

Guidelines for Application RFP Relating next generation monitoring and control system development

Apr, 2015

Tokyo Electric Power Company



TOKYO ELECTRIC POWER COMPANY

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Attachments:

1. Application form
2. Application form of entry qualification(Technical requirements)
3. Operation results certificate
4. Written oath

1 Purpose

The purpose of this guideline is to provide for necessary matters including procedures to be taken by the participants of RFP (hereinafter referred to as “Participants”), which Company Tokyo Electric Power Company (hereinafter referred to as “TEPCO”) conducts in order to advertise and select the specification and its supply source of “Next generation monitoring and control system” that TEPCO plans to introduce.

2 Background

2.1 Corporate Overview

2.1.1 About Tokyo Electric Power Company

The basic information of Tokyo Electric Power Company is as following.
(As of Mar 31, 2014)

• Company Name	Tokyo Electric Power Company
• Establishment	May 1,1951
• Capital	1,400.9 billion Yen
• Share holders	826,982
• Sales turnover	6,631.4 billion Yen(FY 2013)
• Ordinary income	101.4 billion Yen(FY 2013)
• Net income	438.6 billion Yen(FY 2013)
• Gross assets	14,801.1 billion Yen
• Employees	35,723
• Electricity sales	266,700 GWh(FY 2013)
• Customer agreements	29.04 million (does not include specified scale demand)
• Maximum output	64.3 GW (July 24, 2001)
• Affiliated companies	88

2.1.2 About Power Grid Company

We introduced an in-house company system aiming that each business division voluntarily strives for increase in revenue and raises competitiveness, and established three companies including “Fuel and Power Company”, “Power Grid Company” and “Customer Service Company”.

The main business of “Power Grid Company” is consignment and maintenance of transmission and distribution of electric system. The basic policies of “Power Grid Company” are listed below.

- Making a thorough effort to achieve cost saving after securing the level of reliability of the power supply, with the rate level of consignment comparable to the global standard in mind, while promoting the best efficiency of network operation of energy Transmission and distribution.
- Improving neutrality, equitability and transparency of business operations and making the network utilization more convenient.
- In doing so, contributing to the improvement of our country’s industrial competitiveness and continuously generating the funds for the reconstruction of Fukushima.

Monitoring and control system, scope of this project, is used for the network operation of energy transmission and distribution mentioned above, with the aim of maintenance and enhancement of the reliability of the power supply.

2.2 Background and Purpose of the project

2.2.1 Background of the project

As Power Grid Company has set a goal of balancing cost reduction of the consignment with its stable supply, achieving sophistication of environments for the usage of the network and expanding the business domain in the business plan since its establishment, Power Grid Company is also required to meet the changes.

For the existing monitoring and control system (called as “2-layers control system”, because it has 2 layers monitoring and controlling system, regional transmission and distribution) to apply to regional transmission and distribution, TEPCO plans to adopt “next generation system” as measures for business and organization innovation (standardization of system, operation efficiency, Base centralization), as TEPCO introduced as a match case of PGC in "productivity doubling committee rationalization report" announced on December 17, 2014.

By introducing "Next generation monitoring and control system", which is subsequent system of "2-layers control system", TEPCO makes efforts to have “Cost Reduction”, “International Standardization” and ”Secure Operation Quality”, then also establish “extensibility “for operation efficiency and rationalization in the future, That is our urgent business to contribute to a mission of the Power Grid Company.

2.2.2 Purpose of the project

This project is aimed at conducting the initial stage of development and deployment of “Next generation monitoring and control system” based on the result of TEPCO’s concept planning.

3 Details of public invitation

3.1 Operations expected in this project

The scope of the project for “Next generation monitoring and control system” development shall be limited to the operation in which the existing “2-layers control system” is used.

Specifically, three required operations are listed below:

- Transmission system operation: operation of the transmission system and supervised control of the equipment concerned with the distance control
- Distribution system operation: operation of the distribution system and supervised control of the equipment concerned with the distance control
- Monitoring of the equipment condition operation: operation of the maintenance of electrical substation equipment

Outline of above 3 operations are as follows.

3.1.1 Transmission system operation:

(1) Main purpose

- To secure the safe, efficient operation of the regional transmission system(66kV~275kV) and fulfill the smooth, proper operation of the supervised control at any one given point in time including at the time of an accident or emergency.

(2) Base and operational framework

- Base:10 load-dispatching office
- Operational framework: A shift supervisor is assigned to each base

(3) Main tasks to be fulfilled in the system

- Command operation of the transmission system (development of a process, direct control) both on a steady basis and at the time of an accident, and calculation of operations necessary for the prior consideration.
- Monitoring and recording of the system with the aim of securing electric quality, reliability and stability of the system as well as of electric voltage.
- Monitoring of equipment concerned with the control of the substation for transmission of electricity both on a steady basis and at the time of an accident
- Monitoring of electric power plants, high-voltage power receiving stations, IPP and PPS.
- Calculation of the total demand derived from branch offices, transmission of prompt announcements at the time of an accident
- In-house training concerned with the recovery of the system in case of an accident

3.1.2 Distribution system operation

(1) Main purpose

- To secure the safe, efficient operation of the electrical distribution system (22kv, 6.6kv and power incoming switch of distribution substation) and fulfill the smooth, proper operation of the supervised control at any one given point in time including at the time of an accident or emergency.

(2) Base and operational framework

- Base:56 control center
- Operational framework: Person in charge of the supervised control assigned to each base

(3) Main tasks to be fulfilled in the system

- Indirect operations for the distribution line breaker and feeder section switch (development of a process, direct control) both on a steady basis and at the time of an accident and calculation of operations necessary for the prior consideration
- System monitoring aiming for securing the public and job safety of distribution substation, ensuring the supply capacity and maintaining the electric voltage–
- Automated power recovery using an interconnected switch that operates on unaffected zones in case of an accident occurring in the distribution line
- Recording of equipment operations that is aimed at conducting the report in accordance with laws and regulations and understanding the operational status of the equipment

3. 1. 3 Monitoring of the equipment condition operation

(1) Main purpose

- Monitoring of the proper equipment condition concerned with the control of maintenance of transformer facility

(2) Base and operational framework

- Base:56 control center
- Operational framework: Person in charge of equipment operations assigned to each base

(3) Main tasks to be fulfilled in the system

- Monitoring of the condition of substation, supervision of heavy loading
- Setup the state of substation equipment
- Request for information of substation(SV,TM,etc)
- Instrumentation recording, recording of at times of taking over the operations
- Developing operating procedure

3.2 Overview of the current system

3.2.1 Current system and communication equipment/device

“2-layered control system” structure which shows the Relationship and Overview of 5 systems / communication devices is listed as follows.

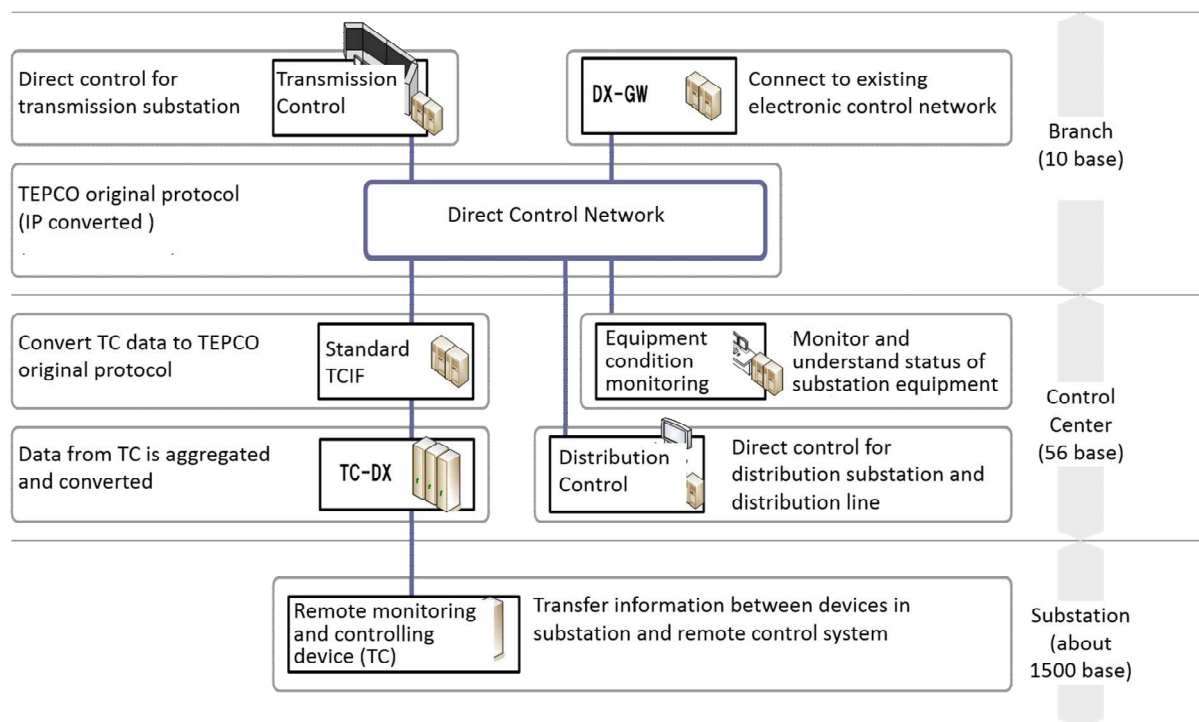


Figure 3-1 Configuration of 2-layered control system

(1) Transmission Control System

Transmission control system is, to implement direct control and creating operating procedures for substation opening and closing facilities of the regional grid.

(2) Distribution Control System

Distribution control system is, to implement direct control and creating operating procedures for opening and closing facilities of substation and distribution line.

(3) Equipment Condition Monitoring System (Maintenance System)

Equipment condition monitoring systems is, to support the maintenance business, and to understand the state of the substation equipment of the regional power transmission and distribution system.

(4) Standard TCIF

Standard TCIF is an interface with the existing TC (Remote monitoring and control device). To convert the information from the TC to the direct control line IP protocol • TEPCO’s regulations format.

(5) TC-DX

TC-DX is, to collect and convert the information transmission from the TC (Remote monitoring and control device).

(6) Field devices (TC)

Field devices (TC), are to implement the information transmission between substation campus equipment and remote monitor control point.

(7) DX-GW

DX-GW is, to integrate (link) between existing power control network (DX network) and Two-layered control system IP network (direct control network).

(8) Direct control network

The direct control line is a network that is laid to remote monitoring and controlling the substation via standard TCIF. TEPCO have been using its own transmission format, the Internet protocol system complied with its own regulations.

3.3 Scope of the next generation monitoring and control system

Development scope of next-generation monitoring and control system, the following subsystems are within the scope of the red frame (application and infrastructure. Including an external system integration.), and a communication device.

It should be noted that, in future there is a plan to replace remote monitor control unit (TC) by international standards-compliant devices (SAS / RTU).

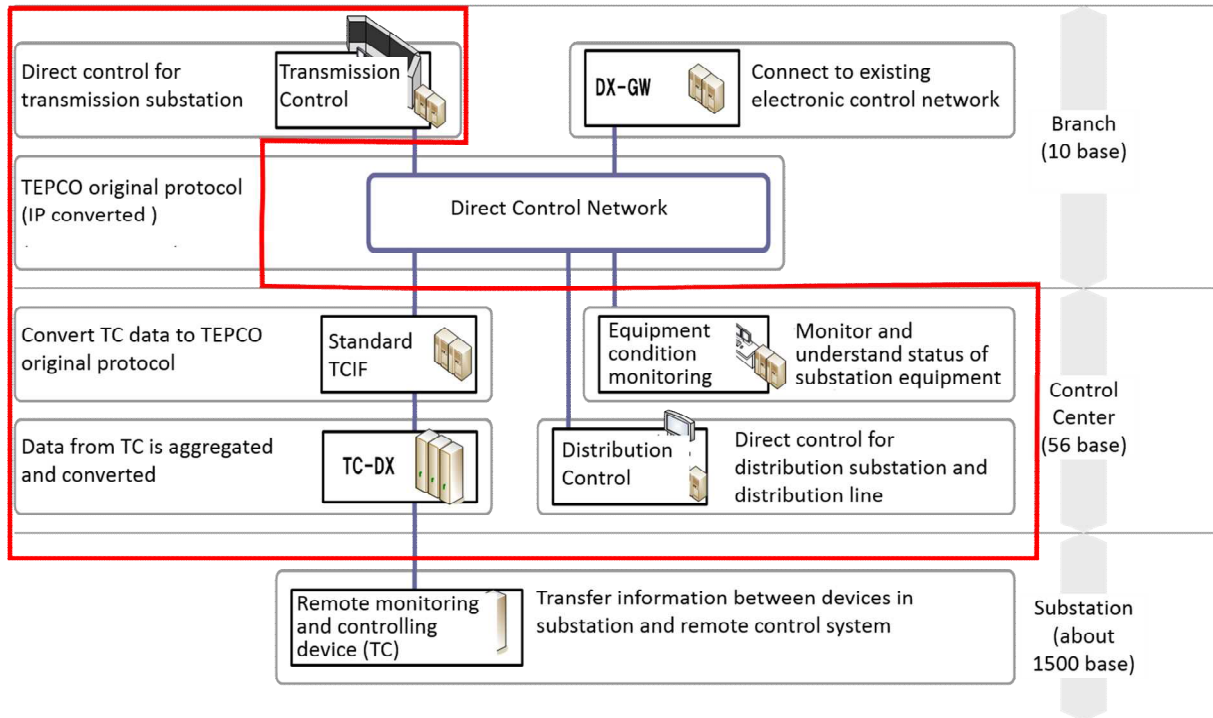


Figure3-2 Scope of the next generation monitoring and control system
(Two-Layered control system already deployed case)

3.4 Requirements of next generation monitoring and control system

3.4.1 Basic Policy

The following three points must be observed as high level policy in developing the next generation monitoring and control system:

- Cost reduction
- International standardization
- Secure operation quality

Below are the basic policies for system side and communication side (data transmission between monitoring and control devices and applications)

(1) Cost reduction

A) System side cost reduction

- To provide common Application functionality, without having to duplicate in multiple systems.
- To be possible / capable to share data, without depending on the particular application.
- To adopt the general-purpose technology, without depending on a particular vendor.

B) Communication side cost reduction

- Data conversion device configuration is to be a simple hierarchy, but not a multilayer hierarchy.
- Configuration of equipment, devices and networks for data transmission is to adopt the general-purpose technology, without depending on a particular vendor.

(2) International standardization

A) System side international standardization

- To be flexible, scalable and can respond quickly to changes in the business.
- The interoperability and compatibility with other applications is ensured.

B) Communication side international standardization

- The equipment and devices has been applied international standard and that are backed by a proven track record.

(3) Secure operation quality

A) System side to secure operation quality

- Secure, reliable and high-performance system
- Highly available system (long time periods)

B) Communication side to secure operation quality

- Configure the network, equipment and devices with high processing performance, security and reliability, considering the range of influence expansion.

3.4.2 System Functions

Functional requirements and non-functional requirements of the next generation monitoring and control system to be presented at the RFP briefing to be held separately in May 2015.

3.5 Schedule before System development startup (Planned)

Below is the schedule before System development startup (Planned)

- Public invitation, Eligibility review :Apr,2015, May, 2015
- RFP information session :June,2015
- Proposal deadline :Aug,2015
- Vendor selection :Oct,2015
- Development start :Nov,2015

3.6 Eligibility for participation

3.6.1 Technical Requirements

The eligibility is to have the ability to propose/build a whole next generation monitoring and control system as a total solution and participants shall meet all the following conditions.

- Having the ability of planning and implementation of large-scale projects which support the social infrastructure such as "mission-critical business systems development of utility companies" (past performance (example: electricity, gas, water, communication, etc., a large amount of data processing the decision by the fee calculation and management systems, etc.) of companies)
- Acquiring CMMI Level 3 certification and the certification is still effective, or acquiring ISO9001 Certification and is still effective
- Having experience in building similar systems in Japan or overseas
- Acquiring ISO27001/ISMS Certification or having established an equivalent information security management system
- Establishing an organizational structure for responding to enquiries, with in a day in Japanese language from TEPCO employees et al. in case of system's failure or defects. Moreover, the stuff of organizational structure shall have a sufficient technical level in order to support TEPCO employees et al. In case above mentioned support organizational structure is not exist at the moment, it is capable of constructing that support organization by negotiations.

3.6.2 Other Requirements

Participants shall meet the following conditions in addition to the above technical requirements.

- Having the sufficient financial and management base to properly and precisely implement projects related to the current public invitation

3.7 Other major conditions

3.7.1 Intellectual property rights, etc.

For handling and conditions relating to intellectual property rights, to be presented separately in the processing of the future RFP.

3.7.2 Elimination of anti-social forces

Not being or having relationship with organized crime groups which are any and all groups, entities and organizations engaging in racketeering, fraud, robbing illegal loan sharking, illegal gambling, drug trafficking, crimes or any other illegal activities, including without limitation, gangs, mobs yakuza, drug-cartles and mafia.

The above organized crime groups shall include a members who was of the organized crime group with in past five years.

3.7.3 About the changes or termination of proposal and RFP etc.

TEPCO reserves the right to amend or cancel this RFP at any time, at its sole discretion.

Please understand beforehand, even in this case we do not burden to pay for any costs incurred by vendors in the RFP response preparation.

3.7.4 Other Considerations

Please understand beforehand that schedule shown in this chapter is subject to change by our side of convenience. Also, if there is a difference to the description of the Japanese and English versions of the RFP, and shall be subject to the contents of the Japanese version.

It is noted that the proposal from participants (deadline Aug, 2015) must be written in Japanese language.

4 Selection Method

TEPCO will select supplier based on eligibility review, contents of proposal, result of POC (Proof of Concept), presentation, and estimation. A selection will be conducted fairly and strictly based on evaluation criteria which TEPCO will set before selection. Then, the supplier to be selected finally will adjust and contract with TEPCO.

5 Procedure of public invitation

5.1 Flows from public invitation to contract

Flows from public invitation to contract is follows.

Participants shall make the proposal subject to RFP documents provided by TEPCO in cooperation with other companies if necessary. It is not, however, necessary for Participants to decide the joint company when applying for the RFP.

RFP documents and necessary information for the preparation of the proposal will be provided to Attendees in RFP session. Inquiries about the provided information will be responded during the Q&A process in No.4 table 5-1.

Table 5-1 Flows from public invitation to contract

No.	Process
1	Public invitation
2	Application
3	Eligibility review
4	RFP information session(present RFP and related information)
5	Q&A about RFP
6	Document review
7	POC(Proof of Concept)
8	Presentation review
9	Final review
10	Contract adjustment
11	Make a contract

5.2 Application method

Please submit the following required document.

Required document:

- ①Application form (attachments 1)
- ②The latest company profile, report on final accounts
- ③Application form of entry qualification (Technical requirements) (attachments 2)
- ④Operation results certificate (attachments 3)

- ⑤Written oath (attachments 4)

※Only as for the passer of the eligibility review listed in Clause 3.6.

Submission Method: Please send it by Mail.

※If you won't be able to make it in time to submit that, then submit a copy of document (PDF) by an E-mail in presentation time limit, and submit a original document sent by Mail quickly.

Application form destination:

Substation Systems Procurement Group
 Transmission & Distribution Procurement Center
 Materials & Procurement Department
 Tokyo Electric Power Company
 Shin-Saiwaibashi building 7F

1-5-3, Uchisaiwai-cho, Chiyoda-ku, Tokyo
Postal Code: 100-0011
E-mail: shizai-entry@tepcoco.jp

The deadline for submission:

- ①~③: Wednesday, May 13, 2015 must reach us by JST 24:00
- ④: Wednesday, May 20, 2015 must reach us by JST 24:00

Above deadline is general rule, but if you can't make it in time for the discussion with joint company, then fill in all the item of documents except following items of ③,④ and submit as a draft within the deadline.

- ③: Person in charge of the contract (Title, Name, contact address)
- ④: Certificate signature

All documents and items should be filled out and submit until Friday, June 12, 2015 must reach us by JST 24:00

- ⑤: Thursday, June 4, 2015 must reach us by JST 24:00

5.3 Eligibility Review

TEPCO will fairly and strictly conduct the eligibility review based on the required documents described in Clause 5.2. TEPCO will notify each Participant the result of its eligibility review by Monday, June 1, 2015. TEPCO will notify the participants not able to pass the eligibility review also.

5.4 RFP information session

TEPCO shall hold RFP information session as follows. TEPCO will notify Attendees of the time/date and venue of RFP information session by sending the invitation.

Attendees requirements: Attendees need to pass its eligibility review in Clause 5.3.

Date: Friday, June 5, 2015(Planned)

Contents:

TEPCO will notify the RFP and explain about requirements for the specification related Next generation monitoring and control system.

5.5 Procedure after RFP information session

TEPCO will select the supplier through screening, adjustment, etc. Based on the process described in Clause 3.5 and 5.1. TEPCO will present the detail of the process at RFP information session.

If requirement documents (③Application form of entry qualification (Technical requirements or ④Operation results certificate) of clause 5.2 are not submitted by due date, or if TEPCO evaluate that the participant is not satisfied with qualification of clause 3.6, TEPCO may refuse to take part in subsequent process. In any case, TEPCO will contact to that effect from the Company.

5.6 About the documents provided by TEPCO

TEPCO will provide RFP by document and electric data (partly) at RFP session. Requirement document ⑤Written oath of clause 5.2 will be submitted for confidential information protection of RFP. And, TEPCO will receive inquiries and questions about document which TEPCO provide at any time of the period of RFP. TEPCO may add documents to provide considering inquiries and questions from participants.

5.7 About the documents submitted by participant

In procedure of public invitation, the documents (Application form, Proposal, Estimation, Presentation document, etc) submitted to TEPCO will not be used except for the purpose of review, but there may disclose to stakeholders that TEPCO deems necessary. TEPCO will not return the documents to be submitted to TEPCO for any reason whatsoever.

5.8 Other

All the costs necessary for participation in the RFP procedures including the following expense shall be borne by the participants.

- Costs for preparation and submission of application documents
- Costs for participation in RFP Information Session
- Cost for preparation and submission of written proposal and implementation of presentation etc.

If Attendee withholds the participation in RFP Information Session or the proposal after receiving the invitation of RFP Information Session, the Attendee shall notify TEPCO in writing in any format.

The contents of the procurement and condition of the contract for this public invitation shall not be limited only to the Guidelines. It is noted that TEPCO may change the process in Clause 3.5, Clause 5.1 and conditions in the Guidelines if necessary.

[Attachments]

- Application form (Attachment 1)
- Application form of entry qualification(Technical requirements) (Attachment 2)
- Operation results certificate(Attachment 3)
- Written oath(Attachment 4)

[Contact Information]

Inquiries shall be made via email.

Email: shizai-entry@tepcoco.jp

- ※ Please note that inquiries made on weekends and holidays will be responded after the next business day.
- ※ When you send an e-mail to the above address for application or inquiry, please write following sentence as a title of the e-mail.
 - Application:
Please write “[Application] next generation monitoring and control system development RFP” as e-mail title.
 - Inquiry:
Please write “[Inquiry] next generation monitoring and control system development RFP” as e-mail title.