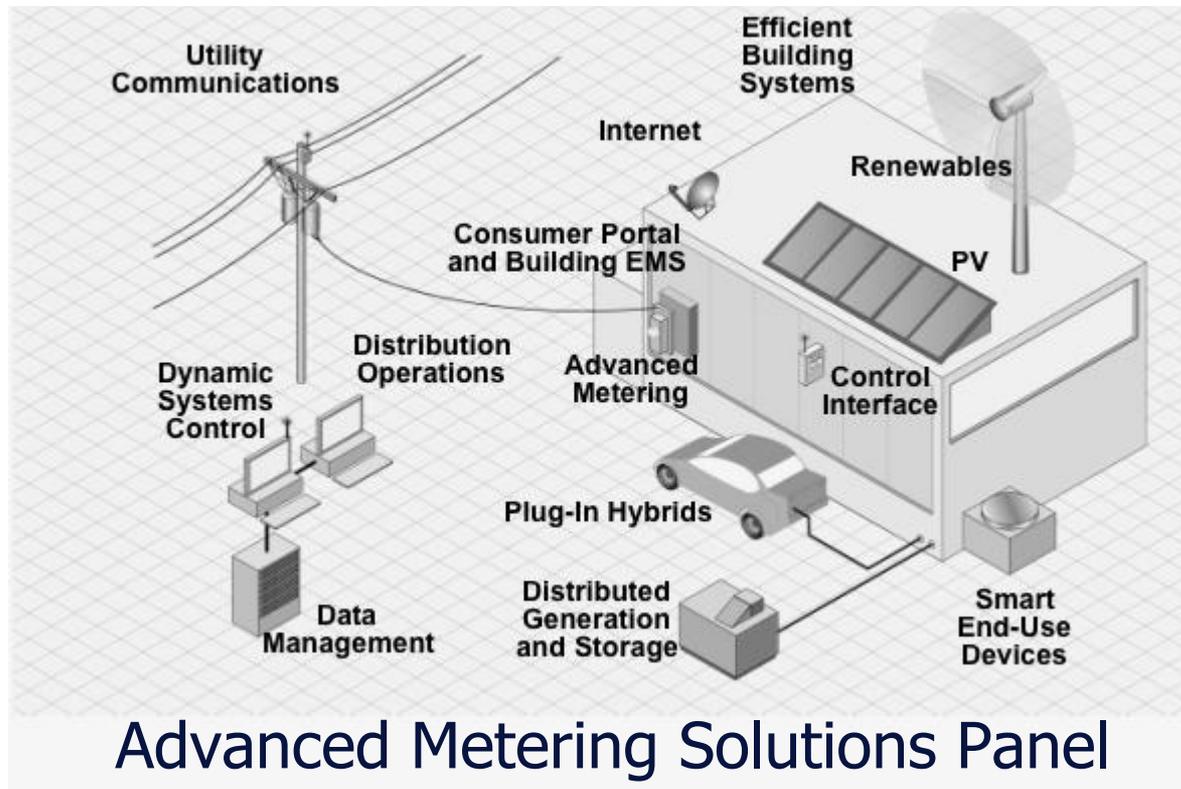


Life on the Other Side of the Utility Meter



Advanced Metering Solutions Panel

Presented by: Claude Godin
President, EnergyICT, Inc.

Who is EnergyICT ..?

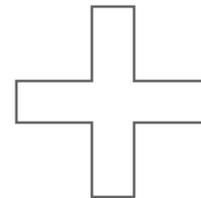
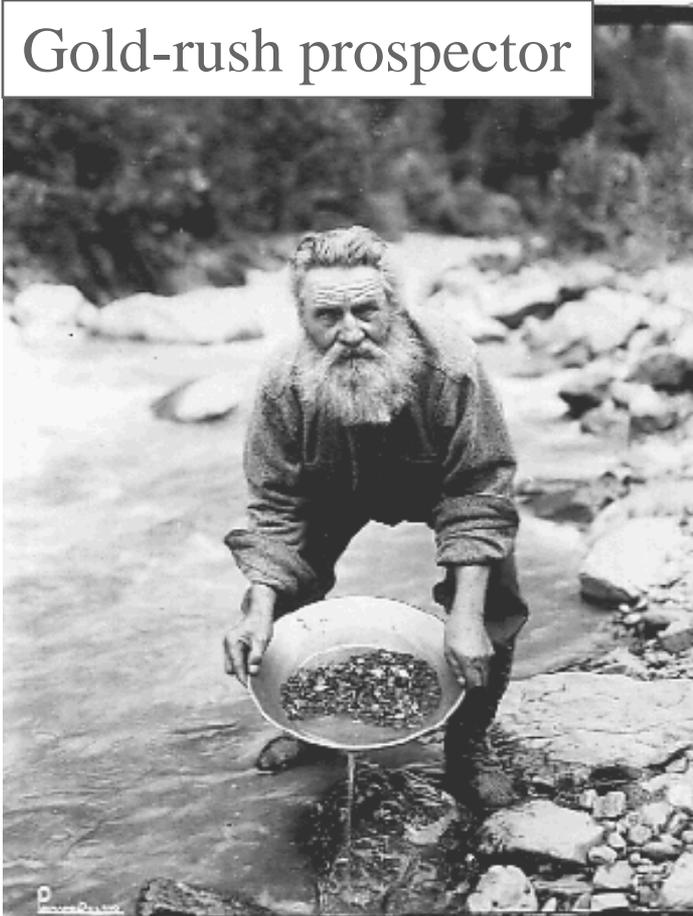


- Founded in 1991
- Acquired by the Elster Group in October 2009
- Active in two market – Smarter Grids & Energy Management
- Software, hardware, and implementation services
- Over 400 systems installed:
 - Largest MDM- US = DTE (2.8 million hourly electric , 1.2 million daily gas, 20 K C&I)
 - Largest MDM – Europe = EDF(35 million 2-channel, ½ hour electric)
 - Largest MDMA = IMServ (+100,000 meters/150,000 channels read daily)
 - Largest EMS = Wal-Mart/ASDA (3,500 stores U.S. - 21,000 meters)
- Focused on providing advanced energy monitoring and control systems to utilities and their customers

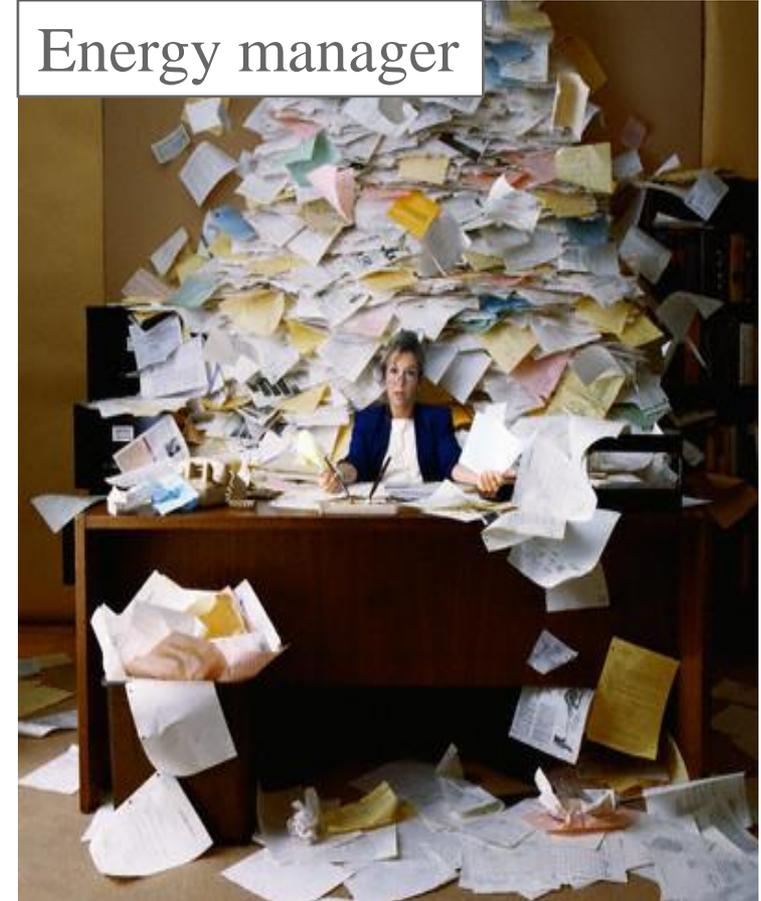
Question: What problem do these people have in common?

Answer: Both have a mountain of work ahead of them before they get to their results.

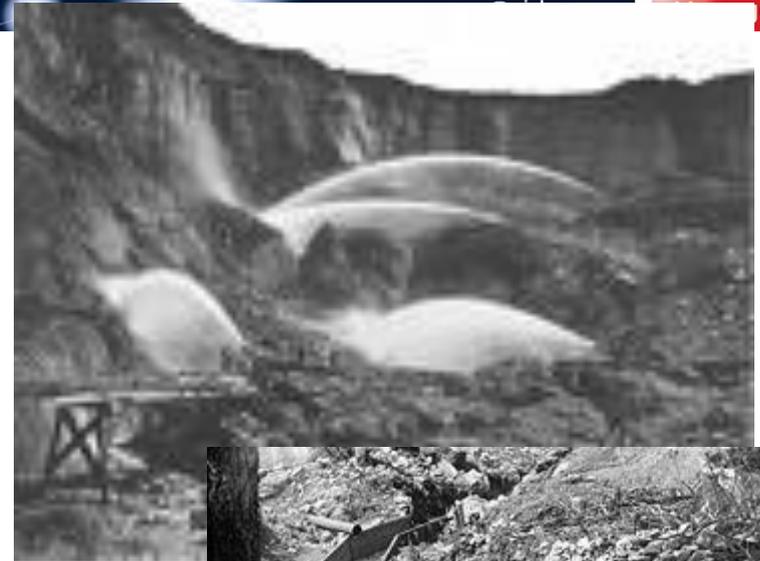
Gold-rush prospector



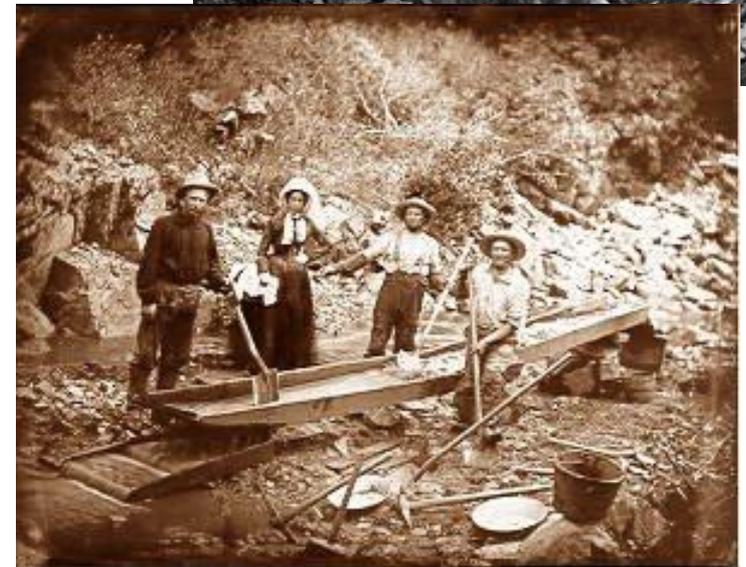
Energy manager



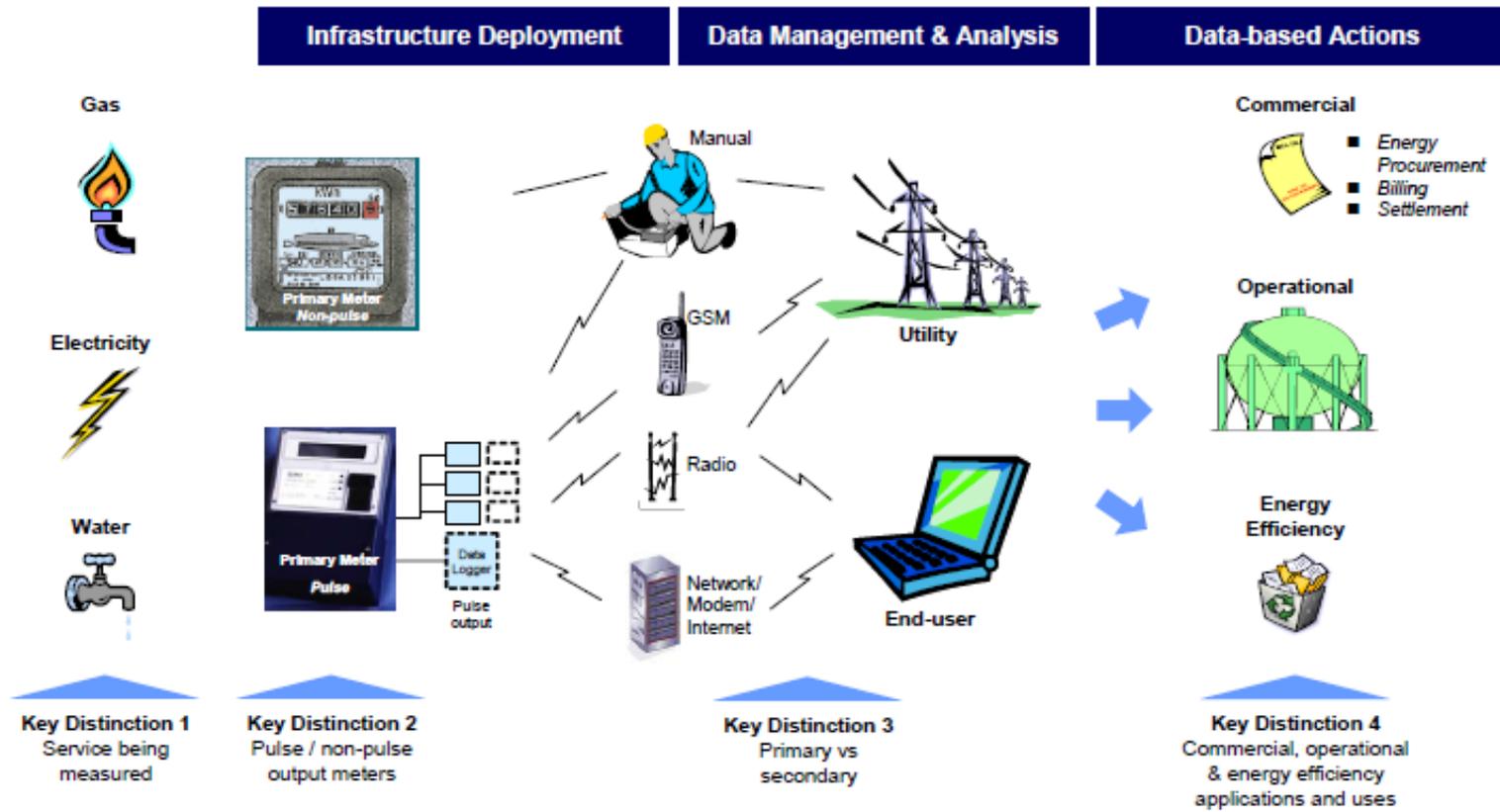
The most successful prospectors
were those who adopted the very
latest techniques and innovations



Minimum manpower vs
Maximum gains !!

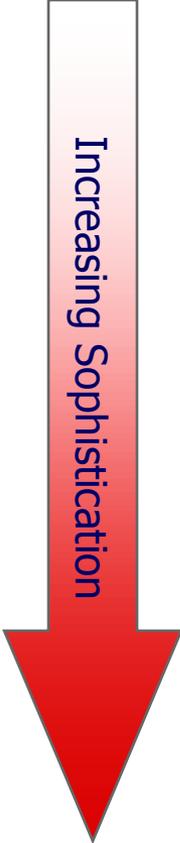


Key dimensions along value chain



Range of feasible energy saving activities

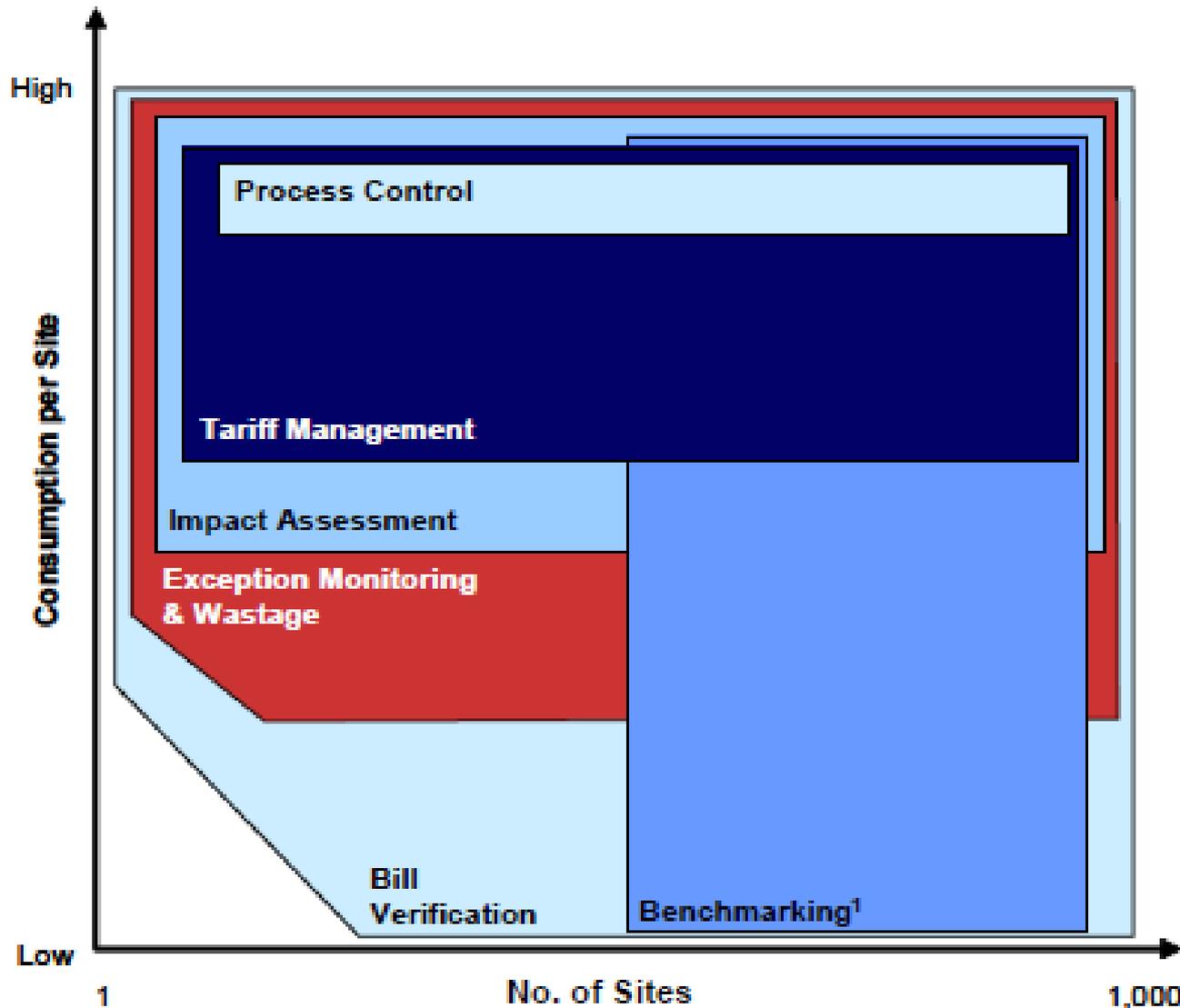
Increasing Sophistication



Activity	Description
Bill Verification	Comparison of utility bill with data source directly from meter
Communication	Publicize energy savings, either within organization or externally
Regulatory compliance	Prove reductions associated with externally imposed consumption regulations
Persistent Exception	Check for faults that permanently increase consumption
Impact assessment	Measure drop in consumption attributable to energy efficiency initiative
Wastage	Check for non-fault related excess consumption
Tariff Management	Ensure energy consumption remains with contractually specified boundaries to avoid penalties
Benchmarking	Comparison of normalized energy consumption with best practices
Characterization	Analysis of historical consumption data vs degree days or business metrics to reveal anomalous consumption
Sporadic Exceptions	Check for faults that lead to a period of increased consumption but which then rectify themselves
Process Control	Automated control of building and process systems to conserve energy

Source: Driving the adoption of metering, monitoring, & targeting in the UK (2004) Carbon Trust of the UK

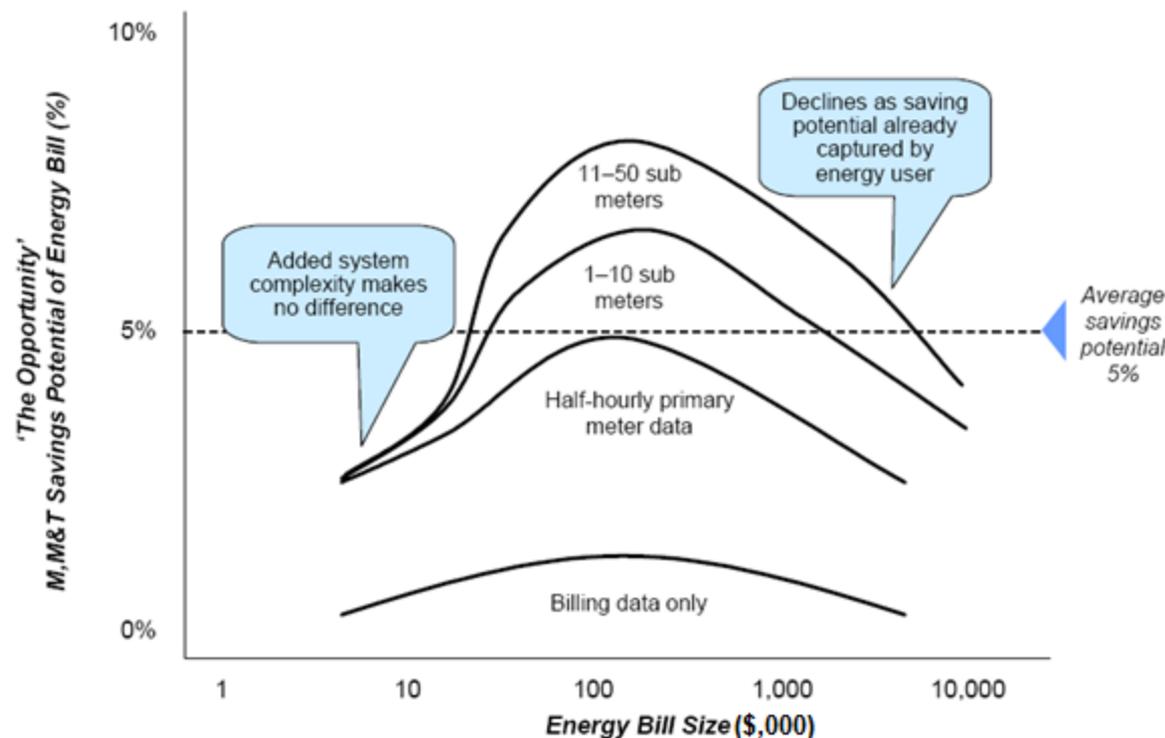
Feasible energy savings activity



Source: Driving the adoption of metering, monitoring, & targeting in the UK (2004) Carbon Trust of the UK

What's Feasible?

Industrial Savings - Rough Estimate



Observations

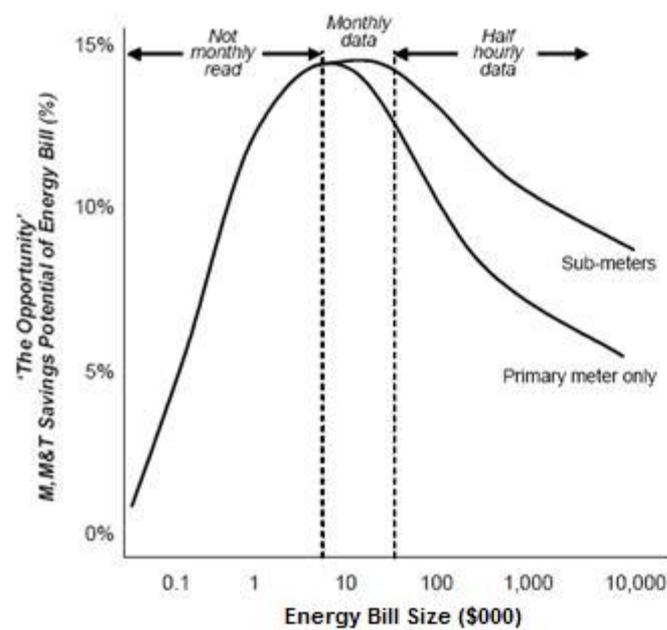
- Below \$50,000 annual energy bill, moving beyond primary meter half-hourly output has limited value
- Half-hourly primary meter data generally has significant opportunity
- Opportunity declines for largest players as they have already captured benefit

Source: Driving the adoption of metering, monitoring, & targeting in the UK (2004) Carbon Trust of the UK

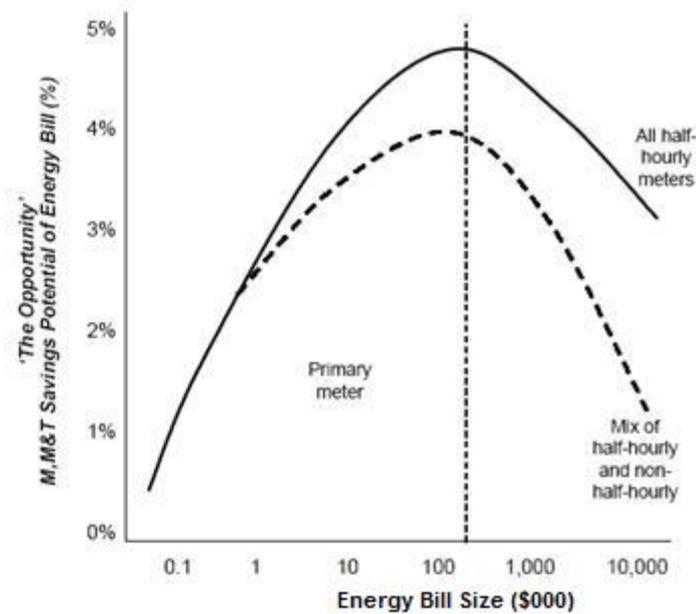
What's Feasible?

Commercial Savings – Rough Estimate

'1-in-5' Commercial Opportunity¹



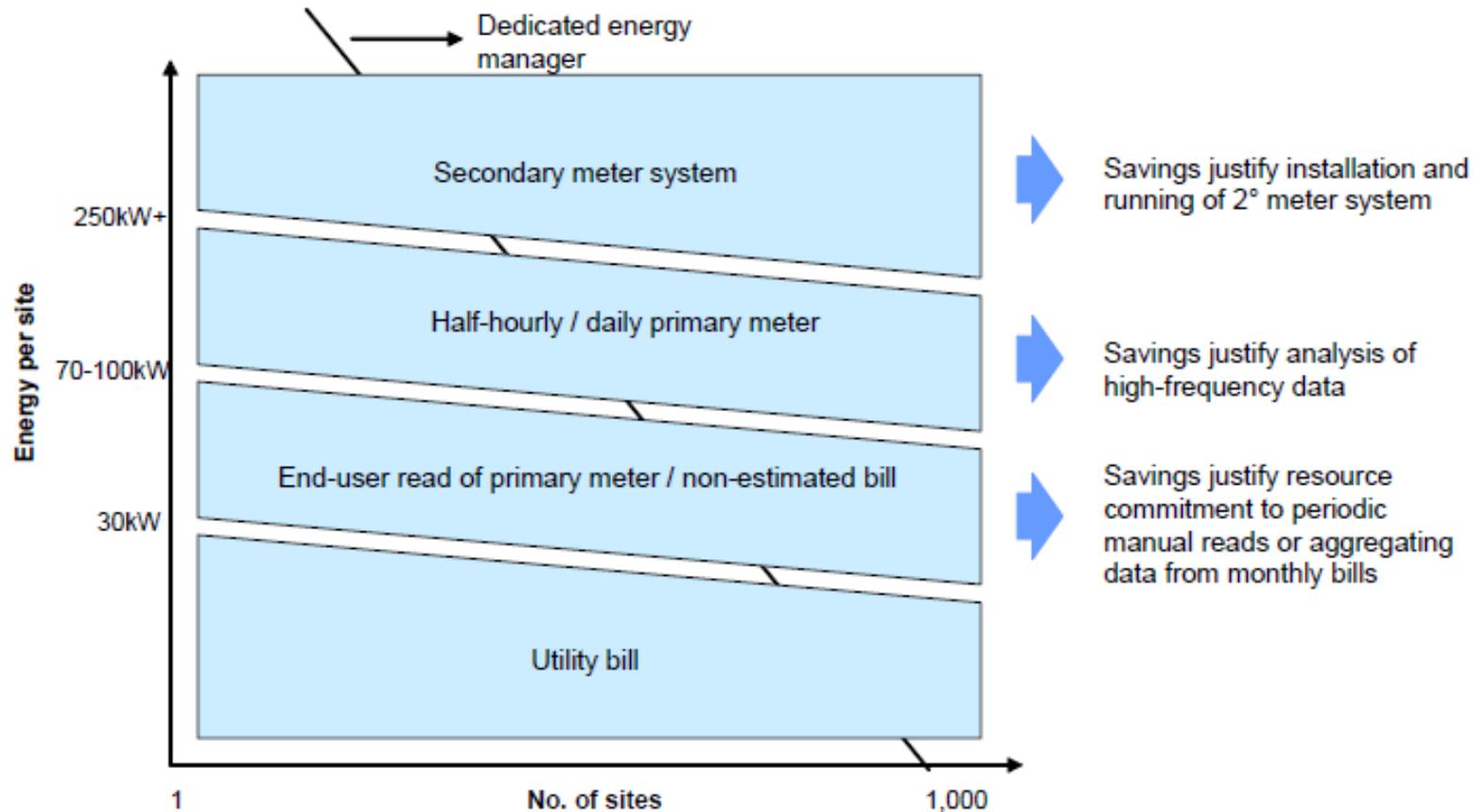
Average Per Site Opportunity¹



1. One in five commercial buildings have a large savings potential; the other four will have much lower savings potential (c.0-2%)
Source: Energy consultant interviews, Savings potential M, M&T trials

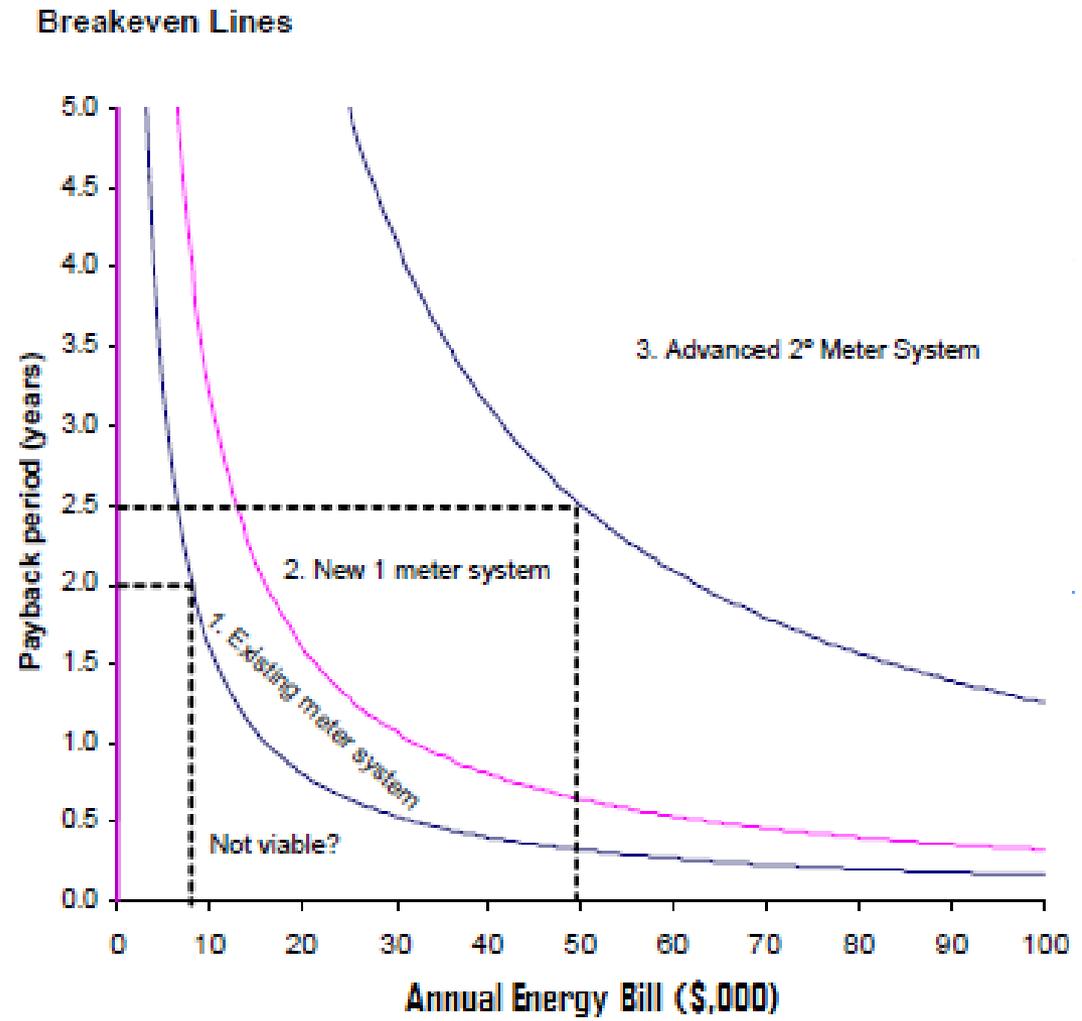
Source: Driving the adoption of metering, monitoring, & targeting in the UK (2004) Carbon Trust of the UK

Feasible energy savings activity



Source: Driving the adoption of metering, monitoring, & targeting in the UK (2004) Carbon Trust of the UK

Payback on advanced metering systems



Source: Driving the adoption of metering, monitoring, & targeting in the UK (2004) Carbon Trust of the UK

Barriers to Metering, Monitoring & Targeting

Energy efficiency not on agenda

- Unit price declines brought about by deregulation have enabled businesses to lower costs without cutting consumption, although this may be changing
- Energy efficiency is perceived to be incompatible with a higher business priority, often in error
- Energy is a small proportion of overall cost
- Energy perceived as a fixed cost or *is* a fixed cost

Lack of awareness about M,M&T

- Anecdotal evidence suggests awareness is low amongst SMEs and much higher amongst larger organisations
 - AE helpdesk calls from designated Energy Managers
 - 56 downloads of SME GPG vs 68 of Large company GPG, despite many more SMEs
 - Secondary meter installers and software providers target larger companies, not SMEs

M,M&T perceived as difficult or inappropriate

- Misperception that sophisticated data is required, encouraged by secondary meter installers trying to sell metering systems
- Misperception that sophisticated analysis is required, encouraged by overcomplicated GPGs and software companies
- Correct perception that 1° data/meter can be hard to access

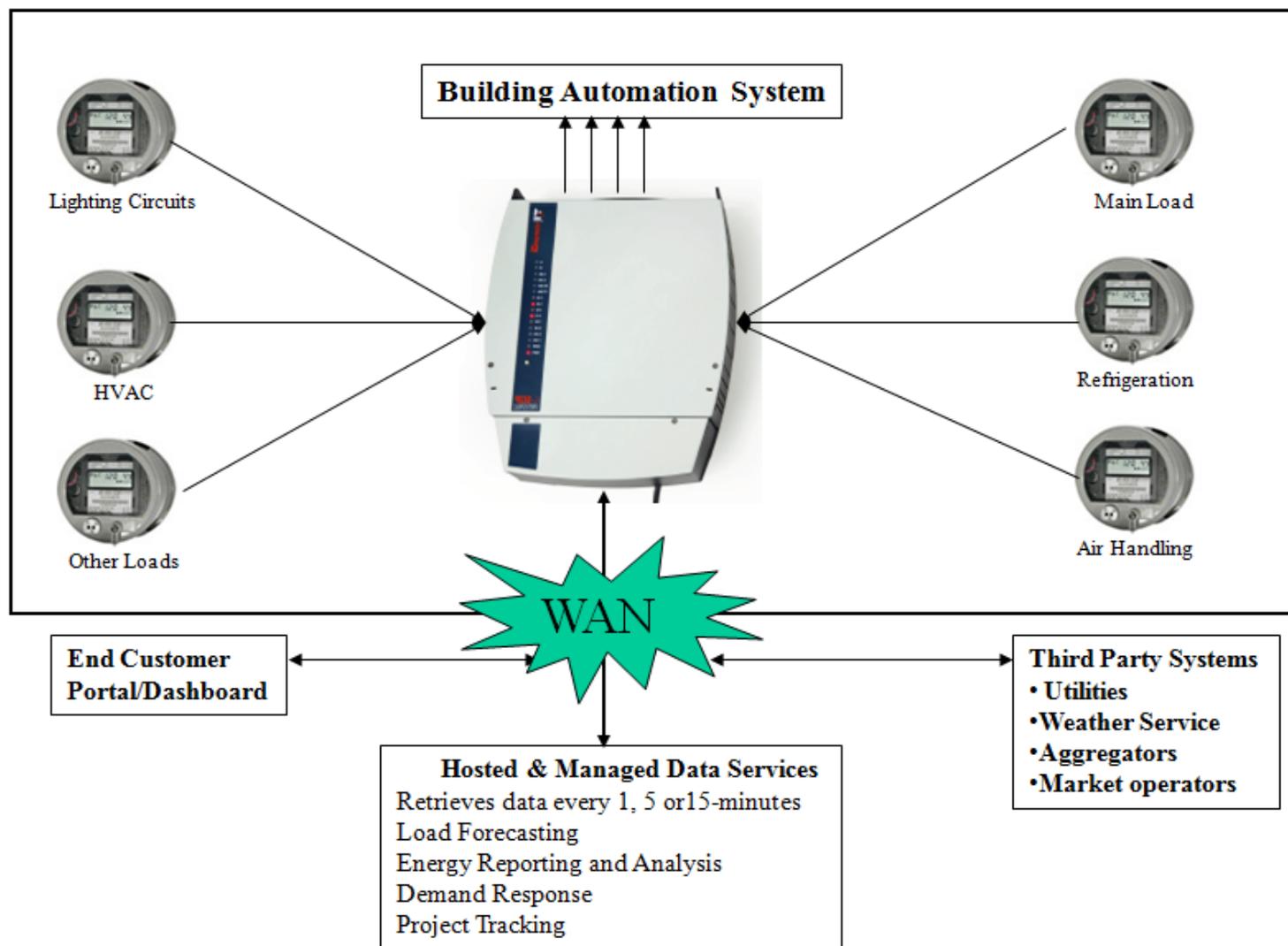
Scepticism about payback

- Sceptical that the up-front investment in M,M&T will reveal any savings opportunities, due to lack of impartial guidance about the likely level of savings and a lack of hard evidence on payback from any source
- Also wary that, unlike other energy efficiency investments, further time or capital costs will be incurred on an ongoing basis

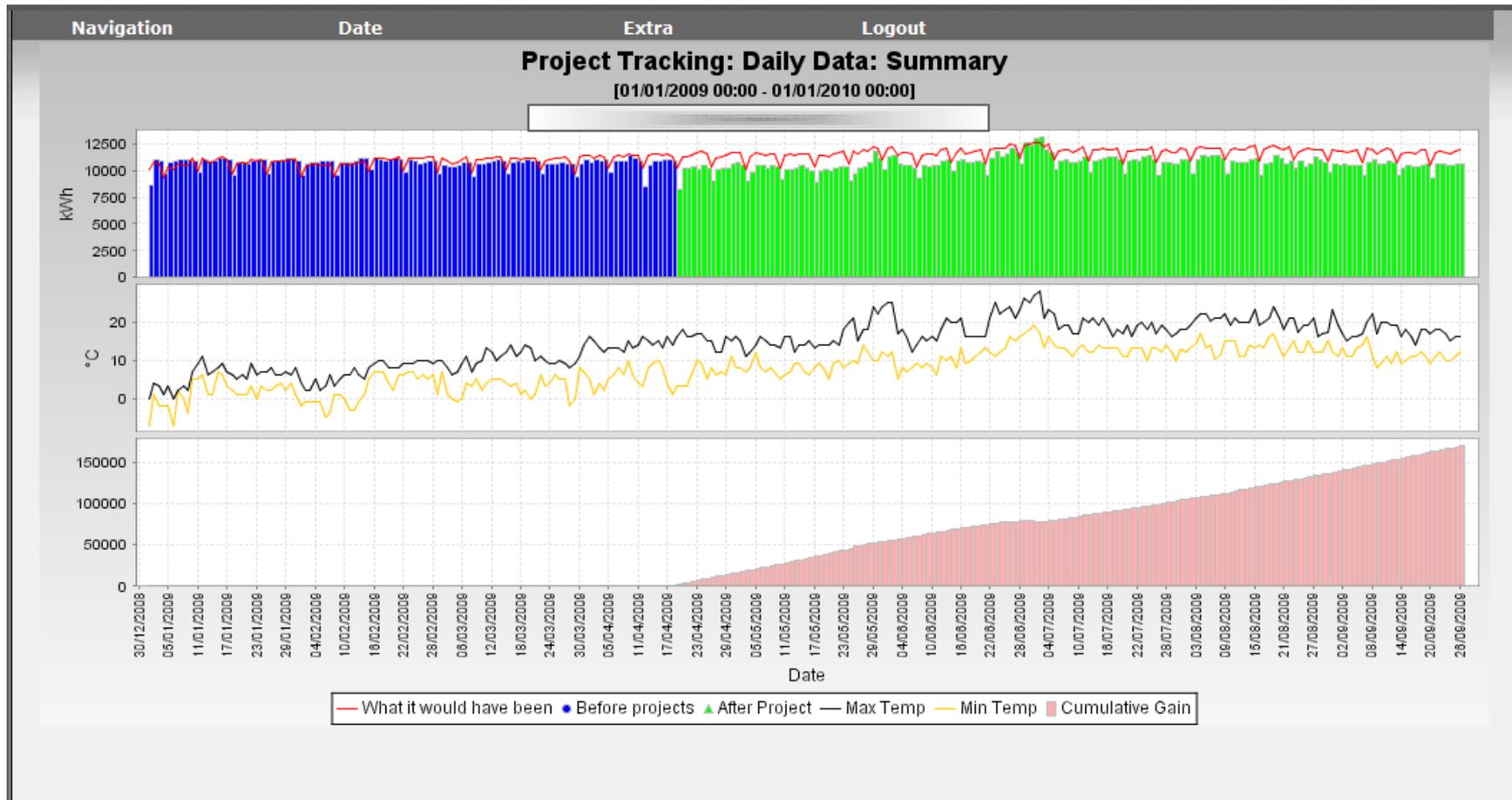
M,M&T not properly executed

- Even companies with good access to data, and resource committed to M,M&T do not use it to its full effect, driven primarily by a skills shortage in data manipulation
- End-users do not know about / take advantage of external M&T service providers

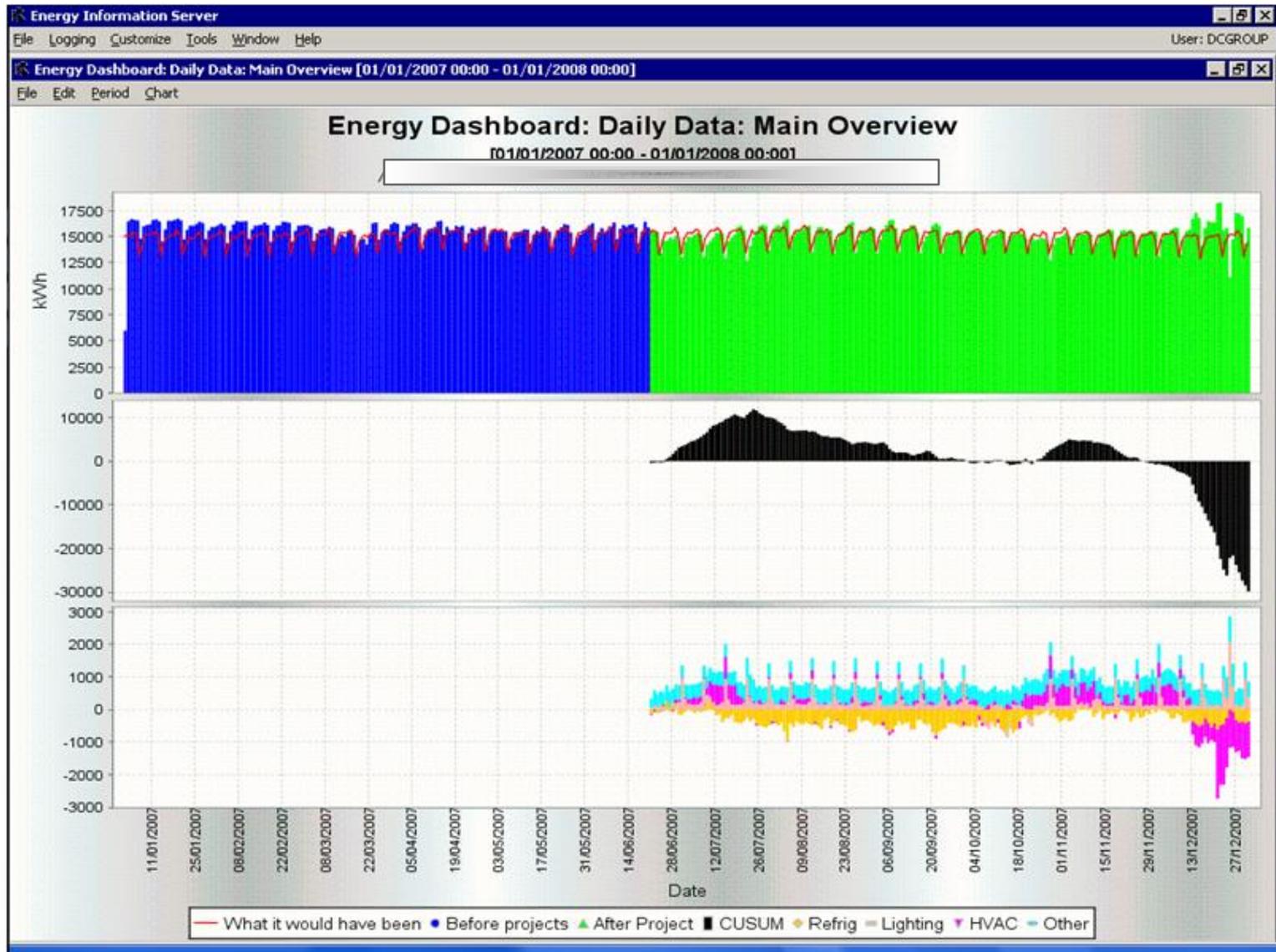
Typical End Customer Instrumentation



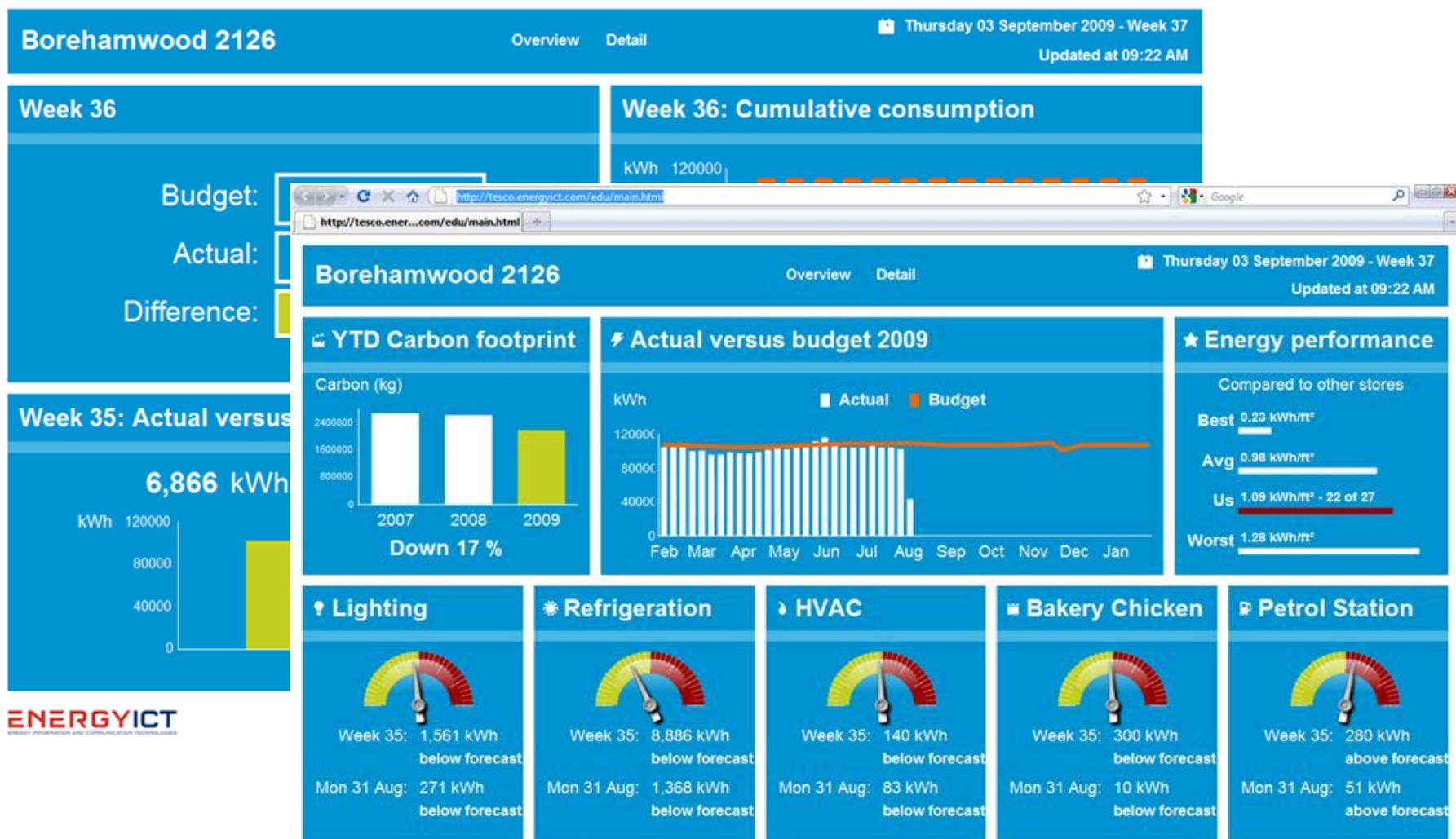
Measurement and Verification



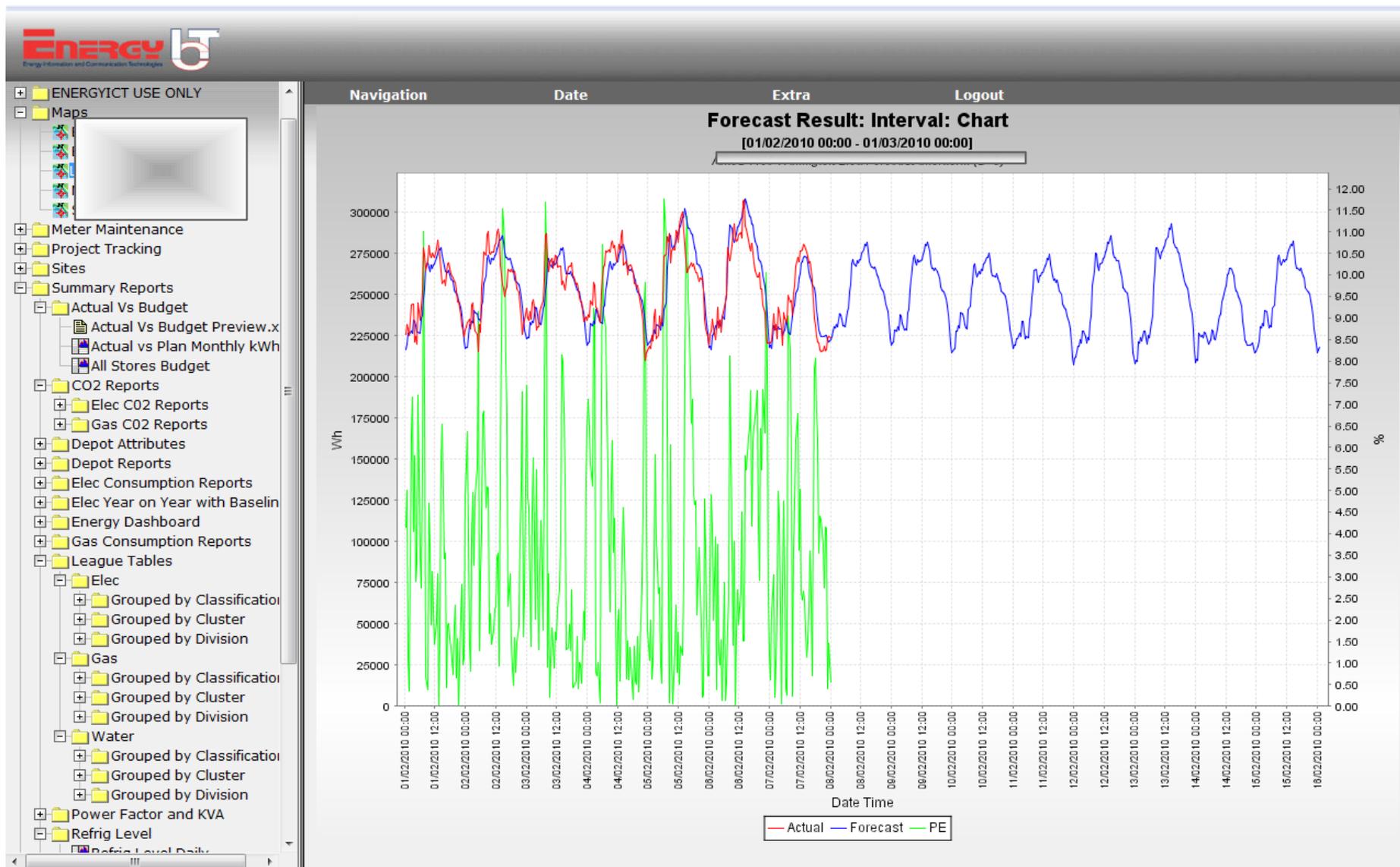
Continuous Commissioning



Performance Dashboards



Forecasting & Performance Monitoring



Demand Response

- Requires use of sophisticated work flow engine for EMS dispatch
- Automated polling of ISO/utility price and scheduling systems
- Load forecasting and baseline calculations used in calculating risk position

