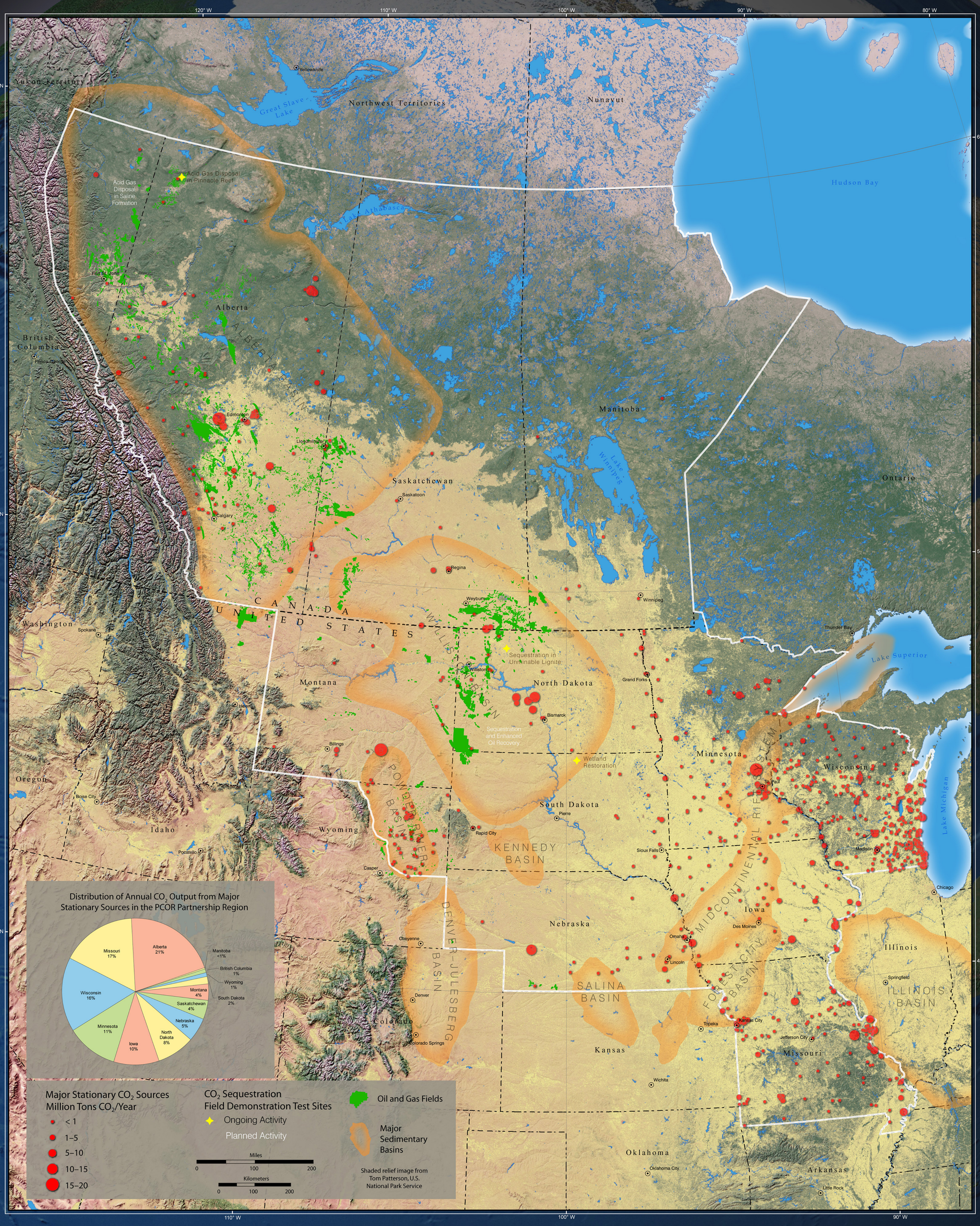
The Plains CO_2 Reduction Partnership Region



Major Stationary CO_2 Sources
Million Tons CO_2/Year
- < 1
- 1–5
- 5–10
- 10–15
- 15–20

CO_2 Sequestration Field Demonstration Test Sites
- Ongoing Activity
- Planned Activity

Miles: 0 100 200
Kilometers: 0 100 200

Oil and Gas Fields

Major Sedimentary Basins

Shaded relief image from Tom Patterson, U.S. National Park Service

Global climate change is considered to be one of the most pressing environmental concerns of our time. Although uncertainty still clouds the science of climate change, there is strong indication that we may have to significantly reduce greenhouse gas (GHG) emissions. Carbon sequestration offers a promising set of technologies through which carbon dioxide (CO_2) and potentially other GHGs can be stored for long periods of time in sinks represented by biologic materials, geologic formations, and the oceans.

The Plains CO_2 Reduction (PCOR) Partnership is a diverse group of public and private sector stakeholders working together to better understand the technical and economic feasibility of capturing and storing CO_2 emissions from stationary sources in central North America. The PCOR Partnership is managed by the Energy & Environmental Research Center (EERC) at the University of North Dakota and is one of seven regional partnerships funded by the U.S. Department of Energy's Regional Carbon Sequestration Partnership Program and a broad array of project sponsors.

Regional characterization activities confirmed that while there are numerous large stationary CO_2 sources, the region also has a variety of sinks representing a tremendous capacity for CO_2 sequestration. The varying sources reflect the geographic and socioeconomic diversity of the region. In the upper Mississippi River Valley and along the shores of the Great Lakes Michigan and Superior, large coal-fired electrical generators power the manufacturing plants and breweries of St. Louis, Minneapolis, and Milwaukee. To the west, the prairies and badlands of the north-central United States and central Canada are home to coal-fired power plants, natural gas processing plants, ethanol plants, and refineries that further fuel the industrial and domestic needs of cities throughout North America.

The PCOR Partnership region is rich in agricultural lands, forests, and wetlands that hold tremendous potential for terrestrial sequestration. The Prairie Pothole Region, which stretches from northwestern Iowa, across the Dakotas, and into Saskatchewan and Alberta, holds promise as an area that can be transformed into a significant terrestrial CO_2 sink. Deep beneath the surface of the region lay geologic formations that hold tremendous potential to store CO_2. Oil fields well suited for sequestering CO_2 can be found in roughly half the region, while formations of limestone, sandstone, and coal suitable for CO_2 storage exist in basins that, in some cases, extend over thousands of square miles.

PCQR Partnership

NETL National Energy Technology Laboratory

United States Department of Energy

EERC Energy & Environmental Research Center®