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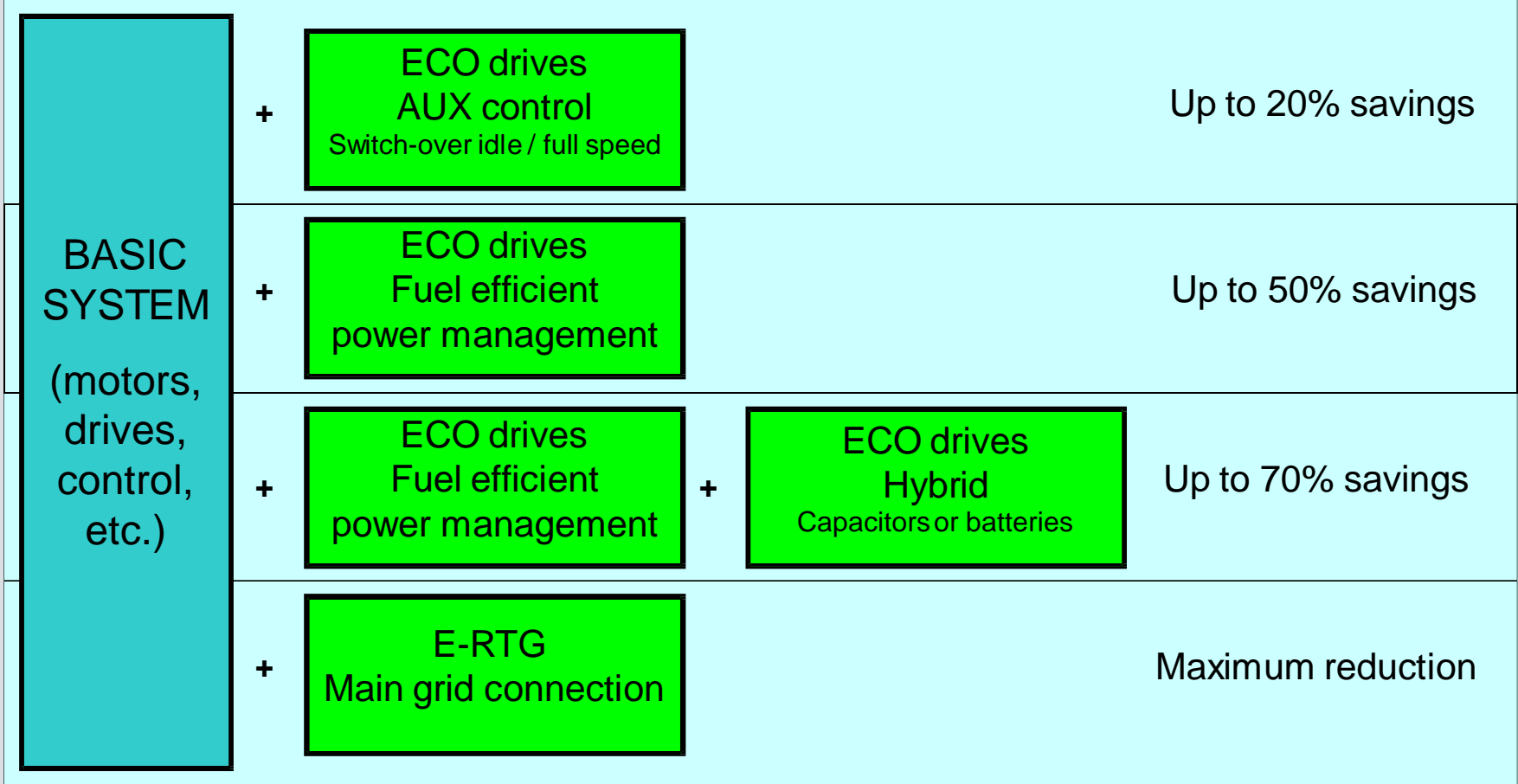
# Siemens Cranes

Energy efficient RTG  
- Today and in the future –

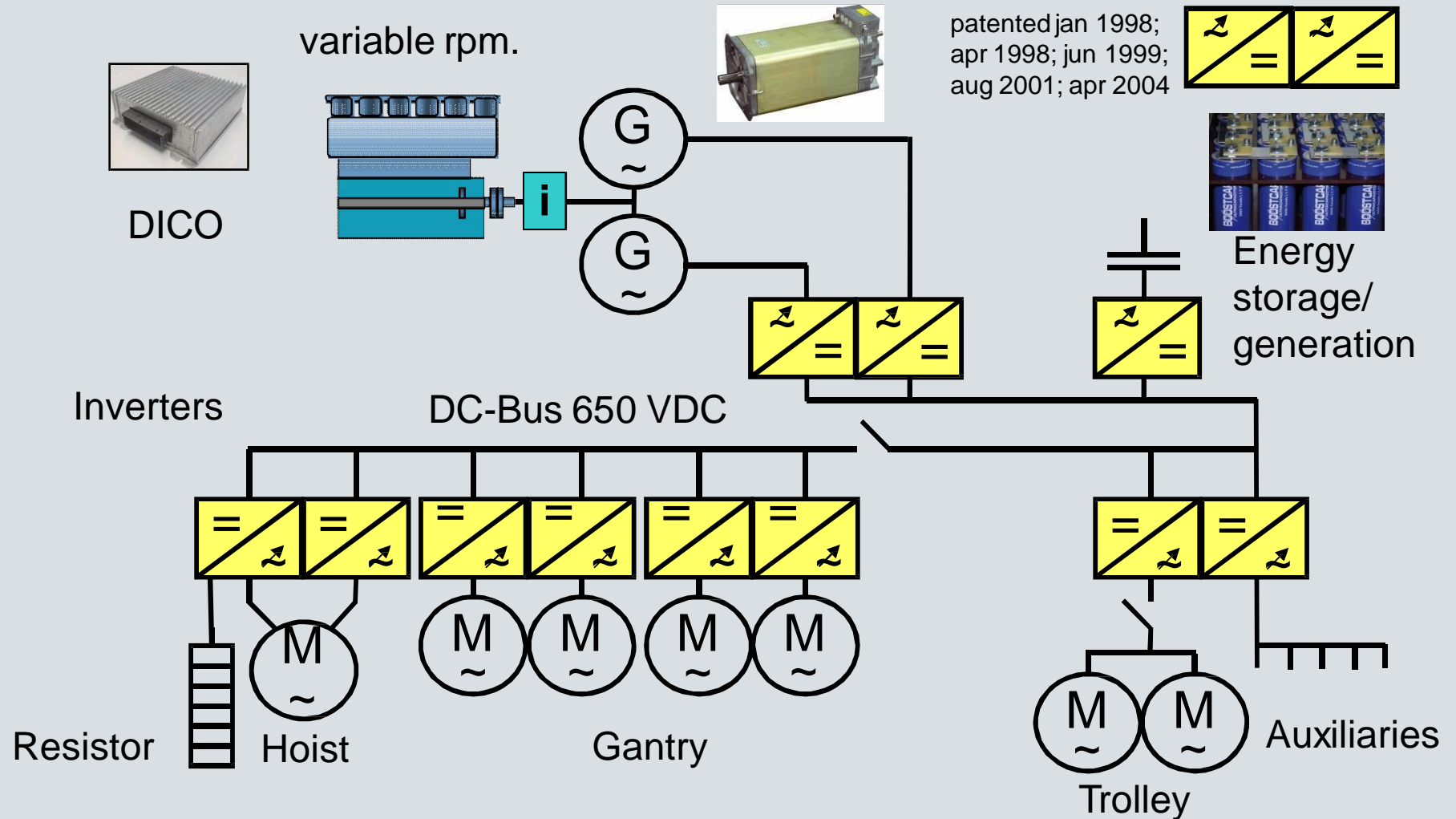
# ECO crane drives presentation



# Energy saving scalable concepts

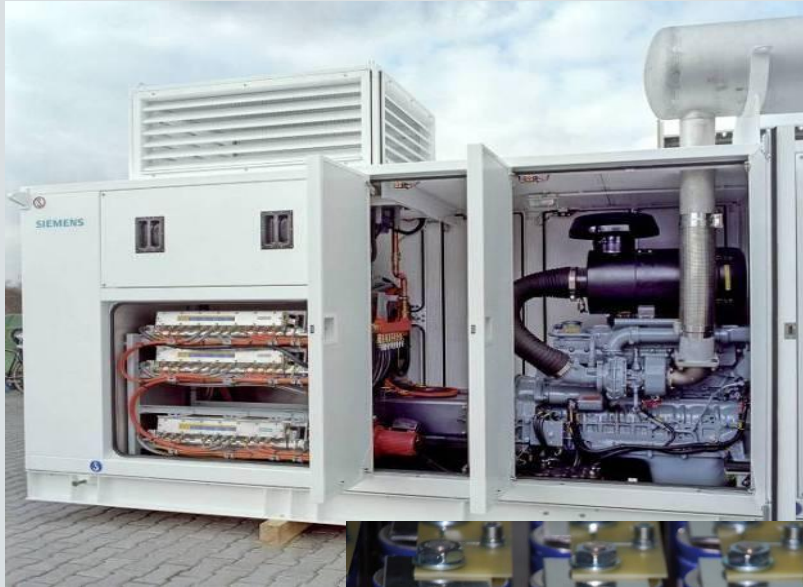


## Previous ECO RTG configuration





## Previous ECO RTG package with hybrid



- Conventional : 21 liters / hour
- ECO-RTG : 10 liters / hour
- ECO-RTG Supercaps : 6,5 liters / hour

Fuel savings up to 70% !

Source: APMT Algeciras



- energy storage to capture regenerated energy
- smaller diesel engine possible
- retrofit on ECO RTGs possible

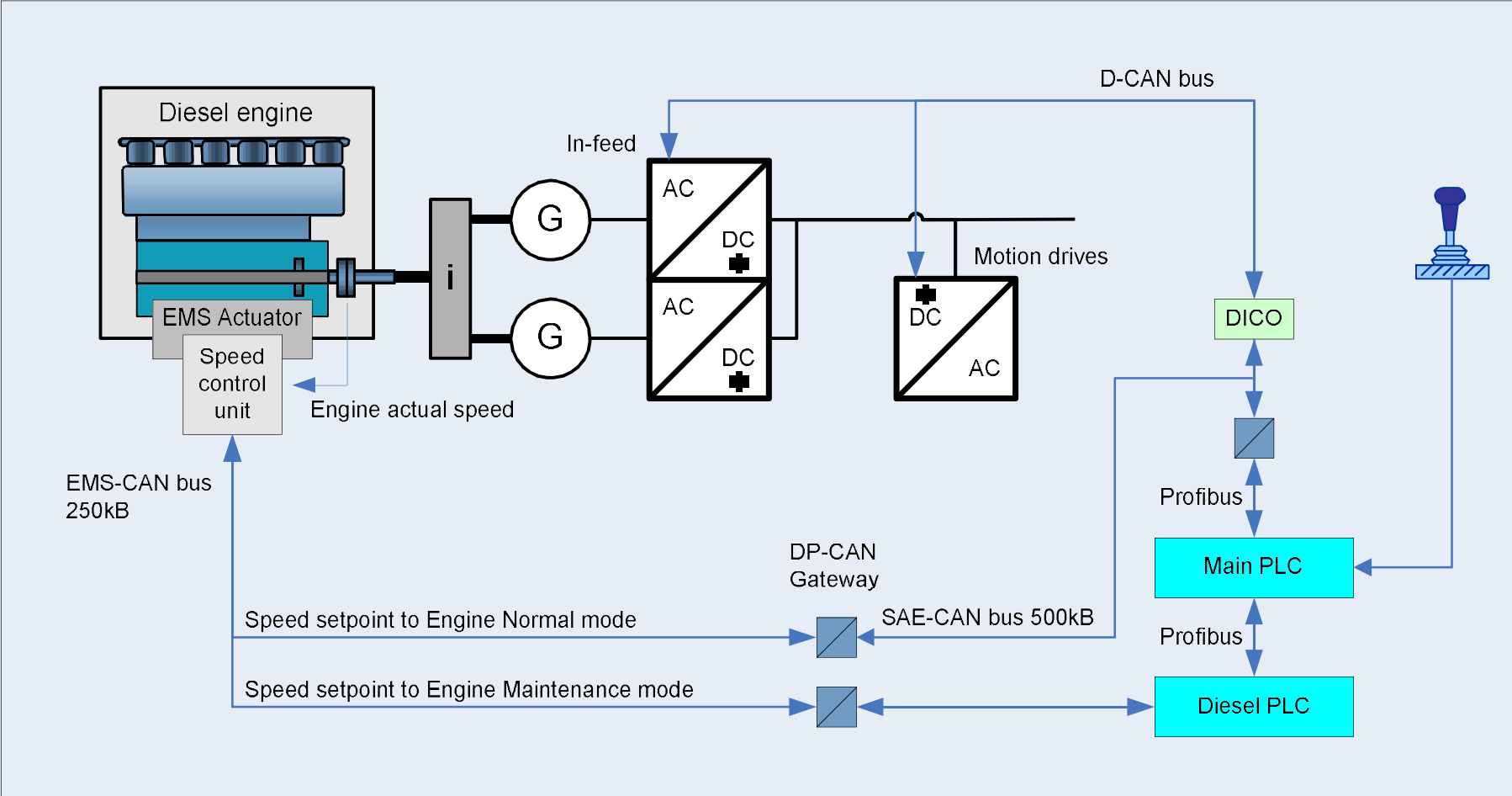
# Previous ECO RTG Operating Experience

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- > 175 systems delivered worldwide
- > 5 years in operation
- 18 projects for APM, DPWorld, PSA, HPH and TCB
- > 4 Mio. hours in accumulated commercial operation with proven savings
- > 4 years operational experience with super capacitor technologies
- End user sites in Spain, Morocco, India, China, Malaysia, Djibouti, Jordan, Jeddah, Vietnam, Turkey, Senegal, England, Colombia and Brazil
- experience with diesel engines by MAN (conventional control), SCANIA and MTU (CAN bus control).
- 1x ECO Hybrid crane running in Port of Felixstowe
- 7x ECO Hybrid ECO RTG's under commissioning for Libra terminal, Brazil



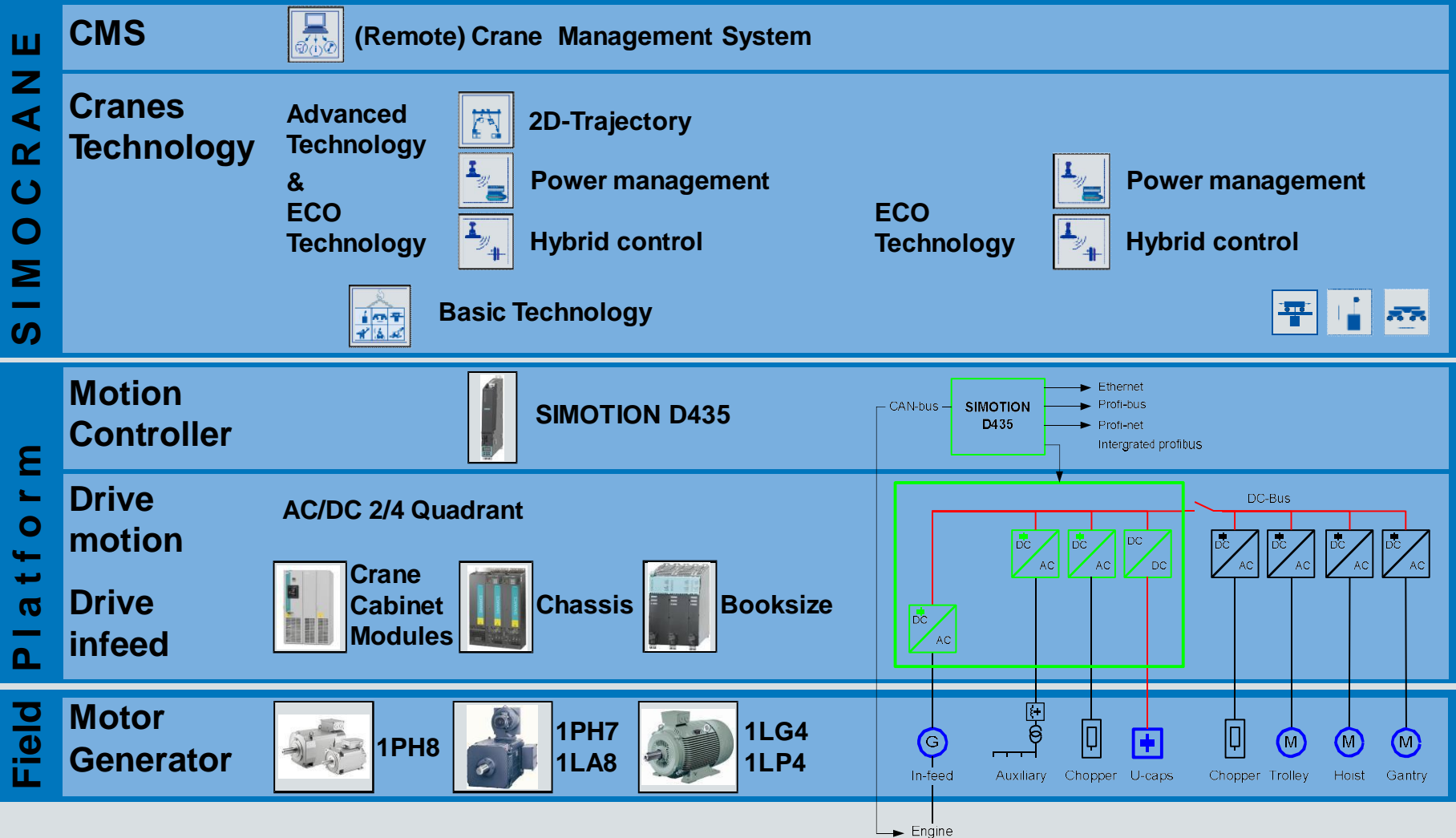
# Future integrated Simotion D control



# SIMOCRANE portfolio enhancement

## Crane products

## ECO Configuration example





# Test-installation with engine simulation enabling pretesting ECO behavior



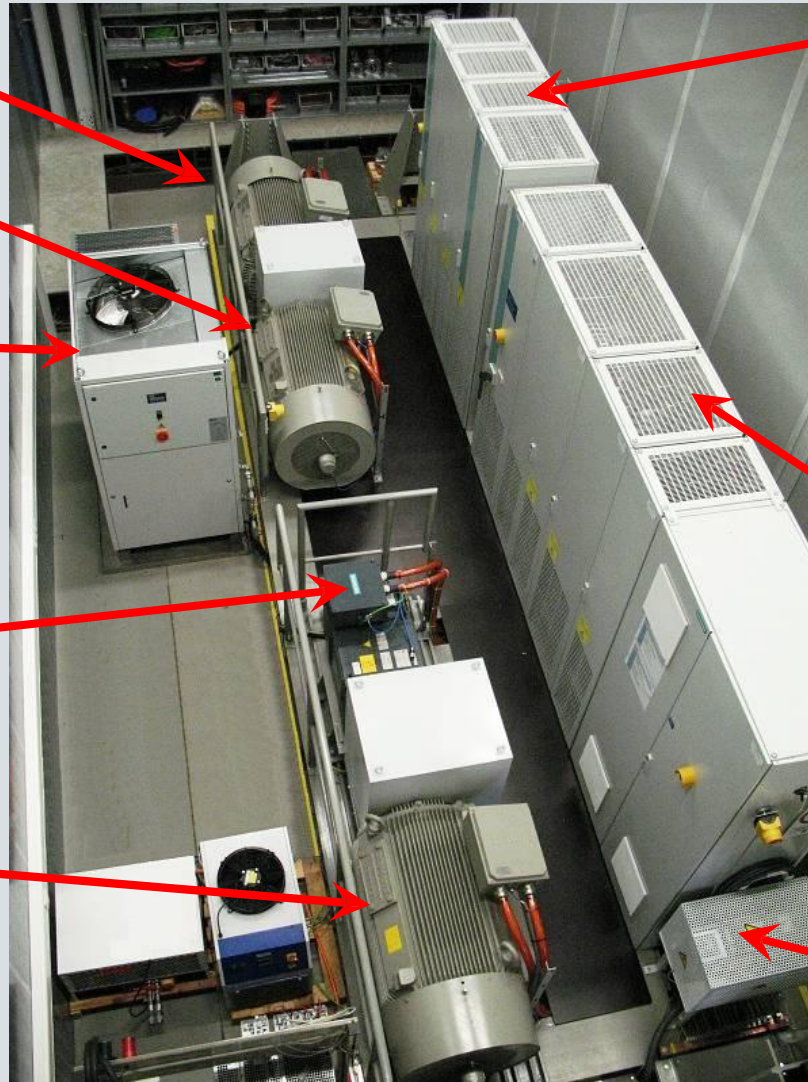
Q Load motor

Q Hoist motor

Q Water cooling

Q Generator

Q Simulation motor



Q Crane part

Q DC/DC drive

Q Chopper drive

Q Hoist drive

Q Infeed drive

Q Super-caps (to be installed)

Q Grid connection

Q LCM

Q ALM

Q Simulation

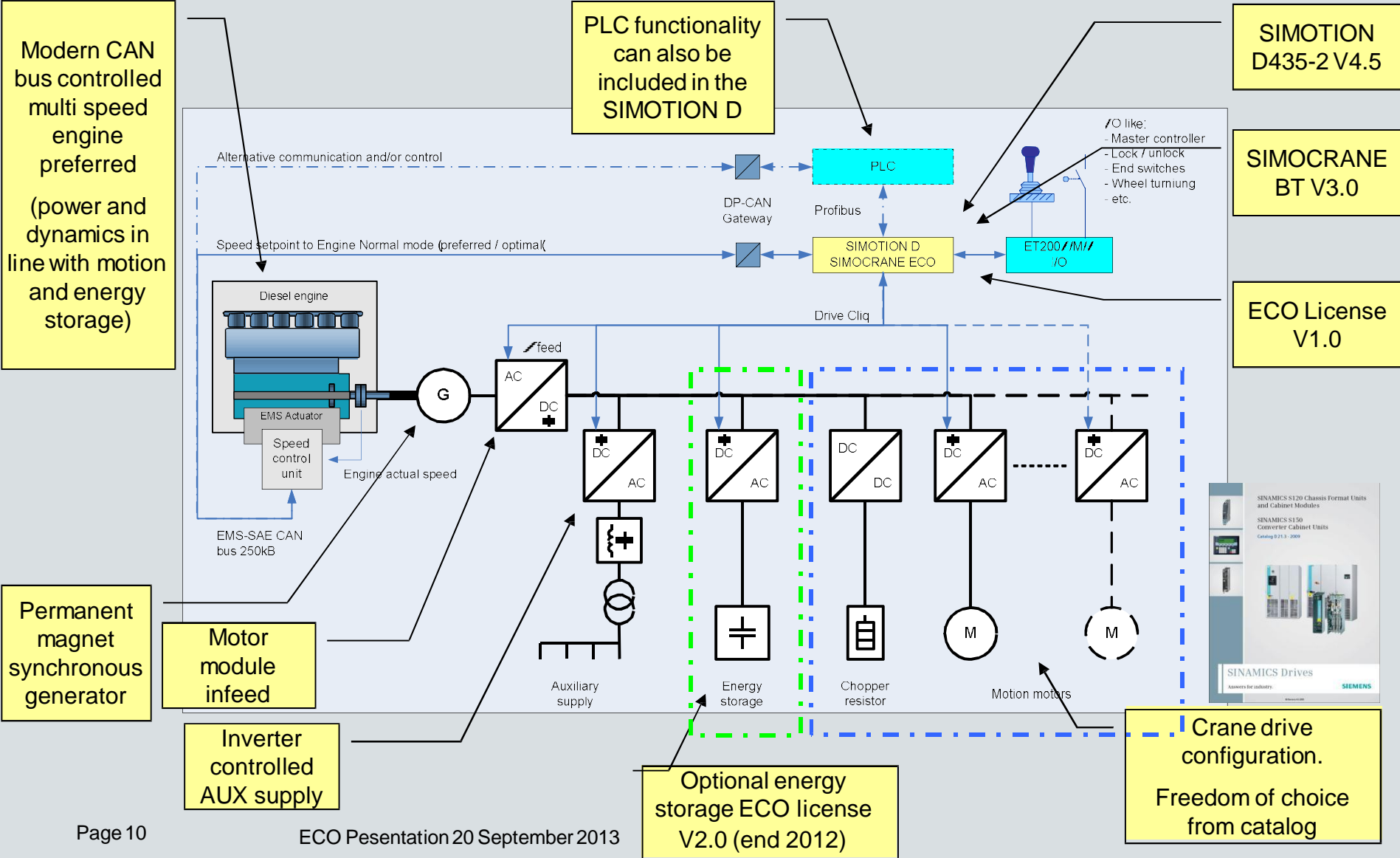
Q Load drive

Q Control

with  
Simotion

Q Sine wave-filter

## Installation preconditions



# Future Product composition ECO4 Sinamics V1.0

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Q 6GA..... selection from catalog,  
package containing

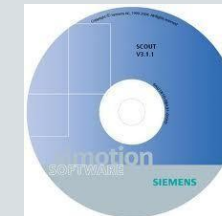


Q CD providing

Q Eco software V1.0

Q Documentation

Q Web-start for ease of engineering / service



Q License paper





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# Grazie per la attenzione

Siemens S.p.A.  
Industry Sector DT  
Motion Control Cranes  
Sergio Barni  
Business Development Manager  
Cranes Technology  
Mail: [sergio.barni@siemens.com](mailto:sergio.barni@siemens.com)  
Tel.: +390224362726