

Benicia Refinery
Benicia, California



Stewardship & Responsibility Update

Valero Benicia Refinery – Community Advisory Panel

Valero's commitment to reduce/offset 100% of our Scope 1 & 2 GHG emissions by 2035

A Letter from our CEO

In 2020, we achieved several operational records, including best year ever for safety and environmental performance. In addition, we generated more than \$58 million for charities through donations, fundraising and volunteerism. As many people suffered hardships, we focused our charitable contributions on providing food, shelter, educational resources, fuel and other life necessities.

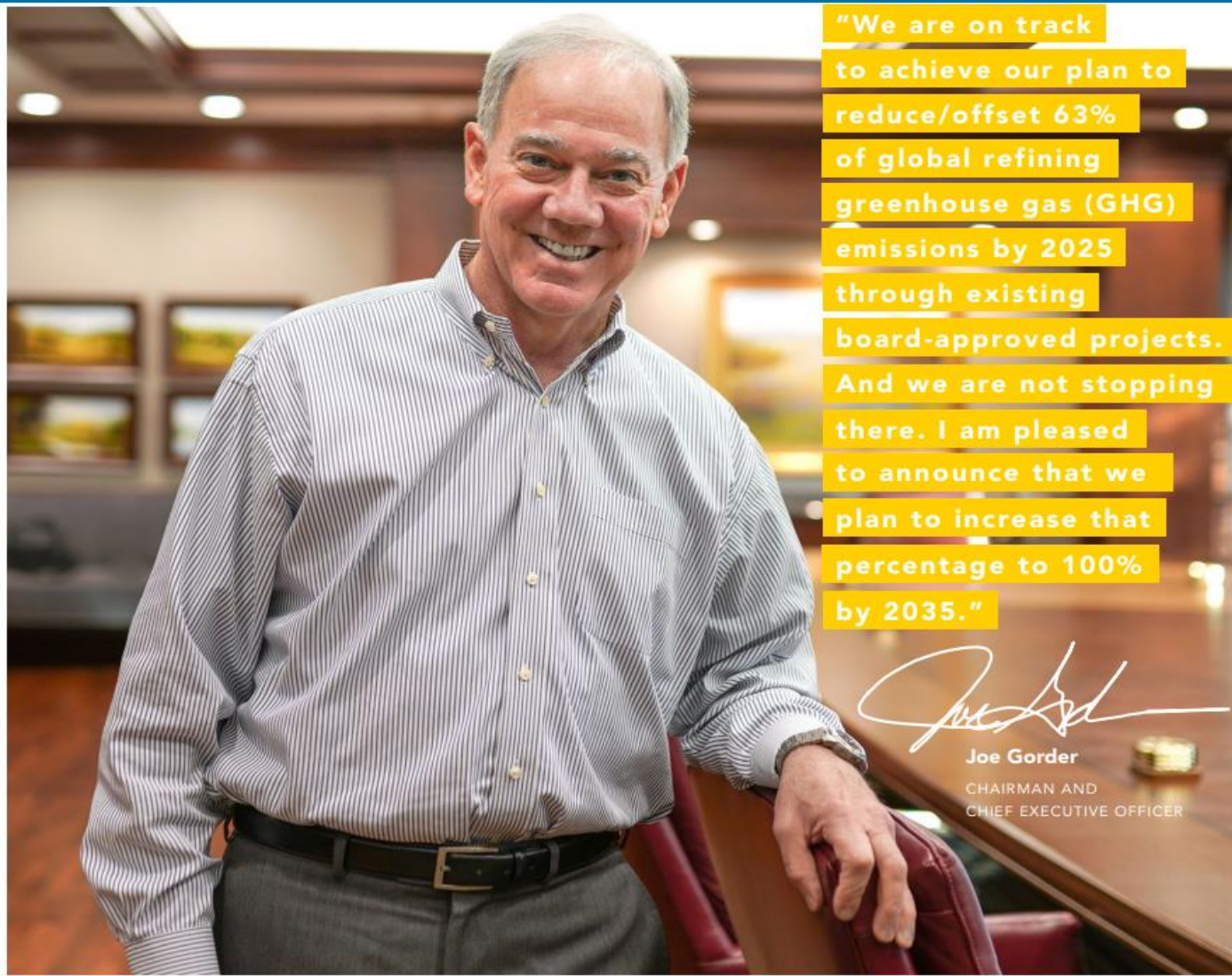
I am very proud of Team Valero. Throughout a year like no other, our employees showed their dedication to our company, and commitment to operating in an environmentally responsible and safe manner. I am proud of our efforts in diversity and inclusion, as those are strengths of our Valero team. As part of our pandemic response, we also expanded employee physical and mental health benefits, enhanced safety protocols and maintained high levels of communication with our workforce.

Looking to the future, we remain steadfast in our energy transition strategy.

Valero is already a leader in the production of renewable fuels, with more than \$3 billion invested. We expect to invest almost \$2 billion over the next three years, expanding our board-approved low-carbon projects. In addition, we are evaluating and advancing investments in sustainable aviation fuel, hydrogen, carbon sequestration and more.

We are on track to achieve our plan to reduce/offset 63% of global refining greenhouse gas (GHG) emissions by 2025 through existing board-approved projects. And we are not stopping there. I am pleased to announce that we plan to increase that percentage to 100% by 2035. The management team and I recognize low-carbon fuels will be part of the energy mix. Demand for renewable fuels will be driven by low-carbon fuel policies and stricter fuel-efficiency standards. We plan to leverage our liquid-fuels platform and operational expertise to diversify into high-growth, high-return, lower-carbon projects going forward.

Thank you for your continued support and trust.



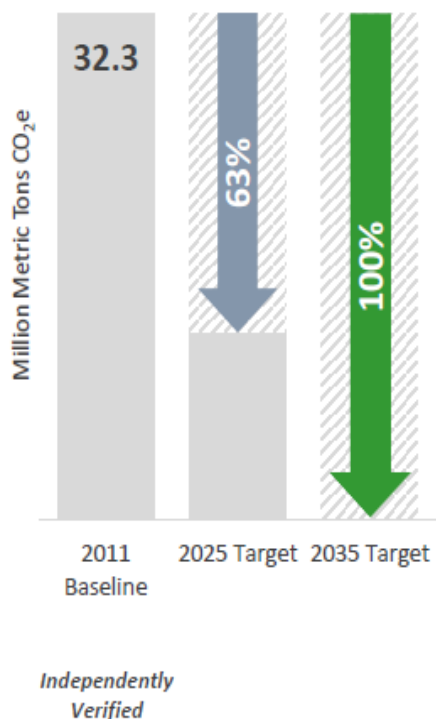
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Joe Gorder

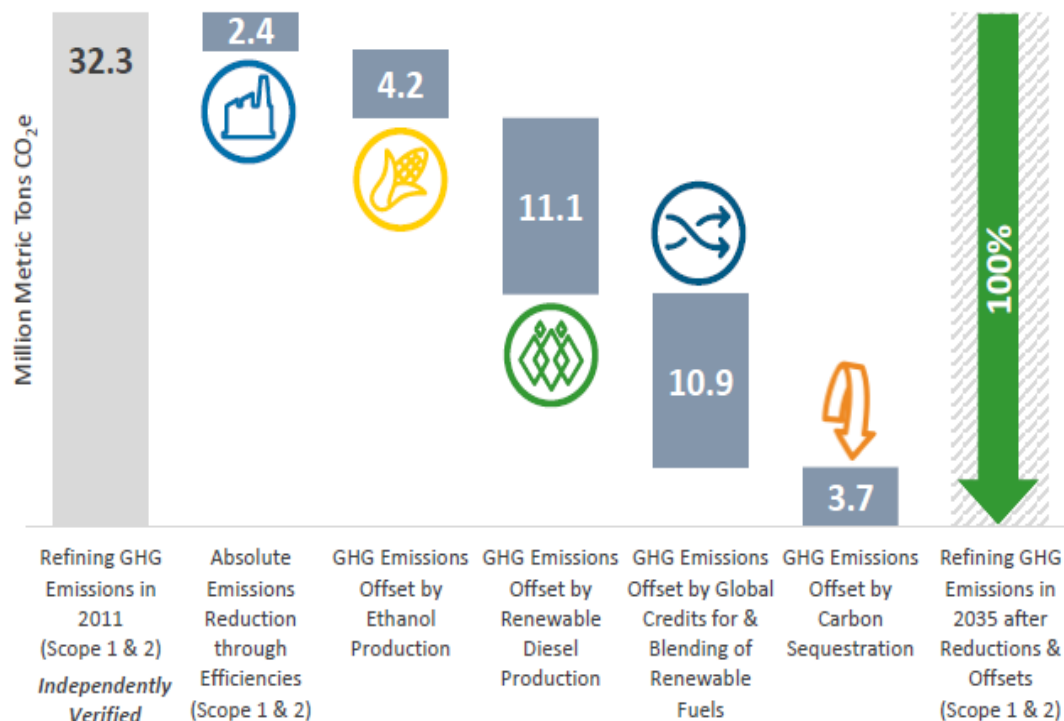
CHAIRMAN AND
CHIEF EXECUTIVE OFFICER

GHG Scope 1 & 2 Emission Targets

GHG Emissions
Reduction and Offset Targets
(Scope 1 & 2)



2035 Target



On track to **reduce** and **offset** Refining GHG emissions by

63%

through investments in board-approved projects by 2025.

Targeting to **reduce** and **offset** Refining GHG emissions by

100%

through board-approved projects and carbon sequestration projects under development by 2035.

Ethanol & Renewable Diesel Production




RENEWABLE DIESEL HAS UP TO

80%

LOWER LIFE CYCLE GHG EMISSIONS,
COMPARED WITH TRADITIONAL DIESEL

RENEWABLE DIESEL

- **Growing demand and capacity:** current production capacity of 290 million gallons, expanding to 690 million gallons per year in 2021 and 1.2 billion gallons per year by 2023
- **Circular economy:** produced from used cooking oil, recycled animal fats and inedible corn oil
- **Low-carbon fuel:** life cycle GHG emissions up to 80% lower than traditional diesel
- **Drop-in fuel:** 100% compatible with existing infrastructure and engines, from light- to heavy-duty long-haul vehicles



ETHANOL HAS AT LEAST

30%

LOWER LIFE CYCLE GHG EMISSIONS,
COMPARED WITH PETROLEUM GASOLINE

ETHANOL

- **World's second largest producer:** 1.7 billion gallons per year
- **Low-carbon fuel:** high-octane renewable fuel that lowers life cycle GHG emissions 30%, compared with gasoline
- **Innovation to further reduce carbon intensity:** large-scale carbon capture and storage pipeline project underway, expected to be operational in 2024 with the capability to capture more than 3 million metric tons of CO₂ emissions per year

Renewable Diesel - Reduces Life Cycle GHG Emissions up to 80%

World's 2nd largest
renewable diesel producer

Uses **recycled animal fats, used cooking oil, inedible corn oil** and/or **vegetable oil** to produce low-carbon intensity renewable diesel fuel, sold in the U.S., Canada and Europe

Production Capacity:

290 million gallons per year; adjacent to our St. Charles refinery **to capture synergies** and **gain access to export markets**

Expanding to **increase production to 690 million gallons per year** in 2021

Renewable diesel is **100% compatible with existing infrastructure** as well as **light, medium** and **heavy duty** engines



Growth through
innovation in
renewable
projects



Approved production capacity expansion adjacent to our St. Charles refinery

A **new plant** adjacent to our Port Arthur refinery has been approved, production would **start in 2023**, resulting in total capacity of more than **1.2 billion gallons per year**

Ethanol - Reduces Life Cycle GHG Emissions up to 30%



World's 2nd largest corn ethanol producer

1st

traditional refiner to enter large-scale ethanol production

Carbon Capture further reducing our carbon intensity and sequestering ~3 million metric tons of CO₂ in 2024



13 ethanol plants in the U.S. with a combined production capacity of 1.7 billion gallons per year

Valero's Ethanol Plants



Ethanol plants convert corn into ethanol, livestock feed (distillers grains and syrup) and inedible corn oil

EPA Efficient Producer Program for superior process efficiency

20% share of U.S. ethanol exports



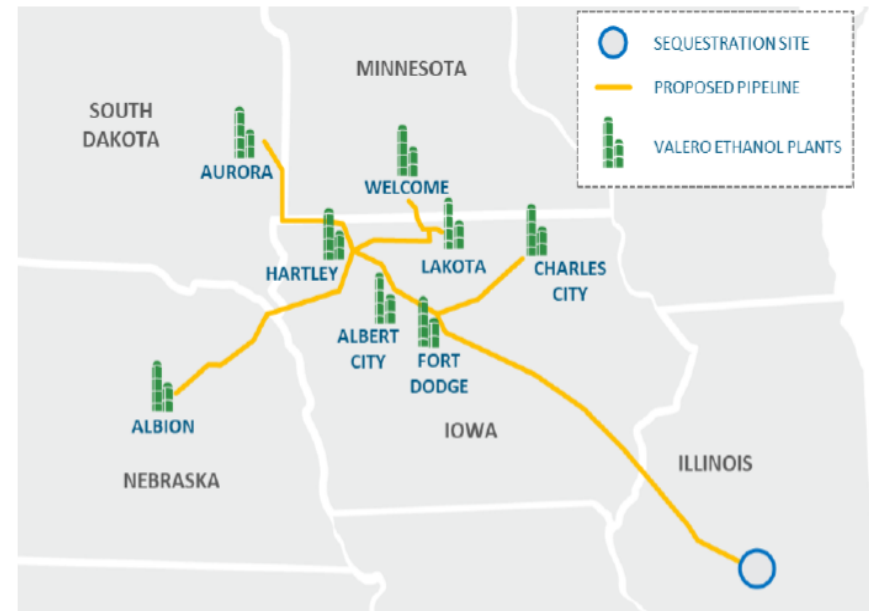
~1,000 employees

Carbon Capture - Proposed Sequestration Pipeline



Developing Economic Paths to Further Reduce the Carbon Intensity of Our Products

- Partnering with BlackRock and Navigator for a **large-scale carbon capture and storage project**
 - 1,200 mile pipeline is expected to span across five Midwest states
 - Valero is expected to be the anchor shipper with eight of its ethanol plants connected to the carbon capture pipeline
 - Navigator is expected to lead the construction and operations of the system, with operations anticipated to begin late 2024
- Project driven by strong economic returns
 - **45Q Tax Credit** of \$50 per metric ton of CO₂ captured and stored⁽¹⁾
 - Approximately 50 cents per gallon uplift on the lower carbon intensity ethanol in **LCFS markets**
- Evaluating **additional** Carbon Sequestration **opportunities**
 - Developing stand-alone projects at our Eastern ethanol plants for carbon sequestration on-site



Map is indicative only. Exact pipeline route subject to change following the conclusion of Open Season.

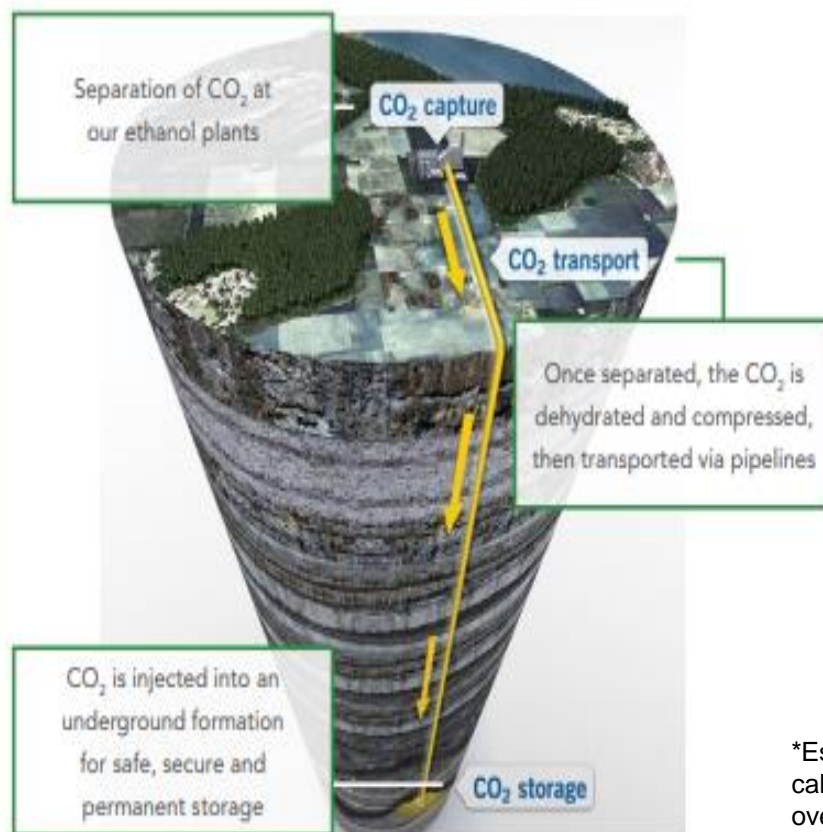
⁽¹⁾ Typical CO₂ production from ethanol plants is 0.003 metric tons per gallon of ethanol produced.

Carbon Capture – Capturing Carbon Dioxide & Storing it Underground

LARGE-SCALE CARBON CAPTURE AND STORAGE TO FURTHER REDUCE THE CARBON INTENSITY OF ETHANOL

This project¹ involves capturing high-concentration CO₂ streams produced in the fermentation process at our ethanol plants.

The removal of CO₂ from our ethanol plants has the potential to further **reduce the carbon intensity** of this low-carbon fuel by **more than 40%** and significantly contribute to our GHG emissions reduction/offset target.



¹Working with BlackRock Global Energy & Power Infrastructure Fund III and Navigator Energy Services expected to be completed.



CARBON CAPTURE SINCE 2013

MORE THAN 1 MILLION TONS OF CO₂ EACH YEAR

Carbon capture opportunities include capturing the carbon dioxide associated with hydrogen production at refineries.

In 2013, our refinery in Port Arthur, Texas, became the first industrial site in the U.S. to host a large-scale carbon capture project, and it remains the only U.S. refinery doing so, with more than 1 million tons captured each year. Two steam methane reformer units, owned by a business partner that produces hydrogen from natural gas for the refinery, were retrofitted to capture the carbon dioxide generated from hydrogen production.

*Estimated based on EPA's GHG Equivalencies calculator for urban tree seedlings planted and grown over 10 years

Benicia Refinery

Reduce, Reuse, Recycle & Repurpose



FLARE-GAS RECOVERY SYSTEMS RESULTED IN MORE THAN 97% FLARING-FREE OPERATIONS IN 2020

More than 79% of Valero's large process flares are equipped with flare-gas recovery systems. These systems reduce flaring and recover fuel gases, which are used to fire heaters and boilers, reducing natural gas consumption.



SULFUR REMOVAL

Sulfur obtained from the refinery process unit is removed for a variety of beneficial uses, including crop fertilizer.



MARINE VAPOR RECOVERY UNITS

At certain refineries, captured vapors generated when loading ships with gasoline and other light products are routed back into the refinery's gasoline pool.



FUEL FROM OIL WASTE

Recovered usable oil and oily solids are reprocessed into high-value fuel and byproducts through refining processes, including "coker injection," avoiding the generation and disposal of wastes.



ENERGY EFFICIENCY INITIATIVES

We are focused on improving process monitoring and control systems to reduce energy consumption.

RECYCLING OF MATERIAL RECOVERED FROM TANK CLEANING

Recovered material is inserted back into the refining process to create fuels and other products. Alternatively, the recovered material is also used to fuel third-party facilities, avoiding landfill waste.



WASTEWATER MANAGEMENT

Process water and stormwater are managed at our wastewater treatment plants. We use specialized bacteria to naturally digest oil and treat wastewater streams to purify the water before returning to the ecosystem.



WATER RECYCLING

With innovative approaches, we use each gallon of water more than 18.5 times prior to evaporation or return to the environment.



REUSING EXHAUST GASES TO REDUCE ENERGY CONSUMPTION

Installed at six of our refineries, expanders are designed to convert kinetic energy into electricity by reusing exhaust gases to spin turbines.



Benicia Refinery

Cogeneration Plants and Expanders

**Boosting power and environmental performance,
and reducing operating expenses**

- **Fueled by natural gas**, our cogeneration plants **reduce our reliance on local power grids**, which are often less environmentally friendly and more costly
- Cogeneration represents a **very efficient way of making power**, with the **steam recycled back** into the refining process for other uses
- **Four cogeneration systems**: 2 in California, 1 in Texas and 1 under construction in the U.K.
- **Expanders** are installed at 6 of our refineries **generating power from exhaust gases**
- **Expanders annually displace more than 600,000 tons of carbon dioxide** that otherwise would be generated by conventional power providers

Combined, our cogeneration systems and expanders offset **~330 megawatts** of electricity



Enough to power more than **~400,000 homes**



Benicia Refinery

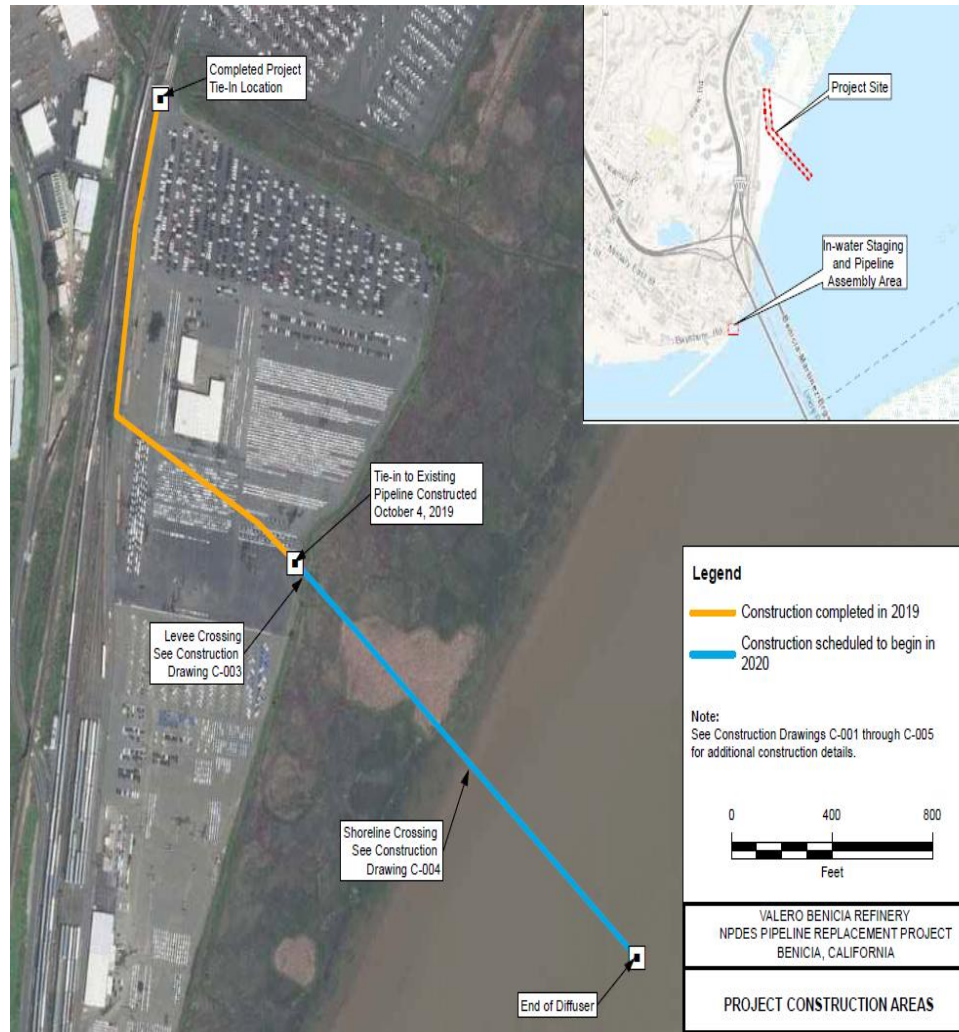
New Flare Gas Recovery Compressor



- Replacement of Flare Gas Recovery Compressor installed in 1980. Needed replacement due to reliability and obsolescence
- This unit helps recover and compress gases in the flare gas recovery unit to minimize flaring
- The 220,000 pound structure was installed by local union contractors. Over 60,000 man hours were spent safely working on the project with no injuries.
- Valero appreciates the city's assistance in issuing a building permit for this project

Benicia Refinery

New Waste Water Treatment Plant Effluent Line

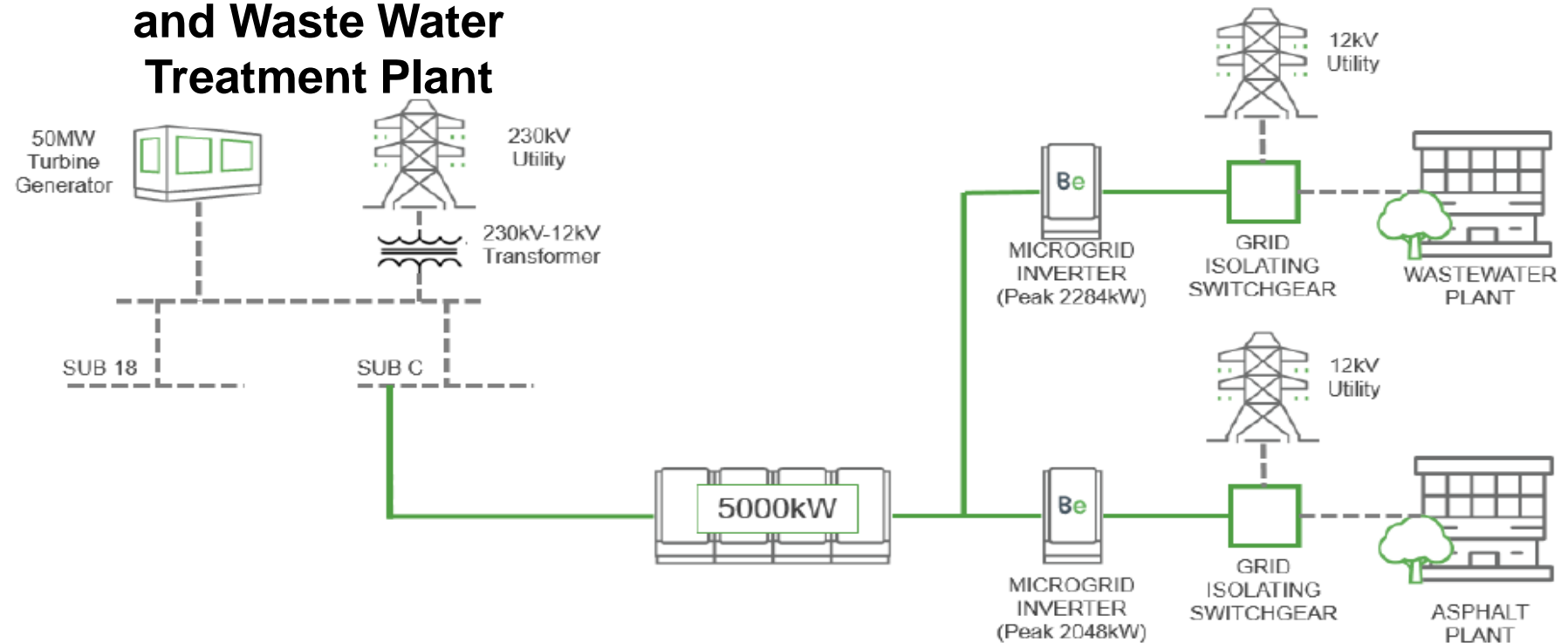


- Project was driven by NPDES requirement after an in-line inspection of the pipe
- Project took years to develop with permitting required from 6 different agencies
- Various environmental work windows & tidal cycles constrained the project and added complexity - the project was split into two parts – an uplands portion & a wetlands portion
- **Project completed in October 2020** with no Health, Safety or Environmental incidents.

Benicia Refinery

Renewable Project - Fuel Cell Microgrid

**Providing 5 Mega Watt
Fuel Cell Microgrid to
provide 100%
electricity needs at
Benicia Asphalt Plant
and Waste Water
Treatment Plant**



Benicia Refinery

Biodiversity & Habitat Conservation

Valero Benicia Refinery



134,000

CUBIC YARDS OF CLEAN
DREDGED MATERIAL

AN AMOUNT
ROUGHLY
EQUAL TO

6.4 million

50-POUND BAGS
OF SAND

The Benicia refinery captures clean sediment dredged from its dock area to raise the elevation of nearby subsided wetlands, which helps **protect and recover wildlife** and plant species. Over the past four years, Valero has contributed approximately **134,000 cubic yards of clean dredged material** – an amount roughly

equal to 6.4 million 50-pound bags of sand – for restoration at the Montezuma Wetlands Restoration Project. The effort not only **protects habitat** but also helps ensure **safe dock operations**, clearing sediment to allow ample underwater clearance for large ships.

Benicia Refinery Wildlife and Tree Restoration

At our Benicia refinery near the San Francisco Bay, Valero placed straw "wattles," or interwoven natural material, over pipelines to allow small mammals, including the threatened **salt marsh harvest mouse**, passage over the pipes. The wattles serve as bridges and provide critical access for the mouse to the dense ground cover and adjoining grasslands it is dependent upon.



Salt marsh harvest mouse



Benicia, California:

Valero has a long-standing partnership with the Benicia Tree Foundation to plant and prune trees annually throughout the area.



Questions and Answers

