

## **Timothy R. Sasseen, MSEE, MBA**

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### **PROFESSIONAL EXPERIENCE**

#### **BALLARD POWER SYSTEMS San Diego, CA March 2018 to present**

##### **Business Development Manager, California**

Expansion of business opportunities for Ballard's heavy duty motive fuel cell products in California, including

- Key customer account management
- OEM and integrator assessment and support
- New account sales
- Participation in zero-emissions legislation and incentive development for the State of California
- Engagement with local NGO's and hydrogen advocacy groups

#### **CENTER FOR SUSTAINABLE ENERGY San Diego, CA November 2016 to March 2018**

##### **Principal Advisor, Distributed Generation**

Principal subject matter expert for distributed generation technologies, providing subject matter expertise to Programs and Transportation groups. Responsible for identifying and leading new renewable energy project and program opportunities, and expanding CSE's network of industry and regulatory partners. Grant writing and proposal coordination.

Accomplishments:

- Awarded \$2M grant from California Energy Commission (CEC) for solar and storage project. Responsible for designing and leading project.
- Awarded CEC grant through City of Del Mar for solar and storage design of new Civic Center
- Awarded contract for energy advisory services for Sonoma Clean Power as part of interview team
- Designed and coordinated team for \$5M microgrid grant application for Sonoma Junior College
- Technical support for Self Generation Incentive Program, including technology reviews and program design revisions

#### **CLEANSARK LLC Poway, CA September 2014 to April 2016**

##### **Director of Research and Development**

Created and executed storage and power conversion strategy for young microgrid startup company while studying for MBA at UCSD. Assisted in redefining technical roadmap following restructuring of company, and helped to prepare for further funding solicitations. Designed, built and tested microgrid blackstart and transactive energy systems.

Accomplishments:

- Directed storage technology and power conversion technology selection for new projects and products, initiated strategic partnership with prominent flow battery manufacturer
- Created new technology roadmap as interim CTO, adopted by executive team, integrated into investor pitch deck
- Managed project proposal technical team, guided development of storage performance simulation algorithms
- Designed, deployed and validated flywheel based microgrid islanding system at Camp Pendleton Marine Corp Base
- Lead design and installation of flow battery and saltwater battery storage systems integrated with both microgrid and solar power converters at CleanSpark Headquarters
- Responsible for design review of flywheel technology from business partner, lead technology risk activities

#### **BOULDER WIND POWER – Boulder, CO May 2012 – July 2014**

##### **Program Manager**

Commercial program manager and engineering team management for wind turbine technology start-up founded by former colleagues. Rebuilt power electronics team after downsizing and restructuring, and launched new power converter product line initiative.

Accomplishments:

- Developed and tested new silicon carbide based power converter in under 6 months, with 99% efficiency and \$33/kW COGS for initial production release of 60kW modules
- Designed electromechanical model to simulate shorting on 3MW, 60' diameter direct drive generator
- Created \$6.5M business plan for 500kW variant of direct drive wind turbine technology
- Responsible for move of company testing and manufacturing facilities from Ronan, MT to Louisville, CO

## **CONTINENTAL WIND POWER – Carpinteria, CA April 2011 – April 2012**

### **Director of System Integration, VP of Engineering**

Rapid lean-startup development of all new 400kW wind turbine with a small team and minimal budget. I first lead the controls development and then the complete engineering and testing effort for a clean-sheet design, resulting in testable hardware and renewed funding opportunity.

#### **Accomplishments:**

- Lead team from clean-sheet design to testable hardware in under 12 months
- Established sales contract with leading global turbine blade supplier
- Achieved two successful external design reviews, including Germanischer Lloyd (GL) prototype approval
- Presented \$2.8M technology plan for continued operations funding, accepted by Board of Directors and investors
- Secured co-development plan for control platform with Danish supplier, secured low-cost prototype hardware validation testing contracts with two national laboratories (NREL and SWRI)

## **CLIPPER WIND POWER – Carpinteria, CA December 2008 – April 2011**

### **System Integration Lead**

Program management for European 2.5MW wind turbine product line for new US wind turbine manufacturer. Product management for electric blade pitch control system

#### **Accomplishments:**

- Revived stalled \$5M program for European variant of flagship 2.5MW turbine line
- Lead structural redesign to internalize down-tower power components and revise tower base
- Championed first implementation of “tollgate” new product development process with Engineering, Supply Chain, Finance, Field Support, Manufacturing and Commercial Development departments.
- Lead integration of field prototype process into ERP system
- Coordinated integration of next generation system with East Coast and German suppliers

## **BALLAD POWER SYSTEMS – Vancouver, BC, Canada; Mannheim Germany July 2000 – December 2008**

### **Engineering Team Lead**

Responsible for engineering development of new heavy duty fuel cell module for city transit buses. Lead service and maintenance team for fuel cell bus fleet across seven European countries while residing in Germany. Engineering liaison to Daimler for heavy duty fuel cell program. Lead software team to develop and certify embedded fuel cell engine control software.

#### **Accomplishments:**

- Managed fuel cell bus engine O&M for €37.5M bus fleet in ten European cities, and worked with local bus transit agencies to achieve high availability, requests for extension of 2 year program by seven cities, and expansion of fleet by London and Hamburg transit agencies.
- Seconded to Daimler to lead control system development for next generation Daimler fuel cell bus. Conducted business in German language.
- Lead Ballard engineering team in Vancouver, Canada and at bus integrator in San Diego, CA to develop and commission fuel cell module system for Vancouver 2010 Olympics bus fleet.
- Achieved type certification by German KBA for fuel cell engine control software for operation of high voltage hydrogen buses on public roads.

## **SOUTHWEST WINDPOWER – Flagstaff, AZ August 1997 – July 2000**

### **Director of Research and Development**

Built and managed Southwest Windpower’s engineering team for development of residential and marine wind turbines. Designed analog and digital embedded controllers for wind turbines and automated testing equipment. Coordinated UL certification effort. Participated in international standards committee for first small wind turbine design standard.

#### **Accomplishments:**

- Lead redesign of primary product line for scale-up in production, reducing warranty rates from 50% to less than 1%, while growing sales from \$300k/mo to peak of \$1.1M/mo, setting records for unit sales of small wind turbines to date.
- Coordinated certification effort of flagship turbine with NREL and UL, resulting in the first ever UL certification of a small wind turbine. Represented small wind turbines for IEC TC88 wind turbine standards committee, resulting in revision of international wind turbine design standard IEC 61400-2
- Lead team of mechanical and electrical engineers to create advanced wind tunnel, dynamometer, and field testing facilities with self-built technology.

## **SONY DISC MANUFACTURING – Springfield, OR March 1995 – August 1997**

### **Mastering Engineer**

Production automation controls engineering for new compact disc manufacturing facility

#### **Accomplishments:**

- Successful launch of fully automated compact disc manufacturing line at new manufacturing facility, working in concert with Japanese engineering team

## **EDUCATION / PROFESSIONAL TRAINING**

**MBA, UCSD Rady School of Management**, San Diego CA (2016)

**MS, Electrical Engineering, Michigan Technological University**, Houghton MI (1995)

**BS, Electrical Engineering, Michigan Technological University**, Houghton MI (1993)

NFPA National Electric Code Training, Atlanta GA (2014), NPFA 70E Training, OSHA 10, Boulder CO (2014)

Garrad Hassan “Bladed” Wind Turbine Simulation Software training, Carpinteria CA (2011)

Six Sigma training, Clipper Windpower, Carpinteria CA (2010 – 2011)

Managerial Effectiveness/Performance Management Skills Development, Vancouver BC (2007)

Berlitz German Language courses, Heidelberg Germany (2004 -2006)

Project Management, Canadian Management Institute, Vancouver BC (2002)

7 Habits of Highly Effective People, Vancouver BC (2001)

Fuel Cell, Hydrogen Vehicle Conversion Courses, American Hydrogen Association, Phoenix AZ (2000)

Passive Solar Design, Lane Community College, Eugene OR (1996-1997)

## **INTELLECTUAL PROPERTY FILINGS**

- “Carbon Dioxide Plant Growth Supplementation from Power Generation Exhaust”, Tim Sasseen inventor, US provisional patent application June 2016
- “Wave Pressure Power Conversion Device,” Tim Sasseen inventor, US provisional patent application May 2016
- “Blackstarting Method for Microgrids”, Tim Sasseen and Jeff Trueblood inventors, on behalf of CleanSpark, applied April 2015
- “Wind Turbine Yaw Mechanism”, Tim Sasseen and Mel Oster inventors, on behalf of Continental Wind Power, applied January 2012

## **COMPUTER EXPERIENCE**

- Energy Toolbase, distributed generation simulation and value analysis
- “Bladed” version 4.2 wind turbine simulation software, from Garrad Hassan
- PROPPC airfoil simulation
- MATLAB, Simulink, Matrixx, PSPICE, AutoCAD Light
- CANalyzer database development, J1939 implementation and data collection
- SAP implantation for Engineering Change Management and Procurement
- PVCS Tracker software version management
- C, Wind River compiler for MPC555 microprocessor, PIC microcontroller,
- MC6809 microprocessor
- Visual Basic, Ladder Logic: Sharp, Allen Bradley, Seimens