

Supply Connection Plans of the PANDA Cluster- Jet Target, Beam Dump and its Interface with other Modules

MEC session
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GSI Darmstadt

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Content of this talk

- Two main topics:
 - PANDA target supply connections and later on spectrometer platform wiring
 - Beam dump backing pump pipe ideas
 - Target status information interface

Status of the PANDA Target @ WWU Münster

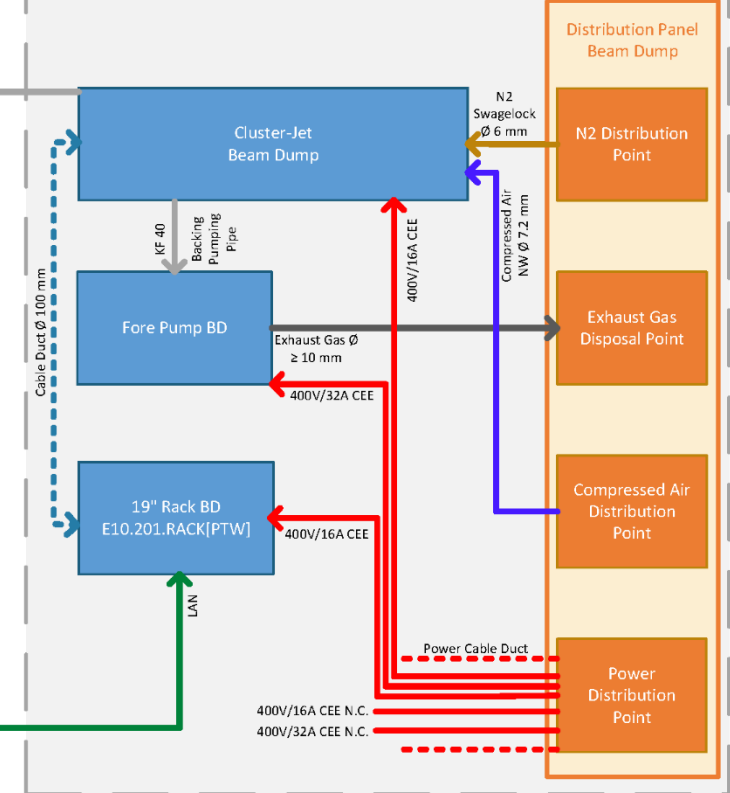
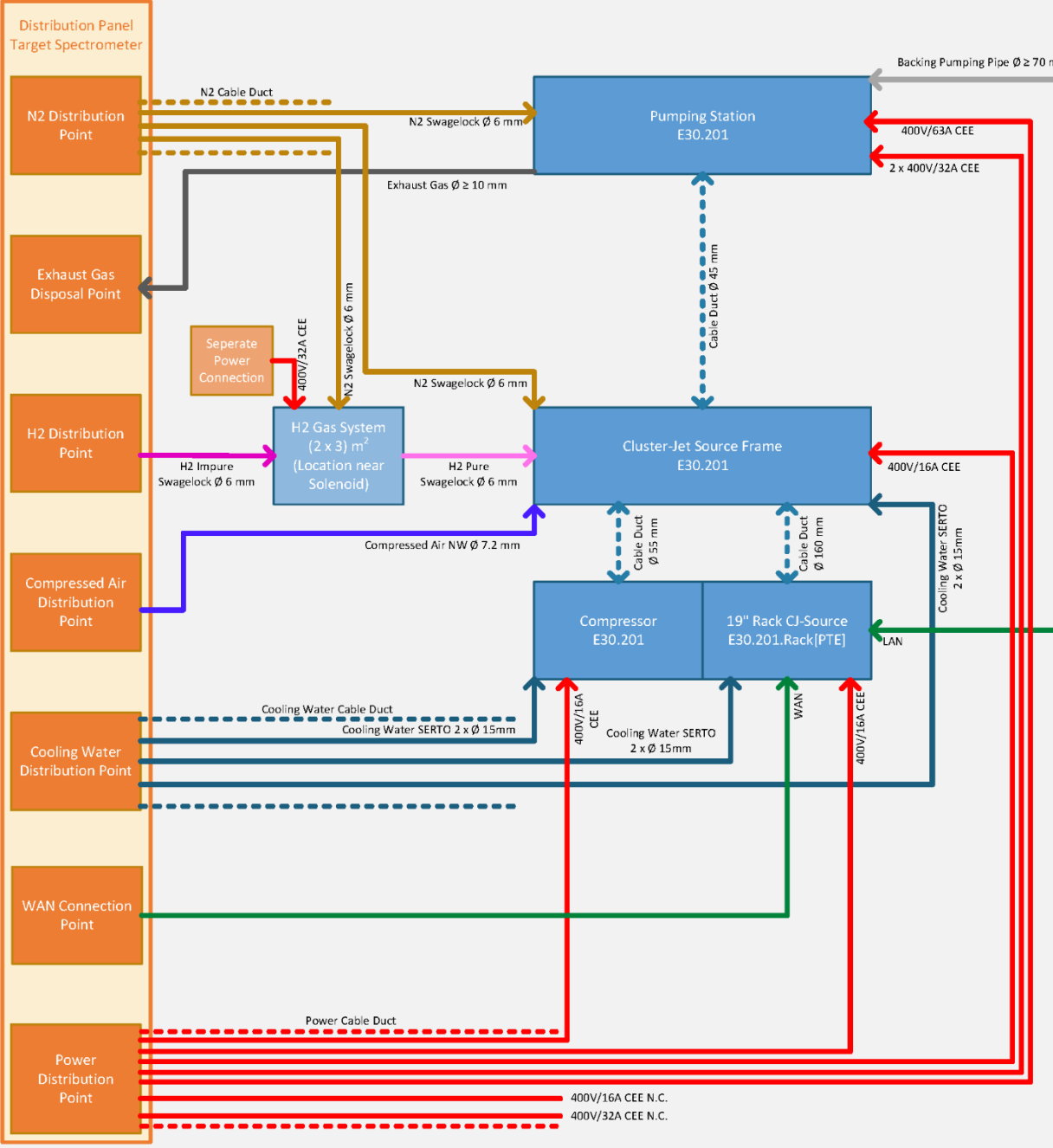
- Setup in very close to PANDA geometry with final Beam Dump
- Daily Cluster-Jet production and optimizations studies running
- Current activities:
 - Investigation/optimization of vacuum conditions at interaction point distance
 - Beam dump backflow rates
 - Target density optimization using PANDA Prototype target
 - Last electronic/software improvements for COSY in summer 2018



Target Spectrometer Platform

Beam Dump Platform

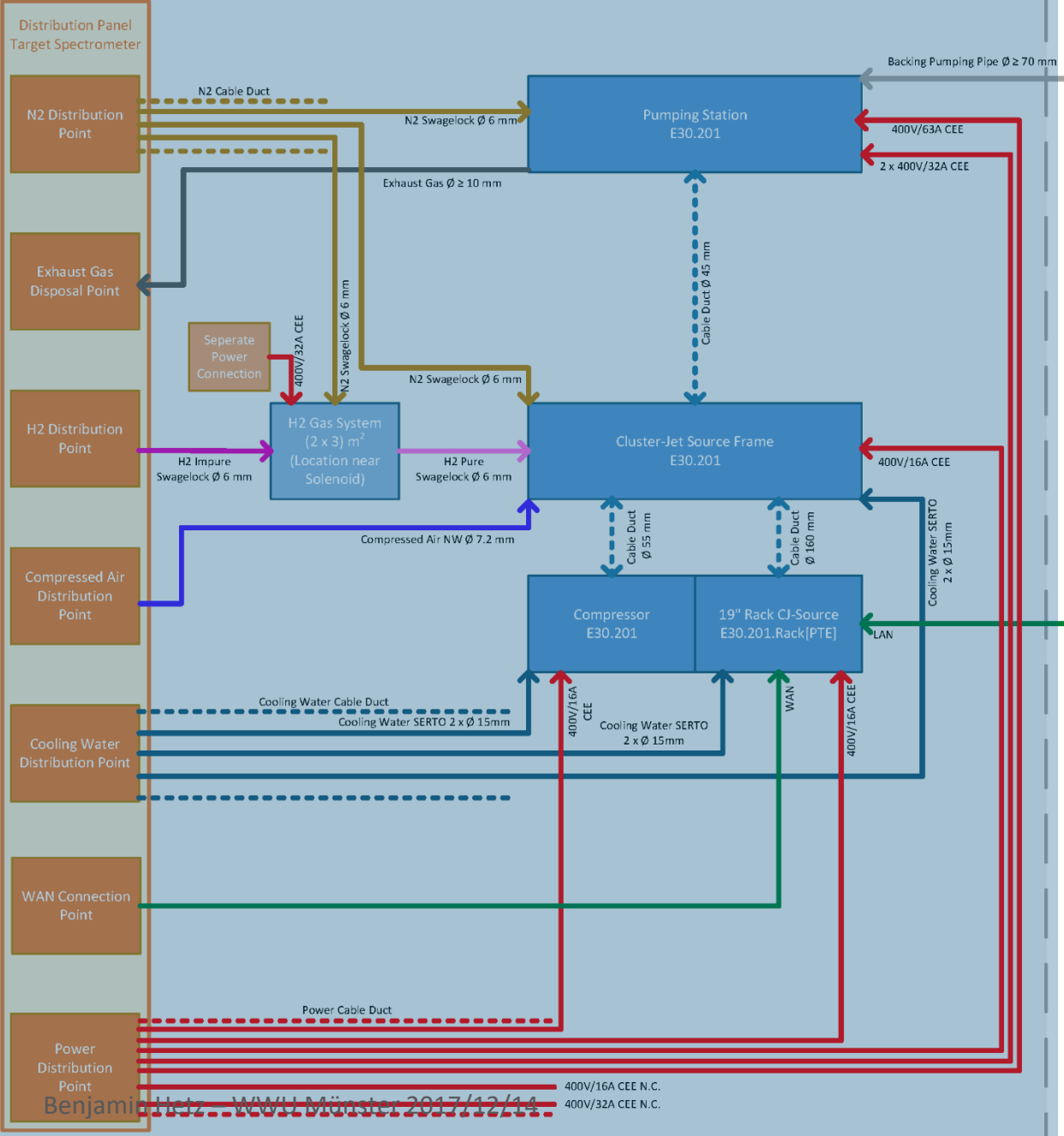
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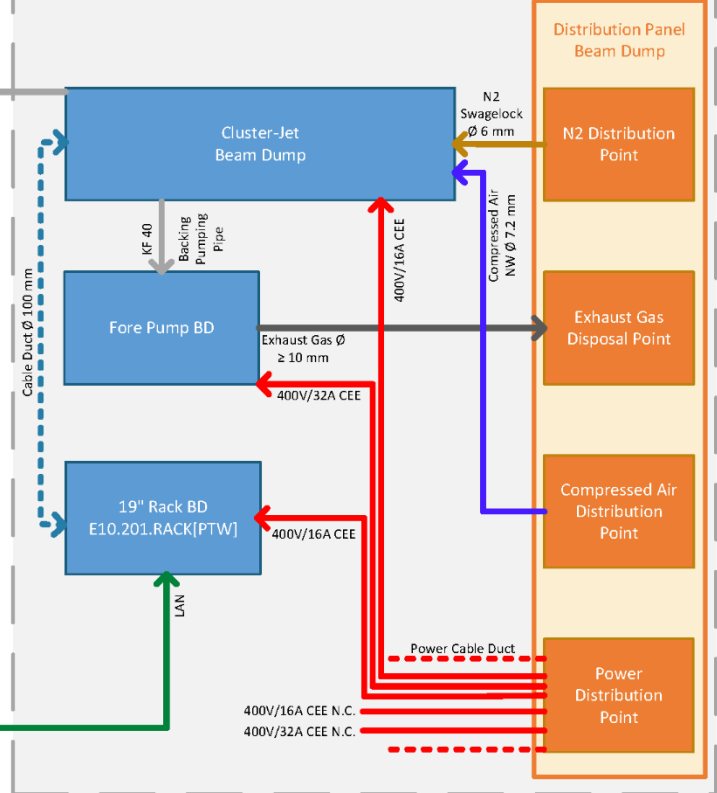
Antiprotons

Sketch of the needed electrical, gas supply, coolant, etc. of the PANDA cluster-jet target.

Target Spectrometer Platform



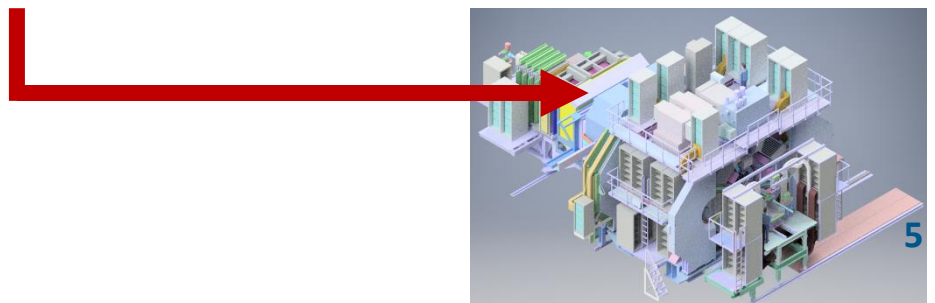
Beam Dump Platform



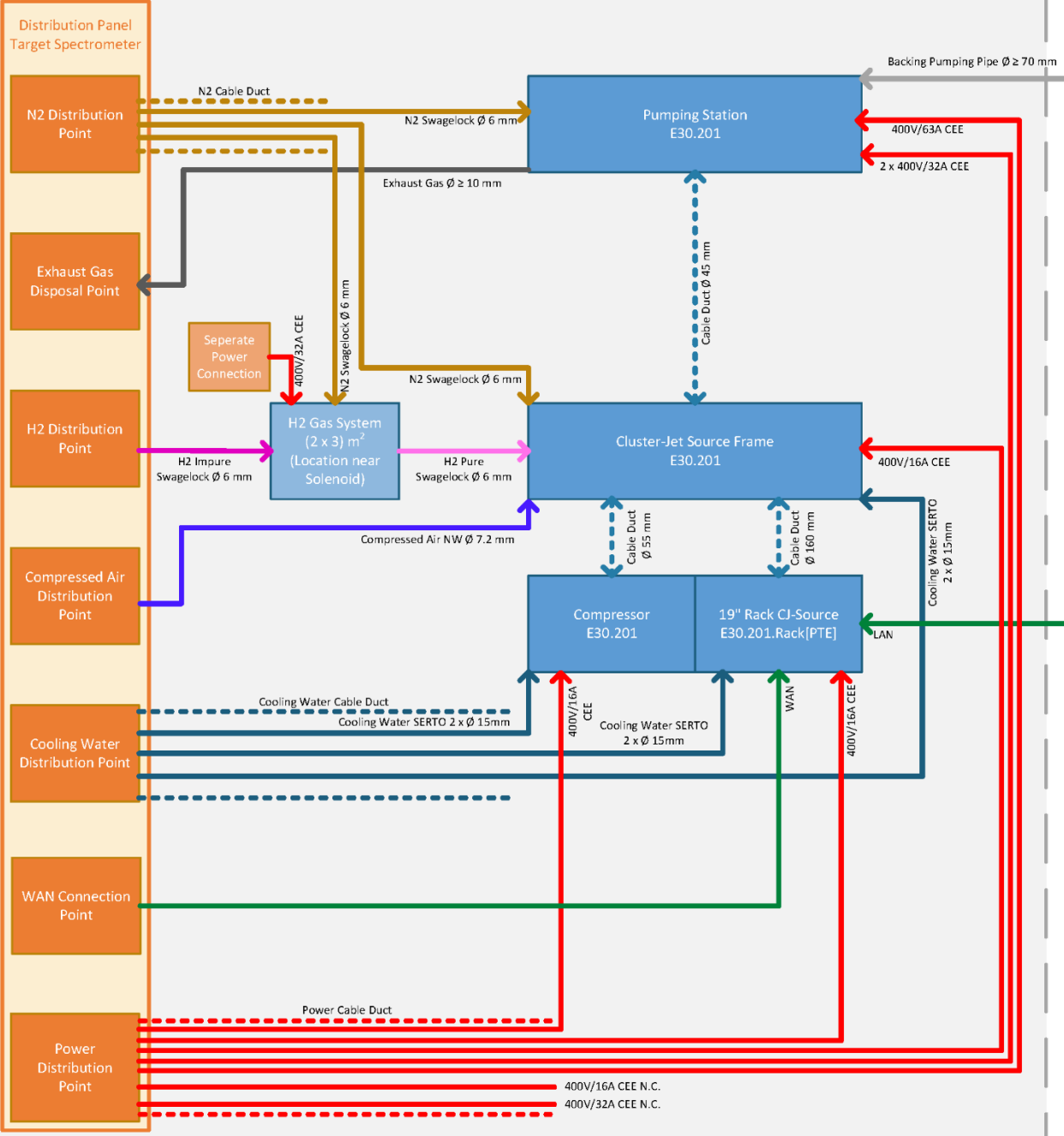
Antiprotons

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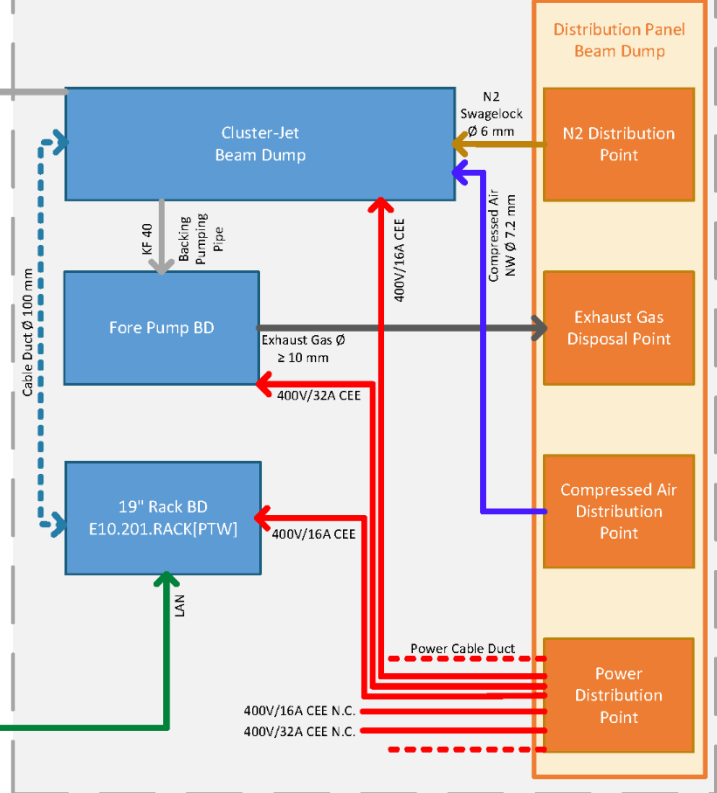
Components placed upon the target spectrometer platform



Target Spectrometer Platform



Beam Dump Platform

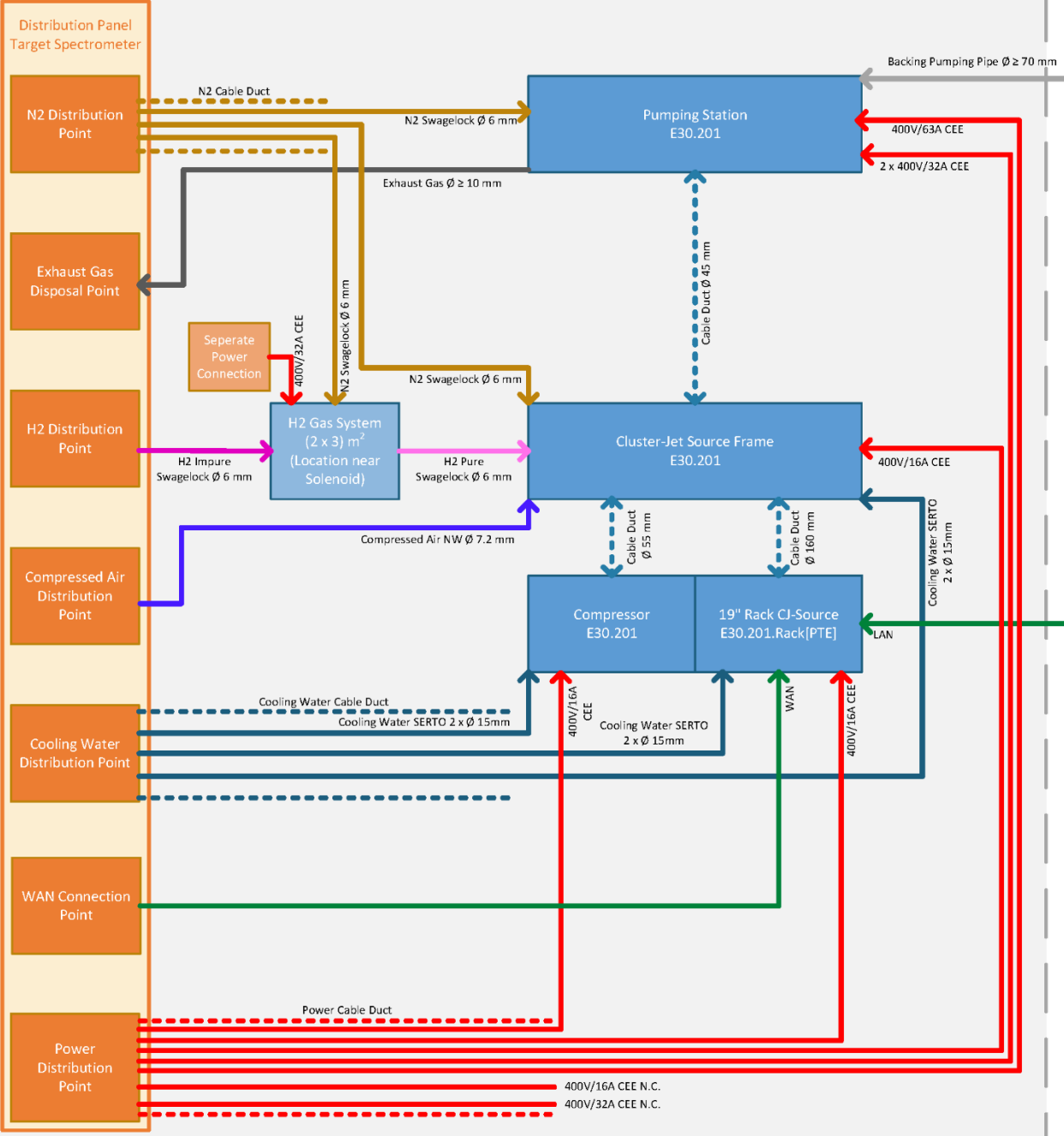


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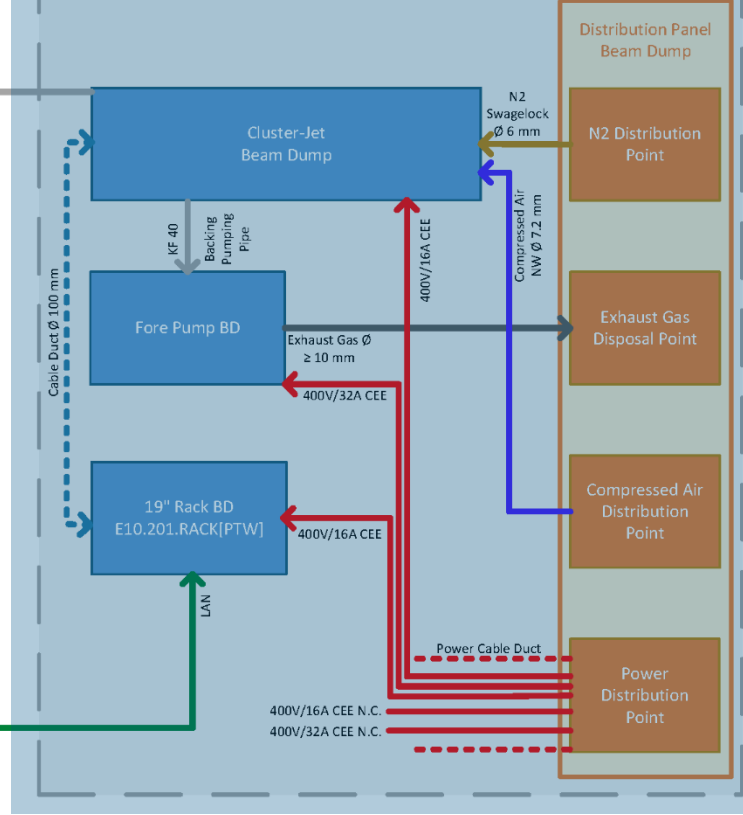
Antiproton Beamline

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Target Spectrometer Platform



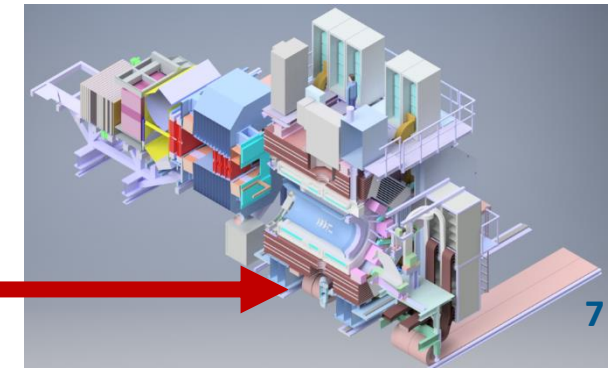
Beam Dump Platform



Antiprotons

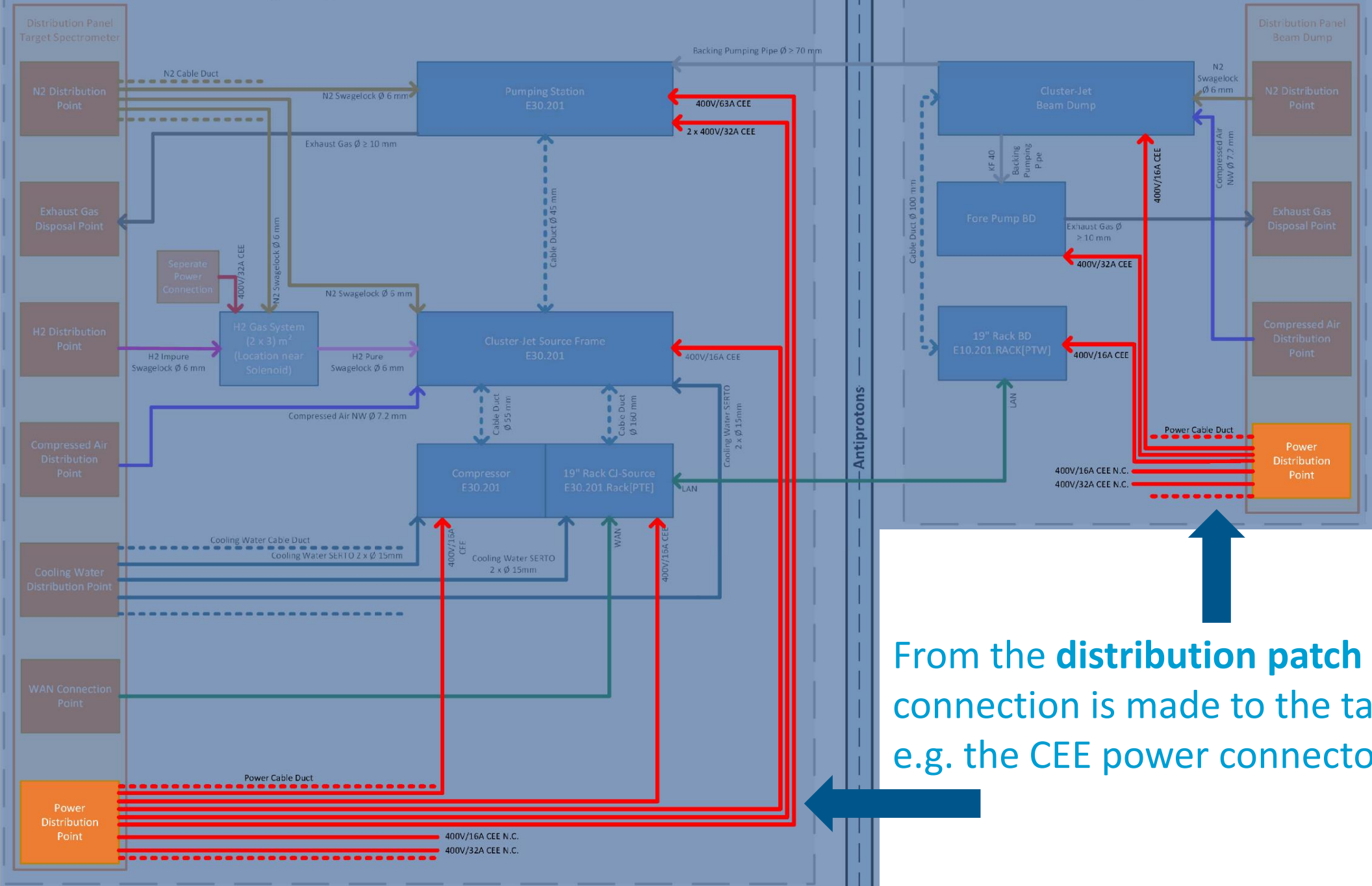
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Components placed upon the beam dump platform



Target Spectrometer Platform

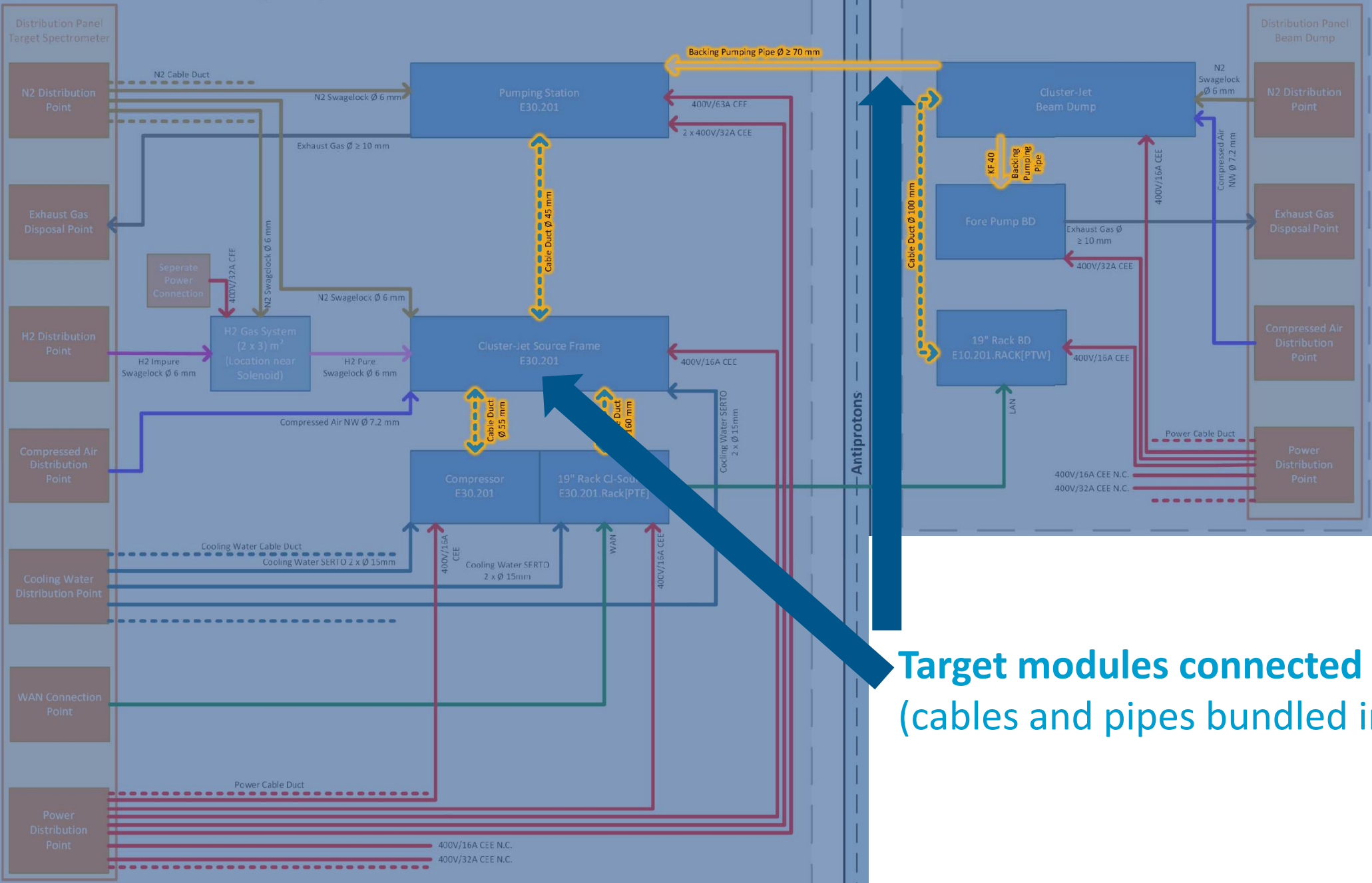
Beam Dump Platform



From the **distribution patch panels** the connection is made to the target devices, e.g. the CEE power connectors.

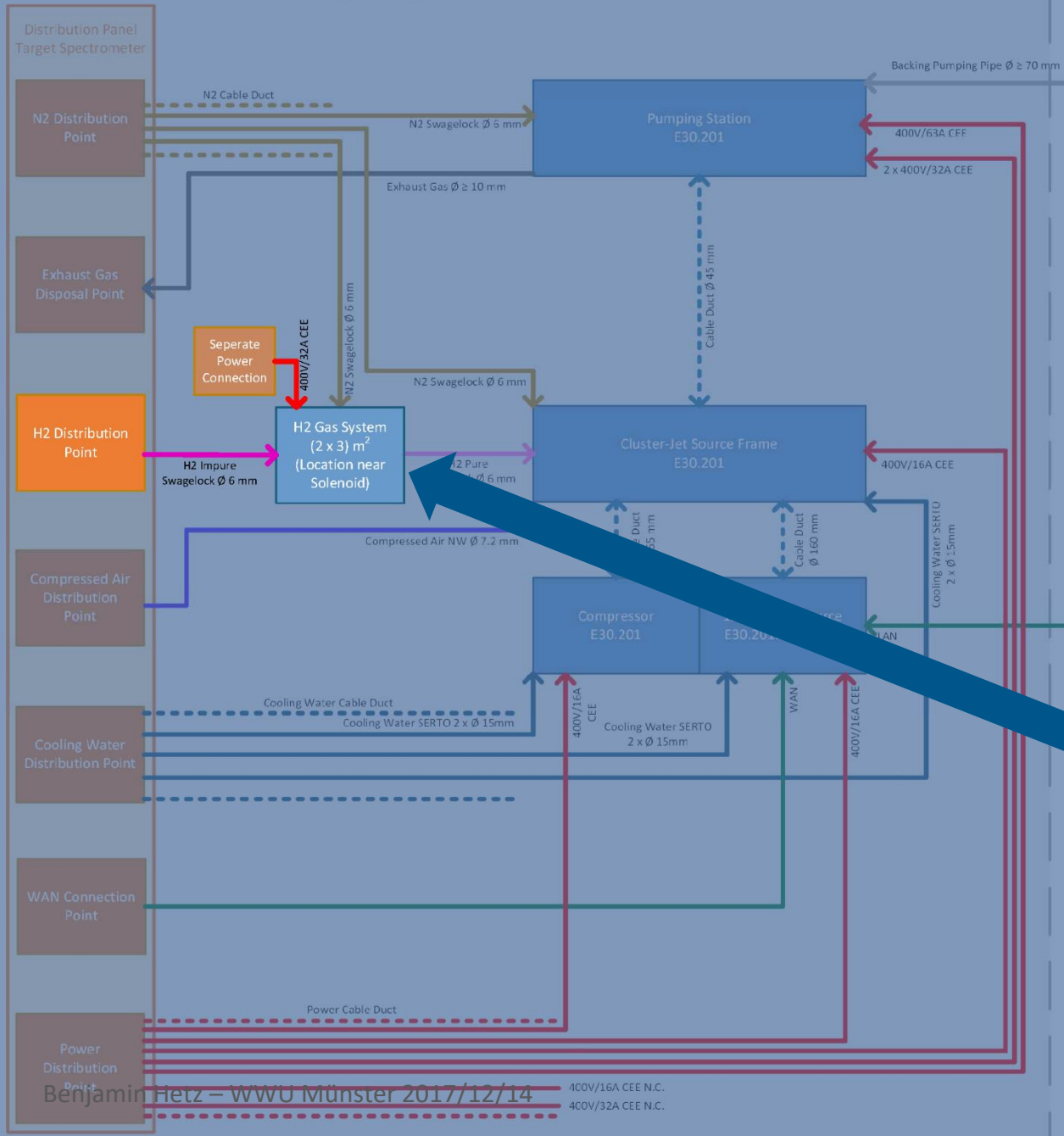
Target Spectrometer Platform

Beam Dump Platform

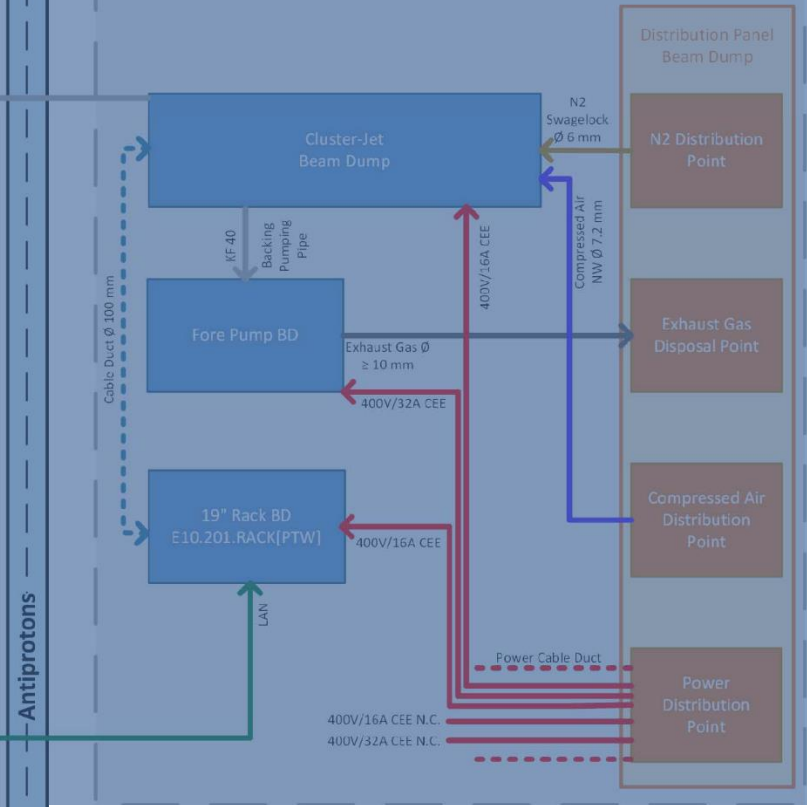


Target modules connected internally (cables and pipes bundled in cable ducts).

Target Spectrometer Platform



Beam Dump Platform



Antiprotons

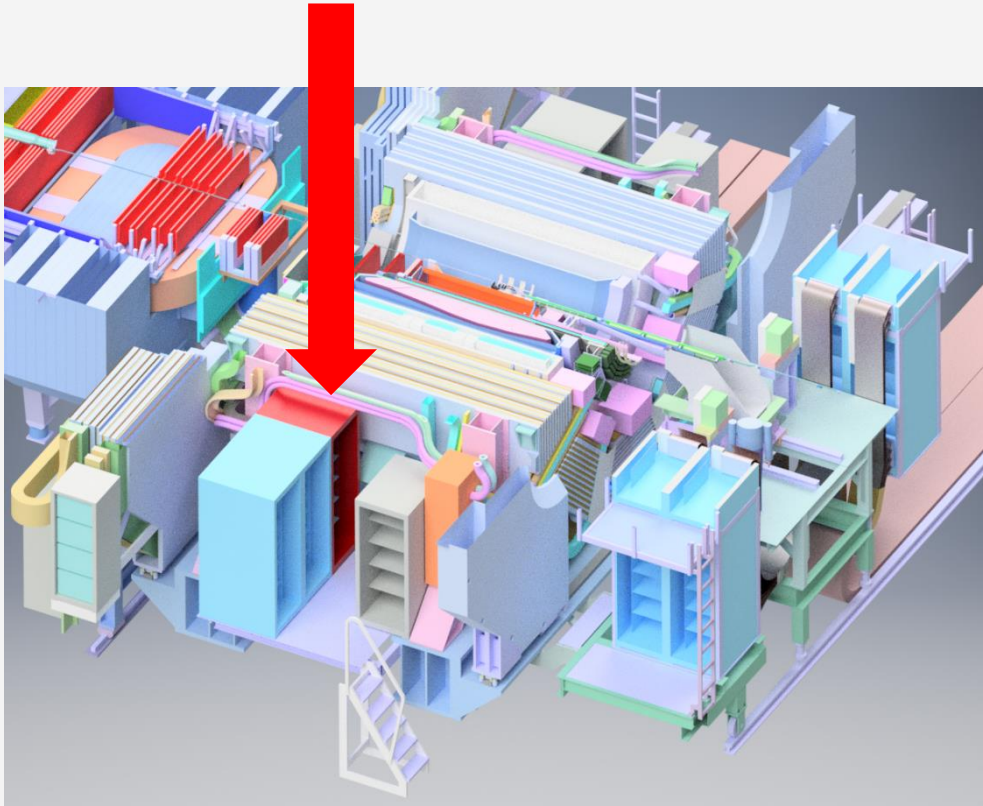
PANDA Hydrogen Gas/Purifier System can be located „anywhere“ but somewhere near the solenoid. More details will come from the responsible Vienna group about sizes connections etc.

Location of the Cluster-Jet Target Rack



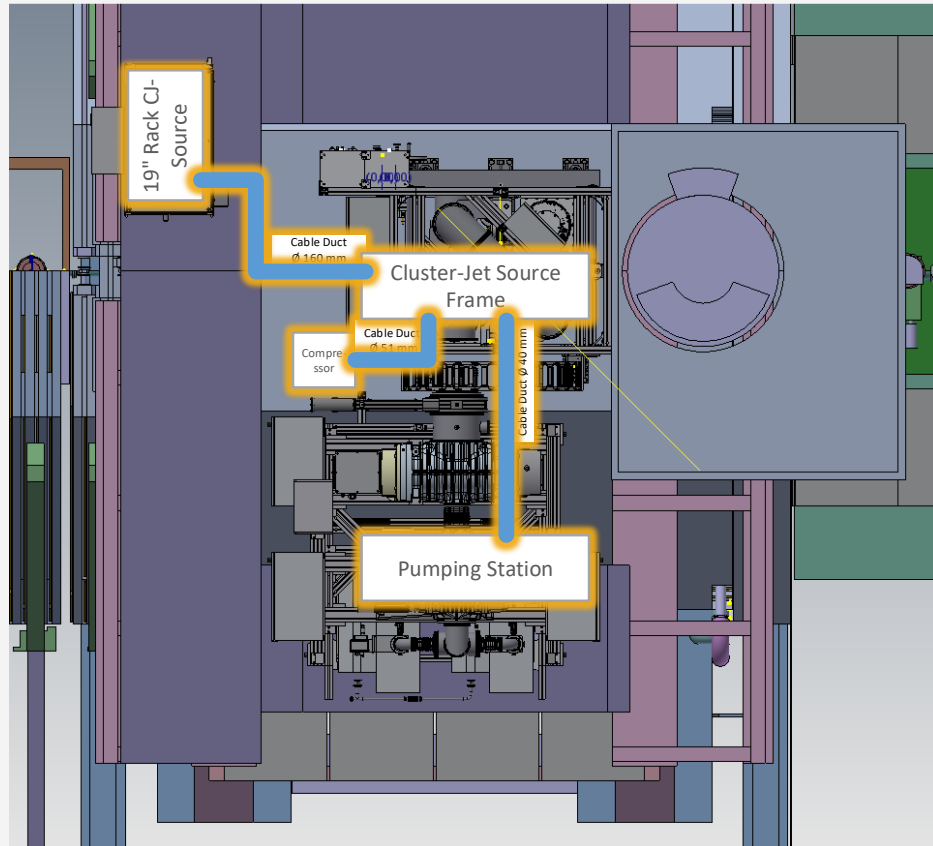
- We bring our own **rack** for the cluster-jet source
- Already completely filled and set into operation at Münster
- Concrete location and size already shown in the latest PANDA step files
- Connections, power lines, etc. shown in the previous slides

Location of the Beam Dump Rack



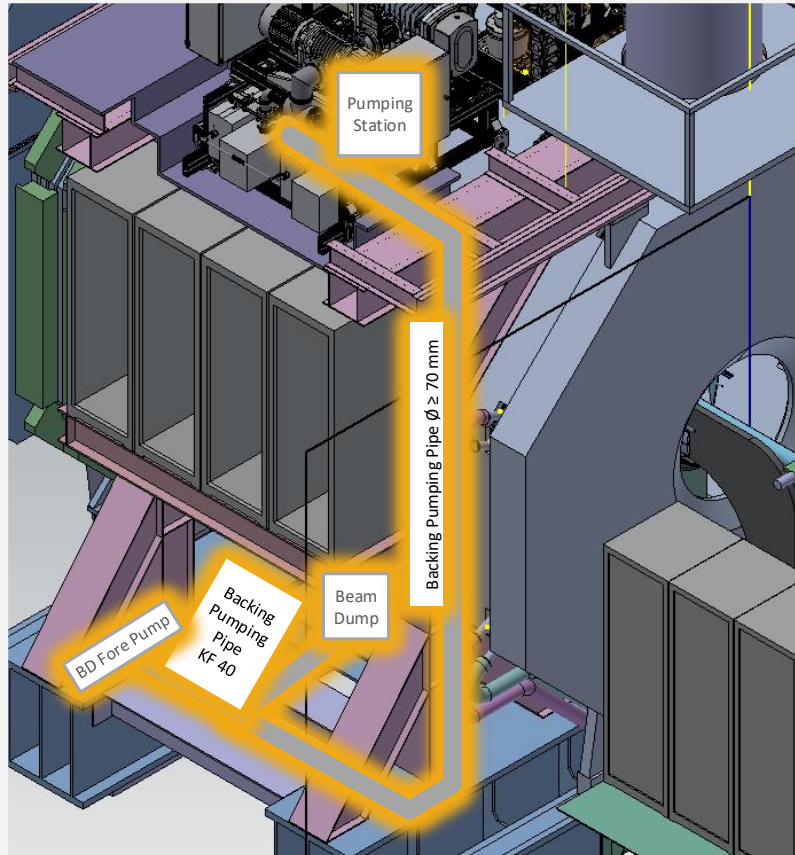
- The **rack 42U-T1009** on platform TW East can be claimed (talked with Jost Luehning)
- So we'd like to claim the whole rack for the beam dump electronics
- About 1/2 is filled with the turbopump supply units
- The other half can be used for the final BD slow control system by the **Warsaw group**
- No concrete plans how much space is needed, yet

A (very) rough sketch of the target/pumping station location



- View onto the target spectrometer platform
- Indicated is the routing of our **cable ducts** for internal target communication only, these wires do not need communication with something else but our slow control system
- More or less to treat as one big cable
- External communication given by WAN connection point from the 19" rack (see prev. slides)

A (very) rough sketch of the needed beam dump backing pump line



- Beam dump located beneath the detector
- Beam dump needs a backing pumping pipe to the pumping station at the target spectrometer platform
- Additionally a backup backing pump near the beam dump would be worthwhile
- No concrete plans do exist about pumping line routing, yet

Information for and from the other detector modules

- Which concrete target parameter are wished to be directly accessible by others?
(cf. Excel Tables of PANDA controls requirements)
 - Pressures? Valve states? etc
 - How to supply this information? Hard wired? EPICS?
- We need:
 - Information about target cross shutters (FZ Jülich), best hard wired
 - Luminosity Monitor information
 - E.g. some feedback loop for instant thickness adjustments

Summary

- Target supply connection and wiring wishes shown
- Concretization of backing pump system for beam dump needed
 - Separate backing pump/long backing pipe/both?
- Which target status information should be shared in which manner?
 - DSS/Interlock, etc. wishes?

