

## Energy Analytics

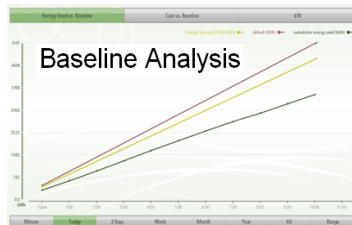
### The basis for successful integrated energy project returns

**Background** For the past few years companies have emphasized the need for monitoring energy. A heightened need for commercial facility monitoring emerged to support solar power purchase agreements (PPA). Few of these systems monitored demand, concentrating primarily on solar and renewable energy production and revenue grade energy output. They were used by the investor/owner to monitor for performance and provide energy billing to the off-taker of the PPA. These systems provided a display of the energy usage and demand load with some simple diagnostics. Monitoring energy usage and demand is the beginning but the end is understanding how to use these tools to reduce its cost. The strategies to reduce energy cost are well known; load shifting, load sharing, demand response, renewable energy production, energy efficiency measures and tariff adjustments to name a few. But more is needed to understand how to use the information to maximize savings.

**Diagnostics Know the Load** There is general agreement that without real-time knowledge of energy usage and demand, that the options to reduce load and cost are limited. The DOE, USGBC and other national industry groups now encourage load monitoring and reporting of commercial facilities... and many state and city governments require it. Load monitoring is the first level of understanding energy use providing up to a 15% savings when used with diagnostics where it can easily identify areas of energy waste. When used with alert systems to report anomalies when set-points are exceeded, savings can be higher. Routine monitoring and reporting are crucial to an ongoing understanding of energy patterns. As the facility organization improves its energy usage understanding, they are prepared to perform more detailed analysis

On the subject of innovation in the DOE's 20-year technology roadmap the commercial building industry emphasizes the need for clear, integrated performance monitoring and metrics. Department of Energy; High-performance commercial buildings: a technology roadmap

**Analysis Know Baseline & Benchmarks** Analysis provides the understanding of where improvements are needed, and the performance results of improvements performed. Baseline and benchmark assessments are important in measuring performance. They permit the facility to be measured against best practices and best-in-class companies. Analytics are based on metrics derived from the monitoring system, consequently the better the metrics the more accurate the analysis. For example, PowerAdvisor analytics allows you to perform multi-year energy comparisons including setting baseline values for comparison. Square footage benchmarks provide cost per square foot against a preset cost allocation value. Analysis gives you insight, trends and projections to facility improvement performance and subsequent validation of energy savings.



**Optimization: Know Max and Mins** Energy optimization is the pinnacle of energy analysis, and when using mathematical programming permits the analytics engine to find the best available energy solution at the best return for a given business case. These energy management programs start with an energy assessment and analysis evaluating patterns and facility demands, and setting energy saving goals through selected and prioritized project improvements. The analytics engine is designed to maximize savings and to focus on maximum energy production-reduction with maximum return.

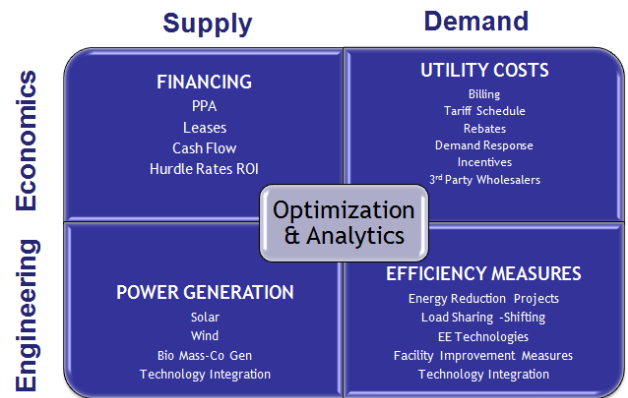
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**Optimization Driven  
Know the Return**

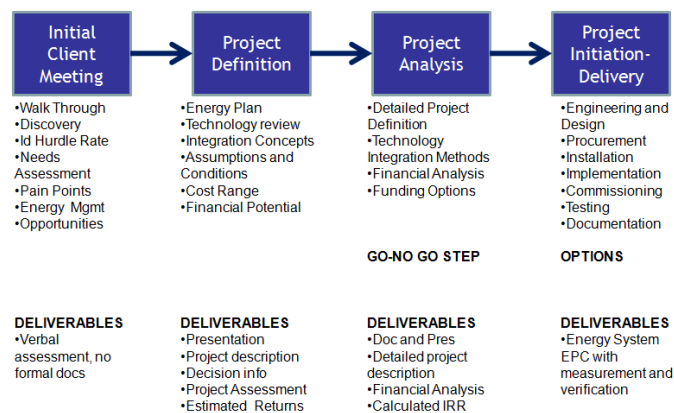
Regardless of the energy development project we use a standard assessment model to provide a comprehensive view of supply and demand side economics and engineering. The Integrated Energy Solution Model illustrates the parameters, their relationships and creates for our clients, an invaluable, high level, succinct assessment of their project's financials, risks and goals.

Optimum project development for our clients requires knowledge of the supply and demand components of the project. The first step is evaluating the integration and implementation of renewable power generation and energy efficiency/reduction technologies against key financial factors. The economics of the integrated solution is dependent upon the utility's cost reduction contributions and the overall finance structure of the project. This modeling is generally performed in both the predevelopment and final "go forward" stages of the project.



**Project Approach  
Getting Started**

Key to these energy projects is defining energy savings opportunities to meet the supply and demand side engineering and economic standards. To get the most from your energy dollars and as a first step toward identifying the energy projects, you need solid information from energy professionals about your facility energy usage considerations and strategic energy goals. Helio Energy Solutions will define the energy project(s) that best meet your energy reduction/production and financial goals. The energy strategy is evaluated using our Integrated Energy Solution Modeling to determine the financial strength, feasibility and viability of the project, and is conducted in four stages:



1. Discovery
2. Engineering and Technology Review
3. Evaluation/Financial Modeling
4. Client Presentation

Performing an assessment on energy use and costs may seem daunting and time consuming. However using our team of energy experts and our demand and supply engineering and economics Integrated Energy Approach will result in a economic en-

ergy strategy with a return that meets your program goals. This is the best method to reduce costs and move your organization toward effective sustainable energy systems.

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