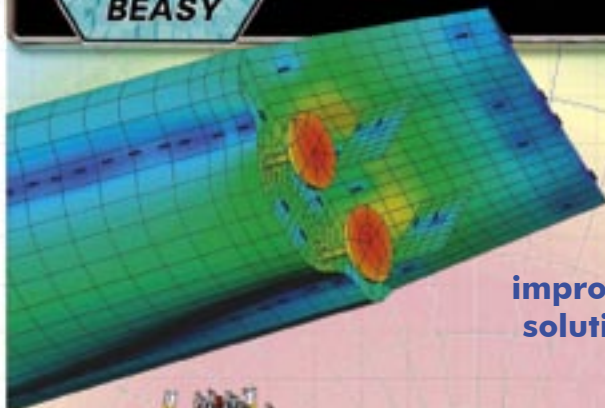




Corrosion Modelling Benefits and Applications



**Discover how to
improve corrosion control
solutions using computer
modelling**

**Validate the CP system
design**

**Determine the sensitivity
of the system**

Optimise the design

**Investigate damage
scenarios**

Predict interference

**Interpret
monitoring data**



Corrosion Modelling Benefits and Applications

DISCOVER HOW TO IMPROVE CORROSION CONTROL SOLUTIONS

Engineers are frequently required to design corrosion control solutions for situations where:

- **There is significant uncertainty in the design variables.**
- **There are a number of alternative design options.**
- **The geometry is complex or beyond the knowledge base gained from experience.**
- **A less conservative design is required for technical or economic reasons.**

Corrosion modelling using computer simulation tools can provide the information needed to address these needs.

BEASY is the leading supplier of corrosion modelling software and modelling services and would welcome the opportunity to work with you to meet your corrosion modelling needs.

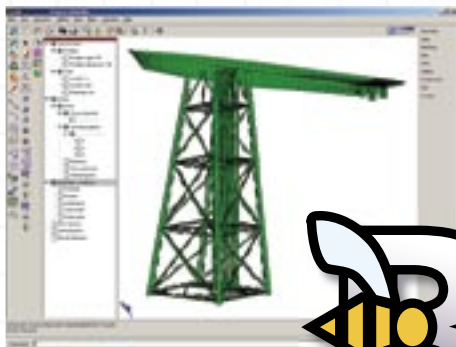
VALIDATE THE CP SYSTEM DESIGN

Computer modelling provides the tools to predict how a particular system will perform even for the most complex situations and provides quantitative information on the protection potentials achieved and the current distribution.



DETERMINE THE SENSITIVITY OF THE SYSTEM

Computer models are the ideal solution to test the sensitivity of a proposed design to environmental factors and long term material degradation. The protection potential distribution achieved and the current demand on the anodes can be predicted, for example, under different coating conditions.

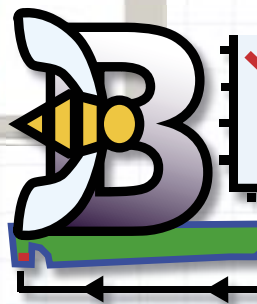


OPTIMISE THE DESIGN

Use computer models to determine the most cost effective solution.

INVESTIGATE DAMAGE SCENARIOS

Possible damage scenarios can also be studied and the effectiveness of the system to provide protection can be predicted.





PREDICT INTERFERENCE

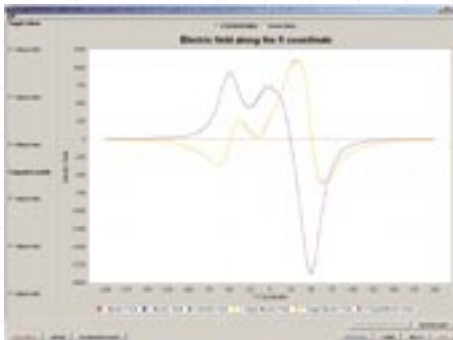
Computer models provide the information to determine the corrosion related electric fields and how they interfere with other nearby systems. They can provide the data to investigate the root cause of interference and the effectiveness of mitigation measures.

INTERPRETATION OF MONITORING DATA

Use computer models to determine what the data really means and optimise the planning of surveys.

AREAS OF EXPERTISE

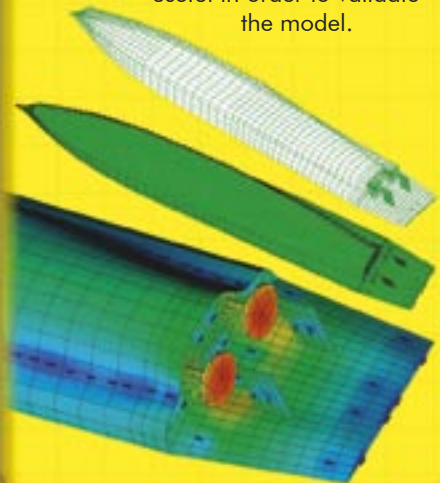
- Validation of CP designs
- Interference prediction
- Forensic investigation/Failure analysis
- Impressed and Sacrificial CP system assessment
- Maritime, Offshore and Onshore Oil & Gas



WHAT INFORMATION DO WE NEED TO CREATE A MODEL?

Although the exact specification will depend upon the application, there are a number of general requirements which are applicable to any task.

1. Geometry of the metallic structure and its surrounding environment.
Only the geometry in contact with the electrolyte is normally necessary.
2. Anodes' distribution.
3. Anodes current/potential in the case of impressed anodes or anodes material in case of sacrificial anodes.
4. Reference electrode positions.
5. Materials of the structure.
6. Polarisation curves for the materials involved in the system. We could supply this information from our own database. However, we strongly recommend that in order to improve the reliability of the results on site experimental data is also supplied if available.
7. If the system already exists then any measurement data would be useful in order to validate the model.

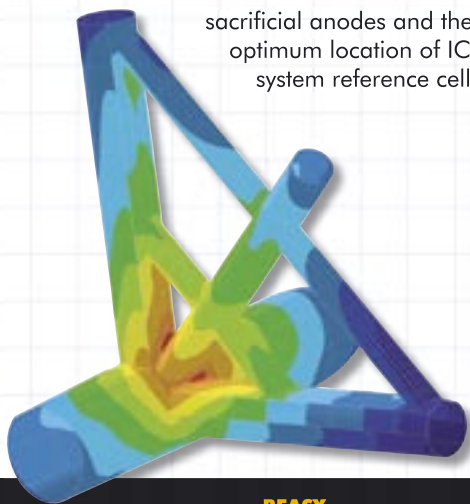


HOW CAN WE HELP WITH YOUR CORROSION ANALYSIS NEEDS?

BEASY's Engineering Services Group offer specialized analysis in the area of Corrosion Modelling. Available services range from performing specific modelling tasks to comprehensive studies to determine the optimum design solution. Our staff have extensive expertise in applying the state-of-the-art BEASY Corrosion Modelling to solve complex corrosion control problems.

BEASY engineers can quantify the corrosion behaviour of the structure without any simplifying assumptions. There are no restrictions on the structure geometry, materials or anode types. We can help determine how the CP system will perform over time so that you can improve the timing and quality of your inspection and maintenance programs.

Using BEASY's unique technology our staff can predict the location of damage based on data from field potential surveys or ICCP reference cell data. We can also estimate the service life of sacrificial anodes and the optimum location of ICCP system reference cells.



WHAT DO WE OFFER?

We offer a final report with all the results of potential and current distribution on the surfaces, the anode currents and life, and the potentials at the reference electrodes. We can also provide full details of the corrosion related electric and magnetic fields.

Additionally, once the model is solved, the BEASY software together with special interfaces can be supplied to let the user re-use the model and modify its properties.

We believe that this method will let you create your best design and also provide the data to enable you to know with confidence what is occurring on your structure at any time.

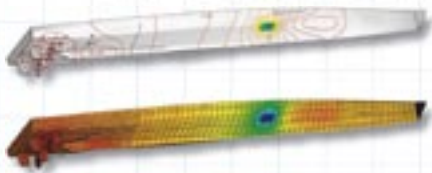
WHAT DO I DO NEXT?

If you would like to discuss your requirements or obtain further information on BEASY's Engineering Services, contact us:

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