

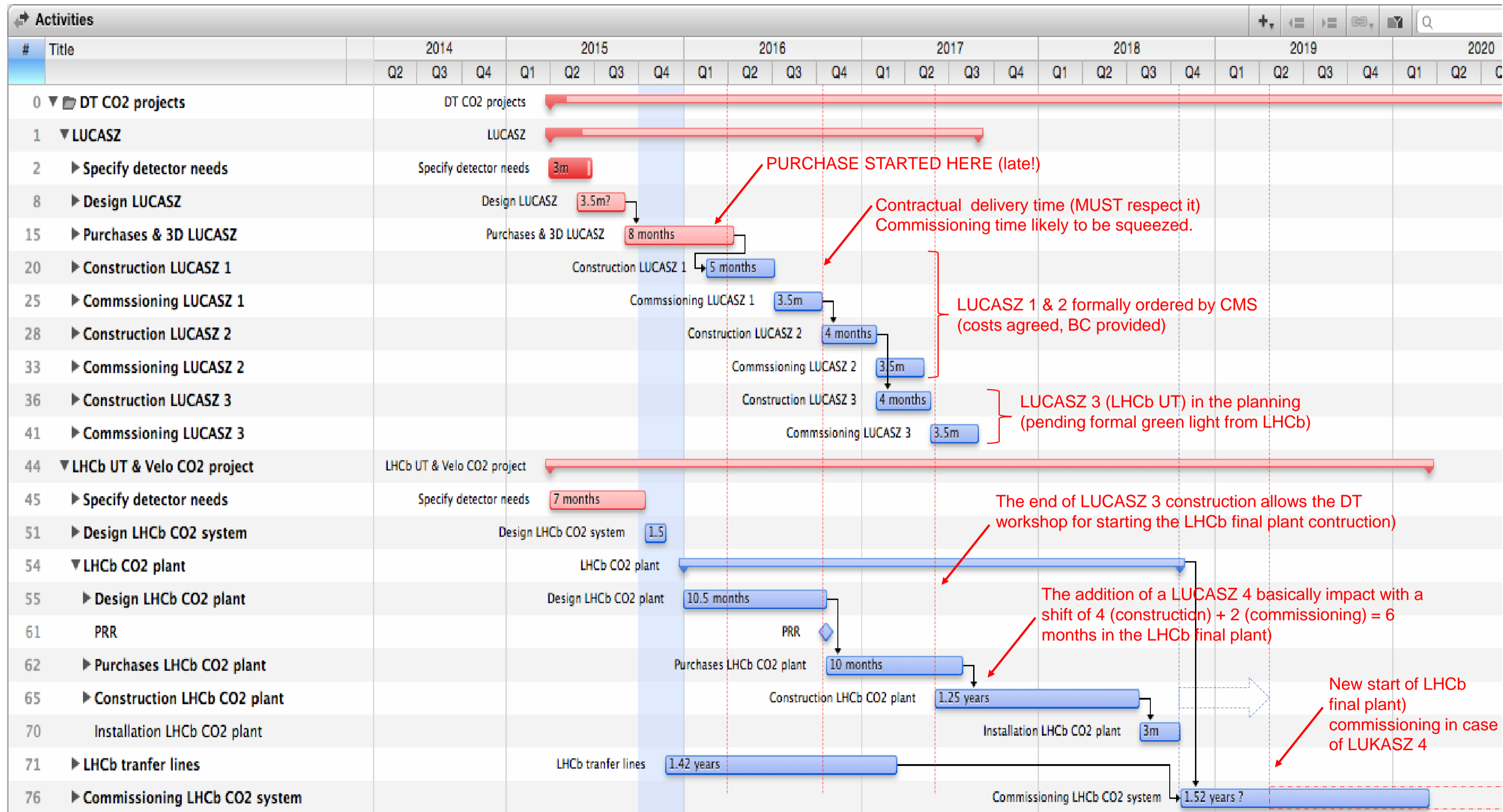


# Update on construction, cost and and schedule for the LUCASZ cooling plants

P. Petagna

October 13<sup>th</sup>, 2016

# Planning as presented in March 2016



# Possible (?) updated planning

Not yet internally approved, still for discussion.  
Need to verify the workshop needs from the EP-DT gas team

Construction of the FIRST "LUCASZ-FULL" started later and took longer. Mainly problems with the final part of the design (engineering and preparation of fabrication drawings)

Commissioning of LUCASZ-1a is ongoing

We are not going to start the production of Lucasz-1b and -1c ("FULL" for CMS and "LITE" for UT) before all components are in hands and all drawings approved. Should be possible to proceed in parallel

Task Name	Duration	Start	Finish	2016				2017				2018				2019				2020				2021	
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Costruction Lucasz 1a	7 mons	Mon 04/04/16	Fri 14/10/16	█				7 mons																	
Commissioning Lucasz 1a	3 mons	Mon 03/10/16	Fri 23/12/16					█																	
Costruction Lucasz 1b	5 mons	Mon 16/01/17	Fri 02/06/17					█																	
Commissioning Lucasz 1b	4 mons	Mon 05/06/17	Fri 22/09/17									█													
Costruction Lucasz 1c	5 mons	Mon 16/01/17	Fri 02/06/17					█																	
Commissioning Lucasz 1c	4 mons	Mon 05/06/17	Fri 22/09/17									█													
<b>Costruction Lucasz 1d</b>	4 mons	Mon 05/06/17	Fri 22/09/17					█																	
<b>Commissioning Lucasz 1d</b>	3 mons	Mon 25/09/17	Fri 15/12/17									█													
<b>Construction LHCb CO2 plant</b>	15 mons	Mon 04/09/17	Fri 26/10/18									█													
<b>Installation LHCb Co2 plant</b>	3 mons	Mon 29/10/18	Fri 18/01/19													█									
<b>Commissioning LHCb CO2 plant</b>	18 mons	Mon 21/01/19	Fri 05/06/20													█				18 mons					

IF APPROVED, the construction of Lucasz-1d ("FULL" for Liverpool / Velo) can only start in June 2017: impossible for the workshop to go for more than two units in parallel. NEED TO KNOW SOON, as the work maut be planned in the workshop.

If we manage to organize this way, the shift in the LHCb CO2 cooling plants delivery would be marginal basically absorbed by parallel consruction

# Consequences for LHCb

Mail Apr 5 2016

Dear Paula, all,

Sorry I could not react faster, I hope this is not too late.

The first two "Full" LUKASZ units are planned at the moment to be under commissioning from JULY through OCTOBER 2016 and from **FEBRUARY through MAY 2017**.

The third one, which will be a "Light" version, is planned for **commissioning from MAY through AUGUST 2017**. The commissioning of this unit would be probably somehow different from the one of the Liverpool unit (although in any case certainly instructive, as many more operations will be conducted in "fully manual" mode) During one of these slots **the person selected should be available to spend a period of roughly 3 months here shadowing our team (possibly with some pauses)**.

After this, the commissioning of the **Liverpool unit** can be planned in the period **AUGUST through NOVEMBER 2017. During this period one should count for ~ 4 months full time at CERN.**

As you can imagine, the dates are only indicative at this stage, although we are constantly doing all we can to keep our activity on track as planned.

Cheers,  
p.

This is now supposed to be a single period of common commissioning for the 2<sup>nd</sup> CMS unit and the UT unit extending from **JUN to SEP 2017**

**REQUEST CONFIRMED**

This is now supposed to be **SEP to DEC 2017: REQUEST CONFIRMED**

# Update on LUCASZ cost

The first LUCASZ-FULL is now almost completed and (almost) paid for:

Estimated (announced) cost for LUCASZ FULL: **135 kCHF**

Estimated (announced) cost for LUCASZ LITE: **90 kCHF**

TOTAL COST FOR LUCASZ-FULL: **~165 kCHF** (115 kCHF material / 50 kCHF FSU time)

TOTAL COST FOR LUCASZ-LITE: **~100 kCHF** (material + FSU)

The cost of the manpower (FSU time) required was somehow underestimated. However the delays occurred with the release of drawings for production and with procurement of some key components during construction led to a non-negligible increase of the FSU hour budget.

**With the next units, also counting on synergies from parallel construction, we count on on a cost reduction reasonably in the range of ~15 kCHF**