Introduction to the United States Business Council for Sustainable Development

Andrew Mangan, Executive Director
United States Business Council for Sustainable Development

US BCSD Member Companies

- Alcan
- Baker Botts LLP
- Battelle Pacific NW Nat'l Lab
- Blasland, Bouck & Lee
- Cemex
- Chicago Manufacturing Center
- ConocoPhillips
- The Dow Chemical Company
- DuPont
- Holcim
- Lafarge
- RETEC Group
- Rohm & Haas
- Temple-Inland Forest Products
- Thompson Knight LLP
- URS
- UOP
- Visteon

United States Business Council for Sustainable Development

World BCSD Regional Network

United States Business Council for Sustainable Development

WBCSD Member Companies

Energy & Climate, Working Group Meeting

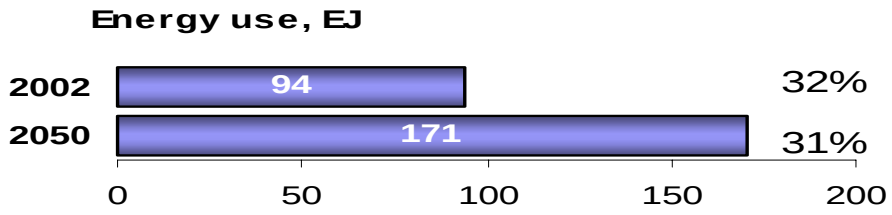


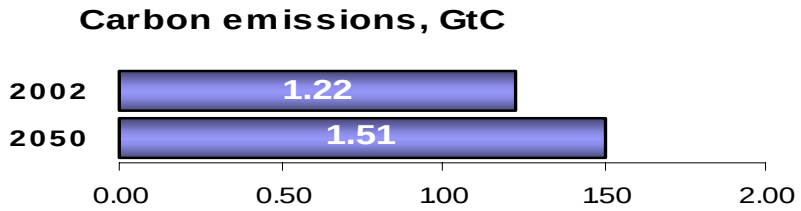

Montreux, Thursday October 27th

Directions to 2050: Introduction

- « Directions to 2050 » explores the « what if » case of a world in 2050 that emits no more than 9 GtC, which is roughly on a 550ppm stabilization pathway (F&T 2004).
- The options discussed are not a scenario nor do they recommend a target, but an illustrative hypothesis to gauge the extent of change needed in our energy infrastructure and the impact that might have on industry.

Industry and Manufacturing





- Emission reduction measures:
  - Shift towards electricity and bio fuels
  - Increase the deployment of currently best available technologies (BATs) especially to developing countries
  - Improve energy efficiency and fuel conservation
  - Develop new low energy and low carbon intensive technologies
- Examples
  - Cement
  - Pulp and paper
  - Electric motors

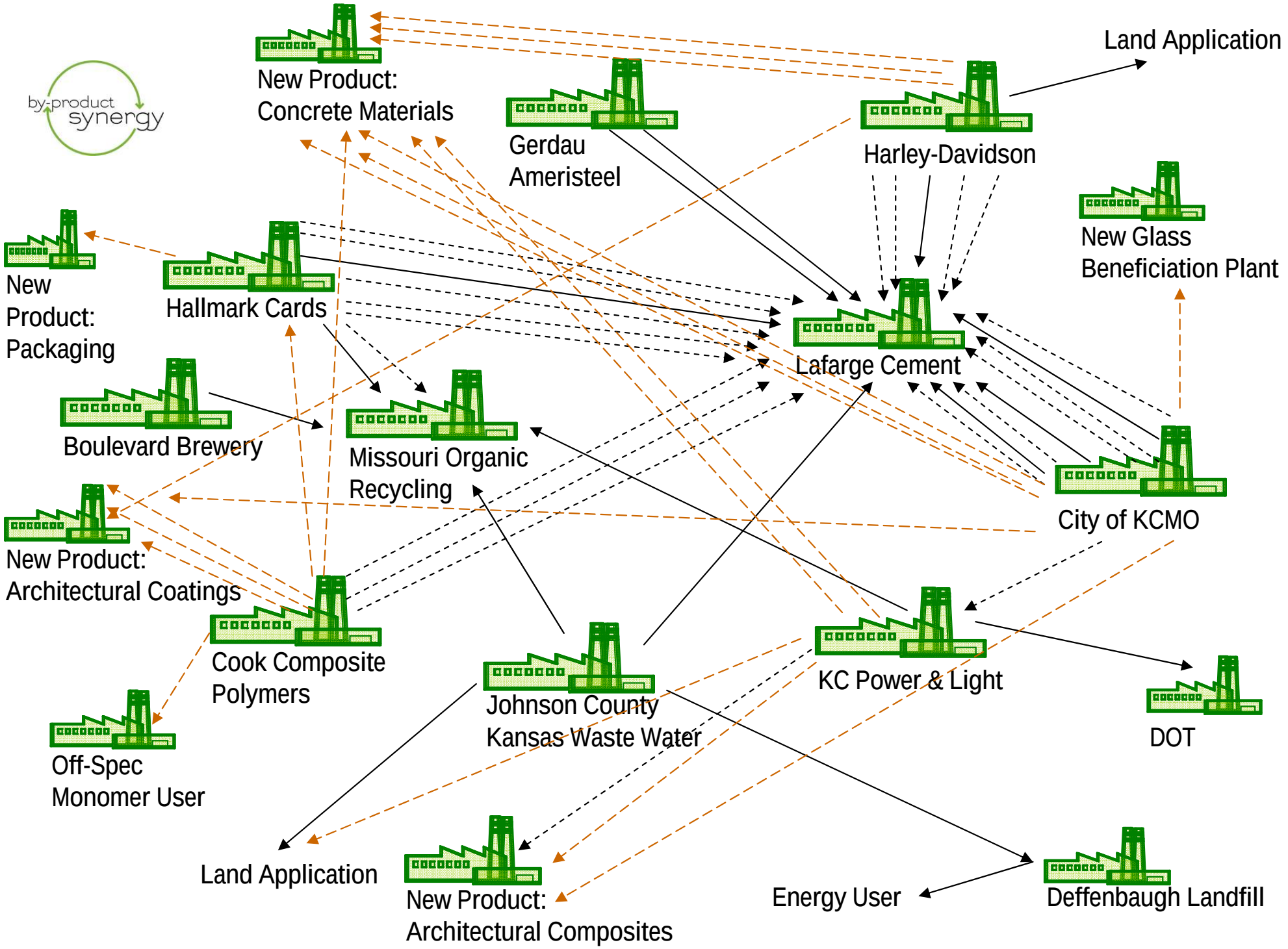
China – a low carbon, coal based economy

- Establish a highly energy efficient economy (e.g. same level as top developed countries)
- By 2050:
  - Half of all coal power plants need to apply CCS (e.g. coal gasification)
  - Wind power is established as the largest renewable source (about 200,000 5 MW turbines)
  - Vehicle efficiency doubles

1. Agreements Signed 11/1/05
   - ✓ Joint Project Development
   - ✓ Communication Center

1. Energy & Climate Change
   - ✓ Cement Industry
   - ✓ Biofuel
   - ✓ By-Product Synergy (The Circular Economy)

US BCSD - China BCSD


by-product synergy
New Product:
Concrete Materials
Gerdau
Ameristeel
Land Application
Harley-Davidson
New Glass
Beneficiation Plant
New
Product:
Packaging
Hallmark Cards
Lafarge Cement
Boulevard Brewery
Missouri Organic
Recycling
City of KCMO
New Product:
Architectural Coatings
Cook Composite
Polymers
Johnson County
Kansas Waste Water
KC Power & Light
DOT
Off-Spec
Monomer User
Land Application
New Product:
Architectural Composites
Energy User
Deffenbaugh Landfill

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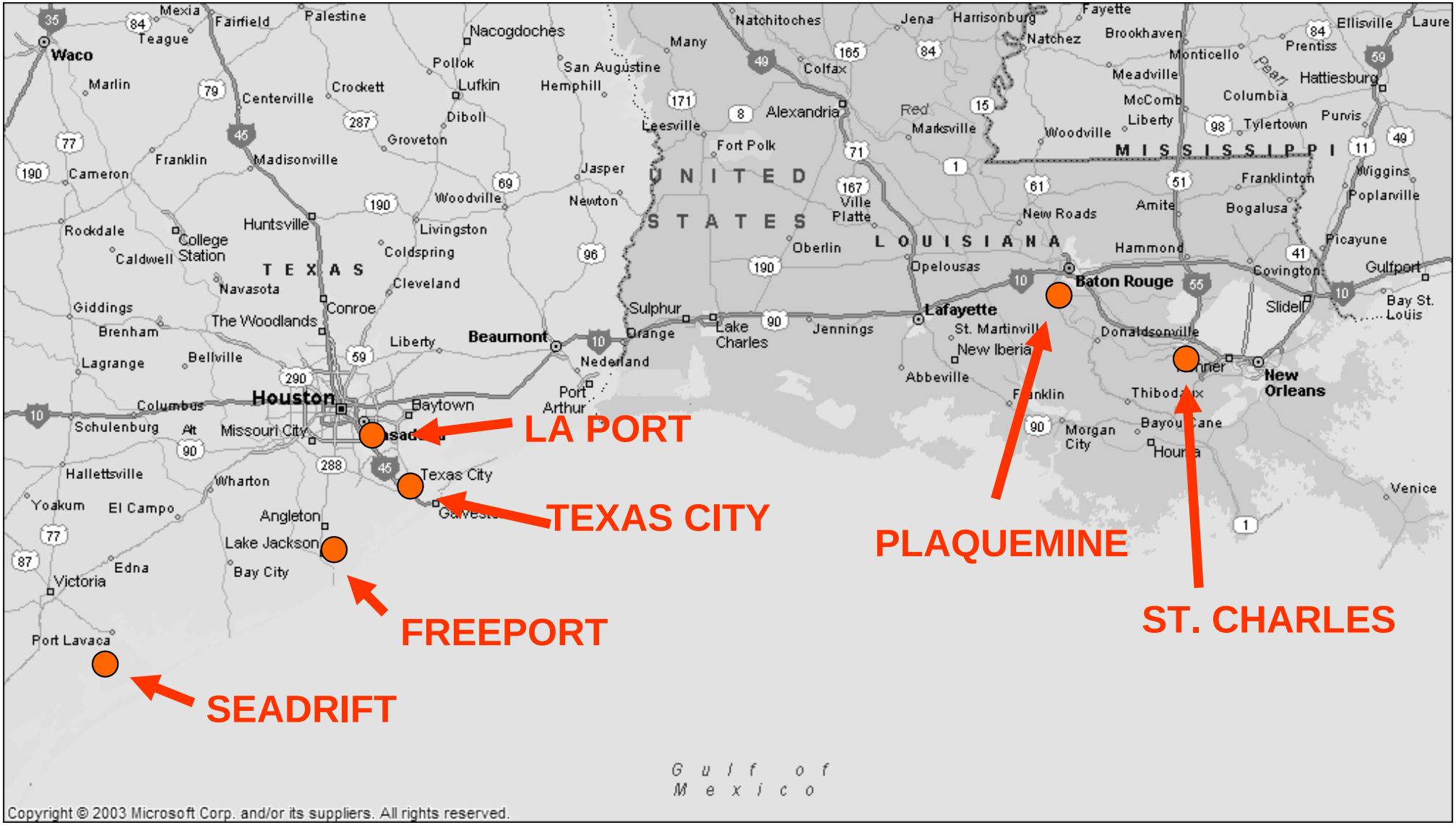
Dow Sites Selected for By-Product Synergy Project

http://www.eere.energy.gov/industry/chemicals/news_detail.html/news_id=9368



Efficiencies of Aluminum:

- **Life cycle energy and cost analysis of an aluminum third rail system**
  - **Conventional steel (baseline)**
  - **Co-extruded aluminum rail**
  - **Welded aluminum rail**

➢ **Three life cycle stages**
  - **Manufacturing**
  - **Operation**
  - **Recycling/disposal**

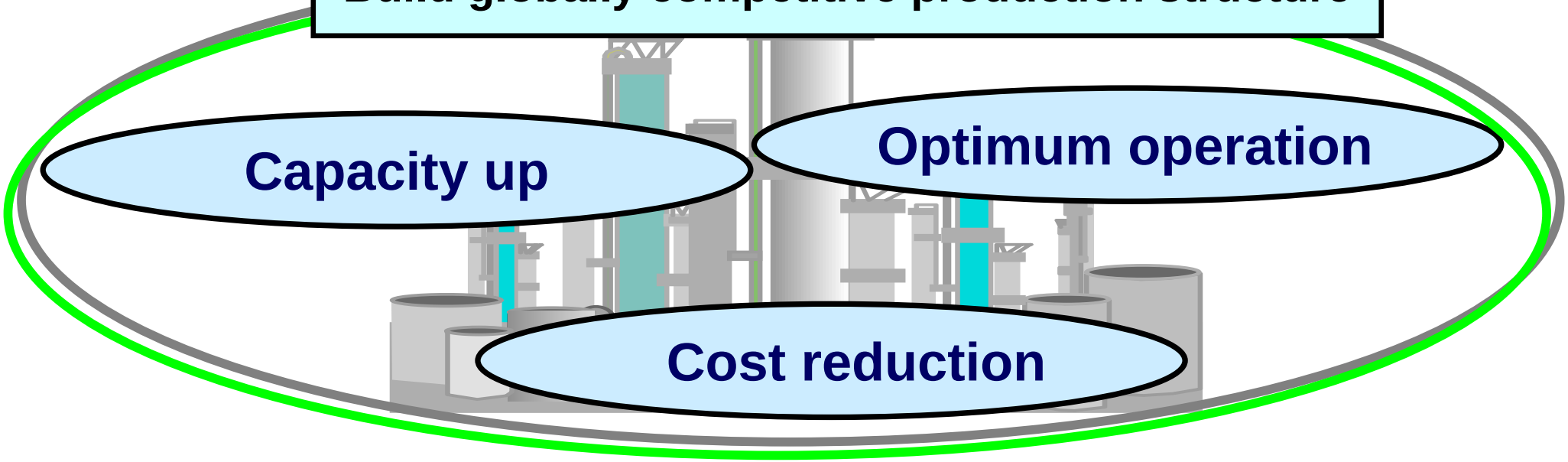
US Army Project Proposal

Alternative Fueling Station

US BCSD Partnerships

JAPANESE METHODOLOGY

Build globally competitive production structure



Limitations of one company's effort

Promotion of high-integrated operation transcending the boundaries between individual companies of the complex

20 corporations in oil and chemical industries

Foundation of the Research Association of Refinery Integration for Group-Operation (RING) in 2000

RING-1 Projects Main Issues & Group Members

Mizushima Region

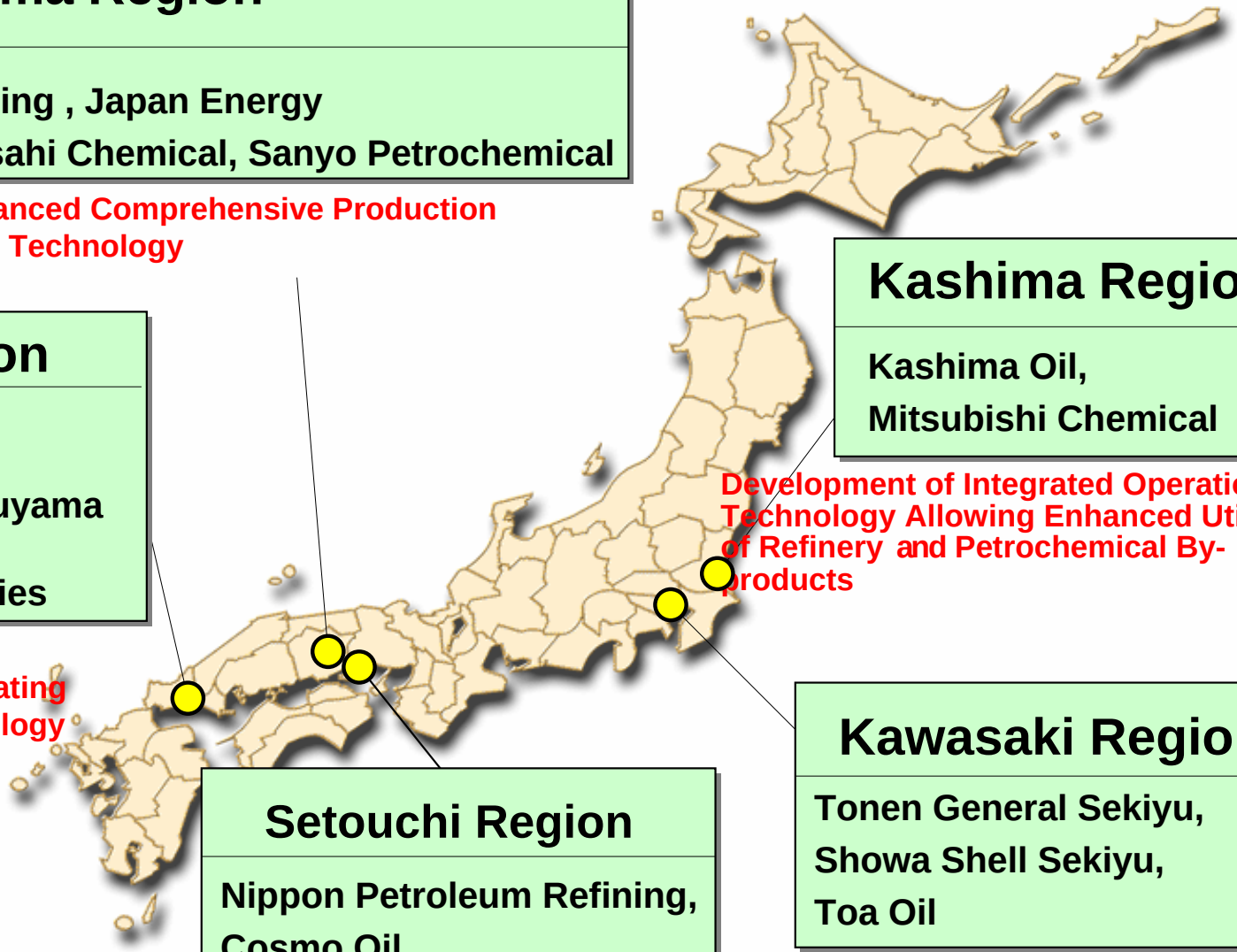
Nippon Petroleum Refining , Japan Energy
Mitsubishi Chemical, Asahi Chemical, Sanyo Petrochemical

Development of Advanced Comprehensive Production Management System Technology

Tokuyama Region

Idemitsu Kosan,
Idemitsu Petrochemical,
Teijin, Nippon Zeon, Tokuyama
Nippon Sanso, Tosoh,
Takeda Chemical Industries

Development of Refining and Petrochemical Complex Operating Data Control Systems Technology



Kashima Region

Kashima Oil,
Mitsubishi Chemical

Development of Integrated Operation Technology Allowing Enhanced Utilization of Refinery and Petrochemical By-products

Setouchi Region

Nippon Petroleum Refining,
Cosmo Oil

Development of Dynamic Optimum Integrated Operation Planning System Technology

Kawasaki Region

Tonen General Sekiyu,
Showa Shell Sekiyu,
Toa Oil

Development of Highly Integrated Heavy-Oil Processing Technology

Next Step (Cooperation with other industries)