

---

**Summary of Member State experiences on cost benefit analysis (CBA)  
of smart meters  
2 February 2011**

---

## **1 Background**

Within the context of ERGEG's work on smart meters and, in particular, on the Guidelines of Good Practice (GGP) on regulatory aspects of smart meters for electricity and gas (Ref. E10-RMF-29-05), ERGEG reflected on the issue of an (economic) assessment of costs and benefits of implementing (rolling out) smart metering systems. The option to undertake such an economic assessment is included in Annex I of the 2009 Electricity and Gas Directives<sup>1</sup>, which calls on Member States to ensure the implementation of intelligent (or smart) metering systems that assist the active participation of consumers. ERGEG notes, in particular, that Annex I of the Electricity Directive stipulates that "such assessment shall take place by 3 September 2012." No such deadline is provided for gas, although both Directives require (if the assessment is positive) the preparation of a timetable with a target of up to 10 years for the implementation of smart meters. As Member States and regulators begin to implement the Directives' various provisions, questions about how to conduct such an assessment, how smart meters should function and what services these meters should provide are high on the agenda for many energy market actors. The GGP aim to provide some guidance on these issues.

In order to help inform its work and also to support an exchange of experience in this area among its members/observers, ERGEG invited national regulatory authorities (NRAs) to provide information on national experiences and practices to date as regards the implementation of a cost benefit analysis of smart meters. The following questions were submitted to CEER members/observers:

1. Has your NRA (or country) conducted a cost benefit analysis on the roll-out of smart metering for electricity and/or gas?
2. When was the CBA conducted? and is it publicly available (where? weblink?)
3. What was the result of the CBA (positive or negative – regarding roll-out)?
4. If you have not yet conducted a CBA, is one planned? And if so, when will it take place?
5. What percentage of the customer-base does the 'roll-out' concern?

The tables below provide an overview of the different situations, forward plans and experiences in Europe in terms of cost benefit analyses on the (possible) roll-out of smart meters for electricity and/or gas. Given the rapidly evolving nature of smart meters and activities at national level, this information is meant to provide only an indication of work undertaken in this area as of 1 January 2011.

---

<sup>1</sup> Directive 2009/72/EC and 2009/73/EC, Annex I, par. 2. Both Directives are part of the so-called 3<sup>rd</sup> Package for the European Internal Market in Energy, which was adopted on 13 July 2009 and include five legislative acts. These can be viewed at:

<http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2009:211:SOM:EN:HTML>

## 2 Summary of Member State experiences on cost benefit analysis (CBA) on smart meters for electricity and gas (24 responses received)

Status of CBA in CEER countries	Electricity	Gas
Countries have conducted a CBA	11 <sup>1</sup>	6 <sup>2</sup>
Positive result of CBA	7 <sup>3</sup>	5 <sup>4</sup>
Countries plan (or ongoing) to conduct a CBA (in some cases for the 2 <sup>nd</sup> time – France, Hungary, Poland, Portugal)	12 <sup>5</sup>	14 <sup>6</sup>
Countries do not plan a CBA	2 <sup>7</sup>	5 <sup>8</sup>
Countries with no CBA, but no longer relevant (yes/no of roll-out already decided)	3 <sup>9</sup>	0

1: Austria, Denmark, France, Hungary, the Netherlands, Norway, Poland, Portugal, Slovenia, Sweden, United Kingdom

2: Austria, France, Hungary, Italy, the Netherlands, United Kingdom

3: Austria, France, the Netherlands, Norway, Poland, Portugal, United Kingdom (Poland – study was TSO, not gov't authority. In Sweden, although result was negative, roll-out for electricity proceeded.)

4: Austria, France, the Netherlands, Italy, United Kingdom

5: Belgium, Czech Republic, Germany, France, Greece, Hungary, Ireland, Luxembourg, Latvia, Poland, Portugal, Romania (Belgium - each region conducting its own, no federal one planned) (Portugal - to be decided by gov't)

6: Belgium, Czech Republic, Germany, Spain, Finland, Greece, Hungary, Ireland, Latvia, Luxembourg, Lithuania, Portugal, Slovenia, Sweden (Portugal - to be decided by gov't)

7: Lithuania, Slovak Republic

8: Denmark, Norway, Poland, Romania, Slovak Republic (Norway has no gas)

9: Spain, Finland, Italy

NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
Austria	Electricity and gas: yes	Over summer 2010	Positive <a href="http://www.e-control.at/portal/pls/portal/portal.kb_folderitems_xml.redirectToItem?pMasterthingId=1605211">http://www.e-control.at/portal/pls/portal/portal.kb_folderitems_xml.redirectToItem?pMasterthingId=1605211</a>	N/A	CBA covers different scenarios which range from 80 - 95% coverage for domestic household costumers
Belgium	Electricity and Gas: <u>Federal</u> : No <u>Brussels</u> : No	Electricity and Gas: <u>Federal</u> : N/A <u>Brussels</u> : N/A	Electricity and Gas: <u>Federal</u> : N/A <u>Brussels</u> : N/A <u>Flanders</u> : Negative	<u>Federal</u> : under evaluation <u>Brussels</u> : Currently	Electricity and Gas: <u>Federal</u> : N/A <u>Brussels</u> : N/A

NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
	<p>Flanders: Yes, a CBA model has been developed by Kema</p> <p>Wallonia: No</p>	<p>Flanders: first run of the CBA model in 2008</p> <p>Wallonia: N/A</p>	<p>- the baseline scenario was business as usual. However, this is not realistic, due to implications of the 20/20/20-targets, which will generate significant costs, with/without smart meters. Also, benefits were estimated rather conservatively.</p> <p><a href="http://www.vreg.be/vreg/documenten/rapporten/RAPP-2008-10.pdf">http://www.vreg.be/vreg/documenten/rapporten/RAPP-2008-10.pdf</a></p> <p>Wallonia: N/A</p>	<p>conducting study, including CBA, for mid-2011.</p> <p>Flanders: 2nd run of the CBA model planned in 2011, with more sophisticated parameters.</p> <p>Wallonia: Regulator will start stakeholder/think tank-exercise on distribution grid development issues in January 2011. Report, including a CBA, expected by the end-2011.</p>	<p>Flanders: CBA covered 100% of customers</p> <p>Wallonia: N/A</p>
Bulgaria					
Cyprus					
Czech Republic	Electricity and gas: No	N/A	N/A	According to the Energy Law, the Ministry of Industry and Trade is responsible for providing the analysis by 3rd September 2012.	N/A
Denmark	Electricity: Yes Gas: No	First study in 2006. June 2009 - 3	Electricity: Inconclusive - CBA showed that neither	N/A	100% of customers were covered

NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
		<p>reports regarding intelligent electricity consumption (Intelligent Elforbrug) and smart meters were handed to the Danish Minister of Climate and Energy.</p>	<p>from social-economic welfare criteria nor from user-economic welfare criteria a roll-out was beneficial right now. Therefore it was difficult to recommend that all meters should be changed to smart meters in a hurry.</p> <p><a href="http://www.ens.dk/da/info/nyheder/nyhedsarkiv/2009/sider/intelligentelforbrug.aspx">http://www.ens.dk/da/info/nyheder/nyhedsarkiv/2009/sider/intelligentelforbrug.aspx</a> (only in Danish)</p>		<p>in study 2006. 7% of all customers were covered in new study 2009. The new CBA covered customers with a yearly consumption between 20.000 and 100.000 kWh or using electricity as heating. Smart meters have been installed for customers with consumption over 100.000 kWh.</p>
Estonia					
Finland	<p>Electricity: No</p> <p>Governmental decree requires at least 80 % of consumption sites of every DSO must be equipped with smart meter by end 2013. No CBA-document was referred/published when decree was given (5th February 2009)</p> <p>Gas: No</p>	<p>Electricity and Gas: N/A</p>	<p>Electricity and Gas: N/A</p>	<p>Electricity: No</p> <p>As requirements regarding roll out of smart meters in electricity are already in place there is no need to conduct CBA</p> <p>Gas: Yes. Ministry has announced a CBA will be conducted by 3rd September 2012</p>	<p>Electricity and Gas: N/A</p>
France	<p>Electricity: Yes</p> <p>Gas: Yes</p>	<p>Electricity: 2007 with an update</p>	<p>Electricity: Positive - to be confirmed by update in 2011</p>	<p>Electricity: updated CBA planned for</p>	<p>CBA were conducted on 96% of</p>

NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
	Conducted by the NRA	forecasted in 2011 Gas: 2010	Gas: Positive <a href="http://www.cre.fr/en/content/download/10348/173506/file/100129ComptageEvalueGaz-Notedesynthesephase1-en.pdf">http://www.cre.fr/en/content/download/10348/173506/file/100129ComptageEvalueGaz-Notedesynthesephase1-en.pdf</a>	2011	population with gas (i.e. 96% of 1/3 of French households and SMEs) or electricity (96% of 100% of French households and SMEs)
Germany	Electricity and Gas: No	Electricity and Gas: N/A	Electricity and Gas: N/A	Electricity and Gas: assessment is planned to take place by 3 September 2012	N/A
Greece	Electricity and Gas: No	Electricity and Gas: N/A	Electricity and Gas: N/A	CBA not yet planned, but will be planned and executed in conformity with the new Directive.	N/A
Hungary	Electricity and Gas: Yes HEO commissioned a consortium for a smart metering study in 2009, which included a preliminary CBA.	2009-2010 - The study was published in June 2010.	N/A – The CBA is a preliminary assessment only. <a href="http://www.eh.gov.hu/home/html/index.asp?msid=1&amp;sid=0&amp;hkl=610&amp;lng=2">http://www.eh.gov.hu/home/html/index.asp?msid=1&amp;sid=0&amp;hkl=610&amp;lng=2</a>	There will be some pilot projects during next years. Their results will be inputs of the final CBA. The deadline is 03.09.2012	
Iceland					
Ireland	No	N/A	N/A	Electricity: Yes Will be completed by end-March 2011 for electricity (using data from trials completed end-Dec	99.5% of the customer base will be covered by smart metering CBA (i.e. all residential customers & all non-interval

NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
				2010) & possibly also include gas (if enough data is available from the gas trials, else a gas addendum to the CBA will follow after the completion of gas trials in May 2011). CER is currently undertaking a consultation to firm up on the full roll-out assumptions to be used in the Irish Smart Metering CBA - further details on this consultation & trials is available at: <a href="http://www.cer.ie/en/information-centre-reports-and-publications.aspx?article=f948d38e-a9cf-4b82-aa26-f8f4b4de217e">www.cer.ie/en/information-centre-reports-and-publications.aspx?article=f948d38e-a9cf-4b82-aa26-f8f4b4de217e</a>	metered SMEs).
Italy	Electricity: No. But as of 30 June 2010 92.2% of LV consumers were equipped with working smart	Electricity: N/A	Electricity: N/A	Electricity: none planned 2004-2007: the "extra-charge" for	Gas: 100% of customers were covered.

NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
	<p>meters, connected to the control center. Another 2.1% of LV consumers at the same date were equipped with smart meters (only installed) ready to be commissioned and connected to the control center.</p> <p>Gas: Yes.</p>	<p>Gas: 2007</p>	<p>Gas: Positive</p> <p><a href="http://www.autorita.energia.it/allegati/docs/08/155-08arg-engsummary.pdf">http://www.autorita.energia.it/allegati/docs/08/155-08arg-engsummary.pdf</a></p>	<p>each household customer due to smart meters has been less than 2 Euros per year</p> <p>Gas: N/A</p>	
Latvia	<p>Electricity and gas: Ongoing</p> <p>CBA for electricity and gas at this stage is made by respective undertaking as part of their investment assessment. Starting from aim to improve the settlement of payments for consumers, switching to another operator in mid-month or calculate the best timing for special tariff.</p>	<p>Ongoing</p>	<p>N/A</p>	<p>Ongoing</p>	
Lithuania	<p>Electricity and Gas: No</p>	<p>N/A</p>	<p>N/A</p>	<p>Electricity: Created a working group on this issue. There are no concrete decisions on date of a future CBA.</p> <p>Gas: CBA is</p>	<p>N/A</p>

NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
				planning in the future.	
Luxembourg	Electricity and Gas: Ongoing	Ongoing	N/A	Electricity and Gas: It is currently ongoing under the responsibility of the Ministry of Economics and Foreign Trade.	Study is in a very early stages several cases (low percentage to full roll-out) are being considered
Malta					
The Netherlands	Electricity and gas: Yes	July 2010	Electricity and gas: Positive <a href="http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2010/09/03/intelligente-meters-in-nederland-herziene-financiele-analyse-en-adviezen-voor-beleid.html">http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2010/09/03/intelligente-meters-in-nederland-herziene-financiele-analyse-en-adviezen-voor-beleid.html</a>	N/A	100% of customers were covered
Norway	Electricity: Yes 2 CBAs on smart metering electricity Conducted by the NRA	Latest CBA was prepared in 2007	In 2007: Negative – initially (slightly negative cost-benefit value related to network companies) Positive – Final (taking into account additional services NRA concluded that the CBA value was positive from a macroeconomic point of view) Available, but not translated into English	N/A	Electricity: 100% of customers were covered
Poland	Electricity: Yes Comprehensive study was	Electricity: TSO study - 2009/2010	To be continued. As far - is positive.	Electricity: ongoing process -	100% of customers were covered



NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
	conducted by National TSO, covering wide range of aspects from launching up to operation of smart metering Gas: No		<a href="http://www.piio.pl/bzpre_cele_projekt_u.php">http://www.piio.pl/bzpre_cele_projekt_u.php</a> - the special website dedicated to the roll-out of smart metering in Poland	ERO is verifying TSO study's convergence with 3 <sup>rd</sup> Package (such assessment shall take place by 3 September 2012) Gas: none planned yet	
Portugal	Electricity: Yes  Gas: No	2007 (December)	Electricity: Positive (according to assumptions made by ERSE in the study)  <a href="http://www.erse.pt/pt/consultaspublicas/historico/Documents/CP_18/18_3/Func_Plano_Subscritores_F.pdf">http://www.erse.pt/pt/consultaspublicas/historico/Documents/CP_18/18_3/Func_Plano_Subscritores_F.pdf</a>	Probably, a new CBA analysis will be conducted in the scope of the new Directives (to be decided by Portuguese Government) A gas CBA – to be decided by Portuguese Government	Electricity: 2007 CBA included costs and benefits for a total “roll-out” (100%)
Romania	Electricity and Gas: No	N/A	N/A	Electricity: An action plan for roll-out electricity smart metering is under discussion to the Ministry of Economy, trade and business environment  Gas: No	N/A
Slovak Republic	Electricity and Gas: No	Electricity and Gas: N/A	Electricity and Gas: N/A	Electricity and Gas: Not planned	N/A

NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
Slovenia	Electricity: partial yes. A study was done for Slovenian DSO. Neither NRA nor country has conducted CBA yet. Gas: No	April 2010	Positive DSO study does not cover gas. Not publicly available. Short summary, in Slovenian only: <a href="http://www.cigre-cired.si/Images/File/Coga/Posvet_2/7_SmartGrids_CIGR_E_2_EIMV_Souven_t.pdf">http://www.cigre-cired.si/Images/File/Coga/Posvet_2/7_SmartGrids_CIGR_E_2_EIMV_Souven_t.pdf</a>	Electricity: No information on Ministry plans to perform another CBA. Gas: We are planning to carry out CBA end-2011.	Electricity: CBA analysis performed by DSO concerns 100% of customer base
Spain	Electricity: No Roll-out of electricity smart metering was decided without a CBA (only the accountant cost for old meters that are not amortized yet was evaluated) Gas: forthcoming	Electricity: N/A Gas: forthcoming	N/A	Electricity: N/A Gas: during 2011 Spanish regulator will conduct CBA for gas (study should be finished by Dec-2011).	Electricity: by 2018, 100% Gas: % of customers will depend on the results of the CBA (all options from 0 to 100 % are possible)
Sweden	Electricity: Yes (2 times)	2002 and 2010	Electricity: Negative in both cases (roll-out proceeded nevertheless). The scope of the benefits was modest compared to scope of the costs in the studies. Swed Energy does not entirely agree on the costs (2010 study) but think that they are greater. in Swedish only: <a href="http://www.ei.se/upplad/Rapporter/EI/M%C3%A5nadsvis%">http://www.ei.se/upplad/Rapporter/EI/M%C3%A5nadsvis%</a>	Gas: CBA planned during 2011	Electricity: 100% of customers were covered by the CBA

NRA	1. Has CBA been conducted?	2. When was it conducted?	3. Result of CBA	4. Planning & date of a future CBA	5. % of Customer Base
			<a href="#">20av%C3%A4snin g%20av%20elm%C3%A4tare.pdf</a>  <a href="http://www.ei.se/Bibliotek/Rapporter-2010/Okat-inflytande-for-kunderna-pa-elmarknaden---Timmatning-for-elkunder-med-abonnemang-om-hogst-63-ampere-EI-R-201022/">http://www.ei.se/Bibliotek/Rapporter-2010/Okat-inflytande-for-kunderna-pa-elmarknaden---Timmatning-for-elkunder-med-abonnemang-om-hogst-63-ampere-EI-R-201022/</a>		
United Kingdom	Electricity and gas: Yes	December 2009	Positive <a href="http://www.decc.gov.uk/en/content/cms/consultations/smart_metering/smart_metering.aspx">http://www.decc.gov.uk/en/content/cms/consultations/smart_metering/smart_metering.aspx</a>	N/A	100%