Box 5

Activities

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Wind Energy Weekly

Vol. 16 • No. 769 *THE WEEKLY NEWSLETTER OF THE AMERICAN WIND ENERGY ASSOCIATION* October 20, 1997

In This Issue

ENRON WIND BUYS GERMAN TURBINE MANUFACTURER

California Company Purchases Assets of World's Fifth Largest Builder; Creates European Subsidiary

Enron Wind Corp. (EWC), of Tehachapi, Calif., said October 15 that it has acquired the assets of Tacke Windtechnik GmbH, of Salzbergen, Germany, the world's fifth largest wind turbine manufacturer in 1996. Tacke had suffered from financial problems in recent months, and declared bankruptcy in July (see *Wind Energy Weekly* #757, July 20).

EWC also announced the formation of a new German subsidiary, Enron Wind Holding GmbH, with responsibility for wind turbine manufacturing and sales for Europe, India, the Middle East, and Africa.

"Tacke has an established, well-respected technology and we look forward to combining our skills and expertise to provide new avenues for cost-effective wind power generation," said Kenneth C. Karas, chairman and CEO of EWC. "Wind power, with its competitive costs and significant environmental benefits, is becoming widely accepted as a viable energy source, particularly in Europe. Enron Wind Holding GmbH has

(see ENRON, page 3)

GOVERNOR SIGNS CALIFORNIA RENEWABLES FUNDING BILL

Governor Pete Wilson (R) signed Senate Bill 90 into law on October 13, clearing the way for the California Energy Commission (CEC) to implement the renewable energy provisions of the state's electric industry restructuring legislation (AB 1890). (See *Wind Energy Weekly* #763, September 8.)

The CEC will hold public workshops this fall to iron out many implementation details associated with spending $540 million on renewable energy programs over the next four years. In its recently-issued draft guidelines, the CEC indicated that bids for "new project" production incentives will be due on March 2, 1998. Winners and losers will be determined based upon the amount of the incentive they request (which cannot exceed 1.5 cents/kWh) and the estimated generation over five years. Winning bidders must also survive screening criteria and a series of project-development milestones. Projects must be on

(see CALIFORNIA, page 5)

Aragonne

'97 JUL 16 PM 8:42

DEPARTMENT OF ENERGY · UNITED STATES OF AMERICA

Department of Energy
Washington, DC

Office of the Press Secretary

DATE: 7/16

TO: Todd Stern / Mark Mazur

FAX: 456-2215 / 395-6809

FROM: Bill Wicker, 202/586-5827

COMMENTS

cover + 6 pages

Here are some Argonne study items you may not have seen yet.

Bill Wicker

FAX TRANSMISSION

Vol. 47, No. 134, Tuesday, July 15, 1997

THE OIL DAILY

Today's complete oil and gas news briefing on the US and the Americas.

Analysts Expect Oil Field Service Companies To Shine in Second-Quarter Earnings Reports

Corporate news

Oil field service companies can't wait to release their second-quarter earnings — and with good reason. Most will be chalking up impressive gains compared with last year, with this industry segment far outperforming major integrated and independent exploration and production companies.

Offshore drillers have the most to celebrate: as a group, second-quarter earnings are expected to leap 96%. That's because dayrates on average have been 45% higher this year, and utilization rates are averaging 96%, according to Mark Urness of Salomon Brothers Inc.

Already, Rowan Cos. Inc. and Global Marine Inc. have reported second-quarter operating income that exceeded expectations *(see stories, p.7,8)*. Rowan's income rocketed 162%, while Global Marine's jumped 145%. Both companies had utilization rates of 99% or better, with vastly improved dayrates.

In addition, Rowan's operating costs were lower than expected, partly because of the high utilization rates, Urness said.

Among other offshore drillers, Ensco International Inc. is expected to turn in better-than-expected earnings, according to Urness. First Call consensus estimates suggest the company's earnings per share will leap 136%.

But Falcon Drilling Co. — which last week agreed to merge with Reading & Bates Corp. to form the world's biggest offshore drilling contractor *(TOD, 7-14-97, p.1)* — is expected to outperform them all. Its earnings per share are predicted to rise a whopping 224%, partly because of higher dayrates for jackup rigs and

(See Service Companies, page 4)

Report Sees Devastation From Emissions Policy

Environment

A policy that cut emissions of greenhouse gases from industrialized nations could have a devastating impact on six industries, including refining and chemicals, according to a report finally released by the Department of Energy (DOE).

Among its estimates of U.S. impacts are the potential loss of hundreds of thousands of jobs, along with cuts of 20% or more in the output of refining, basic chemicals, steel, aluminum and cement industries, as well as a severe impact on paper mills.

The report, presenting analyses organized by Argonne National Laboratory, was leaked in draft form earlier this year. It now has been released along with repeated warnings that its cost assumptions may no longer apply.

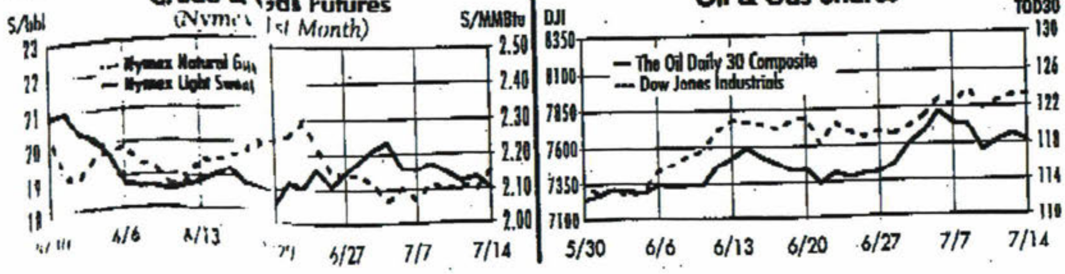
The Clinton administration is pushing for a policy of flexibility and the involvement of developing nations in the control of greenhouse gases. The Argonne report reinforces the wisdom of that approach, DOE said.

The administration also may soon release a draft of its interagency economic analyses, work it has been conducting for some time on the impacts of policy options. Those analyses are expected to show international emissions trading and other strategies can sharply reduce — possibly by half — the impacts of controls.

Most nations have not agreed to the tentative U.S. approach, however. An international strategy

(See Emissions, page 4)

Latest Market Trends



ENERGY ALERT

Southwest Beckons — Exxon and Amoco are joining the array of oil companies with plans to cash in on growing demand for refined products in the Southwest, linking up in a pipeline project with Longhorn Partners. **Page 5**

Leveling the Playing Field — The PMAA is hoping lawmakers vote "yes" today to a scheduled amendment that would let non-Native American retailers compete for gasoline sales on the same basis as Native Americans. **Page 5**

KCBT Wins Futures Shootout — KCBT's western natural gas futures contract has established itself as the tool of choice for firms looking for a hedge west of Louisiana's Henry Hub. Nymex, meanwhile, lets its contract limp along untraded. **Page 3**

Big Oil Gets Bigger — The Big 3 exporters into the U.S. Gulf Coast — Venezuela, Saudi Arabia and Mexico — are all likely to get bigger over the next six years, according to latest DOE projections. **Page 3**

Simple, Easy, Clear — To the initiated, the information contained in filings with the SEC can provide useful pointers to stockholders' intentions. **Page 6**

Crude Dips Below $19/Bbl — Reports that Iraq and the U.N. had made progress in weekend talks on the oil-sale deal sent crude prices tumbling 34¢ in New York. **Page 2**

Cotton Valley Hires Investment Firm to Evaluate Possible Mergers

Mergers & acquisitions

As part of a bid to raise its stock price and get its hands on more cash, Dallas-based Cotton Valley Resources Corp. is on the lookout for a merger partner.

It says it is now in the due diligence phase of talks with 13 domestic companies — all small to medium-sized — and is also in more preliminary discussions with several other firms.

To help it evaluate these possible mergers, it has just brought on board San Francisco investment banking and brokerage firm Van Kaspar & Co. as an adviser.

"We wanted to find a quality regional firm that would be able to give us more attention than the larger firms," said John Liviakis, president of Liviakis Financial Communications Inc. and Cotton Valley's spokesman.

Besides higher stock prices and cash flows, Cotton Valley — which now trades on the Canadian Dealing Network and the OTC Bulletin Board — is seeking a better stock exchange listing through a merger. While none of the companies it is talking to is a big name, several of them are high-quality companies, Liviakis said.

Over the past few weeks, Cotton Valley's stock price, which had been hovering around $1.50/share, has jumped 30%, thanks to a surge of analyst and press coverage, Liviakis said.

The completion last month of a $4.5 million acquisition of Aspen Energy Co., another Dallas exploration and production company, boosted Cotton Valley's cash flow by $16 million-$20 million, which is expected to increase its second-quarter earnings significantly, Liviakis said.

The influx of capital will be used to finance drilling programs in Cotton Valley's Alden field in Oklahoma — where its partner is Marathon Oil Co. — and its Cheneyborough field in East Texas, Liviakis said. Work at the Cheneyborough field, where drilling costs per well are estimated at $1 million, is expected to start in five weeks.

While Cheneyborough is not part of the Cotton Valley Trend in East Texas, outstanding flow rates and initial high production are expected from the field, Liviakis said. But horizontal drilling in the field requires the use of expensive processes for working over the wells.

Karen Broyles

Service Companies . . .

(Continued from 1)

partly because all the company's major business units are doing well, Urness said.

Reading & Bates, however, is not expected to do as well, turning in disappointing results. First Call data show that earnings per share are expected to be flat, suffering from write-offs and delays in rig projects.

But trailing the pack is Transocean Offshore Inc., which analysts say is the only company likely to report a decline in year-on-year earnings. That is partly because Transocean had an unusually strong quarter last year, but also because it has been hit by shipyard delays, due in part to extensive repairs and maintenance work.

While rigs are out of service in shipyards, it makes sense to do as many repairs as needed to prevent future downtime, according to James Wicklund of Rauscher Pierce Refsnes Inc., adding that the company's poor second-quarter performance is not an endemic problem.

Further down the road, offshore drillers are expected to go on profiting from favorable market conditions — high dayrates and impressive utilization numbers — as oil spending budgets increase an estimated 15%-16% in 1997 and 1998, according to a UBS Securities LLC research report.

Nevertheless, second-quarter earnings reports might represent the high-water mark for offshore drillers in terms of percent improvement over the previous year.

Financial results started improving about this time last year, according to Urness, so third-quarter earnings may be a little less spectacular.

Domestic onshore drilling companies, such as Patterson Energy Inc., UTI Energy Corp., and Nabors Industries Inc., have the most upside surprise potential, according to Wicklund.

Patterson Energy's earnings per share are expected to increase 164%, UTI Energy's 138%, and Nabors' a more modest 20%, based on First Call estimates.

Oil field equipment giant Schlumberger Ltd. is expected to see earnings per share increase 40%. But upside surprise potential for this company is small because it has smaller domestic operations, Wicklund said.

The same is true of Halliburton Co. and Baker Hughes Inc., with earnings per share expected to rise 34% and 36%, respectively, according to First Call.

But with upside surprise potential or not, the outlook for the drilling sector remains bright. "The current expansion in 1997 of North American and non-North American rig counts will continue to keep key equipment and services and rig contractors at effective full utilization," UBS Securities said.

Courtney Chubb

Halter Marine to Buy Shipyard

Halter Marine Group Inc. of Gulfport, Miss., has reached an agreement to acquire Bludworth Bond Shipyard Inc., which owns two shipyards in Houston and Texas City, Texas.

Halter said it expects no major changes in Bludworth's operations and personnel. The two shipyards generate annual revenues of $25 million.

Halter operates shipyards in Texas, Louisiana, Mississippi and Florida. Terms of the transaction were not announced.

Emissions . . .

(Continued from 1)

may emerge from the welter of proposals only in December at a conference in Kyoto, Japan, to agree on plans for limiting climate change from global warming.

Workshops conducted by Argonne in June and July last year considered the U.S. impacts of hypothetical energy price increases that could cut emissions of greenhouse gases — primarily fossil fuels — back to 1990 levels by 2010.

The workshops, focusing on six energy-intensive industries, gathered together experts from producing corporations, labor, the financial community, government, academia and environmental organizations.

The workshop findings included:

- Petroleum refining would lose 20% of output. Many refineries, especially in the Northeast and on the Gulf Coast, would close.
- Producers of basic chemicals would lose about 20%-30% of their business to developing countries, and job losses could reach 200,000.
- About 30% of U.S. steel production might be lost, along with about 100,000 jobs.
- Aluminum production capacity would be chopped by 60%, assuming a price increase keyed only to thermal-based electricity; the loss would be 100% if the price increases also hit hydroelectric power.
- The cement industry would lose 17 million-26 million metric tons of clinker capacity out of a 75 million total.
- The paper and pulp industry would lose jobs and output.

Alan Kovski

TO: Bill Wicker 586-5823.

International Federation of Industrial Energy Consumers
North America
1110 N. Glebe Road, Suite 610 • Arlington, VA 22201 • Ph (703) 276-0600 • Fx (703) 276-7662

FOR IMMEDIATE RELEASE
July 14, 1997

CONTACT: Paul Cicio
202-429-3411

DOE REPORT UNDERSCORES NEED TO WEIGH ECONOMICS IN TALKS TO DRAFT U.N. CLIMATE TREATY

In the most important work to date examining the potential economic impacts of a climate treaty, a report released today by the U.S. Department of Energy underscores the serious consequences of policies to lower greenhouse-gas emissions.

The DOE study explores the hypothetical impact of fuel-price increases from policies to curb emissions of six major, energy-intensive industries in the U.S. The report, a public-private sector collaboration, shows that higher energy prices would severely damage the six industries, while providing little environmental improvement. In fact, the DOE report states that fuel price increases would stifle investment in clean, energy-efficient technologies needed to lower emissions.

"This report is a prime example of the meaningful dialogue that needs to occur between the Administration, industry and environmentalists in order to develop policy solutions that improve our environment without harming our economy and competitiveness," said Paul Cicio, chairman of the International Federation of Industrial Energy Consumers of North America (IFIEC, N.A.). "We applaud the Energy Department's approach to addressing this issue, and hope the information will be folded into the Administration's ongoing examination of the economic implications of a climate treaty."

The six industries examined in the DOE study are basic chemicals, iron and steel, petroleum refining, aluminum, paper and allied products, and cement. Highlights include:

- Roughly 20-30% of the energy-intensive basic chemical industry would move to developing countries over 15 to 30 years as new plants are built; DOE estimates accompanying job losses as high as 200,000.
- U.S. steel shipments would fall 30%, with job losses of roughly 100,000.

- All primary aluminum plants in the U.S. would close by the year 2010, if fuel price increases are applied to hydro- and thermal-based electricity. Current employment in U.S. primary aluminum production is roughly 18,000.
- Domestic paper and pulp producers would realize "serious negative employment and output effects" with no ability to absorb energy price increases absent "a major technological breakthrough."
- Petroleum industry output would drop 20%, with Northeast and Gulf Coast refiners most severely affected. Shutdowns are anticipated at many U.S. and other OECD refineries.
- Approximately 17 to 26 million metric tons of cement clinker capacity would be shut down in the cement industry, causing the loss of 3,700 to 5,800 jobs, primarily in small communities. Imports would displace domestic production between 37% and 46% of total consumption by 2010.

The DOE report comes as the U.S. and 159 other nations move into the final stage of negotiations on an international treaty to cut emissions of carbon dioxide and other gases that are believed to be causing climate change. The talks are aimed at committing the U.S. and other "developed" countries to make mandatory reductions in greenhouse gases.

IFIEC of North America is a non-profit organization of energy-intensive U.S. companies for which the price and availability of energy, for both power and feedstock, represents a major element of the cost of doing business.

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RFF Launches Internet Site Devoted to Climate Change Policy To: National Desk, Environment Writer

Contact: Michael Tebo of Resources for the Future, 202-328-5019, or e-mail: tebo(At)rff.org

WASHINGTON, July 14 /U.S. Newswire/ -- As policymakers prepare for the upcoming meeting of the Conference of the Parties, Resources for the Future (RFF) today launches WEATHERVANE, an internet forum dedicated to climate change policy. Its aim is to provide the news media, legislators, opinion leaders and the interested public with neutral analysis and commentary on U.S. and international policy initiatives designed to reduce emissions of greenhouse gases.

No Argonne reference, info only. BW

RFF published the first edition of Weathervane today, Monday, July 14, at http://www.weathervane.rff.org. Subsequent issues will be published on the first and third Monday of each month.

"Just as a traditional weathervane tracks the direction of the wind, Weathervane tracks the developments in climate change policy, both internationally and within the United States," Weathervane Editor Michael Tebo says. "And, just as one of the basic rules for designing a weather vane is that there must be equal mass on either side of its center, our editorial aim is to present balanced and objective information, with no one perspective or viewpoint dominating our analysis and reporting."

Each issue includes a number of feature articles written by Weathervane staff, RFF researchers, and invited policymakers and opinion leaders. In the inaugural issue, features include:

-- How to Think About Climate Change, an overview of key issues and principles in the climate change debate written by Michael Toman, director of RFF's Climate Economics and Policy Program.

-- How to Interpret Energy Data and Understand Its Role In Policy, a primer on climate data written by Raymond Kopp, director of RFF's Quality of the Environment division.

-- Essays contributed by Natural Resources Defense Council's Daniel Lashof; the American Petroleum Institute's William O'Keefe; Rep. John Dingell (D-Mich.), and White House Climate Change Task Force Chairman Dirk Forrester. They respond to the question: Climate Change: Condition Critical? Is a climate change treaty really needed right now? What's at stake and what are the chances for reaching an agreement? What have been the stumbling blocks or sticking points to a treaty so far?

-- An overview of the activities of the Ad Hoc Group of the Berlin Mandate (AGBM), a subsidiary body of the U.N. Framework Convention on Climate Change, by Michael Zammit Cutajar, executive secretary to the Secretariat of the U.N. Framework Convention on Climate Change. He discusses accomplishments at the March 1997 AGBM meeting and identifies the key issues that are expected to be addressed at the upcoming August and October AGBM meetings.

Each issue will also contain a number of departments. These include: At the Negotiating Table, which tracks developments in international policy, the key players in the debate, significant reports issued by various government and intergovernmental groups and dates of international meetings; a research spotlight on new climate findings and projects; an expanding glossary of economic, environmental and ecological terms often used in climate change negotiations; and a "sounding off" open forum for site visitors to voice their opinions on a variety of topics related to climate change.

Weathervane is a complement to RFF's Climate Economics and

Policy Program. Launched in October 1996, the program seeks to increase understanding and knowledge of the complex issues that must be addressed to design appropriate domestic and international policies that are effective, reliable and cost-efficient.

Editors: Some computer systems do not recognize the "at" sign. It is an important component of e-mail addresses and should be used in place of the symbol (At) in the contact information above.

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[energy]

Department of Energy
Washington, DC 20585

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1000 Independence Ave., S.W.
Room 7C-016
Washington, DC 20585
Phone: 202/586-5800 Fax: 202/586-0861

'97 JUL 3 PM 1:47

DATE 3 JULY

TO TODD STERN FAX NO 456-2215

FROM MARC CHUPKA

MESSAGE SOME PRELIMINARY Q's & A's. THESE ARE TOO ACADEMIC FOR AGGRESSIVE ATTACKS — WE ARE WORKING ON SOME TOUGHER ONES FOR MONDAY

— Marc

Pages to follow 4

ARGONNE REPORT Q'S AND A'S

Q1. WHAT WAS THE PURPOSE OF THIS STUDY?

A1. The purpose of this study was to explore the possible effects of a set of hypothetical fuel price increases on six energy-intensive industries that are subject to significant foreign competition:

- basic chemicals;
- iron and steel;
- petroleum refining;
- paper and allied products;
- aluminum; and
- cement.

Panels of industry representatives and experts from academia, environmental groups, organized labor, the financial community, and government were asked to assume a projection of energy price increases that incorporated specific assumptions about the energy price effects of a postulated climate change agreement, and reflect on the possible industry responses. Panels for each of the industries met to discuss the possible impacts on industry output, employment, energy usage, technology, costs, prices, imports, and exports.

Q2. WHAT DID THE PANELISTS FIND?

A2. Overall, the participants reported negative impacts on the six industries under the assumed energy price increases. Panelists predicted that the industries would experience reductions in output and employment from the projected baseline levels.

Less-developed countries, which were assumed in the workshops not to adopt binding commitments to lower greenhouse gas emissions in the timeframe considered, would capture an increasing share of the respective markets. Some industries would locate new plants in the less developed countries, and some would increase the utilization of existing production facilities already located in these areas.

Q3. WHAT IS THE DEPARTMENT'S RESPONSE TO THIS INPUT FROM INDUSTRIAL EXPERTS?

A3. The workshops provided valuable information that reinforced the need to pursue sensible climate change policies. The negative conclusions expressed by the participants and summarized in this report are predicated on the specific energy price scenarios assumed in mid-1996, which do not reflect key policies advocated in international negotiations by the Clinton administration in the intervening year. For example, the assumed fuel price scenarios do not take into account the impact of multi-year emissions budgets, international emission trading, and joint implementation. If adopted, these provisions would lower the costs of achieving emission reductions in the U.S. and other developed countries and would significantly lower the energy price increases assumed in the workshop scenarios. The Administration has also argued that the developing countries should assume additional obligations in the near future to reduce the projected rapid growth of greenhouse gas emissions. No such actions were reflected in the workshop scenarios.

The environmental and socio-economic issues surrounding the stabilization of greenhouse gas emissions have been the subject of considerable debate, but are especially sensitive now as participating nations are engaged in a new round of negotiations for further commitments within the Framework Convention on Climate Change that will conclude in December of 1997 in Kyoto, Japan. The U.S. position taken in these negotiations stresses that international agreements to combat the threat of climate change must be flexible, cost-effective, realistic, achievable, and ultimately global in scope.

By examining scenarios that do not reflect such policies, the workshops identified important economic risks in key industrial sectors that reaffirm the wisdom of the U.S. approach.

Q4. HOW DOES THIS VERSION OF THE REPORT COMPARE TO THE EARLIER (DRAFT) PAPER BY SUTHERLAND?

A4. A draft paper providing a personal interpretation of the workshops was circulated prior to completion of this report by an individual employee of Argonne National Laboratory. That paper was apparently prepared in advance of the participants' review of the workshop summaries and prior to the lead authors' completion of the revised focus papers based on comments received at the workshops. The Argonne report issued this week provides an accurate and complete summary of the workshop findings.

Q5. DOESN'T THIS REPORT UNDERCUT THE ADMINISTRATION'S POSITION ON CLIMATE CHANGE?

A5. No. Rather, it highlights the need for flexibility in implementing emissions reduction and the need to engage developing countries in the process of emissions reduction. Flexibility, including emissions trading, joint implementation, and multi-year emissions budgets and provisions to ensure the future participation of developing countries in binding emissions reductions are central elements of the Administration's climate change strategy.

Q6. HOW DOES THIS STUDY RELATE TO DOE'S INITIATIVES TO INCREASE INDUSTRIAL ENERGY EFFICIENCY?

A6. The study is unrelated to the activities of the Department's Office of Industrial Technologies, which is actively cooperating with many of these industries to achieve dramatically improved energy efficiency. Success of these efforts has the potential to improve the competitiveness of U.S. producers while reducing their energy use and greenhouse gas emissions. Increased energy efficiency also makes U.S. producers less sensitive to the adverse effects of any future energy price increases, regardless of their source.

Q7. WHAT WAS THE BASIS FOR THE PRICE SCENARIOS ASSUMED, AND HOW DO THEY COMPARE TO THE PRICE SCENARIOS BEING USED FOR THE INTERAGENCY ANALYSIS TEAM WORK?

A7. The hypothetical fuel price scenarios used in this project are within the range suggested by analyses presented at the inter-agency Climate Change Analysis Workshop held at Springfield, Virginia in June, 1996. These analyses were preliminary in nature and did not incorporate cost-saving features currently included in the U.S. negotiating position such as emissions trading, joint implementation, and multi-year emission budgets. The industry workshop participants did not assume any complementary technology-oriented policy measures, nor were they asked to consider price scenarios which included ameliorative policy measures that could offset the impact of energy price increases on industry.

Q8. WHAT IS THE BASELINE STATUS OF THESE INDUSTRIES IN THE ABSENCE OF CLIMATE POLICY?

A8. In many of these industries, recent U.S. investment has been in the form of refurbishing existing plants rather than building new "greenfield" plants. Even without the assumed fuel price increases, countries with lower costs for energy and other inputs or more rapidly growing demands may be more attractive than the U.S. as sites for new greenfield plants.

Q9. HOW IMPORTANT ARE DEVELOPING COUNTRY COMMITMENTS TO THE LONG RUN RESULTS?

A9. The Administration has argued that developing countries should assume additional obligations in the near future to reduce growth in their GHG emissions. While developed countries now account for the lion's share of emissions, developing country emissions are projected to grow rapidly. The potential for shifting production of energy-intensive products to developing countries identified in the Argonne report would exacerbate emissions growth. It will not be possible to achieve the long run objective of the Climate Convention without substantial emissions reductions by developing countries. Their commitment to such reductions, which were not reflected in the workshop scenarios, would be likely to significantly reduce the potential for shifts in industry location identified at the workshops.

It is likely that energy-intensive industries in other developed countries would be subject to similar challenges as their U.S. counterparts under the energy price increase scenarios developed for this study. Energy -intensive industries in other Annex 1 would also benefit from the cost-reducing flexibility provisions included in the U.S. proposal, and from an approach that assures developing country participation in emissions reductions will occur in the near future.

Department of Energy
Washington, DC 20585

'97 JUL 3 PM12:20

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Washington, DC 20585
Phone: 202/586-5800 Fax: 202/586-0861

DATE 3 July

TO Todd Stern FAX NO 456-2215

FROM Marc Chupka

MESSAGE Press Release & Transmittal
Memo for Argonne Report

— Marc

Pages to follow______

NEWS MEDIA CONTACT:
Amber Jones or Bill Wicker, 202/586-5806

FOR IMMEDIATE RELEASE
July 2, 1997

Report Affirms U.S. Direction in Formulating Climate Change Policies

The Impact of High Energy Price Scenarios on Energy Intensive Sectors: Perspectives from Industry Workshops, was released today. This report summarizes a series of workshops conducted by Argonne National Laboratory in 1996 under contract to the Department of Energy.

The workshop participants examined the impact of hypothetical large energy price increases on six energy-intensive industries--basic chemicals, iron and steel, petroleum refining, paper and allied products, aluminum, and cement. The price scenarios considered--which were based on analyses of other countries' greenhouse gas reduction proposals as of early 1996--do not reflect key policies subsequently advocated by the Clinton administration in international negotiations on climate change. Submitted in January, 1997, the administration's proposals call for developing countries to join in reductions of greenhouse gas emissions by a certain date and would provide developed countries maximum flexibility in how they can reduce emissions (~~i.e.~~, by allowing for multi-year emissions budgets, international emissions trading, and credit for "joint implementation" projects that reduce emissions in developing countries). These approaches assure that climate change goals are met in the most cost-effective ways. eg

"The findings in this report reinforces our commitment to pursue climate change policies that reduce emissions and avoid the kinds of negative economic impacts described in the workshops," said Marc Chupka, Acting Assistant Secretary for Policy and International Affairs. "By examining various high energy price scenarios, workshop participants identified important economic risks in key industrial sectors. What we've learned affirms the wisdom of this administration's approach, to negotiate an agreement based on a set of flexible policies and the participation of all nations ~~will~~ ensure that the U.S. climate change response has a minimal impact on our economy, ~~and competitiveness.~~" to Chu

Media can obtain a copy of the report's executive summary and cover letter by calling the DOE Press Office at 202/586-5806. Others can request a copy from DOE Public Inquiries at 202/586-5575.

- DOE -

R-97-063

July 2, 1997

MEMORANDUM TO DISTRIBUTION

FROM: Marc W. Chupka
Acting Assistant Secretary
Office of Policy and International Affairs

SUBJECT: *Impacts of High Energy Price Scenarios on Energy-Intensive Sectors: Perspectives from Industry Workshops*
Compiled by Argonne National Laboratory

Attached is a report based on a series of workshops conducted in June and July of 1996 by Argonne National Laboratory under contract with the Department of Energy. The views contained in this report are those of the workshop participants and do not reflect the position of the Department of Energy.

The workshops explored the possible effects of new climate change commitments on six energy-intensive industries (basic chemicals, iron and steel, petroleum refining, paper and allied products, aluminum and cement) that are subject to significant foreign competition. For each sector, Argonne selected a panel of industry representatives, experts from academia, environmental groups, organized labor, the financial community and government. These panels were then asked to assume a projection of energy price increases that incorporated specific assumptions about the energy price effects of a postulated climate change agreement, and to reflect on the possible industry responses. Participants in each sector met for separate half-day workshops to discuss the impacts these energy price scenarios would have on industry output, employment, energy usage, industry costs, industry prices, imports and exports.

Overall, the participants reported negative impacts on the six industries under the assumed price increases. Under the given scenarios, panelists predicted the industries would experience reductions in output and employment from projected baseline levels. Less-developed countries -- which were assumed in the workshops not to adopt binding commitments to lower greenhouse gas (GHG) emissions in the timeframe considered -- would capture an increasing share of the respective markets. Some industry representatives reported that it would be necessary to relocate under the hypothetical situation, and some reported that industry composition would change.

It is important to emphasize, however, that the negative conclusions expressed by the participants and summarized in this report are predicated on the specific restrictive energy price scenarios assumed in mid-1996, which were based upon interagency analyses of proposals advanced by other countries at that time. As such, these price scenarios do not reflect key policies advocated in international negotiations by the U.S. government in the intervening year. For example, the assumed fuel price scenarios do not take into account the impact of multi-year emission budgets, international emission trading and joint implementation. If adopted, these provisions would lower the costs of achieving emission reductions in the U.S. and other developed countries, and would significantly lower the energy price increases assumed in the workshop scenarios. Nor did the workshop participants consider the acceleration of energy efficient and low-carbon technology development from expanded R&D efforts by the public and private sector, which could cushion the impact of energy price increases. Finally, the Administration has argued that developing countries should assume additional obligations in the near future to reduce their projected rapid growth of GHG emissions. No such actions are reflected in the workshop scenarios.

Despite these limitations, and taken in context, the workshops provided valuable information that has reinforced the need to pursue sensible climate change policies. The environmental and socio-economic issues surrounding the stabilization of GHG emissions have been the subject of considerable debate, but are especially sensitive now as participating nations are engaged in a new round of negotiations for further commitments within the Framework Convention on Climate Change that will conclude in December of 1997 in Kyoto, Japan. The U.S. position taken in these negotiations stresses that international agreements to combat the threat of climate change must be flexible, cost-effective, realistic, achievable, and ultimately global in scope. By examining scenarios that do not reflect such policies, the workshop papers have identified important economic risks in key industrial sectors that reaffirm the wisdom of the U.S. approach.

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TO Shelly Fidler FAX NO 456-2710

FROM Marc Chupka

MESSAGE This is the Executive summary to the Argonne Report

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The Impact of High Energy Price Scenarios on Energy-Intensive Sectors: Perspectives from Industry Workshops

by

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EXECUTIVE SUMMARY

The Framework for the Report:

- This report explores the possible impacts of hypothetical scenarios of higher fuel prices on six large energy-intensive industries subject to foreign competition:

basic chemicals.	petroleum refining,	paper and allied products,
iron and steel.	aluminum, and	cement.

- These six industries account for over 70 percent of the manufacturing use of energy for heat. power. and electricity generation. Collectively. in 1994 the value of their shipments accounted for approximately $686 billion, or 20.5 percent of the total value of shipments for manufacturing. and their employment total was almost 1.8 million, or about 10 percent of the manufacturing employment total of 18.3 million. Total expenditures for purchased fuel and electricity in these industries in 1994 were over $26 billion. Since several of the six industries, notably paper. chemicals. and refining, use substantial quantities of by-product and waste fuels, these expenditures for purchased fuel and electricity average only 3.8 percent of their total value of shipments, ranging from 2.8 percent for refining to over 22 percent for aluminum.

- The report summarizes the deliberations at a series of six workshops (one for each industry) involving experts from producers, labor. the financial community, government, academia. and environmental. energy-efficiency and other non-governmental organizations. Participants were asked to assess the potential impacts of significant fuel price increases on trade and competitiveness issues at the industry level in order to provide the Administration with sectoral detail not available from more aggregate economic models. An industry-specific discussion paper was commissioned and circulated to participants in each panel in advance of their meeting to provide a focus for the dialogue. Because the report reflects the views of the discussion paper authors and workshop participants. it does not necessarily reflect the views of either Argonne National Laboratory or the U.S. Department of Energy which commissioned this project in the spring of 1996.

- The information compiled in this report is intended to both supplement and inform previous and pending analyses that use large macroeconomic or general equilibrium models to estimate the economic impacts of alternative energy price scenarios. While large aggregate models provide a useful way to explore the main linkages in the economy, and examine how impacts might filter through broadly defined sectors, detailed impacts on energy-intensive industries cannot be isolated. For example, in some widely-used models, changes in domestic fuel prices do not affect the mix of products consumed and produced, and therefore cannot track possible changes in the share of specific industrial demands met by imports.

- The discussion paper authors presented partial equilibrium analyses which examine price and quantity relationships in specific markets while assuming that all other markets would remain in equilibrium. These assumptions were necessary to limit the scope enough to examine some key relationships. There is no doubt that some possible substitutions of products across industry lines, for example, were not considered. Hopefully, improved knowledge of the key relationships examined here can provide insights into understanding the bigger picture.

- The report is motivated by negotiations now being conducted within the Framework Convention on Climate Change (FCCC). The ultimate objective of the FCCC is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. In April 1995, at the first Conference of the Parties (COP-1) in Berlin, it was agreed that existing commitments in the FCCC were not adequate to address this objective. The parties agreed to negotiate further quantified commitments to limit emissions, but with the proviso that these new commitments would not apply to developing countries. The commitments negotiated under this "Berlin Mandate" are to be concluded by COP-3 in 1997.

- The extent and timing of emissions reduction by developed countries, the distribution of reduction requirements across countries, and the degree of flexibility to be provided through such mechanisms as emissions trading and joint implementation, emissions budgets, and banking and borrowing are still under negotiation. Decisions made in these areas, as well as domestic decisions involving both the choice of policies and the distribution of burdens across sectors and activities will significantly influence the impact of any new commitments on industry. One possible outcome of international agreement and domestic policy decisions is higher energy prices. This report explores the sensitivity of energy-intensive industries to assumed scenarios of increased fuel prices faced by industrial users in developed countries.

- To provide a focal point for these sessions, the Office of Policy and International Affairs created two "price adder" scenarios discussed below under **Energy Price Scenarios.** The discussion paper authors and panelists were asked to focus on three questions:

    - What will be the effects of the specified energy price scenarios on the competitive positions of U.S. producers, including import and export levels, and shares of world production by U.S. plants?

    - What are the likely impacts on key indicators, such as output, employment, energy use, and output prices? and

- Where in the world and in the U.S. will new plants be most likely to open and where will plants be most likely to be closed?

The Main Workshop Findings:

As noted above, the observations presented below are derived from the six discussion papers and from the workshops, and reflect the views of the authors and workshop participants.

General:

- In many of these industries, recent U.S. investment has been in the form of refurbishing existing plants rather than building new "greenfield" plants. Even without the assumed fuel price increases, countries with lower costs for energy and other inputs or more rapidly growing demands are more attractive locations for the location of new greenfield plants than the U.S.. Thus, in the base case scenario, which assumes no new policy actions, new greenfield plants are not likely to be built in the study period, to the year 2015. Most of this report focussed on the projected continued economic viability of existing plants in the U.S. (and in other participating countries), in particular on the potential for new investments in these plants.

- The fuel price scenarios assumed in this study would result in the six industries experiencing significant reductions in output and employment. The assumed fuel price adders would permit less developed countries, not subject to the assumed fuel price adders, to capture an increasing share of the world and U.S. markets. The goods produced in these six energy-intensive industries are traded extensively in competitive world markets.

- The assumed fuel price adders would have widely different effects within different segments of the six industries and also across different regions. These differential effects include shifts in both industrial composition and geographic concentration, and are due to numerous factors, including variations in energy intensity, production practices, fuel mix, and access to international suppliers.

- The total effects of fuel price adders on employment, output, and imports do not occur immediately, but are distributed over a period of years. In the short term, the decreases in output could be cushioned by the existing capital stock lowering fixed costs, and some technical improvements partially offsetting the higher variable costs from increased energy prices. In the longer term, the energy portion of new plant location decisions would be driven by the lower prices of fuel in non-OECD countries which is common to both scenarios.

- To the extent that the assumed fuel price adders encourage a reallocation of new investments away from OECD or Annex I countries and towards the developing countries, the emissions resulting from new plants would simply be redistributed and could even increase if investments made in non-participating countries are less energy-efficient.

- Price-induced technology improvement in developed countries cannot be relied on to reduce global emissions from energy-intensive industries. Most of these industries are characterized by a production process that has been in use for many years. Technical improvements have been gradual and incremental and have been introduced as part of the normal turnover of the capital stock. These technical improvements have increased overall productivity, i.e., the productivity of labor, capital, and energy.

- The assumed fuel price increases would not induce these industries to undertake investments or technological improvements that would reduce emissions. The various working groups provided different reasons for this conclusion. Higher energy costs coupled with already thin profit margins would discourage any new investment, and with some international competitors not subject to the assumed price increases, domestic industries would become non-competitive.

Industry-Specific:

- With the assumed fuel price scenarios, about 20-30% of the energy-intensive basic chemical industry would move to developing countries over 15 to 30 years as capital is replaced, with accompanying job losses that could be as high as 200,000 compared to predicted future baseline levels. A significant shift in trade flows from a surplus to a deficit would occur, but the magnitudes could not be assessed with precision.

- If fuel price "adders" applied to hydro-based and thermal-based electricity, all primary aluminum plants in the U.S. would close by the year 2010. Currently, approximately 40 percent of U.S. primary aluminum production capacity is fueled by hydropower. If hydro-based electricity were excluded from the assumed electricity fuel price adders, only the 60 percent of primary aluminum production capacity that depends on thermal-based electricity would close. Current employment in U.S. primary aluminum production is approximately 18,000. The recycled aluminum market has upward potential to offset a portion of the losses in primary production, with gain of some jobs, but recycling has limitations in terms of supply and quality.

- Shipments from U.S. steel producers might be cut about 30% under the increased fuel price scenarios considered in this project, with accompanying employment loss of approximately 100,000 jobs. Technological change may reduce energy use by 10-15% per unit of steel produced, but would not compensate for the cost advantage of non-participating countries. The U.S. steel industry would import raw steel in the form of slabs for domestic processing, and the raw steel would be produced primarily by non-participating countries. The scrap-based producers (mini mills) would be less affected than integrated producers, with the greatest negative impact being felt in the Chicago-Pittsburgh corridor where integrated mills are concentrated.

- Overall, the domestic paper and pulp industry would experience serious negative employment and output effects in response to the assumed increases in energy prices, as imports into the U.S. would displace domestic production. A large cost increase could not be absorbed without a major technological breakthrough in energy efficiency, which is unlikely. Integrated mills currently have the advantage of being able to use self-generated fuels including spent pulping liquors, bark removed from pulpwood, residue wood used as fuel chips, and hydropower to meet a significant proportion of their fuel needs, as much as 56 percent in 1994. If the assumed fuel price increases do not affect wood waste, the non-integrated mills would be at a significant disadvantage to the integrated mills, and many non-integrated mills would close. Since many non-integrated mills would recycle waste paper into new paper products, mill closures could constrain recycling markets. Recycling also could be deterred by the possibility that the value of waste paper as a fuel could exceed its value as a source of fiber in a scenario of high fossil fuel prices.

- In the petroleum refining industry, demand reduction alone would be likely to cause a loss of 20% of the industry output. Many U.S. and other OECD refineries would become non-competitive on world markets and would be closed down. The Northeast market is served by local refineries and by Gulf Coast refineries. Refineries in these two regions would be severely impacted by low cost foreign competition and would probably close. The Midwest and Rocky Mountains are relatively isolated and would be less impacted. The West Coast refineries are subject to stringent environmental controls and might also be undercut by lower import prices.

- For the cement industry, the assumed fuel price increases were estimated to shut down 17 to 26 million metric tons of clinker capacity (current total is about 75 million metric tons), causing the losses of 3,700 to 5,800 jobs. Although small from a national perspective, these losses are significant because cement plants are often located in small communities where the plant is the major employer. Imports would displace more domestic production, growing from 20 percent of total consumption in the year 2010 in the baseline case to between 37 and 46 percent of total consumption under the fuel price increase scenarios in 2010.

The Energy Price Scenarios:

- Baseline industrial fuel price projections for the U.S. were taken from the Reference case in the Energy Information Administration's 1996 Annual Energy Outlook (AEO96).