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| **Component** | **Deliverable** | **Responsible Institution** | **Total Budget** |
| **1. Membrane Cryostat** | 1.1. Warm, cold structures installed in Hall C, top caps with penetrations ready to be installed after the detector insertion inside the cryostat | INFN | k€ 7,077 |
| **2. AAr Cryogenics** | 2.1. Support structure for the cryogenics system installed in Hall C | INFN | k€ 445 |
| 2.2. AAr cryogenic system installed, through testing and connection to the LNGS LIN recovery system | INFN | k€ 2,355 |
| **3. UAr Cryogenics** | 3.1. Base circulation system & instrumentation | PU | k$ 353 |
| 3.2 UAr gas circulation pump and prototypes | IHEP | k€ 75 |
| 3.3. Zr-based getters | PU | k$ 487 |
| 3.4. Purification and radon removal system | PU | k$ 1,010 |
| 3.5. Integration with storage and recovery system | PU | k$ 217 |
| 3.6. UAr cryogenics test operations support | INFN | k€ 91 |
| **4. AAr Cryogenics Slow Control, UAr Interfaces, Detector Safety System** | 4.1. Slow control system for AAr cryogenics including software, instrumentation, connection to the hardware and commissioning | INFN | k€ 150 |
| 4.2 Detector Safety System | INFN | k€ 120 |
| **5. Main Hall C Interfaces** | 5.1. Electrical systems in Hall C | INFN | k€ 945 |
| 5.2. Design and construction of the counting room building procurement of furniture | INFN LNGS | T.B.D. |
| **6. Detector Installation inside the Cryostat** | 6.1. Temporary clean room installed on top of the cryostat | INFN | k€ 850 |
| 6.2. Personnel support for the detector engineering design and installation | INFN | k€ 1,829 |
| 6.3. Procurement and installation of internal structures in the cryostat (false floor, scaffolding, manhole, connection to the Rn free ventilation system) and additional tooling devoted to the detector installation | INFN | k€ 1,206 |
| 6.4. Outer veto, inner detector, TPC vessel installation and cabling inside the cryostat, temporary installation structures removed, and top cap installed and sealed | INFN | k€ 83 |
| **7. TPC construction** | 7.1. PMMA for TPC containment vessel (anode and cathode) | PU | k$ 409 |
| 7.2. Development of recipe 1 to produce Gd-PMMA | INFN | k€ 52 |
| 7.3. Development of recipe 2 to produce the Gd-PMMA (R&D, industrialization and pre-production) | IHEP | k€ 330 |
| 7.5 Procurement of the first batch of Gd2O3 | IHEP | k€ 90 |
| 7.6 Procurement of the second batch of Gd2O3 | TBD |  |
| 7.4 Procurement of the full amount of Gd compound necessary for the GdPMA for the inner detector | IHEP | k€ 265 |
| 7.6 Contribution to procurement of Gd-PMMA | TBD | T.B.D. |
| 7.7 Contribution to procurement of Gd-PMMA | TBD | T.B.D. |
| 7.8. Machined Gd-PMMA barrels and veto bricks for the DS20k TPC delivered to LNGS | T.B.D. | k€ 350 |
| 7.10. Machined anode and cathode, coated with TPB and Clevios, coated reflector panels, coated TPC barrel delivered to LNGS | CU | kCA$ 4,447 |
| 7.11. Inner reflective panels | PU | k$ 131 |
| 7.12 Signal penetrations through cryostat system | PU | k$ 513 |
| 7.13 Field cage resistor chain and HV system | PU | k$ 459 |
| 7.14 Extraction grid | PU | k$ 631 |
| 7.15. In-ullage gas pocket creation and instrumentation system | PU | k$ 93 |
| 7.16. Mechanical support structures attaching the TPC to the inner vessel and suspending both within the cryostat | PU | k$ 200 |
| **8. Optical Planes and Inner Veto Integration** | 8.1. Outer cage mechanical structures (holding photodetector planes, providing optical isolation from external argon volume) | PU | k$ 718 |
| 8.2. Photodetectors integration | PU | k$ 1,051 |
| 8.3. Inner detector integration tooling | INFN | k€ 424 |
| 8.4. Shaped reflectors and wavelength shifter foils | AstroCeNT | k€ 170 |
| 8.5. Mechanical tooling and installation of veto reflectors, vPDU | INFN | k€ 100 |
| 8.6. Personnel support and tools for veto light detection system installation | STFC proposed | k£ 456 |
| 8.7. Optical plane structure machining | TBD | k€ 300 |
| **9. Inner Detector Vessel** | 9.1. Procurement of the radio pure material, and construction of the inner detector vessel | INFN | k€ 1,100 |
| **10. Outer veto** | 10.1. Outer veto hardware | UCR | k$ 23 |
| 10.2 Plastic neutron moderator in AAr | TBD | TBD |
| **11. Calibration System** | 11.1. Calibration system and sources | PU | k$ 384 |
| 11.2. Test, validation and procurement of motor systems, glove boxes, pipes | IN2P3 | k€ 40 |
| **12. Detector Design and Prototypes** | 12.1. Personnel support for DS-20k TPC and Proto design | INFN | k€ 1,112 |
| 12.2. Procurement and delivery of TPC mockup components | CU | kCA$ 464 |
| 12.3 TPC mockup accessories |  |  |
| 12.3. Procurement of 1-ton cryostat for prototyping activities | INFN | k€ 60 |
| 12.4. Proto-0 hardware and operation | INFN | k€ 837 |
| **13 Readout, DAQ** | 13.1. Procurement of digitizers, cabling, VME crates, timing and trigger system hardware, front-end DAQ computers, network switches and network cabling and installation in Hall C. Firmware and software development. | CU  ~  INFN | kCA$ 4,546  ~  k€ 260 |
| **14. SiPM and Cryogenic Electronics**  **PDUs and vPDUs** | 14.1. Validation of the technology for the production of cryogenic SiPM and procurement of all SiPM for the inner detector | INFN | k€ 6,198 |
| 14.2. Development and validation of the prototypes of radiopure cryogenic electronics with commercial components, including development of custom ASIC for veto | INFN | k€ 2,094 |
| 14.3. Personnel support for SiPM and electronics development and construction | INFN | k€ 3,468 |
| 14.4. Procurement of radiopure Printed Circuit Board for TPC tiles, and motherboard for the TPC and Veto | INFN | k€ 800 |
| 14.5. Procurement of radiopure Printed Circuit Board for the Veto tiles photosensors | STFC | T.B.D. |
| 14.6. Procurement of mechanical components, commercial electrical components and custom ASICs for the tile, vtile and Motherboard, radiopure cryogenic connectors, cables for the inner detector, and power supplies for all the PDU and vPDU. | INFN | k€ 1,537 |
| 14.7. Construction, test, and assembly of TPC PDUs | INFN | k€ 1,242 |
| 14.8. Construction, test, and assembly of veto vPDUs | STFC | k£ 493 |
| 14.9. Contribution to vPDU test and readiness for assembly in the inner detector | AstroCENT | k€ 120 |
| **15. NOA Clean Room** | 15.1. ISO6 NOA Clean Room (CR2 and CR3) | INFN | k€ 4,376 |
| **16. PDUs, vPDUs Production and Test Facilities** | 16.1. Manual packaging facilities for SiPM & and electronics in operation | INFN | k€ 252 |
| 16.2. NOA CR3 PDU production facility setup and operations; automatic packaging facilities, test and measurement equipment commissioned, and personnel trained and ready for production | INFN | k€ 3,869 |
| 16.3. Infrastructures for the setup of the TPC PDU test facility and its operation | INFN | k€ 1,752 |
| 16.4. Assembly material for vPDU procured and assembly line facility access and personnel for vPDU in UK secured | STFC | k£ 899 |
| **17. Inner Detector Construction and Assembly Facilities** | 17.1. Engineering, procurement and fabrication of the LAr-TPC assembly, manipulation, and transportation handling system | CU | kCA$ 698 |
| 17.2. CR2 infrastructures for the assembly of the optical plane | INFN | T.B.D. |
| 17.3. Vacuum chamber for TPC coating and associated assembly fixtures for manipulation and handling | PU | k$ 1,614 |
| **18. Radiopurity Test, Cleanliness and Quality Control** | 18.1. Radioassay screening of detector components | CIEMAT | In Kind |
| 18.2. Access to facilities for material screening | Distributed Responsibility | In Kind |
| **19. Offline Software** | 19.1. Developments and validation of MonteCarlo and analysis tools | Distributed Responsibility | In Kind |
| **20. DArT** | 20.1. DArT infrastructures | ETHZ | In Kind |
| 20.2. DArT detector | CIEMAT + UZ | k€ 800 |
| **21. Outreach** | 21.1. Outreach activities | PU | k$ 211 |