CONGRESSIONAL BUDGET OFFICE
COST ESTIMATE

September 7, 2018

H.R. 5503
National Aeronautics and Space Administration Authorization Act of 2018

As ordered reported by the House Committee on Science, Space, and Technology on April 17, 2018

SUMMARY

H.R. 5503 would authorize the appropriation of funds for activities of the National Aeronautics and Space Administration (NASA) and would provide direction on those activities. CBO estimates that implementing the bill would cost $21.1 billion over the 2019-2023 period, assuming appropriation of the authorized amounts.

Enacting H.R. 5503 would affect direct spending by extending NASA's authority to enter into enhanced-use lease agreements. Therefore, pay-as-you-go procedures apply. CBO expects NASA would use that extension to enter into agreements with third parties to construct and renovate energy production, launch, and other specialized facilities. CBO estimates that enacting the bill would increase direct spending by $25 million over the 2019-2028 period. The bill would not affect revenues.

CBO estimates that enacting H.R. 5503 would not increase net direct spending by more than $2.5 billion or on-budget deficits by more than $5 billion in any of the four consecutive 10-year periods beginning in 2029.

H.R. 5503 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA).

ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary effect of H.R. 5503 is shown in the following table. The costs of the legislation fall within budget functions 250 (general science, space, and technology) and 400 (transportation).

	By Fiscal Year, in Millions of Dollars						
	2018	2019	2020	2021	2022	2023	2019-2023
INCREASES IN SPENDING SUBJECT TO APPROPRIATION							
Authorization Level[a]	20,736	21,207	0	0	0	0	21,207
Estimated Outlays	0	13,159	6,522	1,080	271	93	21,125
INCREASES IN DIRECT SPENDING[b]							
Estimated Budget Authority	0	1	2	3	3	3	12
Estimated Outlays	0	*	1	2	2	3	8

* = less than $500,000.

a. H.R. 5503 would authorize the appropriation of $20.7 billion in 2018 for the National Aeronautics and Space Administration. CBO does not estimate any outlays would result from that authorization because appropriations for 2018 have already been provided.

b. CBO estimates that enacting H.R. 5503 would increase direct spending by $25 million over the 2019-2028 period.

BASIS OF ESTIMATE

For this estimate, CBO assumes that H.R. 5503 will be enacted near the end of 2018 and that the authorized and necessary amounts will be appropriated.

Spending Subject to Appropriation

H.R. 5503 would authorize the appropriation of $21.2 billion in 2019 for NASA. (In 2018, the agency received an appropriation of $20.7 billion for its programs.) The bill also would direct NASA to continue International Space Station operations, establish a research office at the Johnson Space Center, and demonstrate a nuclear power reactor for use in space, among other activities. Under current law, no specific amounts are authorized to be appropriated for those purposes. CBO expects that the authorization of appropriations for 2019 includes the cost of meeting those directives. Based on historical spending patterns for similar activities, CBO estimates that implementing H.R. 5503 would cost $21.1 billion over the 2019-2023 period.

H.R. 5503 also would direct the Government Accountability Office and the National Space Council to submit reports to the Congress on space transportation for crew and cargo and the risk of space exploration. Based on the costs of similar tasks, CBO estimates implementing those provisions would cost less than $500,000, and would be subject to the availability of appropriated funds.

Direct Spending

Current law authorizes NASA to lease its underused property to nonfederal entities and to retain and spend any payments from those lease agreements for property maintenance and capital improvements without further appropriation. The authority for NASA to enter into such enhanced-use lease (EUL) agreements expires on December 31, 2018. H.R. 5503 would extend that authority through December 31, 2020.

In the past, NASA has used its EUL authority to lease out buildings and land for nonfederal purposes—for example, providing office space to entities with educational or research missions. In some cases, NASA has allowed limited reuse or redevelopment of those properties; those arrangements result in no significant net costs to the agency.[1] CBO expects that some of the EUL agreements NASA would enter into over the 2019-2020 period would be similar in nature to those previous transactions. Based on NASA's leasing activity in recent years, CBO estimates that the agency would enter into eight additional EUL agreements over the 2019-2020 period with average annual payments to the federal government totaling $225,000 per lease. CBO expects that those lease payments, which would be recorded in the budget as reductions in direct spending, would be offset by an expenditure soon thereafter, so that there would be no net effect on the deficit.

In addition, CBO expects that some of those agreements would contain terms for third parties to construct and renovate energy production, launch, and other specialized facilities.[2] While NASA could use other authorities to enter into similar agreements with third parties, CBO expects the EUL extension under H.R. 5503 would accelerate and increase the likelihood of such transactions. CBO also expects that some of those projects would be governmental in nature because they would be located on federal land and subject to NASA control, and because NASA or other federal agencies such as the Department of Defense would be major users of the services supported by those facilities.

1. More information on NASA's current lease agreements is included in National Aeronautics and Space Administration, Report on NASA's Enhanced Use Leasing for Fiscal Year 2017 (May 2018).

2. NASA recently announced plans to use its EUL authority to enter into an agreement with SpaceX to construct launch support facilities. For more information, see National Aeronautics and Space Administration, "NEPA Documents," *Draft Environmental Assessment for Space Exploration Technologies Operations Area on Kennedy Space Center* (April 11, 2018), https://go.usa.gov/xPxpx.

Thus, in CBO's view, the costs of developing and constructing facilities in that manner are governmental transactions that should be recorded in the budget.[3]

Based on proposed leasing plans and costs for similar facilities, CBO estimates that under EUL agreements that would be finalized over the 2019-2020 period, third parties would invest a total of about $200 million in energy production, launch, and other specialized facilities. The budgetary effects of governmental transactions financed by third parties would depend on the extent and nature of federal support. In CBO's view, transactions financed entirely with equity from private entities should have no net effect on the federal budget because the cost of those activities would be fully offset by income from nonfederal sources.

However, CBO expects that some of those third parties would recover at least a portion of their investments in specialized facilities that are used by NASA or other federal agencies through contracts with the federal government—for example, to launch satellites or other federal payloads into space. CBO considers such financing on behalf of the federal government for government activities to be similar to an agency using federal borrowing authority to improve its physical infrastructure and treats the costs of such transactions as direct spending. As such, the full cost of such long-term commitments that obligate the government to make payments in future years should be recorded in the budget upfront.[4]

In 2016, NASA reported a backlog of about $1.6 billion worth of maintenance and improvement projects across five locations where it currently leases out space.[5] CBO expects that NASA would use its EUL authority to facilitate such transactions over the 2019-2020 period. Based on the federal government's potential share of benefits from any new projects (which CBO estimates would average 25 percent over the lifetime of those projects), we estimate that NASA would use the EUL authority under H.R. 5503 to finance the construction of facilities valued at about $30 million—equivalent to roughly 2 percent of its maintenance backlog at those locations. Based on historical spending patterns for similar activities, CBO estimates that direct spending would increase by $25 million over the 2019-2028 period for those projects.

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3. For more information on the criteria for identifying governmental activities, see Congressional Budget Office, *How CBO Determines Whether to Classify an Activity as Governmental When Estimating Its Budgetary Effects* (June 2017), www.cbo.gov/publication/52803.

4. For more information on the budgetary treatment of third-party financing, see Congressional Budget Office, *Third-Party Financing of Federal Projects* (June 2005), www.cbo.gov/publication/16554.

5. National Aeronautics and Space Administration, *Deferred Maintenance Assessment Report: FY16 NASA-Wide Standardized Deferred Maintenance Parametric Estimate* (September 30, 2016), https://go.usa.gov/xPxd2 (PDF, 1.8 MB).

Uncertainty

CBO aims to produce estimates that generally reflect the middle of a range of the most likely budgetary outcomes that would result if the legislation was enacted. In estimating the effects of H.R. 5503, CBO had to account for several sources of uncertainty.

For legislation that authorizes the appropriation of funds to carry out programs, CBO estimates outlays based on historical spending patterns for the affected activities. However, CBO cannot predict potential shifts in NASA's projects, priorities, and timelines that may affect the pace of future spending.

In addition, if enacted, direct spending under H.R. 5503 could be higher or lower than CBO's estimate because of the following three sources of uncertainty.

- First, CBO cannot precisely predict the extent to which the agency would use the EUL extension under H.R. 5503 instead of its other alternative financing and leasing authorities to facilitate the construction of specialized facilities. In such cases, CBO has adopted a convention of assuming a 50 percent chance of an agency using its discretion under the bill.

- Second, CBO cannot foresee with certainty the value of third parties' investments in such facilities. Generally, investments of higher value would increase the potential for direct spending.

- Finally, CBO cannot predict with certainty whether or how the federal government would use facilities constructed by third parties under EUL agreements. If the federal government is the primary user of the services provided by those facilities, and thus, serves as the main source from which third parties recover their investments, the government's share of indirect financing for and benefits from those projects would be higher, resulting in greater direct spending. However, if the federal government makes little or no use of the services provided by such facilities, the resulting net effect on direct spending could be insignificant or negligible.

Because of those uncertainties, the budgetary effects of enacting H.R. 5503 could differ significantly from those provided in CBO's cost estimate.

PAY-AS-YOU-GO CONSIDERATIONS

The Statutory Pay-As-You-Go Act of 2010 establishes budget-reporting and enforcement procedures for legislation affecting direct spending or revenues. The net changes in outlays that are subject to those pay-as-you-go procedures are shown in the following table.

CBO Estimate of Pay-As-You-Go Effects for H.R. 5503, as Ordered Reported by the House Committee on Science, Space, and Technology on April 17, 2018

	By Fiscal Year, in Millions of Dollars												
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2018-2023	2018-2028
NET INCREASE IN THE DEFICIT													
Statutory Pay-As-You-Go Impact	0	0	1	2	2	3	3	3	3	4	4	8	25

INCREASE IN LONG-TERM DIRECT SPENDING AND DEFICITS

CBO estimates that enacting H.R. 5503 would not increase net direct spending by more than $2.5 billion or on-budget deficits by more than $5 billion in any of the four consecutive 10-year periods beginning in 2029.

MANDATES

H.R. 5503 contains no intergovernmental or private-sector mandates as defined in UMRA.

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