FAQs about Green Vehicle Group (GVG) proposal, extended by a Green Power Coalition (GPC) into Green Energy Coalition (GEC) policies and business strategies:

Using Deming Economic Systems for selected economic sectors to introduce 'Customers First' energy and environmental policies.

1. **Don't we want to push fossil fuel prices up, to encourage substitution and conservation and energy efficiency?**

   Crude oil prices are sufficiently high enough, to make green vehicles much less costly than incremental oil demand, at least through the first eight years of an aggressive ramp.

   Encouraging permanently high oil prices makes unconventional oil and frontier oil projects feasible. These sources will release far too much carbon into the atmosphere. Low oil prices keeps these oil sources from being exploited; and allows this capital to be redirected to efforts more likely to please our customers over the long haul. If the green vehicle ramp is really aggressive, these oil sources should never be developed, unless carbon capture and sequestration becomes commonplace.

2. **What about OPEC? Won't they curtail production to keep oil prices up?**

   OPEC is caught in a dilemma if we form Green Vehicle Groups globally. If OPEC begins curtailing production to offset the reduction in oil demand and attempt to maintain oil prices over $100 per barrel; then additional oil supply will continue being developed, while at the same time the annual deployment of GVs increases. Within five years, oil production capacity will hit 95 million BPD, and oil demand will have dropped to about 85 million BPD. OPEC would have to idle 10 million BPD of their 36 million capacity, something they won't be able to maintain. The fleet penetration by GVs will continue, and eventually OPEC won't be able to continue curtailing ever-increasing amount of production capacity, and the oil price will collapse. This outcome doesn't work or end well for either OPEC or customers.

   A better, but still less than optimal, strategy for OPEC to respond to declining demand caused by substitution: Gradually pull back to about 2 million BPD in curtailed production capacity, then keep production up until oil prices fall to about $60 per barrel, and attempt to hold that price for as long as possible. With luck, that price might hold past eight years. Chances are, that the $60 price won't hold.

   Using a regulated private/public GVG with private sector management helps deal with the threat of OPEC curtailment. The GVG management must anticipate this OPEC action, plan for it, raise enough capital to fund and push aggressive substitution, and constantly use the "soapbox" to send a clear message that they will relentlessly work to reduce the demand for crude oil. The GVG must be resolute and constantly adhere to their aim and purpose; the group must not blink. OPEC needs to realize that "resistance is futile", and instead OPEC should use conciliatory meetings with GVGs and governments of oil importing countries to arrive at some sort of plan for an orderly market for crude oil while demand declines.

   OPEC's (particularly Saudi Arabia's) ability to hold some amount of curtailed production capacity would give global GVGs a useful tool to manage and optimize the oil markets.

OPEC's standby capacity capability probably should be funded by some method. The GVGs and OPEC should work toward a solution to maintain some standby production capacity.

Global GVG entities should also seek OPEC investment, since that action would benefit all parties involved, including customers. This is the best strategy for OPEC; work with and invest in GV incentives. But any way you slice the money; OPEC producers will end up with much lower profits than the windfall profits they have made in the last eight years. Customers have over paid trillions of dollars during this time period.

In order for the oil market to best serve customers, eventually oil producers and some type of organizations representing customers should develop and implement a plan to manage the transition away from oil. Establishing GVG entities that can work with OPEC from a position of strength would be a good first step.

3. Won't oil production capability start dropping quickly, once oil prices start dropping?

Oil production won't shut in until the oil price falls almost to the operating cost level. Almost all fields have operating costs less than $20 per barrel, and a plurality of fields have operating costs less than $15.

The production cost of crude oil (average = $30-$40 per barrel) generally sums up from the finding cost (exploration costs) and lift cost (development capital cost, plus operating cost). The average finding cost usually costs less than $10 per barrel, and the average lift cost ends up somewhere in the $25-30 per barrel range. The finding cost, and the capital portion of the lift cost, about $20-25, are considered sunk costs, and don't affect the decision to shut production in. The average operating cost usually costs less than $15 per barrel. Decisions to shut in production typically consider shutting the field in as the oil price approaches this lower bound.

Oil production capability will begin dropping once investments in oil E&P starts falling. At prices over $80, almost any frontier projects or unconventional oil still makes sense. I would anticipate that there should be a rush to complete projects currently underway, and recover the capital invested before the price drops too far (once it becomes obvious that the price will decline). As substitution eats into the oil market demand, eventually investments in long term E&P projects, and unconventional/frontier plays will decline.

This transition is something that should be managed, so unwise investments in high cost oil sources, like tar sands and the Arctic Ocean frontier, are redirected into investments more consistent with meeting customer needs. Creating and building a powerful GVG that can speak frankly to oil companies and oil producing countries, and working with them to avoid multi-billion dollar mistakes, is important.

4. Won't "Drill Baby Drill!" policies work eventually and push oil prices down as added production capacity comes on stream?

Possibly, but not as quickly as dropping oil demand through substitution.

The last oil boom that peaked in 1979 eventually collapsed, not primarily due to increased production, but due to decreased demand caused by deploying fuel-efficient vehicles into the motor vehicle fleet. It took some time (about five years) for the number of these higher

mileage vehicles in the fleet to rise to levels that kept demand down long enough, and OPEC delayed the inevitable for a couple of years longer, but by 1986, they couldn't do it any longer, and the oil price collapsed. This trajectory was a terrible outcome for all involved (customers and suppliers). The oil industry was whiplashed, and consumers paid higher prices than necessary for too long, but then the cheaper oil prices (lower than total production costs) prompted purchases of larger heavier vehicles (the SUV and high performance car boom in the late 80s and 90s). This period ended with the 16-year run-up in prices since 1998.

The newly unregulated free market since 1980 was a failure in terms of meeting customer needs, and caused significant costs due to the cyclical swing in oil price from clearly overpriced and well above cost, to severely underpriced and well below production cost, then back to severely overpriced. Governments failed by not working to stabilize oil prices, pay for more fuel-efficient vehicles, and keep some curtailed production capacity at all times.

5. **What if other large oil consuming countries don't increase GV incentives or don't take other measures to quickly ramp crude oil substitutes?**

   The American GVG could still function working only within the US market (perhaps with participation from Canada or Mexico), but clearly participation by other large oil consuming countries helps significantly to lower demand using substitution and more efficient transportation. Other countries are generally ahead of North America, as evidenced by the higher per capita use of oil in the US and Canada.

   Currently the EU, China, and India all have incentives in place for purchasers of EVs, and they are all close to the $7500 the US currently provides. There is every reason to expect that these major oil importers will increase incentives to help their own customers, and help build the GV sector in their economies.

   Even if foreign GV deployment rate as a percent of new vehicle sales is half the US rate, other countries would still deploy a similar number of GVs to the US deployment (lumped together, their new vehicle sales greatly exceed US new vehicle sales). Even at this lower rate of substitution globally, the incremental value of substitution in North America exceeds $800 per barrel, about $20 per gallon.

6. **Doesn't the $1600 per barrel cost for incremental oil demand overstate the cost of this demand? What if only US oil cost savings are used to calculate the incremental cost (incremental value of substitution)?**

   If there was no foreign demand decrease due to substitution, and we only valued the savings by US oil consumers, then the incremental value of substitution would drop to about $410 per barrel, about $10 per gallon. This still provides a significant profit opportunity compared to $3 per gallon for gasoline (pre-tax) for an American GVG.

   Another factor to consider involves OPEC. If they hold back 2 million BPD in reserve, then GVs must reach a larger fleet penetration before prices break. Therefore the global incremental value of substitution drops to under $1000 per barrel, since the cartel marketplace requires more substitution to break the oil price.

In a worst-worst case scenario, assuming no foreign substitution, OPEC curtailment of 2 million BPD, and only valuing US oil consumer cost savings, the incremental value of substitution drops to about $300 per barrel, about $7 per gallon.

Clearly, the value of substitution exceeds the necessary threshold to drive substitution in an effective market that optimizes value to customers. However the market operation needs to be optimized to achieve this level of customer satisfaction, and current markets fall short. Considering this worst-worst substitution case, it does show the importance of coordinating GVG activity with other countries to correct dysfunctional crude oil and transportation fuels markets globally. Getting global cooperation to substitute for crude oil increases the benefits to global oil consumers.

7. **Won't the reduction of revenues flowing to the US domestic oil industry cause economic dislocations?**

Not if offset by growth in the auto sector, one of the biggest manufacturing sectors. Also growth in agriculture, farm equipment, farm and forestry infrastructure, manufacturing tied to fuel efficiency improvements, and even some growth in natural gas industry revenues, should more than compensate for reduced oil industry revenues and investment. And consumers save money to spend on other needs. The accumulated economic impact should be positive, possibly strongly positive, considering the amount of money spent on foreign oil.

8. **Why not advocate fuel efficiency improvements?**

Fuel efficiency improvements only act very slowly on crude oil demand. Ramping GV use, and other measures to reduce oil demand, appear much more effective in rapidly reducing demand. In order for the GVG to succeed in driving oil prices down, they must accomplish a relatively rapid and permanent drop in oil demand.

Accelerating substitution by funding green vehicles also drives improved energy efficiency designs and technology. Green vehicles need better energy efficiencies to provide the optimal solution to customers. Subsidizing green vehicles increases the value of energy efficient materials and designs, providing a better cash flow to industry suppliers working on improving efficiency.

But the overall emphasis on fuel efficiency, with less focus on substitution, has been a major failure of energy policy so far. Regulating higher fuel efficiencies for mogas and diesel vehicles, addresses only a few selected customer needs instead of addressing a full suite of customer needs. In order to propose, evaluate, and select the best alternatives requires a full analysis of customer needs and options.

A GVG can continually assess alternatives, evaluate options, and update incentives and options to better provide customers with the best solution. Vehicles are purchased based on a whole suite of needs, and the GVG, working with vehicle and biofuel suppliers, can optimize the best choices that increase customer satisfaction.

9. **Why not use a carbon tax, and let the free market mechanisms work to reduce oil (and fossil fuel) demand?**

A carbon tax only hits one of key four customer needs directly, and attempts to increase the cost of energy to influence customer behavior.

A carbon tax doesn't do this job very well in either the oil market, or in natural gas. It only would work (somewhat) in the coal market, and not even there. It may have an effect on cement manufacturers, but all in all, a carbon tax misses hitting improvements that would satisfy customers, let alone please them.

And a carbon tax doesn't address a whole host of GHG mitigations and issues, from deforestation, shale gas methane releases, melting permafrost methane releases, improving carbon sinks, and land use. A carbon tax also doesn't address the need for better climate data and modeling.

A green energy coalition would have the incentive, and the cash flow, to address all these issues. The larger suite of customer needs addressed by a GEC, allows the GEC to place a larger claim on oil customer cost savings caused by GEC actions.

10. Won't a government regulatory approach address GHG issues?

Eventually, yes… but not very well. Imposing regulations doesn't raise capital, and doesn't do a very good job of addressing and promoting long-term solutions from innovation to widespread implementation. Regulations only really push short-term stopgap solutions.

There seems to be four different courses of action:

1. Business as usual (BAU) or "Drill, Baby, Drill", that relies on unregulated energy markets, and lack of government intervention. As we have experienced, this option hasn't worked well in the past, doesn't work now, and fails to address future customer needs.

2. Carbon tax or "Cap and Trade" approaches, that relies on government regulated energy markets, but doesn't address a full suite of customer needs, doesn't put in place a system that continually adjusts to optimize customer needs, and doesn't provide the large financial incentives to drive the transition to green energy solutions effectively.

3. Regulatory restrictions to address climate change and other environmental concerns, that relies on government agencies to continually evaluate, assess possible solution effectiveness, and reconfigure regulations to drive market participants' actions in the direction desired. The complexity of this task is daunting.

4. Establish sector groups for vehicles and transportation fuels (Green Vehicle Group), electric power and green power (Green Power Coalition), natural gas and shale gas, coal, climate and environmental impact, and provide a compensation system tied to improved customer needs. Essentially this "Customers First" approach moves a lot of decision making from government agencies to an organization directly responsible for addressing customer needs, with this organization subject to oversight and regulatory control. The degree of government regulation required in this approach should be reduced by several orders of magnitude from the "regulatory restrictions" approach.

The sector group approach, that proposes and implements a package of 'customers first' energy policies, clearly is the best choice.

11. Why not use government funded GV incentives, instead of using a primarily private sector GV Group that needs oversight and regulation?

Managing an aggressive investment schedule to introduce GVs and take other measures to reduce oil demand, calls for skills more likely present in the corporate world than the government. The GVG should get a better bang for the buck spent on incentives, reduce oil demand more quickly, identify add-on opportunities that complement or extend the aims of the GVG, and provide customers a more optimal set of products and services. The GVG can more easily tap into the innovative skills and capability present throughout the population, R&D institutions, and the business world.

12. Why split cost savings 50/50? Why not reduce the GVG cut to 30%?

The GVG has to act very aggressively at first, and will need to invest significant amounts of money prior to receiving a significant revenue flow from a tax tied to crude oil price declines. The 50/50 split reduces the estimated net cumulative investment that the GVG will need to make in the US before breakeven. In some typical scenarios, the cumulative investment required drops from roughly $85B-100B to about $65B-80B, with breakeven in the fourth year versus the fifth year. After eight years, the cash flow is strongly positive, and government oversight should have the power and leeway to reduce the cost savings split to 30%, depending on the continuing role the GVG has improving energy sector to better meet customer needs.

An extremely fast ramp of substitution provides the most important lever to decrease energy costs to customers, as well as reduce carbon emissions from crude oil. An earlier stream of cost savings to customers from a more aggressive investment and deployment overwhelms this difference between a 30% and 50% cost split. The quicker that crude oil demand begins dropping, the earlier customers begin realizing the huge cost savings from lower oil prices. Investing in GV incentives should be a highly profitable enterprise, so an early startup is advised, both for the customers and suppliers.

13. Why not provide the GVG with a regulated ROI, and only raise the tax on crude oil to provide this level of revenues?

An aggressive ramp requires massive upfront investment in substitutes. The GVG must have a strong incentive to invest large sums early on, and a regulated ROI reduces the GVG incentive to act quickly. Current customer costs greatly exceed optimal energy market costs, so the cost of any delay in implementation overwhelms the cost savings possible by restricting the GVG initial ROI. Customer costs fall faster if the GVG acts quickly, driven by the profit motive.

14. Why not let a large spectrum of companies provide GV incentive investment programs, where they invest their own capital, and ask for crude oil tax revenues to provide ROI? The government orchestrates this program.

Some entity, likely the government, would need to determine which companies and programs led to the reduced oil demand, and allocate the crude oil tax revenues to each

company. There really isn't a precedent that the government agencies can do this effectively. The agencies would need to analyze economic performance and extrapolate to future periods, analyze performance in addressing each critical customer need (cost, environment impact, national security impact, and contribution to economic growth) for each individual company. No existing organizations can capably analyze these contributions for each individual company.

One of the key improvements that a GVG can contribute over the existing energy system includes putting in place a decision-making organization to continually review and improve the energy system to better meet customer needs. Energy suppliers and government lawmakers or agencies haven't adequately addressed this function in the past.

15. Won't the GVG hurt US domestic oil developments disproportionally? Won't it cause a bust cycle in shale fracking regions?

Keeping oil price in the $40 per barrel range should still encourage the better shale projects. But more importantly, the oil and gas in shale deposits is a critical long-term resource for the US. We need to slow the shale boom down, and conserve some of these resources for the longer term.

Based on a "customers first" approach to the electricity and natural gas sectors, analysis of these markets shows that a set of policies for addressing shale gas development must be implemented to effectively meet customer total needs. Even while the oil from shale is priced too high, shale gas is priced too low. Recent natural gas prices have ranged from a low of around $2.50 to $4.50 per million BTU. The price needs to rise above $6 to effectively conserve gas, and prevent a switch from coal to natural gas, instead of coal to green power. The best outcome for customers replaces coal plants with: wind power, distributed solar PV, and government owned but company operated (GOCO) utility scale green power projects.

Shale gas also currently has some environmental impacts. The uncontrolled releases of natural gas, leakage, and shrinkage pose issues with methane and other fugitive hydrocarbon emissions from natural gas. The environmental impact of natural gas leaks appears to wipe out most of natural gas's advantage over coal in terms of carbon footprint.

Fracking has other environmental consequences, especial loss of water sources. Water is almost interchangeable with power, since moving water in some states can consume a large fraction of the state's power. In California, about 19% of electric power consumed is use to pump water. Water also can be used to improve the thermal efficiency of power plants; for example in water-cooling towers, evaporating water provides the heat sink. Also consider that pumped hydro is one of the most effective energy storage systems for electricity. And low cost green power can be used to increase the supply of water using desalinization and other water recovery systems. Water resource issues are tied directly to green power development.

Some green power sources (solar thermal, biomass, and geothermal) have the option of using backup natural gas firing capability. Natural gas production and distribution provides a key backup or stopgap power generating fuel. For this reason, we need to conserve and extend the life of our domestic natural gas resource.

In summary, analyzing the electricity and natural gas markets starting from a review of customer needs, and comparing what customers need from the natural gas market, varies significantly from the current natural gas market. The key changes needed in the shale gas market where fracking is used, involves allocated acreage development coupled with a severance tax on shale gas to address environmental concerns and compensate producers and royalty owners for reserving acreage for future development. America should target flat to falling natural gas consumption, at a price 1.5x to 2x recent prices.

16. Why not try to recover some of the excess profits earned since 2005 due to crude oil being priced too high?

Recovering industry windfall profits from the last eight years is an excellent idea. Perhaps the entities that received higher revenues from oil prices over $40-60 per barrel, can retain some of the money by investing in the GVG or green power projects. This idea needs further consideration.

17. Isn't this fight unwinnable? Won't existing oil industry players overwhelm any efforts to establish a pass-through crude oil tax to compensate a green vehicle group?

It is true that several VCs and several green energy industry executives heard the basic plan to form a GVG, and their opinions read somewhat as follows (paraphrased):

We don't believe that political will to address climate change and energy market issues, can overcome fossil fuel industry money and political influence acting in opposition to the changes in the oil market suggested to drive substitution. Without a firm commitment to some funding source, a private sector entity like the Green Vehicle Group will be unable to raise the capital to fund the substitution program. Establishing a crude oil tax to fund the Green Vehicle efforts isn't possible given the entrenched level of corporate funded political opposition. And even if the oil market substitution works, this must be tied to other actions to address AGW in other markets or actions to address other sources of GHGs. Linking green vehicle substitution to these other required changes will be difficult, with an improbable chance of success.

Given this assessment by knowledgeable business leaders, we need to publicize and debate this issue, and educate customers and policy experts regarding the value delivered by crude oil substitution. The Green Vehicle Group proposal must get a place on the agenda of political groups addressing energy and environmental issues.

18. Isn't it impossible to ramp GV deployment to 8 million units annually anytime soon? The GV manufacturing capacity, and biofuel production capacity simply isn't there, and these can't be ramped rapidly.

Of course attaining this target is difficult, but the value of reaching for this objective is huge. We can and should do as much as justified to hit the target.

The GVG can push BEVs into high mileage fleets, subsidize or practically give away electric motorcycles or scooters, bicycles, and mass transit and rail tickets. Some mass transit buses have a dual capability to run diesel or electricity, and the GVG can pay the transit authority to run in the electricity mode almost all the time. Hundreds of opportunities to rapidly

reduce oil demand exist, with the proper financial support. The target of 8 million green vehicles deployed in the US annually, likely isn't necessary to reduce crude oil demand to the targeted levels. The actual mix of methods and substitution to reduce oil demand, will emerge as deployment rolls out.

And then there is ethanol and methanol… There are systems available to make biofuels that can be ramped quickly. For example, most cellulosic ethanol or biomass fuels can be quite profitable at $4 per gallon (pre-tax), so if GVG supports the wholesale price to that level for a period of 8 years, the private sector will build these plants.

If efforts to achieve biofuel and BEV targets falls short, then adding battery capacity and plug-in capability to existing HEV may make sense. If a shop can spend $20k to do that, then the GVG could subsidize upgrades to the existing fleet.

The GVG will have incentives to invest in improving agricultural capability worldwide, installing water systems, even solar powered desalination, and equipment to improve agricultural productivity. And of course, since increased carbon sinks helps reduce climate impacts, if the green energy coalition receives part of the cashflow from the tax recaptured from declining oil prices, then the GEC can fund reforestation and other efforts to increase carbon sinks.

The opportunities are almost limitless. Virtually all options for green vehicles and biofuels could be supported to the commercial level, allowing the GVG to select the best performers or alternatives with the most potential to develop and deploy 2nd generation commercial units, and so forth.

We simply don't know how much can be accomplished and how fast. But we know a rapid and aggressive start can make this transition even more profitable for the GVG. And reduction in GHG emissions and increased carbon sink uptake increases GEC cash flow and profits, setting in place huge incentives to move quickly. We should "shoot for the moon".

19. Aren't GVs already cost effective, and won't they penetrate the fleet on their own?

Without the current incentives to buy GVs, sales would fall. Without increased incentives (about 2x current levels) sales can't possibly hit the deployment level needed to drive oil prices down significantly due to substitution. These additional incentives can drive enough substitution to hit the 2020 yearend target. Although most vehicle manufacturers now have green vehicle models, the sales are depressed due to high customer purchase cost versus annual fuel savings costs. Even lower priced EVs have over eight year payoffs from reduced fuel costs. Reducing the payoff to less than four years would significantly increase GV sales.

In order for this proposal to work, GVs must be deployed about 40x-60x the current annual deployment.

20. What are the add-on opportunities identified by using 'customers first' analyses in the electricity, natural gas, and coal markets?

The most obvious add-on opportunity links the GVG with a "green power coalition" that would provide a significant subsidy (25-30% of investment) to publicly owned green power projects that qualify for low interest bond financing. The subsidy matches what private

sector projects receive, and less than current subsidy for private green power projects (30% ITC + MACRS depreciation + domestic manufacturing allowance, provides a subsidy at about 55% of investment). Publicly owned green power projects getting a 30% subsidy are essentially cost competitive with any power produced today, except for natural gas combined cycle power plants.

21. Why hasn't anyone else published estimates consistent with the high cost of incremental crude oil demand discussed here? Why haven't the oil companies raised this issue?

Good question.

22. Will the GVG invest and own or operate businesses directly, or act as a middleman investing to provide incentives to either customers or suppliers? Is the main activity carried out by the GVG organization evaluating substitutes and other actions to reduce oil demand, and then negotiating and providing money to other companies?

In my vision, the GVG acts as a decision maker and allocator of resources. The GVG will need to assess customer needs and analyze the best alternatives that need to take market share. Then the GVG invests by paying incentives for manufacturers and producers to put products and services into the market at attractive prices, or pay for customer incentives directly.

I think the GVG works best when it aligns with suppliers to provide the best products to customers, but works independently of suppliers. Therefore, I don't see the GVG investing and taking ownership in suppliers, although this could make sense with smaller startup or embryonic suppliers. Rather, I see suppliers investing and owning a portion of the GVG. The GVG should get invested capital from its owners, and receive revenues from the government (using the pass-through tax on crude oil). Therefore, the GVG must answer to government oversight, which in turn makes the GVG dependent on delivering better products and services to customers. The energy sectors and transportation sector must become customer needs driven.

23. How does the GVG foster innovation and bridge the "valley of death" for new technology?

Forming a GVG creates a customer for thousands of innovative technologies including all kinds of biofuels, especially cellulosic ethanol and algae based fuels, jet biofuels, BEVs, PHEVs, batteries, small vehicles such as scooters, advances in mass transit, high speed rail, commuter services, in the transportation sector; completely new paradigms in agriculture and forestry, water supply and recycling, aquaculture, and use of the ocean. Coupled with a green power coalition, then the combined groups create a market for green power technologies, energy storage, power transmission, and water desalination.

The GVGs/GPCs can fund 1st and 2nd generation green energy demonstration projects at an unprecedented rate, and subsidize mature green energy projects to speed up green energy ramps. Essentially, once a GVG is formed, and linked with a GPC into a broader Green Energy Coalition, the "valley of death" is completely bridged for innovative energy and environmental technology.

24. Have you identified any target companies that should lead a GVG effort? Have you contacted these companies, or tried to raise investment capital to develop this proposal?

I think that the largest industrial companies serving the electric power and transportation markets most likely should take the lead to organize and manage GVGs. Three companies in particular stand out: GE (US), Siemens (EU), and the keiretsu that includes Mitsubishi (Asia), could take the lead role in forming and leading several GVGs and GPCs, and participate in any GVG or GPC formed. Automakers, major engineering and construction companies, power companies, agricultural and forestry companies, even major defense contractors, should join GVGs and GPCs. Some major oil companies should also join, especially if the add-on opportunities extend to shale gas (natural gas) sector by forming a natural gas sector group.

25. Will the GVG proposal have any effect on financial markets, specifically the oil sector?

Yes. I expect that publication and validation of this proposal should cause hundreds of billions in dollars in market revaluations. The proposal should substantially impact the valuation of oil refiners, high cost oil producers (tar sands, shale fields undergoing fracking, deep water developers, and frontier oil players), along with oilfield suppliers and drillers, royalty owners, and shippers, even gasoline distributors and marketers.

On the positive side, automakers and suppliers, green energy technology firms, biofuel producers and developers, battery makers, after market auto service suppliers, companies involved in mass transit and high speed rail, and even aircraft manufacturers and suppliers should gain market value. The big electric equipment manufacturers (GE, Siemens, and Mitsubishi) should gain market value as these companies are particularly well situated to capitalize on the changing energy and transportation markets, and appear the likely leaders of GVGs and GPCs.

Valuations in the agricultural sector should increase, particularly companies/entities who own potential undeveloped agricultural lands around the world.

Eventually, if GPCs form, and linked to the GVGs, then valuations of green power suppliers and developers, power and transmission companies, engineering and construction contractors, geothermal developers and suppliers will increase.

The potential market impacts made me reluctant to show this proposal to the investment community, and kept me from publicizing it using smaller circulation publications. If the proposal is publicized through a widely read publication, the publisher should be aware that the proposal will impact financial markets substantially, more likely sooner than later.

26. This seems like a different kind of economic system, with regulated coalitions of companies in each sector managing sector performance to address customer needs. Does this economic system, or sector coalitions, have any precedent?

This kind of cooperative effort among economic sector suppliers, in a collaborative effort with the federal government, seems a natural outgrowth of the management and leadership

methods taught by Dr. W. Edwards Deming. He taught that cooperating suppliers, collaborating with government entities, delivered superior higher quality products and services to customers.

I call this a "Deming Economic System", since it is a natural extension of the system Japan manufacturers set up in their industrial sector in the 1950s under the tutelage of Dr. W.E. Deming and Dr. Ichiro Ishikawa.

Deming defined quality in terms of customer needs and customer delight with the products and services delivered. He felt that leaders and managers should focus almost entirely on improving quality by redesigning and improving their processes and systems. If they did this, then their companies' or organizations' business revenues would increase. No one would be able to do any better; so external competition isn't really needed when the new (production) system competes against the existing (production) system. Deming found that improving processes and systems required a great deal of planning and cooperation, centered around and directed by analyzing customer needs and the performance of the system in meeting those needs. From Deming's point of view, investors and workers would eventually benefit when customers experienced improved quality products and services, and made purchase decisions based on superior performance.

Ishikawa invited Deming to Japan right after the war, when American military leaders recommended Deming to consult and help getting their industry running again. Ishikawa studied Deming's quality improvement methods, and invited him to lecture top engineering personnel. Deming told Ishikawa that lecturing engineers was useless unless they could reach the top leaders of every major Japanese manufacturer, but he'd come anyway. He didn't realize the reverence that the Japanese hold for teachers (sensei), and didn't know that most industrial leaders in Japan had been students of Ishikawa. When Deming showed up in Japan, he had the CEOs of the top industrial companies sitting in the meeting room that controlled 80% of Japan's annual CapEx for manufacturing. And he had them for a week.

They put together a plan to dominate global manufactured products markets within ten years. They didn't use a capitalist system with free market competition in this plan, but rather a coordinated and collaborative system of suppliers and business partners, and the plan also used government financing. The plan they executed was extraordinarily successful.

Essentially, what these manufacturing leaders built was the prototype of a collaborative customer driven system that promotes free enterprise solutions, and that invests a pool of private + public sector funds. The economic sector groups discussed in this proposal takes this prototype several steps further to set up a regulated sector organization investing and receiving compensation based on performance addressing a suite of customer needs. In the American economy, Deming economic systems should be used in energy, transportation, housing, agriculture, healthcare, and education sectors, for starters.

In a Deming economic system, the major competition occurs not between individual firms, but primarily between competing products and services, and between competing systems and methods to provide these products tailored to customer needs. In particular, new improved systems, improved products and services, and new improved market regulatory controls, compete with existing products and practices. Since the best promising new

product and services systems receive financial support from the sector coalition to improve the products and services for customers, there should be increased evolution of the market to better please customers.

A Deming economic system in place, also addresses one of the key deficiencies in the current energy markets, and related economic sectors. A management vacuum currently exists, where no one has the responsibility to ensure customers are best served by the products and services. The current system relies on free market competition and supplier initiatives and investments, and the customers are at the whim of suppliers. Customers end up forced to purchase inferior products with a very expensive total loaded cost. Since no one is in charge of the markets, to ensure customers receive the best mix of products and services, the markets underperform substantially. Establishing economic sector groups to address the energy market performance, subject to regulation and oversight and contingent on government directed funding, elevates market performance and places energy market management responsibility on an entity responsible to customers. Finally someone takes the responsibility to address problems in the energy markets.

Using a Deming economic systems in key energy sectors should significantly improve performance of the energy and transportation sectors.