Energy-System Modelling: Powering South Africa's Market & Energy Transition

South Africa is at a pivotal point in its energy journey, grappling with precarious supply, widespread energy poverty, deep economic inequality, and urgent climate commitments.

In this context, energy-systems modelling has become indispensable, guiding everything from long-term infrastructure planning (Integrated Resource Plans) to flagship national initiatives such as the country's Nationally Determined Contribution (NDC) under the Paris Agreement and the Just Energy Transition Investment Plan (JET-IP).

They will be even more critical as South Africa shifts to a market-based power sector, where robust, transparent modelling is needed to draft market codes, set reliability standards, price congestion, and give investors a shared, credible view of future revenues and risks.

Yet the current ecosystem faces significant hurdles: limited public-sector capacity, opaque or proprietary tools, and over-reliance on a handful of experts. This event will bring together modellers, policymakers, system operators, researchers, and civil-society voices to discuss how modelling can become more inclusive, transparent, and effective – so it truly drives a just, competitive, and resilient energy transition. Join us for this essential dialogue as we forge a collaborative path toward an open, trustworthy, and future-proof electricity market for South Africa

Date: 25 June 2025
Time: 12:00 to 13:30
Location: Online (Zoom)
Click here to register

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Panelists

Alan Whitaker has been working in management consulting in the energy sector for ~15 years in a range of countries and market contexts (i.e. regulated vs liberalised). One of his specialisms is electricity market modelling, which he has used to help private developers understand revenue potential and central planners to optimally expand their grid or generation capacity (e.g. National Grid ESO in GB, EWEC in Abu Dhabi). Alan leads AFRY's work in South Africa, where he has been modelling the system since ~2017.

Josh Dippenaar is a mechanical engineer with a Master's degree in Engineering Management and is currently pursuing a PhD in Electrical Engineering, all at Stellenbosch University. His work centres on renewable energy, electricity markets, and the integration of generators into power grids. Over the past six years, he has supported more than 100 electric utilities and regulatory bodies across Africa in incorporating rooftop solar systems into their networks. He now serves as a senior engineer at the Centre for Renewable and Sustainable Energy Studies (CRSES).

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Dr. Nalini Sooknanan Pillay began her career as a production engineer in the steelmaking industry in 1995 before joining Eskom's Research division in 1997, where she focused on generation plant research and knowledge-management diagnostics. In 2011, she established the Eskom System Dynamics Centre. She holds a PhD in Industrial Engineering at Stellenbosch University and currently serves as Eskom's Corporate Specialist in System Dynamics. A founding member and President of the South African System Dynamics Chapter, Nalini has authored numerous internationally recognised papers and co-authored the book *Applied System Dynamics with a Focus on South African Case Studies*. She is also the founder of the South African System Dynamics Conference.

Michael (Mike) Barry has wide experience in the energy planning field. He specialises in the modelling of power systems with more than 35 years' experience in integrated resource planning, production planning, unit commitment, scheduling and dispatch. Michael is a registered Professional Engineer with a degree in Electrical Engineering. He is presently self-employed after working for Eskom South Africa for 33 years.

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