

MODULAR SYSTEMS PRODUCTS

# Technical Offer for ABB eHouse

ABB Offer No.: OPP-21-4533708

Project: NL – eHouse for Pilot Plant

Quotation Date: 18.02.2022

Revision No.: 04

Revision Date: 14.07.2022

Client: Alta Innovation Support B.V.

Bidder: ABB b.v.



Dear Sirs,

Thank you very much for your interest in our products.

Yours faithfully,



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# Content

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Content	3
1.Scope of Supply	4
1.1 eHouse with Outside Dimensions	4
Optional price	5
1.2 Delivery Conditions	5
1.3 Remarks	6

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2. Description of scope of supply	7
2.1 eHouse with Outside Dimensions as per Table above	7
2.2 Schematic View of Project (only for discussion)	7
2.3 Floor of the eHouse	8
2.4 Roof of the eHouse	8
2.5 Walls of the eHouse	8
2.6 Side Gate/Door to the eHouse	9
2.7 Door for Operators	9
2.8 Stairs to the Door for Operators (as per layout)	10
2.9 Support Construction under the eHouse	10
2.10 Electric Equipment of the eHouse	11
2.11 Painting of the eHouse Enclosure Outside/Inside	11
2.12 eHouses created out of split containers	12
2.13 Others	12
2.14 Fire Detection System	12

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3. Examples of delivered projects	13
13	

# 1.Scope of Supply

## 1.1 eHouse with Outside Dimensions

Quantity	Description
	<p><b>1x container</b> (13 500 x 3 500 x 3 300 mm – LxWxH)</p> <p>based on specification below with single level floor with bottom cable entry as per ABB layout NL-ACT1_eHouse_layout rev04</p> <p><b>including:</b></p> <ul style="list-style-type: none"> <li>– external light outside eHouse</li> <li>– MCT frames</li> <li>– support structure (1.0 m height)</li> <li>– stairs with platform (1.0 m height)</li> </ul>
2	MV SWGR <b>ABB Safeplus</b> in CF configuration as per ABB technical offer with its mechanical installation into e-house
1	Dry Type Transformer <b>SEA</b> or alternative 400kVA, 11/0,4kV, Al/Al with IP31 cover, in accordance with ABB technical offer with its mechanical installation into e-house
1	LV SWGR <b>ABB MNS 3.0</b> 0,4kV, 250A ( <b>dual frequency</b> ) in accordance with ABB technical specification in the Appendixes section with installation into eHouse, cables connection inside eHouse included
1	230VAC UPS <b>BENNING ENERTRONIC I</b> 10kVA, 62Ah incl. battery cabinet its PDB for 30min backup, as per client’s RFQ specification and ABB technical offer, <b>including:</b>
	<ul style="list-style-type: none"> <li>– by-pass isolation transformer</li> <li>– installation into eHouse with cable connections inside</li> </ul>
1	Fire Alarm <b>System ABB</b> including smoke and flame detectors, in accordance with ABB technical offer in the Appendix chapter
	<ul style="list-style-type: none"> <li>– beacon and call points</li> <li>– control panel</li> <li>– fire extinguisher ABC 6kg</li> </ul> <p>with installation into eHouse, power cables connection inside eHouse included</p>
3	Air-condition split unit <b>VERTIV HPS</b> with 1+1 redundancy in LV cell of eHouse, up to 14kW, up to 40°C with free-cooling, heating by wall mounted heaters, excl. delivery of cooling medium for air-condition to site
1	Power distribution board <b>ABB TwinLine</b> or <b>SR2</b> for eHouse operation (Aux. power 400/230V AC from customer) in accordance with ABB technical offer, including SDP-920 and SDP-921 with installation into eHouse, power cables connection inside eHouse included

2	UDP-920, UDL-920 Distribution Boards <b>ABB TwinLine</b> or <b>SR2</b> ) in accordance with ABB technical offer with installation into eHouse, power cables connection inside eHouse included.
1	Mechanical installation of 3 <sup>rd</sup> party supplied material
1	FAT for 4 days in CZ ABB factory
	No other equipment included

## Optional price

Quantity	Description
1	Control Panel including equipment and engineering of PCS + PSS

## 1.2 Delivery Conditions

- **ABB (FCA Brno) according to INCOTERMS 2020**
- Estimated delivery time – it will be subject of discussion

### 1.3 Remarks

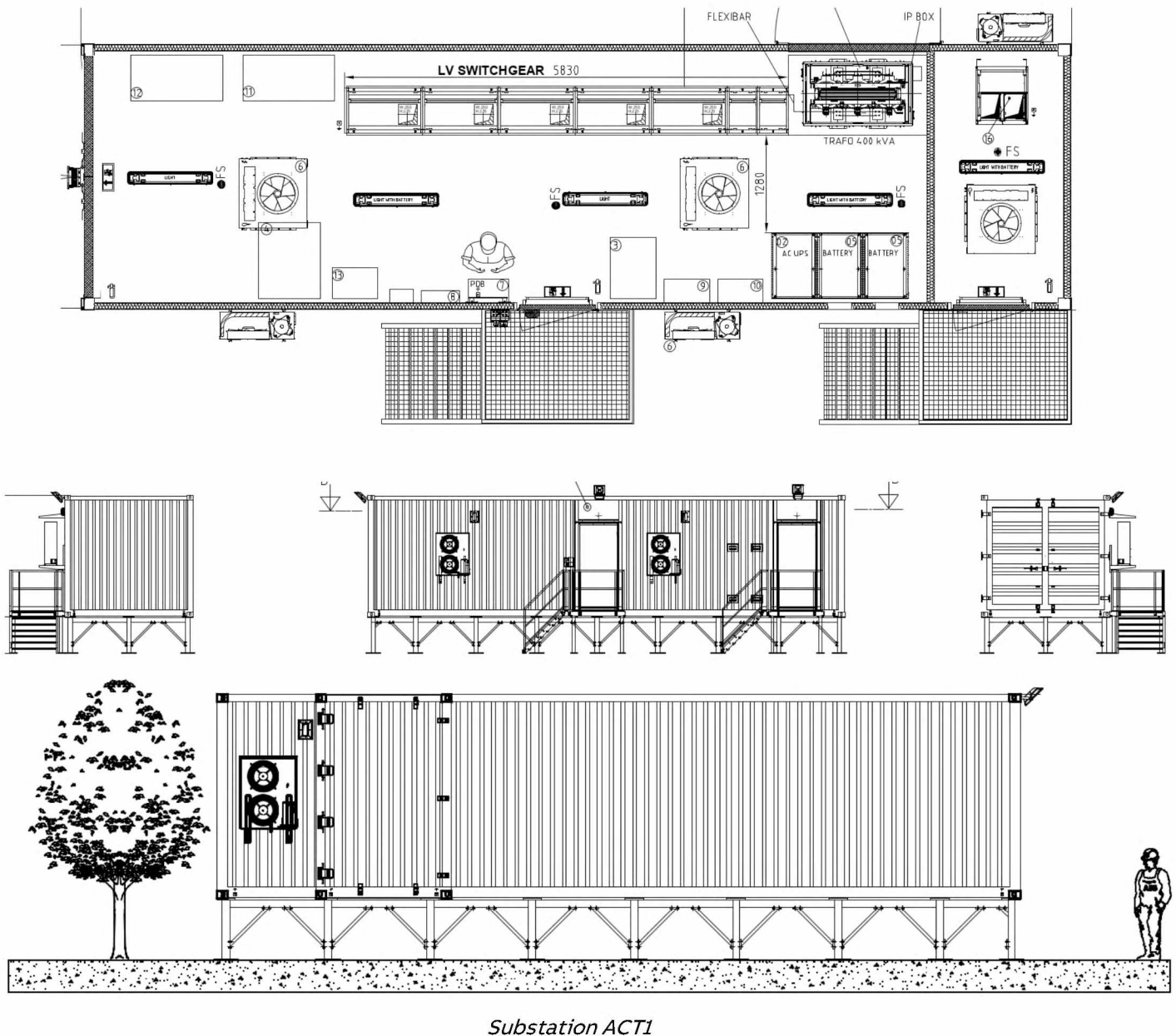
- eHouse is confirmed up to 0,4g of seismic activity/34m/s of wind load based on structural eHouse type report of ABB
- Steel S355 for critical pillars will be used
- Full metal eHouse construction has predisposition for earthing
- Gas Ducts will be installed below the ceiling inside of enclosure
- Maximum ambient temperature for air-condition calculation is 50°C
- Max. loading of roof/wall is 150kg/m<sup>2</sup>, the floor based on equipment loads confirmed
- Steel Mechanical construction as per EN1090 (DIN18800) with EXC2 and ISO standards 9001, 14001,18001.
- IP54 is confirmed (except ventilation outlets)
- Protection against corrosion based on ISO12944-2, C5M for this project
- For lifting ISO corners used
- Split Air-Condition is used
- No stainless steel is used for construction
- ABB production standards and international standard IEC/EN are considered only
- Blast proof, ATEX of building is not considered/certified
- The materials of building are non-flammable
- Final documentation as per ABB industrial standard on 1xCD of all related documents. Hardcopies are not included in base offer.
- Packing/marketing/shipping procedure as per ABB industrial standards
- Firefighting system is not considered, just fire extinguishers ABC (or CO2 can be used too)
- Mineral wool 100mm is used in the walls/floors/ceiling except the holes in structure
- Service activities can be offered as optional price.
- Delivery of cooling medium for air-condition to site is not offered, has to be managed by others at site, all due to travel restriction of cooling medium. As well as start-up and final installation of air-condition has to be done by specialized company
- Lightning inside E-house considered up to 300lux. Otherwise it must be charged additionally.
- Short circuit for Distribution panels is up to 10kA/1s

## 2. Description of scope of supply

### 2.1 eHouse with Outside Dimensions as per Table above

- eHouse with outside dimensions as per table (Tab. 1) above
- eHouse enclosure with IP54 is equipped by ISO corner holders and is produced as per international standards DIN18800 (EN1090)
- Used electro-technical standards: IEC 60439-1-3, IEC 60364-6-61, IEC 60364-6-62

### 2.2 Schematic View of Project (only for discussion)



## 2.3 Floor of the eHouse

- Frame is done by U160 steel profile (or similar based on loading)
- Cross-members by steel profile 120x60x6mm (or similar based on loading) and steel section U120 with spacing according to holes in switchgear bottoms
- Surface cover of the frame from bottom is done by smooth steel sheet 4mm
- Finish surface is done with antistatic carpet PVC (conductive). After installation of SWG etc. the dielectric carpet (3,5mm) is installed like final safety surface.
- Floor insulation with 100mm + covered with smooth steel sheet 2mm
- All necessary openings for bottom cable connections of all equipment. These openings are covered with Al sheet 5mm from bottom side of container (fix by screws)
- 4x anchoring eye for fixing SWG accessories during transport of the container



*Sample picture of the floor inside enclosure.*

## 2.4 Roof of the eHouse

- Outside: steel profile plate 2mm
- Inside: smooth zinc-coated sheet 1mm
- Frame with jäkl 140x80x4
- Forced edge beams
- Roof insulation with mineral wool 100mm

## 2.5 Walls of the eHouse

- Outside:
  - Steel profile plate 2mm
  - Reinforced corner posts
- Inside:
  - Smooth zinc-coated sheet 1mm
  - Wall insulation with mineral wool 100mm





*Sample picture which shows emergency light, opening for air-condition, door with panic lock, heating*

## 2.6 Side Gate/Door to the eHouse

- As per layout - steel insulated double door in the front wall, e.g. one leaf of the door (1000mm width). Second side of two-leafed door (approx. 1,7m width), both wings with standard vertical closing bar lock with padlock facilities



## 2.7 Door for Operators

- As per layout - steel insulated doors for operators 1000x2100mm with panic lock
- Door with identical key for both door (door with panic lock)
- Door equipped from outside with steel latch to prevent force attack the key cylinders in the door from outside. This latch is provided by means of padlock able possibility by padlock

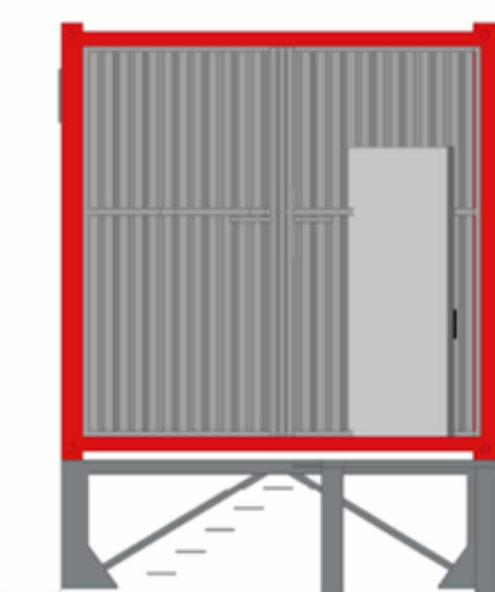


*Sample picture of the door for operators with padlockable latch (1000x 2100mm)*

## **2.8 Stairs to the Door for Operators (as per layout)**

- In front of the doors zinc-coated steel stair landing (1200 x 1500 mm) with banisters on both sides
- Steps and stair landing are by grid plates
- All is screw assembled construction
- Banister

## **2.9 Support Construction under the eHouse**



*Sample picture of the stairs with banisters leading the door for operators*

## 2.10 Electric Equipment of the eHouse

- 1x switchboard mounted on the wall to supply voltage for eHouse self (air-condition, heaters, lights etc.) All MCB 's are considered for 10kA Rated Short Circuit Capacity. If requested, short circuit studies and bigger short circuit currents shall be a part of separate calculation and must be offered separately.
- Strip lighting (LED lighting) alternative of 1x58W fixed on the roof from inside
- Emergency illumination with battery (at least 30 minutes)
- Switch for lights + 1x socket 230VAC/16A indoor + 1x socket 400VAC/16A outdoor + 1x socket 230VAC/16A outdoor
- Electric heating 3kW – with individual socket
- Opening on wall to possible mounting the air-condition

## 2.11 Painting of the eHouse Enclosure Outside/Inside

- Jet painting for outside atmosphere- C5-M painting according ISO 12944-2.
- No metallic colour is considered
- Painting – outside roof + walls + floor from bottom
- Outside painting (walls, roof, gates, doors) - 240ym RAL CLASSIC
  - Layer preparation Sa 2,5
  - Base paint layer 60 ym - 2K-Epoxid-Zn
  - Next Layer 120ym 2K-Epoxid-Mio
  - Top layer 60 ym – 2K-Polyuretan
- Inside painting:
  - All under insulation 60ym, RAL CLASSIC
  - Floor – 120ym, RAL CLASSIC
  - Layer preparation Sa 1-2
  - Base layer: 120ym 2K-Epoxid
  - Top layer: 60ym 2K-Polyuretan

## 2.12 eHouses created out of split containers



## 2.13 Others

- Manual for operation with eHouse
- Electric drawing of the switchboard which supply voltage for the eHouse self
- eHouse drawings in DWG
- Manuals for all electric equipment delivered what is in scope of supply
- Other additional requests are like optional request for additional price and needs to be discussed

## 2.14 Fire Detection System

Fire detection system will consist:

- Smoke detectors
- Control panel with communication features, dry contacts for alarms
- Manual call point
- Sounder/flasher



### 3. Examples of delivered projects



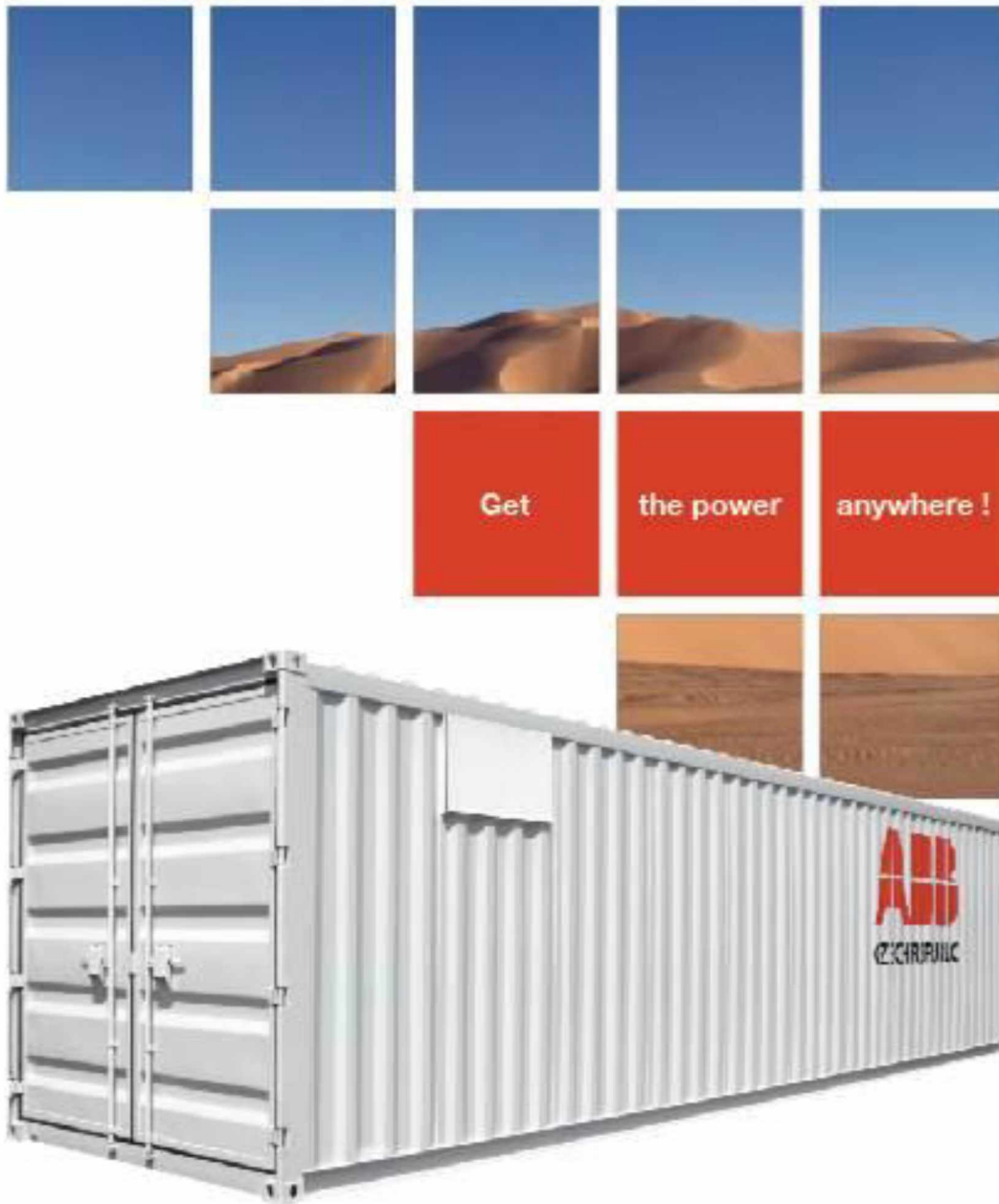












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