Implementation

Five main parts

- Schedule (next page)
- Cost (slide from Carlo)
- Power (Alexej - close to 380 ok, more work on 250 and 1.5)
- Civil Engineering (Edward)
- Infrastructure (revise and check) – EL, CV, transport and installation, safety and rad protection, access etc

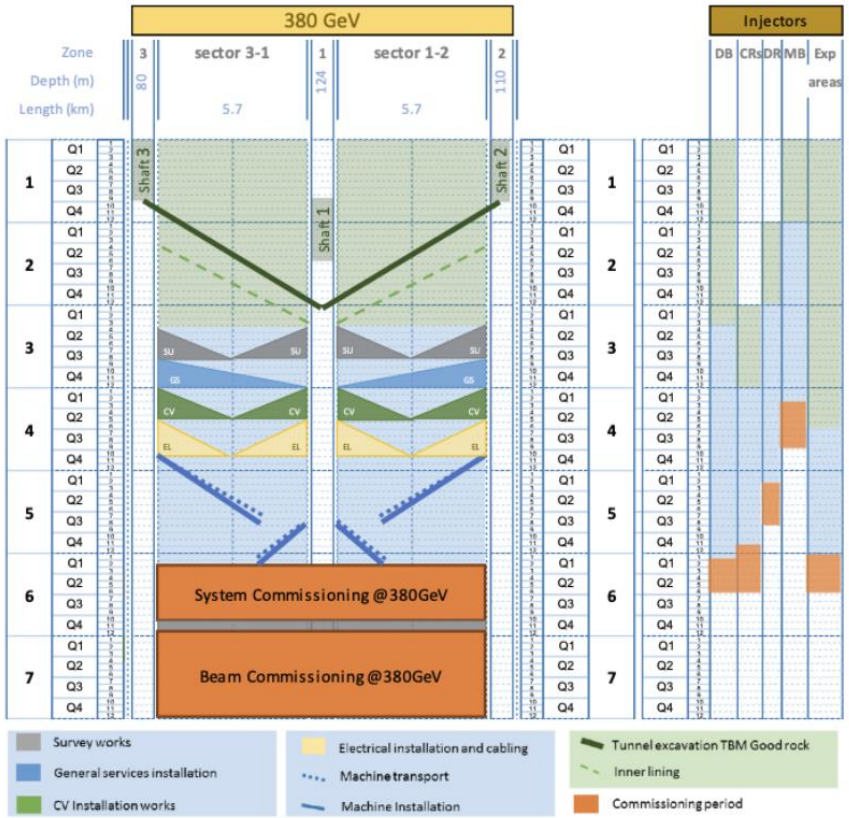


Fig. 40: Construction and commissioning schedule for the 380 GeV drive-beam based CLIC facility. The vertical axis represents time in years. The abbreviations are introduced in 1.

Key schedule figures:

Check 380 (changes needed?), figure and text for 1.5, update figure below for new runplan

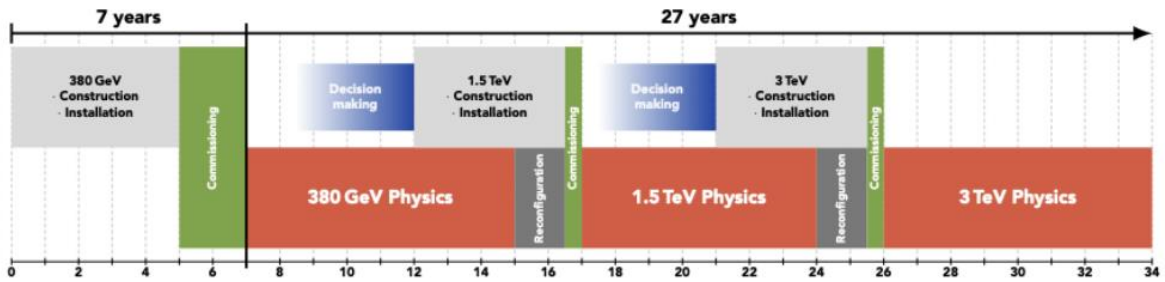
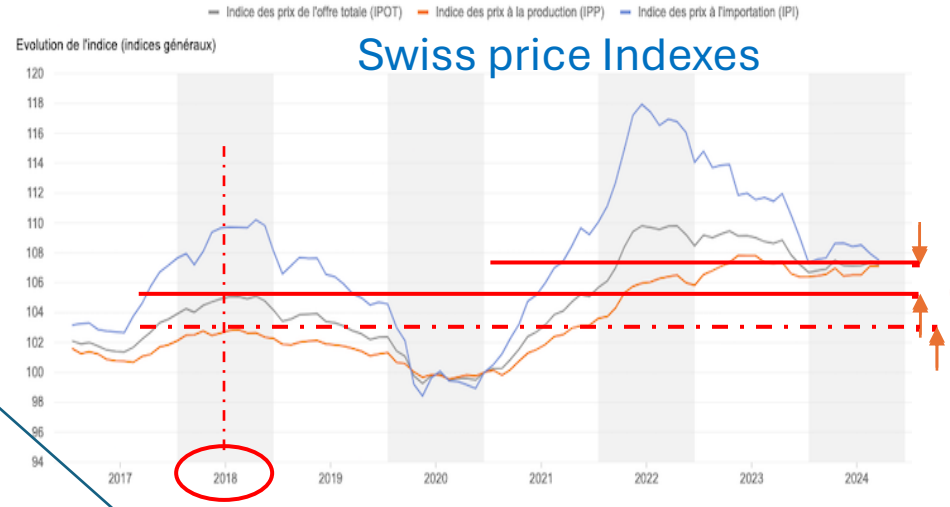


Fig. 41: Technology-driven CLIC schedule, showing the construction and commissioning period and the three stages for data taking. The time needed for reconfiguration (connection, hardware commissioning) between the stages is also indicated.

Status of CLIC cost review – Dec 2024

Starting from CLIC PIP 2018 – 380 GeV

Domain	Sub-Domain	2018 Cost PIP (MCHF)	2024 Cost (MCHF)
Main Beam Production	Injectors	175	
	Damping Rings	309	
	Beam Transport	409	429
Drive Beam Production	Injectors	584	554
	Frequency Multiplication	379	420
	Beam Transport	76	80
Main Linac Modules	Main Linac Modules	1329	
	Post Decelerators	37	39
Beam Delivery and Post-Collision Lines	Beam Delivery Systems common	52	
	Beam Delivery Systems 1		
	Final Focus Experimental Area 1	22	
	Post-collision lines/dumps 1	47	
	Beam Delivery Systems 2	-	
	Final Focus Experimental Area 2	-	
	Post-collision lines/dumps 2	-	
Civil Engineering	Civil Engineering (MCHF)	36	
	Civil Engineering (1095 MEUR)	1314	
Infrastructure and Services	Electrical Distribution	243	255
	Survey and Alignment	194	204
	Cooling and Ventilation	443	
	Transport / Installation	38	62
Machine Control, Protection and Safety Systems	Safety System	72	76
	Machine Control Infrastructure	146	153
	Machine Protection	14	15
	Access Safety and Control System	23	24
TOTAL		**5942**	



Swiss price Indexes

import

production

+3 % to +5 %

Design upgrade in progress

Klystron power and RF efficiency reconsidered

Ongoing review for RF module learning curves

New design of the BDS, also for compatibility with 2nd detector

New facility layout and new building sizes

30% Reduction of power needs and building size

All figures in white cells were increased by +5%

Personnel and operation costs

As before for construction (formula) FTEy=15.7 $VALUE^{0.75}$

(VALUE in 2010 MCHF)

Operation cost also similar: might adjust percentages used for spares (1-5% for various parts)

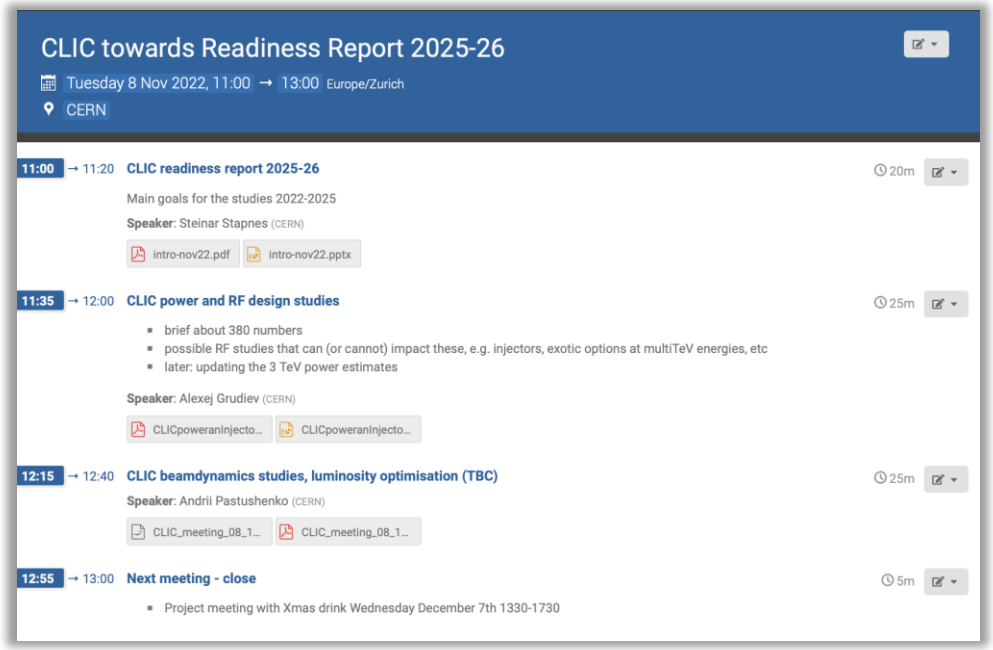
Operation personnel: rough estimate to be made

(LHC operation estimated to 5% of construction costs: material + personnel)

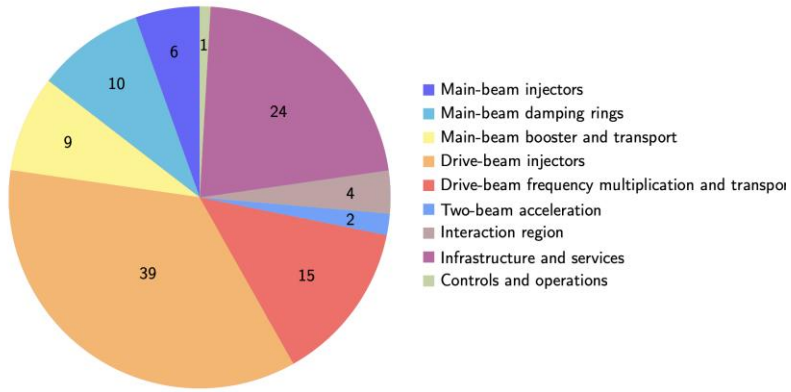
(ILC500 estimated at 640 persons)

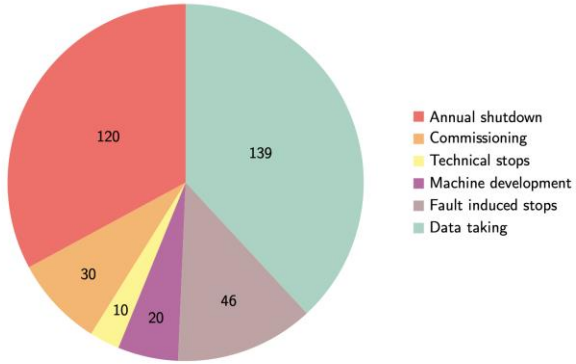
Move klystron version costing to separate table ?

Power and energy



CLIC power at 380 GeV: 110 MW.





https://indico.cern.ch/event/1212765/contributions/5101243/attachments/2543342/4379308/CLICpoweranInjectorEtc_20221104_CLIC_PRR.pptx. (Alexej Grudiev)