

Research key to harnessing energy reserves, Weizmann scientist says

By JANICE ARNOLD
Staff Reporter

The world is not running out of energy sources – not even fossil fuels, an Israeli scientist told a Montreal audience last month.

What is lacking is the knowledge of how best to get and use this energy, said David Cahen, an expert on energy at the Weizmann Institute of Science.

The world still relies on fossil fuels – oil, gas and coal – for 80 per cent of its energy, and demand for all types of energy has skyrocketed over the past 35 years and probably will continue to do so for the foreseeable future, he said.

Cahen believes there is probably more oil out there than is commonly thought. "Our data on proven crude oil reserves comes from interested parties – namely (the Arab-dominated) OPEC," he said.

The supply and price to the West is at the discretion of this powerful group, he noted.

For certain, there is enough coal to last a long time, he said. The problem is how to extract and process it more efficiently, and with less damage to the environment.

To develop better ways of using traditional or exploring the potential of alternative energy sources, Cahen said scientific research is required, and that takes money.

"Over the past 20 years, we have neglected support for basic science on renewable energy," he said. "After a lot of activity in the late 1970s and early '80s, scientists have been left dangling. It's more and more difficult get funding."

Donors tend to favour medical research, but he said they should understand that medicine can't be practiced optimally without ready supplies of energy.

"Meeting this challenge requires the co-ordinated action of the world's scientific community, governments and industry," Cahen said. "Finding ways for efficient, cost-effective

production of clean fuels can be science's most important breakthrough, but to help it happen, we need the basic, fundamental science."

The breakfast meeting was moderated by Premier Jean Charest's new chief of staff Dan Gagnier, who is also chairman of the board of the International Institute for Sustainable Development. The event was organized by the Montreal Chapter of Weizmann Science Canada, in co-operation with Hydro-Quebec.

Weizmann has launched a new \$20-million sustainable and alternative energy research initiative, for which Weizmann Science Canada has undertaken to raise \$5 million.

Cahen said Weizmann is well placed to take a leading role in this type of research, because of its excellence in basic science and its interdisciplinary approach. Its chemistry, optics, engineering, life sciences and other departments are working together on the energy question.

The university, which has only graduate students, is also a bargain, he said, operating with an annual budget of \$220 million, a fraction of that of institutes in the United States, for example.

Weizmann scientists are working on projects involving methanol, hydrogen and biomass (derived mainly from grains) as fuels. They are also using nanotechnology to harness solar and micro-fuel cells, and looking at better ways of controlling nuclear fusion, as well as taking new approaches to energy conservation.

Weizmann president Daniel Zajfman sent this message to Montrealers: "The energy security of the western world depends on developing new sources of economical and renewable energy. We plan to fund an aggressive and innovative program of energy research at Weizmann, because we believe that only basic science can provide the radical, paradigm-shifting changes needed to make a major difference in the world's energy outlook in this century."



Dan Gagnier, Premier Jean Charest's chief of staff, listens as Weizmann Institute professor David Cahen speaks about the need for better ways of harnessing energy.