Japan's Initiatives and NEDO's Activities toward Carbon Neutrality

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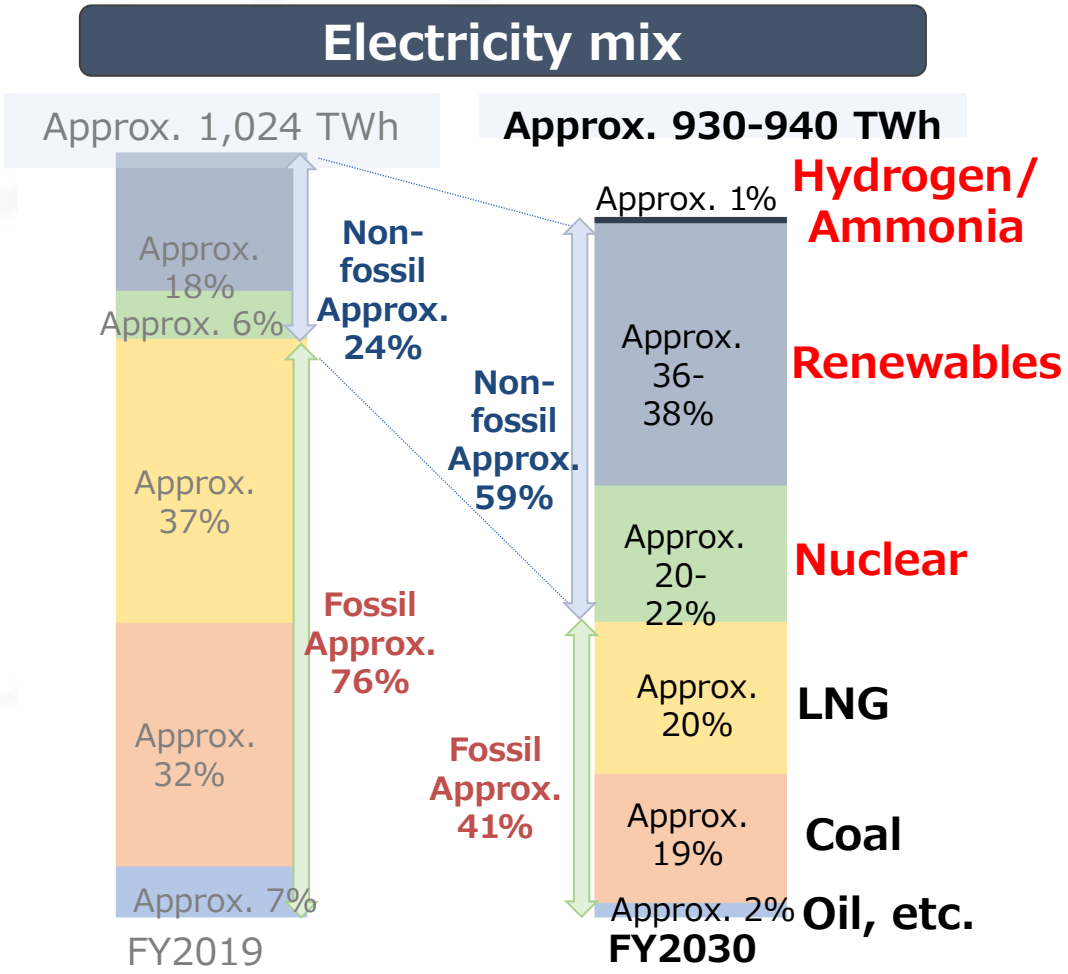
Key points of G7 Hiroshima Communiqué, May, 2023

- **Energy Security and Clean energy transitions**
  - While acknowledging **various pathways** according to each country's energy situation, **should lead to our common goal of net zero by 2050** at the latest in order to keep a limit of 1.5 ℃ within reach.
  - We **underline our commitment, in the context of a global effort, to accelerate the phase-out of unabated fossil fuels** so as to achieve net zero in energy systems by 2050 at the latest in line with the trajectories required to limit global average temperatures to 1.5 °C above preindustrial levels, and **call on others to join us in taking the same action.**
- **Energy Efficiency**
  - We highlight the role of energy efficiency as **the "first fuel" as a key pillar in the global energy transition towards net-zero GHG emissions in 2050**
- **Renewable Energy**
  - The G7 **contributes to expanding renewable energy globally and bringing down costs by strengthening capacity** including **through a collective increase in offshore wind capacity of 150GW by 2030** based on each country's existing targets **and a collective increase of solar PV to more than 1TW by 2030** estimated by the IEA and the International Renewable Energy Agency (IRENA).

Key points of G7 Hiroshima Communiqué, May, 2023

- **Low-carbon and renewable hydrogen and derivatives, ammonia**
  - the importance of developing international standards and certification including for a GHG calculation methodology for hydrogen production and **mutual recognition mechanism for carbon intensity-based tradability**.
- **Natural gas and LNG**
  - It is necessary to accelerate the phase out of our dependency on Russian energy, including through energy savings and gas demand reduction, in a manner consistent with our Paris commitments, and address the global impact of Russia's war on energy supplies, gas prices and inflation, and people's lives, recognizing the primary need to accelerate the clean energy transition. In this context, we stress **the important role that increased deliveries of LNG can play**, and acknowledge that **investment in the sector can be appropriate in response to the current crisis and to address potential gas market shortfalls provoked by the crisis**.
- **Critical Mineral**
  - We welcome the "**Five-Point Plan for Critical Mineral Security**" and instruct them to implement the plan.

6th Strategic Energy Plan -Policy responses for 2030-



- **Maximum introduction of renewables as primary power sources**.
- **Further pursuit of thorough energy efficiency**
- **Restart of nuclear power plants with safety as a top priority**.
- On the major premise of **ensuring energy security**, **thermal power** in the electricity mix **will be lowered as much as possible.**
- **Innovation** in the thermal power by means of **hydrogen /ammonia - fired power generation and CCUS/Carbon Recycling** will be pursued.

Green Growth Strategy – Enhancing Innovation Support

- The Japanese Government supports private companies' efforts to pursue **innovations and demonstrations of new carbon neutral technologies** through **2 trillion Yen Green Innovation Fund**.

14 sectors that are expected to grow toward 2050.

1 Renewables

2 Hydrogen/fuel ammonia

3 Next-gen. process heat

4 Nuclear

5 Automobile/battery

6 Semiconductor/information and communication

7 Shipping

8 Logistics, transportation, civil engineering, infrastructure

9 Food, agriculture, forestry and fisheries

10 Aircraft

11 Carbon recycling/material

12 Housing, building, electricity management

13 Resource circulation

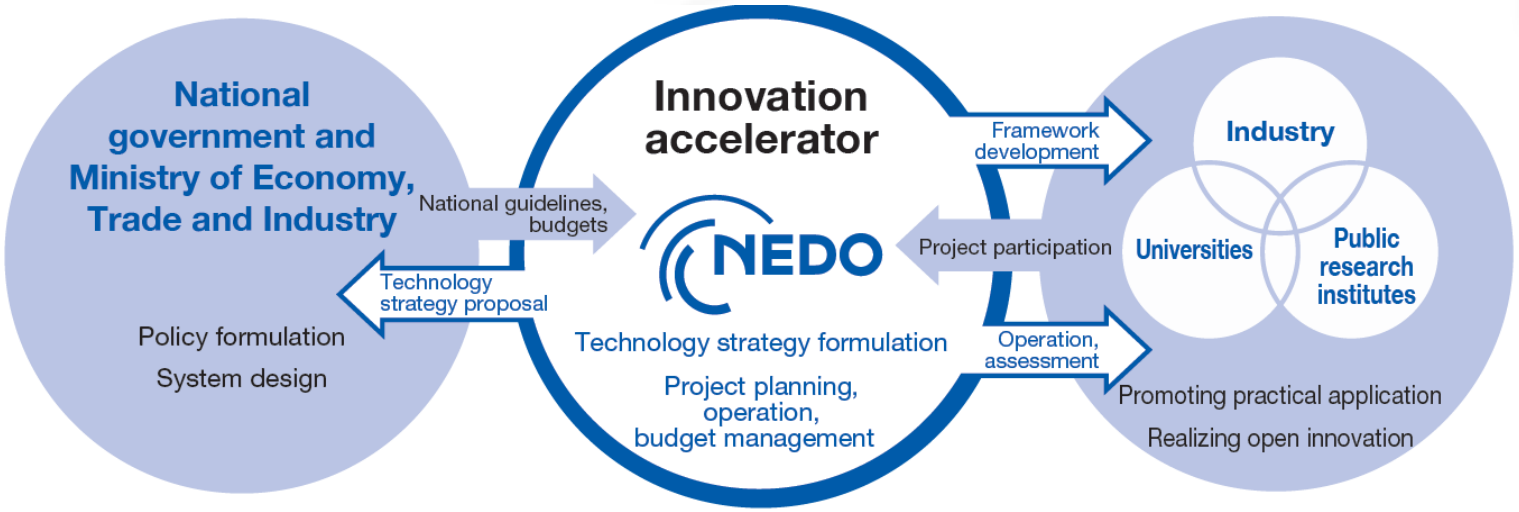
14 Life style-related

Overview of NEDO
（New Energy and Industrial Technology Development Organization, under METI）

Positioning of NEDO

- In its role as an **innovation accelerator**, NEDO formulates project plans and establishes project implementation frameworks by combining the capabilities of industry, academia, and government, including public solicitations of project participants.
- NEDO carries out research and development projects and set targets based on changes in social conditions in order to realize maximum results.

Head Office:	Kawasaki City, Japan		
Personnel:	1,256 (as of 1st April,2021)		
Budget:	Approx.$1.28 billion (2022FY)	* $=122 yen	
Fund:	Green Innovation	$16.39	billion
	Semiconductor	$5.06	billion
	Post 5G	$2.54	billion
	Economic Security	$1.02	billion
	Moonshot	$207	million



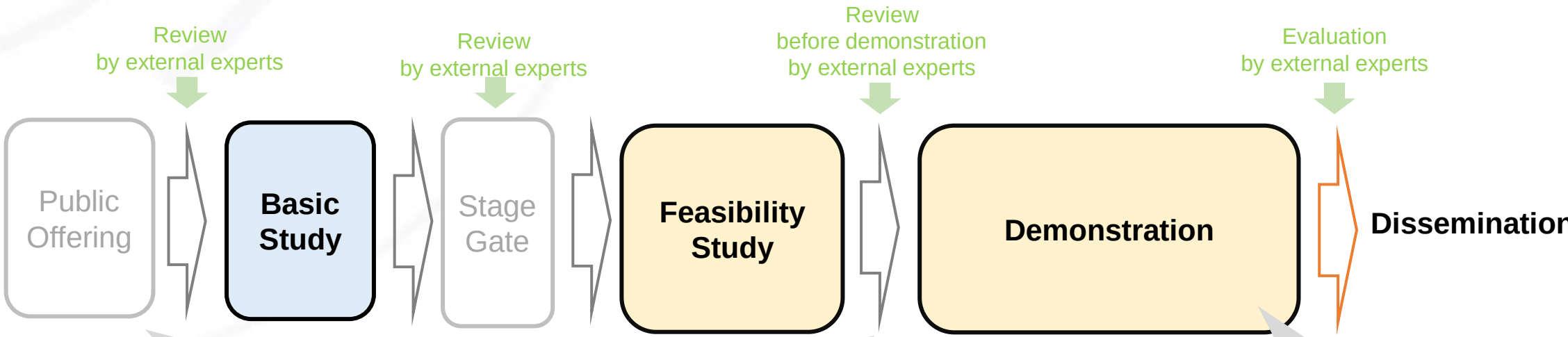
6 Overseas Branch Offices

International Energy Demonstration Project Scheme

Purpose

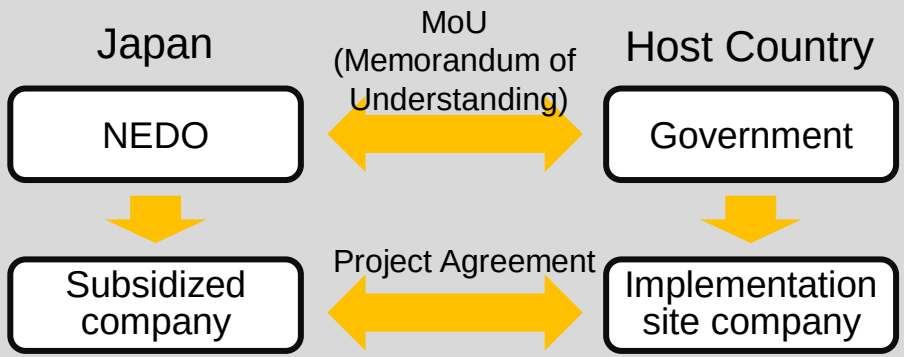
- ✓ Contribute to solving foreign energy problems through a demonstration of Japanese technology and systems for energy conservation.
- ✓ Contribute to obtaining energy security by reducing energy consumption through the dissemination of technology.

Scheme



2 public bids / year

※ Indian companies or universities may participate in the projects, together with Japanese companies which are supposed to apply for the offering.



Maximum for each project is around **4 Billion Yen.**

International Energy Demonstration Project
- Examples in the world

NEDO has been carrying out various projects overseas.

Large-Scale Hybrid Battery System (Germany)

Quick Charge System for EV Bus (Malaysia)

EV Mobile Battery Sharing (Indonesia)

Low-Carbon Production System of Cellulosic Sugar Using Bagasse (Thailand)

Optimizing Location of EV Charging Stations (California, USA)

Redox Flow Battery (California, USA)

International Energy Demonstration Project
- Examples in India

Green Hydrogen Plant

Yamanashi Hydrogen Company, Inc. (YHC) started a study to demonstrate thermal energy efficiency using green hydrogen at a Maruti Suzuki's Manesar automotive plant in July 2022.

(Source: YHC)

IHI Corporation＆Adani Power Ltd.(APL)＆Kowa Company Ltd.(Kowa)

IHI, APL, and Kowa started a study in March 2022 in order to achieve 20% liquid ammonia co-firing and higher co-firing ratio up to 100%, single-fuel firing at the Adani Power Mundra Coal Fired Power Plant.

(Source: IHI Corporation)

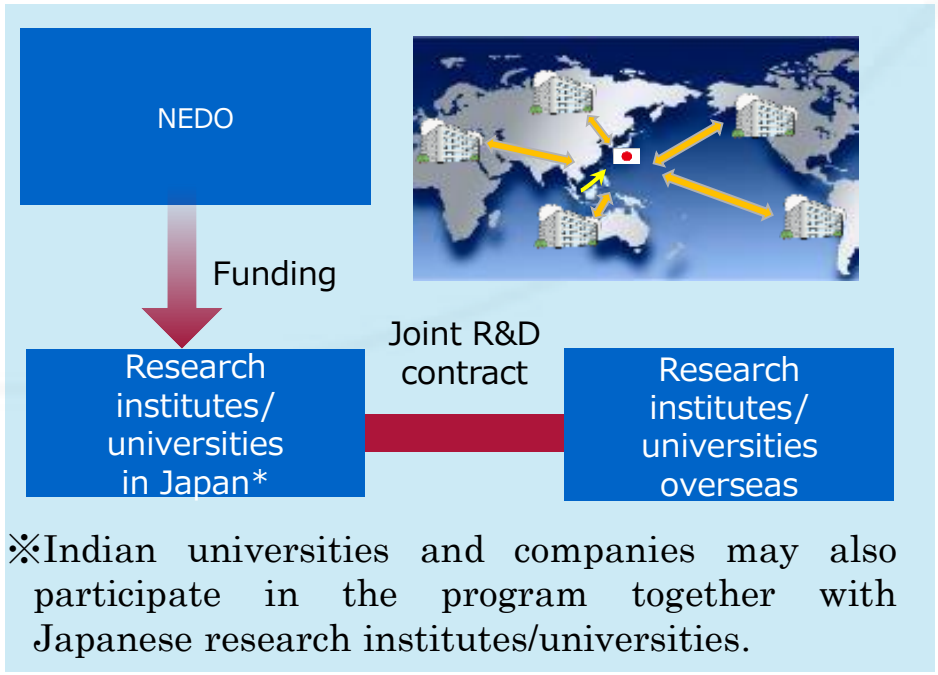
R&D Support Program for Promoting Innovative Clean Energy Tech

● Program Outline

✓The aim of this program is to develop and strengthen international joint Research and Development between Japan and other countries in order to create new and innovative clean energy technologies that will have practical use after 2030.

✓This program supports Japanese research institutes and universities conducting joint international R&D projects with institutions from G20 member and other countries.

● Program Scheme

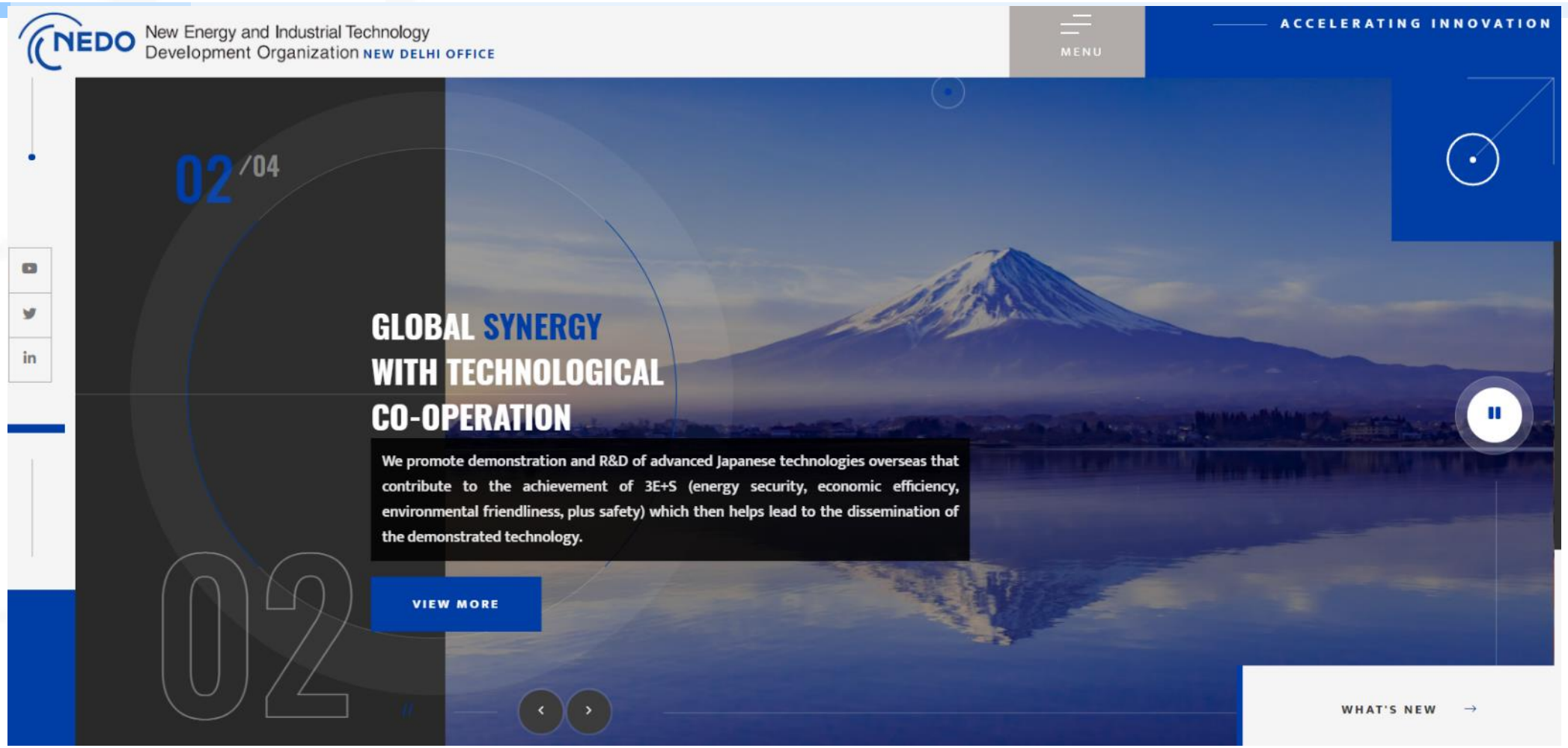


※Indian universities and companies may also participate in the program together with Japanese research institutes/universities.

● Project Details

Project scheme	International collaboration between Japanese research institutes/universities and research institutes/universities overseas. Private companies may participate but only when research institutes/universities also participate.
Project budget	Maximum of almost **25Million Yen** per project/per year. Note: NEDO will only fund the Japanese side of the international collaboration.
Project term	**Maximum of 3 years.**
Target technologies	- Clean energy technologies, including RE and energy-saving and environmental technologies that will have practical application after 2030. - 3 R&D themes have been selected for FY2023.

Thank you for your attention!



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