

UNLOCKING GREEN INDUSTRIAL GROWTH

KEY INSIGHTS FROM US CLEAN INDUSTRIAL HUBS

Industrial sectors represent ~30% of global greenhouse gas emissions.



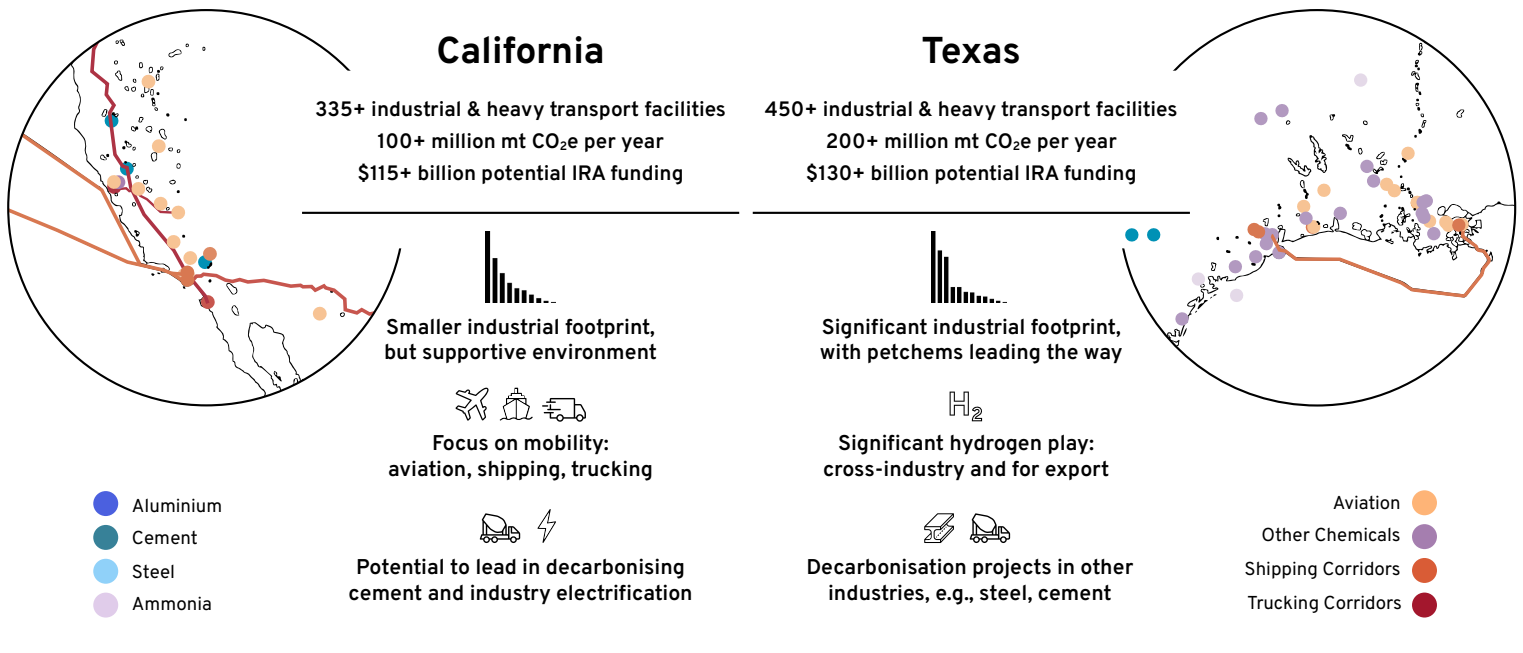
Industrial sectors ●
Other ●

Holding global temperature increases close to 1.5°C requires building more than 700 near-zero industrial projects globally before 2030.



In operation ●
FID ●
Announced ●
Unidentified ●

MPP and RMI are supporting clean industrial hubs in California and Texas due to the vast potential for green industrial development in these regions.



Our on the ground experience supporting project developers in these two regions has led us to uncover five critical insights on how to unlock investment in green industrial projects globally.

Technology | Demand | Infrastructure | Communities | Finance



AN ECONOMICALLY VIABLE PATH TO DECARBONISATION IS IN SIGHT IN SOME SECTORS.

MPP analysis on technology pathways to achieve net zero emission levels is demonstrating the increasing economic viability of clean technology pathways in sectors like aviation and cement. However, these pathways face hurdles and corporates remain dependent on supportive policy to pursue them rather than incremental solutions.

In aviation, competitive bio-based SAF and critical power-to-liquid pathways are being pursued in parallel.

MPP's collaboration with the **sustainable aviation fuel (SAF)** industry over a portfolio of projects has revealed the full scope of supply chain emissions and costs for SAF production via different routes (bio and synthetic based) through development of a robust carbon intensity model and levelized cost model. This allowed the project developers to make feedstock and technology selections that fundamentally de-risked the path to Final Investment Decision (FID). The analysis illustrated the near-term competitive position of bio-based SAF routes (i.e., HEFA from waste cooking oils). The analysis also highlighted a viable pathway to long-term cost-effective technologies relying on green hydrogen through cost declines in electrolyser. As well as a critical need for additional policy support to make a compelling business case for power-to-liquid SAF projects.

100bn US investment can be unlocked through 3 cement decarbonisation processes.

MPP's collaboration with the **cement** industry across projects has determined the costs to achieve net-zero plant emissions levels using three common process levers: supplementary cementitious material, alternative fuels, and carbon capture and storage. MPP analysis compared unique decarbonisation levers under various scenarios with associated funding opportunities such as the IRA 45Q, 48C tax credits, and federal and state grants. The plant level cost analysis drove an estimated \$60-\$100 billion capital investment requirement to decarbonise the U.S. cement sector by 2050.





PROJECTS WHICH RELY ON MANDATES PROGRESS FASTER DUE TO AN EVEN PLAYING FIELD AND LONGER-TERM DEMAND CERTAINTY.

Demand stimulation policies, such as mandates and regulations, are advancing project progress in certain regions, including California. Policy measures such as tax credits and regulation, create greater visibility on future demand and reduce overall risk for investors.

California has adopted mandates in certain sectors, which provide assurance to heavy industry that decarbonised technologies will find a market in the future.

The Buy Clean California Act, for example, requires the state to spend public dollars on infrastructure materials in a way that is consistent with climate pollution reduction and recognises clean manufacturers, which benefits clean steel producers. Under California Senate Bill 596, the state is also developing a strategy for the cement sector to achieve a 40% emissions reduction by 2035 and net-zero emissions by 2045. By adopting more stringent state-level mandates, projects have advanced faster in California (compared to Texas), where five MPP-supported projects have now reached FID.

Mandates spur implementation and shed light on optimal infrastructure.

California's Advanced Clean Fleets regulation requires an increasing percentage of heavy-duty vehicles deployed in California to be ZEVs by 2035, driving investment in zero emissions trucking, especially drayage. A lack of charging infrastructure is commonly cited as a key barrier to this goal, but MPP **identified areas where investment in charging depots** could make a targeted impact on this market. MPP's analysis of Los Angeles' charging infrastructure needs for fleet electrification showed that drayage charging demand does not need to be concentrated at the ports. Instead, distributing chargers across various locations can help relieve grid bottlenecks and ease physical space limitations at the ports.





ACHIEVING DECARBONISATION GOALS FOR INDUSTRY WILL REQUIRE A RAPID BUILDOUT OF INDUSTRIAL ASSETS AND INFRASTRUCTURE.

Increased dialogue and transparency on permitting unlocks progress on the buildout of industrial assets and energy infrastructure.

California has passed a handful of laws aimed at streamlining the permitting process for various industrial processes.

This is an important step in the right direction, however implementation of these requirements has been variable. In Texas, a lack of regulation and lack of ongoing conversation on this issue creates its own set of permitting issues.

MPP has surveyed the policy landscape around permitting industrial projects and engaged with numerous stakeholders in the public and the private sectors to better understand how companies should best apply for permits, and how the permitting process itself can be streamlined. Additionally, MPP will convene permit seekers with permit-granting agencies and state resources to facilitate the crucial relationships that are needed to avoid many of the snags related to the permitting process. When the permitting process is improved, more industries can be sited within state borders, which draws in associated IRA investment via 45V, 45Q, 48C and more.

Co-ordinated energy planning supports accelerated ambition.

MPP's collaborative analysis with the Houston Energy Transition Initiative (HETI) demonstrated the critical importance of comprehensive energy demand analysis at the hub level. Taking an orchestrated approach to future electricity demand planning, led to alignment across stakeholders and accelerated decarbonisation efforts.

The study revealed a significant need for increased electricity generation, transmission, and distribution infrastructure to support the region's transition. This insight prompted HETI and its corporate members to consider future policy work around electricity infrastructure development. More details on HETI can be found in this [recent report](#).





COMMUNITY ENGAGEMENT IS CRITICAL TO PROJECT SUCCESS AND INNOVATIVE TOOLS CAN ELEVATE ENGAGEMENT.

Conducting sector-specific capacity-building workshops on best practices and strategies has created two-way, inclusive, meaningful community engagement and responsive benefits, and has enabled project developers to access the DOE's Justice40-covered grants.

Best practices in community engagement.

Tailored, sector-specific guidance on crafting well-rounded proposals for community engagement and responsive community benefits led to multiple successful applications for the \$6.2Bn Industrial Demonstrations Program and \$7Bn Regional Clean Hydrogen Hub Program awards. The best practices and lessons learned from advising project developers and case studies of recent clean energy and infrastructure projects were captured in a flagship [report](#) and [launch event](#). This debuted a first-of-its-kind, user friendly [web-based stakeholder analysis and mapping tool \(S.A.M.\)](#) to support stakeholder management and efforts to conduct effective two-way community engagement. It enables design-responsive and inclusive benefits negotiations with host communities, especially frontline and fence-line communities that have historically been overburdened by underinvestment and legacy pollution.

Example: Elevating community engagement in the cement transition.

In the cement sector, developers were advised on best practices for well-rounded, responsive and “SMART” community benefits, and effective strategies for facilitating equitable, inclusive and accessible community engagement.

Notably, an in-person capacity building workshop with a major cement producer yielded breakthroughs in corporate commitments - increasing transparency on emissions monitoring and reporting, improving water stewardship and improving utilisation for dust-control in a drought-stricken location. The initiative also resulted in commitments to provide wrap-around services for caregiving and compensation for participation in community engagement activities.





FINANCIERS MUST EXPLORE MORE INNOVATIVE DEAL STRUCTURING TO EFFICIENTLY SHARE RISKS IN COMPLEX PROJECTS.

Whilst bankers are generally struggling to fund US green hydrogen projects, they see opportunities in e-methanol for shipping and clean ammonia exports to East Asia with project-on-project risk remaining a key hurdle.

MPP conducted finance roadshows with dozens of large banks and institutional investors, which crystallised insights into five key learnings:

1. Financial institutions (FIs) are seeing few credible hydrogen deals, which creates a risk of lower impact projects crowding out high impact opportunities.
2. Most new projects' marketing plans are largely incomplete relative to incumbents and require regulatory certainty—often from overseas—to firm up revenue forecasts.
3. FIs see opportunities in the development of global commodity markets for green molecules, such as exporting ammonia from the US to the EU or to Asia.
4. Non-traditional creative capital stacks will be needed to manage risks and unlock wider access to debt and equity markets, evidenced by **H2 Green Steel**, **Fertiglobe**, and **Ten8 Energy**'s evolving deal structures.
5. Hydrogen deal teams within banks comprise staff from several groups (e.g. sustainability, energy, power, etc.) and must work in unison to quantify risk and reward for clients and their own firm's investment committees.

More details on the roadshow insights [here](#).

