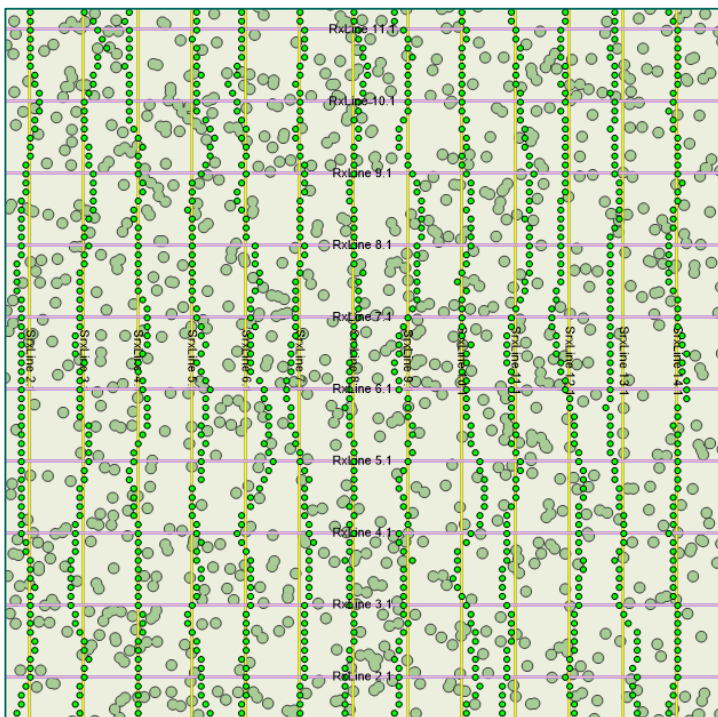# TesserACT
Survey design and optimization

Focus on
Environmental Impact

Shooting a seismic survey isn't just about the geophysics and the cost. Minimizing environmental impact is critical to successful permitting on any onshore, offshore or transition zone project.

Reducing environmental impact is not just good for the planet. Smart techniques that reduce shots and receiver density can deliver reduced cost with minimal loss of imaging quality.

TesserACT offers an unmatched suite of tools to evaluate and minimize environmental impact.

TesserACT weighted path optimization (WPO) allows weights to be assigned to properties such as tree cutting and distance offline. The WPO algorithm then computes the optimum path for each source and receiver line based on the assigned weights and operational parameters supplied.

In the example shown on the left, there are 3,000 trees and shrubs in the survey area. Using a traditional straight-line design, over 1,000 trees would have to be cut. With conservative parameters applied to WPO, tree cutting can be virtually eliminated, with minimal degradation of imaging quality, as measured with our Mutual Coherence maps.

ACTeQ has partnered with **In Depth** to offer survey designs using **compressive sensing** (CS). CS is a technology that allows accurate reconstruction of sparsely sampled data. With optimum sampling, shot and receiver density can be reduced by **25-50%** resulting in **reduced environmental impact … and cost**.
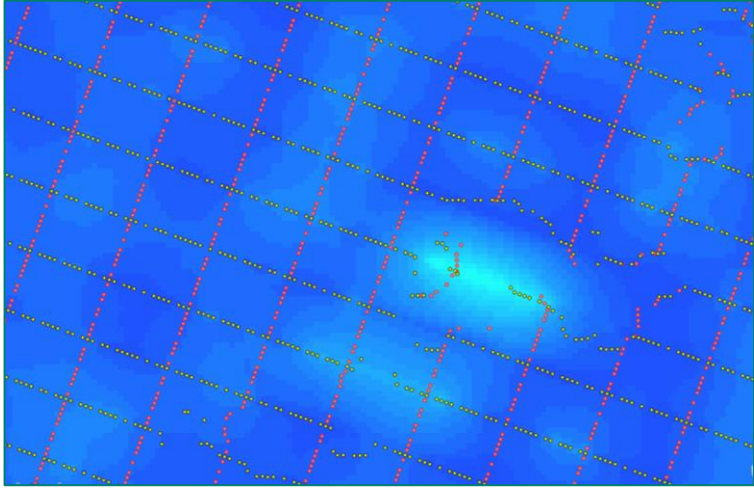
CS can be applied to both onshore and offshore projects. TesserACT's CS algorithm supports automated hazard avoidance.

Note thatwith orthogonal source and receiver grids, CS can be applied as an adjustment to the in-line co-ordinates only if desired. This is operationally efficient … especially for crews using nodes.
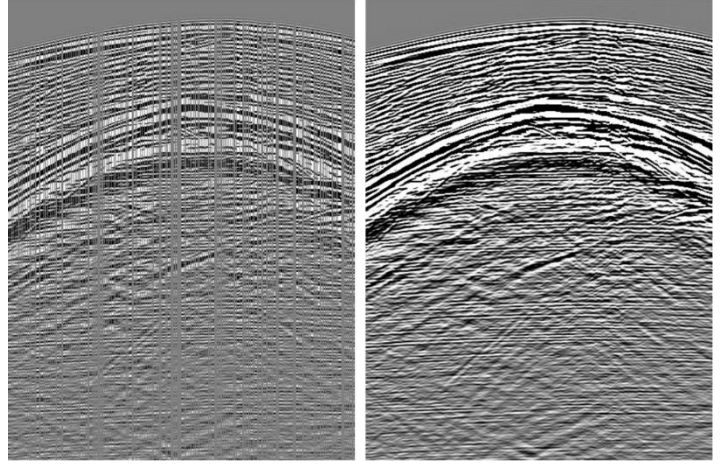

Sparsely sampled input   *Reconstructed data*

TesserACT survey design shown after hazard avoidance. Mutual coherence of Fresnel Zone binning maps provide a useful tool to evaluate the degree to which adequate sampling has been achieved.

IN-DEPTH

For marine surveys (towed streamer/OBN/Hybrid) TesserACT computes the optimum acquisition sequence. The plan is then integrated with drag estimates and a time and space variant current model to estimate emissions in accordance with the *"Guidance for Estimating and Reporting Greenhouse Gas (GHG) Emissions"* published by EnerGeoAlliance.
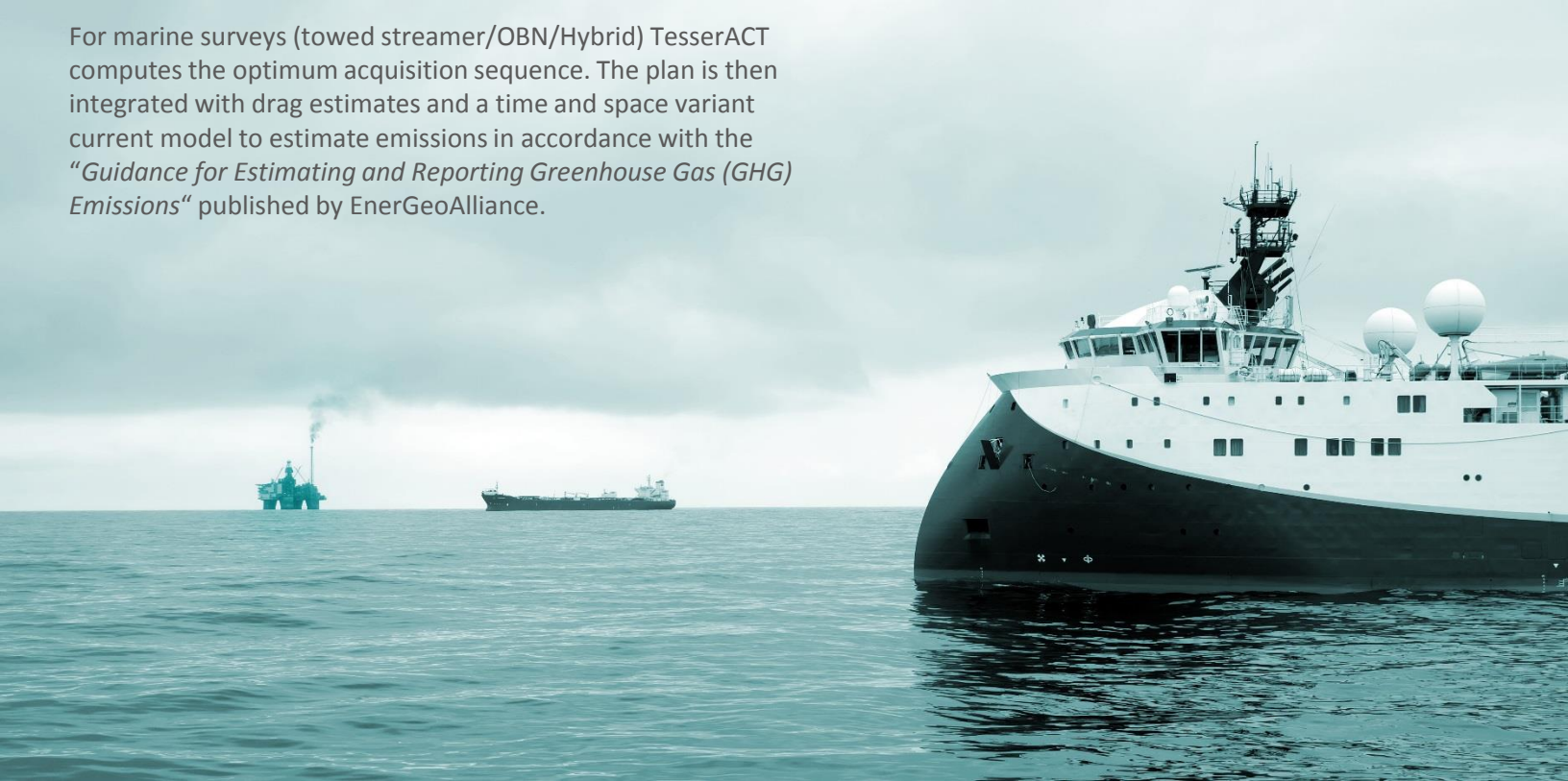
ACTeQ

ACTeQ *: Small carbon footprint and low operating costs !*
1) *100% work from home. No commuting.*
2) *Maximum use of teleconferencing. Minimum travel.*
3) *All electronic workflows. Paperless operation.*