Top Ten Stories of ENAA in 2023

1. Mr. Yukito Ishiwa, Representative Director and President of Nippon Steel Engineering Co., Ltd.) was appointed as the new Chairman of ENAA

At the Board of Directors meeting held on June 29, 2023, Yukito Ishiwa, Representative Director and President of Nippon Steel Engineering Co., Ltd., was elected as Chairman.
At a press conference after taking office, Chairman Ishiwa raised the following three points as the main issues that ENAA will work on: The first was to promote cooperation and collaboration between companies and industries, the second was to function as a "hub" among member companies, Japanese government, and academic institutions, and the third was to secure and develop human resources essential to the engineering industry.

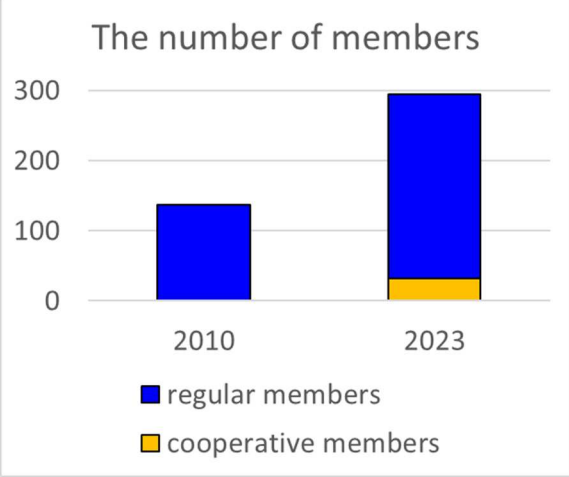
2. Members have been increasing, which improves ENAA's financial situation

While other business organizations have been suffering from the decrease of members, ENAA has been successful to increase members. (New supporting members: 22 companies, withdrawals: 15 companies in 2023)

Many new supporting members (company members) decided to join ENAA, because they recognized ENAA's good reputation through word of mouth from existing members. New members belong to various industries, which include engineering, information technology, industrial machinery manufacturing, consulting, energy supply, and trading. Recently, foreign-affiliated companies also have been joining.

As cooperating members (which include independent administrative agencies, universities, local governments, and other public organizations) we invited the Tokyo Institute of Technology Open Innovation Organization and Scottish Development International in 2023.

We believe that the expansion of ENAA's activities will contribute the increase of members.
Along with the increase of members, our financial situation has been improving. We have kept making an effort to reduce fixed costs such as personnel costs, facility costs, and administrative costs, while we've joined governmental projects concerning GX and DX. As a result, ENAA recorded a surplus of 67.5 million yen in 2023.



3. Various interviews are conducted

Due to the coronavirus pandemic, all ENAA's committees, subcommittees, and seminars were moved online, and there were concerns that ENAA's presence among supporting members would diminish. Additionally, it has recently been discovered that many new members want to let themselves know among other members, in order to establish new business partnership.

To fulfil their wishes, we conduct interviews with the top management of supporting members, especially new members, and send hard copies along with the monthly executive director's letter, as well as post them on the ENAA website from 2021 on.
(https://www.enaa.or.jp/interview_cat/membertop)

To date, we have conducted interviews with 32 companies, approximately one company per month. The list includes companies located outside of Tokyo, small companies such as startups, and foreign companies that are not well known in Japan. These interview articles are being used to introduce the company to business partners, in some cases they have been used for recruitment. We are happy to find that some companies got new business partners.

In order to deepen relations with local governments and embassies in Japan, we conduct similar interviews with the heads of local governments. We conducted interviews with the Governor of Tochigi Prefecture (2021) and the Mayor of Kitakyushu (2022), and in 2023 we interviewed Ibaraki Prefecture Governor Kazuhiko Oigawa.
（https://www.enaa.or.jp/interview_cat/public_organization）

For the same purpose, we conducted interviews with the staff of embassies in Japan. We conducted interviews with the Minister-Counselor for Commercial Affairs of the British Embassy (2021), the US Embassy (2022), and the Australian Embassy (2022), and in 2023, we interviewed Dr. Stephen Baker (Global Head of Inward Investment) of the Scottish Agency for International Development.

Additionally, in order to help people learn more about our association's activities, we have begun conducting interviews as a new trial starting in 2023. Project introduction (CCS business: Kawasaki Kisen Kaisha,

Ltd. Managing Executive Officer Satoshi Kanamori) and meritorious achievement award winning projects (individual awards for 3 people).

（https://www.enaa.or.jp/interview_cat/projectnews）

（https://www.enaa.or.jp/interview_cat/person）

4. ENAA becomes a bridge between Japanese government and members

One of the important duties of ENAA is to convey requests and opinions to Japanese government.

Firstly, we arrange an opinion exchange meeting between supporting member companies and related ministries and agencies.

- Hiroshi Ono, Vice-Minister for Global Environment Affairs, with the staff of JGC Holdings Corporation (February), and IHI Corporation (April)).
- Toshiyuki Hayashi, Deputy Director-General of Land, Infrastructure, Transport and Tourism, and other executives from the Ministry of Land, Infrastructure, Transport and Tourism, with the staff of Chiyoda Corporation (March), IHI Corporation (April), Nippon Steel Engineering Co., Ltd. (April), and Toyo Engineering Corporation (April)
- The officials of the Ministry of Economy, Trade and Industry, who will soon accept overseas assignment with the staff of our member companies (June)

Secondly, newly appointed Chairman Ishiwa met various high government officials and heads of government affiliated organizations to exchange views.

- Mr. Ryuichi Yamashita, Director-General of Manufacturing Industries, and Mr. Shin Hosaka, Director-General, Agency for Natural Resources and Energy (The Ministry of Economy, Trade and Industry the Ministry of Economy)
- Mr. Toshiyuki Hayashi, Vice Minister of Land, Infrastructure, Transport and Tourism (The Ministry of Land, Infrastructure, Transport and Tourism)
- Mr. Hiroyuki Namazu, Director-General of Economic Affairs (Ministry of Foreign Affairs
- Mr. Nobumitsu Hayashi, Governor of Japan Bank for International Cooperation (JBIC)
- Mr. Tamotsu Saito, Chairman of New Energy and Industrial Technology Development Organization
- Mr. Yutaka Saito, Commissioner of Information-technology Promotion Agency Japan (IPA)
- Mr. Norihiko Ishiguro, Chairman of Japan External Trade Organization (JETRO)
- Mr. Ichiro Takahara, Chairman and CEO of Japan Organization for Metals and Energy Security (JOGMEC)
- Mr. Atsuo Kuroda, Chairman and CEO of Nippon Export and Investment Insurance Co., Ltd. (NEXI)

Thirdly, ENAA keeps contacts with embassies and foreign governmental organizations in Japan. In September we co-hosted a seminar with Scottish Development International (SDI), being a cooperating

member of ENAA, on “Scotland's decarbonization and hydrogen strategy", which attracted approximately 150 people. Some of the lecturers were from Scotland, and the event gave a strong impression of the internationalization of ENAA's activities.

Fourthly, we have strong connections with local governments. In February, we held the seminar in Kitakyushu' for the first time in three years. We invited Director-General, Kyushu Bureau of Economy Trade and Industry Mr. NAMURA Kimihide and Representative Director & President of LAC Co., Ltd. Mr. NISHIMOTO Itsurou as lecturers.

5. Implementation of seminars, business matching and a Symposium

In today's rapidly changing world, it is extremely important to obtain the information necessary for business. For this reason, ENAA held various seminars mainly online in 2023, following on from 2022. In 2023, the average number of registered participants was approximately 100 people, and the average number of registered companies was over 40. Before the corona pandemic, the average number of registrants for face-to-face seminars held in our office was over 50 people and about 30 companies, that means online lectures are easier to participate in. is also reflected in the numbers.

For the content of the seminar, themes of high interest to supporting member companies were selected. Specifically, the themes are as follows.

1) Energy and environmental issues (Energy situation in the Middle East after the Ukraine crisis, Japan's energy situation as seen from the Energy White Paper, etc.)

2) DX, AI (high-speed English writing method using AI translation, business use of ChatGPT and security measures, etc.)

3) Open innovation such as industry-academia collaboration (open innovation by Tokyo Institute of Technology, life cycle engineering promoted by the University of Tokyo, etc.)

4) Economic security, risk management (international business facing division risks, Chinese anti-espionage law, etc.)

5) Government policies related to infrastructure system exports (Ministry of Land, Infrastructure, Transport and Tourism policies related to infrastructure system exports, 2023 Unfair Trade Report, etc.)

Continuing from 2022, the 2023 Engineering Symposium (October 20th) was held in a "Hybrid" format, that means face to face Symposium held at Hitotsubashi Hall and also streamed online, with a total of 279 participants. 174 people applied for online participation. For this symposium, all lecture materials were distributed online for the first time, instead of the traditional printed distribution. In addition, in the foyer of Hitotsubashi Hall, we also held a panel exhibition of engineering projects that won the 2022 Engineering Achievement Award. Furthermore, for the first time since the coronavirus pandemic, we were able to hold a regular social gathering that included alcoholic beverages, and it was very well received by those who visited the symposium.

In a survey of symposium participants, on a three-point scale, 39% gave a rating of 3 (very good) and 58% gave a rating of 2 (good). Additionally, we received positive comments from approximately 80% of the participants regarding the paperless presentation materials, and approximately 2/3 of the attendees saw the panel display for the Engineering Achievement Award.

We have many new members joining us in 2023, and they are motivated primarily by interaction with existing member companies. For this reason, in addition to regular lectures, we started holding lectures (B to B community) aimed at business matching and held them 10 times in 2023. Since the communication after the lecture is between the companies that gave the lecture and the companies that attended, ENAA is unable to grasp the extent of the results, but there are reports that "we were able to gain a new business partner." In some cases, we have received this, and we believe that we are achieving a certain level of results.

Additionally, the "Members' Plaza" which introduces the various activities of ENAA members, has been significantly renovated and can now be accessed from the top page of the association's website.
(https://www.enaa.or.jp/member_square/)

6. Developing and acquiring talented employees that meets today's needs

ENAA holds "Project Management (PM) Seminars" for employees as part of its human resource development project that contributes to the sound development of the engineering industry. In addition to holding a 58-day "permanent course" every year, we hold "customized courses" from time to time to meet the individual requirements of each company. As of the end of December, the number of participants in 2023 is 698 in total (379 in permanent courses, 319 in customized courses from 4 companies). We are planning to hold a permanent course (15 days) and a customized course for one client, therefore, the number of participants in FY2023 is expected to exceed the actual number of participants in the previous fiscal year (total of 748 participants, including 509 in permanent courses and 239 in customized courses).

Additionally, evaluation of the L2PM practical training courses for mid-career employees (30 courses in total) was conducted in FY2022, and in FY2023, we renewed 12 courses reflecting the evaluation results. Our policy is to strive for improvements constantly.

In addition to the "Project Management (PM) Seminar" we also implemented the "Next Generation Human Resource Development Program" and "Diversity Seminar" as human resource development programs for working adults. In FY2023, a training session with the theme of "Let's think about new business using digital technology" was held by lecturer Mr. Satoshi Kurihara of Oracle Japan Holding, Inc. (13 participants from 9 companies), and lecturer Ms. Taeko Inoue of Better Communication Co., Ltd. We held two training courses (with 11 participants from 8 companies) on the theme of "How to create a virtuous cycle of success - What is communication to build human relationships?" Under the full cooperation of JFE Engineering Corporation, the Diversity Seminar featured a lecture by Ms. Mio Aoyagi from Woomax Corporation and group work under the theme of "Supporting and Accompanying the Growth of Diverse Subordinates." (94 participants from 10 companies). Both courses have received high recognitions from participants, and we plan to continue offering them with further improvements.

On the other hand, one of the important pillars of ENAA's activities is the "talent acquisition project" which aims to attract a large number of talented people to the engineering industry. For this reason, the "Student Career Support Seminar" to introduce the role and attractiveness of the engineering industry to undergraduate and graduate students was held twice in Tokyo, once each in Osaka and Fukuoka, and twice online. Each event welcomed a total of 432 university and graduate students (203 face-to-face, 229 online) along with around 20 exhibiting companies, and has been highly evaluated by exhibited companies as having a positive effect on their recruitment activities.

Furthermore, in 2023, we conducted activities to promote understanding of the engineering industry among junior high school and high school students, as a first attempt. First, in June, we welcomed nine 9th graders from Handa Junior High School in Handa City, Aichi Prefecture to the ENAA's offices in Kamiyacho and implemented a "program for junior high school students" with the cooperation of young employees of Mitsubishi Chemical Engineering Corporation, Chiyoda Corporation and JGC Corporation. Additionally, in October, we held a two-day "high school student program" as a special class for Hozen High School, a private school in Tokyo (41 freshmen in a special preparatory class), on the social contribution of the engineering industry to environmental issues. On the first day, a discussion on garbage disposal problem was held with the assistance of employees from JGC Holdings Corporation, JFE Engineering Corporation, and Toyo Engineering Corporation. On the following day, we toured the garbage disposal facility at the Saitama City Sakura Environmental Center, designed and constructed by Nippon Steel Engineering Co., Ltd.

The teacher in charge at Hozen High School expressed his gratitude for ENAA's arrangement, and many participated students commented that they were able to gain useful information for understanding the industry and choosing a career path. Both the "junior high school student program" and the "high school student program" were the first attempts of our association and based on the lessons learnt through these implementations, we will design programs that will appeal more to younger generations.

7. Research and development of wide range of next generation technologies, from "liquefied CO2 shipping" to "Next Generation Smart Factories"

Technical Development Department of ENAA has been conducting research and development and demonstration projects in line with the demands of the times.

First, the "Research, Development and Demonstration of CCUS Technology / Large-scale CCUS demonstration testing at Tomakomai / Demonstration Test on CO2 transportation / Research, Development and Demonstration test of CO2 transportation ship *" which is contracted by the New Energy and Industrial Technology Development Organization (NEDO) is the third year of project.

Building of the liquefied CO2 transportation ship has been on schedule, with a launching ceremony was held in March 2023 and a ceremony for the completion and christening was held in November 2023 (the ship's name is "Excool").

In the next step, we will move on to a full-scale operational verification test.

*(Towards the commercialization of CCUS Technology around 2030, we will conduct research and development of transportation technology that will lead to long-distance, mass transportation and low cost of 10,000 tons of CO2 from supply points to usage and storage points in 2026. And we will aim to establish liquefied CO2 shipping technology through demonstration testing and related research.)

In addition, regarding the "Development of supercritical geothermal resource exploration technology using optical fiber DAS (Distributed Acoustic Sensor)", which is also in the third year of the project.

Demonstration test was conducted at Kyushu Electric Power's Hatchobaru Power Plant (Kokonoe Town, Oita Prefecture) in October 2023. We are currently analyzing its test results.

Furthermore, the Technical Development Department have established the "Next Generation Smart Factory Engineering Study Group (commonly known as the Smart Factory Study Group, SFSG)" since 2018. The SFSG advocates introduction of MES (Manufacturing Execution System) framework in order to digitally connect the factory floor control and the factory management operation.

Conventionally, the Project Management (PM) methodology is mainly applied to the construction of fixed infrastructure. However, the PM methodology can also be applied to the renovation and digitalization of the factory management operation, which are urgently needed among domestic manufacturing industries.

In 2023, the SFSG transitioned from the fixed subcommittee system into the project team system in order to adapt to the changing research needs.
Currently five project teams are active including the public relations (PR) team and the technical symposium (TS) team. The PR team issues quarterly newsletter in order to release the SFSG deliverables to the public. The TS team held a special symposium titled "The Road to Smart Manufacturing – Digital, Robot, and Supply Chain" in September 2023 with many participants.

8. Implementation of projects that support the future of Japan as a maritime nation

Japan is a maritime nation, ranking 62nd in the world in land area (approximately 380,000 km2), but ranks 6th in the world in terms of exclusive economic zone (approximately 4.47 million km2). Therefore, it is no exaggeration to say that the future of Japan's economy hinged on the success or failure of maritime-related businesses.
Based on this recognition, ENAA has long carried out ocean-related surveys, research and development, and demonstration projects that are considered essential.

However, in view of the recent situation, the Ocean Development Office has been conducting "human resource development related to offshore wind power generation facilities" and we are actively engaged in activities with a focus on "raising awareness of marine business among local businesses and students".

Regarding offshore wind power generation facilities, activities in FY2023 focused on "human resources development." First, continuing from last year, we held an "Ocean Development Seminar" with instructors who have been involved in the design, construction, operation, and maintenance

of offshore structures, including wind power generation facilities, in an effort to "pass on technology". In addition, in 2022, ENAA proposed a syllabus for the "Engineer Training Curriculum" for undergraduate and graduate student education, and in 2023, for the "Offshore Wind Power EPC Project Management Course".

Furthermore, since it is said that there will be a shortage of around 10,000 engineers who will actually carry out the construction and operation management of offshore wind power generation facilities in the future, we have held training sessions on guidelines for staff training and receiving a large number of participants since FY2021. In addition, ENAA's Ocean Development Office Director Mr. Kawamura is serving as an advisor in selecting lecture themes and preparing materials for the "Online Recurrent Seminar on Ocean Development" for young engineers, hosted by the "Nippon Foundation Ocean Innovation Consortium".

Regarding the promotion of underwater robotics, we are participating in the Autonomous Unmanned Vehicle (AUV) Public-Private Platform sponsored by the Cabinet Office Ocean Policy Promotion Secretariat.

From the perspective of preventing global warming, we are also conducting research into whether flare gas emitted from offshore facilities (platforms, etc.) that produce natural gas and crude oil from the seabed can be effectively used as a resource instead of just being burned.

9. Promoting New Underground Spaces and Decarbonization Studies

The Geo-Space Engineering Center (GEC) is working on “Research on Multipurpose Underground Infrastructure Models" as a subsidy project of the Japan Keirin Auto race Foundation (JKA). Specifically, by adding functions for storage and emergency evacuation to underground space, it can be used as a more robust shelter than above ground. By adding functions for people flow and logistics, it can be used as an alternative to the use of overcrowded above ground.

Regarding geothermal power generation, we are working to promote exchanges among engineers involved in geothermal power generation, and to prepare public reports on the results of closed-loop geothermal power generation conducted up to last year and present them at academic conferences.

In addition, ENAA has been commissioned by the Japan Organization for Metals and Energy Security (JOGMEC), an independent administrative agency, to carry out the following projects for a two-year period starting in fiscal 2023. "Study work on countermeasures for modification and technical issues necessary for

storing decarbonized fuel (methylcyclohexane) in existing above-ground tanks at the national petroleum stockpiling base".

We were commissioned by the Ministry of Land, Infrastructure, Transport and Tourism to prepare inspection guidelines for concrete floats of offshore wind turbines.

10. From security technology development to dealing with abandoned oil wells

For many years since 1991, our association's “Safety and Environment Center for Petroleum Development (SEC)” has been promoting research on 'security assurance and environmental conservation' related to energy and resource development. However, as the world moves toward "decarbonization," it feels awkward to use the fossil fuel "petroleum" in its name, and the center's actual activities are not limited to "petroleum exploration," so in July 2023, we changed the name as follows: "Safety and Environment Center for Energy and Natural Resources Development (SEC)"

In 2023, while the establishment of a CCS business law is being considered, the SEC is conducting an investigation into security technology related to CCS. Furthermore, commissioned by the Agency for Natural Resources and Energy of the Ministry of Economy, Trade and Industry, we are conducting research aimed at creating draft technical standards for CO2 pipelines, including research on overseas technical guidelines regarding CO2 pipelines.
Furthermore, regarding the abandoned oil leaking well closure project in Niigata City, which has been underway since FY 2022, construction of access roads and yards was completed in October, and well investigation began in November. In 2024, the project is to move forward with an investigation into a completion of well abandonment.