



Greenhouse Gas Emissions

In June 2007, the Center for Climate Strategies (CCS) released its *Greenhouse Gas Inventory and Reference Case Projections, 1990-2020*, which was prepared for the Utah Department of Environmental Quality (DEQ) under an agreement with the Western Governor's Association (WGA). The report provided an inventory and forecast of greenhouse gas (GHG) emissions from 1990 to 2020. This report became a key component of the Climate Change Blue Ribbon Advisory Council (BRAC) October 2007 report to Governor Huntsman. The BRAC report outlined 72 recommended policy options aimed at reducing GHG emissions in Utah.

In early 2008, DEQ contracted with the Nicholas Institute for Environmental Policy Solutions to assess the GHG reduction potential of several key policy options recommended by the BRAC. Because much of the GHG reduction potential associated with these policies would not be fully realized during the CCS forecast period, a longer-term forecast was necessary against which to assess a full array of emissions reductions options. To this end, the Nicholas Institute developed an extended forecast of GHG emissions out to 2030 based largely upon the original work performed by CCS. This extended forecast became the "business as usual" baseline against which individual policy options could be assessed. The results of this extended forecast are summarized in Figures 1 and 2 below.

As shown in Figure 1, the electricity sector was the largest source of GHG emissions in 2005 at 25.6 million metric tons (MMt) of carbon dioxide equivalent (CO₂e) or 37 percent of total emissions. It should be pointed out that this estimate does not include emissions associated with net exports of electricity from Utah to other states in the Western Electricity Coordinating Council (WECC). The high proportion of GHGs in the electricity sector stems from the fact that Utah relies predominately on coal – a relatively high-carbon energy source – for its electricity generation.

Absent a significant change in market conditions or some form of policy intervention, this trend is anticipated to continue throughout the forecast period as illustrated in Figure 2

The second largest contributor to 2005 GHG emissions is gasoline and diesel consumption in the transportation sector at 13.6 MMtCO₂e or 20 percent of total emissions. It should be noted that for the purposes of the Nicholas Institute inventory, emissions from the consumption of other transportation fuels – primarily jet fuel, natural gas, and propane – are included in the "other" category. As a result, total transportation sector emissions represent an even higher percentage of total statewide emissions.^[1] While GHG emissions from gasoline and diesel combustion are expected to grow to reach 22.8 MMtCO₂e by 2030 under existing fuel consumption patterns, this trend may be tempered somewhat by the establishment of a mandatory Renewable Fuel Standard (RFS) and by more stringent corporate average fuel economy (CAFE) standards, both of which were brought about by the passage of the Energy Independence and Security Act (EISA) in December 2007.^[2]

Non-electricity fossil fuel consumption from the residential, commercial, and industrial (RCI) sector is the third largest source of 2005 GHG emissions in Utah at 12.2 MMtCO₂e or 18 percent of total emissions, while emissions from agriculture represent an additional 4.2 MMtCO₂e or 6% of total emissions. The "other" category includes 13.1 MMtCO₂e or 19 percent of total emissions from the fossil fuel industry, industrial processes (i.e. non-combustion industrial emissions), and emissions from landfills and wastewater management facilities.

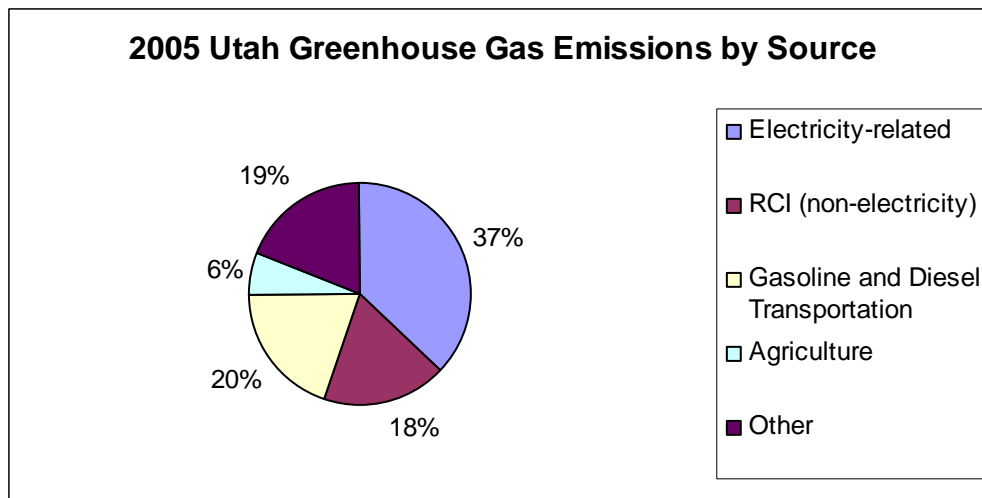
[1] For comparison, the *Utah Greenhouse Gas Inventory and Reference Case Projections, 1990-2020* inventory completed by CCS attributed 17.2 MMtCO₂e or 24.9 percent of total emissions to the overall transportation sector (i.e. all transportation fuels) in 2005.

[2] The 2007 EISA mandates that fuel produces use at least 36 billion gallons of biofuel by 2022 and raises CAFÉ standards by 40 percent to 35 miles per gallon by 2020

Overall GHG emissions in Utah were 68.8 MMtCO₂e in 2005 or approximately one percent of U.S. emissions. As shown in Figure 2, under a “business as usual” scenario, GHG emissions in Utah are anticipated to grow by over 70 percent from 68.8 MMtCO₂e in 2005 to 117.1 MMtCO₂e by 2030. This trend could be markedly influenced over the forecast period by a variety of factors including, but not limited to changes in market conditions, advanced technology

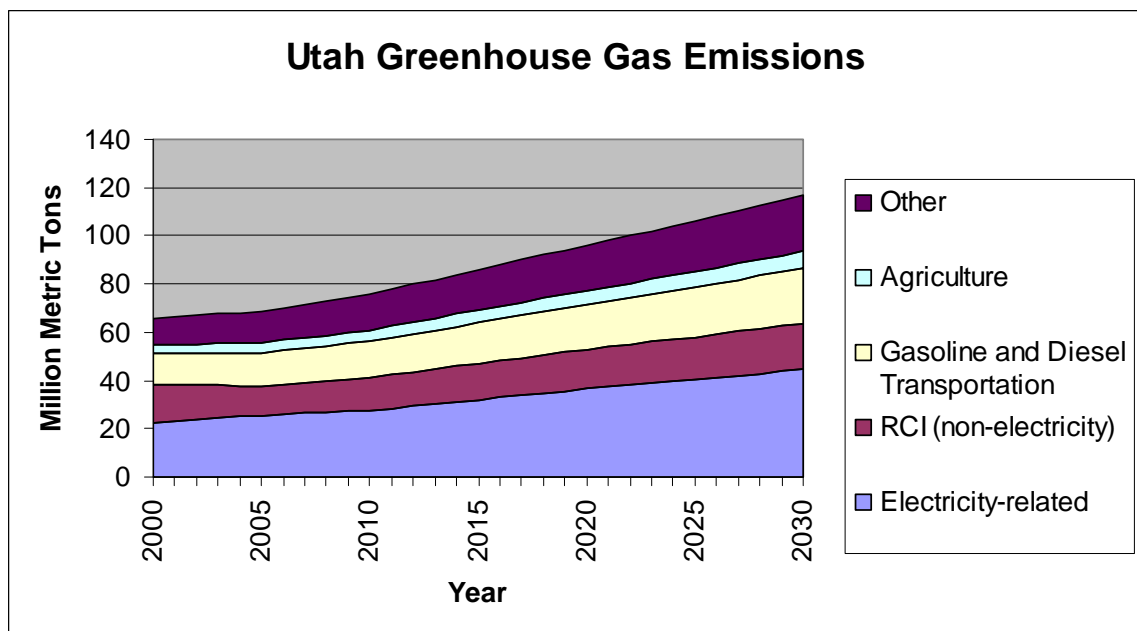
development and deployment, diversification of Utah’s energy resource mix to include a greater proportion of renewable and other low-carbon energy sources, efficiency standards and programs, tax credits and other incentives, and regulatory intervention at the state, regional, or national level.

Figure 1.



Source: Nicholas Institute for Environmental Policy Solutions and Center for Climate Strategies.

Figure 2.



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