



Cryogenic and Vacuum Systems at ESS

Procurement Needs & How to Get Involved

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Introduction



As of October 2022, almost all the cryogenic systems and a significant fraction of the vacuum systems at ESS have been built and commissioned

However, some opportunities remain in:

- Ongoing maintenance & operations of existing systems: spare parts, replacement of consumables
- Completion of vacuum systems and some small cryogenic systems in the neutron instruments
- One possible facility upgrade

What Sorts of Equipment & Services Are We Interested In?



- Room temperature piping
- Valves, flanges, seals
- Motors, cabling
- Warm gas storage systems
- Room temperature instrumentation and control systems
- Heat exchangers
- Welding services & rigging services
- Compressor and motor servicing, compressor oil
- Small cryocoolers & dilution refrigerators
- Cryogenic instrumentation
- Storage dewars for cryogenic liquids & cryostats

One Upgrade Proposed: Cryomodule Maintenance Facility



Will Include

- Cleanroom
- High Pressure Rinsing system
- Vertical Cavity Test Stands
- Assembly space and tooling

This facility will require significant cryogenics and vacuum capabilities

Cost & Schedule are still TBD

Current Estimated Procurements; Not Including Upgrade



- Cryogenics – Due to prebuying of spares and existing framework agreements, there is a limited amount of new procurements expected during the next 5 years. These are mostly limited to the needs of the neutron instruments. Estimate: 100 kEuros total from 2023 - 2027
- Vacuum - 0.5MEuros in 2023, 0.75MEuros annually for 2024 - 2027

An Example of a Successful Local Vendor

Power Heat (Malmö, Sweden)

- Power Heat has a framework agreement with ESS to provide mechanical and piping system installations
- They have provided significant amounts of piping including room temperature piping for the ESS cryogenics systems
- More details can be found at <https://www.bigsciencesweden.se/suppliers-partners/power-heat-piping-south/>



How to Do Business with ESS



- Most procurements are done via open competitive bidding
 - Service contracts and framework agreements are also competed
 - Sole source procurements are rare
- Significant resources for vendors exist on the ESS website <https://europeanspallationsource.se/>
 - Information for Industrial suppliers <https://europeanspallationsource.se/industrial-suppliers>
 - You can register a Business Profile with ESS <https://europeanspallationsource.se/procurement#business-profiles>
 - You can find a list of current procurements underway <https://europeanspallationsource.se/procurement/listings>
 - You can contact your country's ILO <https://europeanspallationsource.se/industrial-suppliers>
- Remember that significant work at ESS is done via our In-kind Partners who have their own procurement needs and systems.
- Many future procurements will be in support of the neutron instruments <https://europeanspallationsource.se/instruments>

Summary



- Cryogenic & Vacuum systems at ESS will require materials and services over many years to support operations and maintenance
- Requirements include both specialized cryogenic & vacuum equipment but also more general industrial equipment
- Supplies are required by both ESS and its In kind partners
- There are many resources for vendors who wish to supply ESS
- Vendors should take the long view here; ESS will be around for many decades

ESS Has Come a Long Way with the Help of our Vendors



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2022

