

## **Montreux Energy Roundtable 14<sup>th</sup> Annual, June 2003**

### **Some Impressions**

*By Paul Tempest\**

The Montreux Energy Forum and Roundtable was founded in 1988/9 to provide an annual meeting-place for the chief executives of OPEC, the International Energy Agency and the U.S. Administration to review, in the company of selected top business executives, lead-academics, diplomatic representatives and other invited professionals the current policy options facing the global energy industry. The last 15 years span three U.S. Presidents, three IAEE Executive Directors and 4 OPEC Secretary-Generals, all of whom have derived benefit from the Montreux Energy consultations.

On June 16-18, 2003 we were privileged to welcome Claude Mandil, the new Executive Director of the IEA, Dr Subroto, former Secretary-General of OPEC, Adnan Shihab-Eldin, the current Director of Research at OPEC, Nordine Ait-Laoussine, former Minister of Energy in Algeria, Alessandro Ovi, Special Energy Adviser to the President of the European Commission, John Beale of the Environmental Protection Agency, Washington, and John Easton who has served in three key Presidentially appointed positions in the U.S. Department of Energy.

Among the major technical presentations were those of the Saudi Ministry of Petroleum, Saudi Aramco, Petrobras, the National Development and Reform Commission, Beijing, the Electric Power Research Institute, Palo Alto, USA, Conoco-Phillips, BP plc London, Oak Ridge Laboratory, USA, the World Energy Council and Toyota who displayed and demonstrated the prototype Mark II PRIUS advanced hybrid fuel-cell family car scheduled to be marketed from end-2003, offering 62mpg in inner-city use and highly competitive performance.

The conference was again located in the Montreux Palace Hotel with the Montreux Energy Roundtable banquet again held in the 13<sup>th</sup> Century main hall of the Chateau de Chillon.

### **Energy Security, the Middle East and Market Outlook**

Has the world become a safer place since the World Trade Center attack of September 2001?

Despite the successful U.S. occupation of Kabul and Baghdad and the vigorous pursuit of international terrorists, concerns about the abrupt reactions of current governments, notably those of Iran, North Korea and possibly Saudi Arabia, Russia and China led to a consensus that the global economy was still in a state of shock with much damaged investment flows to the developing world and reduced expectations of global economic growth over the next 2-3 years.

This would have serious impact on the global oil market: the oil price could expect further needle-point discontinuities and most probably a falling trend, both of which would tend to deter much needed new investment.

Much would turn on the success of the USA in creating

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a soundly-based regime in Iraq which might or might not provide a model for other neighbouring states. Any delay in the handing back of control of Iraq's oil and gas facilities is likely to provoke reprisals and rising anger within the region. However, the rebuild of Iraqi oil production and exports looks as if it will be slow, fragile and fraught with the same diplomatic obstacles which have frustrated the establishment of a Palestinian State or the resolution of differences between India and Pakistan.

### **Can OPEC Continue to Stabilise the Oil Market?**

OPEC has effectively demonstrated its global economic value in smoothing the oil-price path whenever the OPEC price-target band of \$22-28 pb looked in danger of being breached. To go on achieving this, OPEC, and particularly Saudi Arabia, will need continuing current or rising levels of spare capacity.

Nonetheless, OPEC is likely to continue to cede market-share to the non-OPEC producers led by Russia whose production is again coming level with that of Saudi Arabia. At some point OPEC's position is likely to turn round, as the many currently vigorous non-OPEC producers become less able to compete on costs and begin to deplete their flimsy reserves at a faster rate. The long-term prospect is, therefore, one of enhanced OPEC market dominance despite their current market weakness.

On the demand side, there was general agreement that the USA would continue to increase its massive oil import dependence, while China (and also India) would quickly become competing oil, gas and coal importers of massive and rising dimension.

We were unable to detect any real sense of urgency or crisis about energy supply security in the USA and Europe whereas there are now clear signs that China, Japan and the Republic of Korea are actively seeking relief by strengthening economic and trading ties with the lead Middle East producers.

### **Can Natural Gas/Coal Displace Oil in Euro-Asia?**

While the USA will increase demand for LNG, the long-term global gas market play will be mainly in Europe and Asia with the rapid development of spot-trading of LNG and pipeline gas as the various connections linking the Siberian, Caspian, Iranian and other Gulf producers with Europe and China begin to materialise. A later phase will attach India, Republic of Korea and Japan to this network and will begin to tap remote Central Asian gas resources. Much hope is placed on coal gasification in China and Russia to supplement natural gas in this vision of a new and integrated Euro-Asian gas grid. Meanwhile South-East Asia remains particularly vulnerable to any interruption of oil supply from the Gulf.

### **How Can the Energy Sector Avoid an Investment Famine?**

The reluctance or inability of the International Oil Companies to commit serious funds to developing low-cost sources in the Middle East is matched by severe budgetary constraints among all the producer countries. The current structure of the energy sector offers little incentive with some sluggish and out-dated international agencies and many poorly-informed producer governments.

*(continued on page 14)*

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## Ontario's Electricity Market: An Update

By John Grant\*

Ontario's new electricity market, launched with optimism in May 2002, was severely challenged in its first year. Extreme summer heat, drought, unexpected and lengthy delays in the return to service of laid-up nuclear units, and extended forced outages of other major generation facilities all conspired to send wholesale prices soaring. Increases in transmission and distribution rates, still regulated but now permitted to generate commercial-equivalent rates of return, added to customers' sense of shock. In November the provincial government, responding to a hail of grass-roots criticism, announced a retroactive price freeze at 4.3¢ until April 30, 2006 (all figures in Canadian dollars) for small and designated customers. Although the wholesale market continues to operate, about half the load in the province is now sheltered from the hourly wholesale price through a subsidy mechanism. (As the wholesale energy price averaged 6.22 cents for the first twelve months, the effective subsidy for that period will come close to \$ 1.5 billion, although the provincial taxpayer is on the hook for only about \$ 500 million of this; dividends and other payments from public-sector entities such as Ontario Power Generation (OPG) and Hydro One provide cover for the rest. The government argues that the cumulative burden on taxpayers will fall to zero once the laid-up nuclear capacity has come back on-line, a view not widely shared in the industry.)

In addition to the freeze on retail energy prices, the government's November initiative froze or capped transmission, distribution, and other charges. The Minister of Energy was also given the authority to disallow proposed market rules passed by the Board of the Independent Electricity Market Operator (IMO) if it was considered that they would disadvantage consumers.

When the province embarked on the restructuring in 1997, it was a combination of soaring debt at the provincially-owned utility and embarrassing revelations of mismanagement in its nuclear operations that led the province to abandon public power paternalism for the hoped-for efficiencies of a private, competitive marketplace. Business risks were to be shifted from the taxpayer to private entrepreneurs; ratepayers would have free choice among suppliers. The government decided to establish full retail as well as wholesale choice from the outset; local distributors who wished to offer fixed-price contracts to their retail customers were required to set up arms-length retailing affiliates to do so, but would find themselves competing with private retailers on a province-wide basis. Customers who did not accept a retailer's offer were given a straight pass-through of the wholesale hourly spot price. The government also encouraged municipalities as owners of the over 300 local distributors to sell them or combine them into larger entities, and used a tax mechanism to give public sector companies a temporary advantage in bidding to acquire them. In the event the province's own transmission and distribution giant, Hydro One, swept up

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over a hundred of the small distributors; by early 2002 less than a hundred were left.

Early in 2002, the provincial Premier who introduced the restructuring program, Mike Harris, resigned, and his party selected Ernie Eves to succeed him. Harris had planned to sell off Hydro One, but a court ruled in April 2002 that the province had no authority to do so. In June Premier Eves introduced enabling legislation, but announced that the province would sell only 49% and would retain operating control of the company. On finding that the company's senior executives had been awarded extremely generous compensation packages, he proposed to fire the Board (who resigned en masse instead), and having appointed an interim Board, directed it to fire the C.E.O. for excessive spending. (She subsequently sued the company for wrongful dismissal and slander.) In January 2003 the Premier terminated the privatization and announced that the province would retain full ownership of Hydro One.

These developments led a number of observers to add Ontario to the list of failed experiments in restructuring. But despite these travails, the market's first year provided reassurance that the basic mechanism was sound. Wholesale transactions were settled successfully and on time, high prices attracted record volumes of imported power when needed, and a significant demand response from large industrial customers to anticipated high prices proved to be crucial in keeping the lights on on more than one occasion.

In retrospect, the backlash against price volatility at the retail level might have been manageable if the government had prepared the public better for the shift to marginal cost-based pricing. The public was told only that market competition would bring lower prices, not that heavy airconditioning demands on hot summer days would send their bills through the roof. Without interval meters or other tools to manage their demand, many small consumers were indignant at suddenly being expected to pay substantially higher amounts. But a number of energy retailers had, in fact, signed up some 20% of small customers for fixed-price energy contracts prior to market opening, and some distributors had chosen to continue billing their small customers on a fixed-price basis for a time (albeit with a catch-up to follow). Further mitigation was in the works, because, in acknowledgment of its market power, OPG, the dominant generator, was required by the government to pay customers a rebate calculated as a share of its revenue whenever energy prices exceeded 3.8 ¢/kwh. However, the first rebate payment would not have been made until the summer of 2003, and the rebate formula was so complex that it was never explained effectively to the public. In any event, small consumers who did see huge increases in their electricity bills during the summer of 2002 quickly communicated their anger to their political representatives, and the government quickly responded with the price and rate freeze. If the rebate had been better explained, if it been paid out in a more timely manner, if... Certainly, with hindsight, the summer's experience could have been prepared for much better from the point of view of winning consumer acceptance and understanding.

Prior to market opening, optimism about the size of the reserve margin of capacity available to the province may have led officials to expect that prices, and price volatility, would be relatively subdued during the crucial early months. That was not to be. While in May and June the average hourly

Ontario wholesale energy price (HOEP) was below 4 ¢/kwh, it averaged 6.2¢ in July, 6.9¢ in August and 8.3¢ in September. In October the IMO's Market Surveillance Panel noted a "serious shortage of generation capacity to meet Ontario's growing demand for electricity. If steps are not taken to address this situation, Ontario could face even more serious reliability problems next summer, leading to the possibility of supply interruptions..." In fact the monthly average HOEP continued to range between 5.1¢ and 8.9¢/kwh through April 2003. The IMO's Market Assessment Unit's analysis of the May-August 2002 period concluded that there was no evidence of any abuse of market power during that period. Instead, it attributed high prices to "increased demand, a nuclear outage [an 840 MW unit whose return to service from a scheduled outage was delayed for over a month], deratings on fossil-fired generators due to environmental limits, and less hydro-electric energy available." In addition to these factors, a major contributor to the supply deficiency was the failure to return to service of a substantial amount of nuclear power generation (2060 MW in 4 units at Pickering A and 3300 MW in 4 units at Bruce A) that had been taken offline between 1995 and 1998. Pickering A was originally to have been restarted by summer 2000, but did not return to service during the first year of the market. As of spring 2003 the long-delayed in-service dates for 4 nuclear units at Pickering continued to be problematic; the two nuclear units at the Bruce station were also experiencing delays. As a result, earlier confidence that resource adequacy could be dealt with in a fairly leisurely way was replaced by concern that private investors would not come forward in time to avert serious insufficiencies in the years ahead.

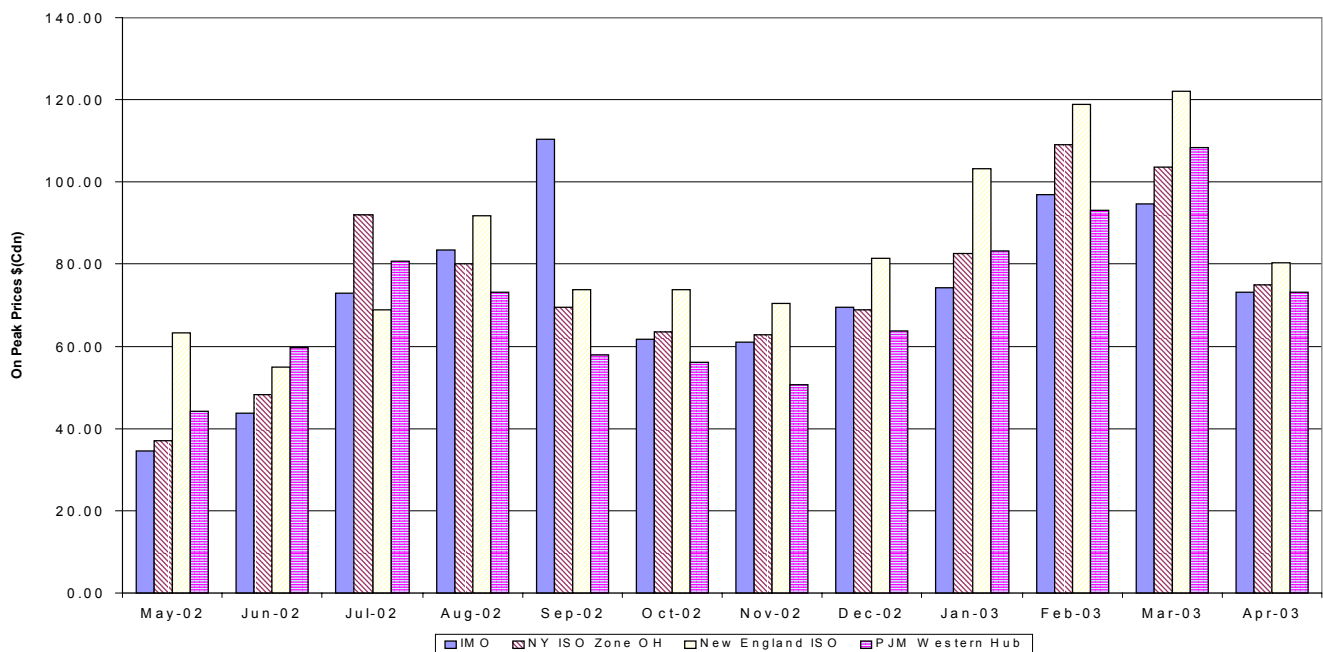
As noted, strong demand was a factor in the equation.

Whereas peak demand in 2000 was 23,428 MW, the strong economy and hot weather pushed the peak to a record 25,414 MW in the summer of 2002. Imports were necessary to maintain reliability 21 percent of the time during July and August; the IMO made emergency purchases 38 times during the summer. The peak amount imported was 4273 MW in September 2002, nearly 15 percent of the province's installed capacity, effectively the maximum that the transmission system could handle.

To keep the situation in perspective, however, despite all these problems, the average monthly HOEP tracked prices in neighbouring U.S. control areas quite closely, except in September. Arguably, the price responsiveness provided by the new marketplace was the decisive factor in keeping the lights on, given the physical challenges (see chart).

Nonetheless, it was inevitable that the stress test provided by the events recounted above would expose areas of weakness in the wholesale market's structure and rules. A major concern for market participants, for example, was the frequency with which pre-dispatch prices, recalculated hourly up to an hour ahead of real time, failed to predict the real-time Ontario energy price (HOEP), at which spot market transactions were settled. Large industrial customers in particular, willing and ready to manage energy demand in response to anticipated prices, were often frustrated when the high pre-dispatch price signals they acted upon were followed by much lower levels of HOEP (or the converse). Domestic generators, for their part, were frustrated when importers received guaranteed high pre-dispatch prices while they were receiving a much lower HOEP. (Because of time-consuming inter-control area coordination protocols, imports and exports, if accepted, are based on offers submitted no later than two

**Average HOEP Relative to Neighboring Control Areas, On Peak**



Source: Independent Electricity Market Operator, Market Surveillance Panel Monitoring Report on the IMO-Administered Electricity Markets for the period from September 2002 - January 2003, March 24, 2003, p. 21.

hours before real time. HOEP, on the other hand, is an average of five-minute market-clearing prices set during real time by domestic offers and bids, with the earlier-accepted imports and exports treated as “locked-in”. For a number of reasons, HOEP tended to be lower than the pre-dispatch price at which intertie flows were set, so to ensure that the imports would remain committed the IMO provided a guarantee whereby the importer would be paid his offer price even if HOEP turned out to be lower.)

The extended failure of the laid-up nuclear units to return to service, and delays in expanding intertie transmission capacity with neighbouring Quebec, combined with the cancellation or postponement of a number of new generation proposals, drew worried attention to supply adequacy. The province’s about-face on Hydro One privatization, the slow pace at which it was proceeding with decontrol and divestiture of OPG’s generation assets, and its reassertion of oversight on the IMO’s market rule amendments, raised concerns that the government intended to maintain its dominance as owner of generation in the province, with potentially adverse implications for effective and unbiased competition and thus for private entrepreneurs’ willingness to enter the arena.

For its part, the IMO Board, recognizing the need to move ahead, began to develop a formal Market Evolution Program, relying on heavy stakeholdering with market participants and others to set priorities for development.

Four key issues were identified: first, how to bring a stronger demand response into the marketplace, that is, how to give loads better tools with which to reduce their, and the market’s, exposure to high prices. Second, how to integrate Ontario’s market more effectively with neighbouring markets, so that traders can better arbitrage opportunities among them and thus broaden the resources available throughout the region as a whole. Third, how to improve resource adequacy inside Ontario itself, in the short term and over the longer term. Fourth, how to integrate the wholesale and retail markets more effectively, in order to reduce prudential and cash flow issues and open the door to future demand response at the retail level.

One of the developments under consideration to address a number of these issues is a Day-Ahead Energy Market that would be largely consistent with FERC’s Standard Market Design and thus coherent with counterpart markets in New York, New England, PJM, and the Midwest. In such a day-ahead market, generators and loads could lock in prices and quantities, which would provide large industrial and commercial customers with enhanced ability to manage their electricity usage. Mechanisms to facilitate longer-term contracting, in the interest of encouraging entrepreneurial investment in new generation capacity, are also being considered.

With a provincial election due no later than the spring of 2004, both the government and the industry are hoping for a cool summer and a timely return to service of the laid-up nuclear units to keep the level of rhetoric down. Looking forward, however, it is clear that the new regime, of whatever stripe, will have to take fundamental decisions about its future role. The industry generally wants Ontario to be a strong component of a competitive, well-integrated, cross-border regional marketplace, but to make this happen, private entrepreneurs must have confidence in the rules that will govern their participation as investors and traders. The current

confusion about the roles and risk-absorbing responsibilities of ratepayers and taxpayers must also be resolved, if only because the province’s fiscal position is at risk. One way or the other, the next twelve months will probably prove to be the most critical time in the evolution of Ontario’s electricity market.

#### **Petroleum Geopolitics** *(continued from page 5)*

to satisfy a large share of its energy needs, and to run its transport system in particular. The role of the Middle East in the oil sector will, therefore, lose none of its importance. Yet many specialists have pointed out that despite the considerable weight of the Arabian-Persian Gulf in world reserves, never since 1973 has this region succeeded in recovering a majority share of the world crude oil market. The North Sea, Alaska in the 1980s, the Gulf of Guinea, the Caspian, and the Gulf of Mexico today, have wrested control of the oil market from the Middle East.

#### **Footnotes**

<sup>1</sup> Crude oil is almost never consumed as such, but in the form of automotive gasoline, diesel, fuel oil, etc., produced by processing crude oil in refineries. Lacking large crude oil resources, most consumer countries have sufficient refining capacities to supply their needs for finished products.

<sup>2</sup> cf. “Divorce entre Maison Blanche et Maison des Saoud” (divorce between the White House and the House of Saud), article by Alexandre Adler in *le Monde*, March 2002.

<sup>3</sup> The United States is the only country where the owner of the soil also owns the subsoil.

<sup>4</sup> The recovery of crude prices also significantly improved the health of the Russian economy, because oil and gas exports represent the chief source of foreign exchange revenues for this country.

#### **Montreux Energy Roundtable** *(continued from page 10)*

##### **How Safe and How Economically Viable is Hydrogen?**

Present hydrogen distributors are constrained by high distribution costs, the issue of carbon sequestration and concerns about safety. All three concerns are likely to be gradually overcome. Sooner or later, governments will come round to much more generous tax exemptions for hydrogen-propelled vehicles as part of a general swing towards fiscal stimulation of alternative energy.

##### **Are the Key Environmental Issues Now Dead or Merely Temporarily Put to One Side**

“Don’t be afraid! The sky is not falling!” we were assured. There was, however, a strong consensus that recent environmental concern will return to haunt us and to question the wisdom of indiscriminate use of fossil energy.

#### **Bollino Named**

Carlo Andrea Bollino, IAEE VP for Development and International Affairs, has been appointed Chairman of Gestore Rete Trasmissione Nazionale, the Public National Electricity Grid in Italy.