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Battery Limits & Vendors scope	AEOS-FEET-EZK-RE-0031 Rev B



Ministry of Economic Affairs and
Climate Policy of the Netherlands



WORKSTREAM 3 – NPP DELIVERY MODEL

BATTERY LIMITS & SCOPE OF SUPPLY

Appendix to TFS - Scope of Work & Deliverables

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1. Document Purpose

The purpose of this document is to define the battery limits for the Vendors Scope of Work against the Owners scope for the purpose of the TFS, without prejudice of the final breakdown of the BIS and the final delivery contract.

1. References

No	Document reference	Title
	AEOS-FEET-EZK-RE-0001	TFS Scope of Work & Deliverables

2. Terms & Definitions

TERM	DEFINITION
AIL	Abnormal and Indivisible Loads
ANVS	Dutch Authority for Nuclear safety and Radiation Protection
BAT	Best Available Technology
BIS	Bid Invitation Specification
BOP	Balance Of Plant
CAPEX	CApital EXpenditure
CI	Conventional Island
CIW	Commission for Integral Water management (Belgium)
COL	Commissioning and Operation License
Deltares	Dutch Research Institute specialized in geo- and hydrology
DGCE	Directorate General Climate & Energy
DNE	Directorate of Nuclear Energy (The Hague)
EIA	Environmental Impact Assessment
EZK	Ministerie van Economische Zaken en Klimaat
EPC	Engineering Procurement Construction (Contract)
EPZ	Operator of existing Borssele NPP
FC	First Concrete
FEED	Front End Engineering & Design
FSS	Full Scope Simulator
FID	Final Investment Decision
GIS	Geographical Information System
HSE	Health Safety & Environmental
IAEA	International Atomic Energy Agency
IID	Intermediate Investment Decision
KNMI	Royal Netherlands Meteorological Institute
MER	Milieu Effect Rapportage/Environmental Impact Assesement
NCEA	Netherlands Commission for Environmental Assessment
NDA	Non Disclosure Agreement
NI	Nuclear Island
NNB	Nuclear New Build
NPA	Nature Protection Act
NPP	Nuclear Power Plant

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NSPA	North Sea Port Authority
OPEX	Operational Expenditure
RFG	Requirements For Generators
RFI	Request For Information
RWS	Ministry of infrastructure and water management
SEA	Strategic Environmental Assessment
SITO	SITO Program
Site	Site for NNB (Borssele)
SSC	Structures, Systems and Components
TenneT	TSO for the Netherlands
TFS	Technical Feasibility Study
TSO	Transmission System Operator
Technology Vendor	Technology Vendor means EPC contractor
WENRA	Western European Nuclear Regulators' Association

3. Introduction

The objective of this document is to specify and clarify the respective scope of the Technology Vendor and Owner for the elaboration of the Technical Feasibility Study described in "TFS Specification".

For the purpose of the TFS, the leading principle is to allocate a deliverable to the Party best positioned to study it. This division of scope is without prejudice of the scope of work of the final EPC contract, for which a comprehensive scope of supply and services will developed in the BIS.

As a general rule, any vendor specific activity shall be studied by the Vendor, and any non- technology related activity shall be in the Owner scope.

The Parties shall inform each other at soonest in case of inconsistent, unclear or unpractical scope allocation.

4. Particulars

4.1 Full Scope Simulator

The Training Centre building is included in the Owner scope but the simulator hardware is included in the Vendor scope.

The Vendor shall provide the full scope and engineering version simulators for engineering purposes, development and validation of operation and emergency procedures as well as the training and qualification of the plant operators. Design of the simulators shall take into account the processes required for the entire NPP.

The verified, validated, and qualified Full Scope Simulator for operator training and qualification shall be available for training and qualification of the operators 18 months before the first core loading of the plant.

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The Vendor shall provide training on the simulator to the Owner personnel users before the delivery of the full scope simulator.

The Vendor shall provide training on operational, qualified, and validated Full Scope Simulator using qualified and validated operating and emergency procedures prior to Owner Operation personnel formal qualification no later than 18 months before the first core loading.

4.2 Transport Infrastructures

The Vendor is responsible for the transportation related to his scope of supply, and shall specify all its requirements regarding public transportation infrastructures. The Owner shall assess whether the public transportation infrastructure is suitable for the intended transportation (see Work Package 5). The Owner will liaise with the competent authorities for any adaptation required (such as enlargement or reinforcement of harbor infrastructure, bridges and roads).

4.3 Scope limit for Grid Connection

The TenneT scope, its interfaces with the Owner and the Vendor shall be defined by EZK.

Subject to agreement between Tennet and the Owner, the HV substation shall be included in the Owner scope, including the connection(s) to the main transformer and (if needed) to the unit auxiliary transformers. The main transformer and unit auxiliary transformers are included in the Vendor scope

4.4 Cooling System Infrastructures

The entire infrastructures for the main and emergency cooling systems are part of the Vendor scope. For an open-loop arrangement, this includes:

- The Safety related Heat Sink including the water intake and outfall structures, the pumping station buildings including water treatment, the cooling water facilities, the cleaning facilities, the ducting structures, the tunnels, the channels, the basins, the ponds, the cooling towers, their associated protection structures, etc. (if applicable);
- The Conventional Heat Sink including the water intake and outfall structures, the pumping station buildings including water treatment, the cooling water facilities, the cleaning facilities, the ducting structures, the tunnels, the channels, the basins, the ponds, their associated protection structures, etc. (if applicable);

4.5 Supply of Fuel Assemblies

The supply of first core and two first reloads (options) with fissile material (enriched uranium) are included in the Vendor scope of supply and services.

At his own discretion, the Owner may renegotiate the contract or seek other fuel suppliers.

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4.6 Owner Site Preparation works

The EPC Contract shall state in which physical conditions the site will be handed over by the Owner to the Vendor. The following services and installations foreseen for the site preparation, the construction and commissioning phases are part of the Owner scope:

- Preliminary preparation of the site such as land reclamation, clearing, demolition;
- Temporary site security and access control installations and services including the temporary and permanent site fences and gates (temporary fences and gates within the site (e.g. in the case of different Vendor zones of work));
- The temporary centralized medical services during the construction and commissioning phases.

4.7 Workforce accommodation

The Vendor is not expected to identify housing opportunities for his workforce in this TFS, without prejudice of other arrangements in the BIS and the final delivery contract.

4.8 Utilities connection at Site

During construction, the Owner will make available raw water, drinking water and electricity at one (1) location at the Site based on the Vendor list of needs (flows, pressures, voltage, power...).

The Owner will ensure the access at one location on the Site to telephone and internet networks-on the basis of needs communicated by the Vendor.

The Owner will collect rainwater and waste waters at one (1) location defined on the Site.

5. Battery Limits of Scope of Supply and Services

The below Table 1 (share of scope between the Owner and the Vendor) provides a high-level overview of the SSCs to be provided by the Owner and Vendor for the purpose of the TFS. This table will be revised and completed in the frame of the future EPC Contract.

Item	Item Description	Code	Vendor	Owner
BUILDINGS & SYSTEMS NEEDED FOR OPERATION				
NUCLEAR ISLAND				
1	Reactor Building		Yes	No
2	Fuel Building including handling		Yes	No
3	Safeguard Electrical Buildings		Yes	No
4	Safeguard Mechanical Buildings		Yes	No
5	Nuclear Auxiliary Building		Yes	No

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6	Access Building/Tower		Yes	No
7	Radioactive Waste Storage Buildings		Yes	No
8	Hot Laundry		Yes	No
9	Hot Workshop, Hot Warehouse and Facilities for Decontamination		Yes	No
10	Emergency Power/Diesel Buildings		Yes	No
11	Instrumentation and Control		Yes	No
12	Full Scope Simulator (Full Scope Simulator with licensed operator training)		Yes	No
13	Radioactive effluent storage Tanks		Yes	No
	CONVENTIONAL ISLAND			
14	Turbine Hall		Yes	No
15	Non-Classified Electrical Building		Yes	No
16	Gas Insulated Switchgear		Yes	No
17	Main Transformer (Step-up transformer)		Yes	No
18	Unit Transformer		Yes	No
19	Auxiliary Transformer (Station Transformer)		Yes	No
20	Instrumentation & Control		Yes	No
	BALANCE OF PLANT			
21	Service Water Pump Building		Yes	No
22	Forebay		Yes	No
23	Intake and Outfall Structures/Tunnels including Head		Yes	No
24	Outfall Pond		Yes	No
25	Cooling Towers (if any)		Yes	No
26	Filtering Debris Recovery Pit		Yes	No
27	Fire-fighting Water Building		Yes	No
28	Attenuation Pond		Yes	No
29	Chemical Products Storage & Injection System		Yes	No
30	Demineralization Station		Yes	No
31	Desalination Station		Yes	No

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32	Auxiliary Boilers		Yes	No
33	Hydrogen Storage		Yes	No
34	Oxygen Storage		Yes	No
35	Permanent Warehouses, Lay-down areas, and Workshops inside NPP buildings including equipment for repair and maintenance of small equipments and large components		Yes	No
36	Laboratories (hot, cold/conventional & radiological) including furnitures, measuring and analytical equipments		Yes	No
	BUILDINGS & SYSTEMS RELATED TO FUEL MANAGEMENT			
37	Spent Fuel Building (typical)		Yes	No
38	Intermediate Level Wastes Storage		Yes	No
39	Contaminated Tools Storage		Yes	No
40	Conventional Waste Storage (inside fence)		Yes	No
41	Interim Storage spent fuel /Transit Area for Very Low-Level Wastes & Low-Level Wastes		Yes	No
	BUILDINGS & SYSTEMS SUPPORTING THE NPP OPERATION			
	ANCILLARY BUILDINGS (Permanent)			
42	Security & Access Control Building including parking areas		No	Yes
43	Entry Relay Store		No	Yes
44	Security Force Control Centre (support post-accident)		No	Yes
45	Medical Centre including parking area		No	Yes
46	Restaurant including parking area		No	Yes
47	Simulator Building (full scope simulator with licensed operator training) including parking area		Yes	No
48	Training Centre including parking area		No	Yes
49	Public Information Centre including parking area		No	Yes
	OFFICE BUILDINGS (Permanent)			

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50	Operational Service Centre/Owner Administration Buildings including parking area & PABX		No	Yes
51	Owner Permanent Site Offices (Offices, warehouses, workshops and lay-down areas)		No	Yes
	STORAGE BUILDINGS/GARAGE (Permanent)			
52	Laundry (Hot & Cold)		Yes	No
53	Radioactive Sources Storage		Yes	No
54	Garage for Handling Facilities		Yes	No
55	Oil and Grease Storage		Yes	No
56	Oil Ancillary Building		Yes	No
57	Vendor/EPC Warehouse		Yes	No
58	Raw Water Supply & Storage Basin		Yes	No
59	Compressed Air Station		Yes	No
	OTHER BUILDINGS & MONITORING SYSTEMS (Permanent)			
60	Environmental and Monitoring Control System (radiological, seismic)		No	Yes
61	Permanent Sewage Treatment Plant, if any		No	Yes
62	Electrical Switchyard		No	Yes
63	Emergency Helipad		No	Yes
64	Meteorological Station		No	Yes
	ROADS & NETWORKS (Permanent)			
65	Permanent Roads & Networks (Raw & Potable Water & Fire-fighting Water) inside Security Fence		Yes	No
66	Permanent Roads & Networks (Raw & Potable Water & Fire-fighting Water) outside Security Fence		No	Yes
67	Raw and Potable Water Storage inside Security Fence		Yes	No
68	Raw and Potable Water Storage outside Security Fence		No	Yes

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69	Permanent Electrical Network & Distribution inside Security Fence		Yes	No
70	Permanent Electrical Network & Distribution outside Security Fence		No	Yes
71	Permanent Telecom Network inside Security Fence		Yes	No
72	Permanent Telecom Network outside Security Fence		No	Yes
TEMPORARY BUILDINGS, INFRASTRUCTURES & SYSTEMS NEEDED FOR CONSTRUCTION				
TEMPORARY BUILDINGS NEEDED FOR CONSTRUCTION				
73	Canteen		Yes	No
74	Temporary Access Control System including Temporary Fence and Guard House (unless required by regulation)		No	Yes
75	Temporary Emergency Building during Construction		Yes	No
76	Temporary Drainage (deep underground and surface) before Construction start		Yes	No
77	Temporary Drainage during Construction (Foul & Storm Water)		Yes	No
78	Temporary Roads & Networks inside Security Fence (Raw & Potable Water supply)		Yes	No
79	Temporary Roads & Networks outside security Fence (Raw & Potable Water supply)		No	Yes
80	Temporary Fire-Fighting System inside Security Fence		Yes	No
81	Temporary Lighting outside Security Fence		No	Yes
82	Temporary Lighting inside Security Fence		Yes	No
83	Temporary Power Supply during Construction (up to 60-90 MW)		No	Yes
84	Temporary Communication PABX		No	Yes

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85	Owner Temporary Site Offices during Construction (including furnitures)		Yes	No
86	EPC Contractor Construction Site Office		Yes	No
87	Temporary Medical Centre (during construction)		Yes	No
88	Temporary Health Physics stationary equipment including personnel dosimeters and changing facilities		Yes	No
89	Temporary Sewage Treatment Plant, if any		No	Yes
90	Management and/or construction of Facilities for construction materials and delivery of equipments and AILs to the Site (inside fence)		Yes	No
91	Marine Off-Loading Facility, if any		No	Yes
92	Navigation and/or Waterways improvements		No	Yes
93	Purification and discharge of site drains during construction		Yes	No
	MISCELLANEOUS ASSOCIATED WITH CONSTRUCTION			
94	Provision and Cost of Utilities to Site Boundaries (electricity, potable water, sewage, telephone, internet, etc.) during construction period at site boundaries		No	Yes
95	Temporary Construction Site Facilities (shower and Locker rooms)		Yes	No
96	EPC Workforce Campus		Yes	No
97	Permanent Housing facilities to be used by the Owner personnel, if any		No	Yes
98	HV Grid upgrade		No	Yes
99	Construction Wastes Management outside Security Fence		No	Yes
100	Site Clearance		No	Yes
101	Site Levelling (platform preparation) to a point where construction can begin		Yes	No
102	Landscaping during construction		Yes	No
	ENVIRONMENTAL PERMITS & NUCLEAR LICENSES			

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103	Site Environmental Impact Assessment		No	Yes
104	Site Environmental Permits		No	Yes
105	Radiological Substances Release		No	Yes
106	Nuclear Site License		No	Yes
107	Construction License		No	Yes
108	Emission Permit(s), if any		Yes	No
KEY DELIVERABLES NEEDED FOR PERMITTING & LICENSING				
109	PSAR		No	Yes
110	Site Evaluation Report (SER), if any		No	Yes
111	Any Owner environmental & licensing statutory obligation		No	Yes
112	Support to the Owner for environmental permitting		Yes	No
SITE CHARACTERIZATION				
113	Collection of Site Data		No	Yes
114	Site Characterization & Investigations (1 st Campaign)		No	Yes
115	Site Characterization & Investigations (2 nd Campaign, i.e. design investigations)		Yes	No
LAND ACQUISITION & OVERALL ARCHITECTURE				
116	Land Acquisition		No	Yes
117	Overall Architecture & Master Planning		No	Yes
MISCELLANEOUS				
118	Professional Liability Insurance during project		Yes	No
119	Transport of Nuclear Fuel outside NI		No	Yes
120	Initial supply of operational spare-parts (list to be developed with Owner)		Yes	No
121	First Fuel Assemblies		Yes	No

Table 1: Owner Battery Limits & Scope of Work versus Vendor Scope of Work