

Canadian Pollution Prevention Roundtable

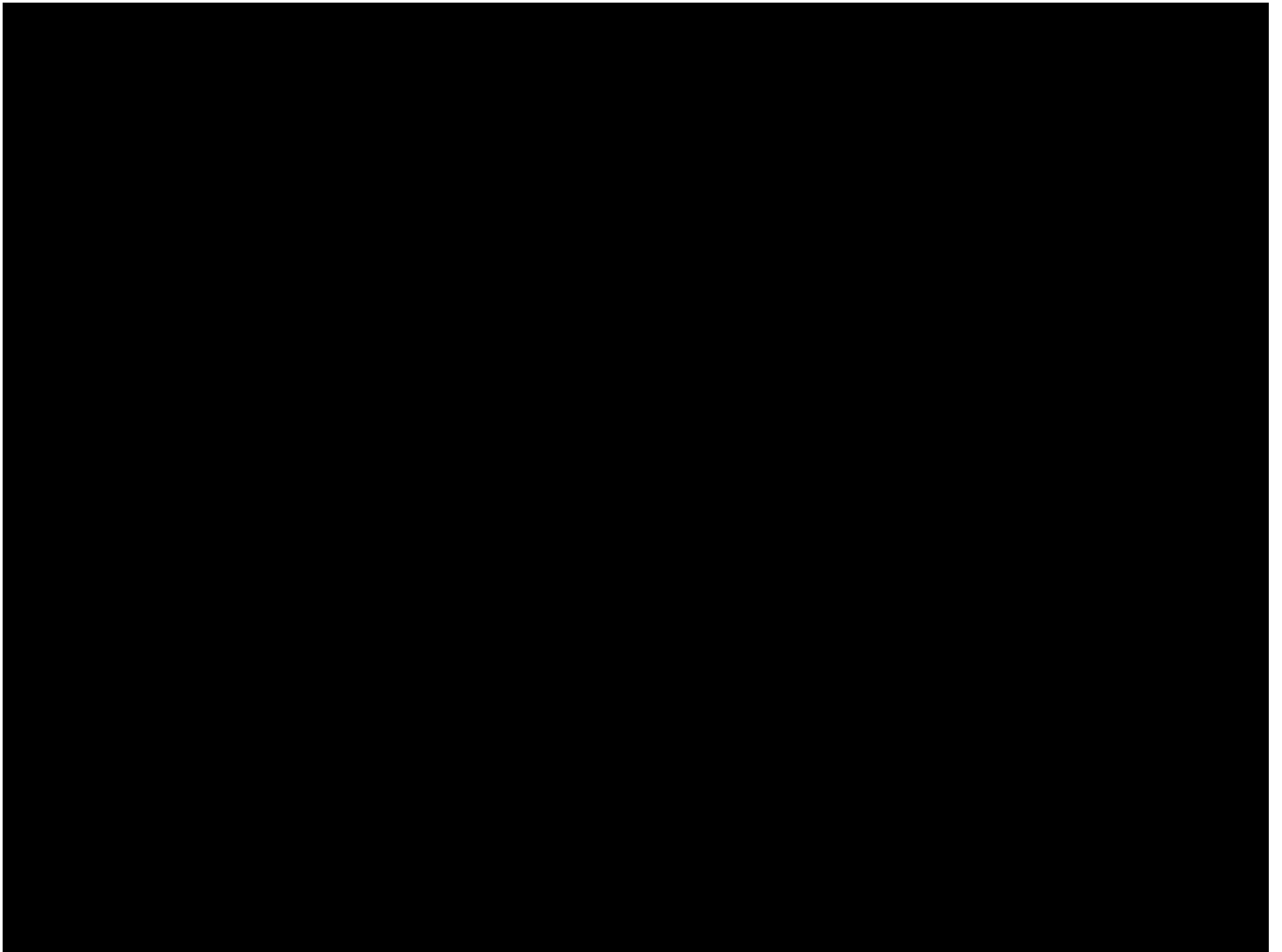
June 14 – 15
2006



Canadian Centre
for Pollution Prevention
Canada's Foremost Pollution Prevention Resource



**MINAS
BASIN**



Scotia Investments/ R.A. Jodrey



- **Minas Basin Pulp & Power**
- **High Liner Foods Incorporated**
- **Pole Star Transport Inc.**
- **Industrial Environmental Services**
- **Extendicare Inc.**
- **Scotia Recycling Ltd.**
- **Maritime Paper Products**
- **CKF Inc.**
- **Crown Fibre Tube**
- **Atlantic Industrial Services Inc.**
- **Argo**
- **Parker Brothers Contracting**

- **Annapolis Group Inc.**
- **Atlantic Industrial Cleaners**
- **Avon Valley Floral**
- **Industrial Environmental Services**
- **Algoma Central Corporation**

Annapolis Valley – view from the Look Off



**Some think of this when they
think of a mill.**



Minas Basin Pulp and Power Co. Ltd.

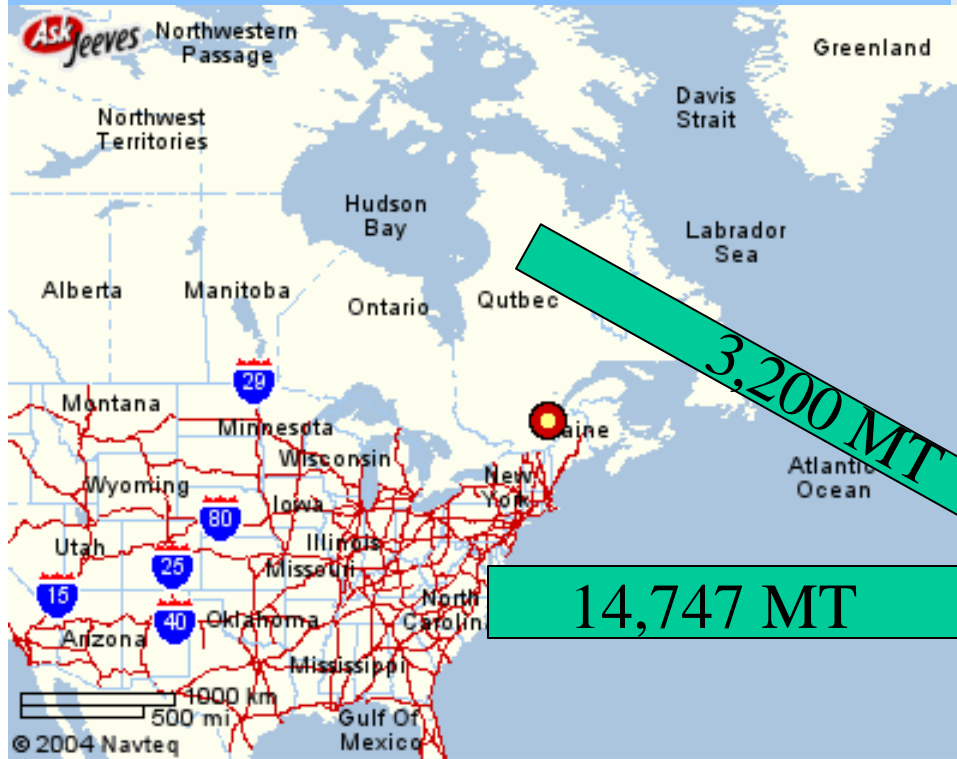


A
Typical
Forest



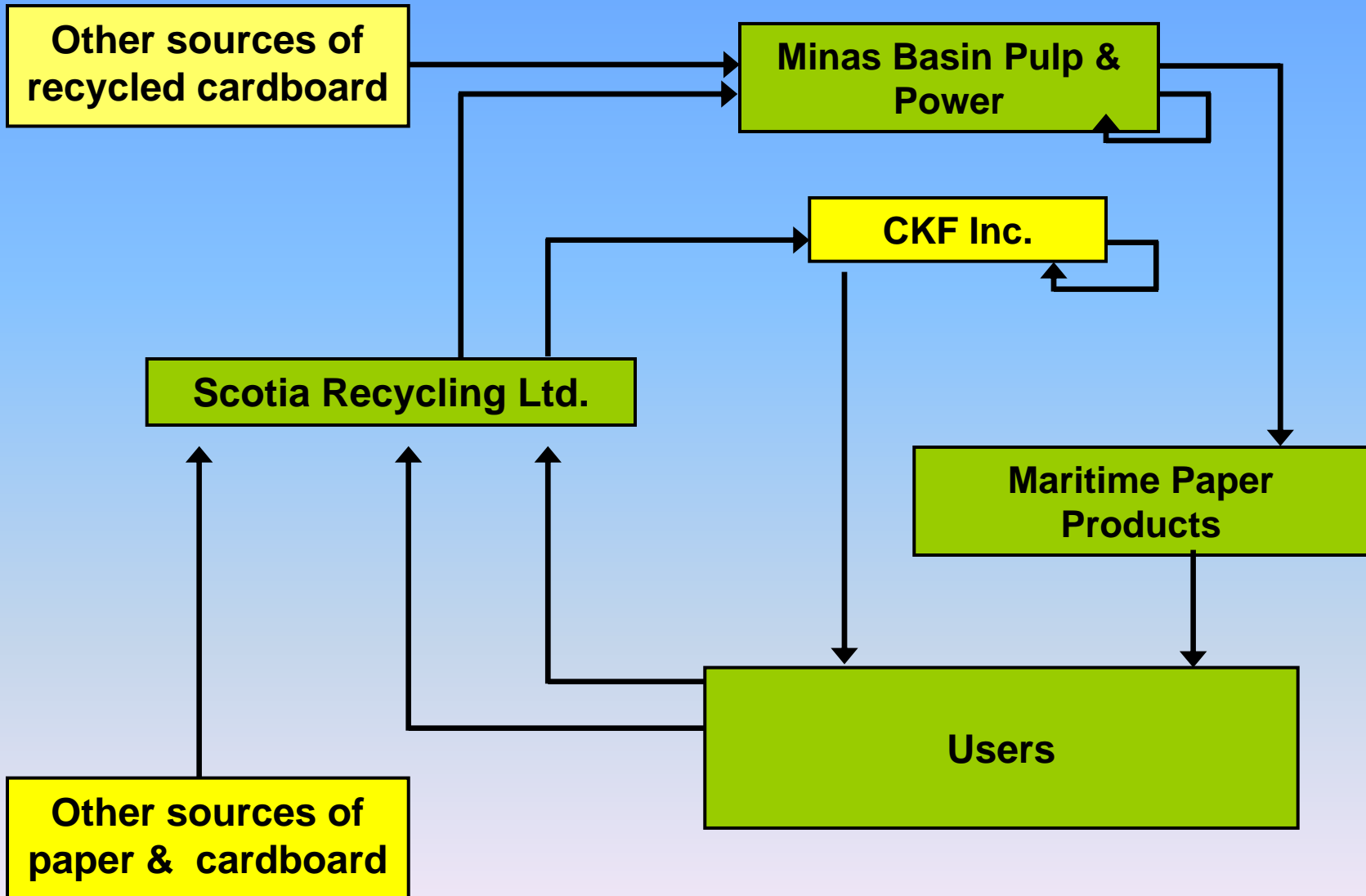


Atlantic Provinces Quebec and Eastern US



MATERIAL CYCLES - FIBRE

Closing material loops and cycling resources within an industrial park or cluster



Resources - Customers



Lower Ste. Croix

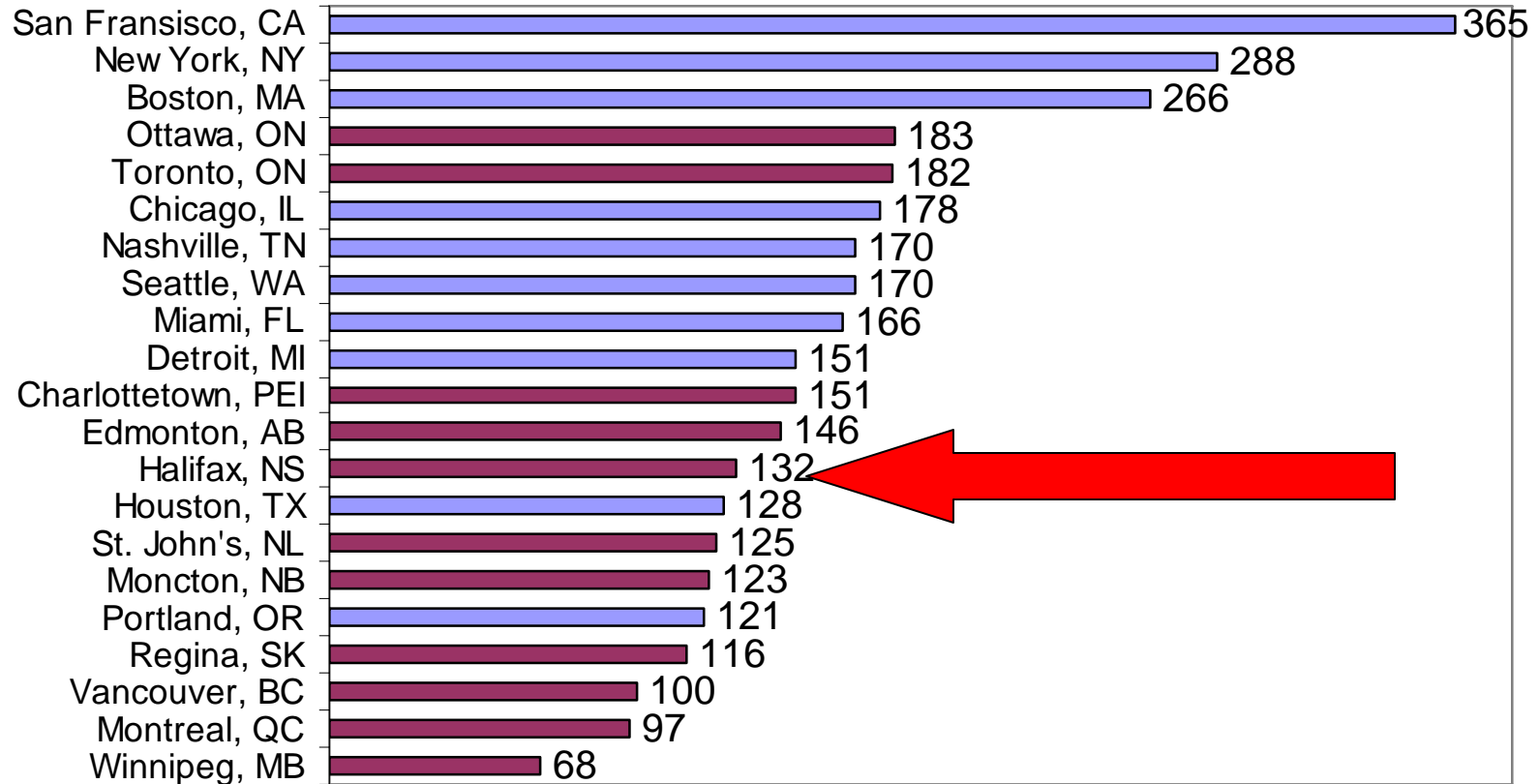


We are reducing the greenhouse gases of the world by 270,000 tonnes every year

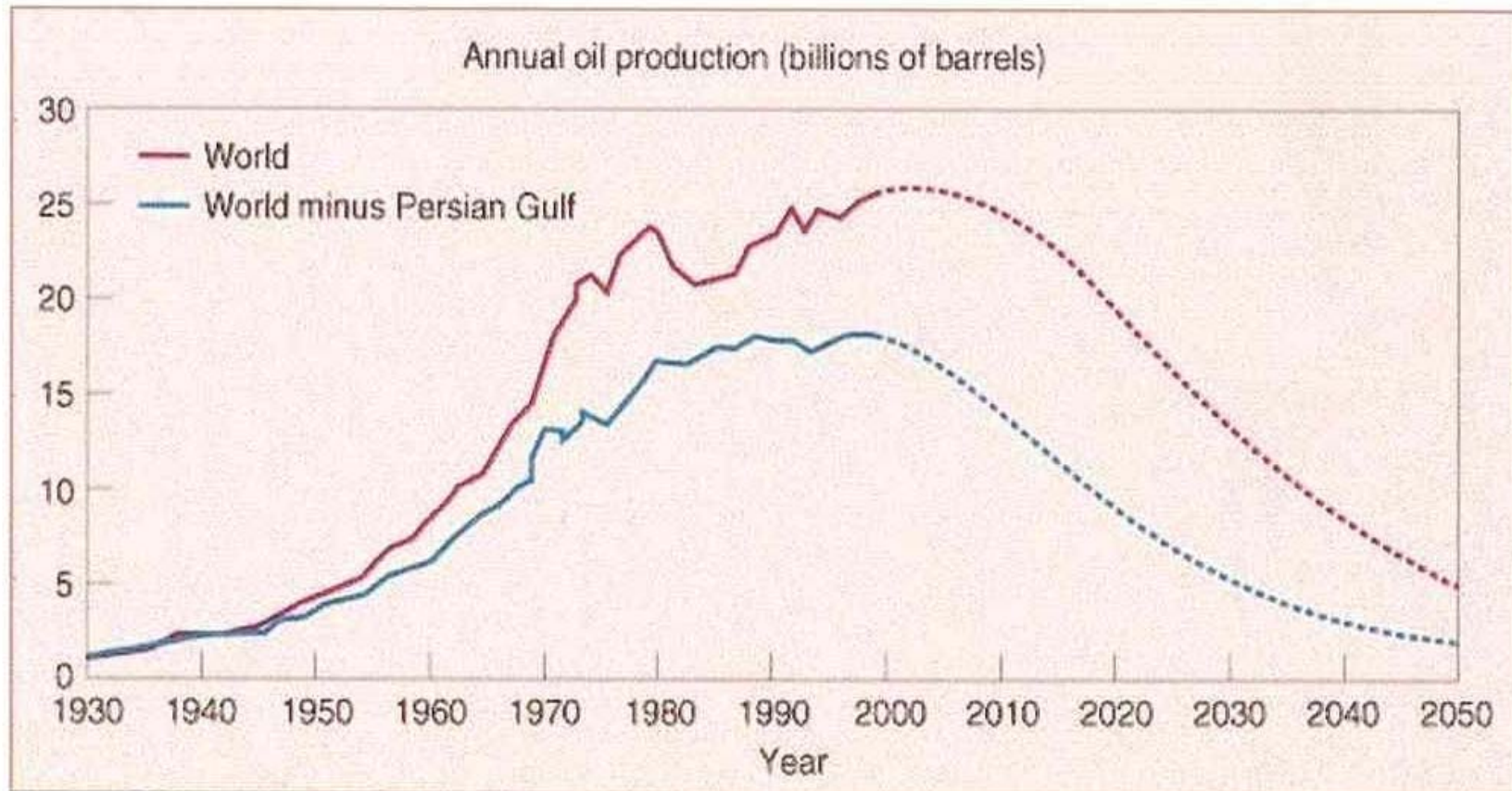
- ~ Sparing 1,500,000 trees every year**
- ~ Saving 580,000,000 gallons of water**
- ~ Preventing 2,300 tonnes of air pollution**
- ~ Avoiding 344 Gw hours of electricity (enough to power 38,000 homes)**
- ~ Preventing 250,000 cubic meters of landfill volume**
- ~ Employing about 1000 direct and spin-off jobs**
- ~ Operating a renewable, green, ecological hydro site**
- ~ Educating the students in our schools, community groups and governments on what we are all about**
- ~ Making a 100% recycled product for the market place**

Electricity prices vary regionally

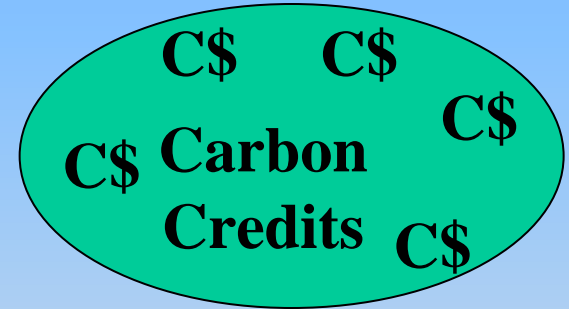
Comparative Index of Electricity Prices for Large Power Consumers



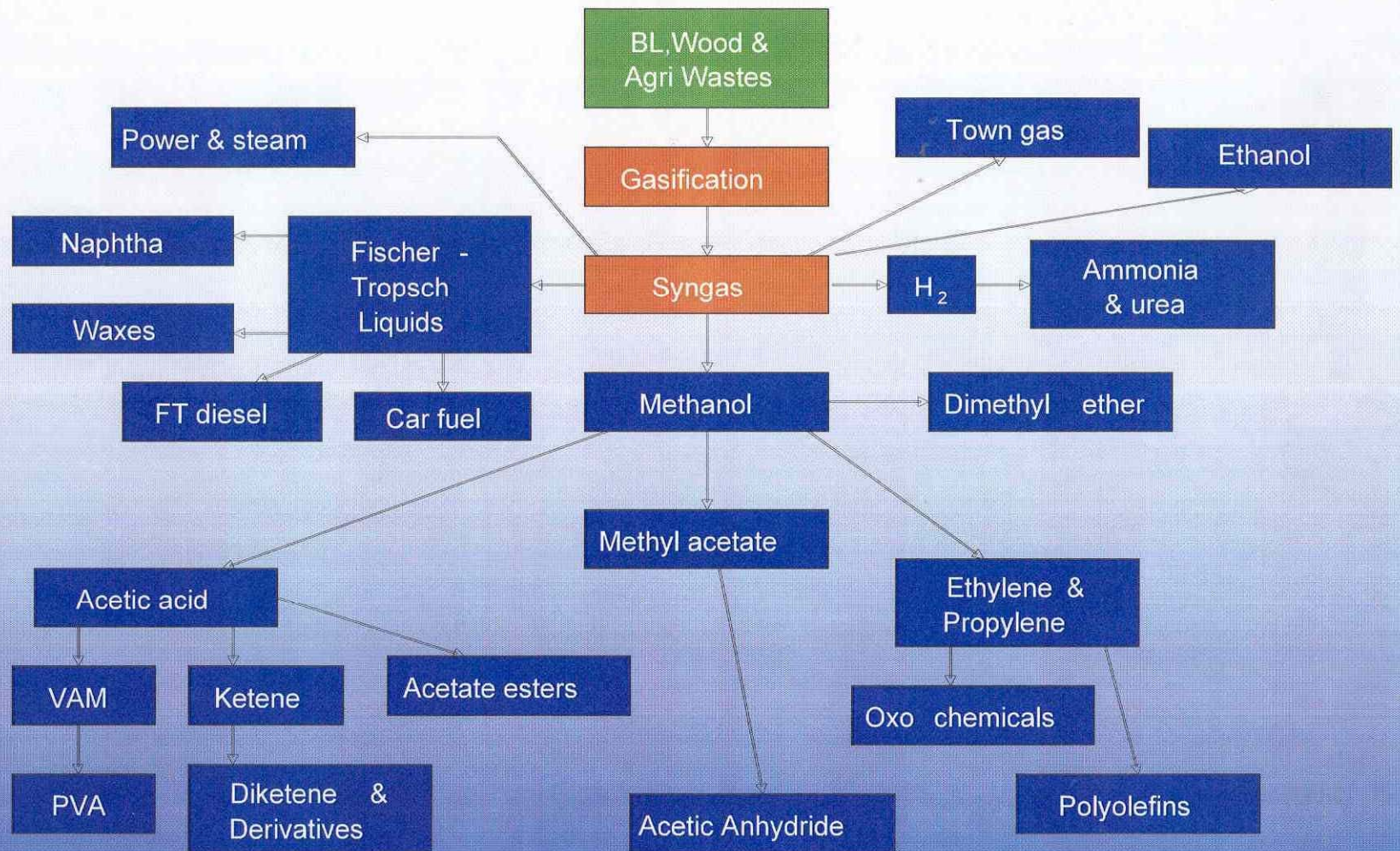
Diminishing global reserves of fossil energy ...



Beyond core business



Why Gasify Biomass?



Source: Eastman

BIO REFINING: A STRATEGIC PARADIGM SHIFT

- **Currently we think of ourselves as Pulp and Paper Manufacturers**
 - **Commodity production**
 - **Consolidating industry**
 - **Shifting capacity overseas**
- **But if we can be on the leading edge of Biomass processing**
 - **Uniquely positioned to capitalize on the nations focus on renewable energy**
 - **Create a strategic and sustainable business**
 - **Subsidize energy costs at the mill**

What is:Bio- Refining, Gasification, Syngas generation.....?

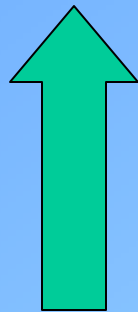
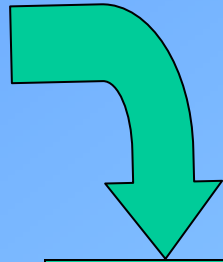
- **Burning of organics without oxygen**
- **Organics are converted to hydrogen and carbon monoxide**
 - **$H_2O + C + \text{Heat} = H_2 + CO$**
- **Carbon Monoxide reacts with steam to form more hydrogen and carbon dioxide**
 - **$CO + H_2O = H_2 + CO_2$**
- **.....LOTS OF C's and H's**

Sources of Bio-mass

Biomass is:

- ~ Logs and wood chips**
- ~ Spent liquor**
- ~ Waste wood and bark**
- ~ Forest residuals**
- ~ Wood products residuals**
- ~ Agricultural field residuals**
- ~ Agricultural processing residuals**
- ~ Waste sludge**
- ~ Energy crops**
- ~ Waste Paper**

ELECTRICITY



AIR EMISSIONS



FIBER



PAPERMILL

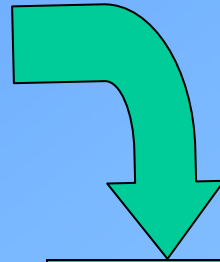


PAPER



BUNKER C

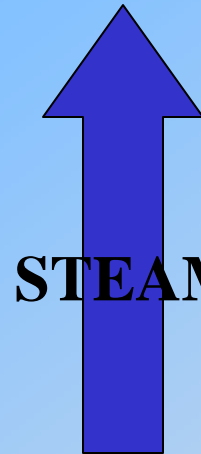
ELECTRICITY



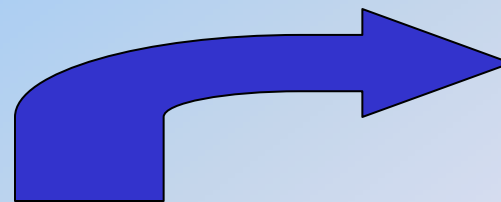
FIBER

PAPERMILL

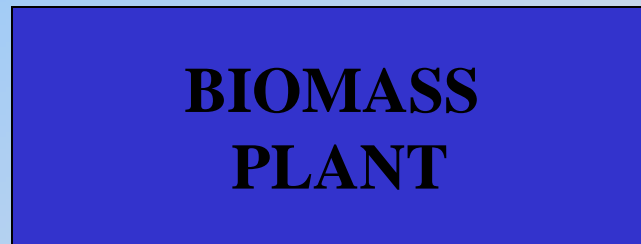
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STEAM



**GREEN
ELECTRICAL
MARKET**



BIOMASS

**BIOMASS
PLANT**

ALT FUELS

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R.A. Jodrey



**Sustaining our people, our community
and our environment.**