The Manufacturing Council

WASHINGTON, D.C. 20230

September 23, 2008

The Honorable Carlos Gutierrez
U.S. Department of Commerce
Washington, D.C. 20230

Dear Secretary Gutierrez,

In response to an invitation to comment on Sustainable Manufacturing and in concert with the OECD Sustainable Manufacturing Metrics conference held at the Rochester Institute of Technology, the Manufacturing Advisory council is pleased to present this letter. For the purposes of this letter the Council endorses the definition of Sustainable Manufacturing as manufacturing that meets the needs of the present without compromising the ability of future generations to meet their own needs. This encompasses three things called by many the "triple bottom line": economic growth, social objectives, and environmental stewardship.

We strongly believe that in order for Manufacturing to thrive and grow the principles of sustainable manufacturing need to be adopted nationwide and globally and supported by policy. There are two primary ways that national strategy can advance this goal:

1. Create globally standardized ways of measuring sustainable manufacturing performance by industry type.
2. Develop a national energy independence strategy that substantially reduces our dependence on imported fossil fuels but recognizes the importance of a transition period to accomplish this.

Measuring Sustainable Manufacturing Performance

An important step in this process is to measure the improvement manufacturing is making in this area. A globally accepted system of metrics by industry sector will be needed. This will encourage governments to provide incentives for sustainable manufacturing practices based on common objective metrics.

To accomplish the goal of global sustainability it is important that all nations participate in the measurement system and that a system of evaluation be established to assure uniform application of standards.

A Real Energy Independence Strategy

Of even more importance however is the need we have articulated in previous letters: the need for a stable and reliable energy supply. This is the key to growing the manufacturing sector again. We believe that US dependence on foreign sources of oil is a major cause of our energy problems as well as our trade deficit. Both must be reduced urgently. Since so much of our use of oil is for transportation and so many of the energy solutions come from electricity, we believe that a major restructuring of our infrastructure is required which is exactly the role the federal government needs to play.

We believe that the federal government must take a leadership role by:

- Committing our country to an Apollo-like effort to achieve energy independence and reduce our dependence on imported fossil fuels. This requires a comprehensive plan to assure objective evaluation of **all** possible options to facilitate the development of the best achievable compromise for the good of all constituencies and of all citizens.
- Aggressively investing in the research capabilities of our national laboratories in the areas of solar energy; wind power; micro-grids and nuclear power.
- Reducing regulatory barriers to the development, commercialization and adoption of alternative energy sources.
- Creating incentives for manufacturing companies to radically reduce their energy profiles and increase their use of energy alternatives. In additional Congress needs to take steps to renew and expand incentives for both solar and wind power generation.

We recognize there must be a transition period to move to significantly greater use of renewables to carry our energy load and that in this interim period we must maximize our domestic output of conventional sources of energy by dramatically increasing our exploration and drilling for natural gas and oil. Independence at a minimum from those who would use their energy resources as a political tool. We support that this be accomplished in an environmentally responsible way.

This must become a top priority of the United States Government for manufacturing to remain competitive, but more importantly for our great nation to remain a world leader for generations to come.

Our subcommittee will continue to focus on helping define ways that Sustainable Manufacturing can be encouraged by the Department of Commerce while educating companies on its benefits.

Sincerely,

Fred Keller
Chairman

Background on Energy Independence Strategies

The Problem

American dependence on foreign oil—$700 billion annually—has fractured our environmental and economic fault lines, weakened our already fragile infrastructure, and generated geopolitical and social shortcomings that negatively impact our nation and its citizens. The myth of cheap oil, coupled with increasing global demand and dwindling supply, has a stranglehold on our nation's sustainability. If we do not solve our energy problem, America will collapse.

The Solutions

Cutting-edge manufacturing, competition, and innovation—like the programs and technologies achieved during America's landmark Apollo space program—can rebuild America's pillars: energy independence, strong economic infrastructure, and a balance in trade. New, creative processes in green engineering and geo-engineering fields can save these American stalwarts. Where the original Apollo commitment produced milestones and triumphs in space, a contemporary "Apollo" effort can do the same for our own backyard. The key is to comprehensively and objectively embrace all the energy alternatives presently available to us, not just focus on a few. The following is an overview of most but not all of those alternatives.

Solar Power

Solar energy—photovoltaics—is an inexpensive resource that, together with other alternative options, can greatly reduce the need for oil- and coal-fired electric-generating plants [1]. One of the fastest growing energy technologies, solar energy is an integral cog in the quest for national energy independence, creating new, high-quality jobs, and reducing emissions. Solar power, especially in rural areas, can generate sustainable and affordable electricity, or can work together with other technologies like wind power to economically create a clean and consistent energy program.

Wind Power

The Department of Energy reports that 20% of America's electricity can come from wind. According to Pickens Plan data, North Dakota alone has the potential to provide power for more than a quarter of the country, and in one year, a 3-megawatt wind turbine produces as much energy as 12,000 barrels of imported oil. While the United States today gets barely 1% of its electricity from wind turbines, as more wind turbines emerge, many experts are starting to think that figure could hit 20% [2].

However, achieving that goal requires moving large amounts of power over long distances. Today's congested grids pose transmission problems and limitations. Current grid infrastructure, conceived 100 years ago, cannot accommodate this crucial energy distribution. Without a solution to grid problems, effective use of wind and solar power on a wide scale

will remain scarce. To transmit the power nationwide, we must take steps to solve inherent grid limitations.

Micro-Power Grids

Sustained by alternative energy resources (wind, photovoltaics, solar, geo-thermal, fuel cells, batteries), cost-effective micro-grid architecture can independently operate or integrate with available static power grids to reliably, safely, and efficiently deliver energy. Rapidly deployable micro-grid efforts can stimulate abundant, affordable, clean energy, laying the foundation for a pioneering and influential manufacturing sector that will contribute to a sustainable environment and a dynamic economic infrastructure. The capability to proficiently distribute alternative power like wind and solar energy can enable us to harness cheaper, greener transportation fuel: domestic natural gas.

Natural Gas

Rising production of natural gas has significant long-range implications for American consumers and businesses. A sustained increase in gas supplies over the next decade could slow the rise of utility bills, obviate the need to import gas, and make energy-intensive industries more competitive [3]. With wind and solar electricity firmly entrenched, we can convert domestic natural gas to work as a transportation fuel. However, it will be necessary to thoroughly understand the impact on for example the chemical industry that must use natural gas as feed stock for many of its processes. For them, using natural gas for transportation instead of to generate electricity could only change the reason for the high natural gas prices that have kept over 100 new chemical plants in recent years overseas instead of in the US. Correcting our unsustainable imported oil imbalance can strengthen our wilting global profits, free our economy from distortion and restriction, and reinforce self-worth, self-sufficiency, autonomy, and unity in America. Emphasizing natural gas as an optimal fuel alternative can evade environmental and economic catastrophe, revitalizing our present in order to revamp our future: nuclear power.

Nuclear Power

As population growth and economic development combine to swell world energy consumption, the nation will need a long-term source of green electricity to avert climate catastrophe [4]; fittingly, nuclear power plants operate without producing significant amounts of carbon dioxide or other air pollutants [5]. Those nuclear plants do pose serious challenges in the areas of water quality and waste disposal, but the US and several other nations have 60 years of experience with which to objectively quantify the risks. Increased safety regulations, minimal waste, and the scope of the environmental crisis indicate that nuclear power is a viable, prominent solution. As the need for reliable, affordable, and efficient energy expands, investing in researching, developing, and promoting nuclear power as a clean energy alternative will legitimize the technology and safeguard the nation. However, long-term indecision currently victimizes the nuclear campaign.

The Policies

How do we streamline regulatory processes? How do we spur comprehensive, worldwide change? To bring back American initiative, we must bring back science. Government laboratories like the National Science Foundation (NSF) are taking early steps, placing a greater emphasis on innovation and entrepreneurship and on international collaboration and cultural exchange [6]. They intend to transform the nation's power grid into an efficient network that integrates alternative energy generation and novel storage methods with existing power sources. This new, distributed network would permit any combination and scale of energy sources and storage devices through standard interface modules [6].

Increasing the use of renewable energies can reduce greenhouse gas emissions, although a diverse combination of actions, including higher energy taxes, alternatives to fossil-based fuels, and a comprehensive carbon dioxide reduction program, can additionally, cheaply, and significantly increase the reductions.

We believe government involvement is critical to solve these pressing problems. Incentives need to be offered to entice companies, particularly SME's, to move forward and explore the wide range of options required. The availability and pricing for alternative energy is what will help propel these ideas into reality. What is needed is a comprehensive plan to assure objective evaluation of **all** possible options to facilitate the development of the best achievable compromise for the good of all constituencies and of all citizens. All factors need to be analyzed for all options, including costs and time required to become commercially feasible, the potential for new "green" jobs, the effects on the environment and society of developing and producing them (i.e., "total life cycle sustainability analyses"), the level of reserves and the timeline of depletion, and more.

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