



Request for Information (RFI): Project opportunities for the production, consumption, transport or storage of green hydrogen and derivatives in South Africa

02 July 2021

1. DISCLAIMER

1.1. This Request for Information (“RFI”) is issued by the Council of Scientific and Industrial Research (“CSIR”) and Meridian Economics on behalf of KfW Development Bank (“KfW”) and is intended to solicit information about potential green hydrogen project opportunities from a wide range of networks.

1.2. The RFI is an information gathering exercise. It is an open, non-compulsory, non-binding process and does not preclude KfW from engaging with other projects that have not responded to the RFI. KfW reserves the right to postpone, withdraw, amend, modify or cancel the RFI process at any time, without prior notice and without liability to compensate or reimburse any person pursuant to such postponement, withdrawal, amendment, modification or cancellation.

1.3. The CSIR, Meridian Economics and KfW intend to use the information provided in response to this RFI in order to identify hydrogen projects which may be eligible for funding. KfW holds sole discretion over the selection of projects for funding;

1.4. The costs of responding to this RFI shall be solely borne by the responding party and KfW will not be held liable for any claims or costs whatsoever incurred in responding to the RFI, and the responding party hereby indemnifies KfW, the CSIR and/or Meridian Economics in this regard.

1.5. Neither KfW, nor any of its advisors accept any liability or responsibility for the completeness, accuracy or adequacy of any of the information or opinions stated in this RFI. It will be incumbent upon the interested party to independently determine, verify and/or confirm such accuracy or adequacy of the information; and the interested party further indemnifies KfW in this regard.

1.6. KfW, CSIR and Meridian Economics, in its sole discretion, anticipates engaging with some of the projects who submit responses to the RFI to discuss their projects with a view to seeking clarity in relation to information contained in such responses to the RFI.

1.7. No act or omission by either of KfW, the CSIR and Meridian Economics relating to this RFI shall create or be deemed or interpreted to create any expectation of future business dealings concerning the subject-matter of this RFI between the aforementioned parties on the one hand and the responding party on the other.

1.8. For avoidance of any doubt, this disclaimer and the accompanying indemnity shall at all relevant times apply equally to protect each and all of the KfW, CSIR, Meridian Economics, and any of its officers, employees, servants, agents, advisors and/or representatives.

2. BACKGROUND INFORMATION

KfW Development Bank, on behalf of the German government, has launched a concessional financing initiative seeking to catalyse the development of a green hydrogen economy in South Africa. South Africa's rich endowment of world-class renewable energy resources, strong existing technical and financial capabilities, and access to platinum group metals places the country in an extraordinary position to develop a thriving, globally competitive green hydrogen market. The KfW initiative is underpinned by Germany's National Hydrogen Strategy which aims to support the establishment of hydrogen supply chains and develop partner relationships to facilitate the accelerated uptake of green hydrogen as part of the global energy transition.

The KfW funding initiative will take a phased approach to identify and support promising project opportunities in the South African market. The first phase of this approach is to facilitate an open, participatory process to obtain information from companies and consortia that would be interested in presenting green hydrogen project proposals. Consideration will be given to new projects for the production, transport, export or storage of green hydrogen and its derivatives, as well as projects in existing value chains that support the transition of fossil-based processes to green hydrogen within a specific timeframe, for example in heavy industries, chemicals and transport.

Offerings from financial institutions, such as innovative financial instruments or funded subsidy mechanisms for stimulating the competitiveness of green hydrogen in the South African market, will also be considered.

2.1 ROLE OF LOCAL PARTNERS

The CSIR and Meridian Economics have been appointed by KfW to design and implement an evaluation process for green hydrogen project opportunities, for a selection decision by KfW. This includes the issuance of this non-binding, non-compulsory RFI to gather information on potential project opportunities, and setting up an evaluation framework to assess these opportunities. This structured evaluation process does not preclude KfW from engaging with other projects which have not responded to the RFI, however, well considered RFI submissions, and follow up bilateral discussions, provide the primary mechanisms for successful project selections. KfW holds sole discretion over the final selection of projects.

2.2 FUNDING AVAILABLE

A total of up to €200 million in concessional financing will be made available by KfW on behalf of the German government to be allocated across a suite of selected projects. Preference will be given to projects that are at least in the pre-feasibility stage due to tight funding disbursement timelines.

The funding will be disbursed via a South African public institution¹. The public institution will act either as a financial intermediary, on-lending or on-granting to the recipients (public or private), or as an

¹ For example, Development Finance Institutions (DFIs), State-Owned Entities (SOEs), Metropolitan Municipalities, Government Departments

implementing partner in the project in which case funds would flow directly to the public institution involved.

Modest additional funds can be made available for technical assistance to the successful project submissions for feasibility studies, mindful that the funding disbursement schedule requires projects to be at least in the pre-feasibility stage. Projects are required to indicate whether such funds would be necessary for project implementation.

3. REQUEST FOR INFORMATION PROCESS

The overall objective of the RFI is to identify high impact project opportunities that best exploit the decarbonisation potential offered by green hydrogen and provide the greatest opportunity for stimulating South Africa's green hydrogen market.

The RFI process is aimed at soliciting information on a broad range of project opportunities from a wide range of networks, which amongst others may include:

- **New projects** by developers for the production, transportation, export and/or storage of green hydrogen and/or green hydrogen products.
- **Projects in existing value chains** that support the transition of fossil-based processes to green hydrogen, for example in heavy industries, chemicals and transport.
- **Offerings from financial institutions**, such as innovative financial instruments or funded subsidy mechanisms, for stimulating the competitiveness of green hydrogen in the South African market.

3.1 GREEN HYDROGEN FOCUS

The primary focus of the funding is to support green hydrogen, which is defined as hydrogen produced by the electrolysis of water using electricity generated exclusively from renewable energy. The hydrogen generated in this way can be compressed, liquified or further processed into liquid fuels or base chemicals. Strong preference will be given to projects that can demonstrate that they can meet the "green hydrogen" criterion.

Consideration will be given to projects that support the transition from hydrogen that is not produced solely using renewable energy – these being grey hydrogen (produced using fossil fuels) or blue hydrogen (produced using fossil fuels plus carbon capture technology; which meets a low-carbon threshold but is generated using non-renewable energy sources). **For grey hydrogen**, a transition pathway with tangible milestones towards green hydrogen within three to five years is demonstrated.

3.2 NON-ELIGIBLE ACTIVITIES

Projects or investments (and their “Associated Facilities”²) that fall under the KfW exclusion list cannot be funded³. Projects cannot be co-funded by other federally funded German initiatives such as the H2 Global, IKI, or similar initiatives.

The funding is not intended to support research and development and only projects that utilise commercially proven or near-proven technology are eligible for support.

3.3 MULTIPLE SUBMISSIONS

If interested parties wish to propose more than one project, they can submit more than one proposal. Each proposal must be contained in a separate submission, i.e., if a consortium wishes to propose two alternative projects, each project must be presented in separate forms.

3.4 PROJECT ASSESSMENT CRITERIA

Projects will be assessed based on the following broad criteria (no weighting, randomly listed):

1. **Technical Risk:** the degree to which the technology to be used is commercially proven and the technical risks of the project meeting its forecast outcomes.
2. **Financial Viability:** the degree to which the project is financially viable with the concessional finance and the amount of finance leveraged from other sources.
3. **Environmental Impact:** the CO₂ emission reduction potential of the project (in absolute terms and per € of funding), as well as ancillary positive or negative environmental impacts.
4. **Development Status:** how advanced is the project planning process and the likelihood of successful implementation of the project in the required timeframes.
5. **Execution Risk:** the ability of project sponsors, technical partners, advisers, contractors and operators to execute the project.
6. **Market risk:** The degree to which the potential targeted market has been defined including competitor analysis, customer demand analysis, drivers of demand and sustainable competitive advantage.
7. **Social Impact:** the degree to which the project has positive or negative impacts on employment, empowerment of historically disadvantaged individuals, gender imbalances or other social considerations.

Other sub-criteria will be considered to inform the assessment and interested parties are encouraged to provide as much information as possible in support of the programme objectives.

3.5 INFORMATION REQUESTED

Parties are required to submit information for this RFI using the information request template (Annexure A), which can be found on the [document download page](#). Further supporting information, including maps,

² Associated facilities are facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist, and without which the project would not be viable. These could include railways, roads, transmission lines, pipelines, etc.

³ https://www.kfw.de/PDF/Download-Center/Konzernthemen/Nachhaltigkeit/Ausschlussliste_EN.pdf

permits, letters of support, etc. can be provided as additional documentation appended to the submission.

The basic information requested is covered under the topics outlined below:

3.5.1 Project description

3.5.1.1 Description of the domestic or international company or consortium that is submitting the proposal.

3.5.1.2 Description of proposed project solution, including:

- The volume of green hydrogen produced, consumed, exported and the type of products and by-products that are planned to be commercialised
- Target markets
- The technology to be deployed
- The processes and technologies considered for energy supply, including a detailed description of the origin of the power and chain of supply to the project.
- The processes and technologies considered for water supply, including a detailed description of the water source and chain of supply to the project.

3.5.1.3 Description of the proposed project site/s.

3.5.2 Technical Description

3.5.2.1 The technology to be deployed and the extent to which it has been commercially implemented (including provision of project reference sites, Original Equipment Manufacturer (OEM) guarantees, Technology Readiness Level assessments or similar if available).

3.5.2.2 Key technical assumptions underlying the production (or consumption) forecasts such as conversion efficiency, capacity factor, renewable energy capacity required and so forth.

3.5.2.3 Where available provide names and relevant project references for the likely:

- Engineering Procurement and Construction (EPC) contractors
- Operations and Maintenance (O&M) providers
- Key technology providers or OEMs
- Technical advisers

3.5.2.4 In the case of a project for the transition of fossil-based processes to green hydrogen a description of the technology and process changes required and the timeframes and milestones (within a three to five year period) for the transition from current fuel sources.

3.5.3 Financial viability

3.5.3.1 Estimated total project investment amount and indicative funding requested under the KfW programme.

3.5.3.2 Indicative financing structure (sources and uses of funds) and the extent to which the project can leverage the concessional finance provided by KfW to source additional funding.

Note: *The KfW finance is envisaged as concessional debt, the nature of which will be decided by KfW. However, interested parties can suggest preferred methods of*

concessionality suitable for their project (such as concessional interest rates, loan or equity guarantees, performance guarantees, repayment grace periods and so forth).

- 3.5.3.3 Financial standing of project partners – where possible providing an indication of ability to provide the required sponsor equity to the project.
- 3.5.3.4 The intended business model and indicative financial model for the project (including NPV, IRR, and cashflow profile) and an indication of envisaged drawdown profile of KfW funds.
Note: *Where available provide the financial model in a separate Excel spreadsheet.*
- 3.5.3.5 Description of access to funding, outside of the KfW funding, if any – where possible provide letters of interest or term sheets from other grant, debt or equity financing sources. In the case of public sector projects provide an indication of sources of capital and operating costs.
- 3.5.3.6 Description of the project off-takers (or suppliers where appropriate) of the hydrogen, including letters of interest, term sheets (from buyers or suppliers), market studies or other market development or supply chain development activities.
- 3.5.3.7 Description of current financial hurdles preventing project implementation.

3.5.4 Environmental impact

Note: *where possible provide evidence for greenhouse gas (GHG) reduction estimates such as approved methodologies from a carbon crediting or reporting standard or own calculations using recognised emission factors. In the absence of a credible GHG reduction estimate provide the scale of renewable energy to be used by the project.*

- 3.5.4.1 Brownfields projects: estimate of avoided CO₂-equivalent (CO_{2e}) emissions achieved by the project relative to a current operational baseline.
- 3.5.4.2 Greenfields projects: estimate of avoided CO_{2e} emissions achieved by the project relative to the use of mainstream technologies.
- 3.5.4.3 Outline the future expansion strategy including the potential for expansion of the project or investment being considered. Explain if the project or technology can be replicated and the potential role of the project in building a hydrogen ecosystem in South Africa.
- 3.5.4.4 Description of ancillary positive or negative environmental and social impacts of the project (such as but not limited to, air pollution, water consumption, use of scarce natural resources, land acquisition, impacts on livelihoods, impacts on biodiversity etc.). Description of the approach to assess, prevent and remediate to any potential environmental and social impacts such as studies, management tools etc. to be used at the different stages of the project development, preparation, construction and operation. This should also encompass public consultation and stakeholder engagement strategies. Where possible provide Environmental Impact Assessments (EIAs) or environmental specialist studies conducted as appendices.

3.5.5 Development status

- 3.5.5.1 The extent to which scoping and/or pre-feasibility studies have been completed. Provide studies as appendices where applicable.

- 3.5.5.2 Proposed phases for the development and implementation of the project, specifying the corresponding schedule until the start of the productive operations including timeline to financial close. Identify any long-lead regulatory, commercial or technical items.
- 3.5.5.3 The extent to which relevant permits and licenses have been obtained (environmental, pipelines, servitudes, and so forth) and which are still required.

3.5.6 Social impact

- 3.5.6.1 Description of job creation over the project construction and operation periods, including an overview of the representation of women and historically disadvantaged individuals.
- 3.5.6.2 BB-BEE⁴ scorecard for project sponsor or key members of consortium.
- 3.5.6.3 Other evidence of transformative impact can be provided where relevant. This could include such items as:
- Skills development
 - Description of consultation processes with local stakeholders
 - Localisation potential of the project/project components

3.5.7 Financial Mechanism Submissions

Note: *In the instance of a submission by an interested party of a financial instrument or mechanism much of the above information is not likely to be applicable. As a minimum such submissions should provide the following information:*

- 3.5.7.1 Description of the sponsor organisation or consortium structure, including key legal and technical advisers.
- 3.5.7.2 Nature of the financial instruments proposed and the role of concessional finance in its establishment.
- 3.5.7.3 The market barrier being addressed.
- 3.5.7.4 The envisaged scale of the instrument including funding requested under the KfW programme.
- 3.5.7.5 Financing structure and amounts and envisaged sources of additional funding required. Evidence of any support to be provided in the form of letters of interest, term sheets or similar.
- 3.5.7.6 Market assessments carried out and the project pipeline under consideration for investment, including an estimate of the likelihood of achieving target scale and time-period for same.
- 3.5.7.7 Timeline and key milestones to establishment including major regulatory requirements and an indication of the envisaged timeframe for drawdown of KfW funds (indicative target date of end-2023 for disbursement of funds).

⁴ Broad-based Black Economic Empowerment and relevant Codes of Good Practice as issued under the BBEE Act for a particular sector of the economy, see: <http://www.thedtic.gov.za/financial-and-non-financial-support/b-bbee/b-bbee-codes-b-bbee-acts-strategies-policies/>

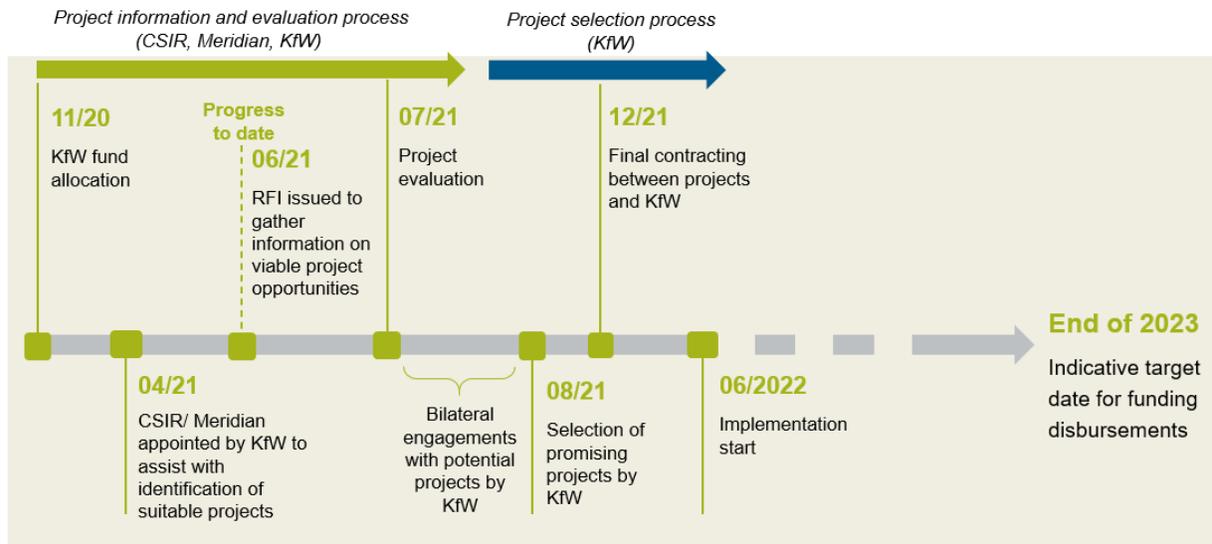
3.5.7.8 Sponsor track record in similar funding structures.

3.5.8 Additional Information

3.5.8.1 Any additional information in support of the programme objectives.

4. TIMELINES

Responses to the RFI are to be submitted by 30 July 2021, the latest. For early submission see 7.1.



5. PARTICIPANT INFORMATION

- Submissions are open to any public or private institution or consortium of such institutions intending to implement the envisaged project.
- In the case of consortia, interested parties should confirm that the submission is on behalf of the consortium.

6. FUNDING MECHANISM AND ROLE OF LOCAL PUBLIC INSTITUTION

Specific mechanisms for disbursing and accessing the finance are being developed in parallel to the RFI and will be communicated to all interested parties when finalised:

- It is envisaged that a local development finance institution may play an intermediary role for the flow of all or some of the funds to projects supported. In such a case projects are likely to be required to meet lending criteria of that institution in addition to those of the KfW programme.
- Consideration is also being given for funds to be provided directly by KfW either to a public institution to implement their own project or to a project of sufficient scale that allows for a bilateral funding arrangement between KfW and the project or sponsor.

7. GENERAL

7.1 PROJECT SUBMISSION PROCESS

- Submissions are to be emailed to hydrogenproject@csir.co.za by 30 July 2021.
- Bilateral engagements will commence with promising projects throughout the RFI submission window and will continue after the submission deadline. Interested parties are encouraged to make their submission as soon as is possible.

7.2 CONFIDENTIALITY

KfW, CSIR and Meridian Economics shall:

- Use its reasonable endeavours to keep all data and details submitted by responding parties strictly confidential, save to the extent that such data or details are required to be disclosed by applicable law or order of a court of competent jurisdiction; be entitled to disclose all data and details to their officers, employees, agents, advisors and representatives who are involved in the project and the evaluation of the responses; and
- Not be liable for any loss incurred or damage suffered as a result of any disclosure of any information (confidential or otherwise) of the responding party. The responding party shall not have, and hereby waives, any claim against KfW, CSIR and Meridian Economics arising out of the disclosure of any information, confidential or otherwise.

7.3 RESERVATION OF RIGHTS

- KfW, CSIR and Meridian Economics reserves the right, to use information submitted in response to this RFI for the purpose of compiling and aggregating data for public release, related to the information submitted, without mentioning / identifying specific projects or parties.
- KfW, CSIR and Meridian Economics reserves the right to verify any information contained in a response to this RFI;
- KfW, CSIR and Meridian Economics reserves the right to cancel or withdraw this RFI as a whole or in part.

7.4 CONTACT INFORMATION AND CLARIFICATIONS

- Interested parties are free to request clarifications from, or engage directly with, the project team via email at hydrogenproject@csir.co.za.
- Interested parties are encouraged to refer to the Frequently Asked Questions platform, which will be updated throughout the RFI submission window.