



# GREEN EFFORTS – Green and Effective Operations at Terminals and in Ports



**GREEN EFFORTS**  
port innovation

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# GREEN EFFORTS – PROJECT AIM

Reducing the CO<sub>2</sub> footprint of terminals and ports

- through a cleaner energy mix
- and through reduced energy consumption.



# FACTS AND FIGURES



JACOBS  
UNIVERSITY

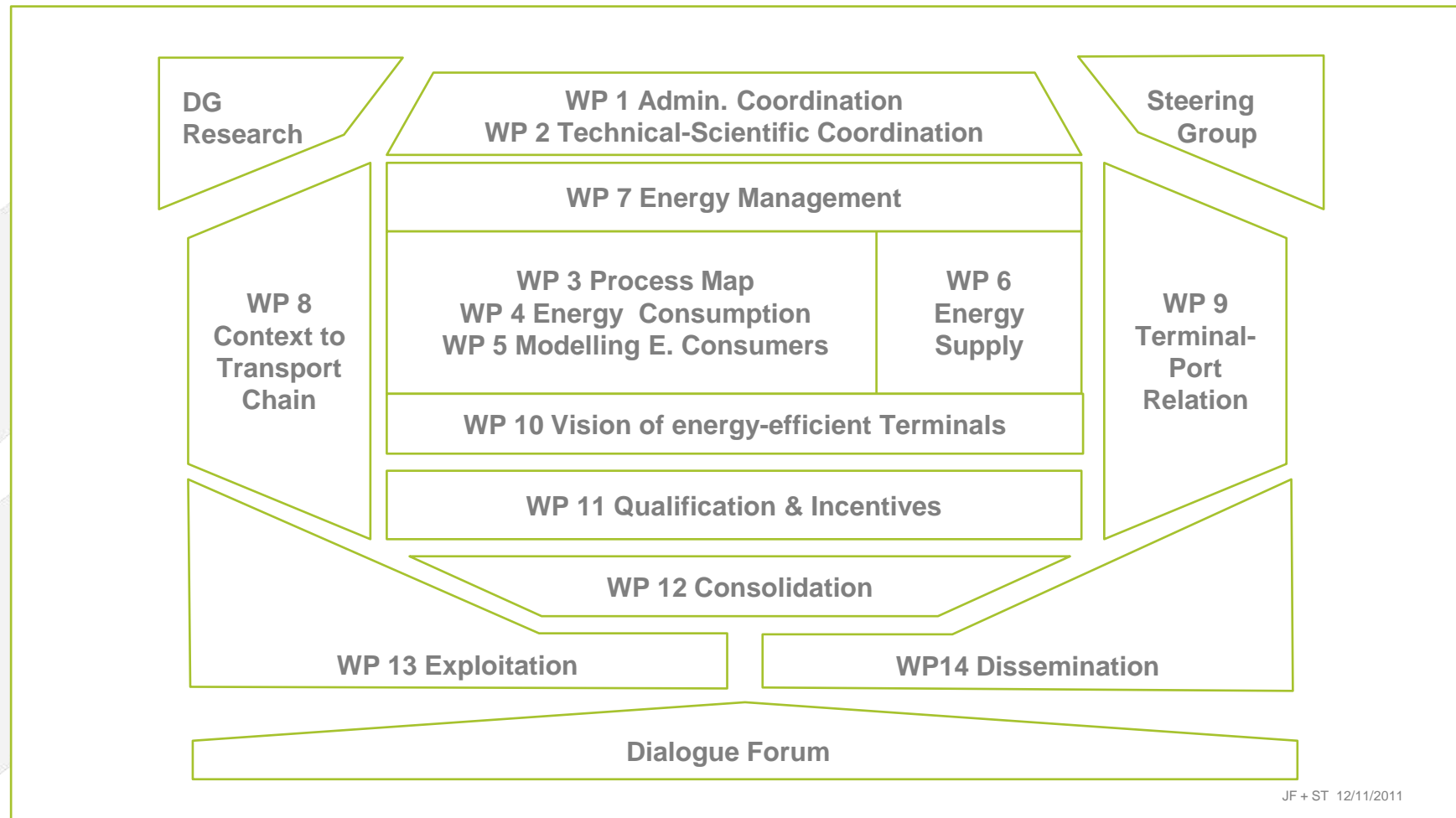
- Funding: 2.2 Mio. €
- January 2012 – June 2014



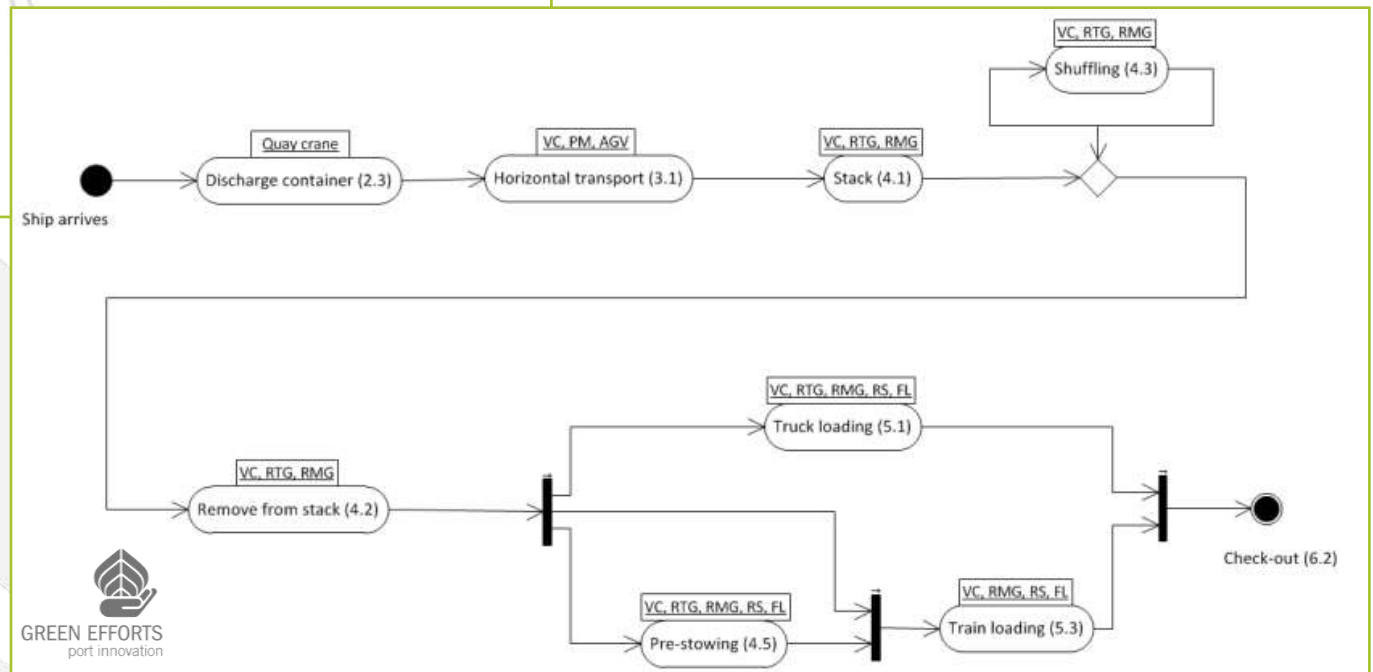
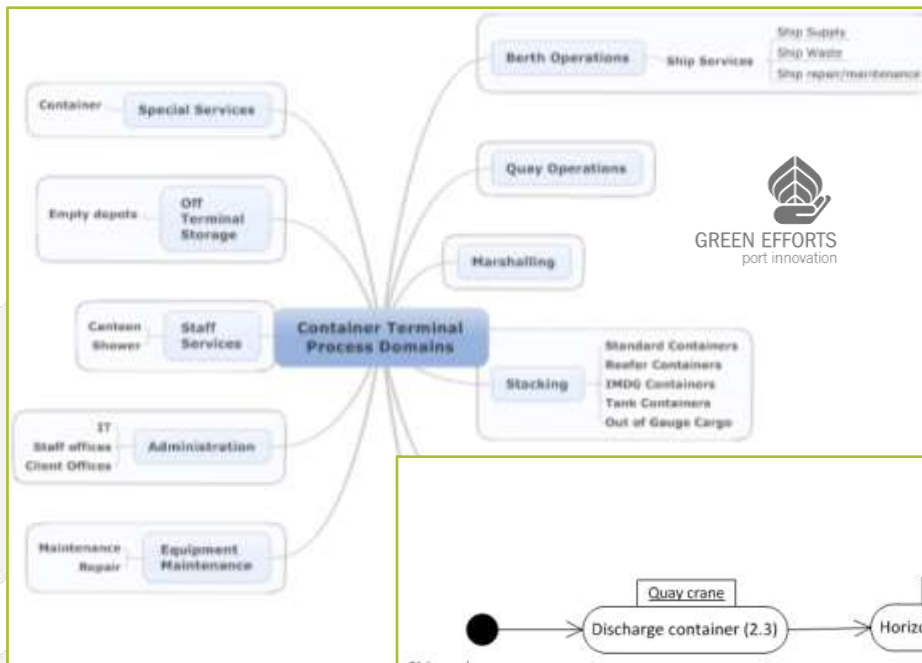
**SIEMENS**



# FACTS AND FIGURES – WORK PACKAGES

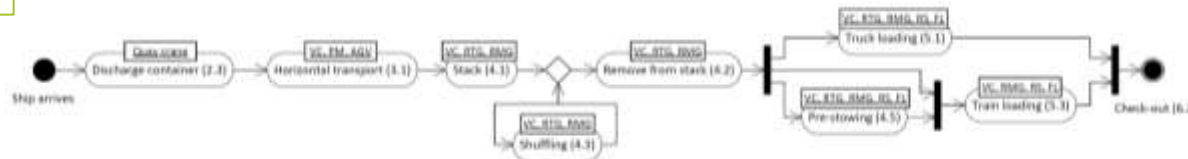


# RESULTS – PROCESS MAP CONTAINER TERMINAL



# OUTLOOK – PORT & TERMINAL KNOWLEDGE LANDSCAPE

## 1: Processes



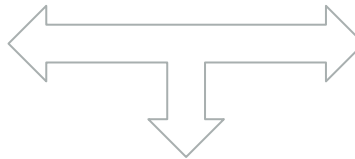
## 2: Energy Consumption

Consumption per move/TEU



Reduction Measures:

- A
- B
- C
- ...



## 3: Energy Supply

External / in-house:

- Diesel
- LNG
- Biomass
- Wind
- Solar
- Tidal
- ...

## 4: Energy Management

- Demand Side Management
- Load Shedding
- Smart Grids
- ...

## 5: CO<sub>2</sub>-Emissions





# RESULTS – REFERENCE TERMINAL PROCESSES



# RESULTS – REFERENCE TERMINAL PROCESSES

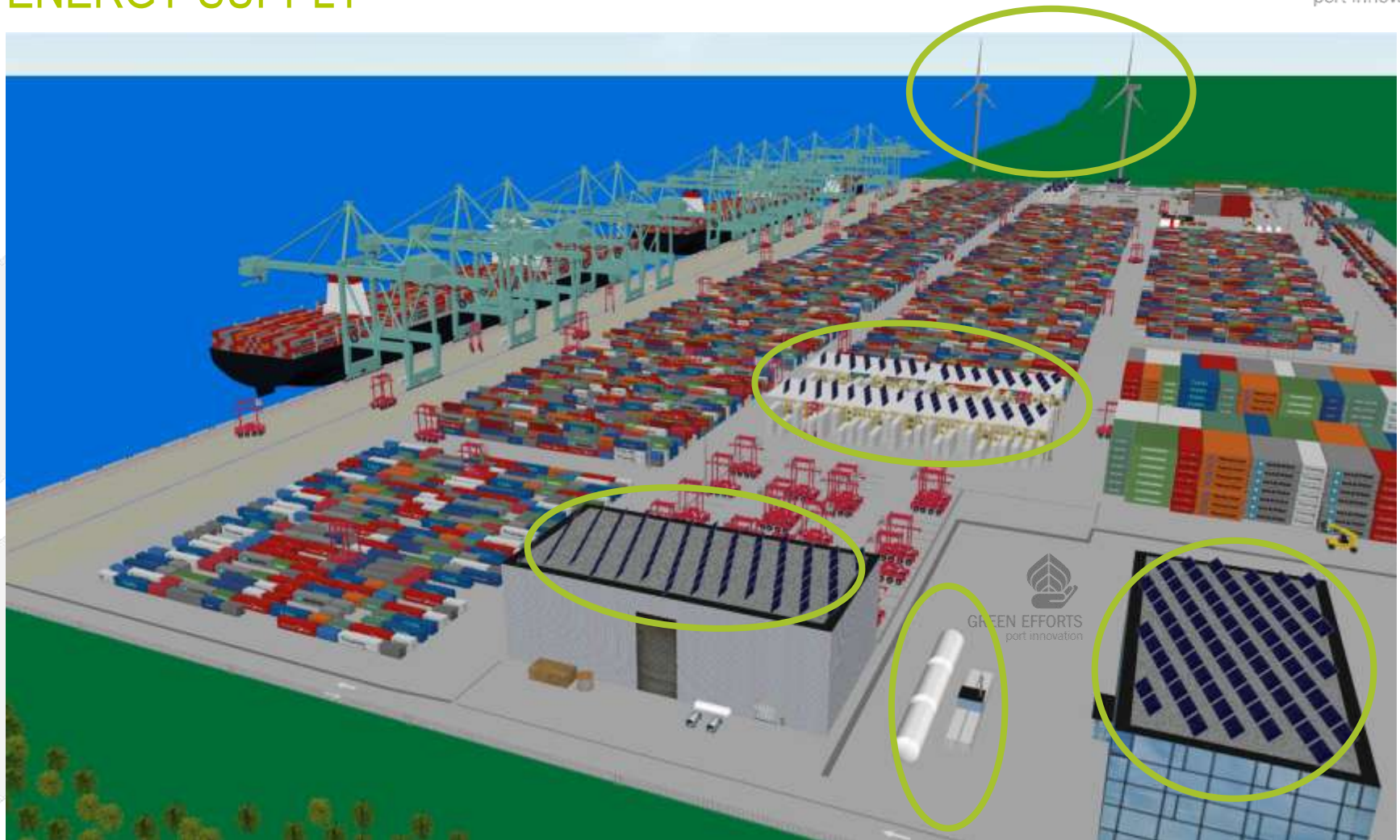




# RESULTS – REFERENCE TERMINAL ENERGY CONSUMPTION



# RESULTS – REFERENCE TERMINAL ENERGY SUPPLY



# INFORMATION AND CONTACT

- Project website:  
<http://www.green-efforts.eu/>
- Information material:
  - Flyer
  - White paper:  
Photovoltaics, LED and others
- Contact
  - Project Coordinator and Dissemination group:  
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