Energy Policy Update

Energy and Environmental News

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ARIZONA DEPARTMENT OF COMMERCE
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ENERGY OFFICE

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This newsletter is published by the Arizona Department of Commerce Energy Office and is provided free of charge to the public. It contains verbatim excerpts from international and domestic energy and environment-related publications reviewed by the Education and Community Outreach personnel. For inquiries, call **(602) 771-1137** or toll free **(800) 352-5499**.

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FOR YOUR CONVENIENCE, ARIZONA-RELATED TITLES ARE HIGHLIGHTED IN GRAY

Alternative Energy & Efficiency

City Considers Landfill a Possible Fuel Source

[*Arizona Republic web site, Mar. 10*] Phoenix - **Now the gas coming from decaying trash at the Skunk Creek Landfill just goes up in smoke, but the city is looking at harnessing the rubbish heap's power to run buses or park lights, or perhaps your home**. Skunk Creek Landfill, near Interstate 17 and Happy Valley Road, is scheduled to fill up and close in [the] fall [of] 2005. Decaying organic material in the landfill produces a mix of methane, carbon dioxide and small amounts of other compounds. Workers pull the gases from wells in the landfill and burn them so they don't leave the site or go into the atmosphere. In an effort to make money and be more environmentally friendly, public works officials are looking at ways to use the gas. Instead of burning the gas, the city may hire a company to run the gas through an engine and generator to make electricity, said Bruce Henning, deputy public works director. The electricity could: • Give the transit department power to make liquefied natural gas to use in city vehicles. • Run lights at a park that may cover the landfill. • Be sold to a utility company….

Hybrids to 10 Percent of Mid-Size Cars by 2006

[*Calstart web site, Mar. 16*] **According to an ABI Research report, Toyota and Honda hybrid models alone could account for 10 percent of the over two million midsize passenger vehicle sales in the U.S. by 2006, reports *Just-Auto.com***. "This changes the game," says ABI analyst Dan Benjamin, noting the results indicating that hybrids are no longer a niche market. Reports indicate Toyota will introduce a hybrid version of its Camry model to the U.S. in 2006, and that Honda will market a hybrid version of its Accord model in the U.S. for 2005. Other automakers may be forced to keep pace with their own hybrids,

while those who have not invested in hybrid development may be forced to license hybrid technology or try and market diesels as a competing technology. Ford and Nissan will license hybrid technology from Toyota, while [General Motors] GM will use their own, building on the work of the Allison Electric Drive division. Diesels will be used by manufacturers such as DaimlerChrysler and Volkswagen in lieu of hybrids. However, diesel has never faired well in the U.S. passenger car market, and existing diesel offerings in the U.S. market cannot match current hybrids in terms of performance, economy, or cleanliness. Diesels must also be equipped with expensive exhaust treatment systems to comply with upcoming U.S. Tier Two emissions standards….

The Cloud Over Solar

[*Arizona Republic web site, Mar. 25*] **For a state with an abundance of sunshine, Arizona makes little use of solar power**. The cost of the systems, availability of cheaper power sources and equipment problems caused by scorching temperatures have combined to limit solar development. But that may change, as some Arizona electric utilities are now encouraging consumers to invest in solar power. Two major utilities, Arizona Public Service Co. [APS] and Tucson Electric Power Co. [TEP], are offering homeowners incentives to install solar systems. The utilities are under pressure from the state to increase their use of "green" electricity from renewable sources. Financial incentives can be crucial, because the systems are expensive to install and it can take eight to 16 years or more to recoup the cost in energy savings. APS began offering 50 percent rebates on solar equipment this year, both on systems bought through APS or from other dealers. After promoting solar energy for years, Scottsdale resident Bud Annan decided last year to put his money where his beliefs were. The consultant for British Petroleum and former chairman of the Arizona Clean Energy Industries Alliance spent $13,785 to cover his garage roof with solar cells. He wanted to know if technology and economics have made it the right time for homeowners to own their own power plants. A year later, Annan's two-kilowatt unit works well, and the retired federal Department of Energy solar expert estimates it saves as much as $50 a month on his electric bill…. But despite efforts like Annan's and what the utilities themselves are doing, the amount of electricity coming from solar in Arizona is minuscule - less than one percent of power generated in the state. Solar power is still two to three times more expensive than traditional electrical generation…. The inverters needed to convert solar energy to appliance power have been unreliable. And the extreme summer heat makes the units less efficient. That is why the state's largest solar plants are being built in Prescott and Springerville, where higher elevations keep them cooler in the summer than the Valley. Officials with the three main Arizona utilities are guessing that solar will become competitive with other sources of electricity in 10 to 20 years…. Tom Hansen, vice president and technical adviser for Tucson Electric, estimates 20 years. Costs are coming down about five percent a year. If it keeps dropping, in 20 years it should be competitive…. The Arizona Corporation Commission is pressuring both utilities to expand solar generation to reduce their reliance on natural gas, coal and nuclear power. It requires regulated utilities to obtain at least one percent of their electricity from renewable sources like solar, wind and biomass by 2005 and 1.1 percent beginning in 2007. So the utilities have decided they need the help of homeowners, businesses and anyone else willing to install solar panels. In December, APS doubled its incentives and began offering rebates of up to half the cost of a solar system, but has capped the total rebates it gives out a year at $1 million. Tucson Electric offers credits as well as solar systems for sale. Salt River Project, which isn't subject to the Corporation Commission edict, is considering incentives. Typical residential units being sold today don't use the solar power in the homes but instead send it back to the utilities. The utilities then provide a small reimbursement….

University of the Virgin Islands is Launching Solar-Powered Lights

[*Environmental News Network web site, Mar. 18*] Charlotte Amailie, U.S. Virgin Islands **- With no shortage of sunshine over this U.S. Caribbean territory, a local university is launching a solar-powered light system it hopes will save money and set an environmentally friendly example**. The University of the Virgin Islands was unveiling the 72 new self-sustaining lights at its St. Croix campus at dusk [on Mar. 17], university spokesman Patrice Johnson said. "Inside of two years the university will essentially have free lights," Johnson said, adding that the university community also needs "to be conscious of how we impact the environment." The university now spends more than US$1.5 million of its US$25 million annual budget on energy, project manager Patrick O'Donnell said. As electricity rates continue to rise with inflation, the school has sought alternatives including solar-powered hot water tanks at dormitories and more energy-efficient light bulbs. So far, the efforts have cut energy expenses six percent, O'Donnell said…. The new system on the St. Croix campus consists of solar-powered lights

mounted on poles and requires no external wiring, Jackson said. “Put the pole in the ground and you've got power for 30 or 40 years,” he said. The system, paid for by a US$275,575 grant from the territory's housing authority, also has allowed the school to light up areas on campus that were previously dark….

Legislation & Regulation

ACEEE Acceptance of SEER 13 Air Conditioner Standard

[*American Council for an Energy-Efficient Economy web site, Mar. 17*] Washington, D.C. - **The American Council for an Energy-Efficient Economy (ACEEE) announced [on Mar. 17] that it welcomed the acceptance by the air-conditioning industry of SEER [Seasonal Energy Efficiency Ratio] 13 as the federal efficiency standard for residential central air conditioners, to be effective in January 2006**. The current federal standard is SEER 10, which took effect in 1992…. The SEER 13 standard was first promulgated in 2001 near the end of the Clinton administration, reduced to SEER 12 in 2002 by the Bush Administration, and restored to SEER 13 in January 2004 by the 2nd Circuit of the U.S. Court of Appeals…. Under the new standard, energy use by new air conditioners will be reduced by 23 percent relative to the current standard. According to ACEEE analysis, this will reduce the peak demand for electric power by 41,500 Megawatts by 2020 (equivalent to 138 typical new power plants of 300 MW each) and save consumers approximately $5 billion over the 2006-2030 period. It will also reduce air pollutant and greenhouse gas emissions, saving 7.2 million metric tons of carbon in 2020, which is equivalent to taking more than three million vehicles off the road….

Bill to Regulate Price Gouging Runs Out of Gas

[*Arizona Republic web site, Mar. 3*] **A legislative proposal to stop price gouging came to a screeching halt on [Mar. 2] despite an appeal from the state's top lawyer**. The measure would have penalized companies that jack up the prices of gasoline or other commodities during an emergency, such as the one caused last year by a ruptured gasoline pipeline near Tucson. Sen. Jay Tibshraeny, R-Chandler, decided to stop action on Senate Bill 1112, saying he would rather wait for recommendations from a panel appointed in the wake of the crisis by Gov. Janet Napolitano. The panel's recommendations are expected in April or May, too late for legislation this year…. Attorney General Terry Goddard proposed the measure after receiving more than 1,000 complaints about price gouging when gasoline prices rose above $2 a gallon in the Valley after a pipeline break. He told the Senate Government Committee on [Mar. 2] that he had no authority to investigate the complaints or to help people affected by the practice. “Price gouging hits working families, fixed-income seniors and small businesses hardest,” he said. The bill would have given the attorney general the power to investigate complaints of price gouging. Owners of companies convicted of the practice could have lost their business license for 30 days and faced criminal penalties. The measure would have applied to anything that put residents' health or public safety at risk, including electricity, natural gas and water concerns.

Report: Stalled Energy Bill Offers Little Savings

[*Calstart web site, Mar. 4*] **The U.S. Energy Information Agency recently delivered an analysis of key provisions of the energy bill currently stalled in Congress, and the conclusion was the bill will have little effect on production, consumption or price, reports *Petroleum News***. The combination of tax credits, royalty relief, energy efficiency initiatives and fuel standards will minimally impact the nation's total energy picture, compared with the Energy Dept.'s latest projections of production and consumption. In specific areas, domestic energy consumption would remain unchanged through 2020, with or without this bill, and only a 0.3 percent drop after 2020 with it. There could be a one percent drop in foreign oil imports by 2025, with a potential one percent increase in domestic natural gas production in that same timeframe….

U.S. House Panel Agrees to Extend Ethanol Subsidy

[*Reuters, Mar. 18*] Washington, D.C. - **The House's tax-writing committee agreed [on Mar. 17] to extend a tax subsidy for corn-based ethanol through 2010 to encourage the use of the alternative fuel**. The Ways and Means Committee legislation, approved on a voice vote, would give ethanol an additional three years of tax credit beyond the amount called for in a pending Senate highway bill. An effort

to make the tax break permanent failed. Ethanol is popular in the Midwest as a way to boost farmers' incomes and to bolster U.S. fuel independence. At present, the ethanol tax break is worth 5.2 cents on a gallon of gasoline that is 10 percent ethanol. Under the proposal, the tax break would be proportional to the amount of ethanol used in a gallon of motor fuel. House Transportation Committee Chairman Don Young, an Alaska Republican, said the measure would help improve highways and create jobs. The bill would allow the ethanol subsidy to be paid for out of general Treasury revenues rather than the highway trust fund, thus freeing up money for highways. The Renewable Fuels Association praised this first House action on what is known as the volumetric ethanol excise tax credit. Last year, House Ways and Means Committee Chairman Bill Thomas, a California Republican, had objected to including the change in the way ethanol is taxed in the major energy bill. The measures also includes various provisions designed to combat tax evasion related to transportation and fuel….

Arizona & Western Power

Another Leak is Found at Palo Verde Nuclear Station

[*AZCentral.com web site, Mar. 2*] **Officials at the Palo Verde Nuclear Generating Station have discovered a trace amount of boric acid leaking from one of the facility's three units, the third leak in two months at the plant west of Phoenix**. Workers discovered the leak [Feb. 29] after the unit was taken off-line for an unrelated generator problem. The leak does not threaten the public and no employees have been injured, said Sheri Foote, a spokeswoman for Arizona Public Service Co., the plant's operator. The residue was found inside the large unit's concrete housing, Foote said. The federal Nuclear Regulatory Commission is inspecting another unit at the facility, which was shut down [in Feb.] after workers discovered radioactive material leaking….

Arizona Public Service Substation Worries Residents of Goodyear

[*Arizona Republic web site, Mar. 18*] Goodyear - **Plans for a new electrical substation just south of Pebble Creek have some residents fearing for their property values, but Arizona Public Service Co. [APS] officials insist the station is needed to accommodate planned commercial growth**. The proposed 69-kilovolt substation would cover about two acres east of Pebble Creek Parkway and north of the Roosevelt Irrigation District canal. That doesn't sit well with residents like Michael Evans, who said the station should be moved away from existing homes and into a commercial area…. The panel approved the project but on a 4-3 vote. The final say rests with the City Council, which will consider the issue on May 10. APS project manager Steve Goodman said the company was surprised at the sudden opposition because the substation was noted on a series of newsletters sent to area residents over the past year when the utility was planning a series of power lines throughout the southwest Valley. “We worked with the city and the developer to select this site,” Goodman said. “We still think this is a good site. We did go through an extensive public process on it.” Goodman said there had been no opposition until APS applied for a city permit to build the facility. He added that building the station in the proposed location would not add many new overhead lines and would allow the company to remove one mile of overhead power lines along Bullard Avenue. APS and city officials are continuing to discuss the site and potential alternatives. “The owner of the property has proposed an alternative location near there but further to the west, away from the homes,” said Goodyear community development director Harvey Krauss. “Nothing's been settled yet.”

California Gas Prices Reach the Hilt

[*FOX News web site, Mar. 17*] Los Angeles - **The average price of gas across the country is $1.75 a gallon – up 35 cents from a few months ago**. And in California, the price is about $2 a gallon and $2.55 for supreme fuel, an increase of 60 cents. The oil industry says the main reason for the hike is that crude oil has gone up $10 a barrel. Because of local pollution ordinances, California has to make 18 different formulas that only state refineries can make. Consumer groups say that's no excuse; they say crude oil price hikes of $10 a barrel translates into 15 cents, and that switching from winter-grade fuel to summer grade only costs a few cents. These groups compare the price spike to the inflated electricity prices California experienced a few years ago, and are accusing the oil companies of profiteering and hurting California families and the economy. But the worst may be yet to come. Gas prices traditionally rise right before summer's high demand. If there's a snag in oil production, experts expect Golden State gas to reach $3 a gallon.

New Gas Pipeline Starts Up

[*Arizona Daily Star web site, March 10*] **Pipeline operator Kinder Morgan has a new pipeline running through the city and is poised to significantly increase the volume of gasoline it brings into Arizona, seven months after a 19,000-gallon spill on the West Side**. Kinder Morgan [on Mar. 3] turned the switch on its new, 12-inch pipeline traveling through Tucson…. When complete, Kinder Morgan's upgrade of its gasoline pipeline between El Paso and Tucson and Phoenix will allow the system to increase its maximum carrying capacity by 56 percent, from 94,000 barrels a day to 147,000 barrels a day…. In Arizona, the proximity of the pipeline to neighborhoods, schools and parks is a safety concern. The City Council last year voted to pursue relocation of the pipeline in 2006, when the city's agreement allowing Kinder Morgan to operate the pipeline in Tucson expires…. The City Council approved construction of the new 12-inch pipeline, citing safety concerns related to the old pipeline…. Kinder Morgan is not replacing the nearly 50-year-old, 6-inch pipeline that runs in the same easement as the new 12-inch line…. The risk of a rupture is low because the pipe has had no signs of problems and operates at lower velocity in Tucson, said Gerry Reed, Kinder Morgan manager of construction services. The pipe is used to bring gasoline into Tucson. As product gets closer to the point of delivery, the velocity is slowed. In comparison, the 8-inch pipeline that ruptured July 30 carried gasoline through Tucson for delivery to Phoenix. The state estimates the spill at about 19,000 gallons of gasoline, while Kinder Morgan's estimate is about 16,000 gallons….

Variety of Gas Blends Leads to Price Spikes

[*Arizona Republic web site, Mar. 15*] **The dozens of gasoline blends used across the nation create a supply nightmare for refiners and pipeline operators**. The crazy quilt of requirements is blamed for shortages and price spikes, particularly during unexpected supply disruptions. Refineries switching from making winter to summer fuels also have been blamed for a recent jump in gas prices to near-record levels in metropolitan Phoenix and around the state. The multitude of blends, many created to address region-specific pollution issues and to keep prices lower, complicates the equation of why gasoline costs as much as it does. “It's an enormous logistical problem,” said John Felmy, chief economist with the American Petroleum Institute in Washington, D.C. Consider: • Metropolitan Phoenix uses a different blend than the rest of the state, so gasoline can't be diverted from Tucson or Flagstaff to relieve a shortage. Last summer, when a burst pipeline reduced supplies to the Valley, gasoline was plentiful in other parts of the state. • California, which just changed its rules, has three blends. • The seven blends in California and Arizona are different. • New York and Connecticut have banned the additive MTBE [methyl tertiary-butyl ether] in gasoline, but New Jersey still allows it, raising issues with supplies in the nation's No. 1 metropolitan area. To help ease supply problems, Arizona lawmakers are trying to get gasoline here to more closely match what is being used in California. But nationally, energy legislation to simplify the fuel situation has floundered. Nationwide, there are 18 “boutique” fuel blends that range from California's ultraclean but expensive “Carb 3” to the 5.7 percent ethanol blend used in Tucson during the winter. Each type comes in three grades – regular, midgrade and premium – and many have different specifications for summer and winter. Thus, there are 12 types of gasoline used in Arizona – regular, mid-grade and premium grades of conventional gas, summer Phoenix gas, winter Phoenix gas and winter Tucson gas. The different fuels have to be refined and shipped separately…. The [Environmental Protection Agency] EPA's 2001 study found that reducing the number of fuel blends to one or two would greatly improve the efficiency of the nation's gasoline distribution system. Such a move would require a change in the national Clean Air Act and in some cases would require states to agree to accept more expensive gasoline blends. California's new Carb 3, the cleanest gasoline in the country, costs up to 15 cents per gallon more than conventional fuel. The different blends in use in Arizona and around the country are more narrowly formatted to combat area-specific types of air pollution. Many cost less to produce as well. Winter gas is blended to combat carbon monoxide and particulates, while summer gas is engineered to reduce ozone-producing nitrogen oxides and volatile organic compounds. Different chemicals are also added year-round to reduce sulfur, benzene and other toxic emissions. To top it off, summer formula gas does not have enough octane to start a car in winter. Traditionally, winter blends contain ethanol, which is distilled from corn. Summer gas has been blended with either ethanol or methyl tertiary-butyl ether, or MTBE. Ethanol corrodes pipelines and must be trucked to tank farms where it is added. MTBE, a suspected carcinogen, is a petroleum-based product that is added at the refinery and generally shipped via pipeline. Arizona has made strides to conform its gasoline to that of neighboring states and improve supplies and temper seasonal price spikes. Maricopa County was granted relief last year from having to use gasoline blended with MTBE. California, where 70 percent of the Valley's gas is produced, banned the substance in January. Arizona had intended to ban MTBE six months after the prohibition in California but reconsidered.

Mark Ellery, a policy adviser with the Arizona Department of Commerce's Energy Office, says he believes MTBE eventually will be banned in Arizona, adding that continuing to rely on fuel blended with MTBE after the ban in California is just asking for supply problems. A bill making its way through the Arizona Legislature would phase in California's Carb 3 gasoline as Arizona's summer gas. That would mean California refiners could make one product for both states. Arizona's winter gas still would need more ethanol than the California blend because of differences in pollution and winter temperatures between the states. But Steve Owens, director of the Arizona Department of Environmental Quality said extensive studies must be completed before switching to Carb 3 gas in Maricopa and parts of Yavapai and Pinal counties….

Energy-Related Environment

2003 Likely Europe's Hottest in 500 Years

[*Reuters, Mar. 4*] Washington, D.C. - **Last year's deadly summer in Europe probably was the hottest on the continent in at least five centuries, according to researchers who analyzed ancient temperature records**. More than 19,000 people died. Researchers at the University of Bern, Switzerland, collected and analyzed temperature data from all over Europe, including such climate measures as tree rings from 1500. They found that the climate has been generally warming and last summer was the most torrid of all. "When you consider Europe as a whole, it was by far the hottest," said Jurg Luterbacher, climatologist and the first author of a study appearing [in the March 4 issue] in the journal *Science*. Luterbacher said the study showed that European winters are also warmer now. The average winter and annual temperatures during the three decades from 1973 to 2002 were the warmest of the half millennium, he said. Some studies have linked rising average temperatures in North America and elsewhere to global warming caused by the burning of fossil fuels, but Luterbacher said his team did not attempt to make such a connection. "We don't make any analysis of the human influence," he said. "We don't attempt to determine the cause. We only report what we find." Other climatologists, however, say the new study agrees with models that have predicted a steady rise in global temperature as the result of greenhouse gases released into the atmosphere from the burning of fossil fuels and other sources. Stephen Schneider, a climate expert at Stanford University and a prominent advocate for human-caused global warming, said the Luterbacher paper is consistent with what climate modelers have been predicting for 20 years. "The data is starting to line up showing that those projections were correct," Schneider said.…

Canada May Follow California on Carbon Dioxide Emissions

[*Calstart web site, Mar. 12*] **The environment minister of Canada said [on Mar. 11] that his country would emulate California's new law aimed at curbing automotive global warming emissions if carmakers did not agree to make significant reductions, reports *The New York Times***. Canada has been negotiating with automakers and representatives of other industries since December 2002, when it signed on to the Kyoto Protocol, a global accord on limiting emissions of gases linked to climate change that has been rejected by the Bush Administration and Russia. David Anderson, Canada's environmental minister noted that so far, the industry had been unwilling to go along. The notion of Canada following in California's footsteps will not appeal to automakers, who have said they will sue to keep the state's global warming law from taking effect. Mr. Anderson said the Canadian government had not yet given up on reaching a voluntary agreement, but his task won't be easy, since the U.S. government is not seeing eye to eye with Canada on Kyoto. One option could involve a law passed by Parliament in 1982 that would give the country its own fuel economy standards. Canada might also look to pattern regulations after California, the one state allowed to write its own air quality standards because of its history of smog. Other U.S. states can choose California's rules instead of the federal government's, and many in the Northeast have done so, despite legal challenges. Anderson stated, "Unless we get a voluntary agreement, our intention is to make use of the California model."

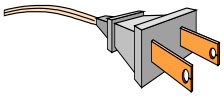
Carbon Dioxide Reported at Record Levels

[*Reuters, Mar. 20*] Mauna Loa Observatory, Hawaii - **Carbon dioxide [CO2], the gas largely blamed for global warming, has reached record-high levels in the atmosphere after growing at an accelerated pace in the past year, say scientists monitoring the sky from this two-mile-high station atop a Hawaiian volcano**. The reason for the faster buildup of the most important "greenhouse gas" will require

further analysis, the U.S. government experts say. “But the big picture is that CO2 is continuing to go up,” said Russell Schnell, deputy director of the National Oceanic and Atmospheric Administration's [NOAA] climate monitoring laboratory in Boulder, Colo., which operates the Mauna Loa Observatory on the island of Hawaii. Carbon dioxide, mostly from burning of coal, gasoline and other fossil fuels, traps heat that otherwise would radiate into space. Global temperatures increased by about one degree Fahrenheit (0.6 degrees Celsius) during the 20th century, and international panels of scientists sponsored by world governments have concluded that most of the warming probably was due to greenhouse gases. The climatologists forecast continued temperature rises that will disrupt the climate, cause seas to rise and lead to other unpredictable consequences – unpredictable in part because of uncertainties in computer modeling of future climate…. Asked to explain the stepped-up rate, climatologists were cautious, saying data needed to be further evaluated. But Asia immediately sprang to mind. “China is taking off economically and burning a lot of fuel. India, too,” said Pieter Tans, a prominent carbon-cycle expert at NOAA's Boulder lab….

EPA Report: More Lanes Don't Help Congestion

[*Calstart web site, Mar. 5*] **A report released [on Mar. 1] by the U.S. Environmental Protection Agency (EPA) finds that “lane additions and low-density growth do not by themselves prevent worsening congestion,” reports *Transfer*, a publication of the Surface Transit Policy Project**. The report, “Characteristics and Performance of Regional Transportation Systems,” concludes that smart growth transportation characteristics such as transit availability, pedestrian-friendliness, and street connectivity are more likely to improve transportation system performance, and therefore reduce environmental impacts. The EPA study examines transportation systems in 13 metropolitan areas of varying size to see if characteristics of those systems had an impact on transportation and environmental performance. In all but the smallest size category, the EPA found that metro areas with greater transit availability, better pedestrian environments, and more route choices (smart growth transportation areas) had less car travel per person, shorter average car trips, less congestion higher transit use, and lower air pollution emissions than more auto-dependent metro areas of similar size.



Energy/General

25 Years After Three Mile Island, Concerns Linger

[*Reuters, Mar. 23*] Washington, D.C. - **Twenty-five years after a near-catastrophe at the Three Mile Island nuclear plant exposed lax safety practices, owners and regulators of the nation's aging fleet of 103 reactors still face nagging questions about their ability to prevent mishaps**. These concerns, worsened by recent findings of massive corrosion at a plant in Ohio, have so far kept utilities from pursuing new nuclear plants for more than two decades despite their potential to replace aging, air-polluting coal units. In a bid to change that trend, the Bush Administration has promoted incentives to build new nuclear plants. But the outlook is uncertain because a Republican-written energy bill with some of the administration's proposals has long been stalled in the U.S. Senate. On March 28, 1979, Walter Cronkite opened his nightly news broadcast for CBS television, calling the accident at Three Mile Island “the first step in a nuclear nightmare.” That was the first time that many Americans heard of the mishap, the most serious accident in U.S. nuclear history. A string of mechanical failures and human errors caused the accident at the Pennsylvania plant after operators with Metropolitan Edison Co. switched off crucial equipment that could have lessened the severity of the partial meltdown. Early that morning, pumps feeding cooling water to the plant's reactor failed, and 32,000 gallons (121,000 liters) of radioactive, superheated water spewed from a dodgy valve into the domed concrete reactor housing. Without water to cool them, more than half of the reactor's 36,000 nuclear fuel rods ruptured. Government scientists said the 636,000 people living within 20 miles of the plant got only minor doses of radiation. The near-catastrophe at the plant perched on an island in the Susquehanna River near Harrisburg effectively halted any expansion of the U.S. nuclear energy industry, which generates about 20 percent of the nation's electricity. The resulting cancellation of dozens of planned nuclear plants forced utilities to rely on decades-old nuclear and coal-burning plants for growing electric power demands. Meanwhile, activist groups worry that current security measures cannot prevent a terrorist attack on a U.S. nuclear plant.

Alaska Oil Would Barely Help U.S.

[*Associated Press, Mar. 17*] Washington, D.C. - **Opening an Alaska wildlife refuge to oil development would only slightly reduce America's dependence on imports and would lower oil prices by less**

than 50 cent a barrel, said an Energy Department analysis released [on Mar. 16]. The report by the Energy Information Administration said that if Congress gave the go-ahead to pump oil from Alaska's Arctic National Wildlife Refuge, the crude could begin flowing by 2013 and reach a peak of 876,000 barrels a day by 2025. But at peak production, the report said, the United States would still have to import two-thirds of its oil, as opposed to an expected 70 percent if the refuge's oil remains off the market. At the same time, the report said, new Alaska production would stem the expected decline in domestic production and extend the economic life of the Alaska oil pipeline as production from other North Slope areas declines significantly.

America's New Coal Rush

[*ABC News web site, Mar. 2*] **At least 94 coal-fired electric power plants – with the capacity to power 62 million American homes – are now planned across 36 states**. The plants, slated to start coming on line as early as next year, would add significantly to the United States' generating power, help keep electricity prices low, and boost energy security by offering an alternative to foreign oil and gas. But they would also pump more airborne mercury and greenhouse gases such as carbon dioxide, nitrogen oxide, and sulfur dioxide into the air. Apparently, economic concerns are trumping environmental ones in utilities' plans. Surprisingly, few state officials or even environmentalists are aware of the magnitude of the new coal rush. One major reason is the sudden nature of the turnaround for the plentiful fuel. "The situation has changed 180 degrees in the last year, so that we're almost back to point where we were in the 1970s with a slew of coal-fired plants on the drawing board," says Robert McIlvaine, president of a Northfield, Ill., company that tracks energy industry development. After a decades-long drought, when few large coal plants were added to the power grid, "it's become a flood. We've been getting a new one announced almost every week since December." The jump in proposed coal-fired plants over the past three years – which would add 62 gigawatts or another 20 percent to the U.S.'s current coal-generating capacity – was documented in a report [in Feb.] by the National Energy Technology Laboratory (NETL), an arm of the U.S. Department of Energy. But experts caution that perhaps no more than half of all proposed plants will ever be built. It can take seven to 10 years for a coal power plant to go from planning to construction – and legal action and public protests often halt them…. Coal already generates about half the nation's electricity. The economics have also swung in the fuel's favor. Low-cost, low-emission, natural-gas turbines sprouted like mushrooms in the '90s and their contribution to the nation's generating capacity reached 19 percent. But in the past four years, the cost of natural gas has roughly tripled: from $2 per one million British thermal units [BTUs] of heat generated to over $6 per million BTUs. By contrast, coal costs are less than $1 per million BTUs. That has put utilities in the position of paying more for the gas they burn to make power than they can get for the electricity it produces. But the move back to coal raises environmental concerns. McIlvaine estimates that if 50 of the 94 planned projects are built, they would add roughly 30 gigawatts or 10 percent of base load generating capacity nationwide. Using industry rules of thumb, he estimates coal consumption would rise about 10 million tons, or one percent, from today's one billion tons annually. That, in turn, would add 120 million cubic feet of exhaust gases from the stacks every minute of every day for decades to what is currently vented. The burning of coal already produces more airborne mercury and greenhouse gases than any other single source. Robert Dickinson, an atmospheric scientist and climate modeler at the Georgia Institute of Technology, calculates the new U.S. coal plants would add roughly one-tenth of one percent to the world's annual carbon-dioxide emissions….

Dingell Turns up Mileage Pressure

[*Auto.com web site, Mar. 17*] **U.S. Rep. John Dingell is no enemy of the auto industry.** As the longest-serving member in the House, Dingell has made it his job to defend the car companies. He's helped Detroit automakers fend off big increases in fuel-economy standards despite fervent political opposition. But these days, Dingell's giving the industry a little tough love. His advice is stern: It's time the auto companies work harder to improve fuel efficiency before the government does it for them.… Dingell created a stir last month when he warned automakers at a local luncheon that they need to work faster to improve their Corporate Average Fuel Economy numbers before the government imposes its own standards…. Federal fuel-economy standards could undergo the most sweeping overhaul in three decades under new proposed changes being reviewed by the government. The National Highway Traffic Safety Administration seeks comments from the automakers and the public about the revisions, which will affect vehicles beginning in the 2008 model year….

Energy Needs Will Rise 40 Percent by 2020

[*Hydrogen and Fuel Cell Investor web site, Feb. 26*] **The world will consume 40 per cent more energy in 2020, with a rapidly industrializing China more than doubling its oil consumption**. And oil and gas – not alternatives like wind, solar and hydrogen power – are likely to continue being the primary sources of energy. These predictions, based on economic growth analysis, were made in a recently released study of world energy demand by U.S. oil company ExxonMobil. In A Report on Energy Trends, Greenhouse Emissions and Alternative Energy, the oil giant said economic growth is closely tied to energy growth. As a result, it forecasts that the world will require about 40 per cent more energy in 2020 than today, with consumption levels reaching almost 300 million oil-equivalent barrels per day. With China's economy growing at an annual rate of seven per cent, its demand for oil is expected to increase at about the same rate, or the equivalent of an additional 320,000 barrels a day. At this pace, it will more than double its consumption to over 10 million barrels per day in 2020, making up about 10 per cent of total world consumption. ExxonMobil adds that a sharp increase in world vehicle population will deepen the demand for motor fuels. In 2002, there were 661 million vehicles. By 2020, the estimated total number of vehicles will be slightly below one billion. Close to 60 per cent of current energy needs is met by oil and gas. Despite advances made in exploiting alternative energy sources, this proportion will be the same two decades later. ExxonMobil said: “We expect 60 per cent of demand in 2020 will continue to come from oil and gas as these primary sources of energy are available in sufficient quantity to meet the world's growth and are, at the same time, the most economical.” The rest of the demand will be met by coal (20 per cent), nuclear (5 per cent) and others such as hydro, wood, dung, solar and wind. But as oil and gas remain the predominant fuels in meeting future consumer needs, ExxonMobil said one encouraging factor will be their significant efficiency gains. Another is the discovery of new sources of supply. It said the world's proven oil reserves have doubled over the past 30 years, from roughly 500 billion barrels to more than one trillion barrels….

GAO Prompts U.S. EPA on Clean Engine Incentives

[*Calstart web site, Mar. 15*] Washington, D.C. - **The General Accounting Office (GAO) recommended [on Mar. 8] that the U.S. Environmental Protection Agency (EPA) should explore government financial incentives to promote new engines and trucks required to meet tougher air quality rules in 2007, reports *Transport Topics***. GAO cautioned lawmakers that the industry could face an even greater “pre-buy” of older models by fleets than took place ahead of the 2002-04 EPA rules. Because motor carriers wanted to avoid buying new and largely untested diesel engines in 2003, they made their truck purchases early, disrupting normal manufacturing schedules and adding to carriers' costs, the report said. That last round of EPA standards tightening on truck diesel emissions severely disrupted both the truck manufacturing and trucking businesses, and stricter rules scheduled for 2007 could cause even more problems, GAO said. The report said it was in the nation's interest to be sure motor carriers buy lower-emission engines in 2007, but that financial incentives might be needed for diesel engine makers and trucking firms, and EPA should participate by “making the initial proposal for incentives or helping to determine their merits and costs.”

Gas Should Keep Rising as Oil Hits 14-Year High

[*Tucson Citizen web site, Mar. 18*] Washington, D.C. - **Oil prices pushed past $38 a barrel [on Mar. 17], closing above that level for the first time in 14 years, and analysts predicted that already-high gasoline prices would keep moving higher**. The price for the benchmark grade of U.S. crude jumped 70 cents to $38.18 a barrel in New York trading. It hadn't closed at that level since Oct. 16, 1990, when oil was soaring in the aftermath of Iraq's invasion of Kuwait. “Global demand is rising at a faster rate than was expected,” said George Gaspar, an energy industry analyst at investment firm Robert W. Baird & Co. in Milwaukee. Analysts expect gasoline prices to go still higher as the summer driving season approaches, likely eclipsing $2 a gallon on a national average and still higher in some regions. Energy is becoming a drain on many businesses and consumers. Rising fuel costs are almost like an added tax on everything from transportation to manufactured goods. And some analysts warned that those costs could soon do more serious damage to the economy. “If within the next four weeks you don't see a break, then it becomes an issue” for economic growth, said James Glassman, an economist at J.P. Morgan Securities in New York. A number of factors are driving oil prices higher. Energy consumption in Asia has been particularly strong during the last year, for example, as China's economy has boomed. Oil supplies, meanwhile, have been tighter than was anticipated. The Organization of Petroleum Exporting Countries [OPEC] has been more disciplined about production and many cost-conscious oil companies have been

reluctant to build up inventories for local markets. As for the U.S. gasoline market, supplies are constrained because many refineries are running full-out. And no new capacity is being added. Now, OPEC – which supplies about one-third of the world's oil – is planning to cut production in April, as the winter heating season in the Northern Hemisphere ends. Some analysts say that though higher energy costs are a drain on consumers and businesses, the threat isn't yet severe to the economy overall….

Interest, Concerns Over Methane Hydrates

[*Calstart web site, Mar. 17*] **Methane hydrates deep under the ocean floor and the Alaskan permafrost may represent the world's next big energy source, if they can be extracted safely, reports *Salon***. Some 10 trillion tons of carbon are trapped in the strange ice-like compounds, which form when flammable methane gas is subjected to cold, high-pressure conditions. Currently, extracting and processing them is six times more expensive than traditional oil and gas drilling. The U.S. Department of Energy is funneling money into technological advancements that could make it cheaper, paying oil companies and others $50 million to drill the seafloor and permafrost in search of these frozen energy reserves. This has some environmentalists worried. One reason is safety: when disturbed, they can explode violently or release massive amounts of methane – a greenhouse gas 20 times more powerful than carbon dioxide – into the atmosphere. Government and private interest is fueled by the fact, as petroleum and conventional natural gas sources wane, methane hydrates may hold 100 times more gas than all of the world's conventional natural gas reserves, perhaps more energy than all of the global reserves of coal, oil and natural gas. At the end of Dec. 2003, an international consortium including BP [British Petroleum], Chevron, and U.S. and Canadian geologists succeeded in transforming hydrates from under northern Canada's permafrost back into gas and captured the stuff. Having proven the technology, now the issues of costs and safety must be addressed.

Industries & Technologies

DOE Releases Long-Term Hydrogen Research Plan

[*U.S. Dept. of Energy web site, Mar. 10*] Washington, D.C. **– The Department of Energy (DOE) [on Mar. 10] released its "Hydrogen Posture Plan," a document which outlines the activities, milestones and deliverables that DOE plans to pursue to support America's shift to a hydrogen-based transportation energy system**. This plan identifies milestones for technology development over the next decade, leading up to a commercialization decision by industry in 2015. "This plan supports President Bush's vision of a hydrogen economy and includes timelines that provide clear and scientific measures to track and demonstrate progress," Secretary of Energy Spencer Abraham said. "If we achieve our technical objectives, the automotive and energy industries will be in a position to begin to mass market availability of both vehicles and refueling infrastructure by 2020. The Bush Administration's fiscal year 2005 budget request includes $227 million for research to support the President's Hydrogen Fuel Initiative. The federal government will play a key role in accelerating the transition towards the hydrogen economy by pursuing research to overcome technical challenges. The Posture Plan integrates research, development and demonstration activities from the DOE renewable, nuclear, fossil and science offices. An integrated hydrogen program will improve the effectiveness and accountability of DOE's research activities and increase the probability of success in achieving technical milestones on the road to a hydrogen economy. DOE has also coordinated its work on codes and standards with the Department of Transportation and other agencies. The plan also points out that the use of hydrogen as an energy carrier can enhance energy security while reducing air pollution and greenhouse gas emissions….

EPA Tech Chief See Promise in Hydraulic Hybrids

[*Calstart web site, Mar. 2*] Rancho Mirage, CA **- Charles Gray, a top technology official of the U.S. Environmental Protection Agency [EPA], addressed the potential of hydraulic hybrids at the WestStart-CALSTART Clean Heavy-Duty Vehicle Conference [this past Feb.]**. Gray, the Director of the Advanced Technology Division of the EPA's National Vehicles and Fuel Emissions Laboratory, said vehicles with fully optimized hydraulic hybrid systems have the capability of improving fuel economy from 70 to 85 percent. Gray's office in Ann Arbor, Michigan, has been working over the past three years with Eaton and Ford to develop such a system. In fact, at the upcoming SAE [Society of Automotive Engineers] World Congress in Detroit, Gray said the EPA would be displaying a Ford Excursion with a hydraulic hybrid that has achieved an 85 percent improvement in fuel economy over the standard urban driving

cycle. Speaking at the WestStart-CALSTART Clean Heavy-Duty Vehicle conference, Gray said the payback on such a system should occur over a one to three year period. He also said that the hydraulic hybrid system provided a dramatically more significant level of low-end torque that would provide tremendous off-the-line acceleration. Interestingly, most likely due to the firm's financial problems and despite significant early investment in the project, Ford has now withdrawn from this joint program….

Honda FCX with Breakthrough Fuel Cell Stack

[*Hydrogen and Fuel Cell Investor web site, Feb. 27*] Torrance, CA - **Marking a significant breakthrough for fuel cell technology, Honda Motor Co., Ltd, [on Feb. 27] announced that it has conducted a successful cold-weather demonstration of its FCX fuel cell vehicle equipped with a Honda Fuel Cell Stack**. Demonstrating the vehicle's cold-weather performance capabilities and its ability to start in below freezing temperatures, a major hurdle in the drive to create a truly mass-marketable fuel cell vehicle. “This is a tremendous breakthrough for Honda and everyone whose dream it is to make fuel cell power a reality,” said Ben Knight, vice president of Honda R&D Americas…. Testing was conducted at Honda's test track and on public roads on the northern Japan island of Hokkaido. As a part of the test, the FCX successfully started after being parked outside overnight in temperatures as low as -11^{o}C (+12^{o}F). Test drives conducted immediately afterward demonstrated the vehicle's excellent cold-weather driving performance. Honda will continue cold-weather testing in its efforts to make widespread use of fuel cell vehicles a reality. The Honda FCX is the first fuel cell vehicle to be certified for regular commercial use by the U.S. Environmental Protection Agency and the California Air Resources Board, and is currently being used by customers in the U.S. and Japan. The Honda FC Stack – which the company plans to make commercially available within the next year – is the world's first fuel stack to feature below-freezing start capabilities, and the first to utilize a stamped metal separator structure and newly developed electrolyte membranes. Conventional fuel cell stacks have a complex structure in which carbon separators are fastened together with bolts. The Honda FC Stack, however, has a simplified structure composed of stamped metal separators with rubber seals that are attached in a unique molding process and enclosed by panels. The new stack reduces the number of components by almost 50 percent (compared to earlier Honda prototype units) while more than doubling the output density, resulting in world-leading performance. Use of newly developed aromatic electrolyte membranes greatly improves durability and allows for power generation at temperatures ranging from -20^{o}C (-4^{o}F) to +95^{o}C (+203^{o}F), a milestone achievement for stacks that employ conventional fluorine electrolyte membranes. Driving range and fuel economy have also been increased by more than 10 percent compared with the FCX currently in fleet use.

'Hydrogen Highway' by 2010 says California Official

[*Environmental News Network web site, Feb. 27*] Sacramento - **Governor Arnold Schwarzenegger's top environmental aide told state lawmakers the governor's vision of a “hydrogen highway” that would usher in an age of cleaner cars is realistic by 2010, and won't even cost the state much money**. Schwarzenegger pledged to build hydrogen fueling stations every 20 miles along major highways, allowing motorists to buy clean-burning hydrogen-fueled vehicles without fear they will run out of gas. He chose 2010 because that's when automakers have said such vehicles will be affordable and readily available, said Environmental Protection Secretary Terry Tamminen. “California does invent the future,” Tamminen said. Though there are plenty of unknowns, “there are no show-stoppers. The only area where some of us disagree is on timing.” California Energy Commission member Jim Boyd warned that the cost is too high. And Toyota Motor Co.'s Bill Reinert said that despite a decade of research and development, any promises are premature. The automotive industry still is years away from developing the smaller, cheaper, more efficient and longer-lasting fuel cells that are needed before consumers will buy many hydrogen-fueled vehicles, Reinert said. “We're not even close to solving storage technology issues yet,” Reinert said. Though he expects technology will develop dramatically over the next few years, “we still have significant challenges along the way.” Other witnesses before the Assembly Select Committee on Air and Water Quality said a strong push by the state and federal governments is needed. S. David Freeman, a top energy aide to former Governor Gray Davis who now heads a company involved in hydrogen-powered vehicles, said the state should consider floating more long-term debt to pay for the project. But Tamminen said the cost to the state could be minimal. Schwarzenegger's proposed network amounts to about 200 fueling stations, a fraction of California's 10,000 retail gasoline stations, Tamminen said. Twenty-five of those stations will soon be available, and Tamminen projected more can be built by universities, waste conversion stations and automakers at little cost to the state.