Energy Security: Is the Past Prologue?

*By Leonard L. Coburn**

My objective here is to provide an historical look at the concept of Energy Security; why it became a focus of our energy policy and what we have said about it during the past decades.

Energy Security in the modern era probably starts with the decision by Winston Churchill before the start of World War I to change the fuel of the British navy from coal to oil. Coal was a domestic fuel, while at that time the UK did not produce oil. This led to a search for a stable supply of oil and led to the British government's intervention in Iran in order to develop its oil supplies to ensure a stable supply of oil for the British navy. (See Yergin, The Prize)

U.S. reliance on imports increased in the 1950s and early 1960s, but primarily from Canada and Venezuela. It was only by the end of the 1960s that the U.S. was importing significant quantities of oil from the Middle East and North Africa.

Reliance on oil imports in the 1950s-1960s presented no immediate threat to the U.S. (Or the remainder of the industrialized countries), because the oil was controlled and owned by the international oil companies – Seven Sisters.

The increasing import dependence of industrial states might not have become a vulnerability if the control of oil remained as it was in 1953.

What changed? Political and military domination by French-Anglo-American governments and companies waned; formation of OPEC in 1960 to counter major oil company control over pricing and production policies; development of independent oil companies undercut domination of the Seven Sisters.

1955

The increase of oil imports beyond the current percentage – 10 percent of domestic production – had an impact on the "domestic fuels situation" as being "seriously impaired", although the eventual language of a report on the situation was watered down to say that "the domestic fuels situation could be so impaired as to endanger the orderly industrial growth which assures the military and civilian supplies and reserves that are necessary to national defense. There would be an inadequate incentive for exploration and the discovery of new sources of supply."

Moreover, the national security debate focused on depletion of U.S. resources versus using lower cost imported oil. There was even the suggestion that low-cost foreign oil should be purchased for storage in exhausted wells.

The Eisenhower approach that emerged led away from free markets and towards regulation and also towards assuring the availability of supplies by guaranteeing the profitability of continued domestic exploration. It is reflected in the Trade Agreements Extension Act of June 1955 giving the President the power to adjust imports to a level "that will not threaten to impair the national security."

A Voluntary Oil Import Control policy was created in 1955 that differentiated crude oil imports between those from the Middle East/North Africa and those from Canada and Venezuela – restricting the former, but not the latter, since they were considered part of the response to our national defense.

In 1957 – after a finding that "crude oil is being imported into the U.S. in such quantities as to threaten to impair the national security," – the Administration cautioned that excessive reliance on imported oil may put the nation in a long-term vulnerable position. "Imported supplies could be cut off in an emergency and might well be diminished by events beyond our control. This vulnerability could easily result in a much higher cost, or even in the unavailability, of oil to consumers." The conclusion was to maintain a reasonable balance between domestic and foreign supplies, which was imported oil at 12 percent of domestic production.

In 1959, the Voluntary Oil Import Control program evolved to a Mandatory Oil Import Program due to the collapse of the voluntary program. How was the Mandatory Program justified? It was not justified on the argument that national security would argue for increased imports, leaving domestic reserves and production to be used in times of national emergencies. It was not justified on limiting price effects. Its justification was protectionist based rather national security based – providing an incentive for enhanced domestic exploration and production. Or as some termed it – the "stockpiling of domestic reserves." National Security was based more on protecting and ensuring a profitable domestic oil industry. Eisenhower's free trade tendencies were not carried out in the oil policy area. The national security argument was muddled.

1960s View of National Security: Response to a Military Need

U.S. production would be essential to a military response; U.S. production would be essential in the event of a cut-off of Middle East supplies; U.S. refining would be necessary to meet world requirements – imported oil increases the strategic vulnerability of domestic refinery because coastal refineries would have a competitive advantage over inland refiners, those without access to lower cost imported oil.

The Mandatory Oil Import Program was continued, despite significant misgivings.

If we look back over the 1950s and 1960s, the national security debate as it was framed (the term energy security did not really emerge in the debate), was one of preserving domestic U.S. oil supplies, relying on U.S. surge capacity to offset any potential national emergencies, reliance on industry stocks, rationing, and reliance on western hemisphere sources, Canada and Venezuela, to offset disruptions from the Middle East. While the Middle East was to some extent a focus of the debate, it was a focal point to the extent that Europe and Japan were becoming vulnerable to the Middle East, while the U.S. still had its own more secure flexibility. Limiting imports to the U.S. took on physical, restrictive policy – our concerns on developing alternatives, implementing conservation and demand restraints, and ensuring diverse foreign supplies, were merely glimmers of the future, not firm policy. A long-term, coordinated policy addressing energy, versus individual fuels, had not emerged. The embargoes of the 1970s changed everything in our approach to national/energy security.

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1970s – Rise of Government Control of Production in the Middle East and Elsewhere.

The old policies of continuity of supply through adjustments by dominant companies have given way to coordination by a more powerful, government controlled organization – OPEC. The energy security focus of the 1970s onward deals with several issues:

- Supply disruption – how to deal with a short-term disruption in the flow of oil,
- Supply diversity – increasing reliability through fuel choices, and through sources of oil,
- New emphasis on other aspects of energy policy – conservation, efficiency, long-term alternatives

1973

The oil embargo of 1973 focused our attention on our vulnerability stemming from dependence upon oil imports. Recall that in 1960, imports accounted for 15 percent of domestic consumption; in 1973, they accounted for 35 percent. Crude oil exploration peaked in 1956, domestic crude oil production leveled off in 1970 and then declined. Spare domestic capacity essentially disappeared by the embargo of October 1973 (a smaller embargo in 1967 associated with Israeli-Arab war had no impact on the domestic oil market). Project Independence was created not with the goal of creating "energy self-sufficiency", but with the goal of creating an energy policy with some oil imports, "up to a point of acceptable political and economic vulnerability." Project Independence focused on an analysis of various alternatives that included import reduction dependence through offsetting increases in domestic supply, reductions in demand through energy conservation, and developing alternative sources of energy and new technologies for fossil fuels. Part of the analysis also examined building emergency supplies, and developing standby demand curtailment and allocation programs. The importance of Project Independence, despite its many shortcoming, was the first truly integrated study of the nation's energy goals and options.

From the release of Project Independence to the beginning of the Carter Administration, the focus continued on oil imports and how to lessen oil import dependency. Unfortunately, little was accomplished to address national security concerns, except for two important developments. One was the creation of the International Energy Agency (through the International Energy Program) and its oil allocation plan, and the other was the creation of the strategic petroleum reserve. Unbeknown to energy policy formation, two cornerstones of future energy security were put in place, although little emphasis was given to either during this period.

Carter's first National Energy Plan of April 1977 had three overriding objectives:

- reduce dependence on foreign oil and vulnerability to supply interruptions,
- in the medium term, keep imports sufficiently low to weather the period when world oil production approaches its capacity limitation; and
- in the long term, to have renewable and essentially inexhaustible sources of energy for sustained economic growth.

Energy security was not discussed as a concept on which energy policy was developed, but it was clear that the focus had shifted away from the supply side to the demand side with policies aimed at energy conservation, energy efficiency, and the development of renewable alternatives. Looking back at one of the basic premises – the ultimate limit on oil resources– the 1977 NEP indicated that both U.S. and world oil resources would be insufficient to satisfy all the increases in demand expected to occur in the U.S. and elsewhere throughout the 1980s.

"The energy crisis that now faces America results from the divergence between its historically increasing demand and its decreasing supplies of oil and natural gas. To meet this crisis, America must make a new kind of energy transition – from a period of abundant, cheap oil and gas to period when these resources will be in short supply." (NEP)

The NEP recognized that "Import dependence produces economic and political vulnerability." It also stated the world's oil supply will no longer be able to satisfy growing American demand, even if we were willing at accept the consequences of increasing dependence on imports. The NEP did acknowledge that the U.S. must reduce its vulnerability to potentially devastating supply interruptions. Unrestrained growth in oil imports had national security implications. "Continued growth of imports would erode the nation's economic security, promote dissension with allies, and jeopardize America's world leadership." Energy independence is not the answer. The more sensible goal is "relative invulnerability" through reduction of imports to a manageable level, primarily through effective conservation and increased use of other domestic resources such as coal. "A large Strategic Petroleum Reserve, diversification of foreign sources of oil, and contingency plans should help deter interruptions of foreign oil supply and protect the economy should an interruption occur."

In the Carter Administration's second NEP issued on May 1979, the report says that a focus on the short term energy crisis is too simplistic. After describing the factors leading to the present dangers posed to the "nation's political and economic security", factors that stemmed from the U.S. rapid and massive shift to consumption of foreign oil. The origin of this vulnerability is traced to U.S. dependence on cheap energy, the finite nature of oil supplies, and dependence on a few oil producers leading to unpleasant economic shocks. The consequent quadrupling in the cost of oil raised the cost of everything in the U.S. and was a direct and indirect source of U.S. inflation. Finally, the report uses the expression "energy security" in the context that "energy security problems facing the U.S. could worsen" – again alluding to the underlying supply and demand pressures facing the U.S. and major consuming countries. The NEP II proposed three objectives:

- As an immediate objective, the Nation must reduce its dependence on foreign oil and its vulnerability to supply disruptions. The focus here is on pricing of oil and gas at their true replacement cost (deregulating the price of oil and gas); reducing barriers to new production, and other energy projects, filling the SPR, diversifying world oil supplies, and other ways to cushion the impact of a disruption.
- In the mid-term, the Nation must seek to (1) keep imports

sufficiently low to protect U.S. security and to extend the period before world oil demand reaches the limits of production capacity and (2) develop the capability to use new higher-priced ("backstop") technologies as world oil prices rise.

- The Nation's long-term objective is to have renewable and essentially inexhaustive sources of energy to sustain a healthy economy.

The NEP II discusses "The Security Threat" in detail indicating that the growth in imports to almost 50 percent of consumption poses real dangers to U.S. political security. The threats comes from interrupted supplies from volatile and potentially unstable areas in the Middle East and North Africa. The steps to limit vulnerability were SPR and IEA oil sharing. There is the recognition that even if the U.S. were relatively self-sufficient in energy, "it would remain strategically vulnerable to supply disruptions because of its political, economic and military interdependence with Japan and Western Europe, both of which remain heavily dependent on imported oil." The NEP stated, perhaps for the first time in quite stark terms, "that it must have a coherent energy strategy to protect its security." The NEP, in summarizing its near-term, mid-term, and long-term strategies, states, "Energy security is just one more form of the economic security to which every citizen is entitled."

1980s

The change in Administrations in 1980 ushered in a different approach to energy policy – reliance to a greater degree on market principles – "Increased reliance on market decisions offers a continuing national referendum which is a far better means of charting the Nation's energy path than stubborn reliance on government dictates or on a combination of subsidies and regulations." (NEPP, July 1981) The NEPP indicated that despite some recognition that market pricing would elicit increased domestic supplies, the new Administration stated boldly that "the regulatory emphasis was overwhelming (import controls, domestic price controls, entitlement program) and experience suggests that national energy policy should now break cleanly and candidly with that approach."

While the return to market pricing reduced oil imports, there was a recognition that "achieving a low level of U.S. oil imports *at any cost* is not a major criterion for the Nation's energy security and economic health." The U.S. was part of a world oil market and cooperation with our partners was essential. "Part of the effort to ensure energy security consists of cooperation with American partners and a sound economic evaluation of our respective circumstances and the requirements of free world security." Increased stockpiles and eliminating controls and other impediments to private sector responses were important components of the energy security policy.

For the first the time in the 1981 report, the NEPP had a separate chapter titled "Energy Security." Again, the mix of public and private efforts was emphasized. The federal role in stockpile development was recognized. The goal was 750 million barrels in the SPR by 1989. The role of stockpiles was recognized as both a mitigation for short-term price effects and as a deterrent to some supply interruptions. The second element of the energy security policy was international cooperation through the IEA. The third element was emergency preparedness, not through price controls, but through reliance on market pricing; rapid growth in federal stockpiles and elimination of factors that created disincentives for private stockpiling; using the federal stockpiles in the event of emergencies; fuel switching capabilities for the private sector; creating surge capacity for domestic producers; and international cooperation.

The NEPP of October 1983, continued the policy espoused in 1981, but in greater detail. The goal of "an adequate supply of energy at reasonable costs," was the articulated policy. The policy pursued market forces as the principle mechanism for determining "adequate supply", but also recognized "The international dimensions of energy security and emergency preparedness are fundamental aspects of the definition of adequate supply for ourselves."

The NEPP's chosen strategies were to minimize federal control and involvement in energy markets while maintaining public health and safety and environmental quality, and to promote a balanced and mixed energy resource system.

Three areas of energy programs and actions were deemed particularly important: energy conservation, research and development, and energy security. The energy security element again focused on emergency preparedness and international cooperation. On the domestic side, the continued expansion of the SPR, emergency response planning, and testing of the U.S.'s ability to respond to energy emergencies were emphasized. "Domestic energy security is enhanced by a range of other federal energy programs, including oil price deregulation; federal reform efforts in natural gas pricing and nuclear licencing; leasing programs for federal lands and the Outer Continental Shelf; enhanced energy trade; and expanded research and development; including cooperative international research efforts." The international component of energy security relied on "diversifying the sources of foreign oil supply and avoiding undue dependence on unreliable sources of energy." There was an indication that "energy trade" was likely to take on increasing importance. International cooperation through the IEA remained an important component of energy security. Unfortunately, there was also the fixation on increasing natural gas supplies to Europe from the Soviet Union. Part of the strategy was to find "secure and economic alternatives to increased Western reliance on insecure and prospectively uneconomic Soviet supplies."

NEPP 1985

The goal remains "adequate supply of energy available at reasonable cost." Strategies from 1983 have not changed. Three broad conceptual objectives: energy stability, energy security, and energy strength.

- Energy stability: "a situation in which problems of energy availability and price do not destabilize the U.S. economy and our way of life." It promotes steady economic growth. It includes a consistent regulatory policy. It is the flexibility of our free-market system and its long-run ability to cope with changing circumstances that bring stability.
- Energy Security: means that adequate supplies of energy at reasonable cost are physically available to U.S. consumers, from both domestic and foreign sources. It means that the Nation is less vulnerable to disruptions in energy supply and it is better prepared to handle them should they occur.

Mentioned are – SPR, adequate defense, coordination with allies, facilitating production of U.S. energy resources.
- Energy Strength: Over longer term, energy security leads to energy strength. Reliance on domestic resources – coal, gas and nuclear power – can lead to long-term strength.

Energy Security, 1987

This report represents a shift within the Reagan Administration focusing on "Energy Security" in the backdrop of the lower oil prices and increasing oil imports. The mere title of the report reflects a renewed emphasis on the concept of energy security. The goal of energy policy is restated as, "adequate energy security at reasonable cost to the Nation." The President established the following goals:

- Increase domestic stockpiles to be used in event of a supply disruption
- Maintain a strong domestic oil industry
- Expand availability of domestic oil and gas resources
- Continue conservation and progress toward diversification of energy resources
- Promote among our allies the importance of increasing their stockpiles.

The report focuses on assessing "energy security risks" – with no one indicator providing an adequate measure of energy security. The indicators used included:

- oil prices;
- OPEC and Persian Gulf share of free-word production;
- excess production capacity;
- level of free-world exploration;
- U.S. production, consumption, and imports;
- exploration and development activities;
- fuel substitution capability;
- level of government and private stocks; and
- political or military threats in the Middle East of oil-producing regions.

The international strategies proposed by the Energy Security report include:

- Increased size and improve coordination of IEA strategic oil stockpiles;
- Reduced government intervention and removal of barriers to trade;
- Development of a balanced economic, and diversified energy supply system in response to market incentives; and
- Promotion of international collaboration on R&D.

Clinton Administration Policy: Reliance on the Three E's.

The National Energy Strategy (NES) was published in February 1991. The focus was on:

- Economic growth – more competitive economy, increased energy economic efficiency
- Environment – better environment
- Increased energy security

In the section on oil, the goal stated was to reduce U.S. vulnerability to oil supply disruptions by expanding U.S. and worldwide oil production capacity and strategic stocks:

- Ensure proper balance between energy security and environmental protection. The ideas for doing this included:
  - Advanced oil recovery
  - Exploration and development of a limited portion of the coastal plane of ANWR and OCS under strict environmental safeguards.
  - Stimulate oil and gas development and excess production capacity outside of the Persian Gulf, including the Western Hemisphere, Eastern Europe, Asia (Russia is part of this focus).
  - Expand the U.S. strategic oil reserves and encourage similar action our allies.
- Great reliance on natural gas
- Maintain coal's competitiveness.
- Enhanced R&D for energy security.
  - Increase the efficiency of surface transportation
  - Increase the efficiency of air transportation
  - Spur development of new transportation fuels
  - Improve energy efficiency in buildings and industry
  - Promote innovation in electric technologies

In July 1995, the Clinton Administration published Sustainable Energy Strategy: Clean and Secure Energy for a Competitive Economy

Sustainable Development guides energy policy and motivates three strategic goals:

- Maximize energy productivity to strengthen the economy
- Prevent pollution
- Keep America secure – reduce vulnerability to global energy market shocks.

The report focused on a mixture of reliance on markets and government policies

The Energy Security focus was on oil from ***potentially unstable sources*** of oil.

- While market changes suggest the U.S. is less vulnerable to economic damage of oil supply disruptions than 20 years ago, the increasing concentration of global oil from potentially unstable regions imply that unstable global energy markets may still compromise our economic and national security goals.
- Strengthen Energy Security policy by reaffirming U.S. policy for responding to oil supply disruptions
  - International coordination through the IEA
  - Reliance on the SPR
  - Enhance global stockpiling
  - Develop information to enhance transparency and functioning of markets

April 1998 – Comprehensive National Energy Strategy (CNES)

Five goals were articulated in this study:

- Improve the efficiency of the energy system
- Ensure against energy disruptions
  - Reduce vulnerability of the U.S. economy to oil supply disruptions – excessive reliance on Persian Gulf creates potential for oil importers to be vulnerable to supply disruptions and volatility

- Stabilize domestic production
- Maintain readiness of SPR
- Diversify import sources
- Reduce consumption
- Ensure energy system reliability, flexibility and emergency capability

- Promote energy production and use in ways that respect health and environmental values
- Expand future energy choices
- Cooperate internationally on global issues

NEP May 2001: Goal: Reliable, Affordable, and Environmentally Sound Energy for America's Future.

Components of NEP:

- The Policy is a long-term, comprehensive strategy. Our energy crisis has been years in the making, and will take years to put fully behind us.
- The Policy will advance new, environmentally friendly technologies to increase energy supplies and encourage cleaner, more efficient energy use.
- The Policy seeks to raise the living standards of the American people, recognizing that to do so our country must fully integrate its energy, environmental, and economic policies.

Five goals:

- Modernize conservation
  Increase energy efficiency by applying new technology
- Modernize our energy infrastructure
  Focus on reducing regulatory barriers to infrastructure enhancements
- Increase energy supplies
  Adding supply for diverse sources – domestic oil, gas, coal, hydro power, and nuclear
- Accelerate the protection and improvement of the environment, and develop a long-term energy policy, including reliance on clean technologies
- Increase our nation's energy security.
  Lessen impact of energy price volatility and supply uncertainty; energy security must be priority of U.S. trade and foreign policy; restore credibility with overseas suppliers; build strong relationships with energy producers in Western Hemisphere;

"U.S. national energy security depends on sufficient energy supplies to support U.S. and global economic growth."

- Measures to enhance U.S. energy security must begin at home: use our own capability to produce, process and transport the energy resources we need in an efficient and environmentally sustainable manner.
- U.S. energy and economic security are directly linked not only to our domestic and international energy supplies, but to those of our trading partners as well.
- Energy security also depends on an efficient domestic and international infrastructure to support all segments of the energy supply chain.
- Expand the sources and types of global energy supplies
- Increasing the efficiency of energy consumption,
- Enhancing the transparency and efficient operation of energy markets
- Strengthening our capacity to respond to disruptions
- Strengthen our trade alliances
- Deepen our dialogue with major oil producers
- Greater oil production in the Western Hemisphere, Africa, Caspian, Russia, and Asia
- Increased energy efficiency and use of clean energy technologies
- Continue work with IEA
- Work with large importers to augment their oil reserves

National Energy Security Post 9/11 – USEA

"Energy security is assured when the nation can deliver energy economically, reliably, environmentally soundly and safely, and in quantities sufficient to support our growing economy and defense needs."

Core Principles:

- Diversity of fuel sources – diversity of fuel supplies, including domestic production
- Economic efficiency through competitive markets
- Accelerated innovation and R&D
- Contingency planning and emergency preparedness
- Balance energy security, economic and environmental objectives

Energy Security evolved from a somewhat minor aspect of energy policy to the primary focus. It will remain the core of energy policy as long as the elements outlined in energy security concerns predominate – dependence upon oil imports for a significant portion of U.S. energy supply.

Other organizations have focused on Energy Security. For example, at the 8th International Energy Forum (IEF) in Osaka, Japan, that took place in September 2002, there was an extensive discussion of energy security issues. For consumers, the emphasis was on "Security of Supply" while for major producers the emphasis was on "Security of Demand." One observer at the IEF said that energy security was all about the "ability to manage risk."

In the current environment, the U.S.-Russia relationship must be factored into the discussion on Energy Security. Dan Yergin of CERA framed the issue in terms of the U.S. and Russia being the two largest overall energy producers if both oil and gas were considered, with Saudi Arabia in the number three position. The commonality of interests between these countries is very strong – with Russia desiring to become a strong, stable supplier of crude to the U.S. and the U.S. seeking to diversify its sources of crude oil. The questions that come to mind are whether Russia can sustain its current surge in crude oil production? Can Russia break into the U.S. and become a significant supplier – Russia is looking to achieve a 10% market share by 2010 versus its less than 1% share today? Can the U.S. limit imports from the Middle East given the Middle East's position as having the largest oil reserves in the world (about three quarters of proven reserves)? Should the U.S. try to limit these imports? What about supplies to the world oil market and isn't that what really matters in terms of diversity of supply? With the Middle East playing a critical role in the world oil market due to its large proven reserves, what does this mean for market stability in the future? These are all important questions that will have an impact on the future discussion of Energy Security.