

# THE BENEFITS OF THE WORLD'S FIRST DIESEL/ELECTRIC SUBMARINE CABLE RECOVERY SHIP

By Simon Appleby & Wouter van Terwisga

When it came time for Subsea Environmental Services SARL (Subsea) ([www.subsea.cc](http://www.subsea.cc)) to expand their cable recovery fleet the company was faced with a dilemma.

Conversion costs for a new or older vessel were similar, in fact modification of crew accommodation of an older freighter posed greater problems than building from new, however the opportunity to employ a modern diesel electric vessel in submarine cable recovery work promised considerable operational benefits including fuel economies in the long term.

These economies in fuel also potentially represented a significant reduction in operating costs although the numbers quoted seemed too good to be true. An estimated 40% reduction in fuel usage were discussed at the design phase, which, when the volatility of energy prices were taken into consideration, made a compelling argument. A new diesel

electric vessel also presented a significant improvement in emissions generated as part of recovery operations, further enhancing the sustainability of the vessel's recovery work, the company as a whole and specific customer related projects.

A purpose-built vessel also provided significant benefits for the crew with individual cabins, including personalised entertainment and state of the art high speed internet connections for all, important when you consider

**“Maasvliet demonstrates how modern diesel-electric design can fundamentally improve submarine cable recovery operations, delivering major gains in fuel efficiency, crew welfare, operational flexibility, and environmental sustainability.”**

each recovery voyage can last upto 60 days. There was also the opportunity to install an upgraded bow thruster which could operate on a 24/7 basis, improving vessel manoeuvrability.

The promise was significant, but would this vessel meet expecta-

tions?

When the vessel now known as M.V. Maasvliet was first discussed, the question was practical: could the CIP3800\*<sup>1</sup> platform, originally developed as a diesel-electric general cargo vessel, be adapted for cable recovery work? The vessel's hull had already been constructed and prepared for general cargo transport. However, Subsea and Hudig & Veder ([www.hudigveder.nl](http://www.hudigveder.nl)), recognised that this platform could offer more.

At first sight, it was not an obvious combination. The CIP3800 was not originally seen as a dedicated cable recovery vessel and that is exactly what made the project interesting. It required that Subsea had to look beyond the usual vessel categories and recognise the value of the underlying platform. In the view of the designer, ConoShip International ([www.conoship.com](http://www.conoship.com)), that was the right approach. Good ship design starts with the actual operational profile and with a clear understanding of which ship characteristics really matter for

1. ConoShip International Projects 3800

the work it has to do.

The CIP3800 platform had already been developed around qualities that go beyond cargo transport alone: very low fuel consumption, practical buildability, a robust diesel-electric basis, and enough flexibility in the design to allow adaptation to future needs. In the case of Maasvlief, the challenge was therefore to modify the design where the operation demanded it, without losing the strengths that made the platform attractive in the first place.

A major part of that work was the integration of the cable recovery equipment supplied by Subsea. That affected the arrangement, the use of deck space, the electrical load distribution and more generally the way the vessel functions as a working platform. In projects like this, success usually lies in the way the ship and the mission equipment are made to work together as one coherent system.

The operational profile of Maasvlief also differs in important ways from that of a standard cargo vessel and that immediately affects the design priorities. A cable recovery vessel must support people and operations offshore for longer periods of time, with low-speed work and extended durations at sea compared to a vessel carrying cargo from A to B. That means accommodation becomes more important, but so do endurance-related functions such as fuel capacity, stores and freshwater capacity. If the ship is expected to stay out longer, carry more people and operate as a working offshore platform, then those onboard support functions must match that role.

The vessel's behaviour at sea was another important consideration. For cable recovery operations, seakeeping and comfort are very important for crew welfare, but they also influence how effectively and safely the work can be conducted. In that respect, the stability characteristics of the platform proved to be a real advantage. The vessel offers a solid basis, helping to limit excessive motions and accelerations when working offshore. These calmer characteristics improve onboard comfort and, more importantly, supports the vessel's suitability for the actual working profile required in cable recovery operations.

The diesel-electric basis of the

**“Built from a modern cargo-vessel platform and adapted for cable recovery, Maasvlief reflects a broader industry shift away from aging legacy fleets toward purpose-built vessels optimized for long-duration offshore operations.”**

CIP3800 also remains relevant in this adapted role. A vessel such as Maasvlief does not operate in one fixed condition. It combines transit, low-speed operational work, station-keeping behaviour, and varying onboard load cases. In that kind of profile, diesel-electric propulsion offers useful flexibility and control. It fits naturally with a vessel concept that combines specialist equipment, changing operational modes and efficient power management.

Another important aspect is the age of the existing cable recovery fleet. Until now, cable recovery work has often been conducted by relatively old vessels, in some

cases ships originally built as far back as the 1970s. Maasvlief belongs to the first generation of vessels where a newbuild platform is converted directly into a cable recovery vessel from the start. That brings clear operational advantages. A newer vessel can move from one project to the next with far less risk of major maintenance demands after each campaign. The initial investment is clearly higher, but that is balanced by lower operational costs, better reliability and a platform that is far easier to deploy across multiple jobs.

The match may not have been obvious at first, but the platform characteristics of the CIP3800 turned out to be highly suitable once combined with the right modifications. For the designers and ship builders, that is what good ship design is about: a practical answer to a real operational requirement.

This diesel electric vessel is powered by a combination of three Volvo D13 diesel generators. Three provide contingency in the event of a single or double point of failure. In normal operating conditions, the vessel is usually run using a single generator which produces electric power for all vessel requirements, including propulsion. The propeller is powered using one of two electric motors, once again contingency is a key element of safety, with power being instantly available to the Master when required.

The vessel produces significantly less noise than traditionally powered craft. The engine room is more like a server room, with electric control panels replacing

the diesel engine and auxiliary generators which are normally located in this area.

This low operating noise profile also reflects very positively when operations involve potential interaction with cetations and other marine mammals.

So how does this new technology perform?

After 12 months of activity the numbers are in and they are impressive to say the least.

The following table provides a comparison between the traditionally powered and diesel electric vessel in the Subsea fleet and

the needs of the individual providing a good mix of public and private space.

The vessel performs in exactly the same general terms as the other vessel in the fleet. Transit speeds are identical, vessel manoeuvrability is improved, the upgraded bow thruster provides effective positioning ability. The upgraded capability to operate this bow thruster on a permanent basis is also recognised as a positive.

In summary, the M.V. Massvliet has fulfilled and in some cases significantly exceeded the ben-

| Activity       | Traditional Vessel (MT MGO/24H) | Diesel/Electric Vessel (MT MGO/24H) | Difference (%) |
|----------------|---------------------------------|-------------------------------------|----------------|
| Transit        | 5.88                            | 3.08                                | 48             |
| Cable Recovery | 2.83                            | 1                                   | 65             |
| Cable Offload  | 0.49                            | 0.35                                | 29             |

M.V. Maasvliet. The table is divided into three specific activities, Transit, Cable Recovery and Cable Offload as follows;

Taken overall, the fuel requirements for the diesel/electric vessel are 53.6% less than the traditionally powered craft when a direct voyage comparison is made.

In economic terms, given the current market conditions for fuel oil, this represents a saving of approximately 600 metric tonnes of MGO and an estimated \$1,000,000 saving in operating costs.

Feedback from the crew, in terms of operating characteristics and crew comfort are also wholly positive.

Crew accommodation respects

efits envisaged at the design phase. Her cable recovery capabilities match those of more traditional platform provided by the M.V. Rebecca, Subsea's first cable recovery vessel. Cable recovery rates are identical for the two vessels. Her economies, with respect to fuel oil consumption, have exceeded all expectations, in excess of 25% better than originally anticipated. This further enhances the sustainability goals of Subsea and this is further reflected on customer specific special projects where the vessel is employed.

Did she meet expectations? The response is a resounding YES!



*Simon Appleby is Director of Subsea Environmental Services SARM, specializing in submarine cable recovery and recycling. Since 2010, he has supported the recovery of more than 75,000 km of cable and 120,000 metric tonnes of material, including decommissioning projects such as TAT 14. He holds a BSc in Geography and an MBA.*



*Maarten Sickler is a naval architect and maritime professional with over 25 years of experience in shipbuilding, classification, and technical risk assessment. He is Director of Conoship International Projects, focusing on bankable standardized vessel designs. His background includes roles at CIG, Bureau Veritas, and Vuyk Engineering, with expertise in due diligence and strategic maritime development.*