

*Please fill in the form in the grey spaces, by following the instructions in italic.*

<b>Requesting country:</b>	<i>IRAN (Islamic Republic of)</i>
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<b>Request title:</b>	<i>Desalination Plant including Power Generation (in Mega Watt scale)</i>
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<b>Contact information:</b>		
<i>{Please fill in the table below with the requested information. The request proponent is the organization that the request originates from, if different from the National Designated Entity (NDE).}</i>		
	<b>National Designated Entity</b>	<b>Request Applicant</b>
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<b>Technology Needs Assessment (TNA):</b>
<i>{Select one of the three boxes below:}</i>
<input type="checkbox"/> <i>The requesting country has conducted a TNA in .... (please insert date of TNA completion)</i>
<input type="checkbox"/> <i>The requesting country is currently conducting a TNA</i>
<input checked="" type="checkbox"/> <i>The requesting country has never conducted a TNA</i>
<i>{If the requesting country has completed a TNA, please indicate what climate technology priority this request directly relates to. Please indicate reference in TNA/TAP/Project Ideas.}</i>

<b>CTCN Request Incubator Programme:</b>
<i>{Please indicate if this request was developed with support from the Request Incubator Programme:}</i>
<input type="checkbox"/> <i>Yes</i>
<input checked="" type="checkbox"/> <i>No</i>

**Geographical focus:**

*{Select below the most relevant geographical level for this request:}*

- Community-based*
- Sub-national*
- National*
- Multi-country*

**Theme:**

*{Select below the most relevant theme(s) for this request:}*

- Adaptation to climate change*
- Mitigation to climate change*
- Combination of adaptation and mitigation to climate change*

**Sectors:**

*Mitigation, Energy, Industry and Water sectors*

**Problem statement:**

*Recently, the most important projects considered as the first priority for IRAN's government is to construct some desalination plants and power plants.*

*In fact, Iran as a developing country needs a lot of power and freshwater supplies because of its domestic and industrial consumptions. Therefore this country intend to solve this problem in order to provide electrical energy and freshwater for different applications.*

*According to the recent studies obtained from Iranian Ministry of Energy, this country will encounter the problem of power and water shortage owing to its high demand and decreasing the annual rainfalls. On the other hand, Iran has many precious supplies such as oil and gas fields (one of the most hydrocarbon-rich areas in the world) and salt water resources (Caspian Sea, Persian Gulf). Hence, Iran's government decides to utilize these worthwhile supplies to construct some desalination plants with capability of power generation in Mega Watt scale.*

*Another advantage of this project for Iran is using the waste gas in factories such as the steel industries. Also, waste gas containing calorific value can use instead of natural gas in steam power plant and cogeneration of fresh water. Therefore, in addition to the advantages above mentioned this project leads to mitigating climate change and emerged as an eco-friendly project because both of fresh water and power generating separately caused GHG emission and constructing desalination plants including power generation can be emerged as an effective tool for reducing GHG emission and climate change mitigation.*

*To clarify this problem, according to the reports of Iran's government (Ministry of Energy),*

*this country imports electrical energy (approximately 4000 million KWh/year) from neighboring countries such as Armenia, Turkmenistan, and Azerbaijan. Furthermore, despite the number of population and the demand for freshwater has increased considerably during recent years, the annual rainfalls have been decreased about 20% than long-time average and also this country will encounter water crisis in the near based on the authentic sources.*

*As a result, Iran's government is concentrated to solve this problem immediately via construction of desalination plant including power generation in Mega Watt scale in the appropriate locations. In this regard, it is compulsory to cooperate with international reputation companies having a wealth of experience in this type of projects. All reputable companies are welcome to apply for this project if they are interested in constructing this kind of plants.*

**Past and ongoing efforts:**

*Recently, some institutions have investigated the feasibility of constructing this type of plants in Iran especially near the Persian Gulf region because there are a lot of fuel resources and water supplies using as primary materials in desalinations plants. In addition, Iran's government is attempting to attract more private sectors to invest in this project and it has been so successful on account of a complete guarantee for selling the productions of these plants. In general, there is just one cogeneration plant in Qeshm Island (Persian Gulf region) producing 18000 (m<sup>3</sup>/day) freshwater and electricity with capacity of 50MW. Although implementation of desalination plants for power generation has a long-time background, there are not remarkable projects on this type of plants in Iran because recently this country has remarkably paid attention to the desalination units due to its necessity. Also, the government emphasis on developing eco-friendly industries which has less pollution than conventional.*

**Assistance requested:**

*Generally, desalination plant including power generation units in Mega Watt scale has a high efficiency approximately 90% enabling us to consume much less energy regarding the production of freshwater and power. Additionally, the environmental pollution of these plants are much less than conventional ones; thus in spite of using energy much effective, we can protect our environment by reducing pollution. By taking into account all the mentioned reasons, Iran's government is interested in cooperating with international reputable companies having an excellent background in engineering, procurement and construction (EPC) on these plants. The Iran's policy is to collaborate with some companies in order to reach its significant goals mentioning as follows:*

- 1- Primary feasibility studies to find best location for establishment of these plants.*
- 2- Designing plants with different capacities (water and power) in Mega Watt scale.*
- 3- Procuring all the Key equipment.*
- 4- Constructing of the whole plant including the process units and utilities.*
- 5- Technology transfer.*

**Expected benefits:**

*In one hand, lack of water resources in Iran would cause to develop industries in the Persian Gulf and Oman sea coastal area. On the other hand, source of fresh water is very limited in Iran. So, construction of plants which is produce fresh water and electricity simultaneously is a huge advantage of this suggestion because these products are definite need for developing industries in Iran. So, construction of desalination plants with capability of power generation regarding the production of power and industrial/fresh water is one of the most significant projects for Iran's government, because these productions are necessary for this developing country to reach its long-term goals such as population growth, industrial and agricultural development. Furthermore, this country possesses abundantly two main and primary resources including fuel (gas & oil) and water supplies (sea water);*

*Hence this is conspicuous that Iran has excellent potential to build this type of plants. To elucidate the importance of this plant, some benefits are briefly mentioned as follows:*

- 1- Solving the problem of water and power shortage for industrial applications.*
- 2- Saving energy consumption efficiently to desalinate and generate power simultaneously.*
- 3- Producing less pollution than the conventional plants.*
- 4- Balancing the electric distribution network.*
- 5- Developing agriculture and industry all over the country.*
- 6- Reducing the transmission losses for electrical energy.*
- 7- Reducing GHG emission and mitigating climate change.*
- 8- Profiting by selling its precious products (water/power) in the global marketing.*

**Post-technical assistance plans** (*up to half a page*):

*1- Technology transfer include:*

- 1.1. Identifying Technology owners*
- 1.2. Negotiation with technology owners*
- 1.3. Receiving and Reviewing the proposals*
- 1.4. Sign Contract and countersuit agreement.*

*2- Technology Adapt to local conditions (market demand, skilled manpower, facilities, etc.)*

*3- Production (basic and detail design, construction, installation of equipment, etc.)*

*4- The uptake of technology (encompassing technology is introduced into the society and public education)*

*5-Technology development(integrating technology into the domestic skills and experience to achieve a new technology)*

- 5.1. Mass production*

*6- Technology dissemination (increased production, improved knowledge and skills learned at the regional level)*

**Key stakeholders:**

<i>Stakeholder</i>	<i>Role to support the implementation of the assistance</i>
<i>Ministry of Petroleum</i>	<i>Implementing the government policies and regulations related to the energy sector &amp; gas branching supply as driving force.</i>
<i>Ministry of Energy</i>	<i>Implementing the government policies and regulations related to the energy sector and providing required infrastructures for electricity and fresh water buy and sell.</i>
<i>Private Sector</i>	<i>Financing, supply, installation, after-sales services of equipment</i>
<i>Department of Environmental</i>	<i>Reporting the reduction of carbon emissions</i>
<i>Universities and Research Institutes</i>	<i>Research and development to increase efficiency</i>

**Alignment with national priorities**

*Islamic Republic of Iran, while accepting the Kyoto Protocol in 2006, has enacted and implemented several laws for protecting the environment.*

*One of the most important topics studied in the reduction of carbon emissions, is the production conversion process of energy as well as production and protection of fresh water and natural resources in 5th 5-years Development Plan of Iran (article 133 & 140).*

*Thought fullness of government in legislation and performance of laws preventing indiscriminate use of energy, and in supporting of proposals for optimization of energy consumption has led to supporting deployment and utilization of desalination unit equipped with power generation in the country, which indicates alignment of the mentioned technology with priorities of the government.*

*Also this request reflects the prioritization of desalination unit equipped with power generation Technology for immediate action, based on the national GHG inventory and developed within the context of the Iran's 2nd national communication to UNFCCC.*

*Supporting legal documents can include:*

- Initial Iran's National communication to UNFCCC, pages 114, 3rd bullet.*
- Iran's second National communication to UNFCCC, chapter 5, section 5.3, pages 160 – 167.*
- 5th 5-years Development Plan of Iran (2011 - 2015), article 133.*
- 5th 5-years Development Plan of Iran (2011 - 2015), article 140.*
- General policies adjustment of consumption samples, article 7, 8th bullet.*

**Development of the request (up to half a page):**

*Energy use intensity is very high in Iran (2.1 on the basis of GDP in 2012); in addition, easy access to fossil fuels and relative inexpensiveness of them in Iran are among serious obstacles in the way of optimized energy consumption and promotion and stability of renewable energies.*

*Thus, the government has enacted and implemented different laws with the approach of energy prices adjustment from 2010; including energy consumption pattern reform in 2011, which was approved and promulgated in 75 articles and 20 amendments.*

*Under this law, the Ministries of Oil, Energy, Industry and Mining, have been required to identify and implement energy efficiency methods.*

*The undeniable problem that should be considered is lack of fresh water in Iran and therefore government try to solve this problem by using modern and eco-friendly technologies.*

*All ministries and government agencies should try and cooperate with other institutions in performing and operating of the related laws in articles 45 and 46 of the Energy Consumption Pattern Reform.*

*To clarify this problem, according to the reports of Iran's government (Ministry of Energy), this country imports electrical energy (approximately 4000 million KWh/year) from neighboring countries such as Armenia, Turkmenistan, and Azerbaijan. Furthermore, despite the number of population and the demand for freshwater has increased considerably during recent years, the annual rainfalls have been decreased about 20% than long-time average and also this country will encounter water crisis in the near based on the authentic sources.*

*In this regard, the Ministry of Petroleum as well as Energy is responsible for financial supporting of proposals relating to fuel savings resulting from the use of this technology. Moreover, Ministry of Energy is responsible for supplying of the necessary infrastructure for mechanisms of buying electricity from dispersed producers and connecting them to the network.*

**Expected timeframe:**

<i>Activities/ months</i>	<i>1-3</i>	<i>4-6</i>	<i>7-9</i>	<i>10-12</i>	<i>13-15</i>	<i>16-24</i>
<i>Identifying the companies with technical knowledge</i>						
<i>Business Communication</i>						
<i>technology transfer through purchasing and installation of equipment</i>						
<i>Localization of production of equipment and after sales service support</i>						

**Background documents:**

- Initial Iran's National communication to UNFCCC, pages 114, 3rd bullet.*  
<http://unfccc.int/resource/docs/natc/iran1.pdf>
- Iran's second National communication to UNFCCC, chapter 5, section 5.3, pages 160-167.*  
<http://unfccc.int/resource/docs/natc/iran2.pdf>
- 5th 5-years Development Plan of Iran (2011 - 2015), article 133.*  
<http://parliran.ir/index.aspx?siteid=1&fkeyid=&siteid=1&pageid=3362>
- 5th 5-years Development Plan of Iran (2011 - 2015), article 140.*  
<http://parliran.ir/index.aspx?siteid=1&fkeyid=&siteid=1&pageid=3362>
- General policies adjustment of consumption samples, article 7, 8th bullet.*  
<http://maslahat.ir/DocLib2/Approved%20Policies/Offered%20General%20Policies/policy%2015-04-1389%20adjustment%20of%20consumption%20samples.aspx>
- Energy Consumption Pattern Reform, articles 52 and 63.*  
<http://www.ivma.ir/Files/Roles/2014-8-23-2-22-42.pdf>
- Adjustment of energy prices –“Targeted subsidies” - article 8.*  
<http://www.parliran.ir/index.aspx?siteid=1&pageid=3070>
- Priorities for Research and Technology of Iran, page 6, section B, first bullet, NO. 4.*  
<file:///C:/Users/PC-2/Downloads/1.pdf>

**Monitoring and impact of the assistance:**

*{Read carefully and tick the boxes below.}*

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the assistance provided by the CTCN. I understand that these processes will be explicitly identified in the Response Plan in collaboration with the CTC, and that they will be used in the country to monitor the implementation of the CTCN assistance.

I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

**Signature:**

NDE name: Seyed Ali Akramifar

Date: 11/15/2015

Signature: 

**THE COMPLETED FORM SHALL BE SENT TO THE [CTCN@UNEP.ORG](mailto:CTCN@UNEP.ORG)**

*Need help? The CTCN team is available to answer questions and guide you through the process of submitting a request. The CTCN team welcomes suggestions to improve this form.*

*>>> Contact the CTCN team at [ctcn@unep.org](mailto:ctcn@unep.org)*