Energy Demand-Aware Open Services for Smart Grid Intelligent Automation

SmartHG

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Project Showcase on Industrial Web-site

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Work programme topic addressed	
Challenge	**6**: *ICT for a low carbon economy*
Objective	**ICT-2011.6.1** *Smart Energy Grids*
Target Outcome	**d**) Home energy controlling hubs that will collect real-time or near real-time data on energy consumption data from smart household appliances and enable intelligent automation.

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Contents

List of Acronyms

EV Electric Vehicle

PEV Plug-in Electric Vehicle

Executive Summary

SmartHG showcases data gathered from project test-beds resting on the interface provided by the Panoramic Power PowerRadar™ Software, as planned. This is a proprietary system and only registered users can access it. In this way, data security and privacy is taken into account. To reach a larger audience, SmartHG (anonymized) data and (aggregated) results are also showcased in the public project website, where all website visitors (energy distributors, retailers, residential users or simple onlookers) can access them. The public showcase consists of an overview of the deployed hardware, a description of the Panoramic Power PowerRadar™ Software, some anonymized screenshots from the Panoramic Power dashboard and the data on Plug-in Electric Vehicle (PEV) usage gathered from Test-an-EV project and used in SmartHG project. Furthermore, from the public showcase it is also possible to directly access the Technical Section of the project website, which contains general info about SmartHG Platform, test-beds data analytics, and technical, economic and environmental evaluation of the Platform on our test-beds.

Chapter 1

Project Showcase

The Panoramic Power sensors and bridges deployed in the residential homes of the SmartHG test-beds allow the project to collect information on the electrical consumption at substation level and at residential level of the monitored homes.

SmartHG project showcases on industrial Panoramic Power website the data gathered by sensors deployed in the project test-beds, resting on the Panoramic Power Power-Radar™ dashboard, as planned.

The data collected can be displayed in numerous ways on the dashboard, enabling the various users (the project partners, the homeowners, etc) to receive the information they need. This includes seeing only the entire home's consumption (mains), or just a specific appliance or category. It includes the time frame shown, be it hourly, daily, monthly, etc.

Each homeowner was given a unique user ID and password to view their own home consumption, and the project partners (and other future users, e.g. electric grid managers) have IDs that allow them to see the aggregate consumption of all homes, as well as zooming in on a specific home, a specific category of appliances, etc.

In this way, data security and privacy is taken into account.

To reach a larger audience, we create a public showcase in the project website, which contains some anonymized screenshots from the dashboard and general information about deployed hardware and test-beds data as well as a link to the Technical Section of the project website, which contains general info about SmartHG Platform, test-beds data analytics, and technical, economic and environmental evaluation of the Platform on our test-beds.

Next sections describe the content of the public showcase.

1.1   Deployed Hardware

The "Deployed Hardware" section of the public showcase contains general info about the hardware deployed in the SmartHG test-beds to monitor the electrical consumption at substation level and at residential level of the involved residential homes (see Figure 1.1).

1.2   Residential User Monitors Consumptions through Panoramic Power Dashboard

The "Residential User Monitors Consumptions through Panoramic Power Dashboard" section of the public showcase contains general info about the Panoramic Power Pow-

Figure 1.1: Hardware deployed at SmartHG test-beds

erRadar™ software, which is used to showcase the SmartHG project on the Panoramic Power industrial website (see Figures 1.2 and 1.3).

1.3   Screenshots from Panoramic Power Dashboard

The "Screenshots from Panoramic Power Dashboard" section of the public showcase contains some (anonymized) screenshots taken from the Panoramic Power dashboard about the electrical consumption at substation level and at residential level of the SmartHG test-beds residential homes.

Figures 1.4, 1.5 and 1.6 show some of the showcased screenshots.

1.4   Technical Section

The "Technical Section" section of the public showcase shortly describes the SmartHG public Technical Section, which contains information about SmartHG Platform, SmartHG test-beds, and technical, economic and environmental evaluation of the Platform on our test-beds. It is possible to reach the Technical Section by clicking on the link and on the image (see Figure 1.7) there in.

Figure 1.2: Panoramic Power PowerRadar™ software presentation - Page 1/2

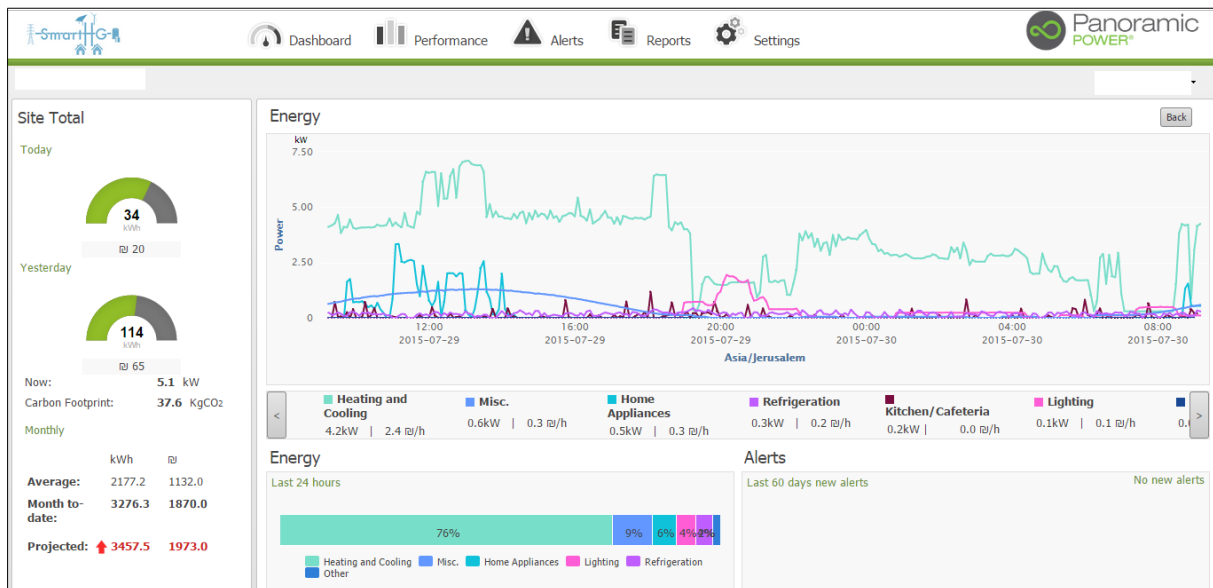Figure 1.3: Panoramic Power PowerRadar™ software presentation - Page 2/2

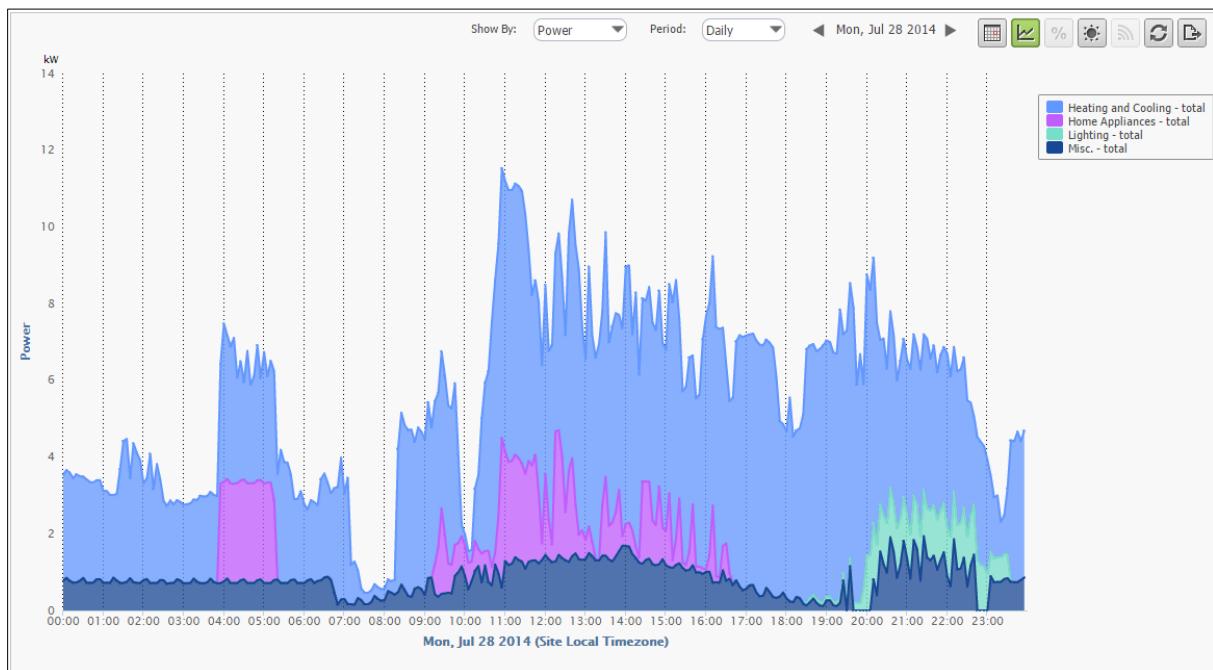Figure 1.4: General Overview (from Panoramic Power dashboard)

Figure 1.5: Typical Daily Profile - Stacked by Categories (from Panoramic Power dash-
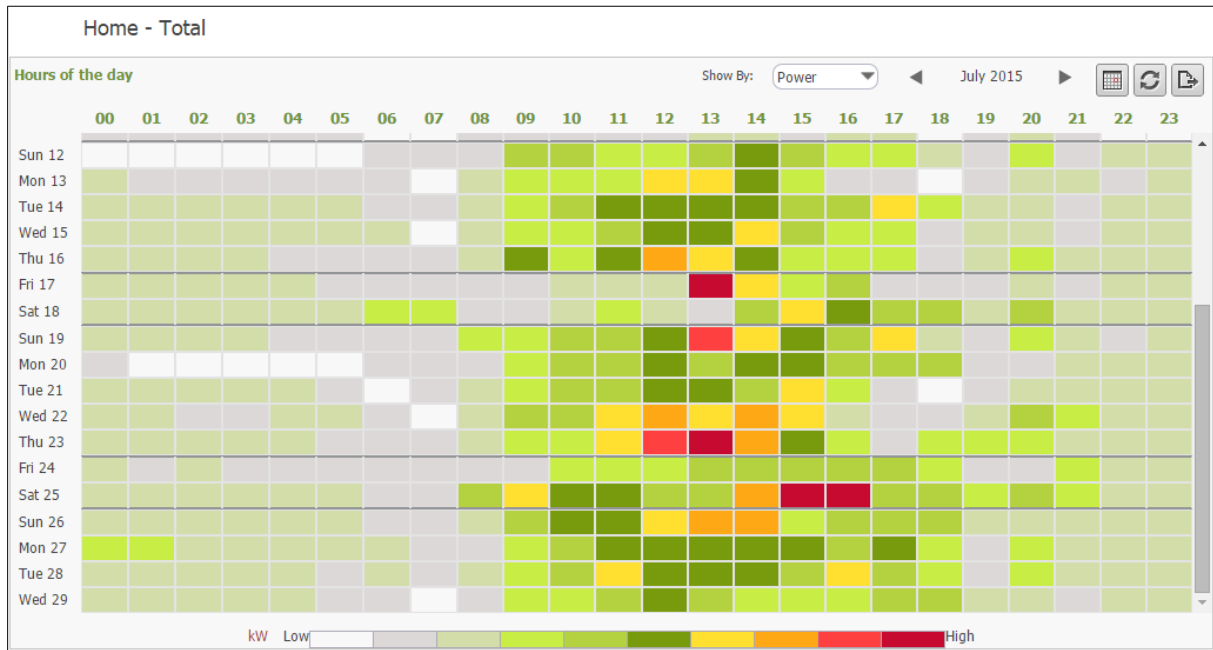board)

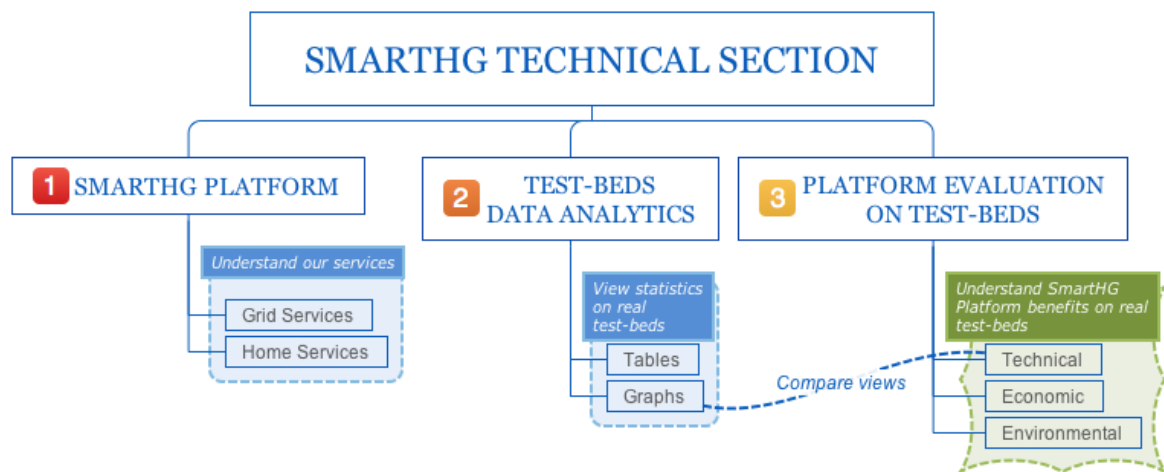Figure 1.6: Monthly Heat Map (from Panoramic Power dashboard)

Figure 1.7: Technical Section overview

1.5   Data on Plug-in Electric Vehicle (PEV) usage from Other Projects

The "Data on Plug-in Electric Vehicle (PEV) usage from Other Projects" section of the public showcase shows the data on PEV usage gathered from Test-an-EV project (`https://www.clever.dk/test-en-elbil`) and used in SmartHG project (see Figure 1.8).
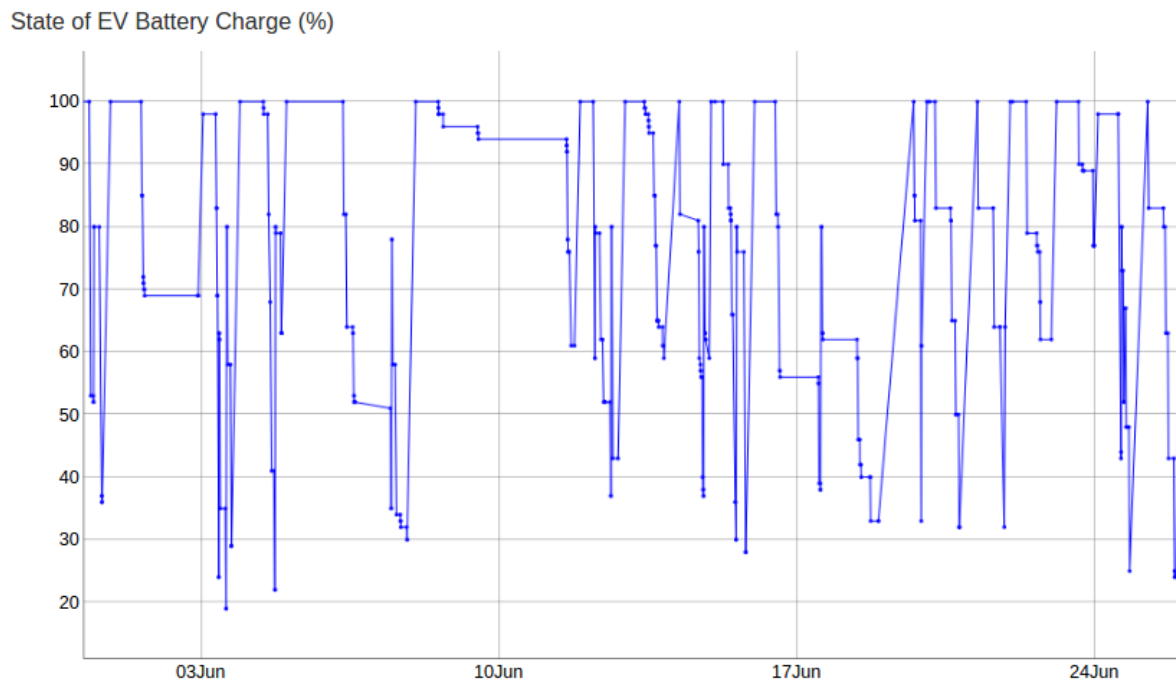

Figure 1.8: State of Electric Vehicle (EV) Battery Charge (%)