



ACADEMIC CURRICULUM VITAE

NAME: ANDREW BRYAN PHILPOTT

CURRENT POSITION: PROFESSOR

DEPARTMENT: ENGINEERING SCIENCE

FACULTY: ENGINEERING

EDUCATIONAL QUALIFICATIONS: [Tertiary only]

1978 Victoria University of Wellington, BA, Philosophy
1979 Victoria University of Wellington, BSc(1st class hon), Mathematics
1982 University of Cambridge, MPhil, Control Engineering and Operations Research
1982 University of Cambridge, PhD, Operations Research

PREVIOUS APPOINTMENTS:

1983 Visiting Instructor, MIT, Cambridge, MA
1984-85 Research Fellow, Clare College, Cambridge, UK
1986-90 Lecturer, School of Engineering, University of Auckland
1991-95 Senior Lecturer, School of Engineering, University of Auckland
1996-2002 Associate Professor, School of Engineering, University of Auckland
2002- Professor, School of Engineering, University of Auckland
2003-2007 Head of Department, Engineering Science

SIGNIFICANT DISTINCTIONS / AWARDS:

1979 Commonwealth Scholarship to Churchill College, Cambridge
1982 Half-blue for representing Cambridge University at rugby league
1983 Research Fellowship, Clare College, Cambridge
1988 Distinguished Teaching Award, University of Auckland
2000 Prize for best paper at ANZIAM 2000 Conference
2002 Awarded Personal Chair at University of Auckland
2006 Engineering Faculty Top 20 Teaching Award
2006 ORSNZ Hans Daellenbach Award
2008 Awarded Marsden grant for three-year project
2009 Finalist in INFORMS Franz Edelman Award
2011 Meritorious Service Award: Operations Research
2013 Meritorious Service Award: Operations Research
2015 Awarded Marsden grant for three-year project
2017 Elected INFORMS Fellow
2019 Simons Fellow, University of Cambridge

PROFESSIONAL SOCIETIES / SERVICE / OTHER ACTIVITIES:

INFORMS Farkas Prize Committee 2018-2019
Organizing committee Isaac Newton Institute Thematic Programme on Mathematics of Energy, 2019.
Steering committee for ISMP 2018 Conference (Bordeaux)
Organizing committee for SIOPT 2017 Conference (Vancouver)
Programme committee for ICSP 2016 Conference (Buzios, Brazil)
COSP Student Paper Prize Committee 2016
Organizing committee of IPAM Workshop on Optimization and Equilibrium in Energy Economics, 2016 (UCLA)
Portfolio Director, National Science Challenge 7, 2016-2018
Deputy Director, Te Punaha Matatini (NZ Centre of Research Excellence) 2015-16

INFORMS ENRE Best Paper Prize Committee, 2015
Chair, INFORMS ENRE Best Paper Prize Committee, 2014
Steering Committee, New Zealand Analytics Forum 2013-
Associate Editor Operations Research 2007-
Associate Editor Mathematical Programming 2004-2017
Associate Editor Foundations and Trends in Energy Markets and Policy 2013 -
Associate Editor Operations Research Letters 2002-2013
INFORMS ENRE Best Paper Prize Committee, 2013
President of ORSNZ 1995-2000
Council Member of ORSNZ 1990-
Steering committee for ICIAM 2011 Conference (Vancouver)
Cluster Chair (with Claudia Sagastizabal) of Energy Cluster at ISMP 2009 (Chicago)
Programme committee for ISMP 2009 Conference (Chicago)
Organizing committee for ICCOPT 2010 Conference (Santiago)
Organizing committee for ORSNZ 2004 Conference
Organizing committee for ORSNZ 2002 Conference
Organizing committee for ORSNZ 99 Conference
Organizing committee for ANZIAM 2000 Conference
Chair of NZIMA thematic programme on Transportation Optimization 2005
TSL Dissertation Prize Committee 2005
Member of Mathematical Programming Society
Member of INFORMS
Member of SIAM
Member of the IFIP Working Group on Stochastic Optimization
Member of IEEE
Chair of Royal Society of New Zealand Standing Committee on Mathematical Sciences 2002-2004
Council Member of the Royal Society of New Zealand 2002-2004
Member of COSP (Committee on Stochastic Programming) 2001-2007
Director of Electric Power Optimization Centre 2002-
Company Director (Stochastic Optimization Limited) 2003-

RESEARCH PUBLICATIONS:

Works in progress

Books and edited volumes

van Ackooij, W., Philpott, A.B., Sagastizábal, C. and Zorgati, R. (ed.) Optimization in Energy, *Energy Systems*, 8, 2017.

Philpott, A.B., Oren, S.S. and Ferris, M.C. (ed.) Challenges and Opportunities for Optimization in Electricity Systems, *Mathematical Programming Series B*, 2013

Anderson E.J. and Philpott A.B. (ed.), *Infinite Programming*, Proceedings of an International Conference on Infinite-Dimensional Linear Programming, Cambridge, 1984, Springer-Verlag, 1985.

Sections in books

Philpott, A.B., On the marginal value of water for hydroelectricity, in *Advances and Trends in Optimization with Engineering Applications*, T. Terlaky, M. F. Anjos, and S. Ahmed (editors), MOS-SIAM Book Series on Optimization, Vol 24, SIAM, Philadelphia, 405-426, 2017.

Philpott, A.B., Dallagi, A. and Gallet, E., On cutting-plane algorithms and dynamic programming for hydroelectricity generation, in *Risk Management and Energy Trading*, R.M. Kovacevic., G.Ch. Pflug, and M.T. Vespucci (ed.) Springer, 105-127, 2013.

Philpott A.B and Pritchard, G., An electricity procurement model with energy and peak charges, Gassman, H.I. and Ziemba, W.T. *Stochastic Programming: Applications in Finance, Energy, Planning and Logistics*, World Scientific, 399-419, 2013.

- Philpott, A.B., Modeling uncertainty in optimization problems, *Encyclopedia of OR*, J. Wiley and Sons, 2011.
- Philpott, A.B. Stochastic optimization in yacht racing, in *Applications of Stochastic Programming*, W. Ziemba and S. Wallace (ed.), SIAM, 315-336, 2005.
- Anderson E.J. and Philpott A.B., On supply-function bidding in electricity markets, in *Decision Making Under Uncertainty: Energy and Power*, Greengard, C., Ruszczynski, A. (ed.) Springer-Verlag, 115-134, 2002.
- Anderson E.J. and Philpott A.B., Optimization of Flows in Networks over Time, in *Probability, Statistics and Optimization: A tribute to Peter Whittle*, F.P. Kelly (ed.), John Wiley and Sons, Chichester, 369-382, 1994.
- Philpott A.B., Recent Advances in Infinite Programming, in S. Kumar (ed.) *Recent Developments in Mathematical Programming*, Gordon and Breach Science, 1991.

Refereed Journal Articles

- Wogrin, S., Tejada-Arango, D., Downward, A., and Philpott, A.B., Transmission capacity expansion using JuDGE, under review, *Phil Trans Royal Soc*, 2020.
- Downward, A., Baucke, R. and Philpott, A.B., JuDGE.jl: a Julia package for optimizing capacity expansion, submitted to *INFORMS J. of Optimization*, 2020.
- Ferris, M.C. and Philpott, A.B., 100% renewable electricity with reservoir storage, under review *Energy Economics*, 2020.
- Anderson, E.J. and Philpott, A.B., Improving sample average approximation using distributional robustness, under review *INFORMS Journal on Optimization*, 2019.
- Ferris, M.C. and Philpott, A.B., Dynamic risked equilibrium, to appear in *Operations Research*, 2020.
- Philpott, A.B., Read, E.G., Batstone, S.J. and Miller A., The New Zealand Electricity Market: Challenges of a Renewable Energy System, *IEEE Power and Energy Magazine*, 17 (1), 2019.
- Dowson, O., Philpott, A.B., Mason, A.J. and Downward, A., Optimizing stocking rates and supplementary feeding for New Zealand dairy farmers, under review *Agricultural Systems*, 2019.
- Dowson, O., Philpott, A.B., Mason, A.J. and Downward, A., Managing risk on a pastoral dairy farm, under review *EJOR*, 2018.
- Kok, C., Philpott A.B. and Zakeri, G., Value of electricity transmission expansion when market agents are risk averse, under review *Operations Research*, 2018.
- Philpott, A.B., Wahid, F. and Bonnans, J.F., MIDAS: A Mixed Integer Dynamic Approximation Scheme. *Mathematical Programming A*, 181, 19-50, 2020.
- Kapteyn, M., Willcox, K. and Philpott, A.B., Distributionally robust optimization for engineering design under uncertainty, *International Journal for Numerical Methods in Engineering*, 120(7), 835-859, 2019.
- Dowson, O., Philpott, A.B., Mason, A.J. and Downward, A., A multi-stage stochastic optimization model of a pastoral dairy farm, *European Journal of Operational Research* 274, 1077-1089, 2019.
- Anderson, E.J. and Philpott, A.B., Forward commodity trading with private information, *Operations Research*, 67(1):58-71, 2019.
- Philpott, A.B., De Matos, V., and Kapelevich, L., Distributionally robust Stochastic Dual Dynamic Programming, *Computational Management Science*, 15(3-4), 431-454, 2018.
- P. Holmberg, P. and Philpott, A.B., On supply function equilibria in radial transmission networks, *European Journal of Operational Research*, 271, 985–1000, 2018.
- Ruddell, K., Downward, A. and Philpott, A. B., Market power and forward prices, *Economics Letters*, 166, 6-9, 2018

- Gerard, H., Leclere, V., and Philpott, A.B., On risk averse competitive equilibrium, *Operations Research Letters*, 46(1), 19-26, 2018.
- Cory-Wright, R., Philpott, A. and Zakeri, G., Single Settlement Payment Mechanisms for Electricity Markets, *Operations Research Letters*, 46(1), 116-121, 2018.
- Downward, A., Philpott, A. B., and Ruddell, K., Supply function equilibrium with taxed benefits. *Operations Research*, 65 (1):1-18, 2017.
- Wu, A., Philpott, A. and Zakeri, G., Investment and generation optimization in electricity systems with intermittent supply. *Energy Systems*, 8(1), 127-147, 2017.
- Philpott, A.B., Ferris, M.C. and Wets, R.J-B., Equilibrium, uncertainty and risk in hydrothermal electricity systems, *Mathematical Programming B*, 157,2, 483-513, 2016.
- De Matos, V., Philpott, A.B. and Finardi, E.C., Improving the performance of Stochastic Dual Dynamic Programming, *Journal of Computational and Applied Mathematics*, 290, 196-208, 2015.
- Girardeau, P., Leclere, V. and Philpott, A.B., On the convergence of decomposition methods for multi-stage stochastic convex programs, *Mathematics of Operations Research*, 40(1):130-145, 2015.
- Tagliaferri, F., Philpott, A.B., Viola, I.M., and Flay, R.G.J., On risk attitude and optimal yacht racing tactics. *Ocean Engineering*, 90, 149-154, 2014.
- Cabrera, G.G., Ehrgott, M., Mason, A.J., and Philpott, A.B., Multi-objective optimisation of positively homogeneous functions and an application in radiation therapy, *OR Letters*, 42(4), 268-272, 2014.
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- Philpott, A. B., de Matos, V. L., and Finardi, E. C., On Solving Multistage Stochastic Programs with Coherent Risk Measures. *Operations Research*, 61, 957-970, 2013.
- Palma-Benhke, R., Philpott A.B., Jofre, A. and Cortes-Carmona, M., Modelling network-constrained economic dispatch problems, *Optimization and Engineering*, 14, 3, 417-430, 2013.
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- Villumsen, J.C. and Philpott, A.B., Investment in Electricity Networks with Transmission Switching, *European Journal of Operational Research*, 222, 377-385, 2012.
- Philpott, A.B. and de Matos, V.L., Dynamic sampling algorithms for multi-stage stochastic programs with risk aversion, *European Journal of Operational Research*, 218, 470-483, 2012.
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- Philpott, A.B., Zakeri, G., Khazaei, J. and Guan, Z., Productive inefficiency of electricity markets with hydro generation, *Utilities Policy*, 18, 4, 174-185, 2010.
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- Ryan, S.M., Downward. A., Philpott, A.B. and Zakeri, G., Welfare effects of expansions in equilibrium models of an electricity market with fuel network, *IEEE Transactions on Power Systems*, 99, 1-13, 2010.
- Everett, G., Philpott, A.B., Vatn, K. and Gjessing, R., Norske Skog improves global profitability using OR, *Interfaces*, 40, 58-70, 2010.

- Pritchard, G., Zakeri, G. and Philpott, A. B., A single-settlement energy-only electric power market for unpredictable and intermittent participants, *Operations Research*, 58,4, 1210-1219, 2010.
- Singh, K., Philpott, A.B. and Wood, K., Dantzig-Wolfe decomposition for solving multi-stage stochastic capacity planning problems, *Operations Research*, 57, 1271-1286, 2009.
- Philpott, A.B. and Guan, Z., On the convergence of stochastic dual dynamic programming and related methods, *Operations Research Letters*, 36, 450-455, 2008.
- Singh, K., Philpott, A.B. and Wood, K., Optimization of survivable electricity distribution networks, www.epoc.org.nz, 2008.
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- Philpott, A.B. and Schultz, R., Unit commitment in electricity pool markets, *Mathematical Programming B*, 108, 2, 313-337, 2007.
- Anderson, E.J., Philpott, A.B. and Xu, H., Modelling the effects of interconnection between electricity markets, *Math Methods of OR*, 65, 1-26, 2007.
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- Pettersen, E., Philpott, A. B., and Wallace S.W., An electricity market game between consumers, retailers and network operators *Decision Support Systems*, Volume 40, Issues 3-4, 427-438, 2005.
- Pritchard, G. and Philpott, A.B., On financial transmission rights and market power, *Decision Support Systems*, Volume 40, Issues 3-4, 507-515, 2005.
- Linowsky, K. and Philpott, A.B., On the convergence of sampling-based decomposition algorithms for multistage stochastic programs, *JOTA*, 125, 2, 349-366, 2005.
- Neame, P.J., Philpott, A.B. and Pritchard, G., Hydroelectric reservoir optimization in a pool market, *Math Programming A*, 103, 445-461, 2005.
- Philpott, A.B. and Pritchard, G., Financial transmission rights in convex pool markets, *Operations Research Letters*, 32, 2, 109-113, 2004.
- Philpott, A.B., Henderson, S.G. and Teirney, D.P., A simulation model for predicting yacht match-race outcomes, *Operations Research*, 52, 1, 1-16, 2004.
- Neame, P.J., Philpott, A.B. and Pritchard, G., Offer stack optimization in electricity pool markets, *Operations Research*, 51, 3, 397-408, 2003.
- Anderson, E.J. and Philpott, A.B., Estimation of electricity market distribution functions, *Annals of Operations Research*, 121, 21-32, 2003.
- Anderson, E.J. and Philpott, A.B., Using supply functions for offering generation into an electricity market, *Operations Research*, 50, 3, 477-489, 2002.

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Philpott, A.B., Craddock, M. and Waterer, H., Hydro-electric unit commitment subject to uncertain demand, *European Journal of Operational Research*, 125, 410-424, 2000.

Zakeri, G., Philpott, A.B. and Ryan, D.M., Inexact Cuts in Stochastic Benders Decomposition, *SIAM J. on Optimization*, 10,3, 643-657, 2000.

Lewis, A.S. and Philpott, A.B., Experiments with Affine Scaling and Semi-Infinite Programming, *NZ Journal of Mathematics*, 24, 49-71, 1995.

Philpott, A.B. and Craddock, M., An Adaptive Discretization Algorithm for a Class of Continuous Network Programs, *Networks*, 26,1-11, 1995.

Philpott, A.B., Continuous-Time Shortest Path Problems and Linear Programming, *SIAM J. on Control and Optimization*, 32, 2, 538-552, 1994.

Anderson, E.J. and Philpott, A.B., On the Solutions of a Class of Continuous Linear Programming Problems, *SIAM J. on Control and Optimization*, Volume 32, 5, 1289-1296, 1994.

Philpott, A.B., Sullivan, R.M. and Jackson, P.S., Yacht Velocity Prediction using Mathematical Programming, *European Journal of Operational Research*, 67, 13-24, 1993.

Philpott, A.B. and Mees, A.I, A Finite-Time Algorithm for Shortest Path Problems with Time-Varying Costs, *Applied Mathematics Letters*, 6, 2, 91-94, 1993.

Philpott, A.B. and Mees, A.I, Continuous-Time Shortest Path Problems with Stopping and Starting Costs, *Applied Mathematics Letters*, 5, 63-66, 1992.

Anderson, E.J. and Philpott, A.B., Extreme Points for Linear Optimal Control Problems with Diagonal Structure, *SIAM J. on Control and Optimization*, 30, 6, 1385-1394, 1992.

Ferris, M.C. and Philpott, A.B., On Affine Scaling and Semi-Infinite Programming, *Mathematical Programming*, 56, 361-364, 1992.

Philpott, A.B., Continuous-Time Flows in Networks, *Mathematics of Operations Research*, 15, 640-662, 1990.

Ferris, M.C. and Philpott, A.B., An Interior Point Algorithm for Semi-Infinite Linear Programming, *Mathematical Programming*, 43, 257-276, 1989.

Anderson, E.J. and Philpott, A.B., A Continuous-Time Network Simplex Algorithm, *Networks*, 19,395-425, 1989.

Ferris, M.C. and Philpott, A.B., On the Performance of Karmarkar's Algorithm, *J.O.R.S.*, 39(3), 1988.

Mason, A.J. and Philpott, A.B., Pairing Stereo Speakers Using Matching Algorithms, *A.P.J.O.R.*, 5, 112-127, 1988.

Anderson, E.J. and Philpott, A.B., Duality and an Algorithm for a Class of Continuous Transportation Problems, *Mathematics of Operations Research*, 9, 222-231, 1984.

Anderson, E.J., Nash, P. and Philpott, A.B., A Class of Continuous Network Flow Problems, *Mathematics of Operations Research*, 7, 501-514, 1982.

Papers in Refereed Conference Proceedings

Kapteyn, M. G., Willcox, K. E., & Philpott, A. (2018). A Distributionally Robust Approach to Black-Box Optimization. In *2018 AIAA Non-Deterministic Approaches Conference* (p. 0666).

Tagliaferri, F., Philpott, A. B., Viola, I. M., & Flay, R. G. J. (2013). Optimal Yacht Routing Tactics. *Proceedings of the International Conference on Innovation in High Performance Sailing Yachts*, Lorient, June 26, 231-237, 2013.

Villumsen, J.C., & Philpott, A.B. (2011). Column generation for transmission switching of electricity networks with unit commitment. *IMECS 2011 - International MultiConference of Engineers and Computer Scientists 2011*, 1440-1443.

De Matos, V., Philpott, A.B., Finardi, E.C., and Guan, Z., Solving long-term hydro-thermal scheduling problems, *Proceedings of PSCC Conference*, Sweden, 2011.

Wallace, J., OSullivan, M.J., Ferris, M.C. and Philpott, A.B., Yacht rig design using mathematical programming, in *Proceedings of the High Performance Yacht Design Conference*, 185-192, 2006.

Philpott, A.B. and Mason, A.J., Advances in optimization in yacht performance analysis, in *Proceedings of the High Performance Yacht Design Conference*, 229-236, 2002

Pritchard, G., Philpott, A.B., Neame, P.J. and Zakeri, G., The electricity seller's Psi, *Proceedings of the 36th Annual Conference of ORSNZ*, 2001, 278-287.

Neame, P.J., Philpott, A.B., and Pritchard, G., Long-term hydro scheduling in a pool market, *Proceedings of the 36th Annual Conference of ORSNZ*, 2001, 182-191.

Mason, A.J. and Philpott, A.B., Development of FIDO – A network design tool for fibre cable layout, *Proceedings of the 36th Annual Conference of ORSNZ*, 2001, 120-129.

Everett, G., Aoude, S. and Philpott, A.B., Capital planning in the paper industry using COMPASS, *Proceedings of the 36th Annual Conference of ORSNZ*, 2001, 78-87.

Philpott, A.B. and Mason, A.J., Optimizing Yacht Routes Under Uncertainty, in *Proceedings of the Chesapeake Bay Yacht Symposium*, 2001, 89-98.

Taylor, S., Boland, N. and Philpott, A.B. Optimal Spanning Trees with Attenuation and Amplification, in *Proceedings of the 15th National Conference of the Australian Society for Operations Research*, Gold Coast, Australia, 4-7 July 1999, 1225-1244.

Philpott, A.B., Experiments with Load Flow Pricing Models, in *Proceedings of the CRNEC Policy Conference*, Auckland 1999.

Philpott, A.B., Developments in VPP Capabilities, in *Symposium Papers*, Proceedings of Yacht Vision '94: The International Yacht Design Symposium, February 16-20, 1994.

Philpott, A.B., Network Programming in Continuous Time with Node Storage, in *Infinite Programming*, Proceedings of an International Conference on Infinite-Dimensional Linear Programming, Cambridge, 1984, 136-153.

Philpott, A. and Strang G., Numerical and Biological Shape Optimization, in *Unification of Finite Elements, Finite Differences and Calculus of Variations*, H. Kardestuncer (ed.), North Holland, 321-343, 1984.

Anderson, E.J. and Philpott, A.B., An Algorithm for a Continuous Version of the Assignment Problem, in *Semi-Infinite Programming and Applications: an international symposium, Austin, Texas*, A.V. Fiacco and K.O. Kortanek (ed.), Springer-Verlag, 108-117, 1983.

Anderson, E.J. and Philpott, A.B., Algorithms for Some Infinite-Dimensional Linear Programs, in *Systems Modeling and Optimization, Proceedings of the 10th IFIP conference, New York, 1981*, Springer-Verlag, 8 pages, 1982.

Reviews and comments

Philpott, A.B. and Ferris M.C., Electricity Markets and Renewable Energy, SIAM News, September, 2019.

Philpott, A.B., The mathematics of electricity markets under uncertainty, SIAM News, December, 2014.

Philpott, A.B., Review of "Sharing the Future", J. Gough, Editor, 2004.

Philpott, A.B., Editorial ORSNZ Newsletter, June 2000.

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Technical reports

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van Campen, B., Kirkpatrick, R., Poletti, S., Young, D., Philpott, A.B., Pritchard, G., Zakeri, G., Energy Centre/EPOC Commentary on the Wolak Report, 2009.

Philpott, A.B., On carbon charges and electricity prices, <http://www.esc.auckland.ac.nz/EPOC/publications.html>, 2008.

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Philpott A.B., EPOC Submission to EC on Centralized Data Set (June 14, 2006).

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Neame, P.J., Philpott A.B., and Pritchard, G., Offer stack optimization in electricity pool markets, *School of Engineering Report No. 601*, 2001.

Anderson, E.J. and Philpott A.B., Using supply functions for offering generation into an electricity market, Working paper 98-008, Australian Graduate School of Management, UNSW.

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Broad, K.P. and Philpott, A.B., DC Load Flow Optimization with Transmission Losses and Constraints, *School of Engineering Report No. 571*, 1996.

Philpott, A.B., Optimum Inventory Management with Uncertain Markets, *Uniservices Report for Tasman Lumber Co. Ltd*, February, 1995.

Philpott, A.B. and Wormald, N.C., On the Optimal Extraction of Ore from an Open Cast Mine, *School of Engineering Report No. 596*, 1995.

Dang, C., Philpott, A.B. and Ryan, D.M., A Survey of Interior-Point Methods in Stochastic Linear Programming, *School of Engineering Report No. 548*, 1995.

Philpott, A.B. and Craddock, M., An Optimization-based Heuristic for Short-Term Hydro-Electricity Generation, *Uniservices Report for ECNZ*, March, 1995.

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Other Works

Cory-Wright, R, Philpott, A.B, and Zakeri, G. Cost-recovering, revenue-adequate single settlement schemes for electricity markets, in *Proceedings of the Conference of ORSNZ*, 2016.

Soni, M., Downward, A. and Philpott, A.B., Supply chain investment under uncertainty, in *Proceedings of the Conference of ORSNZ*, 2014.

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Everett, G.R., and Philpott, A.B., Pulp mill electricity demand management, in *Proceedings of the Conference of ORSNZ*, 2013.

Shapiro, A. and Philpott, A.B., A tutorial on stochastic programming, www.stoprog.org, 2007.

Philpott, A.B. and Leyland, G.B. Rowing to Barbados, *OR/MS Today*, April 2006, 42-49.

Philpott, A.B., A tutorial on stochastic programming, www.stoprog.org, 2005.

Philpott, A.B., Single-unit commitment problems in electricity pool markets, in *Proceedings of the Conference of ORSNZ*, 241-250, 2004.

Philpott, A.B. and Pettersen, E., Optimizing demand-side bids in day-ahead electricity markets, in *Proceedings of the Conference of ORSNZ*, 169-178, 2003.

Everett, G.R and Philpott, A.B., Supply-chain optimization at Norske Skog – Implementing technological systems to improve manufacturing efficiency, in *Proceedings of the Second Manufacturing Summit*, Auckland, 2003.

Philpott, A.B., Mason, A.J. and Davenport, J., FIDO – Telecom’s best friend, *OR/MS Today*, April 2003, 36-41.

Zakeri, G., Pritchard, G. and Philpott A.B., Estimation of market distribution functions in the electricity market, in *Proceedings of the Conference of ORSNZ*, 33-42, 2002.

Philpott, A.B. and Everett, G.R., On load shedding and transmission grid security, in *Proceedings of the Conference of ORSNZ*, 45-54, 2002.

Everett, G.R., and Philpott, A.B., Pulp mill electricity demand management, in *Proceedings of the Conference of ORSNZ*, 55-64, 2002.

Hindsberger, M. and Philpott, A.B., Stopping criteria in sampling strategies for solving multistage SLP-problems, APMOD 2002, June 17-19, 2002, Villa Monastero, Italy.

Allsopp, T., Mason, A.J. and Philpott, A.B., Optimal sailing routes with uncertain weather, *Proceedings of the 35th Annual Conference of ORSNZ*, 2000, 65-74.

Everett, G., Philpott, A.B. and Cook, G. Capital planning under uncertainty at Fletcher Challenge Canada, *Proceedings of the 35th Annual Conference of ORSNZ*, 2000, 231-240.

Neame, P.J., Philpott, A.B., Pritchard, G. and Zakeri, G., Optimal offer stacks for hydro-electric generators in electricity markets, *Proceedings of the 35th Annual Conference of ORSNZ*, 2000, 179-188.

Neame P.J., Philpott, A.B., and Pritchard, G., Offer stack optimization for price takers in electricity markets, *Proceedings of the 34th Annual Conference of ORSNZ*, 1999, 3-12.

Philpott, A.B. and Everett, G., Supply chain optimization in the paper industry, *Proceedings of the 34th Annual Conference of ORSNZ*, 1999, 195-204.

Philpott, A.B., Anderson, E.J. and Kaye, J., Optimal participant behaviour in electricity markets, *Proceedings of the 33rd Annual Conference of ORSNZ*, 1998, 51-60.

Philpott, A.B. and Ronnqvist, M., Scheduling Fault Repair Workers, in *Proceedings of the 32nd Annual ORSNZ Conference*, 1996.

Ryan, D.M., Philpott, A.B. and Zakeri, G., Techniques for Solving Large-Scale Set Partitioning Problems, in *Second Scandanavian Workshop on Linear Programming*, 46-48, 1996.

Philpott, A.B. and Miller, S., A Cable Layout Model for Telecommunication Distribution Networks, in *Proceedings of the 31st Annual ORSNZ Conference*, 1995.

Philpott, A.B., Ryan, D.M. and Zakeri, G., Experiments with Stochastic Programming Techniques, in *Proceedings of the 31st Annual ORSNZ Conference*, 1995.

Philpott, A.B. and Leyland, G., Scenario Aggregation for Weather-Dependent Race Planning, *Proceedings of the 29th Annual ORSNZ Conference*, 250-258, 1993.

Philpott, A.B. and Craddock, M., The Optimization of Daily Generation in a Hydro-Electric System, in *Optimal Generation Scheduling*, Proceedings of an ECNZ Workshop, December 6-7, 1993.

Philpott, A.B. and Mudaliar, S.K., Minimum-Cost Tankering of Fuel in a Transportation Network, *Proceedings of the 28th Annual ORSNZ Conference*, 1992.

Philpott, A.B., Optimization and Problem Solving in GAMS, *University of Auckland Center for Continuing Education*, 1992.

Pedder, S.J. and Philpott, A.B., A Vehicle-Routing Model based on Set Partitioning, in *Proceedings of the 25th Annual ORSNZ Conference*, August 1989.

Clarke, R.J. and Philpott, A.B., Rostering Staff using Assignment Algorithms, in *Proceedings of the 25th Annual ORSNZ Conference*, August 1989.

Philpott, A.B., Continuous time flows in Networks, in *Proceedings of the 23rd Annual ORSNZ Conference*, August 1987, 5-6.

Research Grants / Funding:

AURC

Real-time Graphical Simulation of Engineering Systems (1989)

Stochastic Mathematical Programming Techniques (1992)

Mathematical Programming Techniques (1996)

Hydrodynamic force modeling for the virtual yacht (2002)

Optimal lot sizing and stock cutting under uncertain demand (2004)

Lottery Science

Stochastic Mathematical Programming Techniques (1992)

NZ Foundation for Research Science and Technology

Mathematical Optimization Methods (1992/93) (\$112,000)

NZ Foundation for Research Science and Technology

Mathematical Optimization Methods (1993/99) (\$112,000 p.a.)

NZ Foundation for Research Science and Technology

GRIF Award "Portfolio Optimization Techniques"

(1995/96) (\$22,000 p.a.)

NZ Foundation for Research Science and Technology
GRIF Award "Telecommunications Planning Techniques"
(1995/96) (\$22,000 p.a.)

NZ Foundation for Research Science and Technology
GRIF Award "Weather routing for sailing vessels"
(1996/97) (\$22,000)

Centre for Research in Network Economics and Communications
Electricity Market Clearing Models
(1996) (\$10,000)

NZ Foundation for Research Science and Technology
GRIF Award "Telecommunication Technology Choice"
(1997/98) (\$22,000)

NZ Foundation for Research Science and Technology
GRIF Award "Yacht Match-Race Simulation"
(1998/99) (\$22,000)

Australian Research Council (with E. Anderson)
Optimization in Electricity Markets
(1999-2002) (\$70,000 p.a.)

NZ Foundation for Research Science and Technology
Optimization with Industrial and Business Applications
(1999/2002) (\$240,000 p.a.)

NZ Foundation for Research Science and Technology
Optimization with Industrial and Business Applications
(2003/2008) (\$115,000 p.a.)

NZIMA
Mathematical Models for Optimizing Transportation Services
(2005/2006) (\$393,000)

ISAT
Stochastic Equilibrium Models and their Applications
(2004/2005) (\$18,000)

Marsden Fund
Infinite-dimensional auctions
(2008-2011) (\$400,000)

MBIE (Joint with Light Metals Research Centre)
Large Scale Electrical Energy Storage and Savings for the NZ Grid, Using a Novel Aluminium Smelter
Turndown Technology
(2014-16) (\$2.45 M)

PGMO (France)
Hydro-electric river-chain optimization under uncertainty
(2013-15) (45,000 euro)

Te Punaha Matatini (NZ Centre for Networks and Complexity)
One of 10 funded New Zealand Centres of Research Excellence led by Shaun Hendy
(2015-2020) (I was Deputy Director of the Centre from February 2015 till June 2016)

National Science Challenge 7 (Science for Technological Innovation)
\$33 M over 6 years
(2015-2021) (I was Director of Portfolio Smart Services 2016-2018)

EQUIPS (DARPA-BAA-15-13) Inference, Simulation and Optimization of Complex Systems under Uncertainty
(2015-18) Collaboration agreement with UoT (Austin), MIT, Rice, Warwick

Marsden Fund
Distributionally-robust optimization
(2016-2018) (\$500,000)

Isaac Newton Institute, University of Cambridge
The mathematics of energy systems
(2019) (Four month thematic programme)

Invited Lectures:

- "Some preliminary numerical experiments with Karmarkar's algorithm", *Special IMA Symposium*, London, May, 1985.
- "Capacity expansion models for telecommunications distribution systems", *31st Australian Applied Mathematics Conference*, Perth, February, 1995 **(Plenary)**.
- "Experiments with Load Flow Pricing Models", *CRNEC Policy Conference*, Auckland 1999
- "Optimal participant behaviour in an electricity market", *EPRI Workshop on Planning Under Uncertainty*, EPRI, Palo Alto, July 12-16, 1999.
- "Optimal participant behaviour in electricity markets", *IMA Symposium on Energy and Environmental Models*, Minneapolis 1999
- "Optimization in Electricity Pool Markets", *International Symposium on Stochastic Programming*, Berlin, Germany, August 2001, **(Semiplenary)**.
- "Optimization in Electricity Pool Markets", *International Symposium on OR*, Duisburg, Germany, September, 2001, **(Plenary)**.
- "Modelling in Stochastic Programming", *International Symposium on Stochastic Programming*, Tuscon, Arizona, October, 2004. **(Invited tutorial)**
- "Rowing to Barbados", *Invited Workshop on Optimization with Incomplete Information*, Dagstuhl, Germany, January, 2005.
- "Revenue Optimization in a Repeated-Game Model", *Invited Workshop on Yield Management and Dynamic Pricing*, Rutgers, NJ, August, 2005.
- "Rowing to Barbados", *International Conference on Complementarity, Duality, and Global Optimization*, Virginia Tech, Blacksburg, VA, August, 2005.
- "Electricity offer optimization over consecutive time periods", *International Conference on Electricity Markets*, University of Chile, Santiago, November 10-11, 2005.
- "On supply-function equilibria in transmission networks with losses", *International SFE Workshop*, University of Auckland, April 28, 2006.
- "Creating the future using mathematical models", *Winter Lecture Series*, University of Auckland, August 29, 2006.
- "On Spring Washers, Constrained Dispatch, and Dispatch Model Sensitivity", *EPOC Winter Workshop*, Auckland, September 2, 2006.
- "Optimization, uncertainty and equilibria", *ORSNZ Conference - Hans Daellenbach Prize Lecture*, University of Canterbury, November 30, 2006. **(Plenary)**.
- "Supply function models in electricity markets", *Energy Centre Workshop*, The University of Auckland, February 22, 2007.

“Estimating efficiency losses in the NZ wholesale electricity market”, EURO, Prague, July 10, 2007.

“Stochastic Optimization in Electricity Pool Markets”, ICCOPT II, Hamilton Ontario, August 14, 2007, **(Semiplenary)**

“Stochastic Optimization in Electricity Systems”, *International Symposium on Stochastic Programming*, Vienna, August 26, 2007 **(Invited tutorial)**

“Uniform price auctions versus pay-as-bid auctions”, *EPOC Winter Workshop*, Auckland, September 7, 2007.

“Stochastic Optimization in Electricity Pool Markets”, AMS Annual meeting, LaTrobe, Melbourne, September 26, 2007, **(Keynote)**

“Incentives and Regulation in Electricity Pool Markets”, NERI Conference, Auckland, November 22, 2007, **(Keynote)**

“Measuring the price of security of supply”, *EPOC Winter Workshop*, Auckland, September 5, 2008.

“Norske Skog improves global profitability using OR”, *Edelman Prize session, INFORMS Practice Meeting*, Phoenix, April 28, 2009.

“Estimating the productive efficiency of the New Zealand wholesale electricity market”, *IFIP meeting*, Buenos Aires, July 29, 2009.

“Estimating the productive efficiency of the New Zealand wholesale electricity market”, *EPOC Winter Workshop*, Auckland, September 3, 2009.

“Estimating the productive efficiency of the New Zealand wholesale electricity market”, *IFN Workshop*, Stockholm, September 16, 2009.

“Norske Skog improves global profitability using OR”, *Managing Supply Chains in a Downturn*, Sydney, November 4, 2009 **(Keynote)**.

“Norske Skog improves global profitability using OR”, *ORSNZ*, Christchurch, December 3, 2009 **(Keynote)**.

“Stochastic programming in the electricity industry”, *International Symposium on Stochastic Programming*, Halifax, August, 2010 **(Keynote)**.

“Advances in DOASA”, *EPOC Winter Workshop*, Auckland, October 26, 2010.

“Stochastic programming in electricity markets”, *SPO Seminar*, Henri Poincare Institute, Universite de Paris, January 10, 2011.

“Long-term hydro-electric planning”, *Ecole de Ponts Seminar*, Marne de Vallee, Paris, January 25, 2011.

“Mixed-strategy equilibria in discriminatory divisible-good auctions”, *Invited seminar*, Universite de Paris Sud, Orsay, February 11, 2011.

“Recent applications of DOASA”, *EPOC Workshop: Optimization under Uncertainty*, Auckland, July 8, 2011.

“Electricity market benchmarking exploring risk”, *ONS Workshop*, Rio de Janeiro, August 17, 2011.

“Financial transmission rights and SPD”, *EPOC Winter Workshop*, Auckland, September 2, 2011.

“Electricity markets, dry winters, and risk”, *Deans Lecture*, School of Engineering, November 17, 2011.

“Sidestepping competition and the allocation of flexible resources: when is it wise to serve a limited set of markets?” *Supply Chain Workshop*, Sydney, January 13, 2012.

"Electricity markets, perfect competition and energy shortage risks", *EDF Workshop*, Paris, March 6, 2012.

"DOASA", *EDF Workshop*, Paris, March 16, 2012.

"Electricity markets, perfect competition, and energy shortage risks", *INFORMS Analytics Meeting*, Los Angeles, April 17, 2012.

"Electricity markets, perfect competition and energy shortage risks", *MOTU workshop*, Wellington, March 21, 2012.

"Supply function equilibrium, price caps, and investment", *EPOC Winter Workshop*, Auckland, July 6, 2012.

"Competitive equilibrium and risk aversion in hydro-dominated electricity markets", *ISMP Berlin*, August 23, 2012,

"Improving dispatch and pricing mechanisms for wind power", *NZWEA Conference*, Wellington, October 24, 2012.

"Risk and competition in hydro-dominated electricity markets", *NUS workshop on Optimization Under Uncertainty*, Singapore, December 14, 2012. **(Keynote)**

"Equilibrium, uncertainty and risk in electricity pool markets", *NUS workshop on Complementarity and Extensions*, Singapore, December 18, 2012.

"Electricity markets with hydroelectricity: the risk neutral case", *Tignes Winter School*, Tignes, April 11, 2013.

"Electricity markets with hydroelectricity: risk averse case", *Tignes Winter School*, Tignes, April 11, 2013.

"Supply function equilibrium models for electricity markets", *ICSP meeting*, Bergamo, July 11, 2013.

"Risk averse water valuation", *EPOC Winter Workshop*, Auckland, September 5, 2013.

"The competitive price of stored water", *CMSS Summer Workshop*, Auckland, December 11, 2013.

"Equilibrium, uncertainty and risk in hydro-thermal electricity markets", *ATE Symposium*, Massey University, December 12, 2013.

"Modeling wholesale electricity markets with hydro storage", *SIAM Conference on Optimization*, San Diego, May 21, 2014. **(Keynote)**

Introduction to equilibrium in energy markets, Winter School, Kvitfjell, Norway, March 22-28, 2015.

Stochastic programming in energy markets, NTNU Winter School, Kvitfjell, Norway, March 22-28, 2015.

Capacity equilibrium in electricity markets, ISMP, Pittsburgh, July 13, 2015.

Contracting, risk and information, EPOC Workshop, September 9, 2015.

Hydroelectric bid optimization under uncertainty, INFORMS, Philadelphia, November 3, 2015.

Transmission charging, IPAM Workshop (UCLA), Los Angeles, January 12, 2016.

Modelling wholesale prices in hydro-dominated electricity systems using stochastic optimization
Talk at SESO Workshop, Paris, May 30, 2016.

Mixed Integer Dynamic Approximation Scheme, Talk at ICSP, Buzios, Brazil, June 27, 2016.

Electricity markets with wind energy, Talk to ONS, Rio de Janeiro, July 12, 2016.

Electricity markets with hydro, Talk at UFSC, Florianopolis, July 20, 2016.

Recent advances in DOASA, EPOC Workshop, September 7, 2016.

Electricity carbon and competition, MOTU presentation, Auckland, October 10, 2016.

Mixed Integer Dynamic Approximation Scheme, INFORMS Meeting, Nashville, November 13, 2016.

Forward contracting in markets with private information, EPOC Summer Workshop, December 16, 2016.

Decomposition in multistage stochastic integer programming, NTNU Winter School, Passo Tonale, Italy, January 15, 2017.

Applications of SDDP in electricity markets with hydroelectricity, Talk at SESO Workshop, Paris, June 1, 2017.

Backtesting the New Zealand wholesale electricity market: preliminary results
EPOC Special workshop, July 17, 2017.

Experiments with SDDP, Workshop in memory of Maarten van der Vlerk, Groningen, August 10, 2017.

NZEM performance 2005-2014. EPOC Winter workshop, September 4, 2017.

Risk and efficiency in hydro-dominated electricity markets, SFTI workshop on Distributed Energy Resources, Auckland, January 12, 2018.

Competitive Equilibrium with Risk Averse Agents, Computational Management Science, NTNU, Trondheim, May 29, 2018 (**Plenary**).

Randomness, Risk, and Electricity Prices, ISMP, Bordeaux, July 5, 2018 (**Plenary**).

Zero Carbon Analytics, IFORS Distinguished Lecture, INFORMS Annual Meeting, Seattle, October 20, 2019 (**Plenary**).