I was asked today to discuss the American Security Project’s interests in energy policy, and fusion in particular.

Our interest is this: America needs an energy system that is secure, stable, and sustainable.

Our current system is failing us.

We are at the mercy of wild swings in global commodity prices.

The well-being of the American economy is adversely affected by fluctuations in global energy markets. These energy markets are affected by diverse and seemingly unrelated events. For example, we saw the events of the Arab Spring cause a spike in oil prices to over $120 dollars per barrel in April and May. Revolutions on the other side of the world should not harm American consumers.

This compromises our national security by ensuring that policymakers in the Pentagon, Foggy Bottom, and the White House have to think more about what impact their decisions will have on gas prices, rather than how their decisions could improve America’s place in the world.

Even more importantly, our energy system is failing us because of the long-term damage that the world’s dependence on fossil fuels for energy is doing.

No matter what you hear in the debate across the street in the halls of Congress, climate change is real, it is happening now, and it is accelerating. We can argue forever over whether climate change is caused by humans, but the truth is that chemistry does not argue back – it simply is.

We are not acting to reduce the potential damage from climate change. We saw an important agreement emerge this weekend from the UN negotiations in Durban, South Africa, but we know that action on a meaningful, verifiable international agreement to limit greenhouse gas emissions is still many years away.

Heedless of international treaties, meanwhile, emissions are growing faster than ever before. The Global Carbon Project said that the growth in emissions in 2010 was the largest in any year since the Industrial Revolution. Numbers from the IEA and the U.S. Department of Energy concur: global emissions are running at the top end of any projections.

If this continues, we are on a trajectory that could have consequences that range from the very bad to catastrophic.

As an institution devoted to America’s long-term national security, the American Security Project is very concerned about risk management. When we’re dealing with a system as complex as the global environment, prediction is nearly impossible – though I know that some of the most powerful computers in the country are working on this problem as we speak.

Risk management means that we have to look at all probabilities, work to reduce the damage of the most likely, and do everything we can to avoid the most damaging. We are not doing that.

If emissions continue on the path they are on right now, we will blow through the 2 degree Celsius limit set for ‘safe’ warming and move quickly into the range of 4 to 6 degrees of warming. That increases the changes of some very bad outcomes, including: more damaging tropical storms, reduced food supplies, flooding in highly populated delta cities, and the desertification of wide swaths of Africa and Asia. Each of these hold potential for conflict, but none of them are pre-ordained.

We should be clear that such events would be a direct threat to global security, and hence to the national security of the United States. This is not exaggeration.

This is not a problem for tomorrow, but it is one that requires long-term, strategic planning. Our political system is struggling with long-term anything right now.

So – we have a mismatch.

On the one hand, our energy system causes significant immediate harm to America’s economy and security, while presenting a risk of catastrophic consequences in the longer term.

On the other, the actions, both taken and planned, by our government and indeed governments around the world, are incapable of meeting this challenge.

I am worried that by the time we understand the scale of this problem, and the risks that it poses, it will be too late to act on them.

So – what is to be done?

In the short-term, beneficial policies like increasing energy efficiency and the deployment of solar and wind energy can begin the process of de-carbonizing our energy system. We have already begun this process.

But – that can only get us so far. Within twenty years, we will need an energy source that is able to provide large-scale, baseload carbon-free electricity at a commercially deployable scale.

Fusion should be that energy source. **If harnessed by humanity, fusion promises nearly unlimited energy, without pollution.** You all know the figures: one pound of hydrogen fusion fuel is capable of yielding as much energy as is contained in 10 million pounds of coal.

However, the American public, our politicians, and our business leaders are not yet demanding the investment in fusion that is necessary.

Real leadership, though, is not about reacting to the whims of consumers or the vague desires of the electorate.

Instead, we should listen to Wayne Gretzky, who, when asked how he was so successful said; “I *skate to where the puck is going to be, not where it has been.”*

Leaders have to know what the public will need before the time comes.

It is important for you all in this room to know that there will be an urgent need for your work on fusion. You may not hear that urgency from across the street in Congress right now, but someday you will.

This is a challenge for you: by the time we need fusion as an energy source; we will need that technology to be ready.

But – even more so – this is a challenge to our political leadership.

We are not asking for a Manhattan Project – type level of national commitment.

Instead, what we need is a national roadmap for how to commercialize fusion. That means that we need a plan for when and where to build pilot plants, a plan for how to engage business, a plan for how fusion will be regulated, and a plan for how to work with – and compete against – other countries around the world.

I am not worried about funding levels, or annual appropriations, or bureaucratic box-shuffling. Once we have a coherent roadmap – that will all follow.

We know that the time for commercial-scale fusion power is not yet here. But, we also know that unless we do the work now – skating to where the puck will be in a decade or two – we will not be able to take advantage of it when the need for fusion arrives.

Thank you for your time. I look forward to learning a great deal from this conference.