

Energy Transition in the Concrete and Cement Industry

In March 2024, the U.S. Department of Energy (“DOE”) announced its largest-ever investment in industrial decarbonization. The \$6 billion in available funds will be divided among up to 33 projects chosen for award negotiations, and it represents the federal government’s most significant effort to invest in, model, and decarbonize the country’s most energy-intensive sectors.

As part of the European Green Deal, by 2050, the cement sector aims to achieve carbon neutrality along the full value chain—clinker, cement, concrete, construction, and (re)carbonization. In February 2024, the European Commission adopted an Industrial

Carbon Management Communication outlining the Commission’s ambitions for a strategy to boost the deployment of technologies in the European Union that can capture, store, transport, and use carbon dioxide (“CO₂”) emissions from industrial facilities.



KEY AREAS OF FOCUS

CARBON EMISSIONS
AND CARBON CAPTURE
UTILIZATION STORAGE

ALTERNATIVE
FUELS AND
RAW MATERIALS

CIRCULAR
ECONOMY
PRACTICES

ENVIRONMENTAL AND
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CARBON EMISSIONS AND CARBON CAPTURE UTILIZATION STORAGE

Given that the cement production process is energy-intensive and releases significant amounts of CO₂ into the atmosphere—primarily due to the calcination process, where limestone (calcium carbonate) is heated to produce lime (calcium oxide), releasing CO₂ as a byproduct—the industry has been making strides in finding ways to reduce or capture these emissions. Many of our clients are looking at innovative solutions around carbon capture.

Implementing carbon capture utilization and storage (“CCUS”) technologies is perhaps the most tested approach to reduce the industry’s carbon footprint despite substantial questions about its cost. Reducing CO₂ emissions through CCUS requires significant capital outlays, and some governmental programs are stepping in to help fill funding gaps. In March 2024, for example, the DOE awarded two separate grants of up to \$500 million to two cement plants to construct full-scale CCUS facilities. The recipients of those grants will need to work strategically to maximize the benefit of that funding while minimizing the risk of unanticipated charges and penalties.



Our experience with the cement industry and other key industries utilizing similar technology ensures our multidisciplinary team of lawyers can provide a deep understanding of the legal issues surrounding this type of innovative technology required to achieve decarbonization.

- Represented **National Cement** in connection with a DOE grant for construction of carbon capture and storage in California.
- Represented **Cleveland-Cliffs** in connection with a DOE grant for green hydrogen production.
- Represented **Libbey Glass** in obtaining a DOE grant for a new low-carbon glass production line.
- Advised **TotalEnergies** in connection with its PIPE investment in NextDecade Corporation and investment in the Rio Grande LNG. The first phase of this project comprises three liquefaction trains with a total capacity of 17.5 million tons per annum and a planned capex of \$14.8 billion. TotalEnergies will offtake 5.4 Mtpa of LNG from this initial phase, and also received rights to participate in future LNG train developments, as well as a proposed carbon capture and sequestration project.
- Advised **Chevron U.S.A. Inc.** in its receipt, with counterparties Svante, Inc., the Kiewit Group, OTC, and Electricore, of a competitive DOE grant to advance an innovative carbon capture technology.
- Advised a major player in the building materials sector in setting up a corporate power purchase agreement template.
- Advised **Mayur Resources Limited** on the debt financing agreements with Appian Capital Advisory LLP and combined equity funding from Vision Blue Resources, a clean energy battery metals transition investment vehicle led by Sir Mick Davis, for a total of approximately US\$155 million to complete the Central Lime Project. The financing, combined with Vision Blue Resources’ proposed equity investment into the project, is proposed to see the Central Lime Project fully funded.

ALTERNATIVE FUELS AND RAW MATERIALS

Since traditional cement production relies heavily on fossil fuels, such as coal and petroleum coke, as sources of energy to achieve the extraordinarily high temperatures needed for production, using alternative raw materials, such as fly ash or slag, can reduce the amount of heat needed to produce cement.

Many of our industrial clients have processes that produce greenhouse gases due to chemical reactions in addition to fuel combustion. In the cement industry, the production of clinker from limestone produces CO₂ regardless of the fuel used for process heat. Through our work in multiple industries, we have significant experience in developing and advising upon hydrogen projects, biomass, or other renewable energy projects.



- Advised **Nutrien LLC** on the development of a blue hydrogen project in Louisiana. Obtained environmental permits and other necessary authorizations for construction of a new ammonia plant with carbon capture and storage by underground injection for carbon dioxide generated during the production of hydrogen, to be used as a reactant in the ammonia process. This project included possible tax equity financing partners due to the project cost.
- Advised **Marathon Petroleum Corp.** in the formation of a joint venture with Neste to convert Marathon's idled refinery in Martinez, California, into a 730 million gallons-per-year renewable fuels facility.
- Advised **Yara Pilbara Fertilisers** (in collaboration with ENGIE) on construction and operation of the first large-scale hydrogen-to-ammonia project to be announced in Australia.
- Represented **EDF** through its affiliates, Hynamics SA and EDF Deutschland, in its inaugural and groundbreaking investment in Germany's hydrogen sector, forming a joint venture to construct a 30MW hydrogen electrolysis plant from renewable sources (green hydrogen).
- Advised **TotalEnergies** in the buyout of Total Eren's other shareholders, increasing its stake from close to 30% to 100% after a successful strategic alliance of five years. Total Eren is a renewable energy global player with a 3.5 GW renewables production and a 10 GW pipeline as well as a pioneer in green hydrogen.
- Advised **CDPQ** on its participation in the record €200 million investment in green hydrogen pioneer Hy2gen AG, the world's largest private investment in green hydrogen to date.

CIRCULAR ECONOMY PRACTICES

Embracing circular economy principles, such as recycling concrete waste and using recycled aggregates as raw materials, can help reduce resource consumption and waste generation and is an area that is being explored by many of the leading global cement and concrete companies.



More and more of Jones Day's industrial clients emphasize their involvement in circular economy practices. Our lawyers have deep experience in advising on circularity, guiding businesses through the complex legal landscape of environmental regulations and project development and structuring, helping with the transition to sustainable practices. In the shift toward a low-carbon, circular economy, Jones Day lawyers can be instrumental, ensuring that clients in the cement and industrial sectors can achieve their sustainability goals while remaining competitive and compliant.

- Advising **Eastman Chemicals** on the largest material-to-material molecular recycling facility in Normandy, France.
- Advised the French listed company **Suez SA** in its largest sale of Suez Recycling & Recovery operations—excluding plastic recycling and hazardous waste treatment activities—in four continental Europe countries (the Netherlands, Luxembourg, Germany, and Poland) to Prezero, the environmental division of Schwarz Group.
- Advised **NOVA** Infrastructure on its partnership with Nopetro Energy to create Nopetro Renewables, a renewable energy platform focused on renewable natural gas and biofuels.
- Advised **Lazard Asset Management** in connection with the Lazard Global Sustainable Private Infrastructure team's inaugural investment in DBE Energy, the owner and operator of an anaerobic digestion plant in Surrey, England. The DBE Energy plant contributes to both the decarbonization and circular economy ambitions of the United Kingdom by producing green, renewable gas from organic waste and supplying it to the National Grid for commercial and domestic use as a carbon-neutral alternative to fossil gas.

ENVIRONMENTAL AND ENERGY COMMODITIES TRANSACTIONS

Environmental and energy commodities transactions can play a crucial role in helping the cement and concrete industry achieve net-zero emissions. Participating in carbon markets is an innovative manner to ensure that emissions can be offset alongside other strategies to reduce the carbon footprint in this heavy-carbon industry.



Jones Day has a team of lawyers with global market-leading experience in assisting companies with transactions to meet the renewable energy and carbon reduction priorities of their ESG goals. The Firm offers a global, cross-disciplinary team of transactional, regulatory, and project lawyers who focus on assisting clients to achieve their cutting-edge energy transition and environmental commitments. We have been at the forefront of establishing market standards for environmental commodities internationally for more than two decades since these markets first emerged, possessing distinctive experience advising on new business and product formation in innovative carbon and renewables ventures. We advise clients on VPPAs, CPPAs, on-site and off-site renewable energy projects, sleeved retail energy transactions, balancing agreements, and other similar transactions involving projects located around the world.

- Represented **Crédit Agricole Group** in connection with the update of its green bond framework, which serves as a reference for all Crédit Agricole entities to issue green bonds under different formats.
- Assisting the joint lead managers of an **investment-grade issuer** with the stand-alone issuance and offering of approximately €250 million to €500 million green notes by an energy company. The proceeds of the notes will be used to finance eligible green projects under the company's green financing framework. This is the first stand-alone investment-grade retail issuance in the last decade and the first-ever green retail offering by a French corporate issuer.
- Advised **BNP Paribas** in connection with the structuring and issuance of a tokenized ESG bond, the proceeds of which will aim to refinance a solar energy project sponsored by EDF through its subsidiary EDF ENR. This native digital asset, issued on the public blockchain, represents the first renewable energy bond tokenization in the project financing market. This innovation will be instrumental in broadening the scope and increasing the efficiency of project financing, including better transparency of ESG data along the value chain.

ENVIRONMENTAL AND ENERGY COMMODITIES TRANSACTIONS

- Represented **Northern States Power Company**, a wholly owned subsidiary of Xcel Energy Inc., in connection with its registered offering of \$700 million of its 5.40% Green First Mortgage Bonds Series due March 15, 2054. Eligible projects include the development, construction, and operation of, as well as transmission, technology, and distribution infrastructure to support, Northern State Power's solar energy projects (including its Sherco Solar facility).
- Represented **PureCycle Technologies LLC** in connection with its Rule 144A offering of \$250 million of its 7.25% Green Convertible Senior Notes due 2030. Eligible projects include long-lead items and initial outside battery limits engineering design work associated with PureCycle's multiline purification facility to be built in Augusta, Georgia.
- Represented **PNC Bank, National Association**, as green loan coordinator, in connection with its commitment to make green loans to a leading gas supplier. Eligible projects include funding present and future capital investments related to clean transportation, energy efficiency, green buildings, and renewable energy projects.
- Advise **Fortune 50 companies and global financial institutions** to assist in developing new transactional products and documentation across the Americas, EMEA, and APAC, including with respect to carbon offsets and allowances under the EU ETS, California Cap-and-Trade Program, Washington Cap-and-Invest Program, and Regional Greenhouse Gas Initiative.
- Advised **The Procter & Gamble Company** in entering into two 15-year virtual VPPAs to purchase electricity and guarantees of origin from solar and wind energy projects in the European Union owned by a subsidiary of renewable energy developer EDP Renováveis, S.A.
- Represented **General Mills Operations, LLC** in executing a virtual power purchase agreement/wind energy commodity swap with RES Cactus Flats Wind Energy, LLC, an affiliate of RES America Developments Inc., to purchase financial electricity and renewable energy credits for a 15-year term from an anticipated 148.35 MW wind energy project in Texas. circular economy principles, such as recycling concrete waste and using recycled aggregates as raw materials, can help reduce resource consumption and waste generation and is an area that is being explored by many of the leading global cement and concrete companies.



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