Vulnerable consumer empowerment in a smart meter world (SMART-UP)

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Objectives of the training

- Understand what smart meter technology does
- Appreciate the meter roll-out programme in Malta
- Identify customer vulnerability / fuel poverty
- Promote energy reduction behaviour change among this consumer group during the house visits
The SMART UP project

The aim of SMART-UP is to encourage the active use of Smart Meters by vulnerable customers by:

- training installers, social workers and other frontline staff in contact with (vulnerable) consumers people;
- empowering vulnerable consumers, & reduce electricity bill;
- collect feedback on their specific needs and on the ways to appropriately communicate with them;
- consolidate data on energy saving if vulnerable householders are empowered to make best use of Smart Metering.

*Financed by the European Commission H2020 project. Project Duration: March 2015 – March 2018*
Main aims of smart meter roll-out:

- To reduce energy consumption and CO2 emissions to meet EU legislation;
- Provide a meter that gives a digital reading of the electricity consumption;
- Facilitate reading and billing for Enemalta;
- Regulated by the Malta Resources Authority Act L.N. 166 of 2011 (CAP. 423);
- As at November 2014, over 87% of electricity meters (185,000) replaced.
What new smart meters can do

- No more estimated bills & better accuracy;
- Possibility to sell electricity (e.g. from PV) back into the grid at various feed-in tariffs;
- Switch electricity supply on or off remotely;
- Improve customer satisfaction – inaccurate bills are the biggest source of complaints;
- No more over or under-paying – only pay for what you use;
- Puts consumers in control of their energy use, saving money and reducing carbon emissions;

If you can measure it, you can manage it. You can decide when it’s best to run appliances, try different behaviours, and make effective decisions
The need for smart meters (Technical)

- Allows 2-way communication between meter and supplier;
- Removes need for manual readings and improve billing accuracy;
- Faster resolution to technical problems and meter faults remotely;
- Easier energy theft detection and prevention;
- Big step forward in managing the electricity network itself;
- Better control of demand and supply curves;
- Prediction of consumer behavior.
Smart Meters Alone Won't Reduce Energy Use

Households could cut their electricity use by as much as 5-15% over the next 20 years but only if:

1) customers have context for data from smart metering,
2) they are shown how they can slash their power use and costs,
3) they are sufficiently motivated to change.

To realise potential feedback-induced savings, advanced meters must be used in conjunction with in-home (or mobile or online) displays and well-designed programs that successfully inform, engage, empower and motivate people.
Savings have been shown in the region of 5-15% and 0-10% for direct and indirect feedback respectively.

Increased feedback

Increase in awareness or knowledge

Changes in energy-use behaviour

Decrease in consumption

http://wwweci.ox.ac.uk/research/energy/downloads/smart-metering-report.pdf
Feedback can help curb energy waste...

**Indirect feedback after consumption**
- An "enhanced" utility bill or website that provides more than basic consumption data
- "Whole-home" resource consumption information delivered by a vendor
- Deeper contextual information, such as statistical analysis, delivered by a vendor

**Direct feedback via real-time technology**
- On-site/in-home energy display
- Smart devices including appliances
- Disaggregated and contextual information

**Automation Layers**
- Whole-home automation: generation, energy management, storage

Consequence of interventions
(Lit review)

Feedback:

- Continuous feedback - saved more gas (12.3%)
- Daily feedback - used 13% less electricity
- Weekly and monthly feedback - reduced electricity use by 4.7%

Comparative feedback:

- High and medium consumers saved energy (3.7% and 2.5%, respectively) whereas low consumers increased energy use (by 10.7%).
- Eco Team Program (ETP)- After the program, ETP households had saved 20.5% on gas use, 4.6% on electricity use, 2.8% on water use, and had reduced their waste by 28.5%.

Rewards:

- a high reward - resulting in savings of 7.6%
- The contest groups used 6.6% less electricity than a control group of master-metered apartments.

Antecedent Interventions*

- Commitment - may be a successful strategy for reducing household energy use, especially in view of the long-term effects found in several studies (Katzev & Johnson, 1983; Pallak & Cummings, 1976).

- Goal setting - showed that combining goal setting with feedback was more effective than goal setting alone (Becker, 1978; McCalley & Midden, 2002)

- Information - has also proven to be more effective when used in combination with other interventions

- Modeling - resulted in a knowledge increase, and was also effective in reducing energy use


*Antecedents are events, people or things that immediately happen before problem behavior, eg time of day, the physical environment, people who are present, or activities that are occurring within a setting.
Maltese households are one of the largest users of energy in Malta, with domestic consumption accounting for around 35 per cent of total electricity consumption.


Average Consumption in a Maltese Household

Source: NSO (2011), Note that this study was conducted during winter months.
### Average daily energy consumption in a Maltese household

Source: NSO

<table>
<thead>
<tr>
<th></th>
<th>Apartments</th>
<th>Maisonettes</th>
<th>Terraced Houses</th>
<th>Villas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Consumer</strong></td>
<td>9.86</td>
<td>10.76</td>
<td>11.02</td>
<td>12.72</td>
</tr>
<tr>
<td><strong>Refrigeration</strong></td>
<td>1.94</td>
<td>2.47</td>
<td>2.51</td>
<td>2.46</td>
</tr>
<tr>
<td><strong>Water Heating</strong></td>
<td>2.72</td>
<td>2.52</td>
<td>2.87</td>
<td>2.53</td>
</tr>
<tr>
<td><strong>TV, HiFi and Computers</strong></td>
<td>1.47</td>
<td>1.6</td>
<td>1.45</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Lighting and Other</strong></td>
<td>3.21</td>
<td>3.15</td>
<td>3.69</td>
<td>4.27</td>
</tr>
<tr>
<td><strong>Minor Appliances</strong></td>
<td>0.53</td>
<td>1.03</td>
<td>0.51</td>
<td>2.36</td>
</tr>
</tbody>
</table>
Vulnerable Consumers and Fuel Poverty
“Energy consumers with low-incomes and those who face additional barriers to accessing the benefits of smart metering because of personal circumstances or characteristics.”
Drivers of fuel poverty and related policy responses
Vulnerable households and Energy consumption

Low income households, pensioners, benefit recipients, and female single households spend significantly more of their incomes on energy in comparison to other households. Why?

1) They live on lower than average incomes and, in order to reach a certain level of comfort or to heat their homes adequately, they need to spend a larger share of their income on energy.

2) These consumers spend more time at home than households that consist of full time workers and thus use more energy than others.

3) These households are not able to improve the energy efficiency of their homes, and remain less efficient.
Risks of fuel poverty

- Vulnerable households are more severely affected by energy price increases

- Vulnerable households needs to be carefully examined and behavioural changes need to be accompanied by measures to improve energy efficiency of homes.

- Decision makers should pay ample attention to equity aspect of the expected future price increase that will affect certain households more severely and could widen the existing “energy gap” and inequality among households.

People at risk of fuel poverty (Selected Statistics for Malta)

- Ca. 26,000 households* considered to be social cases and receive energy benefits.

- The family income does not exceed €169 per week, €4 more than the minimum wage.

- The consumers that benefit from energy vouchers include:
  - families with low income,
  - persons with a disability,
  - families on social assistance or special unemployment benefit,
  - persons on an a pension or a carer’s pension.

- Total number of disconnections for non-payment during 2013 was 570 which represents an increase of 16.8% over 2012 (includes both households and non-household consumers.)

* (24,416 or 10.8% in 2013)
Indicators of vulnerability

- Age
- Disability or other impairment
- Inexperience / limited knowledge
- Basic skills
- Low-income, on benefits
- Families with young children

Grant Agreement number: 649669
Indicators of vulnerability...

Location / nature of the property

Living alone

Complexity and confusion

Sudden changes in circumstances

Caring responsibilities

Mental health problems
Identifying customer vulnerability during the house visits

- Households with children under 5;
- Account holder or householder aged 60 or over;
- Registered with the Social Security Department;
- Evidence of fuel poverty (cold / damp places in winter, hot in summer);
- On a low-income;
- House in poor state of repair;
- Caring for an elderly relative;
- Householder is disabled and unable to support themselves;
- Suffering from a long-term medical condition;
- A doctor, carer or health visitor alerts you to vulnerability;
- Householder dependant on electrical medical equipment e.g. stair lift, dialysis machine.
Upon identifying vulnerability

If you identify vulnerable consumers during the home visits you might refer them to:

- **Foundation for Social Welfare Services**, e.g. Appogg, for specific support
- **Department of Social Security** for energy benefit voucher and other benefits
- **Malta Housing Authority** for support to find affordable / habitable accommodation
- **Malta Resources Authority** for insulation and efficiency schemes, solar water heater scheme, etc.
That majority of customers make small changes to their behaviour, and energy use. 

*Non-vulnerable consumers prefer to cut down “waste” (lights left on or standby) rather than make sacrifices.*

Most behaviour changes are driven by electricity consumption.

- Turning off lights when leaving the room
- Only filling the kettle with the amount of water required
- Using the tumble dryer less
- Reducing the use of multiple devices
- Turning the electric heating down
- Taking shorter electric showers
- Switching off appliances at the socket
- More efficient approaches to cooking
The following social security beneficiaries qualify for EB:

a) Persons in receipt of Social Assistance (including Social Assistance, Single Unmarried Persons, or Unemployment Assistance).

b) Persons in receipt of Special Unemployment Benefit

c) Persons in receipt of an Age Pension

d) Persons in receipt of a Carer’s Pension

Persons in receipt of the following benefits qualify through a means test:

a) Children’s Allowance

b) Supplementary Allowance

c) A Pension in respect of Disability

Such beneficiaries qualify if the total income of the family is less than €8,795.00
Following the submission of an application form, persons can qualify either:

- As a Social Case
- Through a Means Test or
- On humanitarian grounds

**Documents required when applying for EB:**

- Copy of ARMS bill or WSC declaration
- Income Declaration

**As regards to humanitarian cases below documents has to be produced with the application**

- Detailed Medical Certificate
- Copy of last Water and Electricity Bill
- Copies of FS3s of head of household and spouse (if applicable)
- Documentation to support usage of electrical equipment used in connection with medical condition.
Energy Benefits: Payment

**EB for those who are entitled either as a social case or through a Means Test will include:**

- an amount to offset 30% of the consumption of electricity prior to the eco reduction up to a maximum assistance of €75 per year per person in the household, and

- in the case where claimant is the account holder a subsidy of not more than €65 per year in respect of the rent of electricity meter, and a subsidy of not more than €59 per year in respect of the rent of water meter is also awarded.

- Lpg is also paid to claimants who are entitled either as a social case or as means tested cases. Head of households over 60 years are entitled to €40 annually and those under 60 years are entitled for €30 annually per household. Lpg is paid only with actual invoices.

**EB for these persons who qualify on humanitarian grounds will include:**

- an amount to offset 80% of the consumption of electricity before the eco contribution reduction, and

- a subsidy in respect of the rent of an electricity meter of not more than €65 per year in the case of a single phase meter or not more than €195 per year in the case of a three phase meter, and

- a subsidy of not more than €59 per year in respect of the rent of water meter.
Provide households with information material about their smart meter and clarify potential questions;

Ask for households’ consent to complete energy survey at a later stage

Invite households to join photography competition (voucher worth 300 euros to be used to buy/contribute towards an energy efficient appliance). Households can join by filling out the consent form.

Identify a sample of households (60) to participate in the small scale pilot.
Enemalta Smart Meter guide

How to use your new Smart Meter

ATTENTION!
Your new Smart Meter is not equipped with a residual current device and therefore does not replace any safety devices currently installed on your domestic electricity installation.

SAFETY FIRST!
Always ensure that the main switch is in the off position before carrying out any works on your electrical installation.

A quick look at the meter

The switch (1), at the bottom centre of the meter, is used to switch the electricity supply on or off.

In the bottom left-hand corner of the display you will find one of the following symbols:

- [Image of symbol]
  Symbol L1 means that the meter is energised, if the circuit breaker is ON you have power.

- [Image of symbol]
  If Symbol L1 is displayed and you still have electricity ignore the warning. If on the other hand you do not have supply, check whether your meter circuit breaker and main switch is on or off. If the switch is on and you do not have a supply call Enemalta Faults on 2122 3601.

The display cycles information automatically. Alternatively you can cycle through the display by pressing the button on the right of the display (2).

When the two red consumption indicator LEDs (3) on the left of the display flash, electricity is being consumed. The optical interface (4) is on the right underneath the round button. This is used only by qualified personnel to service the device when necessary.

Learning to read the display and discovering all the functions of the meter

The display automatically shows useful information. You can also cycle through the menu by:

- Repeatedly pressing the button (2) on the right of the display.
- Keeping the button pressed for 5 seconds and then releasing to show an Explanation of Symbols. Each subsequent press of the button will show an explanation of the symbols in use.

A comprehensive guide to your... smart METER

www.smartutilities.com.mt
customer@arms.com.mt
FREEPHONE 8007 2222
Enemalta Smart Meter guide

More intelligent consumption

Electricity is a precious resource which must be used wisely. For your information and in order to enable you to take responsible decisions about your electricity consumption patterns, please note the average power requirements of typical household appliances.

Typical Power Ratings for the main types of electrical appliances

The following table will help you to verify the power rating for each type of electrical appliance, keeping in mind that there can be significant differences between similar appliances (for example a professional hair dryer as against a travel hair dryer).

<table>
<thead>
<tr>
<th>APPLIANCE</th>
<th>RATING (WATTS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hair Dryer</td>
<td>500 – 1800</td>
</tr>
<tr>
<td>Vacuum Cleaner</td>
<td>700 – 1900</td>
</tr>
<tr>
<td>Air Conditioner</td>
<td>700 – 1200</td>
</tr>
<tr>
<td>Iron</td>
<td>1000 – 2200</td>
</tr>
<tr>
<td>Oven</td>
<td>1800 – 2800</td>
</tr>
<tr>
<td>Microwave Oven</td>
<td>700 – 1500</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>100 – 300</td>
</tr>
<tr>
<td>Liquidiser</td>
<td>100 – 500</td>
</tr>
<tr>
<td>Electric Grill</td>
<td>1300 – 1800</td>
</tr>
<tr>
<td>Halogen Lamp</td>
<td>25 – 500</td>
</tr>
<tr>
<td>Dish Washer</td>
<td>2000 – 2200</td>
</tr>
<tr>
<td>Washing Machine</td>
<td>1850 – 2700</td>
</tr>
<tr>
<td>Food Mixer</td>
<td>300 – 800</td>
</tr>
<tr>
<td>Electric water heater (geyser)</td>
<td>1000 – 1200</td>
</tr>
<tr>
<td>Stereo</td>
<td>150 – 300</td>
</tr>
<tr>
<td>Electric Heater</td>
<td>1000 – 2000</td>
</tr>
<tr>
<td>Television</td>
<td>100 – 595</td>
</tr>
<tr>
<td>Toaster</td>
<td>500 – 900</td>
</tr>
<tr>
<td>Dehumidifier</td>
<td>500 – 750</td>
</tr>
<tr>
<td>Jacuzzi</td>
<td>800 – 2500</td>
</tr>
</tbody>
</table>

More info including FAQs: www.enemalta.com.mt/smartmeters
A lot of people, don't fully understand the difference between kW and kWh.

**kWh is a measure of energy, whilst kW is a measure of power...**

- **Energy** is a measure of how much fuel is contained within something, or used by something over a specific period of time. (The kWh is a unit of energy)

- **Power** is the rate at which energy is generated or used. (The kW is a unit of power)

Average power enables you think of complicated things, like buildings, as if they were simple things, like light bulbs...

- **energy** = **power** * **time**
- **kWh** = **kW** * **h** where: kWh is the energy kW is the power h is the time in hours
**HOW MUCH DOES IT COST TO RUN MY APPLIANCES...?**

<table>
<thead>
<tr>
<th>Appliance</th>
<th>Duration</th>
<th>Units (kWh)</th>
<th>Approximate cost in Euro cents*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dishwasher (1.05kW) - A class rated appliance</td>
<td>1 full load (30min quick wash)</td>
<td>0.525</td>
<td>7 cents</td>
</tr>
<tr>
<td>Iron (1.3kW)</td>
<td>1 hour</td>
<td>1.3</td>
<td>16 cents</td>
</tr>
<tr>
<td>Kettle (3kW)</td>
<td>1.75 litres boiled water</td>
<td>0.15</td>
<td>2 cents</td>
</tr>
<tr>
<td>Microwave oven (0.75kW)</td>
<td>0.5 hrs</td>
<td>0.375</td>
<td>5 cents</td>
</tr>
<tr>
<td>Electric grill (3.4kW)</td>
<td>Medium heat for 0.5 hrs</td>
<td>1.7</td>
<td>21 cents</td>
</tr>
<tr>
<td>Radiant electric cooker ring (2kW)</td>
<td>1 hour</td>
<td>2</td>
<td>25 cents</td>
</tr>
<tr>
<td>Fridge – medium size (A class) (1kW)</td>
<td>24 hours</td>
<td>1</td>
<td>13 cents</td>
</tr>
<tr>
<td>Freezer - medium size (A class) (1.35kW)</td>
<td>24 hours</td>
<td>1.35</td>
<td>17 cents</td>
</tr>
<tr>
<td>Vacuum cleaner (2kW)</td>
<td>0.5 hrs</td>
<td>1</td>
<td>13 cents</td>
</tr>
<tr>
<td>Games console (380 watts)</td>
<td>2 hours</td>
<td>0.76</td>
<td>10 cents</td>
</tr>
<tr>
<td>Heated under blanket (220 watts)</td>
<td>1.5 hrs/night for 7 days</td>
<td>2.3</td>
<td>29 cents</td>
</tr>
<tr>
<td>Wide screen TV 32” LCD (110 watts)</td>
<td>5.5 hours</td>
<td>0.6</td>
<td>8 cents</td>
</tr>
<tr>
<td>Tumble dryer C class model (3.5kW)</td>
<td>1 full load</td>
<td>3.5</td>
<td>44 cents</td>
</tr>
<tr>
<td>Washing machine 40* (1.05kW)</td>
<td>1 full load</td>
<td>1.05</td>
<td>13 cents</td>
</tr>
<tr>
<td>Energy saving light bulb (11 watts)</td>
<td>50 hours</td>
<td>0.55</td>
<td>7 cents</td>
</tr>
<tr>
<td>Conventional light bulb (60 watts)</td>
<td>50 hours</td>
<td>3</td>
<td>38 cents</td>
</tr>
</tbody>
</table>
Energy saving tips
You can reduce your hot water consumption by 10% by using pipe insulation.

Install flat plate collectors or vacuum tube type solar water heaters that will provide for your hot water needs for 80% of the year on sun power alone.

Insulating your hot water cylinder is one of the simplest and easiest ways to save energy and money. Fitting solid foam ‘jacket’ around your cylinder will cut heat loss by over 75%.

A shower can consume half the amount of water than that of a bath.

By using a water saving shower head as opposed to a regular shower head you consume even less water and energy.

Use your well ... for toilet flushing, for the washing machine and for washing the car and floors. Do not drink or use well water for showers, baths, and wash-hand basins unless it is appropriately treated.

Do not leave the tap running while you brush your teeth. A family of four can save up to 200 buckets of water per year by this simple measure.
Insulation and ventilation

- You can save a lot by keeping the doors closed when heating or cooling. Use draught excluders for doors and windows.
- Insulating the roof does not necessarily need to be a big investment and yet having it done can save you up to 10-20% on your energy bills by reducing heating and cooling demands.
- Around one-third of all heat and cold lost in an un-insulated home is through the walls. Insulating your walls is one of the greatest energy savings you can make. And it’s also useful if you have noisy neighbours and for thermal comfort.
- Where possible, close off the staircase with a curtain.
- On average windows account for 15% of your home’s heat or cooling loss. Replacing single glazing with double glazing is an expense but it will help reduce your bill.
- Use draught proofing to close gaps and cracks.
- You can save energy for heating and cooling by hanging thick curtains in front of your windows. The bottom of the curtains should be level with the window sill. Reduce the space between the windows and the curtains as much as possible.
- Plant trees or shrubs or use other shading devices to shade the air-conditioning unit from direct sunlight. You can increase efficiency by up to 10 percent. But do not block air flow.
Kitchen, living and electricity

- Chargers continue to consume energy when left in the socket, even without an appliance connected to them. Once charged, you should unplug them!
- When the little light is on (or the clock on your stereo), it means the appliance is on stand-by. You can save up to 400kWh per year by switching them off.
- By cleaning your freezer 2 to 3 times a year (on a cold day) you can save up to 10%.
- You can save 25% of the energy being used, by keeping the lid on the pan while cooking. If you use an extractor fan, keeping a lid on the pan means that you will not need it as much, thereby making a further energy saving.
- Energy saving light bulbs use up to 80% less electricity than a standard lamp but continue to produce the same amount of light. They also come in all shapes and sizes with a variety of fittings.
- Dark colours absorb 2 to 3 times more light so more lighting is needed.
- Switch off the hard disc when you haven’t used your screen (computer) for 15 minutes (you find this setting under Control Panel, Power Options).
- If you are not watching the television, turn it off completely.
- An electric blanket consumes about 200-300 watts per hour.
- If installed properly, a typical PV system of 1 kilo-Watt peak capacity should produce at least 1,500 units of electricity per year. This output is expected to degrade by 1% every year. Total or partial shading reduces the efficiency of your PV system. Ideally a PV panel should be 2.4 metres away from every 1 metre of obstacle height. PV systems on roofs must not be accessible to children.
Kitchen, living and electricity...

- When purchasing new household appliance keep an eye out for a model which bears the EU energy label. The EU energy label provides you with information about energy consumption and overall energy performance of a household appliance with colours ranging from dark green (high energy efficiency) to red (low energy efficiency). Opting for the cheapest unit is not necessarily the best option since a more efficient and expensive unit might save you money off your electricity bills in the long run.

- Use lighting controls - like occupancy sensors, dimmers, or timers in order to reduce lighting energy use.

- Fast and efficient microwave ovens use around 50 percent to 65 percent less energy than conventional ovens. They also have the added benefit of not heating up your kitchen, so they save money on air conditioning in the hot times of the year.

- Simply switching from 40 degrees to 30 degrees uses around 40% less electricity! So switching from 60 degrees to 40 degrees is good and to 30 degrees is even better. You should get the same results as you would from a hotter wash as modern detergents are powerful enough to wash as well at a lower temperature. Don’t over-spin clothes. A full load is more energy efficient than two half loads. Switch-off your washing machine after the wash, don’t leave it on stand-by.

- Borrow an individual plug in-energy monitor and measure the energy usage of your appliances when they are in use and when they are on ‘standby’. You may never look at your games console the same way again!

- Did you know that many televisions are left on their factory settings which means that they are far brighter than is needed for the home - the brighter the TV is set, the more energy it uses. You will also find that the bigger the TV, the more energy it uses.

- Make sure you regularly decalify your hot water tank (once every 1-2 years depending on how hard the water is in your area) (1 mm of scale can increase your electricity consumption by as much as 10%)
Heating & Cooling

- In winter, the recommended temperature is 19-20 degrees. ... save up to 10% off your energy costs for every 1 degree that you lower the temperature inside your room in winter.

- In summer, the recommended temperature for your air conditioner unit is 23-24 degrees. ... save up to 10% off your energy costs for every 1 degree that you increase the temperature inside your room.

- Heating systems powered by electricity consume 2.5 times more energy than systems that run on gas or oil. Whilst replacing such a system would be ideal it might not always be possible, therefore, just by using the thermostat and by setting it at the right temperature, you can make energy savings.

- Use an interior fan in addition to your air conditioner. This will spread the cooled air effectively without greatly increasing your energy consumption.

- Check the filters on your air conditioning unit on a monthly basis and clean them whenever they appear dirty.

- During the night, draw cool air in from the outside by placing a fan in the balcony blowing the cool air into the room.
Informed consent & Personal Data

- For consent to be valid, the data subject is to be informed in a concise and clear manner on the purpose for processing.

- Essential information needs to be sufficient for the data subject to be able to give his informed consent at that point in time.

- Further information must be provided where it is necessary to guarantee fair processing having regard to the specific circumstances in which the data are collected.
All references to home efficiency matters are based on factual data and are for educational purposes only. The information contained in the advice is intended to be general advice and in no way does it take into account the investment objective and financial situation of any household. Electricity is dangerous and certain home improvement projects can cause serious personal injury or death, as well as other property loss or damage if not properly executed. The authors take no responsibility for the undertaking of any home project you may decide to perform. If you have any doubts whatsoever about performing electrical work yourself, you should engage a qualified specialist to perform the work for you. No advice or information, whether oral or written, obtained from us shall create any warranty not expressly made herein. The sole responsibility for the content of this leaflet lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EACI nor the European Commission are responsible for any use that may be made of the information contained therein.
Previous studies and further reading

Available at www.nea.org.uk
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www.smartup-project.eu