

Testimony of Daniel R. Abbasi
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Select Committee on Energy Independence and Global Warming
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Good afternoon. My name is Dan Abbasi, and I am a Senior Director with MissionPoint Capital Partners (“MissionPoint”), an investment firm based in Norwalk, CT that is exclusively focused on financing the transition to a low-carbon economy. I lead MissionPoint’s policy oversight effort in addition to originating and closing investments.

Thank you for the opportunity to speak to the Select Committee about the future of the renewable energy industry and to highlight its critical role in the effort to transition to a low-carbon economy. It is a privilege to be with you at this crucial juncture in national policy-making on energy independence and global warming.

The Committee has requested our perspective as clean energy investors on the outlook for the renewable energy industry and what policies, including what carbon regime, will best encourage innovation and deployment of clean energy.

While the renewable energy industry has seen tremendous investment and growth over the last year, comprehensive and intelligently designed policy is critical to its continued success. We need policy vision and a robust, stable framework of laws capable of stimulating a profound transformation in our system of energy production and use.

This transformation will cost trillions of dollars, and as such we agree that legislators should design policy with the needs and interests of investors in mind. It will be critical to attract significant private capital to the task, since public dollars cannot and, we believe, should not be the sole source of funding to facilitate this important shift.

MissionPoint’s carbon-centered investment thesis stems from two strongly held convictions:

- 1) that unabated climate change is the greatest foreseeable risk facing humanity;
- 2) that mitigating it constitutes one of the greatest investment and job creation opportunities in history.

Our firm was founded and is chaired by Mark Schwartz, former Chairman of Goldman Sachs (Asia) and CEO of Soros Fund Management. Our team has deep energy and environmental domain expertise, based on senior roles in finance, technology, policy and operations at such organizations as General Electric, ABB, SwissRe, FMC and U.S. EPA.

I would like to make 5 points in my testimony today:

First, MissionPoint’s outlook for growth, investment and job creation in the renewable energy industry is bullish.

Second, our ability to continue to invest in realizing this positive forecast and accelerating the industry’s growth depends on a comprehensive and stable set of supportive policies – including extension of the investment and production tax credits that remain in limbo today.

Third, we believe it is now time for Congress to provide the credible, long-term price on carbon that we need as a foundation for this industry’s growth – and I’ll describe our preferences on some key design points to consider in your deliberations.

Fourth, we would encourage the Congress to consistently support and stimulate not only renewable energy, but the broader set of high-impact carbon mitigation options in the fossil fuel industry, from optimization of power plants to carbon capture & storage.

Fifth, while we believe it is important not to oversell “conservation and efficiency” as the single panacea offering all the painless carbon mitigation we need, there are enormous opportunities here that are untapped, often because of financing gaps.

First, MissionPoint’s outlook for growth and investment and job creation in the renewable energy sector is bullish, and let me explain why.

The two primary criteria for energy used to be that it be cheap and reliable. Now we’ve added two words to that: secure and clean. Managing this now more complex four-dimensional equation requires us to bring unprecedented innovation and entrepreneurialism to the energy sector. Simply put, we must find new ways to produce, deliver and consume energy.

MissionPoint sees the future success and growth of renewable energy sector as a critical element in the solution to this equation. A strong renewable energy industry in the U.S. will offer:

- Greater energy security and diversification, marked by resilience to volatility and scarcity pricing in traditional fuels;
- Greater national security through less dependence on oil and gas imported from politically unstable areas of the world;
- Long-term international economic competitiveness;

- Creation of hundreds of thousands of high-quality, technology-led jobs for both U.S. workers -- and workers overseas, which should increase the global standard of living;
- A critical instrument in our decarbonization plan for the U.S. and global economy.

The magnitude and quality of investment in the renewable energy industry over the long term will be tied to economic value creation, which today is driven by:

- Supportive, but still relatively unstable, subsidization programs that are critical to increasing the economic certainty necessary to attract meaningful amounts of growth capital;
- Long term expectations of economic value as we achieve increasing scale of production and adoption; and
- Growing demand for clean and reliable energy, due to emerging market preferences.

Growth will continue as long as these drivers persist, but in the future will be driven increasingly by:

- Realization of cost reduction through scaling, with many key technologies maturing to the point that subsidization becomes unnecessary;
- Expanding market demand, beyond Renewable Portfolio Standard quotas;
- Improvement in relative economics as traditional fuels are required to absorb a carbon price.

Success along the way toward this future will create positive feedback loops that attract:

- More talented management
- More innovation
- More capital
- More solutions
- Lower costs

MissionPoint is highly confident, based on the success we have seen to date, that we can achieve this future – and not in 20 years but far sooner.

Declining Cost Curves

The declining cost curves over time -- due largely to scale and learning economies – for wind, photovoltaics, concentrating solar power, geothermal and other renewable energy

technologies constitute a robust trend. Further cost reductions are attainable to a varying extent across technology sets, and we aim to selectively accelerate those with the most so-called “entitlement” for further gains.

Solar is particularly attractive in this regard, offering substantial cost reductions to come. We believe, for example, that as the cost of producing solar energy continues its steady downward march towards “grid parity” (generally viewed as 10 cents per kilowatt-hour, or “kWh”), the demand for solar energy will grow very quickly to a staggering level. DOE Solar America Initiative estimates that solar energy will achieve price parity at panel costs of \$1.25 per watt – and that the industry will get there by 2015.

We believe that Levelized Cost of Energy (LCOE) is the most important metric by which one can measure the competitiveness of energy technologies. This figure is calculated based on the installed cost of the system, the energy produced over the life of the asset, its operational & maintenance costs, and its financing costs.

Most PV modules today are made from crystalline silicon (c-Si) and cost approximately \$3.00 per Watt to produce. Even without a shift to more advanced thin film technologies, the cost of the incumbent c-Si technology is projected to drop to \$1.70 per watt by 2011, \$1.31 by 2016, and \$1.10 by 2021.

The cost reductions are expected to come largely from manufacturing economies of scale rather than major technological breakthroughs, reinforcing the importance of sustaining a strong policy stimulus so we can ride down the cost curve.

Aggregate installed system costs – which is what the customer ultimately pays – are largely driven by module costs, but also account for the “balance of system” electrical equipment and mounting structures as well as labor costs for field installation.

According to Deutsche Bank, installed costs for c-Si systems today average approximately \$7.29/watt and are expected to decline to \$4.38/W in 2011, \$3.26/W in 2016 and \$2.61/W in 2021 (assuming a commercial-scale 150kW system).

The LCOE of c-Si systems today averages about \$0.32/kWh and is expected to decline to \$0.19/kWh in 2011, \$0.14/kWh in 2016 and \$0.11/kWh by 2021. The Energy Information Agency projects that average residential grid electricity prices will rise from \$0.104/kwh today to \$0.108 in 2009 before declining to \$0.104 in 2021 – demonstrating a small and relatively stable dispersion around 10 cents and a coming solar cross-over with average grid prices.

Of course, many people pay more than the average grid price today: the market size today for electricity at prices greater than 15 cents is \$30 billion, a price that solar systems can meet in areas with appropriate sun once federal (and sometimes state) tax credits and incentives are factored in.

Advanced thin-film technologies, the next generation after c-Si, are expected to produce even steeper cost declines as they grow in manufacturing scale and increasingly drive industry-wide pricing. First Solar, today's lowest cost thin-film producer, is manufacturing cadmium telluride thin film PV modules at \$1.25/watt and expects to produce over 400 MW in 2008.

The Prometheus Institute estimates that global solar manufacturing capacity will grow from just under 2 GW in 2006 to 40-60 GW by 2015. This estimate suggests a 50% compounded annual growth rate.

- Assuming a capex/watt of \$1.00 in 2015, this estimate implies up to \$60 billion in capital investments into manufacturing capacity.
- Assuming a total installed system cost of \$3/watt in 2015, a 40 GW manufacturing base will produce \$120 billion annually in solar power generation systems, of which the solar panels themselves will constitute about half and the remaining "balance of system" and installation will constitute the other half.

Job Intensity of Renewable Power

The job creation story is correspondingly attractive:

- According to research by Roger Bezdek for the American Solar Energy Society, in 2006 the wind industry created 16,000 direct jobs and 36,800 total jobs in 2006.
- According to a study by the Renewable Energy Policy Project, a national development of 50,000 - 70,000 MW of wind energy could potentially create 215,000-331,000 full time equivalent job/years of employment.
- The Geothermal Energy Association (GEA) reported 4,583 direct jobs in 2004, with an average salary of \$40,000-50,000.

Two key points to add here are that the job-intensity and quality of renewable energy jobs are comparatively high.

There are some basic reasons for this. One of the key liabilities of renewable energy is its low power density – meaning it produces less energy per unit of land and other material inputs. This low power density tends to be associated with high labor intensity, meaning that we tend to see more job creation per unit of energy than we see with fossil fuel power. DOE, for example, reports that wind energy produces 27% more jobs per kwh than coal-fired energy, and 66% more jobs than natural-gas fired energy.

Second, renewable energy tends to generate highly skilled manufacturing, construction and high-tech jobs – as well as new white collar jobs in high-growth companies. Particularly as our nation absorbs job losses from the economic downturn, renewable

energy should offer welcome job creation. Many of these jobs are likely to be inherently domestic and localized, as well as long-term rather than transient. For example, the U.S. has distinctive expertise and competitive advantage to leverage into the high-tech segment of the renewable industry, such as advanced materials. And the service and installation/asset deployment jobs are not easily subject to overseas outsourcing. There remains risk that manufacturing will move to low-cost overseas operations, but Congressional and state-level support can mitigate this risk through cost-sharing grants for new manufacturing facilities.

SunEdison, LLC (“SunEdison”), a MissionPoint portfolio company that I’ll discuss later in this testimony, created 370 high-quality jobs in two years. But we must not be complacent that job creation will necessarily be domestic, for there are cautionary signals: A major U.S. solar panel manufacturer reported having diverted jobs and in-demand solar panels to overseas markets as a result of aggressive incentives in Europe, into areas that are less attractive than the U.S. on a solar energy productivity basis.

To sum up point #1, rapid growth rates and very large future market sizes are what we in the private equity community look for in an investable market sector and the renewable energy industry offers this.

It is worth noting, however, that these estimates are based on *production* forecasts, which are ultimately derived from *demand* forecasts. Solar energy is not price competitive today on an unsubsidized basis. Therefore, the current demand forecasts are based on aggregating the demand created by the numerous subsidy programs in place around the world.

This brings me to my second major point, which is that our ability to continue to invest in this industry’s growth depends on a comprehensive and stable set of supportive policies.

In order to keep our risk profile within the bounds dictated by our fiduciary responsibility, we must continually assess the stability of the policy framework that provides indispensable support for this phase of renewable energy growth in our country. So we strongly encourage Congress to extend and to further intensify use of the full suite of policy instruments, such as investment and production tax credits, Renewable Portfolio Standards, expanded use of federal procurement authority, loan guarantees, higher RD&D expenditures and others.

The fact that significant investment is already happening today should not be interpreted as a signal that strengthened policies are no longer needed. In fact, the investment community is already anticipating this strengthening and if it fails to strengthen soon, it will be akin to a negative earnings surprise on Wall Street that could put the U.S. even further behind in this strategic industry.

The pending and still uncertain extension of the Investment Tax Credit is the most timely example of this investor expectation – and the risks of disappointing it.

MissionPoint believes that Congress should deliver on what was left behind when the 2007 energy bill was passed, and renew as soon as possible these crucial tax credits to support a clean energy future.

Extension of the Production Tax Credit will stimulate accelerating investment in and production of wind and geothermal power, two of the fastest growing renewable energy industries. The Investment Tax Credit will support manufacture of clean solar technologies. Both are set to expire at the end of this year unless Congress acts to extend them.

Unfortunately, the “on-again/off-again” status of the PTC has contributed to a boom-bust cycle of development in the wind industry. There are significant consequences to not renewing PTC prior to expiration. In '01-'02, there was a 2 month gap between expiration and renewal, and wind capacity additions fell by a factor of four. By contrast, the PTC was extended in 2005 prior to expiration, and the next year capacity additions increased. Clearly other factors are not identical between the various time points, but historical failure to renew before expiration has resulted in dramatic decrease in installations.

These are the short-term consequences, but just as important are the long term consequences of having a PTC that runs even the risk of expiration every few years. A longer term PTC would enable a more stable and substantial domestic industrial capacity to develop, including investment in manufacturing capacity, permanent job creation, an ecosystem of domestic component suppliers, and private investment in R&D. It would be good, for example, to have domestic capacity to produce specialized wind turbine components, rather than relying on substantial equipment imports as we do today.

What makes the expiration risk so problematic for investors? Uncertain and erratic policy increases the cost of capital. Quite simply, you need to pay a higher cost of capital to equity providers or lenders for your renewable project, if you cannot count on supportive policy in your cash flow projections. Moreover, even when the tax credit extensions are enacted, they are typically too short in duration to match to the long-term cash flows we are trying to finance. So the net present value of the project is driven down. This is particularly problematic in the energy industry, because these are capital intensive businesses that require long-term cash flows in order to justify the upfront investment.

All of this undermines the credibility of our domestic renewable market with capital providers, as well as with top quality entrepreneurs and large strategic players. It is important to recognize that this is not just about small start-up or mid-market companies. Even major equipment manufacturers like GE Wind Energy are unable to economically start and stop the retooling and production plans of their plants, if the policy and market framework is not stable. They will only allocate resources to long term sustainable businesses, otherwise they will exit or shift their production to more attractive foreign markets.

By undercutting the diversification of our energy supply into renewables through uncertain policy, we not only undermine our domestic innovation and adoption cycle, but we also perpetuate our dependence on volatile and high cost commodities like natural gas and oil.

We recognize that the House and Senate differ on whether and how to pay for the renewable incentives and that there are competing priorities on the legislative calendar, but with recession risk still on the horizon this is no time to fail to pass a critical bill and therefore interrupt the most substantive growth and job creation story in the U.S. market today.

Renewable energy manufacturing already has a track record of creating jobs and growth in economically depressed areas – particularly those areas hardest hit by the exodus of domestic manufacturing jobs. Examples and figures cited by industry participants include:

- Gamesa, a Spanish wind turbine manufacturer, created hundreds of jobs and invested tens of millions of dollars to build three factories in areas of Pennsylvania after the collapse of the local steel industry;
- Maytag closed its factory and corporate headquarters in Newton, Iowa after being bought by a competitor, causing thousands of lost jobs. In 2008, a new wind turbine factory is opening in Newton, generating hundreds of new, high-paying jobs;
- A study by the Blue/Green Alliance shows that investments in renewables could create over 820,000 new jobs nationwide.
- Industry estimates indicate that renewable tax incentives would help to prevent the cancellation of 42,000 MW of planned renewable energy projects in development today in 45 states – an amount equivalent to 75 base-load electricity generation stations.

In our view, the renewable tax incentive package does not create an unfair advantage for renewables, but rather a leveling of the playing field with long-subsidized traditional resources. Moreover, as we have discussed, solar power and other renewables will continue to reduce their costs as they scale up, so in the mid to long-term, no subsidies will be required. For most of the technologies aided by this package, this is a crucial transitional support, not a long-term dependence.

In a globalized marketplace, we cannot afford to let other countries continue to surge past us in renewable energy. While the United States ranks high on the list of countries with the capacity and natural resources for a robust renewable energy sector, the lack of certainty around the PTC and the ITC are consistently pointed to as the most significant de-stimulus for growth and financing in the industry. There is evidence that we are already losing the U.S. edge with key manufacturers in relation to overseas activity. One

major solar company, for example, recently shifted to a Plan B strategy, relocating the bulk of its U.S. sales force to Europe and Asia after the ITC/PTC extension failed to pass in December 2007 or January 2008.

Germany, Spain, China and India have stable public policy incentives and impressive job growth in the renewable sector. The #1 and #2 job creating industries in Germany in the past five years are the wind power and solar energy industries.

The tax credits are crucial for investors to continue to bring emerging technologies to scale and cost parity. Therefore, we would seek their longest possible extensions. The credits are vital to provide investors with certainty commensurate to the cash flow cycle for major renewable energy projects – without this, their very financeability is undermined.

Therefore, we favor the House Bill's extension of the Investment Tax Credit to 2016 – or even further to 2020 or beyond. We favor the House Bill's extension of the Section 45 Production Tax Credits to 2012 – but 10 years to 2016, or even longer, would be better.

SunEdison and the ITC

Allow me to describe how one of our portfolio companies has built an innovative business model for diffusing solar power that depends in its initial phase on Investment Tax Credits.

SunEdison basically leveraged good policy and their ingenuity to solve a longstanding problem: how to mitigate the high up-front capital costs and transaction headaches associated with buying solar electricity.

This has been a good example of policy bridging a crucial gap. While their model will eventually be self-sustaining, it still depends on the Investment Tax Credit in these pioneering days.

We invested in SunEdison when it had 2 people and a business plan, and today it is the largest solar developer in the country – having creating over 370 jobs inside the company (primarily in MD and CA) and many more sub-contracting jobs outside it, with accelerating growth ahead.

SunEdison this year will install 75MW of power. At about \$6-8M+ investment per MW, this means approximately \$450-600M of capital investments will be made in SunEdison's 20-year solar assets in 2008..

Its unique business model provides solar power to large national accounts like Wal-Mart and Kohl facilities throughout the country.

There are plenty of commercial and municipal customers out there interested in buying solar power, but they don't make the move because they don't want to have to shop

around for systems, contract their own installation and, essentially, pay for twenty years of electricity costs today. SunEdison, headquartered in Baltimore, Maryland was started to simplify solar for those same customers by being a one-stop shop. The Company develops the project, manages the process, puts the solar system on the customer's roof and sells them the power from it for less than what they'd be paying for utility power, without their having to deal with the hassles of owning and maintaining the system or financing the cost.

Solar power has typically been treated like energy efficiency. People asked, "What's the payback?" Utility companies don't think payback. They think, "delivered cost of power." SunEdison allows people for the first time to think, "What's the delivered cost of power from solar?" The answer is that solar is cheaper than fossil fuel power in many places once available (and transitional) subsidies are factored in.

SunEdison packages the power for sale in 10 or 20 year contracts, and uses all available incentive programs and structuring creativity to close the gap on solar and scale it up much more rapidly:

- Solar Renewable Energy Certificates (from the state RPS programs)
- Pass-thru of Solar Investment Tax Credit to Tax equity providers
- Accelerated depreciation

In about five years, the economies of scale SunEdison is already achieving will bring solar to parity with fossil fuel electricity without subsidies in areas with good sun and high electricity prices, e.g., Arizona, California, Hawaii, Nevada, New Mexico, and others.

SunEdison is truly creating a market – it has produced a few imitators but it has a significant advantage and has since vertically integrated by buying some of the largest installers in the U.S. and setting itself up to move further ahead.

UpWind Solutions, Inc. ("UpWind") Complements the PTC

MissionPoint has also created and capitalized a new company that, in effect, complements the PTC by supporting the growth of its primary industry beneficiary – wind energy.

Unbeknownst to many of its enthusiasts, wind energy has faced significant performance problems. MissionPoint's investment method is to analyze bottlenecks to the diffusion of low-carbon technologies. In the case of wind, we saw that gearboxes were failing prematurely and turbine manufacturers were offering shorter warranties and moving away from post-warranty O&M services. The lack of operating history on the installed base of turbines creates increased likelihood of power output shortfalls due to mechanical failures, thereby creating demand for experienced O&M and optimization providers

This created an opportunity for 3rd party providers, so we founded a new wind turbine operations & maintenance company, rather than another wind developer.

UpWind provides services to keep wind turbine installations well maintained and optimized for maximum energy production – the company is hiring rapidly and its customers need the PTC extension if they’re going to keep growing – and hiring Upwind in states like TX, CA, Iowa, and Montana.

UpWind works with project owners to improve performance through preventive maintenance and inspection services. All these services combined serve to improve operating performance and increased turbine lifespan, both of which increase the potential carbon benefit from wind power.

UpWind highlights how emerging renewable industry growth will spawn additional supporting service industries, including labor intensive industries such as O&M

And the underlying growth of the overall wind market in N. America and worldwide appears very strong. The industry is expanding rapidly with >\$10 billion spent in 2007 and 5,000 turbines of more than 1MW capacity installed in the U.S. to date – with an additional 11,000 projected by 2011. The American Wind Energy Association reports that new and announced wind turbine and turbine component manufacturing plants in 2007 have created, or will create 6,000 new jobs in the U.S.

National RPS

MissionPoint also favors a national RPS. But, before its reintroduction, we believe some modifications are needed to the version that was passed by the House last year before failing in the Senate. As currently constructed, it does not include a specified minimum of the renewable quota that must come from solar power, which means that most of the required power will come from wind power only.

Solar power, while more expensive per kWh than wind today, is on a trajectory to eventually overtake wind as a cheaper source of power. Its maturation toward that point, and soon thereafter to unsubsidized grid parity, requires further scale up of manufacturing – and that in turn argues for a solar “tranche” in the national RPS, a feature that is included in many state-level RPS.

MissionPoint further believes that the national RPS, while useful, should be considered secondary to the urgent need for passage of national carbon legislation. Therefore, we would not want to see an RPS re-introduced ahead of carbon legislation and risk slowing down the latter.

We are also concerned that quota-based instruments like an RPS often produce a volatile price signal (tradeable RECs), which may not satisfy some financiers’ needs for predictability. Some of this volatility has reflected market opacity and the difficulty of translating a cross-state patchwork of different technology eligibilities for each RPS

into an accurate supply/demand forecast. A national RPS could produce some harmonization that would overcome this and allow this particular market-based mechanism to produce a more stable signal to the financial markets. Even so, it is worth noting that a long-term feed-in tariff has been a successful alternative in scaling up renewable production in Europe, especially Germany and Spain, in part because of its firm price signal to investors. Similarly, the production and investment tax credits (and ideally, these would be made “strippable”, or re-sellable to those who most value the tax benefit) offers an attractively stable signal.

Federal Procurement Authority

We would encourage the Congress to consider all opportunities to rationalize federal procurement authority in ways that would support renewable energy. To take just one example, DOD recommended in February 2008 that Congress extend the length of power purchase contracts that DOD can enter into to 20-years. This would allow it to compete on a level playing field with other renewable energy buyers to enter into long-term purchase contracts. Current Federal law limits Pentagon energy contracts to 10 years, a tenor that is too short to satisfy the financing needs of most renewable developers and investors. This change would enable Air Force bases, for example, to buy directly from renewable energy generators, rather than purchasing renewable energy credits.

Increase RD&D

MissionPoint believes that a carbon price signal will spur private RD&D, but that the price volatility of CO₂ under cap-and-trade will likely produce sub-optimal long-term investment in certain categories of high-risk and/or long-term technology. So far, instead of rising to meet the carbon challenge, DOE annual expenditures of \$3B on energy R&D is less than half, in inflation adjusted terms, of peak level of spending reached in 1978.

We will therefore still need a dramatic increase in public energy RD&D, and it should be administered not only through established agency channels but also through a nimble model like the authorized but not yet funded ARPA-E.

MissionPoint recommends that the increase be funded not only by allocating a significant portion of CO₂ allowance auction revenue to this purpose, but that it also institute new federal wires & pipes charges in areas under its jurisdiction, similar to state System Benefit Charge fees.

Policy support is needed not just for early R&D, but for deployment support via deployment grants and risk-sharing as well as instruments like the RPS, because progress down a declining cost curve requires reductions in costs throughout the cost structure (i.e., not just the core device but the balance of plant and soft costs, including integration, installation, market learning, etc.)

MissionPoint will be looking shortly for state and federal support for a high-tech manufacturing company in which we will be investing – whether through programmatic appropriations or earmarks. Consistent with the evolution of national RD&D policy, we would anticipate a public/private cost-share to improve accountability above that of a pure grant.

All stabilization targets focused on 2050 assume that emissions thereafter plunge toward net zero. That will only happen if we make public and private R&D investments now in low-carbon and zero-carbon technologies that will be ready for deployment as early as 2040. It's important that we avoid counting on the silver bullet, but we should still allocate investments to try to discover one. MissionPoint expects climate mitigation to be recognized as a national and international emergency within 10 years – inspiring commitment of a massive upscaling of public RD&D spending in the U.S. and around the world. But we should not wait for that catalytic moment. RD&D is an inescapably extended process and we should not wait for the emergency.

My third point is that it is time now for Congress to provide the credible, long-term price on carbon that we as investors need. We urge you to act this year, rather than putting this off to 2009 or beyond.

A key message I want to convey here is that MissionPoint has mobilized hundreds of millions of dollars in capital from blue-chip investors to invest in decarbonization of our economy – in fact we were heavily oversubscribed and had to turn prospective investors away. We have built an expert team of resource allocators and business builders, and we are already executing on compelling investment opportunities.

However, we stand ready to do much more to accelerate the transition to a low-carbon economy if you in the Congress will pass a law to set some long overdue rules of the road.

We need a long term stable price signal for carbon is imperative to encourage innovation and promote investment. It needs to be long enough to provide for the necessary payback period clarity to induce investors to take all of the other technical, construction and market risks required to make an attractive return on capital investment

Just as evidence indicates that climate change is accelerating, even to the point of routinely astonishing field scientists, our firm believes that we in the financial markets are going to have to respond by accelerating the formation and deployment of capital to reduce emissions in the narrowing window that remains open to us.

We believe carbon mitigation is primarily a commercialization rather than an innovation problem. In fact, while we need to fund early-stage R&D, we need to be cautious about letting visions of transformative new technology paradigms (like the hydrogen economy) divert us from allocating resources and policy support to the solutions already available

or near-commercial that need to be diffused – after all, the science indicates that we need to make significant progress on mitigating carbon in the next decade.

In December of 2007, McKinsey & Company released an analysis showing that the U.S. has the technologies available today that could cut emissions 28% below 2005 levels by 2030. They identified 250 opportunities within the U.S and found that no less than 80 percent of these reductions can be had with technologies that have already been proven to work at a commercial scale, while the remainder can be achieved by existing technologies with high-potential for commercialization by 2030.

Consistent with this perspective, MissionPoint is more a growth-stage private equity investor than a venture capital investor. We typically invest in companies with commercial or near-commercial offerings that are now poised for accelerated adoption. We do, however, reserve a certain limited portion of our portfolio for pre-revenue, venture-style transactions, where we believe the technology is unique and transformative.

Robert Socolow, the Princeton professor who co-authored the widely cited “Wedges” framework of carbon mitigation, is a special advisor to MissionPoint, and we share his belief that many of the needed technologies are already available and need to be pulled through. This fact makes it all the more frustrating for us as investors to wait on long-needed policy signals, since all the other ingredients are in place for rapid growth, job creation and carbon mitigation.

Investors, in general, do not like to invest in businesses that are dependent on regulation – and right now most investors are unable to factor possible future CO₂-based revenue streams or incremental demand into our valuations of companies. We mostly treat it as a free option, an enticing one given the probability of future CO₂ pricing, but not one that can be prudently underwritten. So we focus our valuation on core revenue streams like power production or equipment sales.

Once an adequate price signal is in place, we and other market participants will invest – with extraordinary discipline and hustle – in maximum emissions avoided per dollar invested.

We have launched a U.S. carbon originator called Greenhouse Gas Services, LLC (“GGS”). GGS is a new business that we created with GE and AES. We saw that the U.S. carbon market is at a critical stage of development. The U.S. voluntary carbon market is highly fragmented and characterized by growing demand, inconsistent standards, and a lack of credible suppliers. Companies purchasing offsets place a premium on quality. GGS was designed to take advantage of these market conditions, become the provider of choice to voluntary buyers and those pursuing early-action compliance credits, and ultimately to position itself as a leading source of carbon offsets in the mandatory cap-and-trade system we anticipate the Congress will eventually form.

GGS’s partners will potentially allocate to it hundreds of million dollars in financing capability to produce domestic carbon offsets, another source of capital that can be even

more rapidly deployed when the Congress acts. And these projects will create thousands of domestic jobs as well.

GGS has core competencies in the development and operation of energy projects, in risk analysis and transaction structuring for energy projects, in marketing and in carbon markets.

We are also investing in other parts of the trading infrastructure needed to facilitate a robust and orderly carbon market in the U.S., which some believe could reach \$50- \$100 billion annually, early in the regime.

Let me describe our preferences on a few of the key design points for the carbon law:

- a) Cap-and-trade: We believe that a properly designed cap-and-trade policy is the preferred mechanism to price carbon over a carbon tax. Cap-and-trade sets a firm emissions reduction target and then allows the price of an allowance to float. By contrast, a carbon tax sets a firm price and allows emissions levels to float – thereby undermining the core environmental goal of controlling emissions levels. MissionPoint believes that we do not know the demand elasticities well enough in our economy to set the tax rate needed to get the desired level of emissions reductions, so we need the certainty of a cap to be able to attain emissions reduction goals. Given deep national anti-tax sentiment, political realities would probably set a carbon tax rate that is too low to support investment in the needed technologies.
- b) Emissions target: We support stringent emissions targets capable of stabilizing atmospheric concentrations at 450 ppm of CO₂ equivalent – by getting to at least 1990 emissions levels by 2020 and then reducing at least 4% per year to reach 80% below 1990 levels by 2050. We believe a prompt start is needed – no later than 2010 – and that anything less than \$25/ton in the early years would be inadequate. Scientific considerations, not political horse-trading must unambiguously come first in setting targets. Note that according to the latest science, even a 450 ppm target would give us only a 50% chance of keeping the global average temperature from rising more than 2 degrees C (or 3.6 degrees F) above pre-industrial levels – a level at which increasingly severe impacts may occur; droughts, floods, heat waves, species extinction, sea level rise, ocean acidification, wildfires, spread of infectious diseases. Prominent NASA scientist, Jim Hansen, noting the accelerating breakup of the ice sheets and other impacts, has recently urged lowering our stabilization target even further to the already-passed figure of 350 ppm.
- c) Composite scientific index for target adjustment: This is a new concept we're introducing for your consideration. Some pending climate bills call for periodic review of targets with input from bodies like the National Academy of Sciences. However, we believe that such reassessments are too open-ended and not sufficiently directive of the decision-makers. Therefore, MissionPoint favors a

more prescriptive approach whereby a composite index of scientific indicators would be specified in the legislation itself so that when each reassessment date arrives – and it should be yearly – the emissions targets would be reset to reflect whether impacts are as forecast, are better, or are worse. This would insulate what should be a scientifically driven decision from recurring political pressures. Indicators in the composite could include: average global temperature, rate of melting of Greenland or West Antarctic Ice Sheet, drought extent and magnitude, biological indicators including climate-sensitive disease spread, composite measure of extreme weather events, ocean acidification, etc.

- d) Upstream Point of Regulation: We favor an upstream point of regulation requiring submission of allowances by all producers and importers of carbon-based fuel (coal, oil, natural gas), rather than downstream fuel users/emitters. This would reduce the risk of leakage to non-covered sectors or to smaller companies under the regulated size threshold, and thereby maximize environmental integrity in attaining the cap. It would achieve administrative simplification by obligating approximately 2,000 fuel producer or importers to surrender allowances for compliance, rather than over 400,000 downstream large emitters. Our view is that it makes sense to spread carbon costs widely and send price signal throughout economy so that all entrepreneurs can respond, so that we don't concentrate burdens on single industries, which would be unfair and could create a backlash that ultimately kills the program. We also believe that a pervasive price signal will facilitate the smoothest possible adjustment in asset prices in response to the carbon price signal and will also facilitate maximum stringency in carbon reduction, again because the burden will not be unfairly concentrated.

While it might seem counter-intuitive for a firm that has invested in carbon market originators and infrastructure to advocate for a potentially leaner system with fewer compliance participants, I would underscore that our investment thesis is that low-carbon business models will be valued more highly whether or not they generate a tradeable instrument. In fact, MissionPoint invests in very few pure-play environmental commodity businesses. Rather we favor the pick-and-shovel businesses that will help others unlock what we call the “carbon entitlement” (the attainable reduction in carbon). These businesses should still thrive under an upstream point of regulation. Moreover we anticipate a vigorous trading and offsets market even under an upstream point of regulation.

- e) Safety Valve: We strongly oppose inclusion of a safety valve that fixes the maximum price of an allowance. This would limit the upside associated with our carbon-mitigating investments. Moreover, as with a carbon tax, it would, in effect, forego the all-important cap on emissions. Our fallback position is that if one must be included, it should be no lower than \$25/ton in the first implementation year and rising thereafter, and all revenues generated should be allocated directly to R&D in carbon-mitigating technologies. The proposed \$12/ton Bingaman/Specter safety price would likely be triggered and some independent estimates suggest this would lead to a level of emissions approaching the low-

growth business-as-usual scenario. Alternative, far more prudent cost containment options exist, such as providing for limited borrowing of allowances from future compliance periods, with interest. Banking should also be permitted to allow firms to build their own buffer inventory against future shocks. We favor the “Carbon Fed” provision of Lieberman-Warner as a flexible and discretionary cost-management provision that should make inclusion of a safety valve unnecessary.

- f) Auction/Allocation: We do not agree with many who think 100% auctioning is imperative at the outset. We do support auctioning a meaningful (and growing over time) portion of the allowances in order to garner revenue for both: providing revenue the government can use to subsidize RD&D on carbon-mitigating technologies.
- g) Early action: We favor allocation of credit for early-action emissions reductions since a date prior to enactment – perhaps 2002 – as long as authoritative third-party benchmarking and validation is documented.
- h) Offsets: We strongly believe that offsets should be allowed as part of the overall cap-and-trade program since they can reduce costs and increase flexibility. We oppose geographic or quantitative limitations on offset credits so as to maximize the opportunity to reduce GHG emissions at the lowest cost. As for international offsets, we favor allowing them on a 1:1 or adjusted basis for specific project types to the extent they can be screened to those assuring a similar level of accountability and project rigor. We favor broad eligibility for offsets among technologies, selectively using allowance multipliers to provide an early stimulus to some technologies that may be higher on the abatement cost curve but crucial to providing a large magnitude of reductions (e.g., for Carbon Capture and Storage). Offsets should be real, additional, independently verifiable, permanent, enforceable, and transparent. A protocol or standards-based approach should be used rather than case-by-case review to assign offset credits to avoid bureaucratic slowdowns.
- i) Border carbon levy: We believe Congress should actively consult internationally, especially with China, in formulating the provision of the domestic bill intended to preserve international competitiveness of U.S. industries vis-à-vis competitors in initially uncapped developing countries. We believe that a formula could be incorporated into the domestic legislation that anticipates strong linkage to the international agreement yet to be negotiated. We recommend that if the border carbon levy concept advanced by AEP and the IEBW and incorporated in the Lieberman-Warner bill is included, that it be modified as follows. The Congress should anticipate that future national targets under the global cap will need to allow development headroom for developing countries, while not overly disadvantaging the U.S. by virtue of its higher per capital emissions. So we would propose a target composed 50% on the basis of emissions per capita (U.S. is higher than China in this factor) and 50% on the basis of emissions per unit of

GDP (in which China is higher than U.S.). Then, the carbon border levy could be adjusted by this blended target factor. We believe a compromise along these lines could mitigate Chinese and other developing country objections to this provision, while paving the way for a compromise on targets in the post-Kyoto regime that would be compatible with domestic U.S. legislation.

- j) Nuclear: We advocate favorable treatment of nuclear power in any carbon regime, and broader continuation of loan guarantees, liability coverage and production tax credits that are contributing to the nascent nuclear “renaissance”.

By the way, we would suggest adding one other provision to the carbon bill. We believe Congress needs to conduct more careful carbon accounting, akin to standard budget scoring, for all its proposed bills – whether directly energy-related or not. This could be accomplished through an in-house capacity, at the Congressional Budget Office for example, or through reliance on another governmental or non-governmental body. The purpose would be to avoid ill-informed policies that exacerbate our economy’s carbon performance, and potentially nullify some of the gains from the expected comprehensive carbon bill.

This change would accommodate a more prominent policy focus on CO₂ in our nation’s policy-making. While such an innovation might seem bureaucratic, such procedural advances have made a big difference in achieving substantive policy goals in the past, as in the case of the National Environmental Policy Act’s requirement to perform Environmental Impact Statements.

For example, Congress should make carbon mitigation a central, defining criterion for all provisions of the coming Reauthorization of the U.S. Transportation law (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which authorizes the 5-year period 2005-2009).

With this capability, Congress could apply analytically rigorous lifecycle carbon accounting as it apportions RD&D dollars for technologies. It should allocate dollars to those technologies capable of delivering maximum emissions reduction per dollar expended over specified timeframes, recognizing that the potential for R&D breakthroughs on future technologies cannot be fully quantified. In general, we believe that a CO₂ accounting approach would likely limit policy support for hydrogen fuel cells, and increase support for efficiency, geothermal and CCS.

Two examples serve to underscore the value of Congress having this new analytical capability: our biofuels policy and the widespread use of imbalanced scoring of the GDP costs of carbon regulation without valuing at all the avoided costs of inaction.

MissionPoint believes our biofuels policy has been sorely misguided from a carbon standpoint. Our firm is research driven, so we carefully identified what categories of impacts other Life Cycle Analyses had left out. We found that the adverse environmental and carbon impacts had not been fully recognized, including increased N₂O emissions

from increased fertilizer use or the hypoxia in major water bodies such as the Gulf of Mexico resulting from fertilizer runoff, which in turn imperils the CO₂ absorbing ability of such water bodies.

A big question is what the implications will be of the additional evidence published this year of the “carbon debt” that accrues when carbon is emitted by land displacement (deforestation and release of soil carbon) to grow biofuels. EPA is reportedly assessing now whether to incorporate such international land-use changes in its life-cycle analysis.

The 2007 energy law imposed a 20% lifecycle improvement requirement on biofuels (50% for advanced biofuels) alongside its mandate for a ramp-up to 36 billion gallons. MissionPoint advocated against this Renewable Fuel Standard before its passage.

At this point, MissionPoint would suggest that if biofuels prove unable to attain this codified lifecycle requirement, that the standard not be waived in response to political pressure, but that an alternative fuel source be pursued. One that would offer great efficiency gains, as well as energy independence advantages, would be to allow Fuel Electricity (i.e., electricity generated and transmitted to plug-in hybrids and electric vehicles) to count toward the RFS on a Btu- equivalent basis. This would:

- Create an alternative to the scale-up of biofuels, with all their adverse environmental consequences and limited carbon mitigation potential;
- Stimulate one of the most attractive carbon-mitigating technologies in existence – the plug-in hybrid. Note that even if the electricity were sourced from coal, the pick-up in efficiency from moving from a conventional combustion engine to an electric drive train would still be dramatic;
- Elicit support from the utility and merchant power sectors by awakening them to the tremendous opportunity they have to expand their market into the transportation sector;
- Reduce the amount of land that would need to be diverted from other uses to provide an equivalent scale of energy (given the higher energy conversion of a photovoltaic cell relative to plant matter on a per square meter basis);
- Be a winner with consumers, as the vehicle stock turned over, given that fuel electricity would cost them less than gasoline per mile traveled.

A second argument for building this carbon accounting capability comes from the gathering, and potentially decisive, debate over the GDP costs of various carbon bills, and the likelihood that this issue will be revisited many times during its multi-decade implementation.

MissionPoint believes that arguments about the costs to GDP from imposing a price on carbon must confront the intellectual honesty of accounting for the severe, and much

greater, costs of inaction (i.e., climate change impacts). The Stern Report out of the UK, and many other analyses, have shown that the GDP costs of inaction are likely to outweigh the calculated GDP costs from carbon pricing by a factor of 5 to 1.

This is before allowing for the income and job creation resulting from stimulus of low-carbon technologies and business models, including efficiency, which will at least partly offset the costs to carbon-intensive sectors.

My fourth point is that we would encourage the Congress to consistently frame the objectives of its new energy policy to promote the broad set of low-carbon energy options, rather than renewable energy only.

We invest vigorously in renewables, but the low-carbon playing field – both for policy and investing – is much bigger than that. There are large, often cheaper, and more immediately available carbon reduction opportunities in seemingly mundane areas like optimization of fossil fuel plants or emerging areas like Carbon Capture & Storage (CCS) on coal plants.

Though not as iconic or photogenic as a new wind turbine, many of these pathways offer higher emissions avoidance per dollar invested than renewable energy, partly due to the large and centralized carbon flows they target. This would include greater capture and use of waste heat from industrial and power plant facilities, an underutilized resource that exceeds our economic renewable energy potentials.

MissionPoint believes that there is a widespread perception that Carbon Capture & Storage is a futuristic technology, when we believe it could start relatively soon if the policy stimulus and framework is delivered.

Because of our broader view of the low-carbon playing field, we were concerned that the House deferred beginning its work on a comprehensive carbon bill last year in order to first pass an energy bill that focused largely on renewable energy (though it did also contain good efficiency provisions and directed EPA to inventory waste heat sources). Some immediately touted the carbon mitigation benefits of that bill as if to check carbon legislation off the to-do list, when in fact its carbon reduction contribution is nowhere near what the science is calling for.

MissionPoint is not just investing in renewable energy.. We have a much broader view of the carbon mitigation potentials in the energy industry that encompasses a vital but less-emitting role for fossil fuels.

Advanced Aerofoil Technologies, AG (“AAT”)

For example, one of our portfolio companies, AAT, which is based in Switzerland, is a supplier of products and services for the industrial gas turbine industry. AAT was founded as a partnership between MissionPoint Capital Partners and MTS AG, a provider of combustion solutions for gas-fired and thermal power plants since 1995. AAT’s core

team is comprised of seasoned engineering, operations and marketing executives from the world's best known power system companies including ABB/ALSTOM and GE Energy.

AAT's hardware division manufactures structural components for OEMs of heavy-duty gas turbines. The division's proprietary fabrication processes, which result in unprecedented control over cycle-time, yield and reliability, will allow its OEM customers to accelerate the introduction of higher turbine efficiency performance and lower environmental impact.

AAT's software division provides power plant owners with a suite of optimization products for startup, shutdown and base-load operations that increase power availability while simultaneously reducing fuel usage and emissions. Widespread deployment of this technology will provide attractive, unsubsidized economics and mitigation of CO₂ emissions.

Global markets for thermal power plant application software and gas turbine structural components exceed \$1 billion and \$3.8 billion per year, respectively.

AAT is an investment play on the widely expected acceleration of natural gas power plant installations flowing from the carbon price signal – we will need to use this increasingly precious fuel efficiently. The gas turbines capable of being optimized by AAT account for 33% of capacity but will be 63% of non-coal capacity growth from 2006-2016. Industrial gas turbines will remain the preferred method to convert fuel to power and steam within industrial and utility-grade applications. Major OEMs like GE, Siemens, ALSTOM, Mitsubishi, and Hitachi are increasing their R&D and commercial resources in this area in preparation for a sustained, long-term growth cycle – we will be there to service them.

MissionPoint recognizes that challenges do exist in balancing the need for clean, renewable energy with a global economy still largely powered by hydrocarbons. For example, some may be concerned that the general proposition of facilitating options like fossil optimization entails extending rather than transcending the fossil fuel era. But there is a contrary and very real risk, which is relying on renewables as our primary vehicle and therefore not reducing emissions materially in near term. Non-hydro renewable energy faces enormous constraints in scaling-up from its miniscule portion of global energy to displacement of fossil fuel in the next few decades.

Further, the generally low power density of renewable energy relative to hydrocarbon fuels implies substantial land-use challenges. Its intermittency often requires fossil fuel backup power, thereby negating much or all of the carbon benefit and exacerbating its cost disadvantage vis-à-vis fossil power. Its remote location makes its scale-up contingent on massive additional investment in T&D infrastructure. And even where it succeeds in gaining interconnection, the intermittent renewables, especially wind, generate reactive power and harmonic problems that have prompted some utilities to turn away from incremental wind as penetration increases. All of these are good and valid

reasons to invest in technologies that reduce the carbon impact of hydrocarbon fuels, rather than relying on renewables as the sole near-term panacea.

Another reason to keep fossil power on the decarbonization playing field is that some of the best opportunities for renewables themselves are in hybrid configurations with fossil power. Two quick examples are biomass co-firing in coal power plants, and use of concentrating solar power to pre-heat feedwater in coal plants, thereby increasing its efficiency and avoiding the interconnection barriers we just discussed by piggybacking on that plant.

With regard to CCS, MissionPoint believes that it is time for the federal government to take concerted action to accelerate its deployment. The 40-50% cost premium required on top of the coal power price to do CCS is often cited as evidence that it remains cost-prohibitive. However, on a cost per ton avoided basis for CO₂, CCS compares favorably to unsubsidized wind power, for example, especially once the wind power cost is fully loaded with the cost of standby backup power needed to firm up its intermittency.

When we invest in the scale-up of technology, it's also crucial that policy-makers account for not just the cost per ton avoided, but also the magnitude of reductions attainable in a given amount of time. CCS offers concentrated emissions reduction opportunities relative to the dispersed and prolonged avoidance through deployment of renewables.

Those who point to the leakage risks associated with CCS seem to forget that the leakage rate on coal plants today is 100% – literally every CO₂ molecule is being emitted. Why is it that we think it is somehow safer to put CO₂ into the thin ribbon of our atmosphere than into the massive underground, where hydrocarbons came from in the first place? Perhaps it is the illusion of infinity in the sky and the relative perceived nearness of underground threats.

But whatever the psychological rationale, it is mistaken. Excess, man-made CO₂ in the atmosphere is today widely accepted as a primary cause of climate change and we would be well advised to accelerate deployment of technology to put it in a safer place – namely underground.. As of today, we are letting the perfect be the enemy of the good when it comes to Carbon Capture & Storage.

MissionPoint frequently visits West Texas, where they are today injecting millions of tons of CO₂ each year – and have been doing so for 30 years and longer. We encourage members of Congress to make a similar visit to ascertain the world-leading level of experience our country already has in compressing, transporting and injecting CO₂.

Some point to the ultimate scale of a CCS pipeline as evidence that we cannot get it done – and one dramatic benchmark cited is that capturing and piping 60% of the CO₂ produced by power plants today would require an infrastructure equivalent to the entire oil pipeline network operating today in the U.S. True perhaps, but the fact that the entire infrastructure cannot be built overnight is no reason not to start now – capturing the CO₂

from even 10 plants would be meaningful given the 6-10M tons/year that is emitted by each one.

MissionPoint has scouted CCS opportunities around the world, and is prepared to put significant capital to work in this area. But apart from CO₂ Enhanced Oil Recovery opportunities, CCS is largely a pure-play in carbon mitigation – meaning it’s a technology we will only adopt if Congress creates a carbon price signal. Current proposed legislation provides bonus allowances for CCS, which MissionPoint strongly favors.

DOE’s revamping of FutureGen to support CCS on a series of real commercial projects, rather than a single high-priced R&D testbed was a good step. Other support MissionPoint would like to see includes:

- Need government funding to build CCS backbone pipelines, similar to the proposal by the Midwest Governors to underwrite one in their region, and then investment tax credits for private funding of pipeline spurs;
- Need the government to supplement the incomplete market for insurance and liability risks, especially given the lack of actuarial data. This may include service as a backstop during operational phases and government assumption of post-closure liability;
- We need Congress to invest in its own “literacy” on CCS and then to explain it to their constituencies, so that it does not die in the crib due to exaggerated fears;
- Need expedited government risk-sharing funding of large scale demonstrations (5 million tCO₂/yr, not the more commonly discussed 1 million ton) in a range of geologies in next 5 years;
- Need to prevent coal-to-liquids projects from being permitted without CCS, particularly if any taxpayer subsidies are involved;
- Need to condition eligibility for public funding or subsidies for advanced coal projects on incorporation of CCS;
- Need to ensure that the U.S. EPA expeditiously completes its rigorous, formal public process to formulate effective regulatory protocols and Underground Injection Control guidelines governing long-term carbon storage;
- Need to ensure that new coal plants built without CCS are not awarded free allowances in any future regulatory program to limit greenhouse gas emissions – as of the date of legislative proposal, not enactment;
- Policies should distinguish natural from anthropogenic CO₂, providing allowance credit only for injection for the latter;

- Should allow CO₂ injected after use for Enhanced Oil Recovery count for carbon allowance credit, unless it is naturally sourced CO₂. EOR that results in long-term CO₂ storage should fully qualify as CO₂ sequestration, rather than being penalized. EOR, as well as Enhanced Coalbed Methane Recovery, can be crucial bridging applications for CCS and should not be disadvantaged. The political and popular desire to penalize the fossil industry and expedite the paradigm shift to renewables should NOT stop us from providing incentives to the fossil fuel industry to decarbonize their near-term activities.

CCS is so critical that a fall-back instrument should be proposed in case carbon legislation, including the CCS multiplier for carbon allowances embodied in some current bills, does not pass and stimulate an accelerated adoption cycle:

- Treat CCS as Best Available Control Technology for all new or modified power plants, and administer it through the Clean Air Act (an option that should be open to the EPA after the April 2007 Supreme Court ruling; or;
- Create a separate and tradable Low-Carbon Obligation for Coal Power (as advanced by Robert Williams of the Princeton Environmental Institute) that, analogously to the RPS, requires utilities to deploy CCS on a specified and growing share of their coal power (i.e., stated as a standard such as ~95kg CO₂ per MWh, which is equal to 90% capture off a coal plant today);

My fifth point is that while we believe it is important not to oversell “efficiency” as the single panacea offering all the painless carbon mitigation we need, there are enormous opportunities here that are untapped, often because of financing gaps.

The recent McKinsey study “Reducing U.S. Greenhouse Gas Emissions” documented the extraordinary emissions reduction opportunities available at negative cost – meaning they will save rather than cost money. This fits the MissionPoint core investment thesis, which is that low-carbon technologies are already commercialized, but need to be pulled through via a combination of strengthened policy and entrepreneurial market participants.

To take just one of hundreds of studies, a recent report by the American Council for an Energy-Efficient Economy reports that by adopting energy efficient strategies Florida will save \$28 billion, offset the state’s entire future growth in electric demand by 2023, and create more than 14,000 jobs in 2023.

We would caution that efficiency gains classically produce rebound effects. Like any other commodity, as the price of energy services goes down (via increased energy efficiency), more of those services are used. Second, many behavioral studies have shown that some efficiency potentials remain untapped not out of ignorance but out of real performance disadvantages of the more efficient product. So the high imputed discount rates that appear irrational when trying to explain the slow diffusion of energy

efficiency are often explainable based on preferences, non-trivial behavioral obstacles, or rebound effects.

MissionPoint believes it is important that Congress and others avoid suggesting to Americans that carbon mitigation, especially at the stringency levels we need to undertake, will be costless. If we do, then the emergence of higher power and fuel prices under a carbon regime will produce a backlash and risk survival of the policy.

Recognizing the perils of underestimating barriers to efficiency, MissionPoint has diagnosed key financing gaps that tend to slow its penetration in key markets. One of our portfolio companies – Hannon Armstrong, LLC – is the market leader in securitizing Energy Savings Performance Contracts (ESPCs) with the Federal government and is increasingly extending into commercial and industrial accounts. The ESPC contractual vehicle was statutorily created in 1978 and amended in EAct 1992, and has saved the federal government billions of dollars. They offer a way for the government to get the lifecycle savings from efficiency improvements, without appropriating the dollars for the upfront investment.

Despite this, over the past year, the DOD has used very little of the authority it has to tap into third-party financing and execute its widespread energy efficiency opportunities. MissionPoint believes that DOD, and other agencies, should be using this vehicle to at least attain the specified levels of required efficiency spelled out in EACT 2005 and strengthened in 2007 via Executive Order. It calls for agencies of the federal government to attain year-over-year energy intensity reductions to 3%, culminating in a total energy intensity reduction of 30% by 2015.

We would urge Congress to seek to remedy the declining use of this vehicle by DOD, in particular, using any means within the Congress' formal or informal authority.

Moreover, we believe Congress should authorize DOD to use ESPCs for mobile platforms, as encouraged by the Defense Science Board Task Force on DOD Energy Strategy "More Fight – Less Fuel". To take just one example, re-engining the B-52 fleet would yield net savings of \$11 billion.

The major impediment to this expansion of ESPC authority today is a scoring conflict between the Congressional Budget Office (CBO) and the Office of Management and Budget, wherein CBO consistently and inexplicably fails to account for the energy savings side of the ledger in its cost estimates of enabling legislation. We would encourage the Committee to look into this given the clear contribution such large-magnitude efficiency improvements could make to our energy independence and greenhouse gas emissions goals.

Conclusion

MissionPoint genuinely aims to mitigate climate change, recognizing that we as a planet are already committed to serious effects but that it still may be possible to stave off the

worst. In doing so, we believe we will produce outsized profits for our investors, and generate extraordinary economic and job growth for the American economy. We bring great commitment and investment discipline to this worthy task.

Thank you for the opportunity to provide our input to the Congressional deliberations.