

# Membership case study: BP Shipping



**Voyage Optimisation.**  
Real fuel and CO2 savings potential that could be gained and early identification of systemic barriers.

## Context

Voyage related operational measures are applied in order to reduce CO2 emissions, by all stakeholders involved in that voyage (e.g. ship-owner, charterer, ship master, crew and ports) using a variety of tools (e.g. charterparties).

## Objectives

Identify barriers, standardise reporting mechanism, so that early adoption of key measures such as weather routing, slow steaming, virtual arrival, low engine load, hull optimisation are mutually inclusive on each voyage. Standardising data collection to identify potential trends and pattern which can then be deployed to improve on overall performance in a timely fashion.

## SOLUTION

The technique and technology that has been shortlisted by BPS is to adopt key Operational measures. These measures do not warrant physical changes to the ship, although some operational measures may require retrofitting devices, for example, fuel consumption monitoring will require installation of fuel flow meters etc.

In addition, Voyage related measures would include effective management of weather routing, speed reduction, etc., which would result in lower fuel consumption for that specific voyage. In our view, an 'eco-voyage' is a ship's voyage from A to B, where one or more, recommended operational measures are applied in order to reduce CO2 emissions and save fuel. The most effective way to achieve this is by collaboration among all stakeholders involved in that voyage (e.g. ship-owner, charterer, ship master, crew and ports) using a variety of tools (e.g. charter parties, use of virtual arrival etc.).

## Who has been involved?

The report has been compiled under the supervision of the Strategy, Risk & Compliance Manager, Maritime Policy & Regulatory Affairs Manager, Data analysts, Global Voyage Operations Manager, Chartering Manager, Vessel Operations & completed by UCL phd student Nish Rehmatulla.

## What does this mean for the shipping industry?

BP Shipping has been implementing these measures generally over the course of three years or more, but individually. There was data on some of the measures, where there were opportunities but, at the same time there were barriers that needed to be identified, for which innovative solutions had to be developed. Currently, reporting is driven by operators understanding of saving in a specific format that focuses on value saved rather than identifying: %fuel/CO2 saving - overtime. So, we hope we are able to amend these reporting characteristics and collate real time information, in a manner that would assist us to generate trends and assess more accurately opportunities to initiate fuel savings through a combination of measures, in a timely fashion.

## OUTCOMES

The report looked at six specific eco-voyage measures that have been put to use by us. These included speed reduction, virtual arrival (just in time arrival), low road operation, weather routing, trim optimisation and maximum capacity utilisation over the last 3 years.



There was sufficient data available for speed related measures, speed reduction and virtual arrival. The results show that around 14% - 16% savings per voyage can be achieved on fuel/CO2 emissions from these measures.

### Recommendations to BP and SSI technology partners

Recommendations to BP Shipping and SSI partners would be to introduce standardisation to the reporting structures for fuel savings gained from each of the measures. A specific format needs to be followed for entering savings gained per voyage in the value added log and it is also possible to make use of the EEOI for taking into account all the above measures. Making use of the OCIMF trajectory model, this would enable BP to measure its fleet wide efficiency levels over time. The measures for which there was insufficient data i.e. weather routing and trim optimisation, which have seen a plethora of fuel savings claims can be tested through piloting within the SSI membership. There are relatively mature technologies/measures, yet independent verifiable data is hard to acquire.

\*Insufficient data

- Fuel savings could not be assessed

Eco-voyage Measure	Total fuel saved (MT)	Value of fuel saved (\$)	Total CO2 saved (MT)	Value of CO2 saved (\$)	% reduction per voyage	% of voyages applied
Speed reduction	45,223	24,894,188	140,824	2,112,367	18%	20%
Virtual arrival	3,893	2,239,603	12,123	181,858	14%	1%
Low engine load	1,442	1,007,953	4,491	67,377	14%	2%
Trim optimisation	*	*	*	*	*	*
Weather routing	*	*	*	*	*	*
Capacity utilisation	-	-	-	-	-	-

### What are the first steps people can take to replicate this idea/initiative?

1. **Standardise reporting**
2. **Adopt at least one eco-measure on each voyage**
3. **Wider update of Virtual Arrival**

### Recommendations to the industry

The industry recognises that speed related measures have the highest fuel saving potential, but there are also barriers that are inhibiting uptake of this measure. It is suggested that charter parties need to be re-evaluated to allow for application of this measure more easily for both voyage and time charters.

Making use of EEOI as part of the mandatory SEEMP, to show CO2 emitted relative to the quantity of cargo carried and operational efficiency on a per voyage basis, this is then averaged over laden and ballast voyages over several time periods.

Eco-voyage measures could see increased uptake through accurate measurement of fuel consumption, and using this data (in the form of EEOI) as a tool to provide information during the contracting/selection process for both voyage and time charters. This would bring the necessary transparency required for charterer to make decisions based on both design and operational energy efficiency of ships.

### More information:

[www.bp.com/shipping](http://www.bp.com/shipping)