

# H<sub>2</sub> - Global Perspective

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**&**

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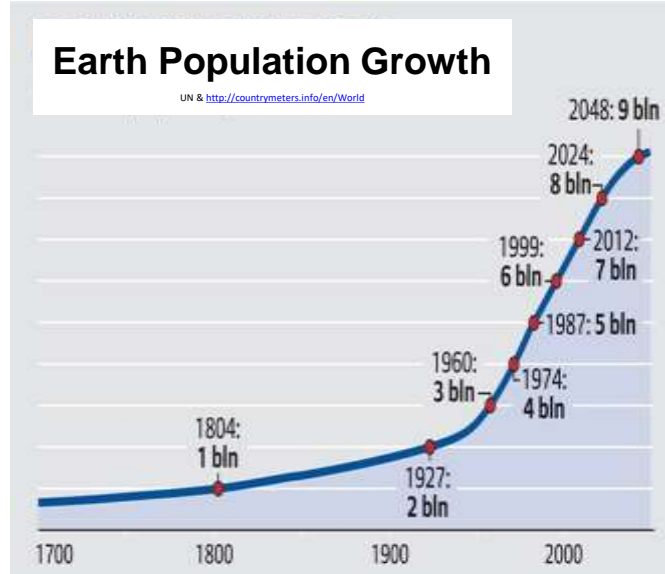
**&**

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**DCU**

# A Changing World...



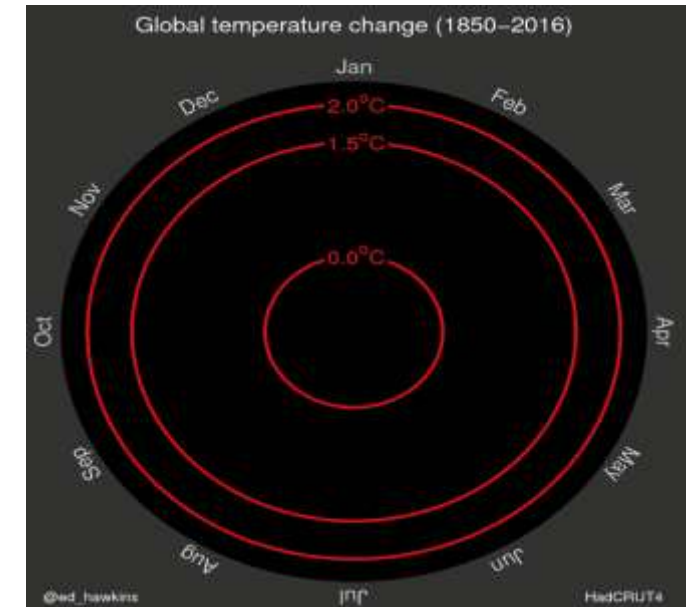
2010 TOP 20 CITIES BY POPULATION



**Agriculture / Food**

What affect will these have on:

- Resources
- Energy Use
- Transport



# Grand Global Challenges

## HYDROGEN



<https://londonfuturists.com/previous-meetings/peace-grand-challenge/>



# Hydrogen Uses



<https://cafcp.org/sites/default/files/hydrogenuse.jpeg>

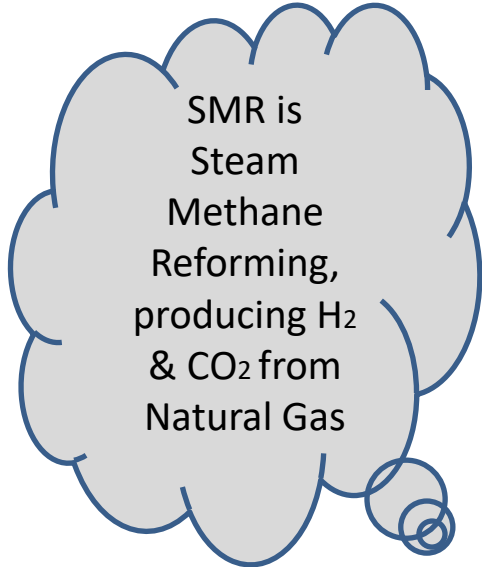
# Hydrogen Market

## Global:

- The Global hydrogen generation market was valued at \$115.25 billion USD in 2017 and expected to grow to \$154.74 billion USD in 2022.
  - >90% Produced by SMR

## Ireland:

- The Irish hydrogen market is estimated at 1000tons/year. Mainly used for Desulphurisation, Semiconductor industry, Pharmaceutical & Food, & Energy Cooling.
- Produced as by product of Chemicals, Electrolysis & % is imported.
  - There is no SMR Plant on the island of Ireland.







# Analysis of more than 200 Power-to-X (Hydrogen Production) projects shows:



**“if” POWER-TO-X?**

*Is P2X a solution for only developed countries with an over-generation concern or is P2X one of the solutions for decarbonizing all sectors of the global economy?*

This Forum brings to public discussion the findings of the recently published “*International Aspects of a Power-To-X Roadmap*”. The study explores the potential of the power-to-x market and identifies a roadmap for sector development.

Energy leaders from around the globe will gather to discuss the viability and cost-effectiveness of power-to-x solutions and the pace of electrification and decarbonisation trends.

The forum will focus on three key themes: (1) scaling up technology, (2) creating markets and (3) facilitating investment. Interactive sessions will address the following questions:

1. **What role can power-to-x play in decarbonising the energy system?**
  - a. Where we get the “Power” in power-to-x?
  - b. What is “X” in power-to-x?
  - c. Policy and industry perspectives on power-to-x as a decarbonisation pathway
2. **Is power-to-x a solution with global appeal?**
  - a. Producers, exporters and importers: sizing the power-to-x global market
  - b. Economic viability of power-to-x fuels and supports
  - c. Industry applications: transport, heating and manufacturing

**WORLD ENERGY COUNCIL**

Date TBC  
2019

9:00am – 5pm

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**A platform to exchange ideas and challenge assumptions.**

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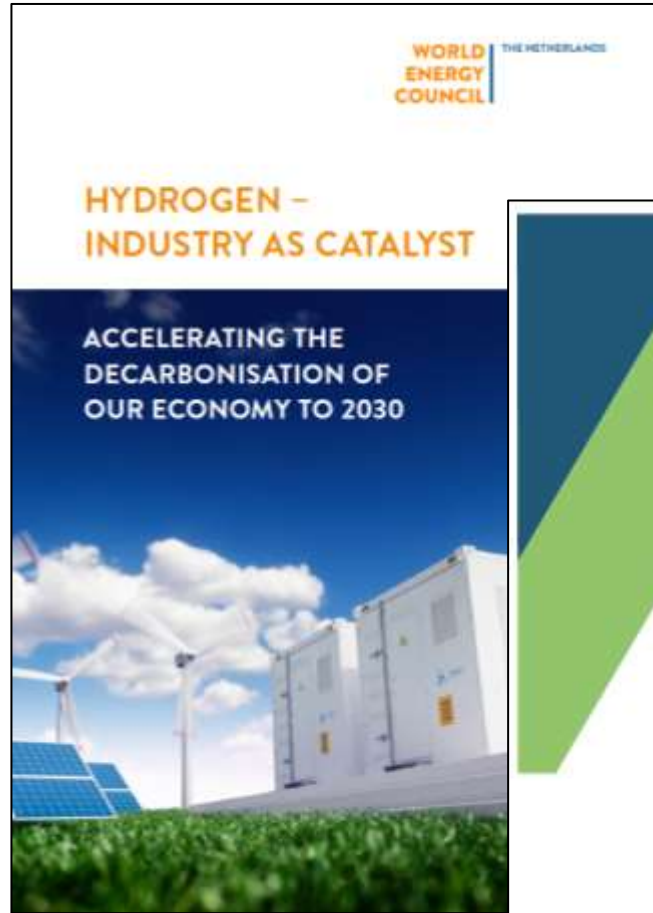
**“if” power-to-x, then what?**

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**Invitation Only Event**

**LOCATION**  
London, U.K.  
(venue tbc)

- OECD countries with national and industrial funds available, and with developed gas grid and transport infrastructure, **lead the deployment** of Power-to-X technology.
- Power-to-X technology is technologically mature.
- Hydrogen has an added value to renewables: it can store renewable energy and convert this clean energy into **fuel for cars; chemicals for industry, and gas for the grid.**



<https://www.worldenergy.org/wp-content/uploads/2019/02/WEC-Netherlands-Hydrogen-Industry-as-Catalyst.pdf>



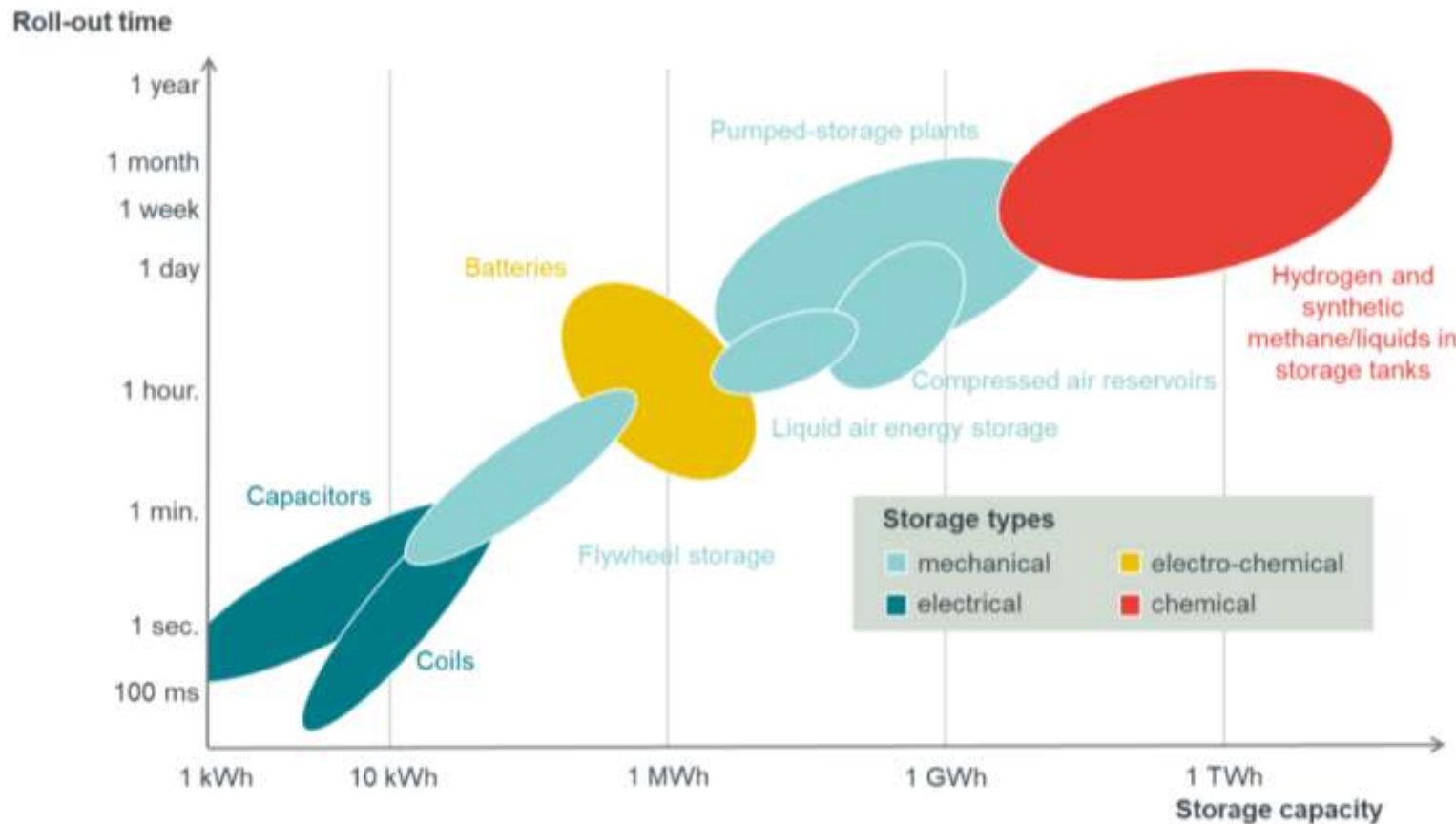
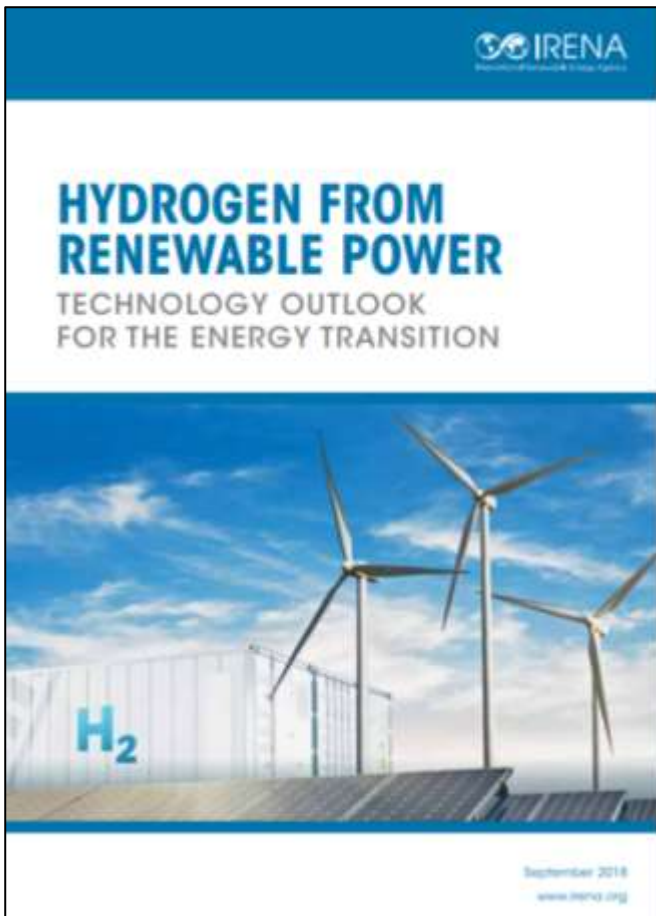
McKinsey - Hydrogen Scaling Up -  
HydrogenCouncil - 2017



<https://www.frontier-economics.com/media/2642/frontier-int-ptx-roadmap-stc-12-10-18-final-report.pdf>

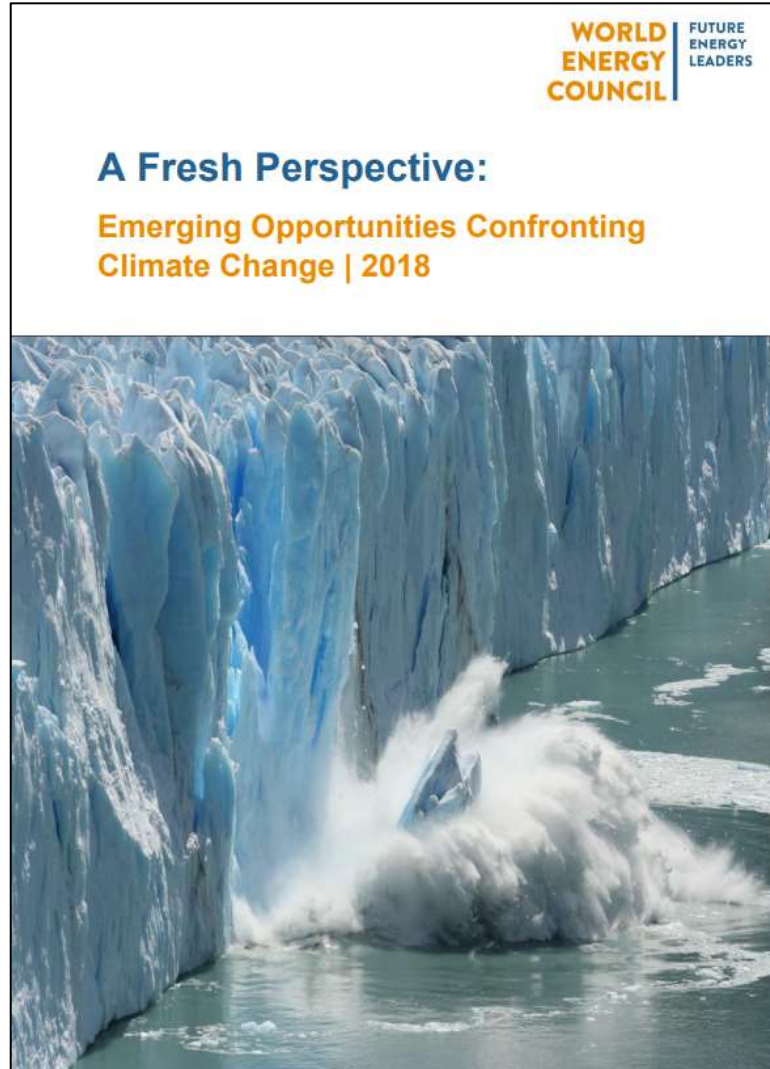


# Our Energy Transition Needs Hydrogen!



Source: Frontier Economics based on Sterner et al. (2014), and own analyses. Also see WEC (2016).

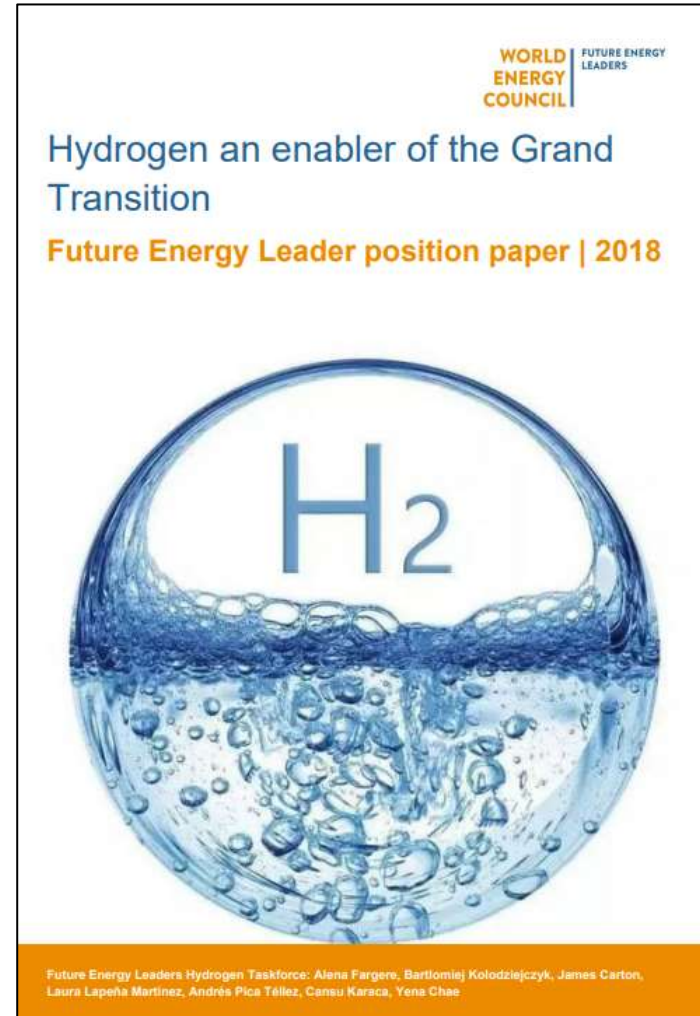
<https://irena.org/publications/2018/Sep/Hydrogen-from-renewable-power>



<https://www.worldenergy.org/wp-content/uploads/2018/05/A-Fresh-Perspective-Emerging-Opportunities-Confronting-Climate-Change-2018-Final.pdf>

# Key Messages:

- Hydrogen can enable the a transition to low carbon economy through systemic impact to the whole energy system
- Hydrogen technology is mature and is starting to be deployed to decarbonize different sectors across the globe
- Industry leads early market deployment to anticipate future regulation [e.g. Hydrogen Council counts 42 multinational companies]



<https://www.worldenergy.org/wp-content/uploads/2019/02/Hydrogen-an-enabler-of-the-Grand-Transition-FEL-WEC-2018-2.pdf>

# Key Messages:

- **Need for** coherent low carbon regulation to ensure short term profitability of hydrogen solutions
- **Need for** extensive communication, education and future workforce training to enhance social acceptance of hydrogen technologies



Thank You.