

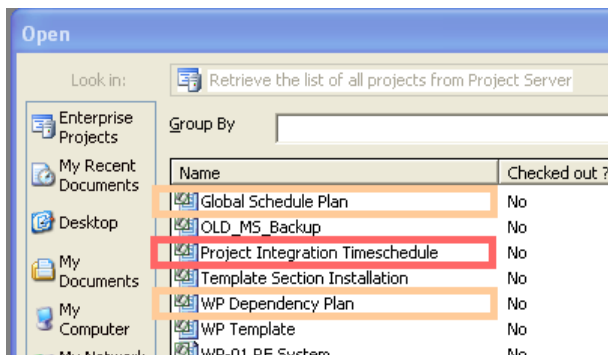


# Photon Beamlines Installation Schedule

Status: 2012 KW19

open questions and conflicts

# Project Integration Timeschedule PIT



- to have an overview of the scheduling of all the different parts of the project
- to link the major / top level milestones to their constituent sub-projects
- not meant for detailed planning

	Task Name	Duration	Start	Finish	Free Slack	Total	Sep
0	Project Integration Timeschedule	#####	#####	#####	0 dys?	0	
1	+ Incoming	960 dys?	Mon 22.08.11	Mon 27.04.15	235 dys?	235	
107							
108	Start Klystron Installation	1 dy?	Mon 01.04.13	Mon 01.04.13	0 dys?	49	
109							
110	+ Injektor	761 dys?	Mon 02.07.12	Mon 01.06.15	209 dys?	209	
189	+ Main Linac	#####	Mon 30.01.12	Wed 09.12.15	72,33 dys?	72,33	
557	+ Shaft Buildings	686 dys?	Mon 01.07.13	Mon 15.02.16	24 dys?	24	
583	+ Dumps	808 dys?	Tue 02.10.12	Thu 05.11.15	96 dys?	96	
596	+ Photon Beamlines	1080 dys?	Mon 30.01.12	Fri 18.03.16	0 dys?	0	
754							
755	+ Machine commissioning	10 dys	Wed 25.11.15	Wed 09.12.15	72,33 dys	72,3	
757							
758	+ Instruments	300 dys	Tue 06.01.15	Mon 29.02.16	14 dys	1	
765							
766	+ Outgoing	1190 dys?	Mon 22.08.11	Fri 11.03.16	5 dys?	5	
868							
890							
944							

- already 960 lines (944 + 16 top level milestones) in the PIT

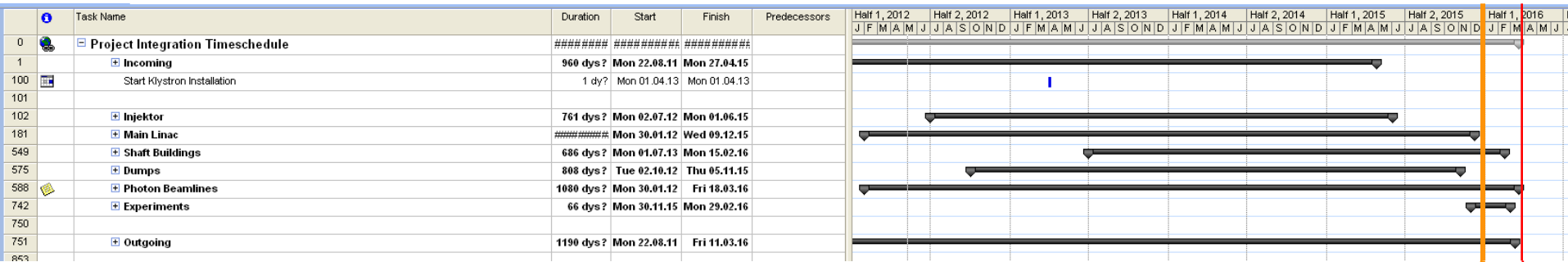
- incoming milestones ca. 100
- outgoing milestones ca. 180
- 79 for Injektor (90 m)
- 388 for main Linac (2.1 km)
  - ca. 120 for infrastructure
  - ca. 230 for Linac
- 150 for Photon beamlines
  - ( ca. 10 per tunnel)

## Shifting completion dates

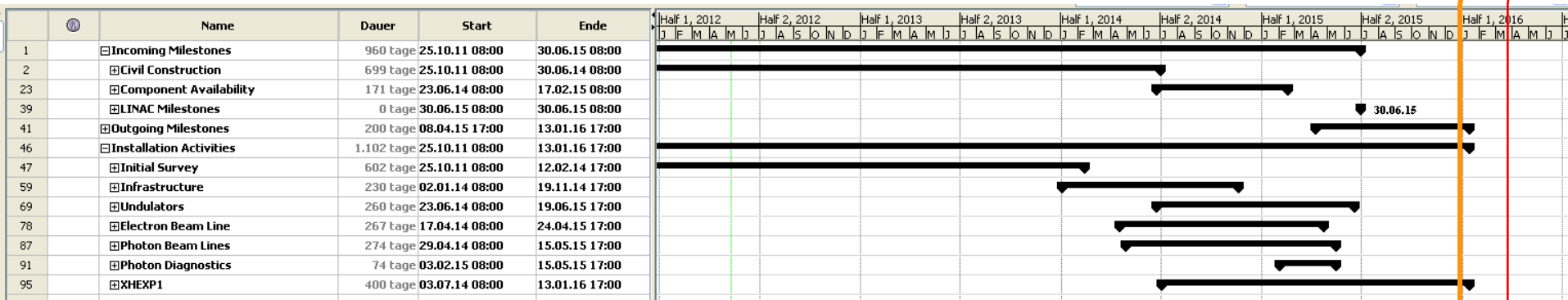
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Milestones and tasks should not be pushed further

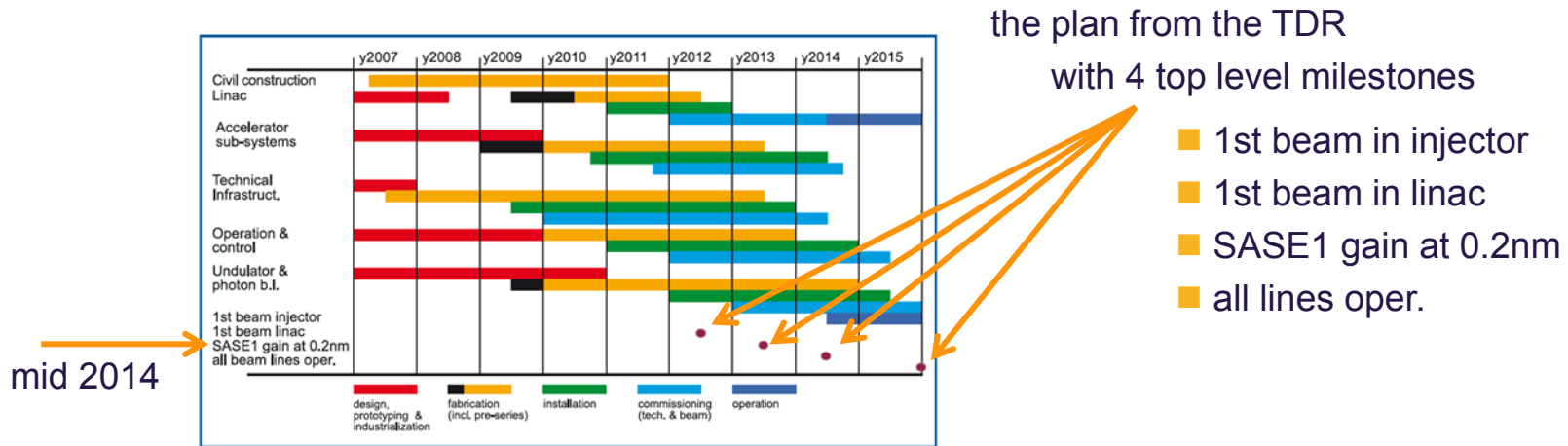
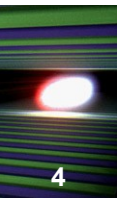
Current view of the PIT



PBS-Installation Plan from one year ago



## Top Level Milestones



**Figure 10.4.1** Sketch of the schedule for the six work package groups from start of construction to beginning of operation.

	Task Name	Duration	Start	Finish	Free Slack	Total Slack	redecessor	Half 1, 2012	Half 2, 2012	Half 1, 2013	Half 2, 2013	Half 1, 2014	Half 2, 2014	Half 1, 2015	Half 2, 2015	Half 1, 2016
								J F M A M J	J A S O N D	J F M A M J	J A S O N D	J F M A M J	J A S O N D	J F M A M J	J A S O N D	J F M A M J
929																
930	First beam to Injector Dump															
931	First beam to Main Dump															
932	First e-beam to XSDU1	0 dys	Fri 04.12.15	Fri 04.12.15	25 dys	75 dys	573;667;586									
933	First e-beam to XSDU2	0 dys	Fri 23.10.15	Fri 23.10.15	35 dys	105 dys	566;656;586									
934	First SASE1 Photons in XHEXP1	0 dys	Fri 11.12.15	Fri 11.12.15	0 dys	70 dys	933;831									
935	First SASE2 Photons in XHEXP1	0 dys	Fri 08.01.16	Fri 08.01.16	0 dys	50 dys	932;816									
936	First SASE3 Photons in XHEXP1	0 dys	Fri 11.03.16	Fri 11.03.16	0 dys	5 dys	933;836									
937	SASE1 Instruments ready for beam	0 dys	Thu 27.08.15	Thu 27.08.15	77 dys	147 dys	856									
938	SASE2 Instruments ready for beam	0 dys	Fri 30.01.15	Fri 30.01.15	246 dys	296 dys	846									
939	SASE3 Instruments ready for beam	0 dys	Fri 25.09.15	Fri 25.09.15	121 dys	126 dys	856									
940	SASE1 Instruments ready for user operation	0 dys	Fri 11.12.15	Fri 11.12.15	65 dys	70 dys	934;937									
941	SASE2 Instruments ready for user operation	0 dys	Fri 08.01.16	Fri 08.01.16	45 dys	50 dys	938;936									
942	SASE3 Instruments ready for user operation	0 dys	Fri 11.03.16	Fri 11.03.16	0 dys	5 dys	938;936									
943	First Lasing Possible															
944	End of Construction															
945	User Operation															

end 2015

a top level milestone collection from the PIT

- 1st e-beam in XSDU2
- 1st SASE1 photons in XHEXP1
- SASE1 instrument ready for user

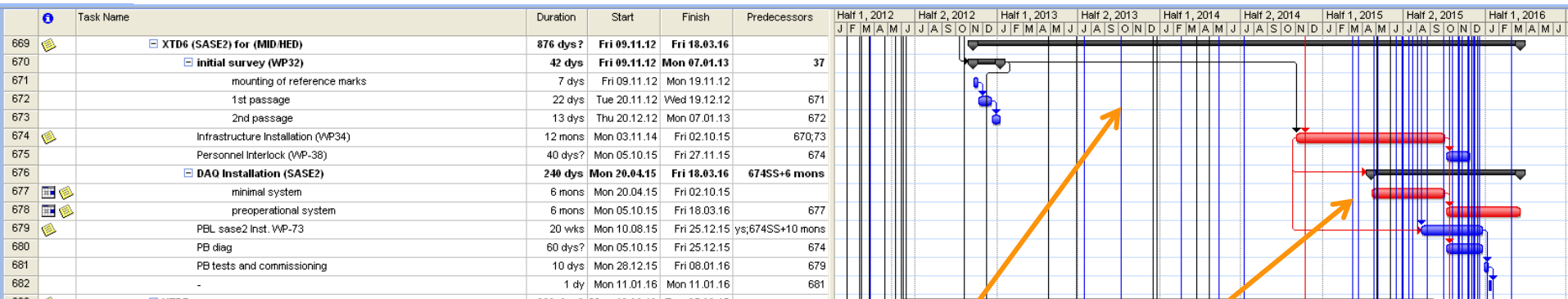
a top level milestone collection  
from the PIT

- 1st e-beam in XSDU2
- 1st SASE1 photons in XHEXP1
- SASE1 instrument ready for user

## Current Critical Path

5

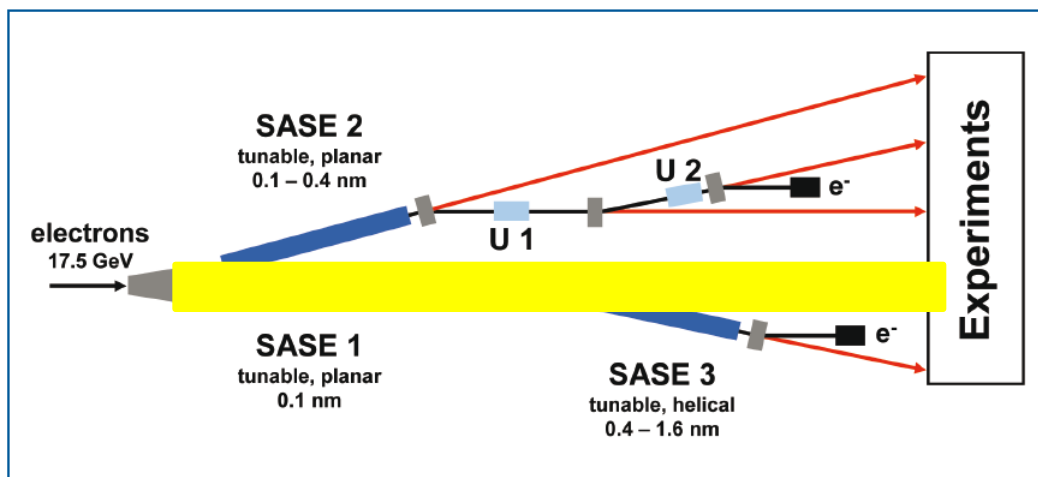
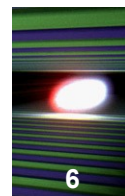
## A recent look at the critical path in the PIT



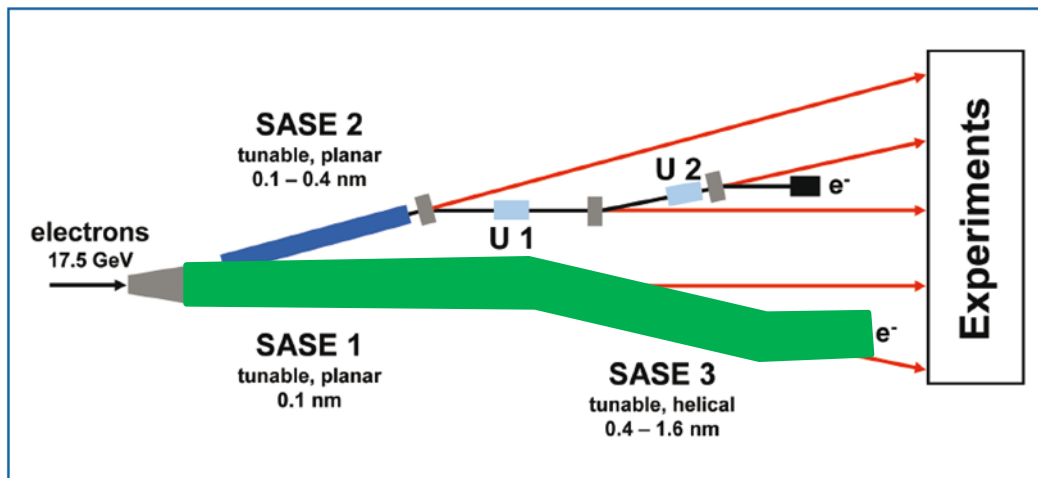
long pauses between activities

even arbitrarily introduced overlaps  
don't slacken the situation

# Top Level SASE1 Depends on SASE3



**Figure 4.2** Schematic view of the branching of electron (black) and photon (red) beamlines through the different SASE and spontaneous emission undulators. Electron beamlines terminate in the two beam dumps and photon beamlines in the experimental hall. (from TDR)



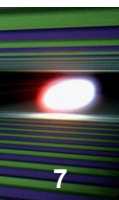
## SASE 1 Photon Beamline

- XS1
- XTD2
- XS3
- XTD9

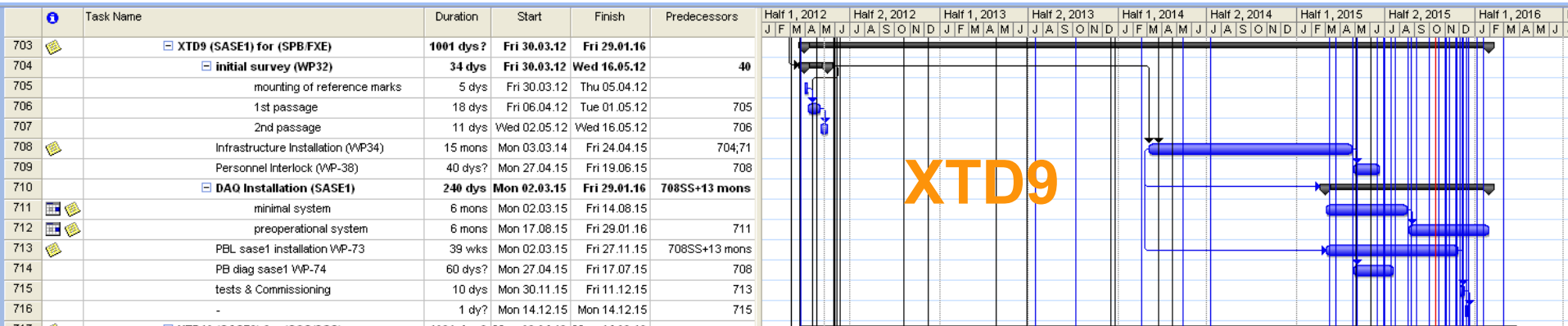
## SASE 1&3 Electron Beamline

- XS1
- XTD2
- XS3
- XTD4
- XSDU2

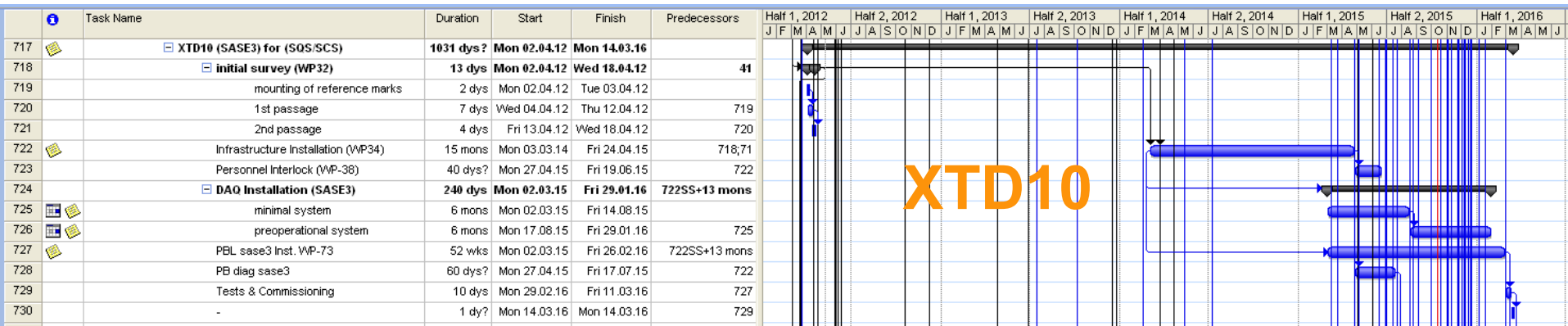
# SASE 1&3 Photon Tunnels, Completion in Parallel



## SASE1



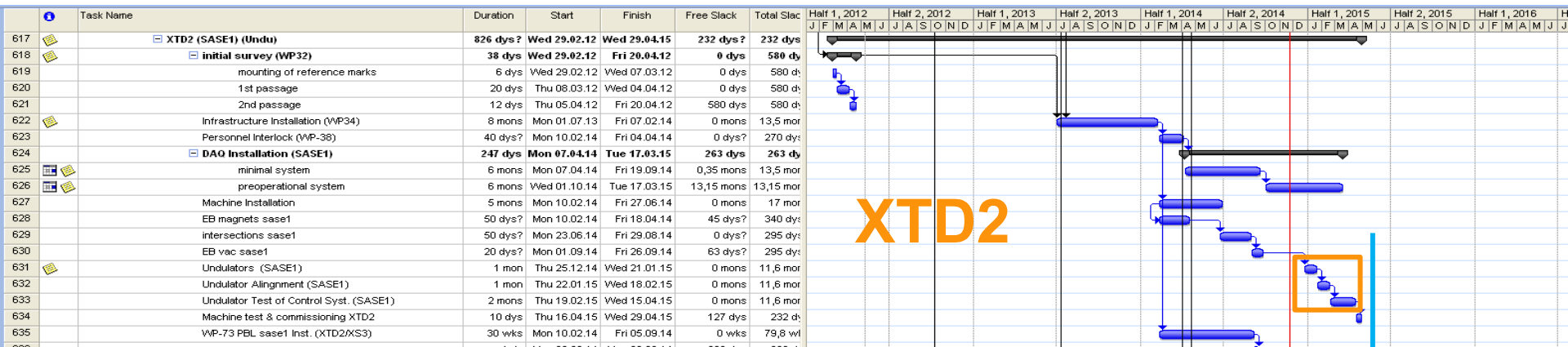
## SASE3



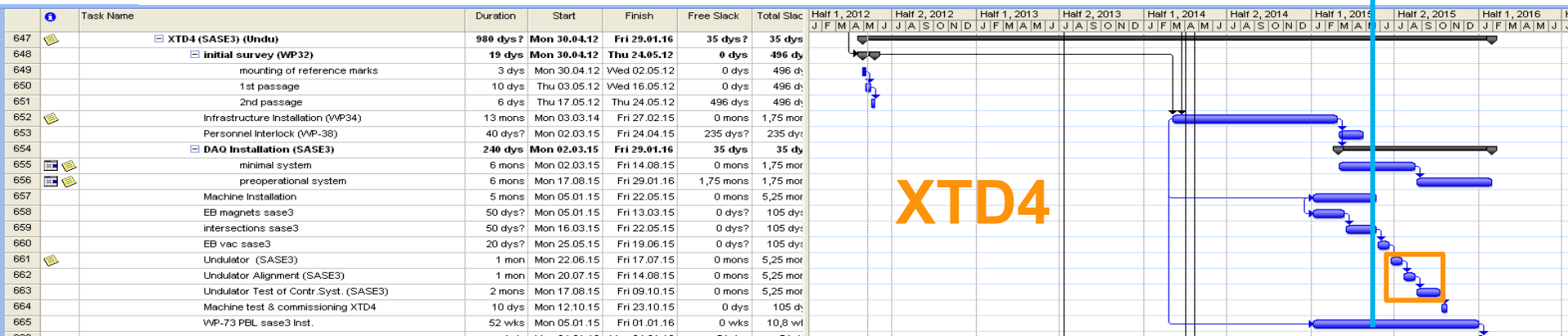
## SASE 1&amp;3 Electron Tunnels, Successive Installation

8

## SASE1



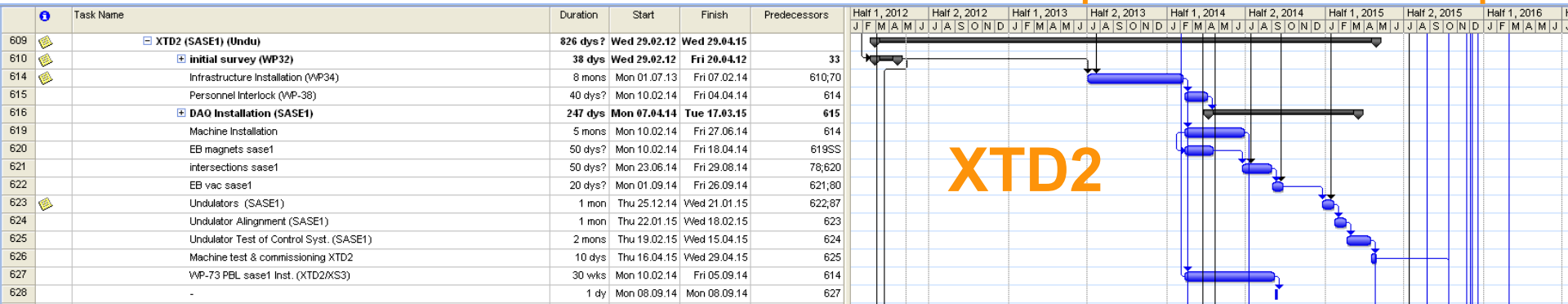
## SASE3



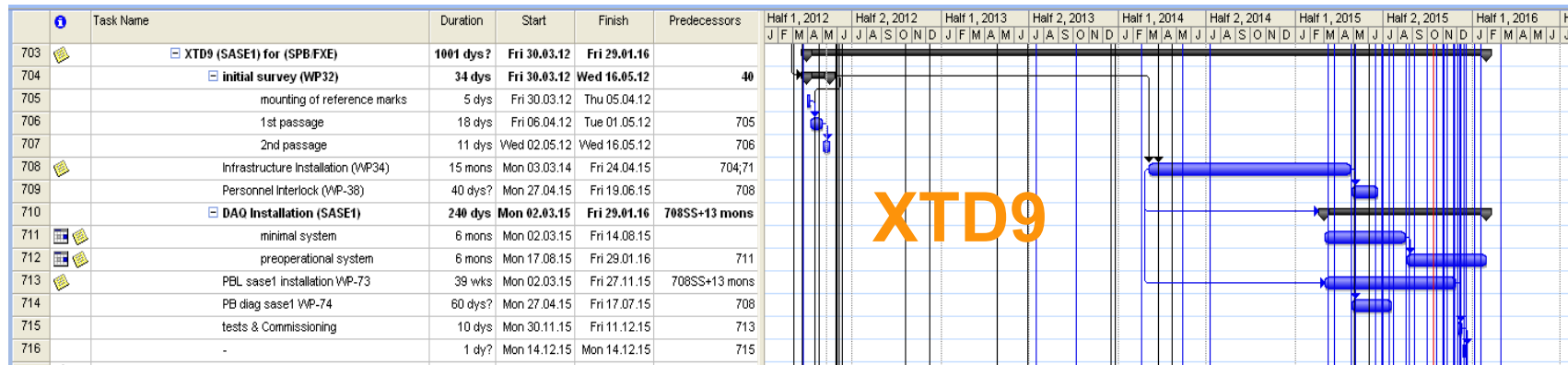
# SASE 1: XTD2 and XTD9

9

## electron beamline



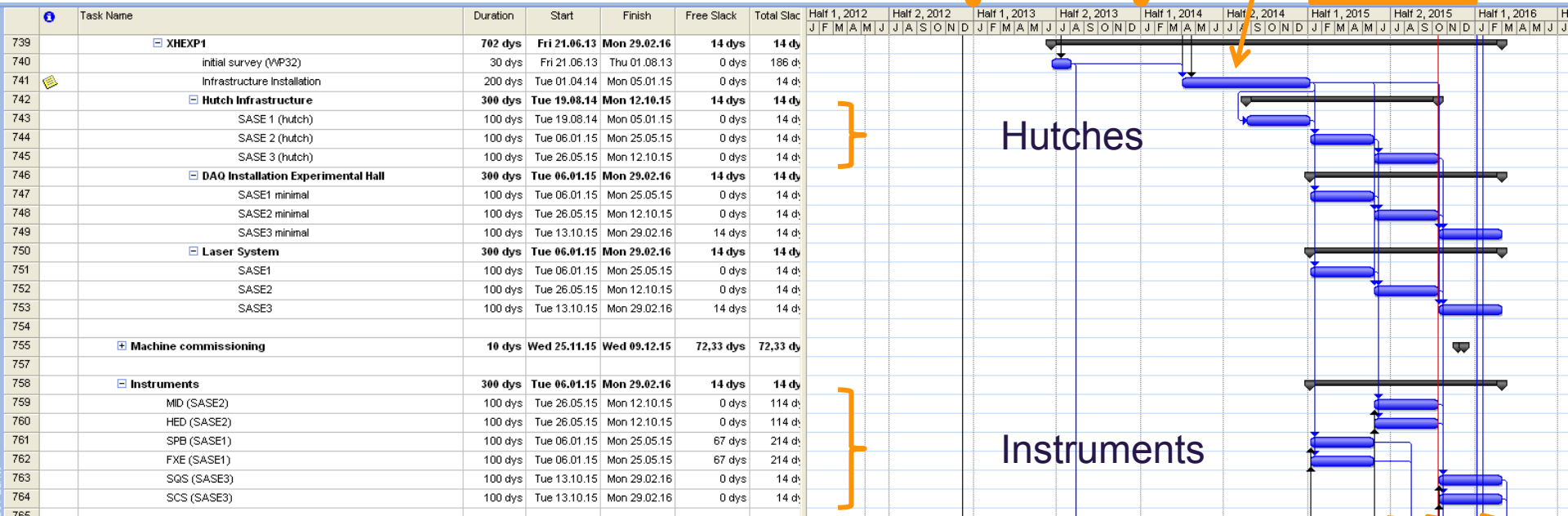
## photon beamline



# The Experimental Hall

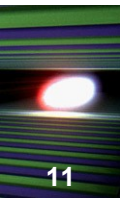
10

- currently no detailed planning
- but instrument set up should start early
- infrastructure should be available as soon as possible



connecting to top level milestones

# Useful Hints for a Useful PIT



What we need and what is important to gain reliable and serious information from the PIT:

- up to date data about expected task completion
- information about subtasks, after which other WPs can begin with their work
- information about prerequisites which have to be fulfilled, before a WP can begin
- WP planners should keep in mind, that work which can be done earlier, should be done earlier. (No use having everyone at the same time in the tunnel ... shortly before commissioning.)
- WPs whose tasks might be pushed to an uncomfortably late date should insist on “latest start” dates