



## BEUC DRAFT RESPONSE ON ERGEG PUBLIC CONSULTATION PAPER ON DRAFT GUIDELINES OF GOOD PRACTICE ON REGULATORY ASPECTS OF SMART METERING FOR ELECTRICITY AND GAS

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**Ref.:** X/065/2010 - 10/09/10

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 EC register for interest representatives: identification number 9505781573-45 

## Summary

Smart meters, the next generation of electricity and gas meters, have the potential to offer many benefits to consumers. BEUC supports the roll out of smart meters as a way to end estimate billing, a major source of consumer complaints, and as a tool to help deliver carbon reduction, security of supply and affordable energy. We also see great opportunities around the improved delivery of social assistance to vulnerable and low income households. All this needs to be delivered in a way that maximises meaningful consumer choice, drives down prices, and enables customers to make well informed and effective purchasing decisions.

Whilst BEUC welcomes the ERGEG's recognition that services should be provided to consumers in an obvious and easy way which benefits them, we are disappointed with the proposals that have been put forward and do not believe that they do justice to the good work being carried out by many regulators across the EU or internationally. Our members report good practice by regulators across Europe which is simply not reflected in this document.

Despite our support of smart metering we have concerns that the current approach to smart meter roll-out is not on track to achieve the promised benefits or deliver the necessary protections. In order to enable the consumers to derive the full benefits of smart metering technology, a lead role is needed by regulators who should monitor whether roll-out objectives have been met (in terms of cost-benefit analysis). Smart meter roll-out and systems must be designed in a consumer-friendly way taking into account the real life consumer experience and protections needed, including (but not limited to) privacy and security aspects and the financial impact on consumers. For example, there still remain concerns around sales and marketing practices and questions about how far consumers, especially low income consumers, can alter their consumption patterns or reduce their energy use to take advantage of time of use tariffs. The suggestion to allow companies to charge consumers for the access to their own consumption data is a particular concern and risks undermining the consumers' ability to change their behaviour or compare energy deals on a like for like basis to switch effectively. Moreover, consumers must be protected against unfair costs for devices as it happened for example in the US when companies have charged consumers some additional price for the meters even though most of them have been subsidised by public administration. We also believe that standardisation is one of the key factors when minimising potential consumer risks as well as maximising potential benefits for all consumers.

Very little consideration seems to have been given to the impact of smart metering on low income and vulnerable consumers or the wider implications given the way that smart metering will change the energy retail market. A rise in new energy deals may lead to greater confusion and complexity for consumers hindering beneficial switching decisions. For example, we are likely to see the introduction of multiple rate time-of-use tariffs, critical peak pricing, remote appliance management deals, energy efficiency packages, tariff and display deals, seasonal pricing, single energy tariffs, an increase in localised pricing and even potentially real time pricing. More than a third of consumers already switched to a worse deal in Great Britain, in one of the most

advanced liberalised energy markets, so mechanisms need to be put in place to ensure that consumers are able to make effective switching decisions in what is likely to be an increasingly complex market. If suppliers choose to differentiate on high-quality displays or energy efficiency packages we are likely to see a rise in long-term contracts that lock-in consumers to recoup costs over a period of months, or even years, as it is the case with mobile phones. While choice of payment method is welcome, we need to ensure that customers are aware of the implications of long-term deals. A change in circumstances, such as illness or starting a family, could lead to a significant increase in a customer's expenditure.

The proposed Draft Guidelines of 'Good Practice' on Regulatory Aspects of Smart Metering for Electricity and Gas are in our view at best minimum requirements. We feel there is a disconnect between the stated aims in the consultation document and what the proposed recommendations can realistically be expected to deliver, both in terms of consumer protection and in the realisation of the potential benefits offered by the new technology. The guidelines would not guarantee the stated objective of ensuring *"the active participation of the customers in the electricity and gas supply market."* Nor would they succeed in empowering the consumer despite the reference to the importance of this principle in the text. Active participation in the market does not just happen. Regulators and governments need a strategy to help consumers engage in the new smart energy market and realise the potential benefits. Much greater attention needs to be placed on the needs of vulnerable and low income consumers.

The section on data security and integrity is very top level with the result that there is little purpose to the recommendation.

We recognise that this document is not intended to be all encompassing and that a number of regulatory aspects are excluded from this report on the basis that they are best dealt with under national sovereignty. But this document is not legislative but a best practice document. We would therefore urge ERGEG to revisit these proposals and put at its focus:

- Consumer protections;
- Ensuring all consumers benefit from smart meters;
- Quality and efficiency of roll-out;
- Customer satisfaction;
- Ensuring value for money, especially where costs are passed on consumers via energy bills.

We would also seek to ensure that all best practice guidelines are in a single document to provide simplicity and clarity to industry and consumer groups.

It remains crucial that consumer stakeholders are involved in every stage from the initial design to roll-out and as part of the follow-up, to ensure that consumer issues are central to the whole design, decision making and implementation process. We welcome therefore this open consultation and hope that ERGEG will revisit their approach in the light of feedback. We hope, no matter which best practice guidelines are adopted, that these are reviewed annually given the pace of technological innovation.

Set out below are some recommendations from a consumer perspective, to add value to the overall ERGEG paper and to the Recommendations that it presents. Although focused on electricity, our comments are equally applicable to gas.

## 1. Key recommendations to improve the consumer experience of smart meters

1. Member State's cost benefit analysis and impact assessment should be transparent and take into consideration the distributional impact of smart metering on different social groups especially low income and vulnerable groups. This impact assessment and cost benefit analysis should form the basis of any smart metering strategy to ensure that all consumers are able to access, as a minimum, the stated benefits of smart metering.
2. A strategy for the realisation of the consumer benefits should be developed, especially to ensure the delivery of those benefits identified in the cost benefit impact assessment where the case for smart metering is deemed positive. This is particularly important where consumers are paying for roll out.

This should include measures to ensure that smart metering delivers social, financial and environmental benefits to customers. For example it could include:

- a national communications and social marketing strategy to help consumers engage with smart metering and change behaviour;
  - all consumers offered a free display which shows their real time consumption information to better understand their energy use and have access to consumption data via a media of their choice (phone, hard copy, mobile phone, TV, standalone display);
  - consumers should be informed about fire hazards linked to the use of appliances overnight, such as to be able to take appropriate measures;
  - the delivery of extra help to certain vulnerable customers – this is particularly important when it is unclear if low income groups will get the same benefits from smart metering;
  - the linking up with wider government policies and regulations in other sectors in relation to the environment, health and tackling poverty. Linking up with synergies around water metering and other utilities is also important.
3. The effectiveness of a delivery strategy should be reviewed and mapped against the projections of the cost benefit analysis and impact assessment on a regular basis.
  4. Member States should systematically review the protection of consumers in place to ensure that they are fit for purpose in the smart world. This includes remote disconnection and switching, sales and marketing practices, data protection and privacy including guarantees of protection of personal data stored in the meter and new tariffs including time of use deals.
  5. Member States should outline a timetable for a review of protection to ensure that safeguards are in place ahead of the roll-out of new technologies.
  6. Member States must have a strategy in place to protect low income and vulnerable consumers. For example recognising that many low income households may not be able to take advantage of cheaper priced tariffs if they

are unable to shift their activities and could be adversely impacted by critical peak pricing. Steps must be taken to ensure that consumers do not get concerned about real time feedback on their energy consumption or energy prices and reduce their consumption to a level that is dangerous to their health.

7. Consumer protection rules must be easily updatable and allow for timely upgrading to protect consumers from any fast moving innovation and technological change which could lead to consumer detriment.
8. Transparent mechanisms must be set up to ensure that if costs of smart meter roll-out are passed on to consumers that they are fair and proportionate but also that cost savings are passed on to customers. Consumers should not be expected to pay for inefficient costs but smart meter roll-out must be demonstrably value for money. Measures must be introduced to ensure that the roll-out of smart metering does not increase the hardship of those already struggling to afford their energy bills. Furthermore, consumers should receive clear information about the costs they will be charged for the installation and maintenance of all devices. Industry must be accountable for spending.
9. Mechanisms must be put in place to monitor the quality of roll-out and the customer experience.
10. Campaigns to raise awareness of good practices across Europe would be beneficial to all stakeholders.
11. Guarantees are required for the technical reliability for devices deployed.

## **2. Proposed amendments to the draft Guidance Paper and to ERGEG's Recommendations**

### **Section 1.1 Background and Scope**

On page 11, the reference to consumer empowerment should acknowledge the need for regulators to have a strategy to help consumers engage in the new smart energy market and realise the potential benefits.

### **Section 1.2 Problem identification**

On page 12, the cost benefit analysis should be expanded as described in our recommendations above (distributional impact of smart metering on different social groups especially low income and vulnerable groups). Additionally, clarification is needed as to what is "*active participation*" in the market and what barriers are believed to exist at present with respect to real-time pricing.

### **Section 1.3 General Provisions and Objective**

On page 13, a number of regulatory aspects are excluded from this report on the basis of that they are best dealt with at a national sovereignty. Yet, this document is not a legislative – but a best practice document. The guidelines are weakened by the lack of best practice examples including financing, transparency, sales and marketing and monitoring.

## **Overarching comments on full set of recommendations (pages 19-48)**

### **Recommendation 1: Information on actual consumption, on a monthly basis**

- BEUC finds it important that the consumers are informed about their energy consumption through a media of their choice and in a format of their choosing including free access to hardcopy monthly bills as well as about the medium term consumption through different channels as mentioned in recommendation 8 (Internet, SMS, call centres...). Free access to hard copy information is particularly important given that in some countries significant proportions of consumers (often the most vulnerable) still do not use or have access to the internet (for example, every second person in Portugal does not use internet<sup>1</sup>). Therefore, it is up to the consumers to decide in which format they would like to receive information about their monthly consumption. In case supplier offers some "information package", it has to be transparent for consumers whether this service includes also additional costs.
- To achieve the stated aims of smart meters of faster and easier switching and bill reductions for consumers, customers should have access to free real-time information for both gas and electricity - Access on customer demand to their information on historical consumption data must be offered free of charge in a format that allows comparisons with other tariffs available in the market on a like for like basis. Any delay in the delivery of accurate information on historical consumption will act as a barrier to the effective working of the competitive market. Attention should be paid to those who decide what a "sufficient time frame is"?
- At the same time, it is essential to highlight the information related to the general environmental benefits of Smart Metering since consumers' acceptance is highly affected by this issue.

### **Recommendation 2: Accurate metering data to relevant market actors when switching supplier or moving**

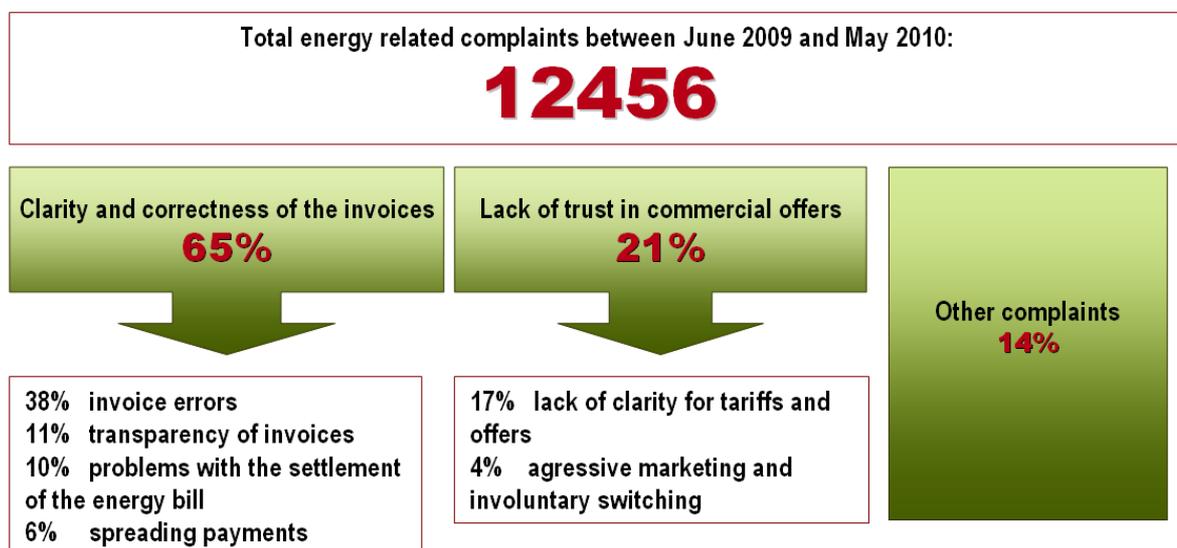
- As mentioned above, attention is too heavily focused on the activities of the supplier. The customer requires timely, easy and free access to data in order to share it with third parties, such as switching sites to find the best deal for them. Indeed, he/she may decide not to switch.
- Customers need access to historical information for both gas and electricity. Any delay in the delivery of accurate information on historical consumption will act as a barrier to the effective working of the competitive market. Greater emphasis should be also placed on the consumer experience, such as the confusion experienced by consumers as a result of a widening range of increasingly complex tariffs (which also undermine switching decisions) and protections for the low-income consumers.
- BEUC considers compatibility of smart meters as one of the key issues when ensuring the high quality of services. Meters should be made according to common standards so they can be interoperable and be used by all energy companies. This will ensure that consumers are able to switch suppliers and smart appliances easily without encountering compatibility problems. There have been already cases in the US when some of the meters have not worked and had to be dismantled and sometimes have never been replaced because of problems when finding meters which work properly.

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<sup>1</sup> <http://www.internetworldstats.com/stats9.htm>

### Recommendation 3: Bills based on actual consumption

- BEUC expresses major concern about bills reflecting the consumers' actual consumption. According to a study prepared by our German member Verbraucherzentrale Bundesverband (VZBV), consumers are sceptical about bills reflecting actual consumption as they fear, for example extremely high bills in winter. They are also afraid of the fact that they cannot plan a certain amount they have to pay every month. Therefore, consumers should have the possibility to adjust the amount they pay according to their actual consumption and they should be able to switch payment methods.
- In 2008, BEUC asked its members about the challenges and advances of the liberalised energy markets<sup>2</sup>. The survey found that billing is the most challenging and problematic issue due to the errors in the bills as well as the difficulties in understanding them. 55% of BEUC's members found no improvement and even new problems in relation to the billing by comparison with 2005. These findings confirmed information from other sources. Figures from Consumer Direct, the GB consumer advice centre, for instance, show that 53% of all energy-related calls are to do with problems with billing. As smart meters can be read remotely by suppliers this should lead to an end to estimate bills and help to reduce inaccurate billing. Furthermore, regular up to date feedback on real-time consumption will enable consumers to check more easily whether or not their bill is correct. Even more details could be provided in the future when appliances can monitor their own consumption.
- Another example can be the analysis of consumer complaints prepared by BEUC's member Altroconsumo in Italy. According to this analysis, mapping the energy related complaints between June 2009 and May 2010, complaints related to energy bills and invoices represent a significant part of overall energy complaints.



<sup>2</sup> Energy markets in Europe From dark to light, from cold to heat (BEUC X/60/2008)

#### **Recommendation 4: Offers reflecting actual consumption patterns**

- We have strong reservations about Recommendation 4. No consideration has been given to the detriment that can be caused to consumers and there appears to be a dogged belief that time of use tariffs or critical peak pricing will benefit consumers despite international concerns to the contrary (e.g. US and Australia):
  - Consumers must have a choice in whether or not they have time of use tariffs;
  - Suppliers should not be allowed to put a customer on to a time-of-use tariff without evidence (historic consumption data over a number of seasons) that they would be better off on that tariff;
  - There should be no heavy bias towards time-of-use tariffs;
  - Consideration must be given to the impact on low income and vulnerable consumers;
  - Protections should be developed to ward against bill shocks from new tariffs;
  - Additionally, the reference to frequency of readings should be audited against privacy rules.

*Question to stakeholders: When interval metering is applied, which interval should be used for customers and those that both generate and consume electricity? Please specify timeframes and explain.*

- BEUC believes that consumers should be provided with more frequent information. Since the high consumption intervals are concentrated over short period, we consider the interval of 30 minutes as acceptable.
- A cross-reference between recommendation 4 and section 8 is required in order to ensure that the legal, privacy implications of this recommendation are picked up.

#### **Recommendation 6: Activation and de-activation of supply**

- BEUC believes that protections will need to be put in place to protect consumers from misuse of remote disconnection of supply. This is particularly important to protect vulnerable consumers. Similarly clear safeguards will need to be put in place around remote management of appliances within consumers' homes by suppliers. Particular attention will need to be paid to consumer information, safety, and redress and complaint handling if and when things go wrong. BEUC wants to point out that in any case, the decision whether to participate in remote management or not should be with the consumers since they always have to have the possibility of opt out.

#### **Recommendation 8: Access on customer demand to information on consumption data**

- BEUC supports the idea of providing consumers with their consumption data through different ways. At the same time, we would like to stress that this service should be free of charge. A fee for access to consumption data is unacceptable and will negatively impact the functioning of competitive markets and consumers' ability to switch to the best deal for them: data should be provided free of charge in a format that allows comparisons with other tariffs available in the market on a like for like basis - see also comments on recommendation 2 above. It is vital that consumers should be able to access historical information in a timely way.

- Example: Our French member CLCV (Consommation, Logement et Cadre de Vie) is currently active in the European project 'Topten' (<http://www.guidetopten.fr>). This project is focused on the comparator that freely provides access to information on energy consumption and a buying guide in the same time. BEUC considers as essential that this kind of services provided to consumers are widely used.
- In BEUC opinion, the consumers have to be provided also with advice on how to better manage their energy costs (e.g. consumer phone line to handle quickly any concerns and questions; written/ verbal advice on how consumers can use real-time information to cut their energy bill etc.).

### **Recommendation 13: Information on continuity of supply**

*Question to stakeholders: What further services should be envisaged in order to allow consumers and those that both generate and consume electricity to be aware and active actors in smart grids?*

- We would like to highlight that it is important that the information provided to consumers is understandable but also visually attractive, interactive, detailed enough and in real-time so that consumers can adapt their behaviour in terms of energy consumption and energy savings. In this respect, the consumers should be informed about exact peak intervals and prices;
- Where comparative information is used, for example comparing a customer's data with a neighbouring house or similar sized household, careful consideration should be given to comparisons to ensure that they achieve the intended aim;
- Not only suppliers but mainly customers have to have an access to their historic consumption data so that they can share that with third party advisors as they require;
- Hard copy information must remain free including hard copy bills;
- In respect of other services that should be explored to enable consumers and those that both generate and consume electricity, consumers should be provided with the access to information regarding the leakage during transmission of electricity which will enable them to adapt their consumption and thus face the problems in the network;
- BEUC also believes it is essential to pay special attention to vulnerable and low income consumers who find themselves very often in the situation of not being able to pay their energy bills or who are at the risk of exclusion. This consumer group should be provided with the assistance on how to effectively regulate their energy consumption and should be protected from the financial risk and impact of smart meter roll-out;
- It is not possible to engage all audiences on the same level: consideration must be given to how best to segment and approach the different consumer groups (e.g. urban, able to pay, vulnerable, etc).

### **Recommendation 14: When making a cost benefit analysis, an extensive value chain should be used**

- The cost benefit analysis should include an analysis of the distributional impact on different social groups including the low income consumers. A strategy must be put in place to mitigate any negative impact on low income and vulnerable consumers. This should include countries that have already carried out an impact assessment if they have failed to engage into this broader analysis.

- The cost benefit analysis should be rigorous and done in a transparent way and the results should be published. Although smart meters have the potential to provide benefits to all parties: network operators, suppliers, consumers, and Government most of the direct benefits are realized by industry. They should thus bear the bulk of the cost. Where the consumer is expected to pay for smart metering, transparent metrics must be developed to ensure that there is a fair and equitable cost-sharing mechanism. Mechanisms need to be put in place to ensure accountability for customer's money and to make sure that cost savings are also passed on to customers. Moreover, the cost benefit analysis should be reviewed regularly and the roll-out strategy adjusted accordingly. Most cost-benefit analyses are based on theoretical projections. Therefore, the national regulators should evaluate whether national roll-out objectives in terms of cost-benefit analysis have been met and act accordingly;
- We welcome the recognition that services should be provided in an obvious and easy way that benefits consumers. Best practice should ensure that countries monitor the impact of roll-out (i.e. the financial impact on consumers, the quality of service, and the consumer experience). The extent to which the cost benefit analysis is accurate should be reviewed regularly and the roll out strategy adjusted accordingly; benefits delivered to consumers should be reported in an annual statement.
- We question the list of "Potential benefits for customer" (page 28) specified under this recommendation. If this list is maintained, the rationale for how this benefits consumers (as opposed to other stakeholders) should be clarified in each case. Potential consumer benefits missing from the list include social and environmental objectives.
- Recognition should be given to the fact that without regulation there will be losers as well as winners from the smart meter roll out and the resulting changes to the energy retail market, with many low income and vulnerable consumers potentially worse off.

#### **In Section 4: Roll-Out – electricity:**

Vulnerable consumers should not be prioritised in the smart meter unless it is clear they will reap the benefits. The consultation paper has not yet made a case for this. As with the introduction of any new programme there are likely to be teething problems. It would be wrong to create a situation where some of the most vulnerable customers who may be least able to cope with problems are effectively regarded as test cases. This could also have knock on effects for the wider popularity of smart metering. If costs are passed on at the point of installation, this could result in some of the poorest paying the highest prices for their technology as prices will decline in time. Technology is also likely to evolve quickly. If vulnerable customers are targeted for early roll out, they are likely to receive the least advanced technology yet arguably be in the weakest financial position to upgrade their technology in the future. Priority should be given to community roll out, to maximise customer engagement.

#### **Recommendation 15: All customers should benefit from smart metering**

- This recommendation should emphasise that all consumers who wish to use smart meters should have "*equal access*" to the benefits.

#### **Recommendation 20: Offers reflecting actual consumption patterns**

According to BEUC, this recommendation is focused more on the electrical model and could result in penalizing customers. Consumers can certainly pay attention when

using gas for cooking or heating their homes in order to avoid waste, but the other option is to switch to another source of energy (solar, electricity....) for doing the same tasks. Therefore, introducing a Time-of-Use tariff for gas means a further economic penalization for customers that is rather unfair considering that gas can be stored. Furthermore, despite a general introductory warning about the differences between gas and electricity sectors, more attention should be paid to the peculiarity of the gas use (compared to the flexibility of the electricity use).

### **Section 8 – Data security and integrity – electricity and gas**

BEUC believes that this section would need further work to establish a best practice guideline (see comments on Recommendation 29 below). However, much of the missing analysis is available from other initiatives such as the EU Smart Grids Task Force, as well as developments with Member States. BEUC would be happy to discuss this further.

Some initial comments in the meantime include the following:

#### As regards privacy protection:

- Rather than focusing on Article 16 of the EU convention on human rights, this section should refer to the Data Protection Directive, as well as to other provisions of the EU Convention on human rights (not only article 16). Member countries should enforce the existing legislation with regard to smart meters and, where there are gaps; supplement them with guidelines to ensure personal information privacy and data protection;
- The paper should acknowledge on-going work of the standardisation bodies, particularly with regards to security encryption systems also ongoing at EU/ESO level;
- The paper should include recommendations of Expert Group 2 of the Smart Grids Task Force, which state that *"specific for the data privacy aspects, the European consumer groups are asking for clear regulation around frequency of meter reading and usage of data. It is stressed that only data necessary to perform smart grid tasks agreed with consumer, should be collected and utilised. At the same time, whilst acknowledging benefits, Smart Grid/Meters and wider related infrastructure should be designed for privacy and security to levels that are in line with the risks for concerned stakeholders"*;
- Before the finalisation of this paper, more consideration is required as to what will in fact empower consumers. For example, a closer examination of the value of accredited advice providers, and/or access to tools to consumers should help them to understand smart metering.

#### As regards security:

- This section appears to confuse the privacy protection and the security of the meter. Security should not be limited to data. The functionality of smart meters to remotely 'squeeze' and/ or disconnect the energy supply poses a separate security risk (from data security), and needs to be assessed separately for smart meters to generate consumers' trust. Trust is one of the core issues for consumers and the successful deployment of smart meters. BEUC strongly agrees with the recommendation of customer control of metering data. However, this is only one important step in securing consumer trust. The potential benefits of smart metering can only be enjoyed in practice if they are able to generate trust. Such trust will

only be secured if smart meters are reliable, secure, under individuals' control and if the protection of their personal data and privacy is guaranteed.

- To significantly minimise the risks and to secure users' willingness to rely on smart meters, it is crucial to integrate, at practical level, data protection and privacy from the very inception of the Smart Metering Project and at all stages of its development: security and privacy by design. We would like to point out the importance of privacy by design particularly when implementing the principle of data minimisation, ensuring the safe disposal of data and the limitation of data retention.

Therefore BEUC highlights the need for this recommendation to cover - but distinguish between: (1) *security and privacy analysis*; (2) *end-to-end security*; and (3) *privacy by design*.

### **Recommendation 29: Customer control of metering data**

- BEUC supports the idea behind this recommendation but considers the content as insufficient and very limited. The recommendation is so top level that it has little impact. It is also contradictory in parts.
- Significantly, the exemption that is provided for the “national market model” is extremely wide so that it could be regarded as an escape clause from the spirit of the recommendation.
- Despite the reference to security in the introductory paragraphs, the recommendation is focused on privacy only. Therefore, BEUC requests ERGEG to revisit this recommendation to take into account the issues described above.
- In relation to the data privacy issues (only) raised here, the recommendation should emphasise that customers should be advised what information regarding their energy consumption is required by law and by whom. For any other (extra) metering data, the customer should choose, in a meaningful way, who has access to it and for what purpose. The customer has the right to reject without penalty to his/her service provision.
- Amongst other issues, the data security recommendation should guarantee a high level of strong security/encryption standards in smart meters installed in the house.

### **Section 9: Conclusions**

The end of the third paragraph in this section notes that *“the roll-out could then be done in a well considered and non-discriminatory manner”*. To this statement an exception should be added to allow for positive action to benefit low income and vulnerable consumers as well as to ensure the overall equity of any roll-out.

## **3. Proposed new recommendations**

In BEUC’s opinion, all of the recommendations are of a high importance. However, we are extremely concerned that the list of “minimum consumers services” is incomplete and do not reflect what consumers really require or will benefit from. For example, we consider that “optional services” should be reassessed and some of them could be consequently included in the “minimum customer services” category (especially Recommendation “Alert in case of high energy consumption”).

Also, in addition to the key recommendations mentioned above, the following further “minimum consumer services” and “optional services” recommendations are required to meet the stated objectives of the paper:

<b>New recommendations</b>	
<b>Minimum customer services</b>	Customers should have flexibility of payment options including monthly variable direct debit.
	Customers should have the ability to switch payment method without charge (for example from credit to debit and vice versa).
	Consumers should have free access to a separate display which shows them real-time energy consumption information.
	Customers should receive free energy efficiency advice and information alongside their smart meter to help them cut their energy bills
	Clear lines of responsibility and complaints dealt with effective redress should be established when things go wrong. (For example, if a customer does not receive a critical peak pricing signal and receives a high bill, who is liable - the display manufacturer for the fault, or the network company? If customers´, on a remote control appliance tariff, food goes off because their fridge has been off power for too long – who is responsible for picking up the cost – the fridge manufacturer or the network controlling the tariff?)
	All technology (meters, displays, other in-home systems) must be compatible so that customers do not need to change displays or meters in order to switch suppliers or other providers. (Despite years of talks on interoperability we still have a situation in some member states where technology being rolled out is not compatible which results in increased inconvenience, cost and waste as well as in a barrier to competition. Any best practice guidelines must address this.)
	Accurate metering data.
<b>Optional services</b>	Opportunity for consumers to access their historic energy consumption information; a table comparing the offers of different operators in their region; and the guarantees protecting any technical malfunction.
	Alerts provided by the network administrator related to risk of interruption during the periods of excessive energy demand.

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