"Promoting Smarter Energy Market"

eMeter, a Siemens Business Unit, welcomes the opportunity to respond to Ofgem Consultation "Promoting Smarter Energy Markets".

We understand Ofgem aims to promote opportunities for innovation in the development of a smart grid, while ensuring that the roll-out of smart metering delivers benefits to all consumers.

eMeter is a smart meter software company that provides a smart network integration and application platform to integrate smart meters and smart grid communications networks and devices with utility, retailer, and third party IT systems. Being vendor-neutral toward all meter, hardware, and legacy utility software systems (e.g. CIS and Billing), eMeter has a unique, unbiased and global perspective on smart meter IT issues. In addition, eMeter's principals have participated in the definition and development of the smart grid for nearly three decades, including leading advanced metering working groups in regulatory proceedings, participating in a wide variety of industry standards groups, founding the Demand Response and Smart Grid Coalition (DRSG, managing consumer- oriented Smart Grid pilots (e.g. PowerCentsDC and the Ontario Smart Price Pilot) that have been recognized for demonstrating best practices, and testifying before the U.S. Congress and various state legislatures on these issues. eMeter has also been active in Europe, participating in EU and ERGEG activities and consultations, founding the Smart Energy Demand Coalition (SEDC) and having been an active participant in DECC and Ofgem's previous and current smart metering consultations, including those regarding DCC scope and functionalities. Finally, eMeter's software is in use in Smart Grid projects around the world, including several in Europe and successful multi-tenancy implementations of clearing house similar to the DCC, such as the IESO's centralized meter data management and exchange platform in Ontario, Canada.

eMeter's response consists of comments on the eight Ofgem Propositions and Questions, and it supports them based on our expertise in multi-tenancy smart metering roll outs benefiting different stakeholders. We would like to express our views and share our expertise on policy proposals behind both the regulatory and commercial framework that support the establishment and licensing of the DCC, and especially on how to create smarter markets from the platform of smart meters. At this point we would like to highlight that to enable new tariffs, products and services, not only the retailers should have access to the metering system but also the distributors and third parties.

eMeter's Response to Ofgem Consultation on "Promoting a Smarter Energy Market"

Chapter 3. About enabling retail market development.

Proposition 1: Time-of-use tariffs should help many consumers lower their energy costs, but improved engagement will be needed to help all consumers make informed choices.

Despite Ofgem's proposal in the consultation that TOU could lower consumers bills, Ofgem appreciates its complexity and the impact its applications might have in different parts of the regulatory framework. Ofgem foresees some potential risk that some customers might not have the opportunity to benefit from TOU, or some could see a detriment because of TOU.

Proposition 2: More efficient use of demand-side response (DSR) can lower overall energy costs, but this will need coordinated changes to regulatory and commercial arrangements.

Ofgem acknowledges that consumers adapting when they consumer their energy could lower the overall energy cost (load shedding and lowering generation investment) However, Ofgem sees that as per today DR is distribution focused and only large consumers have access to it. What regulatory changes would be needed to enable demand to other participants such as the System Operators, non large consumers and demand aggregators. Ofgem recognizes that Smart Meters bring a combination of two-way communication and load-switching functionality, which will enable DSR to be offered to new participants. Ofgem should consider commercial frameworks that avoid situations where a specific means of DSR is favoured because of what the market rules request. (Suppliers need demand-side response most at times of peak price, but network operators need it most at times of peak local demand or consumer export. Increasingly, these different peaks are likely to diverge as more wind generation is connected)

Proposition 3: Innovation in energy services would increase the consumer benefits of smart metering and can happen without major change to the regulatory framework.

Here Ofgem looks at price comparison, consumer protection, and what should be Ofgem's role

Proposition 4: Consumers will have more payment options, without changes to regulatory arrangements beyond those envisaged as part of the smart metering roll- out.

Ofgem looks here at payment methods: Direct Debit or Prepayment. There are concerns that prepayments could be left to the last ones to have a smart meter and therefore postponing their smart meters benefits opportunities.

Question 1: Do you agree with the propositions in this chapter?

Regarding TOU and low income consumers

We agree that TOU should facilitate that customers pay different tariff according to the time they consumer electricity. Despite Ofgem proposes in this consultation that TOU could lower consumers bills, it also acknowledge that current complexity tariff comparison in challenges the opportunities of enabling the consumers to actually lower their bill as a consequence of TOU programs.

We agree on the tariff complexity issue and we second that the U.K. market definitely needs more transparency. For example, late last year Chris King (Chief Regulatory Officer at Siemens AG's eMeter unit) and I could not find clear and specific consumer information about U.K. electricity prices. There were plenty of estimates of annual bill amounts — based on estimates on top of estimates. But no website gave the details. We knew from experience that energy bills include these components:

1. Monthly charges.
2. Initial prices per kWh.
3. Prices for usage above a threshold.

However these details were not available online — including on sites run by U.K. energy retailers, the government and nonprofit organizations.

They same way consumers would not choose a gas station based on estimated annual bills (as they would not know how much they drive), electricity pricing requires the same knowledge of consumers own usage habits.

eMeter welcomes Ofgem Retailer Market Review Core Proposal as targeting to reduce complexity:

- supplier would offer only one standard tariff per payment method
- ofgem would set a standardised element for all standard tariffs
- supplier would compete on a single unit rate for each standard tariff
- all non-standard tariffs would be fixed druration with no automatic contract rollovers
- all non-standard tariffs would have switching windows with no exit fee, which will include a time-limited guarantee to allow customers to benefit form the old price until they switch

- price, terms and conditions for non-standard tariffs would be guarantee for the duration of the contract; and
- specific standard tariff will be available to all consumers including premises that are fitted with multi-rate meters (i.e. Economy 7, Economy 10 or dynamic teleswitching tariffs

We believe these points considered in the Retailer Market Review will make it easier for consumers to compare prices. Furthermore, smart meters can help consumers save money with off-peak discounts — an aspect of pricing that also should be made clear to consumers.

We believe that smart metering systems will lower this complexity. To enable transparency and understanding, households should have access to **a price comparator tool that automatically includes retail tariffs**. The tool should allow customers to **load their individual usage data in a standard file format**. Households should also have access to their usage data online, with the ability to download it in the same standard file format for loading into the price comparator tool. The tool could be provided either by retailers or third parties – retailers would be averse to sharing their prices directly, so they would likely have difficulty doing it. An example is provided by the Green Button tool available to customers in 21 U.S. states (as of April 2012). Appendix A is a real-world price comparator case example set at Pacific Gas & Electric Company in California. Appendix B describes how Green Button works and can be used. Again, a key feature – and new element – of the price comparator is use of the customer's actual interval data for the comparison.

Dynamic pricing rates include several options. Time-of-use (TOU) rate schedules assign different pre-determined rates to pre-defined time periods and customers pay those pre-determined rates during each time period. For example, during the summer, the rate charged during the afternoon is generally higher than the rate charged at night. The different rates reflect the fact that it is generally more expensive to serve customers during some time periods. TOU rates do not change based on current market conditions. Different TOU rates are set for the summer and the winter seasons.

Critical Peak Pricing (CPP) generally describes rates where a very high rate will apply to a customer's usage during CPP events, typically 60 hours per year. In return, the customer gets a small discount during the remaining hours of the year. The CPP event is triggered based on system conditions, such as high temperature. CPP events are for specific hours and are called on a day-ahead basis, and must be tracked in the IT system to enable billing. There are a limited number of CPP events a year. Another name for CPP is Peak Day Pricing (PDP)

Real Time Pricing (RTP) rates are based on prices in the wholesale energy market, e.g., the PJM day ahead market. RTP rates apply to every hour of every day, and are subject to changefrom hour to hour. RTP rates are usually communicated to customers a day ahead. Such rates are also called

"Hourly Pricing." Hourly prices were tested with residential consumers in Washington DC, where 93% of the program participants preferred such prices to their previous rates.[1] In Illinois, all residential consumers have the option of signing up for such pricing, although an extra monthly metering fee of $2.25 is likely limiting participation.[2]

Peak Time Rebate (PTR) is a program that provides the customer a rebate on a per kWh basis for reductions in the customer's usage below a threshold level on days when a PTR event is called. The baseline is specific to each customer and is based on the customer's prior usage for specific days prior to the day of the PTR event. The PTR event is like a CPP event, is called based on system conditions, and is called on a day-ahead basis. The number of events per year is either specified or can be within a range, usually up to 15 days, four hours per event. PTR programs have proved popular with both regulators and consumers, and utilities in California and Maryland are planning to offer them to all small business and residential consumers.[3] In the Washington DC pilot program, PTR prices were offered to low income consumers as well, with 91% of them saving money on the program.[4]

Regarding low income consumers, the Edison Foundation Institute for Electric Efficiency found:[5]

> *While there is mixed evidence on the magnitude of the responsiveness of low income customers relative to other customers, there is strong evidence across these five programs that low income customers do respond to dynamic rates and, in many cases, that response is a load reduction above 10%. Furthermore, even without responding to dynamic rates, a large percentage of low income customers will be immediate beneficiaries of dynamic rates due to their flatter than average load profiles. These results suggest that when evaluating dynamic pricing, it is important to recognize that such rates are not harmful, and, in fact, may be beneficial to a large percentage of low income customers.*

Beyond basic smart meter capabilities (such as remote reading, memory switching, prepayment diagnosis, and interoperability), other features are needed to support smart grids. These include:

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[1] - eMeter Strategic Consulting, *PowerCentsDC Program Final Report*, September 2009, available at: www.powercentsdc.org.

[2] - CNTenergy and Navigant Consulting, *Residential Real-Time Pricing Program Achieves Savings for Utility and Customers,* Presented at Annual Conference of Association for Energy Services Professionals, Phoenix, Arizona, February 2010.

[3] - Chris King, *Smart Meters: Tariff Design Options and Case Studies*, Presentation at National Association of Regulatory Utility Commissioners Annual Conference, Atlanta, Georgia, November 2010.

[4] - *Op. cit.*

[5] - Institute for Electric Efficiency, *The Impact of Dynamic Pricing on Low Income Customers,* White Paper, September 2011.

• Measuring interval data at least as often as market operator settlements occur (typically half-hourly or hourly).
• Tracking how wholesale electricity prices change in response to demand.
• Tracking the amount of electricity supply available to meet demand.

Regarding Demand Side Response (DSR)

Despite Ofgem acknowledging that consumers adapting the times when they consume their energy could lower the overall energy cost (load shedding and lowering generation investment), Ofgem considers that today DSR is just distribution focused and only large consumers have access to it. What regulatory changes would be needed to enable demand side response to other participants such as the network operator, non-large consumers and demand aggregators? Smart Meters' two-way communication and load-switching functionalities will enable offering DSR programs to new participants. We understand Ofgem is looking for commercial frameworks that avoid situations where only distributed DR is favored. (Suppliers need demand-side response most at times of peak price, but network operators need it most at times of peak local demand or consumer export. Increasingly, these different peaks are likely to diverge as more wind generation is connected)

eMeter believes that automation is part of a three-legged stool of tools needed by consumers to benefit fully from smart meters and DSR programs. The three tools are pricing options (proposed TOU in this consultation), detailed energy information, and automation. Pricing provides motivation to manage loads and opportunity to realize savings. Information provides understanding needed to know how best to manage loads. Automation enables convenient "set-and-forget" response.

Information has three elements, increasingly being adopted as global standards:

- Access to real-time data via the smart meter HAN interface (see Figure 1)
- Access to next-day online data that has been backhauled from the utility (the Green Button standard applies here)
- Ability to access data from third parties authorized by the consumer, who would analyze the data and make it more useful to the consumer

Used together, these three tools help consumers save energy, cut peak demand, save money, reduce emissions, improve reliability, make better use of wind and solar resources and promote electric vehicle adoption.

Consumers should be able to sign up for automated demand response programs and control systems. This will allow them to receive price signals or price information, to which they can respond by modifying their energy use. Thus, simple demand becomes smart energy demand.

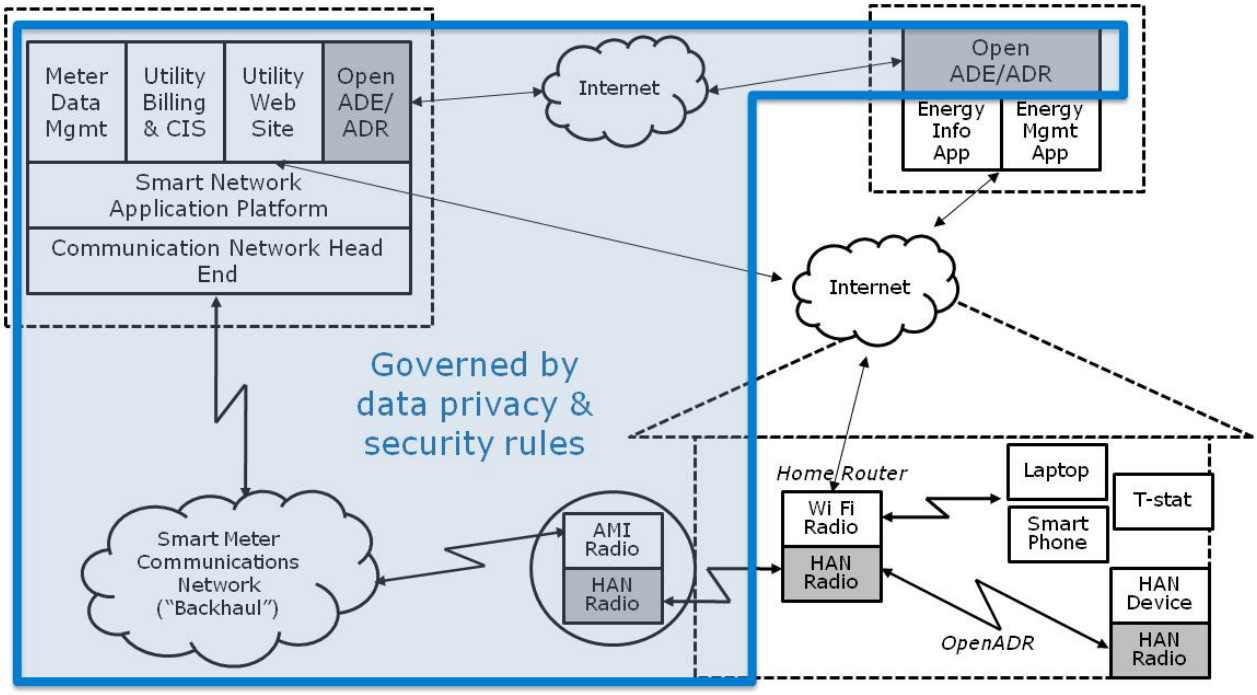


Figure 1: Data access, privacy, and security per California Public Utilities Commission decision in July 2011; OpenHAN is the HAN interface standard, OpenADE is the Automated Data Exchange interface standard, and OpenADR is the Automated Demand Response interface standard.

Automation is promoted by adopting a HAN standard and having the infrastructure needed for retailers to provide HAN devices to consumers or consumers to acquire the devices themselves. Such infrastructure consists of the ability to register HAN devices online, and the ability of the network operator to manage communications to such devices by having the necessary back office IT systems.

See the California Public Utility Commission decision on this from July 2011, available at: http://docs.cpuc.ca.gov/published/FINAL_DECISION/140369.htm

We believe household DSR will be facilitated in large part by third parties, including aggregators. Consumers should have access to a vibrant market of automated thermostats, appliances, and office

equipment. These devices enable "set and forget" automatic energy conservation via time-shifting demand and reducing consumption.

We would like to recommend that Ofgem consider the five policy recommendations that the Smart Energy Demand Coalition (SEDC) states in the "Smart Meters Position Paper" (attached)

1) Minimum feedback requirements should be spelled out for informative billing. This should include next-day online access to smart meter data collected the previous day-presented in a standard format (as mentioned before)- on the utilities website, as well as real-time access to smart meter data
2) Smart meters' surrounding communication infrastructure should- through the ability to send usage, prices and control signals- be capable of supporting the full range of demand side programs, direct and multi-channel feedback, dynamic pricing and home/building automation
3) Third party access to meter data- with proper customer authorization- should be made possible in cooperation with utilities. Such access could be available via the utility's back office and/or through a secondary communication interface such a through a gateway, HAN interface, etc. (as it shown in Figure 1 on Data access, privacy and security)
4) UK should encourage electricity retailers to use multi-channel, direct feedback to maximize consumer engagement and to support dynamic pricing tariffs, along with providing the necessary price transparency (look at the ways to lower price tariff complexity named above)
5) When practicable, consumers should be offered dynamic pricing tariffs- TOU, hourly, critical peak, or peak time rebates- that communicate prevailing wholesale price signals and offer the opportunity to save money by utilizing lower-cost, off-peak power, to be used by consumers on a entirely voluntary basis.

It is this very last point that will make other means of DSR, other than DNO-led,, to help other participants take part in DSR programs and opportunities. One example is Siemens Demand Response Programs in New York, which aims to enable neighborhoods to get actively linked to utilities via demand response and to cut back power consumption when the New York's power gird struggles to match supply with demand. This will reduce the possibility of an outage while still maintaining reliability comfort and security. See Appendix 3

Today DSR is a form of balancing mechanism, and most of the worldwide electricity regulations assume capacity comes from generation and not the demand side. For the same reason wholesale markets often only price generation. Ofgen should back measures that promote the proposition that the need for additional capacity could come from demand side and not only from generation, such as

the development of the Capacity Mechanism in the form of a capacity market. New storage and interconnection will offer significant opportunities to improve security of supply and reduce the amount of generating capacity needed.

Regarding Innovation of Energy Services and the role of Ofgem

As mentioned before, Ofgem should request from suppliers that they provide consumers energy usage data in a standard format, as the Green Button does. This will allow energy services companies and software developers to create and offer products that will work for every consumer around the country, regardless of which retailer supplies their electricity and/or gas.

The role of Ofgem should focus on deciding which data should be made available to third parties (with consumer consent), how often, and via what standard interface (e.g., California has adopted the OpenADE Energy Service Provider Interface standard adopted by the North American Energy Standards Board; Green Button utilizes this standard as well).

Question 2: For each proposition, have we identified the elements of current market?

eMeter believes that TOU tariffs will promote consumption at cheaper times, and their design should target that all types of consumers could be better off if they are involved in TOU tariff programs. They should be attractive, and they should promote consumers' choice. We reckon that Ofgem should also consider consumer choice as an element of Smarter Energy Markets.

We agree with Ofgem with the importance of consumer engagement. This is vital for the smart metering system to be successful.

Consumer engagement programs (such as PowerCentsDC, which gave consumers detailed energy consumption data and tips) also have proved to accelerate consumer behavioral changes. This program, which involved domestic Potomac Electric Power Co. customers in the Washington DC area, combined smart meters and thermostats with time-based pricing and eMeter's Energy Engage online platform. Over the course of this program, 91% of participants saved an average of $44 per year — and over 90% said they would recommend PowerCentsDC to friends and family. The final report is available at www.powercentsdc.org.

Question 3: For each proposition, have we identified the key issues, such as the timescales for any changes to market arrangements?

eMeter believes the time scales presented by Ofgem in this consultation are reasonable.

Question 4: Are there additional opportunities for development in retail energy markets that we should include in the scope of our work?

As mentioned before, retailers should enable households to have access to their data and to be able to load their individual usage data in a standard file format. With smart meters, consumers can get actual data. This will help them better understand their energy consumption.

Also, smart meters vastly increase transparency — which is crucial in a competitive retail market. With clear tariffs, consumers will be able to compare suppliers and options to decide which deal suits them best. Since most U.K. energy bills currently are estimated, projected savings from switching retailers are estimates on top of estimates. Therefore we welcome Ofgem's additional proposition to its Core Tariff Proposal on the Retail Market Review, which requires that all tariffs should be accompanied by:

- a price comparison guide, that will allow consumers to compare price among tariffs "at a glance", and
- a standardised Tariff Information Label that will help consumers to compare the number of key features among tariffs.

We see opportunities by adding Data Access as the starting point of the smarter markets; therefore it should be included in the scope of work of Ofgem. Future capabilities like DSR require that Ofgem and DECC establish appropriate rules for DNOs that enable DNOs to benefit from DST.

We envisage some potential change that must be included in the regulatory and commercial framework, mostly regarding new regulated activities related to delivering grid benefits, and those that affect other parts rather than those initially thought of. The introduction of smart meters and smart grid capabilities will bring the necessity to change the scope of regulated activities, and consequently which data that has to be handled by the DCC and passed forward to different stakeholders.

Services	Participant	Data Type	Impacts
Demand	Supplier, ESCOs	HH	Optimization of the distribution

Response			and transmission grid capacity
Power Quality	DNOs	Outage Alerts	Outage management
Dynamic Pricing	Peak/Off Peak/ Hourly	Peak/Off Peak	Demand Reduction / Rebates
Net Metering	PV Developer/ Consumer	Peak/Off Peak/HH	Fair value for energy delivered
EV charging	ESCO, Suppliers	Peak/Off Peak/HH	Promote low-cost, off-peak charging
Voltage Control	DNOs, ESCOs	HH	Better grid planning and more efficient operation
Grid Balance	Grid Operator, Aggregators	HH	Demand/Supply Balance, More Renewable Energy

Demand-side programs could help balance the network — but to do so, there needs to be a link between network operators and their customers' base via data provided through the DCC. For instance, where smart meters are deployed, network operators could get involved in demand side efforts such as electric vehicles, heat pumps, and distributed generation.

Consumers should be able to sign up for automated demand response programs and control systems. This will allow them to receive price signals or price information, to which they can respond by modifying their energy use. Thus, simple demand becomes smart energy demand.

Examples of how consumers can respond to dynamic prices:

- Cut peak demand
- Shift usage to off-peak hours.
- Reduce total energy consumption.
- Actively manage electric vehicle charging.
- Actively manage energy usage to respond to the availability of solar, wind, and other renewable resources. For example, programming a dishwasher to run only when wind resources exceed a certain threshold previously established. A smart dishwasher could communicate with the grid operator to get this information via the HAN gateway or the internet.
- Purchase more efficient appliances and equipment, based on a better understanding of how each device uses energy.

These actions maximize savings to consumers and other energy users. And in the bigger picture, aggregators will use information from smart meters and home interfaces to help keep the overall power grid balanced and efficient.

DCC might at some point in the future start handling more of these data, enabling some standardization around these activities.

Chapter 4. About improving market process

Proposition 5: Settlement arrangements should use actual daily (gas) and half- hourly (electricity) meter reading data in order to improve their accuracy and efficiency.

When to start mandating this way? How many meters should be installed before making it mandatory? What makes sense?

Proposition 6: The change of supplier process should be reliable and fast, so that customers can confidently switch supplier on a next day basis.

Changing supplier has to be a reliable process, fast and always bringing confidence that consumers could have a supplier change in the next day. Would be better the situation when DCC holds the registration?

Proposition 7: Electricity data processing and aggregation services should be procured centrally in order to reduce costs and support fast customer switching.

Centralisation of Data. The obligation on electricity suppliers to appoint a data collector and a data aggregator for each of their supply points is set out in the BSC. Compliance with the BSC is a supply licence requirement. DCC functions, including those associated with data retrieval, will be set out in the Smart Energy Code (SEC). The SEC will provide arrangements for the introduction and ongoing operation of smart metering. Compliance with the SEC is also expected to be a licence requirement.Centralising the procurement of data processing and data aggregation services would require modification to the current regulatory arrangements. These potentially include the BSC, SEC and DCC licence conditions. Managing changes across these regulatory instruments could require some central coordination.

Proposition 8: The Smart Energy Code should be used as a vehicle to consolidate existing industry codes dealing with retail issues in gas and electricity to facilitate market development and reduce administrative burdens.

Consolidation from the nive previous codes dealing with electricity and gas retail

Question 5: Do you agree with the propositions set out in this chapter?

Regarding Settlements

Settlements use actual interval data to aggregate and report net balances of energy purchased and consumed from each market entity. The sooner the consumers still seeing the benefits of the installation of the meters the more they will engage in the program.

Half hourly metering data would support benefits to suppliers such as bill accuracy, demand forecasting, product innovation, energy management products, reduced energy bills, better system planning, and demand response. Half hourly data should be also made available to third parties, regulated or consumers approved, as it not only will enhance competition, but also it will bring consumers choices of services and services providers.

Specifically, if retailers have access to half-hourly data, they can offer the full variety of tariff options, a key source of benefits of smart meters. Such programs can account for $2 billion in savings for a utility with less than 1.5 million meters.[6] However, as with the other benefits of Smart Grid, such savings are possible only if the software application functionality properly supports implementation of the pricing plans. In another example, dynamic pricing benefits in the European Union have been estimated at EUR 53 billion.[7].

In our response to ELEXON Consultation/ Impact Assessment on Mandatory Half-Hourly Settlement for Smart Meters, we agreed with Elexon that half hourly metering data would support these benefits to electricity retailers:

- Accuracy

[6] - Baltimore Gas & Electric Company, *Application of Baltimore Gas and Electric Company for Authorization to Deploy a Smart Grid Initiative and to Establish a Tracker Mechanism for the Recovery of Costs*, July 13, 2009.

[7] - Ahmad Faruqui, Dan Harris, and Ryan Hledik, *Unlocking the EUR 53 billion savings from smart meters in the EU: How increasing the adoption of dynamic tariffs could make or break the EU's smart grid investment*, Energy Policy, October 2010.

- Demand forecasting
- Product innovation
- Energy management products
- Reduced energy bills
- Better system planning
- Demand response (smart energy demand)

If HH data is not used for settlement, consumer usage changes are not reflected in the bills they receive. This is because customer class average profiles are used instead, and an average profile does not change when an individual's usage changes. Thus, if HH data is not used for settlement, retailers with consumers reducing peak demand see no wholesale cost savings and have nothing to pass on to the consumer.

To get this cascade of benefits flowing — and avoid consumer backlash to smart meters seen in some places — consumers must see benefits from smart meters as soon as possible after installation.

If Great Britain were to implement HH settlement according to the early scenario mentioned in Elexon's consultation (by 2014), that would enhance the chances for smart meter success, since consumers would realize benefits faster. In Texas, settlement using interval data for millions of domestic customers has already been in operation for over a year.

In Northern California there was a gap between when Pacific Gas & Electric installed smart meters and when customers started seeing benefits such as access to detailed energy information, pricing options, and automated control of thermostats and appliances. This delay contributed to a much-publicized smart meter backlash in that region.

Non-half hour Settlement	HH Settlement
Spot ("Register") Meter Read Annualized Advances (AAs) Estimated Annual Consumption (EACs) Profiling Multiple Registered – Economy 7 Representation of the average consumption shape, not individual consumption shapes.	Accuracy Demand Forecasting Product Innovation Energy Management Products Customer Invoicing and accurate Bills Reduced Energy Bills Reduced Agency Cost Settlement Cast Flow Reduce Dist. Use of System Charges Better System Planning Demand Side Response

	PLUS Benefits according to eMeter

How and how often consumers receive the accurate and latest information will affect their capability to be more or less active toward more dynamic and often readings. Standalone In Home Display versus Web Applications where the consumers could interact with information with easy tools that set up filters of consumption alarms in case of prepayment.

Vital for the successful of the roll out of smart meters is that consumer should experience immediate benefits after the installation of the smart meters, such as detailed information about their energy usage with their monthly bill, next day only access to their energy information, and the option of real time through a Home Area Network (HAN) interface.

Utilities calculate electricity bills using either register reads or interval data from smart meters. The use of spot, or register, reads creates numerous operational and policy problems. Because register reads have a long tradition in the industry, their use should be permitted. At the same time, not permitting the use of interval data – also having a long history – results in inconsistency of data between consumer bills and other uses (e.g. web presentment, load forecasting, settlement, etc.), higher costs, more estimated bills, reduced flexibility, increased complexity, and other serious problems.

Policymakers have a simple solution: permit both options and allow the market – electricity retailers – to decide whether to use register reads or interval data for billing. eMeter is confident that the market will select the optimal solution. For more details, please see Appendix 4.

eMeter believes an early mandate of Half and Hour reading – i.e. collecting half-hourly data at least once a day – rather than the later ones will enhance opportunities of a successful smart metering system roll out. Therefore we see benefits coming from the mandating Half and Hour reading when the DCC goes live, in 2014. Here we would like to comment on the Swedish Case, where households are already equipped with smart meters that can gather data hourly but to realize the full benefits of the smart metering system and demand response, together with managing micro-generation and private energy production, the meters must record and transmit data more frequently, at least daily. Since in Great Britain the meters are already mandated to collect HH data, the settlement should also benefit from use of that more granular information.

Regarding Data Aggregation

The DCC could provide flexibility for future extensions to services and the necessary integration and aggregation of bidirectional data messages to support reliable market functions. The DCC would also benefit from having the ability to record, audit and validate the configuration of meters as required to fulfil its obligations to provide scheduled data provision, access control and manage the interface to the communications network.

The DCC core main services are the communication and data metering access. Equally DECC acknowledge there will be some additional services. We would like to name some functions we believe DCC should hold to enable a smooth flow of information and process of meters installations and synchronization to the smart metering system.

DCC FUNCTIONALITIES

EXPLICIT	IMPLICIT
Access control	Synchronization with registry. Market process state tracking.
Translation	Multi-organizational Asynchronous and Synchronous Participant to DCC services. Mapping and Aggregation of DCC services to DCC to metering system messages.
Scheduled data retrieval	Flexible and modular interfaces to Communications and AMI. Stored and maintained AMI metadata. Stored and maintained meta data at the DCC regarding each metering system. Participant data provisioning requirements stored at the DCC.
DCC user services (e.g. reporting)	Configurable data delivery services, including retail energy billing data and revenue assurance events, distribution network usage data and outage information & alerts.
Data privacy & Security	End to end scope including participant to DCC and DCC to metering system. Business process management
Full communication Hub	Support for meter rollout and installation including; provisioning, activation, troubleshooting, expectations, work order management.
VEE, Validation, Estimation and Editing	The ability to process volume data in real time, including estimates and replace with actual data if delayed.

We also would like to mention e-curtailment. A function that enables controlled load shifting in emergency situations aiming to protect vulnerable customers (such as those with dialysis machines) and to keep the lights on in hospital and polices stations.

We agree with Ofgem that central procurement of Data Processing and Data Aggregation Services could reduce costs and support fast customer switching. However, retailers could also perform aggregation without a huge loss in scale economies, at least for the large retailers.

Question 6: For each proposition, have we identified the right sources of costs and benefits associated with achieving them?

We believe Ofgem has identified the right sources of benefits for the most part, With regard to costs, IT costs and strategies deserve perhaps greater attention.. In this regard, eMeter has observed over the past decade two key strategies to balance value for money against flexibility in meeting future requirements in the implementation of smart meter systems. The first is to separate data sources from data uses. This is accomplished by inserting a software integration platform between the data communications system and the receivers and users of data, here the suppliers, DNOs, and authorized third parties. Logically separating the sources and uses allows for changes to, even replacements of, the IT systems of data users without having any effect on the field devices or data communications, or vice versa.

The second strategy is modularity. Interfaces to communications networks can be through modular adapters so that new communications – or upgrades or changes to existing communications – can be accommodated through either a new adapter or an update to an adapter. This contrasts with the need to modify the entire software infrastructure necessitated by a non-modular, monolithic approach. Such modularity is equally effective with respect to interfaces to supplier, DNO, and authorized third party data systems, each of which should be able to evolve independently. Over time, interfaces will become more and more interoperable, but eMeter's experience has been that even interoperable systems nearly always have idiosyncrasies that must be accounted for.

In short, cost-management and flexibility are achieved by planning for change from the start and allowing for such change to be incremental and non-disruptive

Question 7: For each proposition, have we identified the key issues, such as the timescales for any changes to market arrangements?

eMeter believe the time scales presented by Ofgem in this consultation are reasonable. We believe including central procurement and aggregation of the data at the DCC can occur at initial go-live, providing benefits to consumers sooner. This will support Charles Hendry's goal of delivering benefits to consumers. We believe the sooner consumers benefit from the roll out of smart meters, the more engaged they will be, and more success will come from the smart metering system.

Question 8: Are there additional opportunities to reform market processes that we should include in the scope of our work?

Ofgem should support the development of initiatives that facilitate providing consumers with standard data, regardless of which supplier they are with. See Appendix B.

Appendix A

Pacific Gas & Electric Rate Comparator

PG&E debuts rate comparisons: What's not to love about saving 7% risk free?
By Chris King | February 10 2012

Quietly and without fanfare, my local utility, PG&E, has gone live with fabulous new functionality for its customers with smart meters who now have nine months or more of smart meter data — about 80% of PG&E customers.

These customers can now compare rates, and see the savings they could expect from switching rates.

I just checked my mother-in-law's energy usage. (I handle Mom's business affairs.) I found that she can save 7% on her annual electric bill by switching from her current rate to PG&E's E-6 Smart rate plan. This estimate is not based on algorithms or forecasts; it's based on her actual energy usage data, measured every 15 minutes by her smart meter.

Her current plan does not vary by time of day. The E-6 Smart option is a time-of-use rate, with critical peak events. PG&E also offers E-6 (time-of-use without critical peak events). On the E-6 Smart rate, the price of electricity changes by time of day. Also, overall prices are lower on most summer days, but will be higher on up to 15 especially hot afternoons.

The key points:

- Prices are lowest: Overnight, weekends, and holidays in summer and winter.
- Prices are low: Weekday mornings and evenings in summer and winter
- Prices are high: Summer weekday afternoons, 1-7 pm.
- Prices are highest during critical peak events: Summer afternoons 2-7pm on up to 15 hot summer afternoons. PG&E calls these "SmartDays."

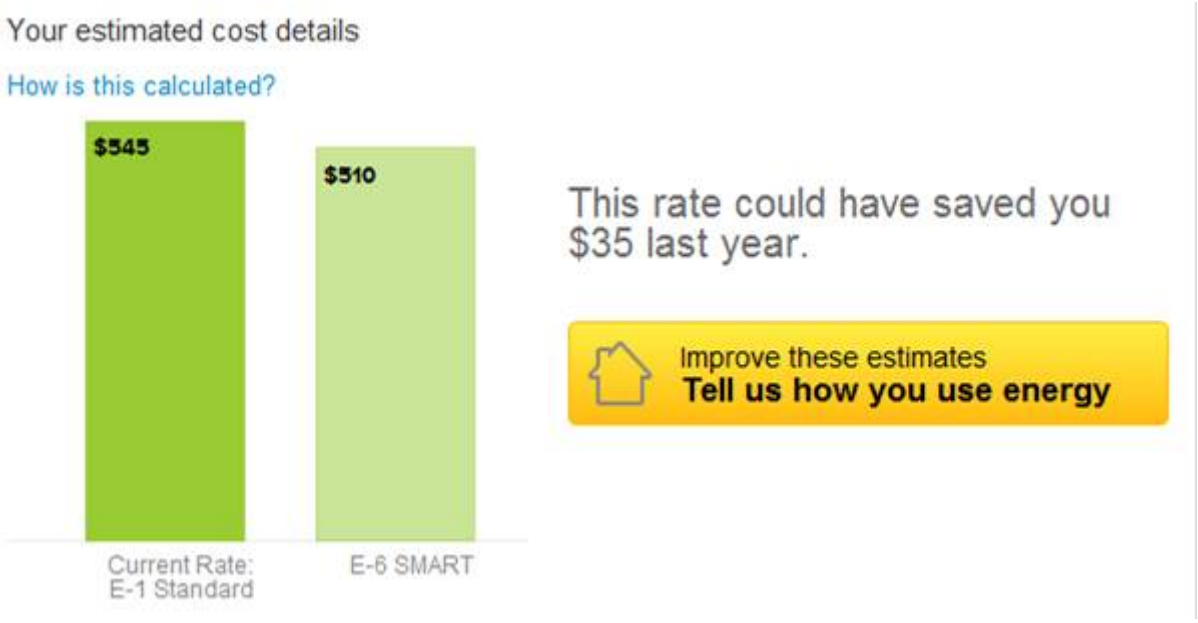
On top of the 7% savings, Mom could save even more money by shifting some of her usage from peak hours to other times.

As if that wasn't enough, PG&E offers bill protection — so she can try this rate risk free. If in her first year her bills end up being higher, PG&E will refund the difference.

If you have the good fortune to be a PG&E customer, you can see how you'd fare yourself. Log in to your account at PGE.com, click on the "My Usage" tab, then "My Rates."

Mom's reaction? "Of course I want to try it!"

Here's the result of Mom's online analysis from PG&E:



Appendix B

Green Button

Green Button goes live. How can consumers use it?

By Chris King | January 19 2012

This week I was with U.S. Chief Technology Officer Aneesh Chopra when he announced huge progress on the White House Green Button initiative. All three major California utilities (Pacific Gas & Electric, San Diego Gas & Electric and Southern California Edison) have gone live with green button on their websites.

Here's how it works: After logging in, customers can click on that button and download up to 13 months of their detailed electricity usage data. Generally this is 15-minute or hourly interval data, but it can work for monthly data also.

So what? By itself, this data is virtually of no use. But here's why consumers should care…

Chopra and many others believe that mobile app developers will step forward and provide interesting and even exciting uses for this data. With such apps on their smartphones, consumers could:

Get an immediate comparison of how optional time-of-use rate plans (now offered by many utilities) will affect their bills.

See a breakdown of their energy usage by appliance.

Calculate their potential savings and payback for installing insulation.

Join an energy game to rack up savings points (Simple Energy has already developed aprototype, which they showed at the meeting.)

Figure the costs and return on investment for installing photovoltaic panels.

With the apps market being so creative, I'm sure there would be many, many more.

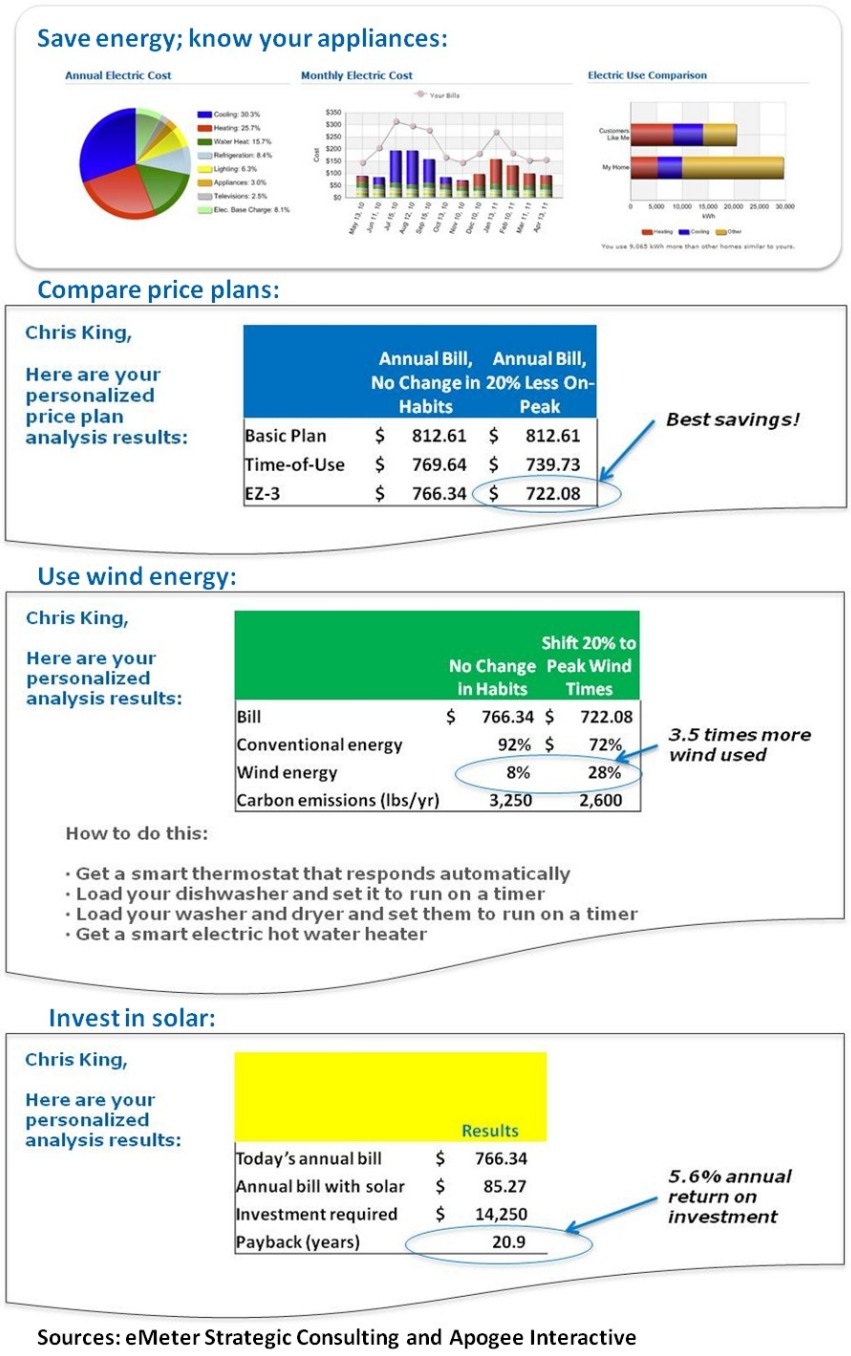
Chopra also mentioned that other utilities (Glendale, Pepco and Oncor) have also committed to adding Green Button to their websites.

As I told Aneesh, this is a dream come true after 30 years in this business — for consumers, for society and for the environment.

UPDATE: On Jan. 20 the Association for Demand Response and Smart Grid held a webinar explaining Green Button. Archived recording and presentations are available online. More technical details on Green Button.

Also, the North American Energy Standards board has launched a new website that offers information about the Energy Service Provider Interface (ESPI), the standardized process and interface for the exchange of retail customer energy usage information. This is in partnership with the National Institute of Science and Technology, the Smart Grid Interoperability Panel, the Department of Energy and the Office of Science and Technology Policy.

My "Consumergy" report – powered by Green Button



Sources: eMeter Strategic Consulting and Apogee Interactive

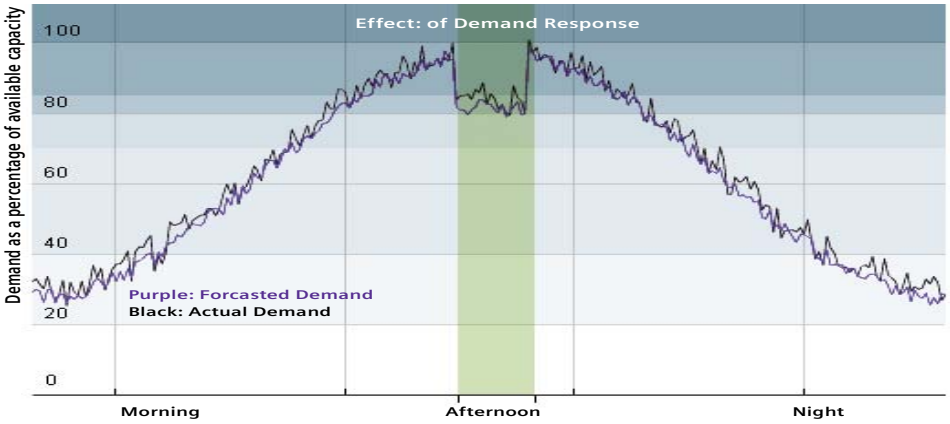
Examples of how energy data from the Green Button can be usefully applied.

Appendix 3

By Siemens, Smarter Neighborhoods, Smarter Cities (see entire document attached)

Demand Response

Automated Demand response—also known as "Demand-Side Management"—is the automated change in end-users' power consumption compared with their normal usage. It's often used to reduce power when prices change or when the grid is in jeopardy. This solution is able to continuously adjust energy consumption by reacting to changes both within a building and in the surrounding grid. It uses a continuous feedback loop based on collected energy data as well as actions taken to lower demand in response to utilities' requests.



On hot summer days, energy demand can exceed normal capacity. Demand Response helps by temporarily lowering building and facility power in a sustainable manner.

For example, a large midtown complex participating in Demand Response has a 500 kW curtailment potential. It receives advance notification of the City's power needs and makes proactive decisions to temporarily power down or setback systems, giving the needed capacity back to the City.

Social Benefits
New York City's neighborhoods are especially vulnerable to blackouts due to the City's need to power subways, elevators and lighting. Automated Demand Response enables greater reliability with minimal impact to neighborhoods'—and citizens'—daily routines.

Environmental Benefits
In peak-load situations where there's too much demand and not enough supply, only two options are available: rapid supply increase or rapid demand reduction. Supply increases can be achieved either by power transmission from adjacent grids or by starting emergency reserve power plants—also known as "peaker plants"—which are not always environmentally friendly. By reducing consumer demand, the use of these plants can be avoided and money saved.

Economic Benefits
Residential and commercial users can receive financial incentives to participate in demand response programs. Gently reducing power consumption across a large number of consumers helps keep the power flowing and the lights on. Utilities win by not having to purchase additional power and can defer expensive upgrades to the grid infrastructure. Consumers win by being "paid" to cut consumption for a limited time.

Difficulty
Medium difficulty to implement.

Typical Payback Period
The payback period depends on incentives provided by the power utilities. Return on investment is possible within a year under current Demand Response programs.

Appendix 4

By eMeter, Interval Billing for Smart Meters: A Policy Imperative for Regulators & Utilities (see entire document attached)