## Kimberly Mortstock

Senior Operations Analyst

# Curriculum Vitae:

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## Academic and Professional Attainment:

Doctor of Philosophy, University of Washington, Atmospheric Science, 2006 Other Education / Training, University of Washington, Environmental Mgmt Certificate, 2006 Bachelor of Science w\Honours, Pennsylvania State University, Aerospace Engineering, 1999

### Summary of Professional Experience:

Ms. Mortstock (formerly Comstock) joined DNV KEMA in 2007 and has over seven years of experience in wind energy. In her current role as Senior Operations Analyst, she evaluates the performance of operational assets in support of financial and operational decision making. In previous roles, she developed and practiced wind energy analysis techniques and supported investor due diligence, wind turbine site suitability, and portfolio analyses. Ms. Mortstock has contributed to several technical papers and has presented at multiple industry events. She has a bachelor's degree in Aerospace Engineering from the Pennsylvania State University and a PhD in Atmospheric Sciences from the University of Washington.

## Present Position:

Senior Operations Analyst, Wind Energy Analysis, April 2014 - Present

Provide analysis and recommendations in support of wind farm performance and operations as well as operating energy assessments and portfolio assessments for clients including owner/operators, utilities, and financing institutions. Manage projects and participate in various tasks in support of project due diligence.

## Publications and Papers:

Podium Presentations "Identifying Pitfalls and Quantifying Uncertainties in Operating Project Re-Evaluation" AWEA Wind Resource and Project Energy Assessment Seminar, Pittsburgh, PA, September 2012.

"Uncertainty and Risk Management in Wind Resource Assessment" AWEA Wind Resource and Project Energy Assessment Seminar, Seattle, WA, December 2011.

"Losses, Array Design, Uncertainty and Economics." AWEA Wind Resource Assessment Pre-Conference Workshop, Minneapolis, MN, September 2009.

"Change in Shear with Height in Forested Terrain" AWEA Fall Symposium, Palm Desert, CA, November 2008.

"Wind and Project Performance Risk Assessment." Infocast Windpower Development Tutorial. San Diego, CA, July 2009 and Chicago, IL, October 2008.

### Poster Presentations

Zucchi, Rana and Kimberly Comstock. "Experiences with Anemometer Dry Friction Whip Slowdown as Applied to Energy Analysis" AWEA WindPower, Dallas, TX, May 2010.

Keim, Michael, Kimberly Comstock, Tony Rogers, Josiah Mault and Gordon Randall. "Uncertainty of Long Term Data Adjustments." AWEA WindPower, Dallas, TX, May 2010.

Comstock, Kimberly, Rana Zucchi and Abby Lunstrum. "A Preliminary Study of the Effect of Airport Anemometer Discontinuities on Long-Term Energy Predictions." AWEA WindPower, Houston, TX, June 2008.



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#### Additional Publications

"How is a portfolio of wind farms greater than the sum of its parts?" DNV KEMA Utility of the Future Blog, August 30, 2013, http://www.dnvkemautilityfuture.com/how-is-a-portfolio-of-wind-farms-greater-than-the-sum-of-parts

Comstock, Kimberly. "Great Expectorations: Scientists seek pesticide signals in saliva." Northwest Science and Technology Spring 2004: 12.

Comstock, K. K., S. E. Yuter, R. Wood, and C. S. Bretherton, 2007: The three-dimensional structure and kinematics of drizzling stratocumulus, Mo. Wea. Rev, 135, 3767-3784.

Comstock, K. K., C. S. Bretherton, and S. E. Yuter, 2005: Mesoscale variability and drizzle in southeast Pacific stratocumulus, J. Atmos. Sci, 62, 3792-3807.

Stevens, B., G. Vali, K. Comstock, M.C. van Zanten, P.H. Austin, C.S. Bretherton and D.H. Lenschow, 2005: Pockets of Open Cells (POCs) and Drizzle in Marine Stratocumulus. Bull. Amer. Meteorol. Soc., 86, 51-57.

Bretherton, C. S., T. Uttal, C. W. Fairall, S. Yuter, R. Weller, D. Baumgardner, K. Comstock, R. Wood, and G. Raga, 2004: The EPIC 2001 stratocumulus study. Bull. Amer. Meteor. Soc., 85, 967-977.

Comstock, K. K., R. Wood, S. E. Yuter, and C. S. Bretherton, 2004: Reflectivity and rain rate in and below drizzling stratocumulus. Q. J. R. Meteorol. Soc., 130, 2891-2918.

#### Other Information:

Women of Wind Energy - since 2007 American Meteorological Assosiation Renewable Energy Subcommittee - since 2013

#### **Detailed Professional Experience:**

#### DNV GL

2007, present

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Senior Engineer, Wind Energy Analysis, June 2011 – April 2014 Provide support and review of pre-construction wind resource and energy assessments as well as operating energy assessments and portfolio assessments for clients including utilities, developers, and financing institutions. Manage projects and participate in various tasks in support of project due diligence.

Group Leader, Wind Energy Assessments, July 2010 – June 2011 Supervised staff providing preliminary and financeable wind resource and energy assessments for clients including utilities, developers, and financing institutions. Directed development of new practices and guides and reviewed the work of her peers to ensure a high-quality and consistent work product.

Energy Assessment Lead, 2009-2010

In addition to performing energy assessments, assisted in leading the energy assessment process, guiding the work of peers, developing procedures, and ensuring process consistency.

#### Project Engineer, 2007-2009

Performed wind resource assessments and energy analyses in accordance with international standards. Analyzed meteorological data, conducted modeling studies, estimated wind project output, estimated energy losses and uncertainties and performed other tasks in support of investor due diligence studies and wind turbine site suitability analysis. Senior Operations Analyst

## Curriculum Vitae:

Ms Mortstock has managed and contributed to a variety of projects including:

Bankable Energy Assessments for Wind Projects. Prepared a comprehensive pre-construction assessment of energy production potential for a commercial-scale wind projects in North and South America and Asia , including wind resource assessment, energy assessment, evaluation of technical losses, and uncertainty analysis.

Wind Energy Seminar. Provided a four day seminar in wind energy assessment methods for wind turbine manufacturer/developer team in South America.

Investor Due Diligence For Three Wind Projects. Independent engineering review of three wind power projects in the US for buyer, including operating energy assessments.

Energy Assessment Reviews. Independent review of third party energy assessments for single and portfolio wind projects in North America in support of utilities and financial institutions.

Wind Characteristics for Offshore Wind Farm. Evaluating wind data and assessing wind characteristics and site suitability for off-shore project in Asia based on on-shore data and modeling.

#### North Carolina State University

Post-doctoral Research Assistant

- Refined articles for publication and mentored graduate students.

#### University of Washington

Graduate Student and Research Assistant

- Analyzed several types of meteorological data, including near-surface measurements, radar and satellite observations.

- Managed numerous large data sets, and developed a library of computer codes to evaluate, manipulate, and visualize data.

- Published five peer-reviewed articles, three as lead author, and presented results at seven local, national, and international conferences.

2000, 2006

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2006, 2006