Optimization of Energy Usage

ODVA’s Vision of Energy Optimization for the Industrial Consumer

www.odva.org
ODVA’s energy initiative is the result of a lengthy investigation by ODVA and its leadership into the energy needs of industry, combined with the strong interest by ODVA members to support the sustainability objectives of manufacturers.
Optimization of Energy Usage (OEU™) will emerge as the natural sweet spot to help industrial consumers meet their overall business goals and achieve greater societal goals for sustainability.
ODVA’s energy approach will offer **broad situational awareness** of energy consumption and enable control strategies to optimize energy usage throughout the industrial ecosystem from the plant floor to the grid.
OEU in the Production Domain

The Production Domain, which consumes 80% of all energy used by industry, is the focal point of OEU.

- **Comprehensive** in its long term view of the need for sustainability and the opportunities for ROI;
- **Scalable** across the industrial ecosystem;
- **Inclusive** of products, devices and systems from the simple to the complex; and
- **Open** by virtue of its use of multivendor, interoperable standards managed by ODVA.
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OEU in the Production Domain

Opportunities for innovation in Energy Efficiency within the Production Domain have the potential to save more than $120 billion in 2015.
Industrial Use Cases for OEU

**Working Hypothesis**

1. **Energy is essential to produce products but has been an invisible line item on production bills of materials and consequently an unmanaged resource;**
2. **Energy should be a managed resource in the production domain; and**
3. **The availability of energy information and visibility of energy consumption will promote awareness by industrial consumers of the need to manage energy as a production resource which, in turn, will lead to best practices in OEU.**
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Technical Approach to OEU

“People do not use energy; they use devices and products. How devices and products are designed determines how we use them, which in turn determines rates of energy depletion.”

Peter Crabb, Associate Professor of Psychology at Penn State Hazelton
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OEU in Practice . . .

. . . Realizing the Natural Sweet Spot of Sustainability

Application Example: OEU-enabled™ Air Compressor
ODVA’s Commitment to OEU

Phase 1: Awareness
- Energy objects and services to enable assets to report and aggregate energy information in a standardized way.

Phase 2: Consumption
- Energy services to manage energy consumption and control peak demand.

Phase 3: Transaction
- Dynamic management of transaction mechanisms across industrial domains.

Intra
and
Inter
Domain
Process
System
Asset

ODVA’s Commitment to OEU

Fully realized, ODVA expects that OEU will provide the following benefits:

- **Energy Integration and Best Practices** based on energy awareness, device and process priority, events, price, and potential for self-actuating energy;
- **Energy Efficiency** in process heating and cooling;
- **Supply Source Optimization and Energy Recovery** through dynamic demand-response mechanisms, the ability to allocate alternate energy sources and/or sell excess electricity back to the power grid;
- **Automation of Manual Energy Systems**; and,
- **Energy Integrity** through power monitoring, intelligent power supplies and broad-based device support inclusive of network infrastructure.
ODVA’s Commitment to OEU

ODVA expects OEU-enabled Assets to be available on EtherNet/IP in 2012.

ODVA - with its core values of vendor-neutrality, open participation and open technologies – provides the ideal forum for building consensus among market leaders in industrial automation around the next generation of productivity enhancements for industry – Optimization of Energy Usage.

Now, let’s learn about the energy strategy from Cisco Systems, Rockwell Automation & Schneider Electric, who have collaborated inside ODVA to develop this vision.
Thanks to the Concept Team

- Bryce Barnes, Cisco Systems
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- Venkat Pothamsetty, Cisco Systems
- Eric Scott, Molex
- Katherine Voss, ODVA
- Cliff Whitehead, Rockwell Automation
- Mark Wiley, Cisco Systems
Q&A

Moderator

- Rich Harwell – ODVA CTO

Panelists:

- Bryce Barnes
- Paul Brooks
- Rudy Belliardi
- Fred Cohn
- Michael Frayne
- Rich Morgan
- John Parello
- Katherine Voss
Publication of white paper