

# CLIC

## Compact Linear Collider Study

# Meeting Minutes

## CLIC CEIS WORKING GROUP

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<b>Date and Time:</b>	2018-06-22, from 09:00 to 11:00
<b>Place:</b>	6/2/004
<b>Work package/Domain:</b>	CLIC CEIS Working Group Meeting 10
<b>Document status:</b>	IN WORK
<b>Type:</b>	Scheduled Update

### Participants

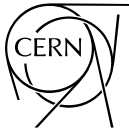
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**Links to Indico:** <https://indico.cern.ch/event/667682/>

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## 1 AGENDA

- 09:05 – 09:15: Meeting begins, John Osborne goes through the minutes from the last meeting.
- 09:20 – 09:30: Davide Bozzini provides an update on the CLIC electrical infrastructure chapter of the PiP and PBS.
- 09:30 – 09:40: Pedro Cabral provides an update on the CLIC Cooling and Ventilation chapter of the PiP and PBS.
- 09:40 – 10:00: Owain Williams provides an update on the CLIC Safety Systems chapter of the PiP and PBS.
- 10:00 – 10:20: Markus Widorski provides an update on the CLIC Radiation Protection chapter of the PiP and PBS.
- 10:20 – 10:40: Matthew Stuart provides an update on the CLIC Civil Engineering chapter of the PiP and PBS

## 2 PRESENTATIONS

### 2.1 INTRODUCTION & ACTION LOG

**John Osborne** opened the CLIC CEIS working group Meeting 6 at 09:05.

John Osborne went through the minutes from the last meeting in particular the outstanding actions.

Key points:

- 40w/m has been taken for the cable loads by CV this was agreed as reasonable between Davide Bozzini, Mauro Nonis and Pedro Cabral.
- Smoke extraction is now being integrated into the tunnel design.

### 2.2 ELECTRICAL INFRASTRUCTURE

**Davide Bozzini** presented an update on the CLIC Electrical Infrastructure for the PiP and PBS

Key points:

- Double the amount of cables are required for the double redundant system proposed, this is to be integrated into the tunnel cross-section. A meeting is required between M.Stuart, D.Bozzini and J.Osborne.
- Separation of the HV cable still needs to be defined – D.Bozzini to provide a solution for this.
- Cable arrangement to minimise the stray fields needs to be studied in more detail – D.Bozzini.
- Any upgrade from the initial Klystron design at 380 GeV will use a combination of the Electrical infrastructure proposals identified in D.Bozzini's presentation.

### 2.3 COOLING AND VENTILATION

**Pedro Cabral** presented an update on the CV for the PiP and PBS..

Key points:

- Lighting not to be included in the heat loads as there is no intention of having lights on during beam running.
- Air Supply for the beam dumps still need to be integrated into the tunnel design. Still need to justify the necessity for air supply.
- Main dump heat loads are much less for the 380 GeV stage, therefore need to decide whether or not to design for the higher energy stages.
- Pedro to contact Konrad about the heat loads within the detector region – this includes the detector cavern and the detector maintenance cavern.
- It is not a problem to re-circulate air within the beam dump area.

### 2.4 SAFETY SYSTEMS

**Owain Williams** presented an update on the Safety Systems for the PBS and the PiP first draft.

Key points:

- Environmental study, this will not be done to the same level as FCC as it is not deemed necessary at this time.

### 2.5 RADIATION PROTECTION

**Markus Widorski** presented an update on the Radiation Protection for the PBS and the PiP first draft.

Key points:

- Design for vehicle access is a priority for the radiation simulations.
- The concrete fill located beneath the accelerating structure tunnel compartment should be increased to ensure it is located directly beneath the shielding wall.

## 3 TASKS

Tasks are ordered by completion status, new and ongoing tasks first. Status is one of {New, Ongoing, On hold, Completed, Postponed or Cancelled}.

No.	Description and Comments	Start Date	End Date	Status	Assigned
1	Edit: Update of heat loads is a requirement for the entire CLIC team, heat loading from all equipment should be calculated and sent through to <b>M.Nonis</b> . This will allow discussions/meetings to be undertaken and an appropriate solution to be chosen from those presented by <b>M.Nonis</b> . <b>Update: <u>Cable Heat Loads required</u></b>	25/08/2017  Update: 09/03/2018	01/12/2017  13/04/2018	Ongoing	P.Cabral  CLIC Team
2	Access requirements during beam operation in the Klystron design: it is to be determined when access to the modulators will be required, this will affect the layout and cross section of the tunnel/s. Look at examples from the ILC. <b>Update:</b> S.Stapnes/D.Schulte to hold a meeting with radiation team and access team.	05/05/2017  01/12/2017	01/12/2017  22/01/2017	Ongoing  Ongoing	S.Doebert & C.Rossi  S.Stapnes & D.Schulte  O.Rey Orozco
3	Plan layouts of equipment that is to be provided in the 2.5km long drive beam building is to be produced	16/06/2017	21/07/2017	Ongoing	R.Corsini, S.Doebert, G.McMonagle & M,Stuart
4	Services within the Tunnel to be updated in a new cross-section for the DB and Klystron options	16/07/2017	21/07/2017	Ongoing	M.Stuart M.Nonis & S.Marsh
5	Hazard Register and procedure guidelines on how to populate the register to be produced by safety	21/07/2017	22/01/2017	Ongoing	S.Marsh  O.Williams
6	Safety: propagation of smoke/gas cloud against escape time from the tunnel to be studied by safety. – Minimum fire design requirements to be provided instead of a full study.	25/08/2017	22/01/2017	Ongoing	S.Marsh
7	Study to be undertaken for the Schedule for the surface buildings	01/12/2017	09/03/2017	Ongoing	M.Stuart  M.Bernardini

8	Information on Installation rates to be provided for CV and electrical equipment and Marzia t hold meetings with all disciplines that have input into the schedule.	01/12/2017	09/03/2017	Ongoing	M.Bernardini
09	Cable heat loads require a better understanding DBQ's MBQ's and Davide's numbers – <b>Cable heat loads to be taken as 40w/m</b>	06/04/2018	30/04/2018	Ongoing Complete	P.Cabral, C.Rossi, D.Bozzini
10	Integration of the CV solution, beam lines and caverns.	06/04/2018	18/05/2018	Ongoing	M.Stuart, D.Schulte, P.Cabral
11	DB Building dimensions to be discussed with D.Schulte and S.Doebert – <b>Injector building dimensions received from Steffen.</b>	25/05/2018	26/06/2018	Complete	M.Stuart, D.Schulte, S.Doebert
12	Access between the two sides of the Klystron tunnel needs to be established and understood	25/05/2018	26/06/2018	New	M.Stuart, M.Czech, F.Corsanego

## 4 NEWS

### PiP and Cost Update

Chapter	Discipline	Pages	Comments	Responsible person	PiP Status	Cost Status
<b>CEIS</b>						
	Civ. Eng	5/5	Pages increased to 5 for CE	John Osborne/Matt Stuart	First draft completed 😊😊	First Estimate 😊
	Electricity supply	5/3		Davide Bozzini	First draft completed 😊😊	First Estimate 😊
	CV	4/3		Mauro Nonis	Word doc. Reviewed 😊😊	Not Received 😞
	Transport and Installation	4/3		Ingo Ruehl/Michael Czech	First draft completed 😊😊	First Estimate 😊
	Safety systems	4/3	incl. environment and access	Simon Marsh	First draft completed 😊😊	Not Received 😞
	Radiation studies	3/3		Markus Widorski	First draft completed 😊😊	N/A
	Cryo	0/3	in case of SC solenoid, check	Dimitri Delikaris	NA	N/A

## 5 AOB

No other business.

## 6 PLANNED MEETINGS

This section contains planned meetings.

Title	Date	Location	Convener
CLIC Civil Engineering & Infrastructure Working Group Meeting	27 <sup>th</sup> July 2018	6/2-004	J.Osborne
CLIC Civil Engineering & Infrastructure Working Group Meeting	31 <sup>st</sup> August 2018	6/2-004	J.Osborne
CLIC Civil Engineering & Infrastructure Working Group Meeting	05 <sup>th</sup> October 2018	6/2-004	J.Osborne
CLIC Civil Engineering & Infrastructure Working Group Meeting	09th November 2018	6/2-004	J.Osborne
CLIC Civil Engineering & Infrastructure Working Group Meeting	14th December 2018	6/2-004	J.Osborne

### 6.1 TENTATIVE AGENDA FOR NEXT MEETING: 22<sup>ND</sup> JUNE 2018

*Note: Formal agenda to follow once finalised.*