

Hydrogen

Policy, Regulatory
and Infrastructure

WE KNOW ENERGY®



BRACEWELL

Global Recognition for Excellence

Our broad energy platform is highly regarded throughout the world, including in every practice area related to hydrogen development.



Chambers Global

USA Electricity – Regulatory and Litigation; USA Electricity – Transactional; USA Energy Sector (International and Cross-Border); USA Oil & Gas Regulatory & Litigation (Band 1); USA Oil & Gas Transactional; USA Projects – Power and Renewables Transactional



Chambers USA

Nationwide Energy Transition; Nationwide Environment; Nationwide Electricity Regulatory & Litigation; Nationwide Electricity Transactional; Nationwide Government Relations; Nationwide Oil & Gas Regulatory & Litigation (Band 1); Nationwide Oil & Gas Transactional; Texas Environment (Band 1); Washington DC Environment



Chambers UK

UK Projects; Energy & Natural Resources: Oil & Gas



IFLR1000

UAE Project Finance; USA Project Finance; UK Project Development – Power; UK Projects



Legal 500 EMEA

UAE Infrastructure and Projects



Legal 500 UK

Projects, Energy and Natural Resources: Infrastructure; Projects, Energy and Natural Resources: Oil & Gas; Projects, Energy and Natural Resources: Power



Legal 500 US

Energy Regulation – Electric Power; Energy Regulation – Oil & Gas; Energy Transactions – Electric Power; Energy Transactions – Oil & Gas; Energy – Renewable/Alternative Power; Environment Regulatory; Environment Litigation; Environment Transactional; Government Relations

Firm of Choice for the Developing Global Hydrogen Economy

Hydrogen will play an essential role in the clean energy transition as companies and governments throughout the world continue to announce aggressive targets for net-zero emissions that include the use of hydrogen technology. A broad set of federal incentives are expected to catalyze development, investment and innovation in the hydrogen economy. Experienced counsel with deep industry knowledge will be critical to take advantage of these transformative opportunities and navigate the complex challenges of the emerging technology.

We are uniquely positioned at the vanguard of the emerging hydrogen economy with unmatched insight into the complex intersection of legal, regulatory and business issues facing developers, investors and off-takers across the hydrogen value chain.

A Recognized Global Leader in Emerging Energy Technology

Bracewell is one of the largest energy law firms in the world to advise on the execution of emerging technology projects such as hydrogen.

We Know Energy® is not just our tagline, it is our central tenet. Bracewell is a recognized global leader in the energy industry and we frequently work on “first-of-a-kind” transactions for high-profile clients. Our team is setting the standard in the market for legal excellence and transaction execution.

Influential Hydrogen Policy Architects and Advocates

Bracewell's Policy Resolution Group has been influential in federal hydrogen policy on Capitol Hill and also helping clients identify available funding through the Department of Energy's Hydrogen Hub Program and other incentives.

Our government relations team served as a key legislative resource during the drafting of the Inflation Reduction Act of 2022 (IRA), including the expanded hydrogen production tax credit and the investment credit for hydrogen storage property, and remains in constant dialogue with key policymakers and staff who are dramatically reshaping federal energy policy and reallocating billions of dollars in energy subsidies.

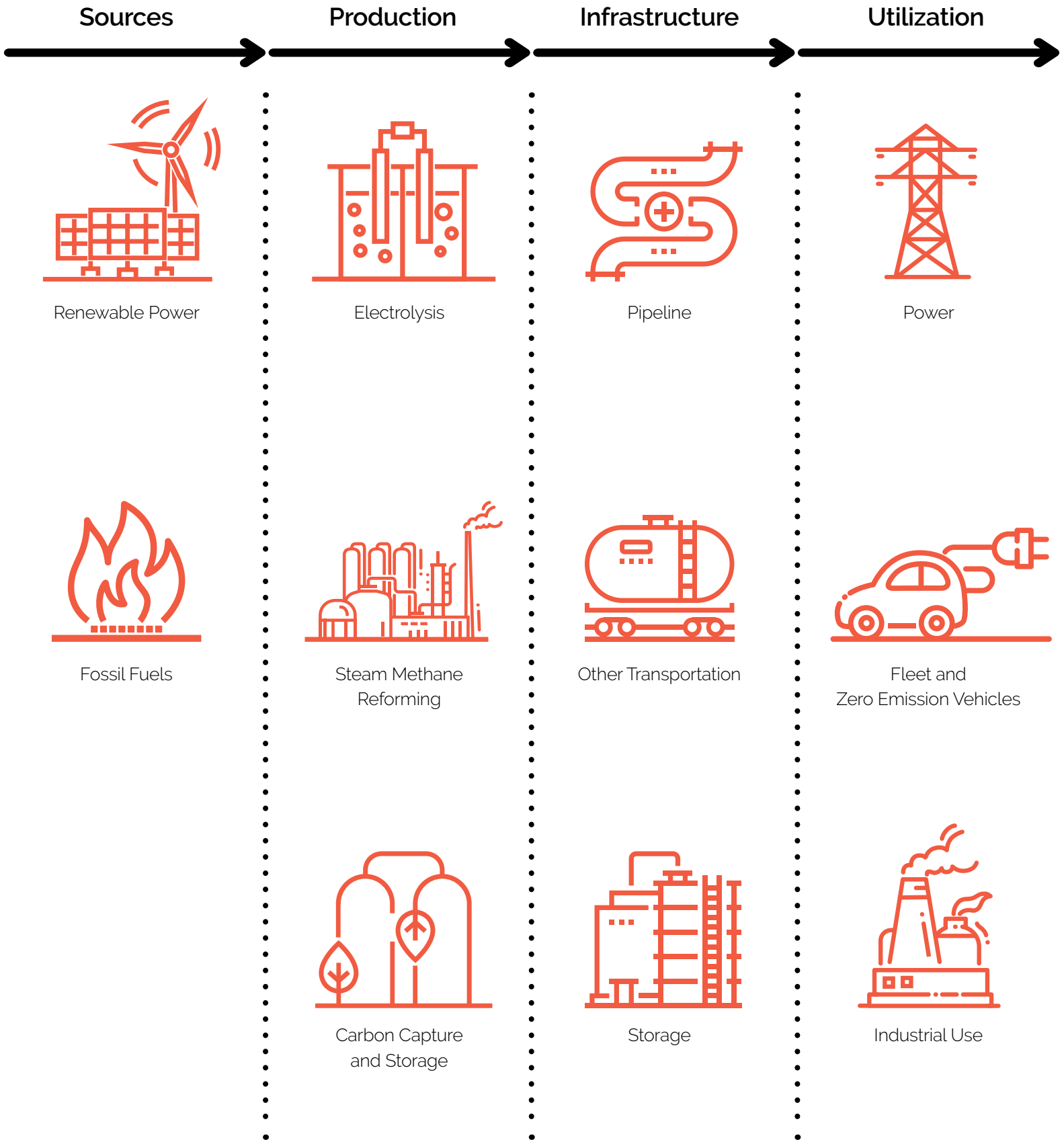
Who We Represent:

- Sponsors and developers
- Independent power producers
- Utilities
- Industrial gas companies
- Lenders
- Governments
- Private equity and infrastructure funds
- Service companies
- Contractors
- Trade associations

We Advise On:

- Federal energy policy directly and indirectly affecting the hydrogen economy, including funding opportunities, the regulatory framework, and tax policy
- Development and financing of hydrogen production facilities and pipelines
- Intersecting clean energy technologies, include carbon capture, utilization, and storage (CCUS) projects supporting hydrogen production
- Development of mobile hydrogen refueling stations
- Mergers and acquisitions
- Siting, environmental permitting and real estate issues
- Energy regulatory and compliance matters
- Environmental, social and governance (ESG) matters
- Intellectual property portfolio management and patent prosecution

The Hydrogen Value Chain



Our Hydrogen Capabilities

Hydrogen Energy Sources

The hydrogen value chain's genesis is energy. Whether that energy is sourced from renewable energy, including solar, offshore wind, and renewable natural gas, or traditional fossil fuels, including natural gas, Bracewell's professionals have the experience and insight to guide clients through this emerging market.

Bracewell's power and renewables team serves as trusted advisor to the world's leading solar and wind developers. With a reputation for excellence, responsiveness and understanding our clients' businesses, our teams provide commercial, practical and creative advice to help our solar and wind clients achieve their commercial objectives.

Our full-service gas and LNG practice provides clients with practical and innovative solutions to the issues facing the evolving global gas sector. We understand that the global gas industry is influenced by markets, government regulations, economic trends, technological advancements, geopolitics, and other global forces, and our lawyers anticipate the direction of the global gas market to ensure that our clients are prepared for changing dynamics and stay ahead of the curve.

Hydrogen Production

One attribute that makes hydrogen such an attractive solution to support the clean energy transition is its versatility, including that there are multiple pathways to production. Traditional production methods from fossil fuels are evolving to include carbon capture technologies. While technologies like electrolysis are ramping up to increased capacity.

Bracewell advises clients on a range of matters involving the development, financing and execution of hydrogen production facilities, including federal tax policy, siting, environmental permitting and real estate issues, and energy regulatory and compliance matters, as well as carbon capture, utilization and storage (CCUS) projects supporting large-scale hydrogen production.

Our lawyers have established a strong legacy of representations involving hydrogen facilities. As hydrogen technology emerges and evolves, our experience allows us insight into how to structure new hydrogen projects efficiently and effectively.

Hydrogen Policy

Federal policy is driving the accelerated deployment of hydrogen technology—new incentives are fundamentally shifting the hydrogen economy, while regulatory and legal frameworks are evolving. The shifting federal regulatory and policy landscape is complex and requires industry-focused professionals who can provide advocacy, strategic communications, and legal representation services to help clients navigate the changing landscape.

Bracewell is the leading national law firm working with US lawmakers and administration officials on the development of hydrogen energy policy. Our Policy Resolution Group (PRG) offers a deep bench of advocates who have designed and implemented strategies to achieve the government relations and strategic communications objectives of some of the top players in the hydrogen economy.

Hydrogen Infrastructure

The regulatory landscape impacting hydrogen pipeline infrastructure is in a period of transition. Repurposing existing infrastructure for hydrogen raises a number of complicated jurisdictional and regulatory issues that require careful consideration.

Bracewell advises project developers on jurisdictional, regulatory, permitting, and commercial issues related to the development of hydrogen pipelines. Among other things, we advise clients on rate regulation, allocation procedures, terms and conditions or service that may be offered on hydrogen pipelines.

Our lawyers also advise clients on how regulatory changes are unfolding and how they may impact future hydrogen pipeline development.

We have significant experience related to natural gas pipelines that are seeking to repurpose existing infrastructure to transport hydrogen or a natural gas/hydrogen mixed stream.

Hydrogen Utilization

The key to unleashing the hydrogen economy will turn on the widespread adoption and utilization of hydrogen, such as in zero-emission and fleet vehicles.

Bracewell's lawyers have advised clients on the nuances

of utilization and safety issues related to the distribution of hydrogen as retail fuel, the development of mobile hydrogen refueling stations, the use of hydrogen as pollution control in refineries, hydrogen distribution networks in the Gulf Coast region, supply of hydrogen to industrial customers and as a fuel into California. We represent hydrogen suppliers and providers of tube trailers inside third party industrial facilities, among others.

Joint Venture and Contractual Expertise

Hydrogen projects often involve an interdependent combination of processes and technologies that are used to produce, transport, store and/or utilize hydrogen. As such, any hydrogen project will require a tailored set of contractual arrangements between the various project participants, which allow for the integration of these processes and address the various risks that each participant is exposed to by virtue of its participation in the project. Additionally, each project structure will need to take into consideration the goals of a potentially diverse set of investors which can range from tax equity investors and sponsoring governmental agencies to the base project owners and their capital providers.

Whether in the form of an equity level joint venture arrangement or commercial arrangements with outside service providers, Bracewell's project development team has the expertise to advise clients on all steps of structuring and documenting these project level structures.

Drawing on our extensive experience in the power, upstream and midstream energy space, we are able to assist clients in developing project structures which balance and allocate risks associated with process-specific operational and reliability issues (such as how power purchase agreements might impact a base level of feed stock for production of green hydrogen as well as how transportation and storage agreements may be impacted by those provisions) and regulatory compliance requirements (such as qualifications for relevant production and investment tax credits and the transferability of such credits) with the underlying assumptions on which the project was underwritten.

Project Development and Real Property Expertise

Bracewell's project development team has counseled clients on a wide variety of real property issues relevant

to hydrogen production, transportation, storage and utilization projects. We have the expertise to assist clients in navigating the often-complex set of state and federal legal issues surrounding which real property rights project participants must obtain to conduct underground storage of hydrogen at a given site. Our teams' extensive experience in the midstream space allows us to advise on emerging regulatory issues related to the transportation and distribution of hydrogen and to assist clients in negotiating applicable off-take and transportation agreements for hydrogen.

Additionally, project sponsors and investors will have to understand and comply with extensive permitting and regulatory regimes applicable to each jurisdiction in which they operate. This often requires addressing concerns of, and interactions with, other stakeholders in the area where the project is located, including governmental entities as well as affected landowners in and around the project area. Bracewell has a full-service team that can assist project participants with the relevant permitting, notice and other regulatory compliance requirements associated with hydrogen projects. Our team also has extensive experience engaging with outside stakeholders who may attempt to impede project development and preemptively addressing the risks that they pose to a project.

Tax Expertise

Bracewell's transactional tax practice is almost exclusively focused on the energy industry and has developed significant expertise in energy transition incentives, particularly federal tax credits enacted through the Inflation Reduction Act. Bracewell's tax group has been an important part of market leading energy transition projects including carbon capture, clean hydrogen and clean fuels utilizing hydrogen. The tax group not only focuses on qualification for credits, but also commercial agreements including covenants necessary to claim the credits, and indemnities for lost credits in the event of a failure to perform. In addition, the tax practice advises on the monetization of tax credits, including through tax equity transactions, and elections for direct pay or transfer of energy credits. The appropriate monetization strategy is evaluated in the early stages of project development, so early planning is done with a view toward long term capital opportunities.

Intellectual Property Expertise

Bracewell's technology team utilizes a well-rounded approach to facilitate protection of hydrogen technology assets to align with our clients' long-term goals. We provide practical coverage in all areas of technology and intellectual property, with established practitioners who file and prosecute patents on technologies related to the development, production and use of hydrogen throughout the energy supply chain and who provide advice and support on an array of transactional or adversarial matters, including outsourcing, licensing, technology transfer, collaboration, and joint venture agreements.

Bracewell's technology lawyers also work closely with attorneys throughout the firm to provide intellectual property solutions in connection with company formation, mergers and acquisitions, dispute resolution and litigation, audits, due diligence, and other business concerns.

Notable Matters



Bracewell is playing a leading role in the development of the global hydrogen economy.

- **Air Liquide** — in educating policymakers and creating opportunities to use hydrogen to modernize the electric grid and mobility sector
- **Major midstream company** — on the preparation of a comprehensive memorandum summarizing economic, environmental, siting, construction and operational requirements applicable to hydrogen pipelines and pipelines transporting a commingled stream of natural gas and hydrogen
- **VPI Generation Limited** — £300 million financing for the 3.2 GW portfolio of UK CCGT, operated by VPI Generation Limited, with the use of proceeds designated for pre-capex financing to prepare the generating assets for the introduction of hydrogen into the feedstock and carbon capture of the emissions, including the plant at Immingham to be ready for the potential Humber Zero consortium's project
- **Major national pipeline company** — on the development of multiple hydrogen production facilities utilizing natural gas and employing carbon capture equipment to reduce net carbon emissions as well as pipeline systems to transport the produced hydrogen
- **Major project developer** — on maximizing the federal tax credit value in connection with the production of green methanol utilizing clean hydrogen
- **Major project developer** — on maximizing the federal tax credit value in connection with the production of renewable diesel utilizing clean hydrogen
- **Industrial complex** — in connection with air permitting and other environmental regulatory aspects of modifications and expansion to large Texas industrial complex, including steam methane reforming, air separation and cogeneration facilities
- **Internationally recognized hydrogen producer** — on environmental permitting, compliance, auditing and enforcement defense for hydrogen facilities located across the United States
- **Major global industrial gas manufacturer** — on siting, environmental permitting and development issues associated with a new steam methane reformer facility constructed in Nevada to provide hydrogen fuel for the California market
- **Major global industrial gas manufacturer** — on due diligence on the real estate, regulatory, environmental and permitting aspects of several recent acquisitions of air gas pipelines and of natural gas pipeline for conversion to air gas service
- **Major midstream company** — on regulatory and commercial issues related to pipeline company's plans to convert its existing interstate natural gas pipeline to hydrogen service
- **Major midstream company** — on regulatory and commercial issues relating to an existing interstate natural gas pipeline seeking to commingle hydrogen with its gas stream and establish new hydrogen transportation service and rates
- **Major midstream company** — on regulatory and commercial issues for a midstream company seeking to construct and operate a new interstate pipeline delivering a mixed stream of natural gas and hydrogen

- **Major global industrial gas manufacturer** — in Risk Management Program/Process Safety Management enforcement and compliance actions at multiple steam methane reforming and other industrial gases facilities, including successful negotiation of consent decree with US EPA and implementation of enhanced RMP auditing program
- **Powertech Labs, Inc.**, — a subsidiary of Canadian Crown Corporation, with respect to the proposed sale of mobile hydrogen refueling stations for third-party installation and use in the United States, including contractual and regulatory issues
- **National and international energy companies and manufacturers** — on hydrogen technologies and patent prosecutions for development, production and use of hydrogen throughout the energy supply chain
- **Integrated energy and chemicals company** — in patent prosecution for a system and method of hydrogen purification resulting in an overall optimized system of steam generation that maximizes hydrogen recovery from refinery off gases
- **Integrated energy and chemicals company** — in patent prosecution for systems and methods for hydrogen production that substantially reduce greenhouse gas emissions, including the storage of byproduct steam in a reservoir
- **Integrated energy and chemicals company** — in a patent prosecution for systems and methods involving the separation of syngas components including hydrogen and carbon dioxide to create a hydrogen product and byproduct steam
- **Integrated energy and chemicals company** — in patent prosecution for systems and methods of enhancing oil recovery utilizing an electrochemical apparatus in conjunction with injection water from an injection well bore, a portion of which is converted into a product gas that includes hydrogen and oxygen gases
- **Integrated energy and chemicals company** — in patent prosecution for an electrochemical gas lift apparatus that converts formation water in the interior of the apparatus into production fluid comprised of hydrocarbon fluid, unconverted water and product gas bubbles
- **Integrated energy and chemicals company** — in patent prosecution for a method that evaluates the strength and ductility of specimens taken from a tubular environment to determine their susceptibility to hydrogen embrittlement cracks
- **Integrated energy and chemicals company** — in patent prosecution for a non-catalytic nature of process that enables the use of sulfur containing feedstock for generating hydrogen for suitable use in solid oxide fuel cells in auxiliary power unit applications
- **Gulf based NOC and private developers** — on the development of green hydrogen facility in Oman utilizing existing renewables power generation facility, with offtake arrangements with government(s) in Asia
- **Integrated energy and chemicals company** — in patent prosecution for a method and system that produces both hydrogen and electricity using petroleum fuels
- **Integrated energy and chemicals company** — in patent prosecution for a method that evaluates the strength and ductility of specimens taken from a tubular environment to determine their susceptibility to hydrogen embrittlement
- **Envirotech Corp.** — in patent prosecution for a method and apparatus that utilizes an inductive furnace for heating methane into elemental carbon and hydrogen gas
- **Krause, Inc.** — in patent prosecution for a process and method of separating hydrocarbon gas into hydrogen, methane and other components
- **Midwest Refrigerants, LLC** — in patent prosecution of a process that converts organic halide compounds
- **World Energy Systems Incorporated** — in a patent prosecution for a system, method and apparatus for a hydrogen-oxygen burner used in downhole steam generation that will update and improve heavy crude mobility
- **ABB Randall Corporation** — in patent prosecution for a process and apparatus that utilizes a cryogenic process to recover hydrogen from a fuel gas stream that can either be stand-alone or combined with existing processes

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