



Decarbonizing Transportation

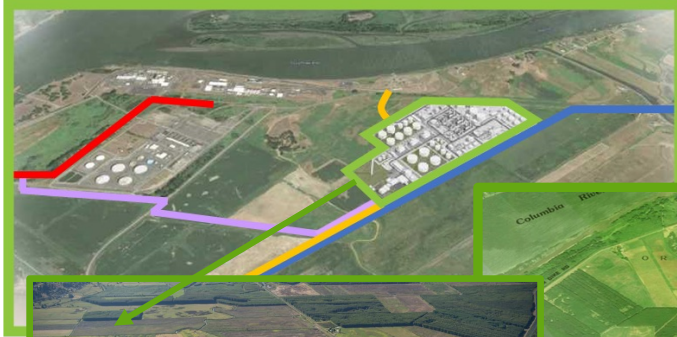
Examples of Opportunities and Challenges Associated with
Alternative Fuels Development

Presentation To the Oregon Senate Committee on Energy and Environment
February 6, 2024

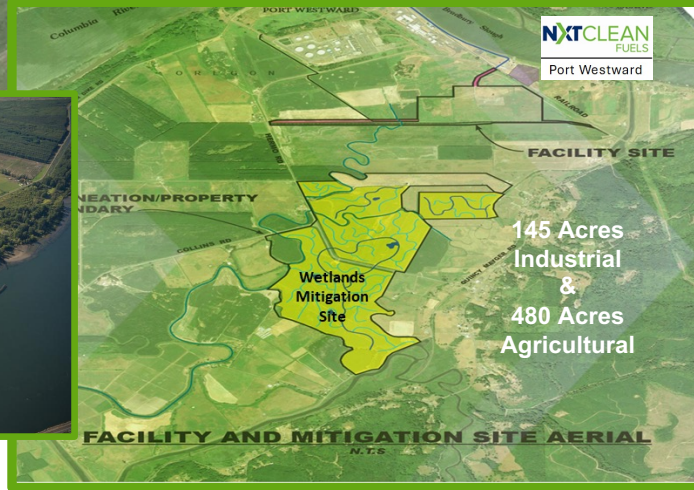


- Renewable fuels production company utilizing proven technology with multiple assets in development across renewable diesel, sustainable aviation fuel, hydrogen and renewable natural gas
- Two projects in the state of Oregon:
 - *Port Westward* – Large scale greenfield development in Northern Oregon (Columbia County)
 - *Lakeview* – Recently acquired, brownfield redevelopment in Southern Oregon (Lake County)
- Over \$100 MM in capital deployed to date into Oregon development projects
- Constantly evaluating synergistic investment and development opportunities with a focus on the US Pacific Northwest





Located at the
Port of Columbia County
Columbia River Mile 53



Port Westward: Large-scale, greenfield production facility at Port Westward, Oregon, anticipated to produce up to **750 million gallon-per-year** of Renewable Diesel (“RD”) and Sustainable Aviation Fuel (“SAF”) through commercially proven hydro-processed esters and fatty acids (“HEFA”) technology

- **Materially Permitted.** NXT has secured state permits for up to 50,000 BPD of capacity. Anticipates final federal approval in late 2024.
- Production of RD and SAF expected to begin mid-2027.
- Location offers logistical advantages for receiving feedstock and delivering offtake, with easy access to international supply and West Coast demand markets.
- RD and SAF production will prevent more than **6 million tons** of geologic carbon from entering the atmosphere each year.
- Project represents a **\$3 billion investment** generating **3,000+ union construction jobs**, **240+ long term jobs**, **\$45 million per year in green tax revenue** and over **\$5 billion in additional regional economic activity**.

Lakeview: Recently acquired, partially constructed facility in Lakeview, Oregon, being redeveloped in a two-phase process

- **Phase I:** Produce **75 MM gallons of RD** with mature HEFA technology and utilizing existing assets. In service date expected by Q1 2026; expect to benefit significantly from existing permits with minor modifications.
- **Phase II:** Produce **~90 tons / day of “green” H₂** and **~ 3 billion cubic feet (“BCF”) per year of negative CI renewable natural gas from woody biomass** gasification. Phase II expected online by Q1 2027 pending resolution of local power access issues.
- Project represents a **\$700 million investment** generating more than **550 construction jobs**, **95 long term jobs**, **\$2 billion in additional regional economic activity**, a reduction in **600,000 tons/day geologic CO₂**, and the **conversion of 500 tons / day of forest slash and waste into green fuels**.



NXTClean Fuels, Inc. | Key Opportunities for Clean Fuels in Oregon

US West Coast in general and Oregon in particular are leaders in de-carbonization. Aggressive goals across a variety of policy areas seek to dramatically reduce overall carbon emission as well as aggregate carbon intensity of transportation and power generation. This includes:

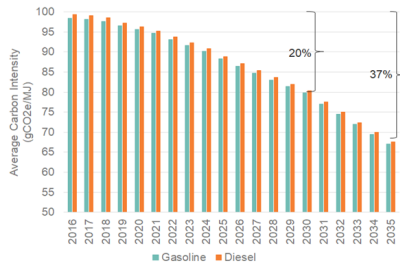


Image Courtesy of Oregon DEQ

- Incentives to electrify vehicular transport
- Aggressive targets to lower the carbon intensity in liquid motor fuels, including diesel fuel and potentially SAF
- Local mandates to move to renewable diesel at high blend rates (i.e. Portland R99 Mandate)
- Moves to dramatically reduce overall Green House Gas Emissions (“GHG’s”) across the whole of Oregon’s economy over the next thirty years
- Strive to couple decarbonization efforts with ongoing focus on environmental justice to minimize negative impacts of change while making sure that all Oregonians benefit from decarbonization.



Image Courtesy of Stillwater Associates

Existing state and regional policies, coupled with new federal laws such as the Inflation Reduction Act (“IRA”) provide significant policy support for the continued expansion of clean fuel projects and reduction of green house gas emissions.

- Ongoing moves to accelerate decarbonization of motor fuels across all western states is leading to a “race to the bottom” in carbon intensity targets. Delicate balancing of associated state low carbon fuel credit markets is now underway to avoid “unintended consequences” leading to disincentivizing of future production.
- New federal clean fuels incentives being added to focus on lower CI production of transportation fuels – i.e. Blenders Credit being replaced by carbon indexed 45Z producer's credit.
- Emerging state programs to incent the de-carbonization of aviation continue to gain traction and could help in increasing the amount of SAF produced in the region.
- Federal funding (\$7 billion) for seven regional hydrogen hubs (including the Pacific Northwest Hydrogen Hub (“PNW H2”) to hopefully catalyze the nascent “green” hydrogen industry and address key production bottlenecks.

“CARB proposes targeting a 30% carbon intensity reduction in transportation fuels from a baseline level, up from 20% currently, a new 90% carbon intensity reduction target by 2045, and interim reduction targets”.
Reuters – Dec 20, 2023

“Governor Jay Inslee signed new legislation ... to create policy and per-gallon price incentives for the production and use of Sustainable Aviation Fuel (SAF) in Washington. The new law creates a per-gallon incentive for SAF with lifecycle greenhouse gas emissions that are at least 50 percent lower than traditional jet fuel. The incentive increases ... up to a potential incentive of \$2 per gallon”.
Port of Seattle – May 3, 2023

“The Pacific Northwest will be home to one of seven Regional Clean Hydrogen Hubs (H2Hubs) announced Friday by the U.S. Department of Energy. The hubs are meant to kick-start the nascent hydrogen fuel sector and each will be eligible for roughly \$1 billion of federal funding”.
GeekWire – Oct. 13, 2023

For clean transportation fuel projects to be economical on a per unit basis (and hence be financeable), and to truly impact the average carbon intensity of the aggregate motor fuel pool, they must be done at scale. This fact introduces significant challenges, some general, some more specific to Oregon. These include:

Logistics ›



Land Use ›

Power ›

Labor ›

Importance of logistics to move various forms of feedstock in and final products out. Multi-modal logistical hubs are limited, particularly on the west coast of the United States, and those that exist tend to be fully utilized. Oregon is fortunate to have capacity at several such locations, however the **difficulty in permitting in a marine or riverine environment works to negate many of these advantages.**

Production sites designed for a large output tend to have a large land “footprint”. Industrial facilities such as this require specific types of land use and site-specific approvals. These can often be challenging but these **challenges tend to be magnified in Oregon given the approved land use appeals process (“LUBA”) and site certification process (“EFSC”).** Beyond the nuances of the programs themselves, the fact that **certain aspects conflict with each other** adds an additional level of complexity.

Operating at scale requires access to utilities at scale. In addition, the nuances of CI scoring encourages the use of inputs with a low carbon score. **Power availability is highly constrained with years long interconnection waits in many cases.** In addition, **power “scoring” rules create adverse incentives** in facility design.

Clean fuel production facilities are, by definition, energy production facilities. Facilities of this type require a specialized work focus trained for and comfortable working in chemical processing facilities. **These skills are in short supply,** particularly in a state such as Oregon which has few, if any, comparable facilities.

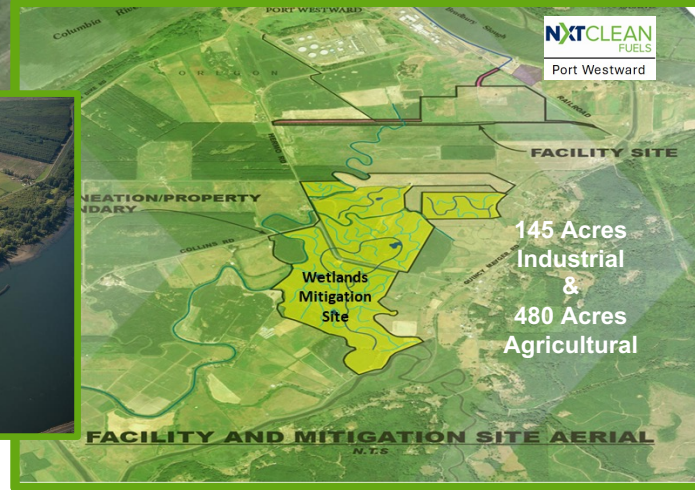
And the Big One ... PERMITTING

Permitting on the west coast of the United States is notoriously difficult. However, the west coast is also home to the states that are the most aggressively decarbonizing and its important to recognize that the two are closely related. In Oregon, key issues are:

- › **Duplicity, in some cases, multiplicity, of jurisdictions** responsible for the same thing, thus leading to the same effort being repeatedly preformed with the same outcome reached, just to satisfy a regulator at a different level of government.
- › Extreme focus on openness and transparency (which is a good thing) leads to the **adept weaponization of the public comment process** which can cause multiple delays. Ultimately, this can lead to the costs of the process exceeding the developer's willingness to continue, which is the opponent's objective.
- › **No recognition of the differentiation of projects that work to further the states decarbonization goals versus those that do not** and thus limited to no consideration of these benefits in regulatory consideration.



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Port Westward:

NXT has been actively developing the Port Westward RD / SAF since 2018.

Key Issues Encountered here Include:

- › Large, complex project **involved intensive, multi-agency and multi-jurisdictional coordination process**. Regional Solutions provided some assistance, but NXT team was primarily responsible for figuring out / navigating the process.
- › **Power needs outstripping local PUD and grid access**. “Work-arounds” in process. Grid stability and ability to green up brown power under review.
- › **Proximity to Portland and the Columbia river greatly increases opposition** to what should otherwise be a non-controversial project.
- › Oregon rules for wetlands mitigation ratios, Cleaner Air Oregon reviews and federal section 404 EIS lead to a **protracted documentation, review and public comment process**.
- › **Workforce** identification, recruitment, and training **to be an ongoing issue**.

Lakeview

NXT has been re-developing Lakeview since summer - 2023.

Key Issues Encountered here Include:

- › The largest issue being faced in Lakeview is the **lack of sufficient electrical power**. This is an acute situation. A study preformed on behalf of NXT found that even minimal (< 2.5 MW) is **not available** due to transmission stability issues as well as (longer term) the need for grid upgrades.
 - › Part I upgrades (to 25 MW): 4+ years and ~ \$8 MM
 - › Part II upgrades (to 70 MW): 10+ years and ~ \$200 MM
- › **On-site generation** (brown-power), solar and / or geothermal power tied to a microgrid, etc. all **being investigated**.





Christopher Efird

Founder, CEO &
Chairperson of the
Board

Christopher Efird (Chris) combines thirty years of entrepreneurship with extensive energy, financial, and US public market experience across a variety of types and sizes of companies. He founded NEXT Renewable Fuels in 2016 and currently serves as the company's Chairperson and Chief Executive where he oversees all the company's business and development activities.

Chris has either founded or led / co-led the investment into twenty-nine growth stage businesses in the US and internationally. Of these, eighteen became public in the United States including two each on the New York Stock Exchange and American Stock Exchange, and seven on the NASDAQ. Chris also co-founded and managed two related private equity funds that invested in companies operating across a wide variety of industries, including energy, technology, and manufacturing.

A native of Houston, TX, Chris grew up in the traditional energy industry. He previously served as the Chairperson of a pipeline construction company and has funded the turn-around / restart of a biodiesel production facility as well as the feasibility and initial site design and development of a world-scale LPG export terminal. He has long-term relationships across the energy economy and value chain which he is now actively leveraging to position NXTClean as a leader in the scaled production of drop-in replacement clean fuels.

Chris is a graduate of the Advanced Management program at Oxford University's Saïd School of Business. In addition, he holds a Master of Arts degree from Sam Houston State University and a Bachelor of Science degree from Texas A&M .



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THANK YOU & QUESTIONS