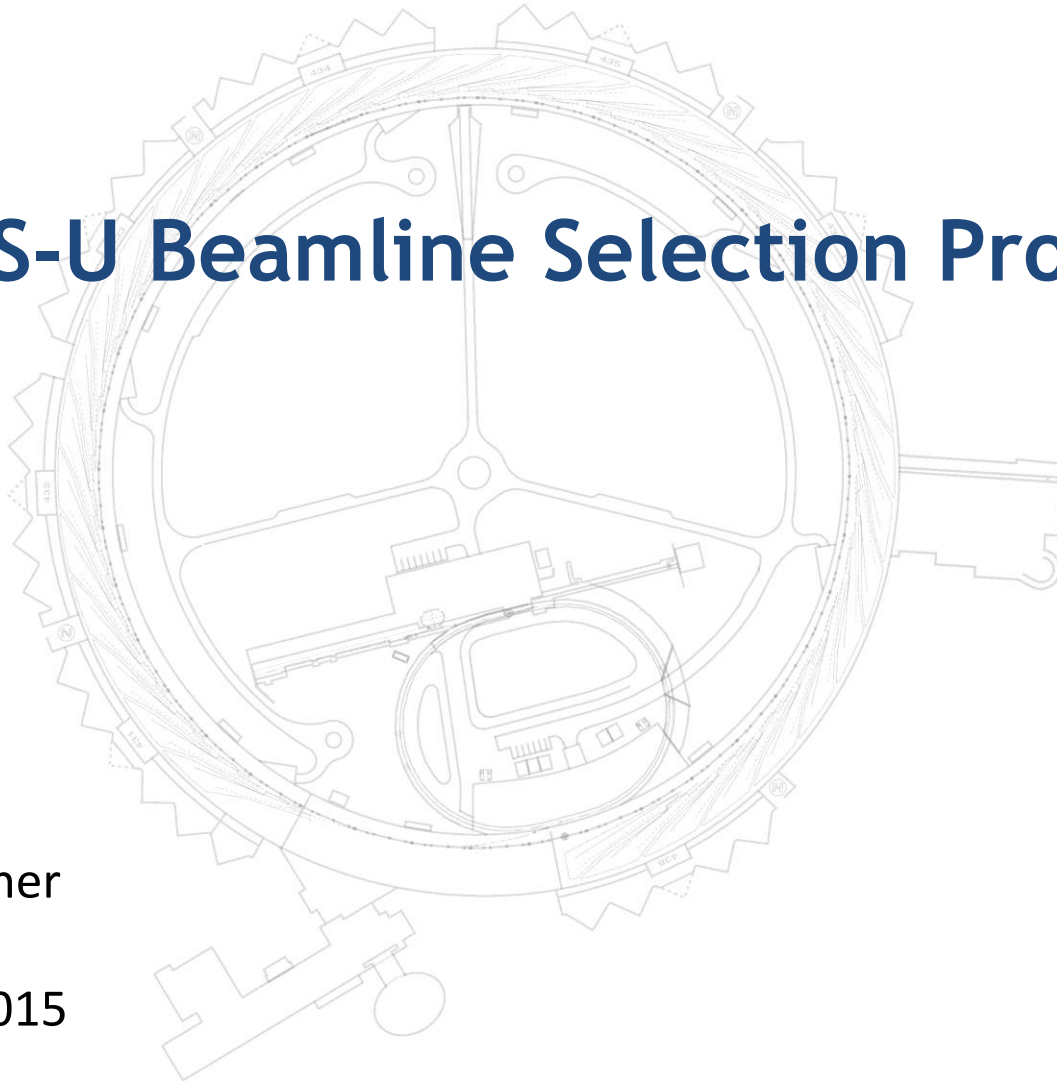


APS-U Beamline Selection Process

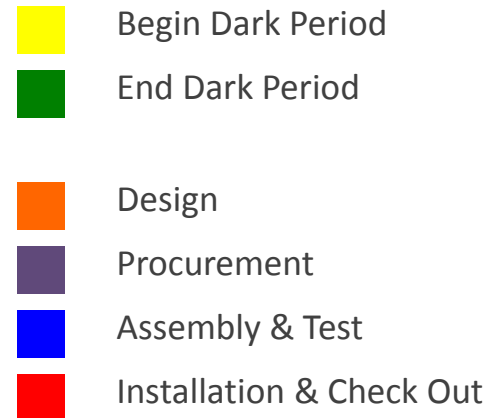


Dean R. Haeffner
APS-U Forum
October 22, 2015

Introduction

Beamline scope presented at the recent CD-1 review

- 6 new beamlines
- 2 major beamlines upgrades
- Enhancements to all remaining beamlines
 - General Optics and Stability planning package
- Total of \$147M scope (with overhead, escalation)
 - Adding 33% contingency -> \$192M (TPC)
- Presented at CD-1 as generic planning packages



	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Beamline #3						■	■
Preliminary Design	■						
Final Design		■	■				
Procurements				■	■	■	
Assemble Test						■	■
Install						■	■



Introduction continued

Terminology:

- “New beamline” means one built in one of the two existing open ports, or a replacement of an existing beamline
- “Major upgrade” means a substantial upgrade to an existing beamline
 - Typically > \$2M
- “Beamline Enhancement” means replacement of a few key underperforming components
 - More below

Front End and ID scope

- ID beamlines
 - new, optimized IDs
 - All front ends modernized
- BM beamlines
 - Front-ends will be reused
 - Three-pole wiggler or use of 7BA dipole, as appropriate



Selection Process Principles

- Solicits the best ideas from the community
- Is open & transparent
- Minimizes effort for both proposers and reviewers
- Meets relevant DOE CD deadlines
- Involves the SAC and ESAC in an effective way
- Allows APS/APS-U management input at various stages of the process
 - Solicitation of key and/or “missing” proposals
 - Merging of proposals where deemed desirable

The final decisions will be made by APS/APS-U management with input and recommendations from various committees.



Outline of Beamline Selection Process

- **Call** for White Papers for possible beamlines for inclusion in the APS-U Project
- **Review** of White Papers
 - APS-U Beamline Review Committee
 - Followed by APS/APS-U Management Review/Feedback
 - Discussion with APS Scientific Advisory Committee (SAC)
- **Call** for Full APS-U Beamline Proposals from the approved White Papers
- **Review** of Full APS-U Beamline Proposals
 - APS-U Beamline Review Committee
 - APS/APS-U Management Prioritization/Selection
 - Presentation of Prioritization/Selection to the APS SAC for comment
- Finalization of the Prioritization/Selection by APS/APS-U Management
- Selected Proposals developed to DOE Preliminary Design level



Proposed Rating Criteria

- Scientific/Technological impact of proposed program and beamline
- Overall quality of proposed beamline
 - “World Leading”, “World Class”, other
- Uniqueness and use of APS-U enhanced capabilities
- Predicted productivity
 - Potential publications
 - Potential high-impact publications
 - User demand
 - Ability to meet the needs of a community
- Feasibility of design and estimated cost



White Paper Guidelines

- **New Beamline or Major Upgrade White Paper**
 - Solicited from the community at large
 - Content (10 pages max)
 - Brief Science Case (3-4 pages)
 - Reference to the APS-U Science Case document is encouraged
 - Beamline description (2-3 page)
 - Explicit explanation of use of APS-U characteristics (1 page)
 - Community/stakeholder discussion (2 pages)
 - References and CVs (not included in page count)



White Paper Review Process

- APS-U Beamline Review Committee
 - Selected by APS/APS-U management
 - ~ 8 members made up of a mix of SAC, ESAC, subject matter experts
 - Advisory, not selection committee
- All proposals to Committee for scoring
- Committee meets to discuss and finalize scores
 - Meeting will likely be by video conference
- APS/APS-U Management reviews
 - For each proposal
 - Accepts – Requests full proposal
 - Suggests full proposal on revised scope
 - For example: New beamline reduced to major upgrade on existing beamline
 - Suggests merger between proposal groups for full proposal
 - Help broker agreement
 - Not recommended for full proposal
- APS presents proposed categorization of White Papers to SAC for comments
- Report outcome to PIs, provides SAC feedback/suggestions to PIs for inclusion into full proposals, begins discussions for mergers (if necessary)



Guidelines for Full APS-U Beamline Proposals

- 30 pages max
- Brief Science Case (~10 pages)
- Explicit explanation of use of APS-U characteristics (1 - 5 pages)
 - Should include comparison to similar facilities and evaluate “world class/world leading” status
- Beamline description (10 - 15 page)
 - General layout
 - General discussion of optics
 - List of major components
- R&D needs, if any (2 pages)
- Community/Stakeholder discussion (2 pages)

APS-U will provide
engineering, optics, ID
calculation support



Review Process for Full APS-U Beamline Proposals

- APS-U evaluates for completeness, feasibility, makes rough cost estimates
- Send all proposals to Review Committee for scoring
- Review Committee meets
 - Discussion
 - Finalize scores
- Discussion of results with APS SAC for feedback
- APS/APS-U Management
 - Prioritizes and assigns each proposal as:
 - In scope
 - In contingency
 - Out of scope
 - Assigns beamline location
- Report outcome to proposers



Timeline for Activities and Communications

Timeline	Activity	Communications
T = 0	Call for White Papers	Call for White Papers e-mailed to user community and posted on website
T = 3 months	Review by APS-U Beamline Review Committee	
	APS/APS-U Management Review and Input	Discuss White Papers with SAC, ESAC
T = 4 months	Call for Full Scientific/Conceptual Design Proposal	E-mail to user community and posting on web of request for full proposals and contact info for lead PI
	Notify User Community of White Papers Selected	Present selected White Papers to community APS User Meeting and/or via e-mail and posted on website
T = 7 months	Review by APS-U Beamline Review Committee	
	APS/APS-U Management Prioritization/Selection	
T = 8 months	Present Prioritization/Selection to SAC/ESAC	Results of proposed APS-U BL portfolio e-mailed to user community and posted in website.



Timeline if process starts Monday

Date(s)	Activity
10/26/15	Call: White Papers
1/25/16	Deadline: White Paper
1/29/15 – 2/15/16	Review by APS-U Beamline Committee
2/16/16 – 2/26/16	APS Management Evaluation
3/15/16	Call: Full Proposals
6/1/16	Deadline: Full Proposals
6/2/16 – 6/12/16	APS Management Evaluation
6/13/16	Prioritization/Selection to SAC/ESAC
7/1/16	Announcement of Selection

Beamline enhancements selection

- Guiding principles:
 - No beamline should lose ground in the upgrade
 - The project is responsible for making sure all beamlines have usable beams at project completion
 - We strive to provide improve beamline performance to utilize the improved source
- Objectives of the evaluation and selection process:
 - Evaluate needs on a beamline-by-beamline basis and incorporate necessary enhancement into APS-U scope
 - Includes IDs and front ends
 - Provide a mechanism for enhancements that add extra scientific value to the APS
- Two Tier approach:
 - Criterion 1: Enhancements necessary to provide current level of BL operations
 - Criterion 2: Enhancements that provide significant added capabilities to BL
 - Maximum of ~ \$2M
 - Example: A super conducting undulator in place of a standard permanent magnet device
- Optimize return on the investment (“bang for the buck”)



Timeline and process for beamline enhancements selection

- October: Initiate a BL technical evaluation and needs process
- October - February 1: Each BL responds with an evaluation and needs self-assessment.
 - APS/APS-U will work with beamline staff as necessary to carry this out
 - Self-assessment scope includes optics, stability, source, and front end
 - Criterion 2 proposals will require brief scientific justification
 - i.e., “How this will turn the beamline into a “world class” or “world leading” facility
- February: APS-U/APS evaluates self-assessments, iterates with beamline staff, assembles prioritized Criterion 1 and Criterion 2 minor upgrades
- March: Seek feedback from SAC and ESAC
- March - May: Assemble conceptual design and basis of estimate beamline-by-beamline



Questions?

