Decarbon8-US, a philanthropic investment fund from E8 angels and Realize Impact, is thrilled to announce its first three investees, representing the decarbonization and investment potential for electric vehicles, hydrogen power and carbon capture. Please explore each – and be a part of it! D8 encourages your participation, with flexible ways to invest given your preferred amount and type, on top of discovering other cleantech deals with the E8 investor network.

1. **Contribute any amount to Decarbon8-US** by Sept. 21: you’ll be a part of each company’s investment with a new tax deductible gift or grant (including appreciated securities); you can directly boost the investments we make – and you may also share in any philanthropic returns (if over $5k).

2. **Make a personal investment** if you are an accredited investor and meet the respective minimums for the Earthly Labs and Steelhead Composites deals, you can access existing due diligence in your consideration.

Join our **Sept. 10, 2020 presentations** (noon PDT), and check with Mike Rea or the Fund Brief with queries. D8 is made possible thanks to support from E8, UW, WSU, Craft3, the Cleantech Alliance and Stolte Family Foundation.

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**Xeal** offers a software platform for EV charger networks, connecting multi-unit properties and workplace customers and their drivers. Using AI and accumulated data from drivers, utilities and buildings, Xeal’s patent-pending software optimizes energy management for chargers, especially in the presence of demand charges. Together with the driver scheduling and management app, the platform saves energy and money for building managers, creates a new income stream from charging, saves drivers time and money, and improves the user experience for this amenity that will speed EV adoption.

**Earthly Labs** gives small craft breweries and other industrial facilities a chance to capture and recycle (and resell) carbon. Craft breweries are a perfect starter market, with 20 pilots or customers such as Austin Beerworks, Icicle Brewing, and ABInBev. Their refrigerator-sized tech captures and cleans CO2 offgas and makes it available for resale to greenhouses or for conversion – and for reuse by breweries, for whom the cost of beverage-grade CO2 has skyrocketed; they also report that “green CO2” suds taste better, on top of boosting customer loyalty. Earthly Labs has decarbonization technology to scale and adapt, and they can also build momentum and acceptance for circular economies and sustainability.

**Steelhead Composites** specializes in hydrogen storage solutions, with projected 2020 revenue of $4.25M. Their specialized vessels are used in automobiles (e.g. Hyundai), maritime ships (e.g. HySeas ferries), and stationary and backup power (e.g. Microsoft data centers), and even in space (SpaceX). With competitive advantage from patents, trade secrets, certifications and early traction, Steelhead complements other technologies and earlier stage companies in the D8 portfolio.
Xeal’s Solution and Value Proposition. Xeal’s priority market is multi-unit properties where owners and managers face a variety of problems that limit their support for tenants with EVs: scheduling drivers and chargers to optimize availability and need; how to monetize EV charging rather than leave it as a cost center; and managing the energy loads – and variable expense for peak charging. Xeal’s software platform helps property and business managers both save on EV energy costs – up to 70% -- and also create a revenue stream as a percent of charging (video). Xeal’s software can be installed in existing, legacy charger hardware, or included in new installations, including via their OEM relationship with EVOcharge. Users can reserve chargers with their app, with penalties that encourage sufficient charging but not overstaying. The solution can also make it possible for buildings of all income levels support EVs. Xeal makes money from an annual subscription per installation, along with a share of charging revenue. Check the August electrek article.

Decarbonization Potential. 28% of US greenhouse gases come from transportation, and Xeal estimates 9,000 pounds of carbon is offset by each charger per year. The potential California apartment market alone is $6 billion (for 1.3 million chargers), with a US market of $50 billion (10 million chargers). EV sales are expected to grow exponentially.

Use-case Story. The property management firm Legacy Partners turned to Xeal when upgrading their whole EV infrastructure at a luxury apartment building in Marina del Rey, California. Their upgrade of eight previously disconnected chargers, serving 40 drivers, resulted in monthly energy savings ($500/mo.) on top of a new passive charging revenue stream ($3,000/mo.).

Momentum and Projections. Xeal drives sales through multiple channels, including deepening relationships with large property management firms (e.g. as an approved vendor for Richmond Capital Management), resellers (e.g. with two new reseller contracts from solar and energy service companies), and OEM partnerships (e.g. EVOcharge); in fact, one reseller into new construction in the Northwest is an E8 Member with personal experience with the product. In breaking news, they won a competitive RFP with Green Mountain Power to be the sole provider for their workplace charging program. With their product launch just in October, Xeal finished 2019 with ~50 chargers and sees 500 for 2020, 2,000 in 2021 and 6,000 in 2022.
**The Team and Competitive Advantage.** Xeal is led by co-founders Xander Isaacson (strategy and management) and Nikhil Bhardwaj, the chief software engineer with experience from Schneider Electric; Forest Williams rounds them out for sales, with prior success at competitor Powerflex, which is best suited for larger, >50 charger deployments. Other competitors include ChargePoint, with relatively basic energy management systems and with whom Xeal regularly competes (and replaces). Collaboration with various charger manufacturers is possible given Xeal’s recent adoption of Open Charge Point Protocol (OCPP).

**Deal, and Exit Prospects.** Xeal completed their raise of $800,000, with a post-money valuation of $4.8M, with Decarbon8-US investing $25,000 while leveraging a successful syndication from Ramez Naam to close the round. Other investors include the LA Cleantech Incubator’s Impact Fund and Pasadena Angels, in addition to a grant from Caltech’s Rocket Fund. Their hope is to exit in 3-5 years with about 10,000 chargers installed. Acquisitions are accelerating in the charging space and a comp is EDF’s purchase of Powerflex for between $80-100M, with 3,500 installations at the time.

**Financial Summary, and Risk.** A review of 2019 and 2020 year-to-date financials by Craft3 revealed a solid financial position with a strong cash reserve, no operating debt and an appropriate burn rate adjusted for 2020, to accelerate post-raise. They are in a position to execute on their 2020 and 2021 plans. Key risks include overall EV demand and caution for new projects among property managers (and workplaces), and whether this small team can grow and scale at sufficient pace.

**Your opportunity.** While Xeal’s fundraising round is closed, contributors of gifts and grants to Decarbon8-US by Sept. 21 will have a share of our Xeal investment; you’ll also be a position to learn of future raises.
Earthly Labs’ Solution and Value Proposition. Earthly Labs’ “CiCi” hardware and software system solves very specific problems – and creates brand new opportunities – for their first customers, craft breweries. Offgas venting of carbon dioxide is a part of all fermentation operations. Saving about 1500 trees a year at their initial product scale, capture and reuse adds up over time and across the industries – and becomes even more important in light of a shortage in beverage grade CO2 gas from COVID-spurred declines in ethanol production and its byproducts (CNN article).

Earthly Lab’s initial CiCi version, “Oak,” costs about $75k, has 45% margins without manufacturing scale, is the size of a small refrigerator, suits small- and medium-sized operations, and uses a 3-step purification process to produce premium, beverage-grade CO2. The average payback for clients is 2-3 years. There are over 17,000 craft breweries worldwide, a $1.5B target market with relatively little competition at present. Their ultimate carbon capture markets extend beyond breweries to other industrial processes like distilling, chemical operations and boilers. The resulting recycled CO2 can be reused for direct savings by breweries and also sold to cannabis greenhouse operations, bioplastics and other reuse and sequestration products; for example, they are in discussions with beverage brands looking for “green CO2”. There is one additional piece to the value prop: apparently Earthly Labs CO2 produces even better tasting beer.

Decarbonization Potential. Earthly Labs systems fill a distinctive niche for carbon capture, recycling and sequestration, with a vision for 1 billion metric tons of carbon emission reduction. After allowing for power and other inputs, a typical brewery capture, with gas reused and absorbed in a greenhouse, results in an almost 50% reduction in emissions. Thirty-year emissions reduction projections for their core beer and wine distillery market is 279,980 metric tons; other fermentation and chemical industries, along with various boilers, make up the remainder of their 1B metric ton vision. Earthly Labs supports that goal with their installations and growth, and also by boosting consumer awareness of carbon capture and the circular economy through a very user-friendly product.

Use-case Story. The Denver Beer Co. installation provides a host of benefits. Colorado’s seventh largest brewery, DBC captures the CO2 vented from their fermentation process, stores it in 750-pound tanks, and then sells it to a cannabis grower, which then vaporizes the liquid CO2 for absorption to accelerate growth and yields. From the full Washington Post article, Columbia University professor Alissa Park notes “This shows how to close the carbon cycle. We need to develop a new carbon economy, a new way of seeing things at the end of the day.” Their payback is under 2 years, augmented by brand and media support and increased sales and customer loyalty.
Momentum and Projections. Earthly Labs currently works with 20 customers and pilots, including Austin Beerworks, ABInBev, Jackalope Brewing, Buoy Beer, and Los Alamos National Laboratory. They have added more than $5.8 M to their $50 M pipeline since March 2020. 2020 has seen 5 new sales year-to-date, with 25 warm leads and a projected additional 11-16 sales by year end, with 40 or more for 2021. For their product roadmap, they are planning a second, larger capacity product, “Elm,” that captures 10-20X the CO2 of the current product, with pilot customer discussions underway. Driving prospect interest is the CO2 shortage exacerbated by COVID; the Brewer’s Association believes the shortage may get worse as the economy reopens, with WA, OR and CA seeing 30% price spikes and rationing as featured in a recent story on CNN (Breweries Turn CO2 into Liquid Gold).

The Team and Competitive Advantage. The team is led by Amy George, CEO, who brings product development and marketing experience from Blue Avocado (Forbes article) and Pavillions Technologies, a process control and AI software company acquired by Rockwell Automation. Dr. Eric Chen, Chief Scientist, adds nearly 20 years in carbon capture experience with the University of Texas, with R&D work for the National Carbon Capture Center, DOE, Shell and others. Staff includes 4 full time employees and 4 contractors, including executive sales advisor, Mike Keig, with more than two decades at Apple. Their primary competition is from Pentair, based in Germany, with $1M+ systems for the largest emitters and 5% of the market. They believe they are the only supplier at the cost, size, performance and energy profile that CiC delivers. Patents are pending on sensor, software, foam trap and engineering technologies.

Deal, and Exit Prospects. D8 is investing a minimum of $40k. Exit prospects include commercial gas providers (e.g. Praxair, Air Gas), building and home IOT companies (e.g. Honeywell), and other energy efficiency companies (e.g. Carbon Cure). They have apparently fielded one serious buyout query and expect the carbon capture market to continue to expand. An exit in the next 2-4 years is anticipated, though sooner is also possible given traction and technology.

Financial Summary, and Risk. Earthly Labs was reviewed by Craft3 and found in good standing relative to their stage of development. In 2020 their cash position has improved, with their debt load relatively stable. Burn rate has been adjusted for 2020 and they have at least 5 months of runway given cash and sales.

Your opportunity: (1) make a gift or grant to Decarbon8-US to invest in all companies, or (2) make a gift or grant and prioritize Earthly Labs; contributions over $5k are eligible for philanthropic returns for your reinvestment or reallocation. Accredited investors may also choose to (3) invest directly in a convertible note, and please contact Mike Rea, E8 Executive Director, for information on minimum investment, terms and research; these are not recommendations and would-be investors must do their own due diligence.
Steelhead Composite’s Solution and Value Proposition. There’s nothing flashy about Steelhead’s products and their contributions to decarbonization – until you get into them. Steelhead designs and manufacturers composite pressure vessels for storing hydrogen, as well as nitrogen, helium and oxygen; they spin-form vessels of various sizes and shapes of carbon filament, aluminum, stainless steel and titanium, on top of offering design and engineering services. Since 2018 Steelhead has shipped >$3M in product, and we like their size, traction and diversification for the Decarbon8-US portfolio.

We’re really here for the hydrogen – a bet that hydrogen fuel cells, and an increase in the utilization of green hydrogen, will grow to replace fossil fuels in a number of applications. Decarbon8 is investing now because those niches are already starting to manifest. Aside from just cool space propulsion clients such as NASA, Blue Origin and SpaceX, Steelhead’s hydrogen business, which makes up about 75% of its $348M quoted pipeline, has seen design wins and clients in three growth areas: (1) marine, (2) automotive and trucking, and (3) stationary and mobile storage, such as datacenter power backup. Those clients and prospects include Offshore Turbine Services (UK), Energy Observer, Zero Emissions Yachting and Power Innovations, the supplier to a Microsoft data center testing hydrogen as a backup power source. Additional transportation priorities suited to hydrogen include light- to heavy-duty trucks such as those planned by trucking prospects Nikola, and FAUN (Germany) and Hyundai America. Steelhead’s team, and with patents and trade secrets in both design and manufacturing, sells tanks that offer negligible permeation (i.e. seepage loss, of the smallest of molecules), fast-filling and safety, positioning it for continued growth as these industry segments mature and vie with other clean power options. The Investment Committee availed itself of full due diligence research and reports from both E8 and Keiretsu NW, with Steelhead as an opportunistic investment from the E8 channel.

Decarbonization Potential. Interest and the potential for hydrogen power applications has spiked in recent years, which Andrew Coors, Steelhead CEO, sees reflected in a surge of bids. Research supports the potential for hydrogen to play a role in decarbonization: a January 2020 Rocky Mountain Institute report notes that as much as 18% of power may be provided by hydrogen; BCC Research notes the global fuel-cell powered electric vehicle market may grow 23% from 2019 and 2024, and E8 due diligence authors note battery and fuel cell vehicles can be complementary technologies. Recent news includes a $500B European New Deal investment in hydrogen and China approving a new high pressure hydrogen standard.

Use-case Stories. Microsoft is looking at its datacenters as part of its commitment to be carbon negative by 2030, and they just completed a datacenter backup power pilot that successfully ran for 48 hours straight. Steelhead sold a series tanks for the pilot, and the project manager notes that “the idea of running datacenters on green hydrogen fits right in with our overall carbon commitments,” adding that an Azure datacenter outfitted with fuel cells, a hydrogen storage tank and an electrolyzer could be integrated into the power grid to provide load...
balancing services. Another example is HySeas, a French ferry company, which by replacing polluting diesel and bunker fuel engines with hydrogen-powered ones.

**Momentum and Projections.** Steelhead’s overall revenue continues to increase, with $825k in 2018, $1.2M in 2019, and $1.7M in revenue and a $4.5M order backlog year-to-date in 2020. They project $4.25M by the end of 2020 and $9.2M in 2021 and $21M in 2022, driven by automotive, marine and datacenter business, along with high value, aerospace customers in aerospace. Their total pipeline amounts to $349M, of which 75% is hydrogen related. In the automotive and truck and bus segment, Steelhead has emerging relationships, via design wins and certification, with three major global OEMs.

**The Team and Competitive Advantage.** Steelhead Composites consists of more than 20 employees in Golden, CO, led by CEO Andrew Coors, who is also its primary investor, and Chief Technology Officer Kaushik Mallick and his decades in pressure vessel design and manufacturing. Steelhead’s patents and trade secrets in design and manufacturing provide competitive advantages such as (a) in-tank regulators for greater safety, (b) thermal management patents that allow fast filling without pre-chilling, (c) forthcoming “smart tank” research that would allow enhanced diagnostics and safety, (d) scalable automation and material selection for faster throughput and reduced inputs, and (e) certifications that provide first-mover advantage, such as in maritime applications. Competition comes from steel vessel providers which are often heavier and more expensive; there are several global companies offering lightweight products and Steelhead can be counted as an industry leader.

**Deal, and Exit Prospects.** D8 is investing a minimum of $40k. Mr. Coors believes Steelhead could be acquired within the next three years from a range of companies, including a tier one automotive or aerospace company. Comparison acquisitions include Cummins’ purchase of fuel cell manufacturer Hydrogenics ($120M on $21M revenues), and the purchase of OptimumCPV (estimated $20M on <$1M revenue).

**Financial Summary, and Risk.** Steelhead has a runway of at least 8 months, based on its fundraising, cash and conservative sales. Risks include hydrogen uptake being slower than expected (mitigated by a diverse product offering and long-term contracts with the likes of the US Navy and Siemens), potential constraints on manufacturing capacity (mitigated by planned expansion and equipment financing), and the potential that exponential growth won’t materialize.

**Your opportunity:** (1) make a gift or grant to Decarbon8-US to **invest in all,** and (2) make a gift or grant and **prioritize Steelhead.** Accredited investors can also choose to (3) invest directly in their **convertible note** or via a special purpose vehicle in partnership with Rocky Venture Club. Please contact **Mike Rea,** E8 Executive Director, for information on the minimum investment, terms and materials; these are not investment recommendations and would-be investors must conduct their own due diligence.