ROVISYS®
Automation & Information Solutions

CASE STUDY

Transformation: Legacy Power Plant to Market-Responsive Energy Asset

The Overview

Across the U.S. energy sector, power producers are under increasing pressure to improve operational efficiency, respond rapidly to market demand, and unlock new revenue streams through grid participation. As pricing volatility grows during peak demand, organizations that can dynamically manage generation capacity gain a major competitive advantage.

At a coal-fired power plant in Southern Indiana along the Ohio River, owned and operated by a metals manufacturer, this shift created a unique opportunity. Originally built to serve an adjacent aluminum smelting facility, the plant was never designed as a traditional grid-focused power generator. Over time, however, it evolved into a critical energy resource connected to the regional power market operated by MISO.

RoviSys had an established and long-standing relationship with operators and leadership at this plant. Two decades earlier, RoviSys teams implemented and continuously modernized the plant's PI Historian system. Following that, the manufacturer relied on RoviSys initiatives including historian expansion, custom emissions-tracking mobile applications for regulatory reporting, extensive custom software development to support advanced operational intelligence, and establishment of digital transformation groundwork.

The Challenge

Unlike most metals producers who purchase electricity directly from the grid, this facility operated its own power plant, an approach established more than a century ago. While the smelter relied on massive energy loads across five pot lines, market fluctuations frequently created periods of unused capacity.

Historically, that excess generation simply went underutilized.

Leadership at this manufacturer recognized a major opportunity for viability and profitability. When the value of the power was worth more for sale on the grid than when used to drive metals manufacturing. If power could be dynamically redirected to the grid during high-price periods, the facility could generate significant new revenue without disrupting production. The opportunity was promising, but no off-the-shelf solution existed to manage this level of complexity.

The Solution

RoviSys designed and deployed a customized, Windows-based control and intelligence system that transformed the plant into an active MISO grid participant. This effort required real-time coordination between plant operations and MISO market signals, along with fast, reliable control responses across large power changes. It also depended on secure data exchange with grid APIs and redundant alarming and automation to consistently meet strict response windows.

Key elements of the solution included:

- Custom software interfacing directly with MISO APIs to both pull market signals and push operational data
- Automated control logic that allowed entire pot lines to be registered as grid resources
- Redundant alarming and communication paths to ensure guaranteed response times
- Real-time dashboards and operator controls for rapid decision-making in the control room
- Integrated historian data supporting forecasting, performance optimization, and regulatory reporting

RoviSys project team included key project personnel; a dedicated project manager, lead software engineer, power automation SME, and a scalable development team supported by deep technical resources.

The Results

The result was a legacy plant transformed into a flexible, market-responsive energy asset: driving new revenue, faster response times, and smarter power operations. What began as a plant built solely to power aluminum production is now a sophisticated, revenue-generating energy operation that is seamlessly connected to the regional grid.

Through custom software development and a team with deep energy market experience, RoviSys helped transform a legacy power asset into a strategic business driver. The impact was immediate and substantial.

- **Grid Participation Without Disruption**
  90 MW pot lines were redirected during peak pricing to generate revenue while maintaining operations
- **New Revenue Stream**
  Power available during high demand periods, creating a major profit opportunity- incentivized to make it available (if dispatched, even more profitable)
- **Automated and Reliable Control**
  Redundant systems delivered fast, compliant market response
- **Ongoing Digital Expansion**
  The plant continues to grow its real time analytics and custom software ecosystem

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