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What Price Information?

The subject of market price information receives a lot of attention in this industry, usually from the perspective that current price indicators are inadequate or that there is not enough “transparency” in the market. However, there is more than one dimension to this issue, and playing off of the title of this cover story, we plan to examine it here.

What price information? Nuclear fuel buyers and sellers have a variety of price information from which to select, from market price indicators published by companies like ours, to government statistics about average delivered prices. An example of the latter is the Canadian export price statistics (see page 2). Note that governments do not actually publish current price information, but average values of prices for material delivered under a variety of contracts. The publishing of current price data is left to private industry.

This same question can be asked by those companies attempting to determine prices in the nuclear fuel markets. At issue is the paucity as well as the secrecy of transactions that take place. Questions arise such as how much market information is out there on which to base a price indicator, and which markets should be covered. Enrichment prices represent the extreme example of this dilemma. Given the way that market has developed, there is less and less meaningful price information and a greater differentiation between geographic markets. The spot market has shrunk as utilities seek more term contracts, but term deals have historically been much more secretive when it comes to price. Also, long-term contracts have more features, such as quantity and tails assay flexibilities, which make it more difficult to come up with a single price. Markets have become more regional, meaning that a single price indicator does not adequately reflect the price in every market. All this comes at a time when *more* reliance is being placed on SWU price indicators as these determine the prices paid under the HEU contract between Tenex and USEC.

What price information? The second way of interpreting this title is not the way most people in the industry look at it but is very near and dear to our hearts. Price and other market information has value, and has a price, either implicit or explicit. Companies that need price and market information thus must decide how

much it is worth to them and how much they are willing to pay. Some companies have fairly large staffs to collect and analyze market information and thus spend a lot of money in this endeavor. Others seem to view it as a free good and are willing to spend little, if any, money.

Recently we were asked to talk about the nuclear fuel infrastructure and potential problems thereof at a World Nuclear Association working group meeting. While one normally thinks in terms of production capacity and transportation when it comes to infrastructure, it occurred to us that price and market information also represents a very important part of the nuclear fuel infrastructure. Having bad or incomplete market information could lead to suppliers making the wrong type of investment, deciding to build too much or too little capacity. A shortage of capacity would negatively impact buyers, as it would drive prices up. Also, incomplete market information could cause buyers to enter the market at the wrong time or sign the wrong type of contract, potentially costing them millions of dollars.

Industry consolidation has produced a very interesting phenomenon. On the one hand, there are fewer and fewer companies to pay for price and market information. On the other hand, the importance of this information to them presumably rises, because their individual investments in nuclear are that much greater and their need to make informed decisions becomes more critical. As mentioned above, important international agreements such as the HEU deal hinge on market price information, which may or may not be available in the future.

On the other side of the equation, companies such as ours must decide how much to invest in collecting, analyzing, and disseminating price and market information. While we believe we provide extremely useful and timely information, there is more that we could do and would like to do to improve this information. However, like any business, we are not about to undertake the investment to provide this improved service if there is no market for it. And, even though we do this as a business, we have a lot less at stake from an absolute standpoint than do companies with large nuclear investments. Most of us are preoccupied with how well the nuclear fuel market works; some of us are concerned about well the market for market information works.

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NEWS BRIEFS

British Energy to get deadline extension, increase in loan amount – The UK Department of Trade and Industry has announced it is increasing the amount of a government loan to financially struggling British Energy (BE) from £410 million to £650 million and extending the repayment deadline from September 27 to November 29. In a press release, Trade and Industry Secretary Patricia Hewitt stated that the government wanted more time to discuss and evaluate options for resolving the utility’s financial crisis and stressed that the government had not yet decided whether to make a long term commitment to helping BE. “We have decided to extend the loan for a further two months in order to give sufficient time to clarify the company’s full financial position and to come to a clear view on the options for restructuring the company,” said Hewitt.

In a BE press release, Chairman Robin Jeffrey commented, “This enables us to continue to operate, and to ensure that our objective of maintaining safe operations will be met whilst restructuring options are developed.” One of the ways in which the company is seeking to improve its position is by renegotiating a £300 million annual reprocessing contract with British Nuclear Fuels Ltd. (BNFL). A report from the *Daily Telegraph* cited unnamed sources as saying that BNFL was considering granting more favorable contract terms to BE in exchange for partial ownership in the company. Although the loan extension gives the company more time to work out a long-term solution, there is still a possibility that it could go into insolvency if long term negotiations with the government and BNFL do not work out.

One of the two reactors at BE’s Heysham 2 nuclear plant that had been offline has restarted operations, and BE believes the plant’s other reactor will soon recommence operation. Both units at the Torness nuclear plant remain offline while safety inspections continue relating to gas cooling fans. Unit 2 at Torness was taken offline in May and Unit 1 shut down on August 12. It is not yet clear when the Torness reactors will restart.

In related news, at least three utilities have expressed strong interest in acquiring AmerGen, a U.S. utility jointly held by BE and Exelon. Within the next few days, Entergy, Constellation Energy, and Florida Power & Light are likely to submit bids for the utility. BE hopes a buyer for AmerGen can be found by November. Exelon’s approval is needed before BE can sell its half of AmerGen, and it is possible that Exelon could acquire BE’s stake in the utility. If the entire utility were to be sold, it could fetch a price of over US\$1 billion (£642 million).

TEPCO facing allegations of more serious cover-up – Although Tokyo Electric Power Co. (TEPCO) has already been investigated for covering up data related to its own internal investigations, a new investigation that focuses on the alteration of data related to a mandatory government reactor inspection could potentially have more serious consequences for the utility. The Nuclear and Industrial Safety Agency is investigating allegations that TEPCO altered air-tightness readings for the containment vessel of its Fukushima 1 reactor during a government inspection held in 1992. The previous cover-ups were considered less serious because they involved internal inspections and the data that was falsified was considered less critical. In contrast, if the latest allegations are found to be true, TEPCO could face possible prosecution for violating Japan’s Electric Utility Law, as radioactive containment is included under the highest inspection category under the law.

In related news, the Nuclear and Industrial Safety Agency is continuing with plans to ease Japan’s nuclear safety regulations, which are now considered overly strict, and bring them more in line with those of Europe and the U.S. The agency also plans to implement surprise inspections. It plans to finalize the new regulations next week and will likely submit them to Japan’s Diet (Parliament) next month for approval.

Canadian court ruling could halt uranium production at McClean Lake – A Canadian court has ruled that Cogema’s license to operate the McClean Lake uranium mine is invalid on the basis of a technicality. A small religious group sued to halt the mine, and the court found that the Canadian Nuclear Safety Commission (CNSC) did not have the proper authority to grant the license because of a law passed in 1995 requiring an environmental assessment to be conducted before a license is granted.

Although McClean Lake has already had an environmental assessment, the court said that a new environmental assessment should have been conducted before the CNSC issued a license for the mine even though

Canadian Uranium Export Price Statistics					
	1997	1998	1999	2000	2001
Average Price Cdn\$/lb U ₃ O ₈	\$19.70	\$19.70	\$18.90	\$18.40	\$17.90
Average Price Cdn\$/kgU	\$51.30	\$51.10	\$49.10	\$47.70	\$46.60
Average Exchange Rate	1.3844	1.4831	1.4858	1.4852	1.5484
Average Price US\$/lb U ₃ O ₈	\$14.20	\$13.30	\$12.70	\$12.40	\$11.60
Percentage Spot Deliveries	<1%	<2%	<1%	<1%	<2%
Source: Natural Resources Canada (NRCan), September 2002.					

NEWS BRIEFS cont...

the law was passed in 1995, long after licensing procedures began in 1991. Both Cogema and the CNSC argued that the law contained grandfathering provisions that made a new environmental assessment unnecessary. In the *Globe and Mail*, Cogema's vice president for health and safety, Robert Pollock, said, "It's quite fair to say that we're puzzled by the decision."

The impact of the ruling is not yet clear. Cogema plans to appeal and is seeking a higher court's approval to continue operations while the case is undergoing appeal. McClean Lake has operated for over three years and produces 6.6 million pounds U_3O_8 annually, with the potential to produce up to its license limit of 8 million pounds U_3O_8 .

Government report clears ERA's Ranger uranium mine operations – Australia's Federal Environment Minister, Dr. David Kemp said September 26th that a report into allegations relating to the operations of the Ranger uranium mine five years ago has found no evidence of a breach of environmental requirements. The report concluded that "...no evidence has been found that Energy Resources of Australia (ERA) has operated otherwise than in accordance with its Authorisation and the Commonwealth's Environmental Requirements."

In April 2002, former ERA employee Mr. Geoffrey Kyle wrote to Commonwealth and Northern Territory Ministers and officials raising allegations relating to environmental management and reporting at the Ranger mine between 1996 and 1998. The issues related to a spillage of tailings at the mine site, the discharge of water from the site and the management of the environmental laboratory that ERA previously operated in Jabiru. Dr. Kemp said, "Many of the issues raised are no longer relevant because of the significant changes in staffing and management of the mine that have been implemented in recent years."

New Brunswick government rejects Point Lepreau reactor refurbishment – On September 24, New Brunswick's Public Utilities Board (PUB) rejected a plan to spend C\$845 million to refurbish NB Power's 20-year old Point Lepreau nuclear power plant because of the high economic risks involved. NB Power's Vice President for Regulatory Affairs, Ken Little, said NB Power's Board of Directors will review the recommendation but said the "development criteria such as the environmental advantages of the refurbishment, particularly in the area of controlling CO_2 emissions, were not considered by the PUB and are important considerations in our evaluation of the project."

NB Power is proposing to retube the reactor and refurbish other components in order to extend the station's life to 2032. Refurbishment would occur from April 2006 to September 2007. The proposed refurbishment is the least cost option by which NB Power can supply future electricity requirements while meeting emission reduction targets. The PUB urged NB Power to take another look at building a plant powered by natural gas rather than refurbishing Lepreau, but the utility said there are no guarantees of a long-term gas supply from offshore Nova Scotia. Point Lepreau has provided 30% of the electricity used in New Brunswick since it began operation in 1983. From 1983 until 2002, the reactor's capacity factor has been 83.6%.

CANDU reactor achieves criticality in China

– In an important milestone preceding full-scale commercial operation, a CANDU 6 reactor that is part of the Qinshan nuclear power plant's third phase has achieved criticality three weeks ahead of schedule, according to an Atomic Energy of Canada Ltd. (AECL) press release. Now that criticality has been achieved, the reactor's power level will be raised in increments while tests are conducted. The reactor is expected to begin operating at full power by the end of 2002. Phases 1 and 2 at Qinshan include reactors that were built using indigenous Chinese technology. Phase 3 includes two 728-megawatt reactors that use AECL's CANDU technology. Work is also progressing on the second CANDU unit, which is scheduled to begin full-scale commercial operation in November 2003.

Bulgaria to keep reactors open past 2006 unless EU sends inspectors

– Bulgaria's European Union (EU) integration minister, Meglena Kuneva, said her country will not comply with the EU's request to close units 3 and 4 at the Kozloduy nuclear plant in 2006 unless the EU sends inspectors to the plant. The EU could refuse to continue negotiations with Bulgaria regarding possible EU membership if it refuses to close the two 440-megawatt reactors, but the country hopes that new inspections will prompt the EU to agree with its assessment that the units can operate safely until 2010 or 2012. The EU based its demand for closing the reactors by 2006 on a lack of protective encasements, but Bulgaria has argued that safety upgrades, including an emergency system to prevent radiation leaks and reinforcement to reactor walls, make early closure unnecessary. A previous inspection by the IAEA found the reactors to be operating well within safety parameters.

Nuclear fuel tax to rise in Japanese prefecture – Japan's Miyagi prefecture has moved to increase the tax it levies on nuclear fuel from 7 to 10 percent.

NEWS BRIEFS cont...

The increase, which would bring the tax to the same level as that of the Niigata and Fukui prefectures, is expected to come into force in June 2003 during Miyagi's next mandatory five-year review.

Analyst questions need for two new centrifuge plants in U.S. – Scott Sprinzen, an industry analyst with Standard & Poor's, has questioned whether the U.S. market will be able to support two additional enrichment plants that USEC and LES plan to construct. "Our view is that the market would have a very hard time digesting two new facilities unless other capacity is curtailed," said Sprinzen. In commenting on Sprinzen's predictions, USEC pointed out that its new centrifuge plant will eventually replace the outdated gaseous diffusion plant at Paducah. LES hopes to have its plant operational in 2007, and USEC plans to have its plant running by either 2010 or 2011.

In related news, a report in the *Oak Ridger* has indicated that the Department of Energy's (DOE) plan to lease space to USEC as part of a Cooperative Research and Development Agreement (CRADA) could conflict with an accelerated DOE cleanup program. The DOE plans to lease four buildings to USEC for the purpose of conducting research activities related to the construction of USEC's planned centrifuge plant. However, at least two of the buildings are scheduled to be dismantled under the cleanup program. "We're not making a commitment that compromises the closure schedule. USEC may have to accelerate options, but we just have to work that out," said Dale Jackson, a DOE official with the Oak Ridge office. He emphasized that the DOE was committed to ensuring that both its agreement with USEC and the cleanup program functioned successfully.

Appeals court rules DOE cannot use Nuclear Waste Fund money to compensate utilities –

In a decision dated September 24, the U.S. Court of Appeals for the 11th Circuit in Atlanta ruled that the U.S. Department of Energy (DOE) cannot use money from the Nuclear Waste Fund to compensate a utility for on-site spent fuel storage. The court said that the Nuclear Waste Policy Act, the law that allowed the contracts, called for a *quid pro quo* "in which each utility roughly pays the costs of disposing of its waste and no more." According to the court, the plan was for a system in which the burden of the government's breach of contract would "fall on the government, not other utilities."

The lawsuit stemmed from a 1990 settlement involving the three-reactor Peach Bottom nuclear plant operated by PECO Energy, which is now a part of Exelon Corp. The DOE allowed PECO Energy to offset its contributions to the nuclear waste fund by about \$80 million

over 10 years in exchange for PECO agreeing to store its spent fuel in storage casks on-site. The settlement was challenged by 13 other reactor owners, who claimed it was an illegal use of the nuclear waste fund and that the money was specifically to be used for a permanent repository. To date, reactor owners have paid more than \$10.5 billion into the nuclear waste fund.

Nuclear operators are suing DOE because of its failure to meet contracts signed in the early 1980's, when the agency promised to start accepting their spent fuel beginning in January 1998. With DOE saying it cannot accept spent fuel until 2010 (the planned start-up date for Yucca Mountain), utility damages could run from \$2 billion to \$60 billion. Northern States Power places its costs at \$1 billion because it may be forced into shutting down three reactors prematurely due to the shortage of spent fuel storage space.

Swiss voters reject permanent spent fuel repository –

Swiss voters in canton Nidwalden rejected a planned underground spent fuel repository below the local Wellenberg mountain for the second time since 1995. The September 22nd vote resulted in nearly 60 percent saying "no." Hans Issler, president of Nagra—the government agency set up 30 years ago to dispose of spent fuel, said he hopes the Swiss parliament will construct a new nuclear energy law to take away the right of veto from the cantons to avoid a repeat of Nidwalden. Issler and the Swiss nuclear energy industry are outraged that a canton with only 28,000 eligible voters can decide the fate of spent fuel disposal for the entire country. The Senate has already rejected the proposal, and it is now being discussed in the House of Representatives.

On a related note, Swiss voters are expected to go to the polls next year to decide whether to extend a moratorium on the construction of new nuclear power plants by another ten years and to shut down the three oldest plants in the country by 2013.

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THE MARKET

Uranium – New demand entered the market this past week as a U.S. utility is looking for 95,000 pounds U₃O₈ with delivery in April 2003 and an additional 95,000 pounds U₃O₈ with delivery in October 2004. Offers are due October 10. Offers are due this week, October 4th, to another U.S. utility that is out for 115,000 pounds with delivery in March 2003 and 910,000 pounds with delivery in September 2003. This utility is also looking for 115,000 pounds equivalent as either U₃O₈ or UF₆ with delivery in March 2004. A non-U.S. producer is awaiting offers due October 11th for 500,000 pounds U₃O₈ with delivery in June 2003. A U.S. utility is expected to make its final decision this week for 100,000 pound U₃O₈e with delivery on or after December 31, 2002. The combination of this demand will provide the first real test that the market has seen in a while. However, since it is still too soon to see the results of the latest round of requests, the Ux U₃O₈ Price remains unchanged for the week at \$9.75 per pound, down ten cents for the month. The Ux Russian U₃O₈ Discount also remains unchanged at \$0.20.

With one utility receiving offers last week, the term market has three utilities currently evaluating offers involving a total of 12.5 million pounds U₃O₈e with delivery spanning the 2004 through 2009 time frame.

Conversion – Spot demand is still somewhat limited for North American delivery and given the available

supplies we have seen some additional weakness in offers as of late, resulting in a nickel decline in the Ux NA Conversion Price to \$5.00 per kgU. The inverse situation seems to be the case in the European market. Demand for European delivery remains moderate and available supplies more limited, resulting in a strengthening in the spot price. The Ux EU Conversion price increases a quarter this month to \$6.00 per kgU. The only active formal request for straight conversion services is a U.S. utility out for a total of 120,000 kgU with delivery in March 2004. Offers are due October 4th.

Enrichment – While on-market spot activity has been limited in the enrichment market for most of the year, recent off-market activity indicates that spot prices are under slight upward pressure. The Ux SWU Price increases one dollar this month to \$108 per SWU. The Ux RU SWU Price remains unchanged at \$88 per SWU. Only one U.S. utility is reported active on the enrichment market with a formal term request, they are looking for 1.3 million SWU with delivery in 2004-2008.

Ux Spot Prices	
Weekly (9/30/02)	
U ₃ O ₈	\$9.75
Quantities:	1-300,000
Delivery:	6 months
Month-end (9/30/02)	
U ₃ O ₈	\$9.75
RU Disc.	\$0.20
NA Conv.	\$5.00
EU Conv.	\$6.00
NA UF ₆ Val	\$30.47
EU UF ₆ Val	\$31.47
SWU	\$108.00
RU SWU	\$88.00

UxC Market Statistics				
Monthly (Sep)	Spot		Term	
	Volume	# Deals	Volume	# Deals
U ₃ O ₈ e (million lbs)	0	0	4.10	3
Conv. (thousand kgU)	0	0	1,775	3
SWU (thousand SWU)	0	0	2,875	4
2002 Y-T-D				
	Spot		Term	
	Volume	# Deals	Volume	# Deals
U ₃ O ₈ e (million lbs)	13.83	46	36.56	13
Conv. (thousand kgU)	3,241	26	17,669	18
SWU (thousand SWU)	673	13	8,021	9

Key: N/A – Not available. W – Withheld due to client confidentiality.

UxC Leading Spot Price Indicators

Three-month forward looking spot price indicators, with publication delayed one month. Readings as of August 1, 2002.

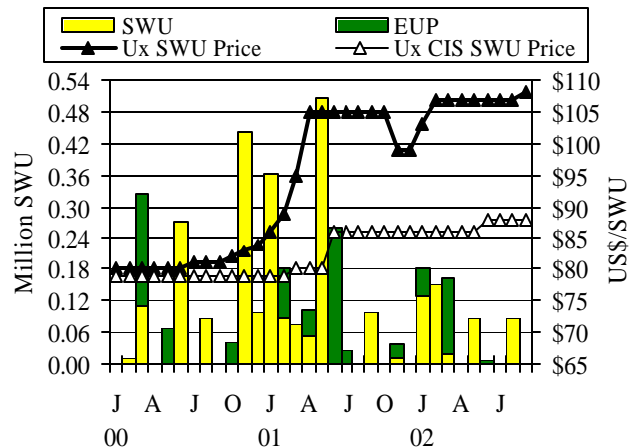
Uranium (Range: -17 to +17)	+3 [down 1 point]
Conversion (Range: -16 to +16)	+1 [unchanged]
Enrichment (Range: -18 to +18)	+5 [down 1 point]

NuclearFuel Price Ranges

Two-week forward looking prices (US\$/lb) as of Sept. 30, 2002.

Significant open-market transactions: **\$9.55-\$9.95**

Ux SWU Prices vs. Spot Volume by Form



Oily Hair

Trying to control her dry hair, a woman treated her scalp with olive oil before washing it. Worried that the oil might leave an odor, she washed her hair several times.

That night when she went to bed, she leaned over to her husband and asked, "Do I smell like olive oil?"

"No," he said, sniffing her, then replied, "Do I smell like Popeye?"