Business Opportunities for Technology Transfer


Hugh Porteous, Vice-president, Government Relations Europe, Alcan Inc.
Global Presence

A balanced presence and a global reach

North America
Employees: 23,300
North American Global Headquarters
Bauxite & Alumina Montreal
Primary Metal Montreal

Europe
Employees: 31,500
European Global Headquarters
Packaging Paris
Engineered Products Paris

Africa/Middle East
Employees: 800

Asia/Pacific
Employees: 5,500

South America
Employees: 2,350

Australia
Employees: 1,550

Alcan Inc.
2005 Revenues: US$20.3 billion
Employees: 65,000
Facilities: 430
Countries & Regions: 59
**GHG Emissions and Aluminium Production**

- **Alumina Production**
  - 1.5 – 2.5 t CO₂eq/t Al
  - IAI average = 1.9

- **Electricity Input**
  - 15.6 MWh/t Al
  - 0 – 20.8 t CO₂/t Al
  - IAI average = 5.8

- **PFC Generation**
  - 0.02 – 24.5 t CO₂eq/t Al
  - Global average = 1.16

- **Anode Carbon**
  - 1.7 – 2.1 t CO₂eq/t Al
  - IAI average = 2.0

- **Source**: IAI 2000 Life Cycle Inventory Data
  - IAI 2004 PFC Survey

- **Two PFC (perfluorocarbon compounds - CF₄ and C₂F₆)** contribute about 40% of direct primary aluminium GHG emissions
- **Anode consumption** generates 60 per cent of direct primary aluminium GHG emissions
- **GHG emissions from electricity generation** are the largest source of Aluminium industry emissions; limits set by the available energy source(s)
Alcan’s Best Technology

- Alcan owns technology which can contribute significantly to reducing energy use and GHG emissions.
- These solutions represent a win-win case for the environment and the economy as they reduce energy use and GHG emission while reducing also the production cost.
- Occupational safety is also improved.
Alcan’s AP technology, when using the Alpsys® process control system, provides benchmark PFC performance (less than 0.1 tCO2eq / t Al)
AP Technology, the net carbon consumption

2004 IAI Energy Survey
Primary Aluminium Smelting - Anode Consumption
All technology

Anode Consumption (kg per kg aluminium)

0,58
0,56
0,54
0,52
0,50
0,48
0,46
0,44
0,42
0,40
0,38

3 000 000 6 000 000 9 000 000 12 000 000 15 000 000 18 000 000

Primary Aluminium Production (Tonnes cumulative)

Dunkerque plant

Average AP Technology - Alcan plants

Alouette
Alcan’s AP technology is benchmark for energy consumption
Technology Transfer to Developing Countries

- The transfer of these technologies to developing countries companies (India, Africa, Latin America, Middle East) has taken place under contractual market conditions since the early eighties.

- The commercial conditions for transfer to developing country industry has been the same as for technology transfer to developed country companies.
The push and incentives for further technology transfers under international instruments such as AP 6 or CDM should be developed in a way compatible with Intellectual Property Rights and current licensing market based practices (9% to 12% of the cost of a new smelter).
Automotive Applications

1 Tonne of Aluminum

20 Tonnes of CO2e Emissions
Recycling

- Recycling only requires 5% of the energy
- Greenhouse gas emitted is 95% less