



UNIVERSITY OF  
**REGINA**

# Impact on Research Productivity

April 28, 2009

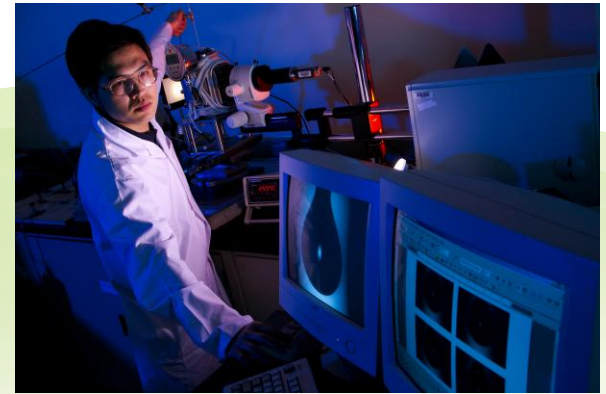
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# Research Productivity: ITC, IPAC-CO<sub>2</sub> and PTRC

## ◆ Enabling infrastructure

- ◆ Infrastructure + PTRC allowed creation of Petroleum Engineering – largest program in Canada for a while
- ◆ Infrastructure + opportunity allowed the Weyburn Project phase 1 to be created back in 2000
  - ◆ Multiple University/research partners
- ◆ Allowed ITC to create an international visibility
  - ◆ Partnerships with three global universities
  - ◆ CAPRICE project (EU FP6 programme)
  - ◆ Collaboration with UNIFACS - Brazil



# Collaborations/Competitiveness: ITC and IPAC-CO<sub>2</sub>

- ◆ Collaboration with Canadian Universities
  - ◆ Unique expertise and availability of pilot capacity
  - ◆ Better linkages with international community
  - ◆ Heavy use by industry in Canada, particularly Alberta
- ◆ Increased competitiveness
  - ◆ Regina - a centre of expertise in Risk Assessment on Geological Storage of CO<sub>2</sub>. Establishment of International Performance Assessment Centre for Geological Storage of CO<sub>2</sub> (IPAC-CO<sub>2</sub>) in November 2008.
  - ◆ Developing its capacity to take expertise into training, linkage with Montana/Big Sky Partnership, larger scale demonstration. Fundamentally moving towards a clearly defined centre for CCS
  - ◆ Builds on multiple CFI infrastructure funding allocations

# What is the PTRC?

**Mission: To develop world-leading enhanced oil recovery and CO<sub>2</sub> storage technologies that ensure sustainable and environmentally-sensitive development of Canada's energy resources.**

- PTRC is a non-profit R&D corporation
- PTRC manages EOR research and delivers basic and applied research results to its partners for field application, including the IEA GHG Weyburn-Midale CO<sub>2</sub> Monitoring and Storage Project (2000-2011)

Partnered with, funded by, and liaison to:  
government, industry and researchers

Founded in 1998 by

NRCan (Federal Gov't)

SER (Provincial Gov't)

SRC (Research Organization)

UofR (Research Organization)



**Petroleum Technology Research Centre**  
Regina, Saskatchewan, Canada

“Enhanced Oil Recovery technology with a bigger impact and a smaller footprint.”

# Collaborations: PTRC and EOR/STEPS

- ◆ Collaborations with other universities: not always reflected in U of R statistics because of the structure of the PTRC's Enhanced Oil Recovery Program (now, the STEPS Business-Led Network of Centres of Excellence).
- ◆ Liaison between research organizations, industry, and universities occurs at the program planning level in the EOR / STEPS program.
- ◆ Increased collaboration is expected and required in the STEPS BL-NCE

# What is a Business-Led Network of Centres of Excellence?



Networks of Centres of Excellence  
Réseaux de Centres d'Excellence

Canada

The Business-Led Networks of Centres of Excellence (BL-NCE) program will create large-scale, collaborative research networks. Proposed, led and managed by not-for-profit consortia representing the private sector, BL-NCEs will enhance private sector innovation, deliver benefits to Canadians and encourage an *Entrepreneurial Advantage*.

# What is STEPS

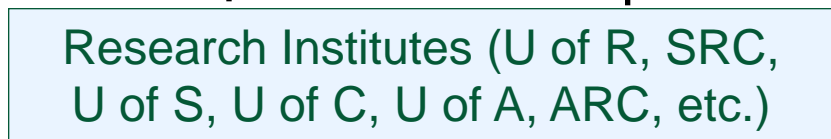
## Vision

With a focus on Canada's unique resources, STEPS will bring together leading-edge scientists and engineers from around the world to challenge the barriers to sustainable development of hydrocarbon energy resources that are difficult to access and monetize.

To ensure a secure and affordable supply of clean energy to Canadians

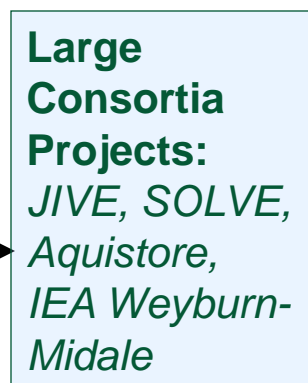
# STEPS : Collaboration & the Path to Commercialization

## FUNDING - CASH and IN-KIND



## RESEARCH SUPPORT

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# External Linkages: PTRC's Existing R&D Partnerships

## Provincial/Federal Research Organizations Governmental Organizations/Agencies

### Canada



Natural Resources Canada / Ressources naturelles Canada

### Canadian Universities



### International



### Geological Survey of Canada

- Colorado School of Mines (CSM)
- Lawrence Berkeley National Laboratory (LBNL)
- North Dakota Geological Survey
- PCOR (Prairie CO<sub>2</sub> Regional Sequestration Partnership)

• British Geological Survey, UK (BGS)

Bureau de Recherches Géologiques et Minières, France (BRGM)

• Geological Survey of Denmark and Greenland (GEUS)

• Istituto Nazionale di Geofisica e Vulcanologia (INGV)

• Quintessa Ltd.

### Saskatchewan Geological Survey

### Energy Technology Centre(s)

### Networks of Centres of Excellence



# PTRC: Externally Linking U of R to All the Main Players in the Energy Industry



# Sharing Infrastructure: ITC, IPAC-CO<sub>2</sub> and PTRC

## ◆ Sharing infrastructure

- ◆ Infrastructure largely utilised by means of contract research
- ◆ Undertaken through direct contracts with industry, through PTRC and through ITC
- ◆ Structured in the case of capture through use of the pilot equipment with the CFI infrastructure to support this work and commercial development
- ◆ EOR and STEPS – leads to commercial opportunities with industry and through our research partner, the SRC
- ◆ It is less of an issue of defining particular pieces of equipment than looking at the full suite as part of the offering to industry



# Research Productivity

- ◆ Research productivity has been enhanced /undertaken more cost effectively
- ◆ UofR has been able to cement a position internationally as leader in several key CCS research areas
- ◆ Collaboration in capture is primarily international due to the expertise that is available (i.e. little in Canada)
- ◆ Has led to commercial opportunity development
- ◆ Has led to other funds being raised for cutting edge research
- ◆ Many publications (one specifically raised at the end of a recent international conference with over 400 papers and posters)
- ◆ **CFI has enabled a medium sized Canadian university to become globally competitive in a key area of research –CCS/climate change mitigation**





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