

NAME: **Dr. Karel (Karl) Nolles**
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SUMMARY: PhD qualified economist and electrical engineer, last 10 years in investment banking (Macquarie Bank) and FinTech sector. Recent experience in market design and operation, economic system design, machine learning/robo-advising.

Owner/Director of Aton Consulting since 1999, with something of a break from consulting from 2007-2013 during my time with Macquarie Bank.

2014 to October 2016 - Head of Market Design for SocietyOne – led team to establish the robo-investing/market based loan allocation systems used by Australia’s leading marketplace lender. Over \$100m of loans allocated using these systems in the past 2 years. (I hold IP rights in respect of these systems, and options in SocietyOne)

2007 to 2013 Associate Director with Macquarie Bank / Macquarie Capital in various front of house deal origination roles, particularly in energy utilities, clean technology and “green tech” (carbon trading, renewables, etc).

Represented Macquarie Bank as a Director on the boards of multiple investee companies, and at meetings with Senior Ministers and the Prime Minister’s office to present Macquarie’s position on various government policy matters related to climate change and renewables.

Seconded from Macquarie to be CEO of NextGen (an energy markets brokerage business employing 20 staff) and the WaterExchange (a water trading business employing 4 staff) to develop new strategy and conduct turn-around.

Former senior research fellow faculty of business at University of New South Wales, and Director / CEO of university affiliated economics research centre, with research interests in auction theory, market design and experimental economics (2004 - 2007). Was visiting research scholar with Professor Vernon Smith (winner of 2002 Nobel prize for economics) at George Mason University, with a research focus on the design of energy and related markets. Key researcher in major project for the US Federal Energy Regulatory Commission. Later an adjunct senior lecturer in energy economics at University of Sydney. (2007 – 2015)

Academic Background: 2001-2006, University of New South Wales, Sydney
PhD in Electrical Engineering and Energy Economics
1988-1992, University of Melbourne, Australia
Bachelor Electrical Engineering (Hons)
Bachelor of Arts (part complete)
1998-2000, Macquarie University, Sydney
Bachelor Arts/Law (3 of 5 years completed)

SUMMARY CAREER HISTORY

JAN 1999 – JAN 2004,

JAN 2013 - present

Position:

**Aton Consulting Pty Ltd. Markets and Economics advisory.
Owner/Director**

- A wide range of consulting work particularly around energy and environmental markets in Australia and overseas since establishing Aton Consulting in 1999. From 2000 to 2004 had four staff. Discontinued my consulting practice whilst working full time with various universities and Macquarie Bank from 2004 to 2013. Recommenced consulting in February 2013.
- Under retainer from 2014 to 2016 with SocietyOne to be Head of Market Design. This contract included options in SocietyOne. The role covered from concept design through to full implementation of the AI/robotic agent based marketplace systems used by SocietyOne to allocate loans to investors. Approximately \$100m of loans have been run through these systems. Key focus has been around market design, operation, robo-advising, and “bot based” systems in a FinTech context. Have been closely watching developments in AI, machine learning and FinTech more generally.
- Have conducted a range of compliance advisory work, for example recently (2015/16) assisting Arete Capital (a PE fund targeting the mining space) with establishing all internal policies and procedures, including deal Due Diligence processes, and with assisting an options brokerage with compliance services.
- From February 2013 to December 2013 contracted on retainer with the Australian Energy Markets Commission (advising on implementation of G20 Derivatives Principles in Australia's energy markets and financial stability issues in the Australian utility sector)
- Other clients since 1999 have included: The Australian Securities Exchange, The Allen Consulting Group, The Australian Financial Markets Association, CSIRO, George Mason University, Ergon Energy, NSW EPA, Origin Energy, South Australian Treasury, the Business Council of Australia.

JUN 2007 – JAN 2013

Position:

**Macquarie Bank / Macquarie Capital
Associate Director, Utilities and Climate Change
Associate Director, Macquarie Global Investments**

- Carriage of a range of asset management, deal origination, due-diligence and other new business initiatives across energy, clean technology and carbon/renewables sectors, from 2007-2010 in the Investment Banking Group, and then in Macquarie Global Investments from 2010 in a similar role.
- Asset Manager and represented Macquarie Bank as a Director on the boards of a number of companies where Macquarie had investment including:
 - The NextGen wholesale electricity (NEM) and enviro products brokerage
 - The Envex climate exchange (an exchange for trading renewable energy and carbon credits)
 - The Water Exchange (a business for trading of water rights in the Murray Darling system)
 - Climate Friendly (a carbon credit offsetting business, used by Qantas among others)
- Worked on a range of corporate advisory, capital raisings, principal investments and merger and acquisition work in the energy utilities, clean technology, and environmental/waste area
- Key member of Macquarie Capital led consortium on “The Green Grid” project – a South Australian Govt backed initiative to develop an investible infrastructure project to construct a transmission line

from NSW to South Australia, specifically to release wind-farm development sites. Project value: \$1.4B. Project was under development for approximately 2 years, but was discontinued following a change of government in South Australia.

NOV 2011 – DEC 2012

NextGen

Position:

Managing Director (Seconded from Macquarie Bank)

- NextGen was a wholesale electricity and renewable energy/carbon/green brokerage business, and at the time one of the top 3 brokerages in Australia (the competition being ICAP and TFS)
- Seconded from Macquarie to be CEO of NextGen under conditions of some urgency to conduct reform and stabilisation of business after former CEO was discovered to have committed fraud and stolen funds.
- Conducted complete strategic and operational review of the business, developed new strategy and gained board approval, and then implemented new strategy, new accounting systems and new business processes across the entire business.
- Led marketing to clients to rebuild brand following dismissal of former CEO.

JUN 2007 – present

University of Sydney, School of Ag & Resource Economics

Position:

Adjunct Senior Lecturer

- Adjunct position at the University of Sydney – a part-time faculty position. Taught the post-graduate Energy Economics course in 2010, 2012 and 2014. (The course runs every second year.)
- Supervised a number of final year thesis students and co-supervised PhD students.

JAN 2005 – JUN 2007

Securities Industry Research Centre Experimental Eco Labs

Position:

CEO

- Founding CEO of experimental economics laboratory, co-owned by the Securities Industry Research Centre of Australia (SIRCA) and Aton Consulting. SIRCA is itself an academic organisation, owned by a consortium of over 50 universities globally to conduct research in the financial markets.
- Built the SIRCA SEELab business to employing 8 staff (5 software developers, and 2 PhD qualified researchers, and 1 admin). This business continued as part of SIRCA, and was ultimately sold to a US university.
- Provided research systems to research teams globally, and in particular worked with Professor Vernon Smith (Winner of the 2006 Nobel Prize for Economics) on a 2 year research program examining the operation of the US Electricity Markets. This project required the development of world leading electricity market simulation software, which included full nodal pricing models, techniques for making generation and transmission investments, and forward contract and capacity contract auctions. Source code rights to this software was subsequently purchased from the SEELab by a consortium of US Universities, and it continues to be used for consulting and research purposes.

JAN 2004 – DEC 2005

**University of New South Wales
Centre for Energy and Environmental Markets
Director**

Position:

- Was one of four founding academic directors of the UNSW CEEM, a cross faculty research centre with approximately 15 research staff between the Faculty of Engineering and the Faculty of Commerce and Economics.
- Also held position of Senior Research Fellow, Faculty of Commerce and Economics
- Conducted a range of research on energy and environmental markets globally. Published papers in peer reviewed journals. Supervised students.

JAN 2001 – DEC 2003

**Australian Financial Markets Association
Policy Officer**

Position:

- Prepared wide range of policy papers to government and finance industry submissions. Assisted development of trading documentation and standards. Represented AFMA at Ministerial level meetings.

JAN 1992 – DEC 2000

**Energetics Pty Ltd
Consultant, Senior Consultant**

Position:

- Various energy policy and energy engineering consulting projects in Australia, Thailand and Malaysia, including a major project for the National Energy Policy Office of Thailand on structuring electricity tariffs.