# HERO OF THE RIVERS OF THE RIVE



# MAKE EVERY TON-MILE COUNT

With a century of experience designing engines and propellers
— we know the challenges Inland waterway operators face on a
daily basis. The goal is productivity. Success is measured with the
lowest operating cost.

### **IMPROVE YOUR PRODUCTIVITY**

Integrated Emissions Solutions for IMO III/US EPA Tier 4 Final

- Drives improved fuel efficiency
- · Maximizes customer uptime
- Time saving maintenance intervals

#### Marine Asset Intelligence

- Advanced Predictive analytics with expert advice
- Optimized vessel operations
- Easy to read reports and dashboards
- Enables regulatory compliance management

#### **SAVINGS BEYOND DIESEL**

- LNG propulsion systems
- Hybrid solutions
- · HFO capable engines

#### **WORLD CLASS PRODUCT SUPPORT— WHEREVER YOU GO**

- Cat® Dealer service and support covering the world's inland waterways
- Customized parts kits
- DNV-GL dealer certified service
- One-Year Parts Warranty
- Cat Reman parts options available (environmentally friendly cost savings)

# YOUR SUCCESS

### **CAT EVA (ENGINE VALUE ANALYSIS)**

Operation profile specific tool for comparing competitive engine performance.

Aids in standardizing fuel specifications for accurate fuel consumption comparisons.

Make an educated decision on your engine choice.

# CAT ECE (EQUIPMENT COST ESTIMATOR)

Cat/MaK engine model specific life cycle cost analysis.

Calculate life cycle cost over asset life.

Easy to understand reports.

#### **CAT SELECT**

Easily compare various engine and propulsion options.

Diesel, LNG and Hybrid propulsion system comparison.

Analyze maintenance, fluid costs, and CAPEX.

Choose the solution that best fits your operating profile.

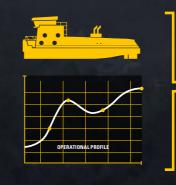
# EMD TCO (TOTAL COST OF OWNERSHIP)

Cost analysis over the anticipated life of the engine.

Comprehensive maintenance budget year by year.

Highlights EMD maintenance advantages of no mid-life overhaul and no full oil changes.

#### **ENGINE SELECTION PROCESS**



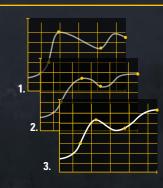
**CUSTOMER REQUIREMENTS** 

**FUEL CONSUMPTION** 

MAINTENANC CONSUMPTIO

LOAD RESPONS

EQUIPMENT FINANCE COST



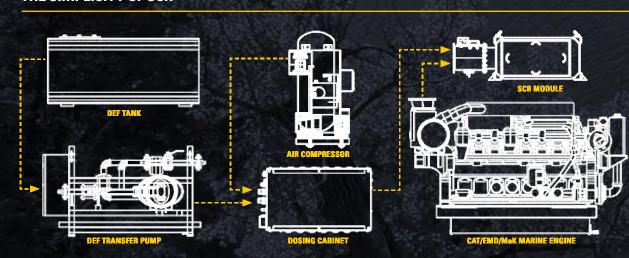
**COMPARISON OF ALTERNATIVES** 

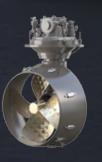
Caterpillar can find the best solution for your operation. We have done thousands of evaluations saving our customer's billions of dollars. Contact your dealer for a customized analysis built for you.

# SCR ENVIRONMENTAL STEWARDSHIP

The marine-specific solution designed by Caterpillar includes Selective Catalyst Reduction (SCR) technology to meet both IMO III and US EPA Tier 4 Final emissions standards. This aftertreatment system allows Caterpillar to increase engine efficiency and durability over other solutions. Since SCR only impacts emissions; there is no alteration to core engine components, no increase to fuel pressure, heat rejection, ventilation or cooling system requirements. It offers reliability with maximized uptime on the inland waterways while maintaining legendary Cat durability with the same long life to overhaul. The factory designed SCR modules offer installation flexibility for simplified vessel design. As well as reduced emissions, SCR enables improved fuel efficiency, which translates to lower owning and operating costs.

## THE SIMPLICITY OF SCR





# \_1\_i AZIMUTH THRUSTER

Caterpillar offers azimuth thrusters optimized for fleeting pushers and heavy duty continuous line haul operation. The Caterpillar Marine propulsion system comes as a package optimized for the requirements of the inland waterways. It has a compact design and smart features for easy installation, minimized maintenance and a high level of serviceability

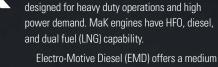
Caterpillar Marine also offers hybrid systems to optimize operational economy during low loads and increasing boost power for high demand periods.



# L<sup>2</sup> MAIN ENGIN

Caterpillar high speed engines are built to meet the demands of inland waterways vessel operations.

MaK<sup>™</sup> medium speed marine engines are



Electro-Motive Diesel (EMD) offers a medium speed two-cycle engine design with short response time that can be counted on to meet your need for power and productivity instantly.



# GENERATOR SETS

Being the world's largest manufacturer of generator sets, our auxiliary engines are built to world-class standards for high efficiency, low fuel consumption and global emissions compliance. Cat diesel generator sets come in a range of options to match your power needs. For prime, continuous, emergency or standby power service, our generator sets deliver reliable, clean, economical power – even in the most demanding conditions.



# 4 CONTROL SYSTEMS

We've specially designed our control system to take advantage of the latest microprocessor technology, the MPC 800 Control and monitoring system is easy to use, providing operator with clear information and full control on all propellers, thrusters and engine performance. MPC 800 can easily be configured to control and interface with a wide range of supplementary systems.



# ASSET INTELLIGENCE

Know the location, health, and efficiency of your vessels and predict problems before they happen using data and inspections to prevent downtime. Increase uptime by scheduling services, reduce operating costs and make compliance reporting easier with better emissions monitoring. Ensure your vessel is running at prime efficiency to reduce emissions and burn less fuel.



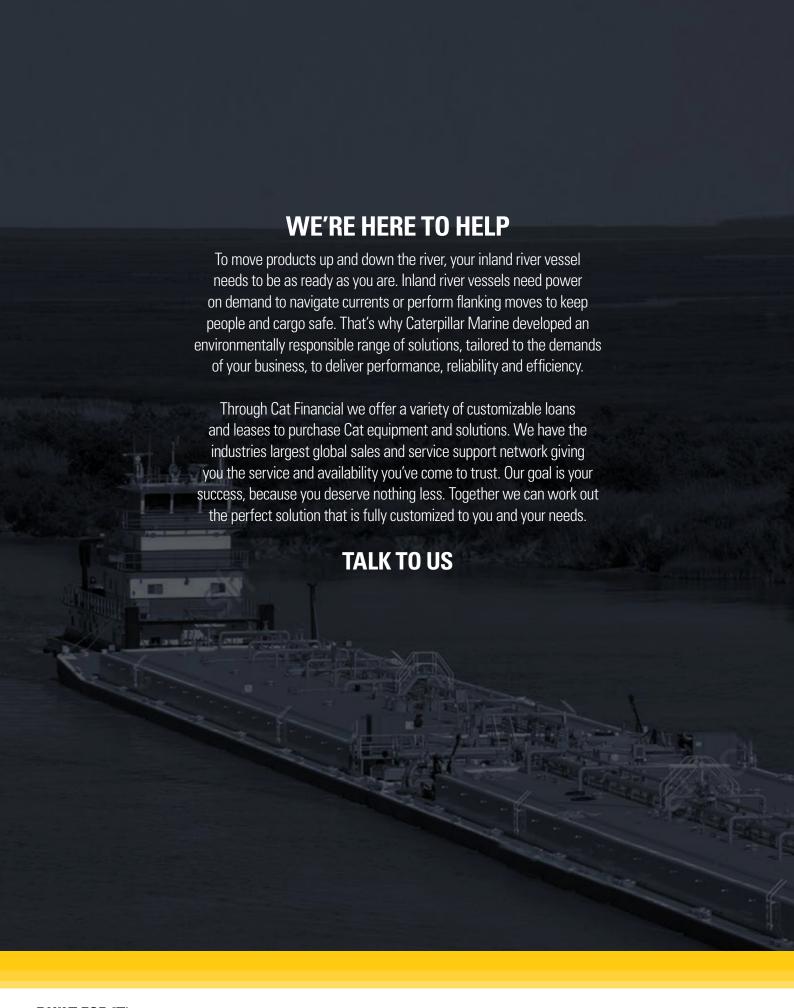
Caterpillar offers the broadest power range of world class marine engines for the most demanding installations and the harshest environments. Long hours and variable conditions require dependable, fuel-efficient power to keep your vessels moving. Caterpillar ensures that your vessels meet global requirements — today and in the future. With power options ranging from 93 to 18,000 bkW, Cat Marine diesel and gas engines are built for the Inland Waterways.

			POWER RANGE	
BRAND	MODEL	CYLINDERS	PROPULSION	GENERATOR SET
CAT	C1.5	3	N/A	10 - 13 ek <b>W</b>
	C2.2	4	N/A	16 - 27 ekW
	C4.4	4	N/A	38 - 118 ekW
	C7.1	6	209 - 261 bkW	92 - 200 ekW
	C9.3	6	280 - 310 bkW	185 - 300 ekW
	C12	6	254 - 266 bkW	N/A
	3406	6	272 - 298 bkW	N/A
	C18	6	339 - 533 bkW	280 - 565 ekW
	C32	12	492 - 1081 bkW	550 - 940 ekW
	CG132	8, 12, 16	N/A	400 - 800 ekW
	3500	8, 12, 16	578 - 2525 bkW	910 - 2250 ekW
	C175	16	2001 - 2550 bkW	N/A
	C280	6, 8, 12, 16	1730 - 5420 bkW	1650 - 5200 ekW
EMD	E23	8, 12, 16, 20	1491 - 4101 bkW	1432 - 3579 eKW
MAK	M 20 C (G)	6, 8, 9	1020 - 1800 bkW	979 - 1871 ekW
	M 25 C/E	6, 8, 9	1740 - 3150 bkW	1669 - 3024 ekW
	M 32 C/E	6, 8, 9	2880 - 4950 bkW	2762 - 4747 ekW
	VM 32 C/E	12, 16	6000 - 8960 bkW	5754 - 8593 ekW
	M 34 DF	6, 8, 9	3060 - 4770 bkW	2934 - 4574 ekW
	M 43 C	6, 7, 8, 9	6000 - 9450 bkW	5754 - 9063 ekW
	VM 43 C	12, 16	12000 - 16800 bkW	11508 - 16111 ekW
	M 46 DF	6, 7, 8, 9	5400 - 8685 bkW	5179 - 8329 ekW
	VM 46 DF	12, 16	10800 - 15440 bkW	10357 - 14807 ekW

CONSULT YOUR DEALER FOR DETAILS ON MODEL AVAILABILITY







## **BUILT FOR IT.**

