



Preparatory Meetings for RD20 Leaders Session

Chair: Martin Keller, National Renewable Energy Laboratory—Oct 8, 2021

Institutions from 18 countries: Valuable input for the Leaders Statement provided by participants

Sept 8 22:00-23:30 UTC

Dr. Marita NIEMELAE, CSIRO	AU	
Prof. Ernesto Pereira, UFSCar	BR	
Dr. Michel DUMOULIN, NRC	CA	
Prof. Dr. Christopher HEBLING, Fh-ISE	DE	
Dr. SLAOUI Abdelilah, CNRS	FR	
Dr. MORI Toshiyuki, NIMS	JP	
Dr. OBARA Haruhiko, AIST	JP	Co-chair
Dr. Chang-Keun Yi, KIER	KR	
Dr. José MUSTRE, CINVESTAV	MX	
Dr. Nikolay D. ROGALEV, MPEI	RU	
Dr. Cem ŞAHİN, TUBITAK	TR	
Dr. Bill Tumas, NREL	US	Chair

Ms. Meghan Hughes, NREL	US	Minutes Taker
Mr. Dreves Harrison, NREL	US	Minutes Taker

Sept 14, 12:30-15:00 UTC

Mrs. Liliana B Molina TIRADO, INTI	AR	
Prof. CAI Rui, CAS	CN	
Dr. Sophia HELMRICH, Fh-G	DE	
Dr. Christian Thiel, JRC	EU	
Dr. Bruno PAING, CEA	FR	
Dr. Hammam RIZA, BPPT	ID	
Mr. Girish Sethi, TERI	IN	
Dr. Giorgio GRADITI, ENEA	IT	
Prof. Dr. HARAYAMA Yuko, RIKEN	JP	
Dr. OBARA Haruhiko	JP	Co-chair
Prof. Robert GROSS, UKERC	UK	
Dr. Bill Tumas, NREL	US	Chair
Dr. Thulani DLAMINI, CSIR	ZA	

Note: a separate meeting with KACARE, KSA

Need for International Collaboration

Strong concurrence on the need for enhancing international collaborations and the overall intent of the Leaders Statement

- **Leaders Statement** can be:
 - a call to action to accelerate international collaboration and to create a sense of urgency on international collaboration to accelerate the R&D needed for the clean energy transformation required to mitigate climate change
 - a call for advocacy for government support and funding for increasing international collaborations
- Need to **accelerate both the deployment of current technologies and the development of technologies**, i.e. to innovate and deploy in parallel (recommend the current Leaders' Statement mentions the opportunity for both R&D and deployment in international collaboration)
 - Important to include for fundamental research to address critical challenges and important problems along with the need to develop new technologies.
- **Increased collaboration and funding are critical:**
 - Strong need for a framework and mechanisms for increased and sustained funding international collaborations—especially joint funding (and synchronicity of funding) for collaboration.
 - Collaborations should include academia, research institutes and industry. Strong need for industrial participation and spanning R&D from basic to applied research as well as translating research to the marketplace.
 - RD20 should make a strong case for why we need continued R&D on technologies, not just on deployment of technologies. And make a compelling case for increased funding for international collaborations.
 - Need to make the strong case for funding, e.g. good public outcomes; align to climate change, climate crisis is urgent, so span technology readiness levels that span development and deployment decarbonization challenges and impacts; highlight opportunities to accelerate technology development, deployment and acceptance
- Recommend introducing the concept of **cross-sector coupling** (e.g. connecting the electric grid, transportation, industry, buildings, agriculture sectors)

Types of interactions that would be most beneficial

- **RD20 could “upscale” existing bilateral agreements into a more multi-lateral approach. Many current collaborations are bilateral. RD20 could play a strong role in multilateral R&D collaborations**
 - What lessons do we have from the past (e.g. IEA, IPHE, ...)
 - Pick 2 or 3 topics as test cases to start
 - Multilateral agreements could sidestep some of the challenges of coordinating large number of bilateral agreements but can be more complex and slower. Requires strong commitment (government and institutions) to make multi-lateral agreements work.
- **Significant need for standardization and common metrics**
 - Set common language for talking about key concepts (e.g. carbon footprint, climate change impacts, develop lifecycle, circularity, sustainability metrics)
 - Also critical for analysis, modeling, simulation (e.g. scenarios)
 - Workshop on common metrics
- **How can we incorporate the social, equity, and economic aspects into the program to span technical, social, economic, and political aspects?**
- **Should we create an RD20 observatory platform to exchange ideas and create a repository of reports and information warehouse ?**

Ideas to foster international collaboration; Areas that would most benefit from international collaboration; Next steps

- **Energy “summer” schools and related forums** offer a strong return for investment in workforce development.
 - This was mentioned strongly in both sessions.
 - Build and amplify on existing schools and focus on energy (e.g. materials science summer schools already exist).
- **Joint workshops** on key topics
 - Examples include Terawatt Photovoltaic or Gigaton Hydrogen workshops. Should lead to impactful outcomes, such as position paper, publications on status/needs, roadmaps, common views/common statement
 - Build on roadmapping activities, e.g. Mission Innovation Challenges
- **Personnel exchange** programs (early career and more experienced researchers) and international postdoc programs.
 - Many thought this was important
 - Consider international fellowship and internship programs
 - Could this be formed into a multilateral exchange program between many different institutes?
- To promote more international collaboration, we should **catalog the programs that already exist**. It is good to create more opportunities, but we should further advertise those that already exist.
 - Could RD20 act as a clearing house—cataloging existing international collaborations, bi-lateral agreements, funding opportunities for collaborations, lessons learned.
 - How can existing research infrastructure be used to foster further collaboration?
- **Joint R&D projects** – Institutions should look for projects that can yield longer duration collaborations.
 - Funding mechanisms (and timing) are critical.
 - Support work with industry and applications work.
- **Taskforce** concept advanced at RD20-III could be expanded for broader participation, concept down-selection, coordination in focused areas



Recommendation: Task International Advisory Board to Explore Options to Enhance RD20 Outcomes

Task RD20 International Advisory Board to convene, lead and coordinate an expanded “advisory group” to explore concepts and develop recommendations ***to enhance international collaborations to accelerate R&D for a clean energy transformation***

RD20 International Advisory Board

Michio Kondo (AIST, Japan)

Bill Tumas (NREL, USA)

Christopher Hebling (F- ISE, Germany)

Florence Lefebvre-Joud (CEA-Liten, France)

Christian Thiel (JRC, EU)

David Harris (CSIRO, Australia)

Abdelilah Slaoui (CNRS, France)

Expand participation to include other RD20 Institutions