Raising standards for consumers

POSITION PAPER

Monitoring the success of smart metering deployment from a consumer perspective

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1 Purpose

The purpose of this paper is to identify the desired consumer outcomes from smart meters and to propose possible measures that could be used to establish the success of deployment from a consumer perspective.

2 Background

Smart meters should help to empower consumers by providing the information they need to take informed decisions on their energy consumption. To achieve this objective, it is very important that smart meters deployed by Member States comply with the 10 minimum functionalities recommended by the European Commission[1] and that the meters are fully interoperable with displays and other end devices (e.g. smartphone, tablet, energy management system as well as smart appliances) connected to the smart metering system's consumer interface.

Although the minimum functionalities and interoperability are essential, this will not be sufficient to ensure active consumer engagement with the smart energy market. To encourage increased consumer participation further work is needed to remove the barriers to changing consumer behaviour, protect consumers in vulnerable circumstances, incentivise engagement and enable all consumers to realise the potential benefits. This can only be achieved if all stakeholders are fully committed to delivering the desired outcomes for consumers. It is therefore necessary to define consumer outcomes and establish agreed measures that can be used to monitor the success of smart meter deployment from a consumer perspective.

3 Developing Desired Consumer Outcomes

The overall consumer objective for smart meters was set out in Mandate M/441[2] in March 2009 and the three minimum functionalities required to deliver it were subsequently recommended by the European Commission:

Mandate M/441 (March 2009) set out the objective of:

"…creating European Standards that will enable the interoperability of utility meters…which can then improve the means by which customers' awareness of actual consumption can be raised..."

[1] Commission Recommendation of 9 March 2012 on preparations for the roll-out of smart metering systems (2012/148/EU) (http://tinyurl.com/q8gf9nt)

[2] Standardisation Mandate in the field of measuring instruments for the development of an open architecture for utility meters involving communication protocols enabling interoperability (M/441) (http://tinyurl.com/ncguxqj)

Functionalities required for consumers:

a) Provide readings directly to the customer and any third party designated by the consumer.

b) Update the readings frequently enough for consumers to see the information responding to their action.

f) Support advanced tariff structures, time-of-use registers and remote tariff control

The overall objective and the aims of the three minimum functionalities help to inform the desired outcomes for consumers, but these outcomes and the related measures of success must also take account of actual experiences of consumers during the early deployments of smart meters (see Figure 1).

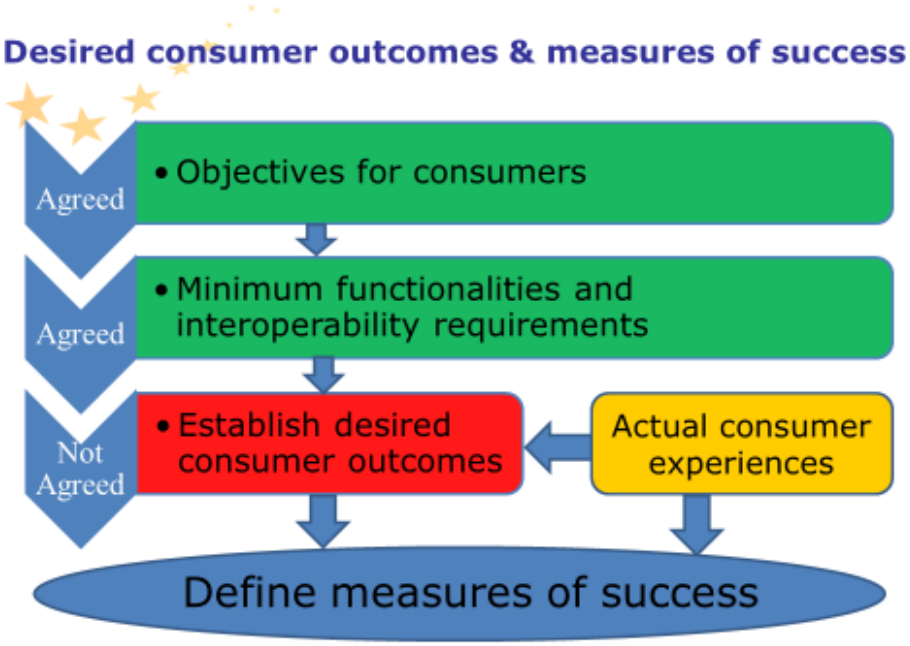

Figure 1: Desired consumer outcomes & measures of success

Feedback from early deployments[3] has highlighted some real or perceived consumer problems and concerns, which can be grouped into four main themes:

[3] Examples:
Netherlands Enterprise Agency, *Dutch Energy Savings Monitor for the Smart Meter*, 2014 (http://tinyurl.com/qz2q6gx)

Opower, *Maximizing the value of customer engagement in Europe*, 2015

UK House of Commons Select Committee, Energy and Climate Change Committee, *Ninth Report Smart meters: progress or delay?*, 2015 (http://tinyurl.com/oxrjv89)

ESMIG, VaasaETT, Empower Demand 2: Energy Efficiency through Information and Communication Technology – Best Practice Examples and Guidance, 2012 (http://tinyurl.com/n99cucv)

- **Information**

Issues include meter failure; wrong bills; readings from smart meters not being used; privacy concerns; wireless problems and inaccurate supplier metering records.

- **Satisfaction**

Issues include increased complaints; missed installation appointments; technical problems; incompatible smart meters; problems connecting and operating end devices; use of remote functionality for disconnection and switching to pre-pay; as well as loss of consumer confidence.

- **Costs and Benefits**

Delays in implementation; higher bills and prices; increased costs and small financial savings.

- **Participation and Engagement**

Difficulties changing supplier; meters with limited functionality that will need to be replaced, lack of clear information and support.

4 Proposed Desired Consumer Outcomes

Based on these customer experiences and the overall objectives, four high level desired outcomes for consumers from smart meters are proposed. Each outcome has several components that will need to be measured.

1) **Access to Information: Consumers have easy access to usable consumption information**

   a) Accurate billing (the % of meter reads collected and utilised for billing);

   b) Free access to historical usage through a meter interface or web portal and provision of comparative consumption information for similar consumers;

   Note: Consumers should be able to share historical data with third parties and have access to consumption information an hourly, daily, monthly basis for the previous 24 months[4].

   c) Easy access to near real time consumption information[5];

[4] Energy Efficiency Directive (2012/27/EU), Article 10.2 (http://tinyurl.com/q3bc4oe)

[5] Note: Updates of consumption every 15 minutes as recommended in the minimum functionalities (functionality b) are not sufficiently frequent to provide consumers with near real time information. Consumption information needs to be refreshed every few seconds to provide consumers with instant feedback on the results of action taken. To protect consumer privacy, this more frequent information should only be provided to the home, unless the consumer has agreed to share it with a third party.

d) Privacy, protection and security of consumer data is maintained.

2) Consumer satisfaction: Consumers have a high level of satisfaction with smart metering deployment

a) Positive deployment experience, including provision of understandable information;

b) Reliability, accuracy and performance of smart meter;

c) Consumer is able to use smart meter and access information through connected end devices (displays, smartphone, tablet, energy management system, smart appliances, etc.);

d) Provision of ongoing help, support and advice to resolve consumer problems;

e) Effective protection from use of new technology including functionalities for remote disconnection, supply restriction and switching to pre-pay, especially for consumers in vulnerable circumstances.

3) Benefit Realisation: Consumers are able to realise benefits from smart meters

a) Reduction in consumption;

b) Financial savings (net benefits after deployment costs);

c) Other benefits e.g. from new data services

d) Actual implementation costs (compared to budget).

4) Active Engagement - Consumers are actively engaged and participate in the smart energy market

a) Consumers changing supplier;

b) Consumers changing consumption pattern/reducing peak consumption;

c) Consumers using demand-response schemes and/or dynamic/incentive tariffs.

5 Measures of Success

To monitor the success of deployment from a consumer perspective, metrics need to be developed to measure whether the desired outcomes are being met. These measures should show what has worked well and highlight where further work is needed to achieve the consumer objectives. The measurement methodology should

also enable the overall results to be analysed so the experiences of different consumer segments, including vulnerable consumers, can be readily identified.

It is not possible to identify a single indicator that adequately measures each outcome, but it is also important to avoid having so many measures that it becomes difficult to interpret the results. The best approach is to have a small number of high level indicators for each outcome, which can be supported by some more detailed measures to help explain the reasons for the high level results.

The measures of success should be discussed with relevant stakeholder groups and if possible should:

- Be objective
- Utilise data already being collected (as far as possible)
- Enable comparisons with similar consumers that do not have smart meters (whilst ensuring data privacy)
- Show the effect on different consumer groups (e.g. vulnerable consumers)

Possible measures for each of the four Desired Consumer Outcomes are shown in the table below:

Consumer Outcome	Lead Indicators	Supporting Indicators
Access to Information	Proportion of bills based on actual meter readings Proportion of consumers with access to visualised historical consumption information Proportion of consumers provided with real time usage Number of privacy and security breaches	Proportion of smart meter readings (a) collected (b) utilised for billing Provision of personalised historical consumption information including comparisons with similar users Number of complaints about privacy issues Privacy by design and default of the entire smart meter system including smart appliances and the information provision via in-home display and web portals
Satisfaction	Overall satisfaction with installation of smart meter Overall satisfaction with ease of use of smart meter Number of remote cut-offs from grid	Satisfaction with: - Information provided before and after installation on consumer rights; contact details for problem resolution; how to manage consumption

	Number of contacts/complaints related to metering, billing and use of remote functionality to disconnect or restrict supply and switch to pre-pay Protections/support provided for vulnerable groups	and how to use and benefit from smart meter - Ongoing personalised support Clarity of billing and improved complaint resolution - Usability/connectivity of end devices - Information and independent advice on new tariffs - Switching supplier (process and timescales) - Savings achieved
Benefit Realisation	Reduction in consumption Financial savings from lower consumption Other benefits, including from new data driven services (e.g. remote healthcare, security systems etc.)	Bill increases/reductions due to costs of smart meter deployment or operational savings
Active Engagement	Proportion of consumers switching supplier Proportion of consumers on incentive/Time of Use tariffs	Proportion of consumers changing consumption pattern or reducing peak time usage Number of connections by consumer by year to access consumption data (website/app)

6 Conclusions

The European Commission should:

(a) Seek information from Member States on the success of smart metering deployment from a consumer perspective during the next Benchmarking exercise.

(b) Encourage Member States to:

- Establish arrangements to assess the success of smart metering deployment from a consumer perspective by adopting the four desired consumer outcomes detailed in this paper;
- Agree with consumer organisations and other key stakeholders measures of success based on the proposals in this paper for each of the four desired consumer outcomes;

- Regularly review, and make publicly available, information showing whether the desired outcomes are being met and take appropriate corrective action where necessary.

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About ANEC

ANEC is the European consumer voice in standardisation, defending consumer interests in the processes of technical standardisation and conformity assessment, as well as related legislation and public policies.

ANEC was established in 1995 as an international non-profit association under Belgian law and is open to the representation of national consumer organisations in 33 countries.

ANEC is funded by the European Union and EFTA, with national consumer organisations contributing in kind. Its Secretariat is based in Brussels.

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