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OPINION

America Plays Russian Rocket Roulette

BY RON WAHID

The U.S. is hooked on Russian rocket engines for space launches. It is a dependence that sits awkwardly with America's national-security launch program, which includes systems for reconnaissance satellites and the early detection of missile and nuclear launches. A commercial arrangement with the Russian engine's manufacturer has also undermined sanctions against Moscow's aggression in Ukraine while pampering President Vladimir Putin's cronies.

With U.S.-Russian relations going from "reset" to rubbish in the past few years, why does the U.S. still rely on these engines, known as RD-180s, to power the rockets it uses?

Why send money to the Kremlin when three U.S. companies can do the job and protect national security?

According to the Air Force, the principal custodian of U.S. national-security space launches, there is a need to purchase more Russian engines since the U.S. has failed to provide its own next-generation engines for launches. Not true, says the other side, pointing to several American companies that say they can deliver alternative engines in the near future. SpaceX, which makes its own rocket engines in the U.S., is also flying regularly and reliably today, and reportedly can carry a larger payload into low earth orbit than the most-commonly flown Atlas V launch vehicle that uses the Russian engines.

The outlines of a solution seemed to become clear in December, when Congress passed a statutory ban on using Russian engines for U.S. national-security launches. The National Defense Authorization Act for fiscal 2015

prohibited the use of the engines after 2019. The act also allocated \$220 million to pay for developing a replacement engine. That should have been the end of it.

Yet the Boeing-Lockheed joint venture United Launch Alliance likes the way things work now. It launches Air Force, NASA and other payloads by using RD-180 engines on Atlas V first-stage rockets. So ULA has begun a new campaign to keep using the Russian engines until at least 2022.

The wrangling on Capitol Hill over the RD-180 plays on two types of anxiety. One is about national security. The Air Force and ULA say that if the U.S. stops ordering RD-180s, it may find that domestic replacements cannot be delivered in time (and besides, they want the redundancy that additional Russian engines provide). The late arrival of domestic replacements could set back the scheduling of national-security launches and expose the U.S. to dangerous vulnerabilities when the space-entry capabilities of China and other countries are growing.

From the other side comes the warning that America's dependence on Russian engines is especially dangerous when President Putin at any moment could pull the plug on future deliveries, as Russia has threatened to do in the past. Critics also point out that the Russian RD-180 comes from NP Energomash, an almost entirely state-owned manufacturer, which is financed in part by Russian Banks — such as Bank Rossiya and Gazprombank — which are under U.S. sanction.

Security concerns aside, this is also a commercial fight between the established and the emerging national-security launch providers. Since the U.S. government no longer owns rockets, it pays private companies, such as the Boeing-Lockheed Martin joint venture ULA, for launch services.

But another company, SpaceX, is on track to receive Air Force certification for its Falcon 9 rocket — which uses a cluster of nine of its engines to provide thrust at liftoff. Judging by ULA's published technical statistics, that's more thrust than its baseline Atlas V rocket achieves with its Russian RD-180 engines.

SpaceX says a "Falcon Heavy" rocket, which will be unveiled later this year, will be the most powerful operational rocket in the world "by a power of two." Another U.S. firm, Aerojet Rocketdyne, says its AR-1 engine will also be ready by 2018 or 2019. Yet another U.S. manufacturer, Blue Origin, has said its engine will be online in 2017.

As competing claims fly back and forth, supporters of the RD-180 engines are lobbying for Russian-dependent space missions to continue through the middle of the 2020s. They say the missions would be using the Russian engines for which ULA placed orders before Mr. Putin's annexation of Ukraine's Crimean peninsula in early 2014.

But recent allegations that Mr. Putin's cronies gain big rewards from the RD-180s (by inflating delivered engine costs and taking other markups via various middlemen) are damaging to the pro-Russian-rocket side. After a November 2014 Reuters report on the purchases of rockets with RD-180 engines, Sen. John McCain said in a statement that he had long been concerned that U.S. taxpayers "are paying millions of dollars to companies that may have done no work but merely served as a 'pass-through' to enrich corrupt Russian businessmen connected with Vladimir Putin."

Let's be clear: No one should play down the significance of the Air Force's concern about ensuring reliable access to space. And despite some bluster in Moscow about holding up shipments of RD-180 engines, no reports have surfaced of delivery delays. Moscow desperately needs the hard currency.

Yet why send hundreds of millions of dollars more to cash-strapped Russia when engines from three American companies will be able to launch rockets that can do the same job as Russian-engine-fitted Atlas V rockets? At about \$100 million a launch with an American-made rocket compared with ULA's \$400 million a launch, that's a bargain in more ways than one.

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