

EXECUTIVE SUMMARY

The *IEA Hydrogen 2018 Annual Report* contains four task updates as well as special reports from the Chairmen and the Secretariat. The Chairmen's report addresses activity within IEA Hydrogen, while the Secretariat report summarizes 2018 IEA Hydrogen member activity in the hydrogen arena.

MEMBERSHIP

In the last quarter of 2018, IEA Hydrogen was proud to welcome four new members. They include one new Contracting Party, Austria, and three new Sponsor Members: Hychico, the Hydrogen Council, and Reliance Industries Limited (RIL). Austria's accession deepens our research capabilities and supports the development of favorable hydrogen policy. With Hychico and RIL, our geographic and industrial reach expands to South America and India, respectively. The Hydrogen Council's membership globalizes our industrial base. Altogether, these new members enlarge the IEA Hydrogen perspective.

As well, the United Nations Industrial Development Organization (UNIDO) has returned to active participation in our TCP.

There is yet more good news: Argentina has requested and received an invitation to join. Other prospective IEA Hydrogen Members include Brazil and Mexico from Latin America; Thailand, Singapore and Malaysia from Asia; South Africa and Morocco from Africa; and California from the United States.

MEETINGS

IEA Hydrogen held three ExCo Meetings in 2018. The 78th ExCo Meeting was held in two parts. Part I in London featured a dedicated strategic planning session 29-30 May; Part II in Rio de Janeiro took place 20 June alongside the World Hydrogen Energy Conference (WHEC). The 79th ExCo Meeting was held 28-30 November in Cadarache, France.

MILESTONES AND TRENDS

IEA

In September 2018, IEA and the European Union, arranged a workshop on electrofuels in Brussels with cooperation from IEA Hydrogen.

The World Energy Outlook (WEO) 2018 for the first time included a short article on the role of hydrogen in the energy mix. As well, hydrogen was a first-time topic in the November IEA Energy Business Council (EBC). These activities clearly signaled a growing interest in hydrogen by the IEA.

In late 2018, based on a voluntary Japanese contribution, the IEA mounted an agency wide effort to produce the [Future of Hydrogen Report](#). Dr. Timur Güel attended the 79th ExCo Meeting in Cadarache, France, to explain the initiative and solicit in-kind support and cooperation from IEA Hydrogen. He received an enthusiastic reception. This will be a landmark report and IEA Hydrogen looks forward to cooperating with IEA on its preparation and publication. The IEA will exercise its convening power to bring IEA Hydrogen and the greater hydrogen community together in early 2019 to gather input for the report. The pace of change is expected to continue to increase in 2019, so the IEA Hydrogen team is gearing up for another exciting and productive year.

BROADER COMMUNITY

There has been a shift in the energy mix, which now has an increasing share of renewable electricity. Low cost renewable electricity (PV and wind) in some areas now enables production of hydrogen at competitive cost. 2017 saw the creation of a global business initiative called the Hydrogen Council (initially 18, now 53 companies).

Global hydrogen trends in 2018 include the following:

- 380+ Hydrogen Refueling Stations (HRS) open to public or fleets
- Close to 6,500 FCEVs sold
- Electrolysers available in small and large sizes (MW scale)
- Applications proliferate – hydrogen for industry, mobility, stationary, “smart grid,” intermediates and electrofuels/synfuels
- Larger demonstrations and debates about “green” hydrogen and “origin”
- Sector coupling and system integration are now recognized opportunities
- Early markets for multiple applications show promise. Mobility applications include passenger & captive fleets, buses, heavy duty trucks, logistic vehicles, light rail trains, airplanes & drones and the maritime
- Hydrogen scale-up is now a focus everywhere

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CURRENT TASKS

During 2018, five (5) IEA Hydrogen tasks were in some phase of their life cycle.

TASK #	NAME	STATUS
32	Hydrogen Based Energy Storage	Current – final year
36	Life Cycle Sustainability Assessment	Current – final year
37	Safety	Current
38	Power to Hydrogen and Hydrogen to X	Current
39	Hydrogen in Maritime Transport	Current

A successor to Task 32 entitled Energy Storage and Conversion Based on Hydrogen was approved at the 79th ExCo Meeting in Cadarache, France. It will begin in January 2019 as Task 40.

MAJOR PUBLICATIONS

- [IEA Hydrogen Task 36 Final Report](#)

OUTREACH

Presentations were made at the following events:

- There was an IEA Hydrogen Session at World Hydrogen Energy Conference (WHEC) 2018 on June 20 in Rio de Janeiro, Brazil. It featured a panel discussion (led by Chairman Lucchese) with multiple presentations on international energy scenarios for hydrogen modeling. In addition, there were 8 other presentations at WHEC by our ExCo Members and Operating Agents.
- On 10 September 2018, Chairman Lucchese spoke for IEA Hydrogen at an IEA Electrofuels Workshop in Brussels, Belgium. IEA Hydrogen also served as a co-organizer of this full day, 12-presentation event.
- Operating Agent Michael Hirscher and Task 32 – [Hydrogen-Based Energy Storage produced an end-of-task workshop in November 2018](#), alongside the 16th International Symposium on Metal-Hydrogen Systems in Guangzhou, China. Seven presentations were included.
- IEA Hydrogen's UNIDO representative Dr. Federico Villatico presented at the 2018 UNFCCC COP in Katowice, Poland.
- Task 38 Power-to-Hydrogen and Hydrogen-to-X held a workshop in November on Demonstration projects in Aix-en-Provence.

[View the full list of IEA Hydrogen 2018 presentations.](#)