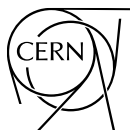


Future Tunnels LCA Study

MEETING MINUTES

LCA PROGRESS MEETING APRIL 2023

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1. ATTENDEES

Arup: Yung Loo, Suzanne Evans, Ben Castle, Jin Sasaki, Heleni Pantelidou

CERN: John Osborne, Steinar Stapnes, Benno List, Liam Bromiley, Roberto Losito

KEK: Nobuhiro Terunuma, Tomoyuki Sanuki

2. AGENDA

- Summary of the phase 1 interim report.
- Comments and discussion on the report.
- Assumptions for A4-A5, transport distances, material supply and disposal.
- IPAC23 slides.
- SLAC conference presentation.
- CERN summer workshop.

3. MINUTES

LB: Summary of previous meeting minutes.

SS: Benno to provide a talk at IPAC23 on sustainability studies. Will include Arup results and his own operational energy estimates.

SS: Is there opportunity for improvements to be stated by time of construction? I.e. construction to commence in 10 years at earliest.

HP: Potential improvements are not easy to predict and implement into the current results, as a lot of guesswork and uncertainty. It can be added for comment though.

YL: UN Climate breakthrough goal is to have 100% of projects net zero by 2030. To also include a 40% reduction in embodied carbon.

YL: Benchmarking is provided against other tunnelling projects. Would be useful to receive data from physic/scientific projects for comparison.

SS: With greater renewables in the energy mix, operational carbon is decreased and embodied carbon makes up greater proportion of the whole project footprint.

HP: The 10-year lead in time to construction provides these projects with plenty of opportunity for innovation in reducing the embodied carbon.

YL: Presentation slides will include results from both CLIC and ILC. These will be confirmed with CERN and KEK beforehand.

SS: Roberto Losito is part of the sustainability group at CERN. Results of study should be shared with the wider working group.

JO: Will share a slide at the World Tunnel Congress May 2023 about the study.

SE: Provided brief run through of the report and key results of A1-A3 study.

JO: Possibility to reuse ILC granite for shielding wall?

NT: A1-A4 assumptions for ILC seem sensible. No further information available.

4. MAIN ACTIONS

- Next meeting end of May to summarise and debrief study.
- Potential for CERN workshop in September time to discuss wider LCA impacts and findings.
- Prepare for LCWS23 (SLAC) conference. LB to arrange with SE for content of talk.
- Benno providing talk at LCWS23 to use some of Arup data, ensure that it is cross checked.

Indico meeting link: <https://indico.cern.ch/event/1277469/>