CURTIN MARITIME

BATTERY-POWERED MARITIME TRANSPORTATION

Curtin's Zero-Emission Tug Program

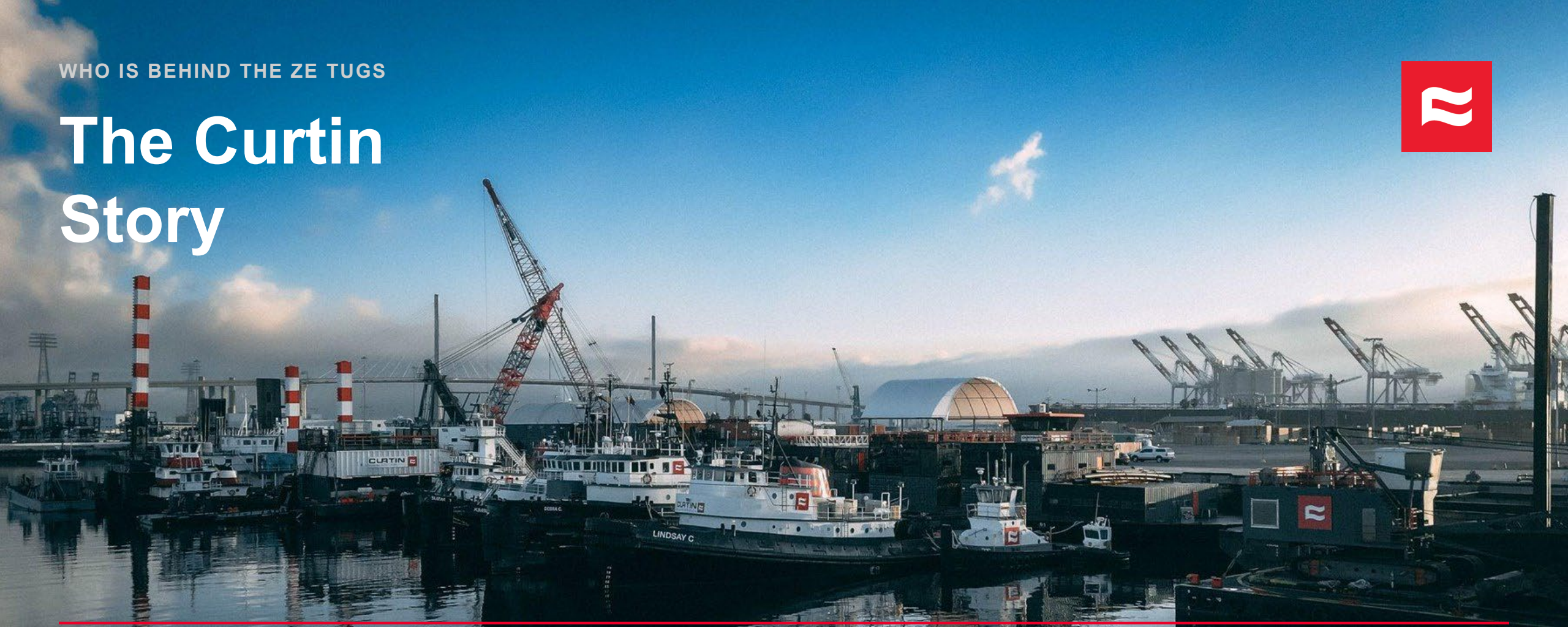
Eight battery-electric tugs for the Ports of Los Angeles and Long Beach.

Martin Curtin · New Maritime Wave · November 10, 2026



WHO IS BEHIND THE ZE TUGS

The Curtin Story



1997

Founded by
Captain Martin Curtin

500+ Employees

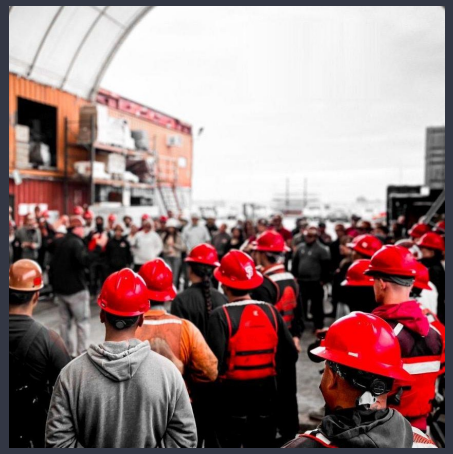
Marine transportation, dredging, salvage and construction

Pier T

Home yard in
Long Beach, California

Our Work. Our People.

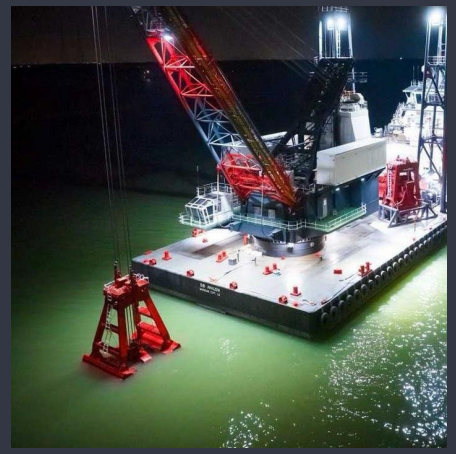
From Hybrid Dredges to ZE tugs.



Our people

Captains, mates, engineers, welders, deckhands

Dredging

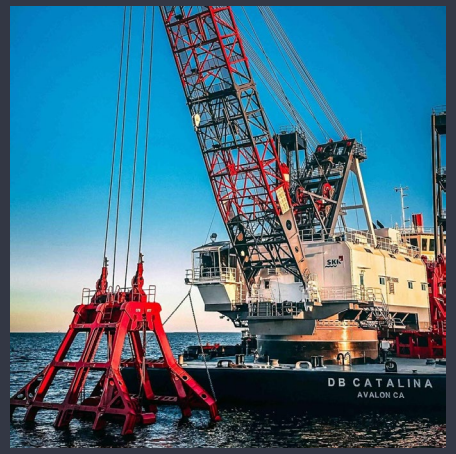


2022

DB Avalon

First hybrid clamshell dredge

Marine transportation

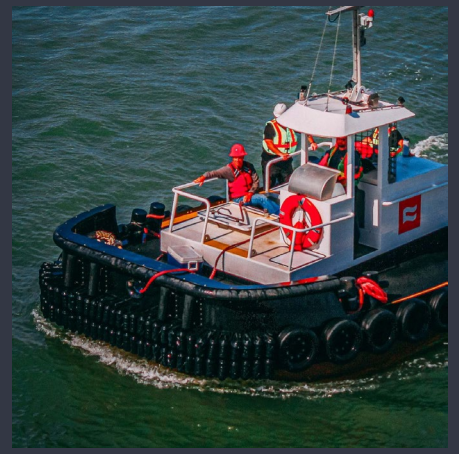


2025

DB Catalina

Largest hybrid dredge

Marine construction



2026

Isla C

First fully electric tender

OSV operations



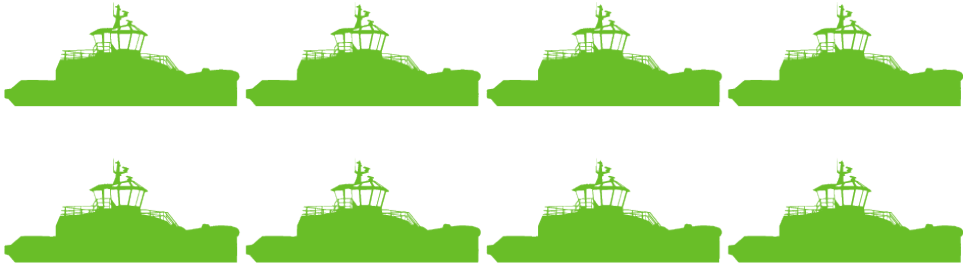
2026

Tuuli C

First of eight ZE tugs

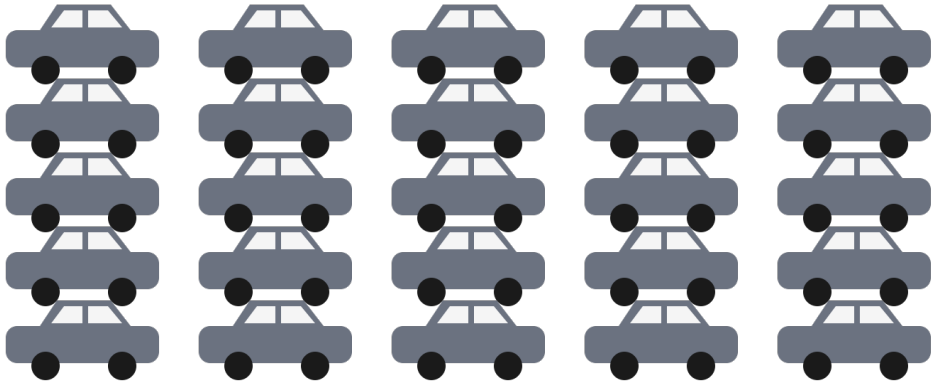
Zero-emission tugs

Eight Tugs = No Exhaust



8 electric tugs

=



about 2,470 cars off the road each year

1.12M gal

diesel replaced by 8 tugs each year (preliminary)

11,368 t

CO_2 displaced by 8 tugs each year

~50%

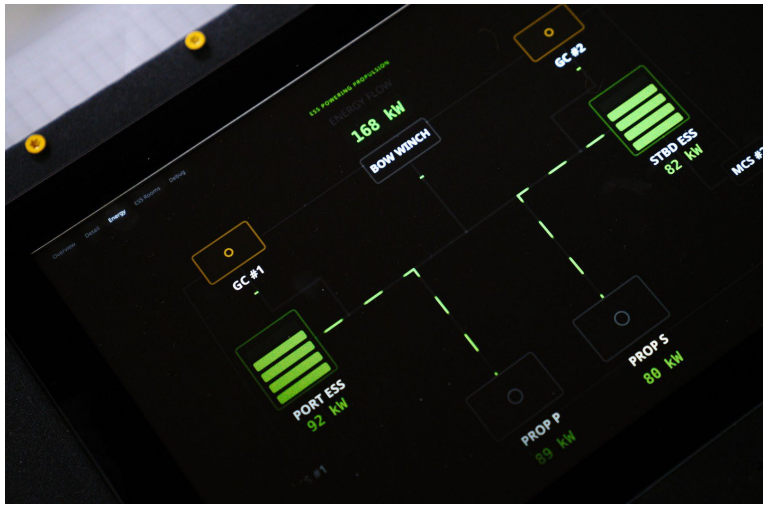
of tug operating costs are fuel and maintenance

One car icon is about 100 cars. 309 cars per tug x 8 tugs, from 1,421 tons CO_2 per tug at 4.6 tons per car per year. Source: Curtin Maritime.

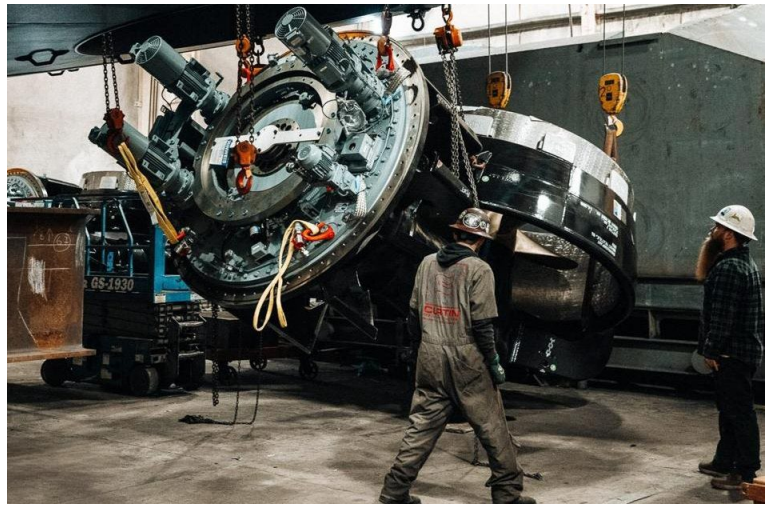
Powertrain and Battery Racks



6 MWh battery racks



Lithium-iron-phosphate by Arc



Two 2,000-hp Schottel drives

4,000+ hp
electric propulsion

55 tons
bollard pull

12 hours
of shift, one charge

Built by Snow & Co.
Curtin owns 50%

#1 Tuuli C
Launched May 2026

#2 Tiger C
Launched Aug 2026

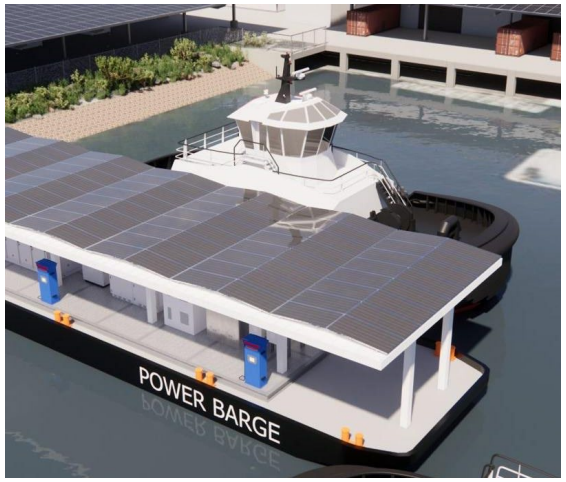
#3 and #4
Mar and Jun 2027

#5–8
Mid–late 2027

CURTIN HARBOR SERVICES

Floating power stations

Stand-alone charging barges with microgrid generation let the ZE tugs deploy anywhere, regardless of existing port infrastructure.



Power barge

BLUECORE ENERGY



Innovative nuclear technology

TOYOTA



Hydrogen fuel cell technology

Capstone Green Energy



Renewable and zero-emission fuels

Deployable anywhere. Power stations independent of port infrastructure.

Multi-megawatt fast charging. Full charge in under 3 hours.

CURTIN
HARBOR SERVICES

Save The Date:

ZE Tug Launch Event

For launch or program info:
ZETI@curtinmaritime.com

Long Beach, CA
January 2027

