

تمكين  
Tamkeen

# Energy Sector

Skills Report 2024

مهارات البحرين  
Skills Bahrain

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# Executive Summary

Worldwide, the Energy sector is amid transformative change, diversifying from traditional fossil fuels to alternative sources, aligning with the global trajectory towards sustainability. Although the sector in Bahrain is still dominated today by oil and gas, there is an accelerated shift towards decarbonization and renewable resources, particularly solar energy. Significant technological advancements, and clear government policy commitments in this space, are also taking place which are transforming the operations of the industry whilst also impacting the workforce dynamics.

Many new jobs linked to technology and sustainability are emerging amid the global energy transition. The strong strategic commitment to more sustainable and renewable energy sources in line with the Kingdom's National Energy Strategy is evident in multiple initiatives to upskill the current workforce. Field operators and technicians, remain in high demand, with a focus on hands-on training experience gained in vocational training institutes. Looking ahead, the job landscape is expected to shift towards specializations that support Bahrain's commitment to achieving Net-Zero emissions by 2060. This includes the growing demand for professionals in health, safety & environment (HSE) roles, as well as skilled environmental and solar engineers.

As we navigate to meet the industry workforce demands, critical skill gaps must be addressed to accommodate the progress of the sector. Employers in the sector highlighted a particular need to develop core skills, focusing on building inclusivity and enhancing gender diversity in the workplace. Human resource divisions of many players in the Energy sector have set an objective to increase the participation of women across their organization to create an inclusive and balanced workforce. Employers have also emphasized the need for technical skills development to keep up with the pace

of the digital and technological advancements. Data analysis and artificial intelligence expertise have been identified by the industry players as an area where further training is needed to support the implementation of the latest technologies. Moreover, there is a gap in the market for employees certified in health, safety, and environment (HSE). Bridging these skill gaps with the support of the academia and training providers will create a future-ready workforce that is aligned with both global trends and national strategic priorities.



# Introduction & Purpose

## Purpose

This report serves as a resource for individuals, organizations, and professionals intending to or currently operating in the sector. Its primary aim is to provide a clear understanding of both the current and future skills landscape within the sector, reflecting the views and insights from industry representatives alongside comprehensive secondary research. The report identifies emerging trends,

highlights the evolving nature of jobs and career opportunities in the sector, and outlines critical skills required to enhance the workforce's alignment with industry needs. Additionally, it provides an overview of the various educational pathways and training programs available to embark on or advance a career within the sector.

## Intended Audience

### Individuals

Provides insights into sector trends, jobs and skills in demand, as well as relevant trainings and programs, aiding in informed career planning.



### Employers

Provides insights into sector trends, current and emerging skills landscape, and relevant trainings to guide workforce planning.

### Academia & Training Providers

Provides insights to support curriculum and training program development in alignment with industry needs.

## Methodology

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### Research Methodology

A robust and systematic approach was followed with several key research activities, starting with an international benchmarking exercise to implement best practices in the development of a sector skills report. This initial step, in addition to guidelines from the International Labour Organization (ILO), informed the design of the engagement methodology outlined in the following section.

Extensive desktop research established an understanding of the current landscape within the sector, and a review of Government strategies – including the Economic Recovery Plan and the National Energy Strategy – ensured alignment of findings with national strategic priorities. Economic data were sourced from official Governmental sources.

Engagement with sector representatives (see 'Engagement Methodology') provided the core insights into the sector's specific dynamics and requirements embedded throughout the report. The findings from these research activities have been consolidated into the sector skills report, which serves as a valuable resource for individuals, employers, academic institutions, and training providers.

### Engagement Methodology

To gather critical insights, a Sector Working Group was formed, serving as a collaborative platform for engagement and knowledge exchange. The Sector Working Group aimed to uncover trends, opportunities, and challenges within the sector, and to identify the skill gaps in the workforce.

This group included a diverse array of stakeholders and experts from both local and regional contexts, encompassing representatives from small and medium-sized enterprises (SMEs), as well as large companies, academic institutions, and vocational training centers. This approach ensures the Sector Working Group is representative of the sector and captures a comprehensive view of the sector and their workforce needs.

Over a period of 10 weeks, from September to November 2023, a series of workshops were conducted with the active participation of over 15 representatives from 4 distinct subsectors covering the sector value chain in Bahrain. These collaborative sessions were crucial in validating job demands and career pathways in the sector, drawing on the collective insights of the Sector Working Group members.

The contributions of the Sector Working Group were instrumental in the development of a skills framework that is specifically tailored to the sector. The insights and findings from the Sector Working Group's engagement have been thoroughly integrated into this report, offering detailed guidance and strategic recommendations for the sector's development.

# Sector Overview

The Energy sector encompasses several economic sectors defined by the International Standard Industrial Classification (ISIC 4), used in the National Accounts released by Bahrain's Information & eGovernment Authority and statistical agencies worldwide. The following ISIC 4 sectors include activities related to the Energy sector, though it is important to note that none of these individual sectors fall entirely under the Energy sector, as they include some non-energy related activities.

Key sectors within Energy include:

- **Mining and Quarrying:** This includes the activity "Extraction of crude petroleum and natural gas", covering upstream oil and gas extraction.
- **Manufacturing:** This diverse sector includes "Manufacture of refined petroleum products", thus covering the downstream value chain of the oil cluster. This involves converting crude oil into inputs for manufacturing, transportation, and other activities.
- **Electricity, Gas, Steam, and Air Conditioning Supply:** This includes activities such as "Electric power generation, transmission, and distribution" and "Manufacture of gas; distribution of gaseous fuels through mains". It encompasses downstream natural gas processing and the generation of electricity from various energy sources, including fossil fuels and renewables.
- **Other Related Activities:** Key activities include "Sale of fuel in specialized stores – Land Service Station" and "Sale/Trade of solid, liquid, and gaseous fuels and related products – Aircraft refueling services". These involve the distribution and sale of energy products to end-customers.

## GDP Contribution of the Sector

### Mining and Quarrying



Real GDP, BHD mn

**2,365.9**

2022

**2,320.5**

2023 (est)

Extraction of crude petroleum and natural gas

**2,258.6**

(15.9% of total)

2022

**2,203.3**

(15.1%)

2023 (est)

### Manufacturing



Real GDP, BHD mn

**2,146.7**

(15.1% of total)

2022

**2,164.7**

(14.8%)

2023 (est)

Manufacture of refined petroleum products

### Electricity, Gas, Steam & Air Conditioning Supply



Real GDP, BHD mn

**167.1**

(1.2% of total)

2022

**164.7**

(1.1%)

2023 (est)

### Other Related Activities



Sale of fuel in specialized stores – Land Service Station

Sale/Trade of solid, liquid, and gaseous fuels and related products

– Aircraft refueling services



Other economic activities, such as support services and heavy manufacturing, have significant linkages to the Energy sector and often require similar skill sets.

The Energy sector has been a cornerstone of Bahrain's economy since the discovery of oil in 1932. The establishment of Bapco Refinery in 1937 and its subsequent expansion and modernization has been pivotal. The recent Bapco Modernization Program increased the refinery's capacity from 267,000 barrels per day to 380,000 barrels per day, making it one of the most complex refineries in the region.<sup>1</sup>

Bahrain was also the first in the region to establish modern power generation infrastructure in the early 1930s. Until recently, power generation and transmission in the Kingdom was in the hands of the Electricity and Water Authority until recent legislative changes permitted independent renewable power generation. Since the privatization of the Hidd power station in 2006, Bahrain has developed several independent water and power projects, including Al Ezzel and Al Dur.<sup>2</sup>

Until recently, electricity generation in Bahrain was solely based on natural gas. However, following the adoption of the National Renewable Energy Action Plan in 2017 and the commitment to net-zero carbon emissions by 2060, Bahrain has been actively diversifying its Energy sector. The declining cost of renewable technologies is expected to accelerate the adoption of solar and wind energy in the country.<sup>3</sup>

Several key businesses operate within the Energy industry, many under the Bapco Energies umbrella. The Bapco Energies Group is structured as an integrated energy company covering the entire sector value chain and is the consolidation of the Kingdom of Bahrain's energy infrastructure and operations.

Key entities in the group portfolio include:

- **Bapco Refining:** Previously known as the Bahrain Petroleum Company, it offers one of the highest-quality refining capabilities in the Middle East and manages the largest energy investment in the Kingdom – Bapco Modernization Program (BMP).

- **Bapco Upstream:** Previously known as Tatweer, Bapco Upstream is the steward of the Bahrain Field and is responsible for the execution of all upstream operations across the Kingdom, including oil and gas exploration, development, and production activities.
- **Bapco Gas:** Previously known as Banagas, Bapco Gas promotes oil production from the Bahrain Field, treats process-associated gas and the extraction of marketing products, and supplying local industries with surplus gas.
- **Bapco Gas Expansion:** Bapco Gas Expansion focuses on the processing, storage, and distribution of Propane, Butane, and Naphtha from the Bahrain Field and off-gas from Bapco Refining.
- **Bapco Tazweed:** Manages the national infrastructure of services stations.
- **Bapco Air Fueling:** Previously known as BAFCO, responsible for aviation refueling at Bahrain International Airport
- **Bahrain LNG:** The Bahrain LNG (BLNG) terminal includes a liquefied natural gas receiving, storage and regasification facility, and a gas conditioning and send-out plant.
- **BAC Jet Fuel:** BAC Jet Fuel (BJFCO) manages the network refueling infrastructure at Bahrain International Airport.

In recent years, sectors linked to the Energy industry have contributed around a third of Bahrain's real GDP, though the share of directly energy-linked activities is somewhat less. The Energy sector is also a significant employer in Bahrain, with 9,336 people employed, of whom 6,261 are Bahraini nationals. The primary sources of employment within the sector include electricity and gas processing, downstream petroleum, and upstream oil and gas activities, all of which have high rates of Bahraini employment.

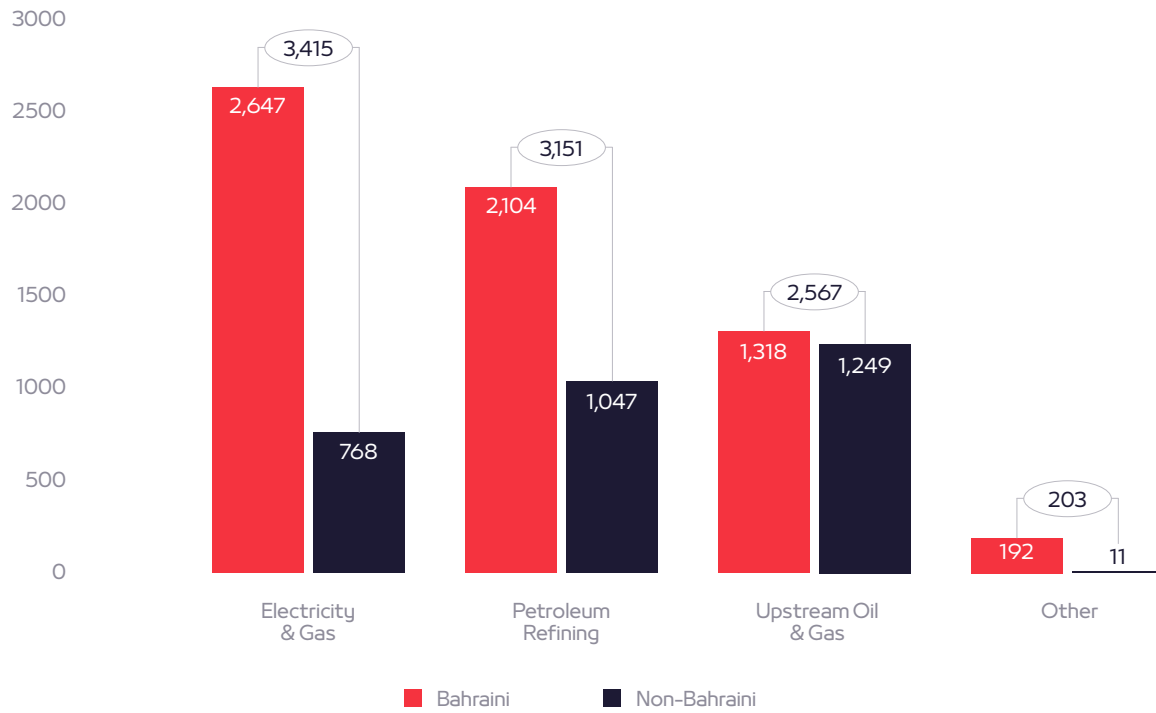
The leading entity within this sector, Bapco Energies Group, alone employed approximately 5,000 individuals across its various subsidiaries in 2023, with 76% of its workforce comprising Bahraini nationals. This demonstrates the group's strong commitment to national skills development.

<sup>1</sup> <https://www.bapcoenergies.com/about-us/our-legacy>

<sup>2</sup> <https://www.ewa.bh/en/AboutUs/ewahistory>

<sup>3</sup> <https://www.ewa.bh/EN/RENEWABLEENERGY/Pages/default.aspx>

## Energy Sector Workforce Breakdown



Source: Skills Bahrain Internal Analysis

The remainder of this report will focus on activities linked to the **extraction of oil and natural gas, petroleum refining, and renewable energy.**

## Sector Trends

The sector landscape is changing around the world which is impacting the workforce dynamics. The focus on environmental sustainability is shifting the strategic priorities of energy companies leading to a rise in renewable energy and decarbonization efforts. Moreover, the advancement of technology and new innovations like Robotic Process Automation (RPA), Artificial Intelligence (AI), and the use of drone technology is changing the way people work. The adoption of virtual reality simulation in training is redefining the ways in which skills are acquired and refined, particularly in high-risk operations. The Sector Working Group have confirmed that these trends are already shaping the sector in Bahrain and present companies with both opportunities and challenges in adapting operations and the workforce to the new era of the sector.

### Renewable Energy Adoption and Decarbonization

The ongoing global energy transition is increasingly shifting away from traditional hydrocarbons and moving towards renewable energy and decarbonization to address the topic of climate change and achieve national sustainability goals of governments worldwide. Industry players are investing heavily in renewable sources of energy like solar and wind, while simultaneously implementing strategies to reduce carbon emissions from traditional energy sources.

Bahrain has also publicly committed to increasing its renewable energy output and achieving Net-Zero emissions by 2060. All organizations within the sector have a major role to play to meet this target

which is being reflected as a core pillar in their corporate strategies. For example, the Bapco Modernization Programme (BMP) – which represents the major expansion of the existing Bapco Refinery – has highlighted energy efficiency as a key strategic objective and outcome of the program. This major shift in the sector dynamics requires a workforce skilled in renewable energy and decarbonization technologies to implement these strategies. As Bahrain moves forward with these aspirations, new jobs and skills will emerge in this field that will advance sustainability within the sector.

### Artificial Intelligence (AI) and Advanced Technologies

In addition to decarbonization and sustainability, all manner of technological change including AI, is disrupting the world and revolutionizing the operations of all industries, including energy. Within the sector, AI is primarily used today in predictive maintenance in the large upstream and downstream facilities. AI's ability to analyze vast data sets aids the anticipation of equipment failures and optimizes operational efficiency. AI can also be used across other parts of the operations to further enhance or complement the capabilities of other technologies like RPA to automate labor-intensive tasks. In addition, commercial drones are beginning to have an impact in the oil and gas industry. The use of drones in oil and gas globally is gathering pace with the market size expected to grow at an annual rate of 39% and reach close to USD 45bn in 2030<sup>1</sup>.

The Sector Working Group have confirmed that these technologies are already starting to make an impact in the sector. The implementation of AI and advanced technologies is expected to introduce significant

<sup>1</sup> Mashouk, Motaz. "Drones Set to Transform Oil and Gas Operations." Offshore, 10 Aug. 2023. Accessed November 2023 ([www.offshore-mag.com/special-reports/article/14297564/saudi-aramco-drones-set-to-transform-oil-and-gas-operations](http://www.offshore-mag.com/special-reports/article/14297564/saudi-aramco-drones-set-to-transform-oil-and-gas-operations)).

cost reductions and maximize operational efficiency. Bahrain's energy workforce will need to immediately develop the relevant skillset to prepare for these technological disruptions. Although still a relatively new technology, the use of commercial drones or Unmanned Aerial Vehicles (UAVs) has already been introduced to the region. Regional NOCs like Saudi Aramco have successfully started leveraging UAVs to inspect and maintain their facilities and enhance the company's overall infrastructure.

### Technology in Training

Technology is also revolutionizing training within the sector, providing trainees with enhanced quality learning experiences. Virtual Reality (VR) and Augmented Reality (AR) are leading this transformation by offering immersive training experiences similar to real-world situations but minus the risks involved. Trainees can practice complex

procedures and respond to emergency situations in a controlled environment, significantly improving their skills and preparedness for actual fieldwork.

These technologies are already being put into practice by leading industry players to enhance employee readiness. The Sector Working Group stated that technology is currently used in the early stages of the recruitment process and has accommodated better hiring decisions. Employers are using VR/AR to paint candidates with a realistic picture of what the job entails and allows employers to evaluate their performance in a simulated real-life situation. These technologies are being used to match candidates to the right job roles and provide them with targeted training to enhance their skillset.



### VR training in Bapco Refining

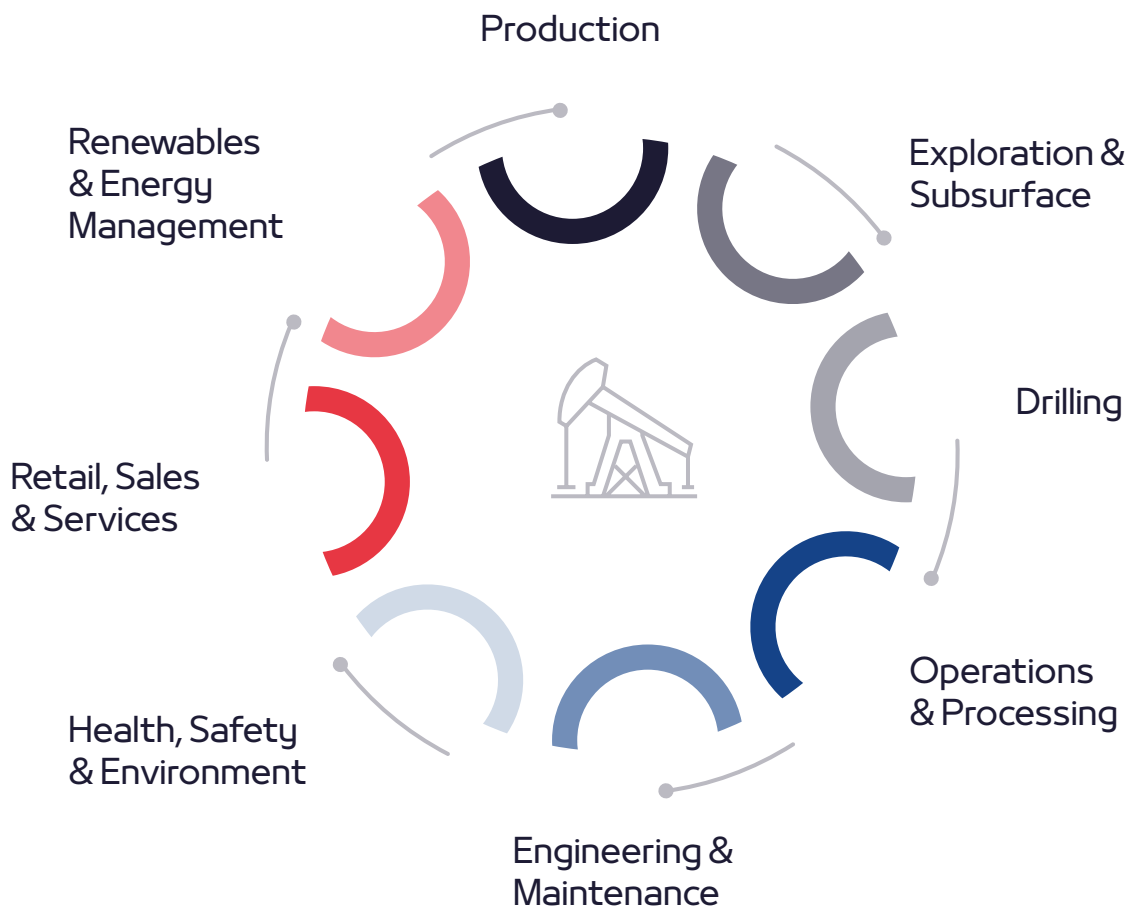
Bapco Refining is a pioneer in harnessing new technologies, such as Virtual Reality (VR) and Augmented Reality (AR) to facilitate the training of employees in a simulated environment to build their situational awareness. These technologies can help develop safety procedures at Bapco's facilities to address smaller accidents and emergency response.

In 2022, Bapco initiated a project integrating 3D virtual reality with the Control Operator Training

Simulator for the first time in the company's history. This project is a part of Bapco's Advanced Solution Initiative and aims to revolutionize workforce training by implementing virtual and augmented reality solutions. This technology will enhance the performance of critical tasks beyond traditional human limits, marking the start of a new era in training effectiveness and potential advancements through continuous and efficient system utilization.

# Career Opportunities

Figure 3: Sector job families





The Sector Working Group have identified a number of roles that are in demand within the sector. Across engineers, production engineers in specific capacities like wireline, slickline, and well testing are scarce and are sought after by upstream employers. The Sector Working Group have also emphasized on a pressing demand for skilled technicians and operators with hands-on experience, typically acquired through vocational training. This mismatch highlights the need for aligning educational outputs with the sector's practical requirements to provide employers with steady supply of talent with the relevant training experience.

Technological disruption has also caused a growing need for Information and Communication Technology (ICT) professionals within the industry. Data scientist and cybersecurity specialists in particular are in high demand as the sector continues to digitize and implement advanced technologies in their operations. Data analysts help in optimizing operations through data-driven insights, including predictive maintenance

which enhances the efficiency and longevity of facilities. Cybersecurity specialists crucially safeguard the sector's expanding digital infrastructure from external threats.

Furthermore, Bahrain's commitment to renewable energy and efficiency, as dictated by the target of achieving Net-Zero emissions by 2060, and in line with the global shift towards decarbonization, has encouraged the emergence of new job roles. There is an increasing demand for HSE Specialists, Metallurgy Engineers, and Additive Manufacturing Experts. These roles will be key contributors to supporting Bahrain's renewable energy targets, including the plan of the Electricity and Water Authority of Bahrain (EWA) in increasing the proportion of electricity generated from renewable energy to 20% by 2035. An adaptable and trained workforce that can fill these vacancies is the key to success of Bahrain's path towards a sustainable and energy efficient future.

Figure 4: Jobs in Demand anticipated by the Sector Working Group

Note: The job roles listed below are not ranked according to sector demand.

Jobs	Job overview
 <p><b>Additive Manufacturing Experts</b></p>	<p>Additive Manufacturing Experts are responsible for designing and implementing advanced 3D printing processes to create components for energy systems. They optimize manufacturing workflows, assess material suitability, and collaborate with engineers to enhance the efficiency and performance of energy-related parts, contributing to advancements in renewable energy generation and oil and gas operations.</p>
 <p><b>Cybersecurity Specialists</b></p>	<p>Cybersecurity Specialists are responsible for safeguarding computer systems, networks, and data from unauthorized access, attacks, and breaches. They design and implement security measures, conduct vulnerability assessments, and respond to incidents to protect against cyber threats. Cybersecurity Specialists also develop and enforce security policies, and educate users on best practices to protect digital assets.</p>
 <p><b>Data Analysts</b></p>	<p>Data Analysts are responsible for extracting actionable insights from complex datasets to support decision-making and enhance operational efficiency. They analyze data related to exploration, production, and distribution processes, identifying trends, and optimizing resource allocation to contribute to predictive maintenance strategies.</p>
 <p><b>Health, Safety &amp; Environment Specialists</b></p>	<p>Health, Safety and Environment (HSE) Specialists ensure compliance with health, safety, and environmental regulations through the promotion of policies and development of hazard mitigation strategies. They actively develop and implement safety protocols, conduct risk assessments, and provide guidance to prevent accidents and injuries. The sector also actively seeks individuals for this role, presenting a valuable opportunity for a lateral career move into another industry.</p>
 <p><b>Metallurgy Engineers</b></p>	<p>Metallurgy Engineers design and optimize materials for various applications, specializing in selecting alloys that withstand unique challenges, such as extreme temperatures and corrosive environments. They contribute to the improvement of production processes, ensuring the durability and efficiency of components in various industries, including oil and gas exploration, power generation, and renewable energy technologies. The sector also actively seeks individuals for this role, presenting a valuable opportunity for a lateral career move into another industry.</p>
 <p><b>Operators</b></p>	<p>Operators are responsible for carrying out a range of operational tasks in the field, ensuring efficient execution of processes, maintaining equipment, and adhering to safety. Operators work closely with team members and supervisors to achieve operational goals and ensure the smooth running of energy production or distribution tasks in the field. According to the view of the Sector Working Group, this role is in high demand and prospective employees can enter the field through adequate vocational training.</p>
 <p><b>Production Engineers</b></p>	<p>Production Engineers (e.g. wireline, slickline, well testing engineers) focus on optimizing the production processes in the oil and gas industry. They design and implement strategies to enhance the efficiency of wireline and slickline operations, ensuring the integrity and performance of well systems.</p>
 <p><b>Solar Engineers</b></p>	<p>Solar engineers specialize in the design and development of Solar Photovoltaic (PV) systems. They apply engineering principles to maximize the efficiency of solar system installation, develop design specifications for projects, ensure safety practices and oversee the operation and maintenance of the solar system.</p>
 <p><b>Technicians</b></p>	<p>Technicians, whether specializing in mechanical, reliability, or electrical maintenance, are responsible for the hands-on implementation and upkeep of equipment in their domain. They conduct routine maintenance, troubleshoot issues, and ensure the reliability and optimal functionality of machinery. Technicians play a pivotal role in ensuring the smooth operation and longevity of critical assets in their respective fields.</p>



# Explore a Career in Energy



# Career Spotlight: OPERATOR

## Role Overview

Operators are responsible for carrying out a range of operational tasks in the field, ensuring efficient execution of processes, maintaining equipment, and adhering to safety protocols. They work closely with team members and supervisors to achieve operational goals and ensure the smooth running of energy production or distribution tasks in the field.

Operators can function in several areas such as control and monitoring, safety compliance, operation and maintenance, and emergency response. The Sector Working Group have highlighted that operators play an important role in the sector and skilled operators are always in high demand.

## Career Pathway and Progression

Typically, an Operator completes a specialized vocational training program and gains hands-on experience through an internship, apprenticeship or entry-level position. Another option is to pursue an academic path by enrolling in a degree-level program focused on areas such as engineering, process control, equipment operation, or maintenance.

Operators have a range of career paths based on factors like education, experience, skills, and industry specialization. Opportunities include progressing to leadership positions within operations or pursuing specialized certifications or academic training to become a process engineer or move into the renewables subsector.



# Career Spotlight:

## MECHANICAL TECHNICIAN

### Role Overview

Mechanical Technicians are responsible for conducting routine maintenance, troubleshooting, and repairs on mechanical equipment. They ensure machines and systems operate efficiently, safely, and consistently to meet production needs.

### Career Pathway and Progression

Mechanical Technicians typically obtain an associate degree or vocational training in Mechanical Engineering Technology or a related field. Certifications and hands-on training are key components, as they provide the practical skills and technical know-how required in this field.

The role of a Mechanical Technician offers diverse growth and specialization opportunities in both the oil and gas, and renewable energy industries. With experience, Mechanical Technicians can advance to supervisory roles, specialize in specific machinery, and explore opportunities in designing and testing new energy technologies. Additionally, with the appropriate qualifications, Mechanical Technicians can progress to become Mechanical Engineers.



# Career Spotlight: SOLAR ENGINEER

## Role Overview

Solar engineers specialize in the design and development of Solar Photovoltaic (PV) systems. They apply engineering principles to maximize the efficiency of solar system installation, develop design specifications for projects, ensure safety practices and oversee the operation and maintenance of the solar system. Working in these roles is personally rewarding due to the opportunity to make an impact to the environment and contributing positively to reduce carbon footprint.

## Career Pathway and Progression

Becoming a solar engineer in the sector typically involves a combination of education, experience, and the development of specialized skills. Those looking to enter the field of solar engineering will require a bachelor's degree in engineering such as mechanical or electrical engineering. Further professional certifications are also available such as the Certified energy manager (CEM) or the Certified Renewable energy professional (REP) to provide candidates with expertise in areas like energy management and energy auditing.

New entrants in the workforce can begin their careers as an efficiency engineer or a solar technician and progress in their career to managerial roles as an energy or Renewables manager. As the industry shifts towards sustainability, the number of renewables-related roles in companies within the sector is expected to increase, providing early entrants a favourable path to leadership roles in the near future.



# Preparing A Future-Ready Workforce

In today's ever-changing job market, a shift in mindset is crucial for professionals to succeed. The traditional approach which focuses on tenure and job titles is being replaced by a skill-centric approach. To navigate the complexities and opportunities presented by digitalization, sustainability, and renewable energy, individuals must prioritize continual skill development and adaptability. Embracing this mindset ensures relevance and competitiveness in the evolving landscape.

Recognizing this need, Tamkeen, in collaboration with the Sector Working Group, have developed National Occupational Standards and Career Pathway Maps specifically for the sector. These resources can be used to illustrate career trajectories available within the industry, both vertically and laterally. They provide a clear framework for the skills and competencies required at different stages and roles, giving direction to those who wish to progress or pivot in the sector. By doing so, this approach supports employees in making well-informed decisions about their career paths and professional development, focusing on the acquisition and perfection of those skills which are most sought after and needed in the sector.

Skills can be categorized as either core or technical skills, both of which are critical to building a successful and competent workforce. Core skills—also known as generic or soft skills—are essential for performing well in any environment or organization and are becoming increasingly more important to employers.

These core skills have been captured in a well-defined core skills framework which can be used across all industries. On the other hand, technical skills are the abilities, knowledge, or expertise required to perform specific, job-related tasks. Many of these skills can be acquired through vocational training, learning programs or on-the-job experience.





## Core Skills Framework

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Tamkeen has developed and pioneered a Core Skills Framework as part of the country's wider skills taxonomy. The framework has been developed and aligned against a comprehensive list of international benchmarks and best practices, whilst reflecting the specific needs and aspirations of Bahrain as a progressive country.

Core skills underpin, promote and provide the foundation of the skills required to carry out specific job roles and functions. They are usually gained through life and work experience or through structured learning and training programs. Core skills are essential for any job or profession and provide a strong basis for lifelong learning and for building the technical skills required to support specific job roles.

The Core Skills Framework is structured around three key pillars: Social Intelligence, Self Management, and Analytical Skills, each playing a vital role in shaping a proficient and adaptive workforce. Under each of the key pillars, four core skills are defined forming a complete framework of twelve core skills.

# Core Skills Framework



**SOCIAL INTELLIGENCE**

The ability to be self-aware, inclusive, communicative and form relationships with others with empathy, compassion and assertiveness

**Building Inclusivity**

The ability to create an environment and manage relationships across diverse groups in a range of different contexts by seeking to establish common ground regardless of race, ethnicity, religion, gender, age, ability, education, or socio-economic status.

**Communication**

The ability to listen effectively and understand, articulate thoughts and ideas effectively, exchange information, employ negotiation skills and use oral, written and non-verbal skills across a range of different environments.

**Empathy**

The ability to demonstrate emotional intelligence by demonstrating awareness of the feelings and emotions of others and being able to act accordingly within that context.

**Collaboration and Teamwork**

The ability to work collectively and effectively with one or more people in order to achieve a common goal, bringing together a range of experience and skills based on exchanging ideas, sharing experience and developing creative solutions.



**SELF MANAGEMENT**

The ability to manage behaviors, thoughts and emotions in a conscious and productive way

**Adaptability**

The ability to easily adapt to new situations and changing circumstances in life and work and change actions as required.

**Initiative**

The ability to think independently, identify opportunities, think innovatively and take action when necessary and without direction.

**Planning and Organizing**

The ability to plan and organize tasks in order to fulfill requirements within a given time.

**Literacy**

The ability to understand and have the confidence and skills to work with language to identify, interpret, create and communicate effectively in written and oral formats.



**ANALYTICAL SKILLS**

The ability to collect, organize, visualize and assimilate data using a range of tools and skills

**Digital Literacy**

The ability to find, evaluate, analyze, use, share and create content using digital devices, use software applications and troubleshoot common problems.

**Critical Thinking**

The ability to analyze, interpret, evaluate, infer, explain, synthesize and self-reflect in the context of making reasoned judgements based on a logical sequence of independent thought.

**Problem Solving**

The ability to identify and assess issues and problems and make use of available resources to evaluate and generate potential solutions in personal, social and work contexts.

**Numeracy**

The ability to understand and have the confidence and skills to work with numbers using numerical skills to process, interpret and communicate information to help understand, predict and solve problems.

## Sector Core Skills

In the face of rapid changes in the sector, success hinges on acquiring essential core and technical skills. These skills help identify key gaps and deficiencies in the workforce, representing both challenges and opportunities in navigating the energy landscape and adapting to innovative technologies arising within the sector. As the energy industry is shaped by technological advancements, environmental concerns, and global market trends, it becomes crucial to have a workforce equipped with a combination of core and technical skills.

Core skills provide a foundation for continuous learning and development and play a crucial role in achieving success in a dynamic workplace. As professionals progress in their careers, there is greater emphasis on an advanced level of core skills that make up the key characteristics of a successful leader. The Sector Working Group have highlighted three overarching core skills that are required across most job roles in the sector, as shown below in Figure 5.

Figure 5: Core skill gaps identified by the Sector Working Group



### Building Inclusivity – Females in the Sector

Embracing inclusivity, especially through promotion of female participation, is a national priority and serves as a strategic advantage for the sector. With more women in roles related to energy, it adds a diverse set of perspectives, ideas, and leadership styles that are important for solving problems and nurturing innovation. In a historically male-dominated industry, active

encouragement and support for female talent is required to unlocking the full potential of the labor force. Giving priority to the participation of women in the sector will be a big stride towards a more equal and inclusive environment and will position Bahrain favorably in a global context.

## Sector Technical Skills

Building on the insights from the earlier sections of this report, it is evident that specific technical skills are in demand within the sector. A deeper understanding of these key skills can guide professionals in upskilling, reskilling or aligning their current expertise with the sector’s requirements.

Professionals equipped with the relevant technical skills are well-positioned to contribute significantly to the industry’s evolution and to Bahrain’s broader energy goals. The Sector Working Group provided insights into a list of technical skills which are currently in demand as shown below in Figure 6.

**Figure 6:** Technical Skill Gaps Identified by the Sector Working Group

**Note:** The technical skills listed below are not ranked according to sector demand.





# Training Programs and Initiatives

The education and training landscape in Bahrain provides a comprehensive foundation for addressing many of the sector's immediate requirements through a wide range of undergraduate, postgraduate, diploma, and vocational training programs. These programs offer individuals various pathways to embark on, transition into, or grow within diverse and rewarding fields in the sector.

Developing the ideal mix of core and technical skills is therefore essential to pursuing a career within the sector. The industry offers various programs to bridge skill gaps and promote a culture of continuous learning and adaptability. These programs aim to equip individuals with the necessary skills to address industry needs, foster personal and professional growth, and contribute to the achievement of national strategic economic goals.

To cater to their specific requirements, organizations within the sector have implemented tailored solutions. For example, Bapco Training and Development is a recognized learning and development center accredited by the United

Kingdom's Institute of Leadership and Management (ILM) and City & Guilds. The center offers a comprehensive range of technical and professional training programs. These include the Diploma Program (Apprenticeship), which is designed for newly recruited Bahraini operators and technicians. Participants undergo specialized training to enhance their skills and knowledge in their respective fields.

Another program offered by Bapco Refining is the IT and Digital Graduate Trainee Program. This intensive one-year program aims to provide practical work experience to talented Bahraini graduates in the fields of Information Technology (IT) and digital competencies. The program offers on-the-job learning opportunities, and fosters the development of skills in a high-performance culture. It also enables participants to gain valuable insights and build professional networks in their respective fields.

## Degree Programs

For those looking to delve into the sector through higher education, there are a number of Bachelor of Science programs available in Mechanical, Electrical, Electronic, Chemical, and Industrial Engineering at various academic institutions within Bahrain which will provide a solid foundation for a career path in engineering. Specialized postgraduate degrees are also available in Environmental Chemistry, Sustainable Development, Renewable Energy Engineering and Sustainable Energy Systems Engineering. With the availability of these programs, Bahrain provides students with the option of pursuing a career path in the sector through a relevant, specialized academic degree.

## Diplomas and Vocational Training Programs

An alternative route to traditional higher education is vocational training. Diplomas and vocational training programs offer a streamlined, industry-relevant education for those eager to enter the sector by mastering a practical and focused skillset. Vocational training provides students with a chance to gain “hands-on” experience and get an expedited feel for the industry without the commitment of a longer-term academic degree. For example, Engineering diplomas offered through a multitude of vocational training institutions cover disciplines such as Electrical, Mechanical, Electromechanical, and Chemical Engineering and provide the technical foundation required for various energy roles including Mechanical Technicians and Operators.

“Bapco Upstream” Petroleum Internship Program, in its fourth edition, serves as an example of a collaborative effort between an employer and a vocational training center within Bahrain. This program offers students the opportunity to receive training in Field Operations Facilities and Field Maintenance

Workshops, specifically in Geology, Petroleum, and Reservoir Engineering. The internship program aims to broaden students’ knowledge and practical experience in the industrial field, facilitating their professional development.

Moreover, Bapco Energies support continuous learning and development and has been a pioneer in joint training initiatives, notably in the establishment of the Bapco Upstream Leadership Program and the Bapco Upstream Petroleum Internship Program, in partnership with an external training institute. Bapco Energies offers top-up programs which are accelerated educational programs for individuals with existing qualifications to upgrade their credentials. These specialized programs allow students to enhance their knowledge and skills in a shorter timeframe, without starting a full degree program. For diploma holders, top-up programs provide an opportunity to further elevate an individual’s educational standing. These programs allow individuals to convert their existing diplomas into full engineering degrees including mechanical, electrical and chemical engineering, paving the path for individuals with accumulated work experience to progress into higher-level positions or pursue specialization.

As the national oil and gas company, Bapco Energies continues to successfully roll-out industry-led training initiatives to develop the energy workforce. Similarly, Tamkeen is dedicated to supporting the enhancement of skills and competencies of both individuals and businesses, by addressing the changing demands of the industry. Tamkeen offers a range of programs that help bridge skill gaps and foster a culture of continuous learning and adaptation. It offers this support through a range of programs within the sector that contribute to individual career growth and supports the overall competitiveness and sustainability of the Bahraini economy.



## Tamkeen: Employment Support Programs

### National Employment Program

The program encourages private sector enterprises to employ nationals through wage support for up to three years. This helps Bahraini graduates and jobseekers to enter the labor market, while also supporting enterprises to employ the talent they need to drive their productivity and success.

### Jobseeker Training Program

The program provides training and upskilling opportunities for jobseekers nominated by the Ministry of Labour to increase their competitiveness and facilitate their entry to the labor market.

### Train and Place Program

The program offers training support for jobseekers to gain essential skills and requirements for the labor market through creating sustainable employment opportunities and matching the requirements of the private sector with available talent.

### On-the-Job Training Program

The program provides opportunities for jobseekers to gain practical work experiences that can equip them with the required skills to enter the labor market.

### Apprenticeship Program

The program, in collaboration with academic and vocational training institutes, provides enterprises with the opportunity to employ Bahrainis as apprentices, giving them the chance to obtain in-demand vocational skills across different trades as well as specialize in the fields of information technology, cybersecurity, and other future jobs.



## Tamkeen: Career Development Support Program

### Wage Increment Support

The program allows enterprises to obtain wage increment support for existing employees, facilitating the career progression of Bahrainis in the private sector and encouraging employers to retain and reward their workforce. As part of Tamkeen’s commitment to supporting this progression, enterprises are encouraged to hire new talent at higher wages by fully covering the difference between the new and previous wages.

### Leadership Employment Program

The program aims to empower Bahrainis to advance in their careers by providing wage support/increment for enterprises looking to employ Bahrainis in mid and executive jobs in the private sector. This enables enterprises to employ and promote talented individuals to assume leadership roles, thus helping Bahrainis progress in their careers.

### Enterprise Training Support Program

The program offers enterprises support with their training costs to upskill and develop their human capital with the aim of improving their competencies and capabilities to become more productive, and help enterprises grow, remain competitive, and retain talented employees.

### Professional Certification Program

The program offers individuals an opportunity to enhance their skills and build their competencies through attaining internationally accredited professional certificates related to their area of expertise.

### Global Ready Talent Program

The program supports overseas placement and work opportunities for Bahrainis to help them gain valuable work experience, develop their skills and gain exposure to international work environments.

# Key Takeaways

▶ **Vocational training and education programs are important in filling current and future job demand.**

Individuals who receive vocational training and qualifications are poised to meet the existing and future demand for key roles in the sector, particularly in Operator and Technician roles. To effectively address this demand, it is essential to capitalize on opportunities that better align training and education output with the needs of the sector. By forging stronger ties with the industry, academia and training providers can design curricula that directly meets the specific needs and gaps that exist in the real world.

▶ **Apprenticeships and placement programs should be implemented across the sector.**

The sector has the opportunity to elevate the skill levels of its workforce and provide training programs for job seekers through apprenticeships and placement programs which provide a high level of support after entering the workforce. These programs facilitate immersive learning experiences for young individuals and those seeking employment, allowing them to gain a comprehensive understanding of the skill requirements within the sector through on-the-job training and education. Apprenticeships and placement programs also serve as a strategic pipeline for talent development, offering a structured approach to training individuals before considering them for future employment opportunities.

▶ **The sector should foster a gender-inclusive work environment.**

Building a gender-inclusive workforce remains a priority, aiming to ensure equal opportunities and treatment for both genders across all subsectors. Diversifying the workforce and boosting female participation addresses gender imbalances and creates an opportunity to enrich the talent pool. By actively involving more females in the sector, there lies potential for tapping into a broader range of skills and perspectives, significantly contributing to fostering innovation and creativity within the industry.

▶ **Employers and individuals must promote and facilitate a culture of continuous learning and development.**

The sector's rapid evolution, driven by technology and sustainability goals, underscores the need for continuous learning and development. Continuous learning allows individuals to expand their knowledge, acquire relevant skills, and stay updated with emerging trends and practices. It not only expands individual skills, but also fuels the sector's innovation and enhances operational performance and sustainability. Individuals can enhance their competitiveness in the job market by keeping informed with the latest skills in demand and specializing accordingly.

# Acknowledgements

We would like to thank the following organizations and partners for their support and contributions in the development and validation of the sector skills report:

- Bahrain Gas
- Bapco Air Fueling
- Bapco Gas Expansion
- Bapco Lube Base Oil
- Bapco Refining
- Bapco Tazweed
- Bapco Upstream
- BAC Jet Fuel (BJFCO)
- Bahrain Polytechnic
- Green Innova
- Halliburton International Ltd.
- Intergreen Technologies
- Nasser Vocational Training Center (NVTC)
- Solar One Bahrain
- Tarsheed energy
- University of Bahrain

# Glossary of Terms

Term	Definition
<b>Core skills</b>	The combination of essential skills required to be fully prepared for life and work in a global economy
<b>Digitalization</b>	The use of digital technologies, digitized information and data to change business operations and introduce efficiencies and opportunities
<b>Emerging Jobs</b>	A job/occupation that currently has small numbers but is expected to grow in the future
<b>Job</b>	A paid position of employment held by an individual
<b>Job Family</b>	A group of jobs/positions that involve work in the same functional occupation and share related core knowledge and background requirements. The job family structure is based on function rather than organizational structure
<b>Job Role</b>	A specific set of responsibilities and duties assigned to an employee within an organization
<b>National Occupational Standards (NOS)</b>	A set of skills, knowledge and performance criteria required for key job roles in the sector. NOS provide a standardized framework for defining skills and competencies, ensuring that all individuals in the same sector or profession meet a certain minimum standard set by the sector
<b>Sector skills report</b>	A concise report which outlines an overview of an industry sector by identifying trends, presenting macro-economic data, outlining current and future job roles and associated skills gaps and making recommendations for the future
<b>Skills framework</b>	Provides information such as key sector information, occupations and job roles, and the required existing and emerging skills to fulfil roles within that sector
<b>Skills gap</b>	The difference between the identified skills (core and technical) that an employer expects their employees to have and the actual skills that employees possess
<b>Skills mismatch</b>	An overarching term which can be used to describe various instances of imbalance in skills e.g. skill shortage which is where the demand for a particular type of skills exceeds the supply of the workforce with these skills; skill surplus which is where the supply of the workforce with a particular type of skills exceeds demand in the job market; over-skilling occurs where the workforce has more skills than required to perform a job adequately; under-skilling occurs where the workforce has less skills than required to perform a job adequately
<b>Stakeholder engagement</b>	The process by which an organization involves others who may be affected by the decisions it makes or can influence the impact and implementation of its decisions
<b>Technical skills</b>	The specialized knowledge and expertise required to perform specific tasks and use specific tools and programs associated with a particular job role