

2019 Toyota Mobility Foundation Hydrogen Research Initiative Application Guidelines

October 2019

1. Purpose of the Research Grants

Japan's 5th Strategic Energy Plan shows the future vision eyeing 2050 with associated action plans until 2030 including the use of CO₂-free hydrogen.

In response, the Strategic Roadmap for Hydrogen and Fuel Cells, announced in June 2015, was drastically updated to reflect the new goals indicated in the energy plan and stipulated concrete action plans going forward.

Ensuring the eventual realization of a hydrogen society and contributing to reducing CO₂ in Japan and around the world will require producing low-carbon and CO₂-free hydrogen, as well as significantly lowering costs, and the research and development of technological breakthroughs.

The Toyota Mobility Foundation (TMF) has established the Toyota Mobility Foundation Hydrogen Research Initiative to provide grants for original, innovative, and ambitious research by next generation researchers, and thereby support research on technological breakthroughs that will aid in establishing a hydrogen society.

2. Research Fields for the Grant Proposals

The basic concept and five research fields for proposals under this research grant program are presented below. Proposals from Field I and IV are especially encouraged. The research themes are no more than examples, and we welcome original, innovative and ambitious proposals.

“Innovative research” ideas for TMF		
Original, innovative and ambitious research believed to contribute significantly to producing low-carbon and CO ₂ -free hydrogen, as well as to reducing the cost of hydrogen systems is sought after. Technology and knowledge applied from other field will be appreciated.		
Research fields		Examples of research theme
Field I [Encouraged]	Hydrogen generation	<ul style="list-style-type: none"> - Reducing the cost, and improving the efficiency and durability, of water electrolysis - Electrolysis with fluctuating electricity and system optimization - Hydrogen production from renewable or unused energy - Innovative hydrogen production besides water electrolysis such as photocatalyst / electrode - ※ Technology and knowledge applied from other field such as fuel cell cellstack technology will be appreciated. -
Field II	Hydrogen carriers	<ul style="list-style-type: none"> - Improving the efficiency and durability of catalysts and reactors - New concepts of hydrogen carriers - New hydrogen storage materials. - Improving the efficiency of hydrogen liquefaction

		- Improving the efficiency of hydrogen compression
Field III	Hydrogen applications	- Control of hydrogen combustion. - Conversion to chemicals or fuels.
Field IV [Encouraged]	Energy systems	- Hydrogen systems aiming to maximize energy efficiency. - Analysis of the potential of lowering carbon in hydrogen. - Analysis of CO ₂ reduction through the use of low-carbon hydrogen. - Analysis of hydrogen-based energy storage system for grid stability. - ※ Technology and knowledge applied from other field such as study of battery grid stability and CO ₂ reduction analysis will be appreciated. -
Field V	Social systems utilizing hydrogen	- Study hydrogen society reciprocity and consumer merit. - Study implementing hydrogen society system regardless of the size (from country level to community level). - Study economic efficiency of hydrogen society system

3. Application eligibility

Applicants (principal researchers) must meet the conditions below.

Applicants who meet the conditions may also submit proposals involving research conducted in collaboration with other parties such as researchers from a different institute or a corporation.

- Researchers attached to a Japanese university, graduate school, affiliated research institute, institution sharing facilities with a university, a technical college, or a public research institute. We encourage the submission from researchers who represent the next generation.
- The head of the institution who is authorized to control the followings stated on Approval of the Head of the Institution must approve:
 1. conducting this research as an operation of your institution if it is accepted.
 2. grant management to be conducted by Accounting department.
- Approval of the Head of the Institution must be produced by a principal researcher if the proposal is cosponsored by plural institutions.
- The applicant must not be subject to restrictions on applying to or joining public institutes.

4. Period, Categories, and Amount of the Grants

Grant Period

The basic grant period is three years (April 2020 to March 2023).

The proposal must include three-year plan for both the research and the grant use. Indicate the reason in the research plan if you apply for grant with a period shorter than three years.

Requested grant amount and grant categories

The table below lists the requested amounts and categories of the grants. See the attached document for details on the categories.

Requested grant amount	<ul style="list-style-type: none"> • The upper limit for the grant request is a total of 10 million yen over three years (including indirect and miscellaneous expenses). No prescription is set on the allocation of the grant over the three year period. • Completing the research in one or two years is also permitted. In such cases, applications for the maximum of 10 million yen can still be made. • The appropriateness of the requested amount and its use with respect to the details and expected outcome of the applicable research is a consideration in evaluating proposals. • We reserve the right to adjust the amount of the grant for accepted proposals.
Labor expenses	<ul style="list-style-type: none"> • Labor expenses for in-house research associates include the part- or full-time wages or salary of research associates (e.g., post-doctorate researchers or assistants) working at an affiliated institution. • Take the effort required to conduct the applicable research (ratio of time exclusively devoted to that research) into consideration when applying for labor expenses for the principal researcher and in-house research associates.
Travel expenses	<ul style="list-style-type: none"> • Domestic and international travel expenses cover trips made by the principal researcher or in-house research associates for the purpose of the applicable research.
Operational expenses	<ul style="list-style-type: none"> • Operational expenses mainly cover expenses incurred by the principal researcher him- or herself for the purpose of the applicable research. They cannot be applied to the operational expenses of the laboratory. • Equipment or devices other than expendable supplies may not be purchased from the operational expenses budget and should, as a general rule, be procured through rental or leasing.
Indirect and miscellaneous expenses	<ul style="list-style-type: none"> • Include indirect and miscellaneous expenses related to grant (donations) for accounting purposes. Remember that they are included in the upper limit for the requested grant amount (total of 10 million yen over three years).

5. Screening procedure

Screening of documents

Deadline for application: December 9, 2019(valid if postmarked on the day of the deadline).

* The information on the In-Person evaluation will be notified to those passed the screening of documents around mid-January, 2020.

In-Person Evaluation

Date(tentative): January 31, 2020

- Applicant himself/herself should be present.
- The venue will be announced once decided (planned to be held in Tokyo)
- Travel expenses will be borne by TMF.

Preparing the application documents

The press release below provides a link to the application forms.

<http://blog.toyotamobilityfoundation.org/?p=489>

Fill in the necessary information, and print out the documents as prescribed in the table below. In addition, make PDFs of all documents (the total size of all PDF files must be 10 MB or less).

Prescribed document	Number of copies	Printout format
Form 1 Approval of the Head of the Institution (1 page)	Original and duplicate 1 each	Original: print single-sided on one A4 sheet and stamp it. Duplicate: one color copy of the original.
Form 2 Research Plan (maximum 6 pages) Profile, achievement (1 page) Total maximum 7 pages	2 copies	Print double-sided on A4 sheets and attach them with a paperclip (do not staple them).
Form 3 Grant use plan (3 pages)	2 copies	Print double-sided on A4 sheets and attach them with a paperclip (do not staple them).
Others	Number of copies	Printout format
No form: reference material Note: supplementary reference material for the Research Plan can be attached, but it must not exceed 6 pages.	2 copies	Print double-sided on A4 sheets and attach them with a paperclip (do not staple them).

Mailing address

Send the complete set of application document printouts by mail or delivery service to the address below. Documents brought in person cannot be accepted.

Address: Secretariat, Toyota Mobility Foundation Hydrogen Research Initiative Global Innovation & Energy Division, Mizuho Information & Research Institute, Inc. 2-3 Kanda-Nishikicho, Chiyoda-ku, Tokyo 101-8443
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After sending the printed application documents, please send the PDF version of the set to the following e-mail address: h2fund_app2019@mizuho-ir.co.jp

The Secretariat will send a confirmation e-mail once it has received both the printed documents and the PDFs.

6. Screening Method and Criteria

Screening method

The proposals will be reviewed impartially by a TMF-organized screening panel (of about seven members) consisting of experts on hydrogen technologies (e.g., researchers at universities or research institutes). To ensure impartiality is maintained, screening panel members will not be involved in reviewing proposals from their own organization or from a joint research partner thereof.

Screening criteria and scoring

The screening criteria and scores are listed below. Note that the Secretariat may request additional documents if further verification is necessary.

- (a) Appropriateness of the research proposal (5 points)
The details of the proposal are in line with the basic concept and research theme of the grant program.
- (b) Innovativeness and originality of the research proposal (5 points)
The details of the proposal reflect originality, innovation and ambition.
- (c) Validity of the research plan and of the use of the grant funds. (5 points)
The research plan and use of the grant funds are appropriate with respect to the details of the proposal and the research framework.
- (d) In-Person Evaluation (15 points)

Number of accepted proposals and notification of grant decision

We are planning to accept around 10 entries. All grantees are required to have his/her organization accept the terms and conditions stipulated at the end of this document (Japanese document only available)

Applicants will be informed of whether their proposal has been accepted and of the amount of the grant, if applicable, in early February. Please note that we will be unable to reply to inquiries about the reasons or other details concerning the acceptance or rejection of a proposal.

Acceptance with condition

The screening panel may propose condition for official acceptance. In that case you will be requested to consider the presented condition and resubmit proposals and so on as necessary.

7. Obligations after Acceptance

Transfer and management of the grant funds

The grant funds for the grantees will be transferred to their affiliated institution as a donation annually around March to May. Please manage the grant funds separately from other research funding or donations. You may be requested to provide accounting documentation when you provide your annual report.

Modifications to the use of the grant funds after acceptance

In principle, it is not permitted to modify the use of the grant funds after the proposal has been accepted. However, modifications may be approved if a change in research conditions leads to determining that the modifications are necessary to achieving better results. Please contact

the Secretariat separately.

Obligation to present an annual report

Grantees are required to attend the mid-term report meeting held in or around September every year.

They are also required to present an annual report (research results and status of the use of the grant funds) in or around January. Please note that the grant for the following year may be terminated if the screening panel does not observe tangible progress offering the potential to yield practical results within the allotted timeframe. At the same time, the applicant will be required to update the Research Plan and Itemized Statement for the Grant Amount.

Announcement of results

The applicant is required to indicate that the results have been obtained through this grant when presenting such results at an academic conference or in papers.

Miscellaneous

You may be requested to publish your results in TMF publications or present them at conferences.

8. Overall Schedule

The (planned) overall schedule is as follows.

Application and selection	• Application period	October 10 to December 9, 2019
	• Screening of the documents by the screening panel	December 2019 to January 2020
	• In-Person evaluation by the screening panel	January 31, 2020
	• Notification and announcement of decision	Mid-February, 2020
	• Transfer of first-year grant funds by TMF	March to May 2020
First year of grant	• Applicable research conducted by grantee (first year)	April 2020 to March 2021
	• Mid-term report to the screening panel by the grantee (mid-term report meeting)	Around October 2020
	• Submission of annual report by the grantee (research results, status of the use of the grant funds)	March 2021
	• Update of the Research Plan and Itemized Statement for the Grant Amount by the grantee	
	• Verification of progress by the screening panel	
• Transfer of grant funds by TMF (if the grant is maintained)	March to May 2021	
Second year of grant	• Applicable research conducted by grantee (second year)	April 2021 to March 2022
	• Mid-term report to the screening panel by the grantee (mid-term report meeting)	Around October 2021
	• Submission of annual report by the grantee (research results, status of the use of the grant funds)	March 2022
	• Update of the Research Plan and Itemized Statement for the Grant Amount by the grantee	
• Verification of progress by the screening panel		

	• Transfer of grant funds by TMF (if the grant is maintained)	March to May 2022
Third year of grant	• Applicable research conducted by grantee (third year)	April 2022 to March 2023
	• Mid-term report to the screening panel by the grantee (mid-term report meeting)	Around October 2022
	• Submission of final report by the grantee (final research results, status of the use of the grant funds)	March 2023
	• Reporting and announcement of results by the grantee (as necessary)	To be determined

Researchers Award Ceremony



Top left: The group of grantees display their certificate that they received from Akio Toyoda, the Chair of the Board of Directors of TMF (President of TMC).

Top right: Lively discussion about wide range of fields to establish a hydrogen society such as future research development and future hydrogen society was held with screening panel members. Further discussions with researchers are planned.

9. Reporting Changes

TMF must be notified immediately if personnel transfers, modification or cancellation of the research by the affiliated institute, or other circumstances compromise the pursuit of the applicable research during the grant period.

10. Personal Information

Personal information obtained from the application materials shall be managed appropriately in accordance with the laws concerning the protection of personal information.

11. Contact Information

This grant program shall be managed by TMF, with the management of the call for proposals entrusted to Mizuho Information & Research Institute, Inc.

For inquiries or information

Address Secretariat, Toyota Mobility Foundation Hydrogen Research Initiative
Global Innovation & Energy Division, Mizuho Information & Research Institute,
Inc.
2-3 Kanda-Nishikicho, Chiyoda-ku, Tokyo 101-8443
Contact: Toshiyuki Ikai , or Endo

Telephone: 03-5281-5295

E-mail: h2fund_app2019@mizuho-ir.co.jp
(Please send specific questions concerning applications or the necessary
documents via e-mail.)

12. Introduction of the Secretariat

Toyota Mobility Foundation

Toyota Mobility Foundation is a generally incorporated foundation that provides global funding and support for activities aimed at building a better mobility society carried out by governments, local administrations, universities, research institutes, or NPOs.

Website: www.toyotamobilityfoundation.org

Reference Material: Grant Categories

Category		Overview
Labor expenses	Principal researcher labor expenses	Take the effort required to conduct the applicable research (ratio of time exclusively devoted to that research) into consideration when applying for labor expenses for the principal researcher.
	In-house research associate labor expenses	Labor expenses for in-house research associates include the part- or full-time wages or salary paid to any research associate (e.g., post-doctorate researcher or assistant) working at an affiliated institution. Take the effort required to conduct the applicable research (ratio of time exclusively devoted to that research) into consideration when applying for those labor expenses.
Travel expenses	Travel expenses in Japan	Expenses (transportation fees, accommodation costs, daily allowances) incurred by the principal researcher or in-house research associates for the business trips in Japan.
	Overseas travel expenses	Expenses (transportation fees, accommodation costs, daily allowances) incurred by the principal researcher or in-house research associates for business trips outside Japan.
Operational expenses	Supplies expenses	Purchase of supplies, newspapers or magazines necessary to conduct the applicable research and which cost 100,000 yen or less.
	Leasing or rental fees	Expenses for ground or office space rent, or for leasing or renting equipment or devices for experiments, machinery, facilities, computers, or software.
	Facilities & equipment management & maintenance expenses	Expenses involving the servicing, maintenance, and management of equipment.
	Outsourcing expenses	Expenses such as payment for agency to evaluate and measure the research results.
	Meeting expenses	Expenses such as venue rental fees or meal expenses (excluding alcohol) for meetings held with respect to carrying out the applicable research.
	Membership and admission expenses	Membership and admission fees for academic conferences or research societies joined or attended in carrying out the proposed research.
	Experiment waste materials processing fees	Fees required processing the waste materials from experiments.
	Freight expenses	Expenses incurred to transport the equipment or office materials (including insurance fees)
	Communication expenses	Costs incurred for mail, telephone, delivery services, internet services, or other forms of communication.
	Printing and copying expenses	Expenses incurred for printing or making copies.
Indirect and miscellaneous expenses		Indirect and miscellaneous expenses treated as donations for accounting purposes. (Note that these expenses are included in the upper limit applied to the grant funds.)

一般財団法人 トヨタ・モビリティ基金 「水素社会構築に向けた革新研究助成」 規程

（規程の趣旨）

第1条 この規程は、一般財団法人 トヨタ・モビリティ基金（以下「TMF」という）が実施する「水素社会構築に向けた革新研究助成」に基づく助成（以下「本助成」という）について、必要な事項を定める。

（助成の目的と公募の実施）

第2条 本助成は、次世代を担うと期待される研究者による独創的、革新的、意欲的な研究への助成を通じて、水素社会構築に資する革新技術の基礎研究を支援し、その成果を広く公表し、社会に貢献していくことを目的とする。

2. 助成金の申請者（以下「申請者」という）の募集方法は公募とする。
3. 公募する研究助成分野の詳細は、毎年の応募要項等で定めるものとする。
4. 研究助成期間は最大で3年間とするが、成果によっては延長も可能とする。その場合の手続きは別途定めるものとする。

（申請者の資格）

第3条 申請者は、日本国内の大学・大学院、大学の附属研究機関、大学共同利用機関、高等専門学校、公的研究機関に所属する研究者等とする。

（助成の申請）

第4条 申請者は、応募要項に定める所定の研究計画書、助成金内訳明細書等を TMF に提出しなければならない。

2. 助成の申請期間は、毎年の応募要項等で定めるものとする。

（助成金と助成科目）

第5条 助成金は、研究にあたり必要とされる費用とする。助成対象となる助成科目の詳細は、毎年の応募要項等で定めるものとする。

（評価委員会の設置と採択）

第6条 TMF は、助成の決定のために水素分野の専門家からなる評価委員会（以下「評価委員会」という）を設置する。

2. 評価委員会は、第3条の助成対象となるものを選考し、その選考結果を TMF に報告するものとする。評価委員会は、必要と認めるときは、申請者に対し追加資料の提出や口頭の説明等を求めることができる。
3. 評価委員会は、助成額や提案された研究内容が採択基準に満たないものの申請者の過度の負担にならず、また研究の本質を変えない範囲での変更・研究項目追加

で採択の可能性がある場合、評価委員会あるいは **TMF** は採択のためのアドバイスを提示することができる。その場合、申請者のアドバイスを反映した研究計画書や助成金内訳明細書の提出をもって、評価委員会あるいは **TMF** は正式な採択を行うものとする。

(助成金の決定通知)

第7条 前条により決定した採択結果は、書面その他の方法で、遅滞なく申請者に通知する。

(研究計画等の変更)

第8条 助成金の採択を受けたもの（以下「採択者」という）は、採択を受けたのちに研究計画書や助成金内訳明細書等に関し、重要な変更をしようとするときは、**TMF** の承認を受けなければならない。

2. **TMF** は変更の承認にあたり、評価委員会に助言を求めることができる。

(整理保管)

第9条 採択者は、受領書など関係書類を整理保管しなければならない。

(進捗報告と評価)

第10条 **TMF** は年2回を目途に採択者から進捗報告を求めることができる。進捗報告の期日は別途定めることとする。

2. **TMF** は評価委員会とともに研究の進捗を評価し、採択者に対して必要と思われるアドバイス等を行うものとする。

3. 評価の結果、採択者の研究に進展が見られない場合、**TMF** は次年度以降の助成金を減額あるいは打ち切ることができる。

(収支報告)

第11条 採択者は、各年度の終了後に、該当年度における助成金収支について **TMF** に報告しなければならない。

(研究成果の発表)

第12条 採択者が研究の結果の全部もしくは一部を学会や論文集等で発表や公表する場合には、本助成による成果であることを明記することとする。その場合、助成の採択者は、遅滞なく、**TMF** に報告することとする。

2. **TMF** は、採択者の研究の全部または一部を発表することができる。また **TMF** は、採択者に対して、研究成果について **TMF** の出版物への寄稿や発表会での講演を求めることができる。

(助成金の決定の取消、中止、および返還)

第13条 採択者が、次の各号のいずれかに該当したとき、またはその事実が判明したときは、TMF は助成決定を取り消し、交付の中止や、すでに交付した一部もしくは全部の返還を求めることができる。

- (1) 虚偽の申請または報告を行なったとき
- (2) 対象となる研究活動等が中止になったとき
- (3) その他この助成の目的に照らしてふさわしくないと TMF が認めたとき

(賠償責任)

第14条 採択者が、研究の遂行にあたっての事故、不正、反社会的行為等によって、採択者本人、所属組織、第三者の生命、身体、財産に損害を与えた場合に、TMF および評価委員会が賠償を請求されることはない。

(天災その他不可抗力の扱い)

第15条 自然災害または人為的な事象であって、採択者及び TMF 双方の責に帰すべからざるものにより、採択者及び TMF いずれかによる履行が遅延又は妨げられる場合、当事者は、その事実の発生後遅滞なくその状況を書面により相手方に通知しなければならない。また、採択者及び TMF は、通知後速やかに書面にて不可抗力発生的事实を確認し、その後の必要な措置について協議し定める。

(研究成果)

第16条 本助成に基づく研究成果は、採択者もしくは所属機関に帰属するものとし、特許権等の知的財産権の取扱いについては、原則として、採択者の所属機関の規程等に従う。なお、採択者および所属機関は、本助成の目的に資するため、できる限り当該知的財産権を活用し、研究成果を社会に還元していくことに努めるものとする。

(細則)

第17条 この規程に定めるもののほか、必要な事項は TMF が定める。

附則

この規程は、平成30年4月1日から適用する。

一般財団法人 トヨタ・モビリティ基金 御中

同意書

私は、「水素社会構築に向けた革新研究助成」規程を確認し、
同意いたします。

日付： 年 月 日

所属：

職位：

名前（自筆）：

以上