





# Terms of Reference Summer School 2024



Diversity of Knowledge on Decarbonization in Just Energy Transition Mechanism

#### July 7 - 13, 2024

National Research and Innovation Agency (BRIN) Ibis Style Serpong BSD City & BRIN Science Technopark Serpong, Tangerang Selatan Banten, INDONESIA



#### **Contact**

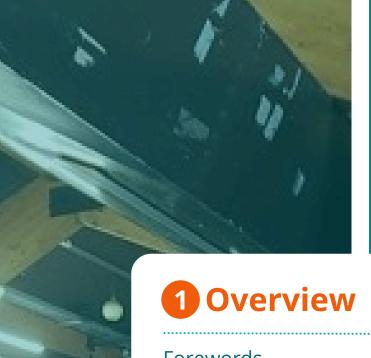
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Youtube RD20 SummerSchool Indonesia



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## 1 Overview

## **FOREWORD**

This year, 2024, National Research and Innovation Agency (BRIN) Indonesia as a member of RD20 is honored to organize the RD20 Summer School titled "Diversity of Knowledge on Decarbonization in Just Energy Transition Mechanism", which holds immense significance in the contemporary global landscape. In an era where sustainability and energy transition are critical imperatives, this initiative serves as a pivotal platform. By addressing multifaceted themes such as Sustainable Energy Transition, Life Cycle Assessments, Circular Economy, and Waste Management, it illuminates pathways toward a more ecologically balanced future. Delving into emerging paradigms like Carbon Feedstock, Energy Storage, and Advanced Solar Developments, this program embodies a forward-looking approach, fostering a deeper understanding of cutting-edge technologies and strategies.

Moreover, by examining topics like Smart Grids, Artificial Intelligence for Energy Transition, and Biomass Resources, the program acknowledges the centrality of innovation in driving sustainable change. It doesn't just stop at technological developments; it extends to societal and economic facets through discussions on Green Building, Innovative Finance, and Carbon Capture and Storage. Exploring aspects of Hydrogen Production and Utilization, as well as Negative Emissions, demonstrates a holistic perspective towards diverse energy vectors and their role in mitigating climate challenges. This program's significance lies in its comprehensive scope, bridging the gap between theoretical knowledge and practical applications. It empowers participants to not only comprehend the complexities of decarbonization but also equips them with the tools necessary to actively contribute to a more equitable and sustainable energy landscape.



**RD 20** 

Launched in 2019, the RD20 is a "initiative" (framework) for international research and development aiming to strengthen international collaboration by leading research institutes in **G20 countries and regions** that develop the world's most advanced technologies for achieving carbon neutrality. RD20 provides opportunities for participants to exchange R&D activities, experiences, and best practices related to clean energy technologies across countries and regions, as well as to explore the potential for international joint research. It also serves to deepen and develop new partnerships among relevant industry, academia, and government stakeholders.

AIST is the Organizer of RD20, Leading the Conference as the Secretariat

AIST

#### **PARTICIPANTS CRITERIA, FEES AND COSTS**

- Young researchers are defined as:
  - a. person getting doctor degree (Dr./Ph.D.) within the past 3 years

USA INREL

b. Second year or later PhD students

UK Energy Research Centre (UKERC) United Kingdom of Great Britain and

**RD2** 

d Kingdom eat Britain UK=RC

c. Master degree holder who graduated within 6 years and have a work experience in energy or decarbonization field.

Participation fee for young researcher is USD 500.

- Senior scientists are individuals who have completed their PhD more than 3 years ago. Participation fee for senior scientist is USD 1000.
- A contribution of USD 500 is requested from speakers.
- The participation fee includes accommodation and meals throughout the entire week of the summer school, from July 7th to 13th. However, travel expenses to Indonesia and shuttle from and to the airport are not covered. The shuttle service from and to the airport will be managed by the committee with an additional fee of USD 60 per person for a round trip.
- Participants are responsible for arranging and covering their own flight tickets to Indonesia.
- Payment is to be made through the website, and the payment method will be communicated via email.
- All participants are expected to join the whole event.





## **OBJECTIVES**



## Deepening knowledge & skill

Provide an opportunity for young researchers from G20 countries to deepen their knowledge and skills in the field of decarbonization.



## Showing Indonesian nature & culture

Introduce Indonesia as a country rich in natural resources with many islands with different behaviour of energy and research outcomes related with.



## Stimulating collaboration

Encourage knowledge exchange and collaboration between G20 and Indonesian experts.





Research and Development 20 for Clean Energy Technologies

The 5th RD20 Conference 2023

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## EVENT DESCRIPTION



Activities | Rundown | Registrations

## **ACTIVITIES**

#### **Lectures and Seminars**

Experts from G20 member countries will deliver lectures and seminars on relevant decarbonization topics.





#### **Technical Excursions**

Participants will be taken to locations related to new and renewable energy development in Indonesia, such as research centers, as well as pilot plants, or related facilities

#### **Panel Discussions**

Panel discussions will be conducted to facilitate the exchange of ideas and experiences among participants and expert speakers.





### **Posters & collaborative projects**

- Each participant is required to share about their work or research using a printed poster. Committee will print your poster and format of poster will be inform via e-mail. We expect to receive your poster file by June 24th, 2024.
- Participants will be divided into small groups to develop collaborative projects related to the discussion topic. The project outcomes will be presented at the end of the event.

## DISCUSSION TOPIC AND EXCURSION PLAN

## DISCUSSION TOPIC: THE NEW COUNTRY CAPITAL DEVELOPMENT



#### **Technical excursion tour (tentative)**

The largest solar power plant in Southeast Asia: Cirata, Purwakarta, West Java



Hydrogen Refueling Station in Jakarta







### **OTHER TOURS**

#### **BJ Habibie Science & Tech Park**

- Efficiency Energy
- Smart Grid
- Energy conversion
- Electric Vehicle
- Hydrogen Energy
- Nanomaterials and Battery
- Nuclear Facility
- Bioenergy
- Photovoltaic lab
- EV Charging Station
- Waste to Energy Lab









#### **Biodiversity Visit at Bogor Botanical Garden**

A place of botanical interest but also a cultural and historical site. It offers a peaceful environment for leisurely walks and exploration, making it a popular destination for both locals and tourists.





## Lunch at Bogor Botanical Garden and Gala Dinner at a restaurant with rich Indonesian culture ambience\*

An opportunity to gather participants at distinguished restaurants, providing unforgettable culinary delights, cultural immersion, and social engagement.





\*tentative

## **RUNDOWN**

July 7 - 13, 2024

Start from 8.30 AM to 9 PM (GMT+7)

BRIN Indonesia

Time	Sunday 7/7	Sunday 7/8	Sunday 7/9	Sunday 7/10	Sunday 7/11	Sunday 7/12	Sunday 7/13			
1,1116	Junuay III	-		Sunday 7/10	Sunday 7/11	Sunday 7/12	Option 1*	Option 2*		
08.30 - 08.40	(3) RD20 Introduction (AIST  (4) Introduction (AIST  (4) Introduction (AIST  (4) Introduction (AIST  (4) Introduction (AIST  (Transition  (Ministry of Energy and Mineral Resources)  (5) Insight of Indonesia's New Capital, Nusantar (Ministry of National Development Planning)  (6) Life Cycle Assessments, Waste Management and	Greeting by Summer School								
08.40 - 08.50		Speech by BRIN	Moving from hotel to BJ Habibie Science Park	Moving from hotel to BJ Habibie Science Park	(18) Negative Emission, Biomass Resources and	Short Walking in				
08.50 - 09.00			(3) RD20 Introduction (AIST)			Utilizations (BRIN)	Botanical Garden			
09.00 - 09.30			Company Story Box Story							
09.30 - 10.00		Resources) Lab Visit to BJ Lab Visit to B	Lab Visit to BJ Habibie Science	(19) Hydrogen Production, Transport,	(22) CEO Talk: From Fossil to		Hydrogen Refuelling Station- Jakarta City			
10.00 - 10.30		Indonesia's New Capital, Nusantara	Park - Serpong A	Park - Serpong B	Utilization (CEA)	Green Energy (Pertamina)				
10.30 -11.00				National Development			(20) Innovative Finance for Energy	Presentation of RD20	Group City Tour to	
11.00 - 11.30		Assessments, (9) Carbon (14) Bio Waste Feedstock, Carbon Green B	(14) Bio Based Materials and Green Building	Transition (University of Sheffield)	RD20 Recommendation	Cirata Lake Floating PV and Hydrogen Refuelling station-				
11.30 - 12.00		Registration	Circular Economy	Sink, Carbon Market and Price (ERIA)	(National Institutes of Technology, India)	Poster Pitch ( 3 minutes for 1 person)	Free	Jakarta City (Tentative - depends on local sponsorships, will		
12.00 - 13.30				Break & Lunch			be announce later)			
13.30 - 14.00	Optin	(7) Energy System Optimisation	(10) Energy Storage and Battery	(15) Risk and safety assessment of H2, NH3	(21) Low-cost Active Materials for Green Energy Conversion and	Botanical Garden				
14.00 - 14.30		(Imperial College London)	(NREL)	(AIST)	Storage: i) value- added from abundant waste and ii) low-Pt	free activity				
14.30 -15.00		(8) Carbon Capture Storage &	(11) Recent Solar Development (Floating PV,	Advanced Power	Discussion & Team Work (Making	Back to Sahid Serpong Hotel				
15.00 -15.30		Utilization (NREL)	Agrophotovoltaic) (CSIRO)	Generation (AIST)	Recommendation of RD20)					
15.30 - 16.00			Coffee Break & Poster Session	Coffee Break & Poster Session	Coffee Break & Poster Session	Pena				
16.00- 17.00		Poster Pitch (about 1.5-2.0 minutes for 1 person)	(12) BRIN Research Collaboration Schemes	(17) Inspiring Talk: Lesson Learn of Energy in Remote Area	Discussion & Team Work (Making	Free				
17.00 -18.00			(13) NEDO'S International Collaboration Activities	Free	Recommendation for RD20)					
18.00 - 19.30	Dinner (time depending on	GALA Dinner*	Dinner	Dinner	Dinner	Dinner and Closing				
19.30 - 21.00	participants arrival		Discussion 8	k Team Work		Course				

## FACILITATORS & LECTURES

#### **FASILITATORS**

- A facilitation team consisting of energy and decarbonization experts from G20 member countries will accompany the participants throughout the event.
- Facilitators will guide discussions, provide feedback, and direct group activities.

#### **TOPIC & LECTURES**

- Introduction to Sustainable Energy Transition
- Insight of New Capital
- Life Cycle Assessments and Circular Economy
- Waste Management
- Carbon Feedstock, Carbon Sink, Carbon Market and Price
- Energy Storage and Battery
- Recent Solar Development (Floating PV, Agro-Photovoltaic)
- Smart Grid and Advanced Power Generation
- Al for Energy Transition
- Negative Emission, Biomass Resources and Utilizations
- Bio Based Materials and Green Building
- Carbon Capture Storage & Utilization
- Hydrogen Production, Transport, Utilization
- Innovative Finance for Energy Transition

Each topic is expected to be discussed by a maximum of 20 participants. To collect data on interest in the discussion topic, please fill out the from in the registration section on the website.

## MEET THE SPEAKERS (1)

The speakers are variety of professionals, such as prominent leaders from the ministries or national agencies from the host country



Eniya L Dewi Directorate General of New and Renewable Energy, Ministry of Energy and Mineral Resources,



Tri Mumpuni Steering Committee of Innovation Agency (BRIN), Indonesia



Vivi Yulasw<u>ati\*</u> Directorate General in the Development Planning, Indonesia



Nicke Widyawati\* President Director of Persero, Indonesia



Secretary General of Ministry of Energy and Mineral



Vice Chairman of National Agency (BRIN), Indonesia



Head of Organization Research for Energy and Manufacture, BRIN Indonesia



Mego Pinandito Deputy Chairman for Agency, (BRIN) Indonesia

\*in the confirmation process

# MEET THE SPEAKERS (2)

The speakers are also professionals and prominent leaders from the government institutions, international or national agencies also universities from various countries.



Hiroshi Kikusato
National Institute of Advanced
Industrial Science and
Technology (AIST), Japan



Venkatachalam
Anbumozhi
Director of Research Strategy
and Innovation, ERIA



Noel Duffy
Commonwealth Scientific
and Industrial Research
Organisation (CSIRO)



Sonachalam Arumugam National Institutes of Technology (NITs), India



Bill Tumas National Renewable Energy Laboratory (NREL), USA



Colin Nolden
University of Sheffield, UK



Francisco Javier
Cinvestav: "Excelencia en
Investigación y Posgrado Mexico



Danny Pudjianto
Imperial College London, UK

## MEET THE SPEAKERS (3)

The speakers are also professionals and prominent leaders from the government institutions, international or national agencies also universities from various countries.



Noriko Yoshizawa National Institute of Advanced Industrial Science and Technology (AIST), Japan



**Anthony Burrell** National Renewable Energy



Kyotaka Tsunemi Pierre Serre-Combe National Institute of Advanced Industrial Science and Technology (AIST),



Atomic Energy and Alternative Energies Commission | CEA

Other speakers from members of RD20 such as NREL, ERIA, AIST Japan, NEDO Japan, French Alternative Energies and Atomic Energy Commission (CEA), The French National Centre for Scientific Research (CNRS), and other members of RD20 are also expected to participate.

## MEET THE HOST

The National Research and Innovation Agency, Indonesia (BRIN) is honored to host the summer school in Indonesia, with the invaluable support of member institutes in RD20.

#### **Steering Committee**



Haznan Abi<u>manyu</u> Head of Research Organization for Energy and Manufacture,



Mego Pinandito Deputy Chairman for Development Policy, BRIN



Eniya Listiyani Dewi Directorate General of New and Renewable Energy, Ministry of Energy and Mineral Resources, Indonesia



**Hens Saputra** Head of Research Center for Process and Center for Sustainable Manufacturing Industry Production System TechnologyBRIN



Nugroho A S Head of Research



**Mahfud Al Huda** Head of Research Center for Structural Strength Technology



**Aam Muharam** Head of Research Center for Transportation



Widjo Kongko Head of Research Center for Hydrodynamics Technology BRIN



Teguh Mutaqqie Head of Research **Center for Testing** Technology and Standards BRIN

#### Chairman



Cuk Supriyadi Ali Nandar Head of Research Centre for Energy Conversion and Conservation, BRIN



**Euis Diubaedah** Senior Researcher of Research Centre for **Energy Conversion and Conservation BRIN** 

#### Secretariat

Arif Darmawan Sri Rahayu Windra Priatna H Dini Dwi Ludfiani

**Partnerships** Nilam Sari O Sherly O Saraswati

#### **Finances**

Hamid Budiman Prima Zuldian

Design Ade Sana R

#### **Logistic and Operations**

Oka Arjasa Novi Syaftika Afri Dwijatmiko Gissa N Sevie Nirma A K Ludfi P Bowo

Dewi R Mandasari Aldion Renata Abdul Hadi **Utari Ayuningtyas** Yoyon Wahyono Fensa Eka Widjaja

## PREVIOUS RD20 SUMMER SCHOOL (2023)

**Prapoutel, France** 











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

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 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.

## Registrations

To complete your registration, please follow these steps:

- a. Send an email to the committee at rd20summerschool2024@gmail.com. Include your name, affiliations, nationalities, your academic degree, your graduation year or study year and other necessary information. Feel free to reach out with any inquiries as needed.
- b. The committee will review your profile and if you are eligible, we will send you an invitation letter that you may need for visa applications or other paperwork.
- c. Additionally, the committee will provide you with links of payment and the registration form. This form requires you to provide details regarding your participation, such as your flight schedule, shuttle pickup requirement, your chosen topic, and so forth. We kindly request all participants to complete the payment and fill the form by June 7, 2024. If you need to make any changes after submitting the form, you can still reach out to us via email.

Please visit our website periodically to stay informed about details and updates. We are excitedly looking forward to your participation, where together, we will cultivate cherished memories, foster meaningful connections, and pave the way for fruitful collaborations!



#### Feel free to reach out with any inquiries

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Youtube RD20 SummerSchool Indonesia

