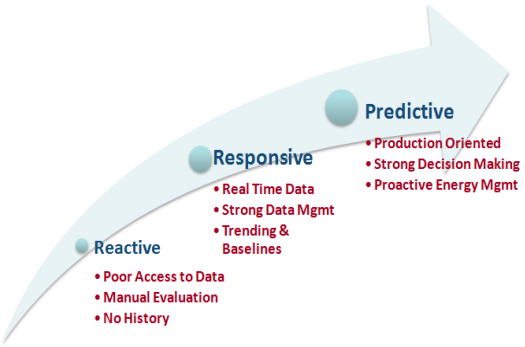
PredictEnergy™ Implementation Phases

The PredictEnergy™ implementation phases lead to predictive energy analytic solutions. The implementation program is based on moving from a reactive to predictive energy solution position. This is accomplished by first acquiring, monitoring and persisting energy data, and conducting energy cost analysis. This phase initiates the data capture process needed to provide on-demand real-time energy information; but more important, to drill scenarios through future data to establish the facility baseline performance metrics in order to optimize facility processes and deploy avoided cost strategies.



Profile Process Energy Cost

The initial program phase is designed to start the process of moving from a reactive to predictive energy solution position. To meet this objective we need energy data and analysis of the facility's energy use. To achieve these objectives two key tasks are deployed:

1) Monitor and display total power for all main energy electric and gas sources
2) Conduct an Energy Cost Audit based on actual real-time energy data

Energy Cost Audits focus on process costs in the context of the users business. This shift in focus to energy cost enables the evaluation team to analyze the interaction and timing of equipment, systems and people throughout the facility against energy loads and their applied tariff schedules. Defined by the newly captured energy and power profile, and integrated with the utility tariff schedules, the output of the typical Energy Cost Audit identifies key processes, timing and equipment systems, and production energy cost which interact to drive overall energy costs. Much like a sensitivity study, the Energy Cost Audit directs focus and resources toward improvements needed to drive a solution that has the greatest cost reduction impact.

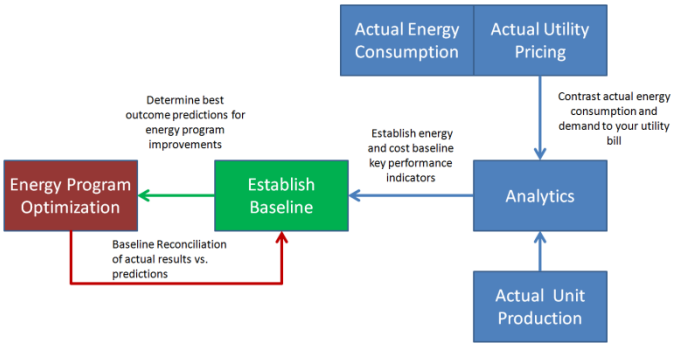
This phase acquires energy data for analysis, and profiles the process energy cost

Optimize Facility Processes

The PredictEnergy™ cost optimization is based on actual energy consumption and deployment of our patent pending predictive energy analytics process. This cost optimization and baseline determination process is configured to meet the needs of industry and production parameters of your site. These analytics utilize several key process steps designed to capture actual energy cost, contrast it with utility billing, establish baselines and define key performance indicators and involve four key features:

1) Contrasting Actual Energy Consumption and Demand to your Utility Billings
2) Establishment of Energy and Cost Baseline Key Performance Indicators (KPIs)
3) Iterative Analysis Best Outcome Predictions for Energy Program Improvements
4) Reconciliation of Actual vs. Predicted Results with new Baseline Values

This analytics visibility is expanded to plant operators with real-time views of demand, and predicted energy costs. This gives the operators the ability to fine tune operations and process to minimize energy costs.



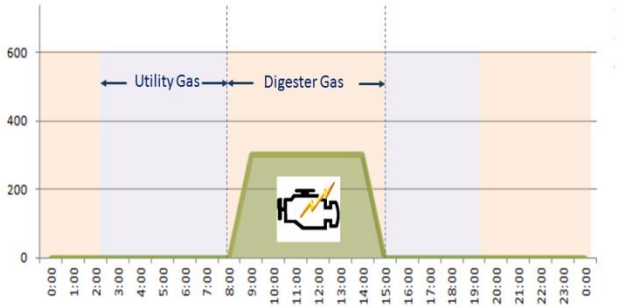
PredictEnergy™ energy cost optimization process realizes the baseline results through the following tasks.

- Establish Energy Consumption, Demand and cost baselines. Identification and quantification of Key Performance Indicators (KPIs)
- Using pre-established project scenarios, Iterate on analytic predictions for "Best Outcome" Energy Program Improvements
- Reconcile Actual vs. Predicted Results to define improved Baseline values

Now, using actual energy, production and tariff data, accurate avoided cost process modeling is possible

Deploy Avoided Cost Strategies

Avoided cost modeling and analytics is a process frequently used to assess distributed generation (DG) and energy cost improvement applications. This process is customized for each client, based on their operations energy usage, energy sources, utility tariff structure and other variables. Because of the high number of variables, this process requires computerized analysis. The goal is to optimize the DG source output to reduce the levelized cost of energy (LCOE). In this example, a 300kW Internal Combustion (IC) Engine is optimized for available fuel. Limited available digester gas must be maximized by deploying its use during peak periods.



Using digester gas to produce electricity will lower utility grid energy consumption, but how should it be sized and used to optimize total energy cost reduction. For this example, anytime a distributed generation (DG) source is used it presents a mixed array of benefits and challenges.

PredictEnergy™ analytics manages the many variables and inputs required to perform the analysis, inputs commonly estimated or approximated. Integrating PredictEnergy™ analytics produces better visibility and more accurate results when evaluating DG systems, and allowing energy source optimization to minimize LCOE, and deliver:

- Avoided energy cost strategies
- Avoided demand cost strategies, and
- Utility cost management