

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



**IN THE MATTER OF THE  
APPLICATION FOR AUTHORITY TO  
IMPLEMENT PROPOSED CAPITAL  
PROJECTS FOR YEAR 2008, WITH  
PRAYER FOR PROVISIONAL  
AUTHORITY**

**ERC CASE NO. 2008-085 MC**

**VISAYAN ELECTRIC COMPANY,  
INC. (VECO),**

**Applicant.**

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Date: SEP 01 2008  
By: [Signature]

**DECISION**

Before this Commission for resolution is the application filed on September 16, 2008 by Visayan Electric Company, Inc. (VECO) for authority to implement its proposed capital projects for year 2008, with prayer for provisional authority.

In the said application, VECO alleged, among others, the following:

1. In pursuit of its mandate to deliver adequate, efficient and reliable service, it has prepared its proposed major capital projects which consist of: a) Substation Projects; and b) Special Transmission and Distribution Vehicle to be implemented within its franchise area for the year 2008;
2. On September 10, 2008, it initiated a Public Consultation Meeting to apprise the public of the nature and description of its proposed major capital projects and the cost that will be incurred;
3. It seeks authority from the Commission to implement the following capital projects for the year 2008 as summarized below:
  - 3.1. North Reclamation Area (NRA) Substation and 69kV Line (Estimated Cost: PhP63,723,747.26) at North Reclamation Area, Mandaue City.

- 3.1.1 Purchase and installation of one (1) 25 MVA 69/23kV power transformer;
  - 3.1.2 Purchase and installation of three (3) 69kV SF6 Circuit Breakers;
  - 3.1.3 Purchase and installation of eight (8) sets of 69kV motor operated Double-Side Break Switches;
  - 3.1.4 Purchase and installation of five (5) 23kV switchgears;
  - 3.1.5 Construction of 2.4 km single circuit 795 Aluminum Cable Steel Reinforced (ACSR) 69kV Line from NRA substation to Mabolo substation; and
  - 3.1.6 Construction of 1.9 km single circuit 795 ACSR 69kV Line from NRA substation to corner J.L. Briones and A.C. Cortes Streets, Mandaue City, Cebu.
- 3.2. VECO-Cemex Interconnection and substation (Estimated Cost: PhP108,555,247.10) inside Cemex compound.
- 3.2.1 Installation of 1 x 25 MVA 67/13.8kV substation with one (1) 69kV SF6 Circuit Breaker;
  - 3.2.2 Purchase and installation of six (6) 72.5 Power Fuses;
  - 3.2.3 Purchase and installation of 15kV Vacuum Circuit Breaker;
  - 3.2.4 Purchase and installation of 15kV 1600A Switchgears;
  - 3.2.5 Purchase and installation of six (6) Hookstick Operated 15kV Disconnect Switches; and
  - 3.2.6 69kV Line works and additional equipment cost at the Naga substation.
- 3.3. Special T & D Vehicle Project (Estimated Cost: PhP10,015,786.72)
- 3.3.1. Acquisition of a brand new Pitman Model M50H-4T Differ Derrick rated at 5 tons, mounted and installed on Isuzu model FVR23P-02 truck chassis.
4. It is mandated to provide power in the most reliable, secure and efficient manner. Thus, it is necessary to obtain a provisional authority from the Commission before it will be able to commence the implementation of these major capital projects without delay and fulfill its legislative mandate; and
5. It prays that the Commission grants a provisional authority to allow and authorize it to implement the subject major capital projects and after due notice and hearing, grant permanent authority.



Having found said application sufficient in form and in substance with the required fees having been paid, an Order and a Notice of Public Hearing, both dated September 23, 2008, were issued setting the case for initial hearing on October 22, 2008.


In the same Order, VECO was directed to cause the publication of the Notice of Public Hearing, at its own expense, once (1x) in a newspaper of general circulation in the Philippines, at least ten (10) days before the scheduled date of initial hearing. It was 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 hearing thereon.

The Office of the Solicitor General (OSG), the Commission on Audit (COA) and the Committees on Energy of both Houses of Congress were furnished with copies of the Order and the Notice of Public Hearing and were requested to have their respective duly authorized representatives present at the initial hearing.

Likewise, the Offices of the Mayors of the Municipalities/Cities within VECO's franchise area were furnished with copies of the Order and the Notice of Public Hearing for the appropriate posting thereof on their respective bulletin boards.

On October 15, 2008, VECO filed its "Pre-trial Brief".

On October 15 to 17, 2008, the Commission conducted an ocular inspection on VECO's assets subject of the instant application.



During the October 22, 2008 initial hearing, only VECO appeared. No intervenor/oppositor appeared nor was there any intervention/opposition registered.

In the said hearing, VECO adduced proofs of its compliance with the Commission's posting and publication of notice requirements which were duly marked as Exhibits "A" to "E-3", inclusive. Thereafter, it conducted an expository presentation of its application and presented its lone witness, Engr. Raul V. Lucero, its Vice-President for Engineering, who testified on the reasonableness and necessity of the proposed projects. The direct examination having been terminated, the Commission propounded clarificatory questions on the said witness.

On November 3, 2008, VECO filed its "Formal Offer of Exhibits" which is hereby admitted for being relevant and material to the final resolution of the case.

## DISCUSSION

VECO sought the Commission's approval of the following projects:

### 1. North Reclamation Area (NRA) Substation and 69kV Line

#### a. Project Description:

- Installation of one (1) 25 MVA 69/23kV power transformer, three (3) 69kV SF6 circuit breakers, seven (7) sets of 69 kV motor operated double-side break switches, and five (5) 23kV switchgears at new Mandaue-Reclamation substation, located at North Reclamation Area, Mandaue City
- Construction of 2.4km single circuit 795 ACSR 69kV line from NRA substation to Mabolo substation and 1.9km single circuit



795 ACSR 69 kV line from NRA substation to corner J.L. Briones and A.C. Cortes Streets

b. Project Rationale

- The project is intended to relieve, evenly distribute and reduce the loading of Mabolo and Mandaue feeders to their appropriate level resulting to enhanced system reliability
- The peak demands of the existing 25 MVA Mabolo and 35 MVA Mandaue substations already exceed their self-cooled (OA) ratings. These two (2) substations are serving very dense commercial/industrial zones of Mandaue City and Municipality of Mabolo. The project is intended to address the load growth in these areas
- The project will ensure adequate and reliable power to sustain the increasing demand of Mandaue City, particularly in North Reclamation Area

c. Project Cost Estimate: **PhP63,723,747.26**

Shown below is the detailed breakdown of the Project Cost:

Particular	Amount (PhP)
Substation Foundation and Structure	6,494,235.70
Electrical Equipment	35,313,177.98
Line Hardware	678,936.58
Earth System (Grounding)	294,720.00
Protection, Metering and Accessories	1,770,556.86
Lot Survey and Soil Bearing Test	122,416.00
Civil works	8,405,694.01
SCADA	195,000.00
NRA 69kV Line	10,449,010.13
<b>Total Project Cost</b>	<b>63,723,747.26</b>

2. VECO-CEMEX Interconnection

a. Project Description:

- Construction of one (1) 25 MVA 67/13.8kV substation with one (1) 69kV SF6 circuit breaker, six (6) 72.5 kV power fuses, one (1) 15kV vacuum circuit breaker, 15kV 1600A switchgears, six (6) hooksticks operated at 15 kV disconnect switches



- Construction of 69 kV line from the Cemex location up to the Naga substation and installation of additional equipment at the Naga substation for the tapping of the 69kV line

b. Project Rationale:

- The project is designed to provide additional source of bulk power coming from the South, especially during peak load period
- It is intended to improve supply reliability. The VECO-CEMEX interconnection will be an alternative source to Naga substation if ever the supply coming from TransCo-Naga line 5 will fail

c. Project Cost Estimate: **PhP108,555,247.10**

Shown below is the detailed breakdown of the Project Cost:

Particular	Amount (PhP)
69Kv Line (Section B)	6,086,057.24
Site Development	1,227,383.20
SF6, Vacuum CB, Transformer and Structure Foundation	1,957,160.80
69kV structures	5,618,630.08
13.8kV structures	2,397,281.42
Substation Transformer Electrical Equipment and Accessories	34,957,356.61
Substation Line Hardwares	595,637.06
Grounding System	1,062,934.96
Secondary Interconnection	15,761,675.71
Primary Metering Structure and Equipment	1,864,790.12
Control Protection Equipment	4,706,616.50
Capacitor Bank Equipment	10,427,510.24
Testing and Commissioning	300,000.00
69kV Line (Section A)	5,741,216.35
Equipment at Naga S/S	15,850,996.81
<b>TOTAL</b>	<b>108,555,247.10</b>

**3. Digger Truck**

a. Project Description:

- Acquisition of a brand new Pitman Model M50H-4T Digger Derrick rated at 5 tons, mounted and installed on Isuzu model FVR23P-02 truck chassis

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b. Project Rationale:

- The project will further increase and improve team productivity through shorter digging time and pole installation activities
- It is also intended for loading and unloading various heavy cargoes such as poles, transformers, etc.

c. Project Cost Estimate:

**PhP10,015,786.72**

Thus, the total project cost is as follows:

Particular	Amount (PhP)
North Reclamation Area (NRA) Substation and 69kV Line	63,723,747.26
VECO-CEMEX Interconnection	108,555,247.10
Digger Truck	10,015,786.72
<b>Total</b>	<b>182,294,781.08</b>

## PROJECT DESIGN

### 1. North Reclamation Area (NRA) Substation and 69kV Line

The installation of the new substation and the 69kV line is intended to prevent eventual substation overload of the three (3) substations and provide an even distribution of load to all these substations. Maintaining the proper loading level of power transformer will certainly extend its reliability. Other criteria such as voltage improvements, reduction of distribution line losses, and proximity to load center were also conducted and technically supported by the load flow analysis using SynerGEE-Electric power analysis software.

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## 2. VECO-CEMEX Interconnection

The scope of work includes engineering, supply of type-approved materials and equipment, project management, quality and safety assurance, installation of equipment and protection controls, concrete foundation and steel structures, testing and commissioning.

The engineering design includes site inspection, preparation of plans, design and construction drawing using AutoCAD.

VECO requested the National Transmission Corporation (TRANSCO) to make the necessary adjustments of its protection design settings for the said feeder in order to have a proper protection coordination between the systems of TRANSCO, VECO and CEMEX. The tap setting for the feeder overcurrent protection shall be set based on the ampacity of the feeder conductor. This arrangement will be readily facilitated since VECO is solely connected to the said TRANSCO feeder.

The substation projects (NRA & CEMEX) including various components, such as short-circuit and fault protection, system control and metering, cabling and grounding system, conform with the applicable and widely-recognized international design standards of American National Standards Institute (ANSI), Institute of Electrical and Electronic Engineers (IEEE) and National Electrical Manufacturers' Association (NEMA). The new system is in accordance with the Philippine Grid Code (PGC) and the Philippine Distribution Code (PDC).

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The substation's civil and structural works as well as ancillaries, such as steel structures for supports and substation take-off, panel shelter and perimeter lighting, conform to the applicable international and local design standards.

The design of the projects is in accordance with the standards set by the IEEE, ANSI, Philippine Electrical Code (PEC) and the National Electrification Administration (NEA).

### **3. Digger Truck**

The digger truck conforms with the international standard under ANSI A 10.31 Electrical Standard and ISO 9001 certified. Acquisition of the said truck will increase and improve the productivity of linemen and field personnel by taking advantage of new specialized vehicles and equipment and increase the margin of safety needed in a professional manner.

## **TECHNICAL ANALYSIS**

### **1. North Reclamation Area (NRA) Substation and 69kV Line**

Expansion of the existing establishments and construction of large commercial and industrial businesses contributed to the load growth in the area of the Municipality of Mabolo and Mandaue City. The two (2) substations are serving very dense commercial zones of the Municipality of Mabolo and Mandaue City which have higher load growth compared to other areas. The peak demands of the said substations already exceed their self-cooled (OA) rating. With the ambient temperature, utilizing the transformer's forced-air cooled (FA)

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rating for prolonged period will increase the substations' operating temperatures and shorten their insulation life that may cause major damage to the transformers.

The Mabolo substation has three (3) feeders, namely: MBL311, MBL312 and MBL313 with peak demands of 4.1MVA, 5MVA and 11MVA, respectively. On the other hand, the Mandaue substation has three (3) feeders, namely: MDW311, MDW312 and MDW321 with peak demands of 8.9MVA, 10.9MVA and 9MVA, respectively.

Shown below are the five (5) - year historical demand loadings of the two (2) substations:

Mabolo substation 5 year historical demand loading

YEAR	Peak KW Demand History					
	MBL311	MBL312	MBL313	Substation Total	Transformer capacity @ 95% pf (OA)	Transformer capacity @ 95% pf (FA)
2003	2,955.52	1,782.55	6,284.60	11,022.67	46.41%	35.16%
2004	2,940.03	1,851.73	6,594.76	10,551.20	44.43%	33.66%
2005	3,170.69	1,969.13	7,333.49	10,665.49	44.91%	34.02%
2006	4,033.52	3,872.40	9,519.88	11,000.31	46.32%	35.09%
2007	4,104.71	4,987.17	11,047.94	13,125.46	55.27%	41.87%

Mandaue substation 5 year historical demand loading

YEAR	Peak KW Demand History					
	MDW311	MDW312	MDW321	Total	Transformer capacity @ 95% pf (OA)	Transformer capacity @ 95% pf (FA)
2003	7,930.95	6,848.33	0.00	12,437.11	52.37%	39.67%
2004	6,735.54	5,771.77	0.00	11,386.52	47.94%	36.32%
2005	7,158.27	7,686.82	6,867.02	12,473.31	37.51%	28.86%
2006	8,144.82	11,239.41	7,728.13	17,425.80	52.41%	40.31%
2007	8,916.54	10,865.41	9,014.27	20,139.82	60.57%	46.59%

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Forecasting it for five (5) more years using power system simulation software, VECO's substations will be overloaded and may reach more than 100% loading for years 2008 and 2009 for Mabolo and Mandaue substations, respectively.

Shown below are the five (5) - year forecasted demand loadings of the two (2) substations:

Mabolo substation 5 year forecasted demand loading

YEAR	Peak KW Demand Forecast					
	MBL311	MBL312	MBL313	Substation Total	Transformer capacity @ 95% pf (OA)	Transformer capacity @ 95% pf (FA)
2008	4,857.10	7,162.85	13,619.26	25,639.20	<b>107.95%</b>	<b>81.78%</b>
2009	5,561.74	9,530.34	16,351.64	31,443.71	<b>132.39%</b>	<b>100.30%</b>
2010	6,342.73	12,147.84	19,303.25	37,793.82	<b>159.13%</b>	<b>120.55%</b>
2011	7,188.41	14,938.07	22,388.40	44,514.89	<b>187.43%</b>	<b>141.99%</b>
2012	8,087.12	17,823.73	25,521.42	51,432.27	<b>216.56%</b>	<b>164.06%</b>

Mandaue substation 5 year forecasted demand loading

YEAR	Peak KW Demand Forecast					
	MDW311	MDW312	MDW321	Total	Transformer capacity @ 95% pf (OA)	Transformer capacity @ 95% pf (FA)
2008	7,162.85	14,028.81	11,017.82	32,209.47	<b>96.87%</b>	<b>74.52%</b>
2009	9,530.34	16,655.73	12,261.54	38,447.61	<b>115.63%</b>	<b>88.95%</b>
2010	12,147.84	19,462.12	13,212.10	44,822.07	<b>134.80%</b>	<b>103.69%</b>
2011	14,938.07	22,370.95	13,906.14	51,215.16	<b>154.03%</b>	<b>118.49%</b>
2012	17,823.73	25,305.21	14,380.26	57,509.20	<b>172.96%</b>	<b>133.05%</b>

Based on assumptions and computer simulations, a new NRA substation will significantly reduce distribution line losses since it is situated directly on the dense load centers of NRA, thus, making it the most logical and efficient solution.

Shown below are the five (5) - year forecasted demand loading of the two (2) substations with the new NRA Substation in place:

Mabolo substation 5 year forecasted demand loading

YEAR	Peak KW Demand Forecast					
	MBL311	MBL312	MBL313	Substation Total	Transformer capacity @ 95% pf (OA)	Transformer capacity @ 95% pf (FA)
2008	3,399.97	5,013.99	9,533.48	17,947.44	75.57%	57.25%
2009	3,893.22	6,671.24	11,446.15	22,010.60	92.68%	70.21%
2010	4,439.91	8,503.49	13,512.27	26,455.68	111.39%	84.39%
2011	5,031.89	10,456.65	15,671.88	31,160.42	131.20%	99.40%
2012	5,660.98	12,476.61	17,865.00	36,002.59	151.59%	114.84%

Mandaue substation 5 year forecasted demand loading

YEAR	Peak KW Demand Forecast					
	MDW311	MDW312	MDW321	Total	Transformer capacity @ 95% pf (OA)	Transformer capacity @ 95% pf (FA)
2008	5,013.99	9,820.17	7,712.47	22,546.63	67.81%	52.16%
2009	6,671.24	11,659.01	8,583.07	26,913.32	80.95%	62.26%
2010	8,503.49	13,623.48	9,248.47	31,375.45	94.36%	72.59%
2011	10,456.65	15,659.67	9,734.30	35,850.61	107.82%	82.94%
2012	12,476.61	17,713.65	10,066.18	40,256.44	121.07%	93.13%

New NRA substation 5 year forecasted demand loading

YEAR	Peak KW Demand Forecast						
	NRA311	NRA312	NRA313	NRA314	Total	Transformer capacity @ 95% pf (OA)	Transformer capacity @ 95% pf (FA)
2008	8,556.83	2,585.86	3,133.59	3,078.32	17,354.60	73.07%	55.36%
2009	10,338.14	3,124.18	3,785.93	3,719.15	20,967.40	88.28%	66.88%
2010	12,220.33	3,692.97	4,475.20	4,396.27	24,784.77	104.36%	79.06%
2011	14,160.14	4,279.18	5,185.58	5,094.12	28,719.02	120.92%	91.61%
2012	16,114.34	4,869.74	5,901.22	5,797.14	32,682.44	137.61%	104.25%

During the inspection of Mabolo and Mandaue substations, it was confirmed upon measurement of the actual demand loading (as shown in the table below) of the substations that the data submitted by VECO coincide and represent the present situation in its franchise area. The transformers are rated at 95% power factor under self-cooled (OA) rating.

Actual measurement during inspection conducted on October 15-17, 2008

Substation	Installed Capacity (MVA)	Demand (MW)	Transformer capacity @ 95% pf (OA)
Mabolo S/S	25	25.758	103.03%
Mandaue S/S	35	33.485	95.67%
<b>Total</b>	<b>60</b>	<b>59.243</b>	<b>99.35%</b>

## 2. VECO-CEMEX Interconnection

CEMEX is a manufacturing firm producing cement. It has a total peak demand of 40MW. CEMEX currently generates its power through its 6 X 11MW, 13.8kV diesel engine generators. Since the operating cost is now very expensive due to the increasing cost of its prime fuel, which is diesel, its management deemed it prudent to install a single 25MVA, 67/13.8kV substation to mitigate its soaring expenses. For its part, VECO will assist in the construction, testing and commissioning of the said generators.

The installation of the 25MVA substation is still insufficient to solely compensate the 40MW load requirement of CEMEX. A number of its generators will still be needed to be operated.

VECO and CEMEX had an initial and ongoing agreement whereby the latter will provide power to the former during power shortages.

For reliability of power, the 69kV line shall be linked to CEMEX substation and VECO's Naga Substation providing an avenue of power supply between the two (2) entities.

During the ocular inspection, power quality measurement was conducted. The receiving voltage at the tapping point ranges from 96.37% up to 102.31% which is in compliance with the requirement of the PDC of +/- 10% of the nominal kV rating.



### 3. Digger Truck

VECO manifested that presently, it has three (3) digger trucks. An additional one (1) unit digger truck will further boost team productivity by shorter digging time and pole installation activities. The vehicle is essential also for loading and unloading various heavy cargoes such as poles, transformer, and other electrical heavy equipment. This unit will be a big factor in achieving VECO's goal to lessen the power interruption, further improve the time installation projects and provide good service to the consumers within its franchise area.

### COST ANALYSIS

VECO manifested that the projects will be funded through its internally generated funds and will not result in any increase or change in its rates.

A perusal of the evidence presented herein showed that the completion and acquisition of the aforesaid projects will rebound to the benefit of VECO's consumers in terms of continuous, reliable and efficient power supply as mandated by Republic Act No. 9136, or the *Electric Power Industry Reform Act of 2001* (Section 2. Declaration of Policy – (b) “to ensure the quality, reliability, security and affordability of the supply of electric power”).

**WHEREFORE**, the foregoing premises considered, the application for authority to implement its proposed capital projects for year 2008, with prayer for provisional authority, filed by Visayan Electric Company, Inc. (VECO) is hereby **APPROVED**.

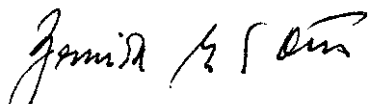


Relative thereto, VECO is hereby directed to pay a permit fee in the amount of One Million Three Hundred Sixty-Seven Thousand Two Hundred Ten Pesos and Eighty-Six Centavos (PhP1,367,210.86) within ten (10) days from receipt hereof, computed as follows:

$$\begin{array}{r} \text{PhP182,294,781.08} \\ \text{-----} \times \text{PhP0.75} = \text{PhP1,367,210.86} \\ \text{PhP100.00} \end{array}$$

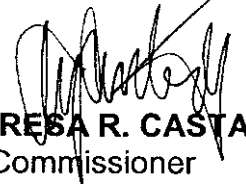
**SO ORDERED.**

Pasig City, November 24, 2008.

  
**ZENAIDA G. CRUZ-DUCUT**  
Chairperson

  
**RAUF A. TAN**  
Commissioner

  
**ALEJANDRO Z. BARIN**  
Commissioner

  
**MARIA TERESA R. CASTAÑEDA**  
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Cebu City  
Province of Cebu
9. **The City Mayor**  
City of Mandaue  
Province of Cebu
10. **The City Mayor**  
City of Talisay  
Province of Cebu
11. **The Municipal Mayor**  
Municipality of Minglanilla  
Province of Cebu
12. **The Municipal Mayor**  
Municipality of Naga  
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13. **The Municipal Mayor**  
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