



**SDG Energy Transition Webinar Series**

# Hydrogen Scenario Planning

In collaboration with EnerChemTek

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**SDG**

Strategic Decisions Group

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**The hydrogen value chain is composed of three sections.**



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## Hydrogen business and technology decisions must address the complex relationships among the surrounding techno-economic factors.



### Leveraging scenarios allow:

- Integrated understanding of dynamics of change
- Creating more complete range of opportunities and threats
- Reducing the element of surprise
- Providing range of strategic options and the flexibility to navigate between them
- Conducting better risk assessment
- Continuous monitoring of the business and technology environment



## We illustrate two different approaches to hydrogen scenario planning: Strategy Testbed and Market Testbed.



### *Decision Focus #1: What should our Hydrogen R&D strategy be ?*

- What technologies are important for our future business?
- How does technology support our future strategic requirements?
- What should be our technology investment priorities?
- How should we obtain these technologies?
- What is the timing for us to pursue these technologies?



### *Decision Focus #2: Where should we invest in the hydrogen value chain?*

- Under what circumstances, will green hydrogen become reality?
- What must happen for hydrogen to become a mainstream commodity?
- Will a dominant color of hydrogen emerge?
- Can I create value even if hydrogen does not live up to the expectations?
- What should be my hydrogen business strategy?



## Advances in H<sub>2</sub> and CCUS technologies and the availability of carbon-free power will drive the evolution of green hydrogen.

Natural Gas equivalent

H<sub>2</sub> / CCUS Technology Advances

Near source / Small scale

- Growth potential of hydrogen hinges on its ability to contribute to carbon reduction and achieving net zero; Hence CCUS technology advance has to go together.
- Include any technologies across the entire hydrogen value chain – extraction, transport, storage, better utilization (fuel cell) – and CCUS.
- Requires investment in infrastructure, which is likely to be driven by policy makers and country level strategies at first



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