“Political” issues associated with return to the Moon

Bruce Jakosky

How could there possibly be political issues?

- Moving up date of return from 2028 to 2024
  - Politics and Trump re-election
  - Technical development required
  - Funding/cost
  - Replacement of Gerstenmaier as AA for HEOMD
- “First woman and next man”
- Launch vehicle
  - SLS versus other
  - Requirement (?) for Gateway
  - Orion capsule
- Current status of program
  - Funding (and NASA budget)

SLS capability

- Boost to orbit, 95 t (block 1, based on shuttle solids), 130 t (block 2, with advanced boosters)
- SpaceX Starship, 100 t (initially), 150 t (goal)
- Falcon 9, 23 t
- Falcon 9 Heavy, 64 t

From Space.com on line

NASA Chief Says Returning Astronauts to the Moon Could Cost $30 Billion

By Meghan Bartels June 14, 2019

During an interview with CNN that aired today (June 14), NASA Administrator Jim Bridenstine offered his first concrete budget estimate for the agency's current lunar aspirations, a plan that has been dubbed the Artemis program. That plan includes recruiting commercial companies and international partners, building a lunar space station, landing humans at the moon's south pole by 2024 and framing the whole project as practicing for Mars.

NASA budget for next year (as of 17 Dec.)

- Congress agrees to $22.6B budget for FY20
- Includes $6B for SLS, Orion, Exploration Ground Systems
- Exploration R&D, $1.4B; includes $600M for cis-lunar and lander studies, less than the $1.0B request
- On track for 2024 landing?

SLS and Orion cost

SLS:

- Estimates hard to come by
- Estimated $14B through 2018
- Estimated $41B through lunar missions
- Estimated incremental cost of $1.5-2.0B per launch

Orion:

- Cost to date, $18B (current-year dollars)
- Estimates not given, but maybe $2B/year into the future

Total Artemis cost estimate (very rough):

- SLS $41B
- Orion $25B
- Lander/Gateway $30B
- Total $96B