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| **Cover Page for CTF Project/Program Approval Request** | | | | | | | | | | |
| 1. **Country/Region** | | Nicaragua | | | | 1. **CIF Project ID**# | | (CIF AU will assign ID.) | | |
| 1. **Investment Plan (IP) or Dedicated Private Sector Program (DPSP)** | | IP | |  | | 1. **Public or Private** | | Public | | **✓** |
| DPSP | | **✓** | | Private | |  |
| 1. **Project/Program Title** | | Nicaragua Geothermal Exploration and Transmission Improvement Program under the PINIC | | | | | | | | |
| 1. **Is this a private sector program composed of sub-projects?** | | Yes | | | | | | |  | |
| No | | | | | | | **✓** | |
| 1. **Financial Products, Terms and Amounts** | | | | | | | | | | |
| **Financial Product** | | | | | | **USD** (million) | | **EUR** (million) | | |
| Grant | | | | | |  | |  | | |
| Fee on grant | | | | | | 0.476 | |  | | |
| MPIS (for private sector only) | | | | | |  | |  | | |
|  | | | | | |  | |  | | |
| Public sector loan | Harder terms | | | | |  | |  | | |
| Softer terms | | | | |  | |  | | |
|  | | | | | |  | |  | | |
| Senior loan | | | | | |  | |  | | |
| Senior loans in local currency hedged | | | | | |  | |  | | |
| Subordinated debt / mezzanine instruments with income participation | | | | | |  | |  | | |
| Second loss guarantees | | | | | |  | |  | | |
|  | | | | | |  | |  | | |
| Equity | | | | | |  | |  | | |
| Subordinated debt/mezzanine instruments with convertible features | | | | | |  | |  | | |
| Convertible grants and contingent recovery grants | | | | | | 9.524 | |  | | |
| Contingent recovery loans | | | | | |  | |  | | |
| First loss guarantees | | | | | |  | |  | | |
|  | | | | | |  | |  | | |
| Other (please specify) |  | | | | |  | |  | | |
|  | | | | | |  | |  | | |
| **Total** | | | | | | 10.000 | |  | | |
| 1. **Implementing MDB(s)** | | | Inter-American Development Bank (IDB) | | | | | | | |
| 1. **National Implementing Agency** | | | Ministry of Energy and Mining (MEM), with the support from the Nicaraguan Electricity Company (Empresa Nicaragüense de Electricidad, ENEL), and the National Electricity Transmission Company (Empresa Nacional de Transmisión Eléctrica, ENATREL) | | | | | | | |
| 1. **MDB Focal Point** | | | Claudio Alatorre (calatorre@iadb.org) | | | | | | | |
| 1. **Brief Description of Project/Program (including objectives and expected outcomes)** | | | | | | | | | | |
| In 2015 electricity demand reached 665.4 MW, and it is projected to reach 896 to 1,038 MW by 2026. Around 80% of all electricity is produced by the private sector in Nicaragua and geothermal power for electricity production is solely developed by the private sector through exploration and exploitation concessions granted by the government. Despite having a good legal framework for geothermal energy, there is uncertainty regarding the availability, long-term durability, and cost of extracting it for power generation, that limit private investment, especially in the initial stage of exploration. Financing mechanisms need be developed to mitigate this risk and to stimulate competition in the development of the resource, in order to bring in private investors.  The IDB has developed this Program with two components. The first one seeks to diversify Nicaragua’s energy matrix by developing additional geothermal capacity through supporting early exploration activities; and the second component seeks to increase access to electricity and improve service reliability by increasing the national and regional transmission capacity through network reinforcements.  CTF and SREP resources are being requested in parallel to support the first Component (a separate submission is being sent to the SREP Trust-Fund Subcommittee).  TheGeothermal Developmentcomponentconsists of feasibility exploration activities at the Cosigüina geothermal field, including drilling of 5 commercial diameter explorations wells, road infrastructure and a feasibility evaluation report, all to be carried out by the Ministry of Energy and Mining (MEM). In case the field, with an expected capacity of 40MW, is considered feasible for further development, this component will also support the MEM in designing and implementing an international bidding process to award an exploitation concession to a private investor for the commercial development at the Cosigüina geothermal field. In addition, the design of an early exploration risk mitigation mechanism will be financed to attract private investment for the implementation of future geothermal projects. The revenues from the bidding process will provide the funding for this mitigation mechanism.  The Nicaraguan Government will repeatedly reinvest the resources from the mitigation mechanism in subsequent projects during a period of 30 years.  For procedural reasons, the IDB is requesting a “fee” of USD 476,000. This amount will be used mainly to support the implementation of the Program through specialized consultants and other technical assistance activities. | | | | | | | | | | |
| 1. **Consistency with CTF investment criteria** | | | | | | | | | | |
| 1. Potential GHG emissions savings | | For CTF the potential GHG emissions savings are as follows: 89,906 tons CO2e/year and 2,697,191 tons CO2e during the lifetime of the Project (30 years).[a] | | | | | | | | |
| 1. Cost-effectiveness | | The cost effectiveness of the project is:   1. Considering only CTF resources and emission savings[a]: 0.27 tons CO2e/USD, or 3.71 USD/ton CO2e 2. Considering all resources (CIF, IDB and Government resources) and all emission savings[a]: 0.13 tons CO2e/USD, or 7.8 USD/ton CO2e | | | | | | | | |
| 1. Demonstration potential at scale | | In Nicaragua there are 12 geothermal fields with an estimated potential of 1,500MW, but only two, San Jacinto-Tizate and Momotombo with a total capacity of 154.5 MW, have been developed so far by the private sector. Development of additional fields is mainly hindered by uncertainty related to the availability, long-term durability and cost of geothermal resource exploration for power generation.  The proposed bidding process to award a concession for the Cosigüina field will attract international developers to Nicaragua. The design and implementation of a risk mitigation mechanism will support future project development activities and therefore support scaling up geothermal power in Nicaragua. | | | | | | | | |
| 1. Development impact | | Apart from Geothermal power being a low carbon renewable energy source with positive impacts on the electricity grid, it also offers positive development impacts such as high quality labor during exploration, construction and operation of the plant (estimated at 45 during exploration, 160 during construction and 68 during operation).[a]  In addition, fossil fuel imports and related spending can be reduced. Finally, the fact that the early exploration activities, as well as the design and implementation of the bidding process and the risk mitigation instrument, will be developed by the public sector creates important capacities in the relevant public sector institutions, which can be applied with other infrastructure projects.  It also creates important links of collaboration between the public and private stakeholders which can be beneficial for the sector as a whole. | | | | | | | | |
| 1. Implementation potential | | The implementation potential for the project is good due to several reasons: (i) Geothermal energy has a long operating history in Nicaragua, with the first plant—Momotombo—starting operation in 1983 and the second one—San Jacinto—in 2005; (ii) a solid legal framework for geothermal energy has been in place since 2002 and has already been updated twice; and (iii) the IDB has a track record with Nicaragua’s energy sector that dates back to 1973. The IDB has supported a number of investments in electricity infrastructure, as well as reform processes that have promoted the institutional strengthening of the country’s energy sector. | | | | | | | | |
| 1. Additional costs and risk premium | | Geothermal resource risks are perceived as significant by lenders during the exploratory drilling stage, significantly limiting debt financing to private sector to corporate lending backed by a strong balance sheet, or concessional financing by public sector institutions. When project debt financing is not available, and private sponsors need to finance this stage with equity, the cost of capital is often times prohibitive.  In the face of these constraints for the access to finance for private developers, the Nicaraguan government has opted for a model where it carries out the exploration activities and then offers a concession to a private developer.  Limited public resources are however needed for other competing uses. Contingent recovery CTF and SREP resources will therefore provide the missing financing. | | | | | | | | |
| **Additional CTF investment criteria for private sector projects/ programs**  (The following items are filled out for this public sector operation because it is using DPSP resources) | | | | | | | | | | |
| 1. Financial sustainability | | The project seeks to recover CTF and SREP resources through revenues from the award of the exploitation concession for the Cosigüina field, and to make these resources available for a new risk mitigation scheme supporting additional projects. | | | | | | | | |
| 1. Effective utilization of concessional finance | | Consistent with its principles and objectives, CTF funding will take risks that commercial lenders or investors are not able to bear, crowding in the private sector by catalyzing investment that would not happen otherwise. | | | | | | | | |
| 1. Mitigation of market distortions | | The IDB will target a segment and certain types of financing modalities that currently are not being served by the private sector. | | | | | | | | |
| 1. Risks | | See Section II of the main document (pages 13 to 18). | | | | | | | | |
| 1. **For DPSP projects/programs in non-CTF countries, explain consistency with FIP, PPCR, or SREP Investment Criteria and/or national energy policy and strategy** | | | | | | | | | | |
| This Project is seeking resources from both SREP and CTF (DPSP). It is part of the Nicaragua SREP Investment Plan (PINIC) and is fully consistent with SREP investment criteria. | | | | | | | | | | |
| 1. **Stakeholder Engagement** | | | | | | | | | | |
| 1. On March 17, 2016, the workshop “Development of Geothermal Energy in Nicaragua” was organized by MEM and IDB, with the participation of public and private sector organizations active in Nicaragua’s geothermal sector, as well as international organizations. The objective of the workshop was to receive feedback on the proposed SREP/CTF program regarding funding amounts, timing, management and sustainability models, mitigation of impacts and the possibility of scale up. 2. On April 27 and 28, 2016, information about the scope of the Project was provided to cooperatives, representatives of the municipality in the area of influence of the project, and to the Ministry of Environment and Natural Resources (MARENA). 3. On June 2, 2016, a public consultation about the Project was carried out with the participation of residents of the municipality in the area of influence of the project, representatives of the municipalities’ environmental management unit, the Cosigüina natural reserve management committee and MARENA. | | | | | | | | | | |
| 1. **Gender Considerations** | | | | | | | | | | |
| The project will include a gender perspective by integrating activities that promote job creation and training among women. Also, incentives for access of women to technical careers or technical studies with career opportunities in the field of geothermal energy and / or creation of partnerships with technical schools and universities to promote internship programs for female students will be created. The institutions responsible for coordinating the geothermal project will be strengthened in order to include a gender perspective in the project. | | | | | | | | | | |
| 16. **Indicators and Targets** | | | | | | | | | | |
| **Project/Program Timeline** | | | | | | | | | | |
| Expected start date of implementation | | | | | | | October 2016 | | | |
| Expected end date of implementation | | | | | | | October 2021 | | | |
| Expected investment lifetime in years (for estimating lifetime targets) | | | | | | | 30 | | | |
| **Core Indicators** | | | | | | | **Targets** | | | |
| GHG emissions reduced or avoided over lifetime (tons of CO2-eq) | | | | | | | 2,697,191[a] | | | |
| Potential annual GHG emissions reduced or avoided (tons of CO2-eq/year) (specify: upon completion of the project/program / on the maximum year / on a representative year) | | | | | Once project is in operation | | 89,906[a] | | | |
| Feasible capacity of renewable energy (MW) | | | | | | | 18[a] | | | |
| Number of additional passengers using low-carbon transport per day | | | | | | | N/A | | | |
| Energy savings cumulative over lifetime of investment (MWh) | | | | | | | N/A | | | |
| Annual energy savings (MWh/year) (specify: upon completion of the project/program / on the maximum year / on a representative year) | | | | |  | | N/A | | | |
| **Identify relevant development impact indicator(s)** | | | | | | | **Targets** | | | |
| Jobs created | | | | | | | 20[a] | | | |
| 17. **Co-financing** | | | | | | | | | | |
|  | | | Please specify as appropriate | | | | Amount  (in million USD) | | | |
| MDB 1 | | | IDB | | | | 10.11 | | | |
| MDB 2 (if any) | | |  | | | |  | | | |
| Government | | |  | | | | 1.015 | | | |
| Private Sector | | |  | | | |  | | | |
| Bilateral | | |  | | | |  | | | |
| Others (please specify) | | |  | | | | (SREP co-financing excluded to avoid double-counting) | | | |
| **Total** | | |  | | | | 11.125 | | | |
| 1. **Expected Date of MDB Approval** | | | | | | | | | | |
| September 2016 | | | | | | | | | | |

**NOTES:**

[a] Note on the attribution of results between CTF and SREP:

Since the Program is requesting both CTF and SREP resources, in order to avoid double-counting in CIF-level reporting, the expected and actual results of the program will be divided between both funds commensurately to the amount of funding (USD 10 million from CTF and USD 12 million from SREP). The expected results are therefore as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicator** | **Total** | **Attributable to CTF** | **Attributable to SREP** |
| Capacity (MW) | 40 | 18 | 22 |
| Emission reductions over lifetime of 30 years (tons CO2e) | 5,933,820 | 2,697,191 | 3,236,629 |
| Annual emission reductions (tons CO2e / year) | 197,794 | 89,906 | 107,888 |
| Jobs created | 45 | 20 | 25 |
| IDB co-financing (USD million) | 22.25 | 10.11 | 12.14 |
| Government co-financing (USD million) | 2.234 | 1.015 | 1.219 |