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EXPORTS**

Cooperative Research Centre

The Know-How Behind Net-Zero: The Importance of Skills and Capabilities in Achieving Australia's Energy Exports Ambitions

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Professor Robert K. Perrons

www.perrons.net

Queensland University of Technology



- Why skills and know-how are so important
- The increasingly competitive nature of the energy exports market
- The important role that digital technologies will play in turning Australia into a global leader in energy exports
- Why skills are mission-critical for this
- What our FEnEx CRC project is doing to enable this

- Worked for Shell International for 13.5 years prior to coming to QUT in May 2011
- Several years in front-line operations: offshore platform, etc.
- Scenario Planning and “Vista” team
- Technology deployment
- Executive Coordinator of Global R&D for Upstream
- Learning Manager – Western Hemisphere




- Learning & Development was considered very important to Shell's strategy
- Built an enormous learning centre in the Netherlands for training Shell staff and for employees of collaborating companies
 - Used our training facilities and know-how as a source of competitive advantage



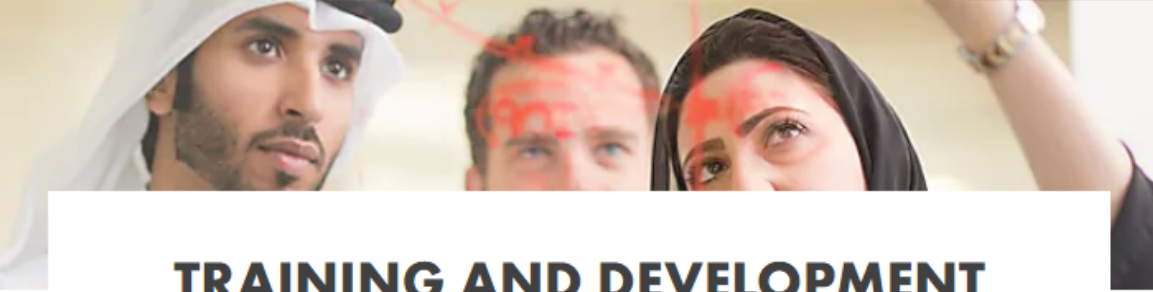
Shell's Emphasis on Training



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 Training and Development

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TRAINING AND DEVELOPMENT

We know that an investment in your development contributes not only to your personal growth, but also to the growth of our business.

Shell gives you the support and training to grow and develop, because we recognise the crucial part every employee plays in our success.

We offer employees valuable educational resources. There is an emphasis on personal development with potential-based career development. We have a performance appraisal cycle and a range of development tools that employees and their line manager review on a regular basis.

Australia's Hydrogen Advantages



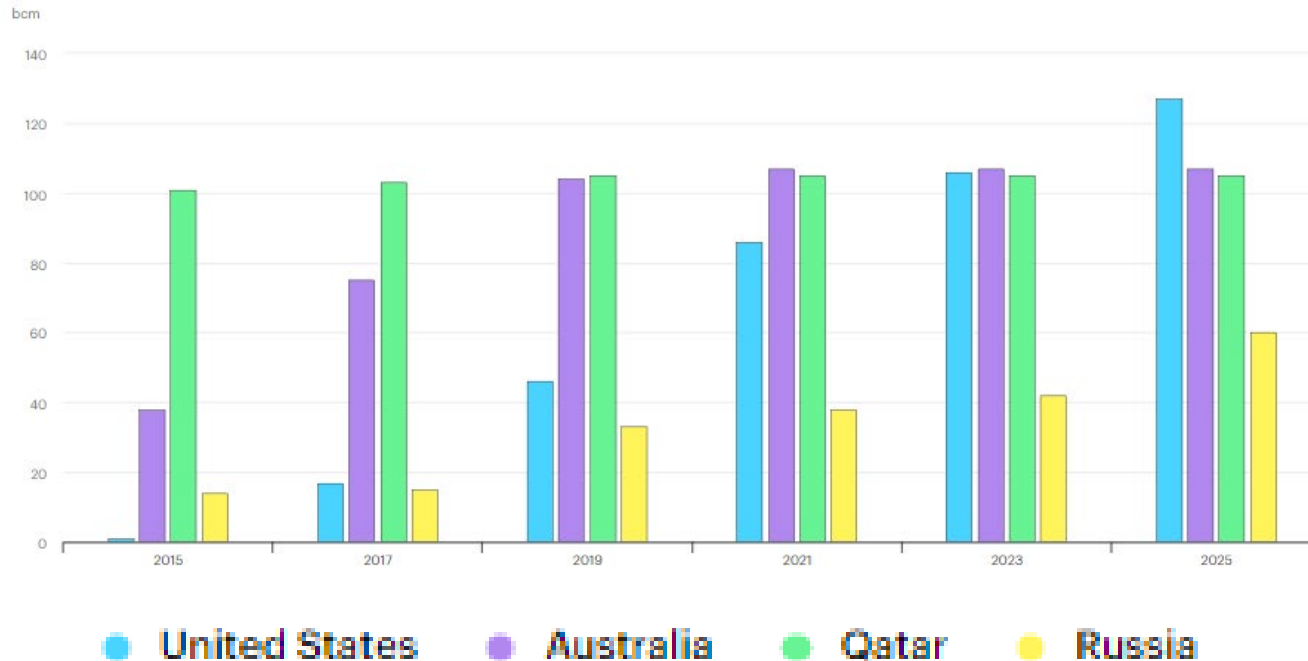
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- Close to large markets in Asia-Pacific
- Blessed with lots of sunlight, natural gas, etc.

“Giant with potential to become a world key player”*

- World Energy Council

LNG Exports by Country, 2015-2025



The Drive to Reduce Costs



- H₂ and LNG are commodity markets that are increasingly competitive
- How can we bring our cost structure down?

A Significant Part of the Answer



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International
Energy Agency
Secure
Sustainable
Together

Digitalization & Energy

Good news: We can leverage digital technologies to significantly improve the efficiency of our energy export operations

Bad news: Everybody else can do this, too

Source: <https://iea.blob.core.windows.net/assets/b1e6600c-4e40-4d9c-809d-1d1724c763d5/DigitalizationandEnergy3.pdf>

What Goes Into Capabilities?



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Technologies and skills coming together

Some Questions about Skills



- What are the right digital skills to have within different parts of the industry?
- To what degree of proficiency?

Different Industry Clockspeeds



Energy Sector's Slowness Explained



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“... the energy sector... is unusually large, diverse, and complex.”

Richard G. Newell, Duke University

“... the energy system is so big, so complicated, so important, and therefore so slow to change”



Richard K. Lester, MIT
David M. Hart, George Mason University



RESEARCH REPORT



Skilling the Australian workforce for the digital economy

Victor Gekara, Darryn Snell, Alemayehu Molla and Stan Karanasios
RMIT University

Amanda Thomas
Australian Industry Standards

Five-Element Competency Framework





- Survey completed in late 2022
- Currently analysing results (ends June 2023)
- Will then use survey results to identify skill deficiencies
- Recommendations for how to fill skill gaps (Dec. 2023)

Others Are Asking Similar Questions



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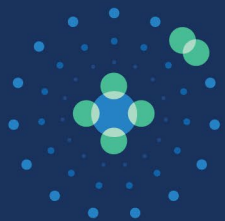


**ENGINEERS
AUSTRALIA**

Engineering in the
energy sector, what are
the skill gaps?

START THE SURVEY





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Thank You

Prof. Robert K. Perrons
www.perrons.net
**Queensland University of
Technology**

Future Energy Exports CRC
M050, 35 Stirling Highway
Crawley WA 6009
Western Australia

Proficiency Measurement Scale

Level	Name	Description
1	Literacy	Has basic awareness of the domain. No, or very limited, experience applying the skills.
2	Competency	Has basic knowledge and can apply the skills in limited, often controlled, contexts.
3	Proficiency	Has intermediate knowledge and can apply the skills across a broad set of contexts.
4	Fluency	Has advanced knowledge. Can apply the skills across with limited supervision. Has the ability to train others.
5	Savvy	Has advanced knowledge and can make original contributions to the existing body of knowledge and state of practice. Can design innovations to address how the skills might be applied in novel contexts. Has the ability to train others.