

Republic of the Philippines
ENERGY REGULATORY COMMISSION
San Miguel Avenue, Pasig City



**IN THE MATTER OF THE
APPLICATION TO APPROVE THE
EMERGENCY INSTALLATION OF
ONE 83 MVA POWER
TRANSFORMER IN THE TEGEN
SUBSTATION**

ERC CASE NO. 2014-126 RC

**MANILA ELECTRIC COMPANY
(MERALCO),**

Applicant.

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BOOKED
Date: JAN 28 2015
[Signature]

NOTICE OF PUBLIC HEARING

TO ALL INTERESTED PARTIES:

Notice is hereby given that on August 28, 2014, the Manila Electric Company (MERALCO) filed an application to approve the emergency installation of one 83 MVA power transformer in the Tegen Substation.

In the said application, MERALCO alleged, among others, that:

1. It is a private corporation duly organized and existing under the laws of the Republic of the Philippines, with principal office located at Lopez Building, Ortigas Avenue, Pasig City. It may be served with notices and other processes of the Commission through its undersigned counsel at the address indicated herein;
2. It has a legislative franchise to construct, operate and maintain an electric power distribution system for the conveyance of electric power to the end-users in the cities and municipalities of Metro Manila, Bulacan, Cavite, and Rizal, and certain cities/municipalities/barangays in

Batangas, Laguna, Quezon, and Pampanga pursuant to Republic Act No. 9209;

3. It seeks the approval of the Commission of its emergency installation of one (1) 83MVA, 110kVY-34.5kVY-13.8kVD, three-phase power transformer with On Load Tap Changer (OLTC) and re-termination of 34.5 KV power circuit breakers at Tegen Substation (the Project);
4. Under the existing rules, a Distribution Utility (DU) is required to file an application for approval of emergency capital project within sixty (60) days after the start of the construction.¹ Emergency capital expenditure projects are those that require immediate implementation during an event other than those enumerated and covered in the definition of a force majeure, or fortuitous event in order to maintain safe, reliable, secure and efficient operation of the power system;
5. On the other hand, for purposes of recovering the capital cost of the emergency project through the DU's rates, the same will go through the process of evaluation by the Commission during the next regulatory reset of the DU, unless there is basis for a rate-reopening in the current regulatory period, in accordance with the Rules for the Setting of Distribution Wheeling Rates (RDWR) for DUs;

A. BACKGROUND

6. Tegen 115kV-34.5kV Substation is located at Isla Del Provisor, Paco. It serves the Manila area including major and vital customers such as Malacañang Palace (Office of the President, New Executive Building, Presidential Security Group), LRT Lines 1 and 2 (Pedro Gil and Pureza Stations), Manila City Government, Philippine General Hospital, Supreme Court of the Philippines, Manila Hotel, Adamson University, and Mapua Institute of Technology;
7. Tegen Substation has four (4) major power transformer banks namely: Tegen 83 MVA bank no. 3, Tegen 100 MVA bank no. 6, Tegen 83MVA bank no. 7, and Tegen 83 MVA bank no. 8;

¹

ERC Resolution No. 26, Series of 2009.

8. Tegen 83 MVA bank no. 8 is a fifty-two (52) year old power transformer. The MVA capacity of Tegen bank no. 8, was derated from its FA2 rating of 83MVA to OA rating of 50MVA due to results of the test conducted on 21 December 2012 showing Tegen bank no. 8 with deteriorated bushing insulation due to high insulation power factor (%IPF) in X2, Y1, Y2, Y3 as well as continuously deteriorating condition due to high %IPF in primary to tertiary winding (H-X-Y);
9. Notwithstanding the remedial measures conducted to prolong the life of the said transformer, succeeding tests on the subject power transformer showed a continuing deteriorating condition of the same that might jeopardize the safe, reliable, secure and efficient operation of its distribution system, particularly the area and vital customers served by the Tegen Substation. The continued deterioration and the advanced age of the power transformer indicate the likely failure of Tegen bank No. 8, which required immediate intervention;
10. Thus, the immediate emergency installation of an 83MVA, 110kVY-34.5kVY-13.8kVD, three-phase power transformer with OLTC bank no. 9 was installed and energized on 29 June 2014;
11. At the time that Tegen bank no. 9 was not yet energized, an outage of Tegen bank no. 8 would have resulted in the following loading of the remaining transformer banks:

Parameter Under Consideration	2014	2015	2016
Tegen 83 MVA bank no. 3	91%	93%	95%
Tegen 83 MVA bank no. 6	66%	67%	69%
Tegen 83 MVA bank no. 7	74%	76%	78%
Tegen 83 MVA bank no. 8 (derated to 50MVA)	0%	0%	0%

12. On August 20, 2014, another test was conducted on Tegen bank no. 8 due to an experienced abnormality in the power transformer. The test results indicated that the transformer bushing %IPF (X2, Y1, Y2, Y3) has increased by around 283% while the H-X-Y winding has increased by 353.72% from the December 21, 2012, test results, which showed that the power transformer is in a rapid and an advanced stage of

deterioration.² Thus, in order to avert any possible explosion or sudden and uncontrolled outage of the Tegen bank no. 8, the said power transformer was de-energized on the same date;

13. At the time of the August 20, 2014 test, had Tegen bank no. 9 was not yet energized, and with the necessary de-energization of Tegen bank no. 8, the remaining transformer banks would have been loaded as follows:

Parameter Under Consideration	2014	2015	2016
Tegen 83 MVA bank no. 3	94%	96%	98%
Tegen 83 MVA bank no. 6	66%	67%	69%
Tegen 83 MVA bank no. 7	90%	92%	94%
Tegen 83 MVA bank no. 8 (derated to 50MVA)	0%	0%	0%

14. As can be seen in the above tables, any outage of the above-mentioned power transformer banks will result in a massive and prolonged power interruption in the area affecting the above-mentioned critical customers;

15. Moreover, with the capacity deficiency at Tegen Substation, it will have difficulty in accommodating large customer applications such as Sun Trust Parkview and Midtown Peninsula;

16. With the emergency installation of the new power transformer and the de-energization of transformer bank no. 8 as its final set-up, Tegen Substation's power transformer banks for loading are and forecasted as follows:

Parameter Under Consideration	2014	2015	2016
Tegen 83 MVA bank no. 3	66%	68%	69%
Tegen 83 MVA bank no. 6	66%	67%	69%
Tegen 83 MVA bank no. 7	69%	70%	72%
Tegen 83 MVA bank no. 8 (derated to 50MVA)	0%	0%	0%
Tegen 83 MVA bank no. 9	69%	71%	72%

² Attached to the application as Annex "A" and series are the results of the tests conducted on the power transformer.

17. This project will also reduce the system loss annually by 867,942 kWh;
18. The cost of the Project including the purchase cost of the 83MVA, 110kVY-34.5kVY-13.8kVD, three-phase power transformer with On Load Tap Changer (OLTC) installed in the Tegen substation is **SEVENTY-FIVE MILLION EIGHT HUNDRED FIFTEEN THOUSAND NINE HUNDRED NINETEEN PESOS (PhP 75,815,919)**. The cost includes transformer oil, taxes, duties, brokerage, trucking services and installation;
19. In further support of the application, attached to its application are the following documents:
 - a. Document entitled "Emergency Installation of a New 83 MVA Power Transformer at Tegen Substation," which provides, among other things, the justification for the Project, cost estimates for the Project, and impact of the Project (**Annex "B"**);
 - b. Document entitled "Major Project Information Summary – Emergency Installation of a New 83 MVA Power Transformer at Tegen Substation," which provides, among other things, the justification for the Project, cost estimates for the Project, and impact of the Project in table format (**Annex "C"**); and
 - c. Judicial Affidavit of Mr. Jose Mari Melendres, Head of its Substation Services Asset Management (**Annex "D"**); and
20. It prays that its emergency installation of one (1) 83MVA, 110kVY-34.5kVY-13.8kVD, three-phase power transformer with OLTC and re-termination of 34.5 KV power circuit breakers at Tegen Substation be **APPROVED**.

The Commission has set the application for jurisdictional hearing, expository presentation, pre-trial conference and evidentiary hearing on **March 12, 2015 (Thursday)** at ten o'clock in the morning (10:00 A.M.), at the ERC Hearing Room, 15th Floor, Pacific Center Building, San Miguel Avenue, Pasig City.

All persons who have an interest in the subject matter of the proceeding may become a party by filing, at least five (5) days prior to the initial hearing and subject to the requirements in the ERC's Rules of Practice and Procedure, a verified petition with the Commission giving the docket number and title of the proceeding and stating: (1) the petitioner's name and address; (2) the nature of petitioner's interest in the subject matter of the proceeding, and the way and manner in which such interest is affected by the issues involved in the proceeding; and (3) a statement of the relief desired.

All other persons who may want their views known to the Commission with respect to the subject matter of the proceeding may file their opposition to the application or comment thereon at any stage of the proceeding before the applicant concludes the presentation of its evidence. No particular form of opposition or comment is required, but the document, letter or writing should contain the name and address of such person and a concise statement of the opposition or comment and the grounds relied upon.

All such persons who may wish to have a copy of the application may request the applicant, prior to the date of the initial hearing, that they be furnished with a copy of the application. The applicant is hereby directed to furnish all those making a request with copies of the application and its attachments, subject to reimbursement of reasonable photocopying costs. Likewise, any such person may examine the application and other pertinent records filed with the Commission during the usual office hours.

WITNESS, the Honorable Chairperson, **ZENAIDA G. CRUZ-DUCUT**, and the Honorable Commissioners, **ALFREDO J. NON**, **GLORIA VICTORIA C. YAP-TARUC**, and **JOSEFINA PATRICIA A. MAGPALE-ASIRIT**, Energy Regulatory Commission, this 26th day of January 2015 at Pasig City.


ATTY. FRANCIS SATURNINO C. JUAN
Executive Director III