



# Overall for implementation chapter



- Today 13 pages (goal was 10) – see presentation in April (small updates since then)
- Many figures and tables need update
- Three key items needed to finalise all figures:
  - Staging – yearly luminosities and integrated luminosities per stage, number of on days and number of off days, etc
  - Costs
  - Power and energy (in progress)



# Running scenario proposal



## Checks done

- 550 GeV only (mostly) attractive if we can get to  $\sim 5 \text{ ab}^{-1}$ .
- 380+1500 is attractive for Higgs couplings, but gain from 3 TeV for triple Higgs coupling substantial so therefore needed.

## **Suggest 380 (1000 fb<sup>-1</sup>), 1500 (2500 fb<sup>-1</sup>), 3000 (5000 fb<sup>-1</sup>).**

- This corresponds to 7-8 years (to be detailed) per stage.
- We will keep looking at 2 TeV.

## We also suggest:

- **Ramp up first stage: 10, 30, 60% (plus incl. comm. year in construction of 1st stage), ramp up 2 and 3rd stage: 25, 75%.**
- We are then identical to ILC.
- After discussion with Benedikt, no change for FCC-ee, **we both try to defend 75% of 185 days, i.e  $1.2 \cdot 10^7 \text{ s}$ .**
- Reminder: ILC is 75% of 8 months = 185 days =  $1.6 \cdot 10^7 \text{ s}$

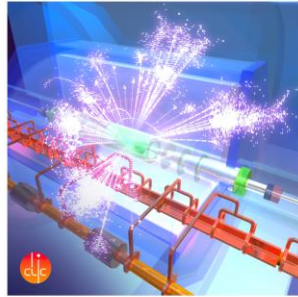


# CLIC cost and power



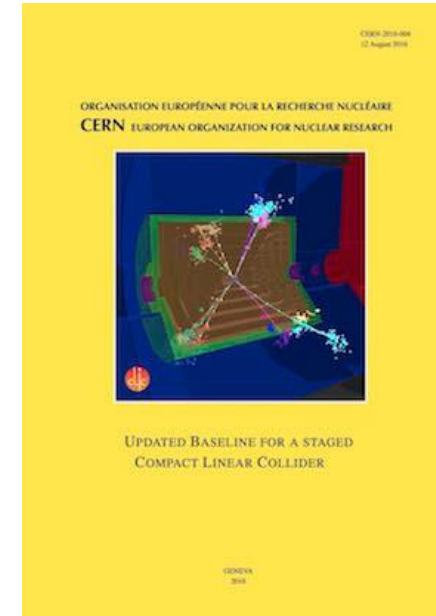
ANL-HEP-TR-12-51  
 CERN-2012-005  
 KEK Report 2012-2  
 MPP-2012-115  
 8 August 2012

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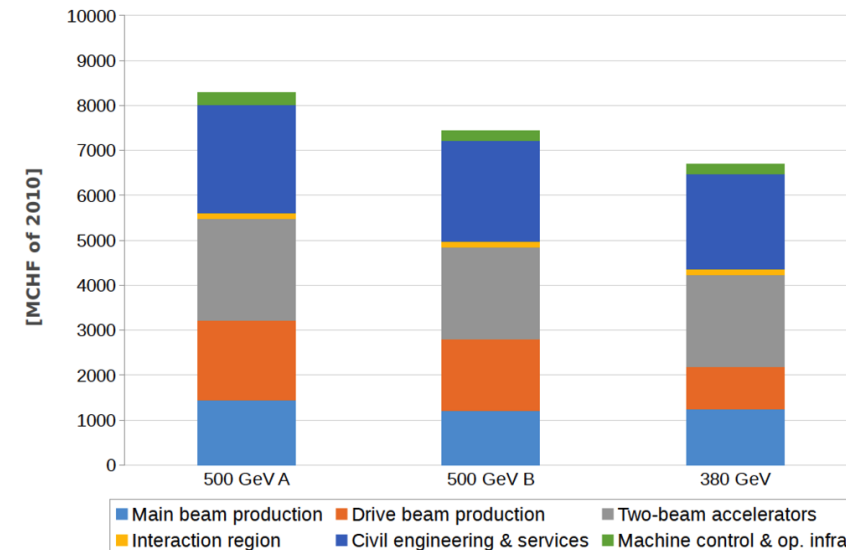
THE CLIC PROGRAMME:  
 TOWARDS A STAGED  $e^+e^-$  LINEAR COLLIDER  
 EXPLORING THE TERASCALE  
 CLIC CONCEPTUAL DESIGN REPORT

GENEVA  
 2012



Rebaselining  
 2015-16:  
[Yellow report](#): New  
 reference plots for  
 power, costs,  
 luminosities,  
 physics, etc

- CDR 2012: Cost and power estimated (bottom up, PBS based, reviewed)
- 2016: Cost and power update for 380 GeV drivebeam based machine made
- Still a very limited exercise:
  - Optimize accelerator structures, beam-parameters and RF system -> defines machine layout for 380 GeV
  - Remove pre-damping ring for electrons, scale DB better
  - **Largely scaling** from 500 GeV





## Internal review yesterday

- Reviewed most areas, looks like 6 BMCH is a reasonable estimate
- Klystron version more expensive

		Value A [MCHF]	Value B [MCHF]
Main beam production	Injectors	449	339
	Damping rings	383	408
	Beam transport	612	456
	<b>Total</b>	1443	1203
Drive beam production	Injectors	1384	1248
	Frequency multiplication	135	135
	Beam transport	260	217
	<b>Total</b>	1779	1599
Two-beam accelerators	Two-beam modules	2215	2002
	Post-decelerators	46	37
	<b>Total</b>	2260	2038
Interaction region	Beam delivery systems	62	62
	Experimental area	23	23
	Post-collision line	47	47
	<b>Total</b>	132	132
Civil engineering and services	Civil engineering	1432	1382
	Electricity	326	282
	Survey and alignment	31	31
	Fluids	494	445
	Transport/installation	100	90
	Safety	20	20
<b>Total</b>	2403	2250	
Machine control and operational infrastructure	Machine control infrastructure	226	183
	Machine protection	3	3
	Access safety & control system	20	18
	Technical alarm system	13	12
	<b>Total</b>	262	216
<b>Grand total (rounded)</b>		8300	7400