PSC-PMO Advisory Board Meeting

February 7, 2019

Attendees:

Jason Budd, Herman Cease, Julie Cross, Mike Fisher, Ahmed Haseeb, Kelly Jaje, Elmie Peoples-Evans, Christian Roehrig, George Srajer, Yine Sun, Jeff Toeller, Kent Wootton, Marion White

Agenda:

- Welcome and Introductions
- Portfolio Management Office Mission
- Big Picture
- FY19 - FY22 Portfolio
- FY19 - FY22 M&S Spend Plan
- 2020 PMO Plan
- Process
- Advisory Board Discussion

Welcome and Introductions

- Introductions were made.

Portfolio Management Office (PMO) Mission (slide 4)

- The PMO will provide feedback on a continuous basis, provide input, and respond to needs. We want APS to continue to thrive, provide users with excellent, reliable beam, and serve as an interface between APS operations and APS-U.
- APS-U has project management. APS operations needs to understand APS-U needs, resources, and meet their milestones
- We want to change the culture and will need to manage with the resources we have after the Upgrade.
- We want to integrate into the Laboratory's ecosystem for how to do projects and implement what tools there are to our benefit and tailor them to our needs.

Big Picture

- There are effort request agreements (ERAs) with APS-U.
- The numbers have been presented to DOE.
- Effort accounts for 70-80%.
- Non-recurring costs are the interface portfolio.
    - Larger projects that typically require > $50K and/or > 300 hours of engineering effort from other divisions

    - Projects are prioritized and approved by the PSC Senior Management Team, and these projects are in the scope of the PSC-PMO
- Long Term (FY19-24) Operations Spend Plan (slide 6)
    - What are the elements of top two colors (interface portfolio: obsolescence and interface portfolio: improvements)?
    - Wootton stated that the number for machine power in FY22 is bigger than expected since the machine will be off. Cross replied it is split between two years. Srajer added the assumption is that during 12 months, the linac will operate for three months. There is some cost savings and they did go through it.
    - This is a work in progress. Christine McGhee, Julie Cross, and George Srajer will review again as things change with APS-U and they have a better understanding of what APS operations needs to do. This was presented to DOE-BES, it went through analysis, it is rational, and it was well received.

FY19 - FY22 Portfolio (slide 7)

- This fits within budget on a fiscal basis.
- Many projects are accelerator related, e.g., rf, solid-state for storage ring, there is also a lot of IT work and some beamline detectors.
- In principal, the Senior Management Team (SMT) agreed it is the right path forward.
- Srajer stated that a few years back, they started looking at projects on a strategic level, and everyone comes together to prioritize and approve projects to move them forward. The process is PSC-centric (not focusing on divisions). Since the accelerator is aging, it needs work.
- Cease asked if the totals match the orange/yellow bars on the previous slide (slide 6).
    - Haseeb said they do not exactly match; slide 7 also include labor costs, included on top, other slide was just M&S.
- Cease commented that FY22 looks small
    - Haseeb noted it is still ~ 3 years out, they are not sure of other obsolesce, some other tbd.
    - Srajer added we want to make sure we are not overcommitting ourselves.
- Roehrig asked if we know that the effort to do projects will be there. Is the manpower guaranteed to be there, or will it be pulled away?
    - Haseeb said we have been working with divisions; it is a compromise. These are strategic priorities from management, and we will work with group leaders and divisions to make sure we can do projects. We will need the manpower. Resource planning is a big problem we are trying to solve. Srajer stated that Haseeb is working with project managers, week by week, planning out, who is needed and what kind of effort. E.g., they found that IT work during a shutdown requires six “Ed Wrobels”; it was good for Ken Sidorowicz to see this so he can pull people, hire, etc. We want input for this. It is challenging.
- Peoples-Evens said when you look at the profile, the labor force is the same or increasing as we approach downtime. On Slide 6, FY22 is just under $100M for labor, it goes higher in FY23. She asked how the labor force increases and what is occurring that more people are needed. Srajer stated it is the assumption that it is also split between two years, all staff will be gainfully employed during operations, and there will be a lot of work on the beamlines. Some people

who will come off of APS-U will go back to APS operations—about 10-11 FTEs. Peoples-Evans said most of the people will work on the APS-U during the Upgrade. Srajer asked for clarification on "most people." Peoples-Evans asked what the technicians will be working on during the shutdown. Srajer responded that 40 beamlines will be upgraded. A huge amount of work will be done. Roehrig added that he thinks lots of beamlines have plans; there are nine feature beamlines, 15 enhancements, and lots have smaller changes, some are reconfiguring beamlines, there will be effort to clean things up, and there will be software/hardware upgrades and testing. There will be a lot to do on the beamlines.

FY19 - FY22 M&S Spend Plan (slide 8)

- We are are now over budget for FY20 based on authority. Some decisions will need to be made.
- We have started setting aside 10% of the interface portfolio money for contingency—for overrun or for items we did not see coming. Srajer mentioned the linac rf station #1. We need a way to manage and keep the contingency at our level.
- The amount of money we end up getting may change.
- Srajer gave an example that for networking, there is operations scope and APS-U scope. Operations is in FY21. APS-U is getting costs now. They are working with Peoples-Evans and Cease to make sure we are on the same page with APS-U.
- These are budgetary numbers in a sense – will be hard numbers after procurement, etc.
- Fisher asked about Safety Interlocks. Srajer stated that they will meet with Ken Belcher; his portfolio has accelerator and beamlines.
- Budd asked if contingency part of authorization? We could show we are operating in the red.

2020 PMO Plan (slide 9)

- Increasing the accuracy of time and cost reporting is big issue. A lot of people charge to their group, not to the project they are working on. We are not getting good data back on projects, which ties back to metrics.
- A lot of the interface is defined, some to do yet. What else do we have to do?
- Webpage – will launch soon. We hope operations personnel and project managers can use the web pages for project management activities. There will be templates, links to ServiceNow, etc.
- The DOE Triennial Review is usually retrospective, but we are getting indications (no charge yet) that they want to know how APS and APS-U work together to make sure milestones will work together.

Process

- We are trying to better align with the Lab's project management (slide 10).
- Cross showed a dashboard in ServiceNow.
- We will work with people so they can find what they need to do their work
- We are asking project managers for monthly status reports and to close project tasks as they are completed.
- The portfolio is based on the gap analysis done several years ago based on what APS-U is / is not doing.
- We need to meet milestones of APS-U.

- Cross has been working with project managers on updating status.
- Budd stated the intent is to get newer versions of ServiceNow with a better front-end interface. Cross explained we had a lot of customization in earlier versions of ServiceNow that are no longer needed.
- Web page development (slide 15)
    - We hope to have links for people to get right to their projects.
    - The page should be live soon, but it is a work in progress. We need comments / feedback.
- Cross will send links to dashboard.

Summary (slide 16)

- Will have Stephen Streiffer send a memo to remind people to charge time to projects; this is a cultural change.

Advisory Board Discussion (slide 17)

- We will create a BOX folder with presentations, agendas, a comment sheet for feedback; we want more engagement. Cross is available to meet with people.
- Srajer hopes this advisory committee will help the change culture of PSC (lack of information, too bureaucratic, etc.)
- Peoples-Evans will write questions and have for next time. Srajer stated they can meet with her and Cease before the next meeting and discuss as a group.
- Roehrig asked if there has been any thought given to lessons learned as projects are completed and how to feed it back so there is an institutional memory so things do not need to be relearned. Cross stated they put lessons learned in a PowerPoint slide. Also for example, for the XTIP project Mike Fisher prepared slides for bimonthly meetings including when the schedule fell etc. Haseeb said that as we move more to ServiceNow, it will have that information as far as when schedule changed etc. Srajer noted the challenge is how to disseminate.
    - Cross stated we are looking to PMO for best practices. Budd stated that as long as the resource is in same location, we have lessons, risks, and simplify to key items, there are a couple of take-aways.
- The process for sharing lessons learned will be part of the communication plan.
- Advisory Board Team members are asked to communicate with their teams/groups.

7 FEBRUARY 2020

PSC-PMO ADVISORY BOARD MEETING

PSC-PMO TEAM

Argonne NATIONAL LABORATORY

AGENDA

- Welcome and Introductions
- Portfolio Management Office Mission
- Big Picture
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PSC – PORTFOLIO MANAGEMENT TEAM

- Julie Cross – Portfolio Manager
- Ahmed Haseeb – Program Manager (Consultant)
- Kelly Jaje – Administrator
- George Srajer – Deputy ALD for Integration and Planning

PSC-PMO MISSION

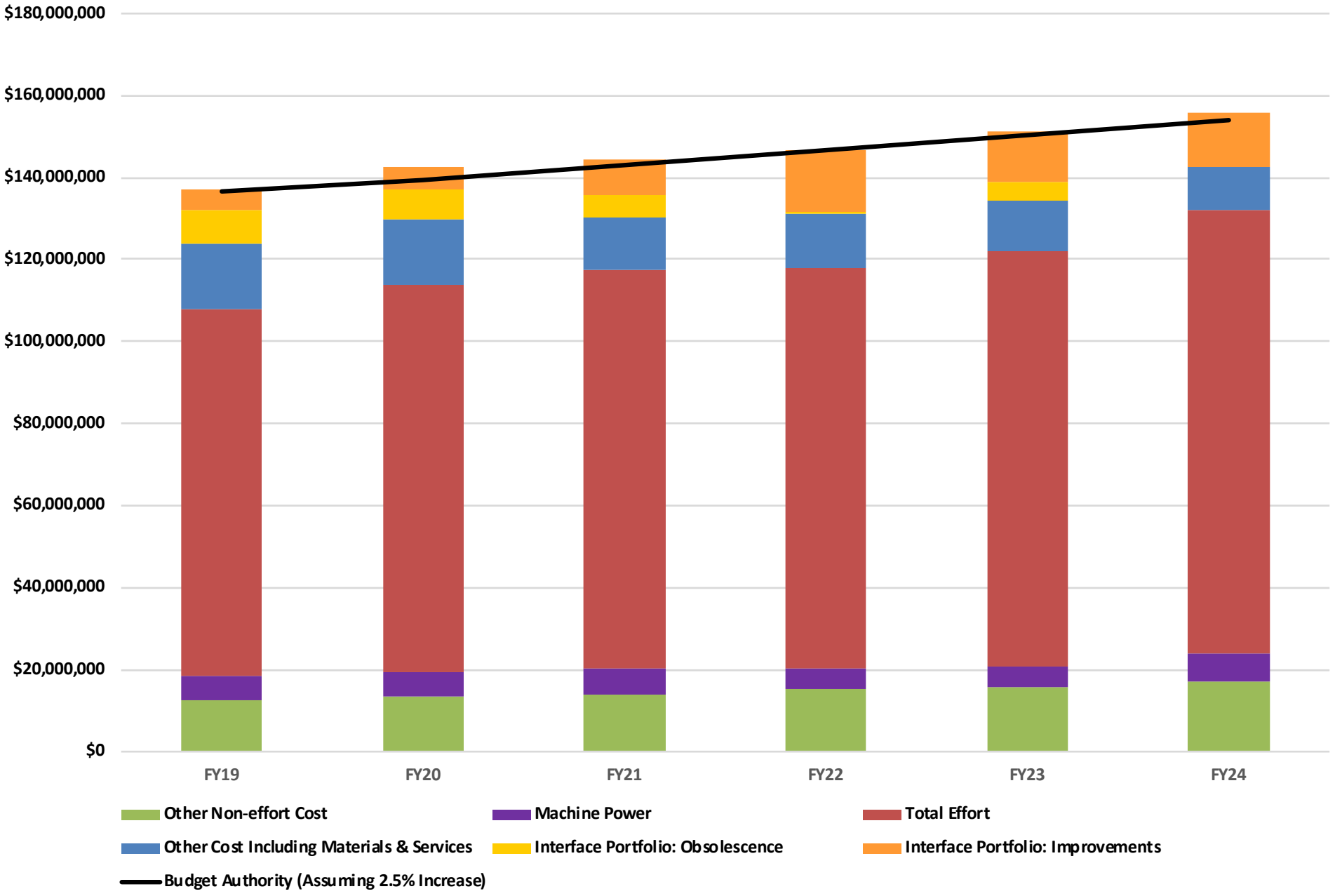
The PMO manages an integrated, multi-year, resource-loaded portfolio of strategic Operations funded projects called Interface Portfolio to support:

- **Successful implementation of APS-U**
  - Significant scope and dependencies that are Operations responsibility
- **Sustainable and reliable operations for Users**
- **Long-term PSC strategy**
  - Strategically invest for continued science excellence at the APS
- PSC-PMO Role:
  - Provide project management support, mentoring and oversight
  - Resolve competing priorities at the directorate level
  - Coordinate interfaces between Operations and Upgrade
  - Resource planning
  - Increase accountability

BIG PICTURE: BUDGET PLANNING FRAMEWORK

- Resource profile for FY20 - FY24 developed by integrating APS Upgrade and Operations needs
  - Includes Operations staff to support current and future reliability for the facility
  - Incorporates APS-U resource needs from P6
- Performed assessment of staff activities during the Dark Period
- Planning assumes 2.5% annual escalation of budget authority
- Operations spend plan includes:
  - Effort cost
  - Recurring Materials and Supplies for routine operations
  - **Non-recurring costs**
    - **Larger projects that typically require > $50K and/or > 300 hours of engineering effort from other divisions**
    - **Projects are prioritized and approved by the PSC Senior Management Team, and these projects are in the scope of the PSC-PMO**
  - Other non-effort costs
    - Building and utilities, machine power, other electricity, telephones, proprietary recovery, ESH analytical chemistry services

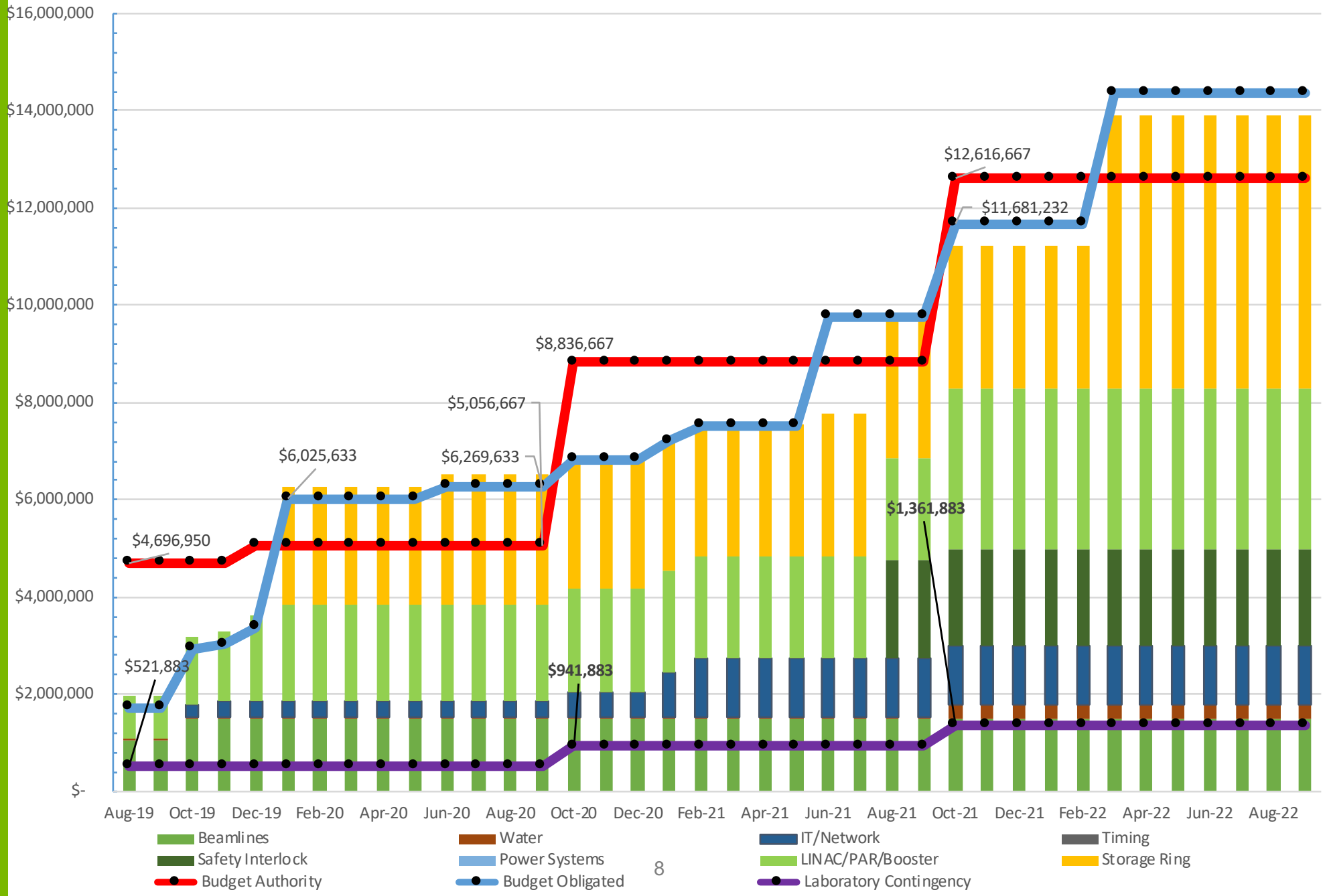
LONG TERM (FY19 - FY24) OPERATIONS SPEND PLAN



PLANNING AHEAD: FY19 – FY22 PORTFOLIO

APS OPERATIONS FY19 - FY22 PORTFOLIO					
FY19	**$**	**3,610,490**	**FY21**	**$**	**3,686,509**
Long Trace Profiler Upgrade	$	256,200	Solid State RF Utilities (AC Power, Water)	$	244,000
Beamline Single Mode Fiber (D1109 - LOM 435 - LOM 438)	$	461,557	ACIS Upgrade - Phase II	$	1,995,432
Windows 7 to 10 Upgrade	$	274,439	Beamline Single Mode Fiber (D1109 - LOM 431 - LOM 434)	$	368,440
Business Operations Windows Servers	$	338,250	Accelerator Single Mode Fiber Infrastructure	$	195,200
Linac RF Station #1 (Klystron, Modulator, RF Controls)	$	1,443,260	Upgrade Acc. Core Tier 1 & Tier 2 Network Switches for Storage Ring	$	646,600
Replace Valves in the LINAC and PAR	$	36,600	Storage Ring Double Sector Interlock Relay Rack Gespac Replacement	$	236,837
Rigaku Ultrafast Detector for XPCS	$	348,784			
Lambda 750k CdTe Detector	$	347,700			
Robot Detector Arm for SNOM	$	103,700			
FY20	**$**	**4,473,779**	**FY22**	**$**	**1,831,220**
ACIS Upgrade – Phase I	$	440,569	Linac RF Station #2 (Klystron, Modulator, RF Controls)	$	1,035,780
PAR Kicker Magnet Vacuum Chambers	$	333,775	Linac RF Guns	$	549,000
Small Pixel Detector	$	122,000	Booster DI Water Valve Replacement	$	26,840
32-ID Shimadzu HPV-X2 Detector	$	161,650	DI Water Resistivity Analyzers	$	61,000
4-ID Cryopump Replacement	$	152,975	Replace DI H2O Control System for Linac/Booster/PAR	$	158,600
Business Operations Linux Servers	$	195,810			
Single Sign-on for All APS web and Oracle Applications	$	61,000			
LEA Infrastructure	$	200,000			
Germanium Pixel BNL	$	122,000			
Storage Ring Relay Rack Gespac Replacement	$	-			
Solid State Amplifier, Waveguides and Hardware	$	2,684,000			
			TOTAL COST (LOADED)		**$ 13,601,998**

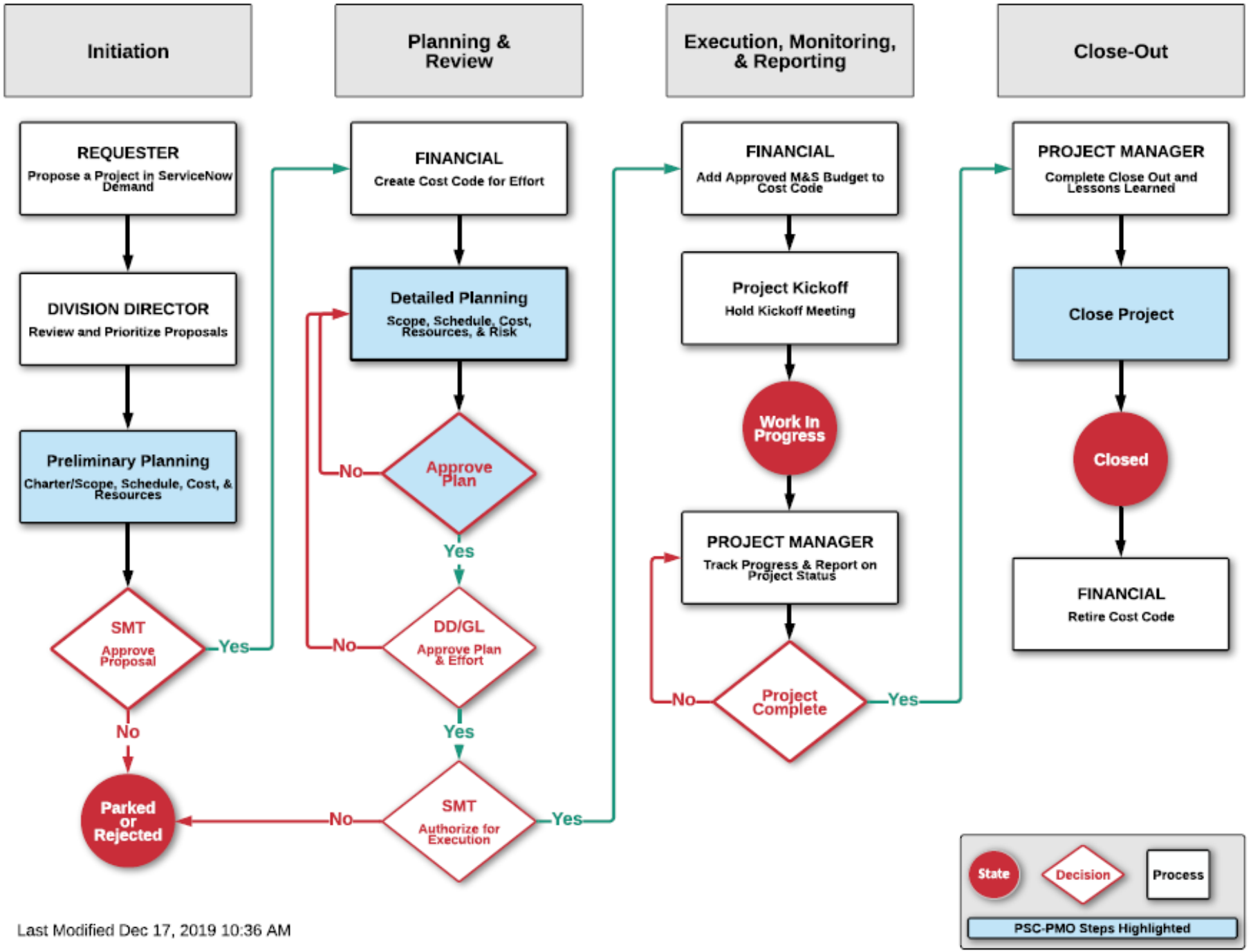
PORTFOLIO M&S SPEND PLAN FY19 – FY22



2020 PSC-PMO PLAN

- Oversight of Interface Portfolio projects
- Develop project management workflows, performance metrics, processes and procedures
- Increase accuracy of time & cost reporting
- Define Operations scope/interface for APS-U
- Mature PSC-PMO webpage
- Get ready for DOE Operations Triennial Review – June 2020
  - Last DOE review before Dark Period
  - First review for PSC-PMO
  - Demonstrate understanding and ability to execute Operations scope

WORKFLOWS, ROLES AND RESPONSIBILITIES



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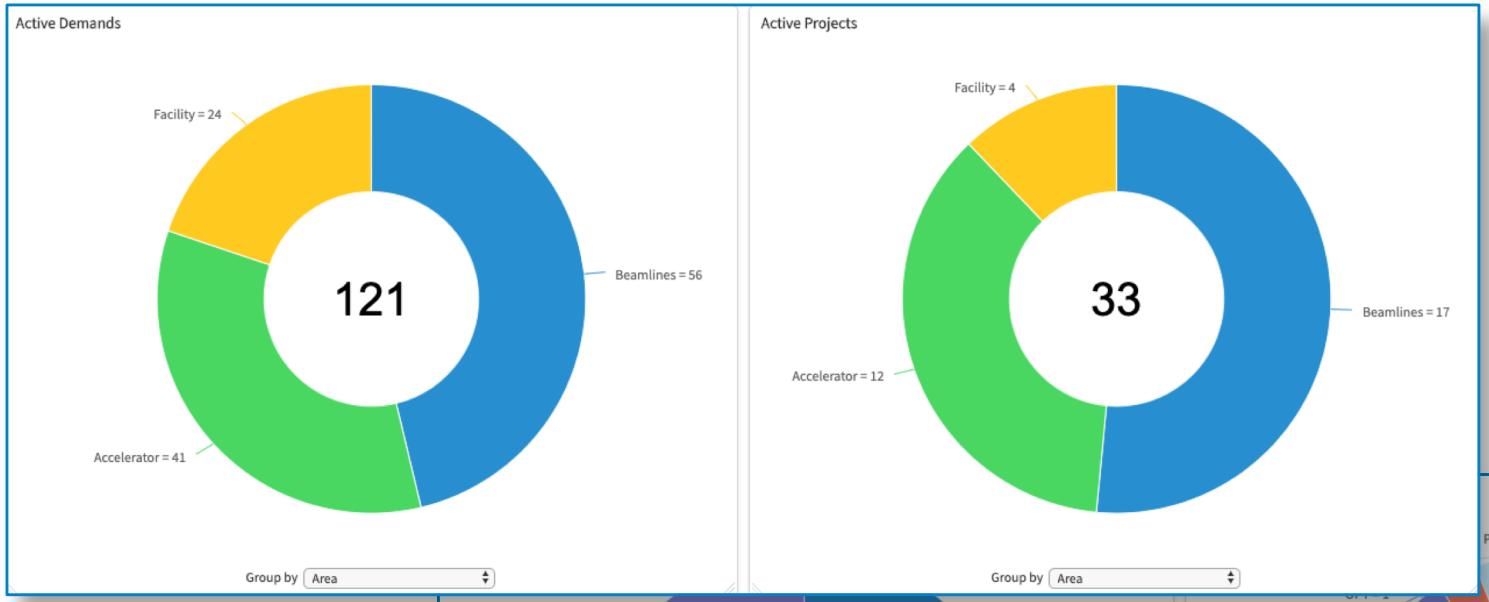
SERVICENOW

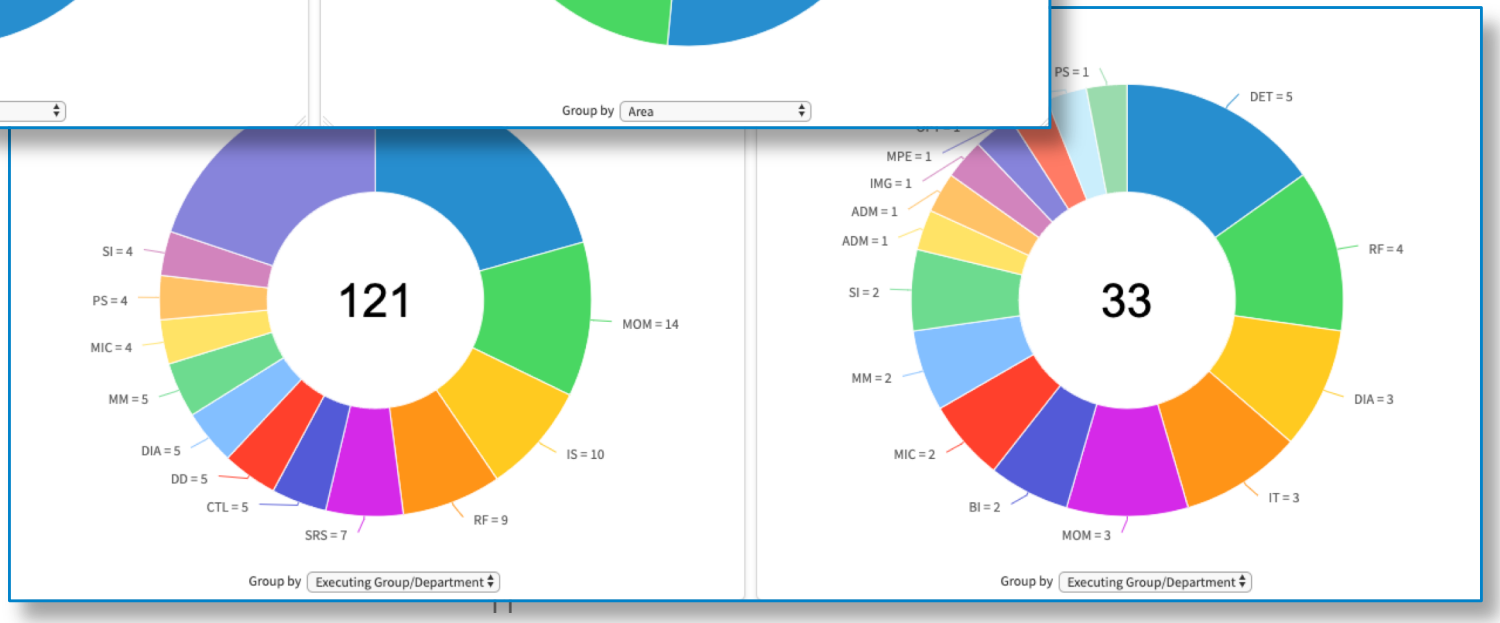
Project Portfolio Management (PPM)

vector
MAKING WORK WORK BETTER

Pipeline

Requirements → Demands → Projects





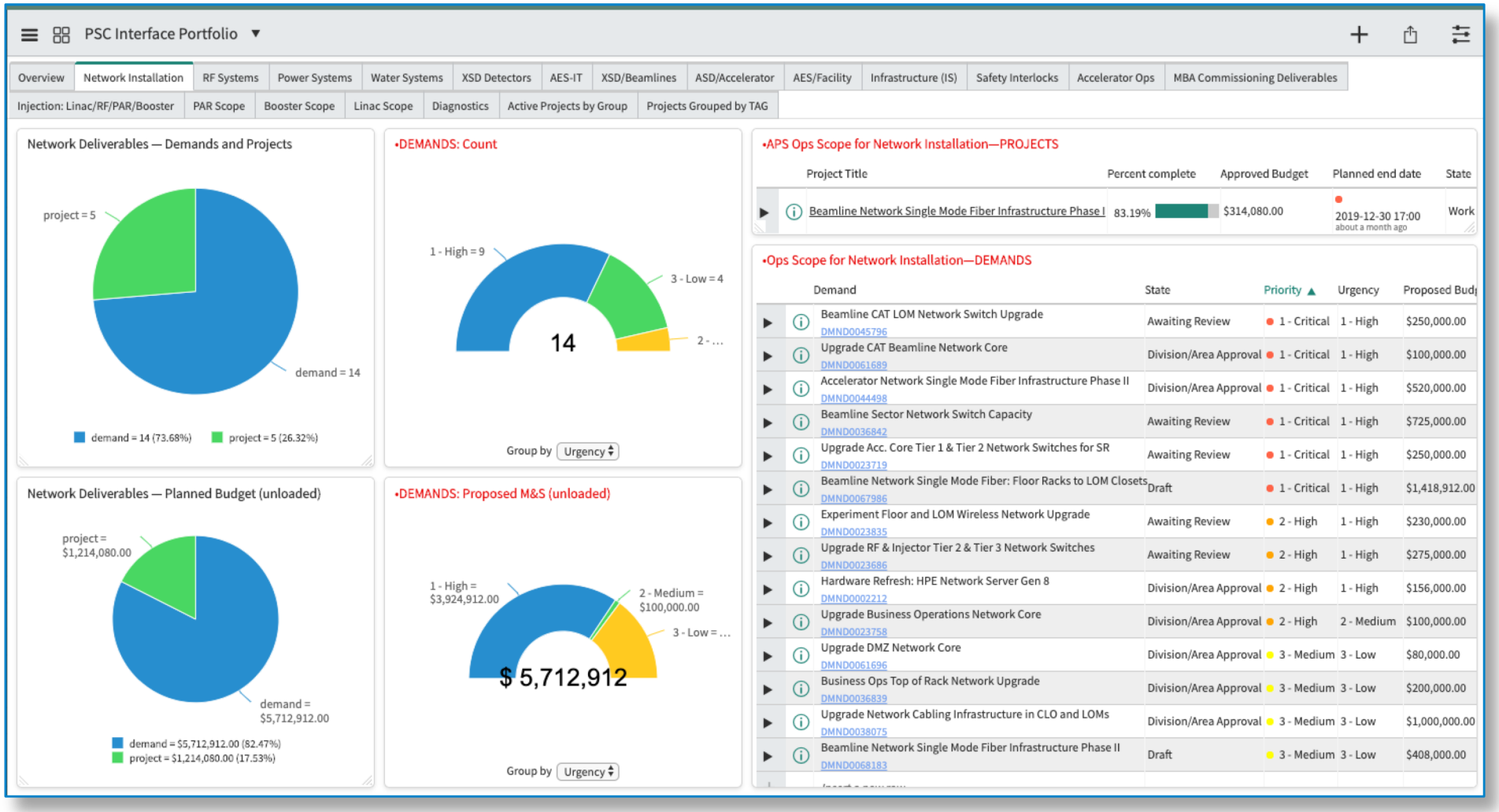
For example

- Budget
- Priority
- Urgency
- Division
- Group
- Status
- Effort

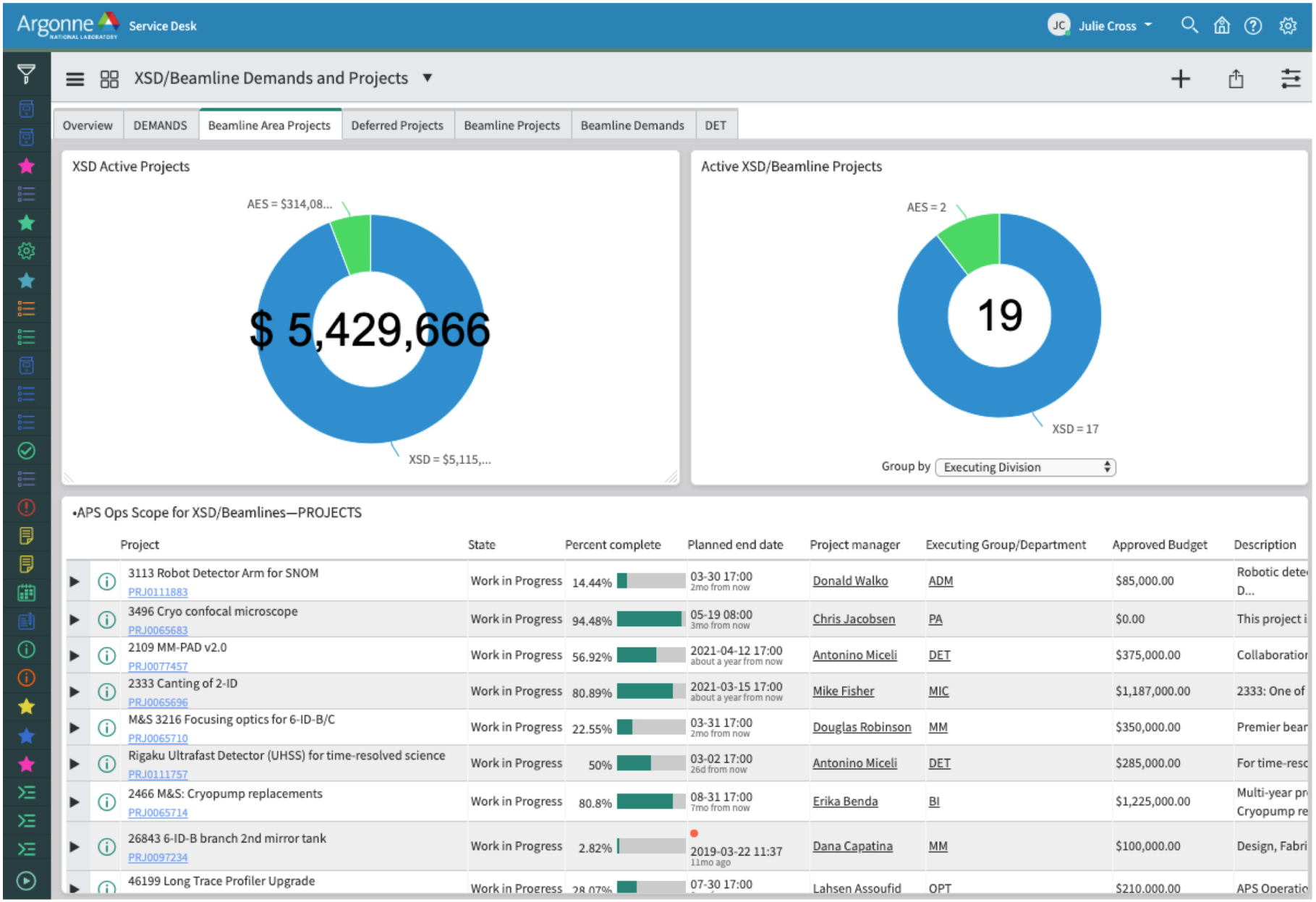
OPERATIONS SCOPE FOR PSC NETWORK

DELIVERABLE FOR MBA COMMISSIONING

Network operational and ready to support intensive data collection

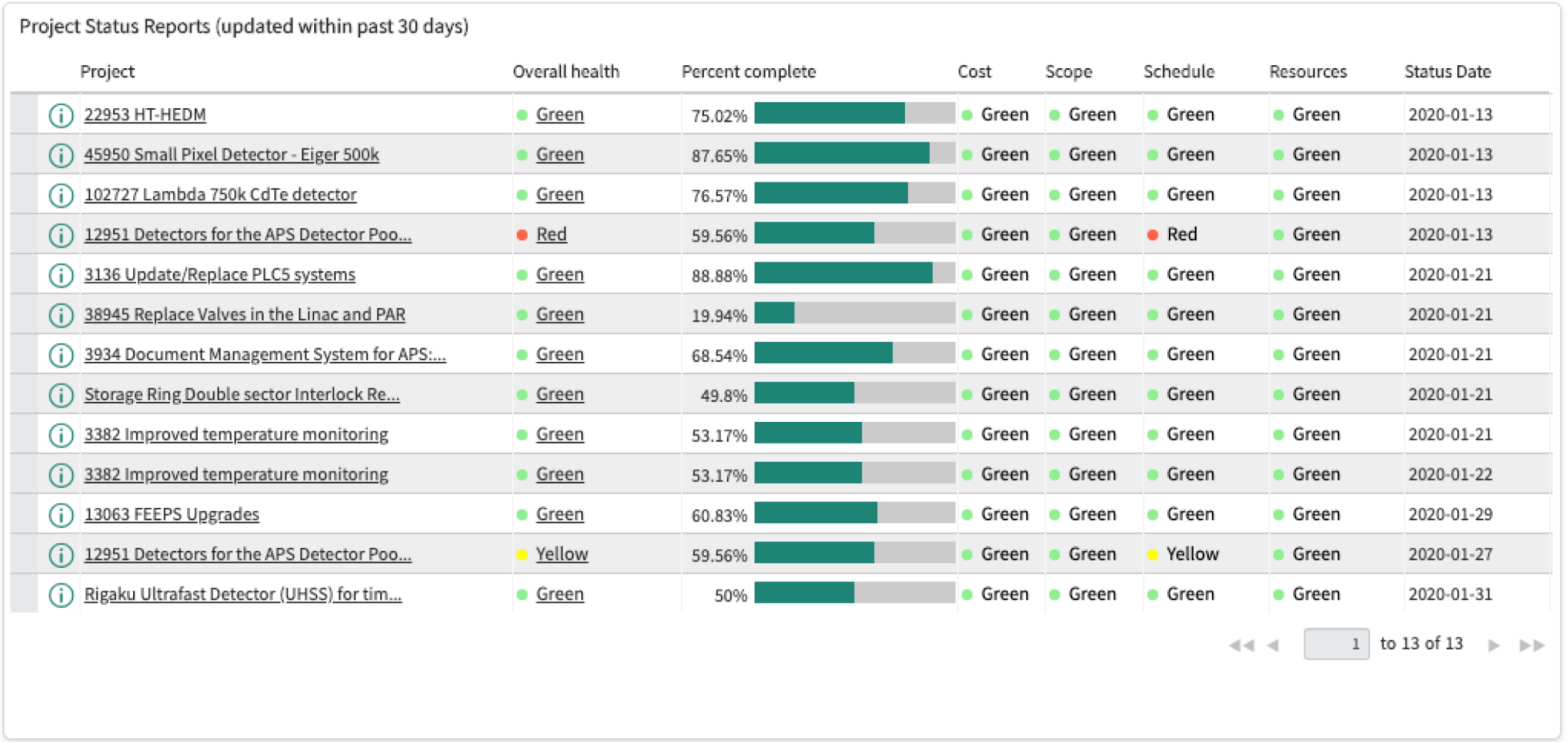


DASHBOARD FOR XSD/BEAMLINES



TRAFFIC LIGHT PERFORMANCE METRICS

Project Status Reports



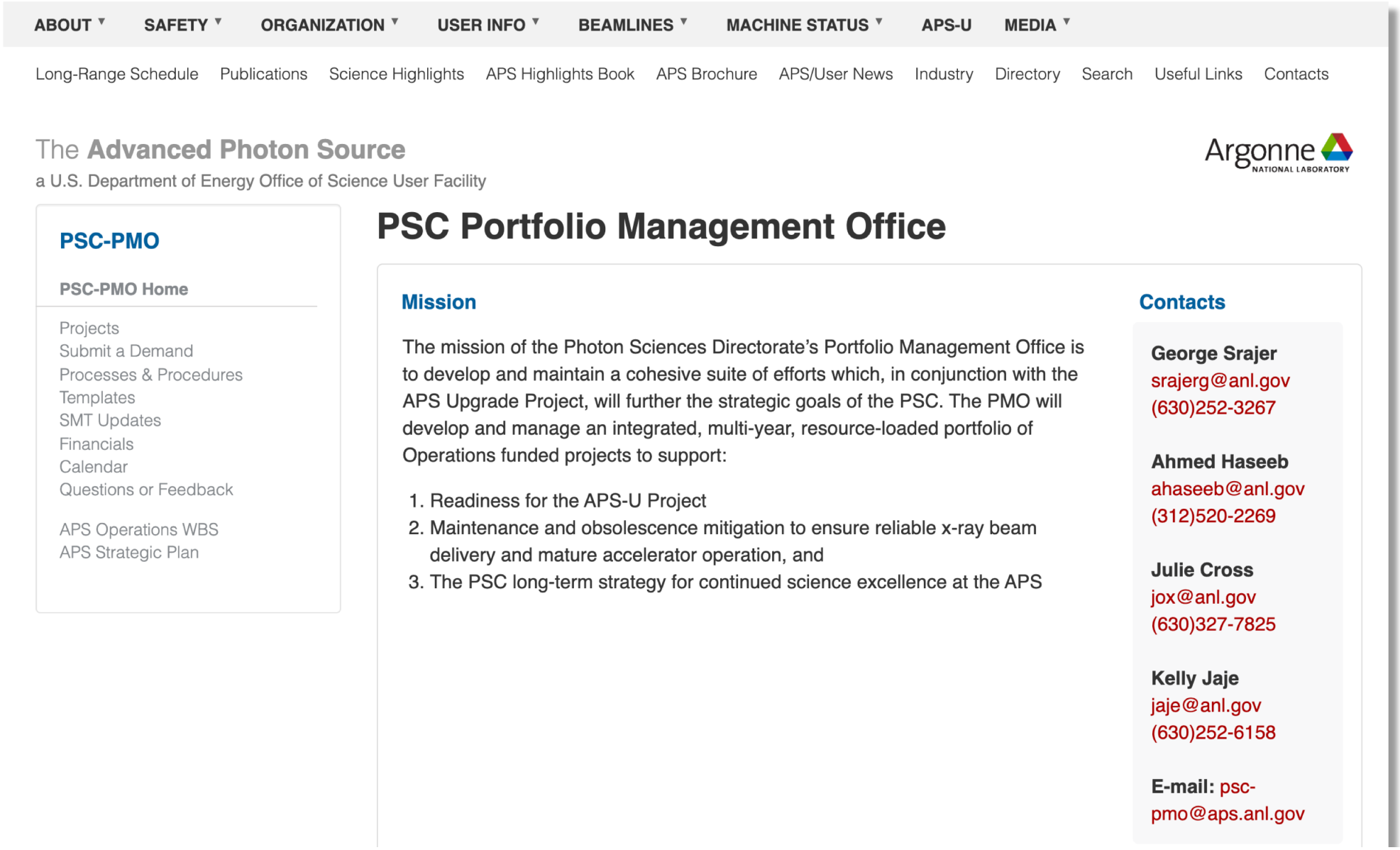
Project Status Reports (updated within past 30 days)

Project	Overall health	Percent complete	Cost	Scope	Schedule	Resources	Status Date
22953 HT-HEDM	Green	75.02%	Green	Green	Green	Green	2020-01-13
45950 Small Pixel Detector - Eiger 500k	Green	87.65%	Green	Green	Green	Green	2020-01-13
102727 Lambda 750k CdTe detector	Green	76.57%	Green	Green	Green	Green	2020-01-13
12951 Detectors for the APS Detector Poo...	Red	59.56%	Green	Green	Red	Green	2020-01-13
3136 Update/Replace PLC5 systems	Green	88.88%	Green	Green	Green	Green	2020-01-21
38945 Replace Valves in the Linac and PAR	Green	19.94%	Green	Green	Green	Green	2020-01-21
3934 Document Management System for APS:...	Green	68.54%	Green	Green	Green	Green	2020-01-21
Storage Ring Double sector Interlock Re...	Green	49.8%	Green	Green	Green	Green	2020-01-21
3382 Improved temperature monitoring	Green	53.17%	Green	Green	Green	Green	2020-01-21
3382 Improved temperature monitoring	Green	53.17%	Green	Green	Green	Green	2020-01-22
13063 FEEPS Upgrades	Green	60.83%	Green	Green	Green	Green	2020-01-29
12951 Detectors for the APS Detector Poo...	Yellow	59.56%	Green	Green	Yellow	Green	2020-01-27
Rigaku Ultrafast Detector (UHSS) for tim...	Green	50%	Green	Green	Green	Green	2020-01-31

1 to 13 of 13

WEB PAGE DEVELOPMENT

https://www.aps.anl.gov/portfolio-management-office



SUMMARY

- Positive effects:
  - Increased integration and coordination with APS-U
  - Increased visibility of projects
  - Ability to meet APS-U milestones
- Challenges:
  - Accurate time reporting for implementing performance metric
  - Monthly project status
  - Accountability
  - Technical: Integration of ServiceNow and MS Project platforms
  - Integration of Dayforce – ServiceNow
  - Implementation of uniform resources data
  - Cultural changes needed to meet goals

ADVISORY BOARD

- Provide feedback, recommendations, and guidance to maximize the overall effective implementation and impact of the PSC-PMO mission.
- Advise the PSC-PMO on:
  - Processes, workflows and procedures
  - Execution strategies
  - Identification of gaps
  - Best practices
- Looking ahead

ADDITIONAL SLIDES

FY21-24 INTERFACE PORTFOLIO SCOPE

FY21	$ 14,139,988
INTERFACE PORTFOLIO: OBSOLESCENCE	**$ 2,615,447**
ACIS Upgrade - Phase II	$ 1,995,432
Beamline Single Mode Fiber (1/2)	$ 383,178
Storage Ring Double Sector Interlock Relay Rack Gespac Replacement	$ 236,837
INTERFACE PORTFOLIO: IMPROVEMENTS	**$ 4,648,200**
Solid State Amplifier, Waveguides and Hardware #2	$ 2,684,000
Solid State RF Utilities (AC Power, Water) #1	$ 244,000
Linac RF Station #2 (Klystron, Modulator, RF Controls)	$ 878,400
Accelerator Single Mode Fiber Infrastructure	$ 195,200
Upgrade Acc. Core Tier 1 & Tier 2 Network Switches for Storage Ring	$ 646,600
LABOR BUDGET	**$ 6,876,341**
Obsolescence	$ 2,475,988
Improvements	$ 4,400,353

FY22	$ 15,502,114
INTERFACE PORTFOLIO: OBSOLESCENCE	**$ 246,440**
Booster DI Water Valve Replacement	$ 26,840
DI Water Resistivity Analyzers	$ 61,000
Replace DI H2O Control System for Linac/Booster/PAR	$ 158,600
INTERFACE PORTFOLIO: IMPROVEMENTS	**$ 8,233,800**
Linac RF Station #3 (Klystron, Modulator, RF Controls)	$ 878,400
Linac RF Guns	$ 549,000
Solid State Amplifier, Waveguides and Hardware #3	$ 2,684,000
Linac RF Station #4 (Klystron, Modulator, RF Controls)	$ 878,400
Detectors	$ 3,000,000
Solid State RF Utilities (AC Power, Water) #2	$ 244,000
LABOR BUDGET	**$ 7,021,874**
Obsolescence	$ 204,059
Improvements	$ 6,817,815

FY23	$ 16,742,024
INTERFACE PORTFOLIO: OBSOLESCENCE	**$ 2,646,180**
Experiment Floor and LOM Wireless Network Upgrade	$ 280,600
Additional Disks for Voyager DDN Storage System	$ 414,800
Process Water Systems Improvements and Obsolescene Management	$ 384,300
Upgrade RF & Injector Tier 2 & Tier 3 Network Switches	$ 541,680
Beamline Sector Network Switch Capacity	$ 488,000
Beamline CAT LOM Network Switch Upgrade	$ 427,000
Storage Ring Power Supply Water Isolation Valves	$ 109,800
INTERFACE PORTFOLIO: IMPROVEMENTS	**$ 6,490,400**
Linac RF Station #5 (Klystron, Modulator, RF Controls)	$ 878,400
Solid State RF Utilities (AC Power, Water) #3	$ 244,000
Solid State Amplifier, Waveguides and Hardware #4	$ 2,684,000
Solid State Amplifier, Waveguides and Hardware #5	$ 2,684,000
LABOR BUDGET	**$ 7,605,444**
Obsolescence	$ 2,202,725
Improvements	$ 5,402,719

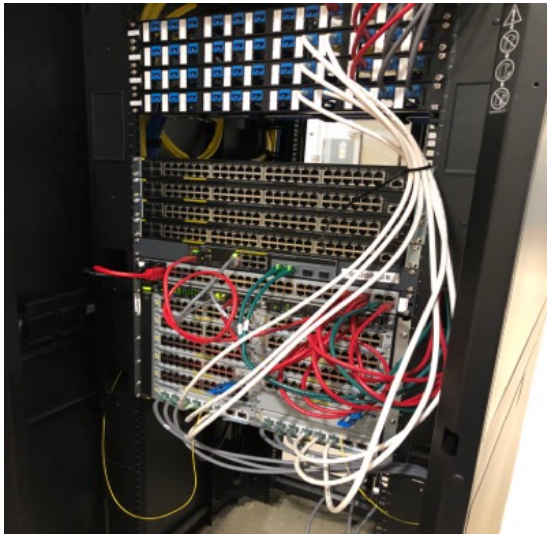
FY24	$ 13,197,579
INTERFACE PORTFOLIO: OBSOLESCENCE	**$ -**
TBD	
INTERFACE PORTFOLIO: IMPROVEMENTS	**$ 6,050,400**
Solid State Amplifier, Waveguides and Hardware #6	$ 2,684,000
Linac RF Station #6 (Klystron, Modulator, RF Controls)	$ 878,400
Solid State RF Utilities (AC Power, Water) #4	$ 244,000
Detectors	$ 2,000,000
Solid State RF Utilities (AC Power, Water) #5	$ 244,000
LABOR BUDGET	**$ 7,147,179**
Obsolescence	$ -
Improvements	$ 7,147,179

M&S costs based on FY20 estimates

STATUS UPDATE: MAJOR PROJECTS

- Linac RF Station #1 - $1.4M
  - Procurement approved for 2 klystrons and modulator
  - Detailed planning for installation started on Jan. 20
- Solid State RF #1 - $2.7M
  - Prototype testing completed
  - Scope definition and planning in progress
- Beamline Single Mode Fiber (D1109 - LOM 435 - 438) - $461K
  - APS-U milestone for 28-ID network completed ahead of time (12/19/2019) instead of 1/2/2020
  - Fiber to LOMs – ongoing

Network infrastructure installed in 28-ID beamline



STATUS UPDATE: MAJOR PROJECTS, CONT.

- Long Trace Profiler Upgrade - $260K
  - Mechanical design completed
  - Autocollimator to be received in February 2020
- Windows 7-10 Update (DOE mandated to be completed by 2/1/20) - $275K
  - 90% complete, residual machines remaining
- Business Operations Windows Servers - $338K
  - Completed
- Business Operations Linux Servers - $196K
  - Completed