



Overview of Leader Session

Overview of Leaders Recommended Actions
Adopted in the Leaders Session of
the 4th RD20 Conference on Oct 6, 2022



Overview of RD20-IV Leaders Session

..significantly increase international collaboration to accelerate Research, Development and Demonstration to enable the clean energy transformation that is required to mitigate climate change.

Overall Goals of the Leaders Session

- **Actionize the RD20 Leaders Statement**
- **Finalize and adopt a set of recommendations for RD20 leaders**
 - Specific actions for collaboration
 - Task International Advisory Board to create and lead the RD20 working group/action committee
 - Identify future RD20 meetings/venues
- **Gather input from RD20 leaders on additional actions/benefits for moving RD20 forward**



Recommendations adopted by RD20 Leaders—2022

GENERAL

- ***RD20 institutions are committed to the Leader Statement, and to enhancing international collaborations***
- ***RD20 can play important and distinct roles as a collection of research institutions***
- ***RD20 institutions are committed to coordinating with other international initiatives, e.g. Mission Innovation, Clean Energy Ministerial (CEM), IEA (International Energy Agency), and others***

SPECIFIC ACTIONS

- ***Japan/AIST will remain RD20 Secretariat—all RD20 members are very grateful.***
- ***The RD20 International Advisory Board shall be tasked with convening, leading and coordinating an RD20 action committee (working group) to develop an execution plan to facilitate and monitor collaborations. They shall coordinate with the RD20 Secretariat***
- ***The venue of future RD20 annual meetings shall be rotated—odd years (2023, 25, ...) in Japan , even years (2024, 26, ...) to be hosted by another RD20 institution in their country***
- ***The five collaboration areas serve as an excellent starting point for increased collaborations, beginning with existing resources at RD20 institutions***
 - ***Summer Schools***
 - ***Communication/Knowledge sharing***
 - ***Workshops***
 - ***Taskforce***
 - ***Researcher exchange***



Task RD20 International Advisory Board to Create RD20 Action Committee/Working Group

Task RD20 International Advisory Board to convene, lead and coordinate an RD20 action committee (working group) to develop an execution plan **to facilitate and monitor collaborations to accelerate the R&D needed for clean energy transformation**

- The Action Committee will be comprised of members from the Advisory Board and a few additional representatives from RD20 institutions not on the advisory board (TBC).
- Each RD20 leader would appoint one representative to the Action Committee.

RD20 International Advisory Board (lead for Working Group/Action Committee)

Michio Kondo (AIST, Japan)

Bill Tumas (NREL, USA)

Christopher Hebling (Fh- ISE, Germany)

Florence Lefebvre-Joud (CEA-Liten, France)

Abdelilah Slaoui (CNRS, France)

Christian Thiel (JRC, EU)

David Harris (CSIRO, Australia)

Expand advisory board by a few members (TBC)

Adv board will work with Secretariat

Summer Schools

Communication/Knowledge sharing

Workshops

Taskforce

Researcher exchange

Roles/Responsibilities for the Action Committee

- Develop, assess, and prioritize recommendations and actions
- Meet and communicate regularly (e.g. bi-monthly)
- Recommend effective tools for regular communication
- Identify and assess distinguishing features of RD20 collaboration,
- Identify knowledge sharing infrastructure/tools
- Provide recommendations and progress to RD20 Secretariat



Proposed Schedule/Venues for Future RD20 Meetings

Proposal: rotate venue for RD20 annual meeting with other countries, with Japan hosting every other year

- Odd years (2023, 2025, ...)
- Even years (2024, 2026 ...) other RD20 institutions

- Process for volunteering and selecting future venues to be developed
 - Secretariat will draft a process for selection ; Secretariat will coordinate with the RD20 members by Jan 2023.
 - Future decisions will be made at the RD20 annual leaders meeting 2 years in advance.



High Level Recommendations/Actions for Collaboration

- **Summer school:** Start with RD summer school in Grenoble, France, summer 2023
- **Communication/Knowledge sharing:** Task Advisory Board/Action Committee to propose communication tools/mechanisms and infrastructure needs for collecting/sharing databases.
- **Workshops:** Gigaton Hydrogen Workshop; co-led by NREL, AIST, Fh-ISE. RD20 institutions can participate in the next Terawatt Workshop. Will also work to develop workshops for carbon management focused on CCU (Carbon dioxide Capture and Utilization) value proposition and integration themes.
- **Taskforces:** Expand PV(Photovoltaic power generation) taskforce. Create 2 new taskforces: Hydrogen LCA(Life Cycle Assessment), and environmental assessment of large-scale Photovoltaic deployment.
- **Researcher exchange:** Significant interest in starting with some short-term visitor programs among RD20 institutions. Will collect and communicate information on current exchange programs at RD20 institutions and in RD20 countries. Capacity-building in emerging technology areas through education, training, and exchanges of knowledge/expertise by researchers.

- Summer School

- Outcome of Technical Session and Workshop for International Collaboration (Workshop)
 - Taskforce on Hydrogen Life Cycle Assessment and Techno- Economic Analysis
 - Gigaton Hydrogen Workshop
 - New Taskforces on PV

Objective: Disseminate a common culture & understanding of carbon neutrality to young researchers within **G20 countries (but not only)**

- ➔ **Outcome : recommendation by the students to the RD20 leaders meeting on the decarbonation of energy systems** (presented by an invited student) and possibly **presented also to G20; - creation of an “International Alumni Network”**
- **When: 1 week June or July 2023**
- **Where: France / Grenoble**
- **Attendance: ~up to 60 students** from G20 countries selected by the RD20 committee (region, expertise, gender → up to 5 students per country)
- **Next step: Application platform to open in January 2023 → relay the summer school in each country by RD20 members**
- ➔ **Summer School 2024: proposal from Indonesia**



Outcome of Technical Session & Workshop

Hydrogen Life Cycle Assessment & & Techno-Economic Analysis 1/2

Conclusions of the discussions:

Common expression of current needs :

- For **common metrics and harmonized methodologies** to evaluate **Carbon Content of H₂ or H₂ based molecules**, and also for evaluating risks/benefits other than economics,
- For sharing **assumptions** and **boundary conditions** that determine the analysis with **performance requirements**
- For **sharing data** to increase LCA inventory

Additional consensual remarks:

- Incorporate **sustainability** and **social acceptance**,
- Incorporate **safety** aspects, **recycling** possibilities
- Consider local specificities and **environmental justice**
- Coordination with **IPHE** (International Partnership for Hydrogen and Fuel Cells in the Economy) running **taskforce** (focused on C Content of H₂ produced/transported) as well as other initiatives, and possibly expand their approaches to H₂ based molecules & e-fuels
- Analyze **any scenario or solution** that could help, not only “ideal” cases

Conclusions of the discussions and ideas for further cooperation :

→ Consensus to form a **Taskforce on broad area of LCSA (Life Cycle Sustainability Assessment)**

- **propose priorities at an international level for R&D&I, demonstration or experimentation at large scale**
- **provide sound advice, with a common voice, to G20 countries**

Participants:

LEAD: **Dr. Amgad Elgowainy** (tbc)

Argonne National Lab, USA

CO-LEAD: **Dr. Nawshad Haque**

CSIRO, Australia

Dr. Myriam Merad - CNRS, France

Dr. Yuki Kudoh - AIST, Japan

Mr. Thomas Roos - CSIR, South Africa

Dr. Souvik Bhattacharjya - TERI, India

Dr. Eniya Listiani Dewi – BRIN, Indonesia

Dr. Monika Bosilj – Fraunhofer ISE – Germany

+ Canada, Argentina, EU



LEAD



CO-LEAD

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Conclusions of the discussions and ideas for further cooperation :

- Consensus to form **Taskforce on Gigaton Hydrogen Workshop** format
- **Focus on questions on how to scale up electrolyzer capacities to GW/TW.**
- **What is needed in terms of new catalysts, new or adopted production technologies, safety research, recycling technologies, political framing and financial incentives ?**
- **Outcome: high impact scientific publications**

Participants: **Prof. Dr. Christopher Hebling**, Fraunhofer ISE, Germany

Dr. Yuki Kudoh, AIST, Japan

Dr. Bryan Pivovar, NREL, USA

Expression of Interest: CSIRO, Australia; CEA and CNRS, France; JRC, Europe;
BRIN, Indonesia



Founding Members

SCOPE:

1. Achieve advanced PV performance characterization techniques with high precision and conformity for high-efficiency novel PV devices (cells and modules)
2. Improve PV performance characterization techniques for all devices by capacity building for the world PV community.

New proposed sub-topic: Environmental Assessment for large Scale PV

Participating Members



LEAD



CO-LEAD



Founding Members

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