

CONTACT INFORMATION 9244 W Finland *M:* +1 720 705 4469
Littleton *W:* +27 (0)12 842 7269
Denver *E:* jarradwrightza@gmail.com / jarradwrightus@gmail.com
Colorado, USA February 15, 2023
www: *https://jarradwright.com*
Publications: *ResearchGate*
Public profile: *LinkedIn*

INTERESTS - Energy system operations and planning
- Power system dynamics
- Electricity markets, policy and regulation

EDUCATION **University of the Witwatersrand**, Johannesburg, South Africa
- BSc.Eng.(Elec), 2004-2007
- MSc.Eng. (Elec.) - with Distinction, 2008-2010
 Dissertation Topic: *Development of a Reluctance Synchronous Machine for Traction Vehicle Applications Using the Finite Element Method*
 Supervisor: Prof. W.A. Cronje
- Ph.D., Electrical Engineering, 2012-2018
 Thesis Topic: *Formulation of a capacity mechanism for the Southern African Power Pool (SAPP) for sustained long-term system adequacy*
 Supervisor: Dr J.M. van Coller

HONORS AND AWARDS - Most Influential People in African Power 2015 (ESi-Africa.com)
- African Power Elites 2016 (ESi-Africa.com)
- Advisory Board member for African Power Elites: Projects & People 2017-2019 (ESi-Africa.com)
- Best Paper Award (PowerGEN Africa - 2015)
- CIGRE Study Committee C5 National Representative: South Africa (2016-2022)

PROFESSIONAL EXPERIENCE **SENIOR RESEARCHER - GRID PLANNING AND ANALYSIS**, Colorado, USA
Contributor **Jan.'22, - Ongoing**
- Based in the Transmission Group of the Grid Planning and Analysis Center (GPAC).
- Applying advanced modelling and simulation tools to optimally plan for, design, and analyze distribution and bulk power systems to push the boundaries of innovation, integrated analysis, and computational tool development.
- Developing innovative modelling approaches to analyze the impact of specific technologies on the evolving grid, including variable generation, energy storage, hydropower, demand response, and transmission.
- Example types of ongoing research and analysis includes:
 - Grid flexibility and integration studies.
 - 100% RE grids and other high RE penetration studies.
 - Impact of extreme events (system reliability and resiliency).
 - Advance probabilistic methods to assess resource adequacy.

- Revenue sufficiency and market structures.
- Large-scale generation and transmission expansion.
- Informing policymakers and utilities by developing and analyzing future grid scenarios that answer big questions about how the electric grid is transforming.

LECTURER: Long-Term Power Systems Planning, Stellenbosch, South Africa

Contributor

Jan.'22, Jul.'22

- Transmission network expansion planning
- Time horizon and objectives of transmission network expansion planning
- System security criteria (N-1)
- Definition of planning scenarios (deterministic/worst case, market-simulation based etc.), objectives and constraints (incl. system security)
- Heuristic versus automated processes
- Active and reactive power planning
- Load forecasting for transmission expansion planning
- Load flow analysis for system expansion planning
- Transmission line & substation planning
- Transmission grid codes
- HVDC
- Towards integrated planning

PyPSA-Africa: CONTRIBUTOR AND ADVISORY TEAM MEMBER, Pretoria, South Africa

Contributor

Jun.'21.-Jan'22

- PyPSA-Africa Homepage
- PyPSA-Africa Documentation
- PyPSA-Africa GitHub repository

The Presidency of South Africa: National Planning Commission, Pretoria, South Africa

Commissioner

Sept. 2015 - Mar. 2021

- To promote and advance the implementation of the National Development Plan across different sectors of society;
- To undertake detailed planning in a selected number of sectors to be determined from time to time;
To conduct regular engagements with various sectors of society on all matters pertaining to the long-term development of the country;
- To facilitate stakeholder engagements aimed at forging a social compact towards more effective implementation of the National Development Plan;
- To take a cross-cutting view, undertake research into long-term trends, analyse implementation of short to medium term plans with a view to recommend improvements to Government as well as produce reports to inform policy and planning;
- To contribute to development of international partnerships and networks on national planning.

Council for Scientific and Industrial Research (CSIR), Pretoria, South Africa

Principal Researcher

Dec. 2015 - Aug. 2021

- Manage research, projects and conduct investigations on grid planning, energy systems operations and planning and related topics;
- Provide research direction on energy systems operations and planning;
- Provide leadership in formulating research questions, developing study assumptions;
- Generate technical reports, articles, conference papers and presentations aimed at local and international energy industries;
- Provide training on grid and energy planning related topics to CSIR employees and externally;
- Formulate research proposals and develop relationships with potential clients and collaborators in R&D.
- Key experience in energy system operations and planning, detailed techno-economic long-term capacity expansion planning, high penetration renewable energy system integration, energy demand forecasting, hydrogen production/storage/transportation, full-sector energy modelling, sector-coupling, small-scale embedded generation support, tariff design, electricity market design and regulatory frameworks.

Energy Exemplar (Africa), Johannesburg, South Africa

Senior Consultant, Regional Manager (Africa)

Mar. 2014 - Dec. 2015

- Establishment of the Energy Exemplar (Africa) office to commercialise PLEXOS Integrated Energy Model as the class leading simulation tool of choice for energy market operations and planning into Africa (key experience in Namibia, Malawi, South Africa and Zimbabwe).
- Providing PLEXOS client support to ensure service delivery excellence.
- Consulting on advanced analysis and design of power/energy markets as well as energy planning.
- Training instructor for various clients in Africa.
- Development of African energy market datasets.

Parsons Brinckerhoff (Africa), Johannesburg, South Africa

Candidate Eng., Studies Eng., Senior Eng., Proposals Manager

Apr. 2010 - Feb. 2014

- Key experience in detailed power system modelling, demand forecasting, techno-financial and techno economic modelling, bankable feasibility models, tariff design, ancillary services as well as regulatory and market analysis.
- Experience a range of African countries including Botswana, Ghana, Kenya, Malawi, Mauritius, Mongolia, Namibia, Rwanda, Seychelles, Tanzania, South Africa, Uganda and Zimbabwe.

COUNTRIES OF WORK EXPERIENCE

- South Africa, Botswana, Ghana, Kenya, Malawi, Mauritius, Mongolia, Namibia, Rwanda, Seychelles, Tanzania, Uganda, Zimbabwe

OTHER TRAINING

- **Industry:** Numerous conferences, seminars and exhibition engagements.
- **Power system analysis:** PSS/E (Advanced), DIGSILENT Powerfactory (Basic, EMT, Harmonics, Intermediate Planning and Stability), ATP/EMTP (Basic), ETAP (Basic), PowerWorld (Intermediate).

- **Energy modelling and analysis:** PLEXOS (Advanced), LEAP (Intermediate), TIMES (Basic), PyPSA (Intermediate), Calliope (Intermediate), OSEMOSSYS (Intermediate), System Advisor Model (SAM) (Intermediate)
- **Finite Element Modelling:** ANSYS (Advanced), FLUX (Advanced).
- **Programming and computational analysis:** MATLAB (Advanced), SIMULINK (Advanced), Octave (Advanced), Python (Intermediate), R (Basic), git (Intermediate), C and C++ (Basic), Oracle Crystal Ball (Advanced).
- **GIS:** qGIS (Intermediate).
- **Project feasibility assessments:** Custom Excel based modelling, RETScreen (Basic).

VOLUNTARY
ASSOCIATIONS

- Professional Engineer (Pr.Eng): Engineering Council of South Africa (ECSA)
Member number: 20130705 **Apr.'10-Present.**
- Member: South African Institute of Electrical Engineers (SAIEE)
Member number: 12355 **Apr.'10-Present.**
- Member: Institute for Electrical and Electronic Engineers (IEEE) and IEEE Power and Energy Society
Member number: 90381317 **Jan.'07-Present.**
- Member: Conseil International des Grands Reseaux Electriques (CIGRE)
Member number: 120101037 **Apr.'10-Present.**
- Study Committee C5 National Representative: Conseil International des Grands Reseaux Electriques (CIGRE)
- **Aug.'15-Jul.'22.**

Certification

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

February 15, 2023

Jarrad G. Wright

Date

Johannesburg, South Africa