EnerVantage

Energy Planning
Preparation for Success

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Why Plan?

- Manage commodity price risk in order to maintain budget stability.
- Minimize operational impacts of emergency interruptions.
- Capitalize on operational flexibility for financial gain.
- Avoid unnecessary energy consumption or demand.
- Improve returns on capital expenditures.
- Avoid or mitigate costs associated with regulatory changes.
- Inform stakeholders of risks in advance.
- Provide basis for decisions and changes to the plan/budget.

DON'T: Do nothing and then say it was out of your control!

What is the purpose?

The planning process evaluates the current skills, operational abilities and resources that each individual facility possess and then matches it with available supply and distribution options to meet consumption and cost goals that are reflective of stakeholder interests.

REMEMBER: Assessing internal strengths and weaknesses accurately and objectively is as important as accurately and objectively assessing external market factors.

Who are stakeholders?

Internal stakeholders are critical for the successful fulfilment of an energy plan. The table below summarizes the motivation and role of stakeholders in a typical organizational structure for a manufacturer.

Stakeholder	Interest	What they need to understand/manage
Board of Directors	Corporate Profitability	Magnitude of energy risk by business segment
CEO	Develop vision/strategy	Risk by category - Price, physical, regulatory
Vice President	Fulfill strategy and outline tactics	Controllable/non-controllable risk
Purchasing	Minimize purchased energy cost	Physical price risk components
Finance	Capital planning/Hedging	Financial price risk components
Plant Mgmt	Facility profitability	Operational impact and capabilities
Engineering/Maint	Reliability of manufacturing operations	Physical delivery risk and process efficiency
Employees	Implement site level tactics	Impact on cost and emergency procedures

Some energy intensive organizations incorporate a Corporate Energy Manager role that provides cross-functional authority specifically for energy below the VP level. This increases the odds of fulfilment as VPs may be pulled off by other projects.

DO: Ensure that objectives are reinforced at the executive level so that cross-departmental conflict is minimized.

Who are stakeholders?

External stakeholders almost always take an opposing position to the end-user. Specifically, each party desires to shift risk and obligation from one to the other. Since direct control is not feasible, negotiation skill is critical to success.

Stakeholder	Interest	How they need to be handled
Customers	Low cost, reliable delivery of goods	Inform and condition for pass-through of extraordinary energy costs
Utilities	Regulatory compliance and cost recovery	Outsource as much infrastructure to "for profit" firms as possible
Suppliers	Maximize their return	Negotiate for price, risk and terms. Monitor for performance
Legislators	Meet desires of special interest groups	Support lobby efforts consistent with corporate vision and strategy
Regulators	Implement legislative directives	Intervene in rate cases and make complaints as needed
Special Interest Grps	Maximize interest through legislative agenda	Support energy user groups. Monitor and counter opposing groups

WARNING: Dealing with external stakeholders takes time and patience.

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What is the process?

1. Review the internal skill sets of facility and corporate personnel.
2. Review the load profile and load management capabilities of the facilities.
3. Review corporate risk tolerance and capital availability.
4. Assess market and regulatory conditions.
5. Set energy consumption, demand and cost targets.
6. Evaluate and choose supply and distribution options consistent with targets.

DON'T: Assume blindly. Rather, quantify and document assumptions.

What kind of data do I need?

- Forecast energy cost by component (Commodity, Transport, Distribution)
- Forecast energy consumption (Demand, Seasonality, Daily, Process)
- Detail review of regulatory issues (EPA, FERC, State Commissions)
- Detail review of legislative issues (Federal and State)
- Full explanation of regulated utility programs, rates and policies
- Complete understanding of unregulated commodity supply chain components
- Knowledge of stakeholder roles and expectations (Risk tolerance, accountability, authority to act)
- Overview of current energy efficiency initiatives
- Knowledge of available resources (Generation, alternate fuel, infrastructure)
- Operational and financial impact of a sudden loss of energy

DO: After collecting data, review results and assumptions across departments to get perceptions and help develop acceptance. Thoroughly investigate concerns.

How are supply options determined?

Strategy will depend on: individual facility capabilities for load management, resources available to the facility such as on-site generation or alternative fuels, and the options available for competitive supply in the region.

Regardless of specific environmental factors, EnerVantage believes that strategy and tactic development flows logically from an assessment of the following four categories:

1. Preventing
2. Producing
3. Purchasing
4. Protecting

IMPORTANT: For best results, evaluate each category in the order given.

Preventing

The most effective method for lowering energy cost is to eliminate unnecessary demand and consumption due for example to reprocessing scrap. In addition, shifting energy consumption or demand to lower cost time periods, such as overnight or on the weekends, is also an effective strategy.

- Review production plans to avoid steps that are energy intensive.
- Replace inefficient equipment with more efficient models.
- Shift production processes from one time period to another.
  - Based on notice from supplier
  - Based on credits embedded in the contract or tariff

TOOL: Energy audits (treasure hunts) involving internal and external stakeholders identify low hanging fruit and build support for initiatives .

Producing

Production of energy on-site when the cost of that production is less than the cost of purchasing.

- Back-up generation to shed peak demand.
- Base-load generation or cogeneration to offset purchases.
- Alternative fuel to offset price spikes/curtailment of primary source.
- Ownership of assets such as pipelines or transformers to offset utility cost.

TIP: Third-party ownership of assets can provide substantial value compared to utility ownership while also avoiding operational liability.

Purchasing

What cannot be prevented or produced cost effectively is purchased, preferably in a competitive market and as close to wholesale as possible.

- Tariff supply – Time-Of-Use, Tiered, Seasonal, Interruptible
- Third party supply – Fixed, Index, Load-following
- Wholesale participation – Supply and demand response are reactions to real-time or day-ahead price signals.

CAUTION: Make sure all energy offers are compared on an apples-to-apples basis. Clearly specify the type of product that you are looking for and prepare to act quickly to mitigate market price changes.

Protecting

Exposure to energy price risk is mitigated generally through both physical and financial methods.

- Natural Gas -NYMEX Futures, Basis Swaps, Call Options
- Electricity -No clear financial contract. Retail users usually fix prices through suppliers. Wholesale markets may have OTC contracts or proxy hedges with natural gas contracts and implied heat rates.
- Your facility may be able to interrupt different processes at different price points or time periods. Spend time looking at the details.
- Monitoring consumption and making adjustments to purchases is critical to avoiding price risk through unnecessary buy and sell transactions.

HELPFUL: Most industrial operations have 15 or 30 minute meter reads that can be used to track sensitivity of energy use to weather and production. Even more helpful is metering of individual energy intensive processes that vary significantly, such as compressed air.

Coordinating and Communicating

Documentation of all consumption and cost targets must be disseminated to stakeholders responsible for implementation. In addition a reporting structure must be instituted to monitor performance in order to make adjustments. The reporting responsibilities are typically assigned as follows:

Reported By	Information	Reported To
Plant Mgr.	Production forecast	Purchasing
Eng./Maint.	Consumption and demand	Purchasing
Purchasing	Physical puchase volume and price	Facility Summary
Purchasing	Target prices and volumes	Facility Summary
Purchasing	Facility Summary Reports	Plant Mgr/VP
Finance	Hedged volumes and mark-to-market	Purchasing
VP	Segment or corporate summary	CEO