

## FAQ - Smart meters

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### 1. General questions

#### **What is a smart meter?**

A smart meter uses advanced technology to regularly measure the energy consumption (electricity, natural gas, urban heating) or water consumption of each household, save the readings and transmit this data using the existing electrical grid to a central system that collects data from meters for the entire country and sends them to the responsible grid operator.

The economic interest group Luxmetering, which was created in 2012 by seven national electricity and gas grid operators, is responsible for managing and running the central data collection and management system. These operators are Creos Luxembourg, Electriss, Sudstroom and Sudenergie and the cities of Ettelbruck, Diekirch and Dudelange.

It should be noted that **grid operators** construct and operate the electricity or natural gas grids and that **suppliers** buy and sell energy and the associated services.

#### **What are the reasons for installing smart meters in all households?**

With smart meters, energy consumption can be read remotely, and so there is no need for an employee to come to the consumer's home. As consumers may view information almost in real time, they are able to monitor and control their consumption and thus energy costs.

Smart meters are part of the energy market reform that intends to promote active consumer participation. Smart meters are the first step in the process of implementing a smart electricity distribution grid that uses computer technology to optimise decentralised production, distribution, consumption (particularly in the light of electromobility) and to better regulate supply and demand between electricity producers and consumers.

The roll-out of smart meters forms part of the measures planned by the Luxembourg government for transposing the European energy directive into national law.

#### **What are the benefits of smart meters?**

Once a smart meter has been fitted, consumers have access to much more detailed information on their energy consumption which enables them to achieve energy savings by adapting their habits.

Smart meters allow for energy consumption to be read remotely so that the operator's employees no longer have to disturb customers at their homes in order to make manual meter readings.

Electricity and natural gas suppliers will consequently be able to offer customers increased flexibility in terms of tariffs and innovative billing adapted to supply and demand on the energy markets. Suppliers can therefore offer new tariffs that better correspond to consumption profile and issue a bill based on real consumption rather than estimates at any time of year.

## **2. Technological questions**

### **Will my connection change?**

Neither the connection nor the power rate of the connection will change. Protective devices and other installations located downstream of the meter will also remain the same.

### **How are data transmitted?**

Data are transmitted between the smart meter and the central system through the existing electricity grid via PLCs (power line communication or power line carrier). In certain rural areas where population density is low, it may sometimes be necessary from both a technical and financial standpoint to use meters that communicate by GPRS, the mobile standard derived from GSM.

It should be noted that electricity meters also act as a gateway for secure communication with the gas meter and, if available, the water and heating meters via a wired or radio link.

### **Can the grid operator access my meter remotely?**

Grid operators are able to read energy consumption and quality indicators of the power supply, update software and control the two relays integrated into the electricity meter remotely. Only devices connected to the integrated relays can be controlled remotely (for example electric hot water tanks).

### **How can I read my energy consumption data?**

Smart meters can be read in the same way as traditional meters. In addition, in the future consumers will be able to connect a remote display or a smart home system to view their metering data in real time.

### **Could there be any interference with touch-lamp lighting?**

Yes. In fact, although it's quite rare, PLC (Power Line Communication) interference with touch-sensor lamp lighting may occur. In the majority of cases, the problem occurs with lighting systems that do not have an integrated filter and which as a result are more vulnerable to this type of interference which can also come from other electronic appliances.

Let us remind you that our technical connection conditions for high-current installations with a maximum nominal voltage of 1000V stipulate in Article 9.3.4 that "...it is the responsibility of the user of these electrical appliances to make every effort to prevent these disturbances through the installation of suitable technical equipment."

Nevertheless, to reduce the impact of PLC signals on your touch sensor lamps, we can:

- either, provide you, free of charge, with a filter with a maximum wattage of 250W, which is easily connected between the socket outlet and the lamp's plug.
- Or, advise you to purchase 63A filters, which you can install directly into the downstream circuit of your meter, to filter and to avoid any disturbances to the electrical network on your installations. These filters must be installed by an electrician.

## What are the main functions of smart meters?

Each customer will receive an explanatory leaflet detailing the functions of their new meter when it is installed.

The functionalities of an electricity meter are as follows:



### FUNKTIONALITÄTEN

- Anzeige:** Dieser Bildschirm zeigt die Zahlenwerte sowie technische Informationen und Meldungen an.
- Grüne Taste:** Mit dieser Taste kann durch das Menü gescrollt und der Zähler wieder eingeschaltet werden, wenn dieser nach Überschreiten der zulässigen Leistung abgeschaltet wurde.
- Kontrollleuchte:** Diese Kontrollleuchte blinkt, wenn Sie die grüne Taste drücken müssen, um den Zähler wieder einzuschalten.
- Kontrollleuchten:** Die Kontrollleuchten blinken je nachdem, ob Strom verbraucht oder erzeugt wird.
- Diagnose-Lesegerät:** (ist dem Personal von Creos vorbehalten)
- RJ12-Anschluss:** Mit diesem Anschluss kann zwecks Verarbeitung und Anzeige Ihrer Daten in Echtzeit ein Remote-Bildschirm oder ein Smart Home-System angeschlossen werden.

### FUNCTIONALITIES

- Display:** This screen displays the meter readings as well as technical information and notifications.
- Green button:** This button is used to navigate through the menu and to reactivate the meter should the permitted power levels be exceeded.
- Control light:** This indicator light goes on if you need to press the green button to reactivate the meter.
- Control lights:** These indicator lights flash on or off in line with your energy consumption or production.
- Maintenance reader:** (for Creos personnel only)
- RJ12 connection:** This connection can be used to plug in an external display or smart home system to display or process your data in real time.

### FUNÇÕES

- Ecrã:** Este ecrã indica os valores de contagem e exibe informações e mensagens técnicas.
- Botão verde:** Este botão permite navegar no menu e restabelecer o contador caso ultrapasse a potência autorizada.
- Indicador luminoso:** Este indicador acende se tiver de premir o botão verde para restabelecer o contador.
- Indicadores luminosos:** Estes indicadores ficam intermitentes em função do consumo ou produção.
- Leitor de manutenção:** (reservado ao pessoal da Creos)
- Ligação RJ12:** Esta ficha permite ligar um ecrã posicionado noutro local ou um sistema smart home, para tratar e apresentar os dados em tempo real.

### FONCTIONNALITÉS

- Ecran:** Cet écran indique les valeurs de comptage ainsi que des informations et messages techniques.
- Bouton vert:** Ce bouton permet de naviguer à travers le menu et de réenclencher le compteur en cas de dépassement de la puissance autorisée.
- Voyant lumineux:** Ce voyant s'allume si vous devez appuyer sur le bouton vert pour réenclencher le compteur.
- Voyants lumineux:** Ces voyants clignotent en fonction de votre consommation ou production.
- Lecteur de maintenance:** (réservé au personnel de Creos)
- Connexion RJ12:** Cette prise permet de connecter un écran déporté ou un système smart home pour traiter et afficher vos données en temps réel.

For consumers who are connected to the natural gas grid, the gas meter will be linked to the electricity meter so that gas consumption data can be securely transmitted and viewed via the interface for a remote display.

The functionalities of a gas meter are as follows:



**FR FONCTIONNALITÉS**

- 1 **Ecran (analogue ou digital):** Cet écran indique l'index de consommation.
- 2 **Module de communication (filaire ou sans fil):** Ce module permet de connecter le compteur de gaz au compteur électrique.

**DE FUNKTIONALITÄTEN**

- 1 **Anzeige (analog oder digital):** Dieser Bildschirm zeigt den Verbraucherindex.
- 2 **Kommunikationsmodul (drahtgebunden oder drahtlos):** Über dieses Modul kann der Gas- mit dem Stromzähler verbunden werden.

**EN FUNCTIONALITIES**

- 1 **Monitor (analog or digital):** This screen displays the consumption index.
- 2 **Communication module (wired or wireless):** This module is used to connect the gas meter to the electricity meter.

**PT FUNÇÕES**

- 1 **Ecrã de controlo (analogico ou digital):** Este ecrã indica o índice de consumo.
- 2 **Módulo de comunicação (com ou sem fios):** Este módulo permite ligar o contador de gás ao contador de eletricidade.

**What can be connected to the meter's customer port?**

If consumers so choose, smart home applications can be used with the smart meter to provide very detailed data on overall consumption. In agreement with the consumers, suppliers may provide new services using the smart metering system, particularly in relation to controlling energy demand such as accessing data via smartphone applications or the option to activate or deactivate household devices remotely, with the aim of helping customers manage their energy consumption better. Customers will in all cases retain control of their domestic appliances.

**Do smart meters have an impact on the operation of other household appliances?**

The meters have been designed in accordance with the standards in force, which aim to ensure that there is no impact on other household appliances.

**What happens to the old meters once they have been removed?**

Once they have been replaced, the old meters will either be sold to be reused as backup meters or recycled to recover the raw materials, depending on their state.

**How reliable are smart meters and what is their average lifespan?**

In terms of reliability, smart meters are similar to traditional electronic meters. Smart meters are estimated to have a lifespan of about 20 years, which is therefore comparable to the lifespan of existing meters (electronic or mechanical).

**Will my meter have any impact on my health?**

Meters are not radio transmitters. Nevertheless, they do create an electromagnetic field in their surroundings in the same way as any other electrical appliance. In practice, the specific exposure associated with transmitting data using carrier current (PLC) is extremely low and the transmission time very short; it takes less than one minute to collect consumption information and just a few seconds to transmit an event.

According to recent studies conducted by two separate organisations in residences located on Luxembourg territory, the electrical and magnetic fields emitted to living areas by smart meters are well below the limits of the official ICNIRP standards, as well as the EUROPAEM guidelines for daytime and night-time exposure. Consequently, there are no harmful effects on health resulting from PLC technology. According to the World Health Organization (WHO), there is currently no scientific evidence to support the link between the exposure to electromagnetic fields and hypersensitivity to electromagnetic waves. People that suffer from electro-hypersensitivity nevertheless have the possibility to opt for the installation (chargeable) of a specific filter.

### **3. Organisational questions**

#### **Who will receive a new meter?**

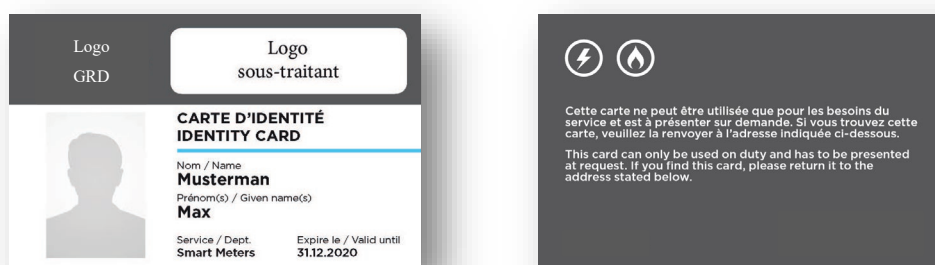
Following a European directive transposed by Luxembourg into national law, all electricity and natural gas meters within the Grand Duchy must be replaced, irrespective of the grid operator. This will mean replacing over 300,000 electricity meters and more than 80,000 gas meters.

#### **Who will install the new meter?**

Personnel from the grid operator concerned will fit the meters. Given the large numbers of electricity and gas meters that need to be replaced, several grid operators will require the services of one or more subcontractors to install the smart meters.

Each technician authorised to replace meters by a grid operator will have an identification badge that must be presented upon request.

Example badge:



#### **Will power to the consumer's home be switched off when the meter is replaced?**

The electricity and/or gas supply will have to be shut off for a short period of time while the smart electricity and/or gas meter is fitted.

#### **How long does it take to install a new meter on average?**

It takes on average less than 15 minutes to replace an electricity meter. For gas meters, the average is an hour. A gas tightness test is also carried out.

#### **What will happen if no one is home when the technician comes to install the meter?**

If the customer is not present when the technician comes to install the meter, a notice will be left in their letterbox. They will need to contact the technician by phone or email to schedule an appointment directly.

#### **Do consumers need to inform their energy provider when a new meter has been installed?**

No. The relationship with the supplier does not change following installation of a new electricity and/or gas meter. Each customer's supplier will be automatically notified by the grid operator when the meter is replaced.

#### **How many meters will be replaced per month and per week?**

In order to replace all of the 300,000 electricity meters and 80,000 gas meters by 2020, around 8,000 to 9,000 meters must be replaced each month, which corresponds to around 2,000 meters per week.



## **4. Questions related to costs**

### **How much does installing the new meter cost consumers?**

Replacing and fitting the new meter is free of charge. In general, the level of compliance of the customer systems in Luxembourg is very high. However, if during this operation it becomes apparent that the customer's system is not technically compliant and poses a risk for the customer, bringing it into compliance would be at the customer's cost and carried out by an electricity undertaking or installer of the customer's choice. The possible consequences of technical non-compliances may include for example the risk of electric shock or fire due to a short-circuit, or a gas leak.

The metering costs (installation, maintenance, meter reading etc.) are taken into account in the calculation of the grid access tariffs as these are necessary ancillary services provided by the grid operators. There will be no increase in the amount billed by the grid operator.

### **What will change in terms of billing for the consumer?**

Suppliers can offer customers monthly billing based on actual consumption or, as before, billing by means of instalment payments based on past consumption. Billing is then carried out at least once a year, taking into account the customer's actual annual consumption.

It is up to the supplier to decide which billing models are offered.

## **5. Legal questions**

### **Am I required to accept a smart meter?**

Yes, as since 1<sup>st</sup> July 2016, every grid operator is legally required to fit a smart meter, for all new installations, in the homes of all of its customers connected to its grid and to replace all old meters (mechanical or electronic) by 2020. The meter belongs to the grid operator who must ensure that it functions correctly and carry out maintenance on it. New meters are crucial for guaranteeing security of supply in the future and for ensuring that the electricity and gas grids are reliable, in particular given the increasing number of decentralised electricity production sites.

### **Are consumers required to grant the grid operator access to their meters?**

As the meter is the property of the grid operator, pursuant to Articles 29(6) (Electricity Law) and 35(6) (Gas Law), he *"has the right to access metering points, connection points and the connection facilities of producers and customers connected to the system that it manages in order to read meters and carry out all kinds of works, interventions and monitoring of connections and meters."*

Except in an emergency, grid operators must contact the customer in advance and arrange an appointment with the customer to access the meter.

## **6. Questions related to data protection and cyber security**

### **Who has access to my consumption data?**

Energy consumption data are collected several times a day through the central system managed by Luxmetering GIE, an economic interest group owned by seven electricity and gas grid operators. They are sent daily during the night to the grid operators, who send the data of the customers of electricity or natural gas suppliers to the economic interest group before 8 a.m. Only, the grid operator concerned, the customer's electricity or natural gas supplier and, if applicable, a service provider designated by the consumer have access to the customer's data. The authorised purposes

for processing data are strictly defined by law, which also ensures that data cannot be forwarded to a third party without the prior agreement of the consumer.

The Luxembourg National Commission for Data Protection (Commission nationale pour la protection des données - CNPD) has assisted grid operators to prepare for the mass roll-out of smart meters in the Grand Duchy. The processing of personal customer data by the grid operators was notified in advance to the CNPD.

### **What information is recorded, stored and sent?**

An actual reading from the meter is sent to the central system every quarter of an hour for electricity meters and every hour for gas meters where these readings are saved and stored for a maximum period of 15 years. Events relating to the quality of the supply such as a lack of voltage, a high voltage surge or a technical fault with the meter are transmitted to the central system and used by Luxmetering and grid operators for operational purposes.

### **How is data sent to ensure that they cannot be accessed by a third party?**

Grid operators take the security aspects of smart metering very seriously. Data is encrypted to ensure that consumption data are transmitted securely to the central system managed by the grid operators. The algorithms used for this encryption conform to the highest currently available standards in IT security.

### **Are energy consumption data processed anonymously, and is the protection of personal data guaranteed?**

The Luxmetering database does not include any customer details. All data are hosted securely in highly protected data centres on servers belonging to Luxmetering or at the premises of grid operators and suppliers respectively and never leave the country. Data transfer between the meter and the supplier is systematically encrypted. The internet is not used at any point in the communication chain.

### **Can any information be deduced about consumers' private lives, lifestyles or even the appliances they use?**

The electricity meter only records one meter reading every quarter of an hour and the natural gas meter only records one meter reading per hour. The scale of detail (quarter-hourly or hourly) of customers' overall consumption data does not enable customers' individual appliances to be identified, nor does it enable consumer behaviour to be deduced.

## **7. Contact**

For any questions regarding your new smart meter, please contact your grid operator:

- City of Ettelbruck (electricity): 81 91 81 - 1
- City of Diekirch (electricity): 80 87 80 - 501
- Creos (electricity/natural gas): 2624 - 2624
- Sudstroom (electricity): 26 783 787 686
- Sudenergie (natural gas): 55 66 55 – 1
- City of Dudelange (natural gas): 51 51 25