cleaner energy for our planet

Rotary Club of Whitby

July 9, 2002



The way toward fusion power



Fusion technology holds promise as a new global energy source that is ...

- Safe: The fusion energy reaction terminates if exacting conditions are not met
- Clean: Fusion energy will produce no greenhouse gases or nuclear fuel wastes, and have decreasing decommissioning wastes with materials technology improvements
- Sustainable: The fuel for the fusion reaction is a mixture of deuterium and tritium.
 - However, the tritium fuel for a full scale fusion electricity generating station will be derived from a lithium 'blanket' in the tokamak. Tritium is formed when a neutron, released in the fusion process, reacts with a lithium atom
 - Both lithium and deuterium are abundant, naturally occurring materials available worldwide

The Iter Tokamak



Temperature, Magnetic Fields and Neutrons



The Clarington Site for ITER

TER



20 Km

St. Mary's Cement



Darlington NGS

Tritium Removal Facility

Iter construction site at Clarington

Iter

1 ID 10



ITER LAYOUT ADAPTED FOR CLARINGTON SITE

SWITCHYARDS

340,000 cubic metres of concrete 32,000 tonnes of rebar 4,200,000 ft² of formwork 20,000 tonnes of structural steel **6 CN Towers!** FENCE Engineering Inc



Iter will be constructed through a unique international collaboration



Host country supplies:

- buildings
- infrastructure
- site
- supporting services
 ⇒"Infrastructure project"

 $\frac{\text{Other Countries}}{\text{components which they ship}}$ to the site for assembly $\Rightarrow \text{``Science project''}$



Benefits of hosting Iter

PEOPLE

- Jobs: 68,000
 person years
- <u>Brain Gain</u>: 250 international scientists



ECONOMY

- <u>Debt Reduction</u>:
 \$6.4 Billion
- Foreign Investment
- Attraction of related industries

TECHNOLOGY

- Access to advanced technologies
- Spin-off companies
- Canadian R&D profile
- Boost to education

Plus.... Contribution to sustainable energy development





Iter Personnel in Canada





Overhead Aerial View of Proposed Iter Site



2 ITER CANADA FACILITY

- 3 DOCK
- **4 BLUE CIRCLE PLANT**
- **5 DARLINGTON STATION**

7 HEAD OFFICE OPTION 1 8 HEAD OFFICE OPTION 2 9 MAIN ENTRANCE

10 SECURE ENTRANCE

12 RAIL CORRIDOR 12 RAIL SIDING 13 401 14 RECREATIONAL FACILITIES 15 LAKE ONTARIO



Overall Iter Timeframe





A consortium of public and private stakeholders

Governments

- Canada
- Ontario
- Clarington & Durham region

Labour

- Canadian Building and Construction Trades Council
- Canadian Labour Congress
- Canadian Nuclear Workers Council



Community

Iter Community Council

Universities/ Societies

- University of Toronto
- Université du Québec
- University of Saskatchewan
- York University
- Ontario Institute of Technology
- Canadian Nuclear Society

Private Sector

Services

- AMEC
- Can.Nuclear Utility Services
- Candesco
- Ernst & Young
- Marsh Canada Ltd.
- Osler, Hoskin & Harcourt
- Robbie/Young & Wright
- Weber Shandwick Worldwide

Utility & Technology

- MDA Space & Advanced Robotics
- Kinectrics Inc.
- Ontario Power Generation

Engineering & Construction

- Acres International
- AECON Construction Group
- Canatom NPM
- SNC Lavalin Group
- Wardrop Engineering

Financial

- Borealis (OMERS)
- RBC Capital Markets
- Teachers Pension Fund

Private sector has stepped up to help fund Iter Canada bid costs:

- Public sector has backed the high risk phase to date
- Six private sector funding partners
 - Borealis Capital Corporation (OMERS)
 - Ontario Teacher's Pension Plan
 - Ontario Power Generation
 - SNC Lavalin/AECON Construction Group
 - Royal Bank of Canada
 - Construction Unions



Prominent Board to Guide Canada's Bid Iter Canada Host Inc.



William Farlinger Chairman Ontario Power Generation



The Right Honourable Brian Mulroney Partner, Ogilvy Renault



The Honourable Robert K. Rae Partner, Goodmans LLP



The Honourable Edward C. Lumley Vice-Chairman BMO Nesbitt Burns Inc.



Dr. Peter Barnard CEO Iter Canada



John Beck CEO, Aecon Construction Group Inc.



Leo de Bever Senior Vice President Ontario Teachers' Pension Plan



Elizabeth Dowdeswell Environmental Consultant



Richard Drouin Partner McCarthy Tétrault



Walter Murray Vice-Chairman RBC Dominion Securities



Michael Nobrega President, Borealis Capital Corporation



President

Iter Canada



Alex Taylor Chair Enersource Corporation



Study Areas





The Public / Our Stakeholders



our children's future about 10 it's about economic growth it's about our environment it's about our community

Brought to you by your Metroland Durham Region Community Newspaper Group, March 2002

Unprecedented Show of Community Support March, 2002



List of Competitors June, 2002

- Canada Clarington June 2001
- Spain Vandellos June 2002
- France Cadarache June 2002
- Japan Rokkasho-mura June 2002

Canadian Site (Clarington)



Spanish Site (Vandellos)



Japanese Site (Rokkasho-mura)



French Site (Cadarache)





Canada Hosts First Formal Iter Negotiations Socio-Economic Tour - November 2001



Durham Delegation Shows Support for Iter in Moscow – April 2002 Major G8 policy statement by US DOE Secretary Spencer Abraham supporting Iter Very Positive Response by Minister Dhaliwal in his G8 statement

Minister Dhaliwal Visits Iter Canada Exhibit at G8 Energy Ministers' Meeting – April 2002



Proposed decision schedule – June 2002



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