



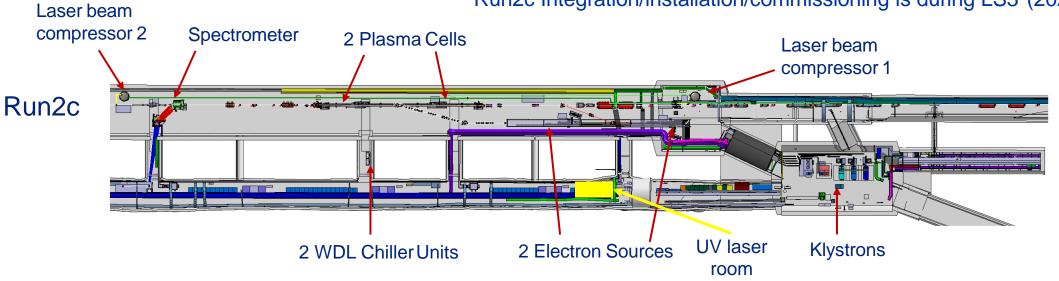
# **Getting ready for Run 2c**

Eloïse Guran, CERN

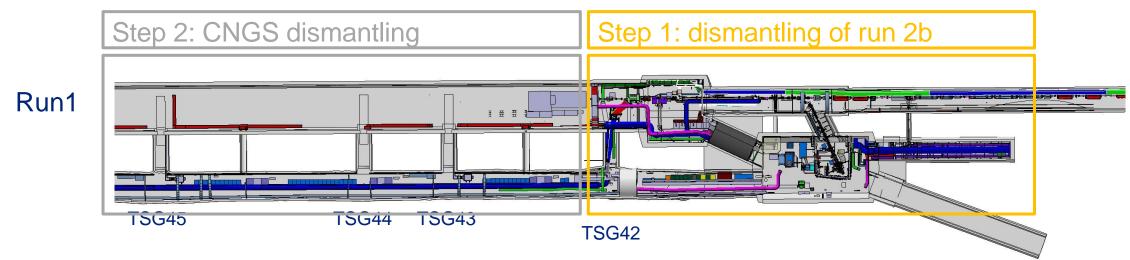
AWAKE Collaboration meeting 11-13 March 2024

#### Getting to run 2c No total Run1 & Run2ab TSG45 TSG4 TSG4 TSG45 TSG44 TSG43 TSG42

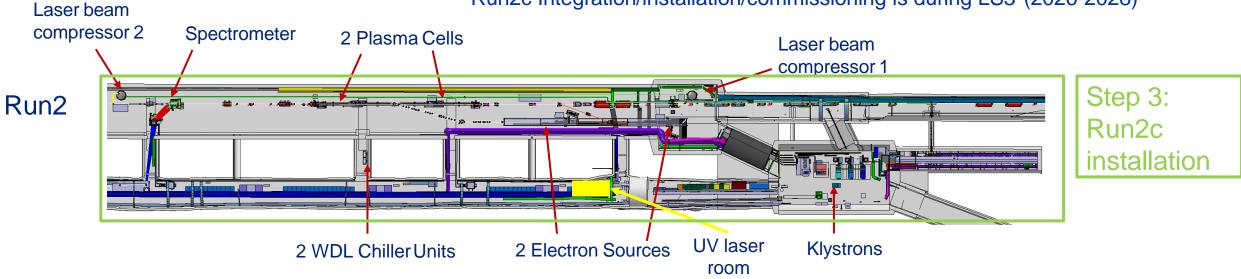
AWAKE CNGS Area Dismantling is before & during LS3 (2025-2026) Run2c Integration/installation/commissioning is during LS3 (2026-2028)



#### **Getting to run 2c**



AWAKE CNGS Area Dismantling is before & during LS3 (2025-2026) Run2c Integration/installation/commissioning is during LS3 (2026-2028)

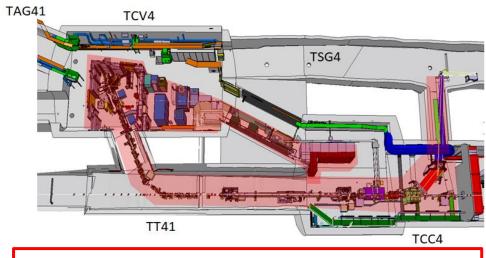


### **Timeline for AWAKE dismantling & decabling**

		20	)21			20	22			20	23			20	24			20	25			202	26			20	27			20	28	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	<b>Q</b> 4
Injector schedule (SPS)	L	.\$2		Y	ets			Y	ets			Y	ets			E	YETS						LS3									
Run 2a - Operation																																
Run 2b - Installation new plasma source																																
Run 2b - Operation																																
CNGS & AWAKE dismantling																																
Run 2c - Installation services, cables, equipment																																
Run 2c - Hardware commissioning																																
Run 2c - Commissioning with beam & operation																																

			2024			2025								
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June			
Operation Run 2b														
Run 2b dismantling				4 mont	ns 🖉									
Disconnection/decommissioning of all equipment			2 mo	nths										
Transport of equipment					3 months	5								
Decabling of Awake														
Identification of cables with purple tape				4 mont	ns									
decabling campaign							2 ma	nths						
CNGS dismantling										15 mont	hs			

- End of Awake operations: September 2024
- Run 2b dismantling: 2months of decommissioning + 3 months of transport
- Decabling: ~2 months of works



#### Decabling = all cables linked to a dismantled equipment + obsolete cables

Step 1

#### **Timeline for AWAKE dismantling & decabling**

		2021			2022				2023			2024				2025				2026					20	027		2028				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Injector schedule (SPS)	Ľ	s2		Y	'ETS			Y	ets			Y	ets			E	YETS						LS3									
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1			_	2024					_	_	2	025				וך	Wk	Jul 27	Physics sta HIE-ISOLD	rt E	20		Aug		Pb lons to LEIR	1 24	Ser	,	Pb lons to PS		Pb lons to SPS	-
Operation Run 2b	Au	g. S	ept.	Oct.	No	ov.	Dec.	Jan.	F	eb.	March	Ар	oril	May	Jun	e	Mo	_	- 1	•	11		21	32	5			z ♦	, 3/ 	• ∲ ∧	30 16	
Run 2b dismantling Disconnection/decommissioning of all equipment Transport of equipment	t					month month 3	<u>//////</u>	5			D	R	4	<b>\F</b>	T		We Th Fr Sa	C TRUE RESULTS			4. H) MC 62 - 31 (23 90 - 31 (25 9			T	C 74.783/913 100.110 100.110 100.110 100.110	3 1			G			
Decabling of Awake Identification of cables with purple tape decabling campaign					4	1 mont	ths			2 m	nonths					i	Su							End Ph SPS-N	ysics Physics A p+ SPS-NA	start Phy Pbions PS-	ysics start End EA Pb ions PS-E	and the second second				
CNGS dismantling										2 11	Ionthis		1	.5 mon	ths		WE	Oct 40	_		End 25 n: (08:00	run Start LHC ) p-p ref rur	Nov tol	IC SPS-	NA 46	Physics start LHC Pb ions 47	Dec 48	C (06:00)	HC run End of ru (D6:00) 9 50		51	52
<ul> <li>End of Awake operations: Oc</li> <li>Run 2b dismantling: 2months</li> <li>Deschling: 22 months of wor</li> </ul>	s of				sior	ing	+ 3	mo	nth	s of	tra	nsp	ort				Mo Tu We Th Fr Sa	40		7			44					-	, 50	evers	35 Ar	23 1023 1023

• Decabling: ~2 months of works

If the 2 additional weeks of beam approved  $\rightarrow$  ~1month shift

Su

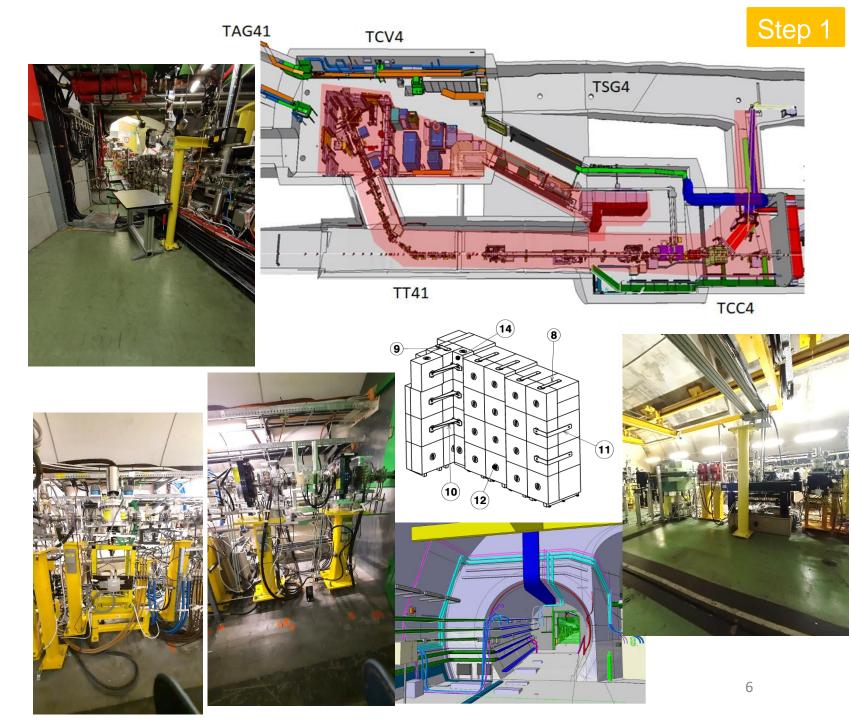
Step 1

## **Run 2b dismantling**

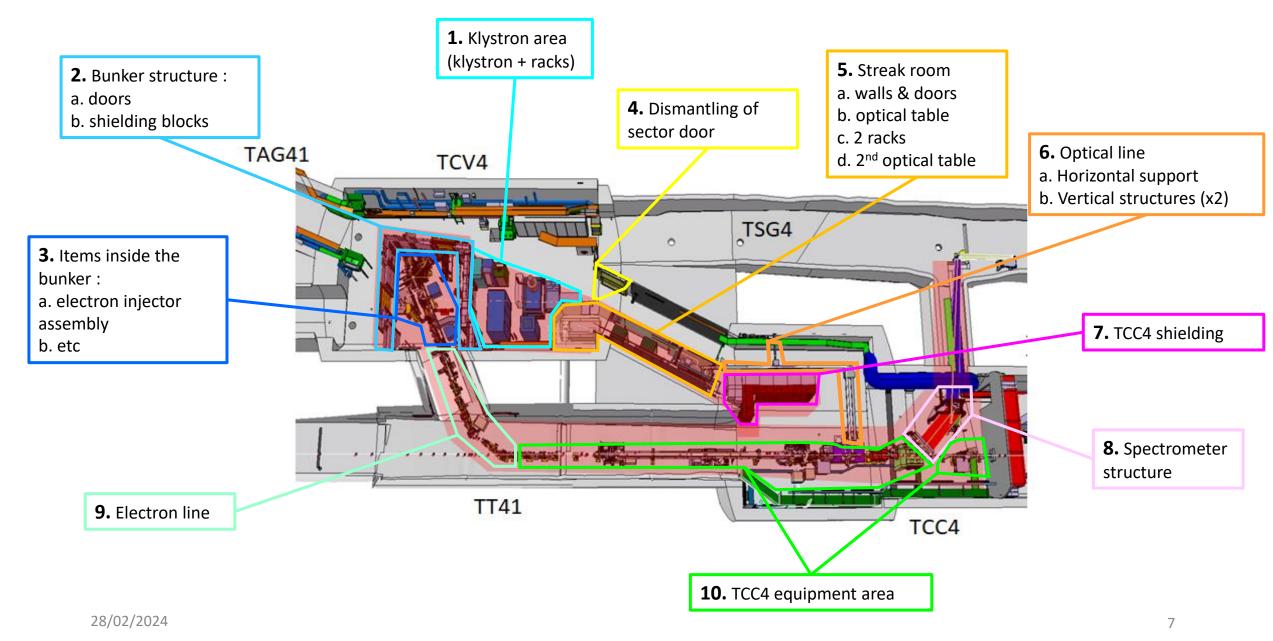
Estimated:

- 15T of equipment
  - 11 racks
  - 8 optical tables
  - 17 BTVs + 6 BPMs
  - 28 magnets
  - RF gun + klystron + waveguides
  - Plasma source
  - ~20 girders
- 50T of shielding blocks (~90blocks)





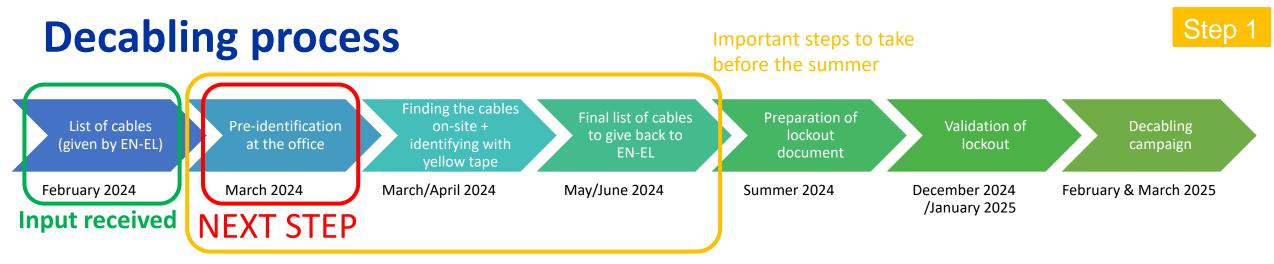
### **Dismantling sequence for transport**



#### **Motivation for decabling**



- Cable trays in Awake are 400% full
- Main goal of decabling: ensure a clean infrastructure for future cables needed for run2c



Two main documents of work :

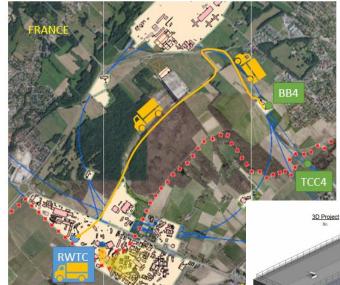
- the cable list (DEC): it states clearly which cable should be removed or not
  - approved on edms by all equipment owners
- the **lockout document**: it states which equipment/racks are going to be locked out
  - approved on edms by equipment owners, group and department leaders

	INFO	RMATIO	N SUR LE DO	CUMENT		PREPARATION BUREAU	ORIGINE	IDENTIFIC	ation suri	PLACE	DESTINATION	IDENTIFIC	ATION SUR	LACE	
ENTER CABLE LIST VERSION Document						AC: Evalué, à conserver AD: Evalué, à déposer	0 0	CES: Trouvé- DOV: Trouvé-			,	CES: Trouvé- DOV: Trouvé-			-
EN	TER AREA OF W	/ORK	>> Cable No:		~~~~	AG: Evalué, à un autre groupe AV: Evalué, à vérifier sur place DR: Déjà retiré	0 0 0	PT: Pas trouvé DR: Déjà retiré			0	PT: Pas trouvé DR: Déjà retiré			
Snip	ping Tool					TOTAL	0	TOTAL			0	TOTAL	1		
Vs	Câble	Trancon	Туре Т	Туре В	Réseau	Description	10	1PF	10uv	1 Elément	ID	2 PF	2 Ouv	2 Elément	ю
Ψ.	*	Ŧ	¥	Ψ.	Ŧ	<b>*</b>	•	*	~	v	•	•	Ŧ	*	· ·
A	600032	A	NE26	NE26	1001	SPARE		RX7436=BA49	BA49	ANCIEN 65380		RAL0005=TA41	TA41		
A	600033	A	NE26	NE26	1001	SPARE		RX7436=BA49	BA49	ANCIEN 65372		RAL0005=TA41	TA41		
A	600034	A	NE26	NE26	1001	SPARE		RX7436=BA49	BA49	ANCIEN 65373		RAL0005=TA41	TA41		
в	600035	A	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		
в	600036	А	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		
в	600037	А	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		
в	600038	А	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		
3	600039	А	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		
3	600040	A	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		
в	600041	А	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		
3	600042	A	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		
3	600043	A	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		
аΤ	600044	А	NE18	NE18	1001	CABLE ENLEVE		RX0620=BA49	BA49	3		RAL0005=TA41	TA41		

Example of cable list

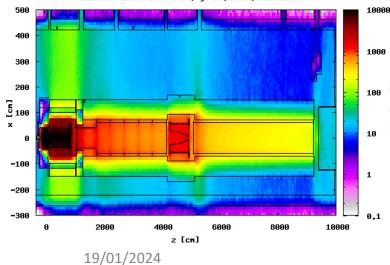
#### **CNGS** dismantling





Step 2





[uSv/h]

H\*(18)

**CNGS BEAM LINE** TOTAL LENGTH ≈ 100m 2m. 200 REFLECTOR ASSEMBLY H TANK 1 ASSEMBLY ±7m HORN ASSEMBLY TARGET AREA TBID ASSEMBLY ±8.5m ±0.3m

10

HTANK2

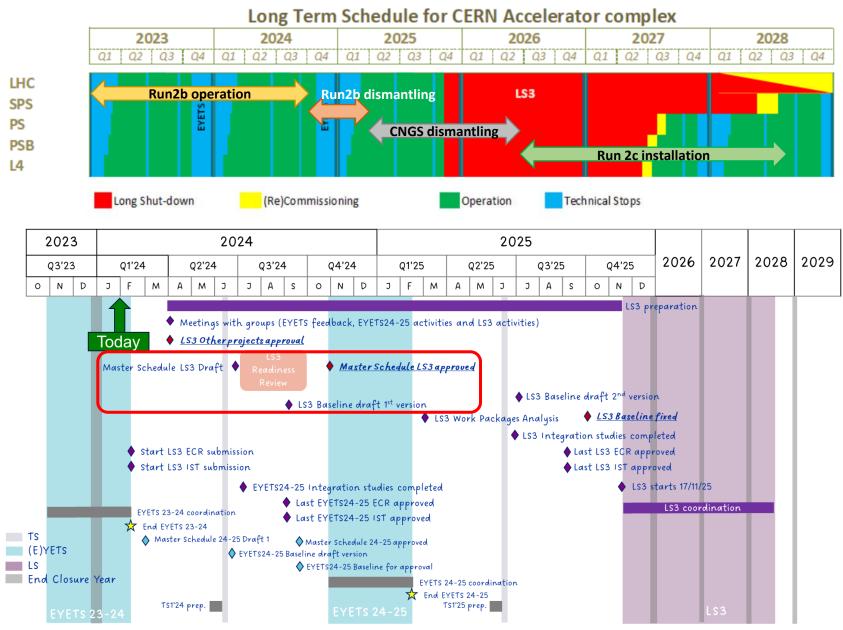
ASSEMBLY

±41m

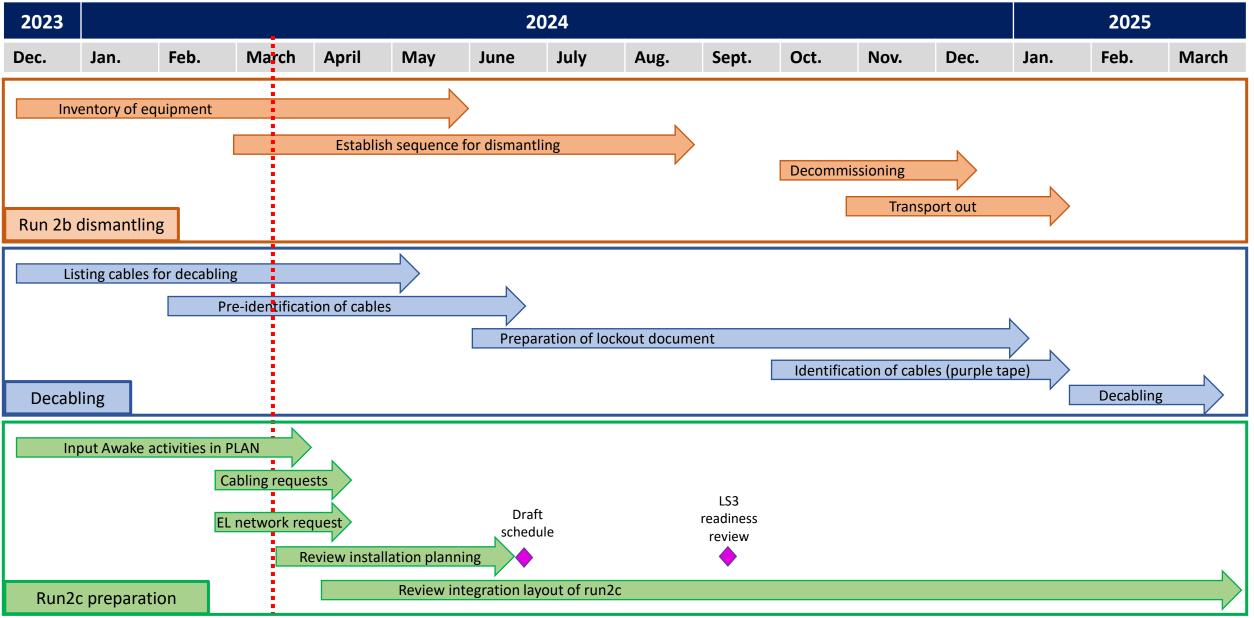
#### **Run 2c installation**

Step 3

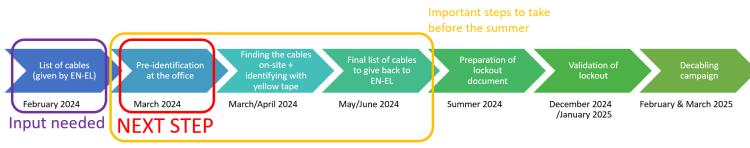
- Installing run 2c during LS3 brings some constraints:
  - Availability of resources
  - Respect deadlines linked to LS3 even though the project is not yet approved
- For AWAKE, next milestones:
  - PLAN activities by 31.03.2024
  - Cabling request by 15.04.2024
- Electrical network request by 15.04.2024
  - Review of run2c schedule for June 2024



#### **General Awake roadmap**



### Summary



#### 3 Main steps towards run 2c readiness:

- Step 1: AWAKE run 2b dismantling & decabling •
  - Takes place from October 2024 to January 2025
  - Decabling : Pre-identification of cable list
- Step 2: CNGS dismantling
- Step 3: new installation  $\rightarrow$  Next milestones to prepare the path for run 2c:

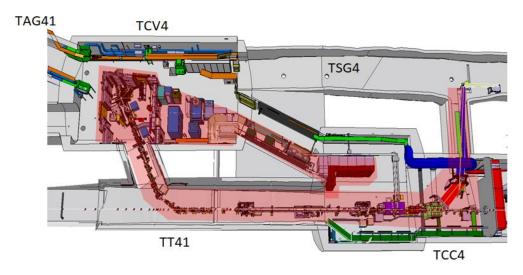
PS

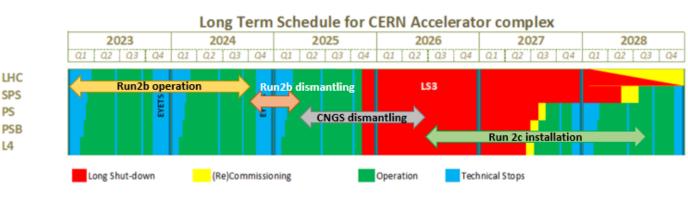
14

- Before 31.03.2024
  - Enter your activity in PLAN
- Before 15.04.2024 •

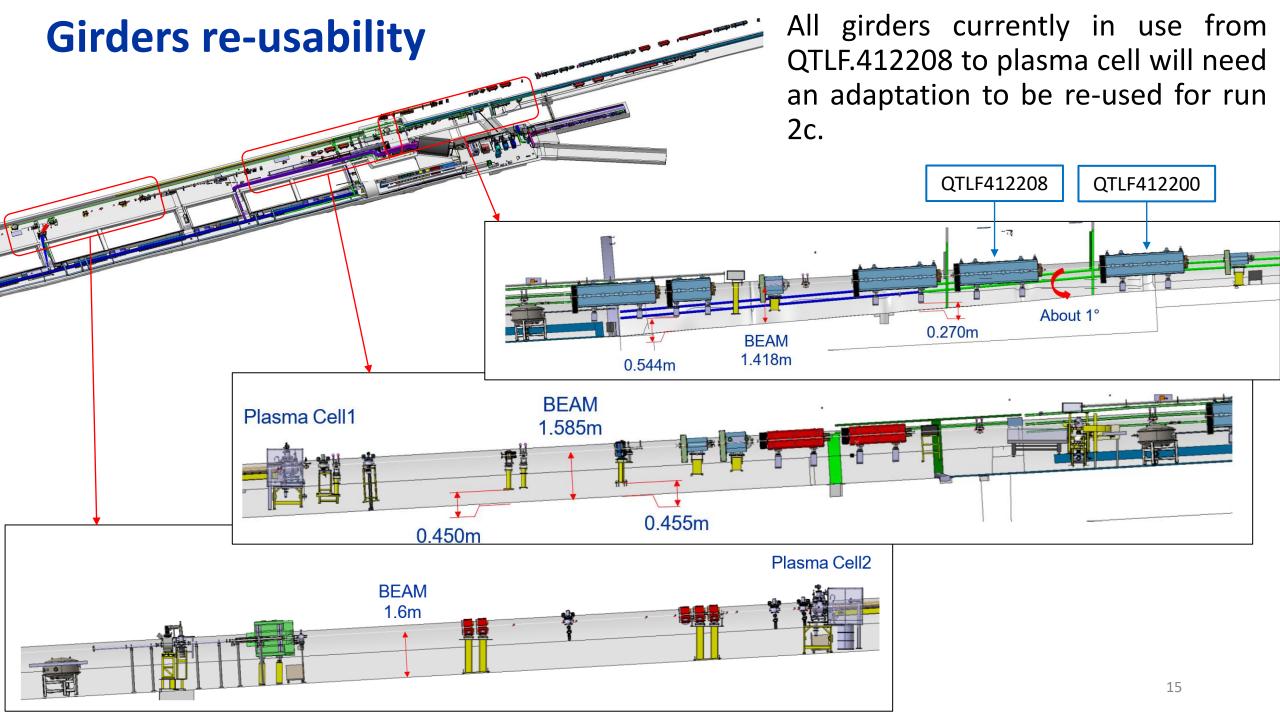
Send cabling request

- Send request for new electrical network
- For June 2024
  - Review run 2c installation schedule



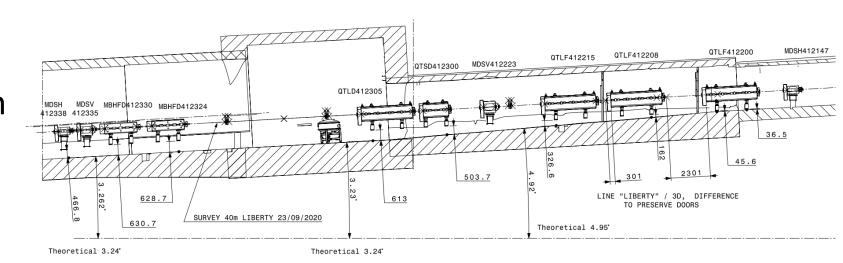


# **Back up slides**



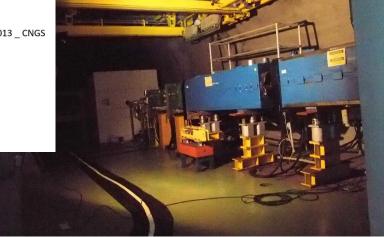
#### **Girders re-usability**

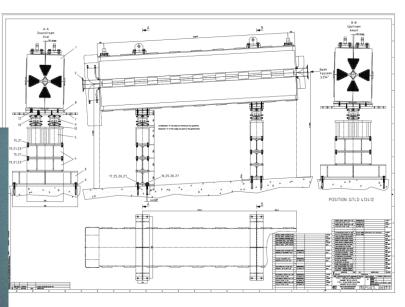
Missing height ranges from 162mm to 613mm.





Scan 2013 \_ CNGS





#### **AWAKE run 2c installation schedule**

			2026		2027	2028
		Half 1, 2026	Half 2, 2026	Half 1, 2027	Half 2, 2027	Half 1, 2028 Half 2, 2028
Task Name 🗸 🗸	Duration 👻	JFMAMJ	J A S O N D	J F M A M	J J A S O N D	JFMAMJJJASOND
Run 2c Preparation	515 days	Run 2c Preparation				
Survey of cleared out CNGS area	4 wks	-				
Displacement magnets from TT41 to end of TCC4	1 mon	-	Displacement magnets from TT	41 to end of TCC4		
Survey - marking out the new component beam points	1 day		Survey - marking out the new o	component beam points on	the floor (reference for installation and	d other services)
Displacement magnets from TCC4 to TT41	1 mon		Displacement magnets fro	om TCC4 to TT41		
Installation services	8 mons	-	~8 months			
All services installed	0 days		All services inst	alled 🔶 08.02		be updated
Access	1 wk		-			
Start equipment install	0 days		Start equipment install 🔶 16.11		~1 year	
Installation equipment	12 mons		Installation equipment		1 year	
All equipment installed	0 days				All equipment installed 🔶 01.11	
Access	8 wks					
Installation RP equipment	2 wks			Installation RP	equipment	
Survey (/!\ no activities in parallel /!\)	5 wks				~	'15 months
Commissioning	15 mons		Commis	sioning 🛥		
Hardware commissioning	11 mons		Hardware comm	issioning	~11 months	-
Electron & laser beam commissioning	2 mons					Electron & laser beam commissioning
Proton beam commissioning	1 mon					Proton beam commissioning
1st date proton beam is needed	0 days				1st date proton beam	n is needed 🔶 20.03
Global commissioning (all 3 beams)	1 mon					Global commissioning (all 3 beams)
Operation (electron acceleration)	24 mons					
RUN2d	24 mons					
External activities	2283 days					
LS3 - injectors shutdown	13 mons	LS3 - injectors shutdown				
YETS 2027	3 mons			YETS 2027		
YETS 2028	3 mons					YETS 2028