



HELLENIC ELECTRICITY DISTRIBUTION NETWORK OPERATOR S.A.

NOTICE OF CALL FOR TENDERS No ND-207

PROJECT: "Pilot Telemetering and Management System for the Electric Power Supply Demand by Residential and Small Commercial Consumers and Implementation of Smart Grids".

In Home Displays (IHD)

Introduction

This issue establishes the technical specifications of the In-Home Display (IHD) units that are to be used in combination with the other services of the project.

The In-Home Display (IHD) is a device that displays information about the consumer/producer's energy consumption/production and will display information such as the current energy consumption, historical consumption, as well as simple messages from HEDNO.

The In-Home Display (IHD) communicates exclusively with the consumer's energy meter and interacts with the consumer. The primary purpose of the IHD is to allow consumers to monitor their consumption in real time.

Physical Requirements / Operation conditions

1. The In-Home Display (IHD) shall be suitable for use inside the domestic environment and be approved and labelled as a CE-marked device.
2. The In-Home Display (IHD) must be designed in a friendly and ergonomic way. There must be no sharp edges, points or gaps that may cause injury during the installation, maintenance, or regular everyday operation by the consumer.
3. All parts and connections related to the In-Home Display (IHD) that may be exposed to voltage to earth over 50V shall be isolated and protected for preventing any unintended contact by the consumer or the engineer who will install them.
4. The In-Home Display (IHD) must be designed in such a way so as to operate within a minimum temperature range of +0 °C to 40 °C. It must be constructed in such a way so as to provide at least protection level as per IP31.
5. The In-Home Display (IHD) shall be designed to be installed in a visible and accessible point in the customer's residence, e.g. in the kitchen or hall. It must be capable to be installed as desktop or wall-mounted.

Power supply and batteries

6. The In-Home Display (IHD) shall operate at low voltage using external or internal transformer.
7. The In-Home Display (IHD) may be powered by alternative energy sources, e.g. a USB port on a personal computer or equivalent.
8. The In-Home Display (IHD) shall retain user configuration for a minimum of 72 consecutive hours in stand-by mode, in case that the central electricity network is not available.

9. In the event that batteries are used, it must be possible to change them without access to any other part of the In-Home Display (IHD) being required.

Functionality

10. The In-Home Display (IHD) shall communicate with the electricity meter using a reliable technology for distances (> 30 m.) encountered in reinforced concrete multi-storey buildings.
11. The In-Home Display (IHD) will communicate with the electronic meter using acceptable wireless communication methods (Bluetooth, Zigbee, etc.) or via PLC.
12. The In-Home Display (IHD) shall be able to receive and display simple messages from the central AMI/MDM system.
13. All communications between In-Home Display (IHD) and the energy meter shall use secure, encrypted protocols.
14. The In-Home Display (IHD) shall display electricity meters that are available to join or pair when the IHD is placed in the pairing mode.
15. The In-Home Display (IHD) shall be able to detect lost communication with the meter.
16. The In-Home Display (IHD) shall notify the consumer that the IHD is no longer paired with an electric meter.
17. In the event that an In-Home Display (IHD) is no longer paired with an electric meter, the IHD shall automatically provide steps to the consumer required to set it in pairing mode.
18. The In-Home Display (IHD) shall display simple messages, derived from the AMI/MDM system, such as:
 - Greetings
 - Special information
 - A warning for scheduled power cuts, etc.
19. The In-Home Display (IHD) shall receive, save and renew, at a minimum, the data of the metering system from the provider, as follows:
 - Meter data: electric point number, serial number, MAC address of the electric meter to which it is connected.
 - HEDNO's logo and the contact details of the customer service.
 - The meter's on/off status.
20. If the power of the signal is so weak that it does not permit reliable communication, the In-Home Display (IHD) shall display warning messages

in combination with instructions to the consumer to move the screen to a different point in the area.

21. In case of power down and/or communication loss, automatic reconnection and automatic updating of the In-Home Display (IHD) to the electric meter shall occur.

22. The In-Home Display (IHD) shall display the local time.

23. The In-Home Display (IHD) shall synchronize time from the AMI/MDM system.

24. The In-Home Display (IHD) shall include at least six (6) tariff zones corresponding to the meter tariff zones.

25. The In-Home Display (IHD) shall inform the consumer about consumption per tariff zone.

26. The In-Home Display (IHD) shall allow the customer to be informed when consumption exceeds a certain limit.

Display

27. The In-Home Display (IHD) shall display all information in Greek and English, as selected by the consumer.

28. All In-Home Display (IHD) messages shall be clear, readable, easy-to-understand and:

- Alphanumeric characters must have dimensions that are suitable for reading them from a distance of approximately one meter.
- Correct and clear reading from a horizontal angle of 45° and from a vertical angle of 22° must be possible.
- It must be able to display graphics with a resolution of at least 340x280 pixels.

29. The In-Home Display (IHD) shall display at least the following:

- A default message containing the contact details of HEDNO.
- A logo. Default shall be HEDNO's logo.
- A method by which the consumer will be able to determine the current history of electricity use.

Note: This may be performed by simple diagrams (bar charts) and by using additional red/orange/green LEDs, etc.

- The meter's connection/disconnection (on/off) status.

30. The In-Home Display (IHD) shall display:

- Messages to the consumers from HEDNO. The monitor's specifications relating to such type of messages shall be as follows:
 - The monitor must have adequate characters to enable the display of a 82-character message displayed without any need for scrolling.

- The monitor must save at least the five last messages.
- The ambient temperature inside the consumer's house.

31.The In-Home Display (IHD) shall save and display the electricity consumption history of at least the last 24 months with a minimum of monthly resolution.

32.When access to a large amount of information is required, the In-Home Display (IHD) shall provide a method for easy navigation into the messages.

33.The In-Home Display (IHD) shall include basic instructions (in English and Greek, as selected by the consumer) for safe use and for the restoration of its functioning.

IHD installation

34.Contractor must provide in his offer, a description of the management process of the IHD and meter connection, in full detail.