Ensuring American Space Launch Competitiveness

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Chairman Palazzo, Ranking Member Costello and distinguished members of the subcommittee, my name is Frank Slazer and I am the Vice President for Space Systems at the Aerospace Industries Association. I appreciate the opportunity to testify before the subcommittee on the Federal Aviation Administration's (FAA) Launch Indemnification Program.

AIA wishes to address this Committee to stress the importance to renew the Commercial Space Launch Act risk management provision, to eliminate the sunset provision of the Act, and remove its indemnification cap for space launch activities

The Aerospace Industries Association (AIA) represents over 350 aerospace manufacturing companies and their highly-skilled employees. These companies make the spacecraft, launch vehicles, sensors, and ground support systems employed by NASA, NOAA, the Department of Defense, the National Reconnaissance Office (NRO), other civil, military and intelligence space organizations throughout the globe, and many of the commercial communication satellites. This industry sustains nearly 3.5 million jobs, including much of the high-technology work that keeps this nation on the cutting edge of science and innovation. The US aerospace manufacturing industry remains the single largest contributor to the nation's balance of trade, exporting $89.6 billion and importing $47.5 billion in relevant products, for a net surplus of $42.1 billion.

US space launch capabilities are essential to our nation's security and its ability to lead in space exploration. To sustain this capability, a healthy US space launch industrial base is needed; as with aviation, to mitigate cyclical impacts, this industrial base would ideally serve military, civil government and commercial customers. Unfortunately, in recent years, our nation's space launch industrial base has been struggling to adapt to reduced demand by government – especially due to the end of the Space Shuttle program - and downward pressures on DOD, NASA and NOAA budgets that threaten to exacerbate the risk to the industrial base. Furthermore, international launch providers have been aggressively bidding and winning commercial opportunities, often with the help of their governments in the form of either financial assistance or low cost financing. The sad reality is that the US launch services industry has had a minimal share of the commercial worldwide market for launches; indeed, in 2011, there were NO commercial orbital launches from a US space port.

Nonetheless, recent private sector investments by US industry – including AIA member companies ATK, Aerojet, Boeing, Lockheed Martin, Northrop Grumman, Sierra Nevada, Space X and Virgin Galactic as well as others - and supportive policies by government agencies are enabling the emergence of new domestic space launch capabilities. These new systems have the potential to increase the US share of the commercial launch market while also opening up exciting new markets. These companies have made their investments

within the existing domestic launch business climate and domestic policy framework, but they face a challenging international competitive environment.

Many foreign launch providers competing against US companies already benefit from generous indemnification rules. For example, the European company Arianespace is required to purchase insurance up to just 60 million Euros (roughly $75 million). Any damages above this cap are the guaranteed responsibility of the French government.[1]

Mr. Chairman, the US space launch industry is not seeking any subsidy. Instead, the US commercial space launch industry requires a stable and predictable business environment enabled by maintaining the existing launch risk mitigation framework for the foreseeable future. FAA's launch indemnification program has been in place for over twenty years – providing critical risk management enabling the emergence of a US commercial launch market, benefiting the broader US space industry, US technological leadership, and ultimately, the US consumer through the launch of US communications satellites - without ever costing US taxpayers a dime.

Under the existing program, the risk exposure of the federal government is managed; FAA controls the level of company insurance required by establishing the Maximum Probable Loss coverage required for each license and Congress ultimately controls the government's assessment of loss legitimacy since a specific Appropriation is required to pay any claims. Moreover, given that the current US risk approach has been in place for so long, it is not clear how much additional underwriting capability is available in the space insurance market; adding new uncertainty will harm US industry.

For the United States to adopt a purely laissez-faire approach to the US commercial launch business, which competes in an international launch market where its Chinese, Japanese, European, and Indian competitors all operate under comparable risk management frameworks would amount to unilateral disarmament: Even if commercial companies could insure for the additional risk exposure commercially, it would add costs their competitors do not include, thus making commercial US launch sales more difficult.

But our rationale for continuing indemnification support is not narrowly focused on its benefits for industry – it also provides benefits for the US Government. When US launch rates were relatively high, the costs for all users – including the US government – were more affordable as the fixed costs of launch infrastructure and investments were spread out over a wider base of customers.

To better understand the importance of providing space launch risk mitigation legislation, understanding the history of US commercial space launch is essential. Two decades ago, American space launch capabilities were a major player in the market - with a high percentage of worldwide commercial launches leaving from our spaceports.

[1] Study of the Liability Risk-Sharing Regime in the United States for Commercial Space Transportation by J. A. VEDDA, Center for Space Policy and Strategy, National Space Systems Engineering, The Aerospace Corporation. 1 August 2006, Page 58.

Figure 1 shows how large the US share of commercial space launch was from 1990 – to 2001. The benefits to the US economy were also significant; in 1999, according to a study by the FAA's Office of Commercial Space Transportation, commercial space transportation and enabling industries were responsible for $3.5B in economic activity and over 28,000 jobs – by 2009, those numbers had shrunk to $827M and just under 4,000 jobs.

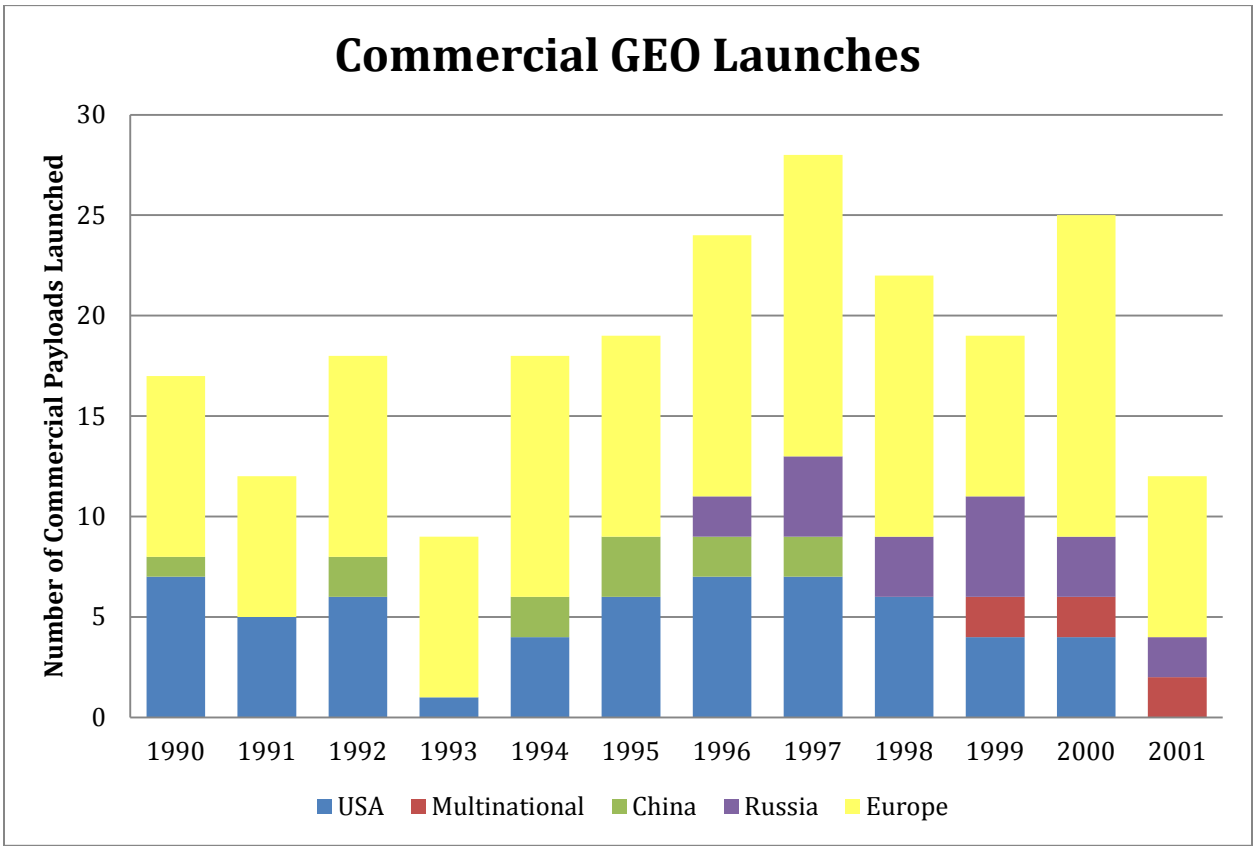

FIGURE 1 – Commercial GEO Payloads Launched by Country from 1990- 2001.
Source of data: FAA Office of Commercial Space Transportation.

The US launch market share began a precipitous decline (see FIGURE 2) as a result of the collapse of the Soviet Union – which brought large numbers of Soviet developed Russian and Ukrainian launch capabilities into the market with a cost structure far below US prices. Additionally, in this same timeframe, there was the advent of the more capable Ariane 5 launch vehicle, developed by the European Space Agency.

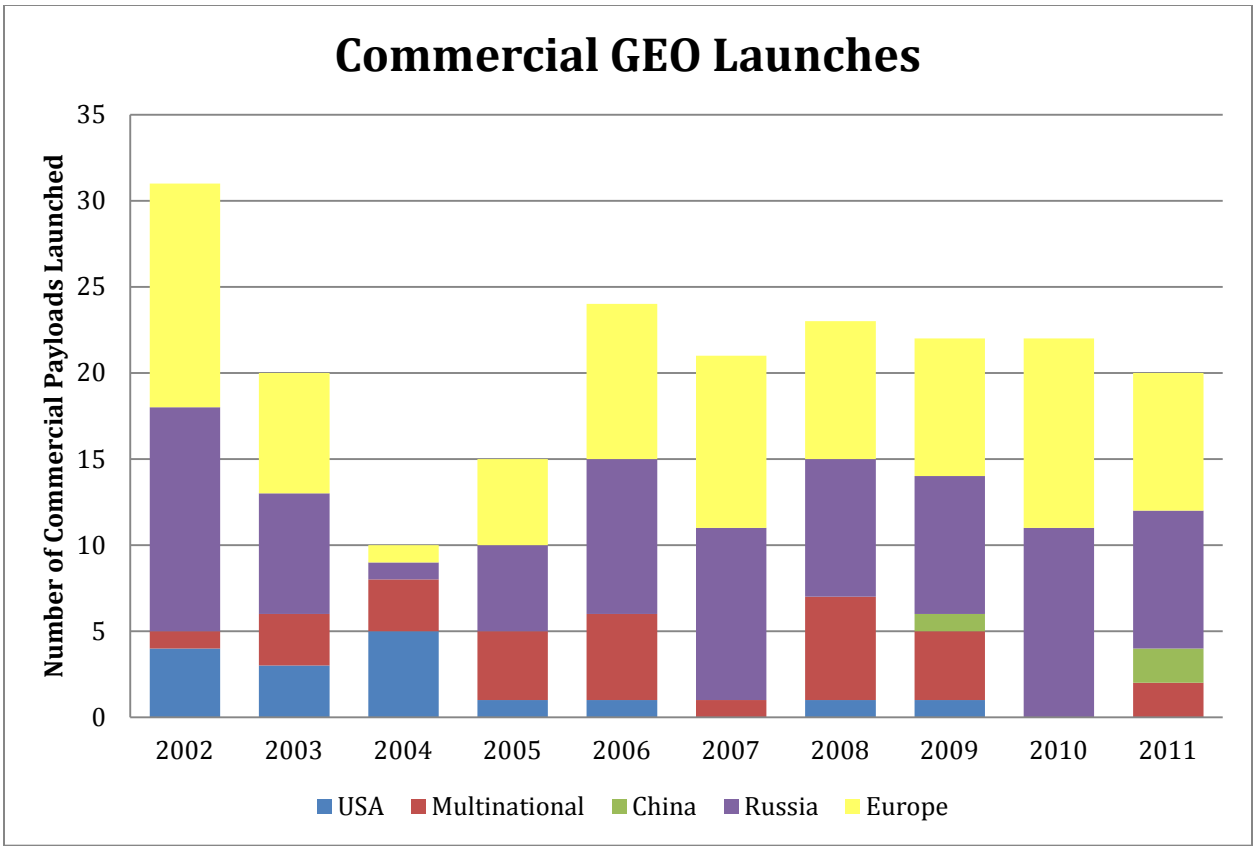

FIGURE 2 – Commercial GEO Payloads Launched by Country from 2001- 2011.
Source of data: FAA Office of Commercial Space Transportation.

In subsequent years, US government launch costs have risen substantially – partially due to the shift of commercial satellite launches to much lower cost foreign systems. This has also adversely impacted the space industrial base – an industry base significantly impacted already by the wind down of the Space Shuttle program. The success of the new launch ventures is also important to the federal government since they offer the real potential to reverse this trend.

Recent Space Launch Developments

Fortunately, American industry has been making investments to capture new space launch business opportunities utilizing innovative new systems – from launching commercial communications satellites more cheaply to supporting the International Space Station and creating new opportunities for private citizens to experience space flight. These investments – and the willingness of the private sector to commit their own resources to create new US launch capabilities is a uniquely American development; no other nation in the world has a significant private sector effort underway – yet, in the US, a number of new systems, with a mix of private and government contract funding are in operation or under development. With good insight from the FAA's Office of Commercial Space Transportation and the workforce and design expertise developed by over fifty years of space launch

investments by NASA and DOD, these new systems should soon enable our nation to regain its space launch leadership while creating new markets and thousands of new US jobs.

Figure 3 shows the projections by the FAA COMSTAC (Commercial Space Transportation Advisory Committee) of the potential for 300 commercial space payloads that will require 128 commercial launches through 2021. It should be stressed that this market forecast is a conservative estimate based only on existing markets; future markets for suborbital or orbital launch systems are not included but could potentially greatly increase the number of missions. These space launch investments have also been made in a business environment where, for over two decades, the US government has understood the need for a statutory risk management framework, enabling industry to pro-actively manage the potential liability in the event of a catastrophic accident. This space launch indemnification program is modeled after similar liability provisions for other industries that the government has sought to nurture, including nuclear power (e.g. the Price-Anderson Act) and homeland security related safety technology.

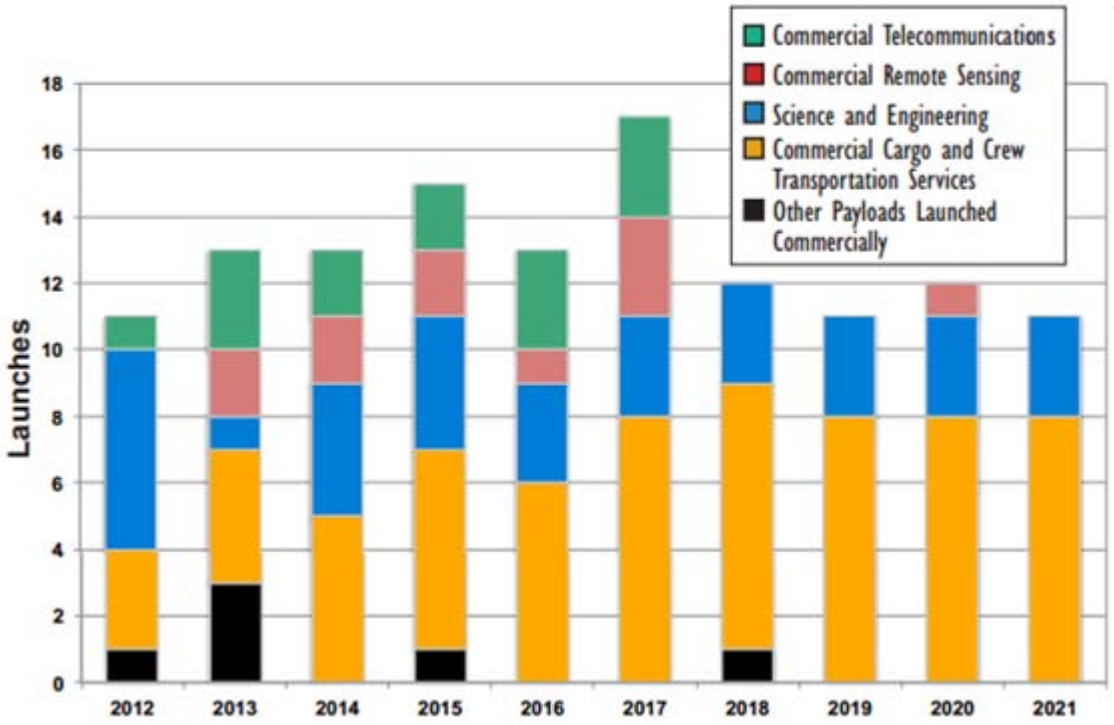

FIGURE 3 - Commercial Space Launch Market Forecast 2012-202.1
Source of graph: 2012 Commercial Space Transportation Forecasts, FAA Commercial Space Transportation and the Commercial Space Transportation Advisory Committee

Mitigating Space Launch Risks

The current FAA approach to risk management has three tiers with substantial industry responsibility:

Tier 1: The FAA calculates the maximum probable loss (MPL) that could result from the licensed launch – that is the damage that could result to uninvolved third parties from the most likely worst case scenario. The launch provider, as the licensee, is required to purchase private insurance for the MPL covering all parties involved with the launch, including the US government. The MPL is capped at $500 million, though rarely is that full amount required by the FAA's calculations.

Tier 2: Subject to Congressional appropriations following a Presidential request, the US government is authorized to pay up to a $2.7 billion cap for third-party claims that exceed the insurance coverage and therefore the FAA calculated maximum probable loss. It should be noted that payments of claims are not automatic and no funds are committed to this regime. Congress can approve such payment and appropriate funding to implement it only if and when a claim is made. To date, no loss has ever occurred that would have triggered this regime, and Congress has never been asked to appropriate funding for the CSLA.

Tier 3: Any third-party claims above the Tier 2 cap are the responsibility of the licensee or the liable party.

The CSLA's risk management regime assures adequate liability coverage in case of catastrophic launch-related events, minimizes government risk exposure, avoids any need for annual outlays while also supporting the US space and national security industrial base. It also strengthens US international competitiveness in a global space launch market characterized by foreign providers offering government indemnification as a standard and discriminating feature of their services.

By maintaining continuity in the business environment, CSLA supports existing launch service providers and encourages new US entrants into the launch business, ultimately enabling the development of new commercial innovative space markets - both for suborbital and orbital vehicles. In the end then, CSLA helps to keep vital space launch jobs in the United States.

Based on the 2004 Congressionally-mandated FAA Study of the Liability Risk-Sharing Regime in the United States for Commercial Space Transportation conducted by The Aerospace Corporation, the FAA Commercial Space Transportation Advisory Committee (better known as COMSTAC) has strongly endorsed and recommended to the Secretary of Transportation continuation of the commercial space launch risk management regime in the CSLA. The Congressional Budget Office (CBO) has also previously estimated that extending the agency's indemnification authority would have no significant budgetary

effect for 5 years following its proposed extension in 1999. The current risk management regime is exactly the same regime assessed by the CBO in 1999.[2]

Risks of Non-Renewal

The CSLA regime enables US launch providers, like their foreign competitors, to operate without "betting the company" with every single launch. In a competitive market with narrow returns, the loss of the risk management regime would cause US companies to reconsider the risks and benefits of staying in the commercial launch business, suspend activity, and even exit the market.

Failure to renew CSLA would unnecessarily hamstring US companies' ability to compete in the international launch services market. Without the risk management regime, US launch providers appear riskier and more costly to prospective launch customers in a market with numerous foreign launch providers whose governments indemnify launches. As if harming US commercial market competitiveness would not be bad enough, the US civil and national security space communities could also experience increased launch costs for essential government payloads for communications, weather observation, remote sensing, GPS, and other satellite systems that are an integral part of our nation's infrastructure and economy. Without a renewal of the regime, our nation's space industrial base could be foregoing business that would share the fixed cost of space launch from government programs with the commercial market – savings that could be passed on to the taxpayer.

Non-renewal of the risk management regime could also mean an outright exit from the commercial launch market by US providers, making it much harder to sustain high technology space launch jobs in the United States. We cannot afford to drive away highly skilled technical jobs to foreign countries, where the regulatory frameworks provide better critical risk management tools. Lastly, a non-renewal could impede new US entrants to the commercial launch market, discourage future space launch innovation and entrepreneurial investment. Without a level playing field for competition, new US entrants could find it highly undesirable to begin their business ventures in the United States, reversing recent trends.

Updating Space Launch Risk Management for the 21st Century

FAA's space launch indemnification approach began in 1988 when the Congress enacted amendments to the Commercial Space Launch Act (CSLA) of 1984, establishing a regulatory regime for FAA-licensed commercial space launches that included a risk management regime for third-party losses resulting from launch-related activities. Today, this risk management regime factors into all US commercial space launch business decisions and

[2] The CBO's assessment of H.R. 2607, The Commercial Space Transportation Competitiveness Act of 1999 stated that "Based on information from DOT, we estimate that extending the agency's indemnification authority would have no significant budgetary effect over the next five years. DOT has never had to pay claims to third parties for incidents involving commercial space vehicles or services. Thus far, the costs associated with incidents have been small and have been covered by private insurance." H.R. 2607 became Public Law No: 106-405 in 2000, extending the risk management regime to 2004, which was extended again in 2009.

provides a more level playing field for US competitors. The FAA's launch risk indemnification backstop has been renewed 5 times since 1988 – creating the reasonable expectation that it will be renewed in the future without completely eliminating the business uncertainty. But developing space launch systems is a long term effort – not uncommonly five years or more - and launch contracts are typically signed at least two years prior to launch. AIA believes the sunset provision of this law should be eliminated thereby increasing business confidence and promoting additional new investment.

FAA's three tier approach has never been utilized; losses to date have been relatively minor and have never exceeded the commercially-insured Maximum Probable Loss threshold let alone the cap on the federal tier 2 limit. Given that any Tier 2 payout would require a specific Appropriation anyway, AIA recommends that the Tier 2 cap should be dropped and that Tier 3 should be eliminated entirely.

In conclusion, the Aerospace Industries Association sees the continuation of US space launch indemnification as an exceedingly low risk means to support to our nation's vital space launch industrial base that provides substantial upside potential to enable new markets, create new jobs, and assure US space technology leadership for the 21st century. US industry is investing capital and innovative ideas to support this new future and US government agencies and the Congress have also taken important steps that have helped foster these new initiatives. It would be a shame if these nascent capabilities were to be limited in its potential or even founder due to the lack of a level playing field with foreign competitors.

In order to allow US companies to compete on a more level playing field for hundreds of new payload opportunities and creating thousands of new jobs:

- AIA recommends the Congress renew the Commercial Space Launch Act risk management provision (Section 70113(f) of title 49 of Public Law 111–125) well in advance of its expiration on December 31, 2012.

- Given the long lead times for space launch development and operations, the need for stable policies to promote investment and to maximize our industry's ability to be competitive, Congress should eliminate the sunset provision of the Act or at least extend them for a much longer time than in the prior renewals.

- To be consistent with our international competitors, AIA recommends the Congress remove the indemnification caps beyond tier 1 for space launch activities.

I thank you for this opportunity to testify on behalf of the US space industry and I welcome the opportunity to answer any questions that you may have.