

**Testimony of:**  
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Chairman Murkowski and members of the Committee, thank you for the opportunity to testify.

The time has come for a foundational re-imagining of U.S. energy policy to reflect the new realities of the 21<sup>st</sup> century.

It is unremarkable to note how many fundamental changes have taken place in the world over the past several decades. In June 1985, when President Reagan had just begun his second term, the Soviet Union was still extant, Apple had been a public company for only four years, the Internet was still nearly a decade in the future, and the word “cyberspace” had only just been invented in a science fiction novel the year before. The concepts and worries about cyber-security were not even in the lexicon of politics.

Meanwhile, it is remarkable to consider how *little* has changed in energy policy domains, despite the fact that underlying energy realities are also profoundly different today.

In 1985, on the occasion of passage of the Amendments to Energy Policy and Conservation Act of 1975, the U.S. was still deeply worried about oil import dependency, and still in the thrall of the idea of “peak oil” – the claim of an imminent end to the very availability of oil and natural gas. And in 1985, the U.S. was the world’s fastest growing major energy consumer, and world biggest oil importer. The facts have flipped.

Today America is the world’s fastest growing energy producer, and is well on the way to rendering talk of oil import dependency irrelevant. In fact the debate of the day is now over the opportunity for U.S. petroleum exports. On the demand side, we now live in world now where all significant growth in fuel use takes place elsewhere.

The other foundational shift over the past three decades with energy relevance has been the astonishing growth of the digital economy. The share of the U.S. GDP now associated with information – counting everything from data centers to digital movies, from coding software to making microprocessors – is today 300 percent bigger than the share of our GDP associated with transportation. And the former is growing far faster than the latter. This digital transformation is making society far more dependent on the cost, security, and reliability of the electric grid.

In general, we live in a world today that has 2 billion more people on earth, in a global economy that is \$30 trillion bigger, and with a civilization consuming 30 million *more* barrels of oil a day compared with 1985. It is also a world where capital spending on information equipment that *consumes* electricity now rivals global capital spending by the entire oil and gas sector to *produce* fuel.

It would have made as much sense for the Congress of 1985 to have forged energy policy on the basis of the facts in play circa 1955, as it does today to stay mired in policies based on the world of 1985.

Permit me to briefly summarize four implications of 21<sup>st</sup> century energy realities

First is the opportunity for the United States to transform its role from oil and gas dependency to global influence. The technologies that underlie the shale revolution are new and have only just begun to unfold. Policies re-oriented around encouraging and facilitating more production, both on private and federal lands, could increase U.S. output well beyond the high levels that have already shocked the world. In particular, decades old restrictions on petroleum and gas exports no longer make sense and are counterproductive.

Second, the resilience and reliability of the electric grid is of paramount importance. Consider: the U.S. economy uses nearly 50% more electricity than in 1985, while non-electric energy use, excluding for transportation, has not risen 10%. Our economy is far more electrified and electric dependent.

Third, the increasing integration of information – the Internet not just of things, but every thing and in particular of the energy infrastructure itself – drives the vital importance of cyber-security. Infrastructure cyber-security is now socially critical, even if it is a less contentious issue compared to the popular debate over personal information security.

Finally, there is the reality of rising global energy use as the world’s economies expand, and billions of the poor finally enter middle class. Hundreds of billions of dollars have been devoted to finding alternative forms of energy to help meet staggering future levels of demand, but 85% of world energy still comes from hydrocarbons. The world needs foundational new technologies that can only emerge from basic research and new science. Here the federal role is vital, both in the direct funding of foundational university research, and also in properly deploying the great repository of scientific talent in America’s national laboratories to pursue core science rather than industrial projects, the latter best left to industry.