**The experience of oil and gas can help shape the energy transition**

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*C&S Partners and Leaders League have interviewed a long list of renewables executives on the transition from oil and gas to green energy, e.g. Jean-Baptiste Choimet of Elogen, Alexandra Pieton of TES-H2, Rasmus Sunde of N2 Applied, Arild Selvig of ZEG Power, Pieter van Stratum of Uniper, Debby Slofstra of Schneider Electric, Patrick Gilly of Ramboll, Tanguy Cosmao of Equinor, Odd Strømsnes of Havfram, Séverine Baudic of SBM Offshore, Christophe Debouvry of Doris Group, Florent Rousset of Gaffneycline, Patricia Vega of Quantum New Energy, Arnaud Real Del Sarte of CVE Marseille and Willy Gauttier of EDF Renouvelables, on the transition from oil and gas to green energy. In this article, we highlight the points of convergence between these sectors, while adding our own perspective.*

The transition from oil and gas (O&G) to renewable energy represents a complex and essential journey driven by the urgent need to combat climate change and promote sustainability. This gradual shift acknowledges that fossil fuels will remain part of the energy mix for a while as we advance toward a greater reliance on renewables. Companies are utilizing their established O&G frameworks, skills, and customer bases to facilitate this transition, leveraging the partial overlap between the two industries.

Both sectors share similar project cycles—development, financing, construction, operation, and energy sales. While renewable energy projects might pose different technical challenges, the industry can leverage the specialized skills and competencies in the O&G sector; from the know-how of maturing large complex green field projects, from best practices of operational excellence, and from the rigorous quality and safety culture established over the last few decades.

During this transition it is necessary to "build as we go," which requires individuals to be self-reliant, optimistic, and adept at balancing medium-term planning with short-term execution. This evolving environment presents significant reskilling challenges for employees transitioning from O&G and for companies investing in learning and development. Beyond technical expertise, organizations must cultivate talent capable of managing business processes, developing strategies, and executing new projects. Navigating this new sector successfully demands critical skills including technical knowledge, project management, operational expertise, and the ability to build robust business models.

Moreover, understanding and complying with safety standards and local regulations is crucial, especially for emerging technologies. Projects in regions such as Western Europe and the UK face stringent specifications, requiring teams to adapt to market uncertainties while managing evolving project parameters. The hydrogen market, currently in fast development, needs a balance between maturing projects and adapting to market fluctuations. This adaptability is key for success in the new energy landscape, where flexibility in project design and execution is paramount.

Hydrogen will be a considerate part of the energy supply. However, the hydrogen sector consists of several different methodologies, each with its own challenges to address. Green hydrogen is under pressure to be competitive at current energy prices. Hydrogen derived from nuclear power, or pink hydrogen, remains controversial, with some countries, like Germany, cautious about importing it from France. In the production of blue hydrogen, capturing and permanently storing CO2 is dependent on both the infrastructure for transporting and storing hydrogen and CO2, and the readiness of hydrogen customers to integrate this energy source into their operations.

Other sustainable energy solutions are also advancing rapidly. Liquefied Natural Gas (LNG) and Electrical Natural Gas (eNG) play significant roles in the transitional energy mix. LNG offers opportunities for advancing sustainable energy, while eNG, produced from renewable electricity, is chemically identical to traditional methane and can be used in existing infrastructure without retrofitting. This approach maintains conventional natural gas competencies while adding sustainability benefits.

Achieving carbon neutrality requires a strong focus on reusing materials and aligning with Environmental, Social, and Governance (ESG) principles. Innovative solutions must be explored, such as combining biogas with hydrogen to create “carbon removal” systems, which extract CO2 from the atmosphere, or enriching biological organic waste with nitrogen to reduce emissions from agriculture.

As technology and industrial scale evolve, there will be opportunities to connect with large industrial customers and apply the knowledge and culture developed in the O&G sector. However, the return on capital for renewable projects is often lower compared to traditional exploration and production (E&P) businesses, highlighting the need for strategic planning and innovation. Navigating this industry requires a deep understanding of the constraints and motivations of all stakeholders. But stakeholder management is not enough. To succeed, it is necessary to foster long term collaboration and partnerships throughout the value chain, and across different sectors. A short-term focus on minimizing cost can undermine the supplier base for the future.

Making renewable energy profitable adds another layer of complexity. Scaling up operations, implementing efficient solutions, securing fundamental infrastructure, and fostering a competitive marketplace are important for reducing costs and making renewables more viable. The decreasing costs of offshore wind projects worldwide exemplify how economies of scale can drive down expenses.

The diverse and sometimes immature policies and regulations across countries and regions, pose a significant barrier and complicates energy supply and demand management. This can potentially destabilize the renewable energy sector. Achieving regulatory alignment within Europe and globally is challenging; for example, a green molecule produced in the U.S. might not meet European standards.

Another significant challenge is the lack of coordination between public and private entities. Addressing this issue involves navigating permitting processes and engaging proactively with local communities, councils, and central governments to secure their support. Given that many large renewable and hydrogen projects are developed through public-private partnerships (PPPs), a comprehensive understanding of the external environment is needed. This includes addressing stakeholder concerns, understanding government priorities, and maintaining transparent communication throughout the project lifecycle.

The maturation of the green energy industry, partly due to regulatory disparities, requires a cultural shift for those transitioning from O&G, where policies are more established. Engineering teams in the renewable energy sector must develop the technology while engaging in lobbying efforts, a skill valuable in this evolving industry. Ultimately, the energy transition is a competence-driven exercise. Companies and institutions with the requisite know-how, skills, and experience will govern this shift to a robust and effective new energy landscape. The oil and gas technologists and business professionals of today will have the opportunity to form the backbone of the advancements in renewables developments of tomorrow.

Article originally published in French in *Décideurs Magazine*: https://www.decideurs-magazine.com/immobilier-public-environnement/60066-la-transition-energetique-peut-s-appuyer-sur-l-industrie-du-petrole-et-du-gaz.html