

## The world's first hydrogen powered ferry



[switchmaritime.com](https://switchmaritime.com) San Francisco CA

Hardware Infrastructure Technology Social Impact Hard Tech

OVERVIEW **UPDATES** 29 WHAT PEOPLE SAY ASK A QUESTION

### Highlights

- 1 **BREAKTHROUGH:** SWITCH is completing the world's first hydrogen-powered ferry
- 2 **LAUNCHING NOW:** Construction on vessel #1 started in 2019, now 98% complete w/ launch in ~30 days
- 3 **ZERO-CARBON:** Hydrogen creates no exhaust or smoke.. our ferry only produces pure (drinkable) water!
- 4 **MARKET:** U.S. ferry fleet is aging and in need of renewal, with addressable market of \$3+ billion
- 5 **TRACTION:** Vessel #1 is contracted to one of the largest ferry operators in US
- 6 **SCALE:** Industry partnerships in place to rapidly expand fleet in next 24-36 months
- 7 **COMPETITIVE ADVANTAGE:** Vessel #1 experience creates expertise moat around tech/regulatory blueprints
- 8 **TEAM:** Multi-decade track record in clean energy finance and ship owning & operating

### Our Team



**Pace Ralli** Founder / CEO

Serial entrepreneur and investor with energy and finance background, focused exclusively on the decarbonization of the maritime transportation industry since 2012. Father, husband, skier, surfer and connoisseur of beach games.

While my good friend and I were backcountry skiing in May 2012, he asked me if I could apply the clean energy financing I was doing in large real estate buildings to his company's ships... I was blown away by how big ships were, and

how much energy they used. It's such a fascinating industry, and there is so much we can do to decarbonize it.



**Trinity Wells** CFO

Recovering investment banker performing financial planning, budgeting, and forecasting officer roles for promising and inspiring early-stage companies and investment firms. Mother, hiker, camper and skier.



**Elias Van Sickle** Commercial Development & Operations

Oversees vessel construction teams, project management, partnerships and new business development. Kiteboarder and surfer.

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## The world's first hydrogen-powered ferry

### The Problem... Ferries Today Burn Diesel



via Imgflip

- Maritime shipping emits over 1 billion tons of CO2 per year.
- 1000 (+/-) ferries in the U.S. all burning diesel.
- U.S. ferries average age = 27 years. Ferry fleet requires near-term renewal.
- Ferries are critical transportation infrastructure and carry 126 million passengers and 27 million vehicles per year according to the National Census of Ferry Operators.

### The Solution... Start the Transition to Decarbonized Vessels



via Imgflip

- Apply existing clean energy tech to maritime industry.
- Leverage grants, seed capital, and project financing.
- Establish technology and regulatory blueprints for hydrogen vessels, then scale the fleet.
- Launch vessel #1 as proof of concept that acts as the first domino for industry adoption.

## Vessel #1 is 98% Complete and Launching Within 30 Days



Next Steps...

- Complete final vessel construction at shipyard in Bellingham, WA.
- Launch vessel and receive U.S. Coast Guard approval.
- Transport vessel to San Francisco Bay Area.
- Start three-month data collection period for California Air Resources Board.
- Enter commercial operation on lease to existing ferry operator.

## Creating a Differentiated Rider Experience

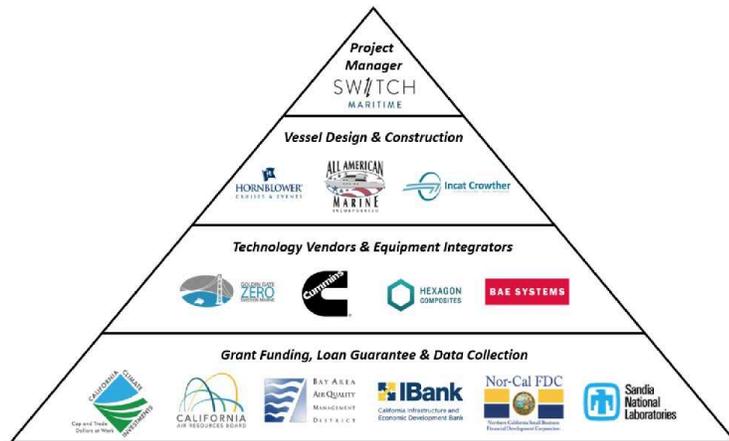


via Imgflip

- Customizable interior layouts.
- Cruise silently. No engine noise or vibration.
- No diesel fumes.

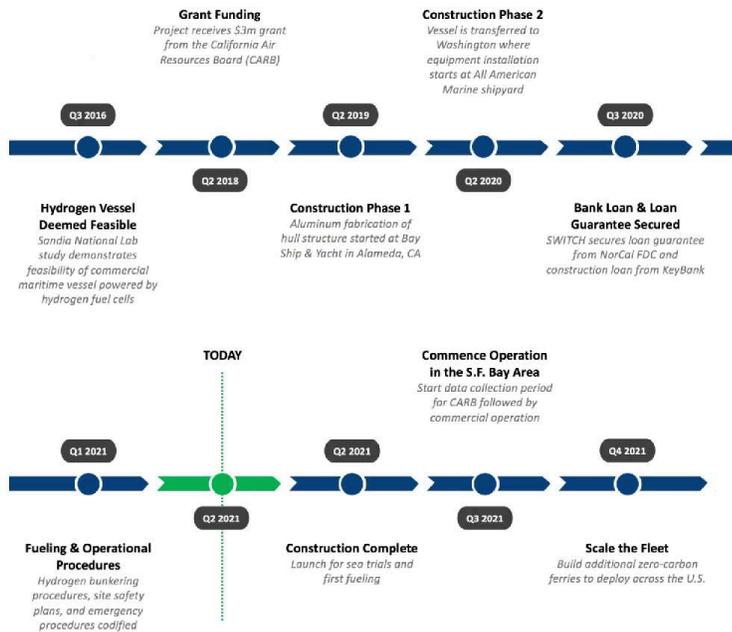
- COVID-ready layouts possible, with cabin air replaced every 4 minutes.

## Project Partners



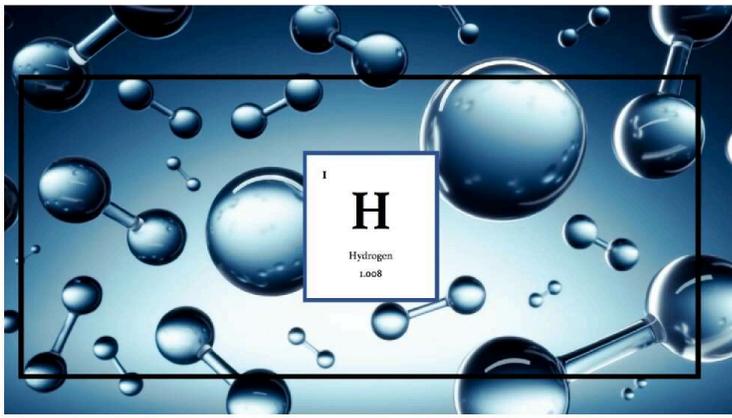
- SWITCH has assembled and manages team of best-in-class partners to support the construction and operation of the Sea Change.
- Project has strong municipal support with \$3 million grant from the California Air Resources Board (CARB) through the Bay Area Air Quality Management District (BAAQMD), the administrator of the grant.
- Project has a loan guarantee secured through BAAQMD Climate Tech Finance program in partnership with IBank and Nor-Cal FDC.
- Data produced by the vessel's hydrogen fuel cell powertrain will be analyzed by Sandia National Laboratories, supporting the technological and economic viability of fuel cells in maritime applications.

## Project Timeline



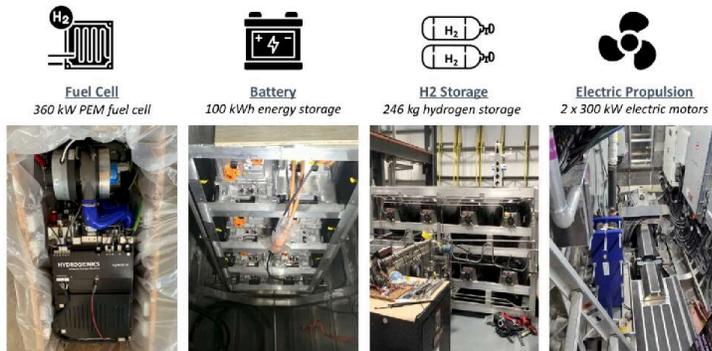
Note: This slide contains forward-looking information that cannot be guaranteed

## Why Hydrogen?



- Hydrogen is the simplest, most abundant element on earth.
- Hydrogen is a zero-carbon fuel that can help abate emissions from heavy-duty, hard-to-decarbonize sectors like maritime shipping.
- Hydrogen fuel cell power systems have been safely used in the U.S. and around the world for years in passenger cars, buses, trains, forklifts and more.
- 70 million tons of hydrogen are produced globally, with 10 million tons produced in the U.S. on an annual basis.
- Hydrogen is projected to experience rapid growth of ~30% per year, with an addressable market of ~\$1 trillion.

## Proven Clean-Energy Technologies



- Fuel cells and batteries are modular and scalable, able to power vessels of all sizes.
- The fuel cells onboard the *Sea Change* take in hydrogen and produce electricity. The only byproduct of the chemical reaction is pure water (H<sub>2</sub>O).
- Zero-emissions powertrain systems require less maintenance than diesel engines.
- Battery provides additional power to boost speed.

## Previous Media Coverage



**MARINELINK**

SW/TCH Maritime Funds H2 e-Ferry

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**CBSN BAY AREA**

Bay Area Company Closer To Launch Of Zero-Emission Hydrogen Fuel Cell Ferry

**FuelCellsWorks**

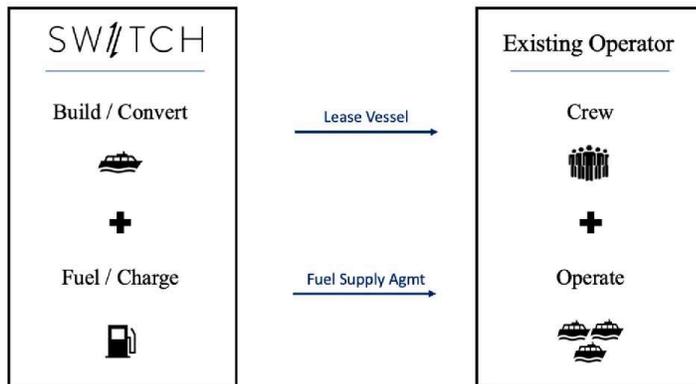
SW/TCH Maritime Funds the Construction of the First Zero-Emissions e-Ferry in the US, Powered by Hydrogen Fuel Cell

**SAFETY4SEA**

US's first zero-emissions e-ferry to run on hydrogen fuel cell

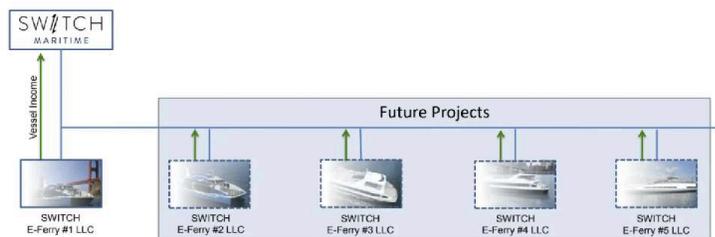
- Widespread media coverage to-date by major outlets and maritime publications.
- SWITCH sees upcoming inflection point based on nationwide/worldwide interest in deployment of vessel #1, driving inbound deal flow.

## Business Model



- Build and own a fleet of zero-carbon ferries.
- Earn profits from vessel leases in several strategic ferry markets.
- Continue building valuable IP from technology and regulatory blueprint for hydrogen-powered ferries.
- Take advantage of grant opportunities, loan guarantee programs, and municipal subsidies that support decarbonization.

## Vessel Ownership Structure

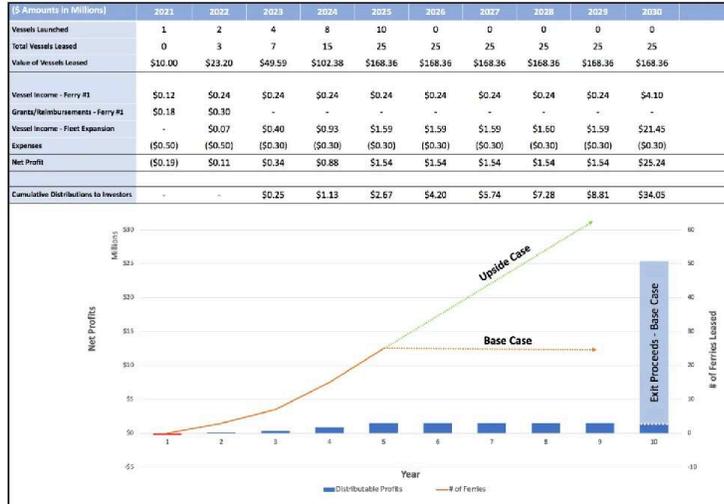


- Each vessel SWITCH builds is held in a special purpose vehicle (SPV), in which SWITCH will have direct ownership or profits interests.
- Income generated by lease revenues from each vessel SPV will be used to pay vessel expenses and debt service, and remaining income is distributed to equity ownership.
- The proceeds from the fundraise will be used for the completion and direct ownership into the SPV for vessel #1 (% of ownership depending on size of

fundraise).

- SWITCH will therefore earn its pro rata share of the income from vessel #1, and from the profits interests secured in any future vessels.

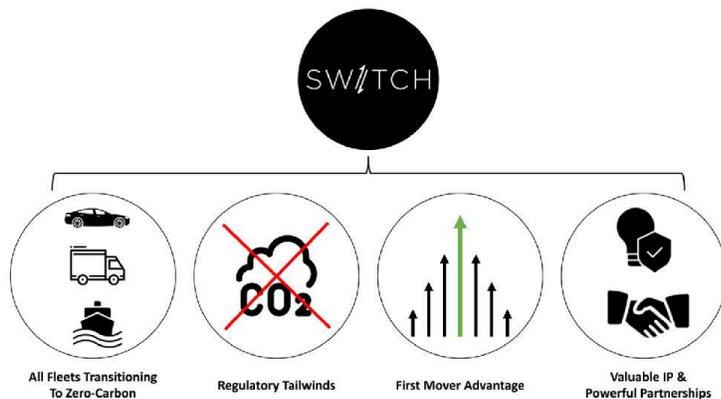
## Pro Forma Financial Projections



\*These projections are not guarantees of future performance and undue reliance should not be placed on them. Such forward-looking projections necessarily involve known and unknown risks and uncertainties, which may cause actual performance and financial results in future periods to differ materially from any projections of future performance.

- Pro forma above demonstrates financial projections if SWITCH raises \$2.5m from WeFunder, and subsequently owns 40% of vessel #1.
- Base case projections assume SWITCH continues to build and lease 24 more ferries over the next 5 years (25 ferries total) with 10% profits interest in each vessel SPV.
- Blue bars represent the vessel income over 10 years from the 25 ferries, followed by a sale/exit of the entire fleet in year 10 at a base-case assumption of 8x EBITDA multiple.
- Base case demonstrates cumulative total investor distributions of ~\$34 million by year 10, and there is strong potential for an upside case of 50+ ferries built (profits not displayed).

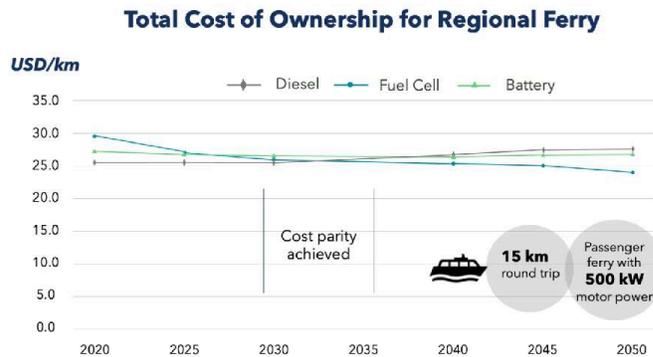
## Why now? The timing couldn't be better



- All light- and heavy-duty transportation sectors are currently accelerating the

- Air freight and heavy-duty transportation sectors are currently accelerating the transition to electrification and low-carbon future.
- Increasingly stringent emissions regulations on the horizon for maritime industry.
- Solidify position as first-mover and best-in-class partner for zero-carbon vessel projects.
- Developed valuable IP and industry/operator partnerships, paving path for programmatic deployment of vessels across U.S. and globally.

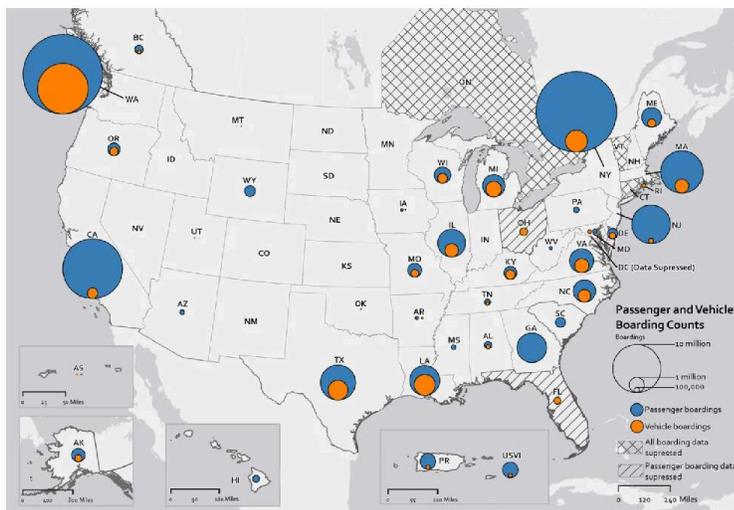
## Why now? The technology is ready...



\*SWITCH Maritime Proprietary Data

- Cost of fuel cell and hydrogen production equipment are declining rapidly (parallels to solar, battery, EV costs).
- Total Cost of Ownership (“TCO”) for zero-carbon ferries expected to reach parity with diesel in 5-7 yrs.
- Current cost of building zero-emissions vessels has crossed viability threshold, where TCO premiums can be offset by incentives / grants (e.g. Federal / DOE, State grants, etc).

## Why now? The U.S. ferry fleet is ready...

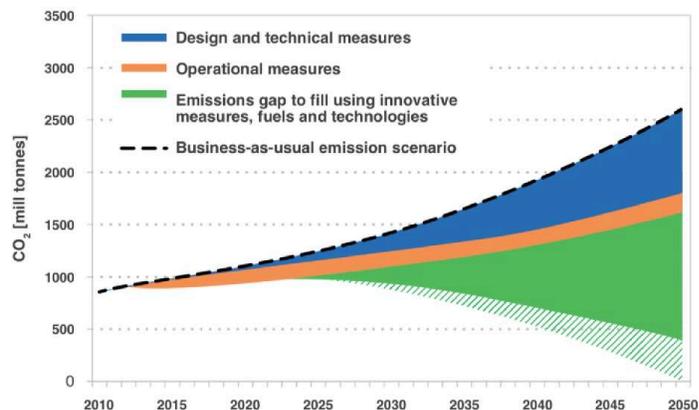


Credit: 2018 National Census of Ferry Operators

- Ferries are a great fit due to shorter routes, smaller vessels and single fueling point.

- U.S. ferry fleet entering critical average age of ~30 years old, where scrapping / replacement is expected to accelerate.
- Operators need future-proofed solutions that will prevail in the face of increasingly stringent emissions regulations.
- Cities/municipalities are looking for solutions to help achieve sustainability / carbon goals.
- Window exists to prevent new diesel ferries from being built and producing carbon emissions for another 30 years.

### Why now? We can't afford to wait any longer...



Credit: IMO Action to Reduce Greenhouse Gas Emissions from International Shipping

- The International Maritime Organization (IMO) has set a target reduction of the total annual GHG emissions from international shipping by at least 50% by 2050 compared to 2008 (green path above).
- Decisive action is needed to avoid increased emissions under business-as-usual scenario.
- “Winning slowly is the same as losing” - Bill McKibben. Now is the time because waiting isn’t an option.