“Green efforts” and role of sea terminals

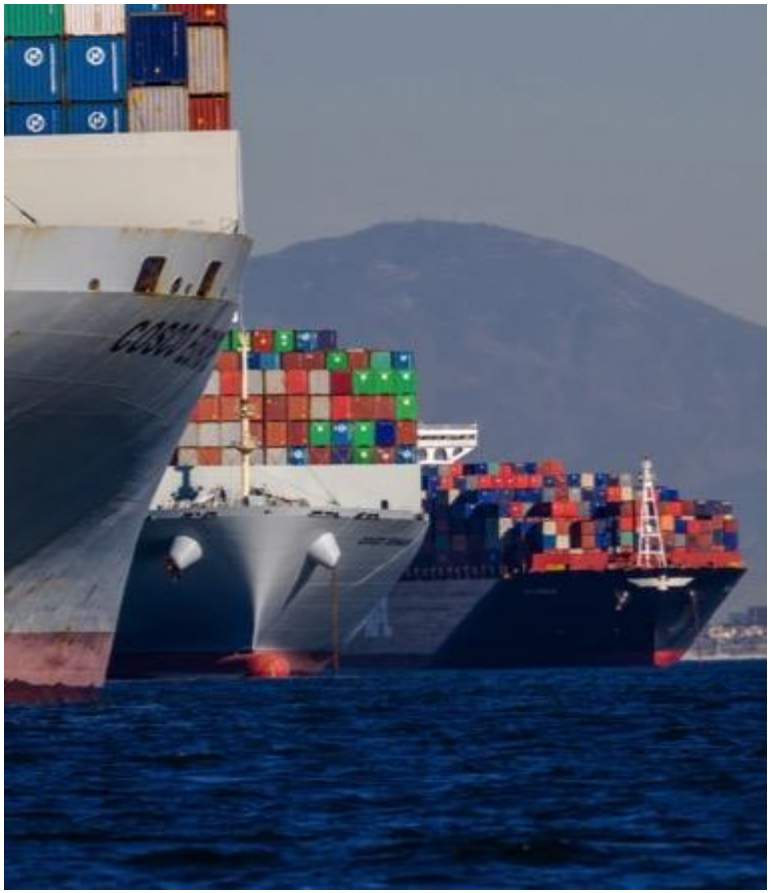
I “Green Efforts” ed il ruolo dei terminal portuali

Naples Shipping Week, September 2018

Lifting Global Trade™
APM TERMINALS

Introduction to APM Terminals

- Countries: 59
- Employees: 22,000
- Operating Port and Terminal Interests: 76
- New port projects in development: 5
- Inland Services operations: 117
- Yearly Revenues:$4.17 billion
- Containers handled: 37.3 million (weighted by equity share)
- Size of global container market : 700 million TEUs*



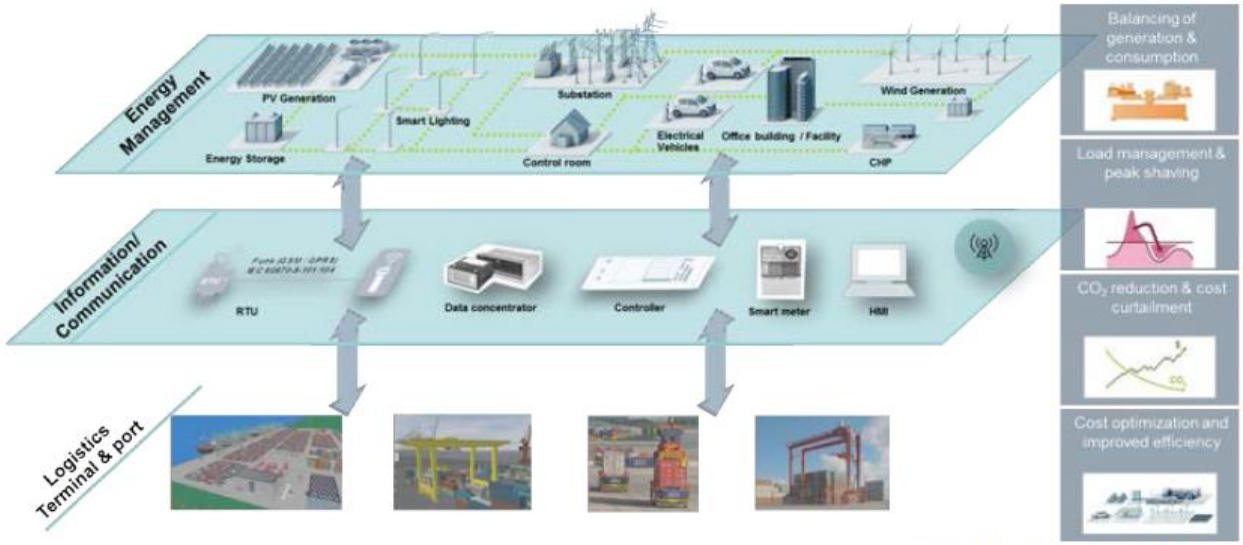
*(*Source: Drewry Shipping Consultants August 2017)*

Introduction

The EU- founded project «GREEN EFFORTS ("Green and effective operations at terminals and in ports"), started a detailed and structured analysis of terminal processes and equipment, with the open goal of developing new solutions to reduce the terminals environmental impact – both with regards to energy footprint and air pollution.

The project main focus became

- Equipment Consumption (in operations and stand by)
- Yard lighting
- Standardization of processes
- Energy management



GREEN EFFORTS/SIEMENS

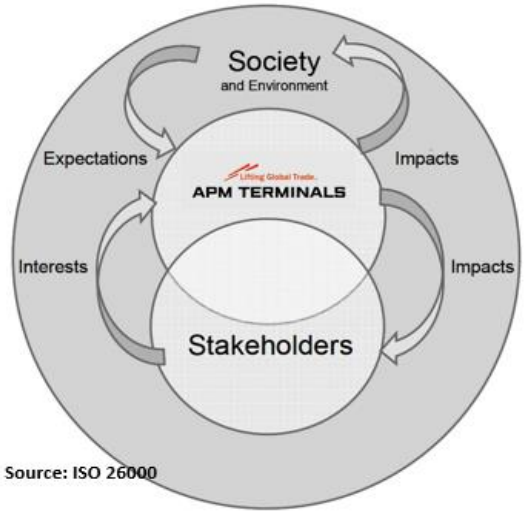
While the Green Efforts project started from the involvement of the Companies running the facilities (ie top down), it called also for the active participation by people working in terminals, so a change not only in company approach, but also individual attitude thus driving education of terminal's teams through increased competences and awareness of the individual impact on the Company's efforts.

APM Terminals Approach to Sustainability

APM Terminals progressively established procedures that in 2010 determined an implemented company-wide sustainability strategy. Our Group Environmental Policy is also leading in all decisions.

APM Terminals' Environmental Policy commits to:

- Efficient terminal operation
- Continuous improvement of environmental performance and pollution prevention
- Compliance with all regulations
- Positive impact in the local community



Source: ISO 26000

Operational effectiveness initiatives deliver social or environmental benefits through reducing our resource use, waste and emissions, or by improving employee working conditions, health care and education.

APM Terminals' 4 key environmental issues are:

- Air Quality
- CO2 and Climate Change
- Water Use and Water Stress
- Regulatory HSE Compliance

APM Terminals Environmental Approach

APM Terminals approach is based on 3 pillars, actually fully receiving the outcome of the Green Efforts project:

Processes

Standardizing and setting minimum requirements for how we manage key environmental risks and HSE compliance.

- Spills
- Waste
- Water (Use and Discharge)
- Chemicals
- Air Quality
- Legal and Regulatory HSE Compliance
- Nuisance
- Refrigerants
- Habitats and Biodiversity
- Land Contamination
- Projects
- Procurement

People

Developing the talent in our organization and providing challenging and rewarding career paths and opportunities.

- Awareness Training
- Environmental Management for HSE Professionals
- Generalist and Specialist Career Pathways (Skills and Experiences)

Equipment

Designing-out environmental risks to reduce costs and improve operational efficiency.

- Solar and renewables potential
- Phase-out of non-compliant equipment and procurement ban list
- Understand current equipment performance and identify quick-win projects
- Support hybridisation and electrification program with defendable performance data
- Work with industry bodies like PEMA

These are combined and structured through a given set of data, used to monitor and improve the terminal environmental performance.

APM Terminals in Savona, Italy

In Italy APM Terminals manages two facilities: the existing multipurpose facility Reefer Terminal and the future semi-automated container terminal Vado Gateway.

APM Terminals – Reefer Terminal 1/2

Analysis of measurement data from Green Efforts project has revealed that in a typical harbor terminal, reefer units lead to almost half of the terminal's power consumption, with STS cranes ranking just behind it.

Reefer Terminal, with its 24,000 sq meters refrigerated warehouse (the largest in a Terminal in the Mediterranean Sea handling 500,000 pallets yearly), 2 STS and 510 reefer plugs, is definitely an energy intense facility.

APM Terminals since 2015 has initiated and completed several projects to reduce the terminal's energy footprint:

Some examples are:
- Cleaning and upgrade of refrigerating and heating system
- Installed systems to limit temperature dispersion during warehouse activities
- Conscious Procurement
- Revision/replacement of warehouse equipment
- Renewal of terminal tractors fleet

Some of the actions planned:
- Solar Panels
- Substitution of warehouse equipment
- Lighting of Operational Areas
- Replace and upgrade yard equipment
- Motion activeted lights
- Roll out new TOS to improve efficiency

APM Terminals – Reefer Terminal 2/2

In Reefer Terminal all equipment is operated by humans and the way in which equipment is operated is directly connected to the energy consumption of equipment.

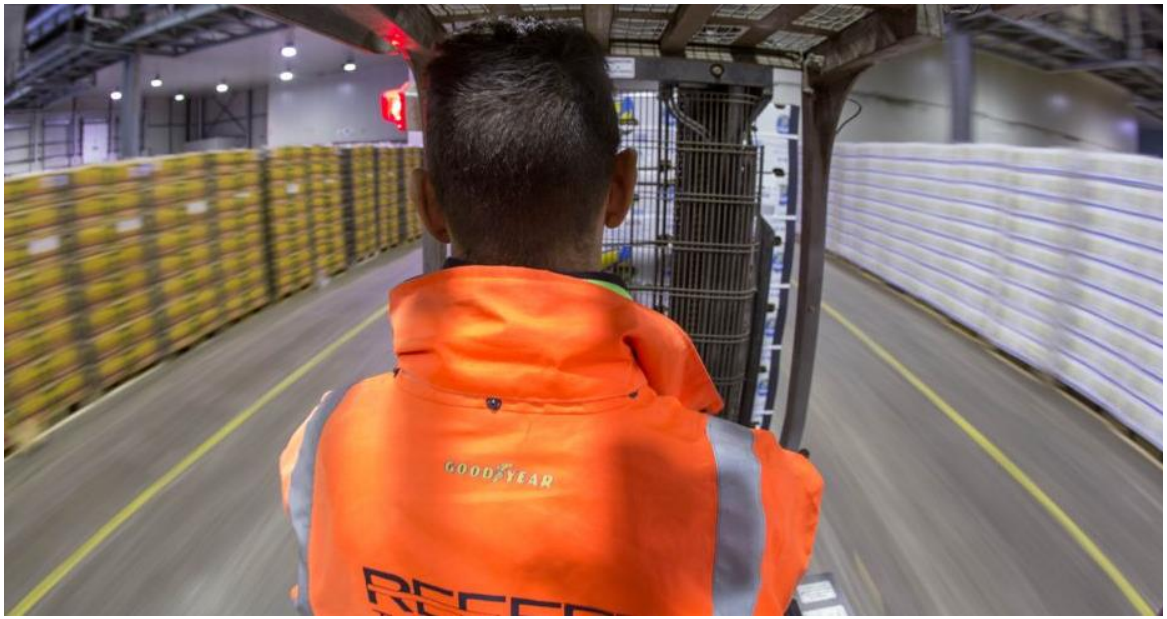
APM Terminal works to redirect behaviour not only of equipment drivers, but of the whole team, with a positive impact also on energy saving but also on safety.

Initiatives include:

- Environmental goals in individual KPIs
- Employees education and engagement
- Training of team members to increase competences on energy footprint topic (cause and effect)
- Efficient yard layout and traffic flow to limit tyres and fuel consumptions

Change in human behavior is a long process.

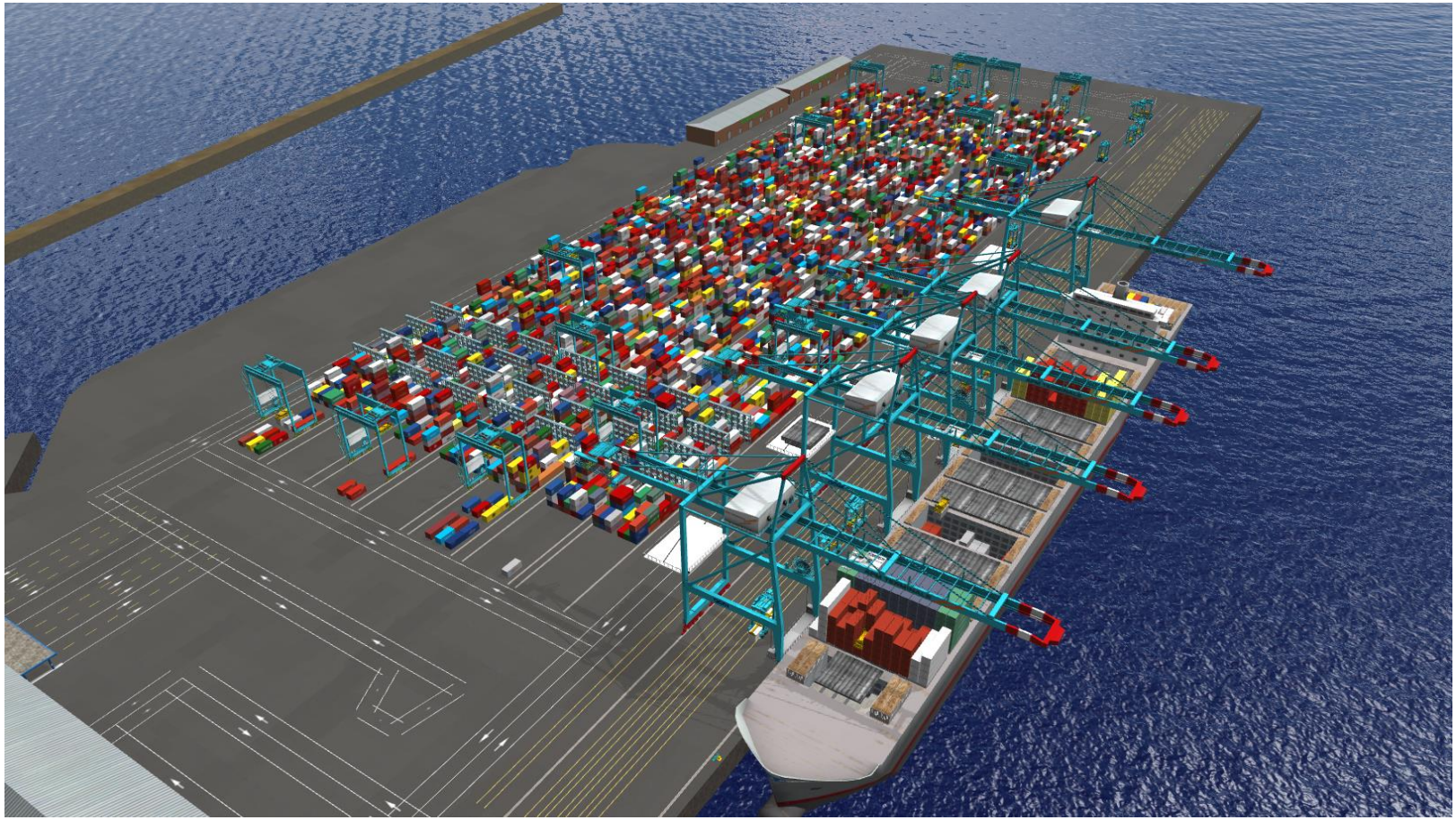
We include environmental topics in re-training and training plans to initiate a positive change.



APM Terminals – Vado Gateway /1

APMT has developed a standard for operation in its terminals.

Some operational solutions effective towards keeping energy footprint low will be adopted in Vado Gateway Terminal, a new generation terminal equipped with semiautomated STS cranes, automated yard operations and automated gate.



APM Terminals – Vado Gateway /2

Based on several performance data models to predict performance of different equipment, to select options in the future, etc, APM Terminals has selected a range of options for its sites that would also significantly cut energy costs.

The main ones deployed in Vado Gateway Terminal are:

- Energy efficient lights
- Efficient use of equipment (ex. minimize idle runs through use of double loading cycles of Quay Cranes)
- Performance analysis of conducted operation to improve yard and equipment strategy (reverse engineering).
- Photovoltaic
- Smart grids (installation of onsite generation and storage devices, adoption of new communication and automation measures, and finally optimal management of all active resources in the grid)
- Better plan necessary movement on the terminal (TOS)

In Use in VG

Ship Moves	Yard Moves		Electricity
STS	ARMG	eTT	$Grid_{Standard}$
		hSC	Photovoltaic

APM Terminals 2018 Go Green Initiative

APM Terminals 2018 Go Green theme is linked to our core value of Constant Care – "Take care of today, actively prepare for tomorrow" - each site commits to one long-term environmental or sustainability objective.

The Go Green campaign is an opportunity for collaboration between colleagues, their families, and the communities and to shown our work to reduce our environmental impacts.
Most importantly, to get people involved in environmentally sound operations through a range of engaging, fun, and meaningful activities.

THANK YOU.

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