

# DEEPWATER

## CATHODIC PROTECTION COMPUTER MODELING SERVICES

### QUICK, COST-EFFECTIVE AND ACCURATE PREDICTIVE MODELING

Deepwater offers FEM/BEM computer modeling of cathodic protection design to help verify a system's potential distribution and lifetime, evaluate special-case scenarios, determine a structure's remaining CP capacity before retrofitting, optimize a retrofit solution and aid in optimizing inspection planning. By offering computer modeling along with cathodic protection system design, review and verification, Deepwater provides a quicker, more accurate and less costly alternative to using outsourced vendors for this service.

### EXPERT TEAM

Our team of modeling experts in Deepwater Norway A.S. supports all of our offices worldwide. In addition to their years of experience, they're supported by Ph.D-level electrochemists, CP specialists with collectively dozens of years of offshore measurement and Deepwater's data from hundreds of subsea inspections.

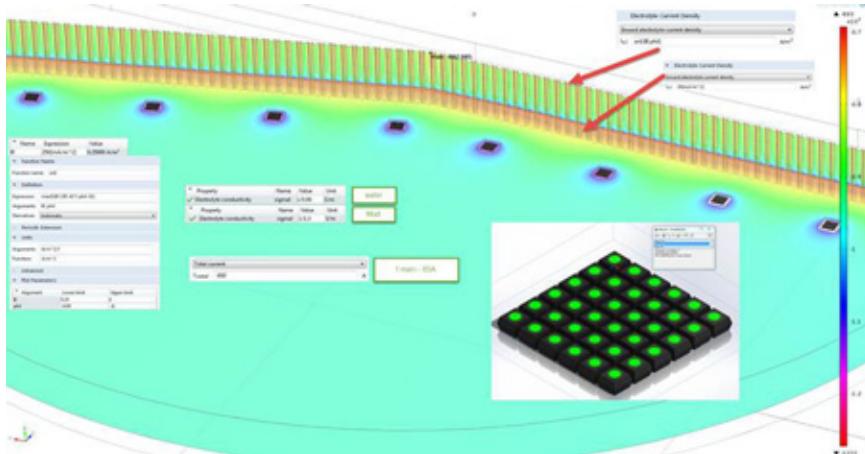
### BETTER PREDICTIONS

Predictive modeling enables our engineers to analyze what-if scenarios concerning coating breakdown, loss of anodes and other structure-threatening possibilities. We can also make more exact predictions on anode consumption and end-of-life scenarios. Modeling also allows optimization of CP retrofit anode distributions, GACP and ICCP hybrid systems and sled designs that minimize anode current interferences.

### USER-FRIENDLY

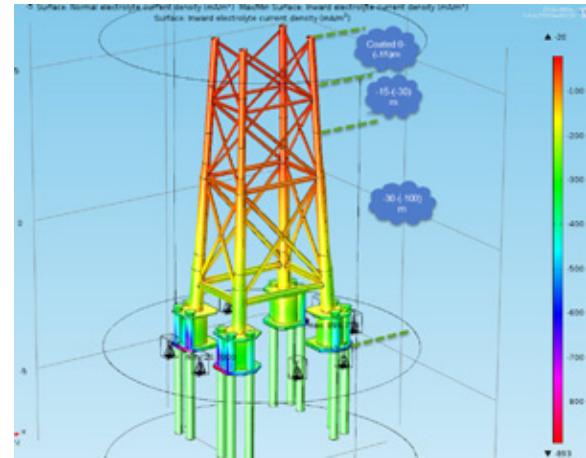
Utilizing 3-D structural software with a user-friendly interface makes modeling significantly more efficient. With our live link to CP software, we can easily import or generate structural geometry for our models. For even greater efficiency, we've established a library of in-house retrofit and CP options.

More info at [www.stoprust.com](http://www.stoprust.com)



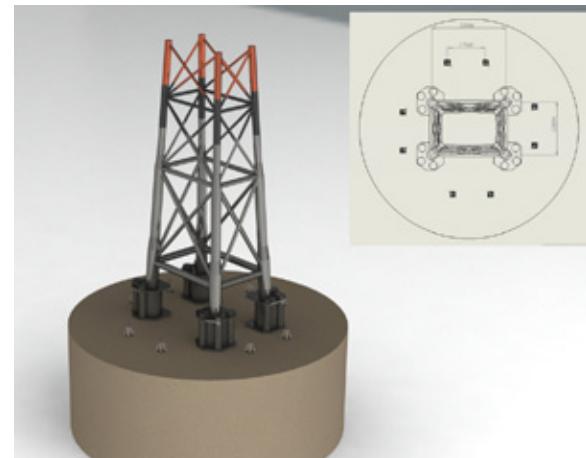
#### WHARF CP DESIGN AND MODELING VERIFICATION

Modeling shows how this design will work on a complex project north of Russia, in challenging Arctic conditions that include ice and low conductivity.



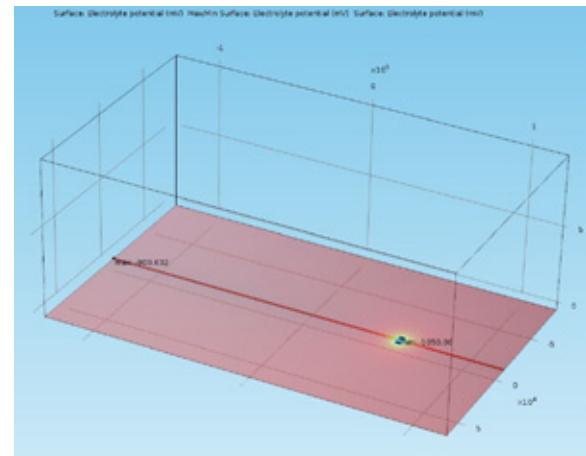
#### CURRENT DENSITY RESULTS

The model shows the current density distribution on this structure's jacket. The orange area is unprotected, while the yellow sections are cathodically protected.



#### LOCAL AND GLOBAL MODELS

This is a global model of a jacket with pile clusters, split into three environmental zones with remote galvanic anode sleds around the jacket.



#### PIPELINE ATTENUATION PLOT

Shown is the potential distribution on an isolation-coated pipeline, based on ISO 15589 input.