

2nd Annual

GREEN HYDROGEN SUMMIT



HOST SPONSOR



SMARTENERGY

11-12 & 18-19 May 2021 | Virtual

CREATING THE POLITICAL FRAMEWORK AND BANKABILITY CRITERIA
TO SCALE UP THE APPLICATION OF HYDROGEN FOR:
Power Generation | Mobility | Industrial Processes | Energy Storage

AGENDA

WHAT'S IN STORE?



300+

ATTENDEES



55+

SPEAKERS



2 DAYS

DAYS OF LEARNING
AND NETWORKING

Supporting Partners



#GreenHydrogen21

greenhydrogen.solarenergyevents.com

11 May | Policy & Regulation Day

8:00 – 8:45

A DEEP DIVE INTO JAPAN'S GREEN HYDROGEN STRATEGY

A behind the scenes look at how recent net zero commitments have changed their hydrogen strategy, and their approach to green hydrogen

9:00 – 10:30

EUROPEAN SHOWCASE: HOW EUROPEAN NATIONS WILL SUPPORT THE GROWING GREEN HYDROGEN MARKET

- Overview of Hydrogen policies across Europe and the key countries who are leading the development of the market
- How do European nations create a financially viable Green Hydrogen market?
- How can policymakers incentivise Green Hydrogen to support long term development of an independently funded economy?
- Implications for financiers and utilities – where are the investable propositions?

10:35 – 11:15

SPEED NETWORKING



Make the connections to accelerate your Green Hydrogen aspirations, with 40 minutes dedicated to building your network. Join our virtual speed networking and let us take care of introducing you to new contacts with our dedicated networking software:

Speed Networking will place you in a room with 3 random contacts. Designed to replicate some of the spontaneity of making contacts during the coffee breaks at live events, the system even provides prompts to help facilitate conversation if required.

11:15 – 12:25

CAN COUNTRIES BUILD A SUCCESSFUL GLOBAL HYDROGEN EXPORT MARKET?

As Green Hydrogen costs come down and it becomes a mature industry, countries may start looking to countries with high numbers of renewables and land mass, who are naturally suited to producing en-mass, to import hydrogen from. In this session we look at the complexities of developing an international export market.

- Examining how countries looking to develop large amounts of cheap hydrogen such as Spain, Portugal, Australia and Scotland can look to develop an export market
- Understanding the size of financial opportunities in global vs regional markets
- Overcoming the lack of standardisation in regulation, technology and definitions of green hydrogen which might hinder the development of a global export market

12:40 – 13:20

PANEL: HOW A CARBON TAX COULD BE THE MISSING LINK IN MAKING GREEN HYDROGEN ECONOMICALLY COMPETITIVE

Offtaker demand is key to developing a market for Green Hydrogen to survive without subsidies. Green Hydrogen's current high cost makes it economically unviable compared to other sources of energy, however carbon taxes could help to create long term price parity and bridge that gap until Green hydrogen costs come down. In this session we will examine how carbon taxes have been implemented.

- Looking at the timelines required for carbon taxes to overcome the price gap between Grey and Green hydrogen, and how they can be shortened
- Outlining planned and existing carbon taxation schemes, and their successes, and limitations
- How emissions trading could offer alternative income for developers looking to collocated hydrogen with their projects

13:25 – 14:05

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14:05 – 14:45

PANEL: WHAT ROLE WILL HYDROGEN PLAY IN A GREEN RECOVERY POST COVID-19?

As the world starts to look towards recovery post COVID-19 and building back a greener economy we will assess where the Green Hydrogen industry is now, how much it has been impacted by the pandemic, and how availability of funding might change the development of Hydrogen projects.

- Can the political agenda be steered toward green hydrogen and away from grey or blue? Should governments be looking at the green hydrogen route now, or use blue as part of their strategy?
- For how long will subsidies be required to support the industry, and how can we build a market not reliant on subsidies to survive?
- How investors are going to help meet the challenge of deploying and estimated additional 120GW of new wind and solar to power European hydrogen ambitions

16:00 – 16:40

NORTH AMERICAN SHOWCASE: UNDERSTANDING HOW GREEN HYDROGEN FITS INTO THE USA AND CANADA'S DECARBONISATION STRATEGIES

- How the new Biden administration will change the USA's approach to green hydrogen
- Latest technologies that are developing in the North American market
- Perspective of the US utilities and how they envisage connecting with future hydrogen production
- An overview of the Canadian market including the impacts of the Canadian fuel standard and clean market deals, and whether these need to be expanded even further

12 May | Opportunities Collocating Hydrogen with Renewables

8:00 – 8:45

AN ANALYSIS OF THE HYDROGEN MARKET IN AUSTRALIA

A deep dive into the strategy to produce Green Hydrogen at scale in Australia from some of the leading policy makers and developers who are at the forefront of the market.

9:00 – 9:30

CASE STUDY: COLOCATION ELECTROLYSIS WITH RENEWABLES TO REDUCE COSTS

As the number of renewable energy sources rise, the volatile nature of solar and wind production means there is a risk that without additional offtake there could be excess production by 2025, causing the price per MW paid for PV and Wind generation to fall so low that energy providers may have to curtail renewables. Collocated electrolysis for hydrogen has the potential to smooth out the price peaks of production and achieve stable income, and in this session we will get a behind the scenes look at developers who have deploying electrolysis in their projects.

9:45 – 10:25

PANEL: UNDERSTANDING THE LATEST FINANCIAL BUSINESS MODELS FOR COLLOCATED PROJECTS

- A deep dive into existing business models in the market, understanding the challenges and risks of each, and innovative ways to invest in hydrogen
- Building a business model when developing pipelines that includes hydrogen and its offtake from the beginning, and writing hydrogen into future offtake contracts
- Long term, what will the size of a commercial project be? Will it be 10s or 100s of MWs?
- What are the challenges which prevent hydrogen projects from being bankable assets?

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TECHNOLOGY SHOWCASE: DECREASING CAPEX & OPEX TO INCREASE PRICE COMPETITIVENESS OF GREEN HYDROGEN

In this session we will look at some of the latest technological developments in the production of Green Hydrogen which can increase efficiencies and bring down the overall market price.

For developers and investors in the hydrogen space this session will provide a clear idea of the technologies which exist on the market, where they should be deployed and where to focus expenditure.

12:00 – 12:40

IS THERE A LIMIT TO THE SCALABILITY OF ELECTROLYSIS?

The technology for electrolysis is well established, however to truly allow Green Hydrogen to compete with grey and blue hydrogen and other energy sources, the technology needs to be scalable to reduce costs. In this session we will outline the roadblocks to scalability and the new technologies to overcome them.

- Are PEM membranes capable of being mass produced, and in what timescale can hydrogen developers expect to see increased production?
- What alternative technologies are coming onto the market to allow for larger scale production or as alternatives to PEMs?
- How can challenges over the quantities of water required for electrolysis at scale be addressed? Can waste water or desalination be cost effective solutions?

12:45 – 13:30

ROUNDTABLE



Your turn to get involved and share your insight! These roundtable sessions are designed to allow delegates to network and interact whilst continuing discussing the topics from earlier in the day.

Meet the speaker: Over 45 minutes, the facilitated discussions will allow delegates to compare notes, ask questions, and network with peers. Each roundtable will be hosted by a speaker from earlier in the day, to continue the discussion in an open setting.

18 May | Offtakers – Where Will Demand For Green Hydrogen Come From?

9:00 – 9:40

PANEL: WHAT DO OFFTAKERS NEED TO SEE TO USE GREEN HYDROGEN?

Key to the economic success of Green Hydrogen, and its attractiveness to investors, is having a clear market to sell to so projects can be sized based on demand. Large scale markets for hydrogen though are not currently clear and potential offtakers have their own concerns about supply. In this session we will hear from representatives of the industries who may make up the hydrogen market to understand what they require from developers and governments to start using green hydrogen, and the timescales in which they expect to begin to use it.

9:55 – 10:25

STIMULATING OFFTAKER DEMAND WITH REGULATION AND INCENTIVES

In order to support existing users of hydrogen converting to green hydrogen gaps in price, supply and technical knowledge need to be bridged. In this session we will examine how governments can financially support and develop frameworks to support demand.

- Examining regulatory frameworks to convert existing users to green hydrogen in the short term, including safety measures, terminology, certification and standardisation
- How subsidies can be implemented to create the price competitiveness needed to encourage active hydrogen users to make switch and new users to consider green hydrogen as a future fuel

10:40 – 11:20

PANEL: HOW TRANSMISSION SYSTEMS OPERATORS & EXISTING INFRASTRUCTURE WILL HANDLE OFFTAKE

- Understanding how Green Hydrogen connect into the existing gas networks, and how energy TSOs will work with the organisations delivering green hydrogen
- Understanding how the growth of the green hydrogen will impact the way in which people connect to energy networks
- An examination of the technical issues of using the existing grid for Hydrogen and upgrading pipelines, including asset suitability and safety for managing gases in the network.

11:30 – 12:15

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19 May | Storage & Transport of Hydrogen

9:00 – 9:40

PANEL: WHERE WILL HYDROGEN BE PRODUCED? DECENTRALISED VS LOCALISED PRODUCTION

Aside from the technology needed to produce hydrogen, location of production is of equal importance to both cost effectiveness and use of land. Governments and developers will need to decide whether to meet demand and the lowest cost hydrogen is best produced on site next to renewables, or whether energy is transported from areas with high volume low-cost renewable energy to centralised hydrogen plants.

- Should developers put their efforts into several big projects that can meet capacities or a mix of smaller localised and regional projects?
- Examining the cost basis for localised projects vs. importing
- How issues of space to deploy projects will affect cost, especially in the European context with less space available
- Ensuring that green hydrogen remains green after transportation - how can foreign production be tracked to ensure renewables are used?

9:55 – 10:35

PANEL: CAN STORING HYDROGEN AT SCALE BECOME A REALITY?

Can producing and storing hydrogen help to offset the challenges of making more reliable returns from renewable energy, or will the additional infrastructure costs make it too expensive?

- Understanding the safety concerns of storing hydrogen, the regulations that need to be adhered to, and how these can be mitigated for
- Addressing demand concerns; if heavy industry sees a significant increase in green hydrogen usage, will it be possible to create enough storage to meet demand?
- Meeting the challenges of efficiency; each conversion from liquid to gas or electrons can see a reduction of 40% efficiency for hydrogen, so how do producers store in the most energy efficient manner possible?
- Will offtakers want or be able to share the risk of storing hydrogen with developers, or will it need to be stored on-site after production until use?

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11:15 – 11:55

PANEL: UNDERSTANDING THE CHALLENGES TO DEVELOPING THE INFRASTRUCTURE NEEDED TO TRANSPORT GREEN HYDROGEN

Producing Green Hydrogen cost effectively is just one piece of the puzzle. Another challenge is then transporting that hydrogen – whether that is globally from areas of high volume, low-cost hydrogen production to other nations, or just from localised projects to offtakers. This session will examine the challenges of developing medium to long term transportation options for the Hydrogen market.

- Understanding the technical challenges of converting old gas grid to hydrogen, including pipe embrittlement and safety concerns
- Understanding the costs of developing new infrastructure and how these can offset
- Is a pan European hydrogen pipeline a possibility? And do member states work together to make it a reality?
- Whether converting to other gases such as ammonia or methane pre transportation is a better long-term strategy, weighing up efficiency losses vs infrastructure conversion costs

12:10 – 12:50

PANEL: CAN STORING AMMONIA BE A VIABLE ALTERNATIVE FOR HYDROGEN PRODUCERS?

If storing hydrogen itself is not a viable option, then one option is to convert to another energy source with ammonia as a leading option. Here we will hear from the expert whether ammonia can help to alleviate the difficulties of storing hydrogen.

- Will turning hydrogen into ammonia and then back be a viable solution, or will this introduce costs which will reduce the competitiveness of hydrogen?
- Are the risks associated with storing ammonia lower, and if so what other considerations need to be taken into account when storing ammonia verses hydrogen?
- How will ammonia storage need to be regulated to alleviate safety concerns?

13:00 – 12:45

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Meet the team and get involved



PAUL COLLINSON

Commercial Director

pcollinson@solarmedia.co.uk

T: +44 (0)207 871 0159



WILL WARD

Audience Development Manager

wward@solarmedia.co.uk

T: +44 (0)207 871 0122



GEORGE TURNER

Conference Producer

gturner@solarmedia.co.uk

T: +44 (0)207 871 0145



JASON ANDREWS

Marketing & PR Enquiries

jandrews@solarmedia.co.uk

T: +44 (0) 207 871 0122