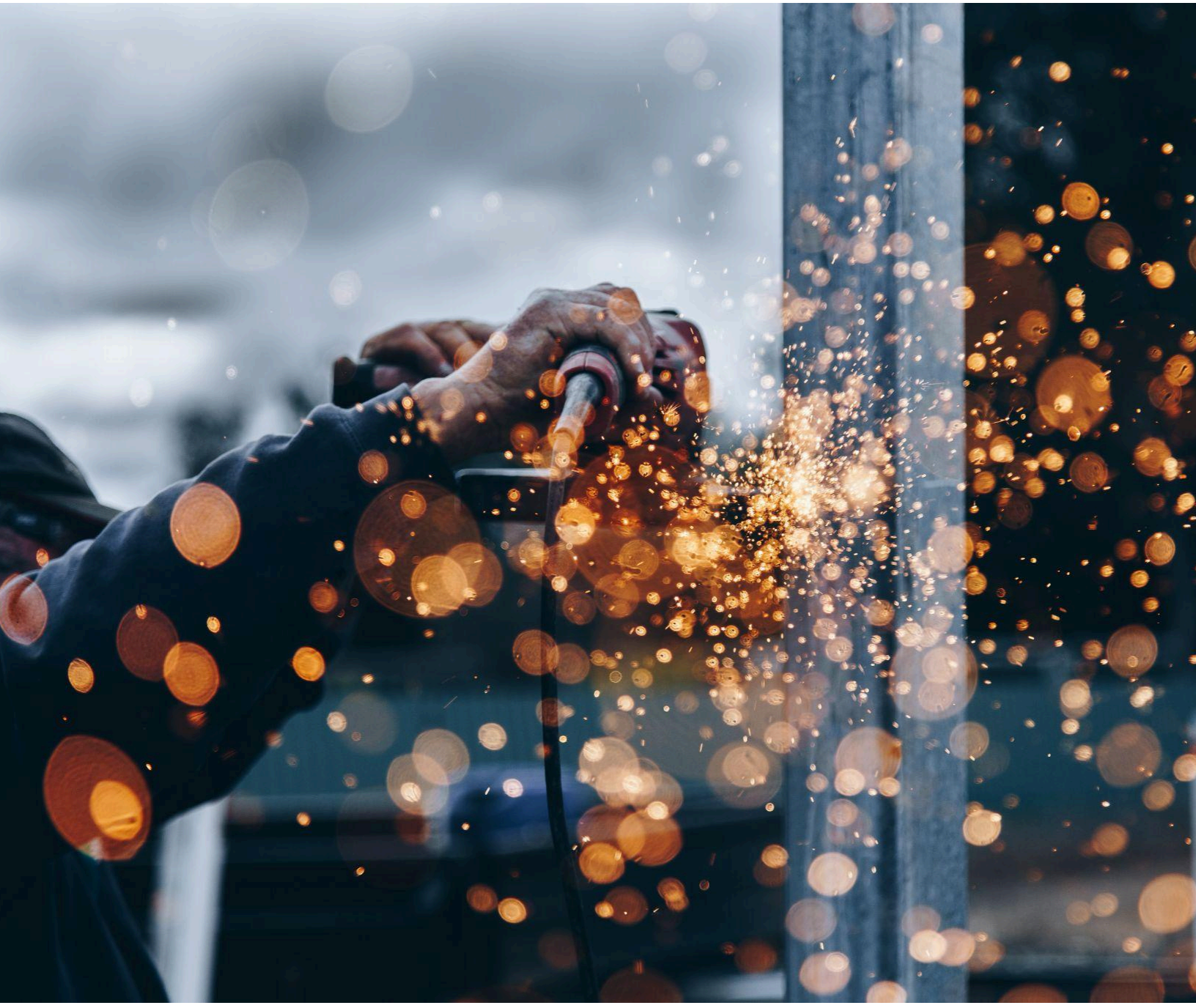
DEEP DIVE

INDUSTRIOUS LABS



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This is a non-partisan analysis (study or research) provided for educational purposes. Support for Industrious Labs' charitable climate advocacy runs through a Single Entity Fund of Tides Foundation, a 501(c)(3) nonprofit organization.

Questions and comments are welcome at givinggreen@idinsight.org.
Cover image: Christopher Burns

Summary

- **What is Industrious Labs?** Industrious Labs is an environmental organization launched in 2022 that aims to build advocacy networks to decarbonize heavy and light industry.
- **What does Industrious Labs do?** Industrious Labs is the only US-based organization singularly focused on industrial decarbonization advocacy. It works with partners from across the field (community, advocacy, politics, industry, etc.) to identify the unique narratives and levers that will move individual industrial sectors towards full decarbonization. Industrious Labs' strategy has four pillars: (1) campaigns, (2) data and analytics, (3) field building, and (4) strategic communications, all of which work in collaboration to build evidence-based, sustainable advocacy efforts to decarbonize heavy and light industry.
- **How could Industrious Labs help address climate change?** Industrious Labs expects its activities to cause more heavy industry producers to switch to low-carbon production more quickly than they otherwise would have, resulting in earlier reductions in industrial emissions. It also focuses on activating the field of individuals and communities living on the frontlines of heavy industry to participate in creating a greener, sustainable future.
- **What's new at Industrious Labs in 2024?** Industrious Labs has continued to grow its North-America-focused campaigns targeting landfill emissions, steel, and aluminum. It has also recently launched a global cement campaign and a state-based industrial heat campaign.
- **What is Industrious Labs' cost-effectiveness?** In 2022, we developed a cost-effectiveness analysis (CEA) to estimate the costs and impacts of Industrious Labs' aluminum campaign to secure corporate commitments to switch to low-carbon procurement and production. This CEA included highly subjective guess parameters and was intended as a rough plausibility check. Overall, we estimate that Industrious Labs is highly cost-effective. We have low confidence in this CEA but generally view it as a positive input to our overall assessment of Industrious Labs. We did not update this CEA in 2024.
- **Is there room for more funding?** We think Industrious Labs can productively absorb additional funding, which could increase its growth trajectory over the next few years. In the longer term, we think Industrious Labs is likely to have strong fundraising success, which may limit its future room for more funding.
- **Are there major co-benefits or potential risks?** We think the co-benefits and potential risks of Industrious Labs' efforts are similar to those for the broader effort to decarbonize heavy industry: it may reduce local pollution and have unclear employment effects as global industries respond to decarbonization.
- **Key uncertainties and open questions:** In addition to our broader uncertainties around decarbonizing heavy industry (e.g., geographic focus), we are uncertain about Industrious Labs' industry-specific effectiveness, US focus, techno-feasibility assessments, and future room for more funding.
- **Bottom line / next steps:** We classify Industrious Labs as one of our top recommendations to address climate change, and we believe donations to Industrious Labs could increase its organizational growth trajectory. We plan to continue to assess our key uncertainties and believe

that we will be able to substantially improve our understanding of these uncertainties as Industrious Labs continues executing its strategies in 2025.

What is Industrious Labs?

Industrious Labs is an environmental campaign organization that was publicly launched in 2022. Industrious Labs is the only US-based organization singularly focused on industrial decarbonization advocacy. It works with partners from across the field (community, advocacy, politics, industry, etc.) to identify the unique narratives and levers that will move individual industrial sectors towards full decarbonization. Industrious Labs and partners encourage corporations and local, state, and federal governments to commit to low-carbon initiatives and policies. It also applies legal and political pressure on governments to advocate for regulation and public funding mechanisms that incentivize heavy industry decarbonization. Its mission is to "set into motion unstoppable policies, people power, and analysis to have a triple impact on climate, justice, and jobs that drastically reduces dangerous emissions, makes industry accountable to communities and workers, and develops a circular economy." As of October 2024, it had 21 staff. Several of its senior leadership are former Sierra Club staff who collaborated on Sierra Club's Beyond Coal campaign efforts.[1]

As of November 2024, Industrious Labs operates as an LLC and accepts tax-deductible donations via a single entity fund at Tides Foundation, a 501(c)(3) fiscal sponsor. It has incorporated and has established its own (c)(3) in 2024. Industrious Labs told us it wants to maintain the flexibility of dual for-profit/nonprofit status as it determines what financial structure best allows it to achieve its mission.

What does Industrious Labs do?

Industrious Labs approaches advocacy in two ways. It leads its own advocacy, and, given the relative lack of advocacy in the sector today, it seeks to build capacity and coordinate the climate movement's activity in the sector. To this end, it builds and provides campaign-actionable data and analysis to demystify the sector, runs training for advocates, convenes coalitions, and, in 2023, launched a modest regranting program that it aims to grow in the future.

At a high level, Industrious Labs follows a five-step process to build out advocacy campaigns:

1. It assesses the heavy industry landscape to identify a promising industry to focus on. It is our impression that major inputs into this process include (a) assessing the greenhouse gas (GHG) emissions of a given industry, (b) the potential ease of decarbonizing the industry (e.g., whether it is consolidated among a few key producers or purchasers, the innovation stage of the requisite technology to enable decarbonization) and (c) the strategies and tactics necessary to accelerate decarbonization. Wherever feasible, it does this together with partner organizations.

[1] "Victoria Chu…Partner… led programmatic and political analysis for the Sierra Club's Beyond Coal Campaign…Evan Gillespie…Partner…spent 12 years with Sierra Club developing and managing winning climate campaigns targeting coal and gas plants…Nachy Kanfer…Partner…11 years at Sierra Club as a community organizer, campaign representative." Industrious Labs, "Our team" tab (accessed 2022)

2. It writes a 10- to 20-page strategy memo outlining its plans for decarbonizing the industry. These memos include relevant background, details on the specific opportunity, and a high-level strategy for achieving the opportunity.
3. It estimates the amount of GHGs averted if Industrious Labs successfully executes its strategy.
4. It builds capacity to deliver on this strategy. Depending on the industry, Industrious Labs might hire a campaign director, allocate industry-agnostic senior leadership time, develop a coalition, or work with consultants. Industrious Labs works to build relationships with fenceline and environmental justice communities as part of a holistic and sustainable strategy.
5. It executes its strategic plan (see below).

While specific strategies vary based on industry, Industrious Labs' strategies generally contain three levers:

1. Advocate for major purchasers (governments or corporations) to implement low-carbon procurement standards to pressure heavy industry producers. Example activities include state-based activism and direct engagement with corporate executives.
2. Advocate for governments to change heavy industry regulations. Example activities include partnering with trade organizations and engaging in lawsuits.
3. Advocate for government legislation to provide additional funding to decarbonize heavy industry and/or ensure organizations use existing funding. Example activities include engaging in insider advocacy to federal policymakers to make explicit directives to increase government funding for specific heavy industry decarbonization opportunities.

Industrious Labs shared memos with us on aluminum, cement, steel, and methane emissions from waste. We think these strategies generally employ the three levers mentioned above, though the degree to which these levers are necessary and/or employed by Industrious Labs varies substantially by industry.

Campaigns

Steel

The main focus of Industrious Labs' steel campaign is convening a growing network of advocates in North America to promote a transition to green steel. As of October 2024, the network consisted of 45 organizations and 130 advocates. We highlight several key accomplishments below.

- Industrious Labs worked alongside network partners to pressure Cleveland-Cliffs, a North American steel producer, to delay planned investment in a blast furnace reline by one year. If the reline moves forward, it would lock in 68 megatons (million tons) of CO_2 by reinvesting in coal-based iron production for another 20 years. Industrious Labs plans to use this time to organize and build power, aiming to shift the investment from coal to green steel permanently.
- Industrious Labs organized automotive reporters to participate in an environmental justice tour in Dearborn, Michigan, during the week of the Detroit Auto Show. The tour, which featured several sites related to steelmaking, highlighted the harmful impact of coal-based steelmaking on local

communities and the role car companies can play by cleaning up their supply chains through green steel procurement.

- In early 2024, the Race to Green Steel launched to expedite the auto industry's procurement process for green steel; in support of this initiative, Industrious Labs is co-developing new legislation to further incentivize a just transition to green steel.
- Pressure from Industrious Labs and its partners influenced the Department of Energy (DOE) investment in the first green iron-making plant in the US.
- Throughout the spring and fall of 2024, the Industrious Labs Steel team led the first-of-its-kind Sustainable Steel Community Cohort to support the steel industry by helping bring the benefits of sustainable steel to northwest Indiana and increasing good-paying union jobs. The cohort included community members from diverse backgrounds who have been directly impacted by the steel industry in northwest Indiana.
- Industrious Labs published the first facility-by-facility analysis of US coal-based emissions from steel and coal plants. The report details the devastating toll on human health from asthma to premature deaths.

Future goals include ensuring that at least one green steel production facility is under construction and stopping the blast furnace reline mentioned above.

Aluminum

Industrious Labs' aluminum campaign aims to build a robust, zero-carbon US aluminum supply chain by 2030. Industrious Labs convenes and facilitates the Sustainable Aluminum Network (SAN), uniting national security experts, labor advocates, and leading environmental groups to work toward this shared goal. We highlight several key accomplishments below.

- Industrious Labs publicly established the SAN in 2023, and since then, SAN organizations have built a growing drumbeat of attention on the need to decarbonize the primary aluminum industry quickly. SAN has secured over 50 media hits, including pieces in The Washington Post, Axios, E&E News, and Canary Media.
- The SAN developed a close working relationship with primary aluminum producers, who support efforts and share objectives of securing access to renewable, affordable energy to reduce emissions from primary aluminum production. SAN provided technical and regulatory assistance to primary producers, helping them access federal investment opportunities under the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA) to set the industry on a path to reduce pollution and transition existing smelters toward decarbonization.
- In September, Industrious Labs, Ceres, Clean Energy Buyers Institute (CEBI), and the SAFE Foundation released an open letter to DOE Secretary Granholm, urging prioritization for investments in primary aluminum to help the industry set on a path to decarbonization. The letter was signed by large aluminum buyers, including Ford Motor Co, SunPower, Ball Corporation, General Motors, PepsiCo, and Rivian.

By ensuring that primary producers' applications for funding were as competitive as possible, Industrious Labs and its partners helped to influence federal funding for the first clean aluminum smelter in the US.

Future goals include supporting legislation that includes incentives to decarbonize primary aluminum production, developing state-level capacity for field-building efforts, and securing offtake agreements to enable low or zero-carbon domestic primary aluminum production.

Waste

Industrious Labs' waste campaign, launched in 2022, aims to reduce the more than 3 million metric tons of methane emitted from US landfills annually by working on (i) policy and regulation and (ii) efforts to divert organic waste away from landfills.[2] We highlight several key accomplishments below.

- A coalition of 14 environmental and community advocacy groups, including Industrious Labs, petitioned the EPA in June 2023 for stronger regulations to control methane pollution from municipal landfills.[3]
- Industrious Labs launched a 50-state interactive dashboard on landfill emissions as a hub for local media pitches, information sharing, and calls to action.

Future goals include catalyzing landfill emissions reduction, organics diversion policy and regulations in at least five states, and ensuring that the EPA issues rules on federal landfill gas emission standards that significantly reduce methane emissions.

Industrial heat

Industrious Labs recently launched a California campaign that unites a powerful alliance of labor unions, environmentalists, community organizations, and more to scale industrial electrification advocacy, lock in strong policies, and ensure industrial emissions begin to fall in line with the nation's 2030 climate targets and a 1.5°C trajectory. Early wins include advancing new regulations in California to clean up food manufacturing, including smokehouses, roasters, bakery ovens, cooking ovens, tortilla manufacturing, and other baking equipment. Industrious Labs sees this state-level progress as setting an important precedent to encourage EPA to establish national standards that phase out combustion from low- and medium-temperature industrial equipment.

Future goals include accelerating more ambitious industrial electrification policies in California, launching a coalition focused on industrial electrification, and continuing to build awareness about technology, policy solutions, the harms created by industry, and the benefits of transformation.

Cement

Industrious Labs recently launched its cement campaign. This campaign has a multi-pronged approach consisting of (i) building a global cement network (ii) pushing for US cement giant, Holcim's, to commit to

[2] "Municipal solid waste landfills are the third largest source of human-related methane emissions in the United States. Our municipal landfills emit an estimated 3.7 million metric tons of methane, or about 295 million metric tons of carbon dioxide equivalent (MMT CO2 e) on a 20-year time horizon." RMI (2023)

[3] "To better control the third largest human-driven source of methane in the U.S., after livestock and natural gas, the groups called on EPA to expand requirements for gas collection systems at landfills, direct measurement of methane, and more composting of waste." Environmental Integrity Project (2023)

creating a decarbonized supply chain, and (iii) advocating for relevant US regulatory and policy mechanisms.

This campaign's goals include increasing civil society engagement on low- and zero-carbon cement in low- and middle-income countries (LMICs), launching a global cement table to convene advocates worldwide, and advancing US policies and investments that could help catalyze global efforts.

Supporting teams

Strategic Communications

Industrious Labs' communications program aims to build public awareness of industrial decarbonization by increasing visibility, elevating solutions that are possible today, and building a greater sense of urgency to act. We highlight several key accomplishments below.

- Industrious Labs conducted surveys in Pennsylvania, Indiana, and Kentucky to gauge public perception of aluminum and steel and federal support for decarbonizing those industries. Local media outlets, including the Northwest Indiana Times, covered the polling results.
- The communications team supported the Sustainable Aluminum Network through branding, creating a website, and launching a social media presence.
- The team secured media coverage in the Chicago Daily Herald and National Public Radio for its interactive website tracking methane emissions from landfills.

The program's future goals include elevating the prominence of industrial decarbonization in climate and political discourse and recasting heavy industry as a sector with climate solutions that can benefit workers and local communities.

The Arc

The Arc is Industrious Labs' field-building initiative, which links communities with the resources they need to build long-term power. Below, we highlight several key accomplishments.

- The team developed a methodology to support an Environmental Justice (EJ) Analysis Tool. The EJ Analysis Tool is a digital tool of maps and dashboards using Tableau to make health and climate data accessible for communities. The goal is for EJ communities to become informed about the risks of exposure to heavy industry sites and use the data to advocate for change.
- The Arc supports field-building and outreach for each of its sectoral campaigns.

The Arc's future goals include developing a program to regrant at least $1 million annually to build capacity in key strategic locations.

Big Analysis

Industrious Labs' Analytics program aims to bridge data and advocacy. The team consists of four analysts who source historically inaccessible and disjointed industry data and translate it into accessible information to inform campaigns and partners. We highlight several key accomplishments below.

- The team co-wrote and led the analysis for a report detailing climate pollution from blast furnaces.
- The team provided technical assistance for developing the interactive website tracking landfill emissions.
- The team launched version 2.0 of an interactive website tracking US industrial facilities.
- In August 2024, Industrious Labs launched the Industrial Equity Mapper. This tool sits at the intersection of heavy industry and environmental justice in 12 key geographies, delivering concrete data and storytelling as a source of power and support for underserved communities living near industrial facilities.

The team's future goals include supporting campaigns through technical analysis and developing key performance indicators to track the progress of each campaign.

Theory of change

We developed a high-level theory of change to illustrate how Industrious Labs' strategy might play out in practice to reduce emissions (**Figure 1**). However, we think the degree to which cost decreases matter varies substantially by industry and may or may not be a focus of Industrious Labs' efforts. For example, Industrious Labs believes low-carbon steel costs are already palatable for automakers and their consumers.[4]

Since Industrious Labs' industry-specific strategies can vary substantially, we think it is difficult to specify this broad theory of change further without applying it to a specific industry. We outline a theory of change for its aluminum campaign in **Figure 2**. We think aluminum is a useful example because it is a large contributor to global greenhouse gas emissions (around 3% in 2021), is growing in demand, is global in scope, and is an ongoing Industrious Labs campaign with room for more funding.[5] Industrious Labs focuses its campaign on new aluminum production rather than recycled aluminum reuse because most GHG emissions come from primary production. We also think Industrious Labs' aluminum campaign serves as a useful example because, as with several other campaigns, we (and Industrious Labs) are uncertain about its ability to have a global impact (see below and Key Uncertainties).

[4] Agora, a research organization, estimates low-carbon steel increases car prices by around 1%. "The additional premium for green steel (~200 to 300 USD per tonne of steel) can be passed on to end consumers, only marginally increasing the price of the car (<1% for a small car containing 1 tonne of steel and priced between 20,000 to 30,000 USD)" Agora (2021).

[5] Greenhouse gas emissions: Calculation: 1.1/36.3=0.03. "The sector was directly responsible for 275 Mt of CO2 emissions in 2021 (a 2% increase on the previous year) and if indirect emissions from electricity consumption are included, that number jumps to around 1.1 Gt of CO2." IEA; "Global energy-related carbon dioxide emissions rose by 6% in 2021 to 36.3 billion tonnes" IEA (2022)

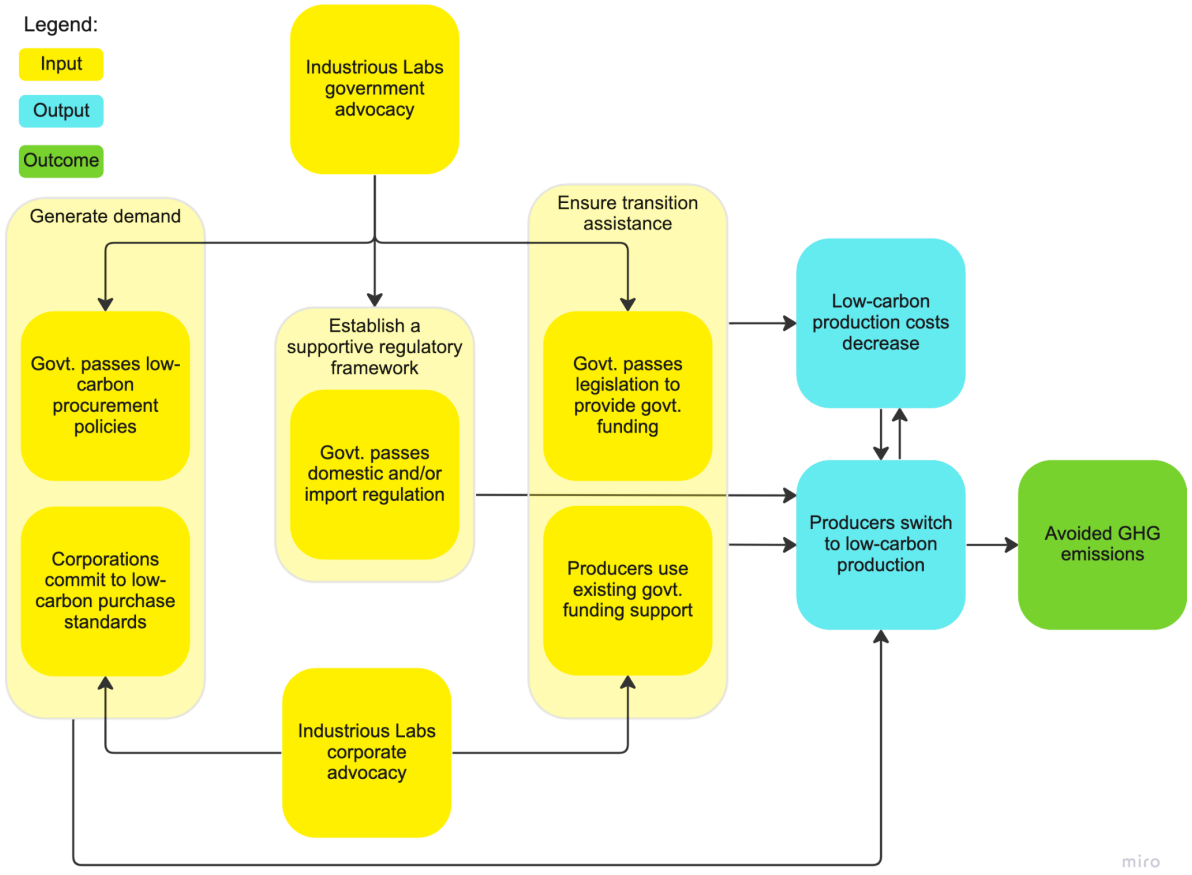

Figure 1: Our theory of change for Industrious Labs avoiding GHG emissions

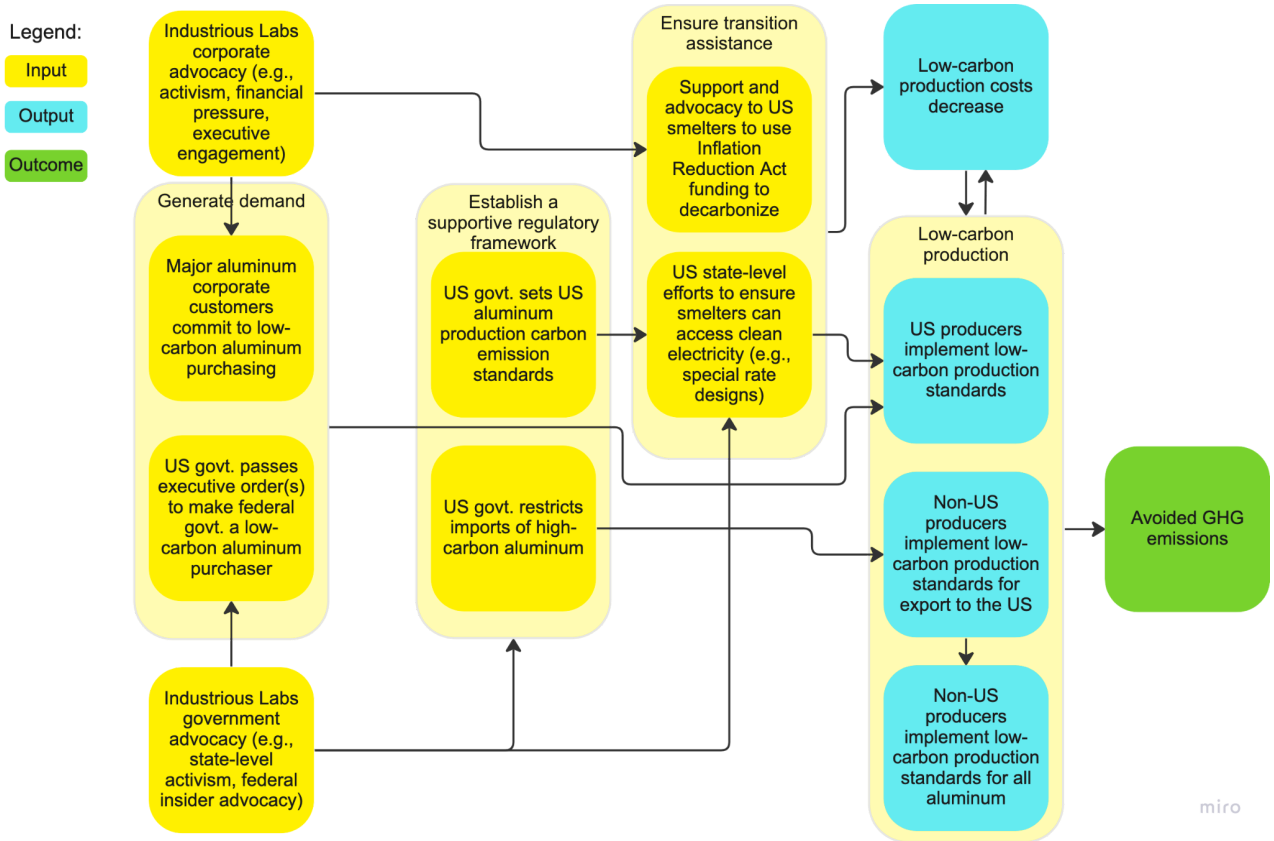

Figure 2: Our theory of change for Industrious Labs avoiding GHG emissions from aluminum

Examining the assumptions behind the theory of change

Below, we discuss and evaluate the main assumptions related to our theory of change for Industrious Labs. For each assumption, we rank whether we have **low**, **medium**, or **high** certainty about the assumption.[6] Our assessment is based on both primary and secondary evidence, as well as our general impression of the plausibility of the assumption. Importantly, a number of the stages of Industrious Labs' theory of change are not amenable to easy measurement or quantification, are not supported by a robust evidence base, and/or are expected to occur in the future but have not occurred as of yet. Additionally, we think the importance of each assumption varies on an industry-by-industry basis. For example, corporate commitments may be especially important to decarbonize aluminum, while a supportive regulatory environment may be essential to decarbonize adipic acid. We think Industrious Labs has generally (but not always) aligned its industry-specific strategies to focus on the assumptions that are (a) most important and (b) most likely to hold for each heavy industry.

1. Government passes low-carbon procurement policies (**high certainty**)

Within the US, we have high certainty that this assumption generally holds. To generate demand for low-carbon industrial products, Industrious Labs often plans to advocate to local or federal governments to pass low-carbon procurement policies. For example, its aluminum strategy includes state-based activism, strategic communications, and insider advocacy at the federal level to secure executive orders.

Since Industrious Labs does not yet have a track record of securing procurement commitments, we relied heavily on our assessments of industry-specific strategies and heavy industry stakeholders' perceptions of Industrious Labs leadership to assess its potential efficacy. We think Industrious Labs has identified moderately tractable US government procurement strategies. For example, its aluminum strategy includes advocating for an executive order to standardize a methodology for calculating embodied carbon, followed by a specific focus on US Department of Defense procurement to mandate low-carbon products from corporate suppliers.

Absent Industrious Labs, "buy clean" policies are becoming increasingly commonplace, suggesting that this output is generally feasible. For example, New Jersey recently passed legislation establishing state and local purchasing requirements for low-carbon concrete, and the Biden Administration's Buy Clean Task Force has prioritized low-carbon federal government procurement of steel, concrete, asphalt, and flat glass.

From speaking with heavy industry stakeholders (primarily philanthropic funders, industry representatives, and policy experts), it is our impression that (a) there is a role for non-profit advocacy work and (b) Industrious Labs' leadership is well-placed to play this role. For example, a major climate philanthropy funder believes that funding non-profit advocacy work to change government procurement standards is the most feasible way to generate enough demand for low-carbon products that heavy

[6] We describe our certainty as low/medium/high to increase readability and avoid false precision. Since these terms can be interpreted differently, we use rough heuristics to define them as percentage likelihoods the assumption is, on average, correct. Low = 0-70%, medium = 70-90%, high = 90-100%.

industry shifts its overall production to lower-carbon outputs, thus removing the need for harder-line regulation.[7] We heard from two stakeholders that Industrious Labs' leadership work conducting government advocacy as part of Sierra Club's Beyond Coal Campaign was highly successful and provided them with transferable experience and credentials to serve them well in their new organization.

It is our understanding that US federal and subnational governments are the main targets for Industrious Labs' campaigns. However, if Industrious Labs were to expand to direct advocacy efforts of non-US governments, we would have less certainty in this assumption. Our impression is that Industrious Labs' focus, expertise, and comparative advantage are not in international engagement. We do not view this as a major concern since Industrious Labs is predominantly focusing its government advocacy efforts on the US government. In cases where its strategy does involve non-US government advocacy, such as in the newly launched cement campaign, we think Industrious Labs will explore strategic partnerships and/or coalition-building opportunities; we will evaluate progress on this in 2025.

2. Corporations commit to low-carbon purchase standards (**medium certainty**)

While we think corporations may generally be reluctant to make low-carbon purchase commitments, we think Industrious Labs targets high-feasibility and high-return opportunities, and it is moderately well-placed to run effective campaigns to secure commitments. For example, its steel strategy targets automotive companies since they are major consumers—using approximately 10% of global production—for which switching to low-carbon steel may be relatively affordable: Agora, a research organization, estimates low-carbon steel increases car prices by around 1%.[8] Around 60 industrial corporations, including Ford, General Motors, Mitsubishi USA, Nissan USA, and Toyota USA, have committed to reducing GHG emissions by 50% over 10 years via the Biden Administration's "Better Climate Challenge," which gives us some additional confidence this is a potentially feasible pathway to change.[9]

Industrious Labs' specific activities vary by industry. For its aluminum strategy, it plans to coordinate and sometimes fund organizations focused on direct action activism, apply financial pressure by targeting investors and lenders, and directly engage with corporate executives. For the same reasons mentioned above, we generally think Industrious Labs' leadership can execute targeted campaigns, though this may vary by industry and specific approach. Additionally, our impression is that Industrious Labs' leadership is relatively less experienced with campaigns targeting large multinational corporations, and we think their

[7] While it restricts our transparency with readers, we frequently engage in confidential conversations where we promise to protect the identity of our sources. As a result, we cannot disclose the names of these specific sources.
[8] "The additional premium for green steel (~200 to 300 USD per tonne of steel) can be passed on to end consumers, only marginally increasing the price of the car (<1% for a small car containing 1 tonne of steel and priced between 20,000 to 30,000 USD)" Agora (2021)
[9] "Across the industrial sector, 60 companies have joined the Better Climate Challenge where they've committed to reducing portfolio-wide greenhouse gas (GHG) emissions by at least 50% by 2030." The White House (2022); "Through the Better Climate Challenge, organizations can partner with DOE to reduce portfolio-wide GHG emissions (scope 1 & 2) by at least 50% within 10 years....Ford Motor Company...General Motors...Mitsubishi Electric Automotive America...Nissan North America...Toyota Motor North America..." DOE (n.d.)

past campaigns experience may be less transferable to decarbonizing industry than their past government experience.[10]

We generally view this assumption as especially important for assessing Industrious Labs' potential global impact of US-focused activities, since we think corporate action is likely to be an important pathway to affecting change in countries that are major heavy industry players. For example, China is the world's largest producer, exporter, and importer of steel.[11] Industrious Labs' steel campaign targets automotive firms directly purchasing steel in both the US and China and advocates for them to transition to low-carbon steel worldwide.

3. Establish a supportive regulatory framework (domestic and/or international) (**medium certainty**)

For all of its campaigns, Industrious Labs seeks to ensure there is a supportive regulatory framework in place to encourage a low-carbon transition. As with its government procurement work, Industrious Labs focuses on US subnational and federal regulation. However, unlike its procurement efforts, federal regulation could directly affect international heavy industry by imposing tariffs (e.g., a carbon border adjustment mechanism) or restricting US importation of high-carbon products (e.g., Chinese steel).[12]

Industrious Labs generally focuses its efforts on regulations with political support, which suggests this assumption may hold. In several strategies, Industrious Labs uses pre-existing regulations and/or plans to employ politically salient framing to pass new supportive regulations. For example, Industrious Labs' aluminum strategy takes a multi-pronged regulatory approach. For one approach, it plans to use the US Environmental Protection Agency's (EPA's) already-established Clean Air Act to require US aluminum smelters to reduce GHG emissions. It may grant money to local groups to conduct their own activities and/or use its own legal staff to apply legal pressure. Simultaneously, Industrious Labs plans to partner with advocacy organizations focused on national security and/or labor interests. These organizations have experience working with corporations to advocate for trade policies such as tariffs on imported aluminum.

We have relatively higher certainty in Industrious Labs' ability to establish a domestic supportive regulatory framework and relatively lower certainty in its efforts to influence US trade or international regulations. Though Industrious Labs targets politically supported regulation, foreign policy includes myriad interests, and support may shift quickly and unexpectedly. We think there is precedent for

[10] We think this because we think the government advocacy work is relatively similar in targets and strategy, whereas the corporate advocacy work is targeted at different types of corporations using different strategies. It is our impression that Sierra Club's Beyond Coal campaign often conducted highly-targeted campaigns towards state-level corporations, which we think may involve different strategies than targeting large multinational corporations. We have not looked closely at the details of Sierra Club's Beyond Coal campaign, so this is primarily a high-level perspective more so than an informed conclusion.
[11] Producer: [see pie chart] "Steel production and use: geographical distribution 2021; China 52.9%" worldsteel (2022); Exporter: "China is the world's largest steel exporter (2021 ranking)." International Trade Administration (accessed 2022); Importer: "China is the world's largest steel importer (2021 ranking)." International Trade Administration (accessed 2022)
[12] For more information on carbon border adjustments, see: Center for Climate and Energy Solutions: Carbon Border Adjustments.

Industrious Labs' strategy, but are less certain that Industrious Labs will play a definitive and important role in establishing non-domestic regulation.[13]

4. Ensure transition assistance (ensure government transition funding and/or ensure corporations use existing funding) (**high certainty**)

To assist industries in transitioning to low-carbon production, Industrious Labs seeks to ensure legislation is in place to fund heavy industry and/or support industries to take advantage of existing funding. This assumption almost exclusively focuses on US legislation but may sometimes involve international efforts. For example, Industrious Labs' tentative concrete strategy includes advocating for international finance institutions to fund low-carbon concrete infrastructure in low- and middle-income countries, and its steel strategy includes broader advanced-economy public funding of low-carbon steel facilities.

With the passage of the IRA and IIJA, policy stakeholders have expressed an assessment of lower feasibility for new legislation that provides substantial additional transition assistance to heavy industry. Instead, Industrious Labs plans to advocate for policymakers to make more explicit directives that could spur targeted government funding. For example, one potential strategy in its aluminum campaign is to engage in insider advocacy with members of Congress to direct government funding to co-fund the adoption of zero-carbon inert anode technology. This is currently under discussion as part of a broader effort to finance transformative industrial technologies.

Since the IRA and IIJA include substantial funding for heavy industry low-carbon transitions, we expect this assumption's success to primarily hinge on Industrious Labs' ability to support heavy industry in taking advantage of this existing funding. For example, the IRA includes a $5.8 billion Advanced Industrial Facilities Deployment Program targeting industrial sectors such as steel, cement, and chemicals to use advanced low-carbon technologies.[14] Since funding is already in place, Industrious Labs will focus on urging corporations to use this funding and, where useful, provide technical assistance to reduce barriers to access. We have high certainty in this assumption given Industrious Labs' success in securing funding for clean aluminum. The Sustainable Aluminum Network, co-led by Industrious Labs, organized aluminum buyers to make a public ask of DOE to apply funding from the IRA to clean aluminum proposals. The push included paid and earned media as well as a website featuring the list of companies asking for clean aluminum. Our impression is that this work was a major factor in the DOE's decision to award $500 million to Century Aluminum to build the first clean aluminum smelter in the US.[15]

[13] Precedent example: "Trump imposed 25% tariffs on imported steel and 10% on imported aluminum from most countries in 2018, arguing that these protections were necessary for U.S. national security to maintain healthy domestic production." Lawder (2021)

[14] "The Inflation Reduction Act's $5.8 billion Advanced Industrial Facilities Deployment Program plays a significant role, providing financial assistance for facilities to use advanced industrial technologies… in key, emission-intensive industrial sectors, such as iron and steel, cement, and chemicals." DOE Office of Policy (2022)

[15] "The beneficiaries of the government's cleanup effort include Century Aluminum Company, which could receive up to half a billion dollars to build the nation's first new aluminum smelter in 45 years." Stone (2024)

What is Industrious Labs' cost-effectiveness?

In 2022, we developed a cost-effectiveness analysis (CEA) to estimate the costs and impacts of Industrious Labs' aluminum campaign to secure a major corporate commitment to switch to low-carbon aluminum procurement. Focusing this CEA on corporate advocacy for one industry means this CEA is likely not generalizable to Industrious Labs' overall cost-effectiveness. Instead, it serves as a plausibility check of whether Industrious Labs' efforts might be highly cost-effective. We chose to develop a more specific CEA because we think a CEA of Industrious Labs would include too many highly subjective guess parameters for us to have confidence in its results.

Despite the narrow focus of this CEA, it also includes highly subjective guess parameters and should not be taken literally. In particular, we estimated the impact that Industrious Labs' campaign might have on whether and when a major global automaker commits to low-carbon procurement for its US production, as well as the subsequent effects that commitment might have on the automaker's global production, the global automotive sector, and the global aluminum industry at large. Overall, we estimate that Industrious Labs is highly cost-effective. We have low confidence in this CEA but generally view it as a slightly positive input into our overall assessment of Industrious Labs. See below for a high-level explanation and the model for additional notes and citations. We did not update this CEA in 2024.

- **Costs:** We estimated Industrious Labs' corporate campaign costs at around $2 million, based on a multi-year effort that is a substantial portion of Industrious Labs' overall budget.
- **Avoided GHGs:** In general, we estimated that switching to a low-carbon aluminum manufacturing process would reduce GHG emissions by around 80%.
- **Effectiveness:** For all effects, we estimated (a) the increase in the likelihood that a company or sector commits to low-carbon aluminum due to Industrious Labs and (b) the number of years Industrious Labs "moves up" the commitment. We include (b) because we think primary aluminum production will continue to counterfactually reduce in carbon intensity, so we are most interested in assessing how much Industrious Labs might speed up that process to avoid more years of high-carbon aluminum emissions. In general, we assume Industrious Labs has a larger effect on smaller commitments (e.g., a 3 percentage point increase in an automaker making a US-only commitment) and a much smaller effect on larger commitments (e.g., a 0.1 percentage point increase in half of the global aluminum industry committing). We also assume smaller-scale commitments would counterfactually happen sooner than larger-scale commitments (e.g., an automaker's US-only commitment is moved up by five years, compared to 10 years for the addressable half of the global aluminum industry).
- **Results:** Our best guess is that Industrious Labs' aluminum corporate advocacy efforts avoid one tCO_2e for around $0.52 (range: $0.03-$12.30). Within our best guess, we additionally estimated changes in cost-effectiveness if Industrious Labs does not impact larger-scale industry commitments. If Industrious Labs only impacts the automaker's operations, its cost-effectiveness is $3 per tCO_2e avoided. If it additionally impacts the global automotive industry, cost-effectiveness

improves to $1.50 per tCO_2e avoided. We also input our calculations into a Guesstimate sensitivity model and found similar results.

Is there room for more funding?

We think there is substantial room for more funding for heavy industry (see our deep dive on decarbonizing heavy industry). Overall, we think Industrious Labs can currently effectively absorb additional funding, which could increase its growth trajectory over the next few years. In the longer term, we think Industrious Labs is likely to have strong fundraising success, which may limit its future room for more funding.

Industrious Labs' 2024 budget was about $5 million. Although funding from Giving Green donors was used across campaigns, it was foundational to launching Industrious Labs' field-building initiative, The Arc.

Industrious Labs would like to increase its 2025 budget to $10 million, and it said it has raised about $2.5 million of this so far. Given this budget gap, we think Industrious Labs can effectively absorb additional funding. However, we are uncertain where marginal funding from Giving Green donors might be allocated. From speaking with Industrious Labs, it is our impression that marginal funding could go towards expanding campaign and program work in the following ways:

- **Cement and industrial heat:** Launching and growing these new campaigns.
- **Steel:** Expanding staff capacity by increasing part-time positions to full-time and increasing communications capacity for the campaign.
- **Aluminum:** Increasing field staff in key states, expanding communications capacity, and conducting more technical analysis.
- **Communications:** Increasing digital expertise and hiring a deputy director.
- **The Arc:** Hiring additional field strategists to support campaign work, regranting to partners, and supporting a national industrial decarbonization convening event.
- **Analytics:** Hiring additional staff, including a researcher to further support steel analysis and a senior analyst to support analysis across campaigns.
- **Waste:** Hiring additional staff, including a senior campaign strategist, a senior analyst, and two field staff, and regranting to partners.

We are uncertain about Industrious Labs' longer-term room for more funding. Speaking with climate philanthropy stakeholders, we have received positive feedback on Industrious Labs' leadership's effectiveness and ability to fundraise. We would not be surprised if, after establishing a solid track record, Industrious Labs can continually achieve its funding targets. On the other hand, Industrious Labs' broad mission and aggressive growth plans suggest that its ambitions may continue to outstrip available funding if it expands its local field-building efforts, increases its regranting, and/or adds new industries to its portfolio.

We think that providing additional funding to Industrious Labs could (a) give it increased financial confidence to expand its impact and (b) provide a signal to other climate philanthropists that crowd in additional funding at a relatively early stage in Industrious Labs' growth. We plan to monitor room for more funding as Industrious Labs expands.

Are there major co-benefits or potential risks?

We think the co-benefits and potential risks of Industrious Labs' efforts are similar to those for the broader effort to decarbonize heavy industry (see our decarbonizing heavy industry deep dive). In particular, we think Industrious Labs' efforts may reduce local pollution and have unclear effects on employment.

We think a major benefit could be reduced local air and water pollution in areas with heavy industry manufacturing or processing facilities. Since Industrious Labs sometimes plans to use pollution laws to decarbonize heavy industry, we think this could be a highly likely co-benefit of some of Industrious Labs' campaigns. Decarbonizing heavy industry may also affect employment in the industry. For example, if Industrious Labs successfully grows US heavy industry, this could result in increased US employment (e.g., by allowing a US aluminum smelter to remain open due to federal decarbonization funding) and/or decreased foreign country employment (e.g., if US import tariffs cause high-carbon production facilities in a foreign country to close). We have not looked into whether we expect decarbonizing heavy industry to increase or decrease global employment.

Key uncertainties and open questions

In addition to our broader uncertainties around decarbonizing heavy industry (see our decarbonizing heavy industry deep dive), we are uncertain about Industrious Labs' industry-specific effectiveness, organizational effectiveness, US focus, techno-feasibility assessment, and future room for more funding.

- **Industry-specific effectiveness:** Our analysis focused on assessing (a) Industrious Labs at a generalizable high level and (b) industry-specific strategies as examples to validate its general approach. We believe it is highly likely that Industrious Labs' effectiveness will vary by industry. We also think it is currently, and rightfully, focused on the "lowest-hanging fruit." On one hand, this could suggest that Industrious Labs' effectiveness will continue to decline over time. On the other hand, it may continue to learn and gain credibility such that future industry opportunities are relatively more cost-effective than its current portfolio. We are uncertain about this and plan to continue to assess changes to Industrious Labs' portfolio over time.
- **US focus**: As mentioned above, Industrious Labs is often heavily focused on US heavy industry. Given the US's relatively minor GHG emissions from industrial processes, this could be relatively ineffective and/or not result in positive spillovers on global heavy industry, which we think are more important to focus on. We are particularly concerned about strategies in which Industrious Labs states that it envisions bringing heavy industry back to the US.[55] We are highly uncertain

about the likelihood and effectiveness of this approach and believe its success often primarily depends on factors outside of Industrious Labs' control, such as labor costs in foreign countries. In practice, however, we don't view this as highly concerning since we do not believe the return of US heavy industry is essential to Industrious Labs' theory of change or our assessment of the broader theory of change for decarbonizing heavy industry (see our decarbonizing heavy industry deep dive). Instead, we think the US could serve as an effective context for innovation and proof-of-scalable-concept, after which low-carbon efforts could be scaled globally. We think Industrious Labs' theories of change generally support this strategy. However, we plan to monitor how this plays out for Industrious Labs' current strategies and the extent to which this is a focus of future strategy. Industrious Labs is in the process of launching its global cement campaign, which will be its first international campaign. We look forward to following its progress internationally. We also note that we have expanded our own strategy for decarbonizing heavy industry to include funding opportunities outside of the US.

- **Techno-feasibility assessments:** For some heavy industries, Industrious Labs' theories of change mostly focus on political and economic pathways to scale, with the expectation that low-carbon technology will not be a blocker. For example, its aluminum strategy expects that a current joint initiative between Alcoa and Apple will result in commercially viable zero-emission anode technology.[16] As noted, we generally think this is not a major concern since Industrious Labs appears to focus on opportunities for which low-carbon technology already exists or is not expected to be a major hurdle. However, we are uncertain whether Industrious Labs can always accurately assess techno-feasibility (and Industrious Labs also notes its own uncertainty). We address this in two ways: (1) we make our own best guess of technology's effects on GHG emissions (e.g., in our CEA, we assume that aluminum GHG emissions are only reduced by 80% due to lack of complete zero-carbon technology) and (2) we qualitatively consider this when assessing the overall likelihood that Industrious Labs' theory of change will succeed, especially as it relates to Industrious Labs' efforts to ensure transition assistance for a given industry. We may overestimate Industrious Labs' effectiveness if we are over-optimistic about this.
- **Future room for more funding:** We are uncertain about the degree to which Industrious Labs has room for more funding. We are moderately confident that it can still productively absorb additional funding. However, as Industrious Labs develops a track record, it may enjoy substantial fundraising success. Depending on its expansion rate and strategy, it's possible Industrious Labs will be able to comfortably meet its funding needs absent a recommendation from Giving Green.

Bottom line / next steps

We classify Industrious Labs as one of our Top Nonprofits addressing climate change, and we believe donations to Industrious Labs could increase its organizational growth trajectory.

[16]"The joint venture between Alcoa and Rio Tinto is continuing its research and development program to scale up the ELYSIS technology. Construction of larger prototype 450 kA cells is completed, and commissioning of these industrial prototype cells has begun, with the start-up sequence set to begin in 2024." Fastmarkets (2024)

We believe that Industrious Labs has developed promising strategies to cost-effectively decarbonize heavy industry and that it can currently absorb additional funding. Though its theory of change differs by industry, we generally think its approach—generate demand for low-carbon products, establish a supportive regulatory framework, and ensure transition assistance—could result in heavy industry producers switching to low-carbon production.

Though we generally view Industrious Labs as promising, we remain uncertain about Industrious Labs' industry-specific effectiveness, organizational effectiveness, US focus, techno-feasibility assessments, and future room for more funding. We plan to continue to assess these uncertainties and believe that we will be able to substantially improve our understanding of the severity and importance of these uncertainties as Industrious Labs continues to execute its strategies in 2025.