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Department of Resources, Energy and Tourism

Development of a Hydrogen Technology Roadmap for Australia

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ENHANCING AUSTRALIA'S ECONOMIC PROSPERITY

Background

The Roadmap is being developed for the Council of Australian Governments (COAG).

Historically Australia's approach to hydrogen technology

- Hydrogen is a global technology
- Enthusiastic about international co-operation to meet challenges and opportunities
- No specific policies or programs
- No direct intervention in industry development
- Rely on generic programs and science and innovation policies.

Objectives

To examine the issues which will affect the development of hydrogen technology in Australia.

Two overarching objectives to:

- Assess the strengths and opportunities of Australia's hydrogen technology research capabilities compared to international research;

- Identify options for the role of Australia governments in the emergence of a future hydrogen economy, and the economic case for each of these options.

Roadmap Drivers

- Not clear what, if any, specific action Australia governments should take.
- Increasing investment in the US, Europe, Japan and Korea
- Hydrogen is widely considered an energy carrier of the future.
- Australia possesses hydrogen research strengths,
- COAG project- developed for all Australian governments

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Time Line

2007

September – Begin development

October – Release discussion paper

November – Stakeholder Workshops

2008

February – Draft Roadmap

– Final Stakeholder Workshop

April – Completed Roadmap

June – Begin COAG approval process

Late 2008 – Roadmap Launched

Development

- Data gathering:
  - stakeholders workshops
  - one-on-one interviews and
  - written Submissions
- Review of literature and other roadmaps
- Economic modelling
- IP landscape for hydrogen and fuel cells
- Review of Draft Roadmap by Stakeholders
- Overseen By Steering Committee

Timeframe Considered in the Roadmap

- Medium term, to 2020 focus of the Roadmap
  - After start of Emissions trading scheme
  - In line Renewable Energy Target

- Long term, to 2050 is considered in the economic modelling

Intellectual Property Landscape

- Global level of IP activity in hydrogen technologies is rapidly increasing, particularly in the area of fuel cells.
- Assessment of Australia's intellectual property in hydrogen and technology
- Establish where Australia IP strengths and expertise is.

Economic Modelling

Assumptions

- Capital costs decline at rate of 2% pa,
- CPI 2.5%.
- Fuel cell capex $1,000 - $5,700 /kW,
- H2 capex $0.5 - $17 million per tonne H2 per day.

Modelling

- Long run electricity generation costs model incorporating renewable and non-renewable generation
- Hydrogen production cost model considering methane reforming, electrolysis and coal gasification.

Current Parallel Initiatives

- Australian Hydrogen Activity Report – 2008
- RET/CSIRO Hydrogen Implementing Agreement Participation Support Initiative
- New Clean Energy Programs

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Outcomes

A vision for hydrogen and fuel cells in Australia

Suggested actions for industry, researchers and governments.

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Thank you

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Questions?