Scope and methodology

PetroLMI's labour market projections are produced using a modelling system developed in 2006 and continuously refined in consultation with industry, labour market economists and workforce planning analysts. The model produces labour demand projections for the upstream and midstream oil and gas industry (i.e., yearly employment, expansion and replacement demand) by sector and by occupation. The model also projects potential labour supply and unemployment rates for the total industry and by occupation to help identify labour supply/demand gaps and opportunities.

The chart below outlines the employment drivers PetroLMI uses to identify workforce levels required to support industry activity for each of four upstream and midstream sub-sectors based on capital and operating spending forecasts and production forecasts.

PetroLMI's forecasting does not include sub-sectors such as the downstream sector, construction, or professional, technical and scientific services. Adjustments are made in PetroLMI's forecast for labour productivity changes.

Industry Sub-sector	Employment Drivers				
	Conventional E&P CAPEX	Conventional E&P OPEX	Oil sands CAPEX	Oil sands OPEX	Oil sands production
Oil and gas services: contracted exploration, extraction and production services to the oil sands and non-oil sands E&P sectors and includes the following sub-sectors: • **Drilling and completion services**, including drilling and service rig activities • **Geophysical services** (also known as seismic), including survey, permitting and reclamation, line construction and data acquisition • **Petroleum services** pertain to oilfield services including, acidizing wells, cementing and perforating well casings, well testing	●	●	●	●	
Conventional E&P: exploration and production of oil and gas for onshore and offshore conventional and unconventional reserves except oil sands.	●	●			
Oil sands: extraction, production and upgrading of bitumen specifically within mining, in situ and upgrading operations.			●		●
Pipelines: storage and mainline transmission of oil and gas.		●		●	

CAPEX = capital expenditures; OPEX = operating expenditures, both adjusted to take out inflation which does not create jobs.

2019A from Statistics Canada as reported in CAPP's Statistical Handbook

2020E and 2021 – 2023F provided by CanOils

In-scope occupations

The model is able to produce labour market projections for 67 occupations considered core to Canada's upstream and midstream sectors, which account for 69% of the industry's workforce. The occupations have been mapped to the National Occupational Classification (NOC) 2016 version. An "other occupations" category captures the residual workforce (remaining 31%) and is the sum of all other occupations directly employed within industry. This methodology ensures the total industry workforce is captured within the forecast and also enables PetroLMI to provide occupational projections and analysis.

Employment and expansion demand

To project employment, the model starts with baseline employment numbers derived from Statistics Canada and direct industry surveys, then uses "employment drivers" to identify the required workforce levels to support the level of industry activity (e.g., spending and/or production) in a given year. The model does this by sub-sector and occupation with some adjustments for labour productivity and other factors.

Replacement demand

The model uses historical, average retirement age and takes into account the age demographic trends of each occupation to forecast yearly age-related attrition rates. These are then applied to the labour force numbers for each occupation to derive the potential number of job openings due to replacement demand.

Labour supply

PetroLMI's labour supply model starts with the industry's historical share of Canada's labour supply and then calculates the industry's potential supply based on its ability to attract workers through its offer of employment or labour demand as it relates to competition from other industries.