

Critical Utilities Infrastructure Revitalization

Subproject 1 – Critical Electrical System Improvements Overview

Janet Kan, Project Director

CUIR Industry Day
29 January 2024

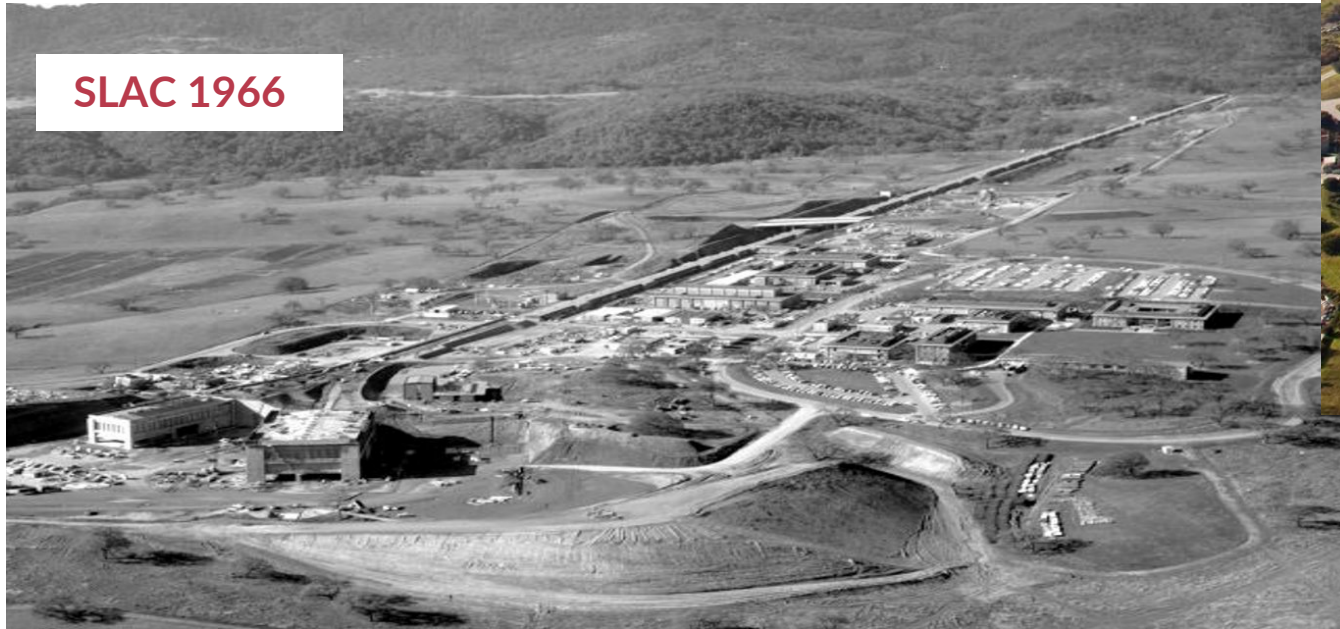
Outline

- CUIR Mission Needs
- CUIR Overall Project
- Subproject 1 Scope and Timeline
- Success Factors

CUIR Mission Needs

Critical Utilities Infrastructure Revitalization (CUIR)

From a Single Purpose Laboratory to
a Multiple Program Facility
with Operation Commitments



TODAY

LCLS-II
FACET-II
Cryo-EM
SSRL
MEC



FUTURE

Adding:
LCLS-II-HE
CRMF
MEC-U
And more...

CUIR's Mission Needs Statement

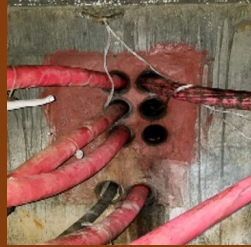
The Critical Utilities Infrastructure Revitalization (CUIR) project provides resilient and reliable electrical, mechanical, and underground civil utility systems that support current and future science by bridging the capability gaps that exist in SLAC's critical utility systems infrastructure that support science.



CUIR Overall Project

Critical Utilities Infrastructure Revitalization (CUIR)

CUIR is tailored into three (3) subprojects, with minimal dependencies between each subproject.



Subproject 1 (SP1)
Critical Electrical System Improvements
Planned 2023 to 2030



Subproject 2 (SP2)
Critical Civil Utilities Replacement and
Upgrades
Planned 2024 to 2032

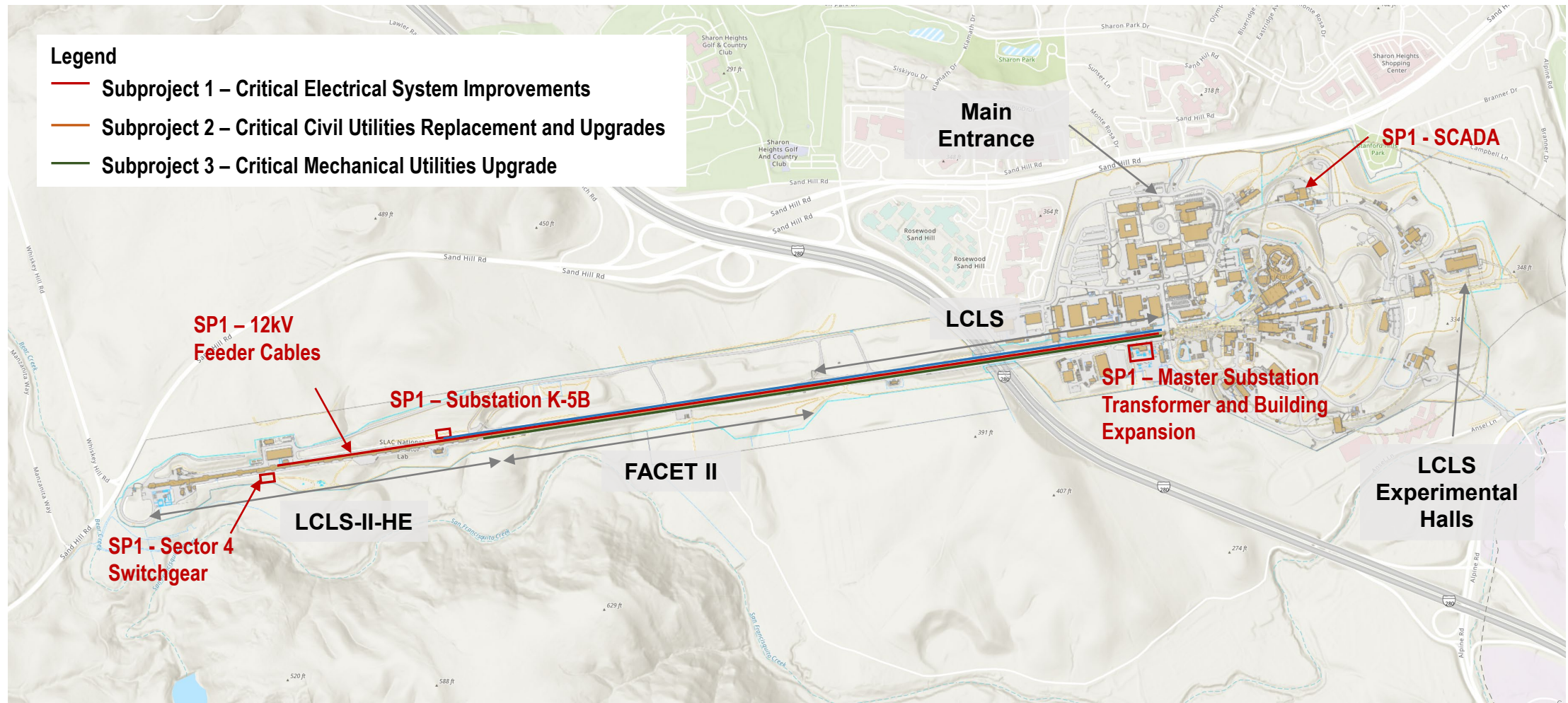


Subproject 3 (SP3)
Critical Mechanical Utilities Upgrades
Planned 2025 to 2034

Utility improvements are grouped within a subproject to align with science needs, downtime coordination, and construction efficiency

Critical Utilities Infrastructure Revitalization (CUIR)

General Locations of Subprojects



Subproject 1 Scope and Timeline

Subproject 1 Scope and Procurement Method

Procurement Method	Subproject 1 – Critical Electrical System Improvements
Government Furnished Property	Medium voltage switchgear, High voltage substation transformers, 12kV medium voltage cables, Sector 4 switchgear
Design-Build	Scope 1: Master Substation (MSS) Improvements
	Scope 2: Linac Power Distribution System Improvements
	Scope 3: Sector 4 switchgear Installation
Design-Build	Roof mounted Cable System Design and Constructability Verification
Design-Bid-Build	New Substation K-5B
Design-Bid-Build	New SCADA Hardware at IR12 (Substation 726)

Subproject 1 Scope and Procurement Method

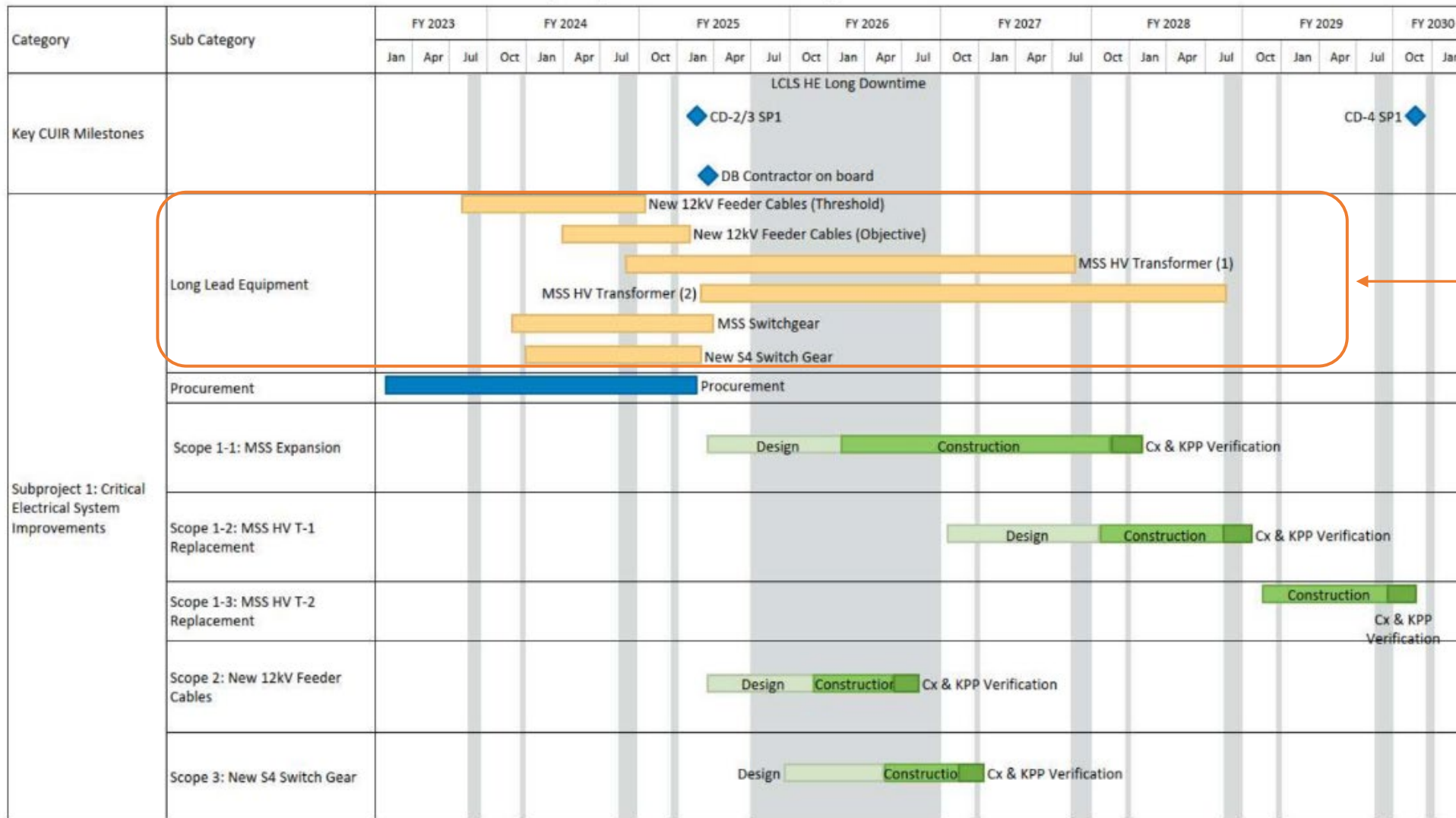
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Today's Focus

Subproject 1 Design Build Subcontract Preliminary Schedule



All Long Lead Equipment (Government Furnished Property) will be installed by the Design-Build Subcontractor

Subproject 1 Design Build Subcontract Preliminary Schedule

Category	Sub Category	FY 2023			FY 2024			FY 2025			FY 2026			FY 2027			FY 2028			FY 2029			FY 2030																
		Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan													
Key CUIR Milestones		LCLS HE Long Downtime																																					
		◆ CD-2/3 SP1																				◆ DB Contractor on board		◆ CD-4 SP1															
Subproject 1: Critical Electrical System Improvements	Long Lead Equipment	New 12kV Feeder Cables (Threshold)												New 12kV Feeder Cables (Objective)						MSS HV Transformer (1)						MSS HV Transformer (2)													
		MSS Switchgear			New S4 Switch Gear																																		
		Procurement																																					
		Design						Construction						Cx & KPP Verification																									
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Design						Construction			Cx & KPP Verification																														
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Proposed schedule of the successful bidder will be used to establish CUIR Subproject 1 schedule baseline in 2Q FY2025

Success Factors

Our Values

OUR VALUES

EXCELLENCE

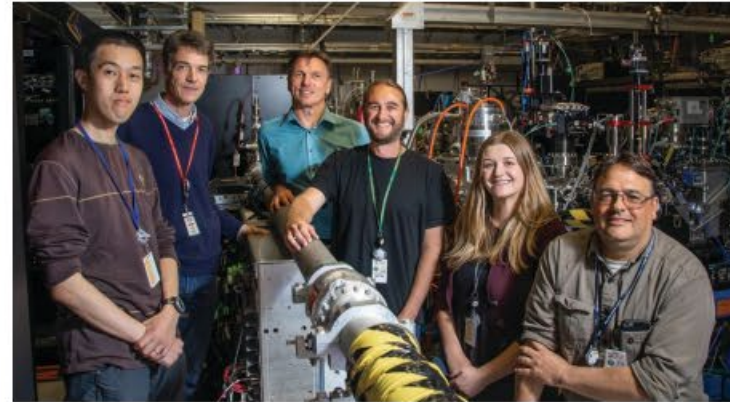
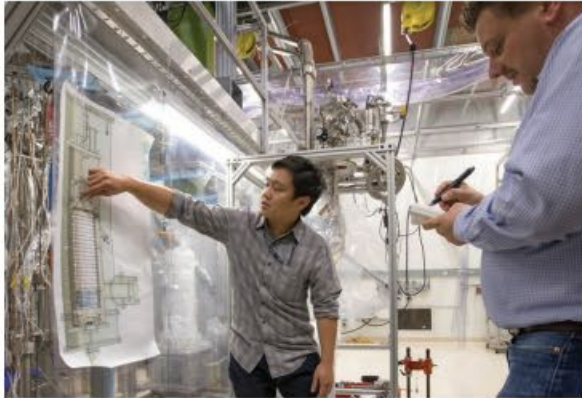
We hold ourselves to the highest standards, continually looking for ways to improve our work, advance our skills and make the best use of our experience and talent.

We achieve outstanding results without compromising safety, security or the environment.

INTEGRITY

We are accountable for our actions and for the culture of the lab.

We are honest and transparent in our conduct, communication and research practices.



COLLABORATION

We are committed to the collective success of SLAC and its user community.

We celebrate our individual strengths and talents while acknowledging that we achieve more by working with others.



RESPECT

We make everyone feel welcome and respected and encourage all to contribute.

We embrace individual differences and welcome the richness and value they bring to SLAC.

CREATIVITY

We explore radically new ideas with courage and confidence.

We bring an optimistic and entrepreneurial spirit to our work.

Success Factors

SAFETY – The project is safe to construct and operate

- Safety is the priority for all work conducted at SLAC. Only safe work is acceptable.
- Never compromise safety to meet project schedule. Safety considerations must be part of work planning and schedule development.
- Rushing through tasks to save time or lowering quality to meet schedule is not acceptable.

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COST – Achieve the project requirements at the lowest practical capital and life cycle cost

- Seek engineering solutions and construction methods to maximize long-term value to SLAC.

Success Factors

STAKEHOLDER IMPACTS – Construct the project with lowest impacts to ongoing SLAC operations and other on-going construction projects

- Be a good neighbor and team player.

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SCHEDULE – Commission the electrical improvements in accordance with baselined schedule in the most expedient manner and in compliance with SLAC safety requirements

- Schedule should be realistic with robust contingency alternatives.
- Safety considerations must be part of work planning and schedule development.

Achieving Success Together



*Thank
You*



U.S. DEPARTMENT OF
ENERGY

Stanford
University



NATIONAL
ACCELERATOR
LABORATORY