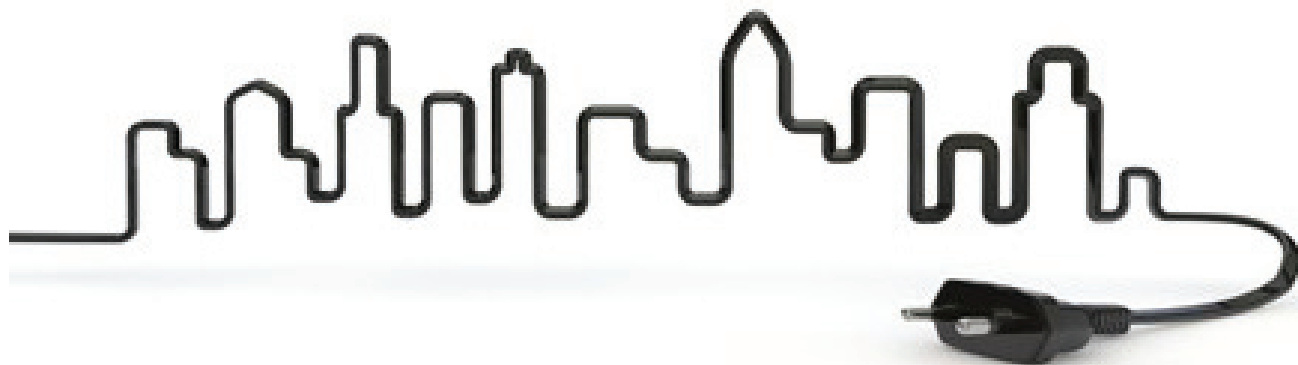


Interval Energy Data, or Itemized Energy Data?

Understanding the Benefits of Analyzing & Improving a Buildings Energy Usage & Cost Profile using one or both techniques.



Overview

Energy service providers and utilities are increasingly leveraging Smart Grid and Smart Meter data to reduce the time and expense required to evaluate and track energy efficiency projects. These platforms typically deliver their evidence based on either interval energy data, or more granular real-time itemized energy data. This paper explains the types of solutions both interval and itemized building energy data deliver by helping energy professionals better understand how individual or combined approaches can help consumers significantly reduce their energy usage.

There are two emerging new breeds of software that aim to more rapidly and inexpensively evaluate commercial building energy performance, and recommend meaningful efficiency measures. These platforms operate sophisticated data analytics to understand what is driving energy consumption inefficiencies, drastically reducing or even eliminating the time required for expensive continuous on-site walkthroughs and time-consuming savings calculations.

These ‘analytics engines’ typically analyze one or two sets of information:

> Interval Energy Data

> Itemized Energy Data

Both data sets are essential and complementary parts of the off-site and on-site energy consumption picture. As energy consumers begin evaluating solutions that focus on one approach versus another, it is important to understand the benefits and considerations of interval data and itemized data in context of improving overall energy efficiency.

Defining Interval & Itemizes Energy Data

Interval Energy data is collected by an interval (or Smart) meter, which, at the end of every interval period, records how much energy was used in the previous interval period.

Such data is often referred to as “interval data”, “interval meter data”, “demand interval data”, “kW interval data”, “electricity interval data” and other such variations. Common forms of interval data include 15 and 30 minute periods widely used in USA and Europe. Interval data can be obtained from utility company meters, building control systems or increasingly from energy service provider- or building owner-installed smart meters.

Itemized Energy data is information related to the ability to measure energy usage downstream of the main utility meter, and in real time. Sub-metering allows measurements to be made at the level of each circuit or load in the distribution box (aka circuit panel) or down to the level of individual power outlets. With sub-metering, a clear and accurate picture of how and when energy is being consumed inside a facility is formed.

Evidence-Based Recommendations: Understanding the Combined Power of Interval Energy and Itemized Energy Data.

Both interval and itemized energy data contain significant hidden insights about a building's energy efficiency performance and provide insights about opportunities for improvement. When this data is combined with sophisticated analytics platforms, the underlying information can be unlocked to accurately understand building energy performance and characteristics with little human intervention.

Interval Energy and Itemized Energy data vary in their ability to analyse real-world environments across different situations. This means that interval and itemized data are each better suited for making actionable recommendations across different situations. Interval Energy data is ideal for SME based enterprises to initiate energy savings measures.

For example, when combined with building footprint, gas and electricity data, interval data is inherently well positioned to baseline dual concurrent use – such as heating or cooling – that are driving energy consumption and waste in a building. From this point, operational efficiency recommendations – such as changing temperature set points or checking system settings – can be accurately proposed. Additionally, overview retrofit ideas for further investigation can also be suggested, such as 'updating your lighting systems may provide \$X in savings.' Additionally Interval data allows for optimization of energy sources (renewable, other)

Itemized Energy data, alternatively, tells us much more about specific retrofit technologies to specific load types. Itemized Energy is ideal for large buildings/campuses that require much more detail. Real-time identification and elimination of wasted energy across strategic points in a building, or sets of buildings typically occur. Itemized Energy data provides:

- > Real time energy usage data
- > Phase imbalance reporting and alerts.
- > Power circuit capacity management and Peak Load management
- > Allocation of energy costs
- > Tracking of specific equipment efficiency
- > Evaluation of efficiency improvement measures across similar load types
- > Setting of thresholds for alerts and notification of unforeseen energy behaviour

Itemised Energy data allows the consumers to instantly calculate the efficiency gains, reduced carbon footprint, Return on Investment and cost savings from identified retrofit upgrades. Real time connectivity also provides energy event alerting.

Considerations for both approaches.

There are other important benefits and considerations when deciding if an interval or itemized-energy platform is right for you. This section describes this further.

Interval Data

Interval data analytics are quick & relatively low cost. When coupled with weather data, building or metered space size and sophisticated analytics, interval data provides rich, easy to understand information about a building's energy consumption and energy savings potential, without the need for collecting building or load specific data. All that is needed for upload is the interval data, building/space size and gas utilisation/bill if any.

Allows prioritization of a large building/property portfolio. Interval data provides a detailed view on a building's overall energy performance, it allows for rapid and cost effective prioritization of a large portfolio of multiple building types and uses. When coupled with a comprehensive database of buildings to benchmark against, utilities and energy service providers can easily understand whether a building is performing well or poorly, and the estimated savings opportunities that exists.

By providing better insight into the building's performance versus lesser or more efficient peers – and likely opportunities for improvement – the performance of interval data analytics can be used to significantly improve customer value propositions, and therefore the project delivery effectiveness, of utility account executives and energy service companies.

Availability is variable. Interval data is not collected for every commercial building today. Historically, many utilities have focused on interval data collection for their largest customers, setting thresholds often based on peak demand. These thresholds have ranged from 100 kilowatts (KW) to 1 megawatt (MW). In addition, customers may be interval metered because of their rate; i.e. total overall use, power factor, curtailment, etc.

Fortunately, data availability is improving through legislation and the growth of the Smart Grid. With the deployment of smart metering in various jurisdictions, there are an increasing number of customers who collect interval data.

Itemized Energy Data.

Broad applications across multiple building types. Because sub-metering information is always available and in real-time, load or circuit analysis can be performed on any size commercial building and virtually any use type (office, warehouse, hospital, data center etc.). Additionally, analysis of itemized energy data can be applied to a campus which may be connected to a single meter or a single building that has multiple uses (e.g., an office building that also houses a data center). Itemized Energy systems should ideally use non-proprietary protocols such as SNMP, Ethernet, BACNet and MODBUS to gather and disseminate real time data.

Highly informative. Itemized Energy data analysis can be leveraged to create a solution that is iterative and interactive. The user is able to refine and modify carbon, consumption and cost data as they obtain more information on each load monitored. Provides the flexibility to use this data to rapidly evaluate retrofit recommendations and complete detailed usage audits. Real time connectivity also provides energy event alerting.

User expertise may be required. In order to leverage optimal itemized energy data analysis, some user training is required. It is important that energy auditors and facility managers are familiar with data analysis techniques, and how to optimally use these platforms.

Making a Decision: Interval Energy Data, Itemized Energy Data..or Both?

With a robust data analytics platform, both interval and itemized-based approaches dramatically reduces the time required to accurately identify and evaluate energy efficiency measures.

Furthermore, energy professionals increasingly view interval and itemized data analytics as mutually inclusive. For example, once high priority buildings are identified utilizing interval data analysis, itemized energy data analytics can go deeper and result in further energy savings and reductions. Additionally, when interval data is available, itemized energy data-based programs can be targeted at sites that offer higher savings potential than other more efficient ones in the portfolio.

Ultimately, utilities, energy service providers and others must carefully evaluate their own processes and energy reduction goals to determine which type of solution is right for their business. If you are interested in learning more about interval or building-based solutions and which one is right for your organization, please contact Eleceenergy.



Which Elecenergy EnergiService would suits your project needs?

Feature	EnergiScore®	EnergiStream®
Energy Data Type	Interval Data, 15 or 30 min	Itemized Data, Real Time
Energy Data Source	Smart Meter Data, Gas Bills & Site Details	Load-Specific Sensors
Reporting period	Daily, Weekly or Monthly	Streamed Every Minute
Information delivery	On-Demand	Streamed
Cost	Per meter	Per load monitored
Data Collection	Uploaded to EnergiScore site	EnergiStream Hardware

About Elecenergy

Elecenergy is a manufacturer & service provider of energy management solutions that are specifically designed to be easy to use, easy to deploy and affordable to buy or contract. Elecenergy enables its customers, Utilities, ESCO's and I.T Value Added Resellers to identify energy waste in high energy consuming commercial buildings and data centers. Our data analytics platforms deliver accurate, actionable awareness and recommendations aligned with target energy reduction goals.

Elecenergy serves the energy management segments of five primary markets – Utility, Commercial, Industrial, Institutional and Data Centers.

Elecenergy manufactures and develops both Energy Interval and Building Energy data solutions:

> **EnergiScore®** is an Interval Energy Software as a Service (SaaS) package.

> **EnergiStream®** is a Itemized Energy data solution that removes the need for data loggers, and comprises of real-time analytic software, plug-&-go monitoring hardware, and the CT load sensors required to obtain data.

Based in the UK. Our Yorkshire Head Office supports our customers worldwide.

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