $4.7 billion by 2030 (Figure 4).

### Impact on Industry

Utah's major economic sectors will be affected by emission caps (Figure 5).[4] The current two largest sectors, miscellaneous manufacturing and primary metals manufacturing, show decreases in output of 0.0% to 1.2% and 23.5% to 31.3%, respectively in 2020. All manufacturing sectors will suffer output losses of between 2.2% and 3.5% by 2020, while output from energy intensive sectors fall between 10.0% and 13.3%. In addition, the general shift away from coal would result in a 38.9% to 43.0% reduction in coal production and electricity production would fall by 2.1% to 3.5% (Figure 6). These losses would be significantly higher by 2030 and would have a lasting impact on Utah's economic base.

### Impact on Low Income Families[5]

The impacts of L/W will be felt especially by the poor, who spend more of their income on energy and other goods than other income brackets. By 2020, higher energy prices mean that low income families in Utah (with average incomes of $14,973) will spend between 17% and 19% of their income on energy under L/W compared to a projected 14% without L/W. Others on fixed incomes, such as the elderly will also suffer disproportionately.

### Impact on State Budgets[6]

The increases in Utah's energy costs under L/W will impact expenditures throughout the state. Specifically, Utah's 1125 schools and universities and 56 hospitals will likely experience a 20% to 24% percent increase in expenditures by 2020 and a 64% to 84% increase by 2030. For government entities, costs for services, including public transportation and vehicle fleets, such as school buses, will also rise under L/W.

**Table 1: Change in Energy Prices at Household Level (% change from baseline)**

| Sector | Year | UT | |
|---|---|---|---|
| | | Low | High |
| Electricity (Residential) | 2020 | 23% | 30% |
| | 2030 | 96% | 133% |
| Gasoline (Retail) | 2020 | 20% | 67% |
| | 2030 | 74% | 140% |
| Natural Gas (Residential) | 2020 | 28% | 39% |
| | 2030 | 113% | 154% |

**Figure 4: Annual Impact of GSP Relative to Baseline (Billion 2007$)**

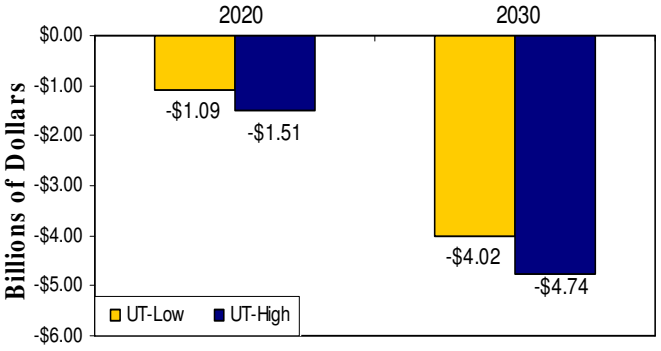



**Figure 5: Impact on Industrial Value of Shipments Percentage Change from Baseline in 2020**

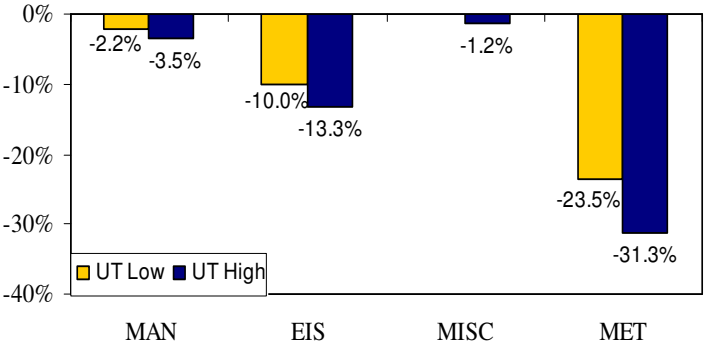
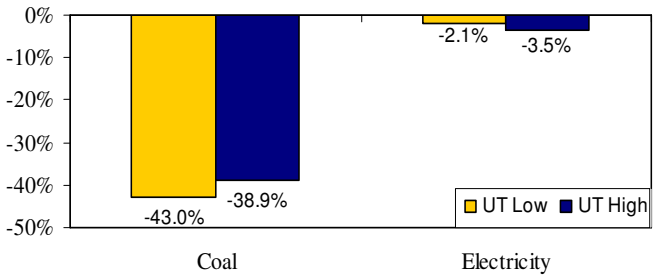



**Figure 6: Impact on Production Percentage Change from Baseline in 2020**




[4] MAN = Manufacturing, EIS = Energy Intensive Sectors; MISC = Miscellaneous Manufacturing; MET = Primary Metals Manufacturing.

[5] These projections assume that the energy expenditures by income quintile in the state are the same as the average for the census division, since there is insufficient data to accurately calculate this quantity on the state level.

[6] These projections assume that the expenditures on schools and hospitals are the same as the average for the census region, since there is insufficient data to accurately calculate these quantities on the state level.