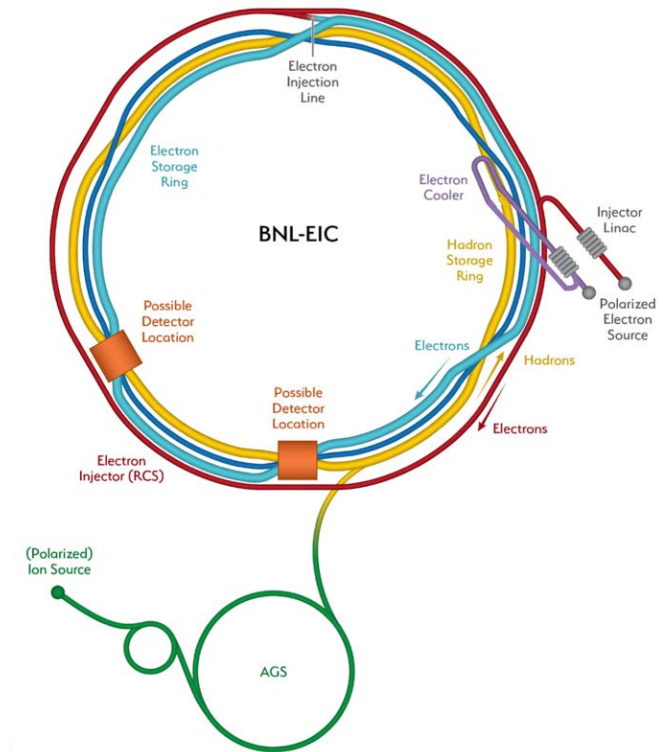


EIC Detector R&D

Funding Status and Plans

Peter Jones, University of Birmingham



UNIVERSITY OF BIRMINGHAM



Brunel University London



University of Glasgow

Lancaster University



UNIVERSITY OF LIVERPOOL



UNIVERSITY of York



Science and Technology Facilities Council

UK Funding Status

- UKRI Infrastructure Fund

EIC Detector R&D awarded £2.97m

Duration 2.5 years (Oct 2021 – Mar 2024)

Three detector work packages: [MAPS](#), [Timepix](#), [Polarimetry](#)

Funded institutes: [Birmingham](#), [Brunel](#), [Glasgow](#), [Liverpool](#), [York](#), [STFC/DL](#), [STFC/RAL \(TD and PPD\)](#)

- Background

UKRI awarded [£50m](#) for investments through the Fund in [FY 21/22 \(First Wave\)](#) and [£481m](#) over three years in [FY22/23 \(Second Wave\)](#)

The application process distinguishes between [Preliminary Activities \(Scoping Projects\)](#) and [Full Implementation \(Infrastructure\) Projects](#)

Current award is a [Preliminary Activity](#)

UKRI Infrastructure Fund (First Wave)

▪ FY21/22 Recipients

Project Name	FY21/22 Award (£)
Digital Research Infrastructure	17,000,000
The SKA Observatory	14,750,000
UKRI Airborne Laboratory	5,500,000
Diamond II	2,500,000
National Preclinical Phenotyping Platform	2,200,000
ISIS II	1,500,000
Relativistic Ultrafast Electron Diffraction and Imaging	1,360,000
John Innes Centre / The Sainsbury Laboratory Next Generation Infrastructure	1,000,000
Electron-Ion Collider	990,000
Hyper-Kamiokande	650,000
Service Robotics proving ground	500,000
Population Research UK	450,000
CO2 Storage Testbed	434,000
CoSTAR - A national infrastructure for creative research and innovation	410,000
Floods Infrastructure	260,000
RICHes (Research Infrastructure for Conservation and Heritage Science)	200,000
Ultra-high-field 1.2 GHz NMR spectrometer	25,000
	<hr/> <hr/> 49,729,000

As a **capital fund**, it was received as a single-year budget
STFC have made the EIC a “3-year” (£2.97m) award – over 2.5 years
FY21 £0.6m, FY22-23 £2.3m

UKRI Infrastructure Fund (Second Wave)

Full Infrastructure Projects

	FY22-FY24	Total	Start
Full Infrastructure Projects	Award (£)	Award (£)	Year
Diamond-II	81,500,000	296,600,000	2022
John Innes Centre and The Sainsbury Laboratory Next Generation Infrastructure	54,700,000	317,700,000	2021
UKRI Airborne Laboratory	37,000,000	49,000,000	2021
The Square Kilometre Array Observatory (SKAO)	33,200,000	66,700,000	2021
UK Biobank Phase 2	29,000,000	127,600,000	2023
CoSTAR: a national infrastructure for creative research and innovation	24,200,000	69,300,000	2022
Vulcan 2020: Science in Extremes	19,800,000	59,700,000	2023
1.2 GHz Nuclear Magnetic Resonance (NMR) Spectrometer	16,100,100	17,600,000	2021
Research Infrastructure for Conservation and Heritage Science (RICHeS)	15,800,000	59,500,000	2024
National facility for ultra-high field (11.7T) human MRI scanning	15,000,000	29,100,000	2023
Floods and Droughts Research Infrastructure (FDRI)	13,000,000	38,000,000	2023
Simons Observatory (SO:UK)	12,600,000	18,300,000	2022
EMBL-EBI: Data Resources for the Life Sciences Phase 2	12,400,000	80,700,000	2024
Adolescent Health Study: a step change for adolescence research	9,700,000	61,900,000	2023
Total Body PET platform	9,700,000	32,100,000	2024
HiLUX	8,600,000	17,200,000	2023
BioFAIR	6,300,000	TBC	2024
Hyper-Kamiokande	6,200,000	TBC	2021
Population Research UK (PRUK)	5,400,000	9,000,000	2021
DigitalFootprints	5,300,000	49,300,000	2023
Endeavour: next generation capability for the ISIS Neutron and Muon Source	3,400,000	73,500,000	2023
Large Hadron Collider beauty (LHCb) 2030+	1,100,000	49,400,000	2024
Early Life Cohort: a next generation longitudinal data infrastructure for the UK	600,000	28,000,000	2024
	<u>420,600,100</u>		

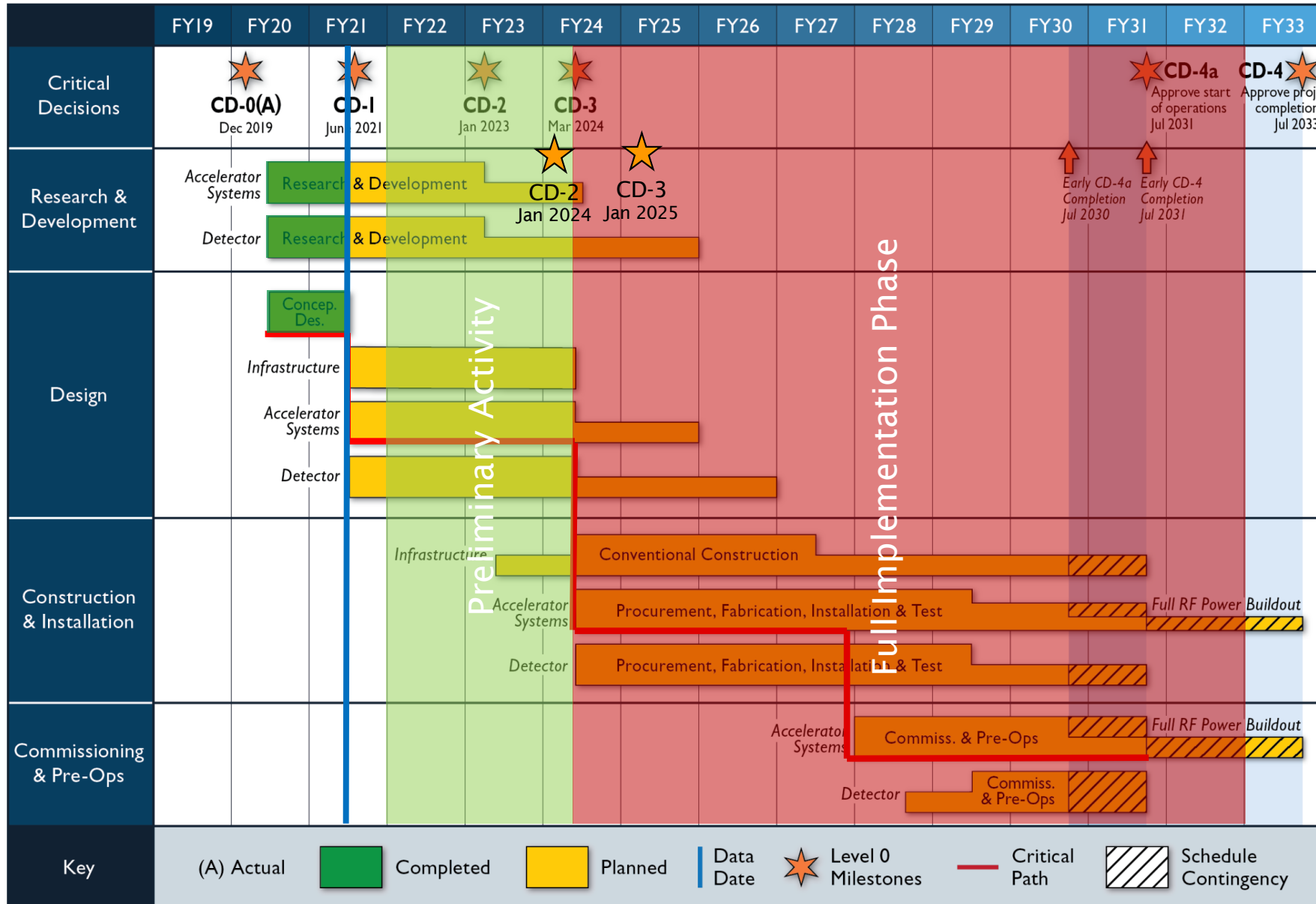
UKRI Infrastructure Fund (Second Wave)

▪ Scoping Projects

	FY22-FY24	Total	Start
Scoping Projects	Award (£)	Award (£)	Year
ISIS-II feasibility, design studies and research and development	3,900,000	5,100,000	2021
X-ray Free Electron Laser (XFEL): conceptual design and options analysis	3,200,000	3,200,000	2022
Boulby Underground Laboratory: Dark Matter and Beyond scoping project	2,800,000	2,800,000	2022
Diamond-II scoping project	2,800,000	5,300,000	2021
Relativistic Ultrafast Electron Diffraction and Imaging (RUEDI) scoping project	2,600,000	3,000,000	2021
UK Plant and Crop Phenotyping Infrastructure scoping project	2,400,000	2,400,000	2022
Electron-Ion Collider (EIC) scoping project	2,300,000	2,900,000	2021
CO2 Storage Laboratory: Phase 2 scoping project	2,000,000	2,000,000	2022
Ion Therapy Research Facility scoping project	2,000,000	2,000,000	2022
	<u>24,000,000</u>		

Total investment over 3 years (FY22-FY24) totals £481m

International Project Schedule



UK-EIC Detector R&D Project

UK Future Funding

- UKRI Infrastructure Fund

Annual process for **Preliminary Activities (Scoping Projects)**

Bi-annual process for **Full Infrastructure Projects**

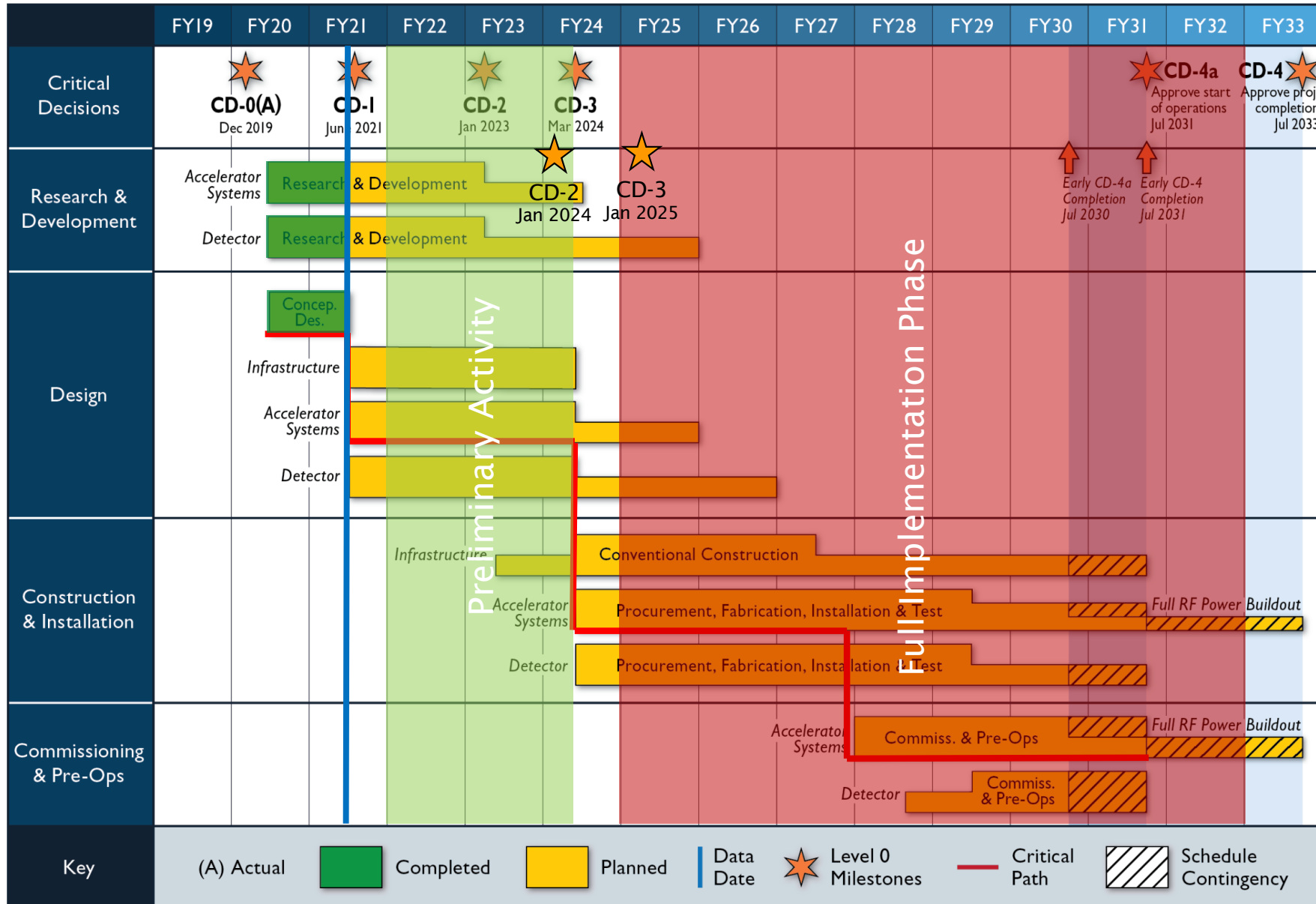
Next opportunity to apply (for both types) is 2023

Funding would start in FY24; earliest October 2024

Option 1: **Full Infrastructure Project** – Final Design & Construction (8 years)

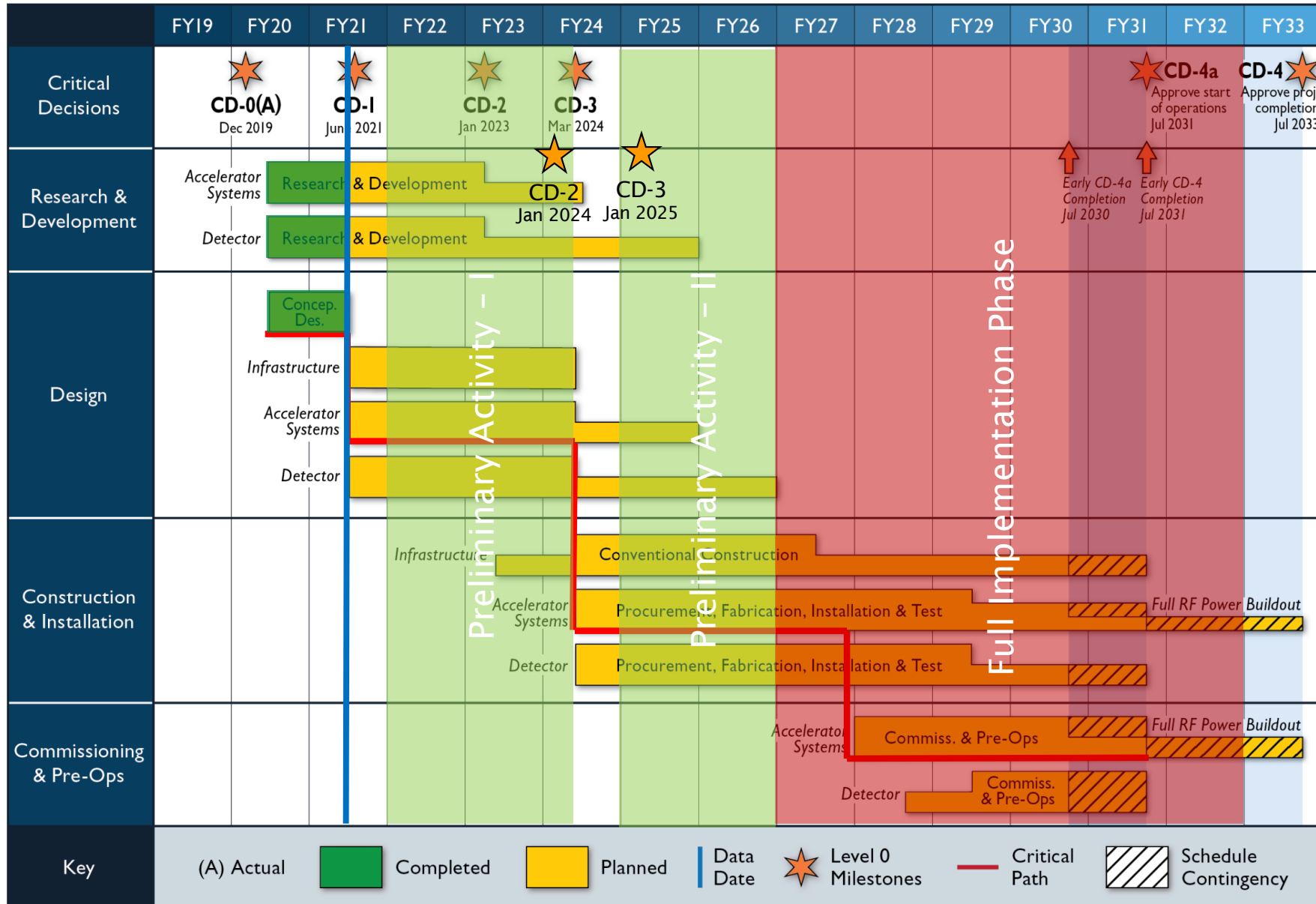
Option 2: **Scoping Project** – Final Design (2 years), followed by **Full Infrastructure Project** – Construction (6 years)

International Project Schedule



UK-EIC Detector R&D Project

International Project Schedule



UK-EIC Detector R&D Project

UK Future Funding

- UKRI Infrastructure Fund

Annual process for **Preliminary Activities (Scoping Projects)**

Bi-annual process for **Full Infrastructure Projects**

Next opportunity to apply (for both types) is 2023

Funding would start in FY24; earliest October 2024

Option 1: **Full Infrastructure Project** – Final Design & Construction (8 years)

Option 2: **Scoping Project** – Final Design (2 years), followed by **Full Infrastructure Project** – Construction (6 years)

The current funding phase coincides with **CD-2 (Approve Performance Baseline)**. This will be followed by a final design phase culminating in Technical Design Reports needed for **CD-3 (Approve Start Construction)**.

Clear that formal commitments for in-kind contributions will not be in place for the next bid, arguing that **option 2** is the way to go.

Advertisement

- Resumption of EIC Generic R&D Program

Jefferson Lab, in association with Brookhaven National Lab and the DOE Office of Nuclear Physics, is pleased to announce that **the EIC-related generic detector R&D program is resuming and immediately calling for proposals.**

For more information, proposal guidelines, and proposal submission information, see https://www.jlab.org/research/eic_rd_prgm.

Please submit proposals by 5pm EST on July 25, 2022. Your response by then, despite the short deadline, will be greatly appreciated.

- Areas of interest

Particle identification, calorimetry, tracking and readout electronics.

Upgrades for **Detector 1** and new technologies for **Detector 2**.

Annual proposal and final report cycle.

Funding awarded on year-to-year basis through contracts with JLab.