

New CAP Group headquarters in Milan, built with ECOPact

INNOVATIVE DECARBONIZATION ACROSS THE VALUE CHAIN

CAPITAL MARKETS DAY 2021

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INNOVATIVE TECHNOLOGIES DEPLOYED AT SCALE TO DRIVE DECARBONIZATION ACROSS THE VALUE CHAIN



MANUFACTURING



- **Plants of Tomorrow, Industry 4.0**
- Energy efficiency
- Reduction of clinker factor
- Green power
 - Solar
 - Wind
 - Waste Heat Recovery
- Alternative fuels
- Alternative raw materials
- **Carbon Capture Usage & Storage**

DISTRIBUTION



- **Transport Analytics Center**
 - Logistics efficiency
 - CO₂ reduction
- **Green fuels for trucks**

SALES



- **Broad range of innovative products and solutions**
 - Low carbon
 - Circular economy
 - Build more with less
 - Building efficiency
- **Development of the new generation of green products**

PLANTS OF TOMORROW

A CATALYST FOR DECARBONIZATION



THE PLANTS OF TOMORROW



Performance

Drive profitability and agility in our operations, and eliminate H&S risks

H&S

RELIABILITY

PROCESS EFFICIENCY

FLEXIBILITY

Carbon Neutrality

Reduce our operational emissions and product carbon intensity

RECYCLED CONTENT

CLINKER SUPER-ACTIVATION

CARBON CAPTURE USAGE AND STORAGE

Circularity

Maximise our use of raw materials and recycle all process waste

ALTERNATIVE FUELS

PLANTS OF TOMORROW

A STRONG CONTRIBUTOR TO OUR 2030 CO₂ REDUCTION TARGET



THE PLANTS OF TOMORROW

Digital (Industry 4.0)
and Process Innovation

- Accelerating innovation across our entire value chain, **from the quarry to the lorry**
- **Sector's largest deployment of Digital Industry 4.0 and Process Innovation** (850+ executions of digital applications, 168 plants, 21 proprietary solutions)
- Utilizing technologies from **automation and robotics, to artificial intelligence and digital twins**
- Driving tangible business outcomes: **Performance, Circularity and Carbon Neutrality**

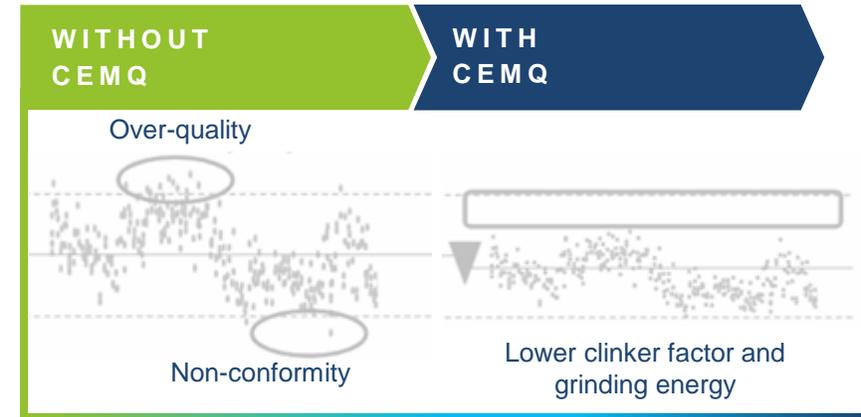


PROCESS EFFICIENCY

CEMENT PERFORMANCE PREDICTION (CEMQ)



Reducing CO₂ emissions by up to 8% in plants



ABOUT

- Leverage machine learning algorithms to forecast future strength of cement, during production
- Reduction of clinker production variability, monitored in real-time

BENEFITS

- Guaranteed strength
- Minimized processing
- Reduced energy needs
- Reduced CO₂ emissions

DEPLOYMENT STATUS

- **16 PLANTS** live in 2021
- **40 PLANTS** planned

IMPACT

Volos, Greece:

- **OUTCOME:**
~13'000 T CO₂ saved in 1 year

ALTERNATIVE FUELS ONLINE QUALITY ANALYSIS



ABOUT

- Near-infrared (NIR) spectroscopy placed on feeder belts to process information using online analytics

BENEFITS

- Optimized use of Alternative Fuels
- Improved Thermal Substitution Rate (TSR)
- Guaranteed cement quality
- Reduced CO₂ emissions

DEPLOYMENT STATUS

- **3 PLANTS** live in 2021
- **+5 PLANTS** planned

IMPACT

- **Koromačno, Croatia:**
- **2% TSR increase**

READY FOR CARBON CAPTURE

WORKING TODAY ON MORE THAN + 30 CCUS PROJECTS



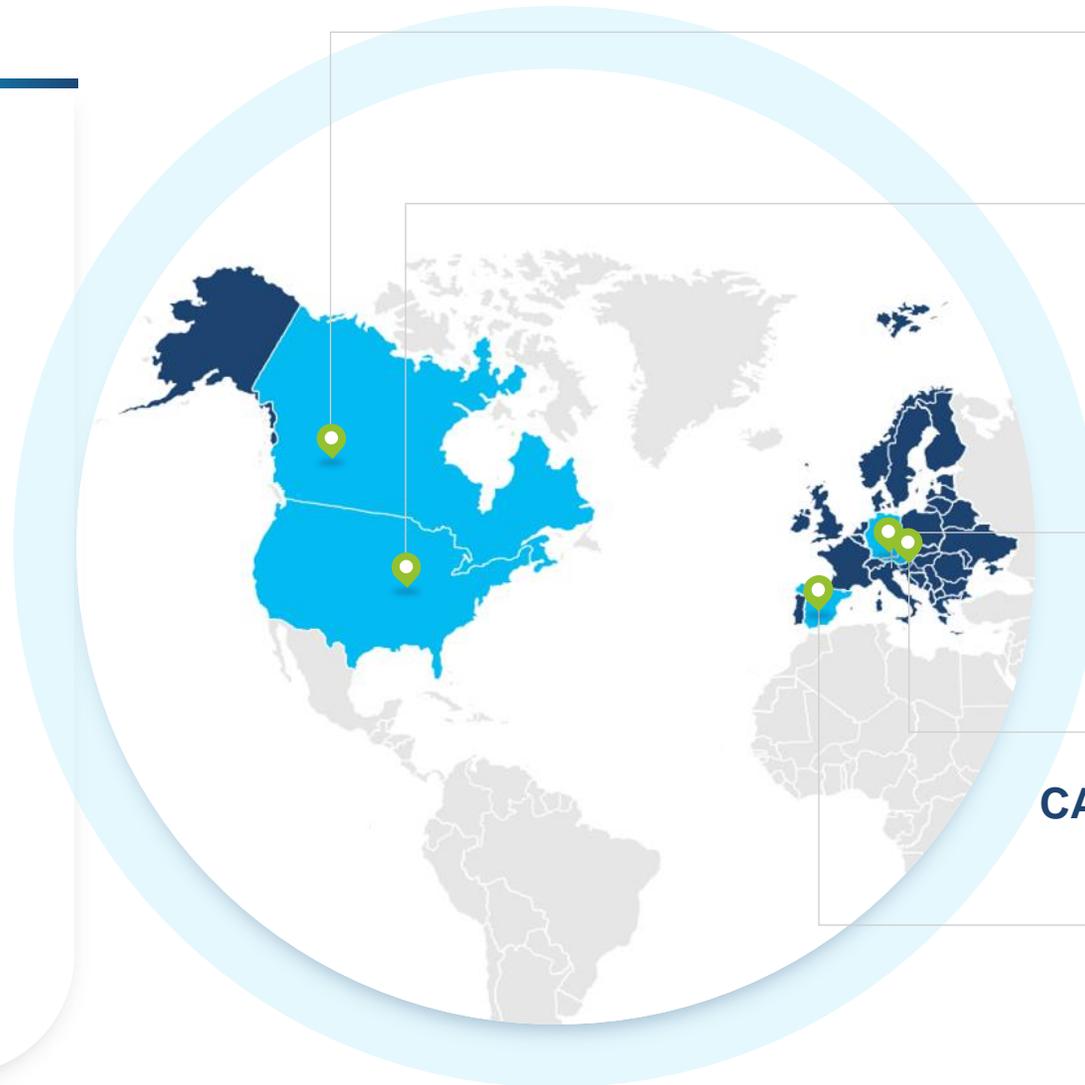
UPDATES 2021

TOTAL OF +30 PROJECTS IN 12 COUNTRIES (vs 20 projects in 7 countries in 2020)

INITIAL PUBLIC FUNDING granted for some projects

FIRST TEST CAMPAIGNS in Richmond

Strong PIPELINE OF PROJECTS for NET ZERO PLANTS BY 2030



CANADA
CO₂MENT
Richmond Project



USA
CO₂MENT
Portland Colorado Project



AIR LIQUIDE'S CRYOCAP
Ste. Genevieve Project

GERMANY
WESTKÜSTE 100
Lägerdorf Project



AUSTRIA
CARBON2PRODUCTAUSTRIA
Mannersdorf Project



SPAIN
ECCO₂-LH
Carboneras Project

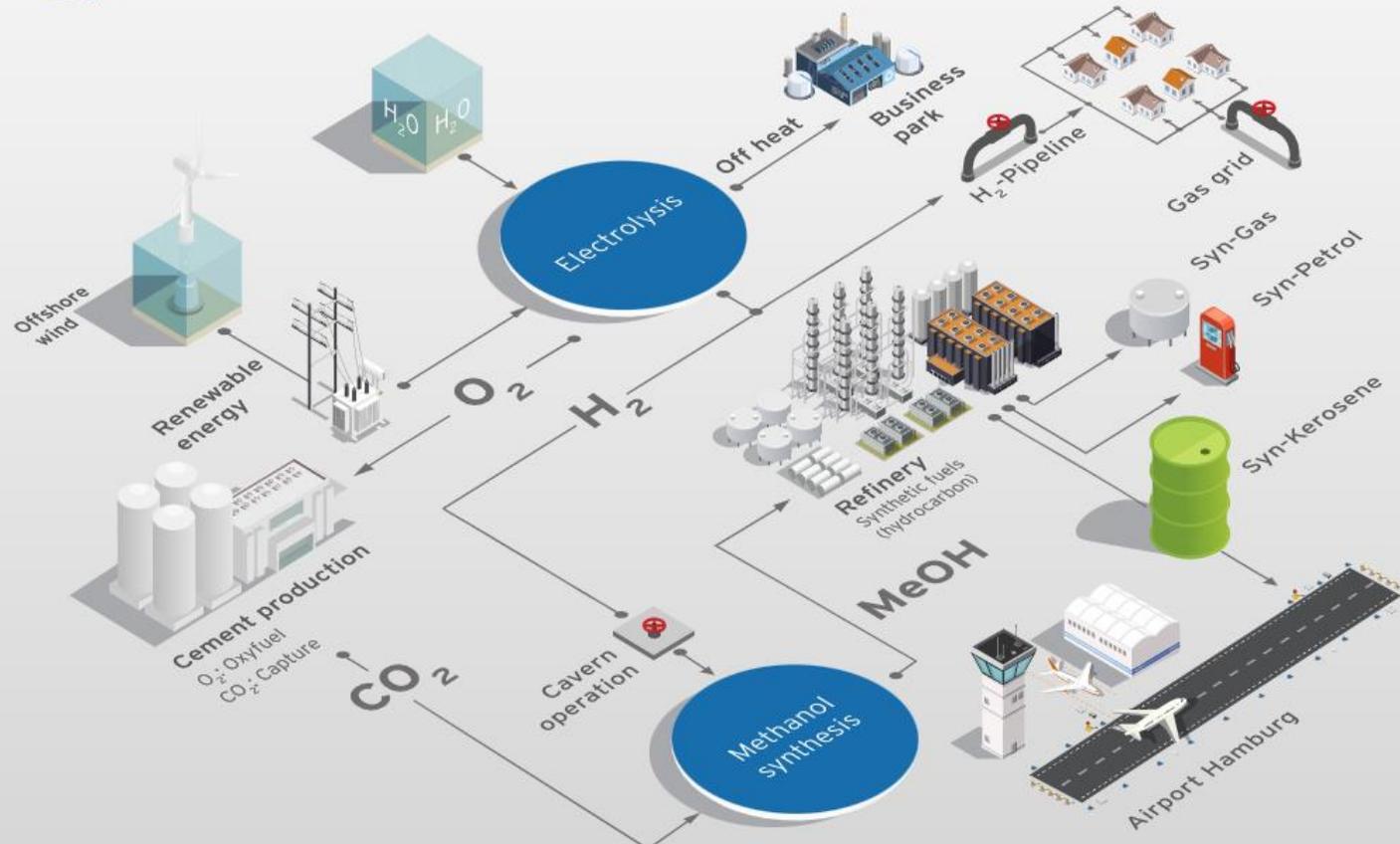


CARBON CAPTURE USAGE - WESTKÜSTE 100 IN GERMANY

NET ZERO ACHIEVED BY REUSING CO₂



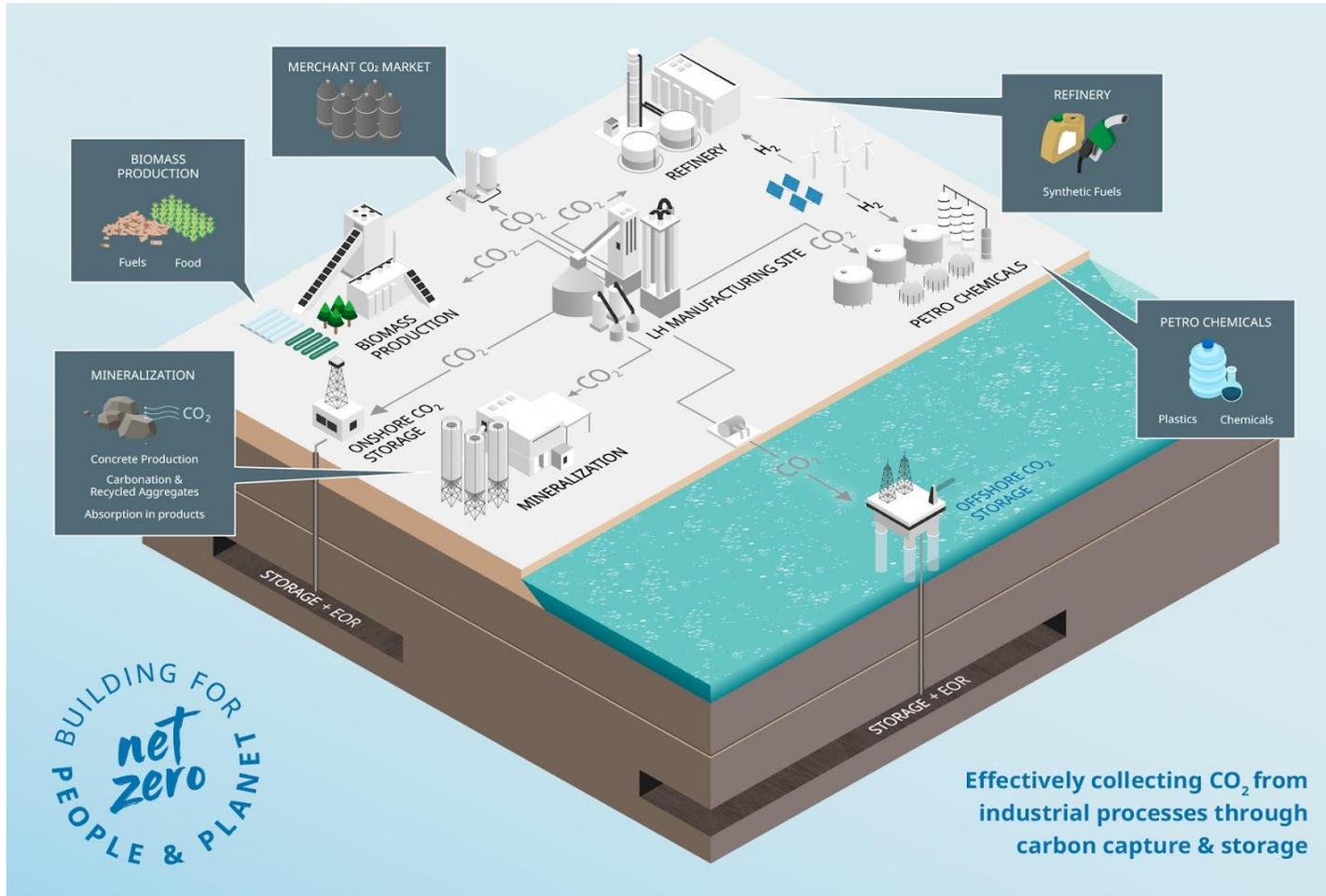
Industrial scale green hydrogen and decarbonization



- Industrial HUB development
- 1.2 mt / year Carbon Capture Usage capacity
- Conversion of CO₂ into synthetic fuels
- Partnership includes Orsted, Electricité de France, Heide Refinery, tKIS, Linde
- Committed public funding

CARBON CAPTURE STORAGE- CO₂ MENT PORTLAND, US

NET ZERO ACHIEVED BY CROSS-INDUSTRIAL COOPERATION



- Cross-industrial project development
- 1.5 mt / year Carbon Capture and Storage capacity
- Storage of CO₂ for onshore storage
- Partnership includes Total Energies, Svante, Kiewit and Oxy Low Carbon
- Feasibility study sponsored by US DOE (Department of Energy)

INDUSTRY-LEADING DIGITAL LOGISTICS PLATFORM

DATA DRIVEN FROM PLANNING TO EXECUTION



TRANSPORT ANALYTICS CENTER (TAC)

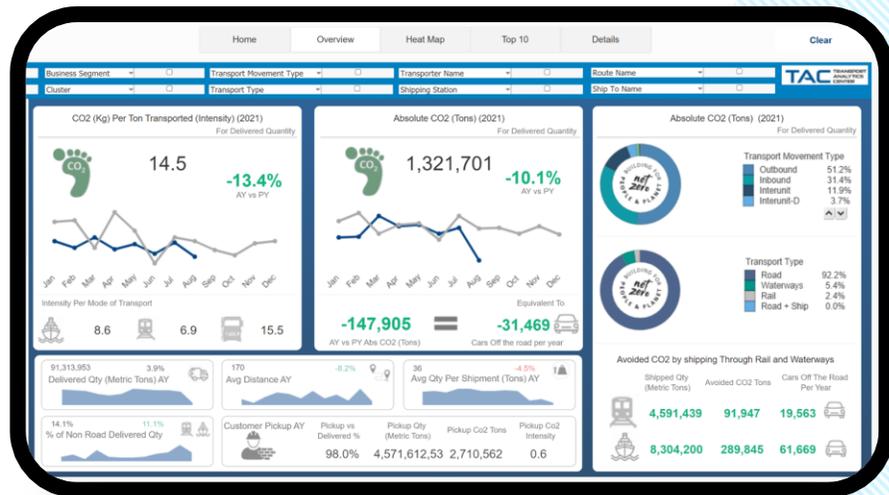
COMPREHENSIVE DIGITAL TOOLBOX
deployed in **54 countries**

DATA-DRIVEN DECISION MAKING
based on a vast amount of data captured
daily, covering 1.5 billion km in real time

- Network optimization
- eProcurement
- Control tower to manage operations & emissions

INDUSTRY-LEADING DIGITAL LOGISTICS PLATFORM

EXPANDING OUR ACTIONS DOWN THE VALUE CHAIN



60.000+
connected trucks

54
countries live

1.5 billion
km per year (70%)

Built on Artificial
Intelligence

CO₂ per Trip
in Real-Time



DRIVER SAFETY

e.g. in the Philippines, safe kilometers improved by 67% from 2019 to 2020



OPTIMIZED ROUTES

e.g. in India, average kilometers driven per trip reduced by ~10% in 2021



LESS CO₂ EMISSIONS

e.g. in MEA, transport emissions reduced by 15% in 2021

A BROAD RANGE OF INNOVATIVE SOLUTIONS CONTRIBUTING TO REACH OUR 2030 & 2050 CO₂ REDUCTION TARGETS

YR	SCOPE 1	SCOPE 2	SCOPE 3
2018	576 BASELINE	38 BASELINE	
2020	555	36	29 MT BASELINE
2030	475 Kg CO ₂ Net/t cementitious	13 Kg CO ₂ Net/t cementitious	-20% Kg CO ₂ per ton of purchased clinker and cement
			-20% Kg CO ₂ per ton of purchased fuels
			-24% Kg CO ₂ per ton of material transported
2050	net zero	GHG emissions across the value chain validated by	 SCIENCE BASED TARGETS

HOLCIM'S 2050 TARGETS VALIDATED BY SBTi

- Holcim commits to reduce scope 1 and 2 GHG emissions 95% per ton of cementitious materials by 2050 from a 2018 base year
- Holcim commits to reduce scope 3 GHG emissions 90% by 2050 from a 2020 base year



HOLCIM