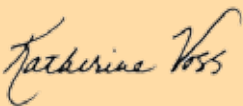


ODVA is a Global Community

In week nine of 2011, ODVA held its 2011 Industry Conference & 14th Annual Meeting of Members where companies from a dozen countries were represented. The mix of companies and attendees at the event, as well as the worldwide adoption of ODVA technologies which has made EtherNet/IP the world's #1 industrial Ethernet network, demonstrates ODVA's global presence and complexion. The international esprit de corps that differentiates ODVA from many other organizations is most evident at ODVA's conference and annual meeting of members, where the passion and commitment of ODVA's members create the positive energy and vision to propel the organization in its upcoming term of activities. This event is open to all interested persons, so consider attending our next one - not only to participate in the ODVA community but also to benefit from the rare opportunity to meet and learn from some of the world's leading experts in information and communication technologies for industrial automation. In the meantime, look to the Connectivity Connection to learn about the ODVA positive energy and vision in action around the globe.



Katherine Voss
Executive Director

In this Issue

Nissan Shatai benefits from EtherNet/IP™ 1

Optimization of Energy Usage 2-3

Applications & Industries 4

Upcoming Events 4

ODVA Annual Meeting 5

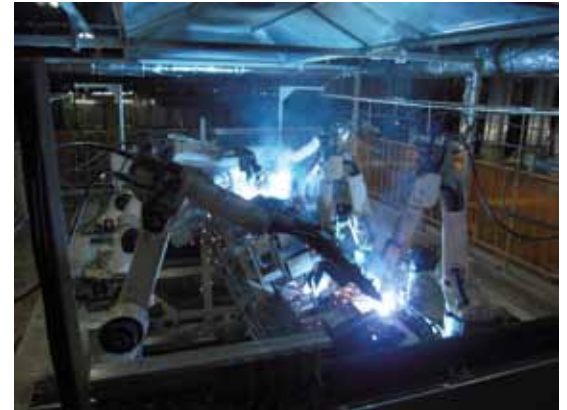
Nissan Shatai Benefits from Use of EtherNet/IP™

For over 60 years, Nissan Shatai, based in Yokohama, Japan, has been producing automobiles and rail vehicles, including light commercial vehicles and sports utility vehicles, as well as conversion vehicles such as ambulances and lifter vans. With a production capacity of over 300,000 vehicles per year and a diverse brand offering, flexibility and efficiency in production are paramount to the company's goals of delivering safe, environmentally-conscious, and high quality vehicles.

"We value that the application of EtherNet/IP™ has lowered the engineering cost and has improved equipment maintenance," states Mr. Akihiro Magariyama, Senior Control Engineer, Body Assembly Engineering. "We expect an increase of EtherNet/IP products and devices that expand user options as EtherNet/IP continues to be applied widely, and also expect continued growth of information and tools that makes design and engineering easier."

In 2007, in order to reduce costs and increase quality, Nissan Shatai began an in-depth investigation for a new network for its Kyushu plant. The plant required a high-speed network that could support a large number of nodes, ease troubleshooting, and reduce wiring and construction costs. Furthermore, Nissan Shatai sought a network that would allow them to choose from a large available pool of equipment, and would smoothly allow existing information systems to share data. Last, but not least, the company required a solution that would allow functional safety control and information within its network.

Nissan Shatai's investigations lead them to choose EtherNet/IP for its facility. With the installation of EtherNet/IP, the company was able to make effective use of its existing infrastructure. EtherNet/IP's reliance on standard, unmodified Ethernet and IP technologies allowed



Nissan Shatai to seamlessly utilize wireless control, web, email, voice, and information systems with control and safety systems. The broad availability of EtherNet/IP and other ODVA network devices meant that Nissan Shatai reduced costs by choosing the most effective products for each application, including those from Omron, Rockwell Automation, Weidmüller, SMC, Anywire, Yaskawa and FANUC.

Furthermore, being based on unmodified Ethernet allows Nissan Shatai to integrate WiFi for I/O control data exchange on EtherNet/IP for AGV control. CIP's producer/consumer model of data exchanges makes connections easy to add, and EtherNet/IP's basis on standard Ethernet means a low barrier of migration for IT professionals.

"We value that the application of EtherNet/IP has lowered the engineering cost and has improved equipment maintenance," states Mr. Akihiro Magariyama, Senior Control Engineer, Body Assembly Engineering. "We expect an increase of EtherNet/IP products and devices that expand user options as EtherNet/IP continues to be applied widely, and also expect continued growth of information and tools that makes design and engineering easier."

Nissan Shatai expects to expand use of EtherNet/IP, including investigating various network topologies (to allow for additional cost savings), use of Quality of Service, and the use of CompoNet for jig control.



Optimization of Energy Usage

ODVA's Vision of Energy Optimization for the Industrial Consumer

ODVA's Connectivity Connection™ newsletter links you to the latest developments in industrial networking technology. If you wish to receive future issues and are not a subscriber, or if you need to update a subscriber's contact information, please visit www.odva.org and select "Join Our Mailing List."

Publisher

ODVA, Inc.
TEL: +1 734-975-8840
FAX: +1 734-922-0027
EMAIL odva@odva.org

Copyright 2011 ODVA, Inc.
All rights reserved.

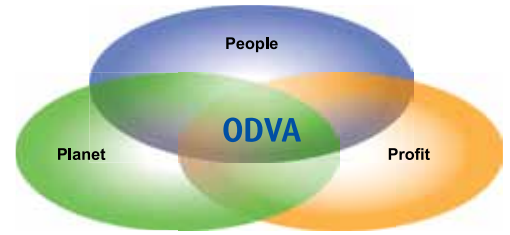
Founded in 1995, ODVA is a global association whose members are comprised of the world's leading automation companies. ODVA's mission is to advance open, interoperable information and communication technologies in industrial automation. ODVA recognizes its media independent network protocol, the Common Industrial Protocol or "CIP" – and the network adaptations of CIP – EtherNet/IP, DeviceNet, CompoNet and ControlNet – as its core technology and the primary common interest of its membership. For future interoperability of production systems and the integration of the production systems with other systems, ODVA embraces the adoption of commercial-off-the-shelf (COTS) and standard, unmodified Internet and Ethernet technologies as a guiding principle wherever possible. This principal is exemplified by EtherNet/IP – the world's number one industrial Ethernet network. For more information, visit its web site at www.odva.org.

CIP, CIP Motion, CIP Safety, CIP Sync, CompoNet, ControlNet, DeviceNet, and EtherNet/IP are trademarks of ODVA. Other trademarks are property of their respective owners.

For the industrial sector, energy consumption statistics are eye popping. The industrial sector alone consumes about half of the world's total delivered energy, making it the largest end-use sector. Moreover, although global industrial energy consumption is projected to increase by more than 40%, as measured from the beginning of the recent economic crisis in 2007 to 2035, emerging economies in non-OECD countries will account for approximately 95% of this increase in consumption.^{1,2}

Therefore, optimization for energy usage is a natural and necessary expansion of ODVA's application coverage for industrial automation. On February 7, 2011, ODVA announced that it had launched a new energy initiative to transform the industrial energy resource allocation model. The goal of this initiative is to develop a comprehensive approach to the optimization of energy usage for the industrial consumer that is scalable, open and inclusive for both users and suppliers. ODVA's energy approach will simplify the ability to understand energy consumption and enable control methodologies to optimize energy usage throughout the industrial ecosystem from the plant floor to the grid.

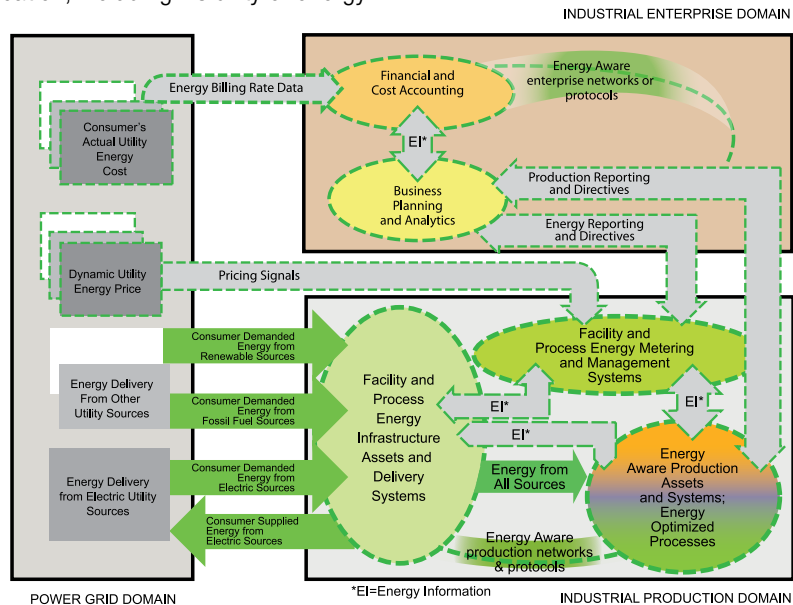
Although understanding energy consumption is critical to truly optimizing plant wide operations, production planners have not had all the necessary tools. ODVA seeks to change this situation by fostering best practices in energy resource allocation, including visibility of energy



data throughout the layers of the production information systems. The starting point for ODVA's energy initiative is to ensure that energy data can be seen throughout the production domain in order to empower industrial consumers with the energy information they need to solve their energy consumption and efficiency problems in a holistic manner.

ODVA's vision of optimization of energy usage will emerge as the natural sweet spot to help industrial consumers meet their overall business objectives 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. This approach will enable businesses to improve productivity and thus profits while concurrently benefiting people and our planet through better utilization of energy resources.

Optimization for energy usage (OEU™) results from the industrial consumer being empowered with the ability to make informed choices regarding the



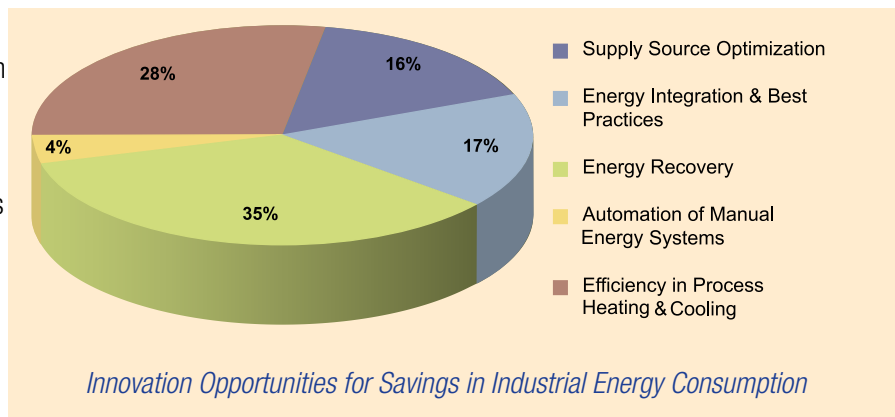
use and conservation of energy. Although OEU is a natural expansion of ODVA's application coverage in the Production domain, ODVA envisions a comprehensive approach to OEU for the industrial consumer which encompasses three domains of the industrial ecosystem – production, enterprise and power grid. This vision inherently recognizes the value of the smart use of energy for production processes, while enlarging the possibility to view and use energy as a shared resource and common currency across three domains critical to the industrial consumer.

ODVA's plan for OEU leverages the core competency of ODVA's information and communication technologies, which are grounded in its media independent network protocol – the Common Industrial Protocol or CIP™. For OEU between processes and other systems in the Production domain, ODVA seeks to include energy-oriented objects and services within CIP that permit the transparent and seamless flow of energy information and enable systems to perform energy metering and management. In the long term, the vision for OEU includes demand-response mechanisms that will allow the industrial consumer to exchange energy with the power grid in a dynamic energy consumption-production environment.

The Production domain, which consumes 80% of all energy used by industry³, is the focal point of OEU. Within ODVA's vision, ODVA's large community of device vendors, who make and sell products for use in this domain, can collectively provide industry with an approach to OEU that is:

- Comprehensive in its long term view of the need for sustainability and the opportunities for return on investment;
- 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 an independent, vendor-neutral organization.

Technical innovations in energy optimization mechanisms in five key areas offer the potential for measurable savings in energy consumption for the industrial sector which, by some estimates, could total more than \$120 billion dollars in 2015^{4,5}. Many of these mechanisms will fall within the next generation of productivity enhancements for manufacturing processes where energy becomes a measured cost and budgeted resource in the production bills of materials. However, information and communication technologies offer the possibility of an even greater vision – a vision which brings energy awareness of the Production domain into the Enterprise domain and enables the industrial consumer to transact energy for the best result to meet strategic objectives for return on investment and sustainability.



Users will benefit from a multi-vendor, interoperable portfolio of products and solutions from ODVA's community of members for all three layers of the Production domain through the evolution of ODVA's open standards for OEU. To achieve this result, ODVA's technical approach will be:

- Scalable – so that it will be easy for basic devices to be energy aware while still supporting optional supervisory functionality in more advanced devices in order to optimize energy usage at each layer of the production system;
- Flexible – so that energy information within a device can be accessed via multiple information and communication interfaces including, but not limited to, CIP; and,
- Prioritized – so that it will enable energy awareness in devices in the short term; will support delivery of a complete energy management application in the medium term; and will provide a comprehensive energy solution for the industrial consumer in the long term.

ODVA views OEU as central to its long-term commitment to help industry realize its goals for sustainability. The definition and roadmap for OEU 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. ODVA projects that its vision for OEU will start generating return on investment for users in 2012.

ODVA has published a white paper describing its vision of energy optimization for the industrial consumer. Download the paper to read more about this vision on www.odva.org.

1 "International Energy Outlook 2010." US Energy Information Administration.

2 "http://www.oecd.org/document/25/0,3746,en_36734052_36761800_36999961_1_1_1_1,00.html" Organization for Economic Cooperation and Development.

3 "http://www1.eere.energy.gov/industry/bestpractices/printable_versions/systems.html" ITP Best Practices: Industrial Energy Systems. US Department of Energy.

4 Efficiency and Innovation in US Manufacturing Energy Use. National Association of Manufacturers

5 Estimate made using data in World Energy Outlook: 2008. International Energy Agency.

Upcoming ODVA Events

To register, visit www.odva.org or email odva@odva.org

Q2 2011

EtherNet/IP PlugFest #13

April 12-14: Ann Arbor, MI, USA

EtherNet/IP Quick Start for Developers Training Class

June: Paris, France

ODVA College 2011

June: Tokyo, Japan

Q3 2011

EtherNet/IP Introductory Seminars

July: St. Louis, MO, USA

August: Toronto, ON, Canada

September: Cincinnati, OH, USA

North American Workshop #33

September 13-14: Cleveland, OH, USA

EtherNet/IP Quick Start for Developers Training Class

July: Tokyo, Japan

September: Ann Arbor, MI, USA

DeviceNet Developers Training Class

July: Tokyo, Japan

Network Structure for EtherNet/IP

July: Tokyo, Japan

Q4 2011

EtherNet/IP Introductory Seminars

October: Milan, Italy

October: Paris, France

EtherNet/IP Quick Start for Developers Training Class

October: Frankfurt, Germany

Exhibit at SPS/IPC/DRIVES

November: Nuremberg, Germany

Applications & Industries

Energy

ODVA's energy initiative (see article on pages 2-3) 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. It is a natural expansion of ODVA's application coverage for industrial automation, and ODVA expects broad participation and support by many of its members. As the first action in its energy initiative, ODVA has formed a special interest group (SIG) to develop specification enhancements for energy applications utilizing the Common Industrial Protocol. The work of the SIG will focus on developing energy parameters, objects and services for energy optimization. Initial enhancements of the ODVA specifications are expected to be available in 2012.

Automotive

Since USCAR, the umbrella organization for collaborative research among Chrysler Group LLC, Ford Motor Company and General Motors Company, announced in 2006 its intention to promote plant floor standardization on EtherNet/IP, EtherNet/IP has become increasingly adopted as an automotive industry standard by both automotive manufacturers and tier

one suppliers, in North America and around the world. Initially used to connect robots, HMIs and programmable controllers, today EtherNet/IP is applied in broad range of real time control applications in the automotive industry, such as weld timers, drives and I/O modules. Because of the benefits realized by the automotive industry in these control applications, the industry looked to ODVA and its members for new features to take EtherNet/IP into the robot arm and onto tool changers, where devices must power up and exchange I/O data with the controller with minimal interruption of production.

ODVA's Automotive Special Interest Group (Auto SIG), drawn from leading controller, robot, tool changer, and on-tool device manufacturers, took an innovative approach to this problem and defined a new, easily deployable timing sequence to connect devices within 500 milliseconds using EtherNet/IP. Officially called "QuickConnect™," ODVA expects to see the first deployments in automotive applications in the first half of 2011, and due to the flexibility of the specification, also expects to see QuickConnect becoming widely deployed in multiple industries. For tool changer applications, DeviceNet™ with QuickConnect has been used for several years. With QuickConnect now available on EtherNet/IP, automotive users will be able use a single

EtherNet/IP network when QuickConnect is needed, which will simplify deployment, commissioning, and maintainability.

Rail Transport

Aimed at enhancing ODVA's specifications with services and device profiles to meet the needs of rail transport, ODVA has established a new technical working group to produce standards to provide a comprehensive solution for rail transport, encompassing on-board train controls, monitoring, signaling and demand-response. The intimate connection of rail transport with key sectors of the economic ecosystem – industrial, retail, commercial, residential and government – mandates that future ICT implementations in rail transport adapt automation technologies that are open, interoperable and, whenever possible, embrace the use of commercial-off-the-shelf and standard, unmodified Internet and Ethernet technologies. All of these attributes are exemplified by ODVA and its cornerstone technologies, the Common Industrial Protocol and EtherNet/IP, and the formation of this special interest group (SIG) reflects increased interest in these ODVA technologies by OEMs in the rail transport industry. To become involved in this or other working groups, visit www.odva.org and select "About ODVA -> The ODVA Community."

On behalf of the ODVA global community, ODVA extends our deepest sympathies to its members and their employees in Japan, ODVA's Japanese partners and the people of Japan in the face of the on-going earthquake catastrophe. Our thoughts are with them.

Welcome Members

The following companies have recently joined ODVA.

ABOUNDI, Inc.
ABT Endüstri Enerji Sistemleri Sanayi Tic. Ltd. Sti.
Actel Corporation
FACTS, Inc.
Hokuyo Automatic Co., Ltd.
Leuze Electronic GmbH & Co. KG
MagneMotion Inc.
MK Precision Co., Ltd.
Monaghan Engineering, Inc.
OES, Inc.
Process Automation International Ltd.
Rosemount Inc.
Samsung Electronics Co., Ltd.
Secure Crossing
Sencon
STS Co., Ltd.
Tappan Wire and Cable
TMG Technologie und Engineering GmbH
Tyco Electronics
Vacon Plc

Stay Connected with ODVA

Receive the latest information on ODVA technologies and events by email. Visit www.odva.org and select "Join Our Mailing List" on the lower-right corner of the home page.

Report from ODVA's 2011 Industry Conference & 14th Annual Meeting of Members

From March 1-3, 2011, under sunny skies outside Phoenix, Arizona, USA, approximately 130 attendees from 50 different companies gathered to learn, debate, explore, and investigate topics related to industrial automation at ODVA's 2011 Industry Conference & 14th Annual Meeting. Attendees heard presentations on how:

- **Kimberly-Clark**, a leading global company with \$19 billion in sales from such brands as KLEENEX®, SCOTT®, HUGGIES®, and PULL-UPS®, is benefiting from the use of EtherNet/IP, and why they have made a strategic decision to install this network at all of their manufacturing facilities.
- **Bosch Rexroth**, one of the world's leading specialists in the field of drive and control technologies, has become one of the organization's principal members, joining leading suppliers Cisco Systems, Rockwell Automation, Omron and Schneider Electric. Dr. Bernd-Josef Schäfer, Bosch Rexroth's senior vice president for Technical Electric Drives and Controls in the Business Unit Industrial Applications, described why Bosch Rexroth has increased its level of support and how users will realize significant benefits in increased availability of ODVA-compliant products under the Rexroth brand, especially those implementing the EtherNet/IP network.
- the **Internet of Things**, the vision -- as described by Dr. Flavio Bonomi, Head of Advanced Architecture and Research at Cisco Systems -- of how the evolution of the internet will result

in the interconnection of billions of simple-to-complex devices, will impact industrial automation, and how the clear architecture, openness and interoperability of ODVA's technologies have complete resonance with the direction of the future.

In addition, a dozen technical presentations were made on a variety of topics impacting industrial automation, a workshop for product vendors of EtherNet/IP attracted over 30 attendees, and plenty of networking and fun was had at the multiple evening events.

Finally, the event included elections for the board of directors and technical review board (TRB) of ODVA. On the board of directors, leading the organization in its 15th term will be Michael Höing of Weidmüller Interface; Frank Kulaszewicz, of Rockwell Automation; Chet Namboodri of Cisco Systems; Bernd-Josef Schäfer of Bosch Rexroth; Ryuji Yamasaki of Omron Corporation; and Cyril Perducat of Schneider Electric. Providing technical leadership on the TRB will be Jeff Jurs of Omron Corporation; David VanGompel of Rockwell Automation; Rudy Belliardi of Schneider Electric; Ludwig Leurs of Bosch Rexroth; Paul Didier of Cisco Systems; Joakim Wiberg of HMS Industrial Networks; and Damien Leterrier of Molex.

Download presentations from this year's conference on www.odva.org under "About ODVA -> Get Involved," and plan to attend ODVA's next industry conference to experience it in person!





Connectivity Connection

ISSUE 2011-1 AN OFFICIAL PUBLICATION OF ODVA

A Look Inside...

ODVA's vision for the Optimization of Energy Usage

Nissan Shatai chooses EtherNet/IP

Updates from the 2011 ODVA Industry Conference & 14th Annual Meeting

Events, Trainings, PlugFests, and more