

Energy Club NT

Presents

Energy101

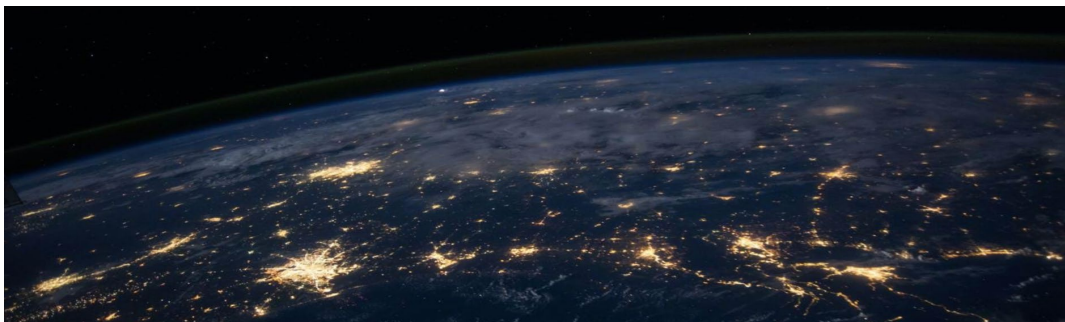
Energy Basics Workshop

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Networking Lunch

22nd June, 2023

Northern Australia Conference Room, Level 1, 76 The Esplanade, Darwin NT



Course Description

Our modern civilization has been built on vast and global energy networks that can be seen from space. Centralized energy in the form of fossil fuels like oil and gas have sparked Industrial Revolutions over the last two centuries. Now, we are facing the many challenges of integrating renewable energy sources and zero emissions fuel into our systems. Will electricity prices continue to rise? Will renewable energy really be cheaper? What assets may be stranded by the transition and who will end up paying? Will carbon pricing become compulsory?

Energy is a major operating cost for many businesses. This workshop will help your team understand how energy and technology impact major industries – now and into the future. This course is designed for all professionals working in energy markets or energy-intensive industries. No technical background is required.

This introductory course will present the context of energy supply chains. Production and application technology, energy markets, regulations, economics, and current market trends will be discussed. Major projects in Australia and around the world will be showcased.

- Context of humanities' history of energy
- Basics of different energy types
- Basics of energy chemistry and safety issues
- Market trends including the costs of renewable electricity and carbon pricing
- Australian regulatory framework
- Economic analysis of example projects
- Technology gaps and opportunities



Professional Development

This workshop is accredited by Charles Darwin University. Attendees will receive a Digital Badge of Accreditation from the Energy Resources Institute.

Skills and Competencies;

- Become familiar with energy and electricity terminology
- Be able to convert between power and energy units, such as kW and kWh.
- Recognize relevant technology and safety issues related to energy production and use.
- Develop energy system modelling skills.
- Develop an understanding of energy economics and market trends from an Australian context, including levelized costs, carbon pricing, regulatory and policy impacts.
- Develop commercial awareness of domestic and international energy systems, technologies, and major projects.

About the Presenter

Dr Rebecca Yee has been working on integrating old and new energy systems for over a decade. After completing a PhD in Chemical Engineer, Dr Yee co-founded an award-winning biodiesel pilot plant using enzymatic catalysts. She has since worked in the Future Fuels CRC and GPA Engineering as a design engineer developing hydrogen, pipeline blending, and microgrids for remote communities. An enthusiastic and engaging speaker, Dr Yee has also lectured at several universities and schools around Australia and has a published children's book. Join Rebecca to discuss the current and emerging work being done in Energy, and how the current transition will impact your business.

Schedule

9:30 am	Arrive and Sign-In	
9:40 am	Introduction	<ul style="list-style-type: none">- Housekeeping- Presenter credentials
9:50 am	Module 1 – Types of Energy through History	<ul style="list-style-type: none">• Biofuels to Fossil fuels• Electricity<ul style="list-style-type: none">○ Combustion Steam Turbines○ How electrons work and why we need storage, DC to AC○ How solar works○ How wind works• Australia's Energy Mix Now

10:30 am	MORNING TEA	
10:45 am	Module 2 – The Energy Transition	<ul style="list-style-type: none"> • Why and Where – Green opportunities (and challenges) specific for Australia <ul style="list-style-type: none"> ○ Define green ○ Infrastructure – who owns what • Large-scale renewables <ul style="list-style-type: none"> ○ Hydro (Tas) ○ Efficiency and Heat Pumps ○ Solar/wind and where the technology/economics is at • Need for Energy Storage
11:00 am	Module 3 – Energy Economics	<ul style="list-style-type: none"> • Market and policy drivers • Levelised Costs • Costs of renewables and technology trends • Hydrogen economics and drivers • H2 Supply Chains – upstream and downstream impacts • Australian regulatory framework for energy markets • Carbon pricing (Australia and Global impact)
12:00 pm	LUNCH	
1:00 pm	Module 4 – Project Case Studies	<ul style="list-style-type: none"> - Review of example projects in Australia and Globally - Major project costs
1:45 pm	Group Modelling Practical	Model energy systems within a particular industry and identify technology gaps and opportunities related to energy production and use.
2:15 pm	Close Out and Feedback	