

Victoria International Container Terminal: where technology and community interface



Anders Dømmestrup, CEO, Victoria International Container Terminal, Melbourne, Australia

May 2, 2014 was a significant day for the Philippine-based container terminal operator, International Container Terminal Services, Inc. (ICTSI). On this day, a 26-year contract was signed by successful tenderer ICTSI, awarding the company a deal to design, construct and operate a new international container terminal at Webb Dock East in the Port of Melbourne with a minimum annual capacity of one million TEU.

This new container terminal, known as Victoria International Container Terminal (VICT), presents ICTSI with its first commercial venture onto Australian shores and ensures that the global stevedore is officially part of the US\$1.15 billion Port Capacity Project, a Victorian state government initiative to meet increasing trade volumes at Australia's largest container and automotive port.

Investing in the future

ICTSI's total capital investment to achieve the one million TEU capacity will be around US\$397 million. Construction began in the third quarter of 2014 with operations due to commence in fourth quarter of 2016. The approved initial development will include a 660-metre berth with five neo-Panamax ship-to-shore (STS) gantry cranes. VICT's prime position at the mouth of the Yarra River gives it the ability to handle the new +8,000TEU vessels which shipping lines plan to use for Australian trade.

Engineered with the future in mind, VICT will introduce a full range of automated handling solutions to achieve the highest levels of safety and efficiency across operations, which are truly 24/7, for all of its users.

VICT has also worked closely with stakeholders to ensure that its construction

and operations incorporate a high degree of environmentally responsible designs. This includes dimmable and near-natural terminal lighting, sustainable drainage systems for clean water run-off as well as main equipment, which runs on electricity.

Responsible development

Given Melbourne's port-city status, VICT investigated potential impacts on community stakeholders and identified sustainable design solutions. Some specific examples are:

Preventing light pollution

Potential light spill at night into the established residential suburbs of Port Melbourne and Williamstown was a concern for VICT, local councils and residents due to the strong light and resulting light spill / sky glow from traditional high-mast terminal lights. We decided to opt for a cutting-edge technology in the form of Light Emitting Plasma (LEP) luminaires. These effectively minimise light-spill and sky glow as each light source is recessed, directing light only where required for a safe working environment. Our lighting design also allows lights to be dimmed in zones when no operations are occurring, further reducing unnecessary use. This investment in a higher cost lighting system pays for itself in the long-term, through lower energy consumption and less maintenance, as well as minimising obtrusive and unnecessary lighting. A win-win situation for both terminal and community

Improving water run-off quality

Preventing pollution risk for Port Phillip Bay in terms of its water quality, marine life and beach amenity was also an important objective shared by VICT and

our neighbours. For the new terminal to meet the high modern standards we felt were necessary, VICT incorporated a new drainage system into our design. Using a combination of various Stormwater Quality Improvement Devices (SQIDs) such as Stormsacks and Stormceptors to ensure over 99% removal of all Total Petroleum Hydrocarbons (TPH). The final complementing process involves landscaping with native grasses and bioswales, and swaled drainage courses with gently sloped sides filled with vegetation to remove silt and pollution from surface run-off

Efficient, sustainable operations

To achieve the most efficient terminal design for handling the Melbourne import / export market, it is essential for VICT to aim for seamless integration between its quayside and landside capabilities. The best and safest way to achieve this is through a high degree of automation. VICT is partnering with top suppliers of equipment and automation as follows:

- Cargotec (Kalmar, Navis and Bromma) for systems and yard equipment (Navis N4, Automated Stacking Cranes (ASCs), Automated Container Carriers (ACCs) and Spreaders)
- ZPMC with ABB for semi-automated Neo-Panamax STS cranes
- Camco for the automated gates

We are prepared for the large task ahead of successfully integrating VICT's operations and equipment. We already have the full system virtually live and ready for testing over the next 12 months and live physical testing will begin immediately following the first equipment delivery in March, 2016.

We have also engaged with the



various industry players to present the opportunities our automation can provide. In return, we have received valuable feedback on what they regard as being the most important service features, essential for future container terminals.

The shipping lines raised two key requirements: to be able to berth and handle +8,000 TEU vessels with 4-5 cranes; and the ability to send the high number of empty boxes that need to be evacuated, directly to the terminal from the importer devanning site.

Our current development schedule will have 5 STS cranes and 10 stacking modules ready by early 2017, and will provide capability to handle single large vessels with 4-5 cranes. The Direct Empty Return service will be provided to allow immediate export of empty TEUs, and form part of our improved Two-Way Running system with trucks. It also replaces the current double-handling of empty TEUs via off-site container storage yards for boxes intended for immediate return to Asia.

The hauliers wanted to have comprehensive 24/7 terminal access, and plan for single visits which allow a combined drop-off and pick-up of boxes (Two-Way Running system), easy access for High Productivity Freight Vehicles (HPFVs) and better use of cargo information (weight, immediate availability and customers) to make operations more seamless and efficient.

VICT is working with 1-Stop to enhance the well-known Vehicle Booking System (VBS) to better provide the tools to meet these requirements. A few examples include:

- Two-Way Running to reduce futile trips for truck operators. This system provides carriers with more choice, a few days in advance of available booking slots, allowing them ample time to co-ordinate and ensure that each vehicle's trip, both to and from the terminal, has boxes on board (laden and empties). This aligns well with the Direct Empty Return

- feature desired by shipping lines
- Off-Peak Slots that ease daytime traffic congestion on Melbourne's roads and allow
- carriers the option of avoiding slower daytime slots. VICT automation will provide the necessary truck handling capacity across all hours of the day
- Block-Stacking via Group Codes is a feature being established to provide more flexibility for the larger carriers by grouping large container consignments ensuring they are stacked together and, therefore, more efficiently retrieved from the terminal.
- Paperless Booking System for terminal entry and exit with paperless tickets delivered to the driver via an automatic text message to a mobile device

Cargo owners, not least exporters, wanted us to take a role in providing cost-efficient weighing services for them to comply with new SOLAS and Australian Maritime Safety Authority (AMSA) requirements for safety on-board vessels as well as streamlining services with authorities for a quicker turn-around and improving security. VICT are looking into the option to upgrade our capability in the yard, and gain the approvals to provide an accurate and cost-effective weighing service, which could be accessed by both exporters and shipping lines.

The future

VICT will deliver a state-of-the-art international container terminal to Webb Dock East towards the end of 2016 for all of its employees to work safely within and grow as professionals. VICT will aim to achieve a rating of "excellent" for our automated container terminal from the Infrastructure Sustainability Council of Australia (ISCA) for our design and build to ensure our sustainability performance exceeds regulatory standards.

We are the first container terminal in Australia to register. We will remain committed to our community, listening and responding to concerns, and

connecting directly with them to promote the health, education and the well-being of young people. Finally, we will continue to engage with all our customers and industry stakeholders to gain an understanding of their needs and challenge ourselves to excel in meeting them. These important goals will serve to guide VICT as we prepare to enter the market and commence operations at the end of 2016.

About the author

Anders Dømmestrup is the Chief Executive Officer of Victoria International Container Terminal Ltd. He has spent his entire working life in container shipping and terminals and was based in Asia and the Middle East for most of his 23 year career. Prior to joining VICT, he was Chief Operating Officer of Modern Terminals Ltd with a 5.5 million TEU throughput at the Hong Kong facility and fulfilled the COO role for MTL's interest in three other Chinese terminal operations. Dømmestrup began his role as CEO of VICT in January, 2015.

About the organisation



VICT was appointed by the Port of Melbourne Corporation to design, construct and operate the Port of Melbourne's new international container terminal at Webb Dock East. VICT's development will deliver a leading global standard in modern container terminal design, innovation and operations, using the best-proven technologies to deliver automated operations from gate to quayside. VICT is due to begin operations in the final quarter of 2016. VICT is owned by International Container Terminal Services, Incorporated (ICTSI), a global container terminal operator headquartered in Manila, Philippines with a portfolio of 29 terminals throughout 20 countries.

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