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# GREEN FUELS: STRUCTURING AND PROCUREMENT ISSUES TO CONSIDER AS DEMAND TAKES OFF


— THOUGHT LEADERSHIP

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Demand for e-fuels and biofuels is rocketing. Last year, the EU enacted new regulations in the aviation and shipping industries designed to force airlines and shipping companies to switch to alternative fuels, ratcheting up from a 2% blend in 2025 to 70 or 80% (depending on the industry) by 2050. Other jurisdictions such as Australia, South Korea and Japan are following suit and introducing similar binding commitments. In this briefing, we discuss what developers and investors need to consider when structuring green fuel projects, including strategies for managing the construction and procurement phase.

Once one gets past the dizzying array of acronyms in this sector, the first step when structuring a green fuel project (we use the term 'green fuel' in this briefing to mean all synthetically produced bio- or e-fuels) is to identify and understand the underlying technology. Whether the idea is to procure an HEFA (Hydroprocessed Esters and Fatty Acids), a green methanol or an e-diesel plant, there will be one thing in common – parts of the plant will rely on chemical or thermal processes to convert the feedstock into more valuable (and sustainable) products.

Invariably for the established technologies, those processes will be protected by third-party intellectual property (IP). The particular IP can take many forms. For example, it can reside in the catalysts used in autothermal reforming, the solvents used to strip the CO2 from industrial flue gases, proprietary equipment in methanol synthesis or simply the configuration of a novel (or scaled-up) combination of equipment.

There is little to distinguish a green fuels project from a traditional refinery or petrochemicals plant in this sense – they are all essentially process plants – and therefore best practice from the downstream oil and gas industry regarding the incorporation of the process technology into the subsequent construction contract(s), for example, will be equally relevant to the procurement of green fuel projects.

However, green fuel projects can be differentiated from downstream oil and gas due to the speed at which the sector is developing. The terms 'green', 'bio' and 'e-fuels' encompass many different end-products; sometimes with competing nascent technologies which are racing to become the dominant technology for the particular end product in their respective markets (as has become the case for PV in solar, for example). In cases where the relevant technology remains to be proven (either at all, or at scale), additional care must taken in structuring the downstream construction contract(s) – more on this below.

## Process licences – a battle of the forms

Unless the sponsors are the owners or creators of the relevant process technology, the IP will be controlled by third-party licensors (such as Haldor Topsoe, Johnson Matthey, Honeywell UOP and Axens). For established technologies (e.g., Fischer-Tropsch for e-diesel/jet), there may be a sufficient number of licensors operating in the market to run a competitive tender for the technology, and for the project company (as licensee) to issue its own forms of process licence documentation, as is sometimes the case in the downstream oil and gas industry.

However, our experience is that running such a competitive tender is quite rare in the green fuels market at present, and licensors have been successful in insisting on using their own standard forms. Although the final stage process for producing the green fuel from syngas may be relatively well tested and understood, the production of the syngas in the first place is less so (and will depend on whether the carbon monoxide/dioxide comes from biogenic sources, such as biomass or animal waste, or from carbon capture and storage (CCS), for example, before being combined with the clean hydrogen). In addition, licensors are quite adept at inserting themselves early into the process to carry out the feasibility studies/front-end engineering and/or to supply the long lead equipment, meaning that by the time it comes to negotiate the process licence documentation, they may enjoy a strong negotiating position.

## Structuring the process licence documentation - protections for sponsors

The next question is how the process licence documentation is structured. There is no single accepted industry method – some licensors put the IP licence, the performance guarantees and the supply of the basic engineering into one agreement. Others split each supply into separate components, including separate agreements for the supply of the proprietary equipment and catalysts. When dealing with multiple separate agreements, a key issue is to ensure that the agreements work on a harmonised basis across all constituent parts, especially in terms of the liability caps and exclusions.

Whatever the starting point for the licence documentation, sponsors should ensure that the process licence documents:

- Contain an IP licence that is broad enough for the intended use (including the sale of the products) and that remains in place for the intended life of the plant, without being exposed to risk of hair-trigger termination.
- Contain robust performance guarantees covering the production and quality of the end-products and consumption of utilities.
- Protect the project company from third-party IP claims.
- Do not unduly restrict the available pool of FEED/EPC contractors who can receive and further develop the licensor's IP.

## Managing the construction phase

As mentioned above, there is often substantial overlap between the roles of key project participants on a green fuel project. For example, in the early stages the licensor may be engaged in the supply of a significant portion of the equipment and may also have a role in carrying out a pre-/feasibility study on behalf of the sponsors to assess the viability of the project and take it to FID. This is equally true in the construction phase, where development of the basic engineering and the construction of the plant is sometimes carried out by the same party. Where clear boundaries between the respective scopes cannot be maintained, sponsors need to remain alive to the risk of merging the roles and put in place strategies for managing the risk as best they can.

In the power and oil and gas sectors, the works are typically divided into single or (depending on the size of the project) multiple EPC packages. This typically requires a body of basic engineering to be produced first (either referred to as the Minimum Functional Specification or front-end engineering design (FEED)) before the EPC contract(s) can be tendered and lump sum pricing obtained. To give a rough idea of timings, a FEED study can take between nine to fifteen months to complete. For green fuel projects, as mentioned above, scheduling concerns are often paramount due to the sponsors' desire to obtain a 'first-mover' advantage in their target market. This has given rise to a number of 'fast-track' procurement strategies, being adopted in the green fuels sector (although they were not invented here).

## Fast-track procurement strategies

One such structure is two-stage contracting or convertible EPC. This envisages the appointment of a single contractor to carry out the FEED, typically under a separate pre-construction services contract (PCSA). During this first phase, the contractor develops the design of the plant (which can sometimes include the carrying out of site investigations to assess the ground conditions risk) and produces open-book estimates (OBEs) containing successively more detailed breakdowns of the cost to complete the works. At a pre-agreed point, the parties agree a lump sum price for the works based on the latest OBE and enter the EPC contract under which the contractor agrees to carry out the design, construction, commissioning and completion of the plant.

The advantage of this structure is that it allows the overall procurement time frame to be condensed by dispensing with the separate tender and evaluation phase for the EPC contract (which can last on average anything from three to twelve months). It is attractive to contractors as it allows them to secure the more lucrative EPC prize at an early stage, whilst de-risking the works via design development and site investigations before converting to a more 'traditional' EPC risk allocation.

The second stage 'conversion' from PCSA to a conventional EPC contract can present problems for sponsors. For projects which are seeking to raise limited recourse project finance, sponsors' (and their lenders') ideal starting position would be a single lump sum EPC contract covering all of the works required for the project, with the contractor guaranteeing the desired outcomes for the plant (productivity, yield etc).

However, the reality is that the EPC 'holy grail' can be difficult to achieve where the technology is novel, or untested at scale, or in markets such as the US where there are relatively few credible EPC bidders who have a track record of carrying out energy transition projects in the relevant market on genuine EPC terms. In a convertible EPC structure, contractors are able to use the increased bargaining power they enjoy from being in an effective sole source procurement (after they have been selected to carry out the FEED) to push for more favourable pricing and for more risk to sit with sponsors in relation to unforeseen circumstances, including failures in the process technology.

## Crafting the tender process

From the sponsor's point of view, therefore, it is essential to structure the tender and evaluation process such that competitive tension is maintained for as long as possible. The longer it can be maintained, the better the chances sponsors will have of achieving pricing and a risk allocation that aligns with their financing aims. There is no single method that works for green fuel projects as a whole. Rather, it is a question of applying a combination of the following best practice techniques:

- Requiring the FEED/EPC bidders to submit deviations on both the PCSA and the draft EPC contract and evaluating on that basis.
- Including a requirement for the bidders to tender a fixed EPC Margin to be applied to the OBE cost breakdowns and included in the EPC contract.
- Withholding a portion of the PCSA fee until the EPC contract price and key terms are agreed.
- Building in regular milestones during the PCSA services phase for the negotiation of the outstanding EPC terms.
- Retaining the right to use the relevant IP rights in the FEED deliverables for any future re-procurements.
- Providing the owner a no-loss/ no-liability right to terminate the PCSA phase if negotiations for the EPC break down.

## Looking to the future

We expect fast-track procurement strategies to remain a feature of the green fuels market for the next twelve to eighteen months, driven by the dominant position of technology licensors and equipment suppliers and sponsors' desire to get their product to market as soon as possible.

As the green fuels market matures other procurement strategies will emerge. The one constant in the construction market is change, and project sponsors need to recognise this feature of the market and devise procurement strategies which take account of the shifting balance of power amongst the project participants. But no matter which overall contracting model sponsors select, the chances of achieving a successful green fuels project will be significantly increased by designing a process which take advantages of the available competitive tension right up to launch.

## Clifford Chance International Construction Group

The Clifford Chance International Construction Group provides specialist support to clients in the development of procurement strategies and in the analysis and allocation of construction risk. The Group is unique among the leading law firms in its size and specialist focus and is consistently recognised as a market leader.

The Group is involved in all sectors of the construction industry, including infrastructure, energy, oil and gas and real estate, allowing a seamless sharing of ideas and resources across those sectors.

We operate at the leading edge of the technological, policy and legal trends which shape the construction industry. For example, we are deeply involved in energy transition projects, and are constantly developing new contracting concepts and structures to meet the changing needs of our clients.

Our clients include public and private sector developers, funders, contractors, end-users and service and technology providers. While acting for one participant in the construction process, we can therefore understand the perspective of the others.

We operate globally and can make available specialist teams on demand in any location. Our network of offices and relationship law firms enables us to blend our specialist skills with the legal and business cultures of the project's location. Our global reach also enables us to bring a market-wide commercial perspective to each individual transaction.

Read more about **green fuels**. Read more about **energy transition**.

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