



# JOIN THE JOURNEY TO NET ZERO

Power Generation Symposium | Europe



A Rolls-Royce  
solution



# Lifecycle Support for a Lifetime of Value

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June 2022



## Agenda

- 01 **How does global change affect the operations of our customers?**
- 02 **VCA as an integral solution to support the lifetime of your equipment**
- 03 **How can flexible service product solutions support this changing requirements?**
- 04 **Outlook & Discussion**

## Challenges for our customers

Operation, Maintenance and **Service** also affected:

- New **regulations** and **business models**
- Sustainability and **net zero**
- New **technologies** and operation of equipment



- constant need to **adapt** for changing requirements
- keep **existing equipment** running and future-ready

# Decarbonization



# Decentralization



# Electrification



# Digitalization





## Portfolio

What can we offer to manage the challenges?



## SERVICE SOLUTIONS

Solutions designed around your business



Focus today



## Value Care Agreements



## Digital Solutions



## Upgrades and Modernization



## Factory Reman and Overhaul

Peace of mind with **Value Care Agreements**

Maximize uptime with **Preventive Maintenance**

Update existing equipment with **Upgrades and Modernizations**

Extending asset life with **Reman and Overhaul**

Improved operation with **Digital Solutions**





MORE UPTIME & MORE DOWNTIME



Power Generation



VALUECARE  
AGREEMENTS



A Rolls-Royce  
solution

## Why

- **Reliable solution** for single unit customers up to complex microgrids and fleet customers
- **Modular approach** based on individual project and customer requirements
- Concept is based on **longterm partnership**
- **Flexibility** to adapt for changing requirements
- Framework to assure maximum **asset value** during lifetime

## Benefits

- Allows customer to focus on core business
- Leverage **mtu** Service Organization (Customer Care Center, 24/7 support)
- Predictable cost, cash flow friendly invoicing
- Optimized maintenance
- Option for upgrades during lifetime

## Global service coverage through four Customer Care Centers and Local Service Desks



**4 Customer Care Centers:**  
Competence center for all applications, covering both corrective and preventive cases

**Local Service Desks:**  
Service desks in MTU subsidiaries

**Distributors:**  
Point of contact for their customers

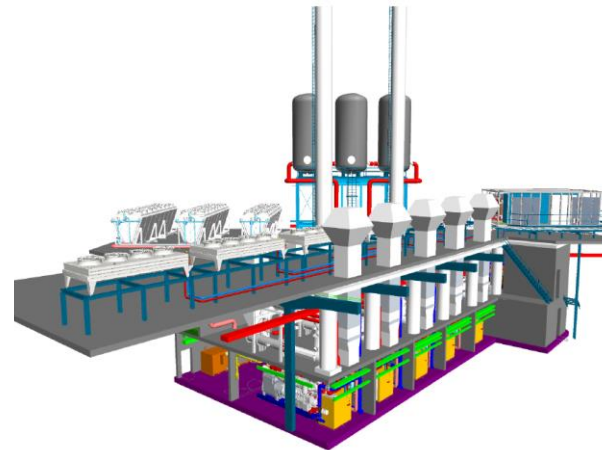
## Continuous Power

Customer:  
xxx

Location:  
xxx

Commissioned 2018, currently

>12.000 operating hours



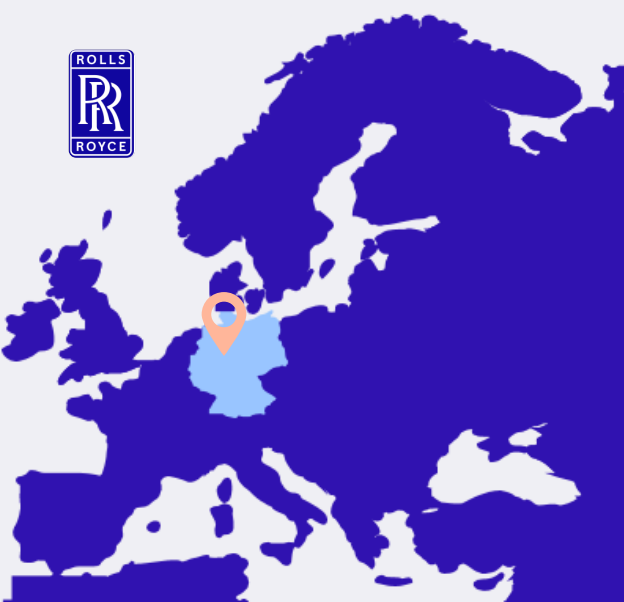
6x 16V4000 GS

Power output:  
9,3 MW kWel overall

4+2 redundancy

- Complete off-grid-solution for automotive supplier
- Combination of gas systems, flywheel generators, battery containers
- **mtu** Control System for process control of gas systems
- Complete integration of auxiliary drives by **mtu**





**VCA Gold**



## Key customer considerations

*High energy price*

→ Off-grid Microgrid Solution

*Manufacturer shares risk*

→ 10 years contract directly with RRPS including QL2

→ Guaranteed reliability 99,8% p.a. with LDs

*Heavy dependancy on power plant*

→ Swing Unit + Emergency Stock at site

→ Strong local service set-up

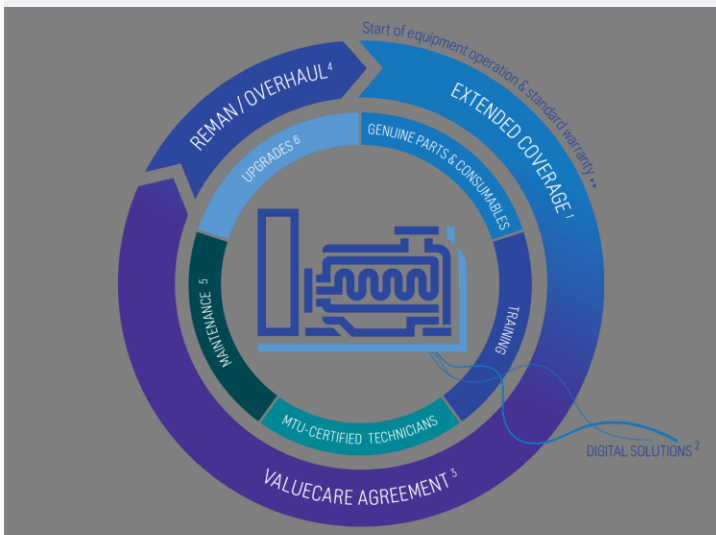


## Things might change during the equipment lifetime

- **mtu** is heavily investing in the development of new service products
- In house engineering team for service focusing on in field population
- Retain the asset as a value and save resources



The VCA concept is providing flexibility during lifetime



Flexible service products & digital solutions are an integral part of the VCA concept



**As requirements  
keep changing  
- mtu is developing  
the right solutions  
to adapt**

Why:

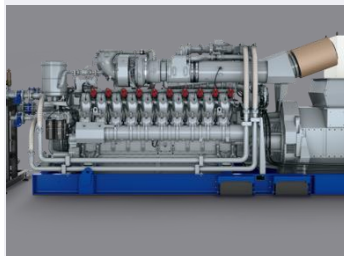
- Maintain the value of your asset
- Comply with new regulations
- No waste of resources
- Save cost



**Gas Series 4000  
Efficiency  
Upgrade**



**Series 4000  
Midlife Check**



**Emission solutions**

- SCR Refit
- NOx Sensor Kit



**H2 readiness**

**Fuel flexibility**



**Lifetime Based  
Overhaul (LTBO)  
for Series 4000  
standby**



**Reman &  
Overhaul**



**Integration of  
additional  
equipment**



It is not only ideas but already reality...

Successful projects completed within a VCA contract or on demand

**> 3000** units  
under VCA  
contract

More than **250**  
NOx Sensors were  
installed

**6** SCR Upgrades  
are in the order  
book already

**15** Gas  
Efficiency  
Upgrades sold  
in Europe

Up to **50** LTBO  
projects globally  
realized

Every year more  
than **400**  
engines are going  
through the Reman  
process



# Continuous Power

Customer:  
xxx

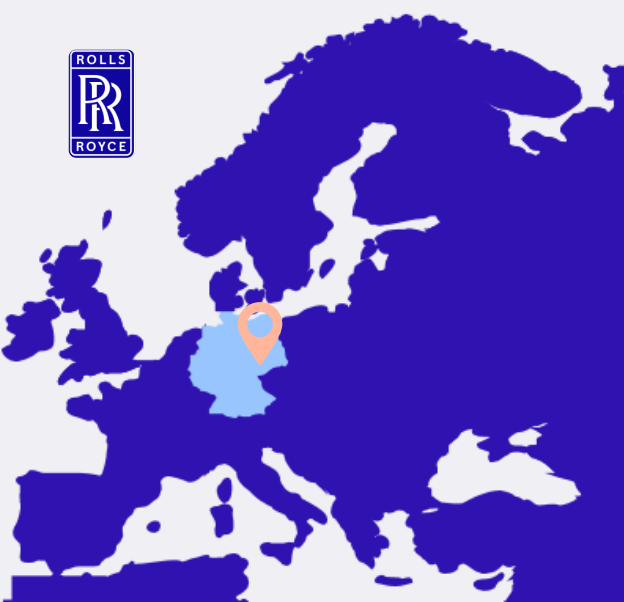
Location:  
xxx

Commissioning 2015

2x 20V4000 L33

Power output:  
4 MW kWel overall

- CHP industrial application
- Heat and electricity used in manufacturing process
- 24/7 operation. Grid parallel
- Complex plant setup



## VCA Gold



### Key customer considerations

#### *High availability & risk sharing*

- First VCA Contract Gold signed 2016
- Availability guarantee 96%
- QL1, QL2, QL3

#### *Complex building setup*

- Leverage opportunity of engine exchange to upgrade to new RRS SCR solution
- Renewed VCA will cover SCR, included in hourly rate

#### *Ready for future emission requirements*

- Invest to omit price inflation. Use SCR when needed



# 04

## How do you see the future?



## Now it's your turn

Joint discussion

New Operating  
Conditions?

Need for new  
service  
solutions?

Key  
Challenges?

Key  
Opportunities?

Future  
Business  
Models?

Expectations  
towards **mtu**?



**Thank you for your attention!**