STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of	:	
WEST POINT PARTNERS, LLC	:	Case 13-T-0292
Application of West Point Partners, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	:	

Q. Please state your name, employer, and business address.

A. **William Bailey, Exponent, 17000 Science Drive, Suite 200, Bowie, Maryland 20715.**

Q. For what parts of the application are you responsible?

A. **Exhibit 4.14 (EMF) and Appendix 4H (Magnetic Fields Associated with Underground Alternating Current and Direct Current Transmission Lines).**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

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William H. Bailey, Ph.D.
Principal Scientist

Professional Profile

Dr. William H. Bailey is a Principal Scientist in Exponent's Health Sciences practice. Dr. Bailey specializes in applying state-of-the-art assessment methods to environmental and occupational health issues. His 30 years of training and experience include laboratory and epidemiologic research, health risk assessment, and comprehensive exposure analysis. Dr. Bailey has investigated exposures to alternating current, direct current, and radiofrequency electromagnetic fields, 'stray voltage', and electrical shock, as well as to a variety of chemical agents and air pollutants. He is particularly well known for his research on potential health effects of electromagnetic fields and has served as an advisor to numerous state, federal, and international agencies. Currently, he is involved in research on exposures to marine life from submarine cables and respiratory exposures to ultrafine- and nanoparticles. Dr. Bailey is a visiting scientist at the Cornell University Medical College and has lectured at Rutgers University, the University of Texas (San Antonio), and the Harvard School of Public Health. He was formerly Head of the Laboratory of Neuropharmacology and Environmental Toxicology at the New York State Institute for Basic Research, Staten Island, New York, and an Assistant Professor and NIH postdoctoral fellow in Neurochemistry at The Rockefeller University in New York.

Academic Credentials and Professional Honors

Ph.D., Neuropsychology, City University of New York, 1975
M.B.A., University of Chicago, 1969
B.A., Dartmouth College, 1966

Sigma Xi; The Institute of Electrical and Electronics Engineers/International Committee on Electromagnetic Safety (Subcommitee 3, Safety Levels with Respect to Human Exposure to Fields (0 to –3 kHz) and Subcommittee 4, Safety Levels with Respect to Human Exposure to Radiofrequency Fields (3 kHz to 3 GHz); Elected member of the Committee on Man and Radiation (COMAR) of the IEEE Engineering in Medicine and Biology Society, 1998–2001

Publications

Chang ET, Adami H-O, Bailey WH, Boffetta P, Krieger RI, Moolgavkar SH, Mandel JS. Validity of geographically modeled environmental exposure estimates. Crit Rev Toxicol 2014; in press.

Alexander DD, Bailey WH, Perez V, Mitchell ME, Su S. Air ions and respiratory function outcomes: A comprehensive review. J Negat Results Biomed 2013 Sep 9; 12(1):14. doi: 10.1186/1477-5751-12-14.

Perez V, Alexander DD, Bailey WH. Air ions and mood outcomes: A review and meta-analysis. BMC Psychiatry 2013 Jan 15; 13(1):29. doi: 10.1186/1471-244X-13-29.

Bailey WH, Johnson GB, Bishop J, Hetrick T, Su S. Measurements of charged aerosols near ±500 kV DC transmission lines and in other environments. IEEE Transactions on Power Delivery 2012; 27:371–379.

Shkolnikov YP, Bailey WH. Electromagnetic interference and exposure from household wireless networks. 2011 IEEE Symposium on Product Compliance Engineering (PSES), October 1–5, 2011.

Kavet R, Bailey WH, Bracken TD, Patterson RM. Recent advances in research relevant to electric and magnetic field exposure guidelines. Bioelectromagnetics 2008; 29:499–526.

Bailey WH, Wagner M. IARC evaluation of ELF magnetic fields: Public understanding of the 0.4μT exposure metric. Journal of Exposure Science and Environmental Epidemiology 2008; 18:233–235.

Bailey WH, Erdreich L. Accounting for human variability and sensitivity in setting standards for electromagnetic fields. Health Physics 2007; 92:649–657.

Bailey WH, Nyenhuis JA. Thresholds for 60-Hz magnetic field stimulation of peripheral nerves in human subjects. Bioelectromagnetics 2005; 26:462–468.

Bracken TD, Senior RS, Bailey WH. DC electric fields from corona-generated space charge near AC transmission lines. IEEE Transactions on Power Delivery 2005; 20:1692–1702.

Bailey WH. Dealing with uncertainty in formulating occupational and public exposure limits. Health Physics 2002; 83:402–408.

Bailey WH. Health effects relevant to the setting of EMF exposure limits. Health Physics 2002; 83:376–386.

Kavet R, Stuchly MA, Bailey WH, Bracken TD. Evaluation of biological effects, dosimetric models, and exposure assessment related to ELF electric- and magnetic-field guidelines. Applied Occupational and Environmental Hygiene 2001; 16:1118–1138.

Bailey WH. ICNIRP recommendation for limiting public exposure to 4 Hz–1 kHz electric and magnetic fields. Health Physics1999; 77:97–98.

Bailey WH. Principles of risk assessment with application to current EMF risk communication issues. In: EMF Risk Perception and Communication. Repacholi MH, Muc AM (eds), World Health Organization, Geneva, 1999.

De Santo RS, Bailey WH. Environmental justice tools and assessment practices. Proceedings, American Public Transit Association, 1999.

Bailey WH, Su SH, Bracken TD. Probabilistic approach to ranking sources of uncertainty in ELF magnetic field exposure limits. Health Physics 1999; 77:282–290.

Bailey WH. Field parameters. Proceedings, EMF Engineering Review Symposium, Status and Summary of EMF Engineering Research. Bracken TD and Montgomery JH (eds), Oak Ridge National Laboratory, Oak Ridge, TN, April 28–29, 1998.

Bailey WH. Policy implications. Proceedings, EMF Engineering Review Symposium, Status and Summary of EMF Engineering Research. Bracken TD and Montgomery JH (eds), Oak Ridge National Laboratory, Oak Ridge, TN, April 28–29, 1998.

Bailey WH. Probabilistic approaches to deriving risk-based exposure guidelines: Application to extremely low frequency magnetic fields. In: Non-Ionising Radiation. Dennis JA and Stather JW (eds), Special Issue of Radiation Protection Dosimetry 1997; 72:327–336.

Bailey WH, Su SH, Bracken TD, Kavet R. Summary and evaluation of guidelines for occupational exposure to power frequency electric and magnetic fields. Health Physics 1997; 73:433–453.

Bracken TD, Senior RS, Rankin RF, Bailey WH, Kavet R. Magnetic field exposures in the electric utility industry relevant to occupational guideline levels. Applied Occupational and Environmental Hygiene 1997; 12:756–768.

Blondin J-P, Nguyen D-H, Sbeghen J, Goulet D, Cardinal C, Maruvada P-S, Plante M, and Bailey WH. Human perception of electric fields and ion currents associated with high voltage DC transmission lines. Bioelectromagnetics 1996; 17:230–241.

Bailey WH, Charry JM. Acute exposure of rats to air ions: Effects on the regional concentration and utilization of serotonin in brain. Bioelectromagnetics 1987; 8:173–181.

Bailey WH, Charry JM. Measurement of neurotransmitter release and utilization in selected brain regions of rats exposed to dc electric fields and atmospheric space charge. Proceedings, 23rd Hanford Life Sciences Symposium, Interaction of Biological Systems with Static and ELF Electric and Magnetic Fields, 1987.

Pavildes C, Aoki C, Chen J-S, Bailey WH, Winson J. Differential glucose utilization in the parafascicular region during slow-wave sleep, the still-alert state and locomotion. Brain Research 1987; 423:399–402.

Bailey WH, Charry JM. Behavioral monitoring of rats during exposure to air ions and DC electric fields. Bioelectromagnetics 1986; 7:329–339.

Charry JM, Shapiro MH, Bailey WH, Weiss JM. Ion-exposure chambers for small animals. Bioelectromagnetics 1986; 7:1–11.

Charry JM, Bailey WH. Regional turnover of norepinephrine and dopamine in rat brain following acute exposure to air ions. Bioelectromagnetics 1985; 6:415–425.

Bracken TD, Bailey WH, Charry JM. Evaluation of the DC electrical environment in proximity to VDTs. Journal of Environmental Science and Health Part A 1985; 20:745–780.

Gross SS, Levi R, Bailey WH, Chenouda AA. Histamine modulation of cardiac sympathetic responses: A physiological role. Federation Proceedings 1984; 43:458.

Gross SS, Guo ZG, Levi R, Bailey WH, Chenouda AA. 1984. Release of histamine by sympathetic nerve stimulation in the guinea pig heart and modulation of adrenergic responses. Circulation Research 1984; 54:516–526.

Dahl D, Bailey WH, Winson J. Effect of norepinephrine depletion of hippocampus on neuronal transmission from perforant pathway through dentate gyrus. Journal of Neurophysiology 1983; 49:123–135.

Guo ZG, Gross SS, Levi R, Bailey WH. Histamine: Modulation of norepinephrine release from sympathetic nerves in guinea pig heart. Federation Proceedings 1983; 42:907.

Bailey WH. Biological effects of air ions on serotonin metabolism: Fact and fancy. pp. 90–120. In: Conference on Environmental Ions and Related Biological Effects. Charry JM (ed), American Institute of Medical Climatology, Philadelphia, PA, 1982.

Weiss JM, Goodman PA, Losito BG, Corrigan S, Charry JM, Bailey WH. Behavioral depression produced by an uncontrollable stressor: Relationship to norepinephrine, dopamine, and serotonin levels in various regions of rat brain. Brain Research Reviews 1981; 3:167–205.

Bailey WH. Ion-exchange chromatography of creatine kinase isoenzymes: A method with improved specificity and sensitivity. Biochemical Medicine 1980; 24:300–313.

Bailey WH, Weiss JM. Evaluation of a 'memory deficit' in vasopressin-deficient rats. Brain Research 1979; 162:174–178.

Bailey WH, Weiss JM. Effect of ACTH 4-10 on passive avoidance of rats lacking vasopressin (Brattleboro strain). Hormones and Behavior 1978; 10:22–29.

Pohorecky LA, Newman B, Sun J, Bailey WH. Acute and chronic ethanol injection and serotonin metabolism in rat brain. Journal of Pharmacology and Experimental Therapeutics 1978; 204:424–432.

Koh SD, Vernon M, Bailey WH. Free-recall learning of word lists by prelingual deaf subjects. Journal of Verbal Learning and Verbal Behavior 1971; 10:542–574.

Book Chapters

Bailey WH. Principles of risk assessment and their limitations. In: Risk Perception, Risk Communication and its Application to EMF Exposure. Matthes R, Bernhardt JH, Repacholi MH (eds), International Commission on Non-Ionizing Radiation Protection, Oberschleißheim, Germany, 1998.

Bailey WH. Biological responses to air ions: Is there a role for serotonin? pp. 151–160. In: Air Ions: Physical and Biological Aspects. Charry JM and Kavet R (eds), CRC Press, Boca Raton, FL, 1987.

Weiss JM, Bailey WH, Goodman PA, Hoffman LJ, Ambrose MJ, Salman S, Charry JM. A model for neurochemical study of depression. pp. 195–223. In: Behavioral Models and the Analysis of Drug Action. Spiegelstein MY, Levy A (eds), Elsevier Scientific, Amsterdam, 1982.

Bailey WH. Mnemonic significance of neurohypophyseal peptides. pp. 787–804. In: Changing Concepts of the Nervous System. Morrison AR, Strick PL (eds), Academic Press, New York, NY, 1981.

Bailey WH, Weiss, JM. Avoidance conditioning and endocrine function in Brattleboro rats. Pp 371–395. In: Endogenous Peptides and Learning and Memory Process. Martinez JL, Jensen RA, Messing RB, Rigter H, McGaugh JL (eds), Academic Press, New York, NY, 1981.

Weiss JM, Glazer H, Pohorecky LA, Bailey WH, Schneider L. Coping behavior and stress-induced behavioral depression: Studies of the role of brain catecholamines. pp. 125–160. In: The Psychobiology of the Depressive Disorders: Implications for the Effects of Stress. Depue R (ed), Academic Press, New York, NY, 1979.

Technical Reports

Normandeau, Exponent, Tricas T, Gill A. Effects of EMFs from undersea power cables on elasmobranchs and other marine species. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region, Camarillo, CA. OCS Study BOEMRE 2011-09, May 2011.

Jardini JA, et al. Electric field and ion current environment of HVDC overhead transmission lines. Report of Joint Working Group B4/C3/B2.50, CIGRÈ, August 2011.

Johnson GB, Bracken TD, Bailey WH. Charging and transport of aerosols near AC transmission lines: A literature review. EPRI, Palo Alto, CA, 2003.

Bailey WH. Probabilistic approach to ranking sources of uncertainty in ELF magnetic-field exposure limits. In: Evaluation of Occupational Magnetic Exposure Guidelines, Interim Report, EPRI Report TR-111501, 1998.

Bracken TD, Bailey WH, Su SH, Senior RS, Rankin RF. Evaluation of occupational magnetic-field exposure guidelines; Interim Report. EPRI Report TR-108113, 1997.

Bailey WH, Weil DE, Stewart JR. HVDC Power Transmission Environmental Issues Review. Oak Ridge National Laboratory, Oak Ridge, TN, 1996.

Bailey WH. Melatonin responses to EMF. Proceedings, Health Implications of EMF Neural Effects Workshop, Report TR-104327s, EPRI, 1994.

Bailey WH. Recent neurobiological and behavioral research: Overview of the New York State powerlines project. In: Power-Frequency Electric and Magnetic Field Research, EPRI, 1989.

Bailey WH, Bissell M, Dorn CR, Hoppel WA, Sheppard AR, Stebbings, JH. Comments of the MEQB Science Advisors on Electrical Environment Outside the Right of Way of CU-TR-1, Report 5. Science Advisor Reports to the Minnesota Environmental Quality Board, 1986.

Bailey WH, Bissell M, Brambl RM, Dorn CR, Hoppel WA, Sheppard AR, Stebbings JH. A health and safety evaluation of the +/- 400 KV powerline. Science Advisor's Report to the Minnesota Environmental Quality Board, 1982.

Charry JM, Bailey WH, Weiss JM. Critical annotated bibliographical review of air ion effects on biology and behavior. Rockefeller University, New York, NY, 1982.

Bailey WH. Avoidance behavior in rats with hereditary hypothalamic diabetes insipidus. Dissertation, City University of New York, 1975.

Selected Invited Presentations

Bailey WH. Measurements of charged aerosols around DC transmission lines and other locations. International Committee on Electromagnetic Safety TC95/ Subcommittee 3: Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0 – 3 kHz, December 2011.

Bailey WH, Erdreich LS. Human sensitivity and variability in response to electromagnetic fields: Implications for standard setting. International Workshop on EMF Dosimetry and Biophysical Aspects Relevant to Setting Exposure Guidelines. International Commission on Non-Ionizing Radiation Protection, Berlin, March 2006.

Bailey WH. Research-based approach to setting electric and magnetic field exposure guidelines (0-3000 Hz). IEEE Committee on Electromagnetic Safety, December 2005.

Bailey WH. Conference Keynote Presentation. Research supporting 50/60 Hz electric and magnetic field exposure guidelines. Canadian Radiation Protection Association, Annual Conference, Winnipeg, June 2005.

Bailey WH. Scientific methodology for assessing public health issues: A case study of EMF. Canadian Radiation Protection Association, Annual Conference, Public Information for Teachers, Winnipeg, June 2005.

Bailey WH. Assessment of potential environmental effects of electromagnetic fields from submarine cables. Connecticut Academy of Science and Engineering, Long Island Sound Bottomlands Symposium: Study of Benthic Habitats, July 2004.

De Santo RS, Coe M, Bailey WH. Environmental justice assessment and the use of GIS tools and methods. National Association of Environmental Professionals, 27th Annual Conference, Dearborn, MI, June 2002.

Bailey WH. Applications to enhance safety: Research to understand and control potential risks. Human Factors and Safety Research, Volpe National Transportation Systems Center/Dutch Ministry of Transport, Cambridge, MA, November 2000.

Bailey WH. EMF health effects review. EMF Exposure Guideline Workshop, Brussels Belgium, June 2000.

Bailey WH. Dealing with uncertainty when formulating guidelines. EMF Exposure Guideline Workshop, Brussels Belgium, June 2000.

Bailey WH. Field parameters: Policy implications. EMF Engineering Review Symposium, Status and Summary of EMF Engineering Research, Charleston, SC, April 1998.

Bailey WH. Principles of risk assessment: Application to current issues. Symposium on EMF Risk Perception and Communication, World Health Organization, Ottawa, Canada, August 1998.

Bailey WH. Current guidelines for occupational exposure to power frequency magnetic fields. EPRI EMF Seminar, New Research Horizons, March 1997.

Bailey WH. Methods to assess potential health risks of cell telephone electromagnetic fields. IBC Conference—Cell Telephones: Is there a Health Risk? Washington, DC, June 1997.

Bailey WH. Principles of risk assessment and their limitations. Symposium on Risk Perception, Risk Communication and its Application to EMF Exposure, International Commission on Non-Ionizing Radiation Protection, Vienna, Austria, October 1997.

Bailey WH. Probabilistic approach for setting guidelines to limit induction effects. IEEE Standards Coordinating Committee 28: Non-Ionizing Radiation, Subcommittee 3 (0–3 kHz), June 1997.

Bailey WH. Power frequency field exposure guidelines. IEEE Standards Coordinating Committee 28: Non-Ionizing Radiation, Subcommittee 3 (0–3 kHz), June 1996.

Bailey WH. Epidemiology and experimental studies. American Industrial Hygiene Conference, Washington, DC, May 1996.

Bailey WH. Review of 60 Hz epidemiology studies. EMF Workshop, Canadian Radiation Protection Association, Ontario, Canada, June 1993.

Bailey WH. Biological and health research on electric and magnetic fields. American Industrial Hygiene Association, Fredrickton, New Brunswick, Canada, October 1992.

Bailey WH. Electromagnetic fields and health. Institute of Electrical and Electronics Engineers, Bethlehem, PA, January 1992.

Bailey WH, Weiss JM. Psychological factors in experimental heart pathology. Visiting Scholar Presentation, National Heart Lung and Blood Institute, March 1977.

Presentations

Williams AI, Bailey WH. Toxicologic assessment of air ion exposures in laboratory animals. Poster presentation at 53rd Annual Meeting of the Society of Toxicology, Phoenix, AZ, March 26, 2014.

Perez V, Alexander DD, Bailey WH. Air ions and mood outcomes: A review and meta-analysis. Poster presentation at the American College of Epidemiology, Chicago, IL, September 8–11, 2012.

Shkolnikov Y, Bailey WH. Electromagnetic interference and exposure from household wireless networks. Product Safety Engineering Society Meeting, San Diego, CA October 2011.

Nestler E, Trichas T, Pembroke A, Bailey W. Will undersea power cables from offshore wind projects affect sharks? North American Offshore Wind Conference & Exhibition, Atlantic City, NJ, October 2010.

Nestler E, Pembroke A, Bailey W. Effects of EMFs from undersea power lines on marine species. Energy Ocean International, Ft. Lauderdale, FL, June 2010.

Pembroke A, Bailey W. Effects of EMFs from undersea power cables on elasmobranchs and other marine species. Windpower 2010 Conference and Exhibition, Dallas, TX, 2010.

Bailey WH. Clarifying the neurological basis for ELF guidelines. Workshop on Practical Implementation of ELF and RF Guidelines. The Bioelectromagnetics Society 29th Annual Meeting, Kanazawa, Japan, June 2007.

Sun B, Urban B, Bailey W. AERMOD simulation of near-field dispersion of natural gas plume from accidental pipeline rupture. Air and Waste Management Association: Health Environments: Rebirth and Renewal, New Orleans, LA, June 2006.

Bailey WH, Johnson G, Bracken TD. Method for measuring charge on aerosol particles near AC transmission lines. Joint Meeting of The Biolectromagnetics Society and The European BioElectromagnetics Association, Dublin Ireland, June 2005.

Bailey WH, Bracken TD, Senior RS. Long-term monitoring of static electric field and space charge near AC transmission Lines. The Bioelectromagnetics Society, 26th Annual Meeting, Washington, DC, June 2004.

Bailey WH, Erdreich L, Waller L, Mariano K. Childhood leukemia in relation to 25-Hz and 60-Hz magnetic fields along the Washington DC—Boston rail line. Society for Epidemiologic Research, 35th Annual Meeting, Palm Desert CA, June 2002. American Journal of Epidemiology 2002; 155:S38.

Erdreich L, Klauenberg BJ, Bailey WH, Murphy MR. Comparing radiofrequency standards around the world. Health Physics Society 43rd Annual Meeting, Minneapolis, MN, July 1998.

Bracken TD, Senior RS, Rankin RF, Bailey WH, Kavet R. Relevance of occupational guidelines to utility worker magnetic-field exposures. Second World Congress for Electricity and Magnetism in Biology and Medicine, Bologna, Italy, June 1997.

Weil DE, Erdreich LS, Bailey WH. Are 60-Hz magnetic fields cancer causing agents? Mechanisms and Prevention of Environmentally Caused Cancers, The Lovelace Institutes 1995 Annual Symposium, La Fonda, Santa Fe, NM, October 1995.

Bailey WH. Neurobiological research on extremely-low-frequency electric and magnetic fields: A review to guide future research. Sixteenth Annual Meeting of the Bioelectromagnetics Society, Copenhagen, Denmark, June 1994.

Blondin J-P, Nguyen D-H, Sbeghen J, Maruvada PS, Plante M, Bailey WH, Goulet D. The perception of DC electric fields and ion currents in human observers. Annual Meeting of the Canadian Psychological Association, Penticton, British Columbia, Canada, June 1994.

Erdreich LS, Bailey WH, Weil DE. Science, standards and public policy challenges for ELF fields. American Public Health Association 122nd Annual Meeting, Washington, DC, October 1994.

Bailey WH, Charry JM. Particle deposition on simulated VDT operators: Influence of DC electric fields. 10th Annual Meeting of the Bioelectromagnetics Society, June 1988.

Charry JM, Bailey WH. Contribution of charge on VDTs and simulated VDT operators to DC electric fields at facial surfaces. 10th Annual Meeting of the Bioelectromagnetics Society, June 1988.

Bailey WH, Charry, JM. Dosimetric response of rats to small air ions: Importance of relative humidity. EPRI/DOE Contractors Review, November 1986. Charry JM, Bailey WH, Bracken TD (eds). DC electric fields, air ions and respirable particulate levels in proximity to VDTs. International Conference on VDTs and Health, Stockholm, Sweden, June 12–15 1986.

Charry JM, Bailey WH. Air ion and DC field strengths at 10^4 ions/cm^3 in the Rockefeller University Small Animal Exposure Chambers. EPRI/DOE Contractors Review, November 1985.

Charry JM, Bailey WH. DC Electrical environment in proximity to VDTs. 7th Annual Meeting of the Bioelectromagnetics Society, June 1985.

Bailey WH, Collins RL, Lahita RG. Cerebral lateralization: Association with serum antibodies to DNA in selected bred mouse lines. Society for Neuroscience, 1985.

Kavet R, Bailey WH, Charry JM. Respiratory neuroendocrine cells: A plausible site for air ion effects. Seventh Annual Meeting of The Bioelectromagnetics Society, June 1985.

Bailey WH, Charry JM. Measurement of neurotransmitter release and utilization in selected brain regions of rats exposed to DC electric fields and atmospheric space charge. 23rd Hanford Life Sciences Symposium, Richland, WA, October 1984.

Bailey WH, Charry JM, Weiss JM, Cardle K, Shapiro M. Regional analysis of biogenic amine turnover in rat brain after exposure to electrically charged air molecules (air ions). Society for Neuroscience, 1983.

Bailey WH. Biological effects of air ions: Fact and fancy. American Institute of Medical Climatology Conference on Environmental Ions and Related Biological Effects, October 1982.

Goodman PA, Weiss JM, Hoffman LJ, Ambrose MJ, Bailey WH, Charry, JM. Reversal of behavioral depression by infusion of an A2 adrenergic agonist into the locus coeruleus. Society for Neuroscience, November 1982.

Charry JM, Bailey WH. Biochemical and behavioral effects of small air ions. Electric Power Research Institute Workshop, April 1981.

Bailey WH, Alsonso DR, Weiss JM, Chin S. Predictability: A psychologic/ behavioral variable affecting stress-induced myocardial pathology in the rat. Society for Neuroscience, November 1980.

Salman SL, Weiss JM, Bailey WH, Joh TH. Relationship between endogenous brain tyrosine hydroxylase and social behavior of rats. Society of Neuroscience, November 1980.

Bailey WH, Maclusky S. Appearance of creatine kinase isoenzymes in rat plasma following myocardial injury produced by isoproterenol. Fed Assoc Soc Exp Biol, April 1978.

Bailey WH, Maclusky S. Appearance of creatine kinase isoenzymes in rat plasma following myocardial injury by isoproterenol. Fed Proc 1978; 37:889.

Bailey WH, Weiss JM. Effect of ACTH 4-10 on passive avoidance of rats lacking vasopressin (Brattleboro strain). Eastern Psychological Association, April 1976.

Prior Experience

President, Bailey Research Associates, Inc., 1991–2000
Vice President, Environmental Research Information, Inc., 1987–1990
Head of Laboratory of Environmental Toxicology and Neuropharmacology, New York State Institute for Basic Research, 1983–1987
Assistant Professor, The Rockefeller University, 1976–1983

Academic Appointment

- Visiting Fellow, Department of Pharmacology, Cornell University Medical College, New York, NY, 1986–present

Prior Academic Appointments

- Visiting Scientist, The Jackson Laboratory, Bar Harbor, ME, 1984–1985
- Head, Laboratory of Neuropharmacology and Environmental Toxicology, NYS Institute for Basic Research in Developmental Disabilities, Staten Island, NY, 1983–1987
- Assistant Professor, The Rockefeller University, New York, NY, 1976–1983
- Postdoctoral Fellow, Neurochemistry, The Rockefeller University, New York, NY, 1974–1976
- Dissertation Research, The Rockefeller University, New York, NY, 1972–1974
- CUNY Research Fellow, Dept. of Psychology, Queens College, City University of New York, Flushing, NY, 1969–1971
- Clinical Research Assistant, Department of Psychiatry, University of Chicago; Psychiatric Psychosomatic Inst., Michael Reese Hospital, and Illinois State Psychiatric Inst, Chicago, IL, 1968–1969

Teaching Appointments

- Lecturer, University of Texas Health Science Center, Center for Environmental Radiation Toxicology, San Antonio, TX, 1998
- Lecturer, Harvard School of Public Health, Office of Continuing Education, Boston, MA, 1995, 1997
- Lecturer, Rutgers University, Office of Continuing Education, New Brunswick, NJ, 1991–1995
- Adjunct Assistant Professor, Queens College, CUNY, Flushing, NY, 1978
- Lecturer, Queens College, CUNY, Flushing, NY, 1969–1974

Editorship

- Associate Editor, Non-Ionizing Radiation, *Health Physics*, 1996–present

Advisory Positions

- ZonMw – Netherlands Organization for Health Research and Development, 2012; 2007-2008, reviewer for National Programme on EMF and Health
- US Bureau of Ocean Energy Management, Regulation and Enforcement, 2009–2010
- Canadian National Collaborating Centre for Environmental Health, reviewer of Centre reports, 2008
- Island Regulatory and Appeals Commission, province of Prince Edward Island, Canada, 2008
- National Institute of Environmental Health Sciences/ National Institutes of Health, Review Committee, Neurotoxicology, Superfund Hazardous Substances Basic Research and Training Program, 2004
- National Institute of Environmental Health Sciences, Review Committee Role of Air Pollutants in Cardiovascular Disease, 2004
- Working Group on Non-Ionizing Radiation, Static and Extremely Low-Frequency Electromagnetic Fields, International Agency for Research on Cancer, 2000–2002
- Working Group, EMF Risk Perception and Communication, World Health Organization, 1998–2005
- Member, International Committee on Electromagnetic Safety, Subcommittee 3 - Safety Levels with Respect to Human Exposure to Fields (0 to 3 kHz) and Subcommitee 4 - Safety Levels with Respect to Human Exposure (3kHz to 3GHz) Institute of Electrical and Electronics Engineers (IEEE), 1996–present
- Invited participant, National Institute of Environmental Health Sciences EMF Science Review Symposium: Clinical and In Vivo Laboratory Findings, 1998
- Working Group, EMF Risk Perception and Communication, International Commission on Non-Ionizing Radiation Protection, 1997
- U.S. Department of Energy, RAPID EMF Engineering Review, 1997
- Oak Ridge National Laboratory, 1996

- American Arbitration Association International Center for Dispute Resolution, 1995–1996
- U.S. Department of Energy, 1995
- National Institute for Occupational Safety and Health, 1994–1995
- Federal Rail Administration, 1993–1996
- U.S. Forest Service, 1993
- New York State Department of Environmental Conservation, 1993
- National Science Foundation
- National Institutes of Health, Special Study Section—Electromagnetics, 1991–1993
- Maryland Public Service Commission and Maryland Department of Natural Resources, Scientific Advisor on health issues pertaining to HVAC Transmission Lines, 1988–1989
- Scientific advisor on biological aspects of electromagnetic fields, Electric Power Research Institute, Palo Alto, CA, 1985–1989
- U.S. Public Health Service, NIMH: Psychopharmacology and Neuropsychology Review Committee, 1984
- Consultant on biochemical analysis, Colgan Institute of Nutritional Science, Carlsbad, CA, 1982–1983
- Behavioral Medicine Abstracts, Editor, animal behavior and physiology, 1981–1983
- Consultant on biological and behavioral effects of high-voltage DC transmission lines, Vermont Department of Public Service, Montpelier, VT, 1981–1982
- Scientific advisory committee on health and safety effects of a high-voltage DC transmission line, Minnesota Environmental Quality Board, St. Paul, MN, 1981–1982
- Consultant on biochemical diagnostics, Biokinetix Corp., Stamford, CT, 1978–1980

Professional Affiliations

- The Health Physics Society (Affiliate of the International Radiation Protection Society)
- Society for Risk Analysis
- International Society of Exposure Analysis
- New York Academy of Sciences
- American Association for the Advancement of Science
- Air and Waste Management Association
- Society for Neuroscience/International Brain Research Organization
- Bioelectromagnetics Society
- The Institute of Electrical and Electronics Engineers/Engineering in Medicine and Biology Society
- Conseil International des Grands Réseaux Électriques

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of	:	
WEST POINT PARTNERS, LLC	:	Case 13-T-0292
Application of West Point Partners, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	:	

Q. Please state your name, employer, and business address.

A. **J. Lee Cox, Jr, Dolan Research, Inc., 30 Paper Mill Road, Newtown Square, Pennsylvania 19073.**

Q. For what parts of the application are you responsible?

A. **Exhibit 4.11 (Cultural) and Appendix 4F-2 (Submerged Cultural Resources).**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

J. LEE COX, M.A.
PRINCIPAL INVESTIGATOR / MARITIME ARCHAEOLOGIST

EDUCATION:
M.A., Maritime History/Underwater Archaeology, East Carolina University, 1985
B.A., Anthropology/Archaeology, Duke University, 1981

SUMMARY OF EXPERIENCE:
J. Lee Cox is a professional Maritime Archaeologist with 25 years of professional experience in cultural resources management, historic preservation planning and marine survey. Mr. Cox has participated on more than 150 underwater archaeological projects in 24 states, Puerto Rico, Cayman Islands, Bermuda, Azore Islands, and Trinidad and Tobago since 1983. He has served as the Principal Investigator on more than 75 of those projects since 1987. He has obtained a thorough knowledge of Section 110 and Section 106 and of the National Historic Preservation Act as amended (NHPA) and applying the National Register of Historic Places (NRHP) eligibility criteria to cultural resources. Mr. Cox is widely recognized in his field and has numerous professional publications. In addition, Mr. Cox has designed and directed remote sensing projects to locate and identify underwater debris and utilities for commercial clients in a wide variety of marine environments.

In 1989, Mr. Cox formed Dolan Research, Inc (DR)., where he currently serves as Principal Investigator and President. DR is an underwater archaeological consulting and remote sensing surveying firm, specializing in the identification, documentation and evaluation of submerged cultural resources. In addition, DR has the capability to complete hydrographic and waterfront surveys. Prior to forming Dolan Research, Mr. Cox served as Maritime Consultant to the Philadelphia Maritime Museum and to the Maritime Historical Institute. He has participated in numerous NHPA compliance projects and has been a key member of numerous research and planning teams. He has been a contributing or principal author of more than 75 technical reports.

By profession, Mr. Cox is a trained underwater archaeologist certified in 1988 by the Society of Professional Archaeologists in underwater archaeology, marine survey, and museology. Mr. Cox is also HazMat certified**.** Mr. Cox has a broad knowledge of cultural resource management principals and practices, remote sensing survey, evaluation, and data recovery methodologies on underwater archaeology projects and has presented research results within Federal and state agency, academic, and public sector venues. His areas of specialization include:

- Underwater Archaeological Field Methods
- Acoustic, Magnetic, Sub-bottom and Bathymetric Remote Sensing
- Identification of Underwater Debris and Utilities
- Navigation and Positioning
- Historic Watercraft and Ship Construction Techniques
- Conservation, Curation of Archaeological Material, and Museology
- Archival Research, Maritime and Naval Research

SELECTED PROJECT EXPERIENCE:

2013	West Point Transmission Project, Hudson River, New York. Analyzed remote sensing data to identify debris and utilities along the path of a proposed submerged 320 kV transmission cable in the Hudson River from Greene County to Westchester County, New York.
2007	Principal Investigator. Hudson River, Glens Falls, New York. Phase I and II underwater archaeological investigation at selected locations. Work conducted for General Electric and EPA, in conjunction with the environmental clean-up/dredging of the river.
2005	Principal Investigator. Atlantic Ocean, Cape May County, New Jersey. Phase I and IB underwater archaeological investigation at Great Egg Harbor Inlet and Cape May Inlet Borrow Areas in conjunction with the New Jersey Beach Renourishment Project. Work conducted for U.S. Army Corps of Engineers, Philadelphia District.

2005 Principal Investigator. Delaware Bay, Sussex County, Delaware. Phase II underwater archaeological investigation of 18th century shipwreck site off of Lewes Beach. Work was done in conjunction with the Delaware Beach Beach Renourishment Project. Work conducted for U.S. Army Corps of Engineers, Philadelphia District.

2005 Directed a remote sensing survey at seven different bridge (and tunnel) crossings in New York City. Acoustic data were used to locate utilities on the bottom surfaces and create basemaps for each of the bridge corridors. Work was completed in association with S.T. Hudson Engineers for the TBE Group.

2003 Directed a remote sensing survey at a pipeline crossing under the Delaware River between Paulsboro, NJ and Philadelphia, PA. Magnetic, acoustic, and seismic data were used to create a basemap for the crossing corridor. Work was completed in association with S.T. Hudson Engineers for ExxonMobile Pipeline Company.

2002 Directed a remote sensing survey to identify debris and utilities in the vicinity of the NJ Route 7 (Wittpen) Bridge across the Hackensack River, Jersey City, NJ. Work was completed in association with S.T. Hudson Engineers for Sverdrup and Parcel Consultants.

2001 Principal Investigator. Acushnet River, New Bedford Harbor, Massachusetts. Phase I and II underwater archaeological investigation at selected locations. Work conducted for EPA an the US Army Corps of Engineers, NE District, in conjunction with the environmental clean-up/dredging of the river.

SELECTED PUBLICATIONS:

2001 *Underwater Archaeological Investigations of the Crosswicks Creek Canal Boat Site, Mercer County, New Jersey.* Bulletin of the Archaeological Society of New Jersey. No. 56. South Orange, New Jersey.

1997 *An Early 19th-Century Canal Boat Wreck in the Delaware River.* Bulletin of the Archaeological Society of New Jersey. No. 52. South Orange, New Jersey.

1996 *The Wreck of the Side Paddle Wheel Steamboat Excelsior.* Bulletin of the Archaeological Society of New Jersey. No. 51. South Orange, New Jersey.

1990 *USS Shipwreck: Underwater Archaeology and U.S. Navy Divers.* Underwater Archaeology Proceedings from the Society for Historical Archaeology Conference. Tuscon, Arizona.

1988 Ironclad Intruder: U.S.S. MONITOR: A collection of essays on the history, symbolism and archaeological importance of the importance of the U.S.S. MONITOR. Co-edited with Jehle. Philadelphia Maritime Museum, Philadelphia, PA.

1988 *Shipwrecks*. The Delaware Estuary: Rediscovering a Forgotten Resource. University of Delaware Seagrant Program, Newark, DE.

1987 *Preliminary Investigation of a Revolutionary War Era Vessel in Crosswicks Creek, Bordentown, New Jersey*. Underwater Archaeology Proceedings from the Society for Historical Archaeology Conference, Savannah, GA.

PROFESSIONAL AFFILIATIONS:

Society for Historical Archaeology
Society of Professional Archaeologists (certified in museology, marine survey, and underwater archaeology)

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of	:	
WEST POINT PARTNERS, LLC	:	Case 13-T-0292
Application of West Point Partners, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	:	

Q. Please state your name, employer, and business address.

A. **Oliver Kleinbub and Scott Niemann, ESAI Power LLC, 401 Edgewater Place, Suite 640, Wakefield, Massachusetts 01880.**

Q. For what parts of the application are you responsible?

A. **Exhibit E-4 (Engineering Justification) and Appendix E-4A (An Assessment of the Impacts of the West Point DC Transmission Project on the New York Electric System).**

Q. Please explain your educational and professional background.

A. **Copies of our curricula vitae are attached.**

OLIVER KLEINBUB

MS Industrial Engineering
Technische Universität Darmstadt, Germany

Professional Engineer

Director Energy Services & Senior Transmission Analyst, ESAI Power LLC

Having joined ESAI Power LLC in January 2013, Mr. Kleinbub is directly responsible for leading the production of ESAI's ongoing energy focused power publications, leading the firms modeling and client support efforts while driving specific market analysis for ESAI clients, and assisting with modeling exercises in support of ESAI's market analytics and ongoing client support. Mr. Kleinbub was previously a principal in the Energy & Environment Practice at CRA. He is an electrical engineer with 12 years of experience in electric power systems analysis and power market research. At CRA, he oversaw analyses and modeling of wholesale electricity markets and advised clients on power market issues, including valuations of generation assets, benefits of proposed transmission projects, market power assessments, and RTO membership. Mr. Kleinbub further supported clients in regulatory proceedings and has submitted expert testimony to the Federal Energy Regulatory Commission (FERC).

Prior to joining Charles River Associates, Mr. Kleinbub was a senior analyst with Energy Security Analysis, Inc. in Wakefield, MA, where he provided intelligence on the Northeast power markets to a wide range of clients. He gained significant experience in power systems and reliability analyses as a senior engineer for National Grid in Westborough, MA, and as a power system planner for Southern California Edison in Rosemead, CA. Mr. Kleinbub is licensed as a professional engineer in the state of Massachusetts**.**

EXPERIENCE

2009–2012 *Principal*, Charles River Associates, Boston, MA

- Determined the benefits of a proposed HVDC transmission project in the Northeast, using power market simulation of the Eastern Interconnection to quantify project impacts.
- Assessed the value of New England generation portfolio by modeling the wholesale electricity market to forecast revenue potential from power sales.
- Developed nodal dispatch model for MISO to aid client in understanding and mitigating congestion issues between MISO and PJM.
- Filed testimony with FERC in transmission cost allocation proceeding, demonstrating network character of client facilities.

2006–2008 *Senior Analyst*, Energy Security Analysis, Inc. (ESAI), Wakefield, MA

- Provided market intelligence to clients through weekly and monthly publications and briefings on the energy and congestion markets of PJM, NYISO, ISO-NE.
- Developed and executed client projects, including nodal power market simulations, zonal and nodal power price outlooks, and quantitative analysis of power market developments.
- Improved company's analytical capabilities by continuously updating, enhancing and validating nodal power system models of the Northeast power markets (PJM, NYISO, ISO-NE)

2005–2006 *Senior Engineer*, National Grid USA, Westborough, MA

- Conducted system impact studies, including power flow and transient stability analyses, for third party power projects and developed engineering solutions for identified reliability issues to obtain project approval from ISO New England.
- Represented company's interest at NEPOOL Power Supply Planning Committee and NEPOOL System Design Task Force.

2002–2005 *Power System Planner*, Southern California Edison, Rosemead, CA

- Evaluated contingency and stability performance of power systems and initiated required infrastructure upgrades to ensure the long-term reliability of a 230 kV transmission corridor and the deliverability of significant wind and hydro generating resources.
- Developed inter-regional transmission model to assess the impacts of proposed 500 kV California-Arizona transmission line on power flow and system stability.
- Led a seven-member engineering team that won the internal conceptual design contest for the "Distribution Circuit of the Future."
- As on-site engineer, effectively managed construction phase of $520,000 substation project, completing control account plan on time and within budget.

KNOWLEDGE AREAS

- Wholesale electricity market modelling and price forecasting
- Generating asset valuations
- Transmission analysis and pricing
- Transmission and distribution system planning and engineering
- Power system analysis
- Power system protection and operations
- Power plant operations

SCOTT W. NIEMANN

Principal, ESAI Power LLC

Ph.D. Economics,
University of Wisconsin

M.S. Economics,
University of Wisconsin

B.A. Mathematics, Political Science, Economics,
University of Kansas

Scott Niemann is an economist with more than 15 years of experience in the design and analysis of energy markets. Throughout his career, he has advised clients on a broad range of electricity market issues including market design, resource adequacy constructs, generation dispatch, locational energy prices, generation and transmission investments, valuation, and market power concerns. Having joined ESAI Power LLC in January 2013, Dr. Niemann contributes to ESAI's ongoing power market publications and project consulting work for ESAI clients. Dr. Niemann works routinely with market participant and investors in generation and transmission assets to evaluate the commercial and regulatory outlook in wholesale power markets, develop and support commercial strategies, and assist with regulatory and market design issues.

Prior to joining ESAI, Dr. Niemann was a Vice President in the energy practice at Charles River Associates. Prior to that, he was a Principal Consultant at PA Consulting (and predecessor companies, PHB Hagler Bailly, and Putnam, Hayes, and Bartlett), where his work focused on economic analyses in the environmental, energy, and litigation practice areas.

EMPLOYMENT

ESAI Power LLC

January 2013 - Present: Director and Principal

Charles River Associates

2011 – 2012: Vice President

2005 – 2010: Principal

2001 – 2004: Associate Principal

PA Consulting Group

2000 – 2001: Principal Consultant

Putnam, Hayes, and Bartlett

1998 – 2000: Associate

EDUCATION

Ph.D. Economics, University of Wisconsin, 2001

M.S. Economics, University of Wisconsin, 1996

B.A. Mathematics, Political Science, Economics, University of Kansas, 1993

PROJECT EXPERIENCE

Wholesale Electricity Market Analysis and Modeling

- On behalf of companies involved in power marketing, electricity generation, and energy transmission and delivery, performed more than 100 analyses of energy prices, power plant performance, and generation asset values in North American wholesale energy markets. This work has involved contributing to the development of detailed models, including a GE MAPS model of the North American wholesale energy market, the AURORAxmp nodal power market model, and propriety models of installed Capacity markets, as well as managing numerous simulations of the Eastern and Western U.S. and Canadian electricity markets using a suite of modeling tools.

- Served as Independent Market Advisor in numerous electric power asset transactions. These engagements have involved due diligence support, preparation of Independent Market Advisor's report for the sale and/or financing process, presentations and teleconferences with investors, lenders, and debt rating agencies. Assets have included several Combined-Cycle facilities in the Northeast U.S. Regional Transmission Organizations, peaking facilities in various U.S. Markets, gas- and oil-fired steam electric plants, wind generation, and base load assets.

- Led the development of CRA's GE-MAPS modeling capabilities, including compilation and auditing of generation, load, fuel price, and transmission data, and incorporation of these data into an MS-ACCESS database and interface with the GE-MAPS model. Managed the model calibration refinement of model inputs, outputs, and post-processing to provide realistic commercial results.

- Contributed to the development of ESAI's suite of market modeling tools, including AURORAxmp, optimal dispatch model for generating units, and installed capacity market models.

- On behalf of Cape Wind Associates, conducted a study of the market impact of adding offshore wind in the ISO New England market. Assessed the effects of the Cape Wind project on wholesale power prices, consumer costs, airborne emissions, and fuel mix for the New England market. The study was used in support of a successful application to the Massachusetts Department of Public Utilities for approval of a power purchase agreement between Cape Wind and National Grid.

- Led a team evaluating the profitability and potential consumer benefits of a proposed transmission lines that would provide additional import capability into the Northeast US electricity markets.

- Provided on-going market forecasting and valuation of a merchant combined-cycle power plant in the Northeast U.S. and associated power purchase agreements. Analysis is used in the operational and strategic decision marking of senior management. Presented results to board of directors and public agencies.

- Assisted a merchant power provider with a successful bid as part of a public procurement process for long-term power supply. Support included market modeling and price forecasting, estimation of consumer benefits from construction of a new generating facility, presentations to and preparation of materials for counterparty regarding the market impacts of the contract, and strategic analysis for the pricing and structuring of the bid.

- On behalf of US Power Generating, LLC., conducted an analysis of the New York City capacity and energy markets to support the evaluation and successful acquisition of the Astoria generating portfolio. Prepared independent market assessment and forecast of financial performance to support the financing process.

- On behalf of a generation owner, estimated the impacts on power prices and the value of the company's portfolio of generation additions and repowering projects under consideration for the company's existing sites in the Northeast U.S.

- On behalf of a generation owner engaged in merger negotiations, prepared an assessment of the company's existing portfolio of assets and the markets where the assets are located. Assessment was used to guide the company's internal strategic discussions and provided to the counterparty as part of the negotiations.

- On behalf of a large U.S. utility, assessed the impacts on the value and operation of its assets of integrating its service area into a competitive, LMP-based market. The analysis examined a broad range of issues including the effects of constraints outside the utilities service area on LMPs within the area, mitigation of seams issues, impacts of the precise definition and implementation of constraints within market software on the congestion patterns affecting nodal prices in the utilities territory, and the ability to hedge congestion risks through an FTR portfolio.

- On behalf of the Vice President of Energy Management at Con Edison, conducted several studies related to the NYISO market, including:

    - Analysis of the impact of changes in a wheeling arrangement between Con Edison and PSE&G using a GE-MAPS model of the Northeast U.S. The analysis included comparison of location prices, transmission congestion, and generation patterns within the PJM and NYISO systems under a range of PJM-NYISO transfer scenarios. Evaluated various strategies for implementation of the wheeling arrangement in light of market rules, commitment and dispatch methodologies, and transmission constraints within PJM and the NYISO.
    - Evaluation of the impacts on locational prices, generation costs, and costs to retail consumers within both PJM and the NYISO of moving Rockland Electric load from the NYSIO to PJM.
    - Evaluation of benefits of potential transmission upgrades both within New York City and other parts of the NYISO system.
    - Analysis of the impacts on locational prices and costs to retail customers of generation and transmission outages within New York, generating capacity additions in various locations, and proposed retirement of existing units.

- On behalf of participants in auctions for financial transmission rights (FTRs) and Transmission Congestion Contract (TCCs), analyzed bidding strategies, historical and forecasted congestion patterns, impacts of changes in market rules on FTR values, and historical FTR and TCC auction outcomes.

Resource Adequacy Policy and Capacity Markets

- On behalf of multiple NYISO generation owners, provided expert testimony related to market design and market implementation issues for the New York Installed Capacity market, including buyer-side mitigation rules and demand curve parameters.

- Provided expert testimony (both written and live oral) on behalf of NRG as part of the Connecticut Department of Public Utility Control (DPUC) proceeding regarding procurement of energy and capacity awarded under the Connecticut Energy Independence Act. Testimony focused on the benefit evaluation approach implemented in the selection of winning projects.

- On behalf of numerous market participants, conducted independent market assessments of northeast ISO resource adequacy markets. Led the development of price forecasting models for ISO-NE Forward Capacity Market, NYISO UCAP market, and PJM RPM Market. Served as capacity market expert in numerous assignments to support capacity acquisitions, financing, transfer pricing, and strategic decision making.

- Led the analysis of the benefits of several proposed new transmission lines that would result from lower capacity prices and capacity procurement costs within Northeast US markets.

- On behalf of the Dayton Power and Light Company, provided expert testimony supporting CRA's forecast of PJM capacity prices under its RPM forward capacity market.

- On behalf of Duke Energy Ohio, Inc., provided expert testimony about the obligations and risks of capacity suppliers under the Fixed Resource Requirement alternative in the PJM RPM market.

Market Design

- Advised market participants during the Federal Energy Regulatory Commission (FERC) proceedings related to the design and implementation of the ISO-New England Forward Capacity Market (FCM), PJM Reliability Pricing Model (RPM), and New York ISO Installed Capacity (ICAP) Market.

- Provided expert testimony on behalf of Pepco Energy Services to support a complaint before FERC regarding RPM market rules for performance incentives and penalties.

- Served as Project Manager for a team engaged by ESB National Grid, the Irish system operator, to assist in the design of a competitive wholesale market for Ireland and develop the rules for the market. As Project Manager, coordinated team staffing and deliverables schedule, working on-site in Dublin. Led or participated in meetings with team members and client staff to develop straw man proposals for market design aspects. Drafted and presented discussion papers outlining aspects of the proposed design.

Natural Gas

- Led analytical efforts to estimate the gas demands related to steam and electric generation for a New York utility, examining a range of scenarios based on the relative prices of natural gas and other fuels, electricity demand, and the future mix of generating technology and fuel options.

- On behalf of the New York Research and Development Authority, managed a team to develop an integrated natural gas and electric modeling system to evaluate the adequacy of the gas delivery system for meeting the future demands of electric generators. Led electricity modeling efforts related to the estimation of fuel demands among electric generators in New York and neighboring regions, accounting for transmission constraints, gas delivery constraints, and fuel switching by generations.

- On behalf of a large power generating and trading organization, acted as independent market expert supporting antitrust approval of a natural gas asset acquisition. Led an evaluation of potential market power concerns stemming from the acquisition of natural gas transportation and storage assets and presented analysis to the Department of Justice in support of the company's successful application for agency approval under the Hart Scott Rodino Act.

Cost-Benefit Analysis

- As part of a team working on behalf of the New York City Economic Development Corporation, served as a market expert for an evaluation of potential transmission projects for New York State and New York City. The study evaluated the market impact of several potential transmission projects and generation project alternatives, assessing each project under a range of production costs and consumer cost benefits metrics.

- On behalf of the New York City Economic Development Corporation, provided expert testimony before the New York State Public Service Commission as part of the Article VII hearing for the Hudson Transmission Partners transmission project under development between New York City and New Jersey. Testimony focused on market impact and cost-benefit analysis of the project.

- On behalf of Dominion Virginia Power, led analytical efforts related to wholesale power markets in an assessment of the costs and benefits of integration of Dominion into the PJM market.

- On behalf of a U.S. utility, conducted an assessment of the power market related costs and benefits of adding a base load coal plant with the utility's service area.

- On behalf of various U.S. clients, contributed to studies of the costs and benefits of forming Regional Transmission Organizations and implementing economic congestion management and LMP in place of physical congestion management. Specifically, the studies address the elimination or alleviation of seams issues between markets, FTR allocations, formation of regional load prices in markets with nodal prices for generators, and impacts of market changes on retail electric rates.

- Evaluated benefits of potential transmission upgrades in the northeastern U.S. and Canada. The analysis used a GE MAPS model of the Eastern interconnection to measure the change in energy prices, and consumer and producer surplus in the Great Lakes Region.

- Evaluated the costs and benefits of adding new transmission lines at various locations within the Northeast U.S.

- Evaluated the economic and environmental impact on a North American regional energy market of retiring coal-fired generation. The analysis involved estimation of the resulting changes in energy prices, power plant emissions, costs to consumers, and financial performance of generation assets.

Market Power

- Led analytical efforts supporting CRA expert testimony before the Federal Energy Regulatory Commission regarding the manipulation of electric power prices in the Pacific Northwest during the California Energy Crisis. Analysis addressed the reasonableness of a wholesale power contract in light of spot and forward market prices and the ability of power markets and traders to influence those prices.

- Studied generator bidding behavior in northeastern electricity markets and the impacts of market power mitigation measures.

- On behalf of clients in the wholesale electric power and natural gas industries involved in mergers or assets sales, assessed market power concerns under the FERC's Appendix A Merger Guidelines for transactions in several U.S. regions, including NYISO, ISO-NE, PJM, SERC, ECAR, SPP, ERCOT, and WECC.

Other Energy Litigation

- Conducted analyses supporting CRA expert testimony in commercial litigation and FERC proceedings, including:

  - Wholesale power contract disputes.
  - Disputes over transmission rights.
  - Market design and market power mitigation issues.
  - Allegations of market power abuses.
  - Damages analysis related to generating unit outages.

- Provided expert testimony regarding expected electricity prices, generator unit operations, and the corresponding value of transmission credits held by the owners of a merchant power plant in the Southeast U.S.

Other Energy Projects

- On behalf of a generation owner selling in the ISO-NE market, conducted an audit of payments for out-of-merit generation and associated uplift payments and production costs to identify recoverable costs and potential underpayments by the ISO.

- As part of a team working for an electric transmission and distribution utility, designed and conducted the econometric analysis for a study of customer value of service reliability. The study involved design and implementation of a survey and econometric analysis of the resulting data to measure residential and commercial customers' outage costs and willingness-to-pay to avoid various outage scenarios.

Environmental Litigation

- On behalf of a municipal utility involved in litigation involving alleged natural resource damage, assisted in estimating the economic value of damaged resources. Project work included review of documents, collection of data, formulation of an economic framework for measuring damages, and support of an academic expert witness.

- On behalf of a Middle-Eastern country making a claim for environmental damages arising out of the 1990 Gulf War, assisted in the assessment and valuation of potentially recoverable economic damages. Conducted substantial in-country research and developed techniques to value changes in health and environmental conditions. The confidential assessment was submitted to the United Nations Compensation Commission.

- For a property value dispute in the western United States, evaluated alternative valuations of environmentally impaired commercial real estate. The project involved review and critique of a survey used to elicit willingness-to-pay and evaluation of alternative measures based on market transactions.

- For a residential property value dispute, conducted an econometric analysis of survey-based willingness-to-pay measures for changes in groundwater quality and associated health risks. The effort involved analysis of data from several surveys, each with a different design and format, to assess potential biases in the survey responses and determine the effects of various demographic characteristics.

- For companies engaged in settlement discussions and litigation regarding environmental insurance coverage claims, estimated the cleanup costs and potential natural resources and property damage liability at hazardous waste sites. The work involved development of detailed, site-specific estimates using probabilistic assessment methods to determine the expected present value and distribution of future costs, which reflect technical and regulatory uncertainty.

Other Commercial Litigation

- For a major corporation involved in an intellectual property and antitrust dispute, performed analyses of market share, production capacity, output prices, and production costs. Assisted in the estimation of alternative measures of economic damages using market share, lost profits, and stock market valuation methods. Provided support in the preparation of expert reports.

- For a privately held company involved in a tax dispute, evaluated cash retention strategies of publicly and privately held firms. The analysis involved reviewing academic literature and evaluating implications of finance theory for the decisions of different types of firms in various industries.

Testimony

Date	Case	Venue
December 2013	New York Independent System Operator, Inc., Proceeding to Establish Installed Capacity Demand Curve Parameters for May 2014-April 2017	U.S. Federal Energy Regulatory Commission, Docket No. ER14-500-000
April 2013	Application of Duke Energy Ohio, Inc., for the Establishment of a Charge Pursuant to Revised Code § 4909.18	Public Utility Commission of Ohio Case No. 12-2400-EL-UNC
August 2011	Astoria Generating Company, L.P and TC Ravenswood, LLC v. New York Independent System Operator, Inc.	U.S. Federal Energy Regulatory Commission, Docket No. EL11-50-000
March 2010	Article VII Application of Hudson Transmission Partners, LLC	New York Public Service Commission Case No. 08-T-0034
February 2009	Stipulation and Recommendation of Dayton Power and Light Company regarding Standard Service Offer Rate Plan Approval	Public Utilities Commission of Ohio, Case No. 08-1094-EL-SSO, 08-1095-EL-ATA, 08-1096-EL-AAM, 08-1097-EL-UNC
September 2008	Application of Dayton Power and Light Company for Standard Service Offer Rate Plan Approval	Public Utilities Commission of Ohio, Case No. 08-1094-EL-SSO
April 2008	Pepco Energy Services, Inc. v. PJM Interconnection, L.L.C.	U.S. Federal Energy Regulatory Commission, Docket No. EL08-58-000
July 2007	Hearing Regarding Winners of Connecticut Energy Independence Act RFP, on behalf of NRG Energy	Connecticut Department of Public Utility Control, Docket 07-04-24
December 2004	Mirant Corporation, et al, v. Kinder Morgan	District Court of the State of Texas, Case No 03-46590-11

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of	:	
WEST POINT PARTNERS, LLC	:	Case 13-T-0292
Application of West Point Partners, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	:	

Q. Please state your name, employer, and business address.

A. **Susan Herz, ESS Group, Inc., 100 5th Avenue, 5th Floor, Waltham, Massachusetts 02451.**

Q. For what parts of the application are you responsible?

A. **4.4 (Lower Hudson River Physical Characteristics), 4.5 (Lower Hudson River Sediment and Water Quality), 4.7 (Benthos & Shellfish), Exhibit 4.6 (Finfish), 4.7 (Benthos & Shellfish), 4.9 (Threatened & Endangered Species), Appendix 4C (Sediment Dispersion Modeling Report), Appendix 4D (EFH Report), and Appendix 4E (Coastal Consistency).**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

SUSAN M. HERZ
Senior Project Scientist

Experience
ESS Group, Inc.: 1997 to present

Years of Prior Related Experience: 5

Education
MEM, Coastal Environmental Management, Duke University School of the Environment, 1995

BS, Biology, St. Lawrence University, 1990

Sea Education Association (SEA) Program, Marine & Nautical Sciences, Woods Hole, MA, 1988

Qualifications

Ms. Herz has 20 years of experience in a wide range of projects involving coastal and fisheries resource evaluations, water quality investigations, energy and environmental permitting, and environmental impact assessments. She has extensive experience with water quality, sediment, fisheries, and oceanographic field sampling and research; energy facility siting and permitting (including electric utilities and underwater cable crossings); strategic regulatory permitting; and environmental resource assessments and impact analyses throughout the Northeast and Mid-Atlantic. As a Senior Project Scientist, Ms. Herz conducts environmental resource evaluations, directs multidisciplinary technical staff, coordinates the preparation of environmental documents, and maintains project scopes, schedules, and budgets.

Representative Project Experience

West Point Partners, LLC – West Point Transmission Project – Athens, NY to Buchanan, NY. Task Manager responsible for environmental impact evaluations and regulatory permitting for a 75-mile 1,000 MW 320 kV HVDC transmission line which will be installed primarily beneath the Hudson River. The facility will also have a short upland transmission line and two new converter stations. Ms. Herz is also managing the collection of existing conditions data for fish, marine protected species, sediment quality, and water quality for this Project.

Hudson Transmission Partners LLC – Hudson Transmission Energy Project, New Jersey to New York. Served as Senior Scientist and reviewer of water and sediment quality, fisheries, and protected marine species sections of environmental assessments used in regulatory permit submittals for a proposed High Voltage Direct Current (DC) transmission facility linking the PJM Interconnection with the New York Independent System Operator. Provided regulatory and technical oversight for permit applications that were submitted to the New York State Public Service Commission, New Jersey Department of Environmental Protection, and the US Army Corps of Engineers (including an EFH Assessment) and prepared responses to comments and interrogatories to regulatory agencies. Also managed the completion of analytical modeling and aquatic risk assessments required by New York State agencies to evaluate the potential sediment suspension impacts from jet plow embedment. Worked closely with the New York State Department of Environmental Conservation, New York State Public Service Commission, and New York State Department of State to assess impacts and develop certificate conditions and a TSS monitoring plan that was acceptable to the client and to the agencies.

Bayonne Energy Center, LLC – Bayonne Energy Center Project, Bayonne, New Jersey to New York City (Brooklyn). Served as the task manager for marine resources, marine protected species, water and sediment quality (including sediment transport modeling and aquatic risk assessment), and fisheries assessments for the submarine electric cable aspect of the Bayonne Energy Center Project. Other responsibilities included providing regulatory and technical support for permit applications that were submitted to the New York State Public Service Commission, New Jersey Department of Environmental Protection and US Army Corps of Engineers (including an Essential Fish Habitat Assessment). Also prepared the required environmental monitoring plans and managed the sampling programs and report submittals for TSS/water quality monitoring conducted during construction and the sediment and benthic monitoring conducted before and after construction.

LIPA/KeySpan and CL&P/Northeast Utilities – Long Island Submarine Cable Replacement Project, Norwalk, Connecticut to Northport, New York. Served as the Project Manager overseeing marine surveys, environmental impact evaluations, and regulatory permitting for an 11-mile, 300 MW Alternating Current (AC) submarine cable system that replaced a series of electric transmission cables connecting existing power stations in Connecticut and Long Island. Managed the comprehensive environmental impact evaluations associated with selected cable routes and landfall locations. These evaluations included impact assessments of shellfish and finfish resources, water quality, prevailing tides and currents, and navigational and marine hazards. Responsible for the preparation of federal, state and local regulatory permit applications and management of the overall regulatory permitting process including permit applications to the Connecticut Siting Council, Connecticut Department of Environmental Protection (CTDEP) Office of Long Island Sounds Programs (OLISP), New York State Department of Public Service (NYSDPS) Article VII, and U.S. Army Corps of Engineers (USACE).

Pepco Holdings, Inc. – Mid-Atlantic Power Pathway Project, Bay and River Technical Studies, Chesapeake Bay, Maryland. Served as task manager for environmental impact evaluations related to fish, EFH, sediment quality, water quality, and marine protected species for the submarine cable component of the Mid-Atlantic Power Pathway (MAPP) project. Provided review and oversight on ecological risk assessment, benthic biology, sensitive species, and EMF analyses for the Project. Directed the completion of analytical modeling conducted by specialty subconsultant to predict potential sediment suspension impacts from jet plow embedment and incorporated results into final permit document.

Cape Wind Associates, LLC – Renewable Energy Project, Nantucket Sound, Massachusetts. Served as Senior Scientist and reviewer of environmental assessments and regulatory permitting for a proposed renewable electric generating facility involving installation of 130 offshore wind turbine generators with a potential to generate 454 MW in Nantucket Sound, Massachusetts. Task manager for completion of fisheries, marine protected species, underwater acoustics, underwater EMF, and socioeconomic environmental resource assessments. Supervised and coordinated the preparation of the Final Environmental Impact Report (FEIR) for Massachusetts Environmental Policy Act (MEPA) permitting for these topics. Coordinated and reviewed data and developed technical reports on these topics in support of the National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) developed by the Minerals Management Service (MMS).

PSEG Power LLC – Cross-Hudson Project, Lower Hudson River between New Jersey and Manhattan, New York. Managed the completion of environmental impact assessments and regulatory permitting for the construction of a submarine electric cable system. Responsible for the completion of marine environmental resource and impact evaluations including aquatic resources, endangered and threatened species, and water and marine sediment quality assessments. Managed analytical modeling and risk assessment studies and worked closely with the New York State Department of Environmental Conservation and New York State Department of State to assess impacts and develop certificate conditions and a monitoring plan that was acceptable to the client and to the agencies.

TransÉnergie U.S. Ltd. – Cross Sound Cable Project, New Haven, Connecticut to Brookhaven, New York. Co-Project Manager for completion of regulatory permitting requirements for the installation of a 24-mile electric transmission line, and fiber optic underground and submarine cable system, and associated land-based facilities. Responsible for the completion of environmental resource evaluations including managing field efforts and preparing supporting documentation on existing resources, impact assessments, and mitigation measures related to aquatic resources, avian resources, endangered and threatened species, water and marine sediment quality, and coastal wetlands. Coordinated and managed the preparation of the following required federal, state, and local regulatory permits and reviews.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of	:	
WEST POINT PARTNERS, LLC	:	Case 13-T-0292
Application of West Point Partners, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	:	

Q. Please state your name, employer, and business address.

A. **J. Christopher Hocker, West Point Partners, LLC, 501 Kings Highway East, Suite 300, Fairfield, Connecticut 06825.**

Q. For what parts of the application are you responsible?

A. **Exhibits 2 (Location of Facilities), 3 (Alternatives Analysis), 6 (Local Economic Effects), 9 (Cost of Facility), E-1 (Description of Proposed Transmission Lines), E-2 (Other Facilities), E-4 (Engineering Justification), and Appendix E-4A (An Assessment of the Impacts of the West Point DC Transmission Project on the New York Electric System) were prepared under my supervision.**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of	:	
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Application of West Point Partners, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	:	

PREPARED SUPPLEMENTAL TESTIMONY OF CHRISTOPHER HOCKER MAY 2, 2014

Christopher Hocker, Vice President
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Q. What is the purpose of your supplemental testimony?

A. To introduce exhibits comprised, *inter alia*, of the responses to discovery demands served on West Point Partners and requests by the Department of Public Service for additional information; to describe the evaluation West Point Partners has undertaken, in consultation with ESS and other consultants and contractors, since the filing of our Application of alternative locations for the converter stations, the river-to-land cable transitions and the upland cable routes; and to address several concerns that have been raised in public comments.

Q. What exhibits are you referring to?

A. Exhibits CH-1 and CH-2 are aerial photographs showing the original route for the upland cables in Athens and Cortlandt, respectively, and new alternative routes we have identified since the Application was filed. Exhibits CH-3 and CH-10 and CH-11 are responses to requests for additional information made by the DPS staff as a product of its initial review of the Application. Exhibits CH-4 through CH-9 are responses to discovery demands made by various parties. For Exhibits CH-3 through CH-11 I am identifying the exhibits as a convenience. Other witnesses whose testimony accompanied the Application are responsible for the particular responses and materials provided in many of those exhibits.

Q. What is the genesis for Exhibits CH-1 and CH-2?

A. In discovery, WPP has been asked for information concerning both the evaluation we undertook of potential alternative routes and sites we identified in Exhibit 3 of the Application and the possibility of using other alternative locations. Also, many, if not most, of the critical comments that we have received and that have been submitted to the Commission concern the locations we have identified for the converter stations and the upland cable routes. Many of those comments are driven by concerns that we believe are wholly unwarranted concerning

electromagnetic fields and public health and safety and loss of property values. However, other comments are driven by legitimate concerns with impacts such as visual and noise impacts from the converter stations and construction related disruptions. Although we are convinced and remain convinced that the cable itself, being buried, armored and properly designed, will pose no adverse impacts after construction is complete, we have examined alternative routes to minimize the number of residents inconvenienced during construction at both the northern and southern ends. We have also examined potential alternative locations for both converter stations.

Q. Have you identified any alternative sites for the Northern and Southern Converter Stations that are preferable to the sites identified in the Application?

A. No. But I want to reiterate that in neither case have we yet identified the optimal layout for the converter station structures, because we require a full range of agency and community input regarding their concerns. Once those are understood in their totality, we intend to optimize our design to fit each location in terms of minimizing the occupation and disturbance to wetlands, in the case of the Northern Converter Station, and the visual and noise impacts for nearby residents and members of the public in both locations.

Q. Have there been modifications to the dimensions of any of the converter station structures since the Application was filed?

A. Yes. The gantry structure above the main transformers was reported to be 85 feet high in Figures N-1 and S-1 provided in our August 22, 2013 supplemental information filing. This was based on preliminary information from Siemens, which was very conservative, as is typical at that point in design development. Siemens has since informed us that the structure will be no more than 60 feet high.

Q. Are the other dimensions shown on those figures still accurate?

A. Yes.

Q. Have you identified alternative landfall sites for the transition from in-river to upland cable that are preferable to the sites identified in the Application?

A. For the Southern terminus, no, we have not. At the northern terminus there are landfall sites that are either equally desirable or, in conjunction with alternative upland cable routes, potentially preferable.

Q. Have you identified upland cable routes that are preferable to those identified in the Application?

A. Yes, potentially. In Cortlandt we have identified alternate routes for both the upland DC cable between the landfall and the converter station and the AC cable connecting the converter station to the Buchanan Substation. In Athens we have identified alternative routes for the upland DC cables and two alternative landfalls.

Q. Please describe the new routes you refer to.

A. At the southern end we have identified a route to bring the DC cable from the landfall directly to the Southern Converter Station entirely on the Consolidated Edison property without using 9th Street and Highland Avenue, and a route that would keep the AC cable on Consolidated Edison property for about half the distance to the Buchanan Substation, avoiding 11th Street completely and avoiding the residential portion of Broadway. While this will require close coordination with Spectra in its plans for a new natural gas pipeline, we have concluded it is feasible to do so. The new route and the original route are shown on **EXHIBIT ____ [CH-1].** In Athens we have identified three alternative cable routes and two alternative landfalls that have a different mix of pros and cons than our original route and that others may find preferable. We are, on balance, indifferent to choosing among the four routes. In each case, use of the route

would require cooperation of the Town and Village of Athens. All four routes and three landfalls are depicted on **EXHIBIT ____ [CH-2]**.

Q. Returning to the converter station sites, has WPP undertaken any efforts since the filing of the Application to examine alternative sites?

A. Yes. At the northern end concerns were expressed by both the New York State Department of Environmental Conservation and the United States Army Corp of Engineers about impacts to wetlands and in response we reexamined other possible sites. In Cortlandt, Town officials have suggested that there are several sites that are preferable and we examined those proposals both on the ground and by examining maps and aerial photographs.

Q. What has led you to conclude that the Northern Converter Station site you have selected remains the preferred site?

A. Four factors come into play in siting the Northern Converter Station: the location of the Leeds Substation, wetland impacts, visual impacts on the Olana State Park and historic site and the nearby Catskill-Olana SASS, and land use impacts. The location of the Northern Converter Station is constrained by the location of the Leeds Substation in that it must be reasonably close to the Leeds Substation to minimize overall interconnecting cable length. The Leeds Substation itself is surrounded by the NYSDEC Class 1 wetland HN-108, which extends for almost the entire 1.7 mile distance between Leeds Athens Road and Schoharie Turnpike. As a result, there exists no practicable opportunity for siting the Northern Converter Station without having an impact on this wetland. That by itself is not sufficient reason for locating the converter station directly in the wetland but, in combination with other factors, the wetland location cannot be avoided without producing other less acceptable impacts. The preferred site is near the Leeds Substation and the Athens Generating Station (**Exhibit ___ [CH-2**]). It is at the same elevation

as the Leeds Substation and at a lower elevation than the Athens Generating Station. The surrounding area can be described as a combination of wooded, open and underdeveloped land with sparse residential development restricted to the nearby roads. Locating the converter station elsewhere in the area would introduce a new land use into this rural landscape. In contrast, locating it near the existing electrical infrastructure avoids what would otherwise be the intrusive impacts of introducing a new, incompatible land use. Finally, because the elevation of the chosen site is relatively low, the visual impacts of the converter station are minimized. The Olana State Park and nearby Catskill-Olana SASS are resources that require protection from visual intrusions. As described in the Supplemental Visual Analysis report **EXHIBIT ___ [CH-10]**, efforts to locate the converter station either partially or entirely out of the wetland would cause the converter station to be visible from at least some locations within the Olana site. As a consequence of the interplay of these four factors, the preferred location for the Northern Converter Station remains as identified in the Application.

Q. Turning to the Southern Converter Station, what efforts has WPP undertaken to examine alternative converter station sites?

A. Once we had selected the Buchanan North Substation as the point of interconnection, we looked for sites that appeared to be properly zoned, of adequate size, available, and, ideally, vacant. The preliminary survey consisted of a review of tax maps and a visual "drive-by" reconnaissance of the general area in the vicinity of the Buchanan North substation. In this survey, we identified seven such sites. We also reached the reasonable conclusion that sites located on vacant land owned by Entergy as part of its Indian Point-related real estate would not be available to WPP. WPP became aware of the potential availability of the Con Edison site for purchase at approximately the same time that it began an initial survey of potential southern

converter station sites, and ultimately received a map of the property delineating the areas that would be available. After examining the Con Edison property and concluding that it was superior to the other possible sites, being well suited for the proposed purpose without creating any impacts that could not be mitigated, located in close proximity to the point of interconnection, and available for purchase at some point in the future (as it had been in the relatively recent past), WPP saw no need for additional analysis of the other possibilities. This process is also described at pages 2-3 of **EXHIBIT ___[CH-6]**. Subsequent to filing the Application, Town officials in Cortlandt have suggested other sites to examine. Ten additional sites were identified by the Town in its Interrogatory/Document Request Directed To Applicant of November 27, 2013 (Cortlandt IR-1). We visited each site to the extent access was available on March 27, 2014. Three of the parcels are owned by Entergy, which we consider to not be available. Three parcels are owned by Consolidated Edison, but, unlike the preferred site, have not been identified as excess property to be sold and appear to be suitable for substation expansion. The remaining four sites are either too small, have extreme topographic features that would make construction very difficult or have no readily available access to the River or a combination of those factors.

Q. Returning to the alternate DC cable routes in Athens, please briefly describe each one.

A. The original preferred route is as described in Exhibit 2 of the Application. Alternative 1 would proceed north, rather than south, on Flats Road Extension to Howard Hall Road, north to Schoharie Turnpike, east to Union Street and then either north on Washington Street to the original landfall or directly to a new landfall location using the southerly of the two Peckham Industries landings.

Q. Are you aware of Central Hudson Gas & Electric's plans to install a natural gas line along a portion of Alternative 1?

A. Yes, we have reviewed construction drawings Central Hudson Gas & Electric submitted to the PSC in PSC Case 13-G-0336 in November of 2013 that depict how Central Hudson Gas & Electric plans to install the line it was authorized to build to serve Peckham Industries. We have reviewed those drawings with our cable installation contractor and believe there is room for both facilities to be installed and operated safely.

Q. Please describe Alternative 2.

A. Alternative 2 makes use of the National Grid right-of-way or lands immediately adjacent to the north-east, proceeding south on Flats Road Extension, east on Leeds Athens Road to the National Grid ROW and then proceeding south on the northeasterly side of the ROW to a new landfall location in the vicinity of the present overhead transmission line river crossings.

Q. Previously you have stated that National Grid had plans for its ROW and would not make the ROW available to WPP. Has National Grid changed its plans?

A. We have monitored the PSC's AC transmission line proceedings and it now appears that attention is focused on installing a new AC line from National Grid's Edic Substation to the Consolidated Edison Pleasant Valley Substation, which would cross the Hudson River at a point north of Athens. This suggests that the ROW from the Leeds Substation to the River would not be used for a new AC line as was proposed when the New York Transmission Owners first submitted plans.

Q. Has WPP conducted any examination of what would be involved in using Alternative 2?

A. Yes. A description of the environmental context based on a desk-top review that ESS conducted is provided on pages 77-79 of **Exhibit ___ [CH-4]**. Because the ROW and adjacent properties are dominated by wetlands and, at the River, are located in a Significant Coastal Fish and Wildlife Habitat there are some potentially adverse impacts associated with using Alternative 2. However, the wetland has previously been disturbed and once construction and restoration is completed, there would be no lingering impacts and no permanent loss of wetland or habitat. WPP has initiated a field assessment of the National Grid ROW to determine whether there are any obstacles to using a route that parallels and is adjacent to the ROW.

Q. Please describe Alternative 3.

A. Alternative 3 would start the same as Alternative 2 but would employ the National Grid ROW only as far as State Route 385 and then turn northeast on Route 385 (Washington Street) and proceed to either of the two Peckham Industries landings. Alternative 3 would avoid the impacts associated with the HDD operation associated with Alternative 2 but would require construction-related disruptions along Washington Street in the Village.

Q. You stated that WPP is indifferent to which of these alternative routes is used. How should the Commission decide which route to adopt?

A. The other parties will have an opportunity to present their positions on these alternatives. Any of these alternatives will require the cooperation of the Town of Athens and the Village of Athens. As a consequence we believe the Town and Village play pivotal roles in advising the Commission which route or routes are preferable to them.

Q. Why do you believe that the cooperation of the Town and Village is required?

A. At a minimum, WPP would require permits from each to install the cable in the public roads that are under their jurisdiction. To the extent that for any of these roads the Town or

Village does not hold rights sufficient to grant WPP permission to use the road, I am advised that the Town or Village has authority to acquire such rights. Moreover, in the case of the National Grid ROW, I am advised that the Town similarly has the authority to acquire an easement within the ROW that it could convey to WPP.

Q. Concerns have been raised about disruptions caused by installation of the upland cable in the Town and Village of Athens. Please describe how installation will be accomplished.

A. Regardless of which route is ultimately used, some use of local roads will be required, and some temporary inconvenience to the public using those roads will occur. The details will be laid out in a series of plans, including a traffic control plan, engineering plans and dust control plans, all of which will be included in the Environmental Management and Construction Plan. These plans will be subject to review by the relevant highway authorities. As a general matter, upland cable construction will occur in two construction seasons. In the first season the trench will be excavated, and high density plastic conduits and splice vaults with manholes will be installed. The conduits will be encased in concrete. Depending on progress there will be two work crews. There will be a four-person crew installing the splice boxes along the route and a six to eight person crew excavating, installing conduit, placing concrete, and backfilling. When this work is completed, the disturbed roads will be fully restored. Depending on the route's subsurface conditions, weather, hours of work and material deliveries, this process will take between four and six months to complete. However, the entire route will not be disrupted for the entire time. The work will be done in stages so that approximately no more than sixty (60) feet of trench will be opened up at any single time. Each vault will be excavated and installed in one or two days. Daily construction will generally end each day by 7:00 p.m. Work schedules will

be coordinated to minimize interference with school bus schedules. Any trench remaining open at the end of the day will be covered with steel plates and the street open to traffic. Excavated material will not be stockpiled next to the trench, but if suitable, it will be used for backfill, with excess or unsuitable material loaded onto a truck for proper disposal. As the work progresses, the areas previously covered with steel plates will be restored with asphalt pavement. During construction, traffic control will be in place with flaggers and signage in order to protect the public and to minimize disruptions to local businesses. Dust control measures will be taken to minimize airborne material. Material (pipes and vaults) will be stored off site and delivered to the work locations as needed each morning. In residential areas, material not used will be returned to the storage yard at the end of the day. In more rural areas, conduit and vaults will be laid along the side of the road where practical and safe, subject to approval.

Q. Explain the process in the second construction season.

A. In the second season the cable will be pulled through the installed conduit. This will be much less disruptive to traffic since crews will be conducting work only at the locations of the splice vaults accessed through the at-grade manholes. The work will again proceed in stages as the cable sections are pulled from splice vault to splice vault between the river and the converter station. The cable reels will be stored at a central staging area and dispatched each day to a vault where the cable will be pulled through the conduits into the next vault with a motorized winch. Splicing work will be performed inside each vault. Each vault will have four splices to complete two HVDC cables and two fiber optic cables. The splice crew will consist of three to four persons who will complete all the work in a vault before moving to the next. This phase is expected to be completed in two to three months working ten (10) hours per day or until dusk. Before the crew leaves for the day the vault will be covered.

Q. Concerns have also been raised about impacts to existing sewer and water infrastructure in the local streets. Do you have any reaction to this concern?

A. WPP's affiliate, PowerBridge, has experience working around aged infrastructure. We encourage the Town and Village to look at the installation of the WPP cable as an opportunity to repair and/or replace portions of its utility infrastructure in need of attention. WPP will be conducting pre-installation surveys of the existing infrastructure to understand what is buried in the streets, where it is located and, to the extent possible, the condition it is in. In short, our contractors will need to know as much about the existing infrastructure as can be known. To the extent areas are identified in advance that are likely to require repair or replacement our contractors will coordinate with the local public works departments in making any needed repairs or replacements. In locations where cable installation could jeopardize the condition of existing infrastructure, we will take measures required to assure the integrity of the existing infrastructure or, if necessary, to replace it.

Q. In another Commission proceeding (Case 10-E-0501) the Sierra Club has posted comments that state:

> **And, consider the special circumstances of the Athens Generating plant, a new state-of-the-art gas power plant that opened some eight years ago without a sufficient customer base. Athens has faced ongoing financial difficulties. Because of constraints in the transmission corridor between the Capitol Region and northern Dutchess County, Athens Gen cannot offer its production for sale in the Lower Hudson-Metro NY, high use market. As a consequence, Athens Gen has affiliated with a merchant transmission developer, West Point Partners, which has applied for a 1,000 MGW submarine cable permit to transport production from Athens under the Hudson River to Westchester County. That power is from an existing plant in Load Zone "G", but becomes a new supply source to our current market, which negates the need for CPV.**

Is that statement accurate?

A. No. There is no commercial, business, electrical or physical connection or relationship between the West Point Project and the Athens Generating Facility. Nor is there any affiliation between the owners of the two projects.

Q. Concerns have been expressed that the converter station in Verplanck will result in the elimination of Letteri Field. Is that true?

A. No. Neither the construction nor the operation of the converter station will interfere with the use of Letteri Field or with the parking areas used for the field or for Saint Patrick's Church.

J. Christopher Hocker

Christopher Hocker is Vice President, Planning for the proposed West Point Transmission project. He serves in a similar capacity for the Hudson Transmission project and Neptune Regional Transmission System, responsible for pre-construction planning, coordination, permitting, regulatory compliance, and community relations for the underwater electric power transmission systems that interconnect New York with electricity markets in the Mid-Atlantic States. Neptune, in operation since 2007, connects Long Island with the PJM system in Sayreville, New Jersey, and Hudson, completed in June 2013, connects New York City to PJM in Ridgefield, New Jersey.

Mr. Hocker has more than 25 years of experience in the electric power industry that encompasses project planning, licensing and permitting, government and community relations, business development, and corporate communications. Between 1990 and 2004, he was employed by Enel North America, Inc., and its predecessor company, CHI Energy, Inc., which specialized in renewable energy generation. With CHI, he initially focused on licensing, planning, and government and community relations for a proposed 1500-MW power project, responsible for preparing successful siting applications for the project generating facility as well as an associated 345-kV transmission line. Later, as Senior Vice President, Corporate Affairs for CHI, he was involved in all aspects of business development, strategic planning, communications, and government relations. He served on the board of directors of the National Hydropower Association, a Washington, D.C.-based trade association of utility and independent hydropower owners, including one year as president of the association.

Previously, Mr. Hocker was a communications consultant for companies involved in the engineering, energy, environmental and independent power fields.

Education

Bachelor of Arts, English and Communication, Stanford University 1973.

Professional experience

2004-Present: Vice President, Planning -- Power Bridge, LLC and Affiliated Companies

Responsible for pre-construction planning, coordination, permitting, regulatory compliance, and community relations for Hudson Transmission Project and Neptune Regional Transmission System. Both underwater HVDC electric transmission cable systems, Hudson and Neptune connect New York to electricity markets in the Mid-Atlantic States. Completed in June 2013, Hudson connects New York City to PJM in Ridgefield, N.J., and Neptune, in operation since 2007, connects Long Island to PJM in Sayreville, N.J. Similarly responsible for the proposed West Point Transmission underwater HVDC cable transmission system, which will facilitate the transfer of energy from upstate to downstate New York.

1990 – 2004: Senior Vice President, Corporate Affairs (2000-2004) and Vice President (1992-2000), Enel North America, Inc.

Worked directly with CEO and senior executive team on all aspects of company growth and development, handling corporate communications and government and community affairs for U.S. subsidiary of a $30 billion European energy company (formerly CHI Energy, Inc.). The company focused on hydro, wind power, and other renewable technologies in the U.S. and Canada. Responsibilities also included sourcing and origination of project development and acquisition, and corporate M&A opportunities in the United States and Central America, and project environmental compliance and licensing/permitting.

1988 – 1990: Independent Consultant

Independent contractor producing wide variety of written communications: brochures, newsletters, business plans, magazine articles, manuals, permit applications, etc. Utility, industrial manufacturing, engineering, and environmental consulting clients.

Published articles

- "The LIPA Connection," *Transmission & Distribution World*, August 2007 (with Richard Kessel and John Duschang)
- Articles in *World Power 2001, World Power 2002, and Fundamentals of the World Power Industry (Petroleum Economist) 2002.*
- Former Contributing Editor, *Independent Energy* magazine; wrote numerous articles on all aspects of the independent power business, 1989-1996.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of	:	
WEST POINT PARTNERS, LLC	:	Case 13-T-0292
Application of West Point Partners, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	:	

Q. Please state your name, employer, and business address.

A. **Joel I. Klein, Ph.D., RPA, John Milner Associates, Inc., 1 Croton Point Avenue, Croton-on-Hudson, New York 10520.**

Q. **For** what parts of the application are you responsible?

A. **Exhibit 4.11 (Cultural), Appendix 4F-1 (Phase 1A Cultural Resources Survey, Northern Converter Station and Associated Land Components), and Appendix 4F-3 (Phase 1A Cultural Resources Survey, Southern Converter Station and Associated Land Components).**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

JOEL I. KLEIN, Ph.D., RPA
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EXPERIENCE PROFILE

Dr. Klein joined John Milner Associates, Inc. after nearly two decades with Foster Wheeler Environmental Corporation and its predecessors, where he was Manager of the Cultural Resources Group and Project Environmental Coordinator. He has been responsible for cultural resource studies associated with major energy and infrastructure projects throughout the United States. These include nuclear, fossil-fuel, hydro-electric and wind-energy generation projects; electric and gas transmission projects (including extensive experience with FERC-regulated projects); highway projects; telecommunication projects, and large and small-scale housing and commercial developments. Dr. Klein's experience includes management of large-scale cultural resources survey and evaluation projects; preparation of environmental impact assessments under NEPA and various state environmental laws such as New York's SEQRA, and Articles VII and X of the NYS Public Service Law; NHPA Section 106 compliance documentation; development and supervision of environmental mitigation programs; development and supervision of environmental field research quality assurance programs; and development of cultural resources and environmental industry outreach training courses.

EDUCATION

Ph.D.	New York University	Anthropology	1981
M.A.	New York University	Anthropology	1973
B.S.	City College of New York	Anthropology	1970

PROFESSIONAL CERTIFICATION

1977-present Registered Professional Archeologist (RPA) No. 10466

ADDITIONAL TRAINING

Advisory Council on Historic Preservation Advanced Training Course in NHPA Section 106 Review
National Park Service/Tennessee Valley Authority Archaeological Site Stabilization Training Course
Federal Bureau of Investigation Location of Human Remains Training Course
EPA Approved Health and Safety Training for Hazardous Waste Operations
OSHA Hazardous Waste Health and Safety Supervisor Training and
OSHA Excavation Safety Training for Competent Persons
FEMA Coordinating Environmental & Historic Preservation Compliance Course

PROFESSIONAL AFFILIATIONS

Society for American Archaeology
New York Archaeological Council

Professional Archaeologists of New York City
New York State Archaeological Association (Life Member)
Archaeological Society of New Jersey (Life Member)

REPRESENATIVE NATURAL GAS PIPELINE AND ARTICLE VII AND X EXPERIENCE

2013 ESS Group, Inc, West Point Transmission Project. Project manager responsible for Phase IA cultural resources surveys for proposed 320 kV transmission facilities from Greene County to Westchester County, New York, including two converter stations, buried land cables, and a submerged Hudson River cable, in support of a NYS Public Service Commission Article VII application.

2008-2010 Woodard & Curran, Calais LNG Terminal and Pipeline Project. Project manager responsible for historic architectural and archeological surveys of the areas of potential effect (including visual and noise impacts) associated with a FERC-regulated 23-mile natural gas pipeline and LNG terminal facility in northern Maine.

2008-2010 Consolidated Edison Company of New York, M-29 Transmission Line Project. Project Manager responsible for development of prior-disturbance documentation and archeological sensitivity evaluations for a 7-mile underground high-voltage transmission line in Manhattan, the Bronx, and Yonkers, NY. Also responsible for preparation and implementation of a construction monitoring and unanticipated human remains discovery protocol.

2008-2009 Caprock Environmental Services and Rockies Express Pipeline LLC, Rockies Express East Pipeline. Principal-in-Charge, responsible for data recovery projects at three archeological sites located in Illinois and Indiana along a FERC-regulated natural gas pipeline.

2008 NRG and ExxonMobil Development Company, Blue Ocean Energy Project. Principal-in-Charge of a literature and site file search for four (4) on-shore gas pipeline route alternatives totaling approximately 87.7 miles through portions of Monmouth and Middlesex Counties, NJ.

2008 ESS Group, Inc., South Pier Improvement Project. Project Manager responsible for assessment of impacts to historic properties associated with the expansion of the Gowanus Generating Station, 26th Street, Brooklyn, NY.

2008 Consolidated Edison Company of New York, Parkview Feeder Project. Project Manager responsible for supervision of archeological monitoring during construction of a 138-kV high-voltage underground transmission line in the Bronx.

2007-2008 NRG, Inc. and Rockies Express Pipeline LLC, Rockies Express East Pipeline (Spread 4). Principal-in-Charge, responsible for Phase I and Phase II cultural resource surveys, including geoarcheological deep-testing, for a 40-mile segment of a FERC-regulated natural gas pipeline in Indiana.

2007 ESS Group, Inc. and Hudson Transmission Partners, Hudson Transmission Project. Project Manager responsible for Phase IA cultural resources surveys for a proposed 345-kV underground/submarine electrical transmission line between Bergen County, NJ and New York, NY. Responsible for preparation of cultural resources portions of NYS Article VII application and preparation of expert testimony.

2003 Athens Generating Company, Historic Architectural Re-survey. Project Manager in charge of updating and revising the historic architectural survey o the viewshed associated with the Athens Generating Facility, Greene County, New York.

2002-2003 Epsilon Associates, Inc. and Besicorp Development Corporation, Besicorp-Empire Development Project Natural Gas Pipeline. Project Manager responsible for archeological surveys carried out in conjunction with preparation of a New York State Article VII application for a 6.5-mile natural gas pipe line in Rensselaer County, New York.

2002 ENSR International Liberty Generating Project, Phase 1A Archeological Survey. Project Manager responsible for background research and archeological sensitivity evaluation for a proposed underground electric transmission cable on Staten Island, New York.

2002 Athens Generating Company, Phase II Archeological Evaluation. Project Manager in charge of assessing the significance of archeological sites located along the construction ROW of a gas transmission line associated with the Athens Generating Facility, Greene County, New York.

1999-2002 Epsilon Associates, Inc. and Besicorp Development Corporation, Empire State Newsprint Electric Transmission Line Project. Project Manager responsible for archeological and architectural surveys carried out in conjunction with preparation of a New York State Article VII application for a 345kV electric transmission line in Rensselaer County, New York.

2001-2002 PSEG Power Cross Hudson Project. Project Manager responsible for Phase IA cultural resources surveys for a proposed 345-kV underground/submarine electrical transmission line between Bergen County, NJ and New York, NY. Responsible for preparation of cultural resources portions of NYS Article VII application and preparation of expert testimony.

2001-2002 Environmental Science Services and Northeast Utilities Services Co., HVDC Submarine Cable CLIC Project. Project Manger responsible for preparing a cultural resources impact evaluation for a proposed submarine cable between Norwalk, Connecticut and Hempstead Harbor, Long Island, New York.

1999-2002 ENSR Corporation and Besicorp Development Corporation, Empire State Newsprint Project. Project Manager responsible for archeological and architectural surveys carried out in conjunction with preparation of a New York State Article X application for a proposed gas-fired cogeneration power plant/newsprint facility in Rensselaer, New York.

2001 Environmental Science Services, LIPA-CL&P Submarine Cable Replacement Project. Project Manger responsible for preparing a cultural resources impact evaluation for a proposed submarine cable between Norwalk, Connecticut and Northport, Long Island, New York.

2000-2001 Environmental Science Services, Inc. and Orion Power, Astoria Repowering Project. Project Manager responsible for cultural resources component of New York State Article X application for an 1800-MW gas-fired power plant in Queens, New York.

2000-2001 Atlantic Renewable Energy Corp., Fenner Wind Power Project. Project Manager responsible for a Phase I cultural resources survey of a 1400-acre study area associated with a proposed wind-powered electric generating project in Madison County, NY.

1998-2001 U.S. Generating Company, Athens Cogeneration Project, Greene Co., NY. Project Manager responsible for Phase I archeological surveys of project intake and discharge water lines,

access roads and transmission lines; presentation of expert testimony to the New York State Board on Electric Generation Siting and the Environment; assisting project attorneys with NHPA Section 106 compliance requirements associated with the Project's Army Corps of Engineers permit.

2000 Caithness Energy Project. Project Manager responsible for supervision of Phase I archeological survey of the 42-acre site associated with a proposed power plant in Medford, Suffolk Co., NY. Also responsible for supervision of associated architectural surveys and assessment of the project's visual impacts on historic structures.

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1998-2001 American National Power/Environmental Science Services, Inc., Ramapo Energy Project. Project Manager responsible for Phase I archeological and architectural surveys of a 50-acre parcel proposed for a gas-fired power plant; also responsible for preparation of relevant sections of a NYS Article X application and presentation of expert testimony to the New York State Board on Electric Generation Siting and the Environment..

1999 Foster Wheeler Environmental Corp./New South Associates, Carolinas Pipeline Project. Project QA Archeologist responsible for review of project reports to insure compliance with Federal Energy Regulatory Commission requirements.

1999 Environmental Science Services Inc./TransEnergie, U.S. Ltd. Cross Sound Cable Project. Project Manager responsible for conducting a Phase 1A archeological survey of the landfall and upland components in Suffolk County , New York, of a proposed a submarine electrical transmission line across Long Island. Also responsible for assisting in the preparation of an Article VII application to the New York State Board on Electric Generation Siting and the Environment.

1997-1998 Carnegie Interstate Pipeline Company/Natural Gas Storage Corporation of North America and Foster Wheeler Environmental Corporation, Hustead Pipeline and Storage Field Project. Project Manager responsible for a Phase 1 cultural resources survey of a 21-mile natural gas pipeline and associated storage field in Fayette and Greene Counties, Pennsylvania; responsible for preparation of Resource Report 4 of FERC certificate application.

1997-1998 Federal Energy Regulatory Commission, Industry Outreach Training Courses. Project Manager. Updated and presented cultural resources components of FERC training courses on Resource Report Preparation and Post-Certificate Environmental Compliance.

1997 NRG, Inc. and Vector Pipeline L.P., Project Manager and co-Principal-Investigator, responsible for Phase I cultural resource surveys for a 114-mile segment of a FERC-regulated natural gas pipeline in Michigan.

1988-1997 Federal Energy Regulatory Commission (FERC), Office of Pipeline Regulation (OPR). Cultural Resources Lead for FERC's Environmental Support Services contractor. Responsible for supervising the preparation of cultural resources sections of Environmental Impact Statements and Assessments for the following projects: APEC Pipeline (Pennsylvania, Ohio, West Virginia, New Jersey) (1988-89); Champlain Pipeline (Vermont, New Hampshire, Massachusetts) (1989); Iroquois Pipeline (New York, Connecticut) (1989-91); Indiana-Ohio Pipeline (1989); Gateway Pipeline (Alabama) (1989-92); Northwest Pipeline Corp. Expansion I (Washington, Oregon, Idaho, Wyoming, Colorado, Utah) (1991-92); Eminence Dome Project (Mississippi) (1991); FGT St. Petersburg/Sarasota Connector (Florida) (1991); West-East Crossover Project (Louisiana, Mississippi) (1991-92); Yukon-Pacific LNG Project (Alaska) (1992-93); FGT Expansion III Project (Florida, Alabama, Mississippi, Louisiana) (1992-94); Liberty Pipeline (New York, New Jersey) (1992-1993);

Northern Border Pipeline (Illinois, Indiana, Iowa) (1996-97); PNGTS/Maritimes Phase 1 Joint Facilities Project (Maine, New Hampshire, Massachusetts) (1996-97); Destin Pipeline (Alabama) (1996-97); Columbia Market Expansion Project (Pennsylvania, West Virginia, Ohio) (1996-97); Seasonal Expansion Project (1996-97); Great Lakes 1998 Expansion (1997); PNGTS Project (Maine, Vermont, New Hampshire) (1997).

1994-1997 Northwest Pipeline Corporation Environmental Alliance, Cultural Resources Program Manager. Responsible for development of cultural resources workscopes; supervision of cultural resources sub-contractors; liaison with SHPOs and FERC; and/or preparation of cultural resources components of FERC Resource Reports for the following 7C, Section 311 and Blanket Certificate projects: Bullock Lane Line Lowering (Oregon); LaGrande Meter Station (Oregon); Ridges Basin Pipeline Relocation (Colorado); Sumas Compressor Station (Washington); 5 cathodic protection sites (Idaho and Wyoming); Longview Fibre Meter Station (Washington); NWPC Madsen Creek Removal Project (Washington); Soda Springs Railroad Replacement (Idaho); Durango Replacement Project (Colorado).

1993-1996 Federal Energy Regulatory Commission, Cultural Resources and Environmental Industry Outreach Training Courses, Task Manager and Cultural Resources Lead. Developed and presented course materials for FERC training courses intended for pipeline industry personnel. Courses covered certificate application preparation (including Resource Reports), FERC cultural resources reporting guidelines, NHPA compliance, Native American consultation, and the relationship between pipeline construction techniques and cultural resources impacts.

1993-1996 Northwest Pipeline Corporation, Expansion II Project, Cultural Resources Program Manager. Responsible for scoping and supervision of cultural resources surveys, evaluations, and mitigation; Native American consultation; field sub-contractor management; liaison with FERC and the Wyoming, Oregon, Washington, and Idaho SHPOs; preparation of cultural resources sections of applicant-prepared EA.

1994-1995 Northwest Pipeline Corporation, Hood River Expansion Project. Cultural Resources Lead responsible for scoping cultural resources surveys; Native American consultation; liaison with Oregon SHPO; and preparation of an unanticipated discoveries plan.

1993-1994 Federal Energy Regulatory Commission (FERC-OPR). Project Manager/Co-Principal Investigator, NGPL Pipeline Cultural Resources Enforcement Task. Responsible for preparing an assessment of construction-related damage to two archeological sites in Oklahoma; provided technical support to FERC's legal staff in the Office of Enforcement.

1989-1993 Federal Energy Regulatory Commission, Cultural Resources Compliance Support, Task Manager. Supervised and participated in: the review of Phase 1, 2 and 3 cultural resources reports submitted to FERC by certificate applicants on more than 50 natural gas pipeline projects; preparation of summary documentation for the Advisory Council on Historic Preservation; cultural resources field inspections; preparation of proposed rulemaking associated with Order 555.

1989-1992 Federal Energy Regulatory Commission, Manager/Co-Principal Investigator, Mobile Bay Pipeline Cultural Resources Enforcement Task. Responsible for preparing an assessment of damage to more than 200 archeological properties which resulted from the construction a natural gas pipeline Alabama; provided technical support to FERC's legal staff in the Office of Enforcement.

1990 InterPower of New York, Halfmoon Cogeneration Project. Supervised preparation of a multidisciplinary assessment (air and water quality, noise, land use, cultural resources, aesthetics, terrestrial ecology and wetlands, transportation, and socioeconomics) of the comparative environmental impacts of a gas fueled alternative to a proposed 200 MW coal-fired cogeneration facility in Saratoga County, New York. Presented testimony to the New York State Board on Electric Generation Siting and the Environment.

1988-1990 Federal Energy Regulatory Commission (FERC), Office of Hydropower Licensing (OHL). Cultural Resources Lead for FERC's Environmental Support Services contractor. Responsible for supervising the preparation of cultural resources sections of Environmental Impact Statements for the Mt. Hope Pumped Storage Project (New Jersey) and the Summit Pumped Storage Project (Ohio).

1987-1990 InterPower of New York, Halfmoon Cogeneration Project, Cultural Resources Task Leader. In charge of scoping and supervision of archeological and architectural surveys at a proposed 200 MW coal-fired cogeneration site in Saratoga County, New York; preparation of NHPA Section 106 compliance documentation and input to New York State Article VIII application; evaluation of construction and operational impacts; liaison with SHPO and NYDEC; presentation of expert testimony to the New York State Board on Electric Generation Siting and the Environment.

1981-1983 New York State Electric and Gas, Somerset Station, Cultural Resources Task Leader. Responsible for review of cultural resources surveys and preparation of cultural resources sections of New York State Article VIII Application for a 600 MW coal-fired power plant in Niagara County, New York.

PUBLICATIONS

1999 CRM in Introductory Archaeology Textbooks. A review of "In the Beginning: An Introduction to Archaeology", ninth edition (by Brian Fagan). *Society for American Archaeology Bulletin* 17(3):33-34.

1997 Remarks Presented at the Annual Meeting of the American Cultural Resources Association. Plenary Session: Finding Common Ground. *ACRA Edition* 3(11):13-15.

1993 Alternatives to Archaeological Data Recovery. *Northeast Historical Archaeology* 21-22: 173-182.

1993 Review of "Final Archaeological Investigations of the John Ruth Inn Site, 7NC-D-126, Red Mill Road and Routes 4 and 273, New Castle County, Delaware" (by Ellis C. Coleman, Wade P. Catts, Angela Hoseth and Jay F. Custer). *Public Historian* 15(4)178-179.

1991 NEPA and Archeological Resource Management: the Consulting Firm Perspective. *1991 Proceedings of the Annual Meeting of the National Association of Environmental Professionals.*

1978 Kinsey's dilemma: An alternate solution to Fitting's 'client orientation'. *American Society for Conservation Archaeology Newsletter* 5(5):1821.

1978 *Archaeological Resources and Urban Development: A Guide to Assess Impact*. American Society of Landscape Architects Technical Information Series No. 7 (with P. Brace).

1978 The SHPO, Federal agencies and the contract archeologist: A cautious menage. *Proceedings of the American Society for Conservation Archaeology* 2.

1977 Comment on Turnbaugh. *American Antiquity* 42:637-8 (with J. Cotter, D. Day, and J. Pollack).

1975 Audiovisuals review of "Colonial-Six" (by James Deetz). *American Anthropologist* 77:904-905.

1974 An archaeological reconnaissance at the Peter Claesen Wyckoff House, Kings County, New York. *Bulletin of the New York State Archaeological Association* 62:24-36 (with B. Salwen and S. Bridges).

1973 Models and hypothesis testing in historical archeology. *Historical Archaeology* 7:68-77.

SELECTED PRESENTATIONS AT PROFESSIONAL MEETINGS

2010 Invited discussant at the National Trust for Historic Preservation-sponsored forum on "Flag and Avoid Archaeology" held at the 75th annual meeting of the Society for American Archaeology, St. Louis, Missouri.

2009 Viewshed Analysis for Alternative Energy Projects. Invited paper presented at the 25th Mineral Management Information Transfer Meeting, New Orleans, Louisiana.

2008 Cultural Resource Methods and Compliance for Wind Energy Projects. Presentation to Continuing Legal Education, Inc. seminar on Wind Energy Compliance, Austin, Texas.

2008 Section 106 for Permitting and Land Managing Agencies. Presentation to Continuing Legal Education, Inc. seminar on Historic Preservation and Energy Transmission Projects, Denver, Colorado.

2007 Landmarking "Ground Zero": The fight to save the archeological remnants of the World Trade Center. Part I: The World Trade Center and the National Register of Historic Places. Paper presented at the Annual Meeting of the Society for Historical Archaeology, Williamsburg, Virginia.

2002 Ethical Responsibilities of Industrial Archeologists to Communities with Hazardous Waste. Invited paper presented at the 31st Annual Conference of the Society for Industrial Archaeology, Brooklyn, New York (with Sydne Marshall).

1998 Why We Survey: Do New Reasons Mean New Approaches? Invited paper presented as part of the Symposium "Archaeological Survey for the Next Century I: Rethinking Purpose and Policy," at the 63rd Annual Meeting of the Society for American Archaeology, Seattle, Washington.

1997 Ivory Tower to the Twin Towers: An Update. Paper presented at the Annual; Meeting of the American Anthropological Association, Washington, DC.

1997 Archeological Employment in the Private Sector. Invited paper presented at a Professional Archeologists of New York City Forum: "Changing Career Paths in Archaeology," Barnard College, New York City.

1997 The Changing Role of CRM within Environmental Engineering Companies. Invited paper presented at the Annual Meeting of the American Cultural Resources Association, St. Louis, Missouri.

1997 Ivory Tower to the Twin Towers. Invited paper presented at the New York Academy of Sciences Symposium: "Praxis and Politics: Anthropologists in Non-Academic Settings," New York City.

1996 Industry's Perspective on Pending Changes in ACHP Regulations. Invited paper presented at the Annual Meeting of the American Cultural Resources Association, Sacramento, California.

1996 Cultural Resources, Hazardous Waste and Transportation Projects. Paper presented at the 74th Annual Meeting of the Transportation Research Board, Washington, DC.

1991 Alternatives to Archeological Data Recovery. Paper presented at the Edison Electric Institute Land Use and Cultural Resource Task Forces meeting, Valley Forge, Pennsylvania.

1989 Hazardous Site Archeology: Problems, Issues and Concerns. Paper presented at the First Joint Archeological Congress, Baltimore, Maryland (with Sydne Marshall).

1980 Archaeology, Atomic Energy and Cultural Resource Management. Paper presented at the Metropolitan Chapter of the New York State Archaeological Association meeting.

1977 Twentieth century archaeological sites: Are they eligible for the national register of historic places? Paper presented at the Annual Meeting of the Society for Historical Archaeology, Ottawa, Ontario.

1976 The Guilderland Project: a case study in cultural resource management. Paper presented at the Mid-Atlantic Archaeological Conference, Front Royal, Virginia (with Hetty Jo Brumbach).

1972 Chert and Flint: Thermal alternation and identification. Paper presented at the Annual Meeting of the Society for American Archeology, Miami, Florida.

PROFESSIONAL INTERESTS

Cultural resources impact assessment; historic preservation law; Northeast US prehistory; 20th century archeology; aviation archeology

PROFESSIONAL SERVICE

Society for American Archaeology
2000-2003 Chair, Committee on Consulting Archeology
1995-2003 Member, Committee on Consulting Archeology
1977-1987 Assistant Editor for Current Research (Northeast), *American Antiquity*

Society of Professional Archeologists
1992-1994 Member, Standards Board
1986-1987 Editor, *SOPA Newsletter*

American Society for Conservation Archaeology
1982-1985 Executive Board and Editor, *ASCA Report*

Professional Archaeologists of New York City
1979-1989 Executive Board
1983-1984 President
1982-1983 Vice President

TEACHING EXPERIENCE

1974-1975	Instructor, Department of Sociology and Anthropology, York College of the City University of New York.
1972	Instructor, Department of Social Sciences, Mercer County (NJ) Community College.
1971	Instructor, Department of Anthropology, City College of the City University of New York.

SCHOLARSHIPS, ACADEMIC AWARDS, OTHER ACADEMIC-RELATED ACHIEVEMENTS

1974-1975	University Fellow, New York University
1972-1974	Graduate Research Assistantship, New York University
1970-1972	Education Profession Development Act Fellowship
1970	Ward Medal in Anthropology
1966-1970	New York State Regents Scholarship

EMPLOYMENT HISTORY

1997-present — John Milner Associates, Inc.
Croton-on-Hudson, New York

1979-1997 — Foster Wheeler Environmental Corporation
(formerly Enserch Environmental; EBASCO Environmental; and Envirosphere Company, a division of EBASCO Services, Inc.)

1986-1997	Consulting Archeologist and Manager, Cultural Resources Group
1984-1986	Supervising Archeologist
1982-1984	Principal Archeologist/Resources Planner
1981-1982	Senior Archeologist/Resources Planner
1979-1981	Archeologist/Resources Planner

1977-1979 — Supervisory Archeologist
Bowe, Walsh and Associates, Consulting Environmental Engineers
Melville, New York

1976-1977 — Scientist (Archeology)
Preservation Field Services Bureau (State Historic Preservation Office)
New York State Office of Parks and Recreation
Albany, New York

1972-1975 — Graduate Research Assistant
Department of Anthropology
New York University

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of	:	
WEST POINT PARTNERS, LLC	:	Case 13-T-0292
Application of West Point Partners, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	:	

Q. Please state your name, employer, and business address.

A. **James Nash, West Point Partners, LLC, 501 Kings Highway East, Suite 300, Fairfield, Connecticut 06825.**

Q. For what parts of the application are you responsible?

A. **Exhibits E-1 (Description of Proposed Transmission Lines), E-2 (Other Facilities), E-3 (Underground Construction), E-4 (Engineering Justification), and Appendix E-4A (An Assessment of the Impacts of the West Point DC Transmission Project on the New York Electric System) were prepared under my supervision.**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

James P. Nash, P.E.

Jim Nash is Vice President, Engineering for PowerBridge, LLC and its affiliated companies, Responsible for planning, coordination, design, specification, testing, and commissioning of electrical systems associated with Hudson Transmission project, the proposed West Point Transmission project and, as an engineering consultant previously employed by Energy Initiatives Group, LLC, for Neptune RTS. Mr. Nash has over 30 years experience in the fields of electric power engineering and project development for various generation, transmission, and distribution projects.

Mr. Nash's professional career includes multiple assignments while with the New England Electric System (NEES, now National Grid US), including its Global Transmission group. Mr. Nash was Project Director for the Cross Sound Cable Project, later purchased and developed by TransÉnergie U.S, which Mr. Nash joined in 1998. Mr. Nash was NEES Project Manager for the first 26-mile Nantucket Submarine Cable Project and Project Engineer for the 800-ampere Lisbon Ground Electrode serving the New England–Hydro Québec HVDC Intertie.

With EBASCO (now Washington Group) from1987 to 1993, Mr. Nash's substation projects included the NYPA to Long Island Y-49, 345 kV Submarine Cable and the 345 kV cable interconnection for Consolidated Edison's Goethals Substation to the Linden Cogeneration Facility in New Jersey.

Mr. Nash is a Registered Professional Engineer in the Commonwealth of Massachusetts, and a Senior Member of the IEEE Power Engineering Society.

Education

Bachelor of Science, Electrical Engineering, Clarkson University 1982.

Professional experience

2007-Present: Vice President, Engineering – PowerBridge, LLC and Affiliated Companies

Responsible for planning, coordination, design, specification, testing, and commissioning of electrical systems associated with the Hudson Transmission Project and Neptune Regional Transmission System. Neptune and Hudson are both underwater HVDC electric transmission cable systems that interconnect New York with electricity markets in the Mid-Atlantic States. Completed in June 2013, Hudson connects New York City to PJM in Ridgefield, N.J., and Neptune, in operation since 2007, connects Long Island to PJM in Sayreville, N.J. Similarly responsible for the proposed West Point Transmission Project, also an underwater HVDC cable transmission system, that will connect upstate New York to the New York City.

2004-2007: Principal Consultant, Energy Initiatives Group, LLC

Senior member of a consulting firm involved in planning and design of transmission and generation projects. Principal assignment was planning, design, and analysis of electrical systems for the Neptune Regional Transmission System project, working with Neptune RTS staff and with Siemens engineers on the high voltage direct current conversion system.

1998-2004: Project Director, TransEnergie U.S.

Responsible for system design evaluations, development of budgets and schedules, licenses and permits, and commissioning of 330 MW Cross Sound Cable project, an undersea cable linking Long Island with the New England transmission system.

1982-1987, 1993-1998: Project Engineer and Project Manager, New England Electric System (NEES)

Began career as Substation Engineer, with increasing responsibilities for substations within NEES as well as for aspects of the New England-Hydro Quebec HVDC interconnection. Later, manager of 26-mile Nantucket Cable Project (undersea cable), and director for the Cross Sound Cable project that was originally developed by NEES.

1987-1993: Lead Engineer, Project Manager, EBASCO

Lead Substation Engineer for 345-kV NYPA-to-Long Island cable project ("Y-49"). Later, project manager for all substation work for 345-kV submarine cable system interconnecting ConEdison with the Linden Cogeneration plant in New Jersey.

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WEST POINT PARTNERS, LLC	:	Case 13-T-0292
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Q. Please state your name, employer, and business address.

A. **Robert Erickson, ESS Group, Inc., 401 Wampanoag Trail, Suite 400, East Providence, Rhode Island 02915.**

Q. For what parts of the application are you responsible?

A. **Exhibits 4.3 (Wetlands & Water Resources), 4.8 (Vegetation & Wildlife), and 4.9 (Threatened & Endangered Species).**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

Robert Erickson
Principal Scientist

Experience
ESS Group, Inc.: 2005 to present

Years of Prior Related Experience: 20

Education
BS, Wildlife Management, University of New Hampshire, 1984

Professional Registrations and Affiliations
Society of Wetland Scientists, Professional Wetland Scientist (No. 898)

Training
OSHA 40 Hour Health & Safety Training for Hazardous Materials Operations

OSHA Hazardous Waste Operations Training, Supervisor Course, 1997

Wetland Evaluation Technique (WET), Corps of Engineers, Version 2.0, 1988 Training

Corps of Engineers Wetland Delineation Manual, 1987 Training

U.S. Fish & Wildlife Service's Habitat Evaluation Procedures (HEP) Training, 1987

Qualifications

Mr. Erickson has 28 years of experience in a wide range of projects involving biological assessments, freshwater wetland and coastal resource evaluations, wetland mitigation and restoration, water quality investigations, wildlife habitat assessments, and environmental impact assessments. As a Principal Scientist, he has extensive experience with assessment and permitting of a range of projects including ecosystem restoration, environmental remediation, energy facilities, natural gas pipelines, electric utilities, commercial and residential developments, water and wastewater facilities, and transportation infrastructure throughout the northeast. As a Senior Project Manager, Mr. Erickson prepares project work plans, directs multidisciplinary technical staff, coordinates the preparation of environmental documents, and maintains project scopes, schedules, and budgets. Mr. Erickson's representative project experience includes:

Representative Project Experience

West Point Partners, LLC – West Point Transmission Project – Athens, NY to Buchanan, NY. Provided senior technical review of several permit applications for the 75-mile 1,000 MW 320 kV HVDC transmission line which will be installed primarily beneath the Hudson River. Provided peer review of the Environmental Conditions and Impacts section of the Article VII application submitted to the New York State Department of Public Service and the Department of the Army permit application submitted to the Corps of Engineers. Also prepared the Wetland Delineation Report and Wetland Mitigation Statement that accompanied the permit applications.

Poseidon Transmission Company, LLC - Poseidon Transmission Project, Licensing and Permitting, New York to New Jersey. Principal-in-Charge supporting the licensing and permitting of the proposed 80-mile transmission line project from Huntington, NY to South Brunswick, NJ, that involves both upland and submarine project segments. Initially responsible for the Preliminary Desktop Routing Assessments and preparation of the permitting plan and schedule. Provided guidance for implementing the extensive field surveys, overall strategy for NYS Public Service Commission Article VII Application, NJDEP Land Use Regulatory Program Application and USACE Department of the Army Permit applications. Responsible for the quality of service and deliverables.

PowerBridge, LLC - Red Oak Pipeline Lateral, Feasibility Assessment and Permitting, New Jersey. Project Manager responsible for preparing a Feasibility Assessment and permit applications for the proposed 1-mile natural gas pipeline lateral in Sayreville, NJ. Responsible for managing the preparation of the Feasibility Report that evaluated the potential environmental constraints and permitting issues associated with the proposal project. Currently, overseeing the preparation of the NJ DEP Permit Applications (Freshwater Wetlands, Flood Hazard, Water Quality Certification, Construction Stormwater and Construction Dewatering).

National Gird - Global Foundries Gas Pipeline, Article VII Petition, Malta-Ballston, New York. Project Manager responsible for the preparation of an Article VII filing to the New York Public Service Commission for a 4.8-mile natural gas pipeline. Responsible for routing evaluations, field surveys (wetlands and cultural), assessment of the environmental impacts for the project route and the preparation of the abbreviated Article VII application to the NYSPSC.

PSE&G - Susquehanna-Roseland Transmission Line, NEPA support, Pennsylvania and New Jersey. Project Manager supporting Public Service Electric and Gas Company (PSE&G) through the

NEPA review process with the National; Park Service (NPS). Since a 4.5-mile segment of the proposed 500kV transmission line will traverse the Delaware Water Gap National Recreation Area (DEWA); the Middle Delaware National Scenic and Recreational River and National Recreation Water Trail; and the Appalachian National Scenic Trail (AT), the NPS is preparing an Environmental Impact Statement (EIS). Assisting with development of NEPA strategy, responding to data gaps identified by the NPS and their 3rd party consultant, review of NEPA environmental documents and participation in technical work sessions with the NPS staff.

Scenic Hudson, Inc., and Riverkeeper, Inc., – Technical Review of the NYS Article VII Application for Proposed Champlain Hudson Power Express, Albany to New York City. Project Manager responsible for conducting a technical review of the Application of Champlain Hudson Power Express for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law. The technical evaluation included a review of 100-mile submarine cable segment of the proposed project in NY. The Technical Evaluation Report provided a review of the submarine cable installation methods, sediment disturbances and re-suspension of PCBs, benthic aquatic impacts, impacts of Horizontal Directional Drilling at landfalls, stream impacts, impacts of thermal and Electromagnetic Fields as portrayed in the Article VII Application. The Technical Review Report was filed as part of the NYS PSC administrative case record.

Champlain Wind Link LLC - Champlain Wind Link Transmission Project, Routing Analysis, New York. Project Manager responsible for preparing preliminary routing analysis for 9.3 miles of 345kv electric transmission line from Plattsburgh, NY traversing Lake Champlain to Vermont. The routing assessment identified sensitive environmental areas to be avoided and potential environmental issues that would impact the project. Additionally supported Champlain Wind Link LLC and Vermont Electric Power Company (VELCO) in the preparation of the Environmental Document as a component of a Department of Energy Loan Guarantee Application for the entire project.

Hudson Transmission Partners – Wetland Mitigation Plan, Hudson Project, Ridgefield, New Jersey. Task manager for the preparation of a Wetland Mitigation Plan for a 1.5 acre enhancement of a brackish marsh in the Hackensack Meadowlands. The Wetland Mitigation Plan was developed in compliance with the USACE, New York District's Compensatory Mitigation Guidance. Responsible for developing the mitigation goals and objectives, performance standards, mitigation site selection and detailed mitigation plan.

LIPA/KeySpan and CL&P/Northeast Utilities - Long Island Submarine Cable Replacement Project, Norwalk, CT to Northport, New York. Provided technical support for assessing restoration alternatives to mitigate impacts to salt marsh on Sheffield Island off Norwalk. Conducted site visit and developed restoration plan that was accepted by the Connecticut Department of Environmental Protection (CTDEP) Office of Long Island Sounds Programs (OLISP).

Bayonne Energy Center, LLC – Waterfront Development/Coastal Wetlands Application, Bayonne Energy Center, Bayonne, New Jersey to Gowanus, New York. Provided quality control review of the Waterfront Development/Coastal Wetlands Application submitted to the Land Use Regulatory Program on NJDEP.

Algonquin Gas Transmission Company - FERC Licensing, AFT-5 Pipeline Facilities, Massachusetts, New Jersey, and New York. Task Manager for field surveys and preparation of FERC Resource Reports for approximately 12 miles of natural gas pipeline within four communities. Coordinated field investigations, wetland delineations and preparation of FERC Resource Reports on water use and quality, vegetation and wildlife and land use.

New England Independent Transmission Company, LLC, - Green Line Project, Desktop Routing and Environmental Due Diligence, Maine to Massachusetts. Project Manager responsible for preparing preliminary routing analysis and environmental due diligence for the proposed 340-mile transmission line project from Holton, ME to Boston, MA, that involves both upland and submarine project segments. Responsible for managing a series of preliminary routing assessments for alternative segments of the submarine cable route located in ME, MA and the Gulf of Maine. Managed the preparation of an Environmental Due Diligence for the 165-mile upland segment of the route in ME. The

environmental due diligence involved characterizing the existing environmental conditions along the upland route, identifying potential environmental constraints and issues and developing a permitting plan.

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In the Matter of	:	
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Q. Please state your name, employer, and business address.

A. **Gordon Perkins, ESS Group, Inc., 401 Wampanoag Trail, Suite 400, East Providence, Rhode Island 02915.**

Q. For what parts of the application are you responsible?

A. **Exhibit 4.12 (Visual and Aesthetic).**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

GORDON W. PERKINS
GIS Specialist/Landscape Planner

Experience
ESS Group, Inc.: 2011 to present

Years of Prior Related Experience: 11

Education
BLA, Landscape Architecture, State University of New York College of Environmental Science and Forestry, 2001

AA, Keystone College, 1998

Professional Registrations and Affiliations
American Society of Landscape Architects

Qualifications

Mr. Perkins has more than 10 years of experience in site design and visualization, including visual impact assessment. He has completed visual impact evaluations for over one hundred projects across the northeastern and midwestern United States. Mr. Perkins has also developed and applied several methodologies in project visualization and GIS that have successfully endured rigorous peer review. In addition, Mr. Perkins is experienced in site design, and permitting in support of development and restoration projects. He specializes in design communication through the creative use of 2D and 3D computer applications to create perspective renderings, site plans and animations. With a strong background in Landscape Architecture and permitting, he successfully integrates site solutions that are functional, environmentally conscious, and aesthetically pleasing.

Representative Project Experience

West Point Partners, LLC – West Point Transmission Project – Athens, NY to Buchanan, NY. Task Manager responsible for oversight of the production of all GIS mapping products and analysis for initial routing of this 1000 MW HVDC Cable. Also, completed the visual inventory and assessment for the Project's converter stations in the towns of Athens and Cortlandt, NY.

New England Independent Transmission Company, LLC (NE-ITC) – Desktop Studies, Green Line Project, ME to MA. GIS analyst responsible for preparing preliminary routing analysis for segments of the proposed 240-mile Green Line overland cable route. This preliminary routing analysis identified sensitive environmental areas to be avoided and potential navigational issues that would impact the project.

National Grid, Mohican-Battenkill Power Transmission Project, Washington and Saratoga Counties, NY – GIS analyst responsible for preparing field mapping, field data analysis and mapping, and graphical in support of an Article VII and Environmental Management & Construction Plan associated with a transmission line in Saratoga and Washington Counties, NY.

New York Regional Interconnect – NY. Provided integral support in the creation of a visual impact assessment for a 190-mile long transmission line from Oneida County to Orange County. With over 1,000 potential viewpoints, assisted in the creation of new simulation technologies and field protocols in order to collect, process, and file large amounts of field data. Assisted in the creation of over 75 visual simulations and provided expert witness testimony before the New York State Public Service Commission.

Horizon Wind Energy – Marble River Wind Farm – Clinton and Ellenburg, NY. Produced multiple visual simulations, GIS maps and analysis, and completed a comprehensive visual analysis for a 200 MW wind farm in upstate New York. The analysis included visual simulations for a proposed substation and cumulative simulations incorporation two other proposed wind farms in the vicinity.

National Grid – New England East-West Solution Project – RI, MA, and CT. Completed visual impact assessments for three transmission line upgrade projects to evaluate the potential visual impacts of a major infrastructure improvement program. Simulations depicted accurate representations of structure upgrades, proposed right-of-way clearing, and substations. Oversaw several field teams, graphic support, and report composition.

Iberdrola Renewables (Atlantic Renewable Energy, PPM Energy) & Horizon Wind Energy – Maple Ridge Wind Project – Lewis County, NY. Assisted in strategic planning, desktop studies, field

operations, and 3D technical modeling in support of a visual impact assessment for a 231 MW wind farm and 230 kV transmission line (Article VII). The project went online in 2005 and was the largest operational wind farm on the east coast.

National Grid – Paradise Lane Switchyard Expansion – Tonawanda, NY. Created a 3D model representing a 115 kV electrical switchyard positioned between two high density housing units. Due to existing vegetation and obstructions, standard visual simulations were not possible. To address visual impact concerns, a 3D model of the entire existing site including the proposed expansion was constructed. This model demonstrated the new 115kV tower configuration for three new lines, existing 230 kV tower modifications, and the proposed switchyard changes. In addition, mitigation landscape plans were incorporated into the renderings.

Conjunction LLC – Empire Connection Project NY. Produced multiple visual simulations, mitigation options and routing considerations as part of an Article VII filing for a direct current transmission project running over 150 miles from central New York to New York City.

Ramapo Energy, LP – Ramapo Energy Project – Ramapo, NY. Produced multiple visual simulations as part of an Article X filing for an 1100-Megawatt gas fired power plant. The simulations demonstrated proposed mitigation options such as screen walls, berming, and landscape plantings.

UPC Wind Management, LLC – Dutch Hill Wind Power Project – Cohocton, NY. Provided support in the creation of a visual impact assessment for a 34 MW wind project in Steuben County. Created animated visual simulations of both daytime and nighttime conditions and assisted in the production of the report composition and 2D graphics.

Cape Wind Associates, LLC – Cape Wind Renewable Energy Project – Nantucket Sound, MA. Lead visualization expert in charge of field data collection, photography, shoreline survey oversight, 3D modeling and simulations for a 450 MW offshore wind project. Additionally, provided public outreach support and presentations in support of the visualization products which were the first of their kind in the industry. Project was successfully permitted in 2011.

Long Island Power Authority – Long Island Offshore Wind Power Project – Long Island Sound, NY. Completed project scoping and protocol for a full visual impact assessment for a 140 MW offshore wind project. Produced highly accurate visual simulations that demonstrated visibility under a variety of conditions, including nighttime, summer and winter views.

Community Energy – Jordanville Wind Project – Herkimer County, NY. Produced an industry first animation demonstrating the potential visual impact of nighttime aircraft warning signals under newly adopted FAA regulations for this proposed 140 MW wind farm. Generated multiple visual simulations, assisted in report production, and provided graphic support for a full visual impact assessment.

Everpower – Howard Wind Project – Steuben County, NY. Supported the production of a full environmental impact assessment for a 51 MW wind farm in the town of Howard, NY. Work included the creation of logical, low impact access road routing, turbine layout adjustments, field resonance, and a visual impact assessment.

Brookfield Energy – Raquette River Recreation Brochure – NY. Produced a brochure with a custom map highlighting state and private facilities geared toward facilitating outdoor recreation such as boat launches, rapid runs, camping, portage points and hydroelectric facilities.

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Q. Please state your name, employer, and business address.

A. **Michael Hankard, Acoustics, Inc., 401 Cumberland Avenue, Suite 1205, Portland, Maine 04101.**

Q. For what parts of the application are you responsible?

A. **Exhibit 4.13 (Noise) and Appendix 4G (Construction Noise Mitigation Report).**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

Michael Theriault
A C O U S T I C S INC
NOISE CONTROL CONSULTING SERVICES

Michael Hankard – Senior Noise Specialist

Mr. Hankard has been measuring, analyzing, and mitigating environmental noise in a professional capacity for the past 25 years. He has worked on over 400 commercial and industrial projects located all over the U.S. and Internationally. He has consulted with clients in the power generation, mining, oil/gas development, transportation, and manufacturing industries. Mr. Hankard's role on projects, particularly in the past 10 years, is typically one of Principal Acoustic Consultant, responsible for all aspects of the measurement, analysis, control, and compliance of noise emissions from major facilities.

He has been retained by owners/developers to prepare the environmental noise impact sections of permit applications on local, state, and federal levels. For these efforts Mr. Hankard has been responsible for the measurement of existing noise levels (ambient surveys), the accurate modeling of noise from a variety of sources, the conceptual design of mitigation measures ranging from barriers to buildings to site arrangement, and the assessment of impact based on specific regulations as well as professional judgement. He has testified to the validity of his work in front of local boards, state public service commissions, and courts of law.

Mr. Hankard has also been retained by facility owners, engineering firms, and construction companies to assist with acute noise issues. These projects have required the measurement of noise in and around operating facilities, the detailed design of mitigation measures such as silencers, enclosures, low-noise equipment, and barriers, and post-implementation measurements to demonstrate compliance.

Education - University of Maine, *Bachelor of Science, Electrical Engineering with concentration in Acoustics, 1990*

Professional Affiliations - Full Member of the *Institute of Noise Control Engineering,* Member of the *Acoustical Society of America*

Representative Projects

- Highland Wind Farm: Expert Testimony before the Wisconsin Public Service Commission for a proposed 100 mega-watt wind farm in Wisconsin
- Pueblo Viejo Mine: Ambient noise measurements and noise impact assessment for a proposed transmission line and power plant in the Dominican Republic
- Fox Energy Center: Compliance noise measurements for 600 mega-watt combined cycle combustion turbine plant in Wisconsin

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of	:	
WEST POINT PARTNERS, LLC	:	Case 13-T-0292
Application of West Point Partners, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	:	

Q. Please state your name, employer, and business address.

A. **Payson Whitney, ESS Group, Inc., 100 5th Avenue, 5th Floor, Waltham, Massachusetts 02451.**

Q. For what parts of the application are you responsible?

A. **Exhibits 2 (Location of Facilities), 3 (Alternatives Analysis), 4.2 (Geology, Topography and Soils), 4.10 (Land Use), 5 (Design Drawings), 7 (Local Ordinance Review), 8 (Other Pending Filings), E-3 (Underground Construction), E-5 (Effects on Communication), E-6 (Effects on Transportation), and Appendix 4B (Field Evaluations Report).**

Q. Please explain your educational and professional background.

A. **A copy of my curriculum vitae is attached.**

PAYSON R. WHITNEY, III, PE
Vice President, Water & Coastal Engineering

Experience
ESS Group, Inc.: 1998 to present

Years of Prior Related Experience: 4

Education
BS, Civil Engineering, Lehigh University, 1994

Professional Registrations
Professional Engineer Registration, Commonwealth of Massachusetts, No. 41706, 2001

Professional Engineer Registration, State of Rhode Island, No. 8551, 2006

Professional Engineer Registration, Commonwealth of Virginia, No. 50185, 2012

National Council of Examiners for Engineering and Surveying Record, No. 47445, 2011

Master Design Certificate for Low Impact Development, State of Rhode Island, No. 1106011, 2006

Qualifications

Mr. Whitney is a Professional Engineer with more than 18 years of experience as a Civil/Coastal Engineer and Project Manager in a wide range of public and private sector projects, including project design and management activities in civil/site engineering, coastal permitting/shoreline assessment, and the planning and permitting of electrical transmission projects. He specializes in planning, routing, surveying and installing High Voltage AC and DC submarine electric transmission cable systems, landfall transitions, and interconnections with local grid substations. Mr. Whitney has conducted submarine cable routing, constructability, and installation assessments along the eastern seaboard for some of the largest submarine cable system projects developed in the last 15 years. He is considered among the foremost submarine cable system planners in the industry with several successful projects under his leadership.

Mr. Whitney is also well versed in local, state, and federal environmental regulatory and land use permitting requirements and strategies, and has provided permitting services for projects in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, New Hampshire, Maryland, Virginia, and The Bahamas.

Representative Project Experience

West Point Partners, LLC – West Point Transmission Project – Athens, NY to Buchanan, NY. Task manager responsible for development of the Project's overland and in-river transmission cable routes and managing initial stakeholder outreach meetings. Responsible for day-to-day coordination of ESS services, coordination with the client and its project team, coordination with the selected installers, providing technical services related to submarine cable route design and construction, and for planning, directing, and overseeing in-river geophysical and geotechnical field investigations. Also responsible for overseeing development of the Project's Alternatives Analysis.

Bayonne Energy Center, LLC – Bayonne Energy Center Project, Bayonne, NJ to Brooklyn, NY. Project Manager for environmental consulting, regulatory permitting, and preliminary engineering for the submarine electric transmission cable aspect of the project, which entailed the construction of a 512 MW electric generating plant in Bayonne, NJ. The plant is connected to the New York electrical grid via a 6.5 mile long, 345 kV submarine electric transmission cable with an interconnection at the ConEdison Gowanus substation in Brooklyn. Responsible for day-to-day coordination of ESS services, coordination with the client and its project team, coordination with the project engineers, providing technical services related to submarine cable route design and construction, and for planning, directing, and overseeing marine geophysical and geotechnical field investigations. Responsible for developing the proposed submarine cable route and identifying from project survey and constraints information. Responsible for overseeing preparation of New York Article VII filing and U.S. Army Corps of Engineers permit application, as well as various separate supporting reports and responses to comments. During construction, was responsible for coordination with project owner and installation contractor to resolve routing challenges prior to installation, for verifying installer cable burial depth estimates, and for conducting required environmental inspections and monitoring in New York.

Hudson Transmission Partners, LLC – The Hudson Project, Ridgefield, NJ to New York City, NY. Provided and coordinated engineering support for regulatory permitting efforts for the construction of a

new High Voltage DC, 66 MW electric transmission facility linking the regional PJM Interconnection with the New York Independent System Operator. The Project will include the construction of a new back-to-back AC-DC-AC Converter Station to be located in Ridgefield and installation of a new 230 kV AC link to the nearby PSE&G Bergen Substation, also in Ridgefield. From the Converter Station a new 345 kV AC electric transmission cable system will be routed in an overland underground configuration from Ridgefield to Edgewater, New Jersey where it will then cross the Lower Hudson River estuary in a buried submarine cable configuration to make landfall at Piers 92 – 94 at the Mid-town Manhattan waterfront where it will then interconnect via upland underground cable to an existing substation.

Cape Wind Associates, LLC – Cape Wind Project, Nantucket Sound, MA. Providing services related to the siting and design of a proposed renewable electric generating facility involving installation of 130 offshore wind turbine generators with a potential to generate 454 MW. Preparing conceptual facility layouts and evaluating geologic conditions for a project baseline environmental impact and feasibility study. Planning, directing, and overseeing extensive marine geophysical and geotechnical field investigation programs. Prepared a detailed Navigational Risk Assessment, which was the first such assessment submitted to the U.S. Coast Guard's First District, and assessed the possibility for project impacts to marine vessel traffic and Coast Guard search and rescue operations.

Connecticut Light & Power Company and its Project Partners – Submarine Replacement Cable Project, Norwalk, CT to Northport, NY. Planning, directing, and overseeing an extensive marine geophysical and geotechnical field investigation program for an 11-mile, 300 MW AC submarine cable system. Two survey vessels conducted geophysical and geotechnical surveys simultaneously. The field investigation program included bathymetric, sub-bottom profiling, side-scan sonar, and magnetometer surveys, as well as advancing vibracores and surface sediment grabs, to evaluate surface and shallow subsurface sediment/geologic conditions along the proposed alternative routes.

Pepco Holdings, Inc. - Mid-Atlantic Power Pathway Project, Chesapeake Bay, MD. Project Manager for preliminary Desktop Routing Analysis, Bay & River Technical Studies, and Submarine Cable Owner's Engineer services for the 320 kV HVDC submarine cable segment of the larger 150-mile project. PHI retained ESS to complete engineering and associated scientific evaluations to assess submarine cable system installation feasibility and constructability. ESS was also retained as PHI's owner's engineer for the submarine cable component of the MAPP Project.

PSEG Power LLC – Cross Hudson Project, Ridgefield, NJ to New York City, NY. Project Manager for environmental consulting and engineering services for the construction of a submarine electric cable system. Was responsible for day-to-day coordination of ESS services, coordination with the client, coordination with the project engineers, providing technical services related to submarine cable route design and construction, and for planning, directing, and overseeing multiple marine geophysical and geotechnical field investigations. Was responsible for developing the proposed submarine cable route from project survey and constraints information. Responsible for overseeing preparation of New York Article VII filing and U.S. Army Corps of Engineers permit application, as well as various separate supporting reports and responses to comments.

TransÉnergie U.S., Ltd. – Cross Sound Cable Project, New Haven, CT to Brookhaven (Shoreham), NY. Planning, directing, and overseeing geophysical and geotechnical field investigation programs, developing proposed cable route alignments, and dredging design/construction oversight for the project that crosses Long Island Sound. Planning and executing a post-installation cable and obstruction survey to field locate the cable and to identify and characterize obstructions encountered during installation, and for determining proposed remedial cable burial means and methods.