

☞ **09hr_SC-En_sb0450_pt05b**



(FORM UPDATED: 08/11/2010)

WISCONSIN STATE LEGISLATURE ... PUBLIC HEARING - COMMITTEE RECORDS

2009-10

(session year)

Senate

(Assembly, Senate or Joint)

Committee on Environment...

COMMITTEE NOTICES ...

- Committee Reports ... **CR**
- Executive Sessions ... **ES**
- Public Hearings ... **PH**

INFORMATION COLLECTED BY COMMITTEE FOR AND AGAINST PROPOSAL

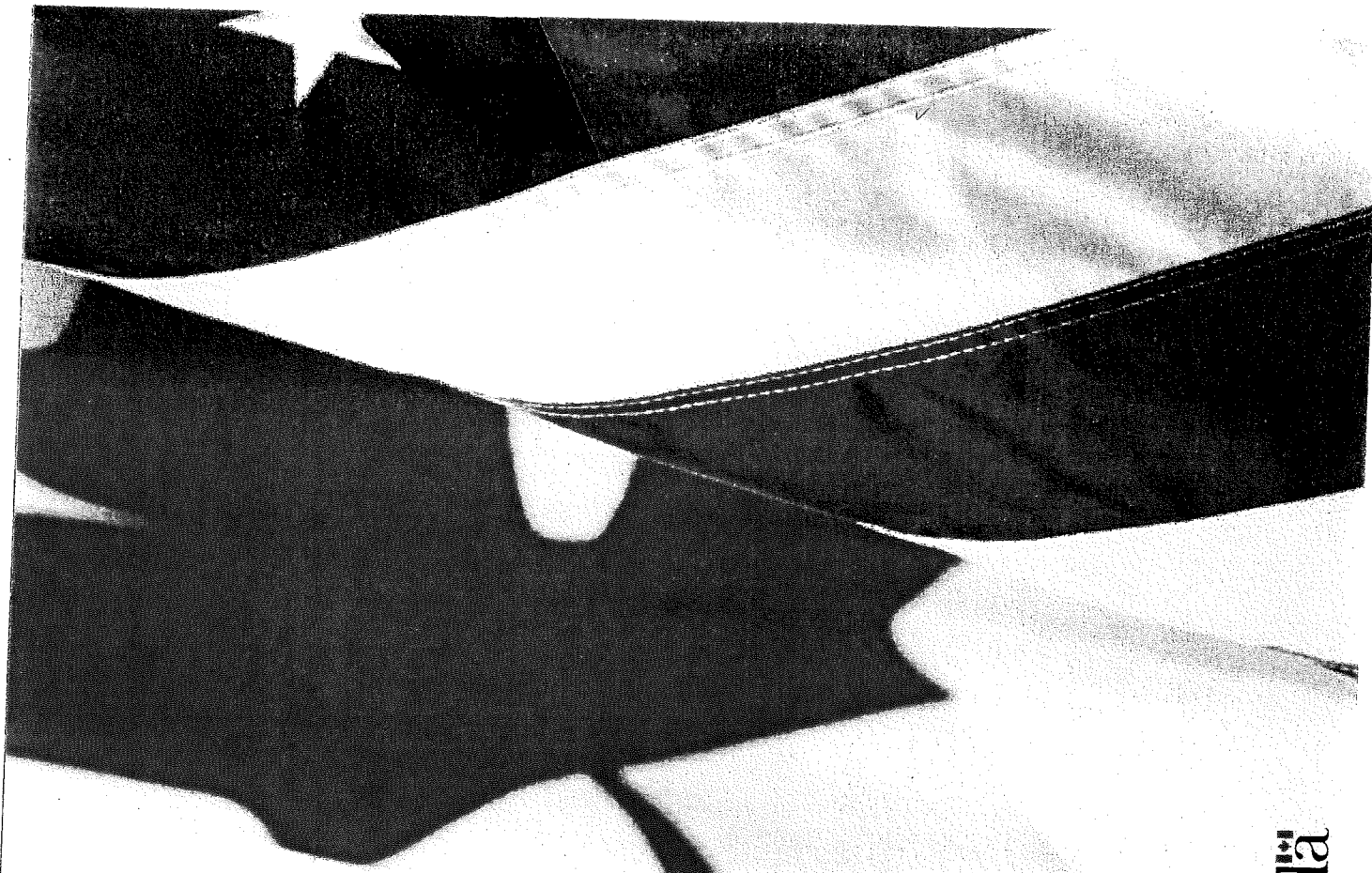
- Appointments ... **Appt** (w/Record of Comm. Proceedings)
- Clearinghouse Rules ... **CRule** (w/Record of Comm. Proceedings)
- Hearing Records ... bills and resolutions (w/Record of Comm. Proceedings)
 - (**ab** = Assembly Bill) (**ar** = Assembly Resolution) (**ajr** = Assembly Joint Resolution)
 - (**sb** = Senate Bill) (**sr** = Senate Resolution) (**sjr** = Senate Joint Resolution)
- Miscellaneous ... **Misc**

* Contents organized for archiving by: Stefanie Rose (LRB) (September 2013)

Canadian Energy

Ensuring the Energy, Environmental,
and Economic needs of North America

Canada



Canada US Energy Trade (2008)

Canada's energy exports to the US = \$122 billion

Canadian exports satisfied 9% of total US demand

Cross-border direct investment is energy is approx. \$90 billion

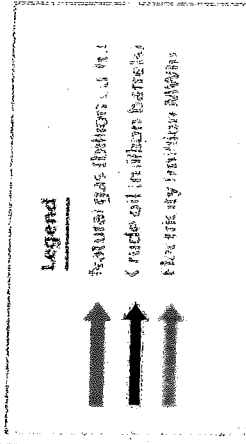
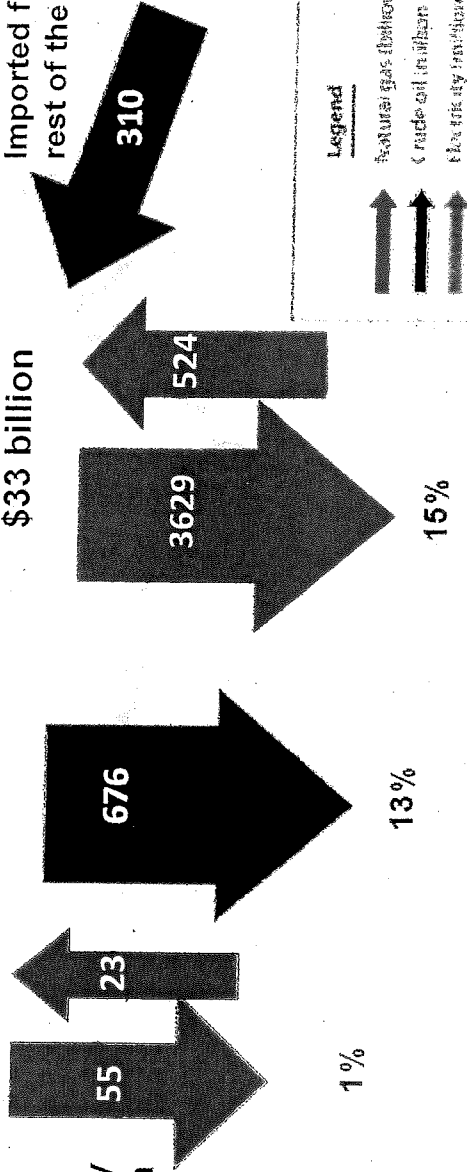
Proportion of US consumption coming from Canada

\$3.8 billion

\$61 billion

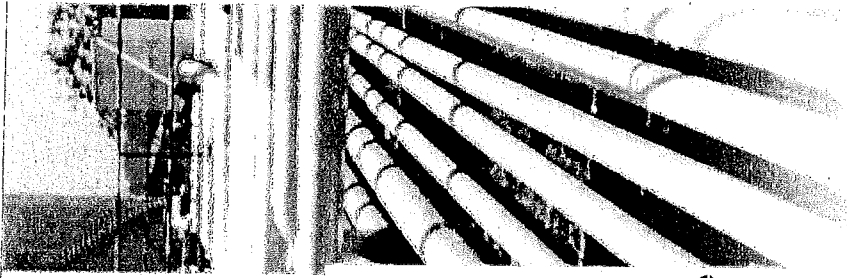
\$33 billion

Imported from the rest of the world

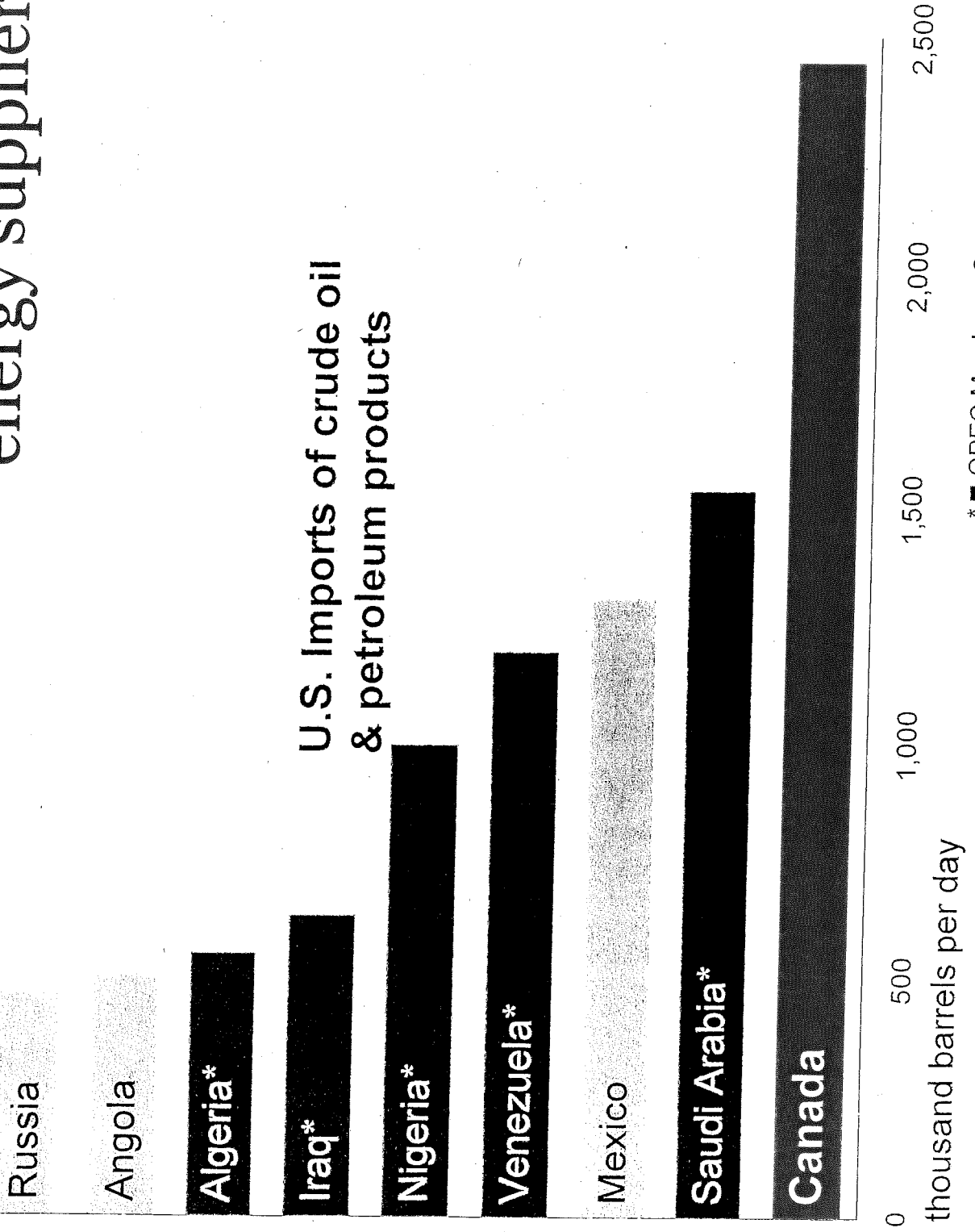


Providing Energy Security

Canada



Canada is your largest & most secure energy supplier



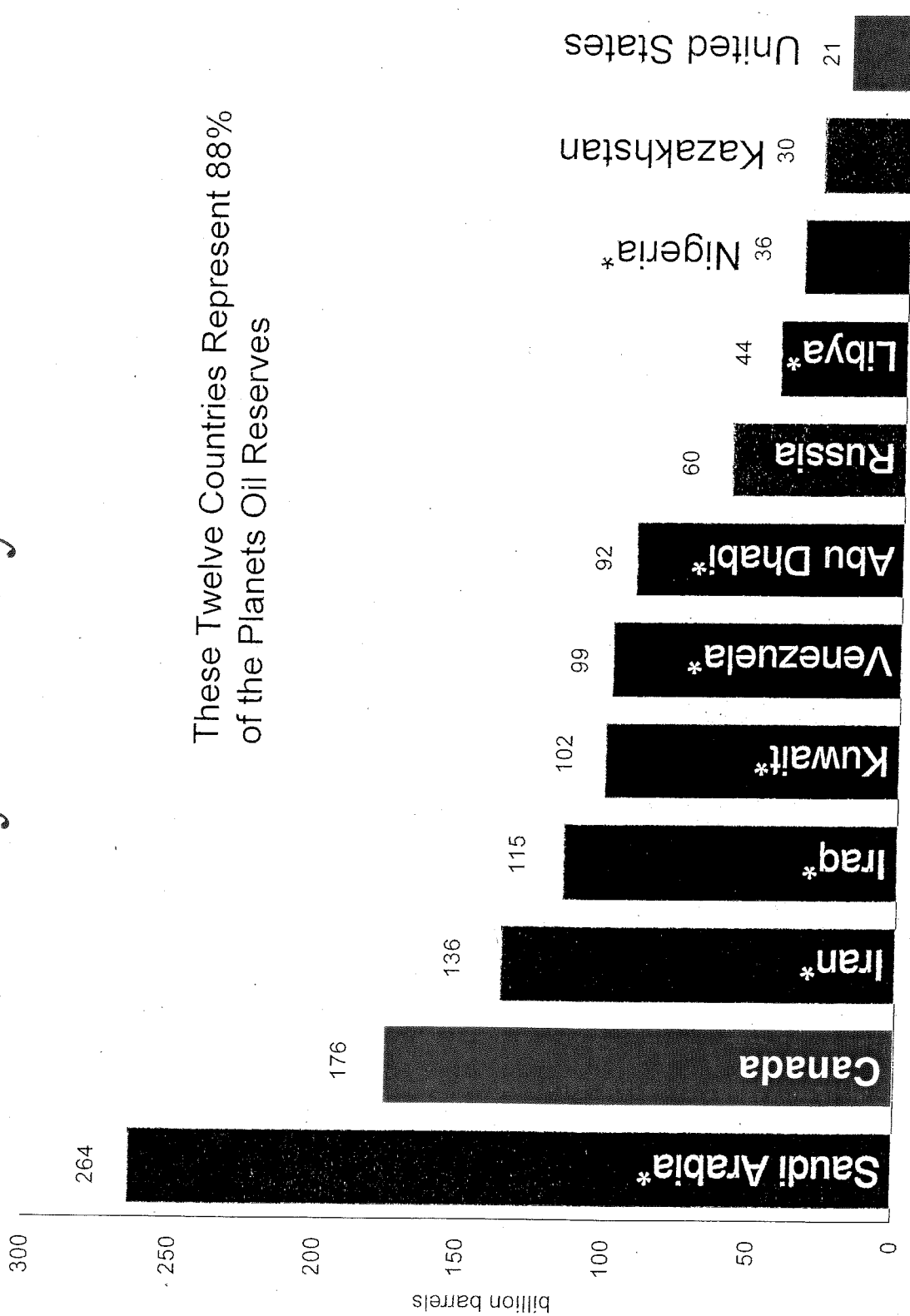
* OPEC Member Source: EIA, 2008 data



Providing
Energy
Security

Canada

Oil Reserves by Country



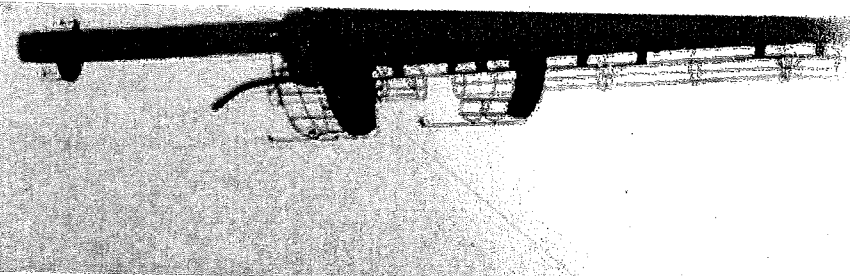
Providing
Energy
Security

Canada

* OPEC Member Source: EIA, 2008 data

Canada is your Largest and Most Secure Energy Supplier

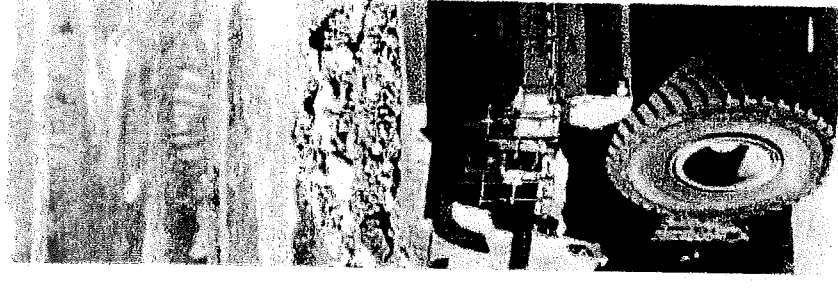
- Canada is a strategic partner of the United States, supplying oil, natural gas, uranium and electricity
 - 91% of U.S. gas imports, and nearly 20% of U.S. consumption
 - 33% of U.S. uranium imports
 - 98% of U.S. electricity imports
 - 20% of U.S. imports of crude oil and petroleum products



Canada

Canada's Oil Sands

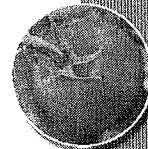
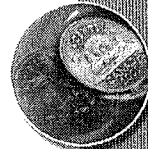
- The oil sands are a strategic resource that will contribute to energy security for Canada, North America and the world for decades to come.
- There are significant environmental challenges in the areas of air, land and water.
- Improvements have been made in each of these areas, but more must be done.
- We have the regulatory framework to support our objectives for improved environmental performance.
- Governments and industry are making the investments in technology to achieve our objectives in environmental performance.
- We are committed to bring on this key strategic resource in an environmentally responsible way.



Canada



The North American Free Trade Agreement (NAFTA)



Eliminating Obstacles to Trade

- The North American Free Trade Agreement (NAFTA) that came into force on January 1, 1994, has helped to eliminate many barriers of trade and investment—including most tariffs on agriculture, agri-food and seafood goods—between Canada, the United States and Mexico.
- NAFTA has been a remarkable success story for all three partners. It has contributed to significant increase in trade and investment flows between Canada, the US and Mexico and helped lay a strong foundation for economic growth in North America.
- When looking at what this agreement has meant for the Canada-US relationship, NAFTA has provided economic benefits for those living and working on both sides of our shared border. In fact, the total value of Canada-US trade has grown by 160% from \$199 billion in 1993 (pre-NAFTA) to \$516.6 billion in 2007.

A Mutually Beneficial Trading Relationship

- Canada and the US are each other's best customers for agriculture, agri-food and seafood products. The enormous expansion in cross-border activity has created a mutually beneficial trading relationship. Trade between our two countries provides both consumers and producers with a greater variety of safe, healthy, wholesome foods and products.
- NAFTA has allowed the US and Canada to develop areas of specialized production where they may have a competitive advantage, and has strengthened their capacities to withstand adverse effects wrought by weather-related emergencies or local economic downturns.

Canada and the US: The World's Best Trading Relationship

- In 2007, over one-fifth of US exported goods went to Canada (\$249 billion); nearly four times more than China.
- Exports to Canada have risen 150% since pre-NAFTA levels.
- In 2007, Canada was the largest export destination for 36 US states.
- 7.1 million American jobs – in other words, one in 25 jobs – were dependent on trade with Canada in 2007.

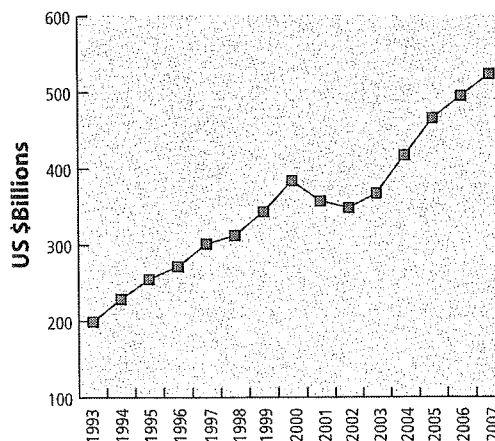
Canada-US Trade in Agriculture, Agri-Food and Seafood

- Since the implementation of NAFTA, Canada has been a steadily growing market for US agriculture, agri-food and seafood products, with exports to Canada reaching a record \$14.2 billion in 2007, up from \$4.2 billion in 1990.
- US exports of consumer-oriented products to Canada continued to set records in 2007 in virtually every category. Additionally, new value highs were recorded for vegetable oils, planting seeds, as well as sugars, sweeteners, and beverage bases.

The Future Prosperity of NAFTA

- Canada and the US continue to strengthen trade and economic relations through NAFTA and become a more competitive region from which companies can seek international marketing opportunities. In a context where rapidly growing economies in Asia and South America challenge North America's competitiveness, NAFTA will be key to sustained growth and prosperity in the increasingly complex and connected global marketplace.

Canada-US Bi-Lateral Trade



* Numbers reflected in the Total Bi-Lateral Trade Chart may vary from Canadian government sources presented elsewhere in this material as foreign government statistics were used.

Please visit our website: www.agr.gc.ca/usadvocacy

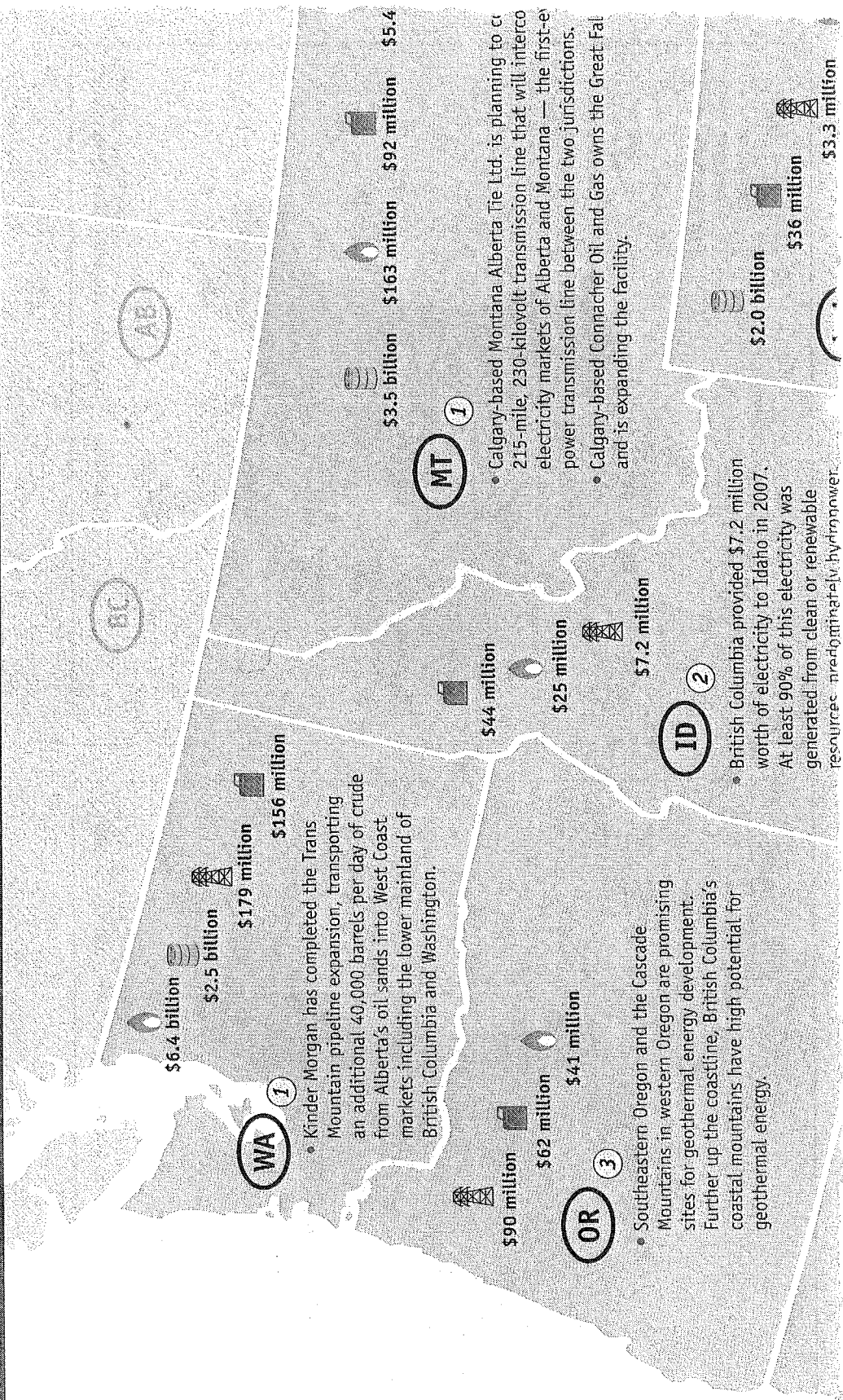
All figures are in US dollars. Canadian export figures to the US do not include re-export values

Data source: Statistics Canada, July 2008

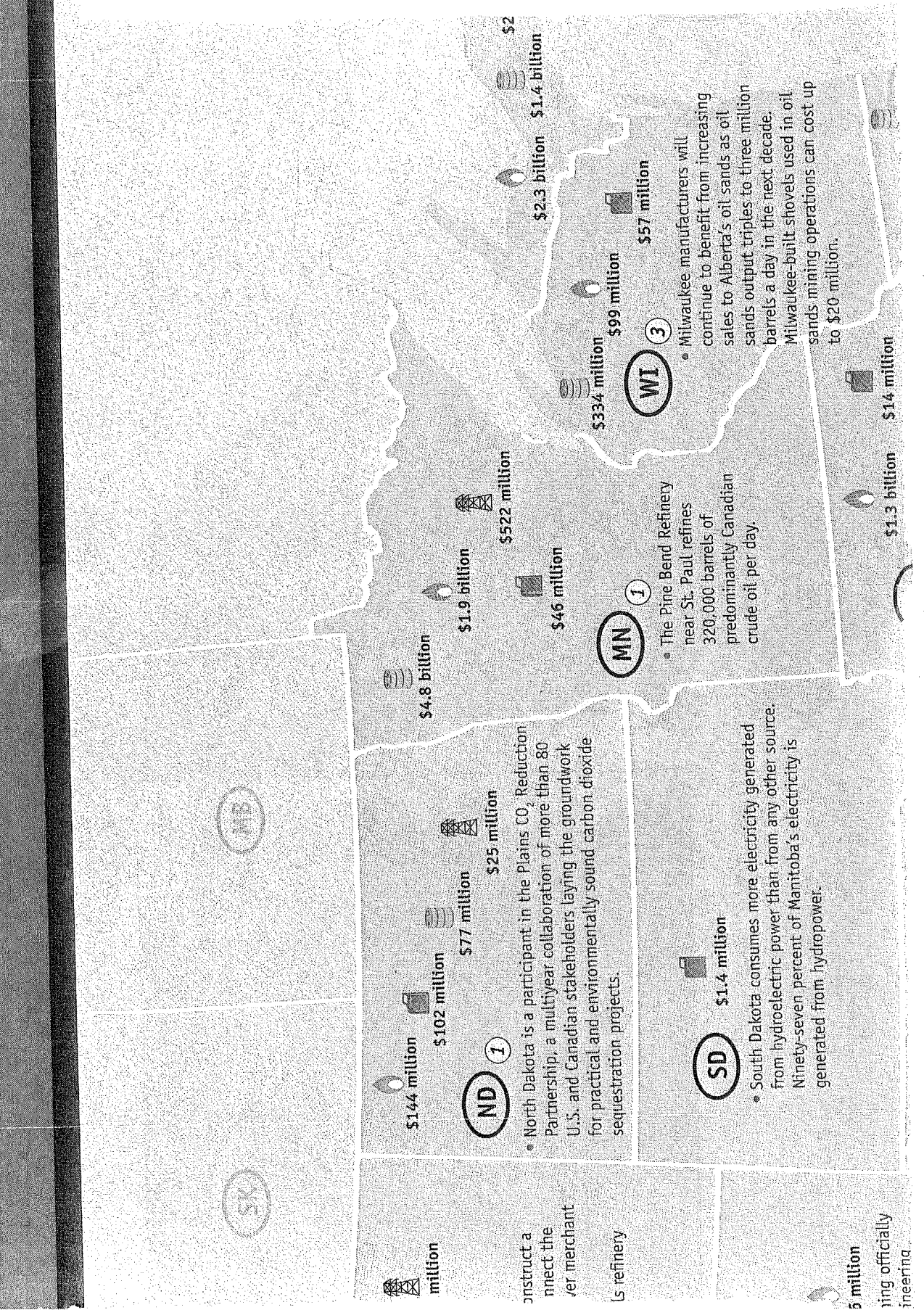
Additional sources: USDA, USTR, www.census.gov



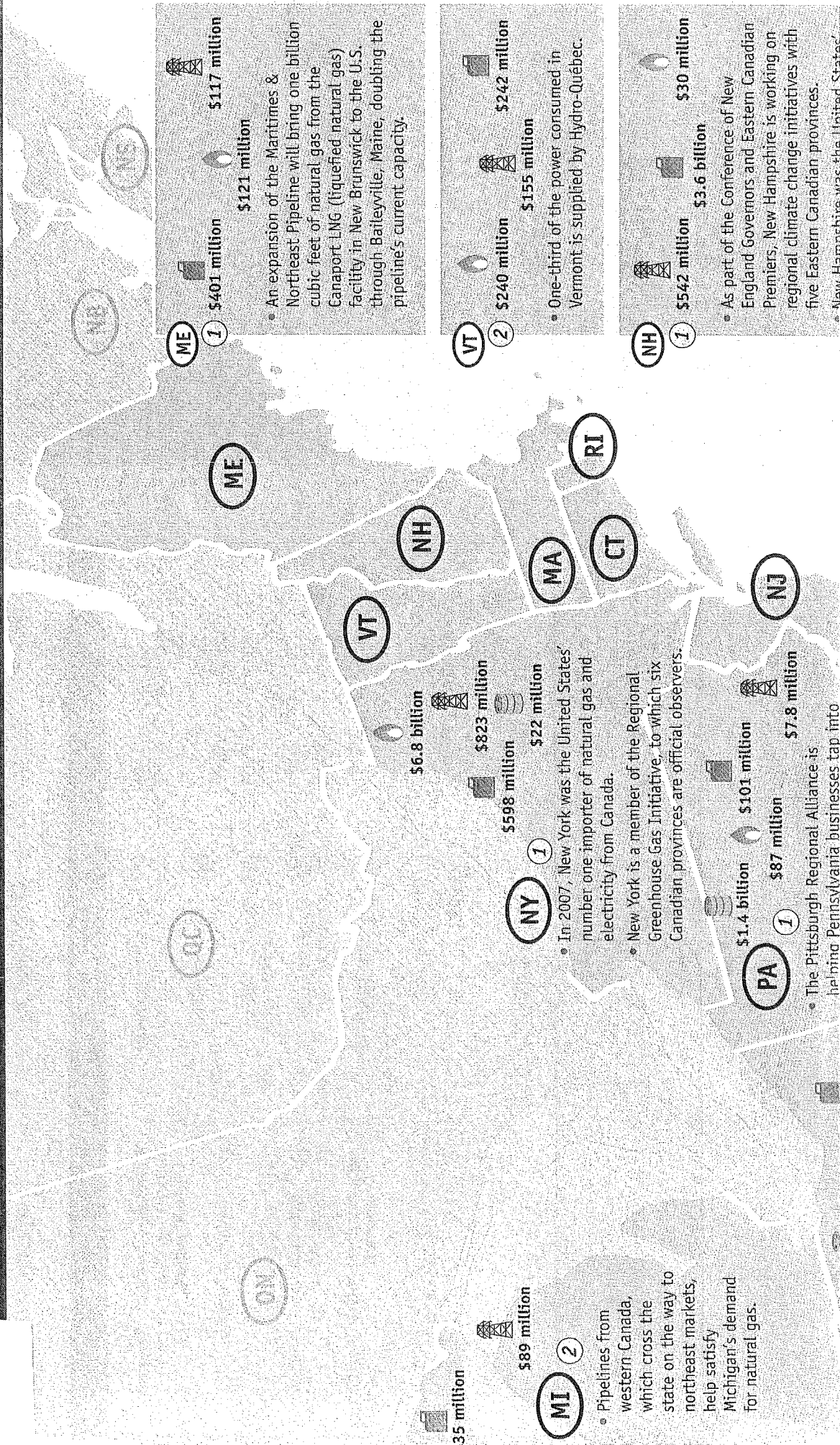
A STRONG P



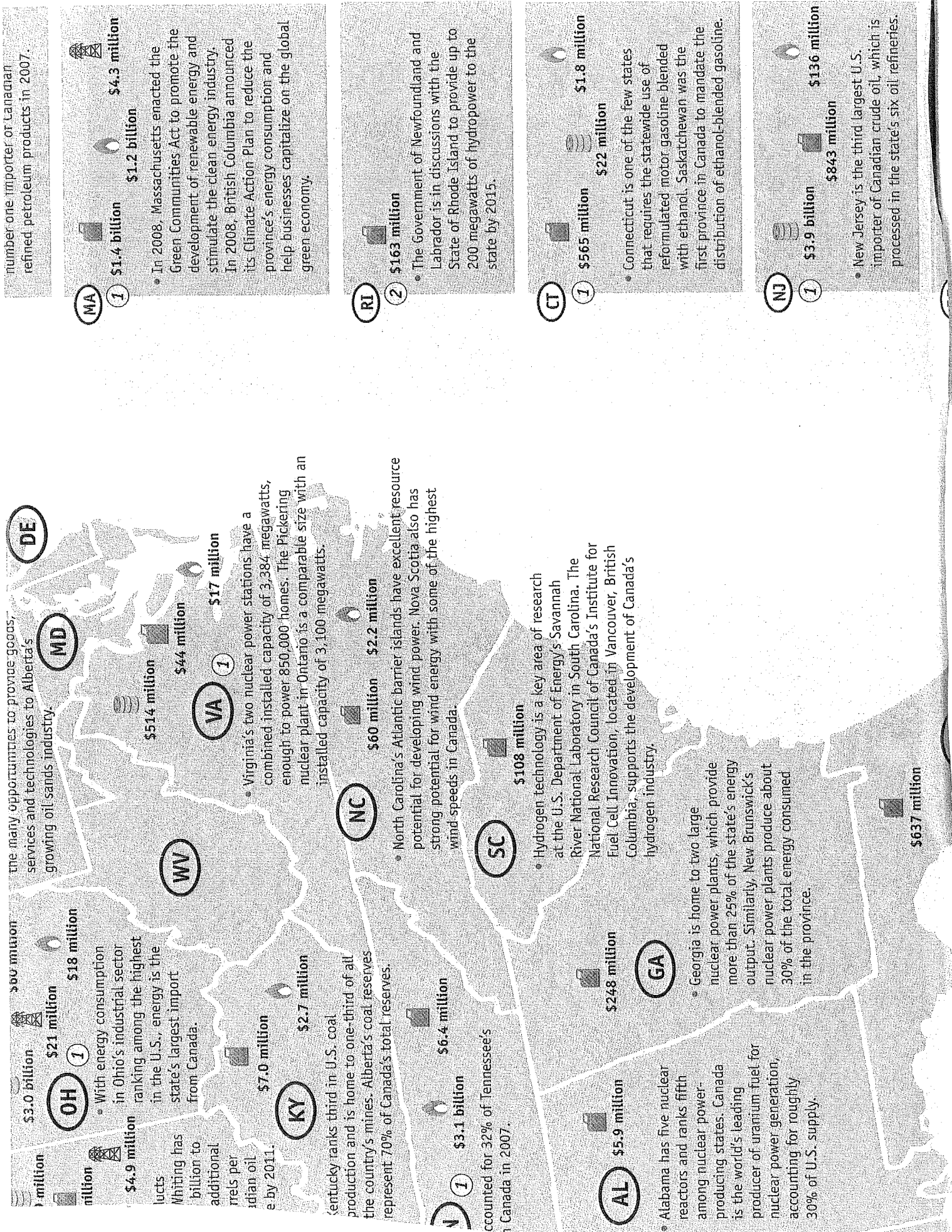
PARTNERSHIP: The Canada-United States Energy



Partnership



* New Hampshire was the United States'



the many opportunities to provide goods, services and technologies to Alberta's growing oil-sands industry.

With energy consumption in Ohio's industrial sector ranking among the highest in the U.S., energy is the state's largest import from Canada.

Kentucky ranks third in U.S. coal production and is home to one-third of all the country's mines. Alberta's coal reserves represent 70% of Canada's total reserves.

MA \$1.4 billion \$1.2 billion \$4.3 million

In 2008, Massachusetts enacted the Green Communities Act to promote the development of renewable energy and stimulate the clean energy industry. In 2008, British Columbia announced its Climate Action Plan to reduce the province's energy consumption and help businesses capitalize on the global green economy.

MD \$514 million \$44 million \$17 million

Virginia's two nuclear power stations have a combined installed capacity of 3,384 megawatts, enough to power 850,000 homes. The Pickering nuclear plant in Ontario is a comparable size with an installed capacity of 3,100 megawatts.

OH \$21 million \$18 million

Ohio's largest import from Canada.

KY \$7.0 million \$2.7 million

Kentucky ranks third in U.S. coal production and is home to one-third of all the country's mines. Alberta's coal reserves represent 70% of Canada's total reserves.

RI \$163 million

The Government of Newfoundland and Labrador is in discussions with the State of Rhode Island to provide up to 200 megawatts of hydropower to the state by 2015.

NC \$60 million \$2.2 million

North Carolina's Atlantic barrier islands have excellent resource potential for developing wind power. Nova Scotia also has strong potential for wind energy with some of the highest wind speeds in Canada.

SC \$108 million

Hydrogen technology is a key area of research at the U.S. Department of Energy's Savannah River National Laboratory in South Carolina. The National Research Council of Canada's Institute for Fuel Cell Innovation, located in Vancouver, British Columbia, supports the development of Canada's hydrogen industry.

AL \$5.9 million

Alabama has five nuclear reactors and ranks fifth among nuclear power-producing states. Canada is the world's leading producer of uranium fuel for nuclear power generation, accounting for roughly 30% of U.S. supply.

CT \$565 million \$22 million \$1.8 million

Connecticut is one of the few states that requires the statewide use of reformulated motor gasoline blended with ethanol. Saskatchewan was the first province in Canada to mandate the distribution of ethanol-blended gasoline.

GA \$248 million

Georgia is home to two large nuclear power plants, which provide more than 25% of the state's energy output. Similarly, New Brunswick's nuclear power plants produce about 30% of the total energy consumed in the province.

VA \$514 million \$44 million \$17 million

Virginia's two nuclear power stations have a combined installed capacity of 3,384 megawatts, enough to power 850,000 homes. The Pickering nuclear plant in Ontario is a comparable size with an installed capacity of 3,100 megawatts.

WV \$6.4 million

Kentucky ranks third in U.S. coal production and is home to one-third of all the country's mines. Alberta's coal reserves represent 70% of Canada's total reserves.

NJ \$3.9 billion \$84.3 million \$136 million

New Jersey is the third largest U.S. importer of Canadian crude oil, which is processed in the state's six oil refineries.

DE

MD \$514 million \$44 million \$17 million

NC \$60 million \$2.2 million

CT \$565 million \$22 million \$1.8 million

GA \$248 million

VA \$514 million \$44 million \$17 million

WV \$6.4 million

NJ \$3.9 billion \$84.3 million \$136 million

DE

MD \$514 million \$44 million \$17 million

NC \$60 million \$2.2 million

Alabama has five nuclear reactors and ranks fifth among nuclear power-producing states. Canada is the world's leading producer of uranium fuel for nuclear power generation, accounting for roughly 30% of U.S. supply.

NE

• Nebraska has the second largest ethanol production capacity in the U.S. at 1.7 billion gallons per year, which is 12% of the nation's capacity. Saskatchewan has Canada's second largest ethanol production capacity at 90 million gallons per year, which is 21% of the nation's capacity.

IA

• Natural gas, which supplies nearly one-fifth of Iowa's energy, reaches the state through pipelines from Canada that continue on to other Midwestern U.S. markets.

IL

• In 2007, the Wood River refinery in Illinois began a \$1.7 billion expansion to increase its refinery capacity and to double its use of Canadian heavy crude to 70% of its refinery feedstock.

IN

• The BP F refinery invested 260,000 day of C sands cr

KS

• Natural gas production from coal is rapidly expanding in the Cherokee Platform, where production has become economically viable. Alberta's coalbed resource could contain up to 500 trillion cubic feet of natural gas, equivalent to more than 15 years of total North American supply.

MO

• Washington University in St. Louis is investing more than \$55 million in the International Center for Advanced Renewable Energy and Sustainability. The Ontario Centres of Excellence Inc. has developed six clean energy research projects worth a total of \$28 million that pair industry with some of Ontario's leading universities.

OK

• The 2,148-mile Keystone Pipeline, with a planned capacity of 590,000 barrels per day, will connect the oil sands region of Western Canada to Cushing, Oklahoma.

MS

• Mississippi is a leader in researching biofuel technologies and plans are underway to build the state's first ethanol production facility in the town of Amory. Canada's largest capacity biofuel facility is currently under construction in Sturgeon County, Alberta.

TX

• In addition to their oil and natural gas production, Texas and Alberta are the number one U.S. and Canadian producers of wind power.

• During the 2008 North American Solar Challenge,

8 million \$1.0 million

uncor Energy will be the commercial demonstration plant to be built in Colorado by 2012.

ucer of ne-tenth Canada's accounting on.

AR

• Companies are beginning to extract natural gas from Fayetteville Shale deposits in Arkansas' Arkoma basin, British Columbia's shale gas resource is estimated to be between 250 and 1,000 trillion cubic feet.

LA

• Louisiana is a major importer of crude oil, typically bringing in about one-fifth of

TI

• Energy products a total imports from

\$12 billion

\$4.3 billion \$91 million

\$4.7 million

\$5

\$5

\$151 million \$6.4 million \$4.0 million

\$851 million \$610 million \$447 million \$2.0 million

\$80 million \$56 million

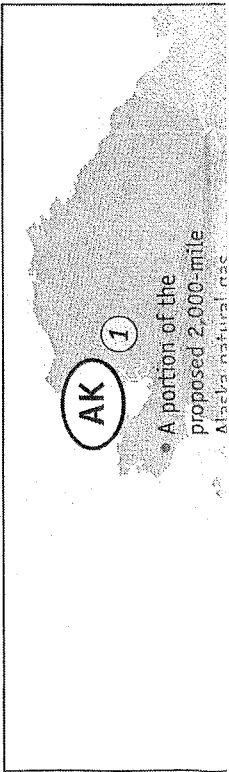
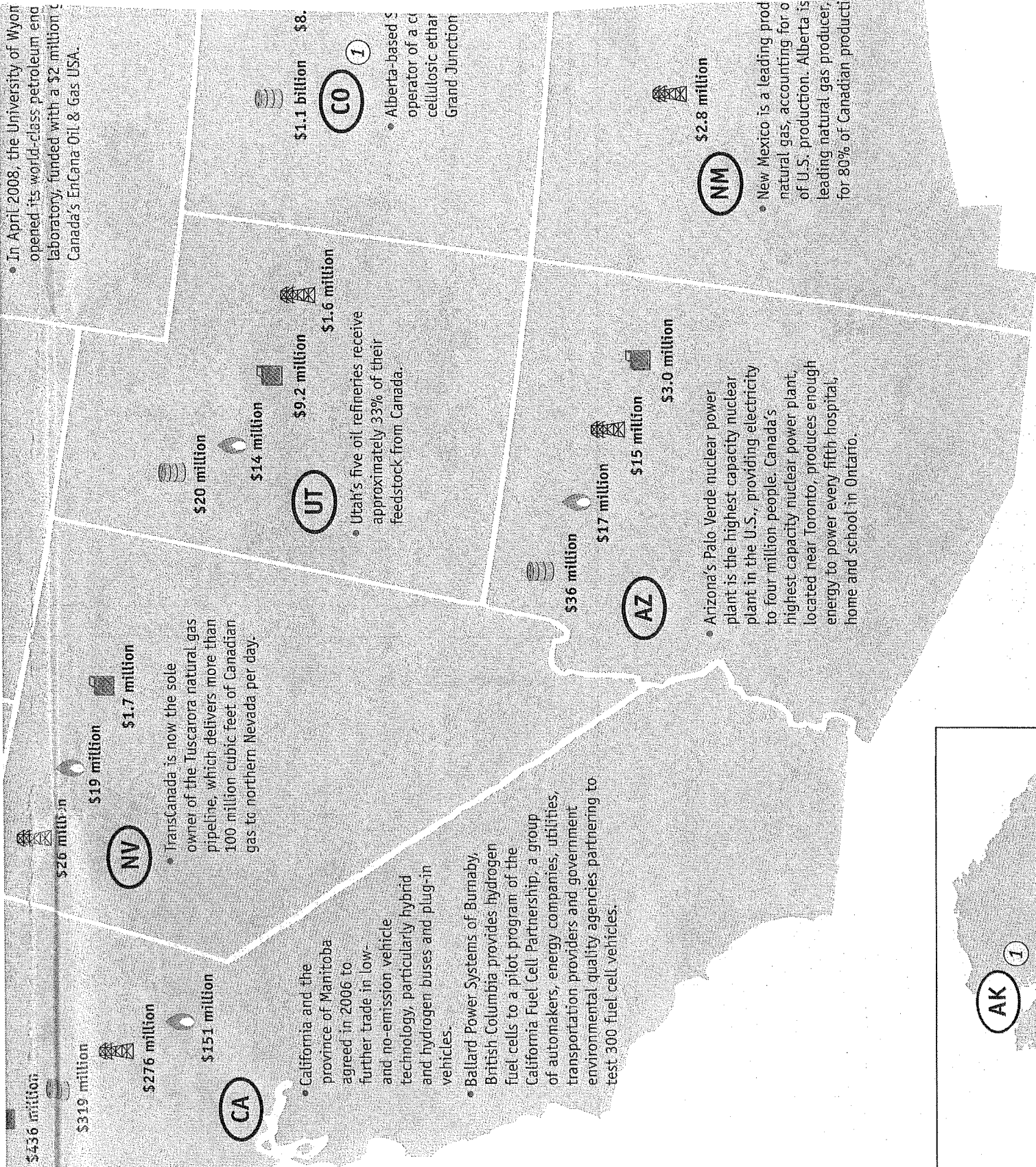
\$38 million

\$7.7 million

\$12 million

\$1.5 million



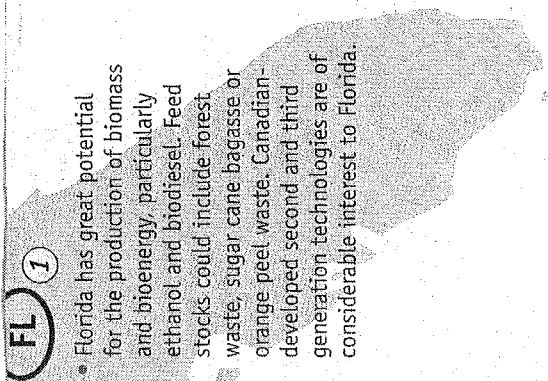


OLS AND FOOTNOTES

- ① Signifies energy's ranking as a leading Canadian export to the U.S. states for 2007.
- ②
- ③

All trade figures are from 2007 and have been adjusted for refined petroleum or hydrocarbon gases. For more information, visit www.centreforenergy.com.

www.can-am.gc.ca



FL ①

Florida has great potential for the production of biomass and bioenergy, particularly ethanol and biodiesel. Feed stocks could include forest waste, sugar cane bagasse or orange peel waste. Canadian-developed second and third generation technologies are of considerable interest to Florida.

DE ①

\$210 million **\$5.7 million** **\$2.3 million**

Headquartered in Delaware, Dupont is researching renewable fuel alternatives, including biobutanol and cellulosic ethanol. In 2007, the Government of Canada announced a \$1.5 billion investment over nine years to boost Canada's production of biofuels.

MD

\$110 million **\$5.7 million**

Maryland is home to BP Solar's North American operations. Canada has abundant solar energy resources, with the largest resources found in southern Ontario, Quebec and the western provinces.

WV

\$13 million

West Virginia University is home to the National Research Center for Coal & Energy, which is researching applications for carbon sequestration. Saskatchewan's Petroleum Technology Research Centre is working with SaskPower on the world's first zero-emissions coal-fired power plant.

United States are participants in the multilateral Gen IV Nuclear Forum to collaboratively develop the fourth generation of commercial nuclear technology. Cooperation between the Canadian and U.S. federal governments and industry, provinces and U.S. states are working together on regional initiatives to reduce emissions and promote renewable energy.

Teams from American and Canadian universities and colleges competed to design, build and drive solar-powered cars in a 2,400-mile race from Dallas, Texas to Calgary, Alberta.

all foreign crude oil processed in the U.S. In 2007, Canada exported close to \$39 billion worth of crude oil to the U.S.

KEY TO SYMBOLS



Canadian refined petroleum products exports



Canadian natural gas exports



Canadian crude oil exports



Canadian electricity exports

- All figures are in U.S. dollars
- Unless otherwise indicated, figures have been rounded.
- Natural gas figures include liquefied natural gas
- For source information please visit www.centreenergy.com

www.centreenergy.com

Canada

Canada is the largest, safest and most secure supplier of energy to the United States, and we are right next door. We provide and refined oil products to the United States.

Through our regulatory framework, we encourage energy investments and strengthen North American energy security. We provide a more efficient, shared electricity system. Both countries benefit from load-sharing and integration.

- Canada and the United States
- Complementing our energy resources
- Reducing greenhouse gas emissions

pipeline would pass



\$77 million

through Canada, running nearly 1,400 miles through the Yukon into British Columbia and linking into an existing pipeline network in Alberta for onward distribution to Canada and the U.S.



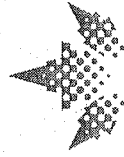
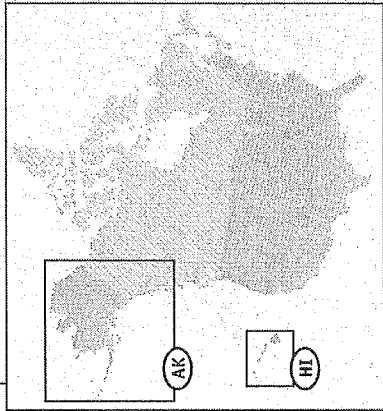
\$5.2 million



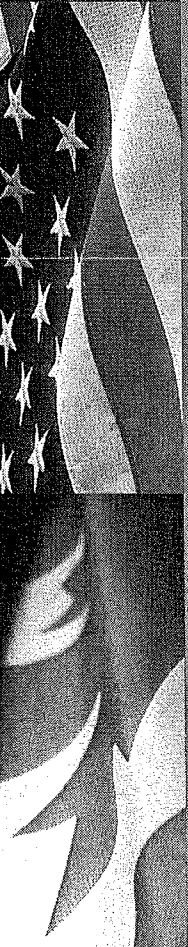
\$4.7 million



• Puna Geothermal Venture, the only commercial geothermal power plant in Hawaii, has an installed generating capacity of 30 megawatts. Canada's first commercial geothermal generating facility will be built in British Columbia and has the potential to generate 100 megawatts of electricity.



Canadian Centre for Energy Information


















- U.S. energy security depends upon reliable energy supplies.
- Since 1999, Canada has been the largest supplier of both crude oil and natural gas to the U.S.
- Free trade and open markets, as well as a stable policy and regulatory environment, are essential to U.S. energy security.
- The interconnected Canada-United States power grids ensure

The World's Largest Trade and Security Relationship

A Strong Partnership

ENERGY RELATIONSHIP BETWEEN CANADA AND THE UNITED STATES

KEY TO SYMBOLS AND TERMS

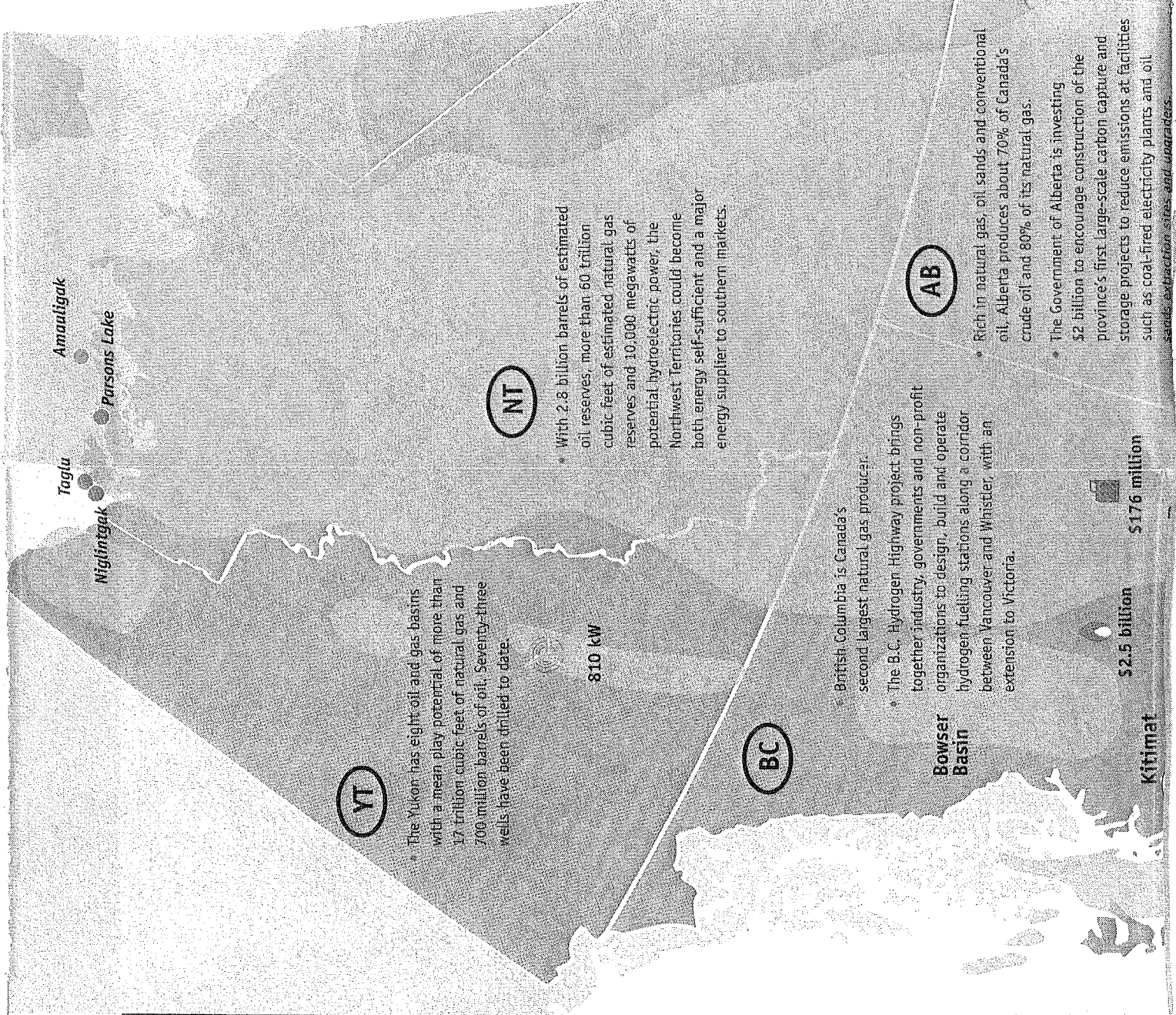
 Canadian oil refineries  Hydrocarbon regions and offshore basins  Offshore oil fields  Offshore gas fields  Uranium deposits  Installed wind energy capacity  Carbon dioxide capture and storage project	 Canadian refined petroleum product exports  Canadian natural gas exports  Canadian crude oil exports  Canadian electricity exports	 Proposed Canadian Liquefied Natural Gas (LNG) import terminals (March 2008):  Project announced  Undergoing federal-provincial environmental assessment  Received federal-provincial approval
---	--	---

• All figures are in U.S. dollars.

bb/d – barrels per day Bcf/d – billion cubic feet per day Mcf/d – thousand cubic feet per day	Mbb/d – thousand barrels per day Mmmb/d – million barrels per day kW – kilowatt kWh – kilowatt hour	MW – megawatt Tcf – trillion cubic feet LNG – liquefied natural gas
---	--	---

TWELVE KEY FACTS

- 1 Illinois, Washington, New York, Minnesota and New Jersey are the top five states for Canadian energy exports.
- 2 Hydropower is Canada's number one renewable energy generation source. It makes up about 60% of Canada's total electricity generation capacity.
- 3 In 2008, Canada had 16 ethanol plants and four biodiesel plants operating or under construction with a total capacity of 513 million gallons per year.
- 4 Canada is recognized as a global leader in the hydrogen and fuel cell industry. Over \$1 billion has been invested in the sector's research and development over the past five years.
- 5 Canada's installed wind energy capacity in 2008 was 1,876 megawatts — enough to power over 560,000 homes. Canada will have close to 4,000 megawatts of installed wind energy capacity by the end of 2009.
- 6 Canada is home to one of the three tidal power plants in the world and the only one in the Western Hemisphere.



7 Canada is the largest supplier of oil, natural gas, uranium and electricity to the United States.

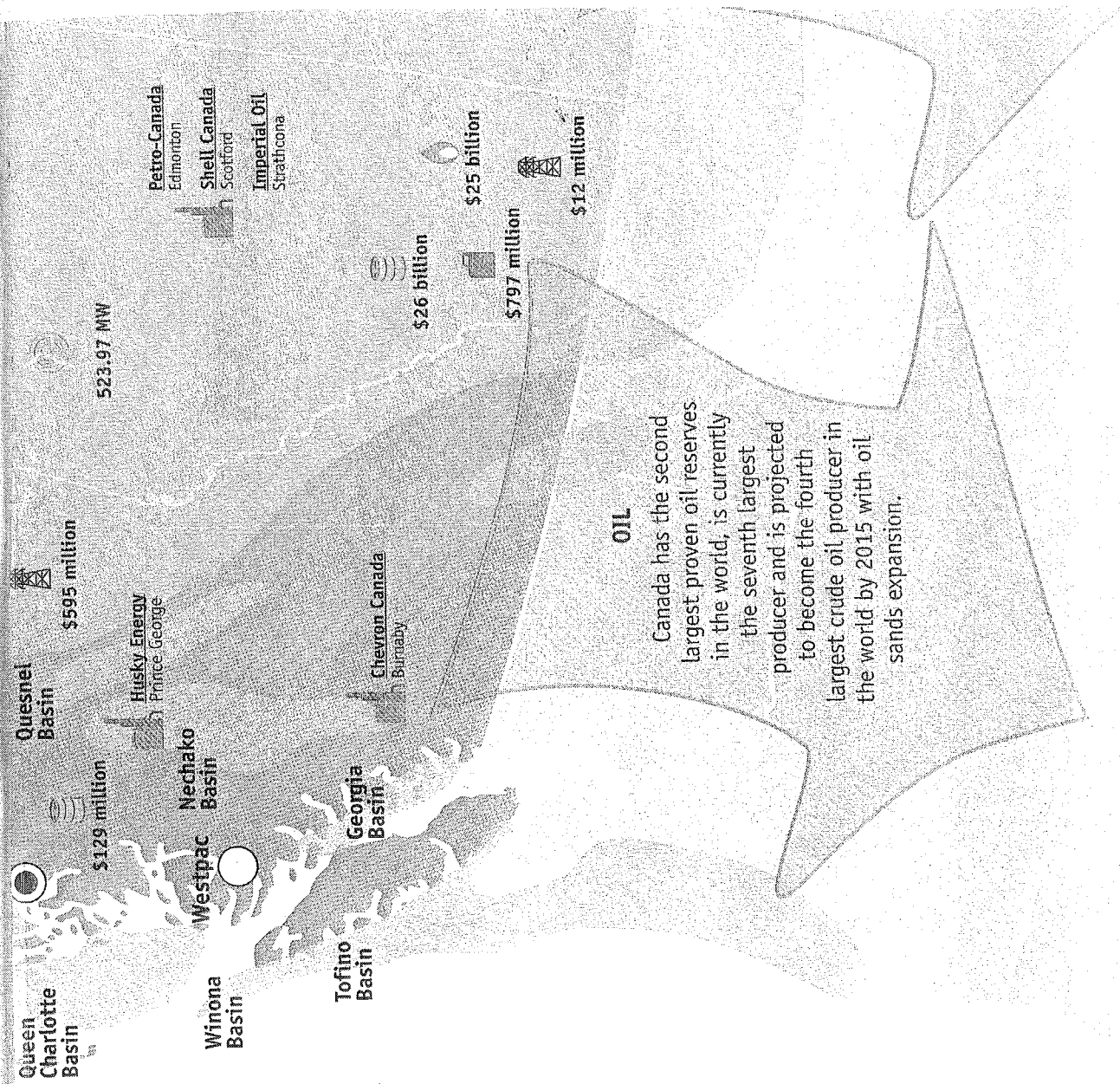
8 Canadian oil production is expected to reach 4.5 million barrels per day by 2020.

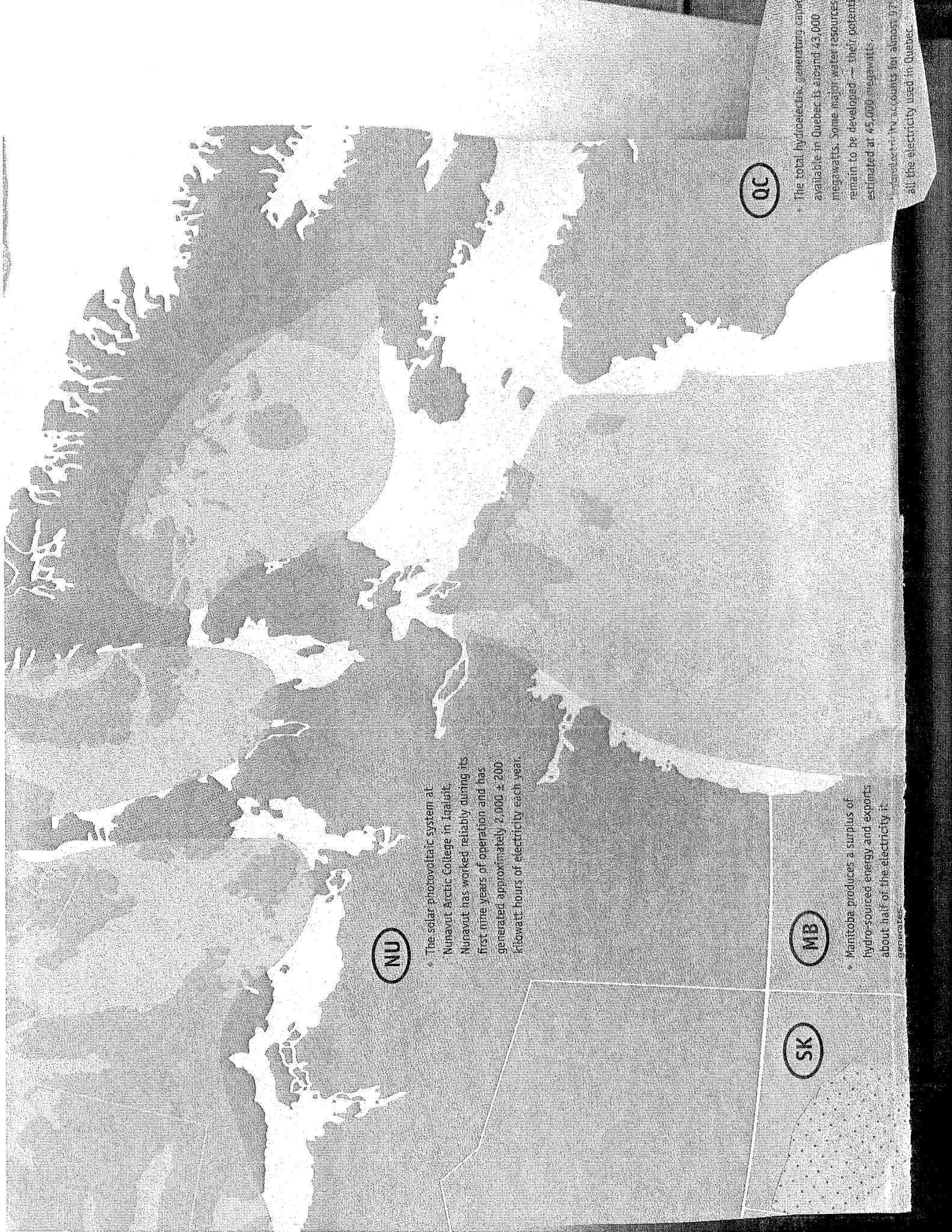
9 Canada is the third largest producer of natural gas in the world. Since 1973, Canada has supplied 92% of U.S. natural gas imports.

10 Canada has the world's largest known high-grade natural uranium deposits.

11 In 2007, 18 of Canada's 22 CANDU nuclear reactors were in service, producing 14.6% of Canada's electricity.

12 Canada's petroleum industry directly and indirectly employs more than 500,000 people.





NU

• The solar photovoltaic system at Nunavut Arctic College in Iqaluit, Nunavut has worked reliably during its first nine years of operation and has generated approximately 2,000 ± 200 kilowatt hours of electricity each year.

MB

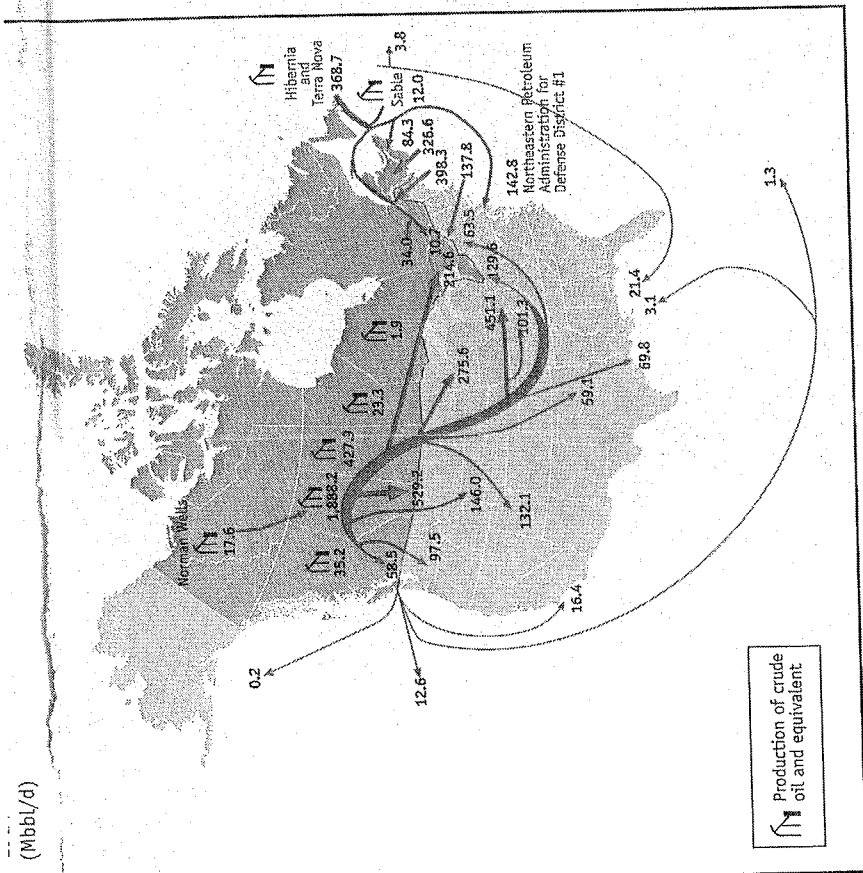
• Manitoba produces a surplus of hydro-sourced energy and exports about half of the electricity it generates.

SK

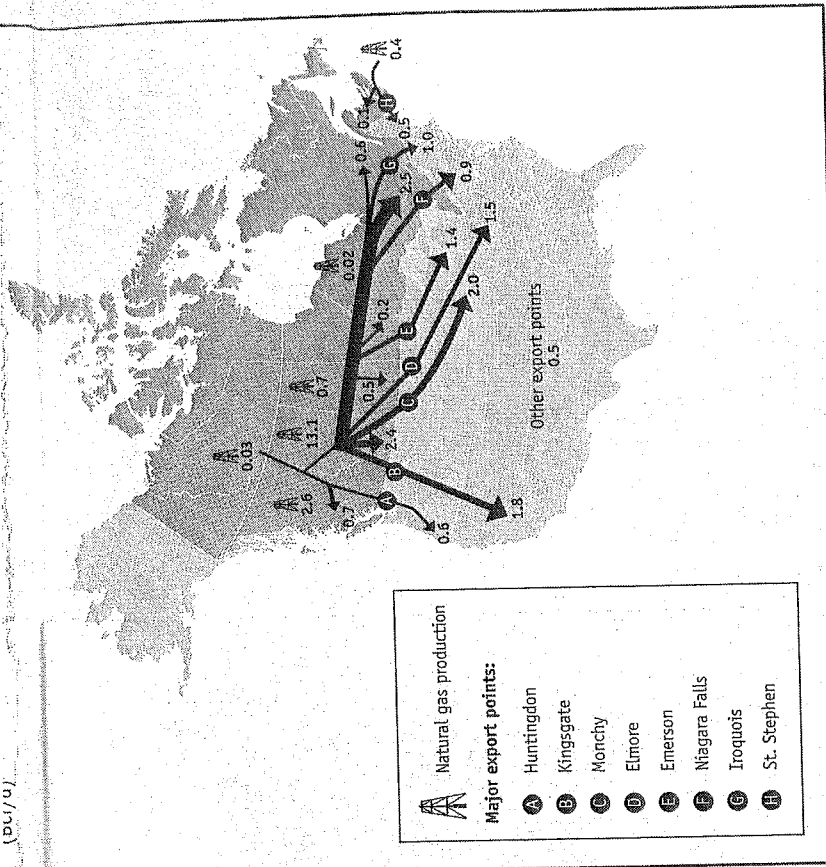
QC

• The total hydroelectric generating capacity available in Quebec is about 43,000 megawatts. Some major water resources remain to be developed — their potentials estimated at 45,000 megawatts. Hydroelectricity accounts for almost 97% of all the electricity used in Quebec.

(Mbbbl/d)



Production of crude oil and equivalent



Natural gas production

Major export points:

- A Huntingdon
- B Kingsgate
- C Monchy
- D Elmore
- E Emerson
- F Niagara Falls
- G Iroquois
- H St. Stephen

NL

\$2.0 billion \$5.7 billion

Newfoundland and Labrador's two major offshore oil fields, Hibernia and Terra Nova, together produced 91.6 million barrels in 2007. White Rose, the third major field, produced 42.8 million barrels in 2007.

Newfoundland and Labrador is heavily reliant on hydroelectric energy with 7,427 megawatts of installed generating capacity, which provides 72% of the province's electricity.

Flemish Pass Basin

Orphan Basin

Jeanne d'Arc Basin

Manitoba is a leader in earth energy with over 5,000 ground source heat pump units installed in homes across the province.

\$269 million **\$506 million**

\$19 million **\$77 million** **103.95 MW**

The uranium mines in Saskatchewan accounted for approximately 22% of the world's total uranium production in 2007.

Launched in 2000, the Weyburn-Midale CO₂ Project is the world's first large-scale carbon capture and storage project.

\$6.4 billion **\$25 million** **\$34 million** **\$29 million**

171.18 MW
Consumers' Co-op
 Regina
Weyburn-Midale CO₂ Project
 Weyburn

NATURAL GAS

Canada is the third largest producer and the second largest exporter of natural gas in the world. Canada supplies the U.S. with 82% of its natural gas imports. Canada is developing Arctic pipelines and LNG terminals to provide more natural gas to the North American market.

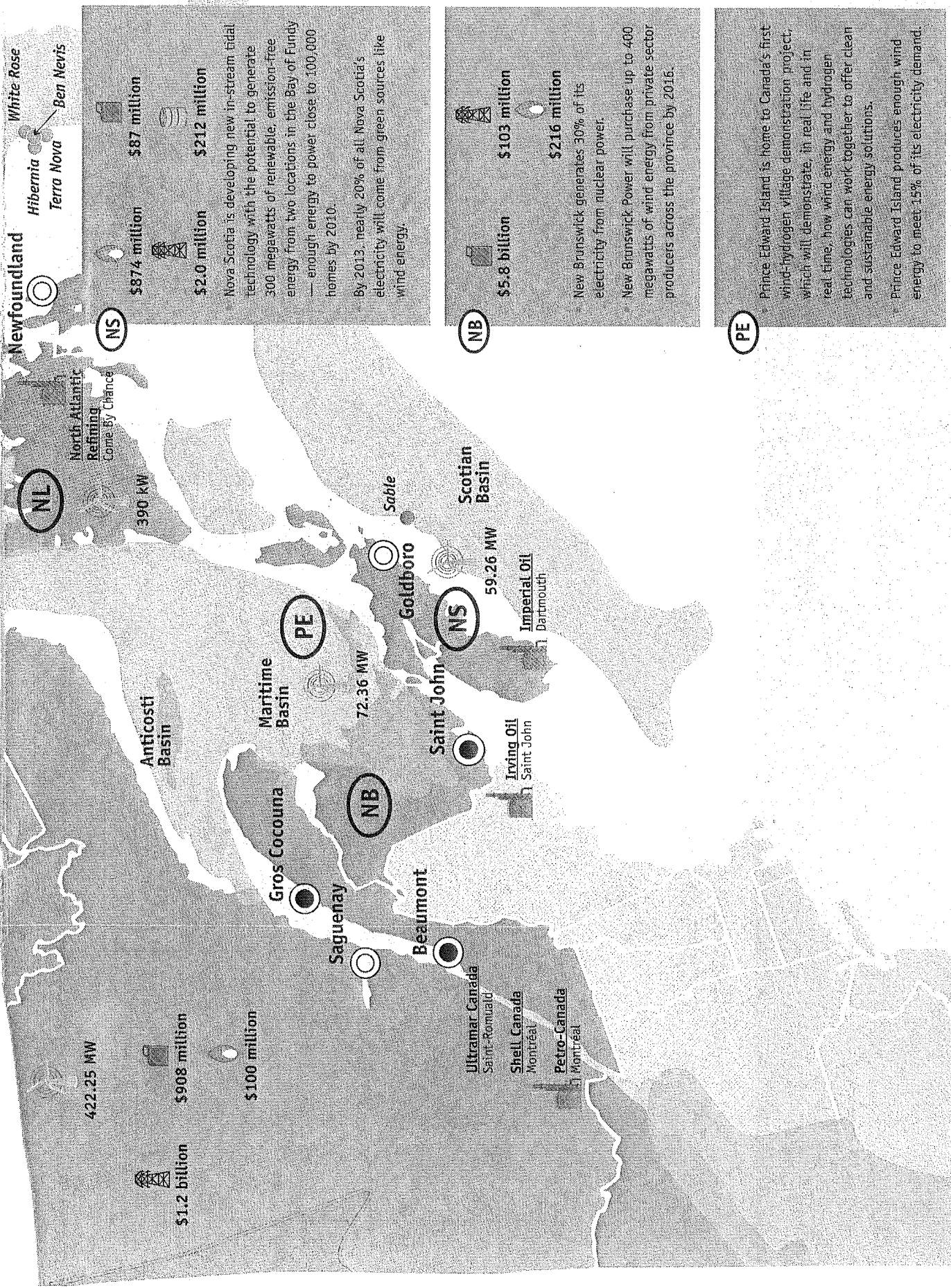
ELECTRICITY

Canada and the U.S. share an integrated electricity grid and supply almost all of each other's electricity imports. Canada is a major supplier of electricity (overwhelmingly clean hydroelectricity) to New England, New York, the Upper Midwest, the Pacific Northwest and California.

The Bruce Power facility in Ontario is the largest nuclear power plant in North America.
 The Ontario Power Authority's Integrated Power System Plan calls for 4,600 megawatts of wind energy by 2020.



\$2.0 billion **\$659 million** **\$522 million** **521 MW**

- Imperial Oil
Nantbrooke
- Imperial Oil
Sarnia
- Sumoco
Sarnia
- Shell Canada
Corunna




Newfoundland

Hibernia
Terra Nova
White Rose
Ben Nevis

\$87.4 million  **\$87 million**
\$2.0 million  **\$2.12 million**

Nova Scotia is developing new in-stream tidal technology with the potential to generate 300 megawatts of renewable, emission-free energy from two locations in the Bay of Fundy — enough energy to power close to 100,000 homes by 2010.
By 2013, nearly 20% of all Nova Scotia's electricity will come from green sources like wind energy.

NS

\$5.8 billion  **\$103 million**
\$216 million

New Brunswick generates 30% of its electricity from nuclear power.
New Brunswick Power will purchase up to 400 megawatts of wind energy from private sector producers across the province by 2015.

NB

Prince Edward Island is home to Canada's first wind-hydrogen village demonstration project, which will demonstrate, in real life and in real time, how wind energy and hydrogen technologies can work together to offer clean and sustainable energy solutions.
Prince Edward Island produces enough wind energy to meet 15% of its electricity demand.

PE

422.25 MW

\$1.2 billion  **\$908 million**
\$100 million

Anticosti Basin

Maritime Basin

72.36 MW

Gros Cocoune

Saguenay

Beaumont

Ultramar Canada
Saint-Romuald

Shell Canada
Montréal

Petro-Canada
Montréal

Goldboro

Saint John

Irving Oil
Saint John

Imperial Oil
Dartmouth

Sable

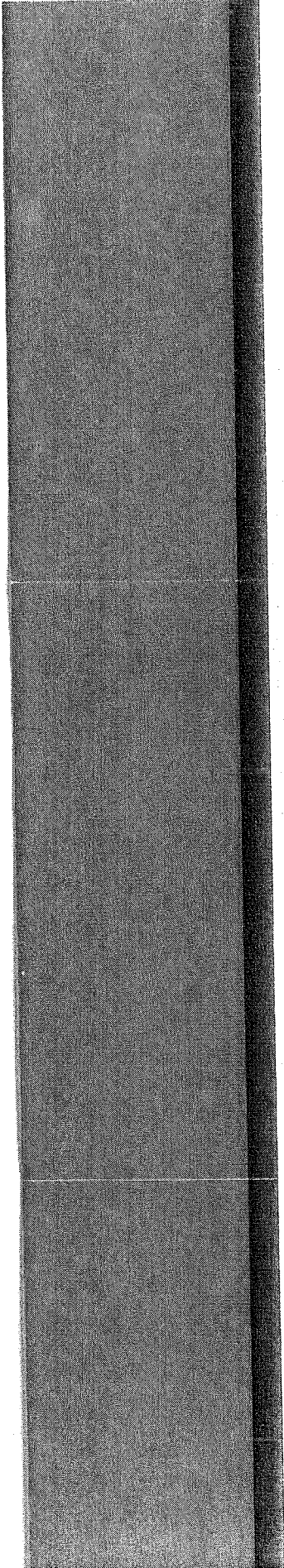
59.26 MW

Scotian Basin

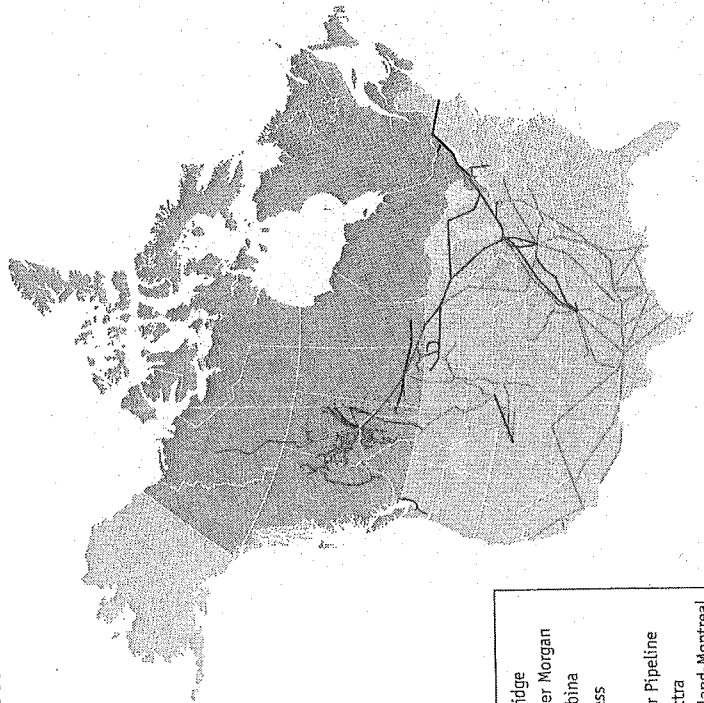
North Atlantic Refining
Come By Chance

390 KW

NL

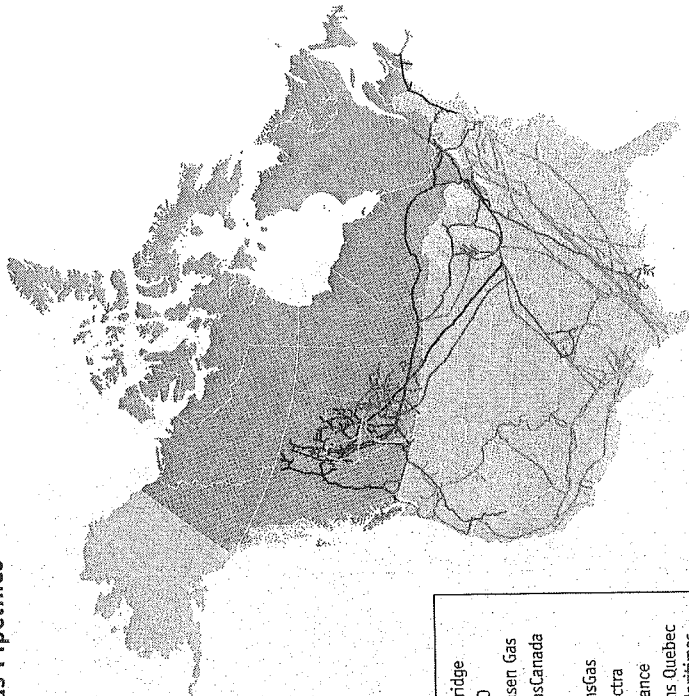


**Canadian Energy Pipeline Association Members
Liquids Pipelines**



- Enbridge
- Kinder Morgan
- Pembina
- Access
- BP
- Inter Pipeline
- Spectra
- Portland-Montreal
- Trans-Northern
- Non-member pipeline

**Canadian Energy Pipeline Association Members
Natural Gas Pipelines**



- Enbridge
- ATCO
- Terasen Gas
- TransCanada
- BP
- TransGas
- Spectra
- Alliance
- Trans Quebec & Maritimes
- Maritimes
- Northeast & Non-member pipeline

CANADA – A secure, reliable source of energy

