WNS
Extending Your Enterprise

Leverage Data Analytics to Help Your Energy Customers Consume Less

Anand Das, Assistant Vice President,
Energy and Utilities Analytics, WNS Global Services

The Changing Paradigm

Contrary to the traditional paradigm of maximizing revenue by driving energy consumption, more and more energy companies are trying to help their customers consume less through energy efficiency measures. Some of the measures in case of residential customers include better insulation, use of high-efficiency boilers, smart meters and micro-generation. For example, the annual report of a leading energy company in the UK[1] states that homes in the UK are responsible for a quarter of UK's carbon dioxide emissions, and energy efficiency measures have the potential to reduce carbon dioxide emissions in this sector by 20 percent over the next 10 years. When coupled with the fact that the household electricity consumed will become lower carbon, the overall saving for households could amount to 35 percent.

Companies are not taking this path as a philanthropic gesture – a multitude of forces like constant pressure from environmental regulatory bodies to cut carbon dioxide emission, cutthroat competition, increased customer choices and aware / demanding customers are forcing energy providers to go this path.

The investment in lower carbon generation, however, comes at a price on top of rising commodity prices; the bad news is that companies will not have the luxury of charging it to their customers. They will have to find ways to offset this cost through the three broad strategies:

- **Drive operational efficiencies across generation, transmission and distribution chain**, for example, proactive asset management, efficient outage management and load planning

- **Adopt latest technology**, for example, smart grid technologies, SCADA systems, utility field applications, home-area networks and advanced-metering infrastructure

- **Drive responsive equilibrium between energy demand and supply** such as CRM, billing systems, demand response systems, distributed generation and customer information systems

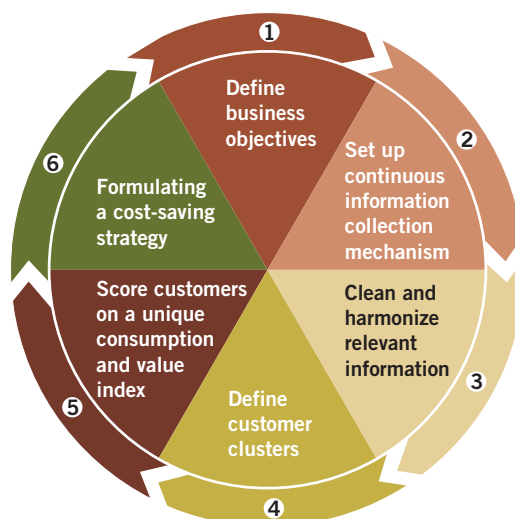[1] Source: Centrica Annual Report 2010

While all of the above play an important role in cost savings, this following section discusses how data analytics on CRM, billing systems and customer information can be leveraged for achieving cost savings.

The 'Know-Your-Customer-Better' Strategy

The starting point of the demand-supply balance is the point of consumption, and the emerging strategy in recent times has been to influence the consumption pattern of the consumer. The ability to influence it necessitates the need to understand the customer engagement life cycle, and that is where energy companies need to bring in two types of specialists – the first one being the products company that sets up the infrastructure to measure and monitor energy consumption while the second one being data integrators and analytics service providers. Their end objective is to identify consumption drivers, derive customer insights and feedback the intelligence to the energy companies to include desired consumption and plan supply for the longer term.

A Road Map to Enhanced Analytical Capabilities

The figure below illustrates a six-stage development road map to set up a process for achieving three interrelated objectives: energy efficiency, customer savings and profitability.

1. Define business objectives
2. Set up continuous information collection mechanism
3. Clean and harmonize relevant information
4. Define customer clusters
5. Score customers on a unique consumption and value index
6. Formulating a cost-saving strategy

- **Stage 1:** **Define business objectives,** list down requirements and finalize the information to be measured and analyzed. Some of the representative information sets the process should capture are:

Customer information
- New user, existing user, lapsed user
- Pay-as-you-go customer or credit customer
- Billing schedule and payment behavior
- Width of product: whether the customer currently uses only one kind of product or uses more than one (electricity, gas, heating oil)
- Width of service: whether the customer currently uses only one kind of service or more than one (boiler maintenance and kitchen appliance maintenance)
- Online account or offline account
- Consumption pattern at different time-periods
- Owns energy efficiency appliances, hybrid electric vehicles at home

Operations and commercial information
- Energy supply schedules and cost of generation / transmission / distribution at various source and destinations
- Pricing information for types of products and services
- Cost of purchase from energy markets
- Cost-to-serve the customer clusters

- **Stage 2:** **Set up continuous information collection mechanism** – from internal databases, point of consumption and surveys. Listed below are some representative sources:
- Consumption Data from last-mile point of consumption using Advanced Metering Infrastructure (AMI) and integration to make it appropriate for measurement and analysis
- Pricing and transactions from billing systems
- Customer demographics history and engagement information from contact centers and CRM systems
- Energy supply - Generation and transmission load schedules from upstream business
- Energy futures and spot volumes transactions from trading desk

- **Stage 3:** **Clean and harmonize relevant information**
- Extract and transform data from multiple sources in a single data repository. Form data structure based on the level of measurement and analysis desired
- Set up a process for data cleaning – for missing and inaccurate information

- **Stage 4:** **Define customer clusters** based on business relevant criteria such as demographics, spend value and

cost-to-serve. A sample set of criteria, including a few unique ones are listed below:
- By customer life cycle stage
- By account and average transaction value type
- By patterns of consumption at different time-periods
- By demographics
- By cost-to-serve
- By responsiveness to pricing and marketing promotions

- **Stage 5:** **Score customers on a unique consumption and savings potential index** with respect to household size, area of the house, drivers of energy consumption, opportunity of energy efficiency. A sample set of variables to monitor consumption and for developing the scoring model is listed below:
- Consumption pattern in a year, consumption pattern within a day, weekdays and weekends
- Responds to a promotional campaigns
- Response to a price increase
- Average number of inquires or complaints to customer contact center
- Responsive to one-time investment for energy efficiency – boiler insulation, solar-panels and others

- **Stage 6:** **Determine cost-savings opportunity for clusters and formulate a cost-savings strategy** for each customer cluster. For clusters with heavy consumption and savings-potential index, launch campaigns that target with a dual objective to maximize savings for the customer and maximize ROI for itself. The case example shown below illustrates how strategies in a new world need to align with **three interrelated objectives – energy efficiency, customer benefit and profitability.**

Case Example: Comparing the traditional 'consume-more' customer strategy versus the new 'consume-less' customer strategy

Customer Profile
John is 42 years old and married with two children. He has had both electricity and gas from different suppliers for over 10 years, having switched to get bundled pricing benefits on products and services. He is fairly loyal to his supplier, mainly due to inertia.

- **Life stage**: Older family
- **Affluence**: Middle
- **House owned**: 1+
- **Product holding**: Energy and services
- **Online Transactions**: Yes
- **Energy Payment**: Online debit
- **Average tenure**: 7+ years

	Traditional 'Consume-more' Paradigm	Neo 'Consume-less' Paradigm
Details Known	- He has a limited relationship with his provider and likes it that way. Paying by Direct Debit offers him the convenience he's after, while online account management gives him control and flexibility in his time-pressured lifestyle - He would prefer a more definite appointment time for servicing and appreciates follow-up calls	- He owns an independent duplex and has a large terrace area - Within a day, gas consumption in his household is more in the evening and nights. Surprisingly, electricity consumption follows a very erratic pattern throughout the day and is very high as compared to an average household in this cluster - Consumptions over weekends is double than a usual weekday - Categorized as heavy consumption as well as heavy savings-potential category in the scoring model
Marketing / Sales Strategy	- Demonstrate good service - Ensure continuous supply of electricity and gas - Capture and use channel preference information to illustrate customer centricity - Give loyalty points for timely payment and minimum base level consumption every month	- Launch focused marketing campaigns to target this customer to achieve multiple objectives. Some of the examples are: — Install smart meter at this customer's premises to monitor consumption by appliances — Propose installation of solar panels in the terrace explaining annual energy savings. Agree to buy back extra electricity produced as cash back — Influence consumption behavior by offering real-time differential pricing – high tariff at peak load period and discounted as non-peak period — Partner with smart appliances company and cross-sell intelligent appliances that operates intelligently while balancing load during the day — Provide discount on boiler insulations among others
Benefits to the Customer	- Better service - Discounts on timely payment, consistent consumption in a month, among others	- Direct savings (up to 35 percent) with having to buy less from the company - Lesser consumption for the same usage due to energy efficiency measures - Cash benefits due to energy buyback
Benefits to the Company	- Increased sales driven by increased consumption - Increased cost-to-serve for managing efficient service and for neutralizing CO_2 emissions - Overall, no or limited impact on profitability	- Increased sales by selling energy efficient products and services, but reduced consumption - Balanced cost-to-serve for managing efficient service and for less CO_2 emissions - Distributed generation from local customers reduces load supply on upstream - Overall, positive impact on profitability

To learn more, please write to us at **marketing@wns.com**