Hey Buddy, ... Can You Spare Some Energy?

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Energy to Spare

A Comprehensive Energy Policy for the United States

We begin 2001 with rolling electricity blackouts in California, natural gas prices at levels never before seen in our country's history, continually increasing heating oil costs, limited supply of gasoline, and severe limitations on alternative or substitute forms of energy. This is a bleak picture of rising consumption and demand while supply is reducing. So what can be done to solve this crisis? Over the history of this country, one trait is always evident. We rally around a crisis and solve it for the greater good of all. A national energy policy is just such an opportunity to come together as a team to gain success. Over the past few years, energy issues were a distant object of attention, but now we are forced to deal with the situation. We can not afford to sit idle and watch as costs increase without check, but we must have leadership on the issue. This leadership must come from our nation's capitol and it must come in the form of a team recommendation with concrete actions and realistic timelines.

This energy policy team must deal with three main issues: Increasing supply, decreasing consumption, and developing a governance and implementation plan. This seems simple at first, however as in peeling an onion to reveal many layers, the complexity of this problem is as great as any test this country may face in the next twenty years. It will test our true convictions of service and stewardship, cooperation and consensus, and sacrifice.

The opening salvo of this new policy must get to the root of the economic issues of supply and demand. We must enhance supply of energy by increasing crude oil delivery, increasing refining capacity, building more electricity generation, and drilling additional natural gas wells. We must also look to do these things while not harming the environment. A delicate balance can be struck if we look to technology and our innovative spirit. One can not live at either extreme, and compromise within acceptable limits will certainly advance our common cause. We need to develop alternative systems of energy from hydrogen fuel cells, to renewable energy sources such as solar, ethanol and bio-diesel. Searching for solutions without boundaries is where we can achieve a true paradigm shift.

However, supply is only one side of the equation. We must work to reduce our use and dependence on energy sources. Conservation is a great opportunity to have everything at less cost. By simply replacing old inefficient equipment, improving building envelopes, or changing our habits, we can make a great difference in available supply. By using less, we make more available for those times when we need it. However, we can’t do this on our own, government and business must partner with us to provide options and reasons to say yes. This can be through better products, improved terms, or many other means, but they must lend a hand in the battle.

Finally, there must be an implementation plan and a governance team for this endeavor. We must have leadership as well as representation. Only through participation, cooperation, consensus and sacrifice will we achieve our goals. The federal government via the Department of Energy must provide the framework. Each state must also be at the table, as
well as industry, environmental stewards, and the average citizen. With all stakeholders playing an integral part of the system, we can craft a policy and implementation plan that will help the entire country. The road to success will not be easy and many disagreements will happen. However, when we are able to acknowledge and deal with various needs in a positive and open atmosphere, we will obtain long-term success.

We desperately need leadership with respect to this country's energy issues. For too long we have had no voice of reason that places America first. We have moved in fractured and separate ways and the time has come to rally around this crisis. The stakes are high and may include our economic leadership in the global marketplace. A national energy policy with strong and diverse leadership will light the path to our future success if we choose to work as a team. Only time and history will tell.
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Where Are We Now?

Natural gas prices climbed over ten dollars per mmBtu and gasoline prices peaked over two dollars per gallon. We find California in the midst of an electricity shortage and rolling blackouts are the norm instead of the exception. Consumers are being pinched in every corner of their pocketbook when it comes to heating or cooling their home and filling their vehicles fuel tank. This picture is not very appealing and shows little hope of improving in the short term as continued high prices and scarcity of product are predicted throughout the year.

Events such as these do not happen in a two or three year time frame. It requires a continued disregard to the small signals blinking a subtle warning for attention. In the case of our country, the leaders have been distracted to other affairs and become drunk on the successes of the technology sector. Small signs of pressure such as reduction of natural gas wells and oil wells in service were present. Meanwhile construction of new power plants to meet energy hungry industries grew at record paces. Changes in consumer demographics to large vehicles such as SUV’s signaled a mood swing that was not heard by our leaders. New environmental regulations promoted wholesale changes in energy, manufacturing and restricted markets but the changes moved slowly as to escape detection. These are but a few factors that set the stage for our current energy play.

Since it took a few years to arrive at this location it will also take a few years to move towards our energy goals. One simple fact underlies this country’s success and ability to perform economically - low cost and reliable energy. So how do we move to this nirvana of victory for all stakeholders? Through a concerted effort on all parties with the ability to listen and compromise for the greater good of our country. This will not be easy, but the stakes are high. The current shake of our economic foundation sent ripples through all corners of our country and the globe. We can not afford to create the energy depression that will rival the financial depression of the 1930’s, which sent countries to the brink of ruin and the world to the edge of destruction.

A Little Perspective: Never Hurt Anyone...

Our country is a Btu carnivore. We consume a vast quantity of energy for everyday life and our existence. The United States Department of Energy states that the energy consumption in our country has increased over 25% in the past twenty years with 11% of that increase happening in the past 6 years. Much of this can be attributed to our increase in economic performance; however, we have strayed from the conservation approach of the early 1970’s. So what does the picture tell us concerning how we use energy and approach the issues of our energy policy? In simple terms the decrease or leveled costs of our energy in the past years has created a great complacency for individual and business use of energy. So let’s gain some basic perspective on this situation. In Europe it is common to pay over four dollars per gallon equivalent for gasoline. In the United States, we seem to create a great uproar when the price escalates to the two-dollar level. In Tokyo, residential customers pay in excess of nineteen cents for a kilowatt-hour of electricity. In retrospect, the most expensive power in the United States hovers near sixteen cents per kilowatt-hour for a residential customer. The great majority of customers pay near ten-cents for a kilowatt-hour. This pattern is repeated and even more dramatic in the business sector where costs are typically lower due to volume purchasing.

Knowing the basics of some our particulars, let us review some other pertinent statistics for the United States. Over the past twenty-five years, the average price of electricity rose from $0.057 per kWh to $0.061 per kWh. However, the price peaked in 1982 at $0.087 per kWh.
So for the past 18 years, we have had a decrease in the average price. Since 1982, gasoline prices fluctuated between $1.22 and $1.15 per gallon for unleaded (on average). Again, costs are reducing for the general consumer. This same pattern can be found in all forms of energy including natural gas, fuel oil, and the like. Basically, we have had a great twenty-year run with respect to costs.

Pricing certainly has been good, but how does the product mix look today for the United States? We basically look to the following fuel sources to produce our energy: coal, crude oil, natural gas, nuclear energy, natural gas liquids, and renewables. Crude oil is by far the base leader at over 35% of the input to our energy. Of this over 22% is imported into the United States. The remaining distributions show that coal accounts for 23% of the inputs, natural gas for 19%, nuclear for 8%, renewables for 7%, and natural gas liquids for 3% (5% from other imports coke, electricity, coal). Other interesting facts concerning the product mix include that we have about 27% of our energy sources imported, we use over 82% in fossil fuels to produce energy, 34% of energy is used in residential/commercial applications, 37% in industrial application, and 26% in transportation. Now that we understand a little more concerning our use and mix, it is time to create a new paradigm for the future.

The one thing missing from this data set is the environmental impact of all this use. Many studies have been provided in the past years concerning air, water, and land quality. Consumption inherently indicates that there are impacts to our environment. We see this in the major cities such as Los Angeles and New York during the summer. We also see this in the coal mining regions where entire mountains are leveled for fuel. We also see it when following a car belching various exhausts into the air. There have been great strides since the early 1970's, but attention must be drawn in this area to maintain our movement to maintain or improve our environment. Scientists are continually debating the impacts, and for the sake of this paper, we will assume that current levels of emissions are baselines that can not be increased. This line in the sand, states that we need to think smarter about our effectiveness of use not just the efficiency of direct application.

The preceding discussion focused on the facts of our use. A simple Pareto analysis shows that petroleum is the largest contributor to consumption followed closely by natural gas and coal. The same analysis shows that our use is concentrated in the industrial and residential/commercial sector. In simple problem solving processes, one concentrates their efforts on the largest areas to gain the best "bang for one's buck". We will focus our improvement discussion in these areas. However, before we get into the details of the policy recommendation, we must create some basic requirements of the policy. This would include, ease of comprehension at all levels. Everyone in the country should understand and see the impact to their daily life. It should promote action and not ambivalence by individuals, groups, and corporations. The policy must acknowledge diverse opinions, but also creates an understanding that each stakeholder must sacrifice something so that we will all gain. Finally, the policy must promote advances, innovation, and shifting of the national energy paradigm. This paper will certainly not be able to cover all of the details required for a nation of 270 million souls, however we will touch on the most important points to assist in the development of a framework which can help to build the implementation.
The Policy

A successful energy policy must address supply, consumption, and implementation/governance. Each of these areas is important to every stakeholder inside and outside of the borders of the United States. The following general blueprint will provide a standard approach and process to our energy issues with the expectation of improving our complete process. Our policy should create a level playing field of interaction for all parties. Also, this policy should create an ease of assimilation in that other groups can develop their own policy in concert with the larger national policy. Figure one shows the impact of this new energy policy process. Once we view this as a continuous cycle, we will focus our energies in the proper direction.

![Figure 1: The Process](image)

Supply

If we approach our energy policy in the form of a process, the first place to concentrate is the supply. We must think of energy in the end use application of the supply. Where are we sending our supply? This will lead us to reconsider the needed sources of supply. As noted above, the United States imports over 27% of its energy needs. At first blush, it would appear that this is a good mix. However, looking closer, the majority of imports focus on crude oil, which is mainly used in industrial and transportation circles. Extrapolating this forward shows that we have over 70% of our transportation fuel imported. This produces a potential problem in the area of control. Simply stated, if we import the majority of our crude for transportation we do not control our own destiny in the application of pricing of this commodity. So how do we address this issue? There are two main methods to alleviate supply and demand concerns: one - increase controllable supply and two - use an alternative or substitute product.

The main focus of crude oil centers on transportation. There are really a few major concerns that must be addressed to improve our supply. First we must increase domestic production of crude oil. This is not a favorite idea of environmental groups; however, the United States does have a large quantity of untapped crude reserves that should be accessed. However, this does not mean a company can pillage the area without controls and limitations. The new harvesting areas must be maintained to harbor the life normal to these areas. A partnership of government, corporations, and environmental concerns must have a role to play in the process. Each stakeholder will work to compromise due to the nature of our supply problems. The use of newer harvesting technology with the financial incentive for proper stewardship of the land, will work to keep impacts to a minimum. Examples include directional drilling. This would allow for harvesting of coastal oil reserves while minimizing the risk to ocean and shore wildlife. Options such as this would enable the tapping of vast reserves on either coast as well as Alaskan oil reserves. In combination, projections show that the United States could
gain up to 40% of the supply needs from this harvesting. Another option, that is less controversial, centers on the development of alternatives to crude oil. This certainly appeals to most stakeholders, however many research and development dollars must be focused here. Alternatives such as bio-diesel, ethanol, and others certainly show promise. There must be a combination of manufacturers of end-use equipment, developers, and government to make this a reality. In simple terms, the auto/transportation industry and suppliers must be brought to the table to commit to this process. Government can provide the means to nudge or force this effort through numerous means including R&D programs and/or enactment laws. However, it is more desired to create a willing partnership rather than force the issue. A combination between companies and the government must be formed with a single vision and aggressive goals to create alternative vehicles. We have seen time and time again, that when our county is pushed into a corner and the stakes seem high, we will respond with great results through innovation and determination. The basics components have been in existence for many years, we simply need to dust off the covers and rally around the cause. The incentive is new markets in which our country can dominate. Alternative fuel transportation certainly is a fractured market that is ripe for leadership and who better to lead than our auto industry. Focus of fuels should include those that can be developed from alternative sources such as corn, soybeans, water (hydrogen) and the like. These options will also greatly increase the emission issues and reduce fossil fuel burning.

Petroleum offers many options, but we can also make gains in the area of natural gas and coal. Again, we must understand the application of each to help focus on the supply. Natural gas enjoys use in many process applications including home heating, electricity production, and industrial application. Coal is primarily used in the production of electricity. Current application tends to the need for these fuel supplies. Increases in harvesting of each pose some extensive difficulties from an environmental viewpoint. However, increases in application of either of these sources in a substitution effort with petroleum, will certainly increase the opportunity for self-reliance on fuel inputs. Suffice to say, that it this recommendation that coal levels be allowed to increase at the rate of inflation to apply towards the production of electricity while we increase the harvesting of natural gas reserves. Further explanation in the consumption and application areas will help to shed light on this recommendation.

Other areas of fuel input from renewables to nuclear, offer the greatest opportunities for our country in low emission applications. From an environmental aspect, we need to continually look to increase these applications until we have an even balance of application across the board. Nuclear offers some great opportunities in the application of emerging reactor technology. The general fear of nuclear use must be overcome to advance this application. We must look to create an accepted reactor configuration much like the controls in place in France and Japan. This will allow for ease of inspection and construction of new facilities. In the past, one of the main problems with the US nuclear program centered on the misconception that competition would develop the best product. In this case, a standardized design would create the safest and most reliable output. We must be able to mimic other country's success in the nuclear energy area as it offers unlimited long term potential. Along with this, we must consider retiring older and less effective plants. Waste disposal is certainly a problem that needs attention. Unfortunately, the answer lies in storage, but new technology offers hopes for safe disposal of reactor material. The final piece centers on renewables. This includes wind, solar, biomass, hydro, and others. For the long terms (>50 years), this option is the most desired. However, the technology is still in infancy of application at acceptable cost levels. The focus for our energy policy in this area must be in research and development. We must continue to develop these alternative sources as to increase their percentage of use and application. Only time, money, and focus will enable us to have a true renewable energy resource. Cooperatives between government and industry are the only answer to this puzzle. Shared knowledge in a spirit of cooperation and not competition is needed. To best accomplish this, we should mimic the model of Japan where the government helps to subsidize development and shares the knowledge with many manufacturers. Once a system is developed the manufacturers compete on ability to produce with the greatest efficiency to
capture market share. This model would place all players on the same team in the renewable search while we are attempting to create viability. Once viable, competition will naturally flourish and should be promoted. Again, this is an incredible shift of a paradigm with respect to nuclear and renewable supply; however, we must do these things to change our portfolio of energy resources.

Much as an investor balances a stock portfolio to reduce risk, our country must look to balance the energy-input portfolio to reduce risks associated with price, availability, and environmental concerns. The ability to rely on all aspects of supply from petroleum to renewable sources with equal weight will reduce our country's risk and exposure for the long term. We will also increase efficiency and our living space. A full spirit of cooperation must be available from all stakeholders to make this idea work. The concept of compromise is difficult under today's positions, but we must focus on the future and the greater good to reach our next stage of world leadership in energy supply.

Consumption

As in any basic economic model supply is balanced via demand or in our case consumption. Control over consumption is a key component to the national or any energy policy. Using our Pareto analysis, we will focus on the industrial and commercial/residential sectors for the largest efforts while not neglecting the transportation side of the equation. Since, consumption has increased over the past years in all areas; we must focus on a reduction of this consumption or an alteration of the needed supply if consumption can not be curbed. This should be the main focus on the demand side. For many years, our country advocated demand side management in the electricity industry. The time has come once again to develop this focus with respect to our energy use. So our policy needs to address issues central to industrial, residential, commercial, and transportation sectors.

In the industrial sector, our policy must cover adoption of alternative sources and reduction of use (conservation). In the past few years, most industrial and large commercial users of energy have focused their attention on deregulation of their supply. The conventional wisdom was that if the commodity was allowed to trade like any other, they would be able to reduce their cost. The main problem is that energy is not like other commodities in application, transportation, and creation. Due to the volatility supply and demand moves faster than most companies can manage and this leads to incredible swings in prices. The underlying issue centers on the cost to do business and increases in electricity, oil, and natural gas as seen in 2000 can cripple the business sector like so many plagues of locusts. The key to success lies in the more effective use of energy and the creation of substitutes.

In the early 1970's and through the mid-1980's, demand side management was very much in vogue. This program focused on the reduction in use. Today, we should once again focus on conservation. Companies must use premium high efficiency motors, efficient lighting, new boiler systems, and so forth. The decreases available through conservation may be as much as ten percent of the nation's energy use. Since there is a large outlay of capital, our governments can become involved through low or interest free loans to increase full building envelope and applications to maximum efficiency. Through the use of municipal bonds and other government issues, we can assist and stimulate the transformation of energy use within our businesses. We can also provide the same support in the use of alternative supply of energy. If companies can diversify the use of energy within a facility to use no more than 40% of any one energy source, we should reward these companies for innovation. An example of this could take the form of using 15% renewable resources, 40% normal electricity generation, 20% natural gas use, and 10% heat recovery application, 10% energy storage, and 5% non-energy envelope improvements. The benefits include reduced reliance on a single energy source and potential self-reliance from traditional energy paradigms. Again, innovation must
be rewarded by our government agencies to assist companies willing to attempt new ideas through the first few years of financial hardship.

Business improvements are relatively simple to induce through incentives that promote profitability. However, residential customers are not nearly as easy to convince. A recent estimate from EPRI noticed that over 70% of residential energy users favored using renewable resources, but only 10% were willing to pay additional fees to have this option. This point is used to illustrate the challenging nature of mass marketing of an idea. Once again, we need to address conservation and alternative fuel use, and the best method of changing the paradigm is through direct effect on the family budget via tax incentives.

Conservation has always been a tough sell due to the cost of alterations. The direct costs incurred in changing windows, doors, adding insulation, buying new efficient equipment and the like cause a direct decrease in the residential pocketbook. Choosing between food and clothing or a new energy efficient washer and dryer is an easy selection but one that does not reduce consumption. In years past, governments have stepped to the plate with tax deductions. Even today, Indiana offers several tax incentives for home improvement. It is time to dust these off and advertise their existence. A strategic marketing effort must be created to build awareness and a sense of urgency. Along with the re-introduction of tax credits and marketing, the governments must invest in more programs like the million solar roof initiative. These programs display, promote, and assist in reducing the cost of the products.

Working with local utility companies and regulators to once again offer DSM programs which provide rebates that are paid through surcharges over twenty years also assists in reducing the direct personal investment. We are not advocating a free lunch or give-away programs, but rather a concerted effort by our regulators, utilities, and governments to provide a small push in the right direction. There are many other potential avenues within the natural gas and electricity world to help consumers reduce use, but these focus on response to market price signals. This is a long-term solution that creates winners and losers under current conditions and should be more clearly developed before it is released on the populace. California and New York (this summer) will help to provide the realities of poor regulatory alterations.

The other avenue for improvement in the residential sector focuses on the use of alternatives or substitute energy supplies. Again, price signals provide the best incentive for movement, but we must have a developed infrastructure. Changes in regulations, tax codes, building codes, and the like will reduce barriers to entry. This would include a creation of a national interconnection standard for distributed generation. Currently no such animal exists and IEEE can not determine one due to member political positions. We must overcome this small part to allow for ease of substitution of electric product. This will assist in the adoption of solar, fuel cell, and other new products at the residential level through a reduction in costs. National standards will also assist in creating improved safety of such systems for all involved. Again, there must be changes in tax codes to promote the construction, use and installation of alternative sources. Perhaps we could have a diversification credit based on using multiple sources at one location. This would reduce overall cost and increase reliability if properly designed. Building codes must also be changed to promote alternative resource application in energy and indirect efficiency. Again, our leaders must step forward to help, but the individuals must also accept this help and try something new. It is almost a "catch 22" however, current energy prices certainly will help motivate everyone to action.

The final piece of the puzzle focuses on transportation. The reductions available within vehicles is very evident based on the mileage per gallon of our transportation means. Over the past 150 years, our country has developed many means of mechanized locomotion, but by far the automobile is the most popular of them all. Americans are in love with their vehicles. From the muscle cars of the sixties to the SUV's of the 1990's, we enjoy speed, power, and size. Many a writer has stated that for American's, their vehicle is a direct representation of their persona. This is the challenge one faces if you promote alterations to transportation in our country. However, the main method of achieving this can be done through the increase in
the minimum mileage rates for automobiles and trucks. A simple increase in 5 miles per gallon for new vehicles can save millions of barrels of crude over the life span of these vehicles. Technology is readily available to make these alterations, but it must be mandated since manufacturers and consumers do not have a great incentive (unless current gasoline prices continue to rise and reach the $3 to $4 dollar level) to change. Another and more radical idea centers on a punitive measure with respect to low fuel efficiency. A great case can be made to charge an efficiency penalty to those driving vehicles with average mileage below twelve miles per gallon. The focus of this would be non-business vehicles (hauling, transport of goods, and the like) that are used as a family vehicle or that are so old as to be an efficiency detriment. This surcharge will affect many people in many unpopular ways, however, if we are to be serious concerning consumption, there must be an effort to upgrade to better technology or pay the appropriate costs of choices against these ideas. Finally, development of alternative fuel vehicles and zero emission vehicles would also assist in reducing energy consumption of fossil fuels. There are current programs, but these require time and seed money or at least tax abatements to help move from the drawing board to reality.

Implementation and Governance

In the previous section, supply and consumption were briefly discussed; however, no process can be fully developed without implementation plans and a method of governance. In the case of our energy policy, implementation should focus on national and state level with corresponding governance. The key to success lies in the coordination of the effort between agencies, providers, regulators, consumers, and other stakeholders.

Before we discuss implementation, we must focus on governance of the process. As much as everyone dislikes the idea of another government agency, we should have one focused solely on the implementation of the energy policy. To use existing agencies would assist in this process, so we would propose the Department of Energy create a special energy policy focus group in place. This group would be composed of several subgroups (Please see Figure 2 for more detail).

![Energy Policy Governance Group](image)

Figure 2: Energy Policy Governance

The main focus is a coordinated effort to address the issues surrounding the energy policy. With DOE as the lead and representing a cross-functional team composed of members of the subgroup, the governance group can provide pertinent and diverse opinions with respect to implementation, governance, and any other issues that may affect the energy policy of our country. Once all the stakeholders have a place at the table, a proper dialogue can ensue.

Initially, this dialogue must focus on the implementation of a national energy policy. This is where the leaders must take a firm stand. The decisions and ideas will not be popular with every group. Raising fees to low fuel mileage vehicle owners will certainly not help re-election campaigns. Increasing expenditures and reducing revenues through new incentive
programs will reduce the opportunity for pork barrel projects and shift spending. However, the reasons for this course of action is sound. The US is in an economic leadership position to a great extent because we have inexpensive and reliable energy for our businesses and homes. The current state of energy in our country is a potential epic crisis in the making if not address with the proper respect. So how does the group start the implementation?

As in any new product or program, education is a key component. America must be educated on the plan and the reasons for the action. The message must be continuous and unwavering from the attacks of special interest groups. There will be attacks from all sides to include people claiming damage to the environment due to increased exploration and those that say the increases in mandated efficiency standards will make their products too expensive. However, there must be a give and take on all sides and continuous messaging surrounding the issue will help to maintain stable information. The second step is to obtain a follow-up or cooperative policy from each state. If the states can follow the lead of the national policy, it will provide for incredible unity of purpose in every corner of the land. This will be incredibly difficult as one now must deal with incredible complexities on a fifty-fold level. However, nothing worthwhile is ever easy to obtain. One must also obtain the agreement of the majority of business interests. As their products fuel the future, they will play an integral part in the success of an energy policy. For business, it is a simple equation. Does the policy and subsequent results make us better able to compete on a global scale? If the answer is yes, they will follow the DOE lead. Having their input in the governance group will certainly make this process easier. The final piece of the puzzle is the support of government in the form of the elected officials. This will be the most challenging process since they hold the purse strings of tax relief and spending. There is no easy method to gain acceptance by this group, but they will move to the concerns of their constituents, and the continuous marketing campaign should help to set the stage for successful lobbying efforts.

**Conclusions**

We are faced with an incredible set of choices in this country with respect to energy. Low cost and reliable resources has made this country what it is today, but it can also help to take our advantage away. The main efforts of a national energy policy must concentrate on increasing supply of energy, reducing consumption, and providing a coordinated means of implementation and governance. Simply stated, it is a process that requires the proper mapping. If we determine the blueprint and follow the directions, we will succeed. If we chose to disregard our own indicators, than we will be doomed to a slow and agonizing period of increased costs, decreased quality of life, and continuous fire fighting with respect to energy emergencies.

This country’s greatest strengths are also some of its largest weaknesses. We can see this in the problems with our energy policy today. Attempts at deregulation in the electricity industry have been met with disastrous results as California faces daily blackouts and we attempt to move large blocks of power through a transmission system ill suited for this endeavor. We see it in the refinery capacity reaching record levels and still unable to meet demands due to restrictive manufacturing regulations and limitations on new investment in capital. One can also see this in the efforts of businesses to hamper the introduction of alternative systems much as the auto industry has stifled innovation against the combustion engine. Finally, we see the well-intended efforts of environmental extremism preventing the exploration for natural gas and artificially creating supply shortages. We must all come to accord, that our efforts must be to the greater good of the country and find compromise through the application of technology and intelligence. Once we throw our full weight to this problem, the US will once again stand ready to have many years of low cost, reliable, plentiful, and environmentally friendly energy.
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To: A swe.

Subject: National Energy Policy
Energy Conservative Housing

Congratulations on the recent release of a comprehensive National Energy Policy. The document seems extremely well researched for such a complex issue. I would like to suggest an important amendment that ought to be included because it will encourage community planners to place more emphasis on the third dimension in future housing projects.

We need to utilize the third dimension more effectively in laying out our communities. Currently, the residences offices stores etc. of our cities are spread out mostly over a two dimensional grid, and consequently we have a seesaw spread of good and services throughout the community forces us to make many trips. Are all these trips really necessary?

The concept of Energy Conservative Housing suggests that many of our trips would not be necessary if we made better use of the third dimension. The concept has been around for many years yet I think the merit of the housing design has not been fully appreciated. I urge you to study Energy Conservative Housing and then re-shape the tax law to encourage the construction of new energy-efficient apartments as described below.

Upwards into the third dimension we go. We design a large multi-story apartment building with comfortable middle-class features in every apartment. But we reserve the ground floor for commercial enterprises that primarily serve the needs of the residents on the floors above but also fully accessible to customers who live outside the apartment complex.

Think what this design does for the residents. They can live a comfortable life. They can move around quickly, almost effortlessly within their own building. They can obtain their groceries, medicines, shoes or books within their own building... no need to hop in the car and travel 20 miles to gather supplies or acquire services. A medical clinic in the building might eliminate a lot of travel to physician's offices. The building might be nearly self-sufficient so automobile errands to distant stores or service providers would be greatly reduced. The tenants would be far less dependent on the automobile; their cost of living would be downsized; their lives would be enriched by the gift of extra time-saved. A schoolhouse and a police station might also be included in the design. A few of the residents might even work downstairs in the commercial sector, and never have to think about commuting.

Think what this design does for the community at large. The movement of foods and supplies and people through the community would be much more efficient. Less travel required. Traffic congestion and air pollution reduced. Total fuel consumption in the community much reduced. All the benefits of energy conservation. Less wear and tear on city streets. Fewer accidents. Commuters on average less stressed out by travel over less crowded thoroughfares. A small city composed of several well spaced Energy Conservative Housing units intermingled with single family homes would offer many benefits, but would not necessarily appeal to everyone.

It would be a blessing for elderly people like me, and those unfortunate handicapped people who are strapped in wheelchairs could live free of the many hassles they now endure. No traffic problems. Safe and secure. If I could live in such a place I would likely give up my automobile, and on rare occasions I'd summon a taxi for distant errands. Wouldn't it be nice if I could just go downstairs and do my shopping or take a morning constitutional in the mall.

No response necessary. Just do it.

Robert E. Heath

Copy to: President G.W. Bush
Secretary of HUD
House Committee on Energy and Commerce
White House Office of Science and Tech Policy

29764

Obtained and made public by the Natural Resources Defense Council, May 2002
Dear Secretary Abraham,

The enclosed letter appeared in the Florida Times Union, Jacksonville's top paper. The interesting fact is that I received 28 phone calls from people I did not know—all expressing their agreement with my letter. There were two disapprovals. Whereas that is not a professional poll, it is a positive reaction that belies what the extreme, vocal environmentalists and the media keep putting out. I feel it indicates the public accepts and/or agrees that we must increase exploration and production as fast as humanly possible.

Best wishes for your continued success.

Sincerely,

Mel Bernstein
ENERGY CRISIS

Take action now

We have a serious energy crisis. It is the result of no action by President Clinton to adopt any positive energy policy or action to prevent the crisis. He embraced the extreme vocal environment groups' stand, preventing additional exploration, new refining facilities and electrical power plants.

In addition, the members of the Organization of Petroleum Exporting Countries we saved from Iraq have shown no appreciation. In the past year, they have continued to decrease the amount of oil they have pumped. That has been disruptive to our economy and has cost our citizens dearly. It is the principal cause of our inflation. It is vital that we increase our own energy resources.

We must:
* Authorize oil exploration in Alaska and other areas in our country by qualified exploration organizations.
* Authorize the construction of new refining facilities.
* Authorize and encourage building of new electric power plants.
* Adopt the rational, reasonable, necessary attitude that our citizens' well-being is more important than the well-being of the tai tai fly or the snail darter.

New technology will allow construction of vital facilities without ruining the environment or killing wildlife. But if it does come down to that, we must decide in favor of humans.

The extreme vocal environmentalists drive automobiles, have electric lights, air-conditioning, heating, microwaves — even computers — in their homes. They must realize that they won't be able to use those things unless they allow us to increase our domestic energy sources for national security, a healthy economy and our citizens' normal living.

We have the oil and gas in our borders; it is idiotic to ignore it. Conservation, while desirable, will not give us the energy we need now and in the future.

MEL BERNSTEIN
Ponte Vedra Beach
May 23, 2001

Mr. Spencer Abraham  
Secretary, U.S. Department of Energy  
1000 Independence Ave. SW  
Room 7A257  
Washington DC, 20585  
2001-013912 6/8 A 10:25

Dear Sir,

Your energy plan needs much more emphasis on conservation and alternative-energy.

True, conservation will not get us there all the way, but it will get us a lot further if we had a real commitment to apply our best technological know-how to the problem. Americans are such an inventive people, surely we can do better than the Europeans who somehow manage to live very well without wasting as much energy as we do.

One conservation step that is long overdue and which requires only legislative action, is to extend the fuel efficiency and emission standards that apply to standard cars to SUV's and light trucks. These vehicles are overwhelmingly used for personal transportation and it is about time that they abided by the same rules as other cars.

Alternative energy is nominally more expensive than fossil fuel derived energy, but when one considers the indirect cost of pollution that is avoided, alternative energy becomes a lot more attractive.

Please incorporate these ideas in your energy plan.

Sincerely,

[Signature]

Mrs. Shirley Hall
23 May, 2001

President George W. Bush
The White House
1600 Pennsylvania Avenue N.W.
Washington, DC 20500

Dear Mr. President,

Your recent energy plan contains some good points but it falls way short in energy conservation. We were led to believe by your recent public statements that conservation was going to be a significant factor in your plan, but it is at best a start.

The United States uses more energy per capita than any other nation in the world. Part of the reason for that is that we have not really tried to conserve, except for a brief, aborted attempt during the Carter administration. Therefore we have the potential for huge savings, a potential that we must realize if we are to be considered responsible members of the international society of nations. This does not mean lowering our standard of living, it merely means creatively applying our world class technology to use energy more efficiently.

Your own energy department has developed many ideas along those lines. Together with industry, they should develop a blueprint for energy efficiency. This would result in permanent savings that will bear dividends for many years to come.

Sincerely,

[Signature]

[Name]
Dear Vice President Cheney:

I wrote to you a couple of months ago in conjunction with my AP Environmental Science class at Walter Johnson High School. My letter requested information on the Administration's official energy policy, the plausibility of solar power fuel cells as I had heard about in a news story on NASA's "Flying Wing," and other alternative energy sources. I felt confident that my letter would be received as a reasonable, measured, and sincere one. Hopeful and sincerely interested in a response, I even enclosed a self-addressed, stamped envelope to make the response I hoped to receive extra-easy for a secretary or intern to provide.

On May 10, I received a small envelope from your office at the White House. It contained a curt, flowery form letter from Andrew A. Lundquist, Executive Director of the National Energy Policy Development Group on your behalf. The letter did not address any of my concerns specifically, nor did it manage to say much of anything substantive. I have been impressed with your knowledge and experience though we may not agree on certain issues; to be honest, I was looking forward to a more meaningful response.

I feel personally offended and somewhat betrayed by this impersonal and false response. I am genuinely interested in these pressing issues, and would hope that in the future you would be able to send a more significant and sincere response to concerned young people like myself. I am still very interested in your and President Bush's energy policy, and would appreciate any information you could provide on this topic. I hope that my experience is not an indication of the level of communication this Administration intends to have with the public.

Sincerely,

Joan April Suwalsky

Obtained and made public by the Natural Resources Defense Council, May 2002
The Honorable Spencer Abraham  
Secretary of Energy  
U.S. Department of Energy  
1000 Independence Ave., SW  
Washington, DC 20585  

Dear Secretary Abraham,

Recently, the Bush administration put forth an energy plan to deal with problems in our nation's energy situation such as the misbalance of supply and demand in the energy economy and the dangers to our environment due to fossil fuels. Several of the plans presented are very strong. More clean coal technology and natural gas pipelines will reduce the current amount of air emissions in the environment. However, there are a few key weaknesses in the energy plan.

The need for oil in this country is over-estimated. Gasoline prices would not be so high if conservation were employed more than it is. Federal incentives for mass-transit systems for cities that wish to improve their systems should be provided. Also, higher taxes should be imposed on people who drive larger cars such as SUVs. More fuel-efficient cars on the will help reduce the demand for gasoline and therefore lower gasoline prices. Also, other fossil fuels, such as natural gas, can be used instead of oil. More cars should be engineered to run on natural gas and oil power plants can be replaced with those of other fossil fuels. There are many alternative solutions to gasoline prices than finding more oil.

It is not a strong solution to drill for oil in the Arctic Wildlife Reserves. It is important to preserve these areas for future generations. If reserves are looked to for
natural resources by each president, then eventually, there will be no reserves remaining.

It is wrong to attack unique ecological systems for any needs if they can be met through other means. More money should be put into conservation and efficiency of gasoline and more mass-transit rather than being put into drilling for oil in the Arctic Wildlife Reserves.

Finally, more renewable energy should be researched and developed. Bush wants to put about $40 million into this research, but this is not enough to accelerate the development of new, cleaner, energy sources. More solar panels should be built than 2,000: this is only 40 per state. More research on fuel cell automobiles would also be effective. More money must be put into research of renewable energy in order to push America into the future.

In conclusion, there are a few key errors in the new Energy Policy that must be addressed. The need for oil is over-estimated and alternative solutions to this problem should be considered before drilling for oil in the natural Arctic Wildlife Reserves. One of these alternative solutions that should be looked at more fully is renewable power. Through emphasizing more clean and efficient sources of power, our country can move forward in the new millennium with a strong energy system.

Sincerely,

Daniel L. Kuncik

Obtained and made public by the Natural Resources Defense Council, May 2002
Mr. Andrew Lundquist  
Executive Director  
National Energy Policy Development Group  
Office Of The Vice President  
Washington, D.C., 20501

Subject: “PATH 15” Transmission Network Bottleneck In California And An Alternative Remedy

Dear Mr. Lundquist,

In my 3/16/01 letter to Vice President Cheney, your 4/13/01 response to me on behalf of the Vice President (which was greatly appreciated by me), and my 4/20/01 follow-up letter to you, a common theme was to try to solve various aspects of the nation’s energy and energy delivery problems in a dependable, affordable, timely, and environmentally sound manner.

My reason for writing to you again is two-fold:

In the President’s national energy policy announcement almost two weeks ago, one aspect of his program is to try to “squeeze” more out of existing infrastructure (which I interpreted to mean to become more efficient or to do more with what we already have). This is certainly a sensible, often times practical goal, and an important part of his program. The rational of my earlier initiatives is consistent with this objective.

Secondly, I obtained some information (via the Internet) about the nature of the PATH 15 transmission network bottleneck problem in California and its proposed solution. This remedy involves building another 500 kv transmission line and installing another 230 kv circuit on a vacant position of an existing double-circuit transmission line. While the installation of the additional 230 kv circuit is an obvious and relatively easy part of this plan, the building of an entirely new 500 kv line is an entirely different matter. A new 500 kv line will likely be a very costly, late, and environmentally /property-owner opposed project. This reported overall transmission reinforcement program for PATH 15 has been estimated to cost between $200 - 300,000,000 and be completed within 5 years! Five years may be an overly optimistic time frame since I know of an EHV line that has been in the line siting process for more than 10 years now and still does not have siting approval.

I would respectfully suggest that another alternative be evaluated and considered from a technical, environmental, timeliness, and economic perspective; one that might be accomplished at a small fraction of the above cost, much quicker, and which might even be endorsed by the environmental community!

Some of the basics of my PATH 15 alternative remedy are described below and I certainly acknowledge that I do not have most of the details of the existing system or its problems. Nevertheless, there is enough information for me to suggest the following upgrade and there may be other variations that also solve the problems:

1) Rather than build another new 500 kv line between Los Banos and Gates Substations and add a second 230 kv circuit between Gates and Midway Substations, my suggestion is to look at significantly upgrading the voltages on the existing transmission lines between these Substations and not build the entirely new 500 kv line.
2) My remedy involves a voltage upgrade of one or more 500 kv lines to 765 kv from Los Banos southward and a voltage upgrade from 230 kv to 345 kv on the existing line between Gates and Midway Substations together with the necessary transformer changes and other appropriate Substation upgrades.

This plan obviously would have one less north-south circuit in PATH 15 than the current plan; this certainly needs to be considered as a trade-off against the benefits that might result from my suggested plan. In any event, electrical Load-Flow, Stability, and other analyses should be performed by PG&E, So. Cal. Edison, CAISO, WSCC and others to determine the viability of this voltage upgrade alternative for PATH 15 as well as for other congested PATHS in California.

3) If this voltage upgrade alternative does accomplish the necessary PATH 15 reinforcement requirements, then the means of accomplishing such significant modifications might possibly be achieved by the combined use of two U.S. Patents described below in Paragraph (4) and of which I am a co-inventor.

4) Two of the major technical problems involved in such transmission line voltage upgrades are the need for increased clearances under these lines and increased clearances between the energized conductors and structural supports (ie. towers) without major conductor and/or tower modifications or reinforcements.

(A) U.S. Patent No. 4,686,325 entitled “Catenary Sag Adjustment Using Added Weights” provides a novel means of providing increased clearances under existing lines where they come closest to ground or other underlying objects. My previous correspondence described this Patent in significant detail.

(B) U.S. Patent No. 5,777,262 entitled “Apparatus And Method For Increasing Electrical Clearances Of Energized Conductors” provides a means of increasing clearances between conductors and supporting structures utilizing innovative insulation techniques.

5) I believe that a comprehensive engineering and economic study, by appropriate entities, of the combined use of these two Patents should be performed promptly to determine whether my voltage upgrade alternatives solve all the PATH 15 problems.

6) An obvious question that should be considered and answered is: how can the voltage upgrades be accomplished without lengthy circuit outages on the already strained transmission system? As described in my previous information packages it should be possible, using insulated bucket-trucks and other recognized safety procedures, to install the weights required by Patent No. 4,686,325 at many locations without a circuit outage.

Installation techniques to accomplish the modifications required by Patent No. 5,777,262 will require circuit outages. However, the nature of this work at supporting structures may permit a work-plan whereby a de-energized circuit can be re-energized on relatively short notice after work crews are clear of the circuit; should this need arise.

It is also very likely that some circuit outages are inevitable, even with the PG&E plan.

7) The installation of a voltage upgraded 345 kv circuit on the vacant position of the line between Gates and Midway Substations could be the first task that is completed prior to other work in order to reinforce PATH 15 during subsequent outages on other circuits. Then, sequentially, the existing 230 kv Gates-Midway circuit be upgraded to 345 kv and then one or more of the existing 500 kv circuits between Los Banos-Gates-Midway and/or Los Banos-
Midway be upgraded to 765 kv.

Since my prior letters (or copies of letters) and packages of information to various California officials, utility companies, ISO, and some Federal officials have not yet been answered, I request that your Office urge consideration and comprehensive analyses of my alternative by appropriate California Utilities, FERC, California Independent System Operator, California Energy Commission, California Public Utilities Commission, Western Systems Coordinating Council, and any other interested parties.

It is my hope that you and your Task Force can convince appropriate people in the West to at least analyze the possibilities of prudently “squeezing” more capacity out of existing transmission line facilities to follow the lead within President Bush’s announcement.

Even if such a study of PATH 15 does not result in implementation of my suggestions, I believe that the engineering and economic analyses that result will be worth the time, effort, and cost since many experts believe that there are many other transmission line bottlenecks around the country. Perhaps some of these other line limitations can be mitigated by prudent use of the Patent described in Paragraph 4 (A) or by prudently combining the use of Patents described in Paragraphs 4 (A) & 4 (B). For example, the other “Congested PATHS” 66, 46, 45, 44, 42, & 26 in California as cited by their Energy Commission. Load-Flow, Stability, and other analyses should also be performed for these PATHS to determine whether voltage upgrades similar to my PATH 15 suggestions might be helpful in mitigating these PATH constraints.

In order to facilitate the consideration of my suggestions, I am again copying various entities and government officials whom I believe have or should have a strong interest in these serious problems. I sincerely hope that my enhanced suggestions will receive the attention of the proper people whose responsibility it is to solve these difficult problems.

I look forward to a dialogue with your Office or any other entities in the hope that my suggestions can be helpful in the California situation as well as for similar problems elsewhere around the country.

Respectfully,

[Signature]

Ronald Marsico

Enclosures: Letters Dated 3/16/01, 4/13/01, & 4/20/01; Two U.S. Patents; CEC Map Of Congested EHV PATHS In California; PG&E Letter Dated 4/2/01 ToWSCC Relative To Their PATH 15 Upgrade Plan.
Copies: Hon. Richard Cheney - Vice President of the United States
Hon. Spencer Abraham - Secretary of Energy
Hon. Jeff Bingaman - Chairman, Senate Committee on Energy
Hon. Gray Davis - Governor of California
Hon. Diane Feinstein - Senator from California
Hon. Curt Hebert - Chairman, Federal Energy Regulatory Commission
Hon. Gary Locke - Governor of Washington
Hon. Frank Murkowski - Ranking Member, Senate Committee on Energy
Hon. Billy Tauzin - Chairman, House Committee on Energy

Mr. William Keese - Chairman, California Energy Commission
Ms. Loretta Lynch - President, California Public Utilities Commission
Mr. Armando Perez - Director for Grid Planning, CA. Independent System Operator
Executive Director - Western Systems Coordinating Council

Mr. Steve Baum - President & CEO, Sempra Energy Company
Mr. John Bryson - President & CEO, Edison International Company
Mr. Gordon Smith - President & CEO, Pacific Gas & Electric Company
Mr. Ben Morris - Principal Planning Engineer, Pacific Gas & Electric Company

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