

APS-U PROJECT UPDATE



Elmie Peoples-Evans
APS Upgrade Project Manager
PSC All Hands Meeting

April 27, 2022



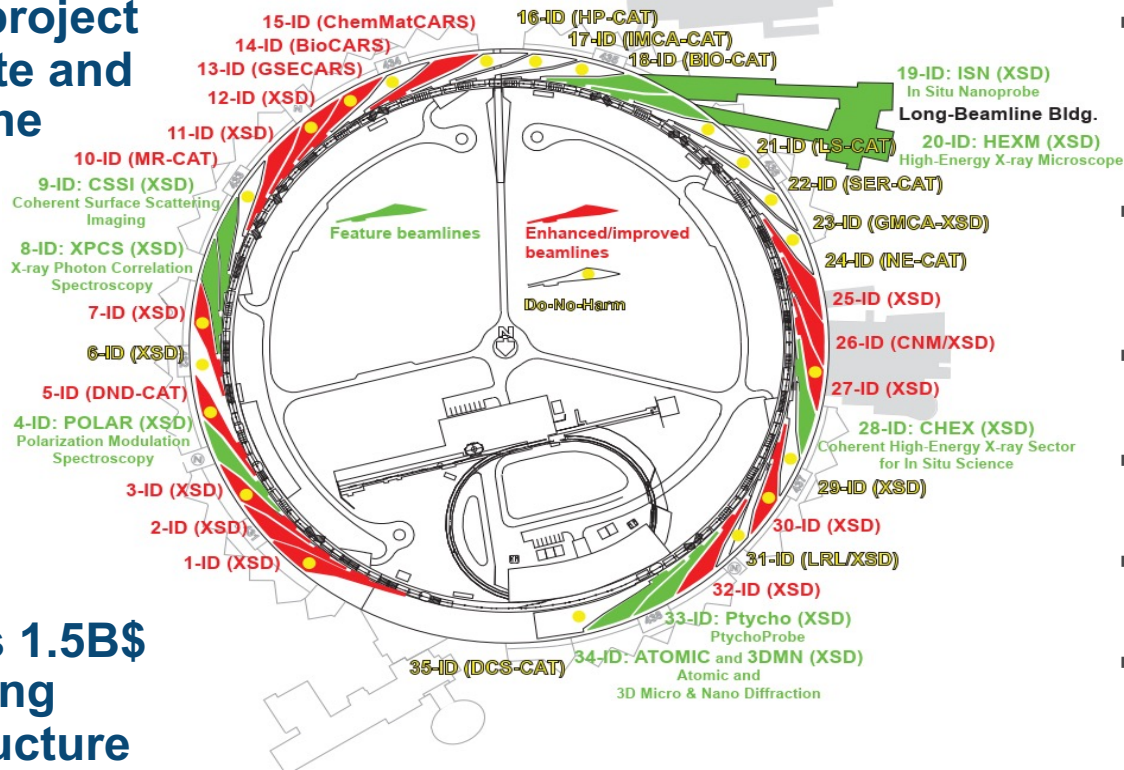
Argonne National Laboratory is a
U.S. Department of Energy laboratory
managed by UChicago Argonne, LLC.

January 26, 2022, PSC All Hands Meeting

APS-U PROJECT SCOPE

815M\$ project to update and renew the facility

Re-uses 1.5B\$ in existing infrastructure

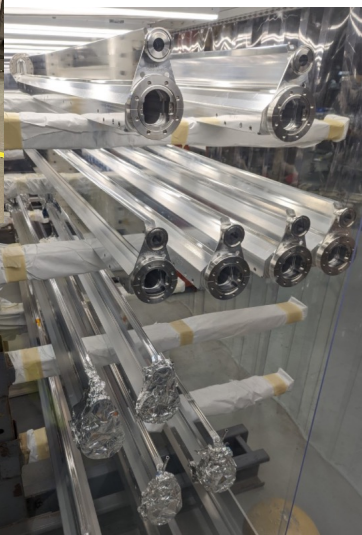


- New storage ring: 42-pm emittance @ 6 GeV, 200 mA
- New and updated insertion devices, including superconducting undulators (SCUs)
- Combined result in brightness increases of up to 500x
- 9 new feature beamlines + Long Beamline Bldg.
- 15 enhanced and improved beamlines
- “Do no harm” beamlines; realign 17 bend magnet lines
- Exploit high-performance computing, AI



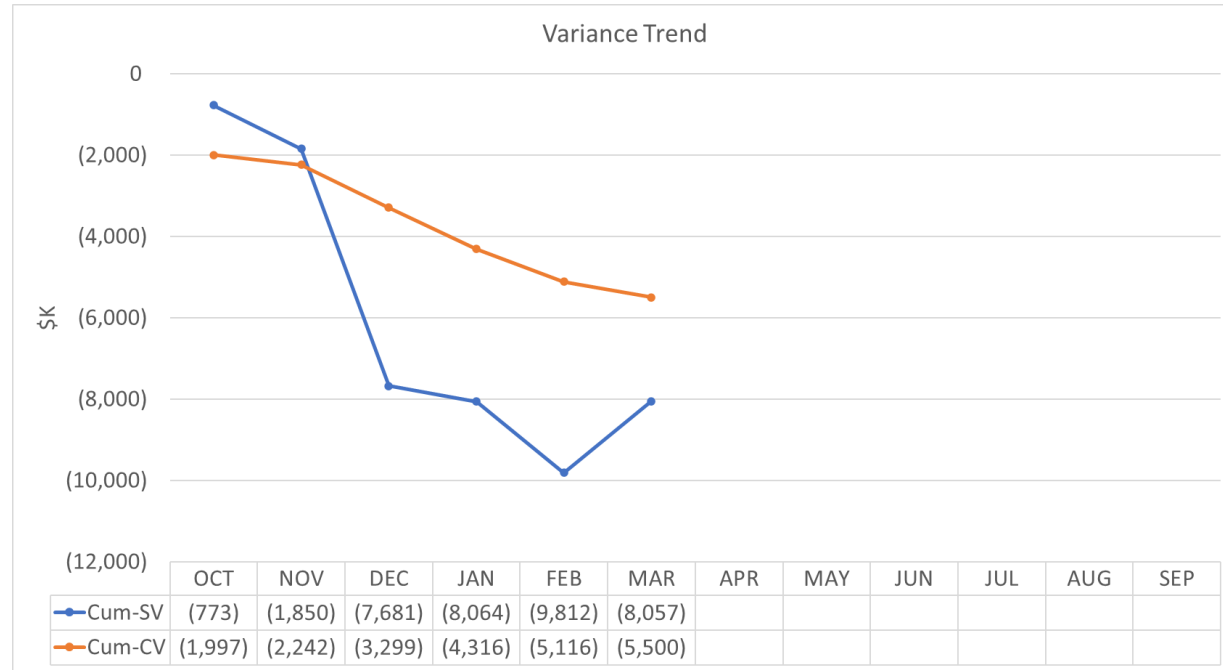
RECENT SUCCESSES

- Acceptance and testing of components in full swing across the project
- L-Bend vacuum chamber welding ramping up in 382
- Polar beamline 2T magnet tested and commissioned
- Vendors continue to make progress in production efforts



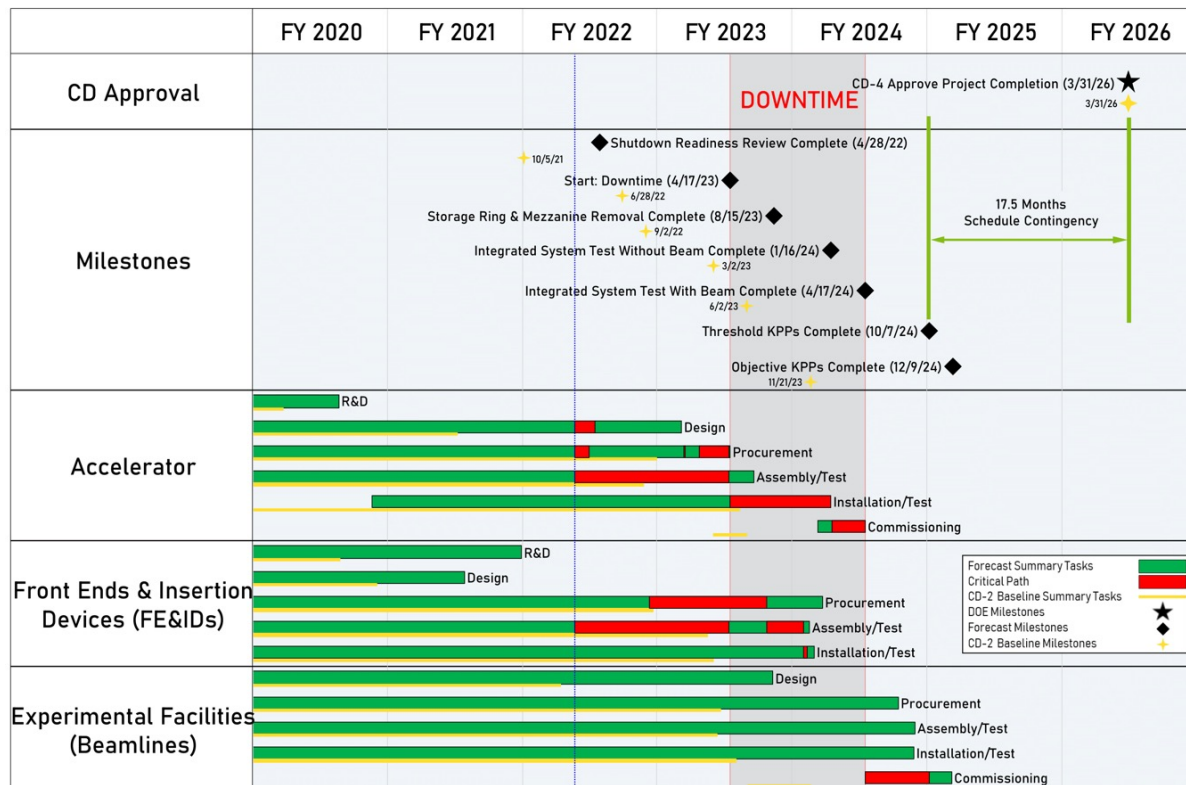
NEWS AND UPDATES

- COVID and supply chain effects continue to impact the cost and schedule contingency of the project
- \$63M available cost contingency is 23.6% on work to go, 30% recommended @ this stage of the project, ~\$17M gap
- Large uncertainties remain in this volatile market; thus, some scope has been deferred while we manage the situation
- Technical and procurement teams working hard to minimize vendor delays, including visiting vendors
- Great job team receipting and accepting items in March



APS-U PROJECT STATUS

- Project is 65% complete; cumulative CPI 0.97, SPI 0.95 (March)
- Start of the shutdown driven by accelerator and front-end assembly work; project completion driven by beamline completion
- Project team working hard to hold the April 2022 downtime start date
- 1st shutdown readiness review to help prepare for the start of the downtime, and the 12-month execution plan, planned for June 2022
- Getting procurements out for bid is the main priority at this time



SUMMARY

- APS-U Project team is focused on
 - Receipt, assembly, and testing
 - Completing procurement packages and issuing bids
 - Mitigating COVID and associated supply chain ripples
- Contingency situation remains marginal; project, Laboratory, and Program working together to mitigate effects
- Upcoming Reviews
 - Dry Run Shutdown Preparedness Review: June 6-8, 2022
 - Shutdown Preparedness Review: August 2022
 - Machine Advisory Committee (MAC): September 2022
 - Experimental Systems Advisory Committee (ESAC): September 2022
 - Accelerator Readiness Review Status Update: September 2022
 - Director's Review: September/October 2022
 - DOE Status Review: November 2022
- Thanks for your continued efforts, we're looking forward to bringing the upgraded APS to life!

COMMUNICATIONS

Bookmark for the latest news and information

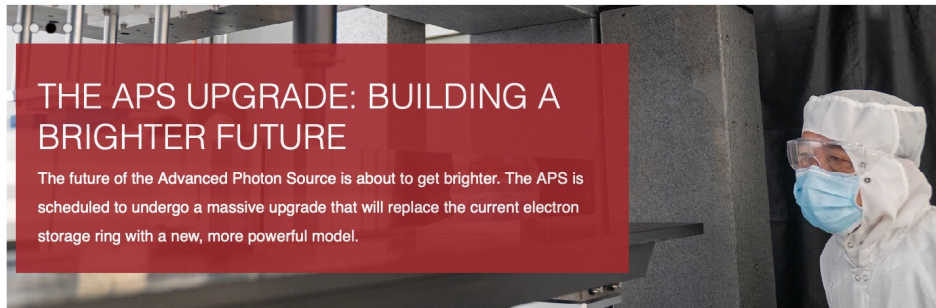
REDESIGNED APS Upgrade web page on the APS website

- <https://www.aps.anl.gov/APS-Upgrade>

APS Upgrade web page on the Argonne website

- <https://www.anl.gov/aps-upgrade>

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[Feature Beamlines](#)

[Videos](#)

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INSTALLATION PERIOD CURRENTLY SCHEDULED TO BEGIN APRIL 17, 2023

The APS Upgrade storage ring installation period, during which the APS will pause operations for one year, is currently scheduled to begin on April 17, 2023. The APS will operate throughout 2022 and will schedule an operations run early in 2023, though the exact schedule has not been determined. The upgraded APS will return to operations after the 12-month installation and commissioning period, though initial operations will be at reduced current and availability as the machine is tuned up. Regular updates will be provided on this website.