



PTAC

**PETROLEUM
TECHNOLOGY
ALLIANCE
CANADA**

Upgrading, Refining, Petrochemical, and Hydrogen Technologies

Proposed Steering Committee

Presentation to the Hydrocarbon Upgrading Task Force

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About PTAC

PTAC is a not-for-profit association with a volunteer board comprised of representatives from our 238 members including producers, technology suppliers, researchers, government, inventors, and individuals.

PTAC is a neutral facilitator for oil and gas innovation, technology transfer, and collaboration.

Our vision is to help Canada become a global hydrocarbon energy technology leader through facilitation in innovation, collaborative research and technology development, demonstration and deployment for a responsible Canadian hydrocarbon energy industry.

Objective

- } **Obtain your support and approval to form a Technology Steering Committee (TSC) on Upgrading, Refining, Petrochemical, and Hydrogen.**
- } **Recruit individuals from your organizations to participate on the TSC to:**
 1. **Provide overall guidance on the ongoing R&D, and demonstration initiatives ensuring that technologies are developed to achieve improved and more marketable products while minimizing the environmental footprint and overall cost reduction.**
 2. **Ensure NCUT, CONRAD, HUDP, research organizations are aware of the initiatives taken by other organization to eliminate duplication, and identify gaps towards a common vision.**
 3. **Provide seamless approach from basic research to field demonstration and obtain funding for basic research.**
 4. **Prioritize issues dealing with the need for the Hydrogen Upgrading, Refining and Petrochemicals.**
 5. **Identify barriers and challenges**

Background

- } Research Chairs proposed at University of Calgary and University of Saskatchewan.**
- } Chair holders (Dr. Josephine Hill and Dr. Todd Pugsley) contacted PTAC to facilitate industry input to influence and support the directions of these Chairs**
- } PTAC worked with both universities to organize a workshop held in April 2007 to discuss research opportunities in Hydrogen, Hydrocarbon Upgrading and Gasification Research for the Energy Industry.**
- } Workshop participants felt that the mandate of basic research at the two universities could be expanded to include upgrading, refining, and petrochemical.**



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**Upgrading, Refining, Petrochemical, and Hydrogen Chair -
Josephine M. Hill - University of Calgary**

The objective of this Chair is to develop catalysts and technologies for the production and use of hydrogen such that energy efficiency is maximized and environmental impact is minimized.

Upgrading, Refining, Petrochemical, and Hydrogen Chair - *Josephine M. Hill*

Outputs:

- 1. new catalysts,**
- 2. energy efficient technologies,**
- 3. High Quality People (HQP)**

**Receptors: companies that employ catalysts
and/or hydrogen in their processes**



Project Plans for Chair

- **Catalytic gasification**
- **Hot gas clean-up/processing**
- **Optimization of feed to gasifier (blend feeds)**
- **Solid adsorbents for hydrogen**

Support

- Funding of ~\$100 000 per year in Endowed Chair from Zandmer Estate funds to start July 1, 2007
- Canada Research Chair (applied for) – \$100 000 per year for 5 years for salary, teaching relief and administrative support
- Canada Foundation for Innovation (CFI, applied for) - \$345 500 total project cost for equipment
- Needs:
 - Operating funds: \$125 000 per year per project for typically 3-5 years – set up research contract with university and one company or consortium of companies
 - Advisory Board

Background

- The workshop concluded that a **Steering Committee** should be formed to coordinate activities among the research providers.
- Workshop results indicate there is a role for **PTAC** to play in facilitating the research needs identified.

Objective of the Proposed Steering Committee

- **Coordinate integration, innovation, development, demonstration and deployment of new and emerging technologies to:**
 - **Improve more marketable Products targeting Alberta's bitumen as feedstock**
 - **Optimize operating costs**
 - **Optimize capital costs**
 - **Use integration to reduce cost, and minimize environmental impacts:**
 1. **GHG emissions**
 2. **Water Consumption**
 3. **Land disturbance**

Mandate of the Proposed Committee

- **Provide overall guidance to HURPSC, basic research, NCUT, CONRAD on their initiatives**
- **Ensure NCUT, CONRAD, HUDP, research organizations are aware of the initiatives taken by other organization to eliminate duplication, and identify gaps towards a common vision**
- **Ensure technologies are developed to achieve improved and more marketable products while minimizing the environmental footprint and overall cost reduction**

Mandate of the Proposed Committee

- **Provide seamless approach from basic research to field demonstration**
- **Prioritize issues dealing with the need for the Hydrogen Upgrading, Refining and Petrochemicals.**
- **The committee will focus on research and technology, needs and challenges, as well as identification of barriers and opportunities.**
- **Obtain funding for research chairs**

PTAC's Role under the Guidance of the Proposed Committee

PTAC will:

- } Facilitate the basic search for new or improved technologies**
- } Foster development through pilot testing**
- } Organize demonstration projects, and working groups**
- } Prepare Requests for Technology (RFT)**
- } Organize and facilitate workshops, forums, conferences, and technology information sessions as required to deliver the results of development work to industry**

Interaction

