



# Valmet DNA Integrated Operations

A solution for Biogas and Small-Scale  
LNG

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# Sustainability at Valmet

Identified megatrends impacting Valmet's business

Resource efficient and clean world

Digitalization and new technologies

Urban, responsible and global consumer

Our mission

Converting renewable resources into sustainable results



Recognitions

MEMBER OF  
**Dow Jones Sustainability Indices**  
In Collaboration with RobecoSAM

**ROBECOSAM**  
Sustainability Award  
Industry Mover 2017

**CDP**  
DISCLOSURE INSIGHT ACTION

**ETHIBEL**  
SUSTAINABILITY INDEX

Corporate Responsibility  
**Prime**  
rated by  
**oekom research**

# Situation in Biogas Infrastructure Technology point of view

Low level of information technology development to control the operations

ÿ Usually, only local basic systems for control

ÿ No integration

ÿ Challenges related to communication

ÿ High OPEX costs because no flexible control

ÿ Too much manual work

ÿ Lack of communication in the field

ÿ Difficult to see the overall status about operations

ÿ Many parties

ÿ Information change between all parties is complex

ÿ Safety risks because of wrong information possibilities

ÿ Reliability

ÿ It is challenging to manage many operations without a good platform for control

ÿ Because of limited volumes of gas it is hard to grow business without complete control from waste to gas

# Valmet's way

It is the right time to enhance the control of Biogas supply chain

- It is important to start to control the complete supply chain

- From waste to gas

- In the future from consumer to consumer

- Valmet's DNA Integrated Operations is a platform for Biogas and Small-Scale LN(B)G

- Easy to share to all parties needed

- Includes only those functionalities which are required for Biogas and LNG operations

- Biogas ecosystem

- First, our focus is on the Small-Scale Virtual Pipeline solution

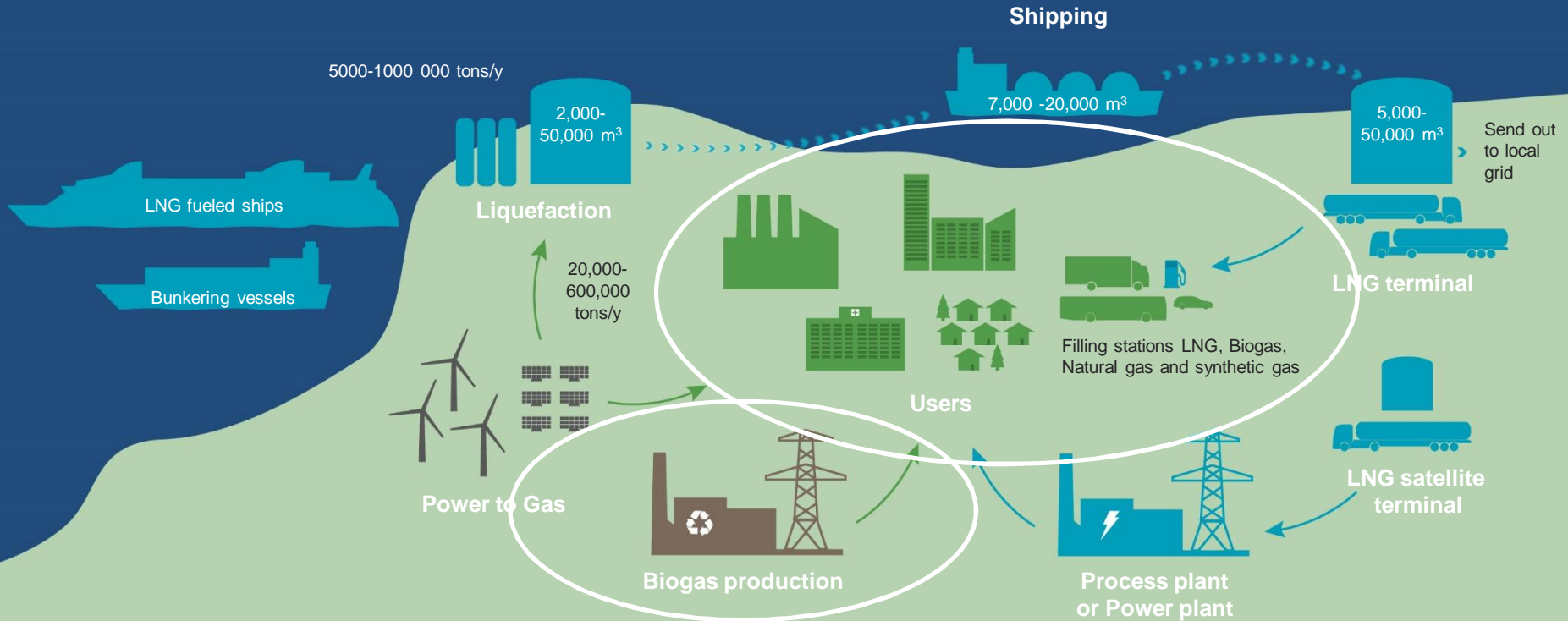
- This is the first important part to improve

- It helps to expand the Biogas off-grid solutions (Biogas infrastructure outside of natural gas pipeline grid)

- Valmet's target is to provide the latest technology for the growing Biogas as fuel infrastructure

# Valmet DNA Integrated Operations

## Biogas and Small-Scale LNG supply chain



- Y Process data is integrated for supply chain control
- Y Similar high level customer experience for all parties in Biogas ecosystem
- Y Safety improvements for all parties

# Valmet DNA for Biogas and Small-Scale LNG

Metering and process data from local PLC:s, DCS, weigh bridges, web based systems, trucks, containers, ships, etc.

## Data collection



Truck loading reports  
Ship unloading/Loading reports  
Send-out gas reports

Monthly reports  
Metering reports  
Mass balance reports

## DNA report



### Asset tracking

- GPS platform for trucks, trailers, ships
- Delivery tracking available based on events

### Order – delivery management

- Waste and gas logistic orders and control
- No financial issues

### Energy planning

- Container planning based on consumptions
- Liquid delivery planning
- Storage level optimization

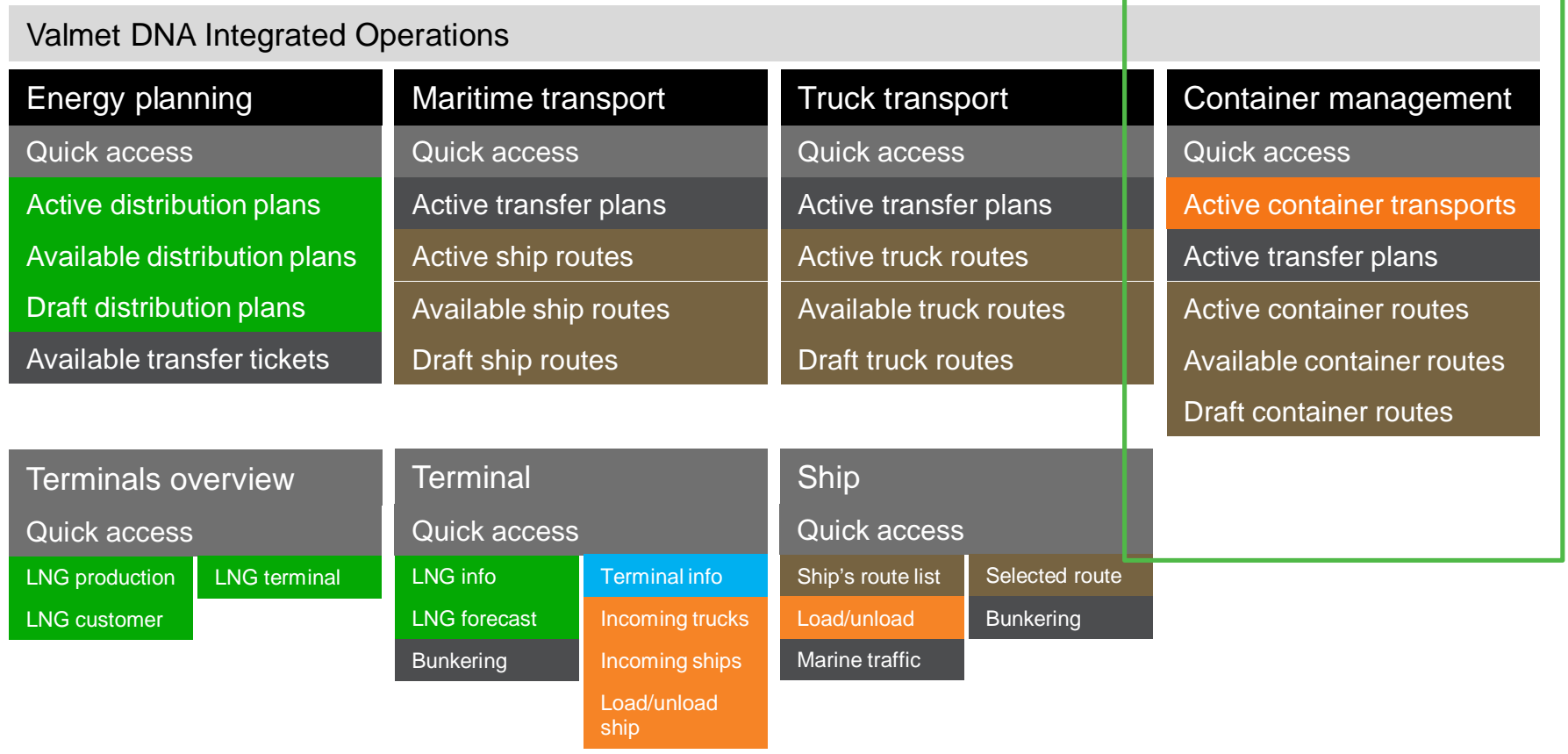
### Monitoring

- Biogas production
- LBG Customer terminals
- Biogas Container Filling
- Biogas Filling stations

## Valmet DNA Integrated Operations

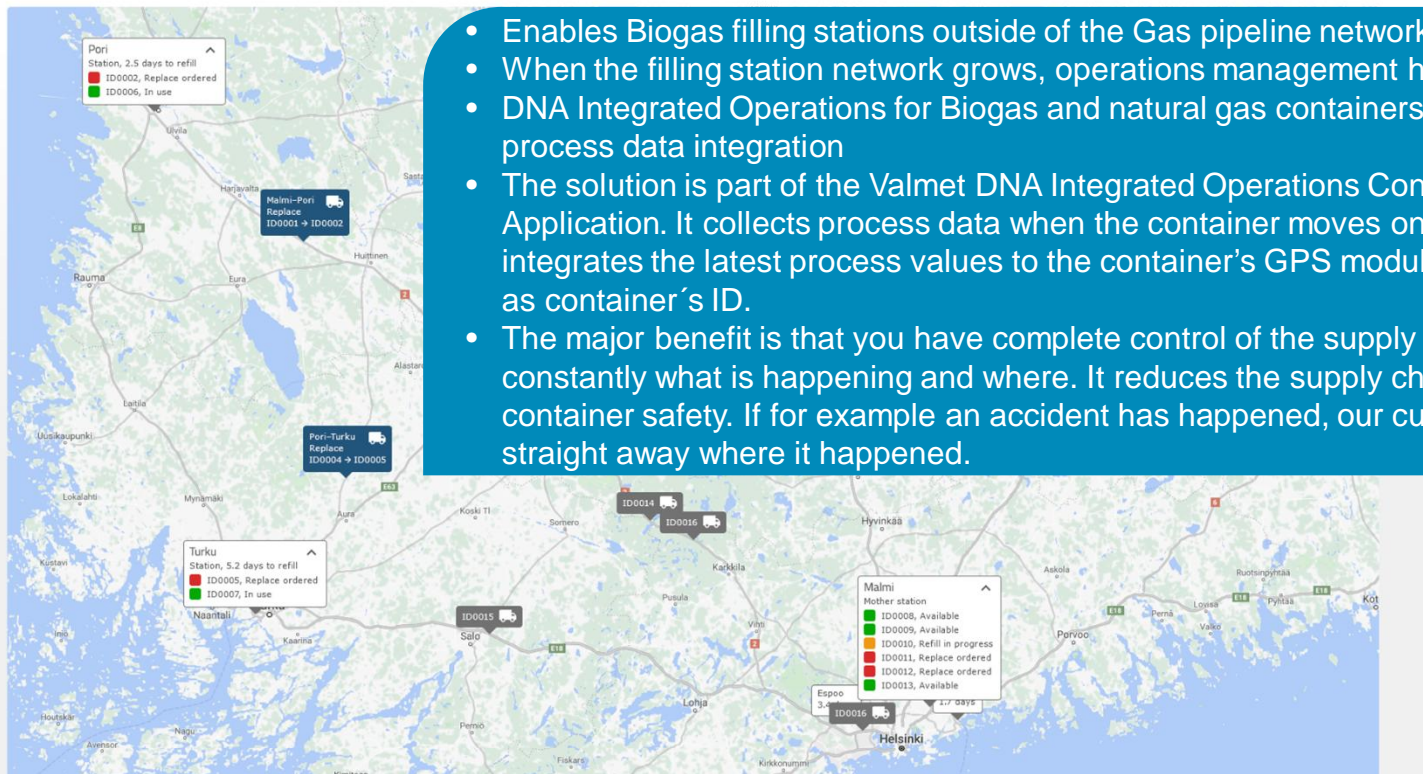
# Valmet DNA Integrated Operations include all necessary functionalities to manage the operations

Today we will focus on this part



# Small-Scale Virtual Pipeline

- Enables Biogas filling stations outside of the Gas pipeline network
- When the filling station network grows, operations management has a very big role
- DNA Integrated Operations for Biogas and natural gas containers is a new software with process data integration
- The solution is part of the Valmet DNA Integrated Operations Container Management Application. It collects process data when the container moves on its journey. It integrates the latest process values to the container's GPS module (Yepzon), which acts as container's ID.
- The major benefit is that you have complete control of the supply chain - you can see constantly what is happening and where. It reduces the supply chain costs and increases container safety. If for example an accident has happened, our customers would know straight away where it happened.



Search container

Allmiljö Processkontroll Vtökväce Mechanika

## Containers, Proceskontroll

CONTAINER	TIME	TO	ACTION
ID0001	06:00-12:00	Pori	Replace
ID0003	06:00-10:00	Malmi	Move
ID0004	06:30-11:30	Turku	Replace



# Smart applications provide safety and efficiency

User menu

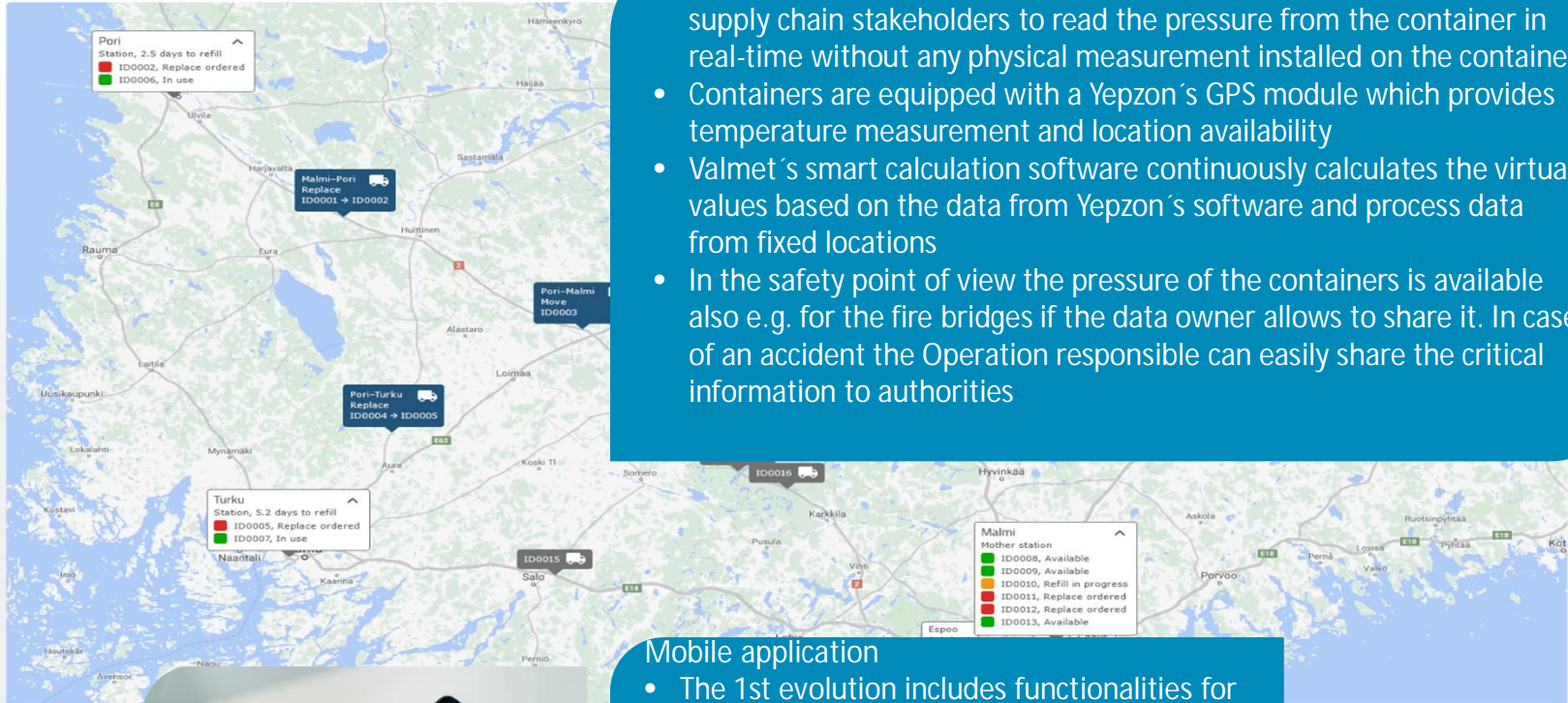
Valmet DNA  
Integrated Operations

Energy transport

Marine transport

Truck transport

Container management



- Called the Virtual Real-Time Pressure Transmitter, the solution allows supply chain stakeholders to read the pressure from the container in real-time without any physical measurement installed on the container
- Containers are equipped with a Yepzon's GPS module which provides temperature measurement and location availability
- Valmet's smart calculation software continuously calculates the virtual values based on the data from Yepzon's software and process data from fixed locations
- In the safety point of view the pressure of the containers is available also e.g. for the fire bridges if the data owner allows to share it. In case of an accident the Operation responsible can easily share the critical information to authorities

Search container

Containers, Pro

CONTAINER

ID0001

CONTAINER

ID0003

CONTAINER

ID0004



## Mobile application

- The 1st evolution includes functionalities for truck drivers related to the field activities with containers
- RFID:s are not any more needed because the container identification can be managed with the mobile application and Yepzon's GPS module

# Valmet DNA Integrated Operations for Biogas

## Future development

### Optimization

#### Y LNG/LBG fueled trucks, fuel consumption forecasts

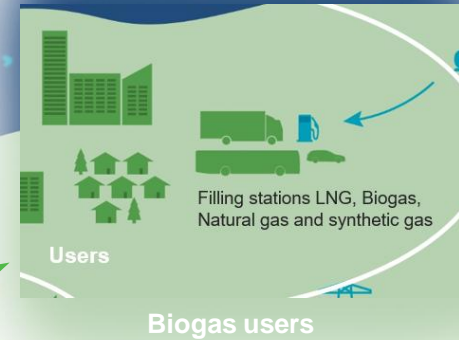
- Pricing and storage optimization because limited volumes of Biofuels

#### Y Mobile application for all parties

- Notifications for Biogas as fuel users
- “Cheap Biogas available nearby” (low price because it is important to empty the container before new cargo)

#### Y Better communication

- Smart notifications “react before alarm limits”



*" Let´s Build cleaner tomorrow together"*

