Layout of DFH and current leads: status of on-going optimization studies:
Work in progress

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WP6a Integration weekly meeting #1

Context

Each IP1 and IP5 sides equipped with 2 cold powering chains of cryostats

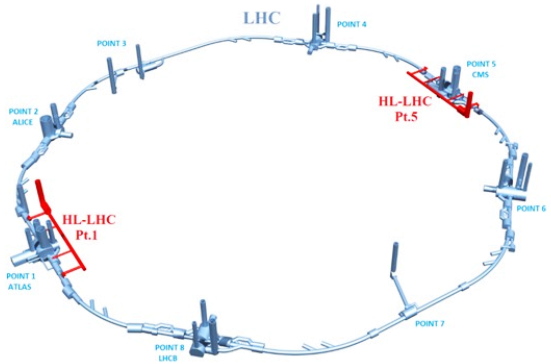
- Triplet insertion : DFHx – SC Link (DSH) – DFX
- Matching sections : DFHm – SC Link - DFM

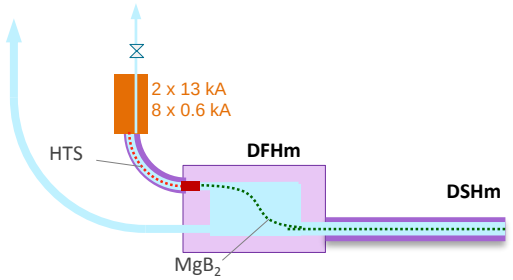
Status:

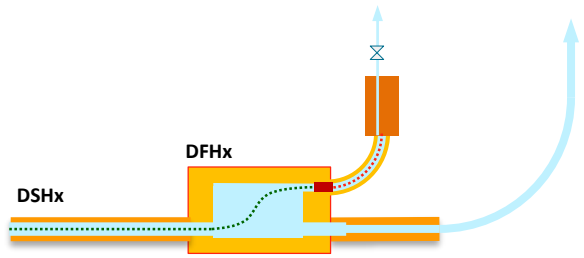
- Some preliminary designs to identify key challenges
- Iterations on-going wp6a-wp6b to reach common proposal toward the end of the year

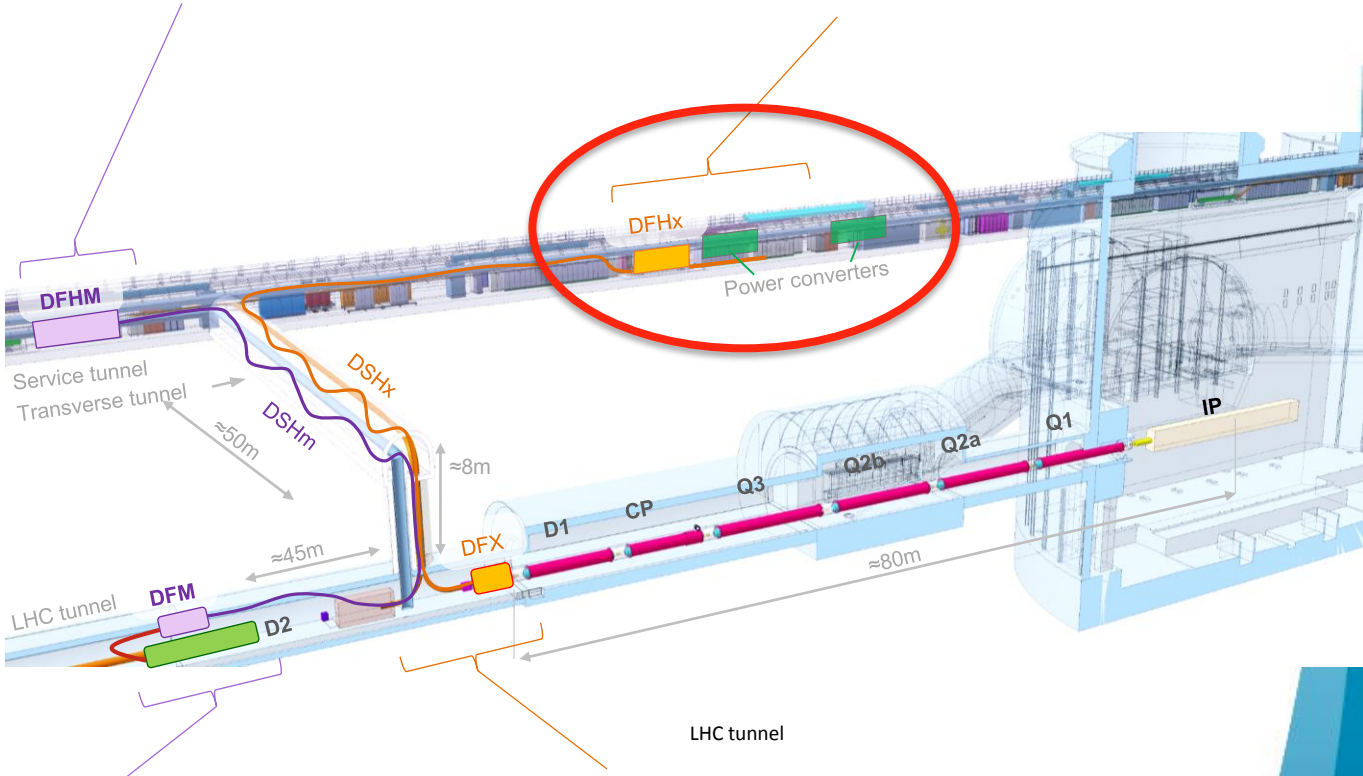
Next step:

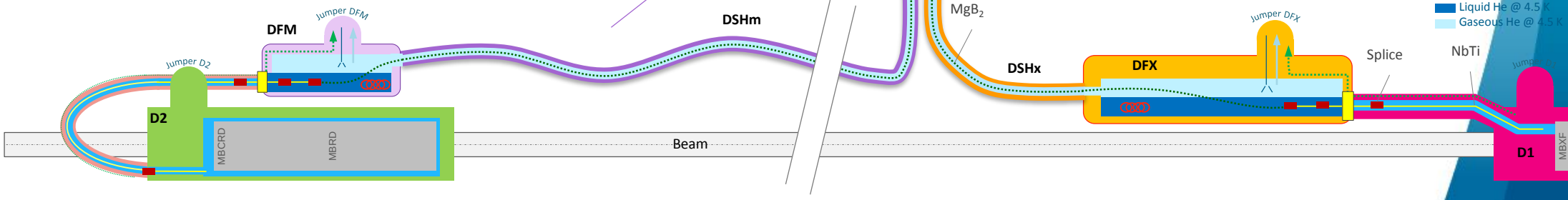
- Propose & iterate through WP15 with other services







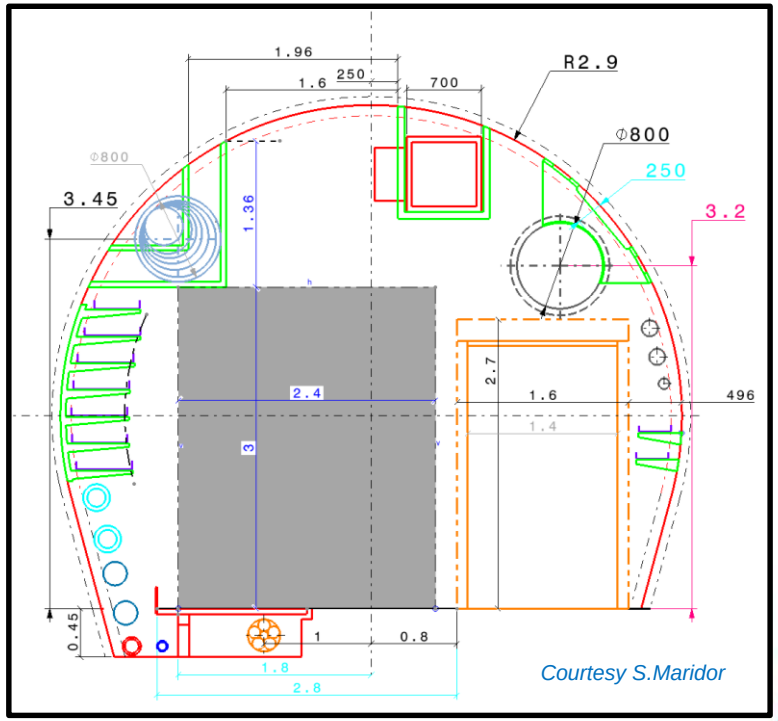




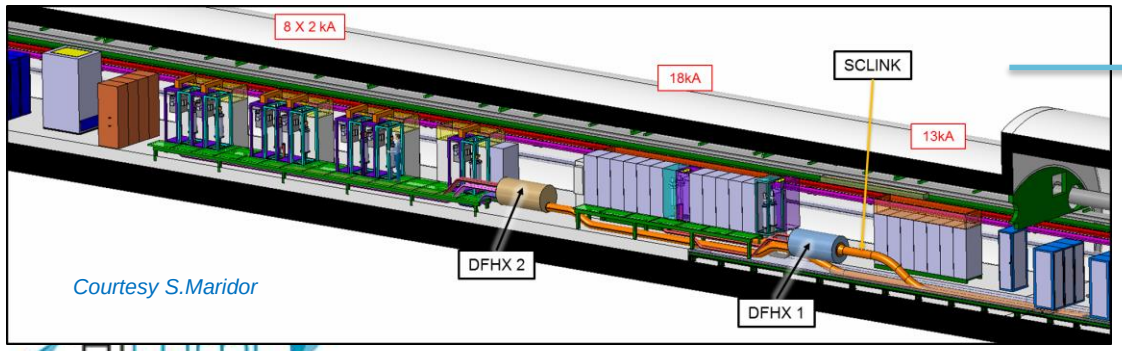
Specifications & design guidelines

Work in progress

- Design objective:
  - Ensure critical requirements
  - Find a compromise between non critical requirements
- Study:
  - 2 DFHx Units solution
  - Boundary conditions:
    - Power racks accessible from transport side
    - Access to ESS, Crowbar racks from footbridge
    - CL racks layout:
      - 1 for 2x18kA / 1 for 4x2kA type
    - Integration : civil engineering



Courtesy S.Maridor



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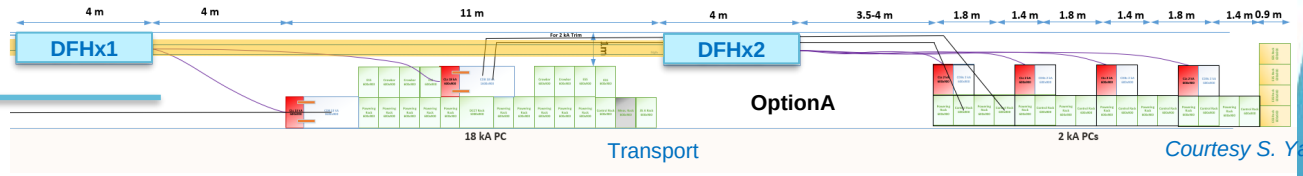

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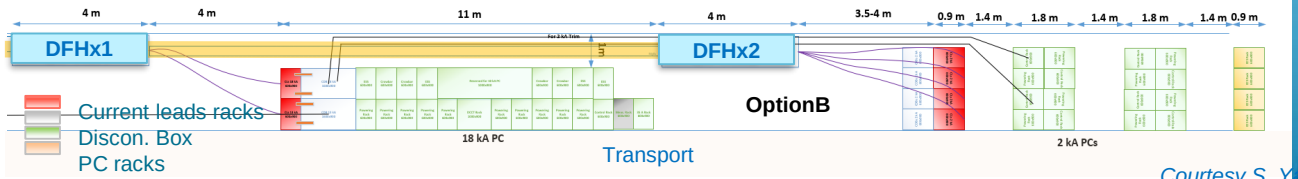

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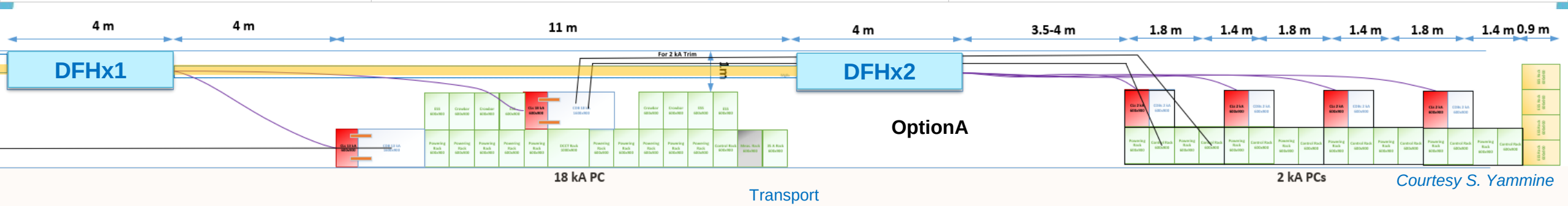
Specifications & design guidelines

Work in progress

	Option A	Option B
Energy recuperation	• Recuperate all magnet energy for 18 kA	• Partial dissipation in warm cables (longer cables)
Warm connections	• Length minimised (bus-bars or WCCs)	• Use of WCCs (even though significantly reduced with baseline)
HTS cable length	• Several lengths from 6 to 14 m. Needs further development to reach 14 m.	• One length of ≈ 6 m.
Services integration *(HTS flexibles, water& power lines)*	• Crossing at ground level • Nested integration	• Independent routing and access
Installation	• Mixed sequence CL-PC	• Independent CL-PC assembly sequcence
Access for maintenance on current leads	• Difficult access with lifting tool • Difficult replacement operation	• Access from transport side • Flexible extraction through transport paths
CL assembly spares:	• 6 types: ○ *2 x 18 kA [6m ; 10m]* ○ *4 x 2 kA [6m,10m,12m,14m]*	• 2 types: ○ *1 x 18kA, about 6m long HTS cable* ○ *1 x 2kA, about 6m long HTS cable*



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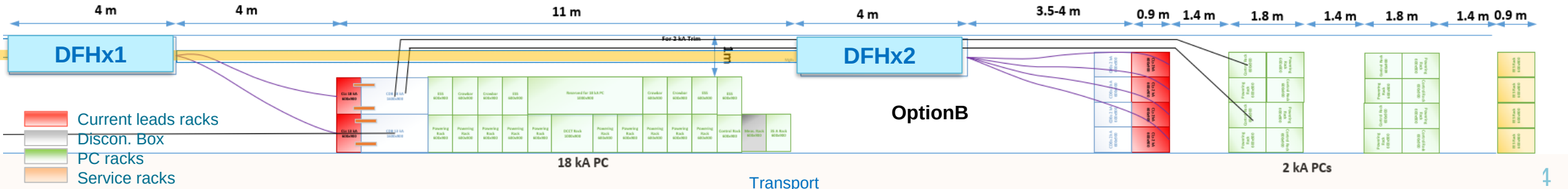

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