Summer SCHOOL 2023
FROM 2 TO 7 JULY
Prapoutel, French Alps

RD20 Summer School Report, Prapoutel, France, July 2-7, 2023

In early July, 65 researchers from 16 countries on five continents gathered in a quiet place close to Grenoble in the northern French Alps. The group – a mix of early career researchers and senior scientists – spent one week participating in extensive lectures and discussions about the latest developments and trends in renewable energy and sustainability research.

This first summer school was organized under the patronage of the RD20 initiative, which brings together the leading research and development (R&D) institutes of the G20 countries in the field of decarbonization. It gave Ph.D. students, postdoctoral fellows, and early career researchers the opportunity to learn more about low-carbon energy technologies and systems from world experts, to establish new contacts with research fellows in other countries, and to explore opportunities for collaboration. Hosted by leading French research organisations, the French Alternative Energies and Atomic Energy Commission (CEA) and the French National Centre for Scientific Research (CNRS), participants were also given the chance to get firsthand experience during lab tours at their facilities.

The event covered a broad range of topics, including the world's energy status, renewable energy production, energy carrier storage and conversion, hydrogen and fuel cells, CO_2 recycling, system life cycle assessment, critical materials awareness, and societal and economic impacts. It provided participants from different societal and economic backgrounds a unique forum to meet with, exchange, and learn from their peers and established experts, enabling them to get immersed in new ideas that benefit their own work and ultimately the future of humankind.

As one clearly visible accomplishment of the RD20 initiative, participants and experts spoke highly of the event. They underscored the important opportunity it provided for sharing their extensive research efforts as well as understanding and communicating how their work contributes to the global energy transition toward a carbon neutral and sustainable economy. Both organisers and participants articulated their expectation that this new platform will be held on an annual basis to serve as a source of inspiration; a place for harmonized learning, sharing of perspectives, and networking for the next generation of researchers; and a venue to promote the RD20 objectives.

During lectures, participants had the opportunity to learn more about low-carbon energy technologies and systems from world experts of leading research and development institutes

Message from the organiser

Florence Lefebvre-Joud
Research Director at CEA – France; Head of National and International Academic Partnerships for LITEN

RD20 is the perfect forum to gather scientists from around the world who have a common ambition to protect our planet but also face different geographical, political, and economic conditions. RD20 gives these scientists the opportunity to join forces to build technological solutions all together, with the clear understanding that climate mitigation will not come from one solution or one country alone.

Together with my colleague from CNRS, we have selected a location close to Grenoble for this event, which offers the possibility of visiting leading research centres dedicated to renewable energy. As organiser, I wanted to offer an environment where we could meet, stay for a while, and encourage the young researchers to get involved in open exchanges and discussions with their peers and senior experts. The future of the planet and climate change will be tackled by their generation, so it is important for us to help develop a global network of young researchers from different disciplines. As an outcome, we asked them to discuss internally and agree on a recommendation or message they all consider important for the G20 stakeholders. Finally, if we want to build something lasting, the summer school initiative should be organised annually.

Message from the lecturers

Eniya Listiani Dewi
Research Professor at National Research and Innovation Agency (BRIN) – Indonesia; fuel cell and hydrogen technology, national research and innovation

Striving for a carbon neutral society requires help from many stakeholders, including the government, businesses, researchers, and society. From the RD20 meetings, I gained a good overview of the research institutes, collaborative efforts, and research funding of other countries that could be gathered to achieve a carbon neutral economy. I would like to point to our understanding that technological solutions must always meet local requirements, which are different in every place. For the collaboration to succeed, we need to overcome the gap that exists between developed and developing countries and openly share our difficulties, which should enable developing countries to avoid them and speed up their efforts to implement renewable energies.

Looking at the enthusiasm of the young researchers and their high levels of education leads me to the conviction that this event could influence other researchers to spread the word about the RD20 initiative. In this sense, the summer school is a first visible result of our discussions at the RD20 leaders' meetings.

Anthony Burrell
Energy Storage Lead at the National Renewable Energy Laboratory (NREL) – USA; electrochemical storage technologies

It is time to make the energy transition happen as fast as we can, and the RD20 summer school is critical for our success. The transition won't be achieved with a single piece of technology, without thinking about how the whole world of interconnected devices are connecting in the overall energy landscape. The summer school let us get together and talk about how we are going to achieve this, as well as enabling early career researchers to understand what those challenges are and begin to think in a broader sense about where their research fits into the total ecosystem and where the whole system is going, which is important for our common understanding. While we all have our national interests and focus, the total RD20 initiative is critical to getting together as a global community of scientists and starting to think about how we integrate our directions in multiple systems across the globe, in developed countries as well as developing countries. Cooperating and learning from each other is the only way we can accelerate this to the point where we can meet the challenges and demands ahead.

Voices of the young researchers

Ali Asgarian
Research Officer at National Research Council (NRC) – Canada; advanced material research facility

One of the problems we have right now in Canada are the many wildfires that plague our country. Climate change, although not the only factor, is one of the important factors contributing to their intensity. The smoke and dust affect everyone, in neighbouring countries like the United States and as far as Western Europe, and we as human beings must work together and support each other in solving this problem.

The RD20 summer school is a very important initiative to bring together all the researchers from different countries who are working on climate change so they can communicate with each other, share their research ideas, make connections, and start collaborating.

The policymakers who initiated this conference should keep the momentum going, provide more help to remove existing obstacles, and make it even more integrated to support us tackling the issue of climate change in a united manner.

Gisu Doo
Energy Researcher at Korea Institute of Energy Research (KIER) – South Korea; production of green hydrogen by water electrolysis

After seeing people suffering from the climate crisis, for example, through floods and desertification, I thought, “We have to do some sustainable research and help others make the world a happier place.”

As my main motivation, I am always eager to see what other researchers are doing abroad. The RD20 summer school is helpful for me to meet researchers from abroad and learn things from them – for example, trends their research group is focusing on – which enables me to apply these latest trends in my country.

My hope is to become an RD20 energy ambassador in South Korea and to share my experiences in South Korea with other researchers in the hydrogen energy community, where technologies still can be improved a lot (not only in South Korea, but also in other countries). The RD20 summer school and the RD20 initiatives let us connect with other researchers, which can give us additional motivation, and provide an opportunity for networking and knowledge transfer, which will contribute to the development of carbon neutral societies.

Boitumelo Tlokolo
Energy Industry Team at the Council for Scientific and Industrial Research (CSIR) – South Africa; socioeconomic impacts of the energy transition

The energy transition may also lead to negative socio-economic implications, so we need to make sure that these are minimised. The RD20 summer school is a place to learn what other young researchers are doing in their various institutions, how we can better collaborate, where the gaps are in our research, what lessons we have learned, and how we can collaborate more to further enhance each person's work.

Each country around the world has its own challenges and opportunities. By conducting impactful research that can be adopted by the large number of economies still developing, we can contribute to the overall goals of the RD20 initiative.

The move toward a carbon neutral economy requires a global effort. By coming together, through good knowledge exchange and collaboration, sharing of ideas, and offering of lessons learned, we can come up with innovative solutions and ensure that the energy transition is inclusive and that no one is left behind.

Nithin Manjooran Cherian
Renewable energy engineering and management at the Energy and Resources Institute (TERI) – India; wind resource assessment, carbon neutrality, and sustainable aviation fuels

One of my main motivations for working in this sector is to collaborate with industrial partners to mitigate climate change effects. I also hope to help reduce the dependence on fossil fuels and to contribute to environmental well-being.

I was excited to attend the RD20 summer school to collaborate and discuss with scholars, subject matter experts, and colleagues how to decarbonise energy systems (on a range of different issues, from technological and socioeconomic perspectives).

One of my contributions toward a carbon neutral economy is my work in the sustainable aviation sector to decarbonise long-distance travel and make it more sustainable and economically viable. By engaging in dialogue with various scientific communities, as well as multi-disciplinary research activities that speed up the energy transition that nations need to create a more sustainable lifestyle and world for future generations, we can support the overall objectives of the RD20 initiative.

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