

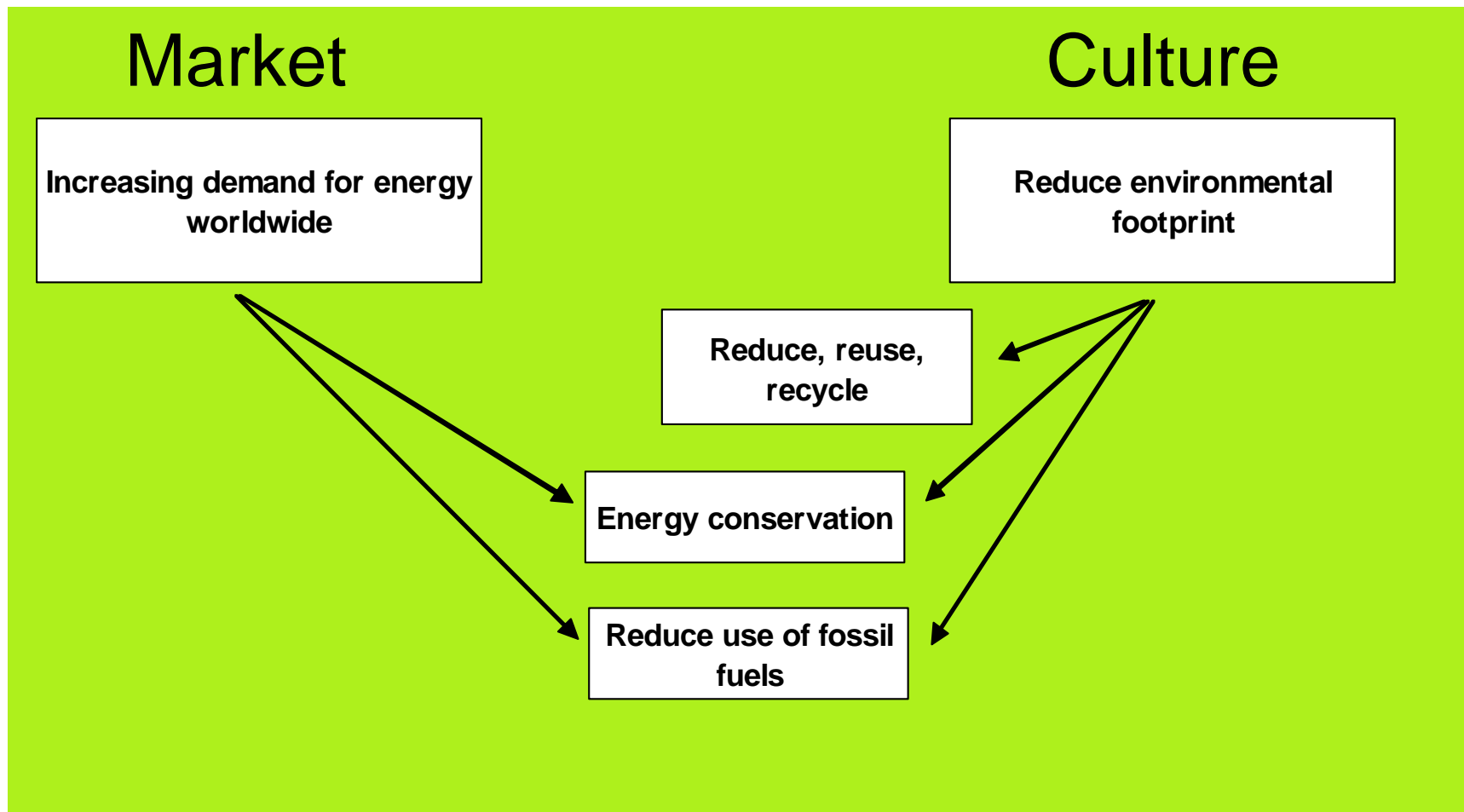
2^e Symposium – Valorisation de la biomasse
forestière – Perspectives de développement
pour la production d'énergie

Portrait of Forest Biomass Systems in
eastern North America

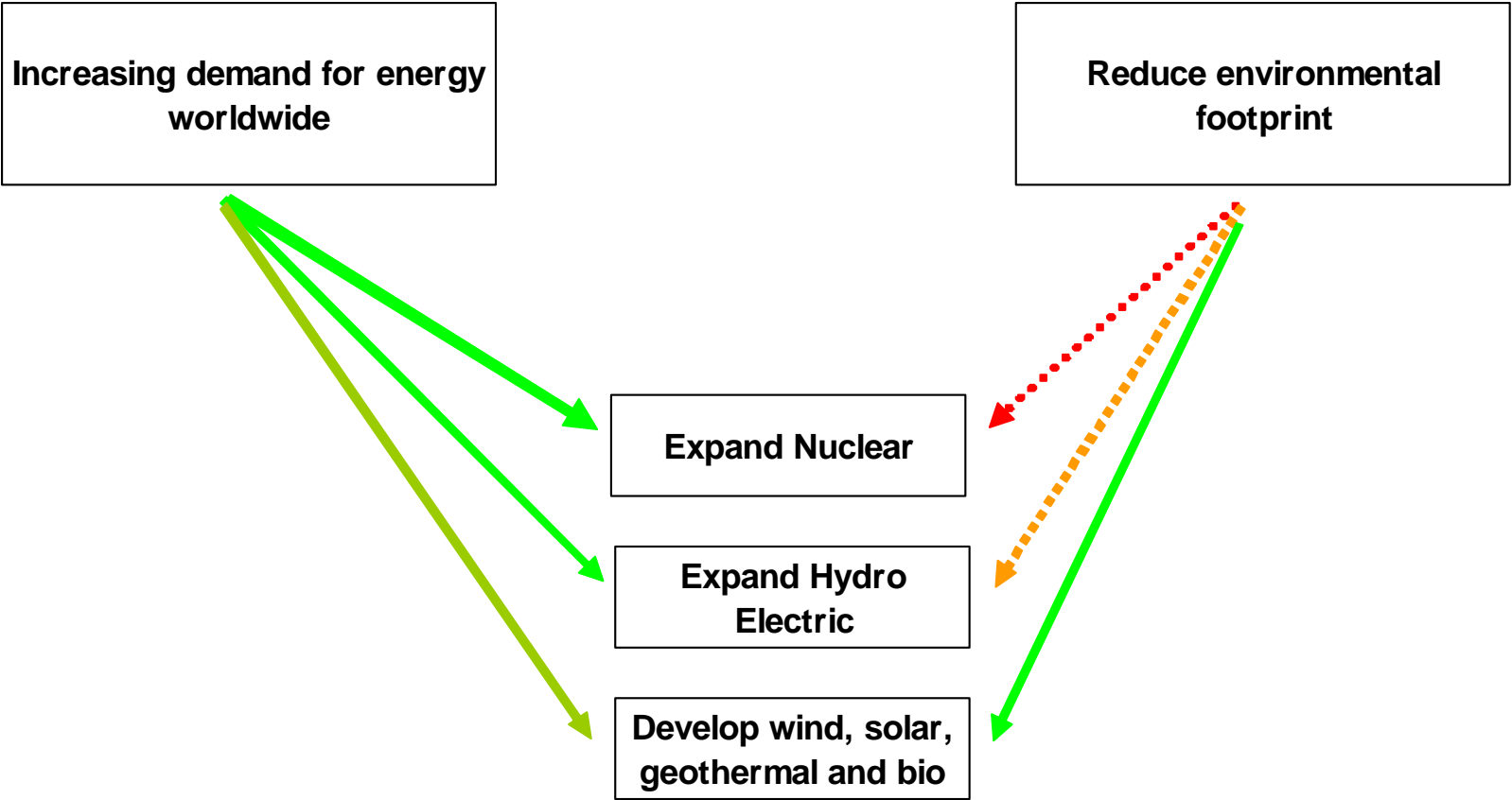
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Reality



Market/policy responses



Fossil fuel response

- Keep drilling to increase supply of oil and gas
 - Offshore
 - Previously restricted areas
- Create/improve distribution
 - New pipelines
 - LNG ports

National Trends – Energy use

- Canada tied for highest energy use with USA among G8
 - .34 terajoules per person
 - France .19 – Italy .13
- 1990 to 2003
 - Half of increase in Canada's use of energy resulted from higher consumption of natural gas
- 70% of energy used in homes is for space heating

Renewable Energy pathways

- Electricity
 - Predominant market/policy driver in North America (ensure supply to eliminate brownouts and blackouts)
- Heat
 - Predominantly driven by individual, business, local community
 - Lower on national, provincial and state policy horizon (contrary to Europe)

Example of Ontario

- Standard Offer Program good policy initiative (under 10 MWe)
- But driven by need to meet electricity supply targets
 - Supply targets rely on nuclear and hydro
 - Secondary reliance on wind
- Pushed bioenergy into cogeneration
 - Weak business case
 - Has not been driver for broader bioenergy development

Pathways not paved roads

- For wind, solar and geothermal only technology/costs and locational constraints
- For bioenergy additional constraints related to resource use:
 - Forests
 - Availability of biomass
 - Access to biomass on public lands
 - Agriculture
 - Land use and use of agricultural crops

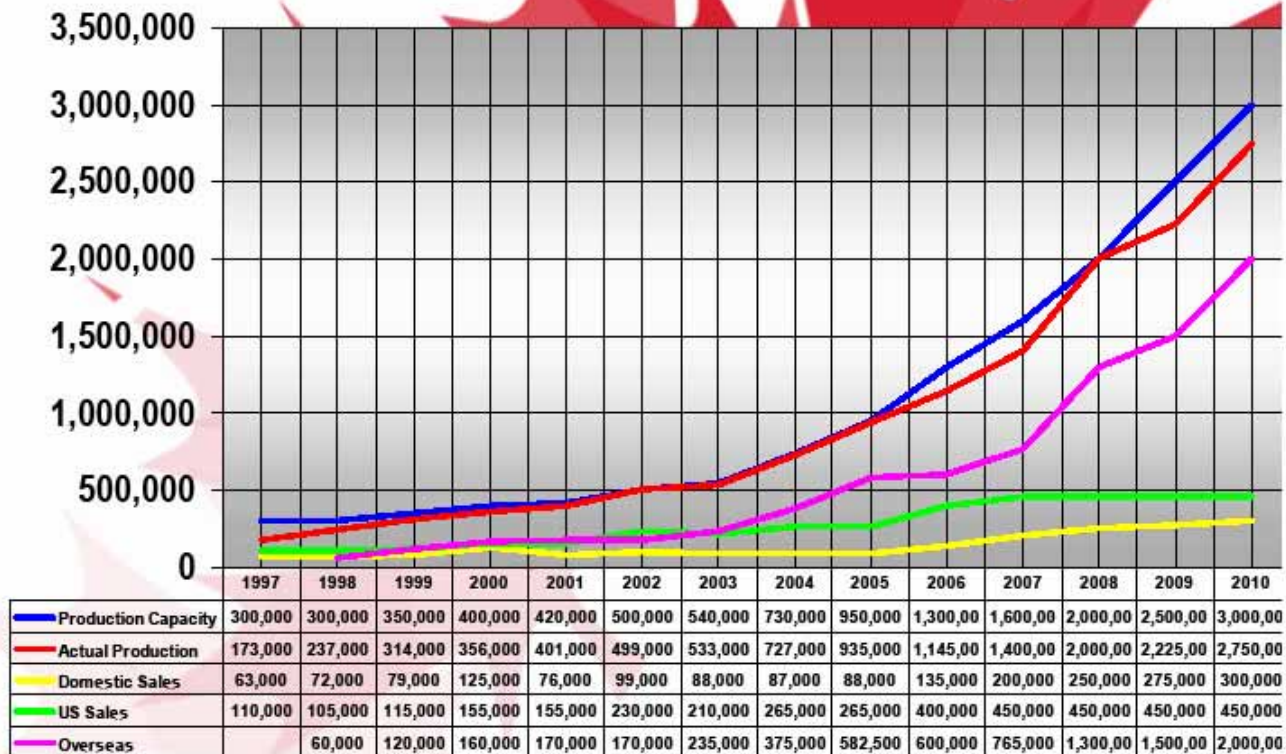
Most successful bioenergy markets developed to date

- Electricity focus
 - Bioenergy power in Maine
 - 80 biomass power plants in USA, 8 in Maine
 - Resulted from Public Utility Regulatory Policies Act (PURPA) of 1979
 - Fall-off with some plants closing in mid-nineties because of policy changes and fossil fuel costs
 - Current resurgence – 10.5% of energy supply
 - Currently looking at joint energy market with New Brunswick (and possibly other Provinces)

Most successful bioenergy markets developed to date

- Heat focus
 - Pellet stoves in USA and Canada
 - Canadian pulp and paper mills (cogeneration)
 - Large pellet-fired district heating plants in Sweden, Austria
 - Central heating pellet furnaces in Austria and other European countries
 - Canadian/US export of pellets to Europe

Canadian Wood Pellet Industry



Courtesy John Swann, Canadian Wood Pellet Association

Developing bioenergy markets

- Co-firing in electricity generation plants
 - Advanced in Europe
 - Trials in Canada
- Domestic pellet-based central heating in Canada and United States (embryonic)

National Trends – Fuel Use

- 10% of households heated with oil
 - Atlantic Canada, Quebec and Ontario account for 94% of oil sales
 - 50% heated with oil in Maritimes
- Natural gas - 50%
- Electricity - 34%
- Propane – 1% of households
- Wood – 4.5% of households

Barriers and Drivers for Bioenergy Markets

1. Integration with other industry
2. Scale effects of growth
3. Competition within the bioenergy sector
4. National, provincial, state energy policy
5. Local policy and opinion

Based on "Factors for Bioenergy Market Development" – Roos, Hektor, Graham, Rakos

Barriers and Drivers for Bioenergy Markets - Integration

- The positive complementary effects between the bioenergy producer and some partner industry is more important than the competition for the biomass between sectors.
 - Maine – contractors for forest industry
 - Sweden – forest companies run fuel trade
 - Austria – biomass heating plants integrated with other community/municipal infrastructure
 - North America – pellets integrated downstream to stove and fuel dealers

Barriers and Drivers for Bioenergy Markets - Scale

- Initial market development costs are high-market research, feasibility, negotiation, contracting
- As business grows innovative technical and organizational solutions are found
- Market widens to consultants, fuel dealers, brokers
- Reduced production costs
- More \$ for R&D, standardization, marketing etc.

Example strategy for Austrian pellet furnaces to North America

- Multi-vendor campaign – consumer wants choice
- Set up demonstration projects for residential and small commercial – consumer wants to see and touch
- Focus on provinces where most competitive with natural gas and high oil dependence
- Organize expos/workshops on pellet furnace technology
- Get highest safety and energy efficiency ratings for Canada and USA
- Get involved with wood energy technology training (WETT) to ensure installation and maintenance support
- Work with pellet distributors to develop bulk delivery
- Work with federal and provincial governments on bioenergy strategies that favour pellet/wood furnaces

Barriers and Drivers for Bioenergy Markets - Competition

- When a small bioenergy industry is facing tough competition from other energy forms, the best strategy is for bioenergy producers to cooperate in order to meet the challenge of competing energy technologies
 - Feedstock markets
 - Consumer markets

Key Associations in Canada

- Canadian Bioenergy Association (CanBio)
- Wood Pellet Association of Canada (WPAC)

Barriers and Drivers for Bioenergy Markets - Policy

- Hard to recognize good bioenergy policy
 - Incentives and disincentives in place simultaneously
- Developing markets depends on policy support for national, provincial and state governments
 - Incentives, tax treatment, regulatory facilitation
 - Stability of policies over time is essential

Barriers and Drivers for Bioenergy Markets – Local policy and opinion

- Bioenergy by definition is distributed energy
- Greater benefit to rural and remote areas
- Greater local economic impact than other forms of renewable energy
- Ability to provide constant source of energy
- Localities can be initiators not just customers

British Columbia

- **First province in Canada to announce specific “Bioenergy Strategy” (January 2008)**
 - \$35 million for development
 - 10 community bioenergy projects
 - Call for Power (feed-in tariffs) for projects under 10 MW
 - 50% of province’s renewable fuel requirement to be met by biofuels by 2020
 - Streamlining of regulatory and permitting processes
- **Carbon tax announced**

Ontario Renewable Energy SOP

- Year to date (Jan 2008) contracts
 - Wind 569,000 Kw (59%)
 - Solar 252,000 Kw (31%)
 - Hydro 32,000 Kw (4%)
 - Bio 58,000 Kw (6.5%)
- Total contracts executed = 262
- Applications in process = 86

Ontario Renewable Energy SOP *Contracts in commercial operation*

- **Wind** 10.1 MW (6 contracts)
- **Solar** 0.3 MW (51 contracts)
- **Hydro** 6.7 MW (8 contracts)
- **Bio** 16.9 MW (8 contracts)
 - Landfill gas
 - Biogas

Action Required

- National and Provincial Policies
 - Bioenergy specific policies that reflect opportunities in heat and electricity
 - Removal of regulatory barriers to development
 - Favourable tax treatment and incentives comparable to other energy producers
 - Clear and equal access to biomass feedstocks on public lands
 - Canada-wide carbon trading
 - Recognition of certification by other advanced countries for bioenergy heating equipment
- Market Development
 - Development of stronger bioenergy constituency based on CanBio and WPAC
 - Development of domestic pellet use market for central heating
 - Development of stronger supply chains
- Electricity generation
 - Easier access to electricity grids – higher lead-in tariffs
 - Biomass co-firing in selected power plants

Thankyou

- Next dates
 - World Bioenergy 2008
 - Jankoping, Sweden
 - May 22 to 29
 - 3rd International Bioenergy Conference
 - Prince George, B.C.
 - June 3 to 5