

(Unofficial Translation)

Guidelines for applying to the “Decommissioning, Contaminated Water and Treated Water Management (Development of Analysis and Estimation Technologies for Characterization of Fuel Debris (Development of Non-Destructive Measurement Technologies of Fuel Debris and Others))”

Date: April 7, 2025

Public Interest Incorporated Foundation Nuclear Safety Technology Center

Public Interest Incorporated Foundation Nuclear Safety Technology Center, which is a corporation that establishes and manages a fund for decommissioning, contaminated water and treated water (hereinafter referred to as “Fund Establishment Organization”) solicits entities to implement subsidies for the "Subsidized Project of Decommissioning, Contaminated Water and Treated Water Management (Development of Analysis and Estimation Technologies for Characterization of Fuel Debris (Development of Non-Destructive Measurement Technologies of Fuel Debris and Others)). Details of the project are stipulated in this Guidelines; furthermore, the procedures for implementation of the project are stipulated in the “Grant Policy for Subsidy for the Project of Decommissioning, Contaminated Water and Treated Water Management”.

1. Purpose of Project

This project aims to support development of technologies contributing to decommissioning, contaminated water and treated water management of the Fukushima Daiichi Nuclear Power Station (hereinafter referred to as “Fukushima Daiichi NPS”) of the Tokyo Electric Power Company Holdings, Incorporated (hereinafter referred to as “TEPCO”) based upon the “Mid-and-Long-Term Roadmap” towards the Decommissioning of the Fukushima Daiichi Nuclear Power Station of Tokyo Electric Power Company Holdings, Incorporated” (hereinafter referred to as “Mid-and-Long-Term Roadmap”) and “The Decommissioning Research and Development Plan for FY 2025” (The 135th meeting of Secretariat of the Team for Decommissioning, Contaminated Water and Treated Water Countermeasures / PMO), so that the decommissioning, contaminated water and treated water management of the Fukushima Daiichi NPS can be implemented smoothly, and that may lead to the improvement of Japan’s science and technology standards.

Please note that this project is implemented under the engineering and project administration activities performed by TEPCO in the Fukushima Daiichi NPS, and the results obtained from this project will be utilized for the engineering activities conducted by TEPCO.

2. Contents of Project

In the decommissioning of the Fukushima Daiichi NPS, consideration shall be given to the retrieval of fuel debris generated by the accident and its containment and storage in safe containers. The materials to be extracted from inside the Primary Containment Vessel (hereinafter referred to as "PCV") vary widely and include fuel debris resulting from the melting and solidification of nuclear fuel, steel materials with adhered molten substances, and deposits around the outer perimeter of the pedestal. It is necessary to confirm information on the contents of the storage containers in order to implement appropriate safety measures against criticality, radiation emissions, and heat generation etc. during storage. In particular, for fuel compositions, it is essential to identify the types and quantities of radioactive nuclides, as measures against criticality and internal exposure to alpha radiation are of great importance. If the content of fuel compositions is low, it becomes possible to set appropriate safety margins and rationalize safety measures during storage.

To identify and quantify various radioactive nuclides contained in fuel debris, fuel debris samples must be collected, transported to hot laboratories with shielding and containment functions, and analyzed. The analysis is conducted using manipulators inside a hot cell, which is time-consuming. Additionally, the handling amount is regulated for each radioactive nuclide, making it difficult to analyze large quantities of fuel debris at once. In the event of a contamination accident in the analysis, there are concerns about increased exposure risks, subsequent decontamination efforts, the implementation of recurrence prevention measures, and the prolonged time required for analysis.

In spent fuel reprocessing plants, a method has been used to evaluate the quantity of Pu and the fuel burn-up without destroying the object by measuring the radiation emitted or transmitted from the object sealed in a container (hereinafter referred to as "Non-destructive Measurement"). In the case of measuring radiation emitted or transmitted from an object, alpha and beta rays with weak transmission power are not suitable. It is more effective to measure highly penetrating radiation such as gamma rays, X-rays, neutrons, and particle beam etc. Current Non-destructive Measurements have been used to evaluate values associated with specific materials under limited conditions, such as the fuel burn-up of an undamaged fuel assembly or the measurement of trace amounts of Pu on stainless steel using gamma rays or neutrons.

The fuel debris generated at the Fukushima Daiichi NPS is a heterogeneous mixture of melted fuel, fuel cladding, neutron absorbers, fission products, activation products, structural materials and other various materials. Additionally, in the retrieval of fuel debris, it is expected that neutron absorbers may be added for criticality control and that dust suppressants or coagulator may be introduced to prevent the dust dispersion. Given the complex mixture of numerous elements, it is extremely challenging to quickly identify and quantify all the elements present. Therefore, the focus shall be on identifying and quantifying the fuel compositions.

To date, the effectiveness and feasibility of five types of Non-destructive Measurement methods have been evaluated for measuring fuel debris. Based on a comprehensive evaluation of factors such as the key characteristics of radioactive nuclides, their behaviors in relation to uranium, and the results of simulations and component verification tests etc., research and development efforts shall be

focused primarily on the active neutron method and the muon scattering method as Non-destructive Measurements for identifying and quantifying the fuel compositions in the fuel debris at the Fukushima Daiichi NPS.

The following (1) to (5) technological developments shall be carried out:

(1) Investigation of the Applicable Scope of Estimation and Evaluation Methods for Fuel Compositions Using Non-destructive Measurement.

Simulation analyses shall be conducted to model the expected measurement conditions when fuel debris is the measurement target. As mentioned above, fuel debris contains a wide variety of elements mixed in a broad range of proportions, which affects Non-destructive Measurements in various ways. Performing detailed verification tests on all affecting factors would require enormous amount of time and resources, making it impractical. Therefore, simulation analyses shall be conducted to reproduce and identify the wide-ranging effects of fuel debris composition depending on the sizes and shapes of storage containers for the Non-destructive Measurement of active neutron method and muon scattering method. This allows to examine the applicable scope of the method for estimation and evaluation of fuel compositions. The common objectives in the development of Non-destructive Measurement technologies using the active neutron method and the muon scattering method shall include setting up and analyzing simulation models, identifying issues, examining the causes of these issues and methods for correction, identifying error ranges considering error propagation in evaluations, and improving methods for quantifying and evaluating fuel compositions etc.

- The measurement targets shall include elements and nuclides expected to be present in the fuel debris, such as fuel materials (U, Pu, etc.), fission products, neutron-induced activation products (e.g., Co-60 etc.), neutron absorbers (e.g., B, Gd etc.), structural materials (e.g., stainless steel, concrete etc.), and shielding materials (e.g., lead etc.). Additionally, the analysis shall consider factors that affect Non-destructive Measurements of both direct and scattered radiation from the measurement target, including density, water content, and porosity etc.
- Increasing the amount of fuel would result in a higher level of signal detection from neutrons due to fission or from muons etc. due to scattering. Given that conducting tests with large amounts of fuel is difficult due to legal restrictions, evaluation shall be conducted through simulations. To confirm whether there is a correlation between the increase in fuel quantity and the change in detected signal levels, a wide range of fuel quantities shall be set and evaluated.
- On the other hand, if the amount of fuel is set too low, the detected signal would decrease, making measurements difficult. To ensure appropriate safety margins during fuel debris handling and proper classification during storage management etc., Non-destructive Measurements in areas with low signal levels caused by the fuel, or near the detection threshold, are crucial. Therefore, the evaluation shall focus on simulations under conditions with a smaller amount of fuel. Elemental testing, as described later in (2), shall be conducted,

and analysis shall be performed under the same conditions as those used in the elemental tests.

- In the active neutron method, even if the amount of fuel is large, the detected signal is expected to decrease if there are many affecting factors such as the amount of neutron absorbers, structural materials, or water content etc. These affecting factors shall be evaluated by conducting analyses under two conditions: when there is a large amount of fuel without affecting factors and when there is a large amount of fuel with many affecting factors.
- In the muon scattering method, the scattering of muons is strongly affected by the atomic number of the material being measured. The atomic numbers of uranium, and lead which were used as shielding materials, are 92 and 82, respectively. Previous internal investigations of the PCV have revealed that molten lead has fallen into the deposited material around the outer perimeter of the pedestal of Unit 1. The goal is to distinguish between the scattering effects of uranium and lead and to evaluate the potential for quantifying each of them.
- In both the active neutron method and the muon scattering method, neutrons and muons are detected, and the affecting factors on the measurements differ, leading to different compositions for the measurement targets. To confirm the range of measurement strengths and limitations of each Non-destructive Measurement method, some simulation conditions shall be set with the same composition and size for the measurement target. Additionally, scenarios where materials strongly affecting both Non-destructive Measurement methods are unevenly distributed in specific areas shall also be considered.
- In the separate project "Development of Analysis and Estimation Technology for Characterization of Fuel Debris," analysis is being conducted on fuel debris sampled during trial retrievals and on deposits and adherents obtained from internal investigations of the PCV. Data from the destructive analyses, such as chemical composition and isotope ratios, are being accumulated. Additionally, in the fuel debris analysis evaluation working group organized by the Nuclear Damage Compensation and Decommissioning Facilitation Corporation, the results of these analyses are being evaluated and discussed. Information obtained from these activities shall be continuously acquired through discussions and exchanges etc., to contribute to the improvement of Non-destructive Measurement accuracy.

(2) Verification through Elemental Testing Using Existing Non-Destructive Measurement Devices

Using existing Non-destructive Measurement devices for the active neutron method and muon scattering method, tests shall be conducted on a simulated object appropriately produced as the measurement object with a focus on measuring fuel debris, structures, and deposits etc. from the Fukushima Daiichi NPS. Existing devices shall be used from the perspectives of speed and cost-effectiveness, although the detection sensitivity of neutrons and muons from the measurement target may not be optimal. To improve detection sensitivity or efficiency, modifications or the addition of optional parts shall be considered as needed, and the possibility

of enhancing the accuracy of uranium quantity estimation shall be verified.

[1] Active Neutron Method

- The active neutron method involves irradiating fissile materials with neutrons and counting the neutrons generated through induced fission. This method shall be used on materials that contain uranium. It is essential to confirm that the amount of detected neutrons increases with the increase in uranium content and to confirm whether this increase is linear. When the uranium content is low, the neutron count would decrease, making detection more difficult. Therefore, methods shall be investigated to confirm the detection limit of neutron quantities and approaches for deriving uranium content from low neutron counts.
- It is concerned that neutron absorbers, such as boron and gadolinium, are included in the fuel debris, making it difficult to measure the target accurately. The lower limit of the uranium mass that can be used for Non-destructive Measurement shall be determined for the case where no neutron absorber is included. In the case of neutron absorber contamination, measures shall be considered in consideration of the effect of the uranium mass on Non-destructive Measurements, and the effectiveness of these measures shall be verified.
- Neutrons are slowed down by colliding with hydrogen atoms contained in water. Some fuel debris is mixed with concrete, which exists as a hydrate formed by the combination of inorganic oxides and water, and it is assumed to contain water due to being cooled in water. Methods to simulate these effects using water or hydrogen atoms shall be considered, and the effects of water or hydrogen atoms shall be evaluated.
- Since neutrons have no electric charge, the generated neutrons react with the material inside the neutron detector, and the secondarily produced charged particles are detected. The materials that react with neutrons have unique reaction cross-sections, and the charged particles produced secondarily also vary. Optimal detection conditions, such as the type, arrangement, and number of detectors, as well as collimation conditions etc., shall be considered for neutron detection.
- There are multiple methods and devices for generating neutrons to irradiate the measurement target. Even when using a neutron generator as the source, factors such as the installation position, distance to the measurement target, irradiation intensity, and pulse waveform affect neutron detection. Therefore, the optimal irradiation conditions shall be investigated.
- As mentioned above, neutrons generated by nuclear fission are expected to be affected by elements contained in the fuel debris, as well as by neutron generation and detection conditions. If there are other factors that may affect Non-destructive Measurement using the active neutron method, their effects shall also be investigated.

[2] Muon Scattering Method

- The muon scattering method is based on the fact that muons, which are elementary particles originating from the universe, are strongly scattered by elements having a high atomic number. Since there is a high number of muons from the vertical direction (approximately 10,000

particles/m²/min), the possibility of shortening time and improving resolution of measurement when utilizing vertical muons shall be verified through tests. Uranium, with an atomic number of 92, is a high atomic number element contained in fuel debris and is the most abundant fuel compositions in the fuel debris. If necessary, the use of measurement targets containing uranium shall be considered.

- On the other hand, adjusting and using measurement targets with uranium requires time and resources, and there are legal restrictions on the amount that can be used. Therefore, the use of non-radioactive elements with a high atomic number as alternatives shall also be considered. One such non-radioactive element with a high atomic number is lead, with an atomic number of 82. Using lead as an alternative is effective for conducting efficient element tests. However, lead is used as a shielding material within the PCV and is expected to melt and fall due to heat during an accident, potentially mixing with fuel debris etc. It shall be investigated to identify the possibility of distinguishing between uranium and lead and the quantitateness of this method using the muon scattering method.
- In general, images with shading caused by muon scattering are acquired, but the interrelationship between the amount of elements with high atomic numbers and number of muons counted with large scattering angles, as well as measurement errors, shall be confirmed without acquiring images. Additionally, if structural materials or neutron absorbers with smaller atomic numbers than uranium melt and mix, or if there is a high content of porosity, the average atomic number of the material in the measured object along the path of the muons would change, affecting the muons' transmission and scattering. The measurable lower limit of uranium shall be identified.
- As mentioned above, when fuel debris melts and mixes with structural materials, or when there is a high porosity, it is expected that the errors in muon scattering would increase. Particularly, it is unlikely that the components retrieved as fuel debris are evenly distributed, so it shall be assumed that elements with high atomic numbers are locally concentrated. Methods to identify the effects of the uneven distribution of components in fuel debris shall be investigated.
- By increasing the measurement time, an improvement in accuracy can be expected. However, if each measurement takes several months, it would not be practical when applied to actual processes. A reasonable measurement time shall be investigated.
- As mentioned above, muons are expected to be affected by elements contained in fuel debris, measurement time, and other factors. If there are other factors that may affect Non-destructive Measurement using the muon scattering method, their effects shall be investigated.

(3) Feasibility Study of Integrating the Non-Destructive Measurement Device as Part of a System

Based on the results of (1) and (2) mentioned above, the feasibility of integrating a Non-destructive Measurement method for quantifying nuclear fuel materials in fuel debris at the Fukushima Daiichi NPS as part of a complete system shall be investigated.

- The active neutron method and muon scattering method shall each be simulated in a virtual space, and the feasibility of their operation as part of a system shall be verified.
- The installation of the equipment into the building for Non-destructive Measurement, its placement inside the hot cell, power capacity, cable layout, arrangement of surrounding facilities and auxiliary equipment, and maintenance equipment and methods etc. shall be checked for any interference. Additionally, key design elements shall be identified.
- After the Non-destructive Measurement equipment is operated as part of a complete system, the process and routes for transporting the measurement targets into and out of the building and hot cell, the necessary equipment, radiation protection measures during work, and contamination prevention measures shall be investigated. For example, since the measurement targets emit strong radiation, shielding is necessary. In the active neutron method, neutrons and gamma rays are emitted from the measurement target due to nuclear fission, and the measurement results are affected by the thickness, material type, and shape of the shielding material, depending on the type of radiation. In the muon scattering method, cosmic elementary particle muons are used, and they enter from above the building. If the thickness of the shielding material is too solid, there is a concern that the muons scattered by the shielding would increase, and relatively fewer muons would reach the measurement target. Therefore, while shielding is necessary, inappropriate shielding conditions may unnecessarily affect the Non-destructive Measurement. Matters related to the operation of the system are crucial elements in facility design, so potential issues shall be identified in advance.
- A container for fuel debris retrieval gradually expanded its scale at Unit 2 is under consideration, but for further expansion of the scale of retrieval in Units 1 and 3, a larger container shall be set, and analysis shall be conducted using multiple containers. Increasing the container size would result in a larger amount of contents, which would increase the signal strength in Non-destructive Measurements. However, the self-shielding effect of the contents would also increase. Additionally, as the amount of content increases, the load capacity of the handling equipment during transport would need to be set higher, and radiation and heat generation from the container would also increase, so countermeasures shall be investigated. To offset the dependency of container shape in the active neutron method and muon scattering method, a standardized container shall be established.
- As a precautionary measure, simulations shall be conducted in a simulated hot cell, assuming the dispersion of radioactive dust. Airflow simulations shall be performed to analyze the dispersion behavior, assess the reduction of radiation exposure, and identify the feasibility of the containment function.

(4) Investigation of Scenarios Using Non-Destructive Measurement Equipment

After the retrieval of fuel debris, scenarios shall be investigated that include the purpose of confirming the contents of the container using Non-destructive Measurement before storage

and management, along with evaluation accuracy, timing of measurements, and other related factors.

- In applying the active neutron method and muon scattering method, scenarios shall be investigated that include the purpose of Non-destructive Measurement, the measurement target, acceptable measurement or evaluation accuracy, timing of measurements, measurement locations, target object size, number of measurements, and whether image data shall be acquired. For example, when conducting Non-destructive Measurement using the active neutron method, the timing of the measurement and its accuracy would vary depending on whether the goal is to quantify the fuel inside the container or to confirm the absence of fuel particles adhering to the decontaminated surface material. Therefore, the purpose, use, and measurement target shall be clearly defined.
- The possibility of conducting experimental Non-destructive Measurements using some of the fuel debris collected during the gradually expansion of the retrieval scale at Unit 2 shall be investigated. Although it is experimental, it shall require time and resources. Therefore, based on the results of the analysis, testing, and evaluation from (1) to (3) above, a comprehensive consideration of future utilization methods shall be made to determine whether the active neutron method or the muon scattering method is more suitable for the set scenario. However, if using both Non-destructive Measurement methods or other Non-destructive Measurement methods in combination can complement the drawbacks of each or lead to improved accuracy, the selection shall not be limited to just one method.

(5) Investigation of Simplified Screening Methods

In the future, as the scale of fuel debris retrieval expands, it is expected that several kilograms to tens of kilograms of material would be loaded into small containers out of the Reactor Pressure Vessel (hereinafter “RPV”) or PCV and transported in a single operation. Regarding criticality prevention measures when handling material retrieved with unknown fuel content, conducting early screening after retrieval and determining the fuel content within small containers allow for appropriate safety measures thereafter. However, if the screening time at the RPV or PCV outlet is prolonged, it may become a bottleneck and cause delays in the overall process. Therefore, for the initial phase after retrieval, Non-destructive Measurements technologies shall be investigated as screening methods that are simple and quick focusing on speed and simplicity. The following points shall be considered.

- In the simplified screening, methods of measuring radiation emitted from the object to be measured and independent method from the radiation emitted from the measurement target, as well as combinations of these methods shall be investigated focusing on simplicity and speed. For example, in addition to measuring gamma and neutron radiation at the vessel surface, calculating the density from mass and volume, measuring the surface temperature of the container with an infrared camera, etc. shall also be considered as potential candidates for

the screening.

- The physical quantities that can be measured using the candidate methods for simplified screening shall be investigated, along with the necessary measurement time per test to determine the fuel content. If necessary, the number of repetitions etc. for measurements shall also be examined. While longer measurement times improve accuracy, the focus in simplified screening shall be on simplicity and speed rather than precision. Therefore, the optimization of measurement conditions shall be investigated to ensure that determinations can be made with as short a measurement time and as few repetitions as possible.
- In the case of investigating gamma-ray and neutron measurements for simplified screening, the target radionuclides for the analysis of solid waste, as presented in note*1 below, shall be referenced to. Of the 30 target radionuclides, approximately half are beta-emitting radionuclides, making detection from outside the container difficult. Additionally, although other radioactive nuclides exist besides the 30 target radionuclides, they are not included. Because they are not suitable for simplified and quick screening due to factors such as their low inventory etc.

*1 Update on the Solid Waste Analysis Plan for Decommissioning and Other Activities at Tokyo Electric Power Company (TEPCO) Fukushima Daiichi Nuclear Power Station (Fiscal Year 2024)

<https://www.meti.go.jp/earthquake/nuclear/decommissioning/committee/osensuitaisakut-eam/2024/03/03/3-4-2.pdf>

(Japanese text only)

At the start of this project, TEPCO's needs shall be considered, and this project shall be proceeded after consultation with related parties (the Ministry of Economy, Trade and Industry (hereinafter referred to as "METI"), TEPCO, and the Nuclear Damage Compensation and Decommissioning Facilitation Corporation).

*When preparing the proposal for this project, the results of previous projects listed below shall be taken into account. Please refer to the links for the outcomes. In addition, after the grant decision is made, the project should start subject to publication of the FY2024 result of "Development of Analysis and Estimation Technologies for Characterization of Fuel Debris (Development of Non-Destructive Measurement Technologies for Sorting and Segregation of Fuel Debris and Others)" (FY2023/2024).

- Development of Technologies for scaling up Retrieval of Fuel Debris and Internal Structures (Development of Technologies for Sorting and Distinction between Fuel Debris and Radioactive Waste) (FY2020/2021)

Link to the Project Results HP: <https://en.dccc-program.jp/4441>

- ・ Development of Analysis and Estimation Technologies for Characterization of Fuel Debris (Development of Non-Destructive Measurement Technologies for Sorting and Segregation of Fuel Debris and Others) (FY2022)

Link to the Project Results HP: <https://en.dccc-program.jp/5364>

<Link to the Subsidized Projects Results HP>

<https://en.dccc-program.jp/category/result>

3. Operation of research and development

(1) Gathering Domestic and Overseas Wisdom

Projects must be conducted by utilizing Japan and abroad wisdom. In particular, they must consider introducing necessary technologies and knowledge both from Japan and abroad broadly. In case of development of machines and equipment, establishment of common basis of the machines and equipment (utilization of widely used goods and goods which have already been developed, etc.) must be taken into account as much as possible in order to promote reasonable development. Furthermore, the development of evaluation method is important to be confirmed and reviewed objectively by third parties such as academic societies, etc. Hence, such validation must distinctively be placed in the development plan or a milestone.

In implementing the project by introducing Japan and abroad technologies and knowledge, if necessary, the external organization shall be chosen through a solicitation such as a open competitive bidding in a timely manner; and in order to ensure transparency and fulfill accountability, the solicitation information must be published on the website and the link to the information must appear the website of the Management Office for the Project of Decommissioning, Contaminated Water and Treated Water Management (hereinafter referred to as “PMO”), which is organized by Nuclear Damage Compensation and Decommissioning Facilitation Corporation and Mitsubishi Research Institute, Inc., with the intention to disseminate it widely.

(2) Establishing Decommissioning Industrial Cluster to Fukushima and Innovation Coast Framework Realization

It shall be considered to work with companies, which run business in Hamadori area and other regions in Fukushima prefecture*, in an aim to promote local companies engaged in decommissioning related industry and establish decommissioning industrial cluster to Fukushima.

It shall be also considered to use decommissioning related facilities (e.g. Naraha Center for Remote Control Technology Development of Japan Atomic Energy Agency (mock-up testing facility)), which play a role in Fukushima Innovation Coast Framework.

*Area

Iwaki city, Soma city, Tamura city, Minami Soma city, Kawamata town, Hirono town, Naraha town, Tomioka town, Kawauchi village, Okuma town, Futaba town, Namie town, Katsurao village, Shinchi town, Iitate village

(3) Human resource development for medium and long-term

Efforts need to be made to strengthen the relationship with universities, research organizations, etc. through implementing joint research, etc. from the viewpoint of human resource development in the middle and long-term. Cooperation also needs to be made positively to strengthen the activities which focus on human resource development by the government and related organizations.

(4) Clarification of tests conditions and specifications for development

Consideration of requirement level necessary for implementing decommissioning activities must be done before commencement of elemental tests and equipment design; furthermore, evaluation of to what extent existing technologies can be utilized must be done as quantitatively as possible (Present the current Technology Readiness Level (TRL)). Based upon these, information on the target of the degree of the tests and equipment development compared to the requirement level must be shared in advance between METI, the Fund Establishment Organization (hereinafter, METI and the Fund Establishment Organization are collectively referred to as the "Organizations Concerned".) and PMO, and the test conditions and design specifications must be established.

(5) Definition of criterion for judgment of degree of objective achievement

Comprehensible criteria which can be a measure for the judgment of objective achievement of the project must be defined using numerical values, etc. (Present the current TRL); and they must be validated whether or not the objective will have been achieved at the completion of the project.

Table 1 Definition of Technology Readiness Level (TRL)

Level	Definition corresponding to this project	Phase
7	At the stage of completion of practical utilization	Practical use
6	At the stage of being demonstrated in the field	Field demonstration
5	At the stage of production of prototype with the scale of practical use, and demonstration in a simulated environment such as in a factory, etc.	Demonstration of simulation
4	At the stage of implementation of function tests at the level of trial production as a process of development and engineering	Research for practical use

3	At the stage of proceeding with development or engineering using application or combination of existing experiences. Or at the stage of proceeding with development or engineering based upon elementary data in the area with lack of existing experiences.	Application research
2	At the stage of proceeding with development or engineering in the area nearly without applicable existing experiences, and with setting up the specifications.	Application research
1	At the stage of clarifying elementary contents regarding development or engineering.	Elementary research

(6) Cooperation with decommissioning activities and associated research and development projects

Clarify how the results obtained could contribute to the decommissioning activities and associated research and development projects, and positive cooperation and collaboration with the associated research & development projects shall be conducted. For this purpose, it is necessary to share harmonized input /output information among the associated research and development projects. In order to realize this information sharing, coordination among the entities involved must be done using Form 4 at the commencement of the project and other suitable timings; and it must also be regularly shared and confirmed between organizations concerned and PMO. Furthermore, the information on implementation of the project (such as progress situation, acquired data, challenges, etc.) must be shared with and offered to the organizations concerned and PMO in a timely and appropriate manner. Also, Non-Disclosure Agreement must be concluded among the Subsidized Project Operating Entities, the associated research & development project entities and PMO, if necessary. PMO will conduct the necessary coordination.

(7) Research management

The project must be proceeded with bearing in mind that the achievement goals of the project (such as the contents of outputs, target schedule, etc.) were established so as to achieve high-rank goals of this project.

Furthermore, it is necessary to create a flexible implementation organization that can reflect the following matters to the project, because understanding about the situation of the inside of PCV and necessary R&D to retrieve fuel debris is still limited, and a great deal of uncertainties remain in respect of the preconditions for research development.

[1] Discussions about the Mid-and-Long-Term Roadmap, discussions at meetings of the Secretariat of the Team for Decommissioning, Contaminated Water and Treated Water Countermeasures, and instructions and advices given by the Agency for Natural Resources and Energy, and so forth.

[2] Discussions concerning the “Technical Strategic Plan for Decommissioning of the Fukushima Daiichi Nuclear Power Station of Tokyo Electric Power Company Holdings, Inc.”, discussions at meetings held by and instructions and advice given by Nuclear Damage Compensation and Decommissioning Facilitation Corporation, and so forth.

[3] Progress management, instructions and advices given by the Fund Establishing Corporation and PMO.

In particular, in order to achieve the project outcome targets, it is important to promptly understand and reflect the current status of Fukushima Daiichi NPS, the progress of TEPCO's engineering, internal investigation, R&D, on-site working environment improvement such as dose reduction, lowering water level, space availability, etc. It is also important to check whether the prerequisites of the project are satisfied not only at the early stage of the project but also at any time to during the project from the viewpoint of on-site applicability, and to take measures promptly if any issues are found.

Therefore, under the project management of TEPCO, it is required to establish organization to conduct R&D. When grant application, the application shall be made jointly with TEPCO. However, TEPCO does not claim for any expenses for this project. When working at Fukushima Daiichi NPS, etc. for on-site investigation and demonstration test and so on, sufficient coordination shall be made beforehand with TEPCO, management system shall be constructed with understanding the compliance issues and precautions, etc., and appropriate security measures shall be taken.

(8) Progress report

The entity is required to report on the implementation plan, progress situation, project results, etc. upon request of the Fund Establishment Organization and PMO. Specifically, the followings are included.

- [1] Interim report meetings and final report meeting: For the purpose of confirming created results, advancing the result on the future and improving on-site applicability, the entity is required to report contents of research and development to committee members and organizations concerned about once in six months.
- [2] Meeting of organization concerned: For the purpose of discussion for issues of proceeding projects among organizations concerned and PMO, the entity is required to report implementation plan and progress situation after launched new subsidized project or at key times of project progress.
- [3] Project review meeting: For the purpose of confirming whether the plan is for the target established at the start of project, and for confirming and advising on applicability of actual engineering and worksite, the entity is required to report the contents of research and development to organizations concerned and experts designated by PMO about once or twice a year.
- [4] Progress report: the entity is required to report project progress by using the example of implementation schedule (Reference Document 2) etc. every end of month.
- [5] Report of project outcome: The entity is required to submit final report of project outcome for the specifical outcome of subsidized project. (The report at final report meeting is possible to utilize for this report of project outcome)

[6] Project result report: After the completion of the project, the entity is required to submit project result report.

The information reported to the PMO may be shared among organizations concerned based on the 5. Implementing Scheme considering the non-disclosure information mentioned in “Act on Access to Information Held by Administrative Organs (Act No. 42 of 1999) ” .

(9) Enhancement of dissemination of information

Comprehensible explanation to the public regarding the project contents and results is indispensable. The entity is also required to actively cooperate with the government and the organizations concerned for dissemination of information. In addition, any results of the project, which could be made public, should be summarized as a report of project outcome for publication and disclosed as soon as possible after its completion.

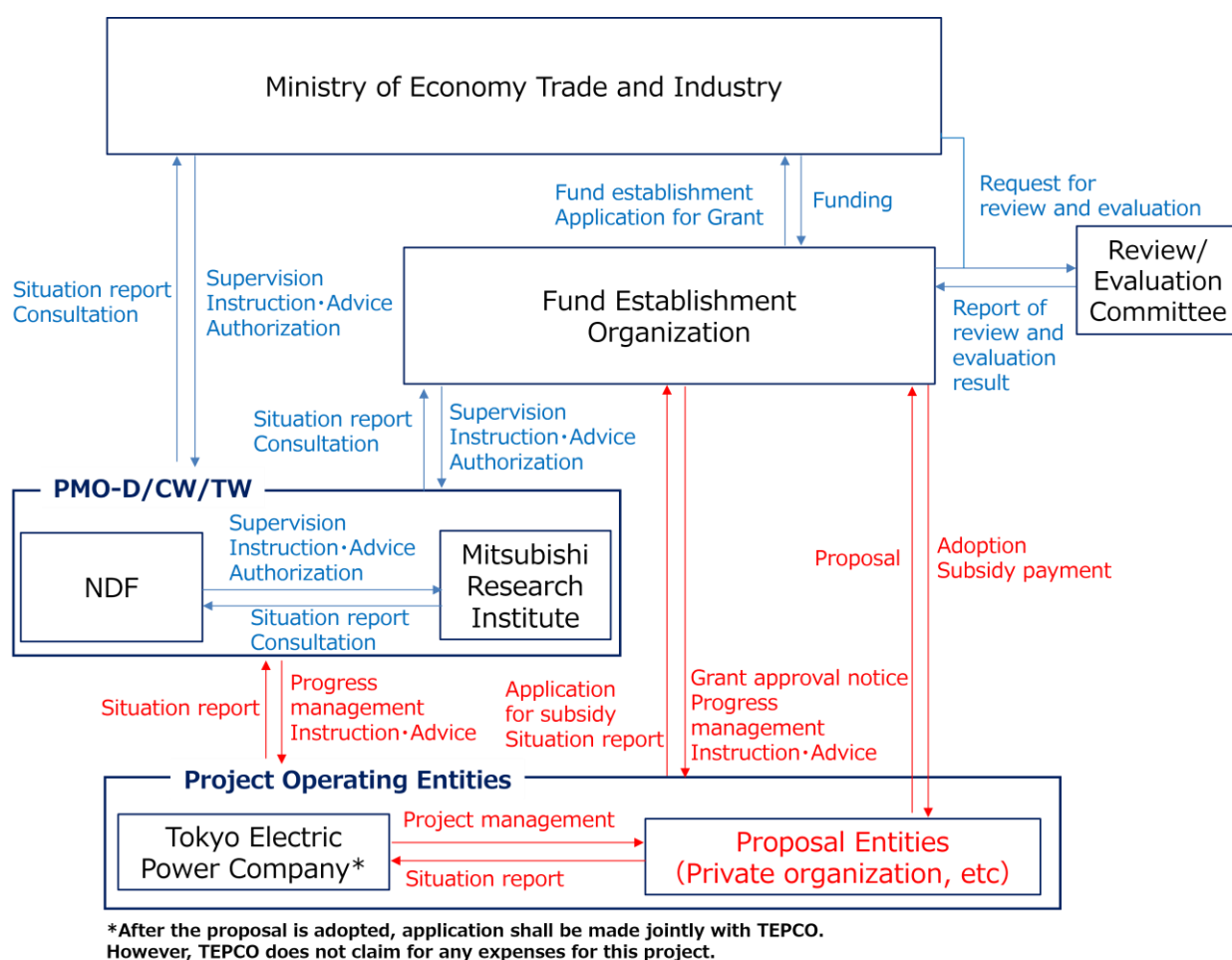
(10) Preparation of other options

Alternative options should be prepared if necessary in advance for the case that the project cannot be proceeded with as planned during the project term. If the alternative options are prepared or revised, the information must be notified to the Fund Establishment Organization via PMO.

4. Project Term

- From the effective day (of the grant) to March 31, 2027

5. Implementing Scheme



6. Application Requirements

The private companies, etc. satisfying all of requirements (1) to (9) shown below are qualified to apply for the subsidies. An application from a consortium is also acceptable. In that case, a managing legal entity must be appointed out of each consortium and submit the project proposal. (Please note that no managing legal entity may commission the entire work to another legal entity.)

- (1) Possessing the organization for properly conducting the relevant subsidized project. If the case to subcontract to or jointly implement with a third party a part of the subsidized project, for the creation of project outcome, the appropriate cooperation organization should be established to manage the project.
- (2) Having the capacity, knowledge and experience required for conducting the relevant subsidized project.
- (3) Having the management foundation required for smoothly conducting the relevant subsidized project and sufficient ability to control the funds and other resources.

- (4) Being able to follow the appropriate accounting procedures in accordance with the “Grant Policy for Subsidy for the Project of Decommissioning, Contaminated Water and Treated Water Management” and the “Subsidized Project Administration Manual (*)”. With regard to overseas entities, as a general rule, being able to prepare the evidenced documents in Japanese or English and present them in Japanese territory upon request of the Fund Establishment Organization and PMO.

(*) <https://en.dccc-program.jp/files/20230224man.pdf>

- (5) Not foreseen to be subject to Articles 70 and 71 of the Cabinet Order concerning the Budget, Auditing and Accounting.
- (6) Not fulfilling any of the conditions stipulated in the “Guidelines for the suspension of subsidies controlled by the Ministry of Economy, Trade and Industry and the suspension of designation relating to the contracts”. (January 29, 2003, No 1) First column, the second items in Attachment
- (7) The applicant must have a compliance system under a self-regulated structure which meets the "Standards for Exporters, etc. to Meet" provided for in Article 55-10 (1) of the Foreign Exchange and Foreign Trade Act. We will confirm this system using (Form 5) "Response to Security Export Controls" when selecting applicants, so please use this form to fill in the required items and submit the required documents.

[Reference] Standards for Exporters, etc. to Meet

Regulations to be observed by parties engaged in export or provision of technology in the course of trade (exporters).

Exporters that do not handle security-sensitive "specified important goods, etc." have a duty to 1) nominate a person responsible for checking goods, etc., and 2) provide guidance to managers and export workers on compliance. Exporters that do handle security-sensitive "specified important goods, etc." have a duty to 1) identify a representative as the responsible person, 2) set out an export control system, 3) set out a procedure for checking regulated/non-regulated goods, 4) set out a procedure for confirming the usage and consumer, and confirm these in accordance with that procedure, and 5) confirm that the goods to be shipped coincide with the confirmed non-regulated goods at the time of shipping.

- (8) Admitting that the results obtained through this project can be utilized by TEPCO, etc. to leverage them for Decommissioning, Contaminated Water and Treated Water Countermeasures if they request to do so under the condition that each party is in agreement. Not preventing the utilization by behaviors such as not allowing to use the technology intentionally, asking for unreasonable compensation, etc. in spite of receiving the request.
- (9) In order to make sure of the above-mentioned item, preventing a situation where the results from this project are not be able to be utilized for Decommissioning, Contaminated Water and Treated Water Management Countermeasures at the Fukushima Daiichi NPS by ceding the above-mentioned condition in (8) to the successor if the applicant transfers the result to a third party and loses their own right to utilize it accordingly. In the case of a conflict which makes the

applicant unable to make sure of the items in (8), the concerned parties must solve it by their own responsibility.

7. Requirement Conditions for Grant Decision

(1) Number of proposals to be adopted : One proposal

(2) Subsidy rate and maximum amount of subsidy

The subsidy is fixed in JPY.

Maximum amount: 1,200,000,000 JPY

Subsidies are paid in JPY. The contents of the project, amount of the subsidy, etc. will ultimately be settled only after coordination with the Fund Establishment Organization via PMO.

(3) Time of Payment

In principle, the subsidies are paid after the project is completed.

*Please note that cases where the payment (i.e. the payment by estimate) before the completion of the project is permitted are limited.

(4) Confirmation of the amount of payment

The amount to be paid is decided based on the Project Result Report which is submitted by the operating entities after the project is complete as well as the results of the survey at the verification site and/or the office.

The amount to be paid will be the total of the expenses to be covered by the subsidies, which do not exceed the granted subsidy amount and have spent actually. For this reason, the books and evidential documents such as receipts are necessary for supporting all the expenses. All the expenses will be strictly inspected and evaluated. Thus, the expenses not meeting the conditions mentioned above may be rejected.

(5) Grasp the implementation organization at the time of submitting the Project Result Report

Since it is necessary to confirm the implementation organization of the project, when submitting the Project Result Report after the project is completed, as expenses are covered by the subsidy in the case of outsourcing or commissioning contract, the Subsidized Entity must attach the implementation organization document (*) describing the name of the contractors (only for transactions of 1 million yen or more including tax), their relationship with the Subsidized Entity, their address, the contract amount and the contract content.

(*) This document is to be confirmed at the inspection.

"travel expenses", "meeting expenses", "gratuities", "equipment expenses (including rent and hire fees)", "assistant personnel costs (including temporary staffing)" are not eligible.

In the case of subcontracting or recommissioning from the contractors (in the case of subcontracting etc., limited to transactions of 1 million yen or more including tax), please describe their information in the implementation organization document same as above (There is no need to describe the contract amount for sub-subcontracting or re-recommissioning).

[Implementation Organization Document Description Template]

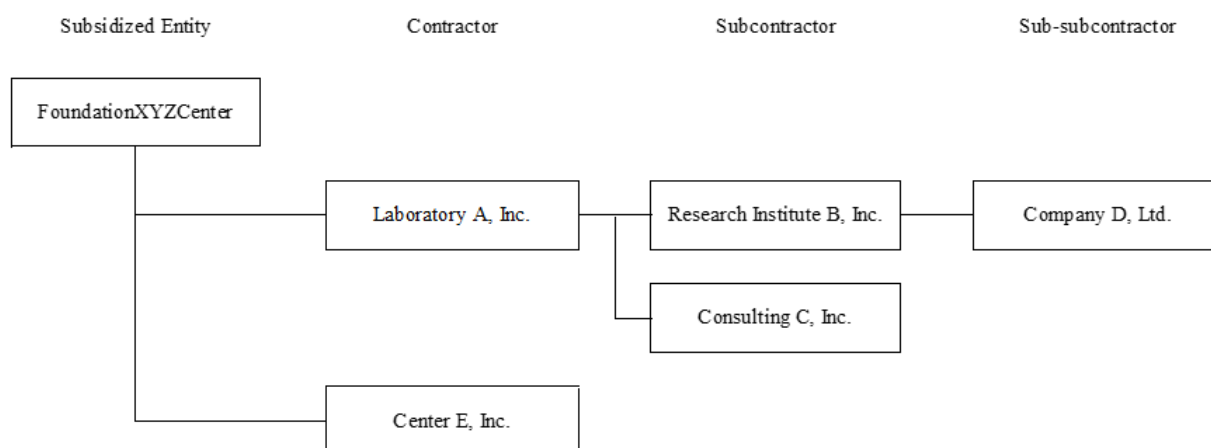
In principle, the implementation organization should be presented in the Organization Table as shown below and include the implementation organization chart. There is no prescribed form if the implementation organization, the name of the contractors, their relationship with the subsidized project operating entity, their address, the contract amount, and the contract content are clearly stated on the document.

Implementation Organization Table (limited to contract of work/service agreement of 1 million yen or more including tax)

Name of Outsourcing/Commissioning Company	Relationship with Subsidized Entity	Address	Contract amount (with tax)	Contract content
Laboratory A, Inc.	Contractor	XXX-ku, TokyoXXX	*Using Arabic numerals, show amounts in yen value	*Fill in as detail as possible
Research Institute B, Inc.	Subcontractor (Subcontractor of Laboratory A, Inc.)	Refer to the sample above	Refer to the sample above	Refer to the sample above
Consulting C, Inc.	Subcontractor (Subcontractor of Laboratory A, Inc.)	Refer to the sample above	Refer to the sample above	Refer to the sample above
Company D, Ltd.	Sub-subcontractor (Subcontractor of Research Institute B, Inc.)	Refer to the sample above	No need to fill in (*)	Refer to the sample above
Center E, Inc.	Contractor	XXX-ku, TokyoXXX	*Using Arabic numerals, show amounts in yen value	*Fill in as detail as possible

(*) Company D, Ltd. is a sub sub subcontractor from the standpoint of the Subsidized Company so there is no need to write the contract amount.

Implementation Organization Chart (limited to contract of work/service agreement of 1 million yen or more including tax)



8. Application Procedure

(1) Application Period

Commencement: Monday, April 7, 2025

Deadline: By 10:00 AM local time on Wednesday, May 7, 2025

We will not accept any proposals after this deadline.

(2) Information Session

Date and Time: 10:00 – 10:30 on Wednesday, April 16, 2025

Venue: Web Conference

If you would like to attend the session, please inform the contact point written in “13. Contact” by 12:00 PM local time on Tuesday, April 15, 2025 via email. After that, we are going to inform you of how to access web conference. The session will be held in Japanese. If you need an interpreter, please make arrangements on your own (You are responsible for the expense). If you need an information session in English, please consult with PMO by the above deadline via email. Please note that there is possibility to limit the number of participants.

When making contact, please title your e-mail “Register for attendance to the information session for ‘Project of Decommissioning, Contaminated Water and Treated Water Management’” and include the “corporate or organization name,” “name of the attendee,” “department,” “phone number,” “e-mail address,” and “subsidized project name to apply” in the main text.

To applicants from the EEA member states:

Private information will be used only in the working related to explanation meetings and will not be distributed to any other organizations. When you have provided us with such information, we assume that we have received it with your clear understanding that you submit it in agreement to the above-said condition.

(3) Application form and other documents to be submitted

[1] Please submit the following documents in person, by mail, or by e-mail. Please title your file “Application for the subsidy program ‘Project of Decommissioning, Contaminated Water and Treated Water Management (Development of Analysis and Estimation Technologies for Characterization of Fuel Debris (Development of Non-Destructive Measurement Technologies of Fuel Debris and Others))’”.

- Application form (Form 1)
- Outline of Subsidized Project (Form 2)
- Certificate of Conformance (Form 3)
- Input/ Output information (Form 4)
- Response to Security Export Controls (Form 5)
- Personal Data Processing Consent Form (Form 6)
- Other documents
 - Outline of Corporation or Organization (such as a brochure, etc.)
 - The financial results, and statement of revenues and expenses (of the last year)

- The articles of association or the act of endowment
- Other supporting documents
- * You can describe the application documents in Japanese or English. If you bring them with you or submit them by mail, one CD-ROM must be submitted along with 1 copy using A4 paper. In case that you bring them in person, please inform us of the date beforehand. In case that you submit them by e-mail, please attach 1 copy via email to the email address for application. As a general rule, the file format must be, MS-Word, MS-PowerPoint, MS-Excel or PDF. If you have unavoidable reasons not to be able to use these formats, please contact us.
- * If your proposal is adopted, there is a possibility that Input/ Output information will be released to other entities.

[2] All the application documents submitted will not be used for any purposes other than the evaluation in the course of the selection process. Please note that the application documents submitted will not be returned. We take the utmost care to preserve confidentiality. However, if your proposal is adopted, the information except the non-disclosure information (i.e. the personal information, the information detrimental to the legitimate interests of legal entities) may be disclosed under the “Act on Access to Information held by Administrative Organs” (Act No. 42 enacted on May 14, 1999).

To applicants from the EEA member states:

Private information included in application documents will be used only in the evaluation. Therefore, PMO will not distribute such private information to any other organizations besides METI, Fund Establishment Organization, NDF, and Review/Evaluation committee. When you apply for the subsidy program, you must clearly understand the above-said condition and submit Form 6.

- [3] The costs spent for issuing the application documents and other documents will not be included in the expenses. Also, the costs spent for issuing those documents will not be compensated for regardless of whether the proposal is adopted or not.
- [4] The matters described in your proposal are considered to be the fundamental policies which should be observed during the project. Consequently, please be sure to describe only the matters which are feasible within the budget. Also, please note that even if your proposal is adopted, it may be rejected later on if you make a significant change to it at your discretion.
- [5] Appropriateness of the cost breakdown must be shown using supplemental explanation documents.

(4) Place of submission

The application documents must be delivered to the following address via hand-carry, mail

or email, etc. In case that you bring them in person, please inform us of the date beforehand.

Toranomon Building 7th Floor,

1-12 Toranomom 1-chome, Minato-ku,

Tokyo 105-0001, JAPAN

Contact: Fumiya Sato, Kazuhito Yoshida

Email address for submission: hr-apply@mri.co.jp

* Please DO NOT send the application documents via fax. Incomplete documents will be rejected and not subject to evaluation. Therefore, please carefully read and follow the procedures for application to correctly fill out the documents.

* Any application documents submitted after the closing date will not be accepted. If you send the documents by postal mail, they may not be delivered by the designated time on the closing date. Consequently, you are advised to mail them sufficiently ahead of the closing date.

9. Evaluation and Adoption

(1) Method of Evaluation

Applications will firstly be evaluated through paper screening, so that the applicants for the presentation to the review committee can be selected. The review committee is planned to be held in mid-May 2025. Depending on the capacity of the venue, the number of the participants to the presentation may be restricted. Furthermore, hearings and on-site investigation may be conducted as required; and submission of additional documents may be requested.

(2) Evaluation Criteria

Applications are to be comprehensively evaluated based upon the following criteria. The details of the criteria are described in the “Criteria for reviewing proposals and allocation of points for items to be reviewed”.

[1] Objective, contents, implementation method, and applicability to countermeasures for decommissioning (Including on-site applicability)

- It shall be evaluated whether or not the Project objective corresponds to the project purpose described in the “Guidelines for applying”.

- It shall be evaluated whether or not the contents of the project are consistent with the Project content indicated by the “Guidelines for applying”, and described in detail in consideration of applicability to countermeasures for decommissioning (including on-site applicability).

- It shall be evaluated whether or not the project implementation method is consistent with the objective and contents of the project.

[2] Project Implementation Schedule

- It shall be evaluated whether or not an appropriate project implementation schedule is indicated for the objective and contents of the project.

[3] Project Implementation Organization

- It shall be evaluated whether or not the applicant has an accumulation of indispensable expert knowledge to implement the project as the project implementation organization, and also whether or not the employees to be engaged in the project have an accumulation of indispensable expert knowledge to implement the project, and then whether or not the applicant has ever implemented other similar projects as an organization. Additionally, it shall be also evaluated whether or not it is described that the applicant makes contributions to the revitalizing local economy through the implementation of the project such as working with companies which run business in the Hamadori area and other regions (*) in Fukushima prefecture, or using decommissioning related facilities which play a role in Fukushima Innovation Coast Framework. Moreover, it shall be evaluated whether or not the project implementation organization including the project leader is clearly described, and then it has the implementation ability and the coordination structure to consider/judge the applicability to countermeasures for decommissioning (including on-site applicability).

*Area:

Iwaki city, Soma city, Tamura city, Minami Soma city, Kawamata town, Hirono town, Naraha town, Tomioka town, Kawauchi village, Okuma town, Futaba town, Namie town, Katsurao village, Shinchi town, Iitate village

[4] Project Cost

- It shall be evaluated whether or not the project costs are appropriately allocated to the project objective and contents.

[5] Financial Basis and Management Structure for Implementation of Project

- It shall be evaluated whether or not the applicant has a financial basis and management structure for implementation of the project.

(3) Decision and Announcement of Results

PMO will release the adopted entities on our website, etc. The adopted entities will be notified of the result.

10. Grant Decision

The project shall be initiated after the adopted entity submits a grant application for the subsidy

to the Fund Establishment Organization via PMO and PMO send a notice of grant decision prepared by the Fund Establishment Organization to the applicant in return.

It should be noted that there may be changes in the details, composition and scale of the project as well as its budget between the decision of adoption and grant, as a result of consultation with the Fund Establishing Organization and PMO. Also, please be aware that the grant decision may not be notified if the adopting requirements are not met.

Although subsidized project operating entities may be provided with information required to implement the project after the decision of grant, they may be requested to observe the confidentiality depending on the nature of the information.

Information on the decision of grant of the subsidy (adopted date, the entity adopted (granted), effective date of the grant, corporation number in Japan, value of grant, etc.) will be shown on "gBizINFO"* in principle.

* "gBizINFO" by Ministry of Economy, Trade and Industry is a system, with the start of the 'My Number' system considered, to link a corporation number in Japan to corporation information such as those regarding subsidy and prize-giving. Anybody can execute batch retrieval/browsing in the system. With this system, expansion of new businesses, reduced costs in information acquisition, and more efficient businesses are expected in business enterprises and public offices. Web address: <https://info.gbiz.go.jp> (Japanese text only)

11. Allocation of Expenses

(1) Classification of Expenses Covered by Subsidy

The expenses covered by the subsidy shall be those directly required for the implementation of the project and those required for compiling the project results. The specific items are listed below. Please refer to "Reference document 3" for an explanation of each cost items.

Items of Expense	Description
(1) Labor Costs	Expenses for personnel required to implement the subsidized project.
(2) Operating Costs	Expenses for raw materials, consumables, design/fabrication/processing, facility/equipment, goods purchase, research, outsourcing, travel, remunerations, rent/depreciation and other necessities.

(2) Expenses not to be Included in Expenses Covered by Subsidy

- Office supply equipment (furniture such as desks, chairs and bookshelves, office machinery and so forth) with which the applicants should already be provided when considering the nature of the project.

- Expenses for handling accidents and disasters that occurred during the project. (However, cancellation fees incurred by reasons not attributable to subsidized project operating entities may be directly included as an expense. Please consult the person in charge on this matter.)
- Expenses unrelated to the project

(3) Exclusion of Consumption Tax from Expenses Covered by Subsidy

If the national and local consumption taxes (hereinafter referred to as “consumption tax”) are included in the subsidy amount, the applicants shall be requested to submit a report after the settlement of consumption tax amount, according to the Grant Policy for Subsidy.

This is so specified as to demand, at the time of filing an income tax return, that subsidized project operating entities should report and return the amount to which the subsidy has been applied, out of the amount of deduction for taxable purchase, so that the amount for which the subsidy has been allocated out of the amount of deduction for taxable purchase shall not be detained.

However, because the report mentioned above is based on an income tax return that will be filed after the settlement of the subsidy, occasional delinquency in reporting due to lapse of memory has been found. Also, in order to avoid the complicated office procedures that need to be followed by subsidized project operating entities, the consumption tax shall be handled as follows.

When determining the amount of subsidy applied for in the grant application, the consumption tax must be excluded from the expenses covered by the subsidy before calculating the subsidy amount and submitting the application.

However, to avoid hindrance to the implementation of the subsidized project, such subsidized project operating entities as those listed below shall be permitted to include the consumption tax in the expenses covered by the subsidy when calculating the amount of subsidy.

- [1] Subsidized project operating entities who are not classified as taxpayers under the Consumption Tax Act
- [2] Subsidized project operating entities who are tax-exempt business entities
- [3] Subsidized project operating entities who are business providers subject to simplified tax
- [4] National or local governments (limited to cases when project is conducted with a special account), or subsidized project operating entities who are corporations listed in the attached Table 3.
- [5] Subsidized project operating entities who are using the general account of a national or local government
- [6] Subsidized project operating entities who are taxable business providers that choose a refund of consumption tax, following confirmation of consumption tax and purchase tax deductions, for instance due to a low amount of taxable sales

12. Miscellaneous

- (1) Any expenses incurred (including expenses for order placement) before the effective date of the grant shall not be covered by the subsidy program.
- (2) In the event that the subsidized project operating entity desires to make a purchase or other contract related to material procurement or involving an occurrence of cost, it shall invite open competitive bidding, as a general rule, from the viewpoint of cost effectiveness. If the subsidized project operating entity desires to transfer part of the subsidized project to a third party or conduct the project in partnership with a third party, it shall in advance make a contract on the implementation and report this to the Fund Establishing Organization via PMO.
- (3) Once informed that the decision on grant of the subsidy is made, the subsidized project operating entity shall not change the subsidy budget distribution or the details of the subsidized project nor interrupt or terminate the project without prior approval from the Fund Establishing Organization via PMO.
- (4) The subsidized project operating entity shall promptly report the progress of the subsidized project and so on whenever required to do so by the Fund Establishment Organization and PMO.
- (5) After the subsidized project is completed (or the project termination is approved), the subsidized project operating entity shall submit a project result report to the Fund Establishing Organization via PMO.
- (6) The subsidized project operating entity shall keep accounts on any expenditures for the subsidized project with dedicated account books accompanied by all written evidence in a way that is clearly differentiated from the other accounting to ensure that all incomes and expenditures are meticulously accounted for. The entity shall maintain the account books at least five years after the fiscal year in which the date of completion (or the date of approval for termination) is included so that they can be accessible whenever requested by METI, Fund Establishment Organization and PMO.
- (7) With respect to the assets acquired or the utility of which has increased through the subsidized project (hereinafter referred to as "the Acquired Assets, etc."), the subsidized project operating entity shall manage them with due care of a prudent manager even after the completion of the subsidized project, and strive to effectively make use of them in accordance with the purpose of the grant of the subsidy. All applicable Acquired Assets, etc. shall be properly controlled using an Acquired Asset Ledger during the asset disposal restriction period, which will be separately set forth.
- (8) If the subsidized project operating entity needs to dispose of (i.e., use, transfer, loan or offer as collateral assets contrary to the purpose of the grant of the subsidy) any Acquired Asset having a unit price equal to or higher than 500 thousand yen (tax excluded) during the asset disposal restriction period separately set forth, they must obtain prior approval. In this case, the entity shall pay part of or the entire subsidy amount as a general rule. (The maximum payment does not exceed the subsidy amount for the appropriate asset to be disposed of).

(9) After the completion of the subsidized project, the Board of Audit may visit the premises of the subsidized project operating entity for inspection.

13. Contact

Toranomon Building 7th Floor,
1-12 Toranomom 1-chome, Minato-ku,
Tokyo 105-0001, JAPAN

Contact: Fumiya Sato, Kazuhito Yoshida

E-mail: hairo-info@ml.mri.co.jp

* Contact us through e-mail. We regret that no inquiries will be accepted via telephone.

(Form 1)

No.	
*Leave blank.	

To Public Interest Incorporated Foundation Nuclear Safety Technology Center

Application for the subsidies for the “Project of Development of Analysis and Estimation Technologies for Characterization of Fuel Debris (Development of Non-Destructive Measurement Technologies of Fuel Debris and Others)”

Applicant	Corporation number (*)	
	Company/Organization Name	
	Representative (Full Name and Title)	
	Address	
Contact	Contact Person (Full Name)	
	Section/Department	
	Title	
	Telephone (Extension, if any)	
	E-mail	

* If a corporation number in Japan has been given, fill in the 13-digit number.

If you are an individual and foreign company, etc., not having it, leave the field as it is.

(Exhibit)

1. Name of the Subsidized Project

2. Objective and contents of the Subsidized Project

**Describe your own understanding of the background of the project, the purpose of the project and its contents briefly.*

3. Scheduled commencement and completion dates of the Subsidized Project

(Scheduled commencement date):

(Scheduled completion date):

4. Entire costs needed for the project JPY

5. Costs subject to subsidy JPY

6. Subsidy amount to be applied for JPY

7. Allocation amount of the costs for the Subsidized Project, costs eligible for the subsidy and subsidy amount to be applied for

The contents are the same as (2) Expenditures, I. Summary table of “2. Plan of the income and expenditure of the Subsidized Project” of the Form 2, “Outline of Subsidized Project”.

8. Bases for Calculation for the above amount

The contents are the same as (2) Expenditures, II. Distribution of Costs of “2. Plan of the income and expenditure of the Subsidized Project” of the Form 2, “Outline of Subsidized Project”.

9. If a group is formed to conduct the Project, the names of the group and the member companies

Note 1: The “costs required for the Subsidized Project” refers to the cost required for performance of the relevant project. As a general rule, the amount must be provided after deducting the amount of the national and local consumption taxes.

Note 2: As for the amount of the “Subsidized Costs”, as a general rule, the amount of the “costs required for the Subsidized Project” eligible for the Subsidy must be provided after deducting the amount of the national and local consumption taxes.

Note 3: The “amount of the Subsidy applied for” refers to the amount of the “Subsidized Costs” for which

grant of the Subsidy is requested, and the amount limit is the amount of the “Subsidized Costs” multiplied by the Subsidized Ratio (any amount less than 1 JPY shall be rounded down).

Remark: The size of the paper used shall be the Japanese Industrial Standards A4 Format.

(Form 2)

Address

Name (Name of Corporation and Title/Name of Representative Person)

Outline of Subsidized Project

1. The implementation plan for the Subsidized Project (based on the period in above “4. Project Term”)

(1) Contents and implementation method of the project

**(In the case of making a partial proposal in a solicitation where partial proposals are permitted)*

Provide the implementation items to be proposed.

**Provide the following information by project content item.*

**Specific implementation contents and method, based on clarification of issues for each objective of research and development*

**Specific implementation content and method for each item of the project content*

**Specific proposal to improve outcome of the project*

**Project location (Address and name of the location)*

(2) The implementation schedule

**Describe the implementation schedule of the project by month for each implementation contents.*

**Describe the implementation procedure in detail. If the stages of the research and development are different (such as design, development, tests, etc.) in each item, describe the difference clearly.*

**If the persons in charge of the research and development (manufactures and subcontractors) are different in each item, describe the organization they belong to clearly so that we can distinctly understand who will actually implement the item.*

**Set the actual targets for achievement of the project purpose as milestones and describe them for each item.*

**In setting the milestones, they must be related to the points where delay of the project is foreseen.*

**In order to prevent delay, alternative options must be described for items with high risk.*

** Describe major output and input information so that correlation with other projects, comprehensive proposals, partial proposals, etc. can be grasped.*

**As a plan of the interim report, describe the outputs which will have been able to be achieved at the time of the report and further plan.*

**In reporting your progress, show your plan and actual progress in a comprehensible manner. Furthermore, describe the up-to-date situation and further work plan, etc. as a reference.*

(3) The project implementation organization

- *Provide the implementation organization chart and the number and role of people who are engaged in the project for each item of the project contents (Annex 1, Annex 2)*
- *After clarifying the responsible person for entire project implementation, the project leader (exclusively employed for the project) and sub-leaders responsible for each project item, provide their profile, area of expertise and experience of engagement in similar projects.*
- *Describe outsourcing or commissioning, if planned.*
- *Describe the name, outline, year, ordering party, etc. of similar projects. If the project was done as your own company's project, state it accordingly.*
- *Clearly state the experiences of each participating party if you form a consortium.*
- *In case of a large proportion of commissioning and outsourcing, the roles expected and track records of the commissioned and outsourced contractors shall be described as necessary. This can also be submitted as an attachment.*

2. Plan of the income and expenditure of the Subsidized Project (based on the period in above “4. Project Term”)

(1) Income

(Unit: JPY)

Item	Amount
Own fund	
*Bond issuance or borrowing	
Other	
Subsidy	
Total	

*Attach the documents to show the funding plan relating to the relevant bond issuance or borrowing.

(2) Expenditures

I. Summary table

(Unit: JPY)

Classification of costs	Costs required for the Subsidized Project	Subsidized Costs	Classification of the cost burden	
			The amount of cost borne by the Subsidized Project Operating Entity	The amount of the Subsidy applied for
Labor Cost				
Operating cost				
Total				

II. Distribution of Costs (provide the details by project item)

**Describe in this sheet or other separate sheets the name of the goods, unit price, man-hour, etc. as basis for the calculation.*

**If you form a consortium, clearly describe the breakdown of each company or organization.*

**In case of a large proportion of commissioning and outsourcing, a breakdown of expenses by implementation items per subcontractors and outsourced contractors estimated shall be provided as necessary. This can also be submitted as an attachment.*

(Unit: JPY)

Type (Example)	The cost required for the Subsidized Project	Subsidized costs	Amount of the Subsidy applied for	Remarks
【Labor Cost】				
．．．				
Sub total				
【Operating Cost 】				
Raw material				
Goods purchase				
Outsourcing				
．．．				
Sub total				
Total				

(Note 1) The “cost required for the Subsidized Project” refers to the cost required to perform the relevant project. As a general rule, provide the amount after deducting the amount of the national and local consumption taxes.

(Note 2) As a general rule, provide the “Subsidized Costs”, which is eligible for the Subsidy after deducting the amount of national and local consumption taxes in the “cost required for the Subsidized Project”.

(Note 3) The “amount of the Subsidy applied for” refers to the amount of the “Subsidized Costs” for which grant of the Subsidy is requested, and the amount limit is the amount of the “Subsidized Costs” multiplied by the Subsidized Ratio (any amount less than 1 JPY shall be rounded down).

Remark: The size of the paper used shall be the Japanese Industrial Standards A4 Format.

3. Financial basis and management structure

- * Describe the outline of your organization; moreover, describe the grounds on which your organization has necessary management basis for smooth implementation of the project as Annex 2.*
- * Describe the grounds on which your organization is capable of managing funds, etc. (such as organization and storage of evidence documents for expenditures). Furthermore, describe the scheme of the management of the funds (responsible persons and their roles).*
- * If you form a consortium, all of the above-mentioned items must be described regarding every organization.*

Implementation Organization Chart

Content of the descriptions	<ul style="list-style-type: none">• Develop an organization chart to show the framework for implementation of the Project• The names, titles and division of roles of the personnel in charge must be contained in the implementation organization chart• Clarify persons exclusively employed for this project described in this Chart; and describe the career background, expertise, area of specialty at work, qualification associated with the project, and other relevant information must be provided about the key personnel.
-----------------------------	--

Operational Implementation Organization

*A concrete description should be provided by showing an implementation organization chart containing the following information for each project item.

*Specify the name of the contact person in case of a joint application

- Name
- Title
- Role in this Project, etc.

Leader
Name
Title
Role
Qualification

Sub-leader
Name
Title
Role
Qualification

Member
Name
Title
Role
Qualification

Member
Name
Title
Role
Qualification

```
graph LR; L[Leader  
Name  
Title  
Role  
Qualification] --- SL[Sub-leader  
Name  
Title  
Role  
Qualification]; SL --- M1[Member  
Name  
Title  
Role  
Qualification]; SL --- M2[Member  
Name  
Title  
Role  
Qualification];
```

(Annex 2) Outline of your organization

Note: If you form a team and apply, you must fill in this sheet for every participant.

*Fill in the data of the latest accounting year in non-consolidated base.

Company name					
Title/name of the representative person					
Contact information	Tel:		Fax:		
	E-mail:				
Head office's address					
Date of establishment	Date:	Account closing month		Small- or medium-sized company	○ or ×
Capital	JPY in thousands	Number of Employees		(indicate by a circle if the company is a small- or medium-sized company)	
Description of business					
Major shareholders (equity ownership)	○○○ (company limited) (60%) ▽□○ (company limited) (30%) □○○ (company limited) (1%)				

(The title and name of the person responsible for above information:

Head of the XX Department, XX XX(Name))

Please provide the information about all officers in the list below:

Full name	Date of Birth			Gender	Company Name	Title
	Year	Month	Day			
(Example) Taro Keizai	19XX	01	01	M	Keizai Sangyo Co., Ltd.	President & Representative Director

(Note 1) Add the columns as appropriate if the provided columns are not sufficient to provide full information.

(Note 2) Use M for male and F for female in one-byte characters to indicate the gender.

(Note 3) For a joint application or a consortium, provide the information about all officers of each and every member (company or otherwise) of the group.

(Remarks) The size of the paper used shall be the Japanese Industrial Standards A4 Format.

(Other documents)

- (1) Outline of the company or organization such as a brochure, etc.
- (2) The financial results, and statement of revenues and expenses (for the past one year)
- (3) The articles of association or the act of endowment
- (4) Other supporting documents (as needed)

(Form 3)

Certificate of Conformance to Qualification Requirements for the Project of Development of Analysis and Estimation Technologies for Characterization of Fuel Debris (Development of Non-Destructive Measurement Technologies of Fuel Debris and Others)

I confirm that the applicant satisfies the qualification requirements for this subsidized project.

No.	Requirements	Verification, etc.
(1)	Possessing the organization for properly conducting the relevant subsidized project. If the case to subcontract to or jointly implement with a third party a part of the subsidized project, for the creation of project outcome, the appropriate cooperation structure should be established to manage the project.	<State that the applicant satisfies the requirements with reasons in detail ><See Form 2 "1. (3) Project Implementation Organization" when necessary.">
(2)	Having the capacity, knowledge and experience required for conducting the relevant subsidized project.	<State that the applicant satisfies the requirements with reasons in detail ><See Form 2 "1. (3) Project Implementation Organization" when necessary.">
(3)	Having the management foundation required for smoothly conducting the relevant subsidized project and sufficient ability to control the funds and other resources.	<State that the applicant satisfies the requirements with reasons in detail ><See Form 2 "3. Financial basis and management structure when necessary.">
(4)	Being able to implement the project in accordance with all the applicable laws and regulations enacted in Japan, and to follow the appropriate accounting procedures in accordance with "Grant Policy for Subsidy for the Project of Decommissioning, Contaminated Water and Treated Water Management" and "Subsidized Project Administration Manual". In addition, for overseas entities, in principle, evidential documents shall be prepared in Japanese or English, and shall be available for presentation in Japan upon request by the Fund Establishing Corporation and PMO. https://en.dccc-program.jp/files/20230224man.pdf	<State that you understand the statement on the left>
(5)	Not foreseen to be subject to Articles 70 and 71 of the Cabinet Order concerning the Budget, Auditing and Accounting.	<State that it does not apply to the applicant>
(6)	Not fulfilling any of the conditions stipulated in the "Guidelines for the suspension of subsidies controlled by the Ministry of Economy, Trade and Industry and the suspension of designation relating to the contracts". (January 29, 2003, No 1) First column, the second items in Attachment	<State that it does not apply to the applicant>
(7)	Research and development companies which may require approval under the Foreign Exchange Act for any exports and imports should have an establishment of internal compliance program (ICP) under a self-control system about the "standards for exporters, etc. to meet" provided for in Article 55-10 (1) of the Foreign Exchange and Foreign Trade Act.	<Describe meeting this condition in the Form 5>
(8)	Admitting that the results obtained through this project can be utilized by TEPCO Holdings, Incorporated, etc. to leverage them for Decommissioning, Contaminated Water and Treated Water Countermeasures if they request to do so under the condition that each party is in agreement. Not preventing the	<State that it is possible>

	utilization by behaviors such as not admitting use of the technology intentionally, asking for unreasonable compensation, etc. in spite of receiving the request.	
(9)	In order to make sure of the above-mentioned item, preventing the situation that the results from this project are not able to be utilized for measures for decommissioning, contaminated water and treated water management at the Fukushima Daiichi NPS by ceding the above-mentioned condition in (8) to the successor if the applicant hands over the result to a third party and loses their own right to utilize it accordingly. In the case of a conflict which makes the applicant unable to make sure of the items in (8), the concerned parties must solve it by their own responsibility.	<State that you understand the statement on the left>

<Note for Filling out this Form>

In the verification columns, please write the reasons why you verified that the applicant meets the requirements. When filling it out, write "Attachment" if there are any verification documents attached to this form and if not, write "No attachment."

(Form 4)

Input/Output information on Project of Development of Analysis and Estimation Technologies for Characterization of Fuel Debris (Development of Non-Destructive Measurement Technologies of Fuel Debris and Others)

**Please refer to the reference document 1 as an example.*

ID	Requested projects	Offered projects	Contents (outline)	Time when the information is necessary	How to use the information	Remarks
				<i>*Influences of delay (if any)</i>		<i>Such as measures for the case when you cannot ensure the accuracy, cannot keep the timeline, etc.</i>

(Form 5)

Response to Security Export Controls on Project of Development of Analysis and Estimation
Technologies for Characterization of Fuel Debris (Development of Non-Destructive Measurement
Technologies of Fuel Debris and Others)

Response to Security Export Controls	
Circle one of the following three options: handled, not handled or not required.	
Handled	Submit relevant documents (export control regulations for security trade)
Not handled	State the date of submission: Year Month:
	State future plans
Not required	State reasons

(Form6)

Personal Data Processing Consent Form

Purposes

In compliance with the Act on the Protection of Personal Information, Mitsubishi Research Institute, Inc. ("MRI") requests your consent to use your personal data to evaluate of proposal.

Data Sharing

MRI may share your personal data with cooperating organizations.

Data Retaining

There are cases in which it is necessary to retain your personal data for the necessary period according to the requirements of Japanese law.

Data Management

MRI will protect your personal data securely, including taking necessary measures to prevent leakage, loss, falsification, etc.

I have understood the above and give my consent to MRI to use my personal data for the above Purposes, and to carry out the above Data Sharing and Data Retaining.	
Your Full name	
Your Signature	
Date	

If you wish to modify your personal data or withdraw this consent after submission, please notify us by email to privacy@mri.co.jp.

Mitsubishi Research Institute, Inc.
10-3, Nagata cho 2-chome, Chiyoda-ku, Tokyo, Japan
privacy@mri.co.jp

PMS000350

(Reference Document 1)

Table 1 Example of Organization of Input/Output information

ID	Requested projects	Offered projects	Contents (outline)	Time when the project is necessary	How to use the information	Remarks
1_1	Advancement of Fundamental Technologies for Retrieval of Fuel Debris and Internal Structures	Development of Technologies for Containing, Transportation and Storage of Fuel Debris / Development of fuel debris criticality control technology	Size and specification of container and criticality detection device	April 2017	Examination of possibility of fuel debris sampling technology	
1_2						
1_3						
1_4	⋮	⋮	⋮	⋮	⋮	⋮

(Reference Document 2)

Table 1 Example of implementation schedule with points of attention

Plan

Result & Achievement

Please describe the example of using symbols etc.

Please describe the established and revised date of project schedule.

Please describe progress reported date.

MMMDD,YYYY Established

MMMDD,YYYY Revised

MMMDD,YYYY Reported

Project name : OOOOO

Item	Sub Item	Entity in charge	FY20XX						FY20XX												Progress Ratio	Situation & detail of progress (Latest)	
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
<div><div>Validation on XX</div><div><div><div>“Item” means implementation items described in Guidelines for applying each tasks in Item are described in “Sub item”.</div><div>Please describe items as the same grant applications in this form.</div><div>Please clarify project operating entity in charge of each sub item if the project is implemented as consortium.</div></div></div></div>	(1) Survey of on-site situation and relevant technologies	...																				0%	OOOO
	(2) Machinery design	...																				0%	OOOO
	(3) Machinery production	...																					
	(4) Establishment of test plan	...																					
	(5) Test implementation	...																					
	(6) Evaluation of test result	...																					
	(7) Result summary	...																					
																				0%	
<div><div><div>Please describe the plan of each implementation item and the milestone of the item specified if necessary.</div><div>Please describe the progress of each item compared with the plan.</div><div>Please describe revised schedule which can recognize the revised points if there have a change of schedule.</div><div>Please describe the progress ratio by numerical figure (%) if available.</div><div>Please add and describe the item of alternative plan if necessary.</div></div></div>																							
Major milestones																							
<div><div><div>Please describe the timings of meeting plan according to requirements of progress and result report explained in Guidelines for applying.</div><div>Please describe the timings of major milestones according to the progress of technology development such as establishment of test plan, test starting, test finished etc.</div></div></div>																							

Please describe the progress situation as status such as not yet started/ progressing/ completed and then add supplemental explanation.

if problems such as delay occurred, please describe explanations such as the reason and content of the problem, revised project schedule of completion plan, the impact of whole schedule and other project progress etc.

Please add other remarkable items and concerned items if have.

Establishment of test plan completed

Test started

Interim report

Test completed

Final report

(Reference document 3)

Regarding Subsidized Cost Items

Regarding the cost items defined in “The Decommissioning, Contaminated Water and Treated Water Management Project Implementation Guidelines”, please refer to the following table.

Cost item	Description	Correspondence with “Subsidized Project Administration Manual”
I. Labor cost	Labor cost for working hours of those engaged in the project.	3. Accounting process on labor cost
II. Operating cost		
Raw material cost	Expenses necessary for purchasing raw material or material necessary for implementing the project ※Here, “raw material” denotes what loses its nature and is used for production or manufacturing of entirely new ones; “material” denotes what does not lose its nature and is a constituent element of produced items or manufactured items only through being put to new application.	7. Accounting procedures regarding supplies expenses
Supplies expense	Cost for the purchase of goods necessary for performing the project but not belonging to raw material cost (however, only those verifiable for the use in the project)	7. Accounting procedures regarding supplies expenses
Design, production and processing costs	The thing which the subsidized entity cannot design, produce or process, or the cost necessary for outsourcing what is appropriate and does not belong to Facility and equipment cost to other entity. (contract for work)	11. Accounting procedures regarding expenses for commission fee/outsourcing cost
Facility and equipment cost	Cost necessary for purchasing, production or installation of facility or equipment necessary for undergoing the project ※The actual contents of the “facility and equipment” shall be “buildings and accompanying facilities”, “structures” and “machinery and equipment” stipulated in “Ministerial Order regarding depreciable life of depreciable assets, etc.” (Fifteenth Order of Ministry of Finance, 1965).	6. Accounting procedures regarding equipment expenses and rental and hire fees 11. Accounting procedures regarding expenses for commission fee/outsourcing cost
Procurement cost	Cost for the thing which is necessary for undertaking the project and does not belong to facility and equipment cost (at the same time, can be usable more than one year)	6. Accounting procedures regarding equipment expenses and rental and hire fees
Survey cost	The cost for outsourcing to another entity what the subsidized entity cannot survey or analyze by itself or is not suitable to be conducted by the subsidized entity itself (contract for work)	11. Accounting procedures regarding expenses for commission fee/outsourcing cost

Outsourcing cost	Cost for outsourcing to other business operator what subsidized company cannot implement on its own or not appropriate to do so and does not belong to design, production and processing costs, facility and equipment cost or survey cost (contract for work)	11. Accounting procedures regarding expenses for commission fee/outsourcing cost
Travel expenses	Cost for domestic business travels and overseas business travels necessary for performing the project.	4. Accounting process for travel expenses
Gratuities	Gratuities necessary for performing the project (gratuities for external experts who attended meetings, seminars, symposiums, etc., gratuities for giving seminars, writing of drafts, cooperation with research, etc.)	5. Accounting process for meeting expense and rewards
Rent and hire	Cost for lease and rental of machinery, equipment and the like necessary for performing the project	6. Accounting procedures regarding equipment expenses and rental and hire fees
Other expenses necessary for undertaking the project	Cost for other expenses necessary for undertaking the project which does not belong to any other items Examples Commission fee: the cost for outsourcing to other entities of the cost for assistant personnel or of the cost for temporary staffing, which cannot be done or what is not appropriate to be done by the subsidized entity	9. Accounting procedures regarding assistant labor costs 10. Accounting procedures regarding other miscellaneous expenses 11. Accounting procedures regarding expenses for commission fee/outsourcing cost, etc.