



Position Paper:

## U.S. Dependence on Russian Technology

---

July 2014

### **Eliminate dependence on Soyuz for ISS crew transportation and rescue services ASAP**

NSS strongly recommends Congress should increase funding of the Commercial Crew program above the President's request, which was made before the recent Russian announcements putting our access to Russian engines and to the ISS itself into question. [See the NSS position paper on commercial crew](#). An op ed on this topic reflecting the NSS position also [appeared recently in Space News](#).

### **Eliminate dependence on the Russian RD-180 rocket engine**

The U.S. must be self-sufficient in rocket engines for critical functions, both civilian and military.

If Congress and the Administration decide a new rocket engine program is justified to replace the RD-180, it must be about more than replacing the RD-180:

- It must result in multiple liquid fueled hydrocarbon rocket engine development winners to promote competition and innovation and stimulate the entire U.S. aerospace industrial base.
- To increase affordability, to promote risk-sharing and to incentivize results instead of effort, the United States Government (USG) should use "other transactions authority" methods used to successfully develop the RS-68 and Merlin rocket engines. The USG can develop multiple U.S. engines within the same existing budget by using the commercial leverage model and public-private partnerships (COTS-like methods). Further, the use of the commercial leverage model will reduce the development time of new rocket engines from the currently projected 6-8 years, to about 4 years.
- The rocket engine program should also include the development of reusable engines needed by our country in the development of reusable space vehicles.

## **Restore low-cost access to space as a primary goal of U.S. space policy**

Today, the U.S. ranks behind Russia and Europe in the commercial launch market. Russia became a world leader in space launch because it used its subsidized non-market economy to significantly undercut the prices charged by American launch vehicle firms. Projects such as SLS will not result in a reusable or lower cost vehicle.

The U.S. can, and should, leap frog the low-cost launch vehicles from Russia and recapture world leadership in space launch by developing commercial reusable launch vehicles (RLVs) in America. America can achieve this goal by partnering with the U.S. commercial firms developing RLVs such as SpaceX, Blue Origin, Virgin Galactic, XCOR and Masten via commercial leverage models (COTS/CRS/CC); and we should increase and accelerate programs like the DARPA XS-1. For more information on this issue see the [IEEE Position Paper on Low Cost Access to Space](#).

## **Prepare to operate the ISS without Russian support**

Putin's Deputy Prime Minister has threatened to pull out of the ISS in 2020, after which the U.S. portion of the ISS would fall to Earth and be destroyed. It is a fact that if the Russian portion of ISS were detached from the U.S. portion, the American part of ISS would re-enter Earth's atmosphere because it does not have a propulsion module nor a habitation module. Having been warned 6 years in advance, the United States should move systematically but immediately to develop commercial U.S. habitation and re-fuelable propulsion modules before 2020.

We should use the commercial leverage model for achieving this goal, as this method is both proven and cost effective. NASA has already declared its plans to transition to commercial space stations after 2024, and this is a perfect next step to that transition.

In the event of a future change in Russian policy to support the on-going operations of the ISS, the new habitation and propulsion modules can either be used to re-vitalize the ISS for indefinite operations, or to form the core of a new commercially owned LEO space station with NASA as an anchor tenant.

## **Continue to work for greater international cooperation in space**

Even as the US strengthens its own capabilities in space, Congress should also encourage new international collaboration in technology as part of crisis prevention and as part of an effort to avoid becoming isolated. For example, it should push harder for the creation of large, progressive new international markets for space technology, such as Space Solar Power (SSP), as would result from policies proposed by NSS in its statement found at [nss.org/EU](http://nss.org/EU).

**About the National Space Society (NSS):** NSS is an independent non-profit educational membership organization dedicated to the creation of a spacefaring civilization. NSS is widely acknowledged as the preeminent citizen's voice on space, with over 50 chapters in the United States and around the world. The Society publishes *Ad Astra* magazine, an award-winning periodical chronicling the most important developments in space. To learn more, visit [www.nss.org](http://www.nss.org).