

## David B. Hardin, PE, PMP, CSDP

4 Dover Circle, Franklin, MA 02038 (774-571-5386), U.S. Citizen, [dave@upperbay.com](mailto:dave@upperbay.com)  
<http://www.upperbay.com>

### PROFESSIONAL SUMMARY

Comprehensive experience architecting, constructing and managing automation and information management systems for energy and manufacturing. Specialist in integrated system and software architectures for industrial energy and power systems spanning from intelligent devices to enterprise business systems, including SCADA technology.

### CORE COMPETENCIES

Strong Domain Knowledge, Technically Competent, Communicator, Innovative, Creative, Analytical, Leader, Program Manager, Programming Expertise, Experienced in All Phases of Software Engineering including Agile Methodologies, IT Application and Real-time Architectures, Cloud Computing

### SMART GRID LEADERSHIP

- *ANSI U.S. National Committee, Technical Advisory Group*, U.S. Technical Expert, PC-118, TC57/WG21, 2012 - present
- *OPC Foundation, Technical Advisory Council*, 2008 – present ([opcfoundation.org](http://opcfoundation.org))
- *DOE GridSTAR Center, Industry Advisory Board*, 2014 ([gridstarcenter.org/](http://gridstarcenter.org/))
- *NIST Smart Grid Interoperability Panel*, 2012-2014, Board of Directors ([sgip.org](http://sgip.org))
- *OpenADR Alliance*, 2012 – 2014, Board of Directors, ([openadralliance.org](http://openadralliance.org))
- *DOE-supported GridWise Architecture Council*, 2006 - 2010 ([gridwiseac.org](http://gridwiseac.org))
  - A DOE strategic organization for Smart Grid architecture
- *NIST SGIP Smart Grid Architecture Committee*, Vice-Chair, 2010 – 2014 ([sgip.org](http://sgip.org))
  - Responsible for the governance of the conceptual models and reference architectures
- *NIST SGIP Smart Grid Transactive Energy SubCommittee*, Vice-Chair, 2010 – present
  - Responsible for the governance of the conceptual models and reference architectures
- *NIST SGIP Smart Grid Program Management Committee*, 2010 – 2013
  - Responsible for governance of SGIP projects
- *NIST SGIP Industrial-to-Grid Domain Expert Working Group*, Chair, 2008 – 2014
  - Responsible for defining strategic interactions between industry and Smart Grid
- *NIST SGIP Building-to-Grid Domain Expert Working Group*, Co-Chair, 2008 – 2014
  - Responsible for defining strategic interactions between buildings and Smart Grid
- *NIST Smart Grid Interoperability Panel (SGIP)*, EnerNOC Representative, 2009 – 2014
- *NERC Smart Grid Task Force*, 2009-2011 ([nerc.com](http://nerc.com))

### SMART GRID ACCOMPLISHMENTS

#### Publications

- Co-author of “*Customer Communications Interface and a Demand Response Conceptual Model*”, 2014, pending publication
- Contributor to ANSI Energy Efficiency Standardization Coordination Collaborative “*Standardization Roadmap, Energy Efficiency in the Built Environment*”, 2013 – 2014
  - [http://www.ansi.org/standards\\_activities/standards\\_boards\\_panels/eesc/overview.aspx?menuid=3](http://www.ansi.org/standards_activities/standards_boards_panels/eesc/overview.aspx?menuid=3)
- Contributor to IEEE Smart Grid Research, “*Smart Grid Vision for Computing: 2030 and Beyond*”, 2013, ISBN 978-0-7381-8382-4
  - <http://smartgrid.ieee.org/standards/ieee-smart-grid-research/891-ieee-smart-grid-vision-for-computing-2030-and-beyond>
- Contributor to NIST Smart Grid Interoperability Roadmap, 2008-2012
  - [http://www.nist.gov/smartgrid/upload/NIST\\_Framework\\_Release\\_2-0\\_corr.pdf](http://www.nist.gov/smartgrid/upload/NIST_Framework_Release_2-0_corr.pdf)
- Co-author of “*Energy Services Interface White Paper*”, 2012, Smart Grid Interoperability Panel
  - [http://info.firstcarbonsolutions.com/Portals/147290/docs/energyservicesinterfacewhitepaper\\_v1\\_0.pdf](http://info.firstcarbonsolutions.com/Portals/147290/docs/energyservicesinterfacewhitepaper_v1_0.pdf)

## Resume Of David B. Hardin

Page 2 of 3

- Co-author and presenter of “*Towards Demand Response Measurement and Verification Standards*”, Grid Interop 2012
  - [http://www.nist.gov/manuscript-publication-search.cfm?pub\\_id=912834](http://www.nist.gov/manuscript-publication-search.cfm?pub_id=912834),
- Co-author and presenter of “*Impact of Secure, Scalable Performance on Demand Response Communication Architecture*”, Grid Interop 2012
  - [http://www.gridwiseac.org/pdfs/forum\\_papers12/hardin\\_neumann\\_paper\\_gi12.pdf](http://www.gridwiseac.org/pdfs/forum_papers12/hardin_neumann_paper_gi12.pdf)
- Authored Chapter “*Smart Grid and Dynamic Energy Management*” in *Energy Management Systems*, InTech, Edited by P. Giridhar Kini, 2011, ISBN 978-953-307-579-2
  - <http://www.intechopen.com/books/energy-management-systems/smart-grid-and-dynamic-power-management>
- Contributor to “*NERC Smart Grid Reliability Report on the Bulk Power System*”, NERC, 2010
  - [http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/SGTF\\_Report\\_Final.pdf](http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/SGTF_Report_Final.pdf)
- Authored Cover Article in ISA InTech: “*SmartGrid: A Value Proposition for Industry*”, 2010
  - <http://www.isa.org/InTechTemplate.cfm?template=/ContentManagement/ContentDisplay.cfm&ContentID=81070>
- Grid Interop Best Paper Award: “*Interoperable Cloud Networking for a Smarter Grid*”, 2009
  - [http://www.gridwiseac.org/pdfs/forum\\_papers09/hardin.pdf](http://www.gridwiseac.org/pdfs/forum_papers09/hardin.pdf)
- Co-author of “*Smart Grid Conceptual Model*”, 2009
- Published article in Hydrocarbon Processing, 2007: “*Industrial Power Management*”
  - <http://www.hydrocarbonprocessing.com/Article/2597880/Industrial-power-management-what-plants-need-to-know-about-the-future-electric-system.html>
- Co-author of “*GridWise Context-Setting Framework*”, 2006
  - [http://info.firstcarbonsolutions.com/Portals/147290/docs/energyservicesinterfacewhitepaper\\_v1\\_0.pdf](http://info.firstcarbonsolutions.com/Portals/147290/docs/energyservicesinterfacewhitepaper_v1_0.pdf)

### Patents

- Patent Granted: “*Further Improved Digital Data Processing Apparatus and Methods for Improving Plant Performance*”, 2011
  - <https://www.google.com/patents/US7860857>
- Provisional Patent: “*Dynamic Electrical Power Pricing Communication Architecture*”, 2011
  - <https://www.google.com/patents/US20110029461>

### Leadership

- Co-presenter of DistribuTECH presentation, “*The Urgent Search for International Demand Response Standards*”, 2014
- Keynote Speaker, Electrical Manufacturing & Coil Winding Expo, 2012
- Webinar, Smart Grid Demand Coalition, “*International Demand Response Standards*”, 2012
- Presentation, TechConnect, “*Smart Grid Here and Now: Demand Response and Energy Efficiency*”, 2012
- Connectivity Week Program Committee, 2007 – 2012
- Webinar, Peak Load Management Assoc., “*The Journey Toward National Smart Grid Standards*”, 2011
- Developed a Cloud-based Smart Grid Pilot project with Microsoft, 2009 - 2010
- ISA Expo Energy Track, Chair, Houston, 2009
- Brazil Smart Grid Forum, Sao Paulo, Invited as one of four presenters, 2009
- Grid Interop Program Committee, 2008 - 2009
- GridWeek Panelist, 2008

### PROFESSIONAL EXPERIENCE

*Sr. Director, Smart Grid Standards*, EnerNOC, Inc. Boston, MA, January 2011 – April 2014

Represented EnerNOC on U.S. and international Smart Grid standards organizations including the Smart Grid Interoperability Panel (SGIP), OpenADR Alliance, International Electrotechnical Commission (IEC) Technical Committee 57, OpenADE (Green Button) and OASIS. Primary areas of focus included system architecture, realtime automated demand response communications and energy efficiency standards for commercial and industrial customers. Consulted with internal teams (R&D, program management, regulatory affairs, partnering, marketing). Developed technical and

**Resume Of David B. Hardin**  
**Page 3 of 3**

business feasibility of an open architecture for the integration of industrial automation systems into the EnerNOC platform. Provided expert testimony on public utility commission investigative panels.

*Staff Engineer*, Invensys Systems Inc, Foxboro, MA, April 2006 – January 2011

System Architect/Technology Officer, Global Development, Operations Management. Investigated emerging technologies for integration into automation products and services. Provided system and software architectural guidance for product development projects. Respresented Invensys on numerous standards committees and architected the integration of standards into automation products.

*Consulting Software Engineer*, Invensys Process Systems, Foxboro, MA, July 2000 – April 2006

Technical Manager, Invensys Platform Development. Directed software development teams. Accomplishments included the integration of Wonderware ArcestrA with the Foxboro I/A Series Control System, embedding the ArcestrA Application Server runtime and an IEC 6-1131-3 compiler/runtime. These technologies formed the infrastructure for the Invensys InFusion product line. Member of the OPC Data Exchange and Unified Architecture Working Groups. Presented .NET technical papers and tutorials at ISA EXPO 2002 and 2003, “Applying High Performance Computing Technologies to Industrial Manufacturing” at ISA EXPO 2004 and “S95 In RealTime” at ISA EXPO 2005.

Technical Manager and Lead Software Architect, Advanced Technology Department. Accomplishments included developing the software architecture and overall design of an embedded control system based on web technologies. System consisted of a network of embedded controllers and field devices executing Java process control objects.

*Technologist*, Star Enterprise/Motiva Enterprises LLC, Delaware City, DE, January 1989 – July 2000

Refinery Computer Coordinator, Technology Manager and Lead Software Engineer, Information Technology Department, Delaware Refinery. Directed new information and process control projects at the Delaware Refinery. Accomplishments included the creation of the Galaxy Operations Information Management system for Star Enterprise’s three refineries. This system successfully merged process control (Honeywell/Foxboro) and management information environments on an enterprise scale. Developed software related to the real-time process data subsystem. Production data management included co-generation power plant, laboratory, tankfarm, blending, utilities, yield accounting, shipments and receipts, unit and refinery mass balances and refinery planning/scheduling targets providing the foundation for plant ERP integration with SAP. The Galaxy system has been in operation for over 15 years providing personnel throughout the enterprise with valuable information concerning all aspects of refining operations.

### **PROFESSIONAL CERTIFICATIONS**

- Project Management Professional, Project Management Institute, #284461
- Registered Professional Engineer, DE #5715, MD #20993
- IEEE Certified Software Development Professional (CSDP) #162
- Microsoft .NET Certified Application Developer (MCAD)
- Affiliations: PMI, IEEE, ACM, ISA, Microsoft MCP

### **TECHNOLOGIES**

Modeling: UML Languages: C#,C, Java. Operating Systems: Microsoft, UNIX/Linux, RTOS RDBMS: SQL Server, ORACLE

### **EDUCATION**

Bachelor of Electrical Engineering, University of Delaware