



## **NERO – Cost reduction of new Nearly-Zero Energy Wooden buildings in Northern Climate Conditions**

### **D1.4. Online energy monitoring functionality definition**

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<b>D1.4</b>	Online energy monitoring functionality definition		
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**ABSTRACT:**

In this document the online system monitoring functionality requirements are defined for the energy use, indoor temperature and indoor air quality.

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<sup>2</sup> R = Report; R+O = Report plus Other. Note: all "O" deliverables must be accompanied by a deliverable report.

<sup>3</sup> eg DX.Y\_name to the deliverable\_v0xx. v1 corresponds to the final release submitted to the EC.

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# Online energy monitoring minimum functionality definition

## 1. Energy data with multiple segments

The energy use data needs to visualize in user interface of onsite computer and can be accessible in web. Data should show the main energy uses, onsite generation, exported, delivered energy, and common technical system level data, i.e. AHU, plant details.

## 2. Indoor temperature and CO<sub>2</sub> data

Indoor temperature and CO<sub>2</sub> data for each representative room during occupied and non-occupied hour needs to be available in user interface of onsite computer and web. Summary of information to be monitored by BMS is shown in Table 1.

Table 1. Presented building information in web or onsite computer.

Energy data	Unit
Onsite production	kWh/m <sup>2</sup> a
Exported energy	kWh/m <sup>2</sup> a
Energy use of main services	
Heating	kWh/m <sup>2</sup> a
Cooling	kWh/m <sup>2</sup> a
DHW	kWh/m <sup>2</sup> a
Fans and pumps	kWh/m <sup>2</sup> a
Appliance	kWh/m <sup>2</sup> a
Lighting	kWh/m <sup>2</sup> a
Indoor climate data for representative rooms (3-5 rooms or more)	
Room temperature	°C
CO <sub>2</sub>	ppm
Air handling unit	
Temperatures before and after main components	°C
CO <sub>2</sub> level at extract air	ppm
Pressure rise and filter pressure drop	Pa
Heat recovery efficiency	%
Fan and pump speeds	%
Plant details	
Supply water temperature	°C
Return water temperature	°C
Heat capacity	kW