Benefiting from Offshore Oil

The oil and gas sector in Newfoundland & Labrador has kept local consulting engineers busy, but the opportunities are changing.

BY ANDREW SAFER

Beginning with the Hibernia project in the early 1990s, the key driver of the Newfoundland and Labrador economy has been offshore oil and gas development and production. The industry continues to thrive. In a spring 2009 report, the Atlantic Provinces Economic Council projected $11 billion will be spent on oil and gas capital projects in the province over 10 years. That figure does not include the Hibernia Southern Extension, which was approved in February.

Jamie Powell, P.Eng., Associate, Mining and Geotechnical Engineering for Stantec Consulting, is the incoming President of Consulting Engineers of Newfoundland and Labrador (CENL). He says that the trend in the oil and gas and mining sectors in Newfoundland has been to hire large, multidisciplinary firms because "owners want someone else to deal with the logistics. They don't want to have a lot of separate contracts, and they want to be less liable and less hands on. They want to be able to hire a consulting firm and say, 'This is my project, please come and see me when I can turn the key and open the door.'"

Another reason the bulk of the work has been going

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Photo courtesy of Husky Energy

Above: Husky Energy's floating oil production storage and offloading vessel in the White Rose field 350 kilometres east of St. John's, Newfoundland. FPSO SeaRose is configured like a ship so that it can pivot around the bore hole or "tie off" quickly during storms or if icebergs loom. In the background a ship comes to transport the oil to shore.

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"The consulting engineering firms that will thrive are the ones that are adaptable and are collaborating with other firms."

to bigger companies located outside the province is the lack of local capacity. When a project like the Hibernia Southern Extension comes along, "The question is, are there enough engineers in the province to do the work?" says Powell. "The answer is No."

The reason for the shortage, however, is that spin-off work – highways, hospitals, and housing – is keeping the local consulting engineers busy. Much of this new infrastructure is funded by provincial government oil and gas royalties.

Powell estimates that perhaps, "90 to 95% of the consulting firms in the province would be involved in either direct or indirect work related to the oil and gas sector."

Environmental assessments and other studies related to the offshore industry have also provided local consultants with extensive opportunities over the decades. The St. John's office of the former Jacques Whitford & Associates, the large Nova Scotia-based consulting engineering company that was recently acquired by Stantec, has provided environmental sciences and environmental permitting consulting on various offshore projects, for example.

Fluctuating history

Rick Tiller, P.Eng., the current President of CENL and President of Tiller Engineering, has been involved in Newfoundland's oil and gas sector since the 1990s and has seen the opportunities for consulting engineers fluctuate over the years. He was asked: What piece of this pie have consulting engineering firms in the province been able to carve out for themselves?

"The nature of the opportunity has changed as the industry has matured," Tiller replies, "but consulting engineers have played an important role."

A junior structural engineer in 1993, Tiller recalls that "the engineering community wasn't ready" when Hibernia got under way. "Some groups were smart enough to make alliances in advance; most stood by and watched."

Tiller was working for BFL Consultants, a partner in Newfoundland Offshore Contractors, the topsides con-

Above: the Hibernia platform, installed 1997.

sortium. He remembers 245 staff from DORIS Engineering flying in from Paris and setting up an office in St. John's to do the engineering work on the gravity-based structure (GBS). "There weren't many local people involved," he says. However, he adds that some local firms supplied draftsmen to NOC and DORIS Engineering.

When the Terra Nova project began to ramp up in mid-1997, Petro-Canada decided to build Canada's first east-coast floating production storage and offloading (FPSO) unit rather than a gravity-based structure. Brown and Root did the engineering work in Leatherhead in the U.K., and approximately 40 Newfoundland draftsmen and engineers who had worked on Hibernia were sent to the U.K. to work on the project as a shadow, lead or co-lead in order to facilitate technology transfer.

"The consulting community was disappointed," Tiller says. "It was good for Rick Tiller and the others who went over there, but it wasn't good for the consulting engineers locally. There was very harsh opposition. Leatherhead was a bad word." However, he notes, many of the engineers who were trained in the U.K. went on to become industry leaders in Newfoundland and Nova Scotia. (Tiller was in Leatherhead for a year, and while there was co-lead and did the structural design on one of the modules. When he returned to St. John's, he was the deputy lead structural engineer for the topsides.)

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Above: Rick Tiller, President of Consulting Engineers of Newfoundland and Labrador.

At that point, Newfoundland Ocean Industries Association, the city of St. John's, and the province vowed that the engineering work on all future offshore projects would be done in Newfoundland, with maximum local input. So when Husky Energy's White Rose project began to ramp up in 2002, an engineering office was set up in St. John's, and Tiller recalls that approximately one-third of the engineers hired were Newfoundlanders. USI Engineering and NSB Group were consulting engineering companies established to provide technical staff for the offshore industry.

"Overall, both NOIA and the engineering consulting firms were pleased," recalls Tiller.

What are the opportunities now?

Now that the Hebron project is getting under way, Tiller says the opportunity is for niche independent firms to apply specialized resources to support the teams of international groups and national firms that are bidding on work such as the topsides contract. He adds that the consulting engineering firms that will thrive are the ones that are adaptable and are collaborating with other small or medium-sized firms to create larger (say, 40-person) project teams. "That would not have happened five years ago," he observes.

Above: oil and gas fields in the Atlantic Ocean off Newfoundland.

During the production phase of these projects, Tiller explains, the opportunities for consulting engineering firms are to provide services to the large, specialist multi-national companies such as Schlumberger and Oceaneering International. The kind of areas that are likely to offer work are: oil rig operations and maintenance; robotic inspections of subsea lines, and making modifications to production facilities, drilling facilities and supply boats. There may also be opportunities to design warehouses, marine facilities, and other support infrastructure. Newfoundland Design Associates Limited, Structural Design, and AMEC Earth and Environmental are among the companies that have carried out engineering planning, design and construction management for a variety of support facilities.

Powell believes that the flip side of the trend towards larger firms is the disappearance of companies with one or two senior engineers, a draftsman and a receptionist. Many companies that are currently operating are headed for retirement, and Powell says it's likely they won't be replaced.

The challenge for small engineering firms, Powell says, is that "at the end of the day, they will want to be plugged in at all levels," even though "it's very difficult for a small company to get the attention of the multinationals." CCE

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