CLIFFORD
CHANCE

# CCS IN APAC AND THE MIDDLE EAST

— THOUGHT LEADERSHIP

JUNE 2025

# CCS IN APAC AND THE MIDDLE EAST

Investors are focusing on opportunities in the carbon capture and storage (CCS) sector as the market develops. The desire to enhance the value of existing facilities, secure financing for new projects and create sustainable fuels and materials will drive demand for CCS providers and infrastructure. In this extract from a recent webinar, we discuss CCS in the Asia Pacific region and the Middle East, including the financial incentives available, regulatory frameworks and key issues to consider when investing in the sector.

## How are projects being developed in the Middle East?

CCS is fundamental to the Gulf Cooperation Council (GCC) countries achieving their ambitions to reduce the carbon intensity of their activities in line with their commitments under the Paris Agreement. Enhanced oil recovery (EOR) with carbon capture has long been a feature throughout the region and CCS is now a focus for reducing carbon density and for the manufacturing of low carbon products. "The topography in the Middle East is well suited to CCS and that is reflected in the number of projects that have been announced with the aim of creating carbon capture hubs throughout areas of industrial development in the region," says Craig Nethercott, a Partner in the global energy and infrastructure group at Clifford Chance.

The CCS hub in Jubail Industrial City, Saudi Arabia, is one of the most advanced, with Linde and SLB joining Aramco in developing the project. The UAE also has some advanced projects and Qatar, Oman and Bahrain have all announced plans. National oil companies (NOCs) are leading these projects and they are bringing in additional expertise where relevant for sequestration and transportation. Most of the projects are being developed on an integrated basis that includes capture, transportation and sequestration.

In terms of the regulatory environment, the GCC countries have all set significant carbon reduction targets, but the way in which projects are being developed is more of an evolution. "Unlike in the United States or Europe, where regulatory and taxation frameworks have been announced to encourage the development of CCS projects, here, projects are announced and then there's a process of working out with the governments what support might be available to help them move forward," says Nethercott. "The first CCS and hydrogen projects will come online in the next few years and, as the pace of development increases, we expect to see some commoditisation of the market."

## CCS business models in the Middle East

"At a global level, we've seen some common deployment risks and barriers that have caused CCS projects to fail and frameworks that have emerged to solve these issues," says Neha Siddiqui, a Senior Associate in the global energy and infrastructure group at Clifford Chance. "This could be anything from the economics of the projects not stacking up, to technology and performance risk and permitting and consent issues, particularly if there's a cross-border element to the project." In addition, there are specific barriers that are particular to the Middle East: with no regulatory framework or primary financial incentive mechanism, there are no legislative commercial drivers to support the economics of the projects. We expect to see these emerge as they are key to the success of the CCS projects that have come online elsewhere in the world.

It is quite likely that the trusted IPP model from the power sector will be adapted for the CCS industry. Transportation and sequestration activities would be viewed as a service and the project company that is implementing the project will be

remunerated based on payment of a service fee. Other potential features of the revenue model are:

- An availability-based structure, with a fee for reserved capacity on the CCS network; and
- Contracts structured on a take or pay basis, whereby the project company would not be exposed to volume or pricing risk.

As these projects come online, it will be important to consider how the model will interface with any government incentives that are put in place.

There are several point-to-point CCS projects that have been operational for some time in the Middle East, for example, Saudi Aramco's Uthmaniyah EOR demonstration facility and ADNOC's Al Reyadah $CO_2$ injection well in the UAE. However, more CCS hubs are now being announced. Saudi Arabia and the UAE account for more than 60% of the GCC's $CO_2$ emissions, with power and oil and gas sector emissions concentrated along the Persian Gulf as well as in other urban clusters, such as Riyadh and Jeddah. This coincides well with the sedimentary basins that are ideal for $CO_2$ storage purposes and so some of the first hubs that are being announced in the region are in these two countries.

"At the moment, there is limited or no liability under the current regulatory frameworks for $CO_2$ leakage, including under environmental legislation," says Siddiqui. "Several questions will need to be addressed: what the impact would be on the revenue streams under the CCS service contracts – whether there would be a clawback; what would the liability sharing regime be if there's a knock-on effect of the loss of "blue" credentials and a loss of revenue for the emitter under its supply contract; how insurance might act as a mitigant in case of a very big $CO_2$ leakage."

## APAC – Japan

"The Japanese government considers CCS as one of the means to achieve carbon neutrality," says Suguru Kimura, a Counsel in Clifford Chance's Tokyo office. "The government has set a goal of achieving net zero greenhouse gas emissions by 2050 and in April 2021, it declared its aim to reduce greenhouse gas emissions by 46% compared to financial year 2013 levels by 2030."

The Japanese government finalised its 7th Strategic Energy Plan in February 2025 and CCS continues to be a key component. In addition to CCS, carbon capture and utilisation and carbon dioxide removal (such as direct air capture) are also mentioned in the draft plan. The government aims to establish CCS value chains and secure an annual $CO_2$ storage volume of 6 to 12 million metric tonnes per annum by 2030. This goal includes both CCS projects with storage sites in Japan and those outside Japan.

The CCS Business Act passed in May 2024 establishes a licence regime for the storage of $CO_2$ in Japan and a notification process for transporting $CO_2$ by pipeline. For storage businesses, the Ministry of Economy, Trade and Industry (METI) will designate areas where reservoirs are found or are likely to be found. If an area is located subsea, METI will obtain consent from the Minister of the Environment before designating it. METI will then conduct a public tender to grant licences for exploratory drilling and operation. Conducting these activities without the relevant licence could result in criminal penalties. Operators must apply to METI with detailed plans, geological survey results, evidence of their experience in CCS and their financial statements.

If an operator plans to store $CO_2$ emitted by a third party, they must develop general terms and conditions for these services and file them with METI. The terms must include a transparent price formula and operators cannot decline third party requests without valid reasons.

Operators must also implement safety measures. Continuous monitoring to prevent $CO_2$ leakage is required until the storage site is closed and the Japan Organization for Metals and Energy Security (JOGMEC) takes over the storage rights and monitoring responsibilities, after the passage of a specified period of time. JOGMEC will then monitor the site for potential leakage. "Operators are responsible for

compensating landowners for any damage caused by storage activities," says Kimura. "They are also strictly liable for damages suffered by a third party due to $CO_2$ leakage even after site closure and transfer to JOGMEC. The strict liability approach follows rules for mining, and this means that the operator is responsible even if it has not acted negligently."

Pipeline transportation businesses must also give prior notification to METI, including details about the transporter, the storage site and the pipelines. This requirement applies even in the case where $CO_2$ will be stored outside Japan. Pipeline operators must also file terms and conditions applicable to their transportation services if they intend to transport $CO_2$ on behalf of a third party and they also need to implement safety measures.

Japan ranks 5th in carbon emissions globally, with many industries in hard-to-abate sectors, and the potential for domestic $CO_2$ storage is unknown. Therefore, Japan is expected to become a significant exporter of $CO_2$, requiring CCS projects with storage sites outside of Japan. To export $CO_2$ for storage in subsea reservoirs, a bilateral agreement with the importing country is required under the London Protocol, the international treaty setting out the framework for regulating the disposal of waste at sea, and the Japanese government is negotiating several such agreements with potential partners in Asia Pacific, including Malaysia and Indonesia. Exporting $CO_2$ also requires transportation by ship, because Japan is located far from potential storage sites in Malaysia and Indonesia and subsea pipelines are impractical and uneconomic, necessitating technical advancements and making cross-border CCS projects involving Japan expensive.

The Japanese government has selected 9 advanced CCS projects, including projects with storage sites located outside Japan, such as subsea reservoirs in Southeast Asia and Oceania, to receive financial support for feasibility studies and basic engineering design work, but it is virtually certain that additional governmental support will be required through the construction and operation phases. The Japanese government is therefore currently considering introducing a contract for difference type subsidy for CCS projects and is looking at similar financial support models outside Japan to determine the best approach for Japanese investors. The details of the proposed subsidy scheme are expected in summer 2025.

## APAC – Indonesia and Malaysia

"Indonesia and Malaysia are interesting because they are relatively early movers amongst the Southeast Asian countries and have recognised the potential for CCS, with a number of projects currently under development," says Mel Chan, a Partner in Clifford Chance's office in Singapore. "They are both using CCS as part of achieving their decarbonisation goals, but they are also, to a degree, competing to become regional storage hubs for $CO_2$."

Malaysia and Indonesia both have significant $CO_2$ storage potential, partly because of their geology – having many depleted oil and gas reservoirs as well as saline aquifers – but they've also got a long history of oil and gas expertise, so they can provide storage services to countries such as Japan, South Korea and Singapore, who are heavy emitters of $CO_2$ but with limited domestic storage capacity, and who are therefore looking to export $CO_2$ to fulfil their national decarbonisation goals.

### Indonesia

The Government of Indonesia has introduced a legal framework for the implementation of CCS, underpinned by three main regulations:

- MEMR Regulation No. 2 of 2023, which provides a regulatory framework for projects that will boost oil and gas production whilst reducing $CO_2$ emissions;
- Presidential Regulation No. 14 of 2024, which provides an overarching framework for CCS activities; and
- MEMR Regulation No. 16 of 2024, which supplements the Presidential Regulation, sets out details of the permitted regime and outlines

requirements, including safety, monitoring and closure of CCS projects.

The regulations provide two regimes for CCS activities in Indonesia: one for operators of upstream oil and gas projects in their production sharing contract working areas and a second for licence holders in designated areas for carbon storage. Upstream oil and gas operators will need to include CCS in their field development plans and seek approval from the relevant authorities – MEMR and SKK Migas – to include their responsibilities for implementing CCS activities in their production sharing contracts. Other standalone CCS operators can undertake CCS activities in designated carbon storage licence areas. These licence areas will be determined by MEMR and will be offered to interested parties through either a limited selection or an auction process. To implement these CCS projects, it is necessary to obtain certain permits, including an exploration permit, a storage operation permit and a transport permit, to the extent that the operator will be transporting $CO_2$ itself.

In terms of financial incentives that will be made available to standalone CCS operators, the regulations provide that operators can charge storage fees, subject to royalties payable to the government. Tax and non-tax incentives may also be offered. At this stage, there are no details available on the level of storage fees that could be charged, the level of royalties payable as well as other incentives, and it is expected that these will be addressed in further implementing regulations. It is also currently unclear who will own the carbon credits that are generated by CCS activities and whether monetisation of carbon credits can be used as a revenue source by operators.

"It's clear that investors will need more clarity on the financial incentives that are available, to evaluate how they can make CCS projects commercially viable," says Chan. As Indonesia is looking to become a regional storage hub, cross-border CCS projects are contemplated in the current regulations which provide that up to 30% of the storage capacity of a CCS site can be taken up by $CO_2$ imported from other countries. However, this is subject to the satisfaction of a number of conditions, including that the producer of the imported $CO_2$ should be investing in Indonesia or be affiliated with investments in Indonesia and, in addition, bilateral cooperation agreements also need to be put in place with the exporting country to address matters such as responsibility for $CO_2$ leakages.

### Malaysia

Malaysia's National Energy Transition Roadmap identifies CCS as one of six decarbonisation levers. The country aims to develop up to six CCUS hubs by 2050, with a storage capacity ranging from 40 to 80 million tonnes per annum.

The regulatory framework for CCS in Malaysia is still under development. At a national level, the Carbon Capture, Utilisation, and Storage Bill 2025 which was passed in March 2025 sets out a high-level legal framework for CCUS operations in Peninsular Malaysia and Labuan, including with respect to permitting requirements, operational, closure and post-closure obligations in relation to storage, and transfer of obligations to the Government post-closure (and levy to fund the government's post-transfer obligations). The text of the Bill lacks clarity in some of the aforementioned areas and it is expected that further guidance will follow after the Malaysia Carbon Capture, Utilization and Storage Agency is established after the Bill is enacted. The states of Sarawak and Sabah are excluded from the scope of the Bill. Sarawak has its own state laws related to CCS but harmonization between federal and state laws through regulations may be required in due course.

In terms of financial incentives, Malaysia introduced several tax incentives in its 2023 budget for companies that are participating in the CCS value chain. These include investment tax allowances, exemptions on import duty and sales tax on equipment for CCS technology, as well as tax deductions for allowable pre-commencement expenses within five years of the date that project operations commenced. However, these incentives are time limited and are scheduled to last only until the end of 2027. It remains to be seen whether the new legislation will

provide for the extension of these incentives and/or introduce new incentives.

"Both Indonesia and Malaysia have the potential to become regional CCS hubs," says Chan, "and the introduction of the legal framework relating to CCS in Indonesia and, more recently, in Malaysia is a significant development for cross border CCS projects in the region. However, it would be fair to say that further clarity is needed on the financial incentives that will be available and apportionment of leakage risks and liabilities for investors to evaluate the commercial viability of such projects."

## APAC – Australia

"Australia is making significant strides in CCS technology, with over a dozen projects currently under development and a couple already in operation, using both point-to-point and hub models," says Emily Yung, a Senior Associate in Clifford Chance's Sydney office.

### Australian CCS Projects

**The Gorgon project** – operated by Chevron, located in Western Australia, has been operational since 2019. It has stored over 9 million tonnes of $CO_2$ since its inception and uses the point-to-point structure – $CO_2$ is captured from gas processing facilities on Barratt Island and is injected directly into a deep sandstone formation beneath the island.

**The Moomba project** – located in South Australia, operated by Santos, commenced operations in October 2024 and is one of the world's largest operating CCS projects, designed to store up to 1.7 million tonnes of $CO_2$ per year. It employs the hub and spoke model – $CO_2$ is captured from the Moomba gas plant and is transported via pipelines to depleted gas reservoirs in the Cooper Basin for storage. This structure allows for potential expansion and is attractive given its ability to accommodate additional $CO_2$ sources in the future.

## Financial incentives

The Australian government has established various funding programmes to increase investor confidence in renewable energy projects and accelerate the affordability of new technologies, such as the Capacity Investment Scheme and funding granted by government agencies such as the Australian Renewable Energy Agency (ARENA). The Australian government has established grant programmes to support the CCS industry, specifically:

- The AUS$50 million Carbon Capture, Use and Storage Development Fund, to support pilot and pre-commercial CCS projects; and
- The Carbon Capture Technologies Programme, where grants of up to AUS$15 million were available to support research, development and demonstration projects.

These two programmes are now closed to new applicants. The most recent federal budget allocated over AUS$500 million over the next 10 years for the Resourcing Australia's Prosperity (RAP) programme, which aims to map geological storage potential necessary for the development of CCS projects. The Australian Future Gas Strategy also recognises CCS as having a key role to play in decarbonising natural gas operations and in the hard-to-abate industrial sector.

In addition to government funding, eligible CCS projects can also earn Australian Carbon Credit Units (ACCUs) as another revenue stream for each tonne of $CO_2$ stored that would have otherwise been released into the atmosphere. ACCUs can be sold directly to companies or to the government through the Emissions Reduction Fund (ERF) auction scheme. To further enhance the liquidity of ACCUs, the Australian Securities Exchange and the Clean Energy Regulator has been working to launch a carbon exchange which aims to broaden market access and increase transparency in the ACCU trading market, however the timing of the launch of this exchange remains uncertain.

## Regulatory framework

Australia's regulatory framework for CCS projects is intricate and comprises both federal and state legislation to ensure that CCS projects meet stringent

environmental and safety standards throughout the lifecycle, from site selection to post-closure monitoring. Compliance with the National Greenhouse and Energy Reporting Scheme (NGER) is crucial for CCS projects and, under the National Greenhouse and Energy Reporting Act 2007, companies must report their greenhouse gas emissions, energy production and consumption if they meet specific thresholds. This data is used for national policy development as well as international reporting obligations.

The Sea Dumping Amendment Act 2023 allows for the trans-boundary movement of $CO_2$ for subsea geological storage. This amendment brought Australia in line with the London Protocol, allowing Australia to enter into bilateral treaties with other countries and enabling project proponents to engage in the cross-border transport of $CO_2$. For offshore storage projects, additional regulations will apply, including the Offshore Petroleum and Greenhouse Gas Storage Act.

Several states, including South Australia, Victoria, Queensland and Western Australia, have established their own regulatory frameworks, which primarily deal with the storage of greenhouse gases in geological formations. It's worth noting that, like the oil and gas sector, there is no uniform approach adopted at the state and territory level.

Finally, for a CCS project to be issued with ACCUs, the project must be declared as an eligible offsets project pursuant to a complex regulatory framework comprising the CFI Act, the CFI Rules and the CFI Regulations.

## Key considerations for investors in Australia

Environmental considerations need to be addressed at both a federal and state level, including compliance with the NGER Act of 2007 and the Environment Protection and Biodiversity Conservation Act 1999, where approval is required for matters of national environmental significance.

Also specific to Australia is the need for effective engagement with First Nation communities. This is recognised to be essential for the sustainability and success of CCS projects and includes negotiating land use, providing local employment opportunities and investing in community development.

The Australian CCS Method established under the ACCU scheme outlines specific requirements for managing leakage risks, which requires projects to include detailed plans for monitoring, reporting and verifying the amount of $CO_2$ captured and stored, as well as measures to detect and address any leakage as part of the registration process.

"Although challenges remain in the development of CCS projects across Australia, the combined efforts of government, industry and stakeholders are all paving the way for a more sustainable and scalable CCS industry," says Yung. "Looking ahead, the introduction of a carbon tax may further incentivise CCS investment by making it more economically viable to capture $CO_2$ rather than paying for emissions. But for now, the focus remains on regulatory measures, such as the Safeguard Mechanism, which is the government's policy for reducing emissions at Australia's largest industrial facilities, which requires large emitters to reduce emissions or purchase offsets such as ACCUs, as well as the upcoming Australian Carbon Exchange, which will enhance the trading of carbon credits such as ACCUs by creating a centralised and regulated marketplace."

## What's happening elsewhere in APAC?

"There are a number of other jurisdictions that are worth mentioning," says Hans Menski, a Partner in Clifford Chance's Tokyo office. "South Korea is similar to Japan in terms of its position in the CCS value chain. It is a large emitter and is expected to be a substantial user of cross-border CCS projects. The impact of its CCUS Act (promulgated in February 2024) still remains to be seen and implementing regulations will be key to unlocking investment; for example, it is not currently clear what subsidies will be available. That said, at least one major cross-border project has been announced already – the proposed Shepherd CCS project – which plans to capture industrial $CO_2$ emissions in Korea and transport the aggregated and liquefied $CO_2$ by ship to Malaysia."

In April 2024, the Chinese government announced that six CCS-related projects will receive funding as part of its implementation plan for green and low carbon technology demonstration. This includes the world's largest power plant-related carbon capture project, which will capture 1.5 million tonnes of $CO_2$ per annum. Given the size of the Chinese economy and its industrial base, there is the potential for CCS projects to be implemented very rapidly at massive scale if the government decides to incentivise investment in the sector. However as with other parts of the energy sector, the opportunities for overseas investors in CCS in China seem likely to be limited.

India is one of the largest and most rapidly growing economies in Asia, but, according to Menski "it has no comprehensive CCS policy and no legislation. The most significant development was back in November 2022, when NITI Aayog, the Indian government's Planning Commission, released a report on the policy interventions required to deploy CCS across various sectors of the economy. The report estimated potential domestic $CO_2$ storage capacity of between 400 and 600 gigatonnes (mostly in saline aquifers), which is significant. While India may have the potential to store both domestic emissions and imported $CO_2$, deployment of, and investment in, CCS is very much at a conceptual stage currently."

# CONTACTS


**Hans Menski**
**Partner**
**Tokyo**
T: +81 3 6632 6669
E: hans.mensk@cliffordchance.com

**Mel Chan**
**Partner**
**Singapore**
T: +65 6506 2771
E: mel.chan@cliffordchance.com

**Thomas Hobbs Martin**
**Associate**
**Singapore**
T: +65 6506 1983
E: thomas.hobbsmartin@cliffordchance.com

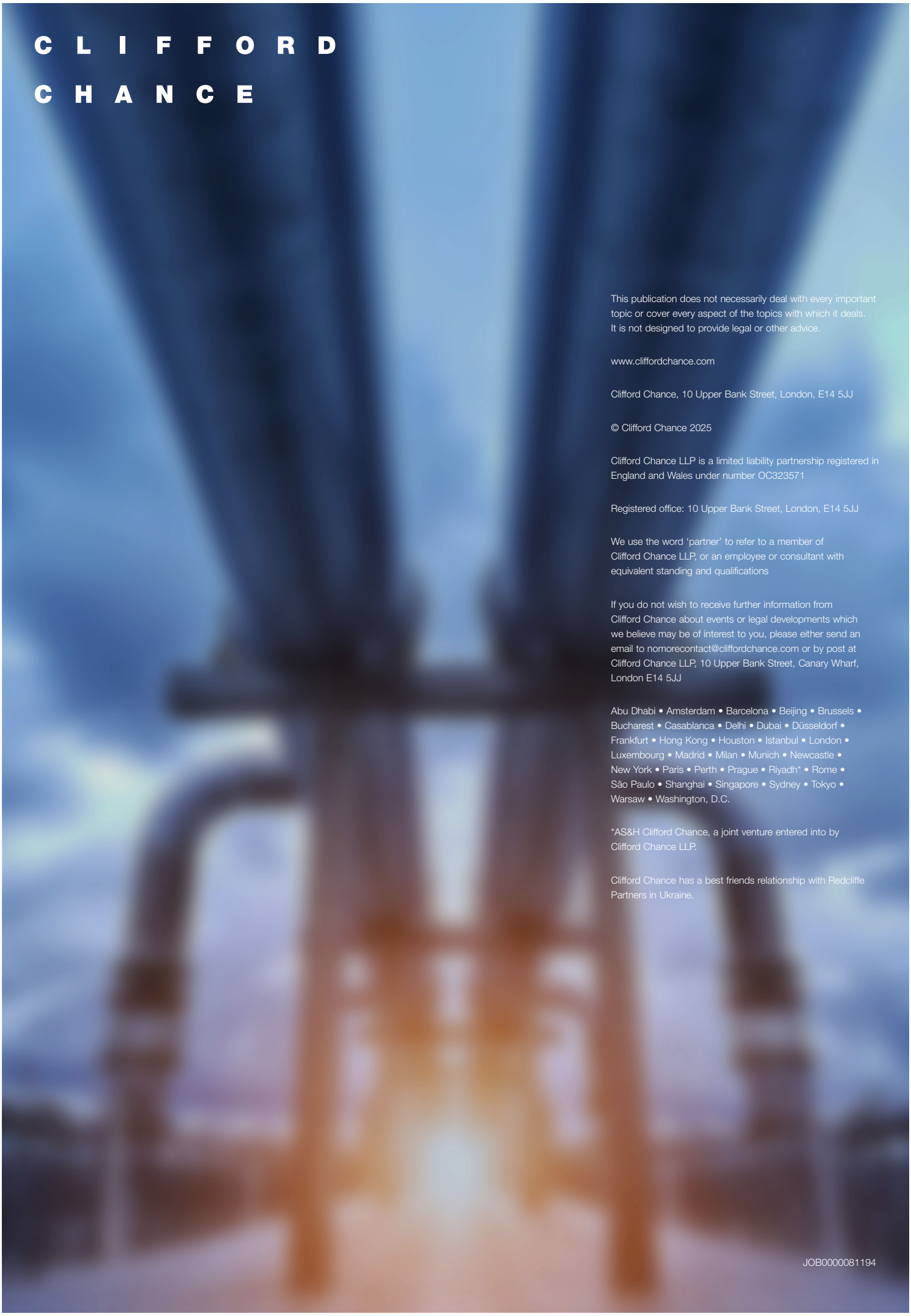
**Nadia Kalic**
**Partner**
**Sydney**
T: +61 2 8922 8095
E: nadia.kalic@cliffordchance.com

**Suguru Kimura**
**Counsel**
**Tokyo**
T: +81 3 6632 6412
E: suguru.kimura@cliffordchance.com

**Craig Nethercott**
**Partner**
**London**
T: +44 207006 1073
E: craig.nethercott@cliffordchance.com

**Neha Siddiqui**
**Senior Associate**
**London**
T: +44 207006 1870
E: neha.siddiqui@cliffordchance.com

**Emily Yung**
**Senior Associate**
**Sydney**
T: +61 2 8922 8507
E: emily.yung@cliffordchance.com



CLIFFORD
CHANCE



www.cliffordchance.com

Clifford Chance, 10 Upper Bank Street, London, E14 5JJ



JOB0000081194