Summary of Energy Market Performance Improvement Issues

1. Evaluate and use the oil price monopsony premium to evaluate policies.

The problems with the energy markets really begin with the oil market, and the major problem with the oil market revolves around the inelastic supply curve. Deploying large-scale substitution would improve the oil market by making demand more elastic. The high cost of incremental oil in a supply constrained market makes the large-scale use of substitutes such as EVs and biofuels economical. Substitutes such as EVs and biofuels cost only a fraction of the last increment of oil supply. The market needs a method to drive substitution, and the best method recaptures a portion of oil customer cost savings to help pay for substitutes. The outcome: a much lower total energy cost of the vehicle fleet, resulting from lower oil prices due to use of green substitutes.

2. Problems in natural gas market are tied in to oil market dysfunction and shale gas development.

The large disparity in energy costs between crude oil and natural gas shows that the problems with the crude oil market have spilled over to the natural gas market. Unconventional oil development has dumped large quantities of shale gas on the market, a problem exacerbated by additional shale gas field development, especially in wet shale gas fields. Added to this oversupply, the traditional leasing/royalty methods used for new field development drive “too fast” development of shale gas reserves putting more gas on the market. Previous methods used for controlling natural gas prices in an optimal range during prior historical periods of natural gas oversupply, don’t work well in fracked shale fields. A rational natural gas market requires new regulations and market incentives that reward shale gas developers for better organized development programs, maintaining some curtailed production capability, and holding gas reserves in storage.

3. Electricity market needs a rapid and substantial shift to green power sources with storage and expansion of transmission and interconnects.

The electricity market currently provides relatively low cost power because many power generation projects have already recovered capital investments, and about 60% of the electricity consumed was generated by governments, publicly owned utilities, cooperatives, or regulated investor owned utilities. Transitioning to green power while maintaining low costs requires low cost debt financing, which in turn likely means that publicly owned power should increase market share. Providing large subsidies to private green power projects doesn’t make sense over the long term. With low operating cost, high initial investment, and long project lifespans, green power projects should use low cost public debt financing and direct the long-term ownership benefits to customers. Government subsidies should go primarily to public or cooperative green power projects.

Getting the electricity market to 80% green power in thirty years requires extensive storage and additional transmission capacity. There must be a source of cash flow to pay operators to build transmission and storage capacity.

4. Major green energy build fixes most energy market problems by introducing substitutes.

So in all three markets, introducing green energy substitution, storage, transportation/transmission, and market controls benefits stakeholders. A rapid green energy build reduces customer total costs and addresses all critical stakeholder needs in the energy markets. In addition, these changes address all critical external costs and needs, provide better economic growth, reduce national security risks, and substantially reduce environmental risks and impacts.

5. American needs a huge shift in investment from fossil fuel systems to green energy.

Increasing green energy substitution effectively begins a transformation from fossil fuel systems to green energy. This causes a huge shift in annual investments from oil, natural gas, and coal development to green energy sources. The transition should be accelerated by examining all possible substitution and energy saving methods, funding the most effective efforts to accelerate the ramp of green energy sources, increasing deployment of conservation and energy efficiency projects, and broadening the transportation energy source to use significant electricity and biofuels instead of crude oil. A speedier transition to green energy sources results in a much more effective use of invested capital in the energy markets. This program also sets a template for global efforts to optimize energy development and use.

6. Key problem: Who is in charge? Who has the job responsibility?

An energy market leadership and management vacuum causes most of the inferior performance in existing energy markets, and related products and services.

The key problem: Who is in charge? Who has the job responsibility to make sure stakeholders get the best products and services at an optimal total loaded cost?

Current energy company management teams have failed dismally to optimize energy markets and energy systems to best satisfy customers. Government agencies don't take the responsibility to improve energy markets; monitor and study customer needs, and control energy prices in an optimal range.

7. Government can't manage rapid green energy build effectively; instead use government oversight, coupled with private sector project management capabilities.

Examining each energy market in turn, the options for using government actions, regulations, rules, subsidies, tax breaks, and mandates, don't work well to drive the necessary transition and optimize energy markets. Governmental entities don't have the skills, the management system, the assigned mission, and are hogtied by both government rules/restrictions and external criticism from negotiating and working effectively with private sector entities.

8. Use a business coalition to fund and manage green energy build out and ramp.

Using a regulated private sector business coalition to manage the energy markets can work more effectively than government entities because:

- The coalition can engage in negotiations and business agreements.
- The coalition can raise capital, and make private investments, paid back by government sourced funding tied to improved market performance.

- The coalition teams would have stronger market knowledge skill sets that improve over time. This would build better a long-term management team.
- The coalition can work with fewer restrictions, provide quicker response time to changes, and has better mobility to change direction and modify priorities.

9. Use regulatory control and government oversight to ensure Coalition actions are responsive to stakeholder needs.

Existing NGO and government agencies can do what they do best, provide criticism and oversight of private sector efforts. This keeps the Coalition focused on satisfying customers, including future customers, and other stakeholders. The Coalition will take care of most energy supplier concerns during the planning and implementation phase, since the Coalition operating groups will work closely with suppliers.

10. Government oversight works best when the government controls the business coalition purse strings

A Green Energy Coalition would have the best kind of government oversight possible; the government controls the major funding source. Because the source of compensation for actions to improve energy markets performance involves taxes, fees, and regulations, mostly on fossil fuel production, the government has essentially veto power on any major issue. The government can adjust compensation funding to control the business coalition activities to ensure customers are being served well.

The Coalition only can thrive by providing better customer service over time. So even without considering oversight, the Coalition has a powerful incentive to make the best decisions to serve customers. Existing suppliers in the energy markets and related markets don't have the same incentive to serve customers and stakeholders, because they don't receive additional funding based on market overall performance. This could be one reason the existing energy markets have functioned so poorly.

Establish a Green Energy Coalition

The review of each of the three largest energy markets shows a leadership and management vacuum. None of the markets have a system in place to manage and optimize market performance to serve customers and other stakeholders, and this has resulted in ineffective and dysfunctional market performance. In each market, these reviews suggests that a regulated private sector group should evaluate market performance, and invest in incentives for substitution and infrastructure to improve performance.

The next logical step evaluates combining these market management groups to form a coalition that encompasses all the groups suggested and recommended. A Green Energy Coalition would include the Green Vehicle Group evaluating performance of the oil products and transportation markets; the Green Power Coalition evaluating performance of the electricity market: and the Natural Gas Market Group evaluating performance of the natural gas market. The Green Energy Coalition should also logically include some other key market management responsibilities, including the coal market, and environmental, economic, and national security assessments needed to optimize market performance.

The next section of this review covers the combination of market management responsibilities into a consolidated Green Energy Coalition.

Combining Green Vehicle Group and Green Power Coalition

- Re-direct a portion of crude oil cost savings tax to fund green power projects
  - Tax recovering about 50% of crude oil price decline below the reference trend price would fund both increased green vehicle incentives and public green power project subsidies
  - Tax proceeds spit 60/40 would cover GVG incentives and GP Coalition projects
- Allowing the GVG members to participate in the GPC, and vice versa, builds a much stronger set of companies and organizations to implement GV incentives and build GP projects
- Include shale gas operators in the combination?
- Threat of actions to tax retained capital from previous fossil fuel industry tax subsidies can be balanced by redirecting investments into the combined Green Energy Group

Combine Green Vehicle Group and Green Power Coalition

Given the need for organizations managing and coordinating efforts to improve both the vehicle fuels market and the electric power market, the obvious next step should examine combining these two managements into a combined Green Energy Coalition. The cash flow from the savings in the oil market could fund the activities of both groups, especially if coordinated with existing government tax subsidies and government debt financing. The Green Power Coalition can even be expanded to integrate the proposed Natural Gas Market Group, and add a Coal Power Plant Group, such that the Coalition would encompass management of changes in all four major energy markets.

Integrating all these regulated joint private-public sector groups into a single organization has major critical improvements over the alternative course of action using separate groups. Consolidating the management responsibility into an integrated organization would assign the job of transitioning the energy markets to a professionally managed and staffed organization dedicated to improving products and services in these markets, to best satisfy customers and other stakeholders.

Overall Cash Balance for Green Vehicle Group and Green Power Coalition

Customer Savings Due to Lower Oil Demand and Lower Oil Prices

Overall Cash Balance for Oil and Vehicle Markets, Green Vehicle Group, and Green Power Coalition

15-year Program Cumulative Cashflow	15-yr Total	Indirect Cost Savings (due to lower oil prices)	6600
	$ Billion	Extra Incentives (GVs)	825
Direct Cost Savings (due to lower oil purchases)	**3500**	GVG Investor Cashflow (pay back investment w interest)	1157
Indirect Cost Savings (due to lower oil prices)	6600	Net Indirect Cost Savings Received by Oil Products customers	4618
Total Potential Cost Savings	10100	Cost of tax credits for GVs, if paid by crude oil tax	1030
Tax Credits (paid by US Govt.)	1030	Green Power subsidies paid by crude oil tax	821
Extra Incentives (GVs) - Paid by crude oil tax	825	Reduced Net Indirect Cost Savings	**2767**
		Total Cost Savings to Customers	**6267**

Combining the positive cash flow from Green Vehicle Group activities, with the cash flow required for Green Power Coalition activities, builds the forecasted cash flows shown in this slide. The direct cost savings due to lower demand total $3500 billion over fifteen years. The indirect cost savings due to lower oil prices total $6600 billion, with the summed potential cost savings reaching $10 trillion.

Tax credits plus the extra incentives for GVs total less than $2 trillion over the same time. The savings overwhelm the costs, making the combined enterprise, the Green Energy Coalition the overwhelmingly preferred course of action.

Examining the right column balance in the slide, the indirect savings of $6600 billion are split with about $2000 billion going to the Coalition, with $4600 billion in cost savings realized by customers. The expected Green Power subsidies would cost about $800 billion, so if the cost of the Green Vehicle + Green Power activities are combined, the Indirect cost savings of $6600 billion would split about $2800 billion to the Coalition, leaving $3800 billion in savings to crude oil customers.

The direct cost savings due to reduced crude oil purchases exceed the cost of the tax credits, but this cost savings should pass to green vehicle or biofuel purchasers to pay for the substitutes. The cost of some of the green vehicle tax credits could be recovered using the crude oil tax tied to declining oil prices. In this case, the indirect cost savings of

$6600 billion would split $2000 to the Coalition to fund green vehicle extra incentives, $820 billion to fund green power subsidies, and $1030 billion to fund the green vehicle tax credits, leaving $2750 billion in savings for crude oil customers. This shift of cost of existing green vehicle tax credits to the Coalition would increase the slice of the indirect cost savings to 58%, and would shift most of the financial burden onto the Coalition. But shifting does save various governments and their taxpayers this cost.

Eliminating investment tax credits, accelerated depreciation, and domestic manufacturing allowance given to existing fossil fuel businesses would save governments over $100 billion annually, and even with a massive reduction in capital expenditures in the oil industry (shifted to green energy investments), the total over fifteen years would exceed $1000 billion, enough to fund the tax credits on an accelerated ramp of green vehicles over this timeframe. This action should be preferred to loading the cost of these tax credits onto the Coalition. Remember that reducing crude oil expenditures reduces cost of externalities due to national security issues, environmental impacts, and adds to economic growth as the shifted investment flows into vehicle manufacturing, transportation, green power, and natural gas/electricity infrastructure.

The government should consider trying to recapture previous tax subsidies for fossil fuels. Customers really should receive a “refund” from energy business interests pushing nonproductive and ineffective energy policies such as “drill, baby, drill” over the last fifteen years. Customers paid much too much for fossil fuel energy over this timeframe. Unfortunately the energy companies that benefited don’t have the financial resources to provide a “full refund”. Nevertheless, the government should consider some means of retroactively recovering some of the subsidies, and punish the energy company management teams that pushed ineffective energy policies at the expense of their customers and other stakeholders.

Green Energy funding requirements

The Green Energy Coalition would need funding for all the activities for each operating group. This list shows the major funding needed, with the largest first:

1. Incentives for green vehicles and biofuels, and other efforts to reduce crude oil costs through substitution and improvements in effective use of energy in the transportation markets. (Green Vehicle Group)
2. Incentives and 30% investment subsidies for green power projects and transmission/storage projects, and improving effective use of electricity use in residential, commercial, and industrial markets. (Green Power Coalition)
3. Incentives for coal power plant owners to retire coal plants, including investment opportunities to advantageously invest in green power projects. (Coal Power Plant Group)

4. Incentives for shale gas field developers and royalty owners to hold acreage for future development and provide storage capacity. (Natural Gas Market Group)
5. Funds climate studies, meteorological studies and models, and engineering analysis of the costs and benefits of addressing anthropogenic climate change, and other environmental impacts. (Environmental Effectiveness Team)

Can oil companies benefit from “Customers First” energy policies?

Declining oil prices will reduce the profits of oil producers, and lower refined oil products demand will reduce refining margins; but industry management teams should expect these changes from the unrealistically high profits derived over the last fifteen years. What is the upside for oil companies and natural gas producers?

What possible benefits can these large suppliers get, if they modify their business plans to serve customers better, and support ‘Customers First’ energy policies? First, these companies should realize that they have a poor position and hold a “weak hand” in their current business plans, given the huge incentives for America to rapidly ramp green energy substitutes. These companies should expect rapidly declining oil prices, falling refinery margins, loss of tax subsidies for fossil fuel investments, slower oil and gas development schedule, and possible actions to recover previous tax subsidies. And customers may want a refund for the overpriced energy purchased over the last decade.

Is there any upside from moving quickly to modify their business plans?

Can oil companies benefit from "Customers First" energy policies?

- Uncontrolled drop in oil price isn't in anyone's best interest.
  - Green vehicle incentives could collapse oil prices
  - Oil companies could welcome efforts to control oil prices in the $40-50 per barrel range, if the alternative is a collapse below that level.
- Controlling natural gas prices back into the range of $4-5 per million BTU versus current prices of $2.50 benefits both customers and gas producers.
  - Control natural gas price by limiting shale gas development.
- Removing tax subsidies on fossil fuel investments coupled with lower prices and shale gas restrictions will slow down oil and gas development, and ease constraints on capital (focus on most profitable opportunities).
- Threat of actions to tax retained capital from previous tax subsidies can be balanced by redirecting investments to green energy projects using low cost public financing.

First, an uncontrolled drop in oil price to levels approaching $20 per barrel, the market price really needed to substantially reduce supply by ten percent, doesn't really serve either customers, suppliers, or other stakeholders. The price needs to be controlled at a reasonable price, likely around $40 per barrel. Customers will pay a higher price due to the add-on crude oil tax tied to subsidies for substitutes and energy efficiency, but still save money compared to the last decade of high fuel prices. So oil companies should support establishing a private sector group (Green Vehicle Group) to manage the oil market, and prevent a free fall collapse in oil prices. At least these suppliers can present their case and business plans to the Group to argue for higher oil prices. OPEC also will enter into negotiations with the Group for the same reason.

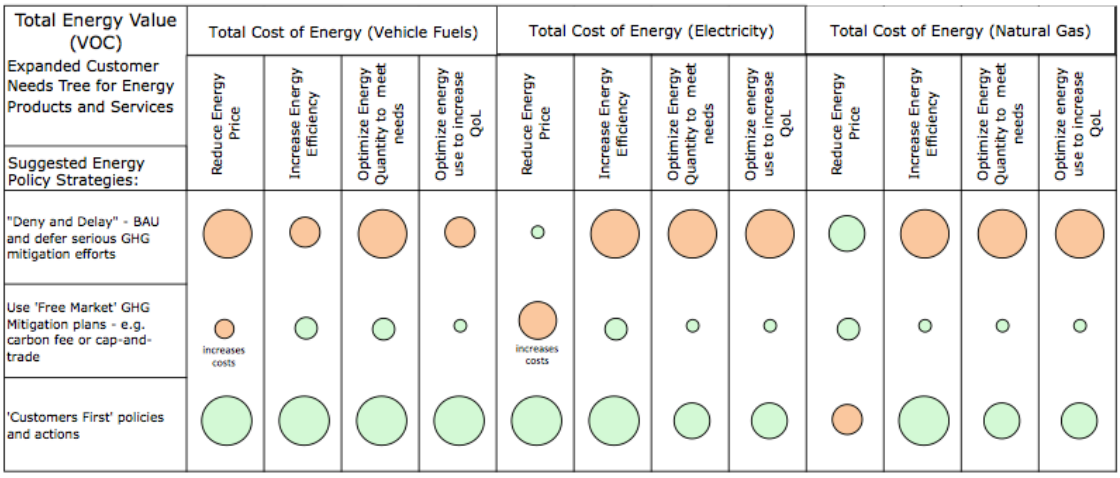
Second, controlling natural gas prices into a desirable price range can almost guarantee profitable shale gas development investments, albeit at a slower total investment flow than currently anticipated.

Although the tax subsidies for fossil fuel investments should be removed, these suppliers can argue for an interim transition period to avoid the economic shock of a sharp decline in oil and gas field development spending.

Finally, given the potential threat to retroactively recover prior fossil fuel investment subsidies, these suppliers can make the case that they will redirect investment into green energy projects. Oil companies have substantial expertise useful to rapidly ramp

biofuel production, develop central station green power projects, and develop green energy infrastructure and storage. These green energy projects would have lower risk and higher certainty of profitability, given the incentive funding from the Green Energy Coalition.

Expanded Customer Needs Tree for Total Cost of Energy for Vehicle Fuels, Electricity, and Natural Gas Markets

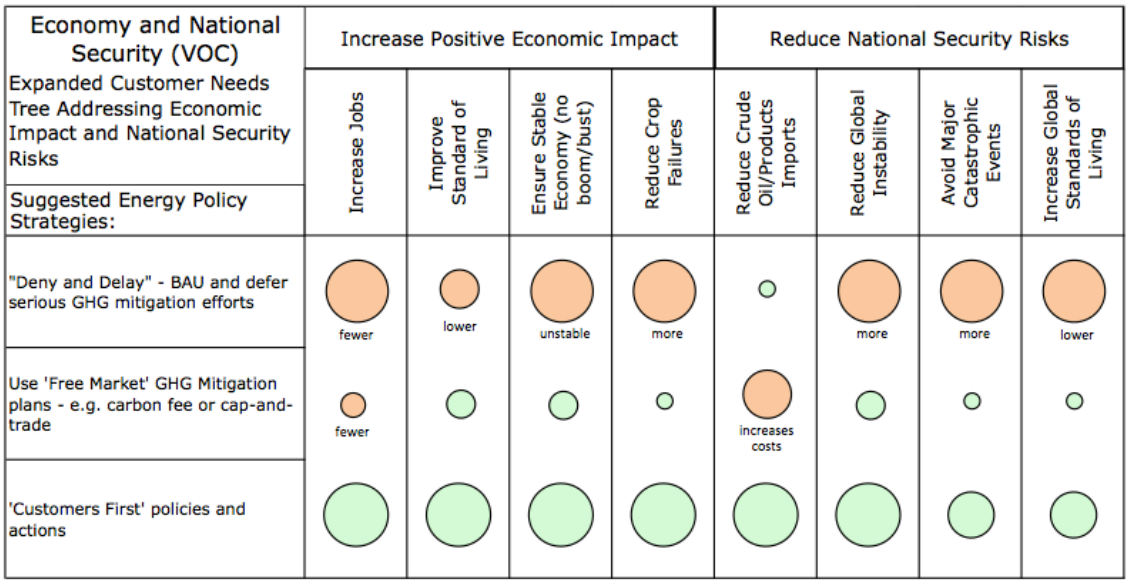


The next set of slides present an expanded customer needs tree for the three largest energy markets. The first slide correlates the Total Cost of Energy for customers demanding high quality products. The total cost of energy in each market, considers the energy price, increased energy efficiency, optimized energy quantity to meet needs, and optimize energy use to increase Quality of Life for customers. The current course of action subtitled “Deny and Delay” Business As Usual (BAU) essentially defers serious GHG mitigation efforts. This course of action relies primarily on free markets without major regulation to reduce external costs, or efforts to control pricing and costs, and allocates subsidies to all energy source and energy systems suppliers without considering externalities. The second option, ‘Free Market’ GHG Mitigation, also relies primarily on free markets, with major regulations, rules, mandates, and higher subsidies promoting green energy sources, although at an insufficient level to push rapid green energy growth, particularly in vehicle fuels. The last option, ‘Customers First’, uses an policies to actively regulate markets and assigns an organization to manage markets and invest in incentives to best meet customer needs and satisfy stakeholders.

Because the last option drives rapid substitution leading to lower crude oil prices and costs, directly addresses and invests in energy efficiency and conservation incentives, directly invests in incentives to optimize the quantity and utilization of energy sources, and seeks to optimize the quality of life for customers, this option works better across the board than either the Deny and Delay BAU option, or the ‘Free Market’ GHG Mitigation options. Using the ‘Customer First’ strategy, the only market where customers see higher prices is natural gas; but given the rapid substitution of green power and other

green energy sources for natural gas, reduced demand required should lower customer costs in most markets served by natural gas.

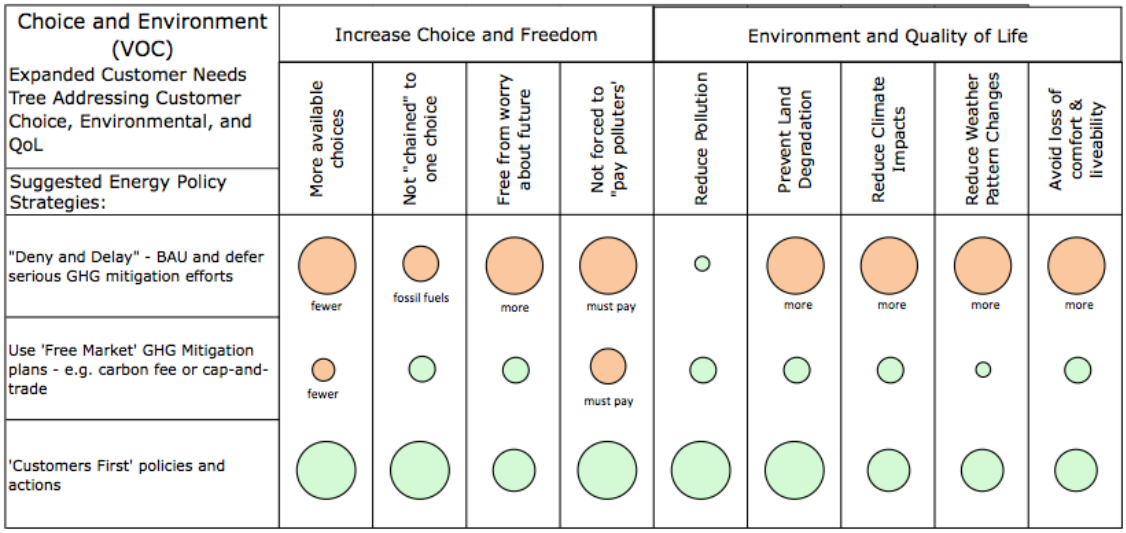
Expanded Customer Needs Tree Addressing Economic Impact and National Security Risks



This portion of the expanded customer needs tree covers economic impacts (jobs, standard of living, stable growth without boom/bust cycles, and reduced crop failures), and reduced national security risks. The ‘Customers First’ option sweeps the tree, addressing every customer need in this tree better than the alternatives.

The ‘Customers First’ option provides very large positive long-term economic benefits. The benefits begin almost immediately after forming a Green Energy Coalition as massive amounts of investment pour into vehicle manufacturing, green power projects, energy system and transportation system infrastructure, agriculture and forestry sectors, water resource projects, and biofuel production. The economic benefits are augmented by better economic growth due to lower energy costs as a percent of GDP.

Expanded Customer Needs Tree Addressing Customer Choice, Environment, and QOL



This section of the expanded customer needs tree looks at customer choice and freedom (customers have more choices without being locked into a single energy choice, customers are free from worry and not forced to pay for energy sources linked to pollution and cartels), and environmental and quality of life issues (reduced pollution, prevent land and natural resource degradation, reduced climate change impacts, reduced risk of weather change, and increased comfort and livability). The 'Customers First' option sweeps the needs tree, providing customers with many more choices, particularly in the vehicle market, eliminates many dictated options in vehicles, residential, commercial, and industrial markets. The 'Customers First' option rapidly transitions away from fossil fuel energy sources reducing GHG emissions and climate change impacts and eventually helps lower the risks of major weather pattern changes. The 'Customers First' option also increases comfort and livability for customers, both indoors and in the outdoor environment.

Expanding the Green Energy Coalition Mission Would Improve Customer Satisfaction

The next step in the business plan uses the Green Energy Coalition to create the following business units:

1. A Green Vehicle Group (GVG) operation with the objective of financially supporting enterprises that will reduce crude oil demand through the expansion of substitute fuels and vehicles into the American vehicle fleet (coordinated with global substitution efforts).
2. A Green Power Coalition (GPC) with an objective of financially supporting primarily publicly owned or financed green power enterprises.
3. A Natural Gas Market Group (NGMG) that has the objective of financially supporting efforts to control shale gas development and keep the price of natural gas above a

critical substitution cost level.

4. A Coal Power Plant Group (CPPG) that has the objective of using a variety of methods to negotiate the shutdown of coal-fired power plants.
5. An Environmental Effectiveness Team (EET) that consists of engineering, meteorology, and climate experts with the mission of assessing costs and benefits of various courses of action to address climate changes.

The green vehicle group and green power initiatives would use the biggest portion of the Green Energy Coalition investments in incentives. These two groups require about 90% of the funding managed by the Green Energy Coalition, if the shale gas initiative is primarily funded by a refundable/retainable severance tax on shale gas.

The tax on crude oil tied to declining oil prices can raise enough funding to pay for the Green Energy Coalition investments in incentives, if set at 50% of the decline from the oil price trend forecast. If the federal government revises its subsidies for the energy industries by removing tax subsidies (tax credits, tax deductions, accelerated depreciation) for fossil fuel development, and continues some existing tax subsides for green energy projects, then the funding should greatly exceed required levels to transition to green energy without sizable carbon taxes. And even with this crude oil tax, oil products customers still retain half of the cost savings due to declining crude oil price caused primarily by the green energy initiatives.

Essentially by combining the different energy market managing organizations into an umbrella Green Energy Coalition allows the savings from the sub optimized crude oil market to fund most of the effort to transition to green energy sources; and reduce customer transparent costs by about half in a thirty-year planning period. Total costs to customers and other stakeholders decline even more due to declining external costs: current predominantly fossil fuel energy markets cause lower economic growth, insufficient market share held by crude oil substitutes cause higher national security risks, and the delay in addressing climate change impacts causes higher environmental costs and risks.

Combining and coordinating efforts to improve all these energy related markets benefits customers and stakeholders.

Coal Market

- Need a plan to eliminate coal-fired power plants, without major replacement by natural gas (gas should be used only as a stopgap backup fuel source for renewable thermal power plants)
- Keep coal reserves for availability as metallurgical coal sources
- Fund some clean coal demonstration plants coupled to carbon capture and sequestration (CCS) projects
- Provide opportunities for coal plant owners to participate in green power build and green energy coalition projects
- Provide price support to prevent rate shock for customers currently receiving coal power and switching to green power
- Avoid regional economic dislocations caused by shift from coal power to green power

Finishing the review of all four major energy markets, the coal market has problems, and operates to detriment of most customers and stakeholders. Of all the energy sources, coal has the largest cost externalities, i.e. coal has additional costs passed onto stakeholders not included in the purchase price of the coal. Coal gasification with carbon capture and sequestration (CCS) should be proven in one or two demonstration projects; but coal + CCS doesn't seem competitive with green power in addressing a full suite of customer needs. Mining and moving coal causes environmental and natural resource degradation, and additional environmental issues with coal gasification (sulfur removal, sour water cleanup, removal of other air pollutants, waste solids/ash disposal) all add external costs not currently in coal prices.

Existing coal power plants need to be retired on a schedule consistent with a well-defined plan to replace coal-fired power with green power. Negotiating this plan with existing coal plant owners should be the primary mission of the organization (suggest a Coal Power Plant Group) developing and managing this process.

One of the key stakeholder issues, regional economic dislocations caused by the shift from coal power, must be addressed. Coal industry employment is centered in regions where wind and biofuels can be developed, and regions that should benefit from investment in rust belt manufacturing, such as green vehicles and mass transit/high speed rail infrastructure. Additionally, expenditures on energy storage such as pumped hydro, TES, and advanced batteries, and investment in transmission infrastructure should increase manufacturing sector sales. Steel and other materials, electrical equipment, instrumentation, and engineering and construction should all get increased sales to the green energy sector. Directed funding for metallurgical coal and steel purchase contracts should be part of the Green Energy Coalition initiatives.

So again in this energy market (coal), we find the same circumstances. Stakeholders are served by a rapid transformation of the energy market (coal), but the complexity of the transition requires a skilled organization to plan and manage the process. Assigning this mission to one of the operating companies in the Green Energy Coalition makes sense, and appears to be the best option. This option adds 'carrot' incentives to transition away from existing coal power plants to the 'stick' of increased regulations, in an attempt to force coal plants to pay fully for the externalities they dump on other stakeholders.

Environmental Effectiveness Team

Currently, the assessment of climate change impacts has been outsourced to the IPCC, or carried out by a number of government agencies and organizations. Unfortunately, these experts aren't part of an organization that can do anything directly about climate change. They have tried to recommend policies, including investment incentives and tax policies, without really understanding the functioning of the energy markets. Existing fossil fuel companies don't want to spend money assessing climate change, or environmental impacts, and generally recommend policies driven by supplier concerns, and supplier assessments of the markets for fossil fuels.

No existing organization has the energy market background and skill sets, coupled with the free-wheeling free enterprise capability to properly assess markets, alternative energy sources and strategies; coupled with the ability to study and assess climate change and environmental impacts; as part of a mission to develop, recommend, and

implement a strategic plan to properly address all important stakeholder concerns. Establishing the Green Energy Coalition would create this organization, and adding an Environmental Effectiveness Team in the Coalition would provide environmental input critical to decisions.

To effectively carry out this mission, the Team must conduct continual assessment of climate change impacts tied to GHG emissions and other anthropogenic causes. As the science progresses, the Coalition may need to make strategic decisions even while the research progresses. Hence a continuous assessment and review process is needed, with funding directed to the critical impact analysis required to make better decisions.

The Team must establish and measure effectiveness of various GHG mitigation methods, including methods to increase carbon sinks, transition to green vehicles, ramp green power, retire coal power plants, and manage shale gas development (including methane releases). The Team must assess all these options, in terms of a broad spectrum of climate and environmental performance metrics, to ensure good decisions. The Coalition must also consider how to design and implement carbon sink enhancements in agriculture, forestry, and ocean uptake. The Team must understand climate and weather system changes and impacts to optimize the various energy markets.

The Team must assess and study methods to control of ocean acidification, and should examine ocean nutrient issues. Deterioration of ocean marine environment has global impacts on food supply and natural resources. The Team needs to assess methods to slow and halt the declining pH level of ocean waters.

The Team must evaluate and monitor Northern Hemisphere meteorological changes caused by polar amplification driven by climate change and GHG effects. The reduction of NH snow cover coupled with loss of Arctic ice pack, appears to help cause changes in the NH jet stream patterns contributing to extreme weather events including floods, droughts, major snow accumulation events, and possibly major storms or unusual storm tracks. The Team should study the issue, potentially leading to a recommendation establishing a government driven Emergency Task Force missioned with the task of responding to systemic NH weather system changes. In the interim, the Team should interface and work with governments to address this new threat.

The Coalition also must identify similar or related environmental issues arising from the energy sources and use, analyze costs/ benefits of alternatives, and evaluate solutions to reduce environmental impacts. The Team should complete an assessment of all the sustainability issues arising from the energy markets.

Clearly, a Green Energy Coalition requires an Environmental Effectiveness Team to effectively carry out the Coalition's assigned mission.

Who's in Charge?

Current Answer: No one.

America currently relies on mostly free competitive markets that clearly don't reward suppliers for providing customers the optimal products and services that best meet their needs. The government tries to discern what kind of tax and energy policies would

cause changes in the market that might improve quality to customers. This task compares to pushing on a string… the actual outcomes generally can be very different than what was desired, and inferior to the optimal outcomes.

In the current reality, responsibility for addressing customer needs and optimizing the markets isn't assigned to any one organization. Managing the process of transforming and improving the energy markets requires a skilled organization with a dedicated mission, involving analysis of complex and constantly changing systems. A process that relies only on government regulations and market incentives won't work well. Somebody needs to be assigned the job; otherwise no one has the job.

So what kind of organization should manage this process? The organization must have knowledge and strong skills appropriate to all the energy markets, and capable of the engineering, planning, financial analysis, and management related to leading market transformations to customer driven markets. People and organizations with these skills exist only in the private sector or in NGOs.

The organization also should include members with existing business units synergistic with the projects and energy sources developed during the energy market transformation. Many of the most desirable private sector and NGO members that can substantially contribute to an organization essentially managing the energy markets, should be obvious to experts very familiar with the players in these various markets, products, and services. Give a qualified team the time to look at candidates, and they can develop a list of the most desirable members.

American needs a Green Energy Coalition to provide the work necessary to improve energy markets.

Suggested Plans to Establish a Green Energy Coalition

- Publicize the business coalition plan
- Ask founding investment partners to submit proposals
- Ask for alternative methods for allocating government incentives, subsidies, and tax breaks
- Develop a government plan to support the coalition
- Assign the international patent application covering the Green Vehicle Group proposal to the coalition

After going over the plan, and doing a quick check of the fundamental basics, the DOE should publicly make a statement indicating the Department is considering and evaluating the Green Energy Coalition.

The best way to get this idea fully considered: Ask for companies or organizations interested to submit proposals to establish a Coalition. In particular, ask for companies interested in becoming the founding investment partners to form joint venture investment groups and the operating company for the Coalition.

In the meantime, the Department could identify all alternative methods for funding, allocating, and distributing energy and transportation sector incentives, subsidies, and

tax breaks. The DOE could ask for outside proposals for alternatives the Department should evaluate as part of this study.

As information and proposals emerge, the DOE should begin developing alternative government plans to support the business coalition proposals. As the process continues, the Department should publish and submit creditable proposals from the private sector and NGOs to Congress for consideration, discussion, and debate.

Skibo Systems LLC, has filed an international patent application “Methods to provide substitutes for inelastic markets” covering the core business method underlying the Green Vehicle Group proposal. The company intends to assign this patent art, along with any associated intellectual property, to a business coalition like the Green Energy Coalition. Establishing an IP position for the Coalition should strengthen its case for raising investment capital and recruiting important business partners.

Results of Establishing a Green Energy Coalition

After establishing a Green Energy Coalition, America’s energy markets would rapidly transition to green energy sources replacing fossil fuel sources. Customer costs would begin falling within four years, with substantially lower costs within eight years. Eventually energy costs should decline into the range of 4-5% of GDP. Increased economic growth caused by more rational energy investments could raise GDP levels, and bring energy costs down even further, expressed as a percentage of GDP. Household energy expenditures could fall even faster, to below 4% of household expenditures, as better incomes and reduced energy costs help consumers even more than industrial and commercial customers.

Energy markets function much better to address customer and other stakeholders’ needs, by using a Green Energy Coalition to manage the markets. Meeting the suite of needs for future customers requires a revolutionary change and transition in the energy markets. The Green Energy Coalition offers the best option to execute this transition effectively.

Earlier in this review we compared options to address climate change. Establishing a Green Energy Coalition provides a superior option, and would augment other policy methods.

Compare Energy Market Options to Address Climate Change

The attached document “Options to Address Climate Change” contains a review that covers five options suggested to address climate change, instead of business as usual:

1. Carbon tax (carbon fee and dividend)
2. Subsidies and Loans
3. Cap and Trade
4. Rules and Mandates
5. Regulations

None of these options work well to address current energy market problems. None of these options achieve meaningful progress to address climate change in time. All of these options rely mostly on government agencies to plan and implement changes, and

tries to do this without picking and choosing the best technologies. Summarizing the document; these options, singularly or in combination, fail to adequately address climate change issues.

The review of options adds the Green Energy Coalition as a 6th option, and concludes that this option not only works better, it improves the effectiveness of any of the other five options. For example, a carbon tax has some obvious deficiencies such as hitting coal hard and having a negligible impact on crude oil products; and causing an inappropriate quick transition from coal to natural gas instead of green power sources. But a lower carbon tax coupled with Coalition green vehicle incentives effectively addresses oil market problems; and a carbon tax coupled with Coalition green power investment subsidies would effectively push green power substitution for coal instead of natural gas.

The review of options covers some important factors, including business support of green energy initiatives and countermeasures to reduce the impact of sabotaging actions aimed at slowing the transition to green energy. The key impediment to forming a functional Green Energy Coalition is political opposition funded by fossil fuel businesses, and the review discusses methods to counter the expected political opposition. The review concludes that customers are clearly served best by the Green Energy Coalition option.

Conclusions

1. Current Assessment of Fossil Fuel Energy Sources

Economic studies done by groups ranging from the IPCC to the Risky Business group have showed that customer overall costs have increased due to continued inaction to address climate change issues. Additional analysis examining individual energy markets, found dysfunctional energy markets for all fossil fuel sources. Customers and society overpay for inferior products and services.

The energy industry management teams have failed to carry out their primary responsibilities to stakeholders (customers, suppliers, shareholders, community members). Customers have paid too much for energy (percentage of annual GDP) for over a decade now, even without considering significant costs (environmental, economic benefit, national security) not included in pricing. The key management personnel at the energy companies, particularly the oil industry management teams, failed to study the energy markets and identify the changes needed to provide customers with a set of products and services that meet a full suite of customer needs. Some management teams instead embarked on plans to disrupt improved products using sabotaging actions and funding advertising and political efforts to stymie ramps in green energy sources and slow improvements in effective use of energy. These poorly performing management teams, and the organizations they funded, have accelerated their sabotaging actions this year.

2. Investment and Financial Trading Risks and Opportunities

At this time, the financial markets overvalue many businesses involved in fossil fuel energy, not taking into account the risk to these energy unit businesses. Actions and investments in the energy sector to increase energy customers overall satisfaction

should eventually cause declining revenues and collapsing profitability for many fossil fuel energy businesses.

Existing investment in the oil and gas sector is causing rising production levels, but the ramp is insufficient to supply enough oil to create sizeable surplus curtailed capacity. The resulting rising price pressure, coupled with increased production volumes, has resulted in an unstable and unsustainable escalating spiral of prices and production. Eventually something must break this spiral, and substitute energy sources and products must deploy. The ever-increasing flow of investment into eventually obsolete products must halt. The government and private sector should recognize this necessary transition, and redirect the existing flow of investment money into deploying higher quality products and services. Redirecting investments into more rational long-term products and services increases the effective return on investments over the long haul.

Evaluating this different courses of action, results in an obvious course of action. Other possible courses of action fall far short of achieving the outcome achieved by causing this shift in investment capital. Often analysis results in close decisions, but this situation doesn't; shifting the capital to deploy substitutes as quickly as possible is preferable in all of the key performance metrics used to assess stakeholder needs.

An opportunity for long-term investors exists to invest in substitutes (for fossil fuels), capitalizing on the growth of these markets. Correspondingly, fossil fuel business unit valuations should decline. Financial markets eventually price the green energy transition into valuations.

3. Forming the Green Energy Coalition

The Green Energy Coalition is a predominantly private sector enterprise with the mission of taking corrective actions to fix currently dysfunctional energy markets, to please customers in energy and related products/services and address climate change concerns. The Coalition will invest in incentives to develop and deploy products and services to substitute for fossil fuels and increase carbon sinks.

The fastest way to form a Green Energy Coalition involves recruiting major investors, particularly businesses that can supply critical skills assessing and providing solutions in the green energy sector. The current goal should raise at least $20 billion from qualified investors, with a stretch goal of raising over $80-100 billion within five years. The Coalition should target investment from potential major suppliers to the green power, green vehicles, biofuels, agriculture, and water resource sectors.

The Green Energy Coalition should also target investment from governments, particularly state governments in regions where the green energy industry will contribute substantially to economic growth. The federal government should coordinate regulatory and energy polices with the Coalition, adjusting tax incentives and federal government subsidy investments to help drive improvement in energy market performance.

<u>Recommendations for the DOE:</u>

Carry out a study of full out rapid green energy deployment of green vehicles, biofuels, green power projects, coupled with efforts to increase carbon sinks; versus the BAU pathway, with only a solely private sector response, without overall project management

coordination. Compare results of the alternative action plans by using an assessment against the customer needs tree in this report.

Update the Leiby (2007) analysis, and extend the analysis to estimate oil price monopsony premium on all US oil demand and OECD oil demand; and check against the oil price elasticity of demand (IMF) and actual supply/demand pricing history since 2007.

Evaluate and correct the Michalek (2011) analysis of the actual cost of EV substitutes for conventional gasoline and diesel vehicles, in light of updated oil price monopsony premiums, and the expected substitution in global markets.

Ask for third party analysis to improve the Skibo Systems spreadsheet analysis of the vehicle markets and oil price forecast based on increased incentives for green vehicles and biofuels.

Ask for proposals and plans from the private sector to establish a regulated private sector Green Energy Coalition, a business coalition with the mission to improve energy and related markets to better satisfy customers and stakeholders.

Develop a preliminary plan to provide DOE/EPA oversight of energy markets and a Green Energy Coalition. Eventually, the Coalition should be open to oversight by the Departments of Energy, Transportation, Commerce, Agriculture, HUD, Interior, and Defense. The Coalition mission effectively bridges across all these government departments.

Evaluate proposed options to manage shale gas production, to control natural gas prices within a target range of prices.

Hold a meeting of DOE strategists, with business participants, to review each element of the analysis and a plan to establish a regulated business coalition (Green Energy Coalition).

Afterword

In the current energy markets, customers get inferior products, with a very expensive real loaded cost…

In 1993, at the age of 93, W. Edwards Deming wrote this foreword to a book about his work on leadership, and managing systems to improve quality and please customers:

“The boundaries of quality are fixed by the producer. The customer does not generate ideas about the product or the quality that he needs. He learns from the producer what product or service might please him.

The quality of a product or service is the responsibility of top management. This responsibility cannot be delegated. A product or service must have a market. Without a market, production comes to a halt.

This book is for people that are living under the tyranny of the prevailing style of management. The huge, long-range losses caused by this style of management have led us into decline. Most people imagine that the present style of management has always existed, and is a fixture. Actually, it is a modern invention — a prison created by the way in which people interact. This interaction afflicts all aspects of our lives — government, industry, education, health care.

We have grown up in a climate of competition between people, teams, departments, divisions, pupils, schools, universities. We have been taught… that competition… will solve our problems. Actually, competition, we see now, is destructive. What we need is cooperation and transformation to a new style of management in which everyone works together as a system, with the aim for everyone to win."

Closing observation:

With this advice from Deming in mind, we need energy economic systems designed and operated such that everyone wins. We need to do this now. Give a qualified management team the job to do it, by establishing a Green Energy Coalition.

Attachments:

1. Options to Address Climate Change – Overview report comparing options to a Green Energy Coalition
2. Green Energy Coalition Overview, early stage document describing a possible organizational structure for the Coalition
3. "Largest Engineering Economics Mistake Ever?", copy of a presentation covering the incremental cost of crude oil versus substitution
4. "FAQs about Green Vehicle Group (GVG) proposal, extended by a Green Power Coalition (GPC) into Green Energy Coalition, discussing policies and business strategies"
5. "Energy Market Strategies and Policies: 'Customers First' Approach", a presentation of important energy market performance issues, and suggesting a 'Customers First' approach to improve performance
6. "DRAFT OpEd" – an OpEd describing the Green Energy Coalition proposal
7. "DRAFT PR to recruit GEC investors" – a press release to ask investors to contact the Green Energy Coalition founding organization
8. International Patent Application covering the primary method for using a market owner organization to invest in incentives to improve a commodity (energy) market performance, and receive compensation from a tax on the commodity: Substitute Products for Inelastic Markets