



## Hawthorne Capacitor Bank Project

Town of Fairfield Public Meeting

February 4<sup>th</sup>, 2015



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## THE PLAN AHEAD™

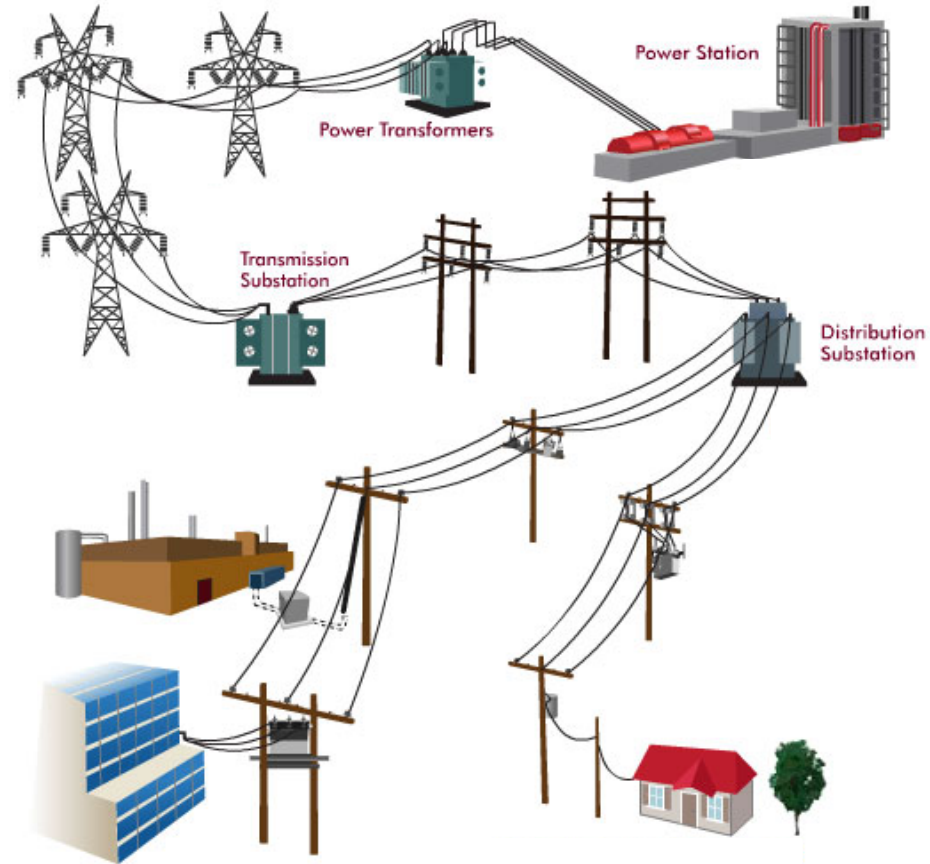
- Overview of the Electric System
- Electric Utility Governing Bodies
- Electric Utility Planning Process
- Hawthorne Capacitor Bank Planning History
- Connecticut Siting Council Process
- Impacts
  - Noise Analysis
  - Visual
- Schedule
- Discussion / Q&A



# Overview of the Electric System

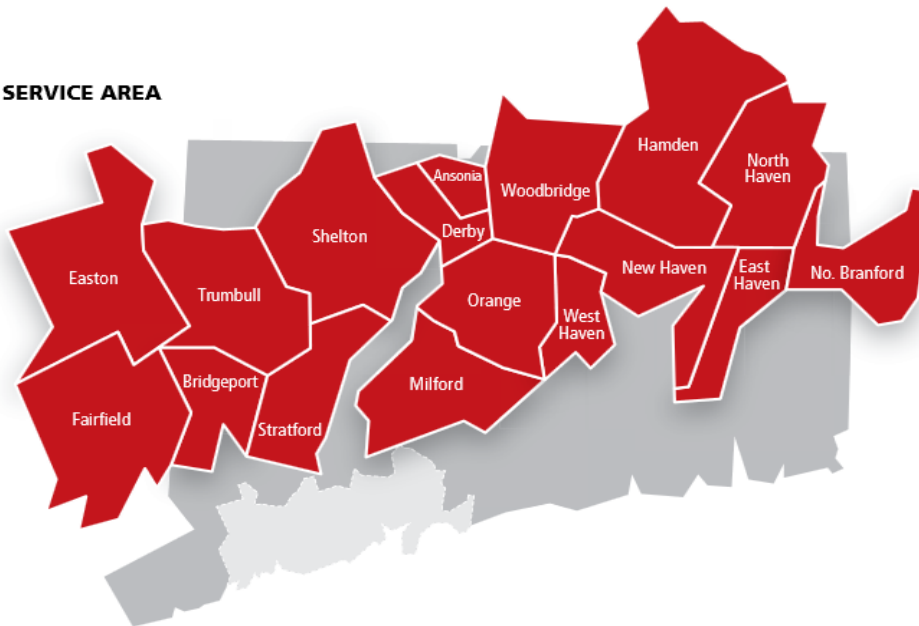
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- The United Illuminating Company (UI) owns & operates
  - Bulk transmission circuits
  - Distribution circuits
  - Substations
- UI transmits and distributes electricity in 17 towns to approximately 320,000 customers



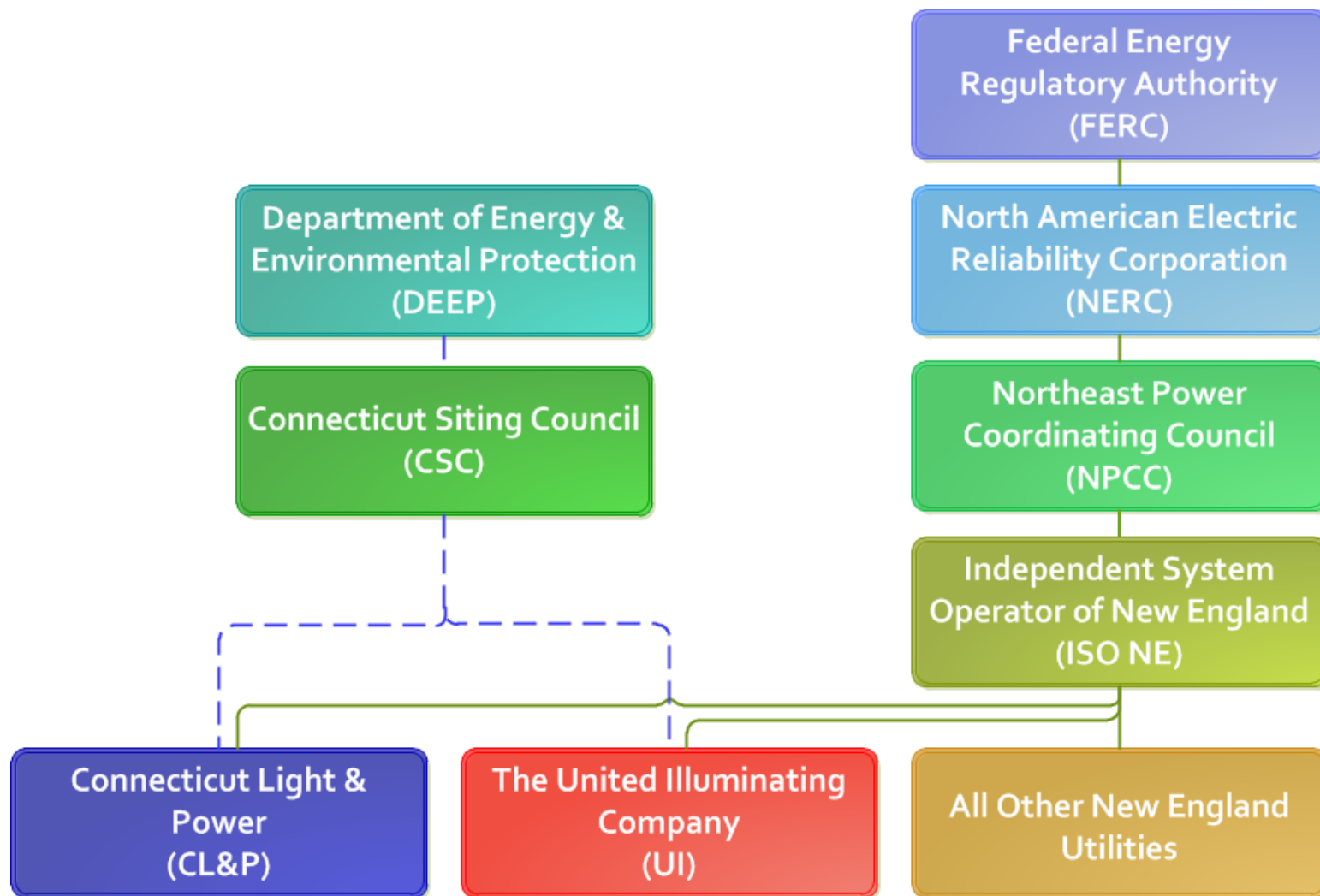
Source: Oncor.com

### SERVICE AREA



# Electric Utility Governing Bodies

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# Electric Utility Planning Process

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- UI performs a contingency analysis annually as mandated by NERC

Needs  
Analysis

- What are the issues?
- What is their severity?
- Do they exist today or in the future?
- What is their probability?

Needs  
Evaluation

- Collaborative process with all SWCT utilities and ISO NE

Solution  
Study

- What are the solutions?
- Where is the best location?
- Which is most cost effective?
- When can the project be executed?

Solution  
Evaluation

- Solution is selected by UI
- Solution is approved by ISO NE

Solution  
Selection

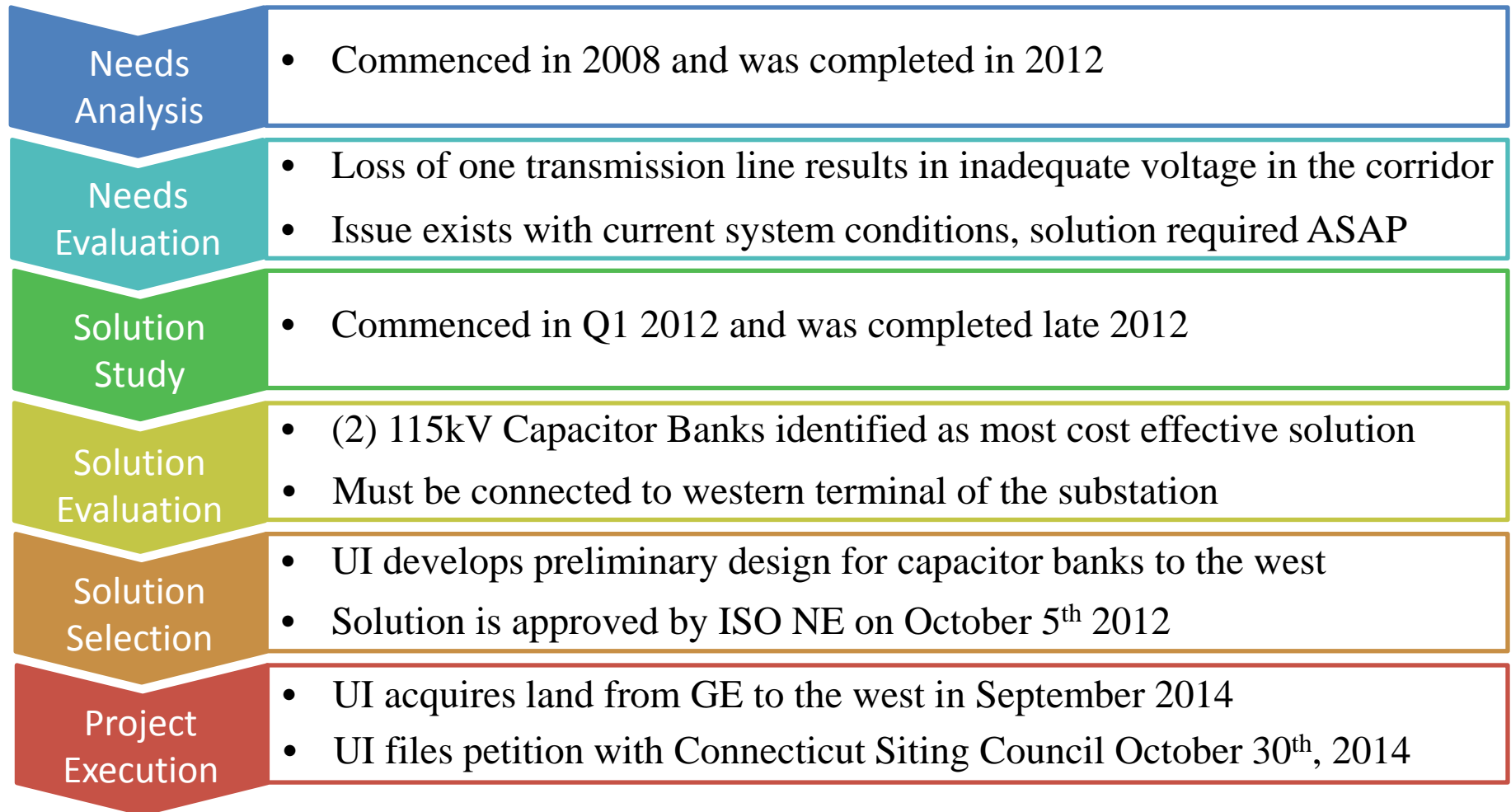
- Design, permitting & project execution

Project  
Execution



# Hawthorne Capacitor Bank Planning History

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# Connecticut Siting Council Process

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- UI submits a Petition for Declaratory Ruling to the CSC

Petition  
Submission

- Each abutting property owner and the municipality receives the Petition the same day as The Connecticut Siting Council

Public  
Notice

- UI provides additional information via public meeting and/or written information for clarification of any questions regarding proposal

Question &  
Answer

- CSC schedules a field review at the site, and provides notification to the abutters and the municipality. They are invited to attend the field review

Site Walk  
Through

- If CSC deems a hearing helpful in determining any issues concerning the request for Declaratory Ruling, a hearing may be scheduled.

Official  
Hearing

- If there is no hearing, the CSC issues a decision within 60 days of receiving the Petition

CSC  
Decision

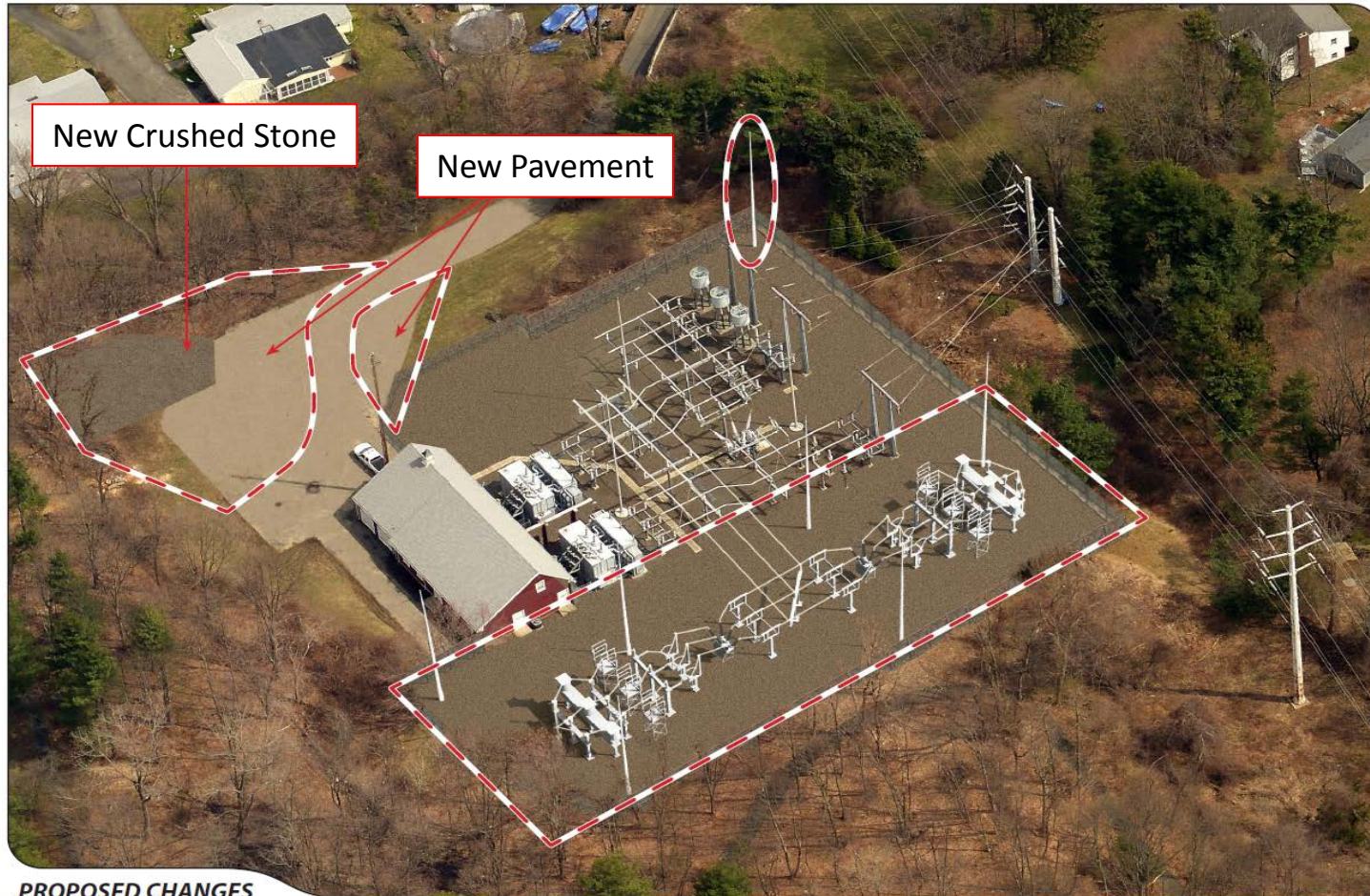
## Noise Analysis

- This project is not expected to increase ambient noise levels
- Ambient noise is generated due to two primary factors:
  - Humming of transformers
  - Heating, Ventilation and Air Conditioning (HVAC) equipment
- The new equipment to be installed at the Hawthorne Substation will not include new transformers, or HVAC equipment



# Hawthorne Capacitor Bank Impacts - Visuals

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PROPOSED CHANGES

- After careful consideration, the western location was selected as the optimal location based on cost, visual impacts and electrical connectivity



# Hawthorne Capacitor Bank Impacts - Visuals

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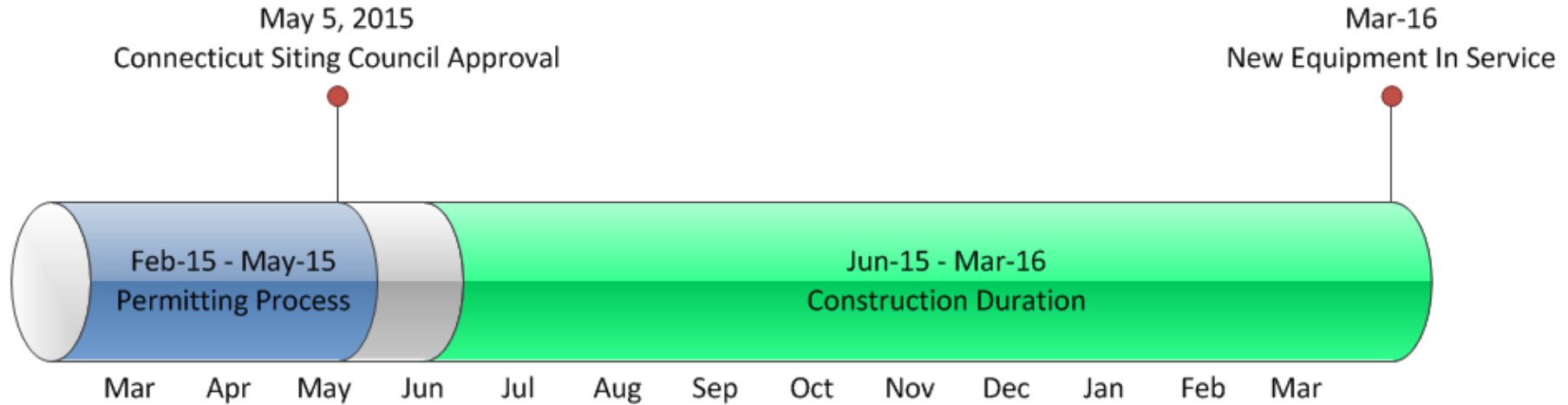
PHOTO LOG

Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AeroX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- 3D renderings were created from 14 different locations to simulate the visual impacts of the new equipment

# Hawthorne Capacitor Bank Schedule

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February 2015

March 2016

- Normal construction hours will be 7:00 AM to 5:00 PM, Monday through Friday
- The work hours may include evening and weekend hours on a temporary and case-by-case basis in order to cutover critical equipment

# Discussion / Q&A

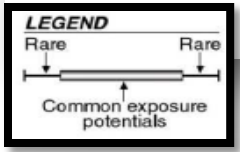
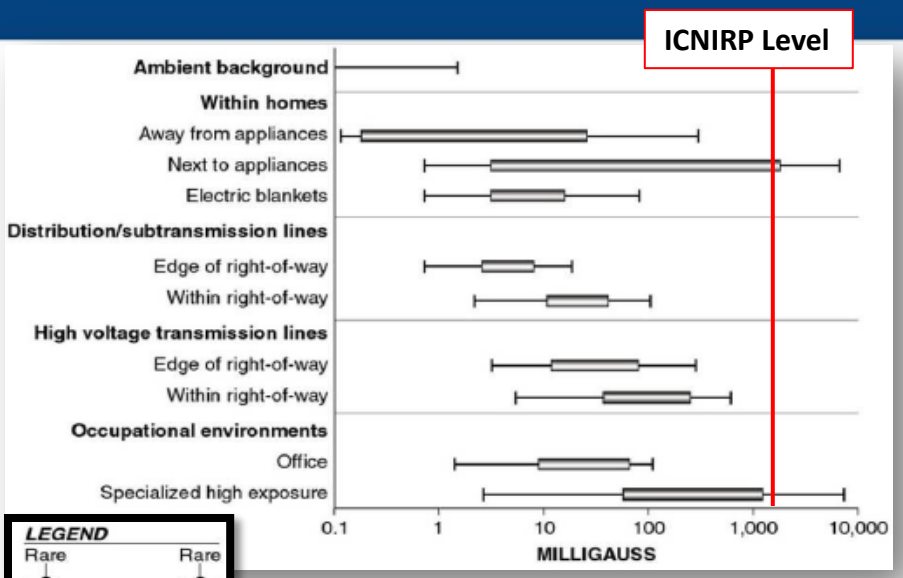


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# Hawthorne Capacitor Bank Impacts - EMF



**Magnetic Field Levels in the Environment**

## ICNIRP and ICES guidelines for EMF exposure

	Exposure (60 Hz)	
	Electric Field	Magnetic Field
<b>ICNIRP</b>		
Occupational	8.3 kV/m	10 G (10,000 mG)
General Public	4.2 kV/m	2 G (2,000 mG)
<b>ICES</b>		
Occupational	20 kV/m	27.1 G (27,100 mG)
General Public	5 kV/m*	9.040 G (9,040 mG)

\*Within power line rights-of-way, the guideline is 10 kV/m under normal load conditions.

### World Health Organization (WHO)

### Recommended Limits for EMF Exposure – June 2007 Factsheet

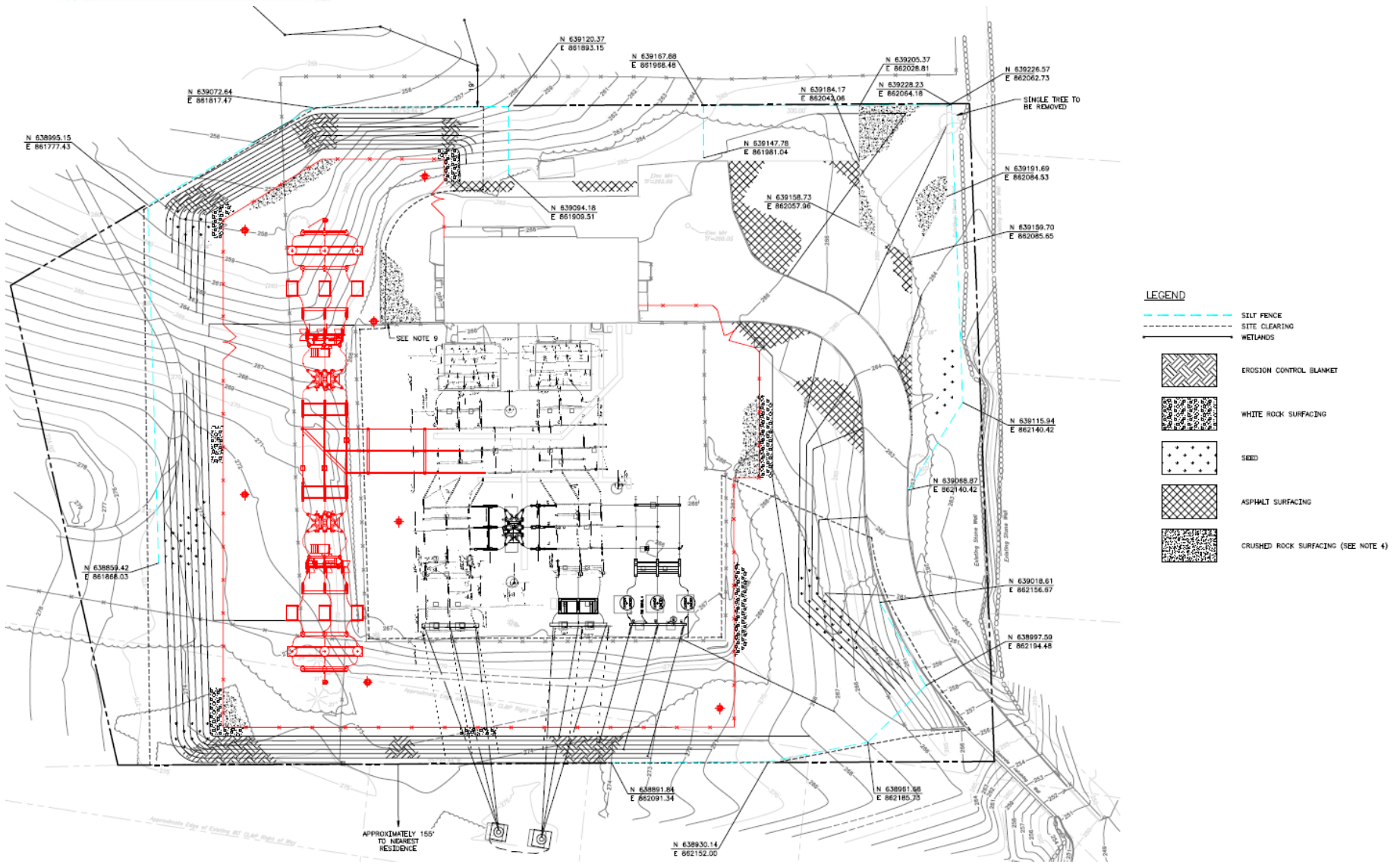
- Electric Fields (EF) – Generated between the transmission line conductors and ground due to the high voltage electricity
  - EF's are shielded by conductive materials such as fences, shrubbery and buildings
  - New substation fence will be 1' taller than existing fence & will incorporate slats
- Magnetic Fields (MF) – Generated by current flowing through transmission line & substation conductors. As a result, MF's generated vary with the load level.
  - The increase in the load level on the transmission and substation conductors due to the new equipment will be negligible
- The EMF generated by the addition of this equipment will be negligible





# Site Grading Plan

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**LEGEND**

	SILT FENCE
	SITE CLEARING
	WETLANDS
	EROSION CONTROL BLANKET
	WHITE ROCK SURFACING
	SEED
	ASPHALT SURFACING
	CRUSHED ROCK SURFACING (SEE NOTE 4)



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### Request for Petition

- UI has submitted a Petition for Declaratory Ruling to the Connecticut Siting Council for upgrades to the Hawthorne Substation.

### Notice

- Each property owner that abuts the substation property has received a copy of the petition, as has the First Selectman of the Town of Fairfield.

### Public Involvement

- Upon receipt of the Petition Document, questions and comments from the municipality and the abutters can be sent to the Council regarding the proposed modifications to the substation
- UI is responsible to provide answers and/or additional information and clarification to these inquiries. The information is posted on the Council website
- A site walk is conducted with the Council. The Council provides notice of this event to abutters and the municipality, they are invited to attend.
- A public meeting, if requested, can also be held

### Hearing

- If the Council deems a hearing necessary or helpful in determining any issues concerning the request for a declaratory ruling, the Council will schedule a hearing and give notice as appropriate.

### Decision

- Within 60 days of receiving the Petition for Declaratory Ruling, the Council in writing, will issue a decision.