

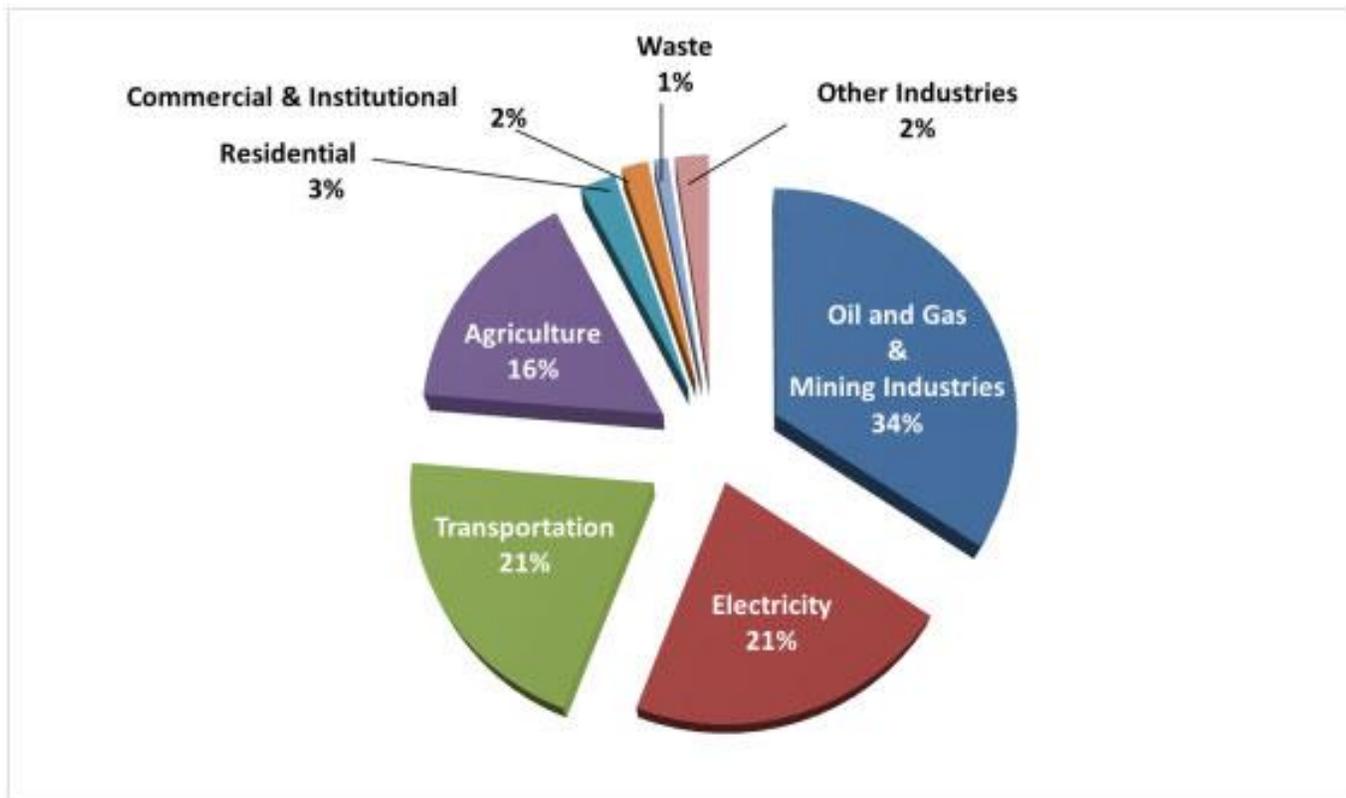
9. Steps the Saskatchewan Government Should Take to Reduce Greenhouse Gas Emissions

Provincial governments have within their jurisdiction a great many of the policy tools available to reduce greenhouse gas emissions. The Citizens' Hearings heard considerable evidence on steps the Saskatchewan Government could take to achieve large emission reductions.

In setting a course for emission reduction, it is naturally important to be clear about where the major sources of emissions are in our province. Toddi Steelman reported to the Hearings that one third of Saskatchewan's greenhouse gas pollution is produced by oil and gas extraction and refining, and by mining. 21% of Saskatchewan emissions are the result of SaskPower's electricity generation choices, and another 21% are associated with the transport sector. These three sectors alone account for 76% of Saskatchewan's annual release of greenhouse gas pollutants into the atmosphere. **Saskatchewan, with 3% of Canada's population accounts for approximately 10% of Canada's greenhouse gas emissions.**



SASK GHG Emissions



SLIDE PRESENTED AT THE CITIZEN HEARINGS BY DR. TODDI STEELMAN

It is also important to clarify for Saskatchewan residents that the scientific debate over human causation of climate change is over, and to provide residents with important scientific information on the global consequences of continuing to use fossil fuels at current levels. As Rick Morrell, Executive Director of the Saskatchewan Eco-Network explained: “Climate change is happening, it is real and it is caused by humans as attested by 100% of national academies of science and 97% of scientists in relevant research fields.”

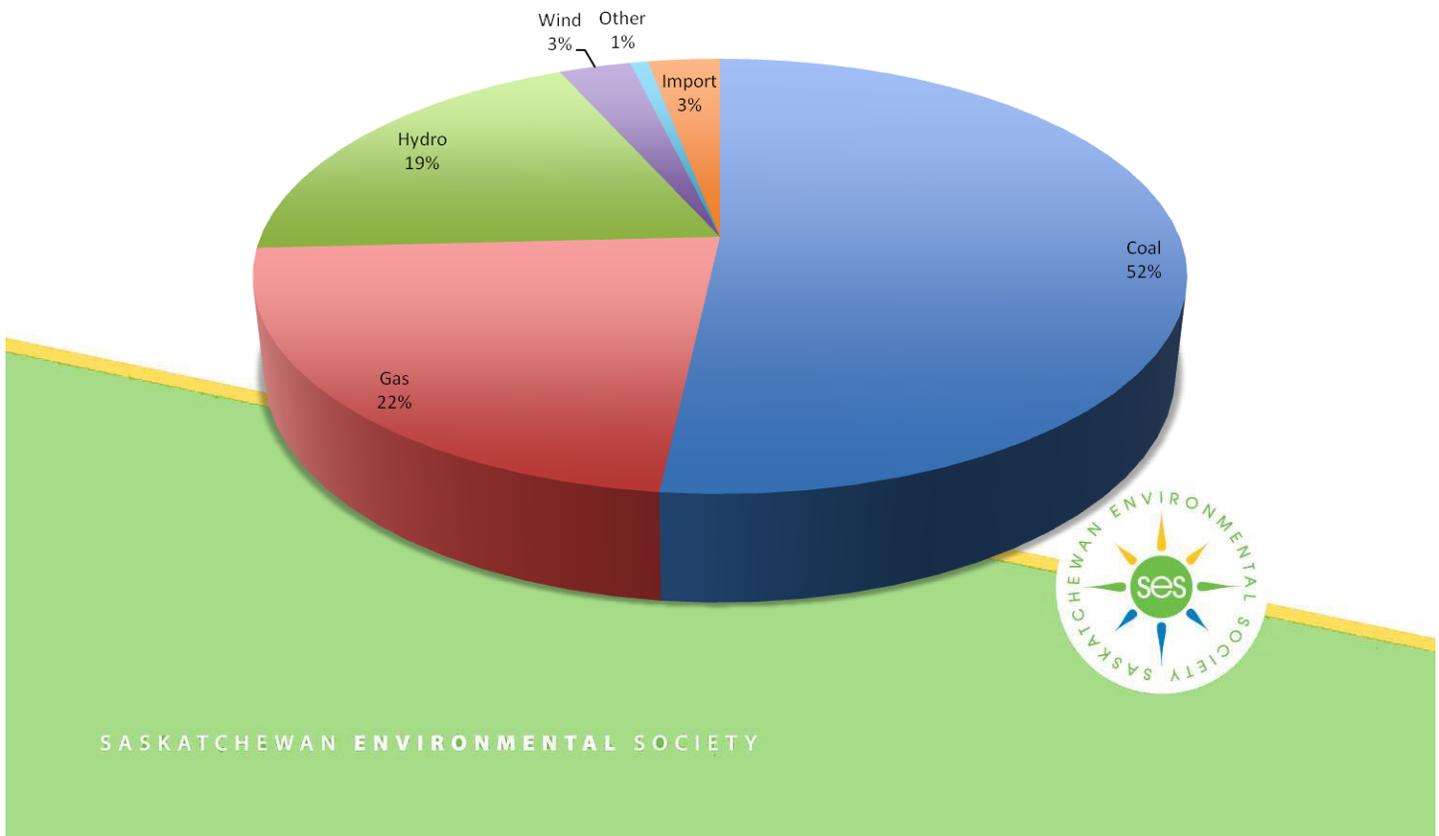
Mark Bigland-Pritchard of Climate Justice Saskatoon provided an overview of the kind of policy measures needed to substantially cut provincial emissions. He stressed the importance of **reducing venting and flaring in the Saskatchewan oil and gas industry to the absolute technical minimum**, and suggested enacting legislation to enforce these measures. He advocated **phasing out coal fired power plants as rapidly as possible**, and suggested that SaskPower follow the example of Ontario’s government, which has steadily closed coal fired power stations over the past decade. Ontario will complete the job in 2014. Mark Bigland-Pritchard also urged the adoption of an ambitious energy efficiency target, combined with rapid growth of renewable electricity. He stressed the importance of promoting community run renewable energy facilities in order to maximize economic benefits for local people.

Mark Bigland-Pritchard identified other priorities. In the building sector he urged the adoption of stricter energy efficiency codes for new building construction. In the agricultural sector he suggested that industrial meat production be discouraged because it is a source of large methane releases. He proposed instead that encouragement be given to organic agriculture and to local agricultural self-sufficiency, including the development of a Saskatchewan greenhouse industry.

Bob Halliday, a member of the Saskatchewan Environmental Society, focused his presentation on steps that could be taken to reduce greenhouse gas emissions by SaskPower. He noted that most of SaskPower’s coal fired generating units will reach the end of their useful lifetime over the next 15 years. For instance, the units at the Boundary Dam Generating Station in Estevan will have all reached the end of their operating lifetime by 2025, while the units at Popular River Generating Station in Coronach will reach the end of their operating life in the period 2025-2028.

Bob Halliday advocated that each of the generating units at these power stations be replaced by a mix of cleaner sources that would include: electricity conservation, co-generation of electricity, and installation of hydro, wind, solar and biomass facilities. The one exception would be Unit 3 at the Boundary Dam Power Plant which is in the midst of being converted to Carbon Capture and Storage at a cost of over \$1.3 billion. If all this were to be successfully completed, the Shand power station would be the only conventional coal fired power plant left operating in Saskatchewan by 2028.

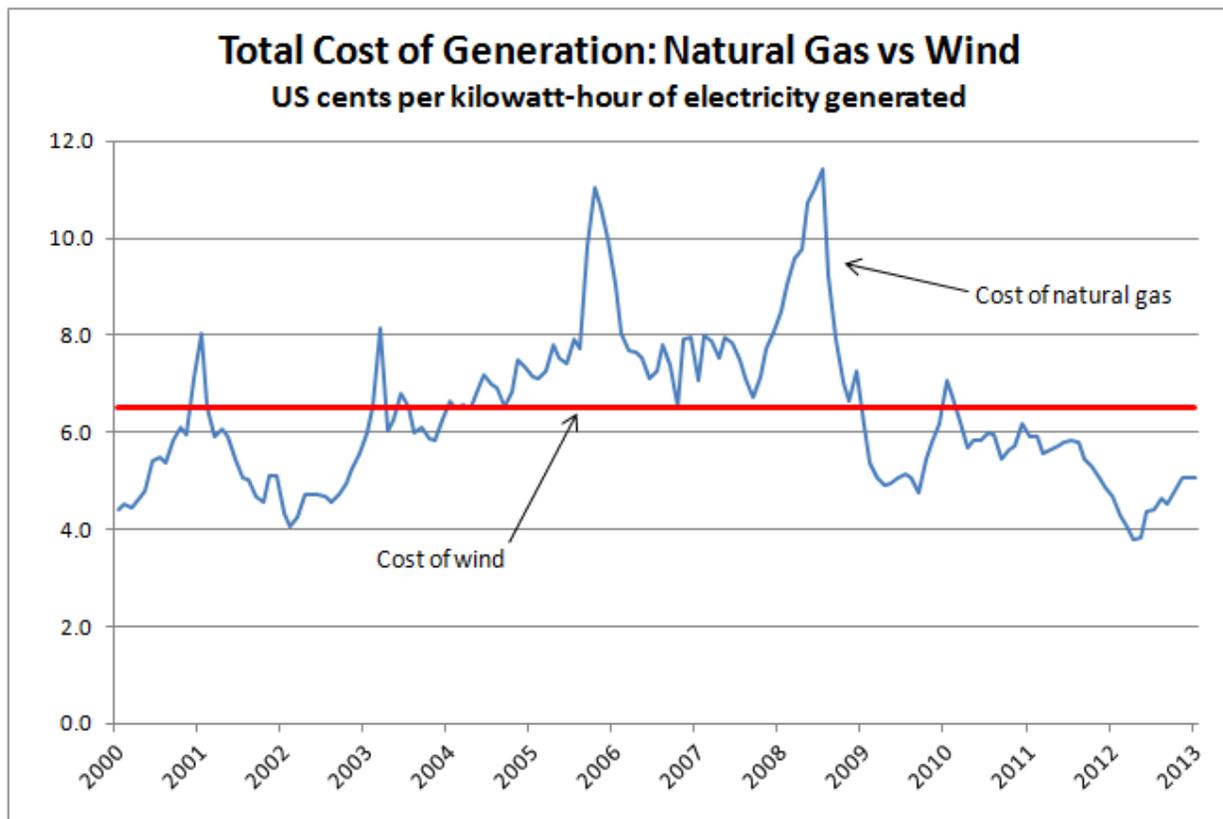
SaskPower Annual Production



SLIDE PRESENTED TO THE HEARINGS BY BOB HALLIDAY

Bob Halliday emphasized the importance of maximizing electricity conservation opportunities, and establishing a stronger grid connection with Manitoba. He estimated that **electricity efficiency savings equivalent to 800 megawatts of capacity** could be achieved in Saskatchewan over the next 20 years, and that this could be implemented at far less cost than building new electrical generating capacity. He also suggested that Saskatchewan contract with Manitoba Hydro to import 1,000 megawatts of hydro power. Such a contract would go a considerable way to helping phase out Saskatchewan's coal fired power plants, and would allow hydro to better complement a large roll out of new wind power facilities. Hydro and wind power production can be coordinated together at very low cost.

James Glennie of Saskatoon Community Wind stressed the enormous opportunities that exist for Saskatchewan to utilize its excellent wind resource for electricity generation purposes. He noted how much the economics of wind power have improved, bringing it to the point where it is only slightly more expensive to build and operate a wind farm than it is to build and operate a natural gas fired power plant.



SLIDE PRESENTED TO THE HEARINGS BY JAMES GLENNIE

Saskatchewan currently generates only 3% of its electricity production from wind. James pointed to numerous studies confirming that 20% of a province or state's electricity can readily come from wind power, without compromising grid stability. In fact, south of the border, **the states of South Dakota and Iowa** have already demonstrated this can be done. Both **now generate 25% of their electricity from their wind turbines**, while 8 other U.S. states get more than 10% of their electricity from wind. There is little question Saskatchewan could do the same.

James Glennie further underlined the potential Saskatchewan has for the development of wind power and other renewable sources by contrasting Saskatchewan's land area with that of Germany. Saskatchewan has approximately double the land area of Germany, and has a far superior wind, solar and biomass resource. Yet **in a geographical area half the size of Saskatchewan, Germany currently generates enough electricity from solar, wind and biomass energy to meet all of Saskatchewan's electricity needs 6 times over.**

2012 Saskatchewan Total Generation vs. German Renewables

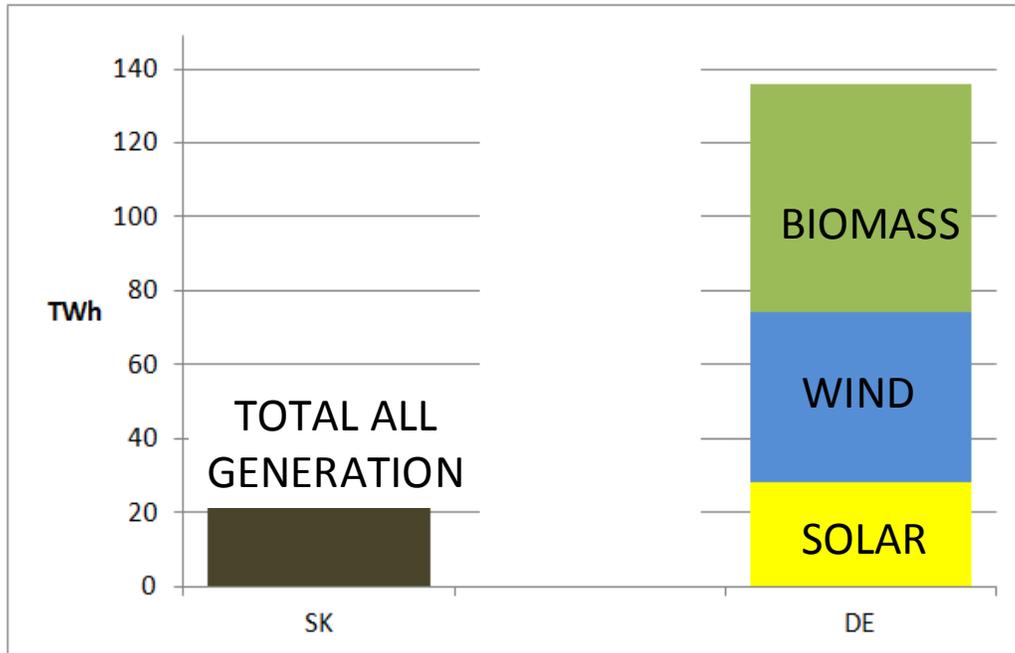


CHART PRESENTED TO THE HEARINGS BY JAMES GLENNIE

This chart compares Saskatchewan's total electrical production from all sources with Germany's electrical production solely from renewable energy sources. Germany's renewable electricity production occurs in a geographic area half the size of Saskatchewan, suggesting that Saskatchewan has tremendous renewable energy potential.

Rick Morrell of the Saskatchewan Eco-Network addressed emission reduction measures that should be taken in several other sectors of the Saskatchewan economy. For example, in the transport sector, he advocated working towards a future in which electric vehicles would play a major role, and in which 100% of transport would ultimately be powered by renewable energy. He also stressed the importance of the Province investing in municipal infrastructure to support walking, cycling and transit use.

2) 100% renewable transportation

(21% of emissions in 2011)

To be achieved by 2050 or sooner.

- Primarily electric vehicles;
- Biofuel from sustainable feedstocks used for specific purposes only (eg: tractors);
- Improved urban design for bicycles and buses;
- Electric powered mass rapid transit between cities;
- Legislation to improve fuel efficiency during the transition to renewables.

SLIDE PRESENTED TO THE CITIZEN HEARINGS BY RICK MORRELL

Rick Morrell proposed several other important emission reduction policy measures. These included improving the efficiency of space heating across the province, moving to renewable heat sources, shifting to a locally based food supply, and adopting zero waste management (a strategy aimed at reducing both consumption of products and waste from them).

Rick also suggested launching **a massive tree planting program around our cities, designed to sequester carbon, while at the same time providing a lot of fuel to meet local space heating needs.** Farmers who initiated tree planting projects would gain an important new source of revenue. Moreover, he identified other spinoff benefits including: better flood control, enhanced recreational opportunities, and provision of more natural habitat for wildlife.

Rick Morrell also addressed changes the Saskatchewan Eco-Network Climate Group believes are needed in resource extraction policy. He suggested that all mining operations in our province should be required to transition over to renewable energy as a way of reducing their carbon footprint. He proposed that all subsidies for any type of resource extraction in Saskatchewan be terminated. He recommended a provincial ban on fracking because of its associated methane emissions and the risks it poses for water quality. Finally, he advocated higher royalty rates on any remaining fossil fuel extraction, and proposed that half of these royalties be directed towards building renewable energy installations in Saskatchewan.

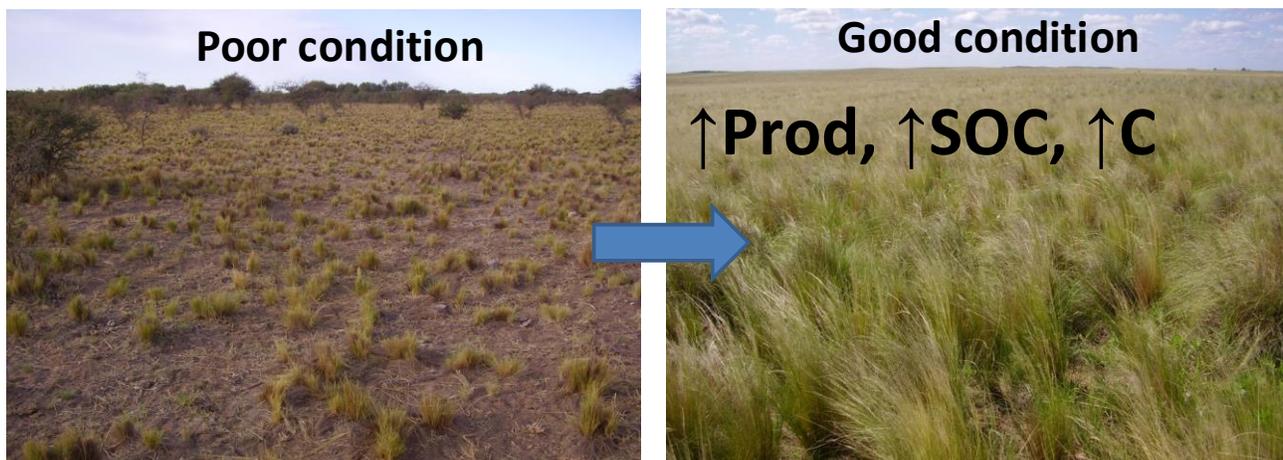
Diego Steinaker, a member of the Biology Department at the University of Regina has done extensive research into the role of grasslands in capturing carbon. He demonstrated that policies that promote grassland health in turn result in large improvements in the ability of grasslands to hold carbon that would otherwise be released

into the atmosphere. For instance, by moving from heavy grazing on grasslands to lighter grazing, 20% more carbon can be sequestered by plant roots.

Diego Steinaker's research shows that rotational grazing practices - that allow grasslands to rest and rejuvenate - can play an important role in reducing greenhouse gas emissions into the atmosphere. The key is to manage grasslands so as to more evenly distribute livestock grazing pressure. This has important implications for management of provincial community pastures and for farm management practices across Saskatchewan.

Range Management:

- ↑ grassland productivity,
- ↑ soil organic carbon,
- ↑ C sequestration,
- ↓ greenhouse effect
- ↓ warming (C Change)



SLIDE PRESENTED AT THE HEARINGS BY DIEGO STEINAKER