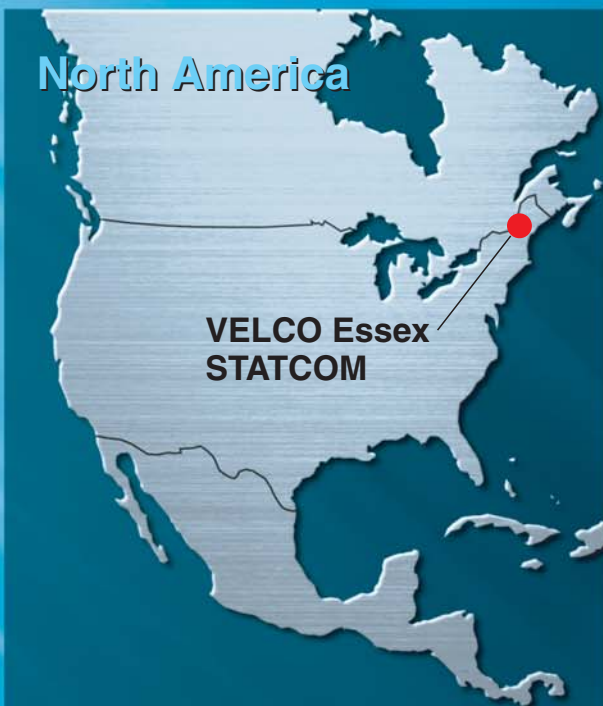
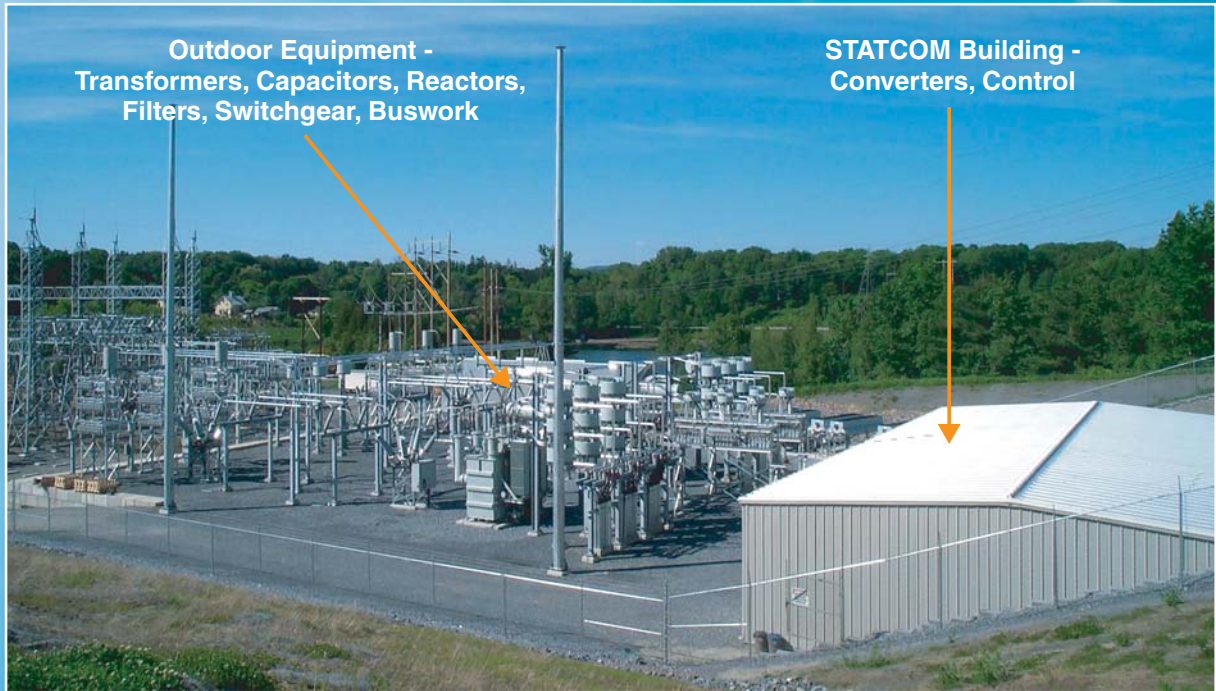


VELCO Essex STATCOM-Based FACTS Project



Project Highlights

- **Ratings**
-41 to +133 Mvar Dynamic Range
115 kV-ac
- **VSC Based Design**
Voltage Sourced Converters with Gate
Commutated Turn-Off Thyristor (GCT)
Elements
- **Coordinated Control**
STATCOM System Control coordinated
with both Local and Remote Capacitor
Banks
- **Small Footprint / Low Noise**
Meets Site Installation Restrictions &
Strict Environmental Requirements
- **Commissioned**
May 2001

VELCO Essex STATCOM-Based FACTS Project



The Essex S/S FACTS was installed to compensate for heavy increases in summertime electric usage, which have rendered the existing system increasingly vulnerable to failure in the event of problems elsewhere on the VELCO transmission system.

The FACTS at Essex is designed as a shunt connected Static Reactive Compensator (STATCOM) System. The VELCO system requirements (i.e., the purpose of the STATCOM) can be categorized as dynamic reactive compensation needed for fast voltage support during critical contingencies. The STATCOM System also provides enhanced power quality indirectly to a nearby industrial manufacturing facility that is sensitive to voltage disturbances at Essex.

The main objectives of the Essex STATCOM System are as follows:

- a. Rapid response to system disturbances
- b. Smooth control of ac voltage over a wide range of operating conditions
- c. Improved system reliability and local power quality through dynamic voltage support
- d. High reliability with redundant parallel converter design and modular construction

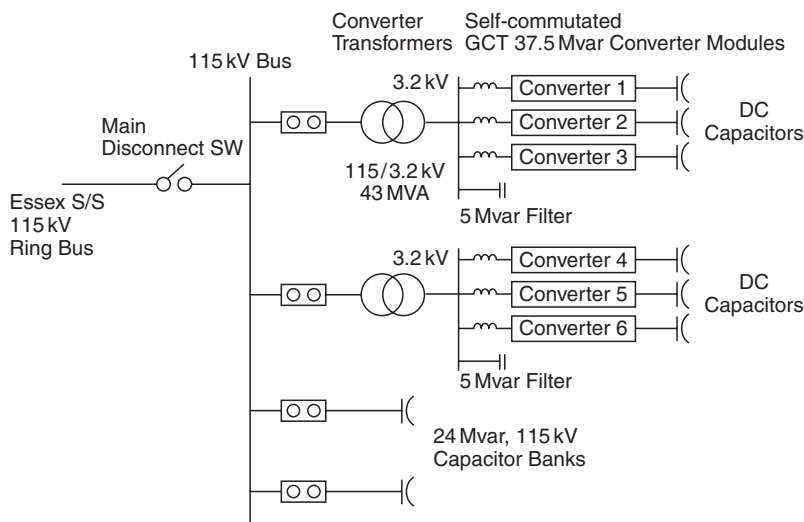
Photos:

Front page; External View of the Essex Substation STATCOM System

Left top; External View of the STATCOM GCT-Based Converter Panels

Left Bottom; Single-Line Diagram of the Essex -41/+133 Mvar, 115 kV STATCOM System

VELCO Essex S/S -41/+133 Mvar, 115 kV STATCOM System



Project Name	VELCO Essex STATCOM-Based FACTS Project
Commissioned	May 2001
Location	Essex Substation near Burlington, Vermont, USA
Dynamic Rating	-41 to +133 Mvar
System Voltage	115 kV-ac
Converter Type	3-Level Voltage Sourced Converter Design
Configuration	6 Converter Sets in Parallel
GCT Ratings	6-kV / 6-kA (6 inches)
Control	Coordinated control with local and remote capacitor banks

TMT&D

TMT&D Corporation

TMT&D Corporation
12-1 Toranomon 3-Chome, Minato-ku,
Tokyo 105-0001 Japan
Homepage: www.tmt-d.com

MITSUBISHI ELECTRIC POWER PRODUCTS, INC.
530 Keystone Drive-HQ Building
Warrendale, PA 15086 USA
Telephone: 724-778-5111
Homepage: www.meppi.com

[Other locations]
ARGENTINA, AUSTRALIA,
BRAZIL, CHINA, HONG KONG,
INDIA, KUWAIT, SAUDI ARABIA,
SINGAPORE, TAIWAN, U.A.E., U.K.

Printed in Japan

30611-1 03-09E20

•The data given in this catalog are subject to change without notice.