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# California Dreamin'

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When I was in the fifth grade, a classmate brought a tape recorder to school to let us listen to some songs that his big sister had recorded. A few years later I was to hear that same voice on the radio singing *California Dreamin'*. You see, my friend's sister was Cass Elliot (a.k.a. Mama Cass, nee Ellen Naomi Cohen) of the Mamas and the Papas.

You might ask what this has to do with nuclear power. First, the opening lines of this hugely popular song from the 1960s evoke a dreary time:

*All the leaves are brown*

*And the sky is gray*

Which, in light of California's energy crisis, today might go like this:

*All the lights are out*

*And rates are going up*

More than this, the title of the song captures the essence of California's energy/deregulation policy. California must have been dreaming if it thought

that it could get by without building new power capacity in a state economy characterized by tremendous growth during the 1990s. California's energy policy has been strange at best, and particularly unkind to nuclear power. It has prematurely shut down two nuclear reactors, leaving four operating. Even considering Southern California Edison's ownership in the Palo Verde units, that is not much considering that California has been referred to as the sixth largest economy in the world.

The energy crisis in California has spawned considerable commentary from a broad range of interests. Writing in the newsletter of the International Association of Energy Economics, Fereidoon Sioshansi points out that there have been two major consequences of the California "fiasco," one positive, the other negative. On the plus side, it serves as an example for other states and countries of what happens if new market rules are not designed properly. On the negative side, he notes that it has brought the liberalization of energy markets to a "screeching halt."

Sioshansi goes on to point out that Jeffrey Skilling, President and CEO-apparent of Enron, takes issue with the notion that California has deregulated its energy market, saying instead that it's probably the most regulated market in the U.S. Indeed, the federal govern-

ment's ordering of other Western states to supply electricity to California is perhaps the most severe form of regulation, worthy of a command economy.

It also seems that deregulation is getting too much credit for California's energy problems. In this regard, Douglas Biden, president of the Electric Power Generation Association, told the Pennsylvania House Commerce Affairs Committee that the California energy crisis was not the result of deregulation, but instead was due to the shortage of electric generating capacity. With rapid economic growth (32% in the last five years), no major power plants built since the 1970s, unfavorable weather patterns, high natural gas prices, and other factors, an energy crisis would have occurred irrespective of deregulation. Biden did admit deregulation exacerbated the crisis, as seen in the near bankruptcy of utilities. Here, low price caps subsidized the consumption as wholesale prices rose in the spot market, upon which utilities were forced to rely.

Whatever the role of deregulation, the California energy crisis has put nuclear power in a much more positive light. Of course, it didn't hurt that nuclear power was the nation's cheapest electricity source in 1999, or that a Republican administration much more predisposed to nuclear power than its predecessor recently took office.

Vice President Dick Cheney, heading up Bush's energy policy team, noted how new nuclear plants could reduce greenhouse gases more than a "seriously flawed" Kyoto accord. Another member of the administration's energy task force, Commerce Secretary Donald Evans recently told a gathering of Silicon Valley executives that constructing additional nuclear power plants could be of key benefit in solving America's energy problems. This suggestion apparently resonated with his audience, which is not surprising given that Craig Barrett, CEO of Intel, and Scott McNealy, CEO of Sun Microsystems, have come out in favor of nuclear power, saying that it is essentially the only solution. Thus, not only is the Bush administration looking more favorably on nuclear power, but a key industrial segment—and one with deep roots in California—now has a pro-nuclear bent. Perhaps there's even a future for nuclear power in California.

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**Weekly  
Ux Prices**

U<sub>3</sub>O<sub>8</sub>  
**\$8.25**  
(+0.05)

CIS U<sub>3</sub>O<sub>8</sub>  
**\$7.00**  
(Unch.)

# NEWS BRIEFS

## **Rumyantsev replaces Adamov as Minister of Atomic Energy**

– In the first cabinet shuffle since he was elected a year ago, Russian President Vladimir Putin has appointed Alexander Rumyantsev to replace Yevgeny Adamov as the new Minister of Atomic Energy. Rumyantsev comes to Minatom from his position as Director of the Kurchatov Institute, a premier scientific institute in Russia. Although Rumyantsev is a strong supporter of nuclear power, his scientific background is in neutron scattering on solid crystals, not nuclear technologies, like his predecessor.

Adamov's dismissal follows a report from the Russian Parliamentary Anti-Corruption Commission detailing his illegal business activities. His commercial activity became a key element in a Minatom corruption scandal. In particular, Adamov pursued plans to privatize the money-making operations of the ministry, a matter of concern to the central government given its export earnings potential, especially from HEU.

Meanwhile, Rumyantsev is considered an able administrator and is expected to be a manager of important government interests more than an entrepreneur of his own initiatives. He is likely to be cautious and explore all alternatives before making decisions or recommendations to the central government. While the HEU contract extension was already on hold under Adamov, the new appointment will likely mean additional delays as the new minister analyzes the situation.

**Bush rejects Kyoto climate treaty** – On March 29, U.S. President George W. Bush rejected the Kyoto climate treaty and its mandatory pollution reductions as too harmful to the American economy but said he would continue to pursue other measures to address climate change. The pact, signed by former President Clinton in 1998 was never introduced in the Senate for ratification. Bush also opposes the pact because it does not bind developing nations to curb emissions and because he believes the costs outweigh the benefits. Bush has ordered a Cabinet-level review of global warming issues to develop a U.S. response to the issue.

Bush's decision came a day before he met with German Chancellor Gerhard Schroeder, who asked Bush in a letter two weeks ago to abide by the agreement. EU Environment Commissioner Margot Wallstrom said in a statement, "It is very worrying if it is true that the U.S. intends to pull out of the Kyoto protocol." An EU spokesman said the U.S. had not yet replied to its request for high-level meetings to settle the differences over the treaty.

## **— Industry Calendar —**

- **April 1-4** – NEI's FUEL CYCLE 2001 will be held in San Francisco, California.
- **April 24-27** – The 34<sup>th</sup> JAIF Annual Conference will be held in Aomori, Japan.
- **May 7-11** – The UI Mid-term Meeting will be held in Toronto, Canada.
- **May 21-22** – Utility Nuclear Fuel Economics Group annual meeting will be held in Cleveland, Ohio, hosted by FirstEnergy Nuclear Operating Co.
- **May 27-30** – ENS's International Conference on Nuclear Fuel, TOPFUEL 2001, will be held in Stockholm, Sweden.
- **June 10-12** – WNFAM Annual Meeting in Las Vegas, NV.

**Vermont Yankee hires J.P. Morgan** – On March 26, the Vermont Yankee Nuclear Power Corp. said it retained investment bank J.P. Morgan Chase & Co. Inc. as financial advisor for the planned late spring auction of its Vermont Yankee station. "We have seen significant interest recently from potential auction bidders for the plant," said Vermont Yankee Nuclear President and Chief Executive Ross Barkhurst. The move comes after several months of debate about Vermont Yankee's market value and reflects the sharply increasing value of nuclear plants in general in the northeast. Just two weeks ago, the company decided to formally reject all offers for the plant and initiate a public auction.

Companies that have expressed an interest in buying the 540-megawatt Vermont Yankee reactor include AmerGen, Entergy Nuclear, Dominion Energy and Constellation Nuclear. Vermont Yankee expects to announce the results of the late spring auction before the end of the year. J.P. Morgan conducted the public auction processes for the Indian Point 3, FitzPatrick and Nine Mile Point nuclear plants in New York and the Millstone nuclear plant in Connecticut.

**Judge dismisses appeal to block Millstone sale to Dominion** – A Connecticut Superior Court judge has dismissed an appeal to block the Department of Public Utility Control decision approving the sale of Millstone Nuclear Power Station to Dominion Resources of Virginia. Superior Court Judge Peter Emmett Wise ruled that the Connecticut Coalition Against Millstone failed to establish legal standing. The anti-nuclear organization had asked the judge to hold up the sale while its appeal was pending. However, Wise not only

## **NEWS BRIEFS cont...**

refused to issue the stay, but he dismissed the appeal entirely. Wise concluded that the organization did not have legal standing to appeal because it had failed to prove that it would be harmed in a financial sense by the sale of Northeast Utilities to Dominion.

The judge said that the DPUC decision to OK the sale was a “financial matter” and that, in contrast, the plaintiffs presented evidence and testimony that focused primarily on safety, health and environmental issues. He concluded that concerns that the plaintiffs raised about the ability of Dominion to run the nuclear plants did not stand up to scrutiny. “Rather these claims constitute generalizations, fears and speculation,” Wise ruled.

**TEPCO to delay use of MOX fuel at Fukushima** – Tokyo Electric Power Co. (TEPCO) decided March 29 to postpone the launch of plutonium-uranium mixed oxide (MOX) fuel at its nuclear power plant in Fukushima Prefecture due to opposition from the governor. The Fukushima I-3 nuclear reactor was scheduled to become the first reactor to use MOX fuel in April. However, Fukushima Gov. Eisaku Sato said last month that the prefecture will not allow the use of MOX fuel because of resident opposition to the plan. The governor does not have the legal authority to actually block the plan, but the central government and the power industry in practice cannot ignore the governor who represents the citizens of Fukushima.

TEPCO also plans to start using MOX fuel at its Kashiwazaki-Kariwa nuclear plant in Niigata Prefecture, and Kansai Electric Power Co. intends to do the same at its Takahama nuclear plant in Fukui. Last Thursday, residents and assembly members of the village of Kariwa, filed an official petition requesting the village establish an ordinance to allow a plebiscite to be conducted on a plan to use MOX fuel at the local Kashiwazaki-Kariwa nuclear plant. Japan’s electric power industry plans to use MOX fuel in 16 to 18 reactors by 2010.

It is unknown how TEPCO’s decision will affect British Nuclear Fuels’ Sellafield MOX plant. The government has put off a decision on Sellafield, due to the foot and mouth outbreak, until after the next election.

**CEZ sees power market growth** – Czech utility, CEZ, says it hopes to tighten its grip over the local power market and take advantage of two percent annual market growth in coming years. Jaroslav Mil, who took over CEZ’s helm last year ahead of the firm’s privatization planned by the end of 2001, said recently in a Reuters interview that his goal is to boost the utility’s current market share of 65 percent to more than 70 per-

cent this year. “We have been losing the market since 1993 when we had an 80 percent share, but I do believe we have reached the bottom and now can take advantage of growing market and some regulatory opportunities,” Mil said. CEZ, whose power output is capped by government-set tariffs, faces fierce competition from independent power producers, forcing it to sell electricity below government-set caps. Its 2000 output stood at 50.8 terawatt hours (TWh).

CEZ hopes to boost its sales to distribution companies this year, partly thanks to a new law stripping system services off electricity prices and allowing CEZ to take advantage of its cheaper nuclear and renewable power generation sources. Some 13.4 TWh of CEZ’s output last year came from its nuclear power plants. Mil said he hopes a newly-created market regulator, whose chairman was appointed two weeks ago, would gradually up the cap on prices of system services to match the levels of the European Union ahead of the Czech Republic’s accession to the 15-nation bloc. “I believe that over the next year those services will go up to gradually reach levels of Western Europe where they often reach as much as 50 percent of the final price, versus some 10 percent in the Czech Republic,” he said.

**Generation from Russian nuclear plants down 5.2%** – Russia’s nuclear power plants produced 33.106 billion kWh of electricity in the period from the start of this year until March 23, which was 5.2% less than in the same period last year. According to a press release from Rosenergoatom, the fall in production was due to limits placed on the capacity of four nuclear power plants by the Unified Energy Systems of Russia central dispatch department. Capacity utilization from the start of the year until March 16 amounted to 80.2% compared with 83.6% a year earlier.

A total of 24 power-producing reactors, excluding Rostov 1, with capacity of 17,790 megawatts, are currently operating in Russia. Planned repairs are underway at four units—Kalinin 2, Kola 4, Leningrad 4 and Smolensk 1. Meanwhile, Rostov 1 began supplying electricity to the national grid on March 30.

**Lithuania may close Ignalina 2 in 2009** – Lithuania has uttered that it could close Ignalina 2 in 2009, as the European Union is demanding, but would prefer to close the reactor later. “We can see the possibility of closing the second block not earlier than 2009, but we may be able to negotiate to close it later, maybe 2012 or so,” said Economy Minister Eugenijus Gentvilas. A week earlier, a representative of the European Commission said Lithuania must decide the fate of Ignalina 2 in 2002 if it wants to keep its plans for fast-

## NEWS BRIEFS cont...

track EU entry. Lithuania wants to complete EU negotiations by the end of 2002 and enter the 15-member organization by 2004. Lithuania has already pledged to shut down Ignalina 1 in 2005, and plans to make a decision on the shutdown date of Ignalina 2 in 2004.

**Pakistan opens Chinese-built Chasma nuclear plant** – On March 29, Pakistan opened its newest nuclear power plant, heavily financed and built with Chinese technology and money. Inaugurated by Pakistan's minister of Science and Technology Atta-ur Rehman, Chasma, a 325-megawatt plant, is Pakistan's second nuclear power plant. The other plant, Kanupp, in the southern port city of Karachi was built in the early 1970's using Canadian-built Candu technology. Chasma, which has the capacity for another 600 megawatts of power, was built by seven Chinese companies and institutes which provided the design, construction, supply, and manufacture of equipment.

**Fed seeks \$1.25 million fine on Benton** – The U.S. Federal Reserve announced March 26 that it would seek to fine uranium magnate Oren Benton \$1.25 million and ban him from the banking business over allegations that a bank he owned made improper loans to his family members and companies in the early 1990s. The Federal Reserve charges include personal dishonesty, misconduct and a willful disregard for the safety of the Professional Bank, which he once owned.

In the Federal Reserve's 124-page report released last Monday, regulators say that Benton's Professional Bank made loans to Benton's children and other insiders, resulting in \$4.9 million in debt the bank had to write off. Additionally, the Fed said the bank relied heavily on Benton's uranium companies, putting it at risk.

Benton was willing to accept the ban on banking in earlier settlement talks that failed. However, he's stated he cannot pay the Federal Reserve fine, nor the attorney costs. He plans to appeal the proposed fine at an initial public hearing on the case scheduled for April 2.

**CNEA relaxes Cerro Solo requirements** – According to a source from Argentina's National Commission of Atomic Energy (CNEA), the consortium of Mining World and Canadian consultant John Thomson was not awarded Argentina's Cerro Solo uranium deposit because "it did not comply with the tender's requirements." CNEA is now working on opening up the process in order to reach an agreement that "gives more options and facilities to interested companies." CNEA will be seeking additional interested parties in a new auction in 45-60 days. Situated in the Chubut province, Cerro Solo has 4,600 t U<sub>3</sub>O<sub>8</sub> in reserves, including 2,600

t U<sub>3</sub>O<sub>8</sub> proven and 2,000 t U<sub>3</sub>O<sub>8</sub> probable. The proven ore grade is estimated at around 0.35% U<sub>3</sub>O<sub>8</sub>.

### Ux Month-End Spot U<sub>3</sub>O<sub>8</sub> Prices, Volume, Leadtime and Number of Transactions

Month	Ux Price		Volume	Average	# of Trans
	U <sub>3</sub> O <sub>8</sub>	CIS	(mill lbs U <sub>3</sub> O <sub>8</sub> e)	Leadtime Months	
Apr '00	\$9.00	\$7.20	0.4	3.0	2
May	\$8.45	\$7.00	0.8	3.5	4
Jun	\$8.15	\$7.00	1.5	6.3	4
Jul	\$8.05	\$7.00	0.2	9.0	2
Aug	\$7.80	\$6.75	1.0	4.3	3
Sep	\$7.45	\$6.70	0.6	3.5	2
Oct	\$7.25	\$6.70	2.1	6.3	6
Nov	\$7.10	\$6.50	1.5	5.0	3
Dec	\$7.10	\$6.50	2.7	5.0	7
Jan '01	\$7.25	\$6.50	0.0	0.0	0
Feb	\$7.90	\$6.50	2.3	5.1	7
Mar	\$8.20	\$7.00	0.8	7.0	2

### Ux Price Definitions

The Ux Prices indicate, subject to the terms listed, the most competitive spot offers available for the respective product or service, of which The Ux Consulting Company, LLC (UxC) is aware. The **Ux U<sub>3</sub>O<sub>8</sub> Price** includes conditions for quantity, delivery time-frame, origin and location considerations while the **Ux CIS U<sub>3</sub>O<sub>8</sub> Price** is the most competitive price for deliveries up to six months forward without regard to specific quantity or location. Both U<sub>3</sub>O<sub>8</sub> prices are published weekly. The **Ux Conversion Prices** consider spot offers for delivery up to twelve months forward. The **Ux UF<sub>6</sub> Values** represent the sum of the conversion and U<sub>3</sub>O<sub>8</sub> components as discussed above and, therefore, does not necessarily represent the most competitive UF<sub>6</sub> offers available. The **Ux SWU Prices** consider spot offers for deliveries up to twelve months forward. The Conversion, UF<sub>6</sub> and SWU prices are published the last Monday of each month.

The Ux Prices represent neither an offer to sell nor a bid to buy the products or services listed.

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# THE MARKET

**March Review** – Although market activity was moderate last month with ten utilities either evaluating or awaiting offers, reported spot volumes for the month fell from February's level. Only three spot transactions were reported during the month. One involved a non-U.S. producer purchasing 300,000 pounds U<sub>3</sub>O<sub>8</sub>. The second related to a non-U.S. utility selecting a supplier based on its request for 145,000 kgU of conversion services. The third involved a U.S. utility making its selection for 180,000 kgU as UF<sub>6</sub>. On the term side, a U.S. utility is believed to have selected multiple suppliers in response to its request for 473,000 kgU as UF<sub>6</sub> over the 2002 through 2004 time period.

**Uranium** – Late last week, a U.S. utility is believed to have selected a supplier to meet its request for about 470,000 pounds U<sub>3</sub>O<sub>8</sub> equivalent. Three other utilities are evaluating spot offers totaling over 1.1 million pounds U<sub>3</sub>O<sub>8</sub>e. The market has shown some strengthening over the past week as the Ux U<sub>3</sub>O<sub>8</sub> Price edges up this week to \$8.25 per pound. The Ux CIS U<sub>3</sub>O<sub>8</sub> Price remains unchanged at \$7.00 per pound.

A U.S. utility is believed to have selected multiple suppliers based on its request for up to 1.7 million pounds U<sub>3</sub>O<sub>8</sub> for delivery from 2001 through 2004. Four U.S. utilities are awaiting or evaluating offers involving over eighteen million pounds U<sub>3</sub>O<sub>8</sub>e. Three have public requests, one of which has offers due this

week, and the fourth has been quietly discussing offers off-market. One utility, with offers due April 6<sup>th</sup>, is seeking up to 100% of its requirements (about 1.2 million pounds per year in any form) from 2004 through 2008 with optional deliveries through 2012.

**Conversion** – A U.S. utility selected multiple suppliers based on its 653,000 kgU as UF<sub>6</sub> request with 2001-2004 delivery. One non-U.S. utility is evaluating offers for conversion services involving almost 600,000 kgU. Three other utilities are evaluating spot offers for about 430,000 kgU as UF<sub>6</sub>. Based on recent activity, the North American spot price appears to have regained its upward ascent.

**Enrichment** – Five utilities, two U.S. and three non-U.S., are evaluating spot offers for about 400,000 SWU. Two U.S. utilities are believed to have notified the winning suppliers based on term requests, one involving 2.5 million SWU over the 2004-2008 period and the other for 263,000 SWU over the 2001-2004 period. Two U.S. utilities have offers due this month, one involving 1.25 million SWU and the other for 750,000 SWU.

Ux Spot Prices	
<b>Weekly (4/2/01)</b>	
U <sub>3</sub> O <sub>8</sub>	<b>\$8.25</b>
Quantities:	2-400,000
Delivery:	7 months
CIS U <sub>3</sub> O <sub>8</sub>	<b>\$7.00</b>
<b>Month-end (3/26/01)</b>	
U <sub>3</sub> O <sub>8</sub>	<b>\$8.20</b>
CIS U <sub>3</sub> O <sub>8</sub>	<b>\$7.00</b>
NA Conv.	<b>\$4.00</b>
EU Conv.	<b>\$4.75</b>
UF <sub>6</sub> Value	<b>\$25.42</b>
CIS UF <sub>6</sub>	<b>\$22.29</b>
SWU	<b>\$95.00</b>
CIS SWU	<b>\$80.00</b>

UxC Market Statistics				
Monthly (Mar)	Spot		Term	
	Volume	# Deals	Volume	# Deals
U <sub>3</sub> O <sub>8</sub> e (million lbs)	0.77	2	1.24	2
Conv. (thousand kgU)	325	2	475	2
SWU (thousand SWU)	0	0	0	0
2001 Y-T-D	Spot		Term	
	Volume	# Deals	Volume	# Deals
U <sub>3</sub> O <sub>8</sub> e (million lbs)	3.08	9	6.76	5
Conv. (thousand kgU)	1,153	7	3,155	4
SWU (thousand SWU)	477	8	W	2

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 March 1, 2001.

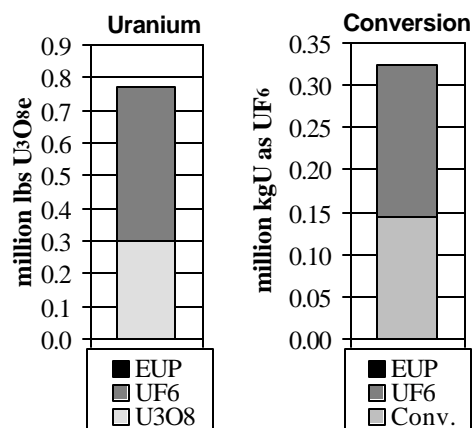
<b>Uranium</b> (Range: -17 to +17)	<b>+7</b> [up 4 points]
<b>Conversion</b> (Range: -16 to +16)	<b>+7</b> [Unchanged]
<b>Enrichment</b> (Range: -18 to +18)	<b>+8</b> [up 1 point]

### Nuclear Fuel Price Ranges

Two-week forward looking prices (US\$/lb) as of April 2, 2001.

U.S. Open Market	<b>\$8.20-\$8.60</b>	Unrestricted	<b>\$6.90-\$7.30</b>
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### March Spot Market Activity



### Golf Foursome

A golfer playing in a two-ball foursome drove his tee shot to the edge of the green on a par three hole. His partner, playing the second shot, managed to chip it over the green into a bunker. Undaunted, the first golfer recovers with a fine shot to within one foot of the hole.

The second golfer nervously putts, and sends the ball one foot past the hole, leaving the first golfer to putt the ball in. The first golfer says "Do you realize that we took five strokes on an easy par three?"

The second golfer answered, "Yes, and don't forget who took three of them!"