



## &lt;Attachment 1&gt;

**JOB DESCRIPTION of World Friends Korea (WFK)-Advisor**

\* Please complete the form and mark on the box.

| General Information  |   |
|--|---|
| <b>■ Job Title</b><br><i>The job title must accurately describe the job to be performed by the expert</i>  | Industry and Energy/Energy Policy/Power Supply System                           |
| <b>■ Location, Country</b><br><i>(eg :. Vientiane, Laos)</i>   | Managua, Nicaragua  |
| <b>■ Duration</b>  | <input type="checkbox"/> 6 months <input checked="" type="checkbox"/> 12 months |
| <b>■ Expected Starting Date</b>  | March 2017  |
| Detailed information of the requesting organization  |   |
| <b>■ Organization Name :</b> Ministry of Energy and Mines (MEM)<br><b>- Requesting Department :</b> Electrical Protection Department / National Electricity Transmission Company (ENATREL)   |   |
| <b>■ Type of Organization</b><br>1) <input checked="" type="checkbox"/> Government <input type="checkbox"/> Public organization <input type="checkbox"/> Public corporation<br><input type="checkbox"/> Others :   |   |
| <b>■ Contact Person :</b> <i>(Please nominate someone from your organization who will be responsible for the work of Korean experts)</i><br>Eng. Emerson Salgado<br><b>■ Tel/Fax/E-mail :</b> : (505) 2252-7400, 22527500 Email: esalgado@enatrel.gob.ni   |   |
| <b>■ Office Location :</b><br>Edificio Vista. De la Rotonda Centroamérica 700 m, al oeste, Villa Fontana. Managua, Nicaragua.  |   |
| <b>■ Major activities of the Organization</b> <i>(Please list at least three)</i><br>To elaborate, to put in place and to promote the energy and mining policy of the country, to encourage its development with criteria of sustainability. Also, monitor and verify its fulfillment, harmonizing with the current legislation, juridical security of all economic stakeholders and the establishment of strategies that allow the integral use of the mining and energy resources in benefit of all Nicaraguans. |   |
| <b>■ Major activities of the department where WFK - Advisor will be dispatched</b>   |   |



- Coordinate the protections of the national electric system

■ Experience of working with WFK - Advisor

Yes  No

■ If yes, please describe the tasks of WFK - Advisor

Description of Tasks \*

■ The tasks to be undertaken by the WFK - Advisor will be:

- Summary : (Describe the overall objectives of the task, why this task is needed and what the expert will doing)

The KOICA Volunteer will elaborate the study for verification and coordination of the electrical protection of national interconnected system update whereas: lines of 138 KV transmission 69 KV sub transmission, substations, distribution and transmission, and generating plants, which are centrally dispatched by the National Load Dispatch Center (NCDC). Approved criteria for adjusting the SIN protections, considering reliability criteria of reliability and security maintaining the characteristics of selectivity and speed with modern practices today.

■ Main duty of WFK - Advisor (Please mark all that apply and type in detail)

Policy making and Strategic planning

- Elaborate study of verification and coordination of protection update

Technical support

1. Approved criteria for adjusting the S.I.N protections, considering reliability criteria of reliability and security whilst maintaining the characteristics of selectivity and speed with the most modern practices used today.
2. Develop a database of all schemes of existing protections in the SIN, with initial reference to a database, provided by ENATREL.
3. Determine the maximum and minimum current of failure that should serve to adjust those relays and determine their times of operation. Taking into consideration the possible expansions in the system for the next five years.
4. Propose the criteria for setting and coordination of systems of protection, recital, sensitivity, selectivity, speed, reliability and security.
5. Perform simulation of scenarios of failure with computational tools (equal to those available in ENATREL), such as: DIGSILENT and QUALITEK.
6. Definition of the settings and the coordination of the protection of the transmission lines, considering the following aspects:
  - Its position in the system which can be radial or interconnection
  - The setting that can be of simple bar and double bar
  - The level of line voltage that can be 138 KV, 69 KV, 230 KV
  - The electrical length, if it is short, medium or long.

Training of local staff

Training of the staff about the criteria of adjustment and coordination of the protection systems,



whereas, sensitivity, selectivity, speed, reliability and security

**Expected Results/Output**

**■ Expected results/output of the tasks by the WFK - Advisor include:**

- Standardize criteria for adjusting the S.I.N protections, considering reliability criteria of reliability and security whilst maintaining the characteristics of selectivity and speed with the most modern practices used today.
- Develop a database of all schemes of existing protections in the SIN, with initial reference to a database, provided by ENATREL
- Determine the maximum and minimum current of failure that should serve to adjust the relays and determine their operating times. Taking into consideration the possible expansions in the system for the next five years.
- Propose the criteria for setting and coordination of systems of protection, recital, sensitivity, selectivity, speed, reliability and security.
- Perform fault simulation scenarios with computational tools (the same as those available in ENATREL), such as: DIGSILENT and NEPLAN
- Definition of the settings and the coordination of the SIN protection

**Required(Preferred) qualifications of WFK - Advisor**

*(List the minimum essential qualifications required for the experts to successfully carry out this task)*

**■ Gender**

- Male       Female       No preference

**■ Educational Background**

- *(eg. Bachelors Degree in Agricultural Economics)*
- PhD or specialist with a master's degree in electrical engineering or related fields, with experience in net protections.
- \* **Similar or other educational background will be fine if the selected expert has an ability to do the requested tasks**  
 Yes       No

**■ Required Work Experience***(Specify work experience required for the experts)*

- Minimum of 10 years of experience in coordination of protections.
- Minimum of 5 similar tasks developed in the past 5 years
- \* **Similar or related work experience will be fine if the selected expert has an ability to do the requested tasks**  
 Yes       No

**■ Language : English and Spanish proficiency**



Job Description



*(Official business language will be English. If your organization requires the use of other languages, please provide reasons)*

**- Reasons :**  
It is required for the volunteer to be proficient in Spanish because it is the official language of Nicaragua.

■ **Other Requirements***(Identify desired skills or qualities for the task)*  
- Proficient in Spanish (writing and speaking)

| Description of the Workplace  |  |  |   |
|---|--|--|---|
| <b>■ Location of the workplace</b>  | Edificio Vista. De la Rotonda Centroamérica 700 m, al oeste, Villa Fontana. Managua, Nicaragua.  |  |   |
| <b>■ Information on the co-worker who will work closely with the WFK-Advisor</b>  | - <b>Full Name (Mr./Ms.) :</b> Eng. Emerson Salgado<br>- <b>Position/Work area :</b> head of the Electrical Protection Department<br>- <b>Tel/E-mail :</b> (505) 2252-7400, 22527500<br>Email: esalgado@enatrel.gob.ni<br>- <b>English Language Skill :</b><br><input checked="" type="checkbox"/> Basic <input type="checkbox"/> Intermediate <input type="checkbox"/> Advanced |  |   |
| <b>■ Administrative and financial arrangements to be provided by your organization for the WFK-Advisor</b><br><i>(Please mark on the box)</i>   | <b>Items</b>   | <b>Available</b>   | <b>Not available</b>  |
|   | Housing  | <input type="checkbox"/>   | <input checked="" type="checkbox"/>   |
|   | Transportation   | <input type="checkbox"/>   | <input checked="" type="checkbox"/>   |
|   | Others<br>(Mark if available)  | <input type="checkbox"/> PC<br><input checked="" type="checkbox"/> Internet access | <input checked="" type="checkbox"/> Printer<br><input type="checkbox"/> Phone |
| <b>■ Other information that may help the WFK-Advisor adapt to the local environment</b><br><i>(Living conditions, weather, allowance, etc.)</i> | Small city. Average Temperature 30°C.<br>Work Schedule 08:00-17:00. M-F.<br>The volunteer's work will be 100% clerical.<br>Costs of Living US\$ 750 - US\$1000 approximately.<br>Monthly housing fee US\$ 300 – US\$800 approximately.<br>Electricity 120 VAC.<br>Medical installations available.   |  |   |

*\* Once the experts are selected based on your request, you are required to cooperate with the Korean implementing agencies by providing the necessary administrative procedures such as visa, acceptance letter, etc. Without your cooperation, expert dispatching will not be available and/or will be cancelled. Thank you for your cooperation.*



Job Description



06/07/2016

(Date of filling out the form)

Salvador Mansell

(Name of the person in charge)

Minister of Energy and Mines

(Position of the person)



*Salvador Mansell*

Signature with official stamp