



Ship Design Scenarios

Are your vessels prepared for new market conditions and environmental regulatory changes?

Purpose

Ship design scenario analyses identify improvement options preparing your ships for varying market conditions and future environmental regulatory changes.

Benefits

DNV provides decision support on proposed ship design by analyzing scenarios. We search for improvement options, particularly focusing on energy efficiency and environmental performance.

In a market where bunker prices fluctuate, market demands are uncertain and new environmental regulatory taxes are introduced, changes in operating costs are difficult to predict. We model these factors based on scenarios defined in co-operation with your company, and find improvements:

- Identifying relevant emission reduction methods
- Performing conceptual design reviews evaluating effect of changes in propulsion system or other equipment
- Evaluating capacity adjustments of the fleet to reduce costs and increase revenue

Our approach

Building on our benchmarking service, your design is measured on energy efficiency and environmental performance against a set of reference vessels in your own or the world fleet.

Based on this assessment DNV will guide you in evaluating alternative scenarios to improve your competitiveness in the market. Focus is on operating costs and emissions; scenario analyses look at variations in different parameters with associated cost/benefit figures.

Typical examples are

- Speed
- Transport capacity
- Engine/fuel type
- Technical improvement methods
- Fuel efficiency

Conceptual design evaluation

DNV may provide design evaluations and recommendations for your ship designs as applied in a transport system. With a backbone of expert design knowledge and the broad DNV experience, we will identify and present improvement opportunities and potential threats of your design proposal.

Technical emission reduction options

As technology is rapidly developing, the number of emission reduction options available is increasing equally rapid. Such options will typically address:

- Emissions to air (SOX, NOX, CO₂, VOC)
- Fuel consumption and efficiency

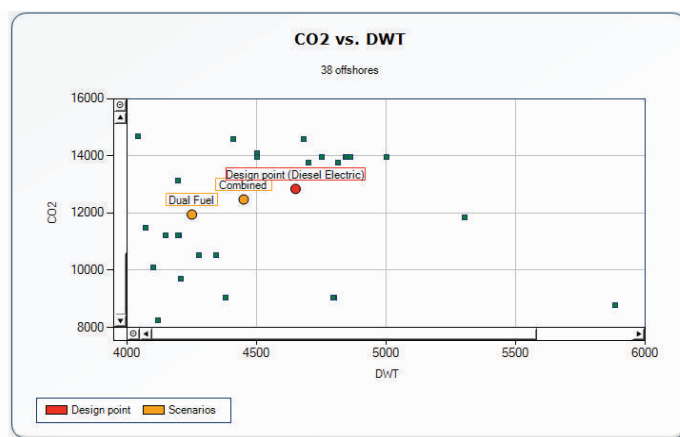
We provide you with sensitivity analyses for handling the unavoidable cost/benefit tradeoff followed by the installation of technical measures.

Capacity adjustments

The shipping market is now experiencing great challenges with regard to overcapacity and reduced market demand. DNV provide you with in-depth design scenario analysis for decision support

related to capacity adjustments of your fleet. This involves strategic decisions on central topics:

- Slow steam or not?
- Which ships to lay-up?
- Sell? Buy? Scrap?



Case: Offshore supply vessel

When considering a design proposal for a new offshore supply vessel a ship owner was concerned about future operations in a market with heavy fluctuations in bunker prices. At the same time new regulatory incentives on reducing emission to air were expected. A scenario analysis of the design was needed for identification of possible improvement options.

Based on the anticipation of the new market conditions a customized design scenario was defined and analysed by DNV. The planned operating profile for the ship had a large share of continuously high engine loads, and one of the main interests for the customer was evaluation of the machinery solution.

With respect to the ship's planned operations, the performance of alternative machinery systems was investigated using state-of-the-art software tools and DNV's extensive knowledge.

The analysis performed by DNV discovered beneficial options not known to the ship owner – and at an attractive cost. Opportunities for cost efficiency, meeting the new environmental regulations were also detected. Some changes to the new ship design were performed, thus the anticipated change in market conditions.