



ASIA PACIFIC PARTNERSHIP

Carbon Capture & Sequestration

HTC Pureenergy

HTC... “Leaders in CO₂ Capture & Management”

John B. Osborne

Business Development & Strategic Alliances

(802) 933-2711

josborne@htcenergy.com

April 1, 2009





UNIVERSITY OF
REGINA



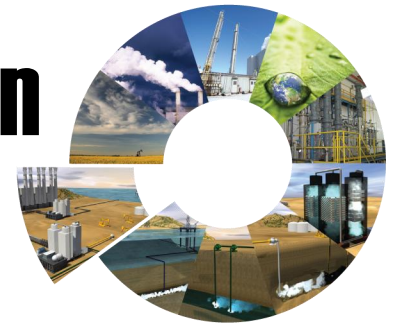
Government of
Saskatchewan



Crown Investments Corporation
of Saskatchewan



Project Location



The underground pipeline attached to the capture unit at an existing SaskPower plant will deliver CO₂ from Saskatchewan to a geological storage site in northeastern Montana on the northwestern flank of the Williston Basin.

Two possible SaskPower coal-fired plants are being considered as sites for the capture/reference plant in southern Saskatchewan: Coronach or Estevan lignite-fired units.



UNIVERSITY OF
REGINA

Project Summary



There is an urgent need to develop a complete understanding of the full carbon capture and storage (CCS) chain from raw coal to in-ground storage of the CO₂ produced by coal- and gas-fired generation facilities. The SK-Montana project is designed to meet this need by creating the first full chain CCS project to demonstrate and test post-combustion capture. This project will provide a global prototype, positioning it as the global leader in research and training in CCS technology.



UNIVERSITY OF
REGINA

SK-Montana Project Highlights



- *Leader in CCS technology:* This project is the first coal to geological storage project to be attached to a coal-fired power plant by pipeline.
- *Global prototype:* The SK-Montana project will be a prototype for the world.
- *Timely:* “Shovel ready” project – this is the closest coal to ground project in North America.
- *Commercial opportunities:* Post-combustion capture provides a pure stream of CO₂, which is essential for ensuring high-quality oil produced through the Enhanced Oil Recovery (EOR) process.
- *Global training centre:* The capture/reference plant will provide the best training ground globally for professionals.

Project Components



Capture unit: Will test and demonstrate process design and operations, particularly the impacts of capture units on the operations of a power plant.

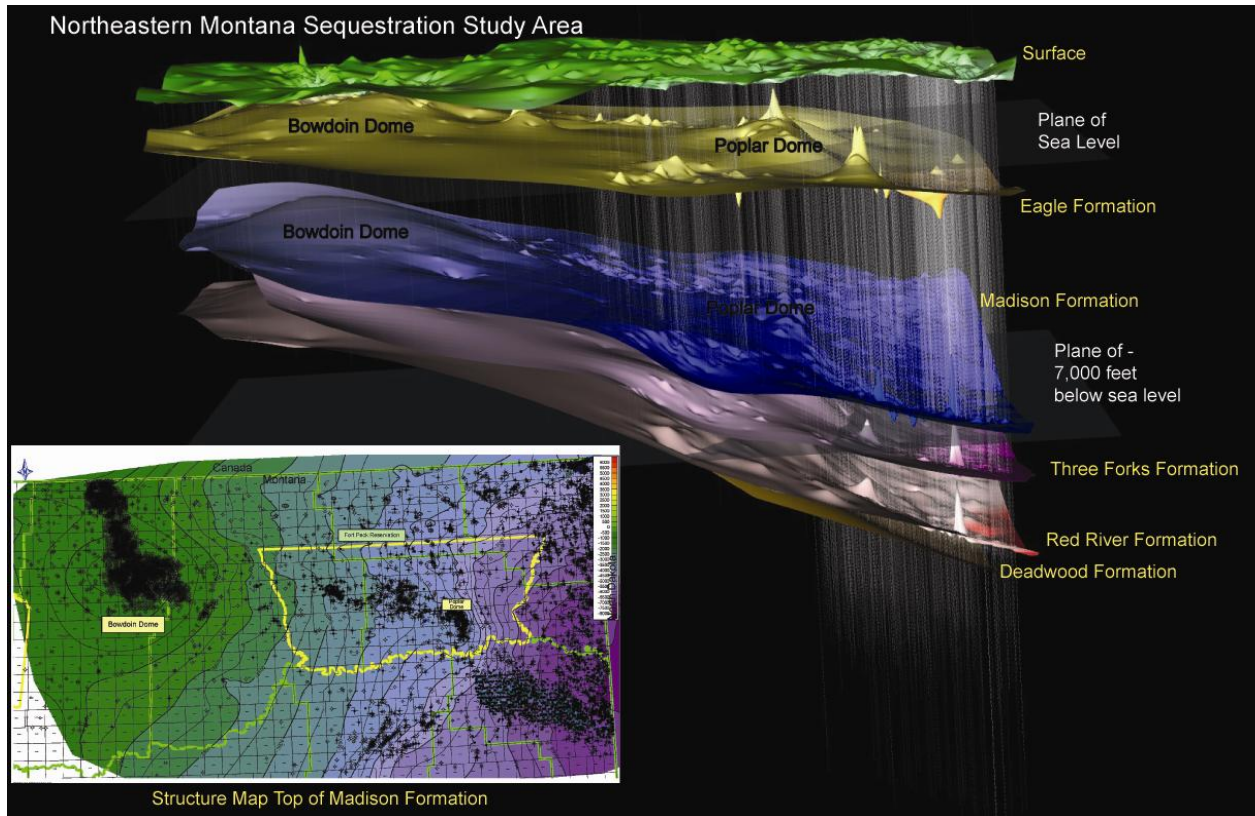
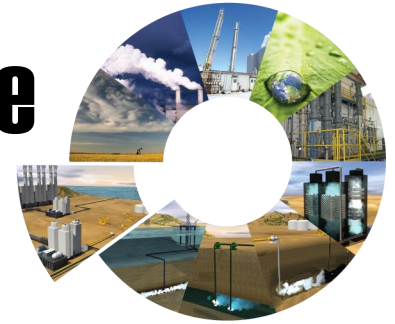
Pipeline: Will provide insight into the development of pipeline routing and will test varying CO₂ input volumes to mimic a load-following power plant output.

Storage: Will encompass site screening, permitting of the site, drilling of storage wells, monitoring of CO₂ injection and plume dispersion, and ultimate site closure.

Risk assessment: Conducted by IPAC-CO₂ (a totally independent entity) to undertake objective and transparent analysis of the screening and risks of geological storage.



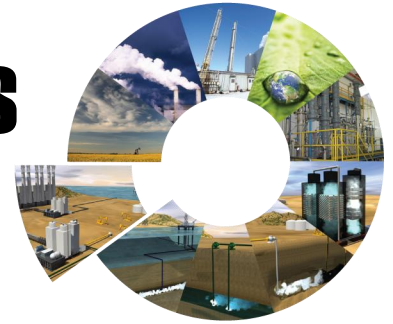
Storage Site



Source: Image courtesy of Big Sky Carbon Sequestration Partnership

3-D structural model of the northeastern Williston Basin in Montana. Inset map is a structure map on the top of the Madison Formation.

Key Milestones



March – July 2009: Design of reference plant, land-owner discussion on pipeline routes, development of permitting action plan

April 2009: Risk assessment begins by **IPAC-CO₂**

July – September 2009: Reference plant construction begins

October – December: Power plant site work begins

Summer 2010: Site characterization, site preparation at SaskPower plant, pipeline construction, and installation of capture unit finished

Summer 2010: Training program starts

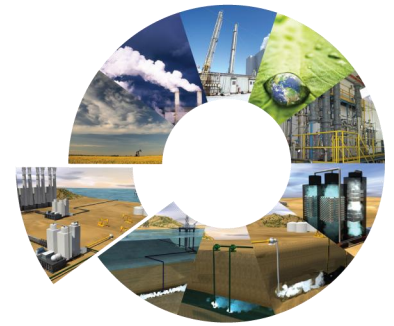
Winter 2010-2011: Drilling of injection and observation wells

Winter 2011: Baseline monitoring process



UNIVERSITY OF
REGINA

What will we learn?



- A complete understanding of the full carbon chain from coal (and other fossil fuels) to in-ground storage of the carbon-dioxide
- How carbon capture operates with a functioning coal- and gas-fired power plant.
- The impact on storage of varying supply rates resulting from the load following of coal-fired power plants
- Through comprehensive monitoring and modeling, we will learn how CO₂ behaves in geological reservoir and develop risk management strategies
- How a large volume of CO₂ (1 million tons) over the two to three-year storage test can be stored safely





THANK YOU

**For more information, please contact: Dr. Malcolm Wilson
Director, Office of Energy and Environment
University of Regina
Regina, SK, Canada
Ph: 306.337.2287
Email: Malcolm.Wilson@uregina.ca**



**UNIVERSITY OF
REGINA**