

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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**DOCKETED**  
Date: JAN 28 2015  
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**ORDER**

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.<sup>1</sup> 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;
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

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<sup>1</sup> ERC Resolution No. 26, Series of 2009.

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:

<b>Parameter Under Consideration</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
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.<sup>2</sup> Thus, in order to avert any possible explosion or sudden and uncontrolled outage of the Tegen bank no. 8,

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

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:

<b>Parameter Under Consideration</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
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:

<b>Parameter Under Consideration</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
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%

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**.

Finding the said application to be sufficient in form and in substance with the required fees having been paid, the same is hereby set 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, 15<sup>th</sup> Floor, Pacific Center Building, San Miguel Avenue, Pasig City**.

MERALCO is hereby directed to cause the publication of the attached Notice of Public Hearing, at its own expense, twice (2x) for

two (2) successive weeks in two (2) newspapers of general circulation in the Philippines, with the date of the last publication to be made not later than ten (10) days before the date of the scheduled initial hearing. It is also directed to inform the consumers within its franchise area, by any other means available and appropriate, of the filing of the instant application, its reasons therefor and of the scheduled hearings thereon.

Let copies of the application, this Order, and the attached Notice of Public Hearing be furnished the Office of the Solicitor General (OSG), the Commission on Audit (COA) and the Committees on Energy of both Houses of Congress. They are hereby requested, if they so desire, to send their duly authorized representatives at the scheduled hearings.

Likewise, let copies of this Order and the attached Notice of Public Hearing be furnished the Offices of the Governors and Mayors of the Municipalities/Cities within the franchise area of MERALCO for the appropriate posting thereof on their respective bulletin boards.

MERALCO is hereby directed to furnish all those making requests therefor with copies of the application and its attachments, subject to reimbursement of reasonable photocopying costs.

On the date of the initial hearing, MERALCO must submit to the Commission its written Compliance with the jurisdictional requirements attaching therewith, methodically arranged and duly marked, the evidences of the actual posting and publication of the Notice of Public Hearing consisting of certifications issued to that effect, signed by the afore-mentioned Governors and Mayors or their duly authorized representatives, bearing the seals of their offices, and the affidavits of the Editors or Business Managers of the newspapers where said Notice of Public Hearing were published together with the complete issues of the said newspapers, and such other proofs of compliance with the requirements of the Commission.

MERALCO and all interested parties are directed to submit, at least five (5) days before the date of initial hearing and pre-trial conference, their respective Pre-Trial Briefs containing, among others:

- (a) A summary of admitted facts and proposed stipulation of facts;

- (b) The issues to be tried or resolved;
- (c) The documents or exhibits to be presented, stating the purposes thereof and proposed markings therefore; and
- (d) The number and names of the witnesses, with their written testimonies in an individual affidavit form, to be attached to the Pre-Trial Brief.

Failure of MERALCO to submit the required Pre-Trial Brief and Judicial Affidavits of its witnesses within the prescribed period shall be a ground for cancellation of the scheduled hearing, and the resetting of which shall be six (6) months from said date of cancellation.

As part of the pre-trial conference, MERALCO must also be prepared to make an expository presentation of its application, aided by whatever communication medium that it may deem appropriate for the purpose, in order to put in plain words and explain, for the benefit of the consumers and other concerned parties, what the application is all about and the reasons and justifications being cited in support thereof.

**SO ORDERED.**

Pasig City, January 26, 2015.

FOR AND BY AUTHORITY  
OF THE COMMISSION:

  
**ZENAIDA G. CRUZ-DUCUT**  
Chairperson *per se*



**Copy Furnished:**

1. **MANILA ELECTRIC COMPANY (MERALCO)**  
Attention: Attys. Francis Dino S. Antonio, Hazel Rose B. See, Paul B. Soriño, and Monica M. Martin  
Counsels for MERALCO  
7<sup>th</sup> Floor, Lopez Building  
Ortigas Avenue, Barangay Ugong, Pasig City
2. **The Office of the Solicitor General**  
134 Amorsolo Street, Legaspi Village, Makati City  
Metro Manila
3. **The Commission on Audit**  
Don Mariano Marcos Avenue  
Diliman, Quezon City, Metro Manila
4. **The Committee on Energy**  
Senate of the Philippines  
GSIS Building, Roxas Blvd., Pasay City, Metro Manila
5. **The Committee on Energy**  
House of Representatives  
Batasan Hills, Quezon City, Metro Manila
6. **Office of the President of PCCI**  
Philippine Chamber of Commerce and Industry (PCCI)  
3<sup>rd</sup> Floor, ECC Building, Sen. Gil Puyat Avenue  
Makati City
7. **Office of the Provincial Governor**  
Province of Bulacan
8. **Office of the Provincial Governor**  
Province of Cavite
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Hagonoy, Bulacan 3002
- 128. Office of the Municipal Mayor**  
Paombong, Bulacan 3001
- 129. THE NATIONAL GRID CORPORATION OF THE PHILIPPINES (NGCP)**  
National Grid Corporation of the Philippines (NGCP)  
Quezon Avenue corner BIR Road, Diliman, Quezon City