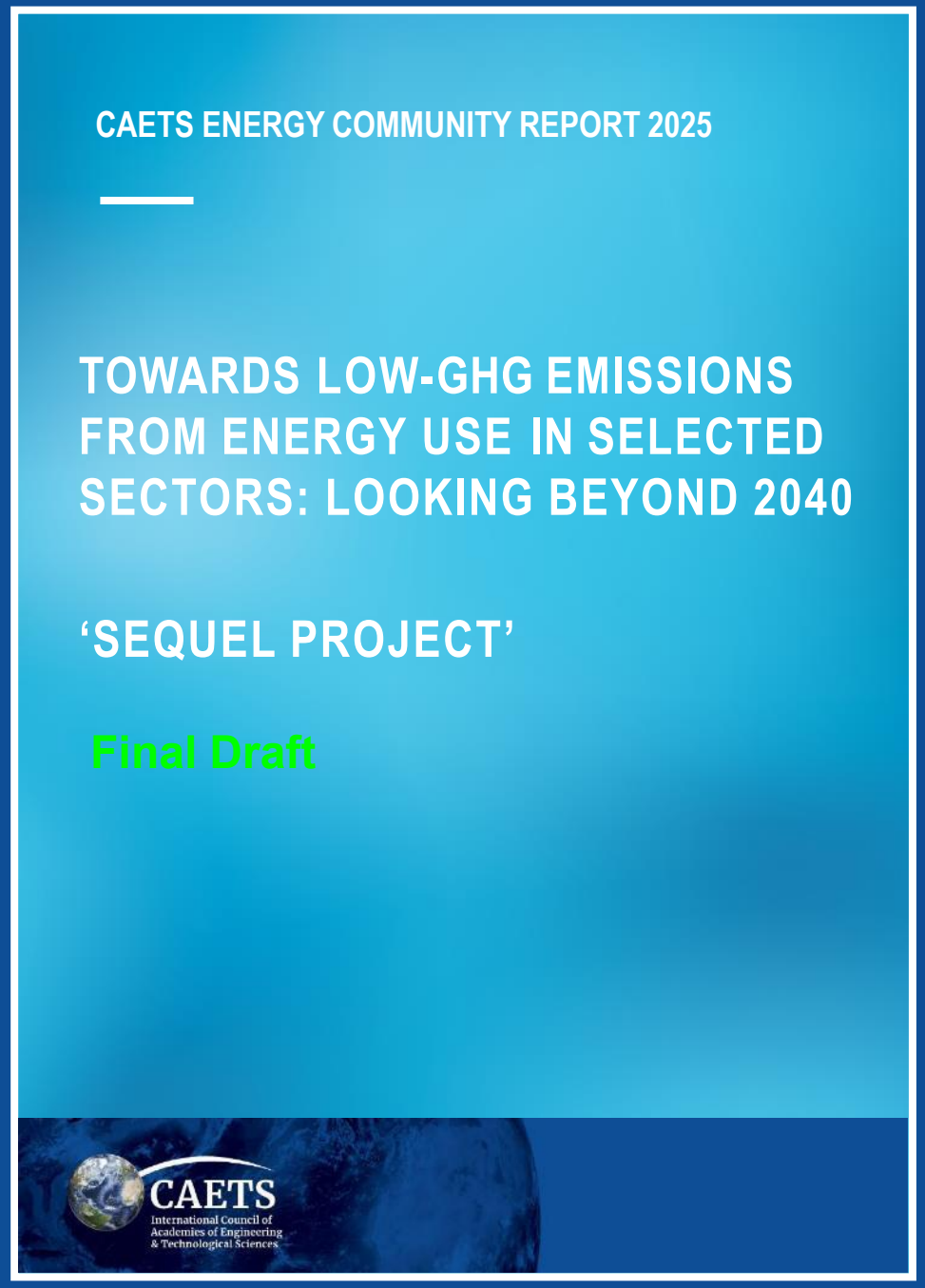

CAETS Council Presentation

Brisbane, Australia, Sep 9, 2025

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Overview

A. Purpose of the Project
B. Sectors & Working Groups
C. Project Methodology: Foresight
D. Key Strategies – Example: Forestry
E. Project Completion
F. Next Project: INAE Lead

A. Purpose of the Project

To Answer the 'Focal Question'

What actions need to be taken now, and in the near future, so that sufficient technologies are available and realistically deployable to ensure low-GHG emissions from energy use in selected sectors beyond the year 2040?

B. Industry Sectors & Working Groups

Forestry Industry
Tom Browne, Canada
Peter Axegård, Sweden
Ludo Diels, Belgium
Richard Kerekes, Canada
Esa Vakkilainen, Finland
Ian de la Roache, Canada

Agriculture & Food
Snow Barlow, Australia
Martin Fraguio, Argentina
Chris (Hyung-Sool) Lee, Korea

Oil & Gas Industry
Godwin Igwe, Nigeria/USA
José Luis Aburto, Mexico
Vaughan Beck, Australia
Manuel Bravo, Spain
Henrik Frandsen, Denmark
Erwin Fritz de la Orta, Mexico
Dirk Smit, Netherlands
Joe Zhou, Canada

Chemical Industry
Frank Behrendt, Germany
Oscar Vignart, Argentina
Tony Bi, Canada
Funmi Coker, Nigeria
Henrik Frandsen, Denmark
Rita Hofmann, Switzerland
Hyunjoo Lee, Korea
Chinho Park, Korea

Cement Industry
Rui Cai, China
Kim Kurtis, USA
Neven Duić, Croatia
Wang Lan, China
Ravindra Gettu, India
Paulo J.M. Monteiro, USA
R. Douglas Hooton, Canada

CCS
Vaughan Beck, Australia
Esa Vakkilainen, Finland

Iron & Steel Industry
Karl Buttiens, Belgium
IL Sohn, Korea
Eloy Álvarez, Spain
Mansheng CHU, China
Kejiang Li, China
Chinho Park, Korea
Martin Pei, Sweden
Yasuo Kishimoto, Japan
Takeo Hoshino, Japan
Louise Grondin, Canada

Buildings & Smart Cities
Tom Leahy, Ireland
Christy Adelowo, Nigeria
Yves Bamberger, France
Seung Lee, Korea
Vishaal Lutchman, South Africa
Rasmus Bramstoft, Denmark

Hydrogen
Henrik Frandsen, Denmark
Dirk Smit, Netherlands

ICT & Data Centres
Erol Gelenbe, UK
Yves Bamberger, France
Robert Crawhall, Canada
Tadeusz Czachorski, Poland
Franco Davoli, Italy
Michaela Meo, Italy
Albert Zomaya, Australia

Coupling
Rasmus Bramstoft, Denmark
Yves Bamberger, France
Pradeep Chaturvedi, India
Henrik Frandsen, Denmark
Franco Davoli, Italy
Tim Lieuwen, USA

Report Structure



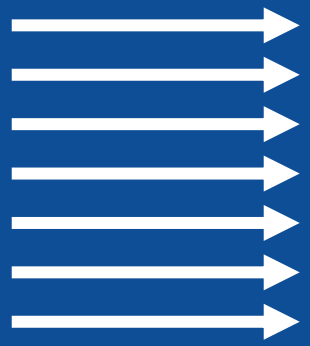



C. Project Methodology: Foresight (Scenario Creation)

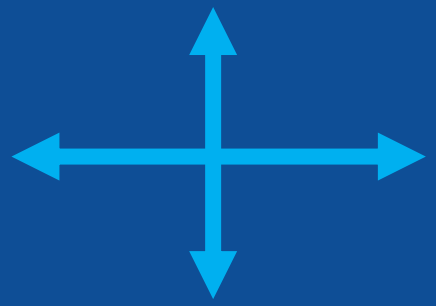
1. Define the ‘focal question’ and relevant timeframe

2. Review past events and current knowledge

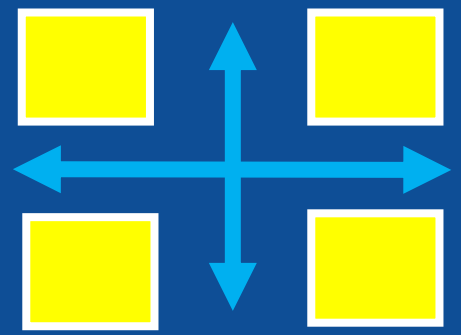
3. Identify Drivers



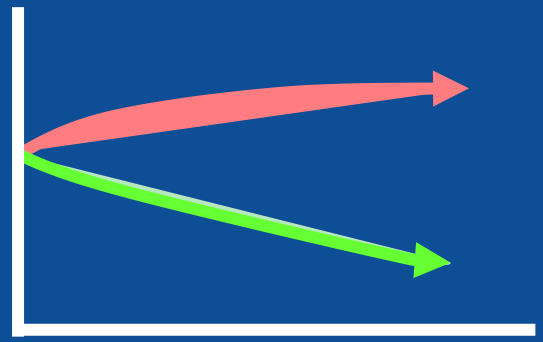
4. Identify Critical Uncertainties



5. Develop Scenario Characteristics



6. Determine Implications & Strategies



Key Strategies: Example - Forestry Industry

Enhance Forest Value and Carbon Storage

- Enhance forest productivity and minimize losses from fires, droughts, and pests
- Increase carbon storage capacity through enhanced forest management
- Improve and expand forest land for harvesting of wood and storing carbon

Develop Sustainable, Circular Products

- Pursue innovative uses of lumber products, especially in building construction
- Pioneer and commercialize new products based on wood constituents
- Use sustainable energy across the full lifecycle of products

Maximize Use of Residuals

- Extract value from all wood residuals, especially lignin
- Minimize waste in all production, use, and end-of-life operations

Ensure Availability of Expert Personnel

- Secure and retain outstanding leaders, experts, professors, and students

F. Project Completion

Task	End Date
Chapter adjustments based on external reviews	Sep 2025
Presentation in CAETS Brisbane meetings	Sep 2025
Review by CAETS Academies and endorsement	Nov 2025
Final editing	Dec 2025
Release of report	Jan 2026

Next Project: Security of Energy Supply - Towards Reliable Low-carbon Energy for All

Security: Reliability, affordability, and sustainability under normal and abnormal conditions from all energy sources

Perspectives: citizens, companies, communities and cities, countries; local, regional, national, and international considerations and collaboration

Focus: Innovative engineering contributions to improving energy security for all, including residential and corporate users

Outcomes: Pathways and strategies for improving current and developing new technologies to achieve energy security; new ideas for citizens, businesses, investors, governments, regulators, and academics

Next Project: Security of Energy Supply - Towards Reliable Low-carbon Energy for All

Start date:	**Q4 2025 or Q1 2026**
Project Lead:	**Indian National Academy of Engineering (INAE)**
Working Group Participants:	**CAETS Members plus other experts**