CASE STUDY

Exelon.

OBERON
TECHNOLOGIES

About
the Client

Exelon is a FORTUNE 100 company that works in every stage of the energy business: power generation, competitive energy sales, transmission and delivery. Exelon's family of companies includes the following:

- Exelon Generation – one of the largest competitive U.S. power generators with approximately 32,700 megawatts of nuclear, gas, wind, solar and hydroelectric generating capacity comprising one of the nation's cleanest, lowest-cost power generation fleets.
- Constellation – an energy products and services provider to approximately 2 million residential, public sector and business customers, including more than two-thirds of Fortune 100 companies.
- Six utilities subsidiaries delivering electricity and natural gas to approximately 10 million customers in Delaware, the District of Columbia, Illinois, Maryland, New Jersey and Pennsylvania.

Capabilities: *Strategy*   *3D Modeling*   *Virtual Reality*

The Scenario:

Exelon employees periodically need to make repairs in the pump rooms of Exelon nuclear plants around the country. The protocols and activities employees must perform in Exelon pump rooms are specific, and performing them in the proper sequence is critical. When employees enter the room to make repairs they are being exposed to radiation, so training is paramount to make sure they work at maximum efficiency.

To train employees, Exelon developed a series of simulations and created model equipment so employees could practice in a safe environment the actions they would need to perform quickly in the pump room. The pump room, however, is a large, complex environment that is difficult to replicate. Exelon leaders recognized that the various training simulations covering different aspects of the pump room, which were being taught at different times and in separate locations, weren't translating in the minds of trainees in an integrated, sequential way. As a result, trainees were not following protocols correctly and in proper order during real life scenarios. Exelon needed a more realistic way for trainees to practice being in the pump room, and progressing through the full sequence of actions while moving around the space.

The Solution:

Oberon Technologies understood that any successful Virtual Reality training exercise for Exelon would have to recreate the vast and complex pump room with a high degree of accuracy. The virtual environment would need to bring together simulations of all the protocols employees would need to follow, the tasks they would need to perform, the equipment they would need to interact with, and the potential hazards they could encounter in the environment.

First, Oberon Technologies worked with photographs and measurements provided by Exelon to 3D model and texturize the pump room, as no 3D models of the room existed. Oberon Technologies created UV and Ambient Occlusion maps to texturize the model more realistically and to create a true-to-life approximation of shadowing and lighting in the environment. These techniques worked in concert to optimize the VR experience.

Trainees can now practice a number of different activities and training functions in the VR environment. As an example, they are able to follow critical lockout/tagout protocols in the virtual pump room, and then move on to dismantling and reassembling the pump in the correct order.

Exelon now uses their VR environment in 13 dedicated training rooms. This state-of-the-art training is resulting in significant cost savings to the client by maximizing the efficiency of pump room repairs, and reduced radiation exposure for employees.