

Innovative Research Solutions with Industry

Energy

CLIENT:
ESB International

AREA:
Materials Science



Waterford Institute of Technology
INSTITIÚID TEICNEOLAÍOCHTA PHORT LAIRGE

Materials analysis to resolve cable installation issues for an energy company



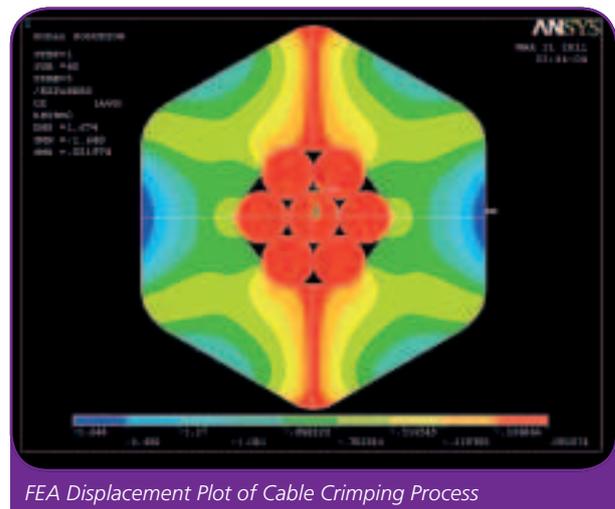
Institutes of Technology Ireland

ESB International (ESBI) is a growing international energy company which invests in, builds, owns and operates power assets in Ireland and internationally. ESBI is wholly owned by the ESB, Ireland's state-owned electricity company, with over 1,200 employees and an annual turnover of €767million in 2009. ESBI incorporates a multidisciplinary engineering business, which is responsible for the design, construction, operation and maintenance of ESB's asset portfolio.

ESBI were looking for Finite Element Analysis capability as a means to resolve cable installation related issues. The South East Applied Materials (SEAM) Technology Gateway at Waterford Institute of Technology possesses a commercial licence for the ANSYS FEA software package and the necessary expertise required to resolve issues such as those posed by ESBI.

SEAM, led by Dr. Ramesh Raghavendra, believes strongly in the importance of communication with clients during the course of the project in order to achieve a successful outcome. With this principle, SEAM worked closely with the ESBI during the project duration with four on-site meetings at predetermined milestones. Each meeting had comprehensive presentations on the work that had been completed up to that date to ensure the project was proceeding to the satisfaction of ESBI.

The completed project was then presented at the ESBI headquarters in Dublin to a wider audience involving a large group of engineers. Finally, an eighty page report containing all the results and



FEA Displacement Plot of Cable Crimping Process

the project methodology was submitted to the ESBI for their records.

This work, which was fully funded by the company, aided ESBI in the continued upgrading and maintenance of the electricity distribution system in Ireland, providing energy security to the country. This project also forged a strong relationship between SEAM and ESBI which continues to →

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- > grow with the former taking on cable qualification and analysis projects for the company.

One example of this is the validation testing of high tension power cables sourced from outside the country (Japan). It was an expensive process sending representatives so far afield for the duration of the testing.

For this reason SEAM was tasked with developing suitable testing methodologies and equipment infrastructure to undertake these qualification tests in Ireland. These tests range in complexity from standard tensile tests to electrical performance tests to ensure that they conform to the applicable specification. This project eliminated the need for ESB to outsource this type of work to Japan and facilitated carrying out all future work in Ireland at SEAM. ■

TESTIMONIAL

Ruairi Geary
ESB International

"The Interaction between SEAM and ESBI on this project was faultless, with bi-weekly updates and progress reports being issued throughout the project. The ability of SEAM to carry out such a technical task, among other varied skills will prove invaluable for ESBI in the future. The professionalism and total dedication to such a project helped SEAM to deliver valuable results and insights into this specialised area within programme deadlines."



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