

INDUSTRIAL PARTNER

ALCOA



ORGANIZATION TYPE

Primary and fabricated aluminum manufacturer

BARRIER

Energy performance improvement crowded out by other business priorities

SOLUTION

Link energy efficiency achievement to performance based compensation for Alcoa business leaders

OUTCOME

Alcoa businesses are increasing their focus on energy efficiency and steadily reducing energy intensity to meet long-term sustainability goals

Overview



Alcoa uses its leadership performance pay program to reward business leaders who successfully implement energy-saving projects. This financial incentive is designed to make energy efficiency a higher priority within Alcoa's business units and help achieve corporate energy and sustainability goals.

In most companies, energy efficiency projects must compete for funding and management attention with projects that increase production, improve safety, address regulatory compliance, and enhance profitability. Alcoa has addressed this barrier to energy efficiency by setting long-term corporate energy goals and linking energy performance to the company's incentive compensation structure for business executives. By providing financial rewards to business leaders who set aggressive energy reduction goals and successfully achieve those targets, Alcoa is helping ensure energy efficiency initiatives receive adequate attention from senior leaders, even as they juggle other critical business priorities.



Policies

In 2010, Alcoa began compensating its business leaders for their achievements in meeting energy efficiency targets. Alcoa's CEO championed this linkage between energy performance and compensation to improve corporate energy performance and better integrate Alcoa's long-term sustainability approach into all aspects of its business strategy and operations.

Alcoa provides performance-based incentive pay to reward and compensate a wide range of employees at all levels of the company—from corporate executives to business level management to production level management and production line management. At Alcoa, performance-based pay, or variable compensation, is determined by a formula based on overall company performance and a qualitative evaluation of individual performance. Company performance is based on a combination of financial and non-financial goals.

In 2010, Alcoa's CEO classified energy efficiency, as well as other sustainability metrics, as one of the non-financial goals for use in calculating variable compensation. In 2011, up to 20% of Alcoa's variable compensation was tied to achieving significant aspects of sustainability targets, including safety, workforce diversity, and reductions in carbon dioxide emissions due to process improvements and improved energy efficiency. These financial incentives create a clear link between employee actions and business unit results, helping Alcoa enhance its corporate energy performance and promote a culture of energy efficiency throughout the organization.



Process

Alcoa's executive compensation plan is a key element of a broader strategy to integrate improved energy performance practices into the company's core business strategy. The plan incentivizes business leaders to set and achieve energy reduction targets that are linked to the company's overall energy goals.

Alcoa established a four step process to set and meet these goals:

1. Set Corporate and Business-Level Energy Targets

In 2011, Alcoa set the following long-term, corporate-level strategic energy reduction targets:

- 10% reduction in the energy intensity of Global Primary Products by 2020 and 15% by 2030, both by a 2005 baseline; and
- 20% reduction in the energy intensity of all other businesses (Global Rolled Products and Engineered Products and Solutions) by 2020 and 30% by 2030, also from a 2005 baseline.

Alcoa has three major businesses: Primary Products, Rolled Products, and Engineered Products and Services. To support the corporate level targets, each Alcoa business sets annual energy intensity reduction goals and determines how these will be measured and calculated. These annual targets are linked to the overall sustainability goals for the corporation and are typically contrasted against the previous year. Corporate-level financial leaders (controllers) review and approve these targets, which are then communicated to sub-businesses

and locations. Each business (and some sub-businesses) appoints an energy leader—a person with direct responsibility for promoting energy reduction initiatives and meeting targets at the plant level—to coordinate efficiency efforts and ensure projects are on schedule.

2. Determine Contribution to Incentive Pay

Business units are given autonomy to determine the extent to which energy efficiency performance will contribute to incentive pay of employees within that business. For example, Alcoa Recycling may choose to make energy efficiency count towards 3% of employee incentive pay, whereas Alcoa Building and Construction Systems may make it 5%. Once set within the business, the weighting applies equally to all employees. In other words, energy efficiency performance does not make up a larger or smaller percentage of incentive pay for different employees based on the individual's responsibilities.

3. Monitor Initiatives

Alcoa has set up an energy spend reduction team, which includes representatives from each business unit—typically the financial controller, the energy leader, and the energy services group. Other ad hoc members such as procurement staff take part when needed. Every month, the team reviews energy reduction initiatives using a common project implementation tool to assist with completion. The tool specifies the project, timing, savings and responsible person. Projects or initiatives are approved at the business level, but can be approved at the individual plant or department level if they fall below specific cost thresholds, which vary from business to business.

4. Track Progress

Energy Intensity calculations are performed each month and communicated to the energy group and leader in each business. The team reviews the data to track and ensure progress.



Tools and Resources

Alcoa's global energy database is a valuable tool that supports energy intensity performance of each Alcoa business. It contains utility information that is entered from all business invoices when received, and therefore captures true energy consumption for every location globally. Alcoa's open project implementation tool is used to track and monitor the status of all energy projects. Additionally, Alcoa has established a standalone energy services group, which provides expert resources to assist locations in identifying and executing energy saving opportunities. Tools provided by the energy services group include energy standard practices, energy kaizen events (in-depth energy audits that search for low-cost opportunities), energy assessments, technical consultation, and reporting assistance.

Sustainability scorecards are also used to align sustainability targets with business strategy across every business and provide a dashboard to measure progress against key near-term sustainability metrics. Each business has also developed a roadmap to lay out the process steps, business decisions, and technical improvements necessary year-by-year to realize the longer-term objectives on energy efficiency and sustainability that it had committed to deliver.



A rigorous computation was established to calculate energy intensity including the baseline year level. The calculation is performed by each business with approval from the business controller. At some Alcoa businesses, DOE's [Energy Performance Indicator](#) tool (EnPI 3.0) is used to help establish a normalized baseline of energy consumption and track annual progress of intensity improvements. Overall success is measured by achievement of the energy reduction target, and progress toward the target is communicated periodically to all levels of management.

Alcoa established a measurement and verification policy for its 2010 operating plan. The strategy requires that each business:

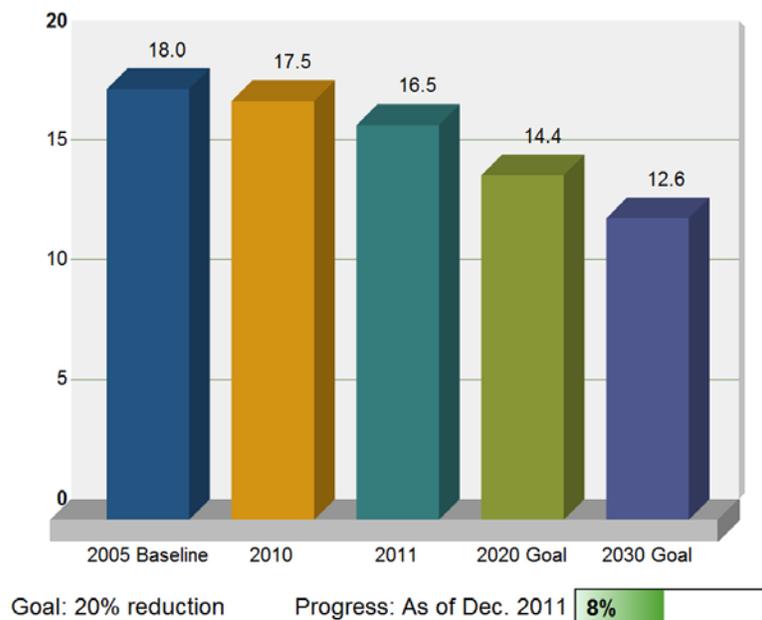
- Determine a measure of energy intensity (typically GJ per metric ton of product).
- Report energy consumption data to a centralized database.
- Identify where production numbers reside and if any normalization is to be applied.
- Formulate parameters for calculating energy intensity; there are also regional differences in the calculation.

Outcomes



In 2011, Alcoa's Global Primary Products business reduced its total energy intensity 2% against its 2005 baseline, positioning it to meet the 10% reduction goal by 2020. The Global Rolled Products (see chart below) business achieved an 8% decline compared to baseline, while Engineered Products and Solutions realized a 7% decrease compared to 2010.

Energy Intensity—Global Rolled Products Gigajoules per metric ton of aluminum produced



Quantifying the precise link between Alcoa's energy efficiency results and its incentive pay plan is challenging; however, Alcoa has noticed increased attention to energy saving projects since energy efficiency was more clearly integrated with employee compensation. For example, Alcoa's energy services group is receiving a growing number of requests from business leaders interested in reviewing opportunities to save energy and meet their energy efficiency targets. Alcoa estimates that the number of energy cost reduction activities has increased by about 50% since 2009—the year before energy efficiency targets were explicitly linked to incentive pay. The incentive pay was not the sole factor driving this increase, but it did have an effect, according to Alcoa. Additionally, several sub-businesses have requested energy kaizens at their locations to help uncover low-cost energy saving opportunities.

While business leaders are focusing greater attention on energy projects, they are also employing different ways to achieve reductions. For the Global Primary Products business unit, management has focused on smart manufacturing—the integration of machine gathered data, analysis, and process simulation to conserve energy and optimize production outputs. In the Global Rolled Products business, a number of projects focused on improving metal pre-heating and casting to reduce energy. In many cases, the establishment of Alcoa's Centers of Excellence (COE) has played a key role. These Centers are set up at each business unit and focus expertise and resources to specific areas, such as energy, casting, rolling and technology.