



11-Dec-18

## Curriculum Vitae

### Rowan Peck, Director

#### Projects

##### Mission Critical

30 years experience in planning, design, implementation, commissioning, and lifecycle performance management of critical facilities. Over 295,000m<sup>2</sup> new build and extension of live facilities, and power system upgrades of over 185,000m<sup>2</sup> of live facilities, for major clients including IBM, Global Switch, Woolworths, Optus, AAPT, Unisys, Metronode, NextGen, and PacNET.

Projects include:

- 2018: Design completion to Uptime Tier III of 1,400m<sup>2</sup> / 1.3MW Data Centre, Perth WA
- 2018: Uptime Tier III / IV compliance and feasibility review of 1,300m<sup>2</sup> Data Centre, Adelaide SA
- 2018: Uptime Tier III / IV compliance and feasibility review of 5,000m<sup>2</sup> Data Centre, Western Sydney NSW
- 2018: Cable Landing Station concept design for 800kW multiple-cable landing station, Sunshine Coast QLD
- 2018: Data Centre extension for additional 4MW / 1,500m<sup>2</sup> IT space, Western Sydney NSW
- 2018: HV supply upgrade 11kV to 33kV, Western Sydney NSW
- 2018: HV Upgrade and 5,000m<sup>2</sup> Data Centre extension concept design, Melbourne VIC
- 2018: Investigation and reporting into UPS failure and fire, Melbourne VIC
- 2018: Conversion from LV to HV customer for an initial 6MW Data Centre, Illawarra region NSW
- 2017: 30MW modular Data Centre power system concept development, Australia
- 2017: Strategic review for a proposed power upgrade for 3 managed service Data Centres total 12MW in NSW, WA, and Vic
- 2017: 5MW multi-floor Data Centre base building services electrical infrastructure upgrade strategic planning and concept design, Sydney NSW
- 2017: 8MW Modular Data Centre utility supply upgrade planning and procurement for an Uptime Tier III certified facility, Canberra ACT
- 2017: 10MW Modular Data Centre expansion strategy, concept design, and peer review of D&C delivery for an Uptime Tier III certified Data Centre, covering Mechanical and Electrical trades and including utility supply upgrade, Illawarra region NSW
- 2017: 20MW Uptime Tier III certified modular Data Centre expansion strategy, concept design, peer review of D&C delivery for an Uptime Tier III certified Data Centre, covering Mechanical and Electrical trades, Sydney NSW



- 2016: 3MW Uptime Tier III Data Centre commissioning review and troubleshooting of HV and Standby Power Systems, Perth WA
- 2016: 15MW Uptime Tier III Modular Data Centre strategy expansion development, concept design development, utility supply upgrade, and cost planning, Sydney NSW
- 2016-2017: 45MW Modular Data Centre strategy development, cost planning, design brief, concept design, and peer review to completion for Electrical/Mechanical systems, Melbourne VIC
- 2016-2017: Data Centre power supply growth plan to 45MW and negotiations with energy distributor, Melbourne Vic
- 2016: UPS Vendor R&D team expert advice for future product developments, Asian Region
- 2016: Modular Data Centres market review and strategic advice, Tokyo Japan
- 2015: City of Ryde Data Centre due diligence and relocation risk assessment, Ryde NSW
- 2015: Peer Review for Global Switch Sydney East Stages 2 and 3 final tender, on behalf of a major contractor, Sydney NSW
- 2015-2016: Power Quality review and report for a 3MW Data Centre, Sydney NSW
- 2015-2016: Model 11kV 10MW ring bus (Iso-Parallel) UPS Data Centre design and TCO comparison of solutions, Auckland NZ
- 2015: Telstra feasibility review of 2.3MW 500m<sup>2</sup> modular data centre development, Sydney NSW
- 2015: Fujitsu hosting facility upgrade review for 5MW 3,600m<sup>2</sup> data centre to Uptime Tier IV, Perth WA
- 2015: iiNet hosting facility upgrade review for 3MW 3,500m<sup>2</sup> Canberra ACT
- 2014~2015: Gen-i power system peer review for 10MW 5,000m<sup>2</sup> hosting facility, Auckland NZ
- 2014~2015: Metronode Uptime Tier III BladeRoom 10MW 6,000m<sup>2</sup> staged modular hosting facility, Canberra ACT
- 2013~2014: Canberra Deep Space Communications Complex Fire Infrastructure Upgrade concept and planning, ACT
- 2013: Transpower power grid control facility 0.5MW 100m<sup>2</sup> using fully seismic isolated building, Christchurch NZ
- 2013: IO Modular data centres Australian compatibility review, Phoenix USA
- 2013: Red Cloud Uptime Tier III staged modular 2MW 450 rack data centre concept and design, Perth WA
- 2013: CSIRO Datapod Modular 0.5MW 250m<sup>2</sup> data centre, Melbourne VIC
- 2013: ANZ Bank 4MW 1,500m<sup>2</sup> data centre site search and evaluation, Auckland NZ
- 2012~2014: iiNet 1.5MW 1,500m<sup>2</sup> Hosting facility cooling plant upgrade, Adelaide SA
- 2012~2013: Global Switch 20MW 15,000m<sup>2</sup> data centre peer review, Singapore
- 2012~2013: Metronode Uptime Tier III BladeRoom 10MW 6,000m<sup>2</sup> staged modular hosting facility, Sydney NSW
- 2012~2013: IBM Australia peer review of pre-packaged modular design data centre systems, Port Macquarie NSW
- 2012~2013: Metronode Uptime Tier III BladeRoom 3MW 2,000m<sup>2</sup> staged modular hosting facility, Illawarra NSW



- 2012: Red Cloud Uptime Tier III site evaluations for a pair of 2MW 1,200m<sup>2</sup> staged modular data centres, Melbourne Vic and Perth WA
- 2011~2014: Global Switch facility expansion 20MW 20,000m<sup>2</sup> staged D&C conventional build hosting facility, peer review and client side engineering, Sydney NSW
- 2011~2013: IBM New Zealand 400 seats multi-tenant Call Centre facility, Auckland NZ
- 2011~2013: IBM New Zealand Data Centre upgrade and expansion for 2MW 1,000m<sup>2</sup> managed services facility, Wellington NZ
- 2011~2012: IBM Australia peer review of pre-packaged modular design Data Centre systems, Sydney NSW and Perth WA
- 2011~2012: Equinix UPS System upgrade strategy and concept development for 8MW 4,000m<sup>2</sup> hosting facility, Sydney NSW
- 2011~2012: Global Switch facility power systems load redistribution and implementation for 20MW 20,000m<sup>2</sup> conventional build hosting facility, Sydney NSW
- 2011~2012: Melbourne Water IT 1MW 500m<sup>2</sup> Air-Air heat exchanger cooled Data Centre, Melbourne Vic (winner of national and international recognition and awards for the cooling strategy)
- 2011~2012: PacNET peer review and commissioning management for 3MW 3,000m<sup>2</sup> Stage 2 extensions and upgrades, Sydney NSW
- 2011: HP Enterprise Systems 1MW 400m<sup>2</sup> hosting facility UPS and power system upgrade, Wellington NZ
- 2011: Vocus 1MW 500m<sup>2</sup> new build design concept, Auckland NZ
- 2011: Aspect Uptime Tier IV 1.5MW 500m<sup>2</sup> new build design concept, Hamilton NZ
- 2011~2013: Sungard 6MW 3,000m<sup>2</sup> extensions and upgrades to existing hosting facility, Adelaide SA
- 2010~2012: Metronode Uptime Tier III BladeRoom 10MW 6,000m<sup>2</sup> staged modular hosting facility, Melbourne VIC
- 2010~2011: IBM Australia 1,500m<sup>2</sup> data centre power and cooling systems upgrade and extension within the facility for new customer requirements, Ballarat VIC.
- 2010: Sun Microsystems concept design of containerized data centre module for market testing, Sydney NSW
- 2010: Challenger Data Centre development trust, site search for 5-6MW 3,000m<sup>2</sup> new build, Melbourne VIC
- 2009~2011: ASG Data Centres 2MW 1,000m<sup>2</sup> new hosting facility, Perth WA
- 2009~2010: Plenary Data Centres twin 4MW 2,000m<sup>2</sup> new hosting facility concept and design development, regional NSW
- 2009~2010: Optus Communications 3MW 500m<sup>2</sup> high density extension of existing facility, Melbourne VIC
- 2008~2012: TXA 1MW 500m<sup>2</sup> naturally ventilated new build TV broadcast facility, Sydney NSW
- 2008~2010: Woolworths twin 6MW 3,000m<sup>2</sup> new Data Centre facilities, Sydney NSW
- 2008~2009: Woolworths 2MW 1,500m<sup>2</sup> upgrade and extension of corporate Data Centre, Sydney NSW
- 2008~2009: TXA 1MW 500m<sup>2</sup> power system upgrades for TV broadcast facility, Sydney NSW



- 2008~2009: Fujitsu and anchor tenant strategic design advice, concept design, and peer review of D&C solutions for 8MW 4,000m<sup>2</sup> hosting facility, Sydney NSW
- 2008: IBM Australia 3MW 2,000m<sup>2</sup> new build concept design within University Technology Park, Wollongong NSW
- 2007~2009: IBM Australia 4MW 3,000m<sup>2</sup> extensions and upgrades to existing campus development, including masterplanning for the facility infrastructure and staged development of upgrades and new white space, Sydney NSW
- 2007~2009: IBM Australia 1,500m<sup>2</sup> Hosting space extension Sydney NSW
- 2007~2008: IBM Australia 4MVA Power & Standby Generator system upgrade for 2,000m<sup>2</sup> Hosting facility, Sydney NSW
- 2007~2008: Optus Communications 3rd parallel generator set and fuel / controls upgrade for 2,500m<sup>2</sup> Hosting facility, Sydney NSW
- 2007~2008 IBM Australia UPS, Generators, Power system and extension to 5,500m<sup>2</sup> managed services technical area, Sydney NSW
- 2007~2008: AAPT Telecommunications Exchange / Data Centre Services new substation and UPS integration into 2,000m<sup>2</sup> live environment, Sydney NSW
- 2007~2008: Integral Energy 1MW 500m<sup>2</sup> upgrade to primary corporate Data Centre to enhance dependability of existing facility, Sydney NSW
- 2007~2008: Integral Energy 2 x 0.6MW 300m<sup>2</sup> upgrades to secondary corporate Data Centres to enhance dependability of existing facilities, Sydney NSW
- 2007~2008: Optus Communications 3.5MW 1,800m<sup>2</sup> Telco Exchange & Hosting facility standby power system upgrade, Melbourne VIC
- 2007~2008: Optus Communications 2,500kVA standby power system extension and control system upgrade supporting 3,000m<sup>2</sup> hosting and telecommunications facility, Melbourne VIC
- 2007: IBM Australia sustainable / low energy Data Centre concept for a 5MW 3,000m<sup>2</sup> new build, Hobart TAS
- 2007: Optus Communications 1.5MW 800m<sup>2</sup> Telco Exchange cooling system strategic upgrade review and concept, Perth WA
- 2007: Optus Communications 1.5MW 800m<sup>2</sup> Telco Exchange cooling system strategic upgrade review and concept, Perth WA
- 2007: IBM Australia cooling and power load density upgrade for 2,000m<sup>2</sup> hosting space cooling plant to 1250 W/m<sup>2</sup>, Sydney NSW
- 2006~2011: IBM NZ site search, concept design, peer review of D&C developer response, and commissioning management for 1,500m<sup>2</sup> stage 1 Data Centre, Auckland NZ
- 2006~2008: Optus Communications in-situ Chiller replacements, ductwork upgrades above live equipment, and supplementary air conditioning plant for load growth of 1,500m<sup>2</sup> telecommunications exchange, Canberra ACT
- 2006~2008: Optus Communications 1,500m<sup>2</sup> satellite earth station cooling and air handling systems capacity upgrade, Sydney NSW
- 2006~2007: Optus Communications 1,500m<sup>2</sup> satellite earth station UPS plant redundancy upgrade, Sydney NSW



- 2006~2007: Optus Communications retrofit controls and supplementary cooling capacity for redundancy and load growth within 300m<sup>2</sup> high density technical space, Sydney NSW
- 2006~2007: Optus Communications Cooling and Air handling upgrade for load growth within 1,500m<sup>2</sup> telecommunications exchange, Canberra ACT
- 2006~2007: Optus Communications 500m<sup>2</sup> Data Centre space conversion to Exchange, Sydney, NSW
- 2006~2007: Optus Communications in-situ replacement of 3 existing 400kWr Chillers with 4 new 466kWr Chillers supporting 2,500m<sup>2</sup> operational facility, Sydney NSW
- 2006: Pioneer Technologies Hosting / Data Centre new 3,000m<sup>2</sup> build concept design and bid, Auckland NZ
- 2006: Optus Communications 2 x 500kVA Rotary UPS system addition to existing 3,000m<sup>2</sup> hosting facility, Melbourne VIC
- 2006: Optus Communications 1,500m<sup>2</sup> satellite earth station master strategy for power and mechanical upgrade, Sydney NSW
- 2006: Unisys Australia new 2,500m<sup>2</sup> modular hosting facility concept design within existing warehouse, Perth WA
- 2006: Optus Communications 2,500m<sup>2</sup> hosting facility 2 x 800kVA Static UPS System integration and power system upgrades Sydney, NSW
- 2006: IBM Australia design, implementation and commissioning for 3,600m<sup>2</sup> Data Centre temporary generators support scheme for capacity, Sydney NSW
- 2006: AAPT Telecommunications 400m<sup>2</sup> Data Centre power system upgrade, Adelaide SA
- 2005~2006: AAPT Telecommunications 400m<sup>2</sup> Data Centre power system upgrade, Perth WA
- 2005~2006: AAPT Telecommunications 600m<sup>2</sup> Telecommunications exchange / hosting Data Centre power system upgrade, Sydney NSW
- 2005~2006: Optus Communications hosting and Data Centre 600m<sup>2</sup> extension to existing technical space, Melbourne VIC
- 2005~2006: Optus Communications Stage 3 1,750m<sup>2</sup> space expansion and capacity upgrade for UPS, chillers, and generators, Sydney NSW
- 2005~2006: AAPT Telecommunications 1,500m<sup>2</sup> telecommunications exchange & hosting space power systems upgrade, Sydney NSW
- 2005~2006: Optus Communications cooling system capacity upgrade for redundancy and load growth within 2,200m<sup>2</sup> telecommunications exchange and Data Centre, Sydney NSW
- 2005~2006: Canberra Deep Space Communications Complex Powerhouse Upgrade and extension, strategic planning and design, ACT
- 2005~2006: IBM Australia 6,000m<sup>2</sup> Data Centre standardised modular design, Asia/Pac Regional
- 2005: Optus Communications air distribution capacity upgrade phase 2 for 1,800m<sup>2</sup> telecommunications exchange and Data Centre, Sydney NSW
- 2005: Optus Communications air distribution capacity upgrade phase 1 for 400m<sup>2</sup> telecommunications exchange and Data Centre, Sydney NSW



- 2004~2006: Optus Communications 1,500m<sup>2</sup> satellite Earth Station standby power system extension and upgrade, Sydney NSW
- 2004~2005: Optus Communications 1,200m<sup>2</sup> hosting space extension to existing facility, Sydney NSW
- 2004~2005: Optus Communications 1,500m<sup>2</sup> satellite Earth Station UPS System extension and upgrade, Sydney NSW
- 2004~2005: Optus Communications substation and main switchboard upgrade within a 2,200m<sup>2</sup> operational telecommunications exchange and Data Centre, Sydney NSW
- 2004~2005: Level (3) Communications peer review standby power plant upgrade for a 23,000m<sup>2</sup> Internet Gateway and Colocation Centre, London UK
- 2004~2005: Optus Communications 300m<sup>2</sup> phase 1 Telecommunications Exchange extension & air handling capacity upgrade, Canberra ACT
- 2004~2005: Foxtel Digital Media Centre redundancy and capacity upgrades for 1,200m<sup>2</sup> TV Broadcast facility, Sydney NSW
- 2004~2005: Optus Communications 1,700m<sup>2</sup> hosting Data Centre 2 x 330kVA Rotary UPS system extension, Melbourne VIC
- 2004~2005: Optus Communications 900m<sup>2</sup> hosting and Data Centre load density upgrades to existing operational facility including overhead air conditioning installed above live equipment and new 2 x 625kVA Rotary Hybrid UPS plant, Sydney NSW
- 2004~2005: Optus Communications 1,750m<sup>2</sup> hosting and Data Centre stage 2 extension of existing operational facility with new substation, UPS, cooling plant, and standby power, Sydney NSW
- 2004~2005: Optus Communications in-situ replacement and rating upgrade for Chiller plant serving operational 1,400m<sup>2</sup> hosting and Data Centre facility, Melbourne VIC
- 2004: Optus Communications 300m<sup>2</sup> hosting and Data Centre extension to existing building, Melbourne VIC
- 2004: Optus Communications 3,300m<sup>2</sup> Data Centre upgrade and floorspace extension into warehouse area with associated air conditioning plant upgrade and Chiller replacements, Sydney NSW
- 2004: Optus Communications mechanical capacity upgrade for load growth within 1,500m<sup>2</sup> operational facility, Perth WA
- 2003~2006: Optus Communications 500m<sup>2</sup> floorspace extension with power and cooling upgrades in an operational facility, Brisbane QLD
- 2003~2004: Optus Communications generator capacity upgrade for 1,000m<sup>2</sup> floorspace extension, Sydney NSW
- 2003~2004: AAPT Telecommunications 2,000m<sup>2</sup> Telecommunications Exchange & data centre services upgrade, Sydney NSW
- 2003~2004: AAPT Telecommunications 1,500m<sup>2</sup> Telecommunications Exchange & data centre power systems upgrade, Melbourne VIC
- 2003: Level (3) Communications peer review for 23,000m<sup>2</sup> Internet Exchange and Colocation Centre, London UK
- 2002~2003: Optus Communications 1,200m<sup>2</sup> Digital Media Centre Stage 2 redundancy and capacity upgrades, Sydney NSW



- 2002~2003: Optus Communications 800m<sup>2</sup> Pay TV and Telecommunications Exchange facility cooling system redundancy and capacity upgrade, Sydney NSW
- 2002: Pihana Pacific Internet Data Centre power systems commissioning plan for Cyberex Static Switches serving 5MW 5,000m<sup>2</sup> facility, California USA
- 2002: HP / Compaq 1,500m<sup>2</sup> hosting Data Centre upgrade strategy for renewal of all power systems, Sydney NSW
- 2002: NEMMCO UPS and power system upgrade for operational 300m<sup>2</sup> electricity market monitoring Data Centre, Sydney NSW
- 2002: HP / Compaq 1,500m<sup>2</sup> hosting Data Centre upgrade and commissioning of new generator systems and transition planning to live service, Sydney NSW
- 2001~2002: Optus Communications 1,200m<sup>2</sup> Digital Media & Call Centre establishment and fitout Stage1, Sydney NSW
- 2001~2002: Optus Communications 900m<sup>2</sup> Data Centre cooling systems upgrade to support load growth, Sydney NSW
- 2001: Pihana Pacific Internet Data Centre commissioning power systems for 3MW 3,000m<sup>2</sup> facility, Seoul Korea
- 2001: HP / Compaq 1,500m<sup>2</sup> hosting Data Centre power systems reroute transition & risk planning for incoming power infrastructure, Sydney NSW
- 2001: NEMMCO UPS and power system upgrade for operational 300m<sup>2</sup> electricity market monitoring Data Centre, Brisbane QLD
- 2001: Optus Communications 1,900m<sup>2</sup> Telecommunications Exchange generator and power systems upgrade to support load growth including in-situ replacement of 2 existing 500kVA generator sets with 750kVA, Brisbane QLD
- 2000~2002: ComIndico 54 POP sites of nominally 5,400m<sup>2</sup> around Australia embedded into existing buildings, Australia wide
- 2000~2001: Optus Communications 1,400m<sup>2</sup> Data Centre and Telecommunications Exchange generator system upgrade to include temporary standalone 1100kVA set, Melbourne VIC
- 2000~2001: Optus Communications 1,200m<sup>2</sup> two storey Data Centre extension to existing building, Melbourne VIC
- 2000~2001: AAPT Telecommunications 1,500m<sup>2</sup> new Data Centre and telecommunications exchange conversion of existing building, Melbourne VIC
- 2000~2001: AAPT Telecommunications 1,000m<sup>2</sup> new Data Centre and Telecommunications Exchange conversion of existing building, Brisbane QLD
- 2000~2001: Optus Communications 300m<sup>2</sup> new POP and Telecommunications Exchange conversion of existing building, Darwin NT
- 2000~2001: Optus Communications 1,400m<sup>2</sup> Data Centre and Telecommunications Exchange cooling and power system capacity upgrade, Melbourne VIC
- 2000~2001: Optus Communications 11MW 5,000m<sup>2</sup> seamlessly expandable Data Centre and Telecommunications Exchange overall design and stage 1 implementation (1,000m<sup>2</sup>), Sydney NSW
- 2000~2001: Optus Communications generator system extension, reconfigure power scheme to add an 1100kVA standalone generator to the existing 2 x 1250kVA set system whilst supporting existing 2,500m<sup>2</sup> operational facility, Melbourne VIC



- 2000~2001: Nextgen new 400m<sup>2</sup> network node and colocation Data Centre, Perth WA
- 2000~2001: Nextgen new 400m<sup>2</sup> network node and colocation Data Centre, Adelaide SA
- 2000~2001: Nextgen new 500m<sup>2</sup> network node and colocation Data Centre, Brisbane QLD
- 2000~2001: Nextgen new 1,500m<sup>2</sup> network node and colocation Data Centre, Melbourne VIC
- 2000~2001: Nextgen new 3,000m<sup>2</sup> network node and colocation Data Centre, Sydney NSW
- 2000: Optus Communications 400m<sup>2</sup> Exchange floorspace and power / cooling plant extension, Sydney NSW
- 2000: Optus Communications generator system upgrade - in-situ replacement of 2 off existing 750 kVA with 1250kVA sets whilst supporting existing 2,500m<sup>2</sup> operational facility, Melbourne VIC
- 2000: Optus Communications conversion of existing control room to 250m<sup>2</sup> Exchange floorspace with power/cooling upgrades, Brisbane, QLD
- 2000: Optus Communications generator system upgrade - in-situ replacement of 2 off existing 1250 kVA with 2000kVA sets whilst supporting existing 3,300m<sup>2</sup> operational facility, Sydney NSW
- 2000: Optus Communications conversion of existing warehouse to additional 400m<sup>2</sup> extension technical space, Melbourne VIC
- 2000: Optus Communications new substation and standalone generator system to cater for increasing load within 400m<sup>2</sup> extension technical space, Sydney NSW
- 1999-2000: Optus Communications 1,500m<sup>2</sup> Telecommunications Exchange new 2.4 MWr 3 + 1 cooling plant within existing operational facility, Sydney NSW
- 1999: Pihana Pacific new nominally 10,000m<sup>2</sup> Pacific Rim hosting Data Centres rollout design brief, USA/Korea/Japan/Australia/Philippines/Singapore
- 1999~2000: Optus Communications 1,000m<sup>2</sup> operational facility standby generator plant upgrade to 2 x 1500kVA, Brisbane QLD
- 1999~2000: Southern Cross Cable Network fibre optic undersea cable 400m<sup>2</sup> landing station, northern Sydney NSW
- 1999~2000: Southern Cross Cable Network fibre optic undersea cable 500m<sup>2</sup> landing station, central Sydney NSW
- 1999: Optus Communications primary 1st generation Telecommunications Exchanges standby power and electrical power systems review and upgrade strategy, Australia-wide
- 1999: Qantas Airways 2,000m<sup>2</sup> data centre in-situ replacement of power distribution switchboards, Sydney NSW
- 1999: PSInet new 10,000m<sup>2</sup> Data Centre concept design and design development, Sydney NSW
- 1997~1998: Optus Communications power system UPS, MSB, and generator system upgrade supporting operational 1,800m<sup>2</sup> Data Centre, Pay TV & Telecommunications Exchange, western Sydney NSW
- 1997~1998: Qantas Airways 2,000m<sup>2</sup> data centre UPS plant battery and DC switching upgrade, Sydney NSW
- 1997: Optus Communications 150m<sup>2</sup> Telecommunications Exchange extension through warehouse conversion adjacent an operational facility, Adelaide SA
- 1996~1997: Optus Communications new 900m<sup>2</sup> Data Centre complex with supporting office and Telecommunications Exchange, Sydney NSW





- 1996: Optus Communications 1,500m<sup>2</sup> satellite Earth Station 500kVA UPS and standby power system upgrade, Sydney, NSW
- 1996: Optus Communications new 1,400m<sup>2</sup> Pay TV Video Operations, Broadcast, and Studio facility, Sydney, NSW
- 1995~1996: Optus Communications new 800m<sup>2</sup> Pay TV & Telecommunications Exchange, northern Sydney NSW
- 1995~1996: Optus Communications new 800m<sup>2</sup> Pay TV & Telecommunications Exchange, south western Sydney NSW
- 1995~1996: Optus Communications new 700m<sup>2</sup> Pay TV & Telecommunications Exchange, Brisbane QLD
- 1995~1996: Optus Communications new 800m<sup>2</sup> Pay TV & Telecommunications Exchange, western Melbourne VIC
- 1995~1996: Optus Communications new 300m<sup>2</sup> Pay TV & Telecommunications Exchange, Launceston TAS
- 1995~1996: Qantas Airways 2,000m<sup>2</sup> data centre standby power system refurbishment and extension to 3 x 1MW sets, Sydney NSW
- 1995: Qantas Airways 2,000m<sup>2</sup> data centre in-situ end of life replacement of dual main switchboards, Sydney NSW
- 1995: Optus Communications new 1,400m<sup>2</sup> Pay TV & Telecommunications Exchange, eastern Melbourne VIC
- 1995: Optus Communications 400m<sup>2</sup> floorspace extension, air conditioning plant upgrade, and Chiller additions, Sydney NSW
- 1995: Optus Communications new 1,800m<sup>2</sup> Pay TV & Telecommunications Exchange, western Sydney NSW
- 1994~1995: Optus Communications new 600m<sup>2</sup> Telecommunications Exchange, Canberra ACT
- 1994: Optus Communications conversion of existing 600m<sup>2</sup> warehouse into extension Telecommunications Exchange, Melbourne VIC
- 1994: Optus Communications new 500m<sup>2</sup> Telecommunications Exchange, Perth WA
- 1990~1992: Esso Australia corporate Data Centre transition planning lead, including design briefing and peer review, detailed transition planning from Sydney to Melbourne, and commissioning of the new facility over a weekend in Melbourne, Sydney NSW and Melbourne VIC
- 1990~1992: Esso Australia 500m<sup>2</sup> corporate Data Centre new facility, Melbourne VIC
- 1988~1989: Esso Australia corporate Data Centre dedicated cooling system upgrade design briefing, peer review, transition planning, and implementation, Sydney NSW
- 1988~1990: Esso Australia corporate Data Centre and IT department refurbishment and security upgrade surrounding an operational facility, Sydney NSW
- 1988~1990: Esso Australia corporate Data Centre operations manager, during transition from primarily batch to online service model, Sydney NSW
- 1987~1988: Esso Australia corporate IT Business Continuity and Disaster Recovery plan stakeholder engagement, plan upgrade, implementation, and testing, Sydney NSW
- 1987~1988: Esso Australia corporate Data Centre IBM 3090-200E CPU facilities upgrade, transition planning, and implementation, Sydney NSW



## Aviation

Over 15 years experience with Aircraft and Airport power systems, including 400Hz Ground Power, Mass Flow Air, Pre-Conditioned Air, static earthing, hazardous electrical area maintenance requirements, implementation risk reviews, peer reviews, fire suppression systems, trigeneration and critical power systems.

- 2015: B717 Maintenance Facility conversion, review of wash down facilities and composites exhaust system, Canberra ACT
- 2013: Central Energy Plant / trigeneration system for SYD Domestic Terminal 3. Peer Review, implementation risk review with GridX, on behalf of Qantas, Mascot NSW
- 2012: Qantas New Line Maintenance Facility -maintenance hanger design concept and development for 6 A380/other aircraft bays, HV design, electrical systems including 400Hz ground power, Mascot NSW
- 2011~2012: Central Energy Plant / trigeneration system for Qantas Jet Base. Peer Review, implementation risk review, HV network integration with GridX, on behalf of Qantas, Mascot NSW
- 2011: SYD Domestic Terminal 3 wide body jets airbridge gate upgrades for 400Hz Ground Power and Pre-Conditioned Air systems, Peer Review, Mascot NSW
- 2011: Qantas Hangar line SYD Jet Base - strategic planning for maintenance process redesign and streamlining across all aircraft and building services, Mascot NSW
- 2010~2011: Qantas Maintenance Hangar 245 - conversion from heavy maintenance to line maintenance and upgrade of all services including 400Hz Ground Power, Mass Flow Air, Fire Suppression and Detection, Mascot NSW
- 2009~2010: Qantas Maintenance Hangar 3 -conversion from 2xB767 heavy maintenance duty to 3xB737 line maintenance capability, with associated 400Hz ground power and preconditioned air systems, Brisbane Airport QLD
- 2008~2009: Qantas A380 maintenance parking and tool/ equipment shop relocations, Mascot NSW
- 2007: SYD Domestic terminal 3 upgrade of controls and power systems for on-call peak lopping application of standby generation plant, Mascot NSW
- 2006~2007: Qantas A380 Hangar - conversion of existing hangar to A380 capable, with associated 400Hz, Mass Flow Air, and pre-conditioned air systems, Mascot NSW
- 2004~2006: Qantas Jet Base 400Hz Ground Power Systems for Airbus A380/330 and Boeing 747/767/737, Mascot NSW
- 2002~2003: Qantas Maintenance Hangar 271 - conversion to line maintenance and spray painting usage for Boeing 747/737/767 Hangar, Mascot NSW
- 1999~2000: Qantas property assets redeployment and upgrade of standby generation plant between Qantas Centre, Jet Base, and Domestic Terminal 3, Mascot NSW
- 1997~1998: Qantas Domestic Terminal 3 checked baggage screening systems and power quality strategy, Mascot NSW

## Health

Upgrades, extensions, and new facilities for major public and private hospitals covering over 1300 beds including Royal Adelaide Hospital, Sydney Hospital, Nepean Hospital, Perth New Children's Hospital, Secure Mental Health ACT, Paediatrics ACT, and specialist clinics in Australia and New Zealand.



- 2018: Medical laboratory electrical infrastructure upgrade and UPS system to support pathology testing production line, Macquarie Park NSW
- 2018: Electrical peer review of upgrade strategy for replacement main switchboards, Canberra Hospital Woden ACT
- 2018: Electrical expert advice to Independent Commissioning Agent for electrical Main Switchboard Replacement project, Canberra Hospital Woden ACT
- 2018: End of DLP Risk Review for Electrical systems design and maintenance on behalf of the facility managers for an 800 bed hospital, Adelaide SA.
- 2018: Investigation of Power System failure and recommended upgrades to enhance security of supply, Adelaide SA
- 2017: Strategic review services transition planning for additional of new clinical services floor to National Capital Private Hospital, Canberra ACT
- 2016-2017: Main switchboards replacement and substation upgrade strategy development, Canberra Hospital ACT
- 2016-2017: Medical Suites building power system strategy and concept design for tenancy re-stack, Deakin ACT
- 2014~2015: Secure Mental Health Unit, 25 hospital inpatient acute and rehabilitation beds, Symonston ACT
- 2012~2015: New Childrens Hospital, 12 operating theatres and 274 beds, inpatient and outpatient facilities, Nedlands WA
- 2014: Canberra Hospital Paediatrics facility, Garran ACT
- 2013~2014: Canberra Hospital Building 1 Level 5 refurbishment and services upgrade, Garran ACT
- 2011~2013: Auckland Eye Hospital outpatient Lasik eye surgery specialist clinic, Auckland NZ
- 2011~2014: Sydney Adventist Hospital Stage 1 expansion, 10 operating theatres and 200 beds, Wahroonga NSW
- 1995~1997: Sydney Hospital / Sydney Eye Hospital 6 operating theatres, ICU, Wards, Sydney NSW
- 1995~1997: Sydney Hospital campus main switchboard and power infrastructure upgrade, Sydney NSW
- 1992~1995: Nepean Hospital new ward block including Emergency and ICU, Penrith NSW

## Commercial / Retail

Strategic planning, Design, Construction, and Commissioning of power systems for commercial property including high and low rise, fitouts, hotels, retail, and mixed use retail/residential.

- 2018: Retail/office high-rise tower electrical infrastructure replacement, Sydney NSW
- 2018: Retail premises power quality investigation, concept design, and construction, Sydney NSW
- 2017~2018: Retail/office high-rise twin towers electrical infrastructure replacement and retail/commercial floors expansion design, Sydney NSW
- 2017: Mixed use high-rise building electrical infrastructure safety services upgrade strategy and concept design for D&C delivery, Sydney NSW
- 2017: Power Quality investigation and report for high-rise office tower mechanical systems, Parramatta NSW
- 2016: Peer Review for high rise office refurbishment, Parramatta NSW



- 2016: High rise commercial office standby power system controls upgrade investigations and report, Sydney NSW
- 2016: Peer Review for CBD block multi-purpose redevelopment, Sydney NSW
- 2016: Peer Review for 93,000m<sup>2</sup> high-technology office park development, Sydney NSW
- 2016: Peer Review for dealing area and office tenancy electrical systems design, Mascot NSW
- 2015-2016: Electrical Safety best practices review and report for major D&C Contractor, Australia
- 2014-2015: Barangaroo office development, power systems peer review and construction phase support, Sydney NSW
- 2014~2015: IBM Canberra, new ABW office space and base building upgrade, ACT
- 2014~2015: Canberra Airport Hotel, Canberra ACT
- 2014: Canberra Centre full function fire test, Canberra ACT
- 2013~2014: Canberra Centre Mall Redevelopment concept design, Canberra ACT
- 2013: Tower Insurance high rise lift systems upgrade, Auckland NZ
- 2012~2013: ANZ Tower refurbishment of office tower, Albert Street Auckland NZ
- 2012~2013: NZ Post headquarters office tower refurbishment, Wellington NZ
- 2009~2010: Aurora Place Standby Power and Main Switchboard systems upgrade, Sydney NSW
- 2007~2009: Chatswood Chase retail extension and refurbishment main switchboard and power infrastructure, Chatswood NSW
- 2006~2007: 259 George Street building refurbishment and power systems upgrade in situ and in an operational building, Sydney NSW
- 2000~2002: 330 George Street peer review on behalf of investor for a D&C development, Sydney NSW
- 1997~2000: Westpoint investigations and major extension, Blacktown NSW
- 1997~1999: Fox Studios retail sector, Moore Park NSW
- 1997~1999: AMP Tower Sydney power system refurbishment, main switchboard replacement and submains upgrade, Sydney NSW
- 1998: 60 Margaret Street main switchboards and generator controls upgrades and extensions to serve new tenant requirements, Sydney NSW
- 1997~1998: Leichhardt Marketplace, various electrical systems upgrades, Sydney NSW
- 1997: 1 Market Street emergency repairs to main switchboard after contractor error during tenant works, Sydney NSW
- 1997: 181 Miller Street Main Switchboard and tenant supply risers replacement, North Sydney NSW
- 1996~1998: No.1 Martin Place Emergency Power Generation System serving 24 office and 28 hotel floors
- 1996~1997: 1 Market Street BT Tower due diligence and implementation of building power system upgrades arising, Sydney NSW
- 1996~1997: World Square Goulburn Street Hotel/Residential tower and podium retail, Sydney NSW



- 1996~1997: 60 Margaret Street generator system annual testing and commissioning strategy and years 1 and 2 implementation advice, Sydney NSW
- 1996: Stockland retail centres upgrade and extension, Merrylands and Wetherill Park NSW
- 1995~1996: World Square Liverpool Street Tower concept design for residential and retail, Sydney NSW
- 1995~1996: World Square carpark design and construction completion levels 1-4, Sydney NSW
- 1995: Carlingford Court safety services and main switchboard upgrade, Carlingford NSW
- 1995: 100 Walker Street Main Switchboard replacement, North Sydney NSW
- 1994~1995: 60 Margaret Street office tower and retail centre services upgrade and refurbishment, Sydney NSW
- 1994: 1 Market Street Citibank Tower main switchboard and incoming supplies upgrade, Sydney NSW
- 1992~1993: Merck Sharp & Dohme new premium grade administration building, Granville NSW
- 1991~1992: Esso Australia corporate offices Melbourne Central tower levels 33 to 43, Melbourne VIC

## Education

Early learning centres, cultural precincts, auditoria, teaching laboratories and facilities.

- 2013~2014: Canberra College Cares early childhood / teen parents learning Facility, ACT
- 2013: Unitec Building renewals and conversion to IT hub / call centres, Auckland NZ
- 2013: Manukau Institute of Technology Pasifica Auditorium and learning facilities, Auckland NZ
- 2012~2013: Unitec Wharekai, Auckland NZ
- 2007~2008: UNSW Food Science - laboratories and research facility, Sydney NSW
- 2006~2007: UNSW Analytical Sciences Building -nuclear magnetic resonance lab, electron microscope unit, chemistry & research labs, Sydney NSW
- 1994~1995: University of Sydney Nursing College, Camperdown NSW

## Public / Correctional

Courts and hearing rooms, Government offices, Prisons, Logistics, and exhibition spaces.

- 2018: Parliament House Main Switchboards Transfer Switches replacement, Canberra ACT
- 2018: Parliament House Auxiliary Generator Power System Study / Feasibility Report, Canberra ACT
- 2016-2017: Peer Review emergency services agency training facility, Sydney NSW
- 2016: Peer Review for government agency overseas facility redevelopment, Kiribati
- 2015: Captain Cook Memorial Jet fountain pumping systems electrical LV/HV/controls upgrade, Canberra ACT
- 2014~2015: Alexander Maconochie Centre Crisis Support Unit (CSU), Canberra ACT
- 2014~2015: Samoan Parliament House, Samoa



- 2013~2015: National Library of Australia reading rooms, Canberra ACT
- 2014: Administrative Appeals Tribunal offices, Canberra ACT
- 2005~2006: Parliament House energy monitoring & control upgrade, Canberra ACT
- 2005~2006: Parliament House electrical metering and switchgear upgrade across 11 main switchboards, Canberra ACT
- 2014~2015: Parliament House security upgrade, Canberra ACT
- 1997~1998: Royal Hall of Industries and Hordern Pavilion electrical systems upgrades, Moore Park NSW
- 1992: NSW Attorney General John Maddison Tower new court facility concept design and bid for multi-level courts building, Sydney NSW
- 1992: Family Court of Australia Lionel Bowen building commissioning, Sydney NSW

## Sports / Entertainment

TV and Radio studios and support facilities, public spaces, entertainment precincts and venues, and stadium facilities.

- 2018: Trigeneneration system performance review and upgrade study, Rooty Hill NSW
- 2018: Mixed use Club/Retail/Hotel trigeneneration system performance review, Sydney NSW
- 2017: Residential / Club standby generator system design, Sydney NSW
- 2016: Multi-use arena electrical infrastructure and lighting upgrade strategy and concept, Sydney NSW
- 2013: Westpac Stadium members area refurbishment, Wellington NZ
- 2012~2013: Sir John Guise stadium for South Pacific Games, Port Moresby PNG
- 2012~2013: Aquatic Centre and indoor sports arena for South Pacific Games, Port Moresby PNG
- 2007: Channel 9 studios concept design, Moore Park NSW
- 2004~2005: Australian Film Television and Radio School, Moore Park NSW
- 2000~2001: Channel 7 Studios, Melbourne VIC
- 1997~1999: Fox Studios Studio Tour entertainment facilities
- 1997~1999: Fox Studios Theatres and Live Venue, retail precinct
- 1996~1998: Fox Studios Film Studios and Post Production
- 1996~1997: Centennial Parklands equestrian facility refurbishment and upgrade, including new covered arena, Moore Park NSW
- 1992~1993: SBS TV Studios, Artarmon NSW

## Defence

- 2015: Russell Offices R5/R6 Peer Review Electrical Infrastructure upgrade (Preliminary – project on hold), Canberra ACT



- 2011~2012: HMAS Harman power systems infrastructure, powerhouse and strategic data centre peer review, Canberra ACT
- 1994~1996: Defence National Distribution and Storage Centre HV/LV/Communications infrastructure and storage facilities electrical upgrades, Moorebank NSW

## Transport

Road Tunnel electrical systems concept design and peer review.

- 2016-2017: M4 East Westconnex ~Peer Review 6km tunnel system electrical detailed design, Western Sydney NSW
- 2015: M4 East Westconnex ~6km tunnel system electrical design concept and details, Western Sydney NSW
- 1996: Leighton Contractors Eastern Distributor development, peer review of power system integrity and brief compliance, Sydney NSW

## Process

Offshore and onshore oil and gas processing, storage, and distribution.

- 1993~1994: Ampol fuel storage and distribution terminal \$10m upgrade, Botany NSW
- 1987: Esso Australia Tuna Platform emergency shutdown systems logical redesign of controls and interfaces to meet DNV benchmarks, Bass Strait VIC
- 1986~1987: Esso Australia Cobia and Fortescue Platforms Gas Lift and Water Handling production system & controls \$30m upgrade design and commissioning, Bass Strait VIC
- 1986~1987: Esso Australia Oil in Water monitoring system study, Longford and Bass Strait VIC
- 1986~1987: Esso Australia Gas Plant 3 heat trace DGA vent valves to minimise icing up of production line, Longford VIC
- 1986~1987: Esso Australia LPG Fractionation plant waste water treatment for EPA compliance, Long Island Point VIC
- 1986~1987: Esso Australia LPG tanks take off valves modification, re-engineered to reduce the cost and complexity of this project from \$80k to \$10k, Long Island Point VIC
- 1986~1987: Esso Australia LPG ship loading arms protection system, Long Island Point VIC
- 1986~1987: Esso Australia Gas Plant Solar powered data acquisition system for water runoff, Longford VIC
- 1986: Esso Australia Gas Plant Crude Surge Tank vapour flow measurement, \$150k instrumentation and control upgrade, Longford VIC
- 1986: Esso Australia Fortescue Platform heat tracing of main oil line pump drains, Bass Strait VIC
- 1986: Esso Australia Fire training ground upgrade, Longford VIC

## Utilities

MV supply systems planning and design. Wastewater treatment and stormwater management.

- 2016-2017: HV supply upgrade authority negotiations and management for 3MW to 10MW, Illawarra NSW
- 2016-2018: HV supply upgrade authority negotiations, management and L3ASP procurement for 10MW to 30MW, Sydney NSW



- 2016-2018: HV supply upgrade authority negotiations and management for 3MW to 30MW, Melbourne Vic
- 2016: Applications assessment for battery energy storage systems at grid and facility level, Australia
- 2015-2016: ACT Roads Dickson and Lyneham wetlands stormwater pumping and management systems peer review, defects rectification, and commissioning assessment, Canberra ACT
- 2005: Dual 11kV 5MW supply upgrade including design of public space infrastructure and substations for a major Data Centre, Sydney NSW
- 1997~1998: Sydney Water, concept design and briefing, and tender review reporting for turnkey bidders for the electrical and instrumentation requirements of a tertiary water treatment demonstration plant, Quakers Hill NSW
- 1996: Leighton Contractors Eastern Distributor development, peer review of power system integrity and brief compliance, Sydney NSW

### Expert Witness

Expertise in matters in Data Centre design and performance, power quality (harmonics), power and control systems integrity, and switchgear and controlgear assemblies.

- 2018: Investigation and expert reports for Electrical Switchboard arcing fault, Sydney NSW (ongoing)
- 2018: Investigation and expert reports into defective power cabling, Canberra ACT (ongoing)
- 2018: Investigation and reporting into UPS failure and fire, Melbourne VIC (mediated)
- 2018: Investigation, technical advice to legal team, and expert reports following Power System failure, Adelaide SA (mediated)
- 2016-2017: Data Centre power and cooling system expert review of evidence, expert report, expert conclaves, trial (5 days), and submissions advice, Singapore High Court (awaiting judgement)
- 2016: Data Centre expert review and evidence preparation for defects and prolongation claim, Sydney NSW (mediated after preliminary expert reports)
- 2015: Witness for plaintiff in a Data Centre design review dispute arising from contractor driven variances to the original client brief (settled during initial trial hearings)
- 2014-2015: Data Centre power and environmental system failure analysis and determination of cause and responsibilities in preparation for claim, Auckland NZ (mediated)
- 2014-2015: Data Centre power and environmental system failure analysis and determination of cause and responsibilities in preparation for claim, Auckland NZ (settled prior to litigation)
- 2010-2011: Data Centre cooling system corrosion failures investigations, forensic analysis, and reporting, Sydney NSW (settled prior to trial)
- 2010: Investigation and forensic analysis of Substation explosion and fire at a large retail facility, Sydney NSW (resolved without litigation)
- 2005: Commercial to Residential tower conversion, power quality harmonics assessment expert report and modelling in a claim as to the suitability of power quality for residential application, Sydney NSW (proceeded to trial)
- 2003: Investigation and expert report for manufacturing facility Switchboard fire investigation, Sydney NSW (three defendants; settled prior to trial)





- 1999: Witness for plaintiff, released after acting as investigator for the client into a fire and explosion within a Data Centre UPS Battery room, Sydney NSW (settled prior to trial)
- 1997: Witness for plaintiff in a Data Centre installation upgrade claim arising from contractor commissioning failures which caused damage to refurbished standby generator sets (settled during initial trial hearings)

### Building Information Modelling (BIM)

Rowan has led a number of BIM project initiatives within the past few years. These have focused in the areas of educating industry colleagues in how to make effective use of 3D modeling and BIM, and developing a BIM Management methodology that has been successfully executed on numerous major projects in Health and Mission Critical sectors.

For Rowan, the role of the BIM Manager is primarily one of promoting collaboration, knowledge, and skills to deliver the best outcomes accessible for every member of the project team. Selected projects include:

- 2013: NZ BIM Guidelines contributing author (BIM Management roles and strategy), NZ Ministry of business, Innovation and Employment
- 2012~2013: BIM Manager, SEAsia Data centre development. In this project, a key challenge at the commencement was that although the client was clear on their requirements, none of their Structural and Services Engineers, the QS, or the Project Manager had used BIM on a project before. Before helping the design team to deliver the BIM outcome sought by the client, our role was to bring the design team's skills up to a level that enabled them to make full use of the technology in their day to day design processes. A further challenge at Tender was to do the same for the local contractors, and to evaluate their capability to deliver the project BIM requirements.
- 2012: Electrical services design verification of a 130,000m<sup>2</sup> hospital development using the design team's BIM model for analysis of equipment, coordination, functionality, and lifecycle access.
- 2011~2012: BIM Manager, 20,000m<sup>2</sup> data centre development. NDY's role in this project was to bring the design team together across diverse technology platforms. After consulting with our client and crystallising their objectives for the BIM at the end of the project, we then worked with the design team to identify how they could implement those objectives within the BIM, and within their capabilities. During the design, our role was focused on letting the design team progress their design, while NDY assisted them to deliver the BIM and associated technology with minimal impact on their core tasks.
- 2008~2010: Twin 3,000m<sup>2</sup> corporate data centres, where BIM was used for the first time by most of the project team. Rowan was design project leader, and the Design & BIM leader for the project team. Initially adopting 3D models for coordination in regular design meetings, the team's use of BIM extended to Safety-in-Design analysis during design and for the constructor, on-site coordination and buildability planning, equipment scheduling, and finally an FM BIM database.