- VIEWSHED SIMULATIONS - NANTUCKET SOUND WIND POWER PLANT

Prepared for the Alliance to Protect Nantucket Sound, Inc.,
by

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Earth Tech is a global environmental services company specializing in environmental engineering and planning

Our client list includes:

- U.S. Army Corps of Engineers, U.S. Coast Guard, EPA
- Mass. Dept. of Environmental Protection
- Many public and private utilities

VIEWSHED SIMULATIONS

Step 1: Photograph locations

Full-frame panoramic 24mm x 65mm 45mm Lens,

71º angle of view

Standard 35mm Frame: 24mm x 36mm

45mm lens 43.7º angle of view (horizontal)

VIEWSHED SIMULATIONS

Step 2: Photos developed and scanned. Original transparency scanned at 4800 dpi. Brightness and contrast adjusted in Adobe Photoshop

Step 3: Construct 3D model of turbine using dimensions from ACOE Section 10/404 permit application

Step 4: Place turbine models at each of the locations given in the permit application

Step 5: Locate camera positions based on GPS coordinates

VIEWSHED SIMULATIONS

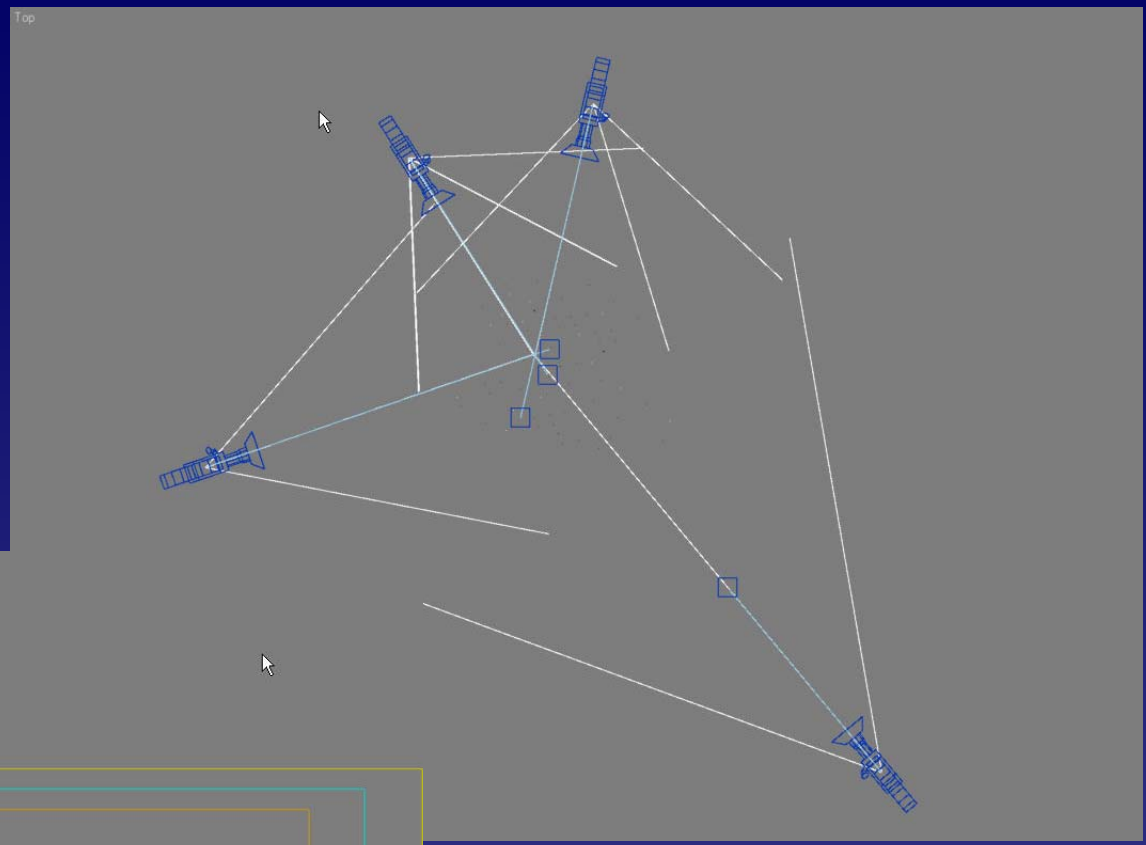
Step 6: Locate in the model the horizon for each photo based on height of the camera as well as curvature of the earth *and* refraction

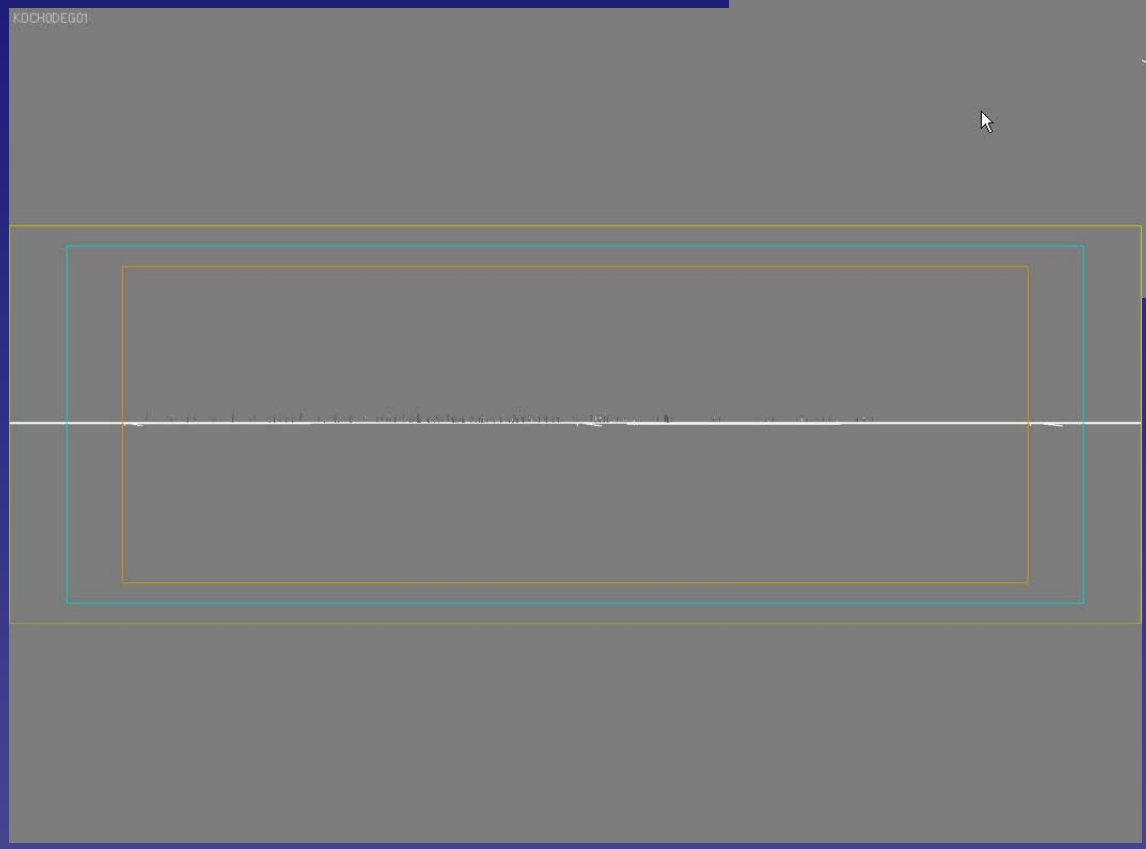
Step 7: Locate in the model key landmarks visible in each photo.

Step 8: Render each camera view using the horizon and key landmarks as control points

Step 9: Create photo-montage by combining ‘before’ and ‘after’ photos using various tools in Photoshop to splice the modeled view into the photo

Camera Locations





Rendered View

PRODUCTION EQUIPMENT

Camera: Hassleblad X-pan, full-frame 35mm panoramic camera, 45 mm lens

Software: Autodesk VIZ 4: 3-D modeling, visualization and animation software

Photo editing: Adobe Photoshop

ESRI Arc/Info: Geographic Information System software

LOOP BEACH, COTUIT

OAK BLUFFS, MV

SEA ST. BEACH, HYANNIS

EXISTING TURBINES

Middelgrunden wind power plant

20-turbine complex near the coast of Copenhagen, Denmark

Middelgrunden
Hub height: 210 feet
Rotor diameter: 250 feet
Distance from shore (mi.): 3.7

Cape Wind
Hub Height: 252 feet
Rotor diameter: 328 feet
Distance from shore (mi.): 4-5