The Four E's

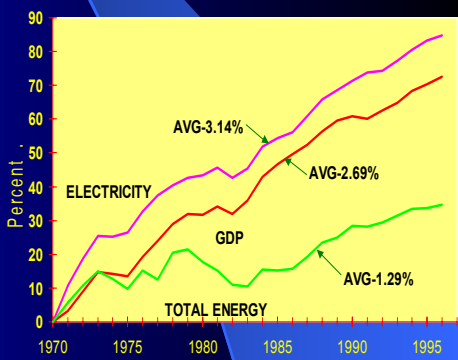
Energy

- Coal
- Nuclear
- Oil
- Renewable

Environmental

- Excessive Regulations for Protection of the Environment
- "Guns", Tobacco, Alcohol, Coal and Nuclear Power Plants

Economics



- Prosperity & inter-Relationship with Energy Costs
- Good Paying Jobs Require Large Quantities of Energy.

Education

- General Public Knowledge of Energy, Environmental Protection and the Inter-relationships of these on the Nation's Economy.
- Counter Eight years of constant unfavorable Mention of Building more Power Plants
- Promote the thinking of Energy Independence of the USA. This is not been talked about since the days of Jimmy Carter.

PURPOSE OF PRESENTATION:

- Where does energy come from?
- How is energy produced?
- Where is it utilized?
- What is the connection between energy costs, public health and continued economic prosperity?
- What can we do to help?

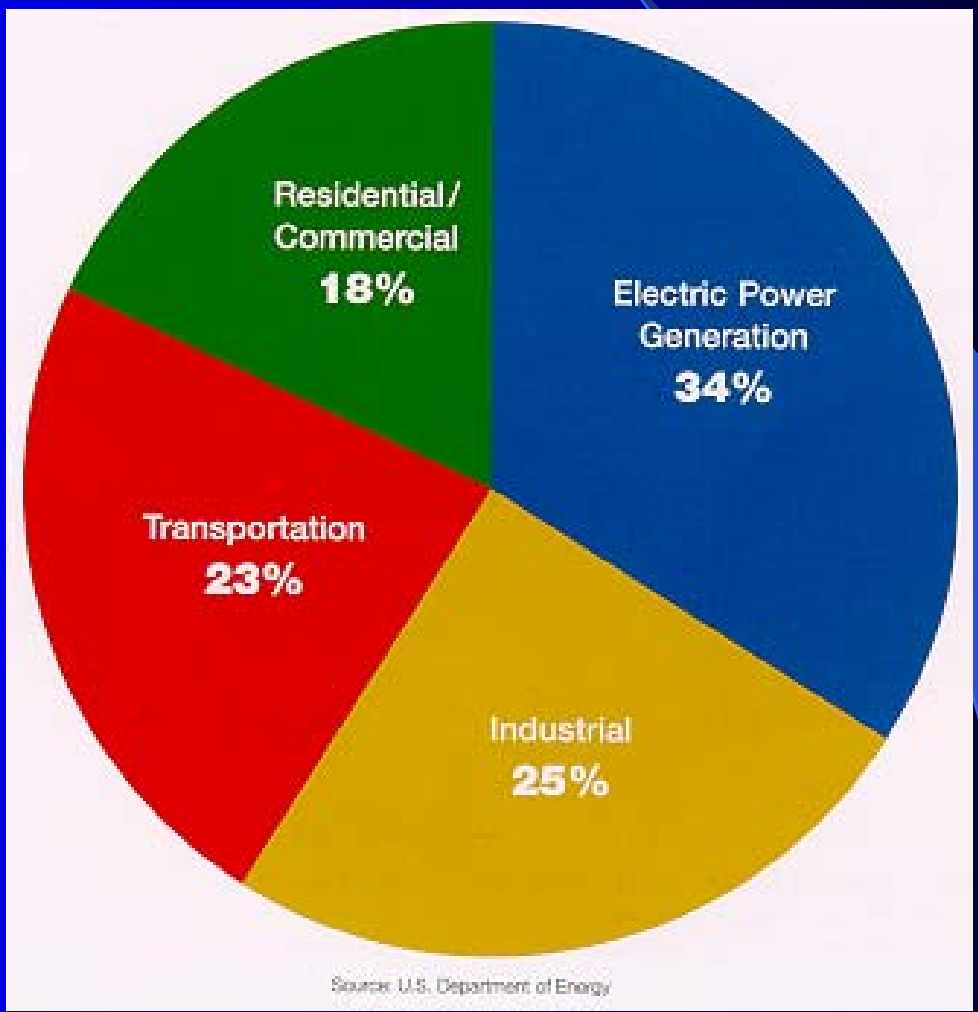
SERVICE QUALITY RESULTS STORM

ENERGY

Energy is the Fuel for Our Economy, Our Comfort, Convenience, National Security, and Our Health.

SERVICE QUALITY RESULTS STORM

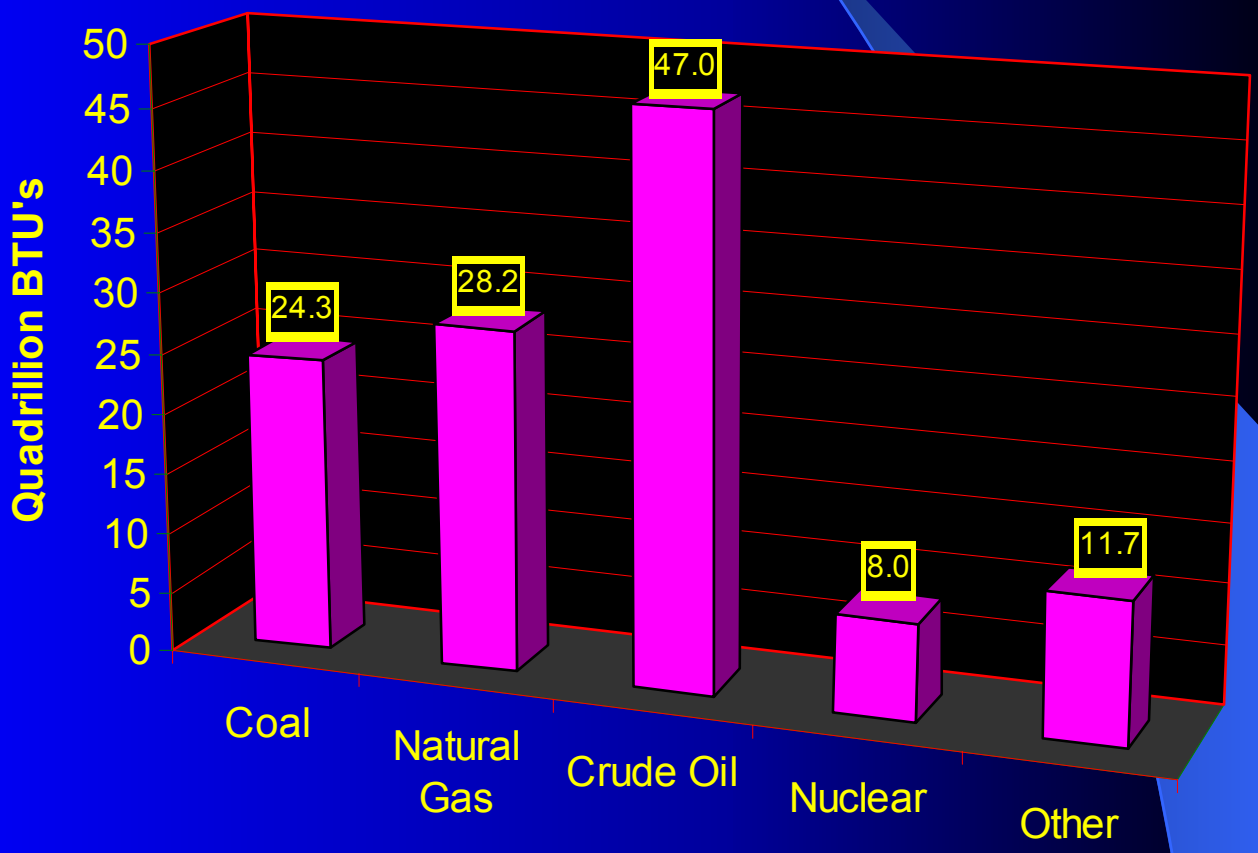
Fossil Fuel Consumption



SERVICE QUALITY RESULTS STORM

Energy

Total Approximate Energy Production of 2000
(Total of 119.3 Quadrillion BTU's)

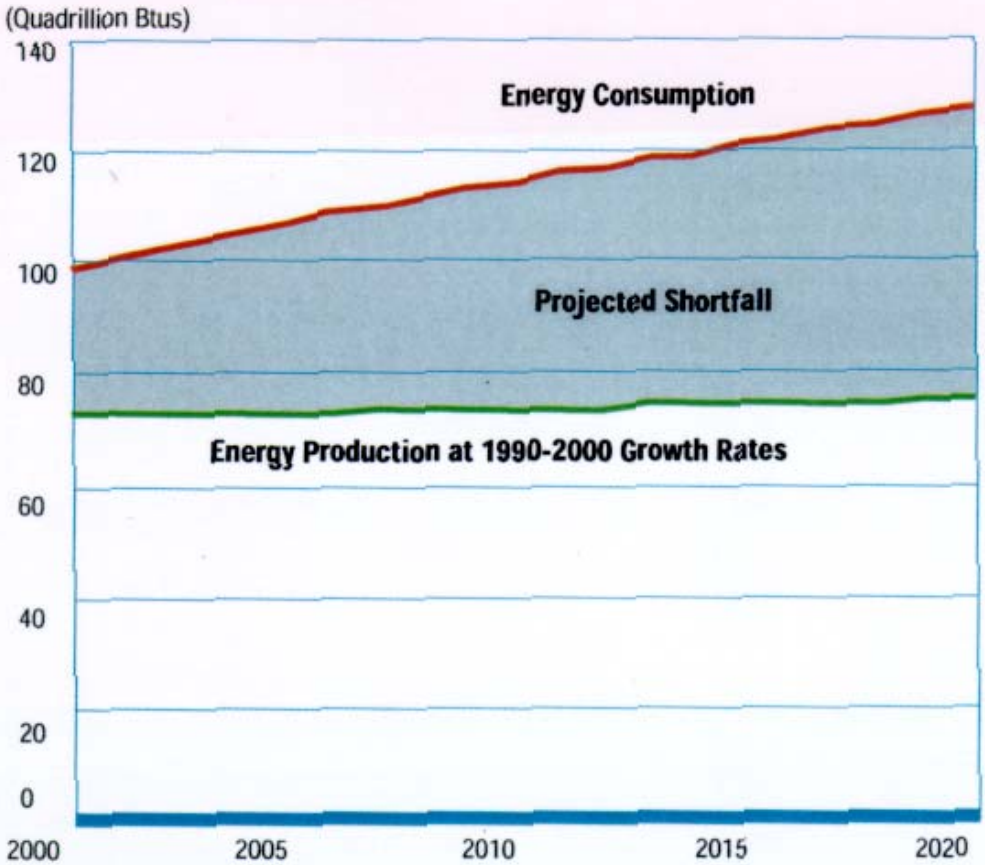


SERVICE QUALITY RESULTS STORM

US Production

Figure 1

Growth in U.S. Energy Consumption Is Outpacing Production



Over the next 20 years, growth in U.S. energy consumption will increasingly outpace U.S. energy production, if production only grows at the rate of the last 10 years.

Sources: Sandia National Laboratories and U.S. Department of Energy, Energy Information Administration.

National Energy Policy

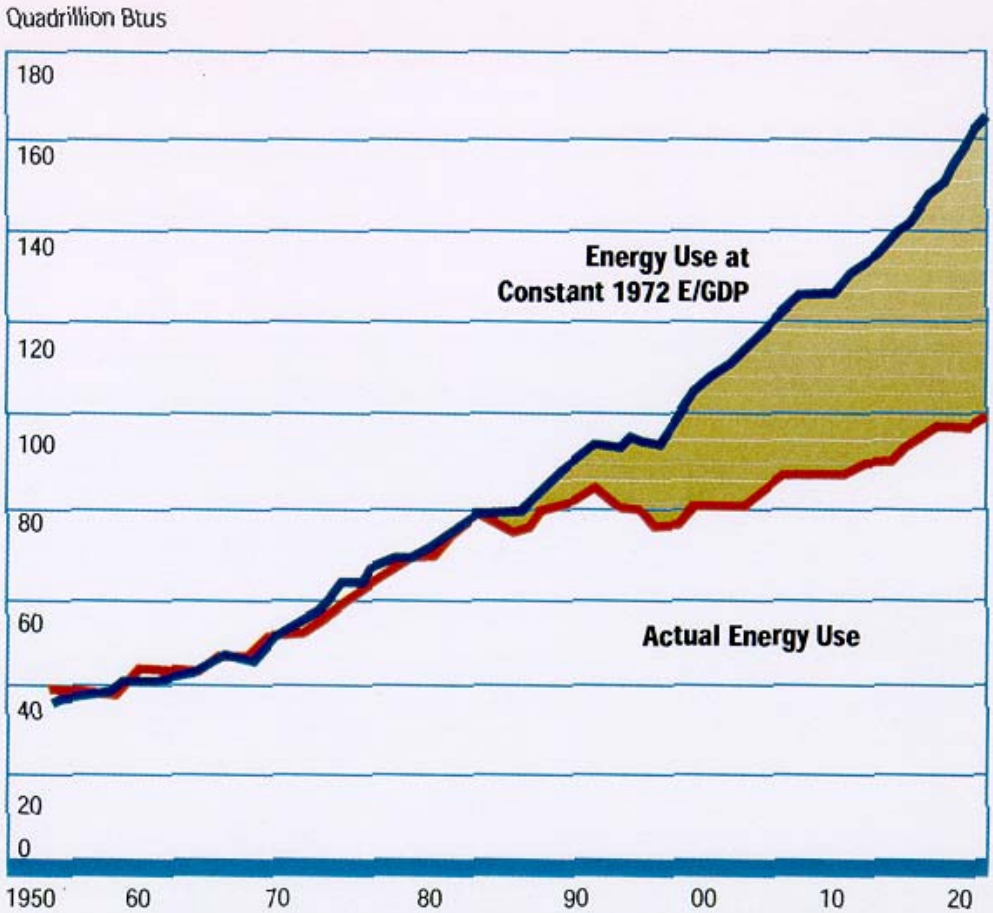
SERVICE QUALITY RESULTS STORM

The More Efficient US

Figure 4

U.S. Economy is More Energy Efficient (Energy Intensity)

Primary Energy Use



Improvements in energy efficiency since the 1970s have had a major impact in meeting national energy needs relative to new supply. If the intensity of U.S. energy use had remained constant since 1972, consumption would have been about 70 quadrillion Btus (74 percent) higher in 1999 than it actually was.

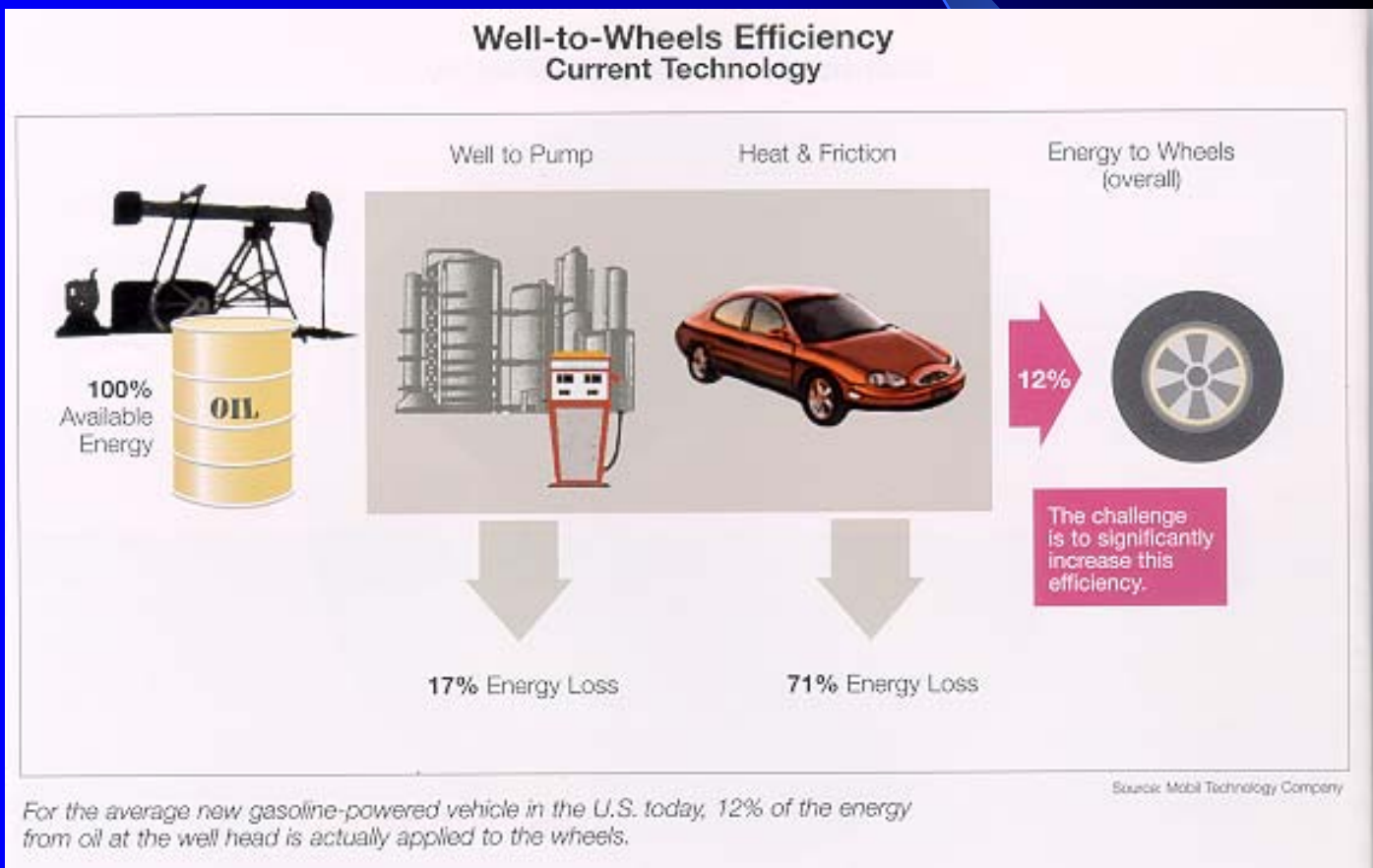
Source: U.S. Department of Energy, Energy Information Administration.

SERVICE QUALITY RESULTS STORM

Energy serves us from Eight basic sources, which are as follows:

- Oil (Gasoline, Diesel Oil, Home Heating Oil, Jet Fuel, etc...)
- Coal
- Nuclear Energy
- Natural Gas
- Hydro-Electric
- Bio-Mass (i.e. Wood Waste in Paper mills, Sugar Cane Stalks, etc..)
- Wind Power
- Solar

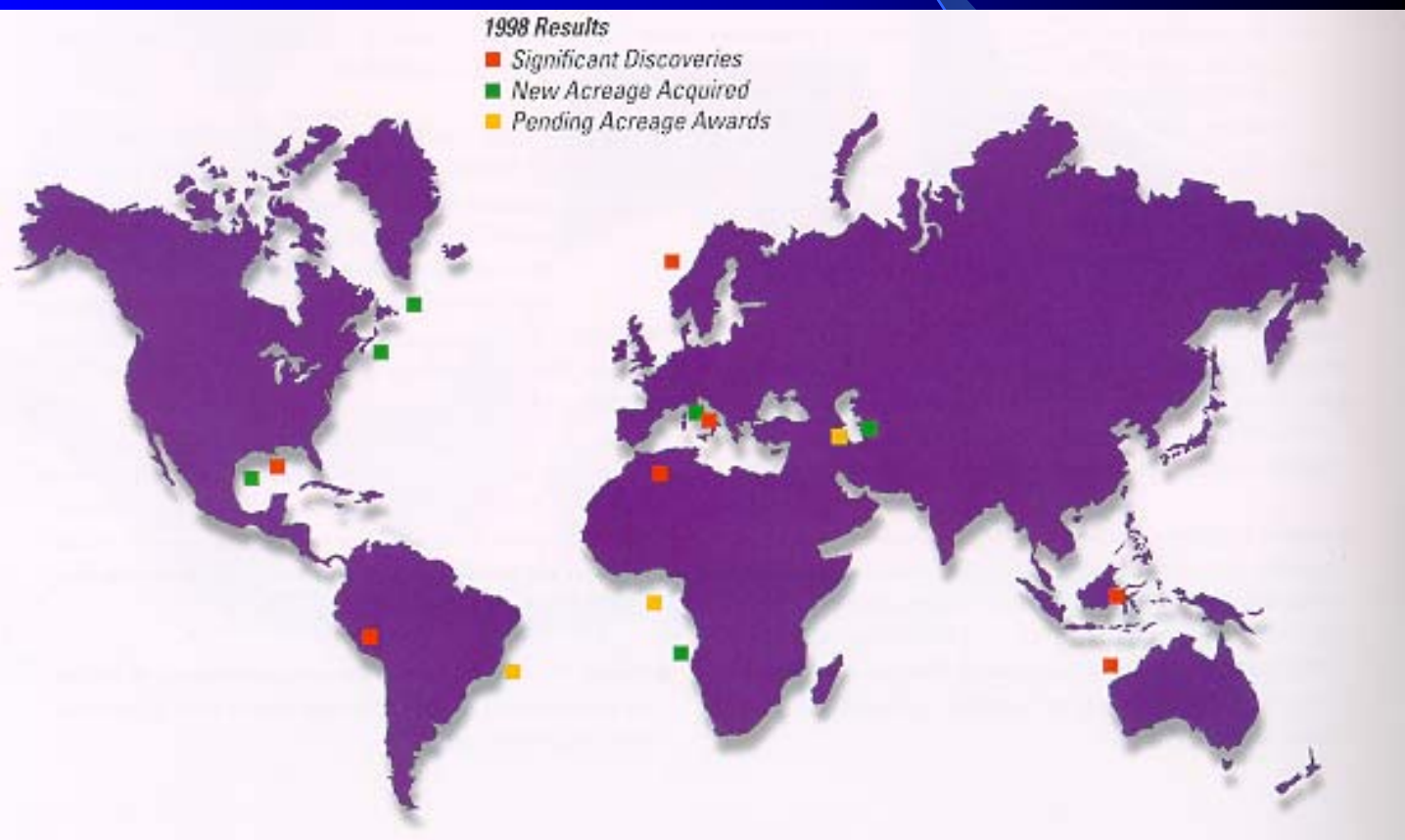
Well to Wheels



For the average new gasoline-powered vehicle in the U.S. today, 12% of the energy from oil at the well head is actually applied to the wheels.

SERVICE QUALITY RESULTS STORM

The World

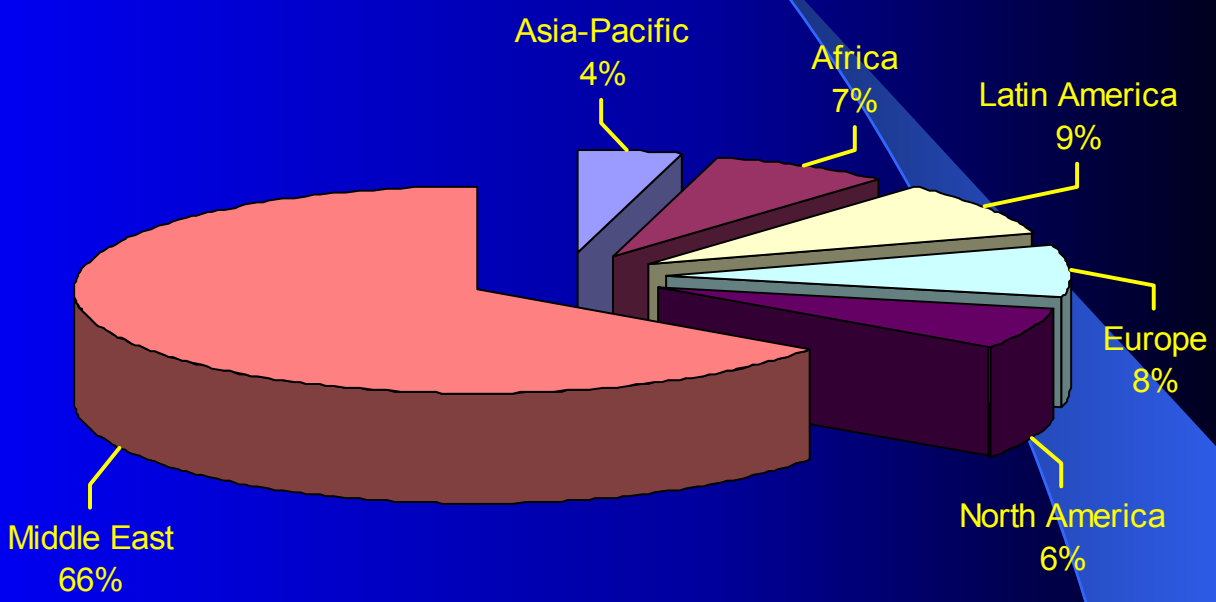


SERVICE QUALITY RESULTS STORM

Energy

Estimated Proven Reserves of Oil

(Reserves by Region, %)



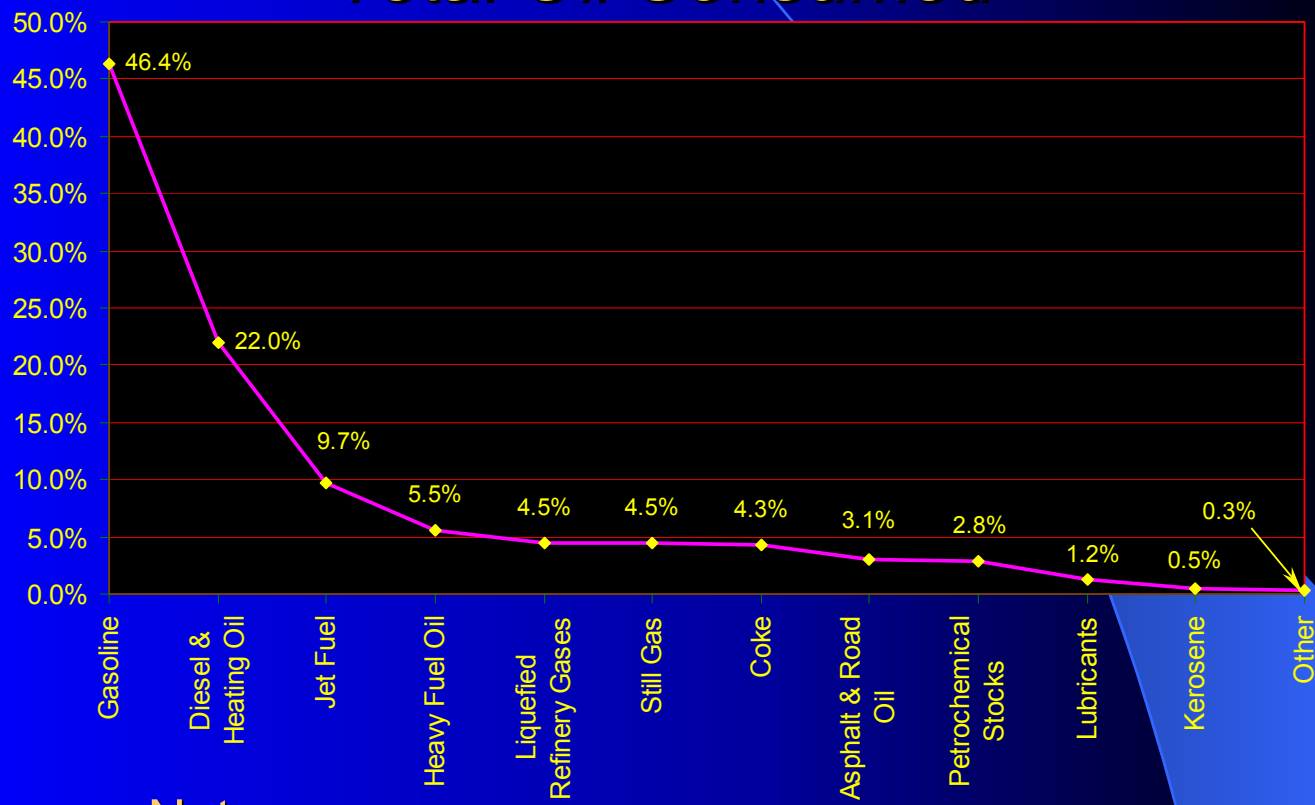
Note:

Oil accounts for about 40% of the total energy used in the USA and 97% of transportation fuels.

North America is the largest consumer of oil, with over four times the world average per person.

Energy

Oil Products as a Percentage of Total Oil Consumed



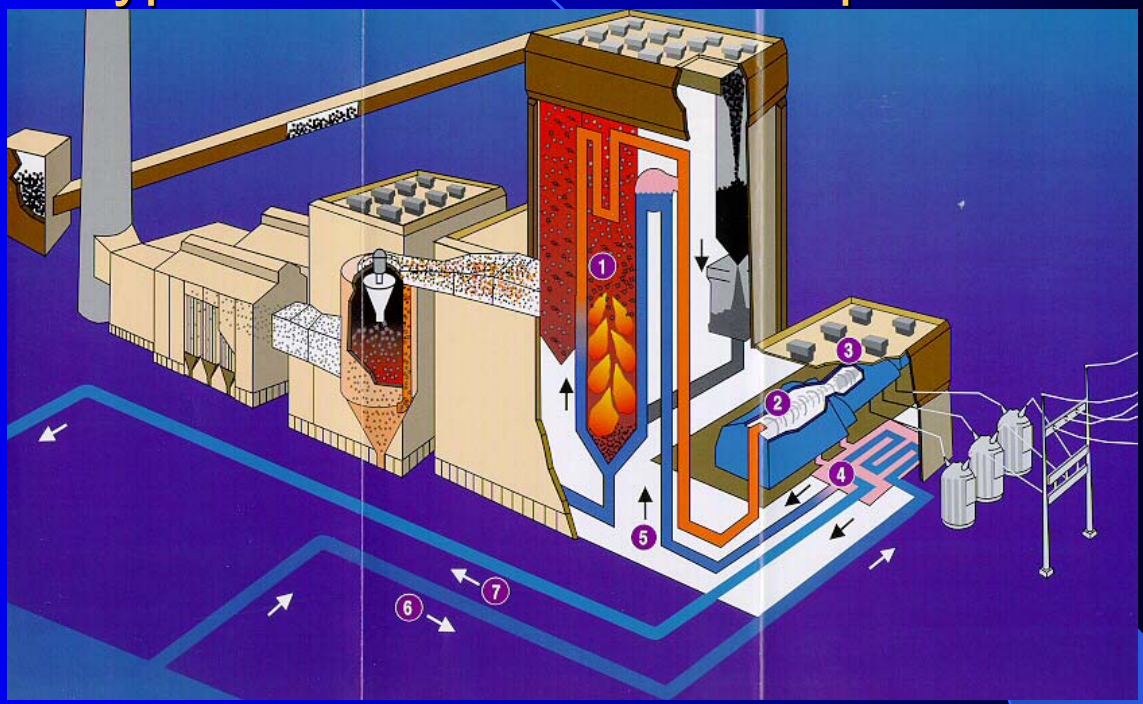
Note:

A short list of petroleum products includes:
Ink, roof shingles, paint, caulk, plywood, hoses, gloves, plastic containers, floor coverings, fertilizer, clothing, sporting goods, shoe soles, disks, credit cards, video tapes, etc…

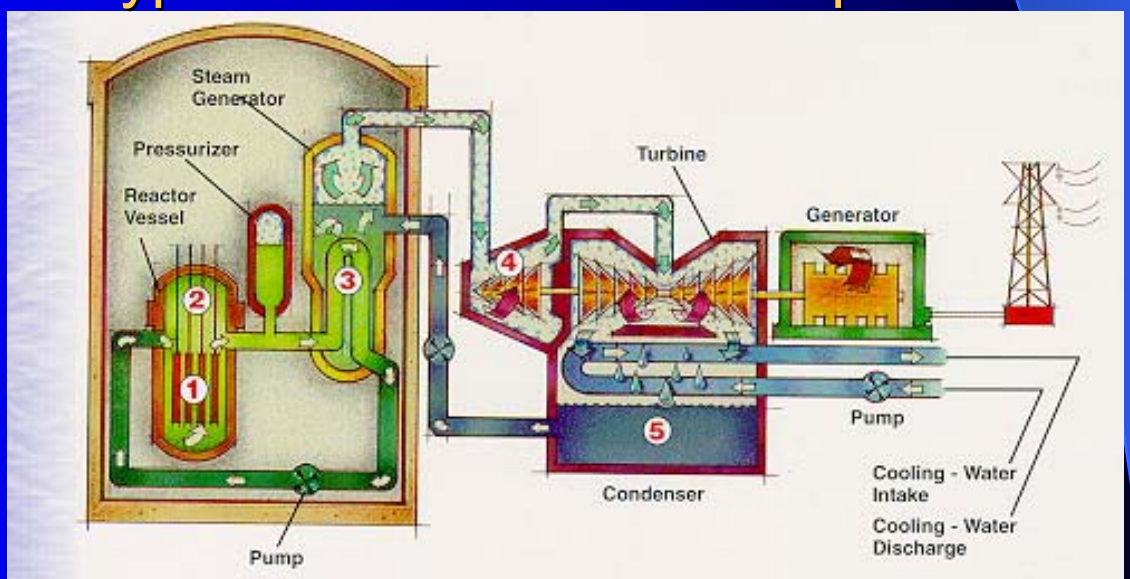
SERVICE QUALITY RESULTS STORM

Energy

Typical Coal Fired Boiler Operation



Typical Nuclear Reactor Operation



SERVICE QUALITY RESULTS STORM

Energy

A 2,000 +Mw power plant, such as Duke Marshall or CP&L Roxboro Steam plant will require approximately 1,400,000 Lbs/Hr of coal or 700 Tons/Hr, when operating at full capacity. This is about (7) loaded 100 Ton train cars per hour.

Energy

Some Facts on Energy

Average home uses about 2,000 kW per month

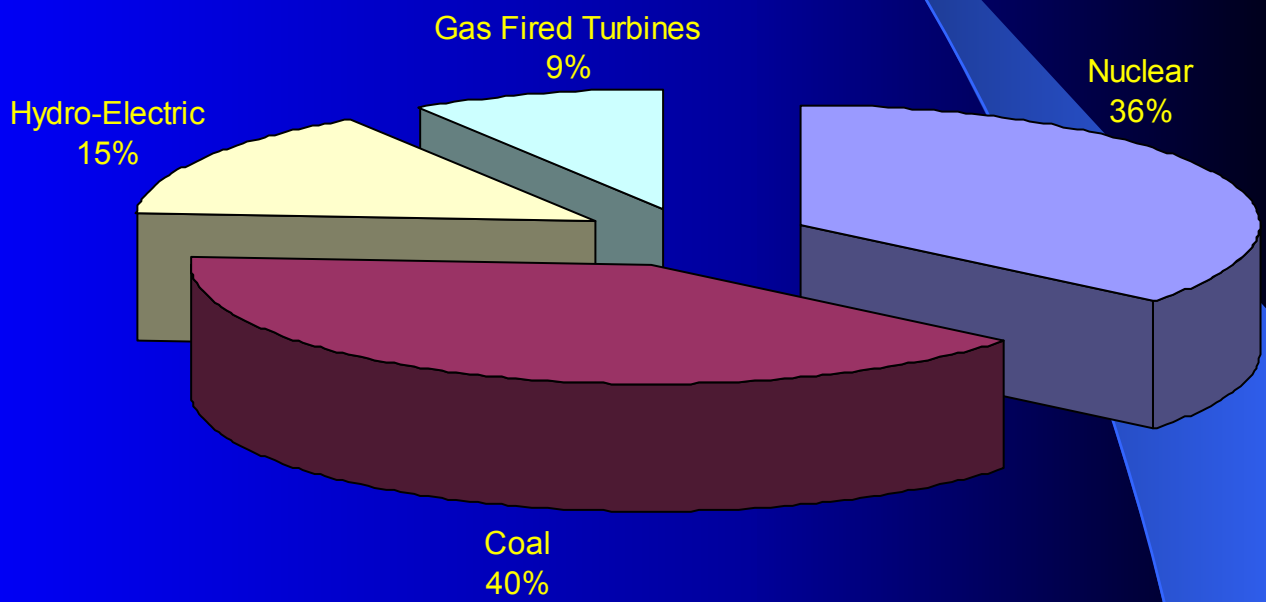
- If electricity was generated by 100% coal, this would require about 140 pounds of coal per household or about 5 pounds per day.
- Duke power almost generates 50% of their electricity with nuclear, the reduces the amount of coal required by about half, or say an average of about 2-3 pounds Of coal per household per day.
- Considering local industry:
  - Did you know it requires about 7 kW of electricity to produce one pound of aluminum? Put another way, the average electricity consumption of a total electric family home using 2,000 kW per month could be substituted to produce about 285 pounds of aluminum per month.

Energy

The age of these previous plants are all over 15 years. The newest plant, the Catawba nuclear plant provides nearly all of Albemarle's electricity.

Duke Power's system capacity is 19,300 Mw of generation, Which is broken down by the different type of fuels in the following chart:

Duke Power Generating Plants



The above capacity by fuel graph shows potential capacity if all power plants were operating at 100% capacity. Because electricity must be generated the instant it is needed, there is more installed capacity than we all use. So, the most economical generating plants are loaded first, and this is the nuclear and newest most efficient coal fueled power plants. In an average year, about 50% of the electricity generated would be from nuclear power.

SERVICE QUALITY RESULTS STORM

Energy

The federal EPA has been waging war on coal burning electric utility plants, and are working diligently to provide an image of coal fired power plants associated with the same undesirability of guns, and tobacco.

The disinformation and public response to the government regulations has made an economic climate unfavorable for electric utilities to obtain permits to build new coal-fired power plants. Similarly, the poor image given to Nuclear power plants has stopped new nuclear generating plant planning.

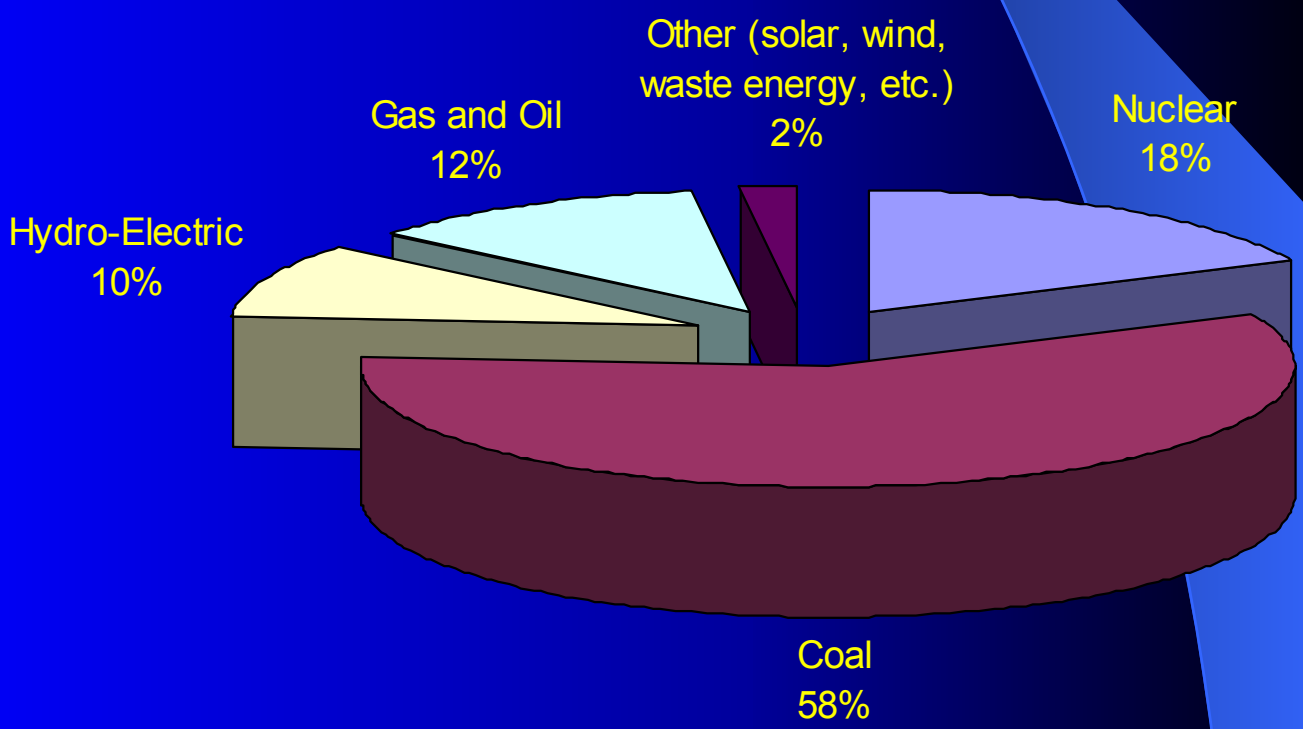
Where does electric power come from in Western, N.C.? Some Plants, and dates of operation are as follows:

Plant	*Year*
• Catawba Nuclear Plant	1985
• McGuire Nuclear Plant	1981
• Oconee Nuclear Plant	1973
• Marshall Coal Plant (Unit No. 1)	1965
• Cliffside Coal Plant (Unit No. 5)	1972
• Belews Creek Coal Plant	1974
• Allen Coal Plant (Unit No. 1 & 2)	1957
• Buck Coal Plant (Unit No. 5 & 6)	1953
• Dan River Coal Plant (Unit No. 1)	1949
• Riverbend Coal Plant (Unit No. 4 & 5)	1952
• Lee Coal Plant (Unit No. 3)	1958

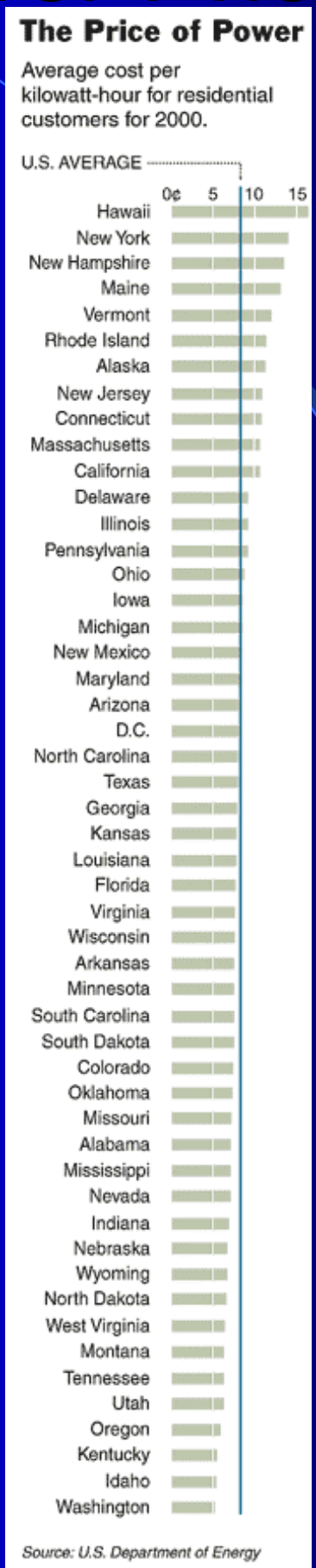
Energy

The nuclear power generation by Duke Power is a greater percentage of the total than the nuclear proportion of the total USA generation.

The following graph depicts the electric power consumption in the United States produced by each fuel type:



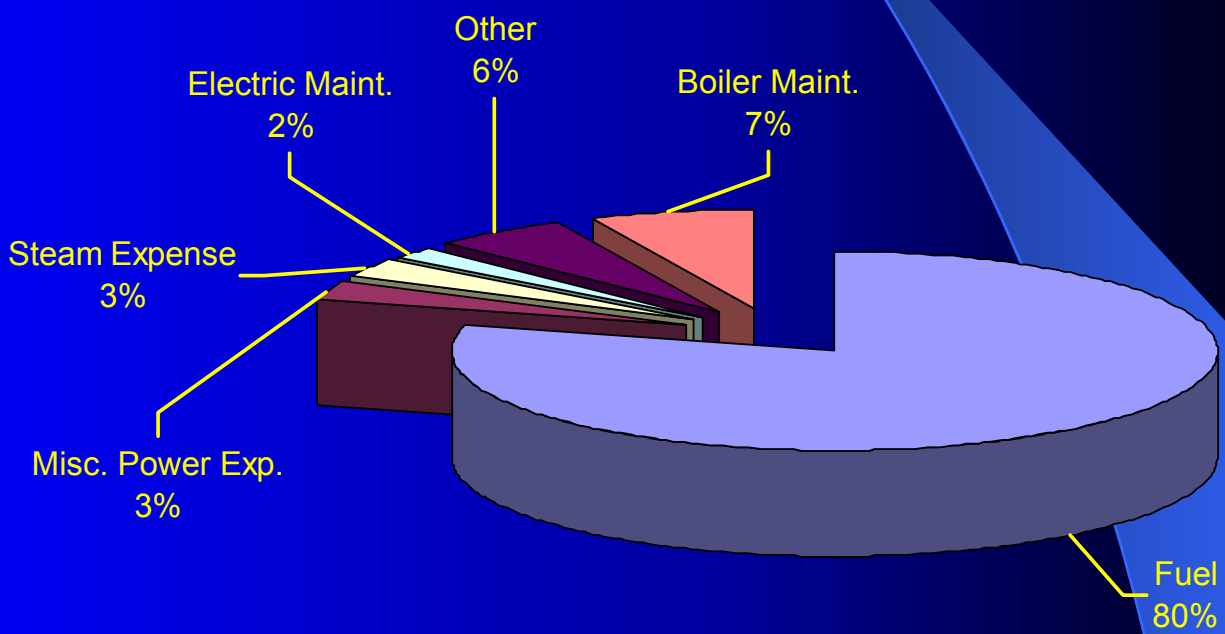
Power Prices



SERVICE QUALITY RESULTS STORM

Energy

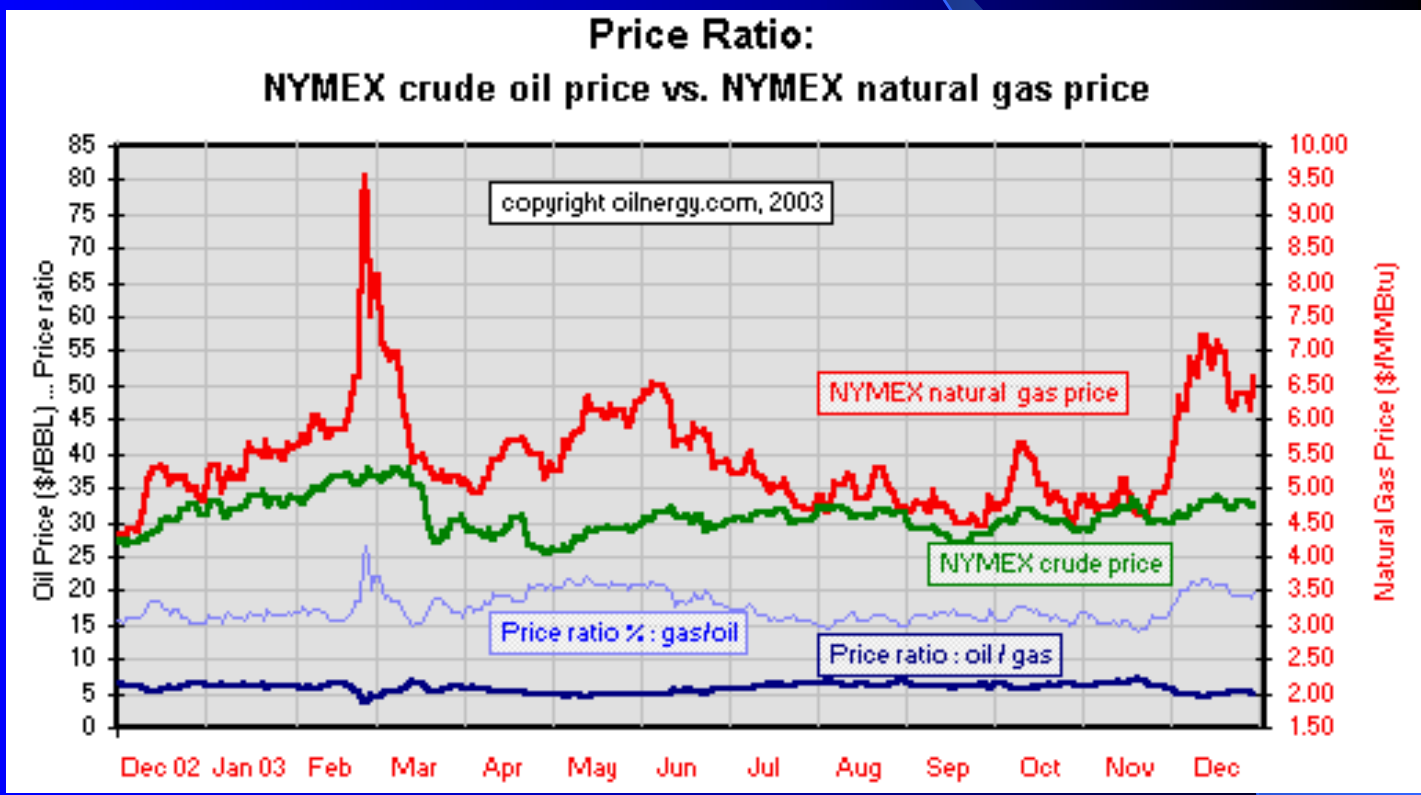
Average Production Cost's For Generating Power at Fossil Plants



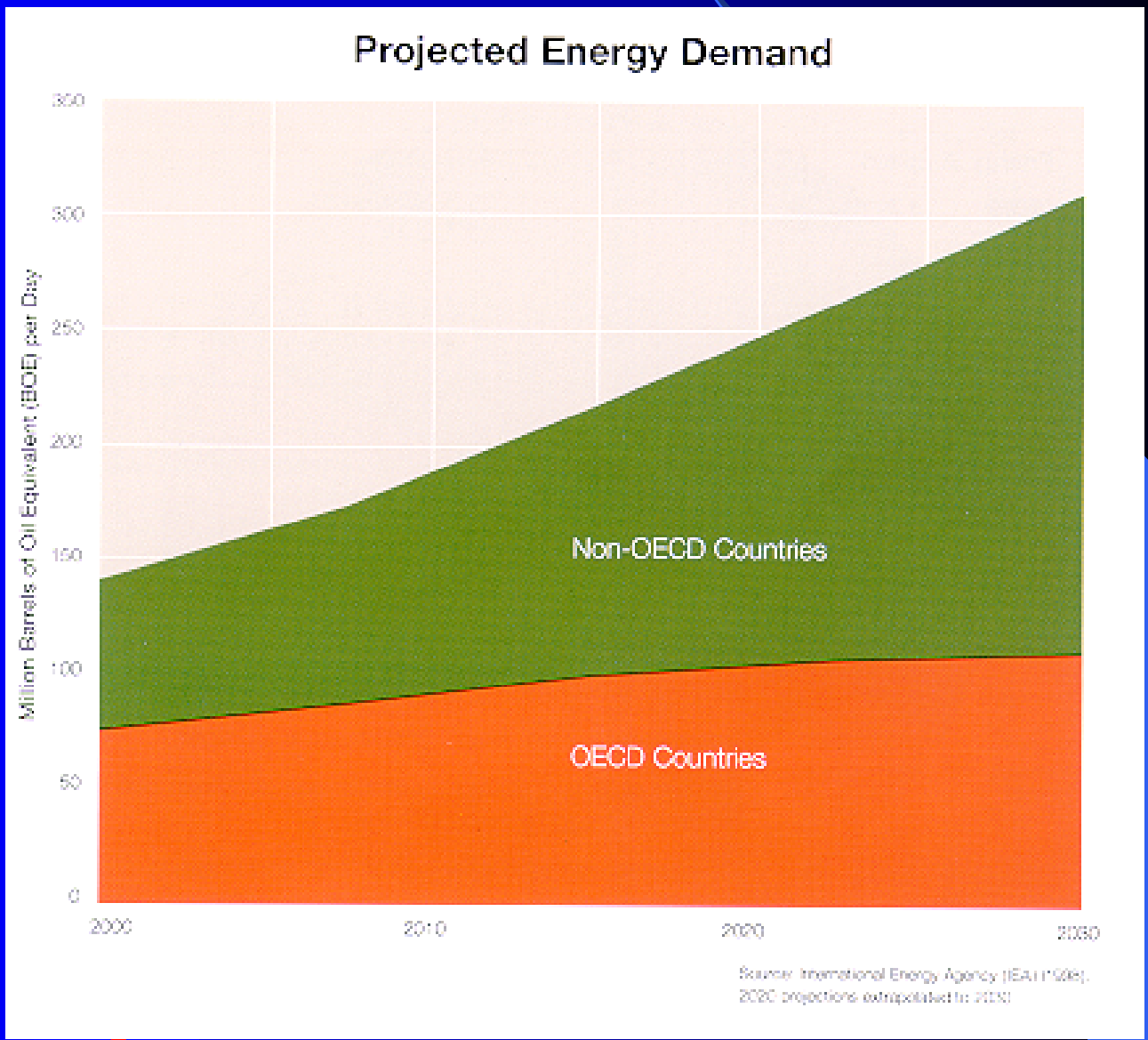
Fuel is the principal variable that determines the cost of electricity.

SERVICE QUALITY RESULTS STORM

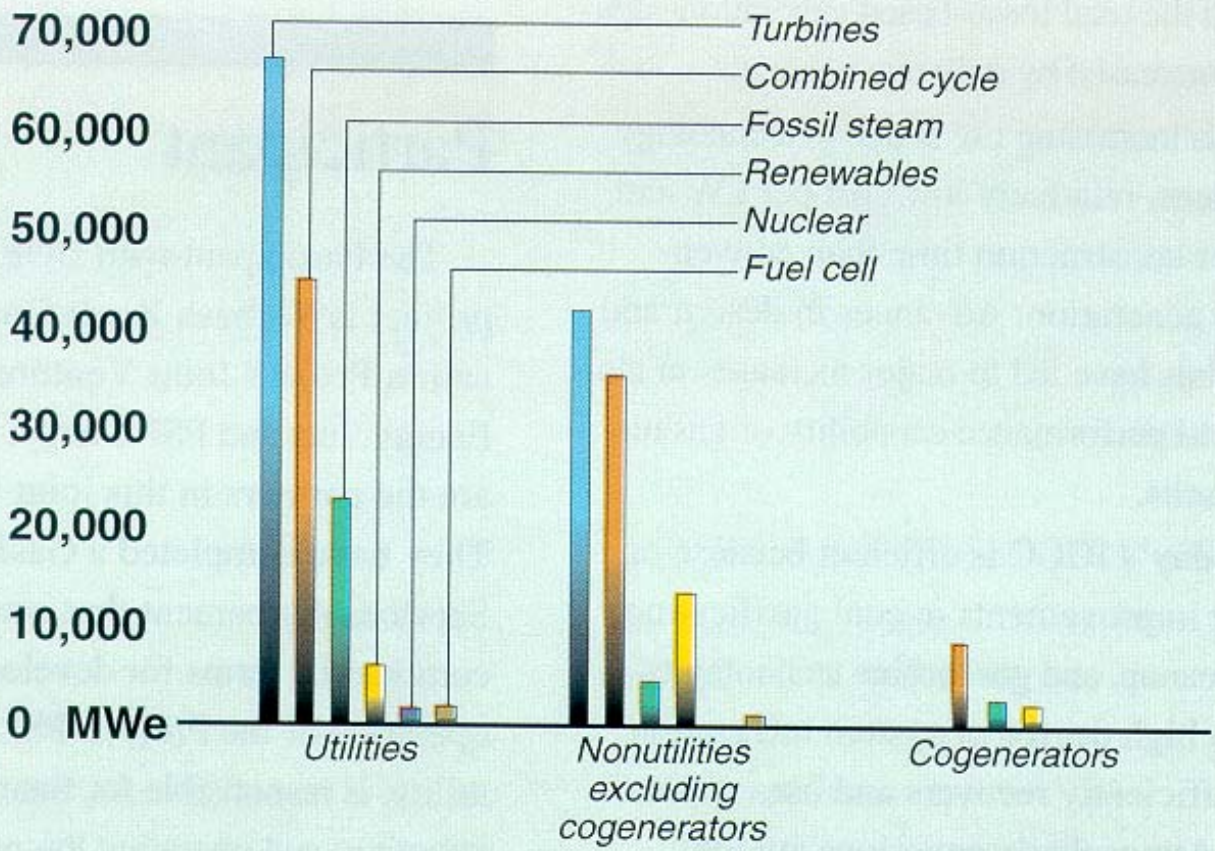
Crude Oil vs. Natural Gas



Demand



New Generating Capacity Forecast 1994–2015

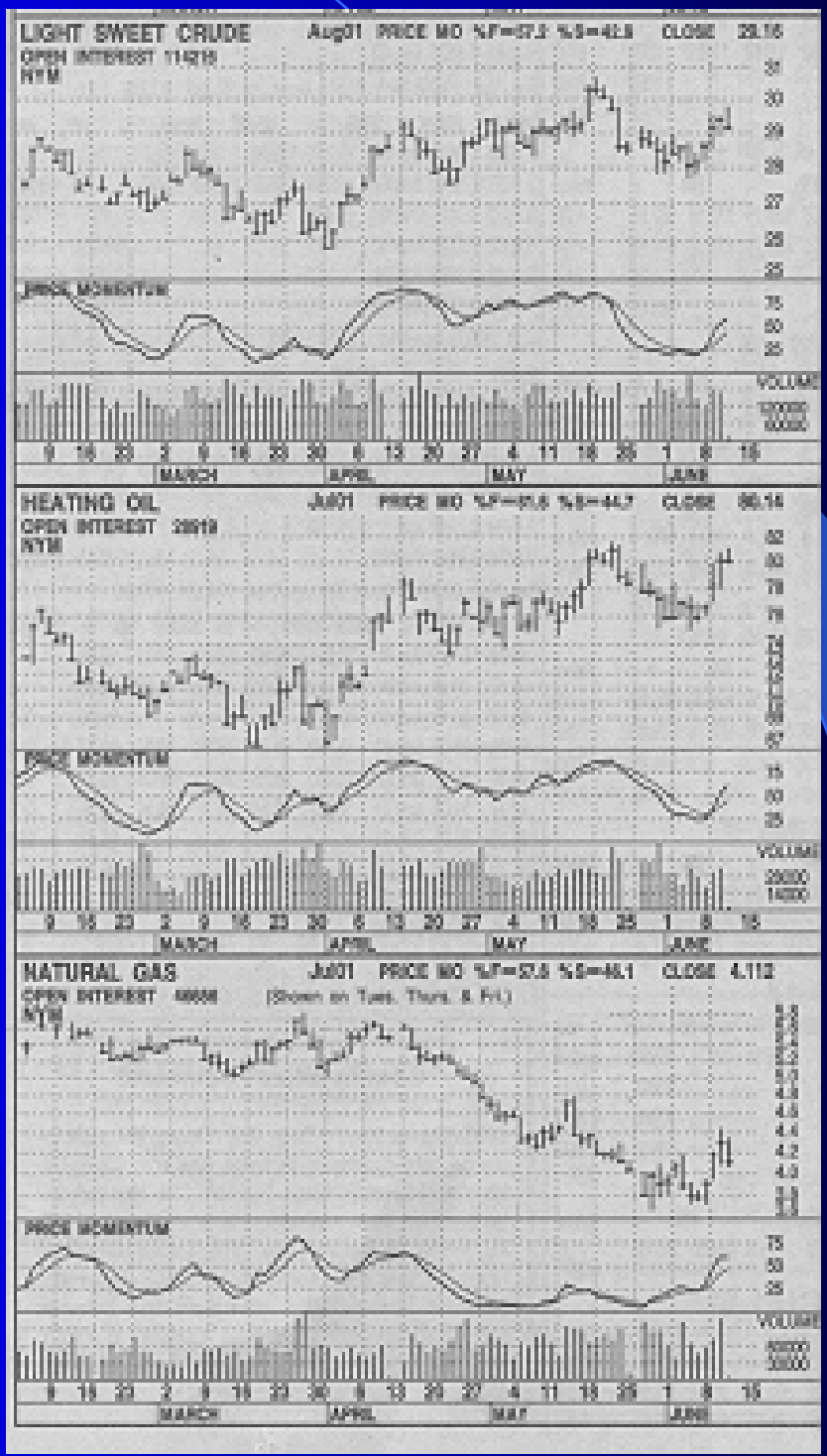


DOE projects that over the period 1994–2015, gas turbine and combined-cycle based generation will be 78 percent (197,000 MWe) of the total new capacity additions of utility plus non-utility generators (252,000 MWe).

Source: U.S. Energy Information Administration, 1996

SERVICE QUALITY RESULTS STORM

Graphs for Fuels



SERVICE QUALITY RESULTS STORM

This is a Modern "Wind Farm"

Source:David Brewster-Star Tribune

Here there are 138 towers, about 207ft tall, with blades about 165ft in diameter. When the wind blows, the entire 138 wind turbines will generate about 100MW of Electricity. Contrast this to Marshall Steam Plant which is rated about 2,090 MW. It will take with the same size wind turbines about 21 wind farms, or about 2,900 wind turbines to replace that generation – and of course the wind must blow at 30 mph – but not more than 130 mph or they will self destruct.

SERVICE QUALITY RESULTS STORM

Energy

The Federal EPA has succeeded in reducing the number of new coal fired plants. They continue to attempt to virtually outlaw coal. Although coal represents only 20% of the total energy consumed in the U.S. it is used for a large portion of electric power production. Nationwide, about 58% and about 90% of new generating plants being built or planned are fueled by natural gas.

SERVICE QUALITY RESULTS STORM

Gas Turbine

Just as a matter of comparisons – If just one major power plant in NC was converted to 100% Natural Gas – This would be the approximate equivalent to all of the Natural Gas used in the state, in the winter time. This demand increase of course, will increase Natural Gas costs for all other users.

SERVICE QUALITY RESULTS STORM

Nuclear Power Plant

Although a symbol of Nuclear Power Plants – Hyperbolic Cooling Towers are also used on Coal Plants.

SERVICE QUALITY RESULTS STORM

Newspaper Clips

MONDAY, JUNE 4, 2001

WASHINGTON

Daschle blasts nuclear waste site, says Nevada disposal plan 'dead'

Nevada got a boost in its fight to keep nuclear waste from being stored at Yucca Mountain when the incoming Senate majority leader put up a formidable partisan roadblock. "I think the Yucca Mountain issue is dead," Sen. Tom Daschle, D-S.D., said after arriving in Las Vegas for a fund-raiser for Sen. Harry Reid, D-Nev. "As long as we're in the majority, it's dead." Reid will become the majority whip, the No. 2 man in the Senate. Since 1987, Yucca Mountain has been the only site studied to become the graveyard for 77,000 tons of nuclear waste.

▶ **Energy Secretary Spencer Abraham** will issue a report to President Bush about Yucca Mountain next year. The earliest it could open is 2010.

Duke charged $3,880 a megawatt

Duke Energy charged up to $3,880 per megawatt-hour for electricity in power-starved California in the first quarter. Duke CEO Jim Donnell said it tacked on a premium because the buyers — Pacific Gas & Electric and Southern California Edison — were in danger of going bankrupt and might not pay. The PG&E unit later filed for bankruptcy. Duke's average price for power sold into the state was $136 per megawatt-hour vs. $76 a year ago. Duke and other power generators are responding to charges of price gouging during California's power crisis.

SERVICE QUALITY RESULTS STORM

A typical European Nuclear Power Plant

SERVICE QUALITY RESULTS STORM

Natural Gas Plant

Source: Engineering News and Record April 2001

Believe it or not this drilling rig is in California.

SERVICE QUALITY RESULTS STORM

Energy

The federal government in this administration's zeal to comply with the "Kyoto" agreement on reduction of CO_2 has declared war on coal. Although coal represents about only 20% of the total energy consumed in the USA, coal provides the fuel for about 58% of our nations electricity.

Some Facts to Consider:

- Coal and Nuclear are the lowest cost fuels to generate electricity
- The average coal fired power plant in America is about 25 years old
- Permits to build new power plants seem to be awarded only to generating companies that will use natural gas fuel
- Electricity growth is increasing: Computers and the internet consume about 10% of the total electricity produced

SERVICE QUALITY RESULTS STORM

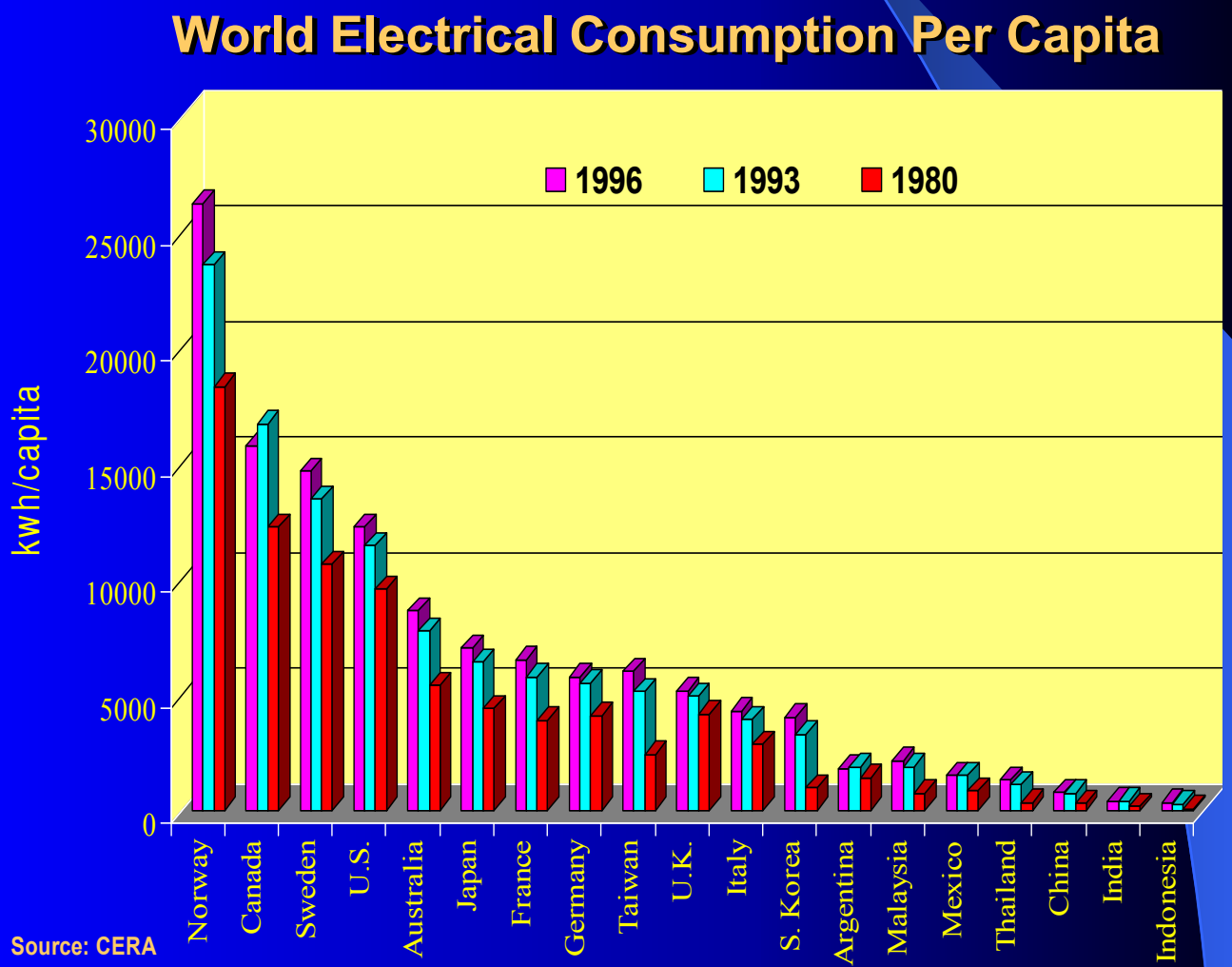
A Mine mouth power plant in Montana firing environmentally friendly western, low sulfur fuel. This one is in Colstrip, MT.

Electric Power generated at the mines, or far away from cities requires a massive transmission line "Grid". These also are outdated and undersized in many states, worst in California.

SERVICE QUALITY RESULTS STORM

ECONOMICS

Our economy, as well as the economy of all developed countries runs on electricity.

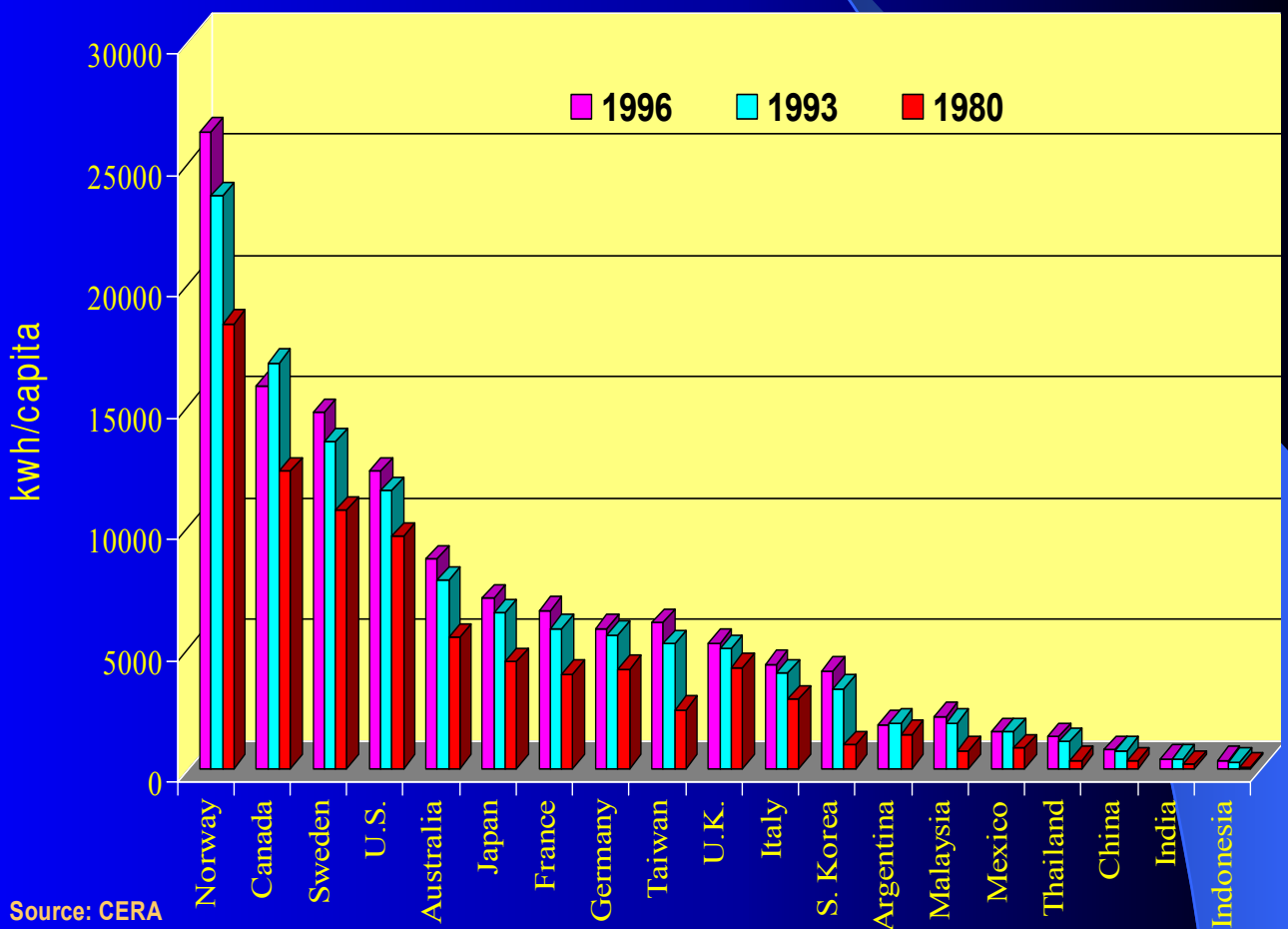


Source: CERA

SERVICE QUALITY RESULTS STORM

Economics

World Electrical Consumption Per Capita



Source: CERA

SERVICE QUALITY RESULTS STORM

Headlines

COMMODITIES & AGRICULTURE

Power rationing hits Brazilian aluminium

Source: Financial Times

FINANCIAL TIMES WEDNESDAY JUNE

COMMENT & ANALYSIS

Brazil unplugged

An energy crisis threatens to wreak huge damage to the country's economy and hand next year's presidential election to the leftwing opposition, writes **Geoff Dyer**

URNAL.

5/21/2001

WSJ.com

The Outlook

Power Crisis May Can Northwest Aluminum

Pittsburgh

The list of victims of California's botched power-deregulation plan keeps growing.

When California's electricity shortage surfaced last fall, it caused spot prices of electricity to skyrocket all along the West Coast. Some aluminum companies profited by temporarily closing their massive smelters in the Pacific Northwest and selling back their electricity to the spot market or to the Bonneville Power Administration, the region's biggest power provider.

The aluminum industry, which produces nearly 40% of the nation's output in the states of Oregon, Washington and Montana, commands a huge amount of electricity, enough to power Seattle daily. Closing the smelters freed up a lot of power and significantly reduced Bonneville's reliance on the electricity spot market.

But Bonneville now wants the 10 smelters in the region to stay closed for two years; business executives, economists and union leaders are just now assessing the economic impact of the plan. And for the most part, things don't look good for the small Pacific Northwest towns whose livelihoods revolve around aluminum.

For the aluminum companies, closing plants isn't such a bad thing, at least in the short term. Besides getting a big chunk of cash from Bonneville, the closures will cut nearly 5% of the world's aluminum smelting capac-

Source: Wall Street Journal

SERVICE QUALITY RESULTS STORM

This is a thermal power plant in Suriname, South America. More exporting of production facilities and jobs are likely as Energy costs and excessive environmental regulations prevail.

SERVICE QUALITY RESULTS STORM

ENVIRONMENTAL

What do you prefer?

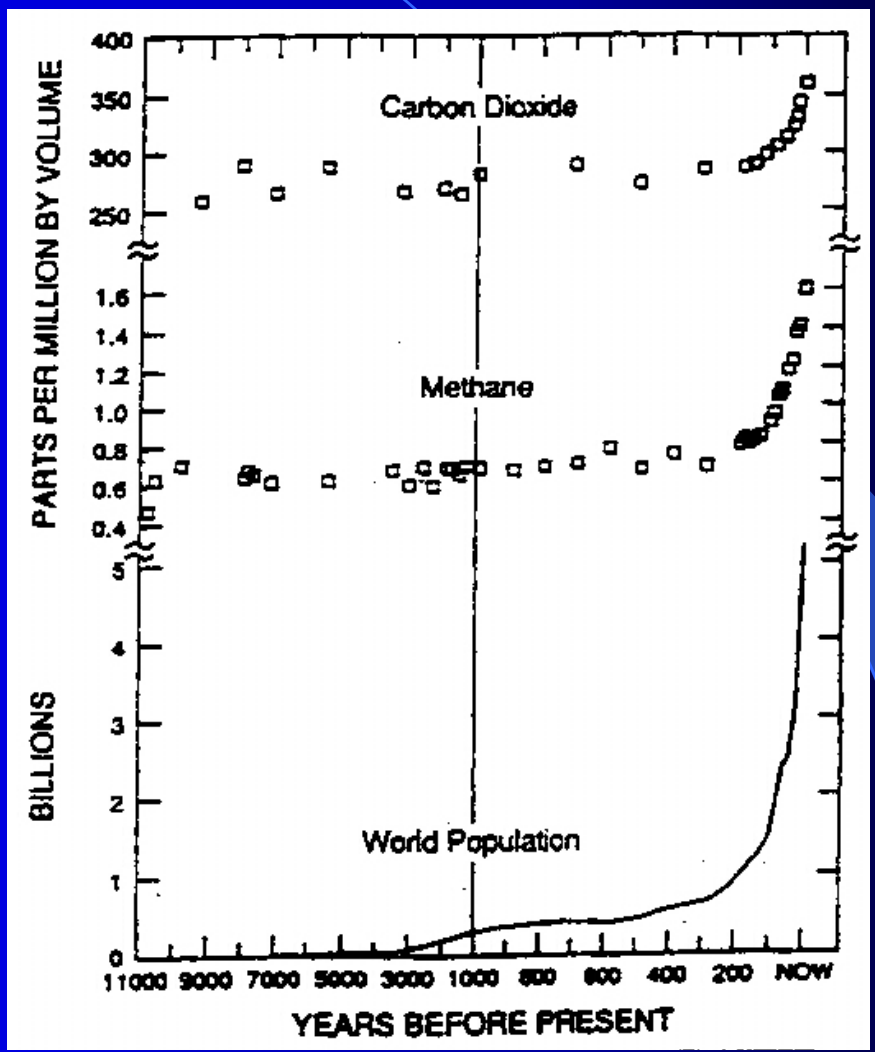
7 Million campfires

Or

22 Clean Coal Fired Power Plants

SERVICE QUALITY RESULTS STORM

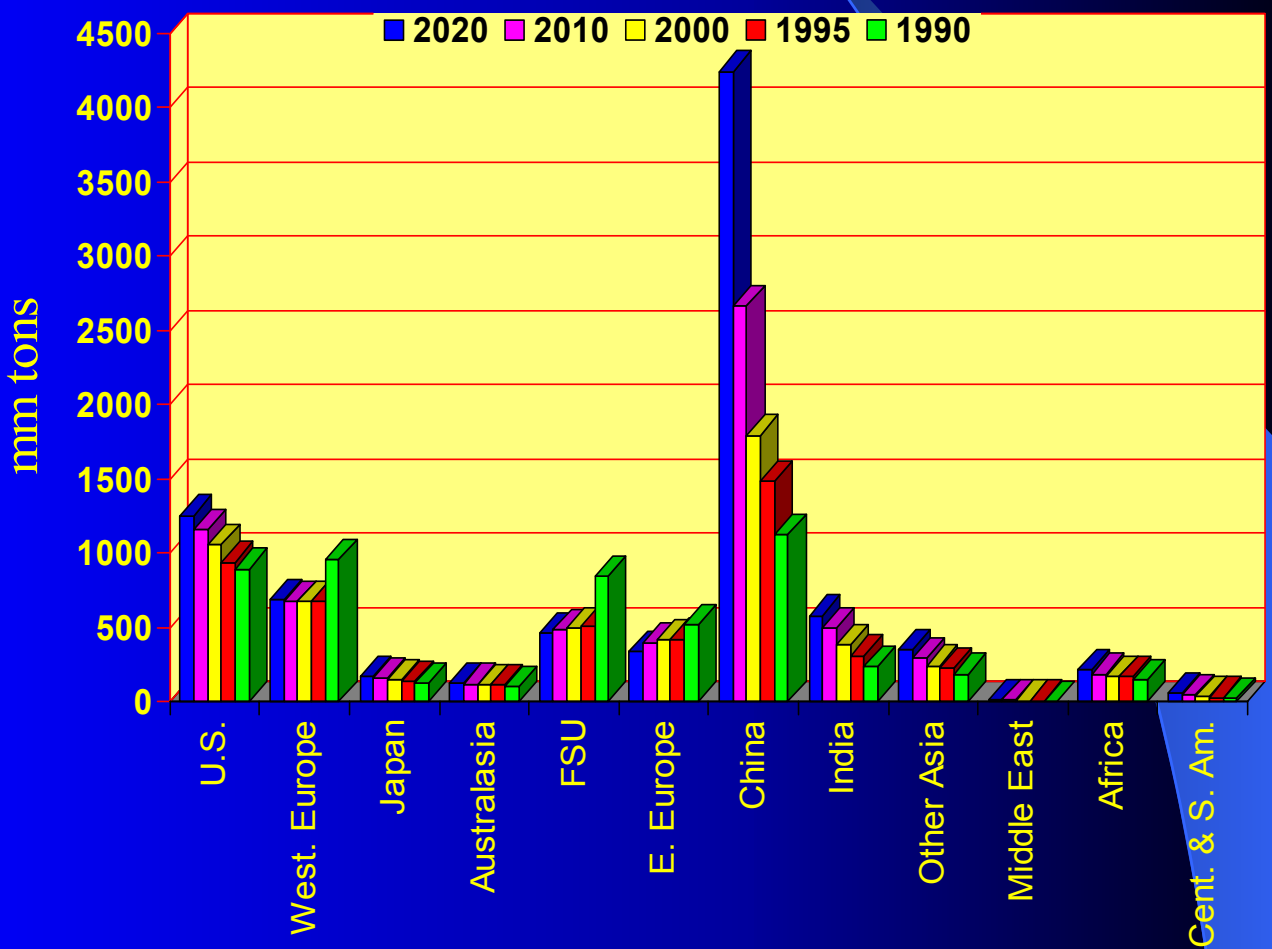
Environmental



Concentrations of two infrared-trapping gases in the atmosphere during the past 11,000 years as deduced from air trapped in polar ice & from modern samples. Global population is also shown.

Environmental

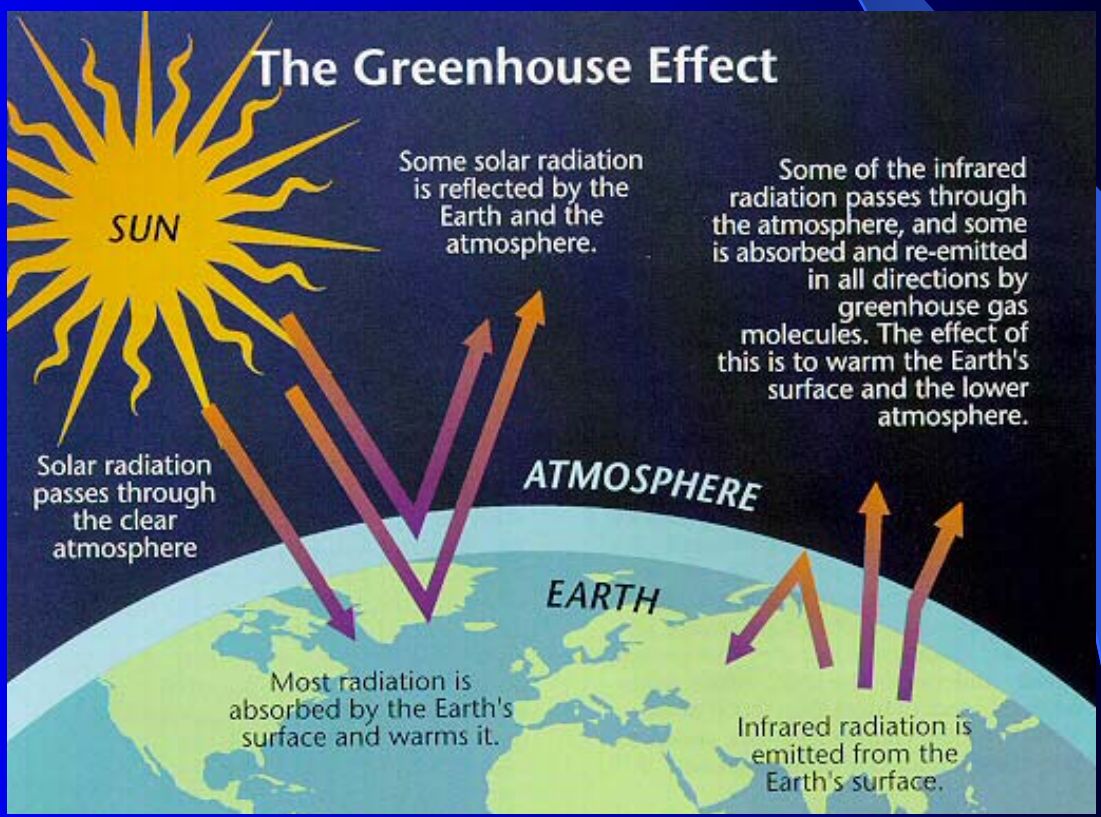
World Coal Growth by Country



SERVICE QUALITY RESULTS STORM

Environmental

The Greenhouse Effect and Historical Emissions



Guns, Tobacco, Alcohol, Coal Fired and Nuclear Power Plants

Very effective co-ordination of the media, Federal Government and Special Interest Environmental action extremist groups have <u>BRAINWASHED</u> the public to associate Coal and Nuclear plants with "Guns", Tobacco, and alcohol.

AS BUSH REJECTS INTERNATIONAL ACCORD

Science is bruising global warming theories

A new report suggests the environment controls warming naturally

By John K. Carlisle
Knight Ridder/Tribune

Things have been tough lately for the proponents of the global warming theory. It's not just that President Bush rejected the Kyoto global warming accord, the Clinton-era treaty that mandated drastic cuts in greenhouse gas emissions.

Science has not exactly been kind, either. It seems that not a month goes by without another scientific study casting serious doubts that man-made carbon-dioxide emissions will lead to catastrophic global warming in coming decades.

Just recently, a team of scientists led by Dr. Richard Lindzen of the Massachusetts Institute of Technology published a paper in which they theorize that there could be a natural "vent" in the Earth's atmosphere that releases heat into space.

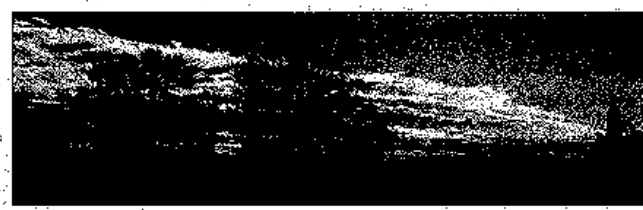
The authors caution that more research needs to be done to verify the phenomenon. But they say that, if true, the existence of a de facto atmospheric thermostat that helps keep the Earth's temperature on an even keel would require global warming theorists to scale back significantly their predictions of warming allegedly caused by the buildup of greenhouse gases.

The study, published in the March 2001 issue of the Bulletin of the American Meteorological Society, examines the behavior of high cirrus clouds over a large section of the western tropical Pacific Ocean.

Clouds have been one of the most difficult factors for climate modelers to understand in the efforts to predict long-term temperature trends and why climate model predictions so often prove wrong.

For instance, thick clouds reflect more sunlight back into space and help mitigate surface

SEE WARMING



GARY O'BRIEN - KRT PHOTO

Clouds are a tricky and poorly understood factor in climate modeling. Some clouds reflect heat away from the earth, while others are very effective in trapping heat near the surface.

Some climate modeling has included 'terrible errors'

Warming from 1C

warming. Thin clouds, on the other hand, don't deflect as much sunlight but are efficient in trapping heat at the surface.

Lindzen is critical of climate modelers for failing to take into account the complex role of clouds in regulating temperature. "We found that there were terrible errors about clouds in all the models, and that that will make it impossible to predict" long-term temperature change.

The significance of Lindzen's new study is that scientists may have found how those thin, high cirrus clouds specifically help to regulate global temperatures and serve as a counter to global warming.

The study finds that high cirrus clouds decrease in thickness by about 22 percent per 1 degree Celsius increase in sea surface temperature. Conversely, the cirrus clouds thicken when the sea surface temperature is lower.

Most intriguing, a 22 percent decrease in cirrus cloud cover also leads to a significant decrease in sea surface temperature of about 1.1 degrees Celsius.

In short, the study says that cirrus clouds operate much like the "iris" of an eye regulating the admission of light. The clouds open in response to rising surface temperature, permitting cooling. The clouds close when the surface temperature cools to retain heat.

The study's authors say these findings require climate modelers to reduce by as much as two-thirds the projected warming that would result from a doubling of carbon dioxide.

According to some climate model forecasts, a doubling of carbon dioxide in the atmosphere would lead to a 1.2 degrees Celsius temperature increase. But the existence of the atmospheric heat "vent" should change that prediction to between 0.57 degree and 0.83 degree Celsius.

Lindzen says that the study's results as well as scientific evidence on other natural climate processes should give global warming theorists considerable pause before recommending economically drastic measures, such as the Kyoto Treaty, to combat the unproven man-made warming threat.

Speaking bluntly, Lindzen says that, in view of the paucity of evidence for human-driven climate change, "the Kyoto Treaty is absurd."

The possible existence of an atmospheric heat vent that mitigates global warming is not the first time scientists have discovered a natural phenomenon that influences climate change. Many scientists believe changes in solar magnetism cause significant increases and decreases in the Earth's temperature. Dr. Sallie Baliunas of the Harvard Smithsonian Center for Astrophysics that increases and decreases the Earth's temperature over last 250 years "match almost exactly the ups and downs in (s magnetism."

Other scientists point changes in ocean temperatures and changes in ocean circulation patterns over decades or centuries as other likely contributors to global warming and cooling.

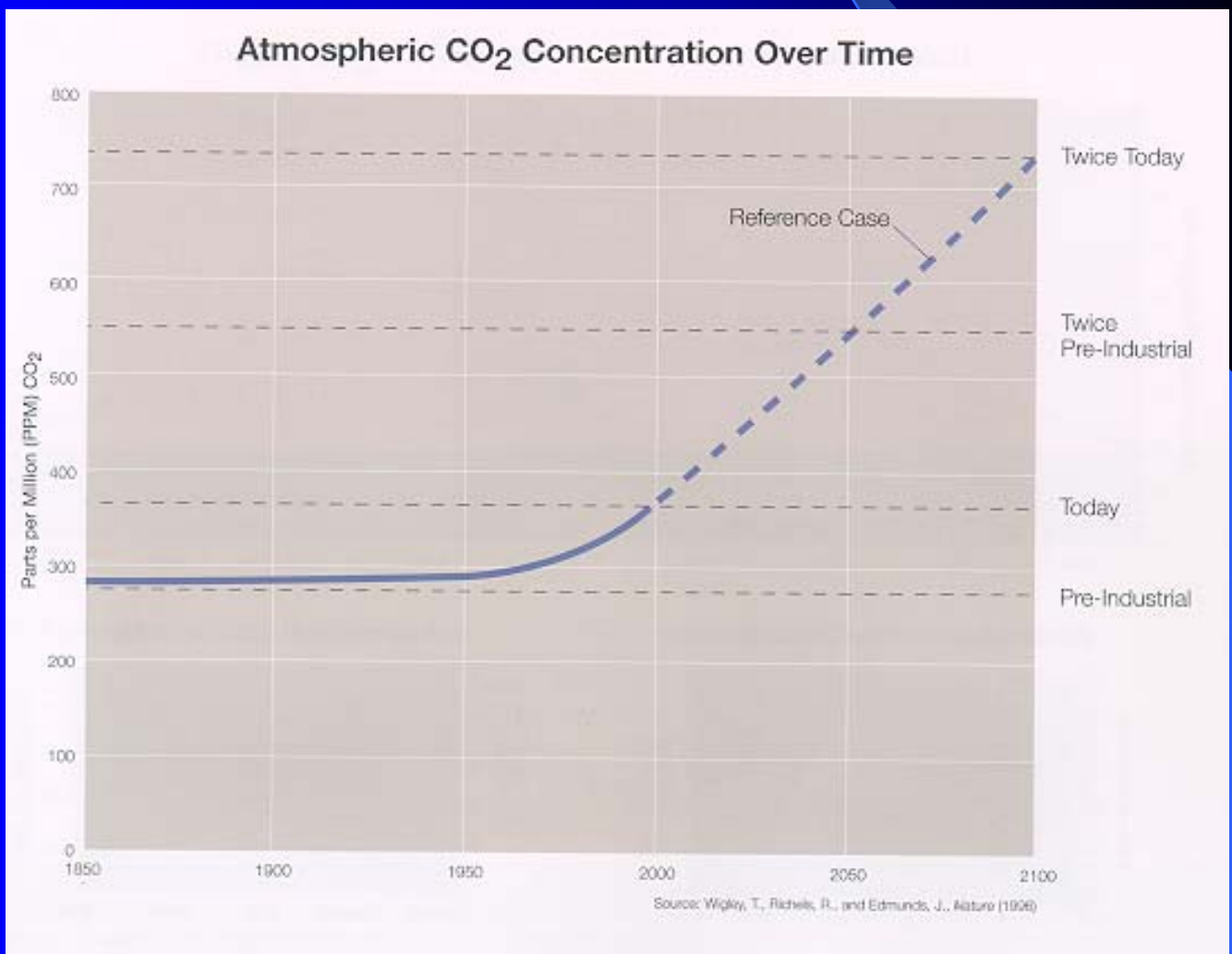
Whatever the respective roles of the sun, the oceans and atmospheric heat vent, one thing certain: The evidence that natural forces influence climate change rapidly accumulating.

John Carlisle is a senior fellow with the National Center for Public Policy Research, a non-partisan Capitol Hill think-tank. Readers may write to him NCPPR, 777 N. Capitol, Suite 803, Washington, D.C. 20002, or via e-mail at jcarlisle(AT)nationalcenter.org

Charlotte Observer Sunday 6/17/2001

SERVICE QUALITY RESULTS STORM

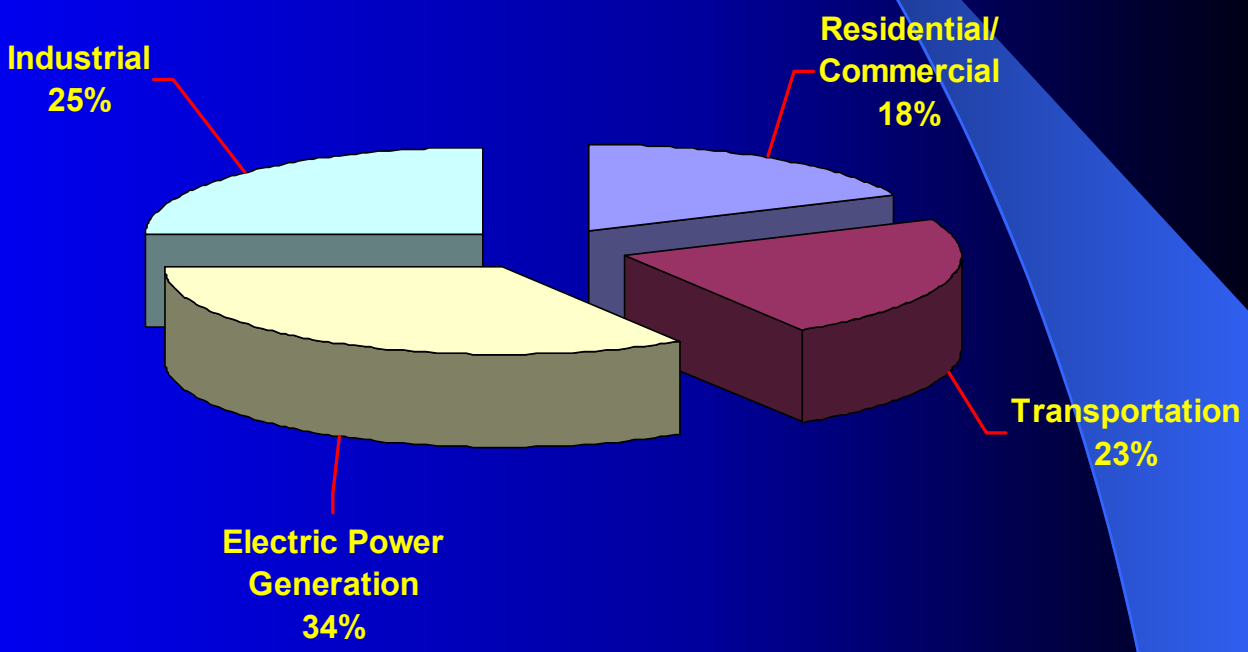
Atmospheric CO_2



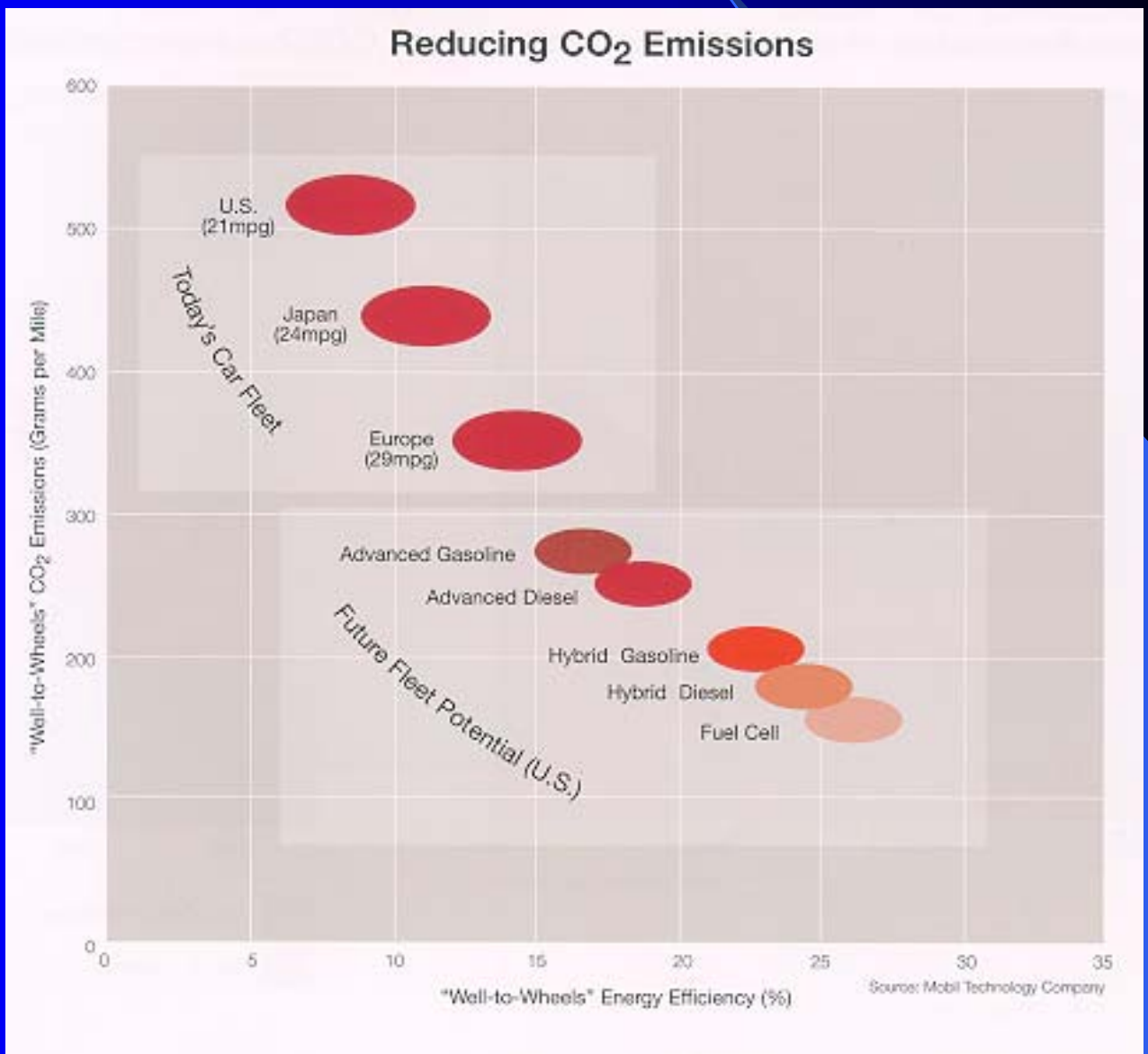
SERVICE QUALITY RESULTS STORM

Environmental

Man-Made CO_2 Sources Today



Reducing CO_2



SERVICE QUALITY RESULTS STORM

Rules Seek 28% Cut in Emissions Blamed for Smog, Rankling Some Utilities

Wall Street Journal – September 25, 1998 EPA

Washington – The U.S. Environmental Protection Agency unveiled rules to reduce smog-causing emissions of nitrogen oxide that blow across the Eastern half of the nation.

EPA Administrator carol M. Browner said the plan to cut emissions an average of 28% is the first federal attempt to solve the interstate movements behind a long-simmering political war between Mid-west and East coast states.

The plan's $1.7 billion cost would amount to an increase of less than $1 in the average family's electric bill and create $3.4 billion in benefits, she said. By removing 1.1 million tons of nitrogen oxide from the air y 2007, the program would reduce lung-related problems, water pollution and regional haze for about 31 million urban residents, she said.

An emissions-trading program modeled after an EPA program that helped to curb sulfur dioxide emissions, will be used to focus attention on the largest sources, coal and oil fired power plants, Ms. Browner said.

Two of the nation's largest private utilities criticized the plan. "We think that EPA has thrown a one-sized proposal to a problem that needs a more-localized approach," said Buddy Eller, a spokesman for Southern Co., Atlanta. He called the program "cost prohibitive."

John M. McManus, manager of environmental strategy at American Electric Power Co. called the plan disappointing. He said the Columbus, Ohio, Power Company, as well as several midwestern governors, disagrees with EPA's assessment that significant East Coast smog is caused, in part, by Midwest power plants.

Under the program, 22 states and the District of Columbia are assigned percentage reductions of current emissions that must be achieved by 2007. It would be up to the states to figure out how to achieve them, but Ms. Browner said most would likely parcel out shares of the cuts to utilities that use fossil fuels. The power companies could provide the "greatest reductions at lowest cost," she said.

States participating in the trading plan would issue emissions certificates to companies, based on the company's share of the state's target. Companies that cut emissions below that quota could sell them on an interstate basis. Those that didn't would have to buy enough emissions certificates to match the nitrogen-oxide levels they emitted. States that don't meet the reduction target risk having the EPA take over the program.

Environmental groups applauded the program, which would require state controls to be in place by May 2003. "We're talking about [cutting] some of the biggest sources of pollution in the nation," said Frank O'Donnell, executive director of the Clean Air Trust, Washington. "Many of these dirty electric plants have avoided pollution controls for decades."

Under the EPA rules, the highest percentage cuts are assigned to West Virginia (51%), Ohio (36%), Indiana (36%), Missouri (35%), Kentucky (33%) and Illinois (32%). Eastern states, which tend to have newer, cleaner burning power plants and whose emissions tend to blow out to sea, have smaller targets. New Jersey, for example, must cut emissions 9%.

Urban or man-made smog is caused when nitrogen-oxide emissions are baked in sunlight, forming an ozone haze. EPA studies show the long lasting pollutant moves with weather patterns, which generally flow from west to east. Automobiles are another major source of nitrogen-oxide emissions.

New Toxics Data Enhance Public Right To Know

EPA Website: United States Environmental Protection Agency 05/14/2000

Toxic emissions figures for seven major industrial sectors are available for the first time through EPA's Internet accessible Toxic Release Inventory. These seven new sectors together with the manufacturing industry bring the total toxic emissions reported in the United States to 7.3 billion pounds---almost triple the amount reported previously. The newly included sectors are electric utilities, coal mining, metal mining, chemical wholesalers, petroleum bulk plants and terminals, and solvent recovery and hazardous waste treatment, storage, and disposal. The new total toxic emissions number of 7.3 billion pounds will serve as the "baseline" for evaluating future trends of toxic releases. The data announced today are from the most recent reporting year, 1998.

Vice President Al Gore said, "Putting basic information about toxic releases into the hands of citizens is one of the most powerful tools available for protecting public health and the environment in local communities. That is why the Administration has dramatically expanded the public's access to this vital information. Citizens now have more information than ever at their fingertips to help protect their communities, their personal health and their children's health."

Among the new industries reporting:

- electric utilities generated 1.1 billion pounds in total emissions;
- electric utilities generated 1.1 billion pounds in total emissions;
- coal mining 13.3 million pounds;
- metal mining 3.5 billion pounds;
- chemical wholesalers 1.6 million pounds;
- petroleum bulk plants and terminals 4.7 million pounds;
- solvent recovery and hazardous waste treatment, storage and

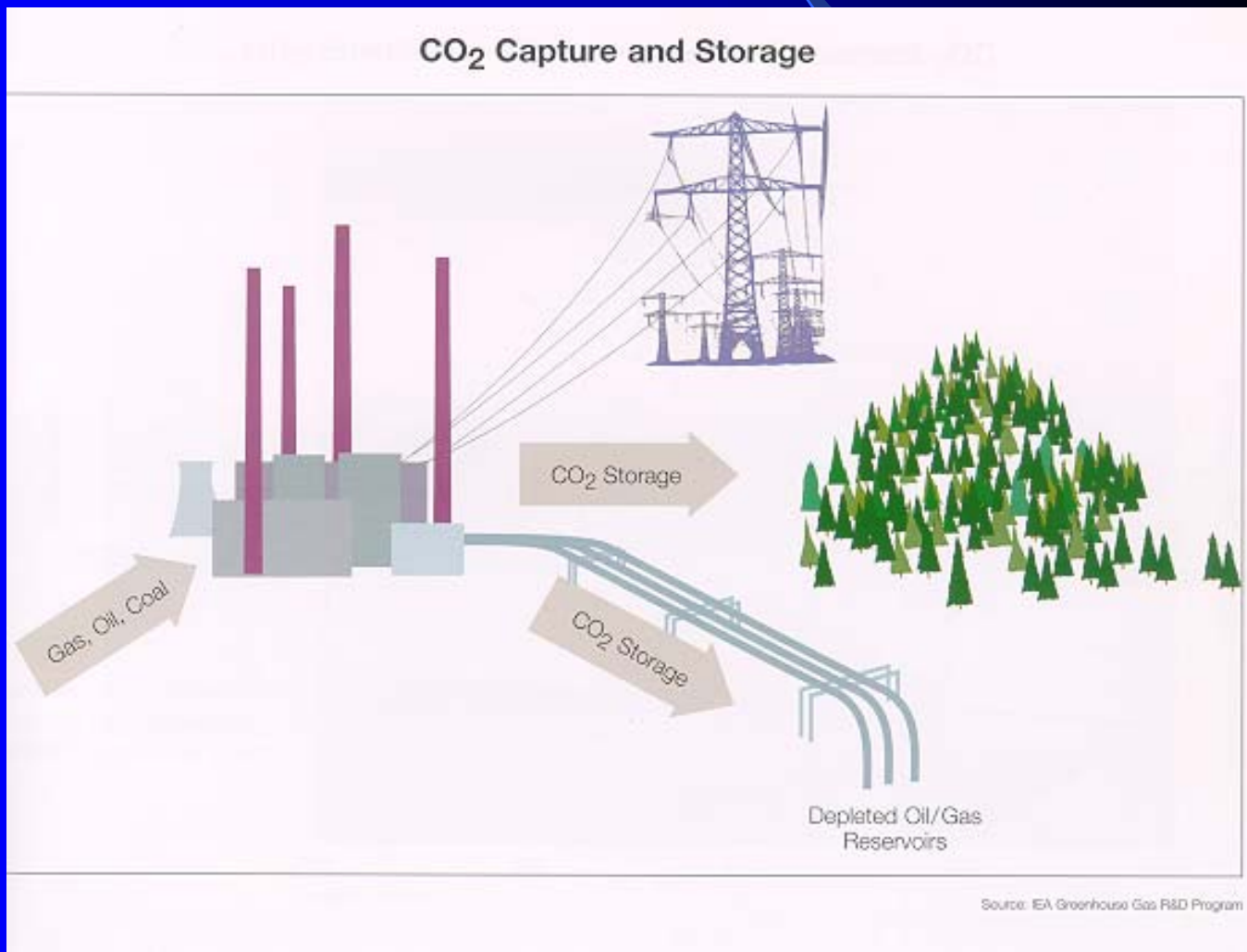
The 1998 data show a 45 percent decrease -- 1.5 billion pounds -- among manufacturing industries monitored over 11 years (1988-98). Compared to the last report, for 1997, releases from those manufacturing industries declined by 90 million pounds; releases to air were down by 6 percent and releases to land were also down slightly, by 0.2 percent. Releases to water increased a small degree, but less than the year before. EPA expects water releases to decline in the future.

Of the eight categories now reporting -- the seven new industrial sectors and the original manufacturing sector -- metal mining accounted for the largest amount of total emissions with 48 percent. Second was manufacturing, which accounts for 33 percent of total emissions; electric utilities account for 15 percent, solvent recovery and hazardous waste disposal facilities combined account for 4 percent; and the others for less than 1 percent each.

The new data for the seven industrial sectors are the result of a directive signed by President Clinton in 1997. With this addition, the number of facilities reporting to EPA has increased by nine percent, from 21,000 to 23,000.

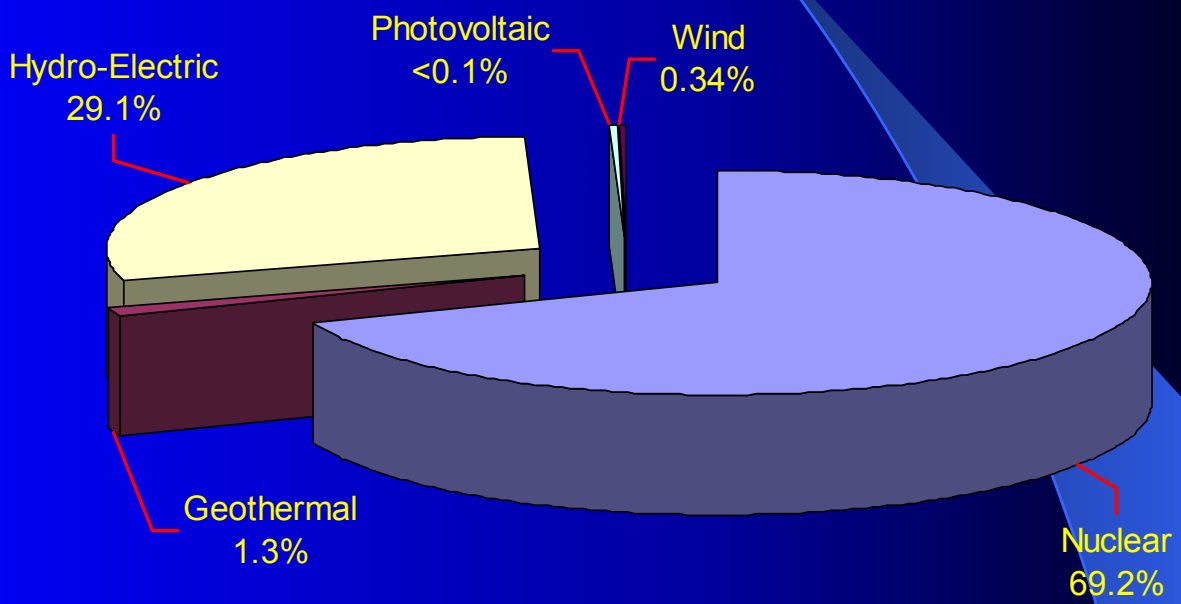
EPA's Toxic Release Inventory program requires companies to publicly report quantities of toxic chemicals that their facilities annually release into the air, water and land.
The 1998 Toxic Release Inventory data and background information on the TRI program are available at http://www.epa.gov/tri/tri9

CO_2 Capture and Storage



Environmental

Breakdown of U.S. Sources of Emission Free Generation (1999)

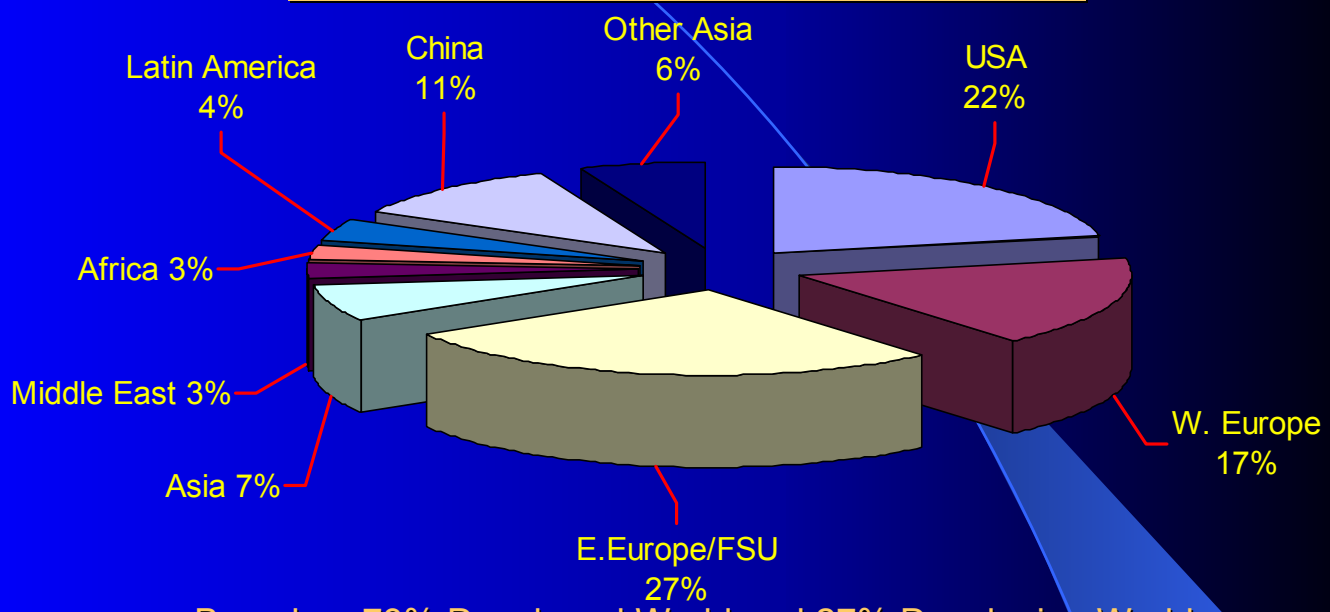


The Federal Government has not done anything to promote nuclear power. Nuclear is the largest component of today's energy supply that is emission free. It could be said, nuclear is the "Greenest Power" available

SERVICE QUALITY RESULTS STORM

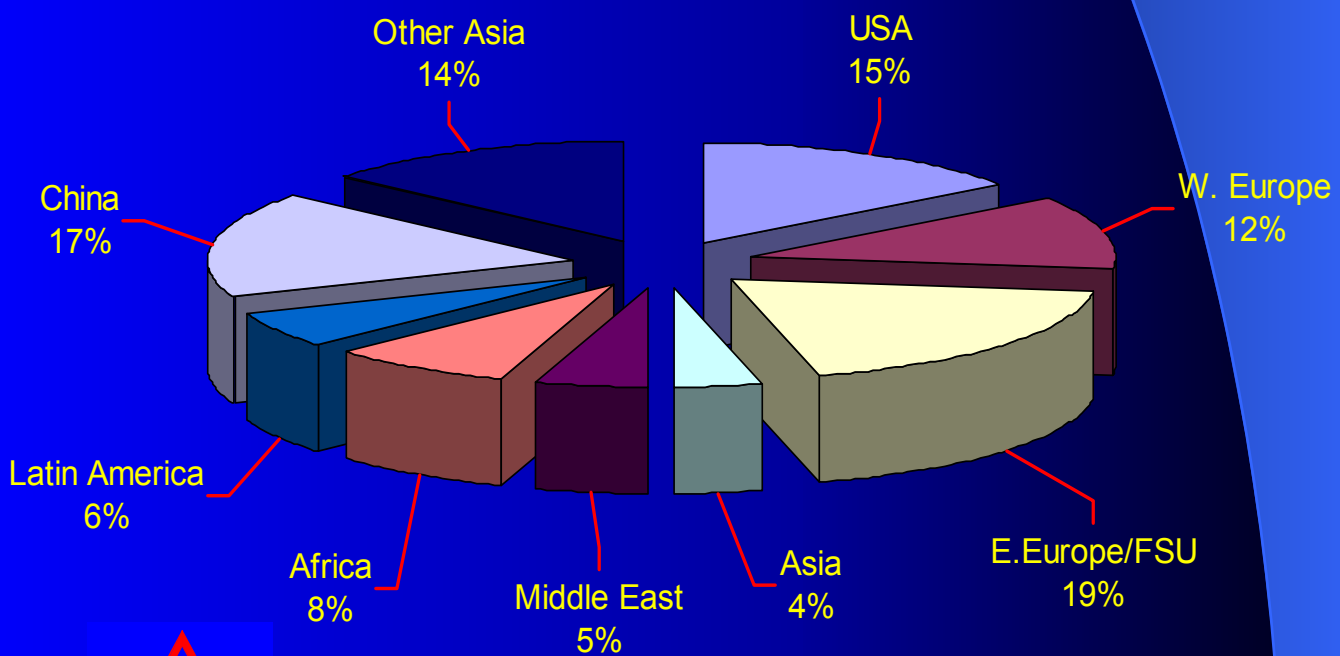
Environmental

Total World Emissions 1995



Based on 73% Developed World and 27% Developing World

Total World Emissions 2035



Based on 50% Developed World and 50% Developing World

SERVICE QUALITY RESULTS STORM

EDUCATION

"America must have an energy policy that plans for the future, but meets the needs of today. I believe we can develop our natural resources and protect our environment."

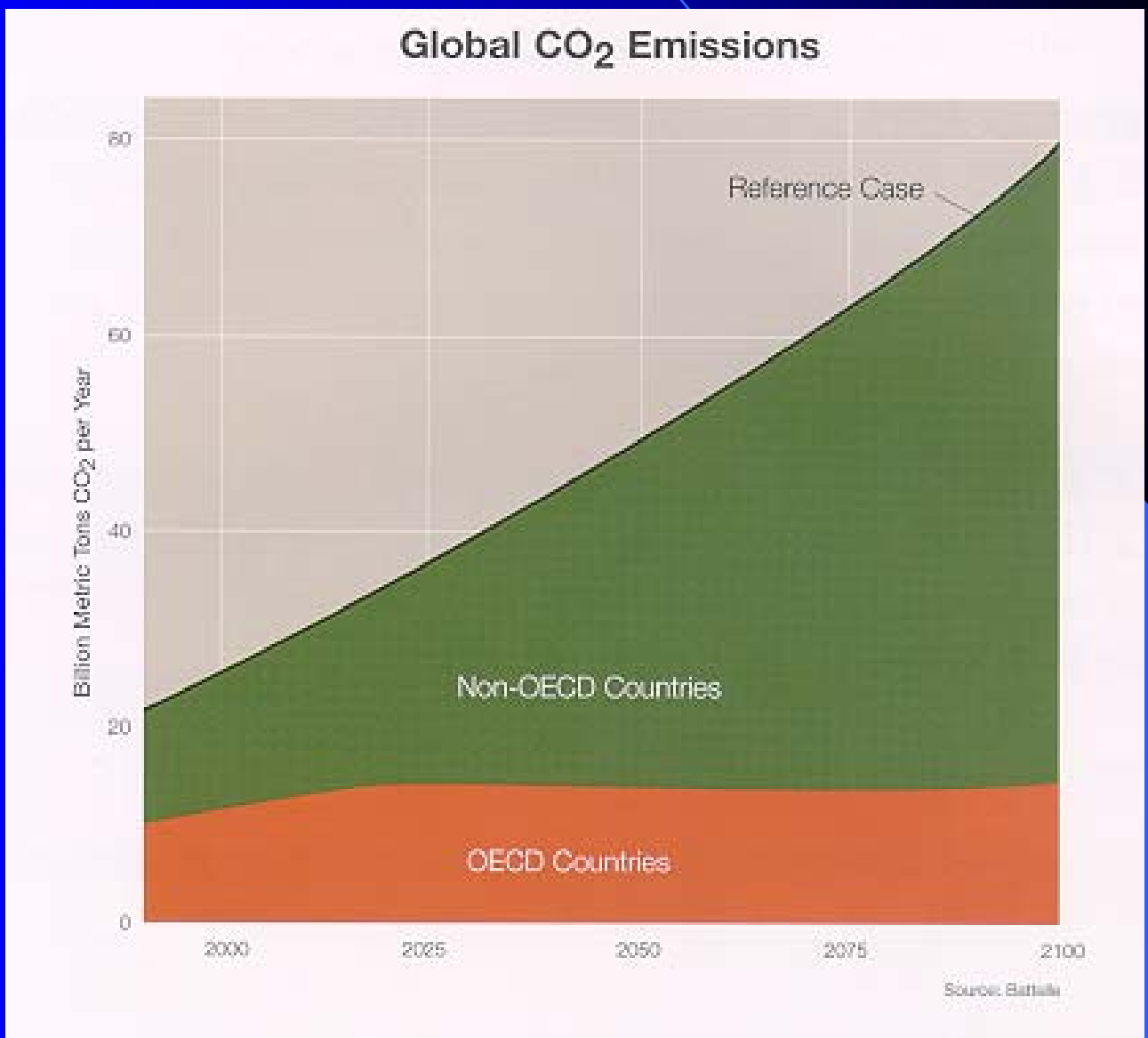
President George W. Bush

"Building more generating capacity, exploring for new energy sources, performing research into New Environmentally friendly energy production and teaching the public about Energy Facts is a daunting Educational task."

Dick Storm

SERVICE QUALITY RESULTS STORM

Global CO_2 Emissions



America Online May 29,2000

Kenya Power Cuts Threaten Business

By George Mwangi

NAIROBI, KENYA (AP) – Winifred Mwena sat Monday in her tiny Nairobi hair salon and worried: With no electricity, how could she have any customers?

Kenyans across the East African nation fretted in the countdown to Monday's start to the daily power cuts which many said could threaten businesses, jobs and Kenya's economy itself.

"My customers are crying, we are crying. There is nothing to do, "Mwena said, surrounded by blow dryers and curling irons soon to be superfluous. "I don't know who to blame."

Many in the nation of 29 million are blaming the government. Critics say the Ministry of Energy and others failed to act on last year's warnings that the little rainfall forecast for the year's rainy season would leave hydroelectric dams high and dry.

Kenneth Matiba, who was President Daniel Arap Moi's runner-up in the 1992 elections, said Monday that the power rationing "shows clearly Moi and his government and parliamentarians have failed Kenyans.

The government approved the 12-hour daily power cuts for most of the nation last week. The cuts are to run 6:30 a.m. to 6:30 p.m. for residential areas, 6:30 p.m. to 6:30 a.m. in industrial areas. Only on Sundays will the lights, appliances, and motors stay on all day.

The Indian Ocean port of Mombassa, Kenya's second-largest city, and surrounding areas will be spared the power cuts since they are supplied from diesel-powered sources.

Kenyans got a 12-hour reprieve on the scheduled start of rationing Monday, while small-business owners pressed energy officials unsuccessfully for a last minute partial exemption.

The lights in industrial areas went out as scheduled Monday night, the

monopoly Kenya Power and Lighting Co. said.

Few in Kenya – where 57 percent of the people live in poverty – can not afford generators or the fuel to run them.

Many of small businesses and industries are in residential neighborhoods, meaning they will have no power during the workday.

At night, police promised extra security in the cities to discourage criminals from taking advantage of the dark.

Households and restaurants began what would be a daily struggle to keep food from going bad in refrigerators during the 12-hour power cuts. Hospitals demanded adequate power for surgery and other critical care.

But the overwhelming worry was for Kenya's economy, slipping under years of sluggish growth. Last year the economy grew just 1.4 percent.

"We in small businesses will be pushed out completely," said Stephen Njorge, manager of a 22-employee firm that makes kitchen utensils. "How will I relate to my customers at night? I will have to pay more overtime hours, and that means I will cut the staff.

Gerald Otieno, a 23-year-old welder, also lamented that without electricity; there would be no work. "We are praying they come up with an alternative."

Earlier in May, energy Minister Francis Masakhalia said the government would decide whether to import additional diesel generators or buy more power from neighboring Uganda. Either option would mean higher electricity costs for consumers. Officials have reported no decisions.

Forecasters said water levels in Kenya's reservoirs and rivers would probably not go up until September, when the short rains begin.

New Zealand Power Group Faces Large Bill for Blackout

By Terry Hall in Wellington

Mercury Energy, the electricity company responsible for the power crisis that has caused blackouts in Auckland, New Zealand's biggest city, for five weeks, faces heavy repair bills and potentially costly compensation claims.

Power supplies are expec-ted to reach more normal levels next week when work-ers finish constructing an emergency 15km series of cables into the inner city.

The crisis began when the four aged cables that supplied the city failed. This disrupted business and the retail sector, and forced many companies to relocate to other cities, notably Wellington, at considerable cost.

Newspaper reports suggest that Mercury Energy had been told the cables urgently needed replacement. However, it had apparently gambled they would survive until the company had completed laying new transmission lines under the city sometime next year.

Allegations that Mercury had failed to carry out proper maintenance have become a political issue in Aukland. they had failed to carry out proper maintenance have become a political issue in Auckland. The company has been operating under a structure imposed by the central government in Wellington under which a majority of directors were effectively appointed by a local law firm. They were able to outvote representatives of local civic trusts, who represented the majority of the company's shareholders.

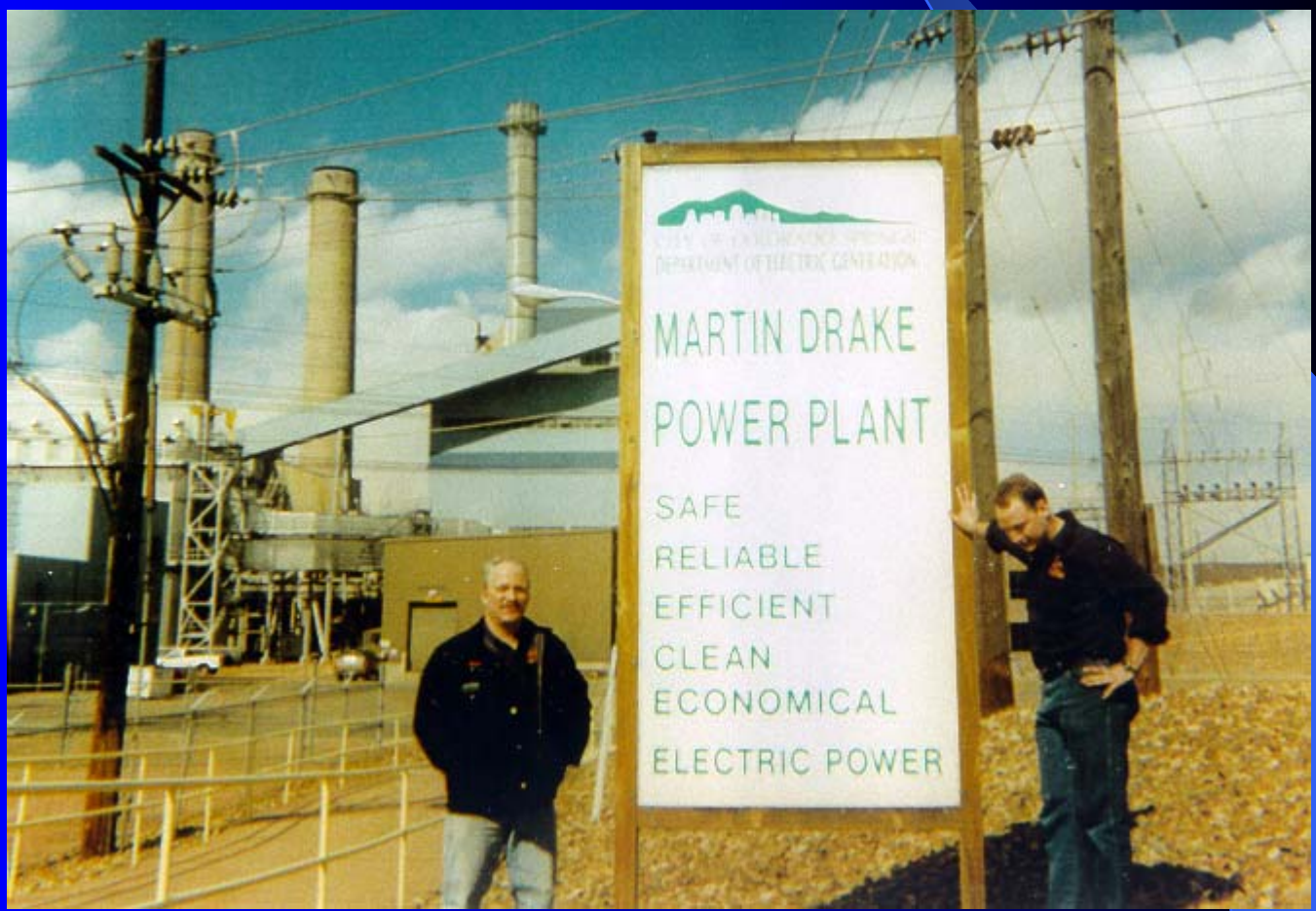
Mercury began a controversial and aggressive wave of takeovers against neighboring power companies, and critics – including Jenny Shipley, prime minister – say the company should have looked after the needs of its consumers rather than embarked on expansion. Mrs Shipley has told Aucklanders to "sue" Mercury for damages, saying it is in a strong financial position.

The government says the company's corporate structure – which was designed to facilitate a flotation – will be addressed, but any flotation is now likely to be at least two years away. Standard and Poor's, the ratings agency, has cut Mercury's credit rating.

Before the crisis Mercury had been expected to lift earnings by 8 per cent to NZ$130m (US$73m), with most of the profits earmarked as rebates to the company's 250,000 customers.

Preliminary estimates say the first stage of the company's compensation to residential and smaller consumers will cost at least NZ$75m. Larger sums are likely to be claimed by companies forced to relocate or close. Estimates suggest it will cost at least NZ$40m for emergency work to restore power.

The Colorado Springs Utility plant prides itself with their motto of “Safe, Reliable, Efficient, Clean Economical Electric Power



SERVICE QUALITY RESULTS STORM

Wall Street Article

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5/21/2001

WSJ.com

The Outlook

Power Crisis May Can Northwest Aluminum

Pittsburgh

The list of victims of California's botched power-deregulation plan keeps growing.

When California's electricity shortage surfaced last fall, it caused spot prices of electricity to skyrocket all along the West Coast. Some aluminum companies profited by temporarily closing their massive smelters in the Pacific Northwest and selling back their electricity to the spot market or to the Bonneville Power Administration, the region's biggest power provider.

The aluminum industry, which produces nearly 40% of the nation's output in the states of Oregon, Washington and Montana, commands a huge amount of electricity, enough to power Seattle daily. Closing the smelters freed up a lot of power and significantly reduced Bonneville's reliance on the electricity spot market.

But Bonneville now wants the 10 smelters in the region to stay closed for two years; business executives, economists and union leaders are just now assessing the economic impact of the plan. And for the most part, things don't look good for the small Pacific Northwest towns whose livelihoods revolve around aluminum.

For the aluminum companies, closing plants isn't such a bad thing, at least in the short term. Besides getting a big chunk of cash from Bonneville, the closures will cut nearly 5% of the world's aluminum smelting capacity. Alcoa Inc., Pittsburgh, the world's leading aluminum producer, says it's closing its Ferndale, Wash., smelter, idling 270,000 metric tons, or 7% of its annual capacity.

With that much aluminum off the market, prices, once expected to drop amid a slowing economy, have instead firmed and are expected to rise. Pechiney SA of France, the world's third-largest aluminum maker, expects prices to jump at least 11% by the end of the year as a result of supply-side bottlenecks. Current spot prices for aluminum hover around 69 cents a pound. Alcan Inc. of Montreal, the second-largest aluminum maker in the world, says it expects more growth and better profits from many of its operations, including its specialty-packaging business, rolling mills and production of primary aluminum. Meanwhile, producers in India said they plan to take advantage of the bottleneck in the U.S. by boosting exports.

Outside the Pacific Northwest, "existing smelters in the U.S. are pretty much operating at capacity," says Michael F. Gambardella, metals analyst for J.P. Morgan Securities Inc. "The problems in the Pacific Northwest have kept aluminum prices relatively stable despite the current period of weak demand for aluminum. The icing on the cake will be when the U.S. economy starts to recover. You will see aluminum prices skyrocket."

For companies using aluminum as a raw material, rising prices may become another burden, just as labor and energy costs and dwindling revenue damp profits. But the biggest victims will be the rural towns in the Pacific Northwest whose economies have relied on aluminum since after the Great Depression, when the U.S. government supplied cheap power to run smelters in hopes of easing high unemployment.

Economists believe that if aluminum plants close for two years, they will likely stay closed. Operating aluminum smelters isn't like opening or closing a 7-Eleven. It costs a lot of money to shut the metal-making operations down and then even more money to reboot the entire operation. This is why aluminum smelters and similar factories run 24 hours a day.

Additionally, the way that the smelting operations are configured, aluminum companies rack up losses if the plants operate at low capacities. And remaining open isn't much of an option after Bonneville signaled that power rates will rise sharply in October, when current contracts with the aluminum companies expire. Sharply higher rates will make aluminum production unprofitable.

For now, Alcoa said it will not immediately lay off the 900 employees at the shuttered Ferndale plant, primarily because Bonneville agreed to reimburse Alcoa for employee wages and benefits.

Still, the news of plant closings is sending shock waves through communities such as Goldendale, Wash., a small town on the banks of the Columbia River. Together, Goldendale Aluminum Co. and Northwest Aluminum Co. employ about 1,300 people, more than one-third of the immediate area's working population. Those aluminum jobs pay about $58,000 a year in salary and benefits. "The jobs created by these industries are the lifeblood of our communities," says Mark Sigfrinius, Goldendale's mayor. "They cannot be written off."

To ease the pain, Bonneville is hoping that it can strike a deal so that the aluminum makers in the region will take payments received for shutting down and use that money either to retrain the work force or to provide a lump-sum payment to help them make it through the two years. But the United Steelworkers of America, representing 6,000 workers in the affected Oregon, Montana and Washington region, says that its skilled work force would probably just leave the region and find work elsewhere under the BPA plan. "The union is jumping up and down about this," says David Foster, a negotiator for the union. "We intend to make absolutely sure that money comes to the union workers. Two years is a long time."

—Robert Guy Matthews

What Can We Do To Help?

- **Learn More about the facts of where energy comes from and how it is used.**
- **Do not allow yourself to be influenced by biased media, special interest groups, and political "scare" advertising**
- **Help others to learn the facts about Energy**
- **Conserve Energy – Waste Not Want Not**
- **Write your Congressman, and Senators to voice your Concerns**
- **Be Alert for opportunities to set the record straight. When newspapers, TV and radio communications attack utilities, energy suppliers, that make our lifestyles and livelihood possible.**