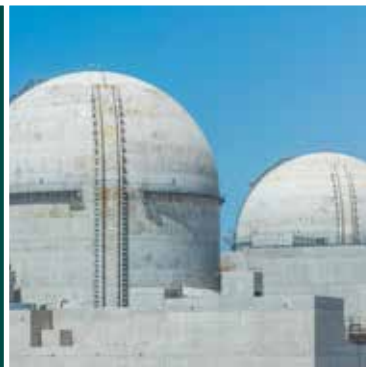




# SUSTAINABILITY REPORT





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## About this Report

This report aims to provide a comprehensive and transparent update of Emirates Nuclear Energy Corporation's (ENEC's) sustainability strategy and performance during 2017. This report covers the activities of ENEC and its subsidiaries Nawah Energy Company (Nawah) and Barakah One Company (BOC), as well as significant contractors and subcontractors, where relevant. Full details of the report's scope and boundaries can be found in Appendix A, as well as in data tables and graphs throughout this report.

This report has been prepared in accordance with the GRI Standards: Core option. It has successfully completed the GRI's Materiality Disclosure Service."

In 2016, ENEC saw a peak in the construction phase of the Barakah Nuclear Energy Plant and a significant ramping up of preparations for the operation of the region's first nuclear energy Unit. The year 2017 also marked the first full year of operations for both of ENEC's subsidiaries, Nawah and BOC. This has resulted in changes to the way we have presented some of the data and information, and also explains significant variations in reported figures between 2016 and 2017. It is important to note that ENEC does not currently offer any product or service.

This report contains forward-looking statements, reflecting management's current reasonable expectations. No assurance can be given that such expectations will prove correct and such statements are subject to risks and uncertainties and should not be relied upon due to ever-changing future events that could materially change the outcome. This document has not been subject to review by an independent third-party assurance provider.

For questions or comments regarding this report and ENEC's Sustainability Program, please visit [www.enec.gov.ae](http://www.enec.gov.ae) or contact [sustainabilitycsr@enec.gov.ae](mailto:sustainabilitycsr@enec.gov.ae).



## Message from the CEO

Welcome to ENEC's fourth sustainability report, our annual update on the economic, environmental and social performance of the UAE Peaceful Nuclear Energy Program.

With the launch of the UAE National Climate Change Strategy 2050 and the development of the UAE Centennial Plan 2071, the Peaceful Nuclear Energy Program being implemented by ENEC could not be more relevant. The delivery of clean, reliable and efficient energy is vital to the achievement of both visions, and to power the future growth and prosperity of the nation, for decades to come. The Program includes the construction and operation of the Barakah Nuclear Energy Plant, as well as the creation of new, high-value jobs, and the establishment of a high-tech industrial sector that will benefit the country well into the future.

As a group of companies, ENEC and its subsidiaries: Nawah Energy Company and Barakah One Company, grew significantly in 2017. This growth is expected to continue as we complete construction of the plant and scale up for operation and expansion in the near future.

This year marked a turning point in the construction project as activity began to wind down from the peak in 2016, leading to a reduction in material consumption and in the number of on-site contractor and subcontractor employees. By the end of the year, overall construction on all four units hit 84% completion, with Unit 1 reaching 96% completion, and handover and commissioning fully underway.

We continue to closely monitor our sustainability performance across over 100 different Key Performance Indicators, as presented in this report. Some of the major headlines from 2017 include: a reduction in injuries and lost-time incidents on the construction site; improvements in water efficiency and waste management; and the creation of over 700 new jobs. It is also significant that the project has awarded contracts to over 1,400 UAE companies to date, totaling \$3.25 billion.

Since 2017 was also declared the UAE Year of Giving, we have outlined all of the ways in which ENEC has been giving back to the community. This included bringing a safety focus to the WorldSkills Abu Dhabi 2017 competition, getting involved in culture and heritage events like the Liwa Date Festival, and donating information and technology equipment for refurbishment and distribution to charities in the UAE and overseas.

Our sustainability achievements to date were recognized by a number of prestigious entities in 2017, including the European Foundation for Quality Management (EFQM) which awarded ENEC two stars for our commitment to sustainability; we are the first energy company in the world to achieve this level. ENEC was also recognized as one of five United Nations Global Compact (UNGC) Sustainable Development Goals (SDGs) Pioneers in the UAE for our contribution to "People Development".

Finally, our 2016 Sustainability Report picked up the Best Sustainability Report Award at the Abu Dhabi Sustainability Group's (ADSG) Sustainable Business Leadership Awards. These accolades provide us with confidence that the path we are on is the right one and that we must continue to strive to achieve even greater excellence in sustainability.

We expect 2018 to be a significant year in the progress of our nuclear energy project, with the transition from construction to operation gaining momentum. As this takes place, we continue to be thankful for the contribution and commitment of all our stakeholders and look forward to working together on the delivery of a more sustainable future for the UAE and region.

**His Excellency Mohamed Al Hammadi**

Chief Executive Officer



# The Emirates Nuclear Energy Corporation

ENEC's Vision  
ENEC's Group Structure  
ENEC's Corporate Strategy  
Program Overview and Progress  
Memberships  
Awards and Recognition

## ENEC's Vision

**To power the future growth and prosperity of the UAE through a safe and sustainable peaceful nuclear energy program.**

ENEC was established in 2009 to implement a peaceful nuclear energy program in the UAE in order to address the country's growing demand for electricity while reducing its carbon footprint and diversifying its energy portfolio. ENEC is wholly-owned by the Government of Abu Dhabi with the mandate to develop, build, finance, operate, maintain, manage and own nuclear reactors for the purposes of electricity generation, and potentially for desalination.

[ENEC's Vision & Mission: www.enec.gov.ae/overview/mission-and-vision/](http://www.enec.gov.ae/overview/mission-and-vision/)

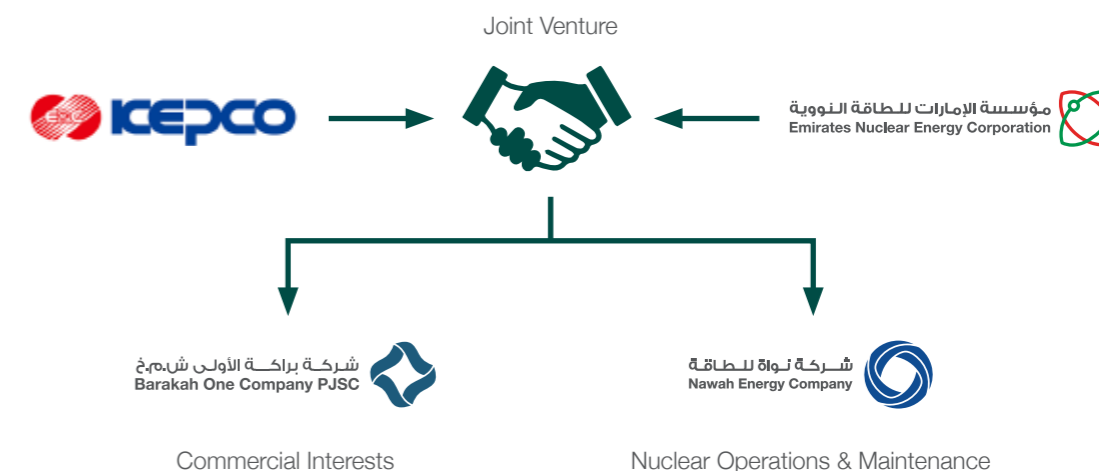
Under its mandate, ENEC is constructing the United Arab Emirates' first nuclear energy plant at Barakah, in the Al Dhafra Region of Abu Dhabi Emirate. The Barakah Nuclear Energy Plant (BNEP) consists of four Generation III+ APR-1400 nuclear energy generating units, and their associated facilities, with a combined capacity of approximately 5,600 MW, which is expected to meet up to 25 percent of the UAE's electricity demand once fully operational.

[Nuclear Energy Technology: www.enec.gov.ae/barakah-npp/technology/](http://www.enec.gov.ae/barakah-npp/technology/)

## ENEC's Group Structure

In October 2016, ENEC entered a new phase of development by establishing the Nuclear Corporation that will lead the delivery and long-term sustainability of the UAE Peaceful Nuclear Energy Program. To achieve this, ENEC announced the establishment of a Joint Venture partnership with the Korea Electric Power Corporation (KEPCO), a historic agreement that creates a long-term commercial collaboration in the field of nuclear energy.

Together with KEPCO, ENEC set up two subsidiaries; Nawah, which is responsible for the maintenance and operation of the four Units at the Barakah plant, and BOC responsible for the commercial interests of the project. ENEC is the majority shareholder in both subsidiaries and has included their data as part of the sustainability performance data in this report.



### Nawah Energy Company



Established in 2016, Nawah is mandated to operate and maintain Units 1 to 4 at the Barakah Nuclear Energy Plant. As the world's newest nuclear operator, Nawah will harness the power of nuclear energy to provide a reliable, clean and sustainable supply of low-carbon electricity to contribute to the UAE's social and economic development and enhance the quality of life for generations to come.

[Nawah Energy Company: www.nawah.ae/en/](http://www.nawah.ae/en/)

### Barakah One Company



BOC was established in 2016 and is responsible for managing the commercial interests of the Barakah plant, securing project financing from institutional and commercial lenders, and receiving funds for the electricity generated from Units 1 to 4. In November 2016, BOC signed the first nuclear energy power purchase agreement with Abu Dhabi Water and Electricity Company (ADWEC) for the purchase of the electricity to be generated at the Barakah Nuclear Energy Plant. The agreement establishes the contractual framework between the two entities for nuclear-generated clean, efficient and reliable electricity.

# ENEC's Corporate Strategy

ENEC's Strategic Plan 2017-2021 was reviewed and updated in 2017. The three strategic goals and eleven strategic objectives focus the organization on "delivering short-term goals", "preparing for the future" and "strengthening key enablers". While meeting these goals and objectives, ENEC strives towards excellence in safety, scheduling, cost control and Emiratisation. Many of the items identified in the corporate strategy align directly with the longer-term perspective of the ENEC sustainability strategy.

**GOAL A: DELIVER SHORT-TERM PRIORITIES**

- 1 Ensure units 1 - 4 construction completion and seamless transition to operations.
- 2 Establish and maintain effective subsidiaries' governance and interface model.
- 3 Strengthen relationship with KEPCO as a JV partner.

**GOAL B: PREPARE FOR THE FUTURE**

- 4 Ensure nuclear waste management organizational readiness.
- 5 Ensure security of supply through development of the nuclear value chain in the UAE.
- 6 Identify and pursue expansion and business development opportunities.

**GOAL C: STRENGTHEN KEY ENABLERS**

- 7 Reinforce strong culture of safety and organizational health.
- 8 Develop human capital capabilities.
- 9 Deliver efficient and effective support services.
- 10 Meet regulators expectations.
- 11 Pro-actively engage, educate and communicate with our stakeholders.

Development of a UAE Nuclear Energy Grand Program Plan (GPP) began in mid-2017, with the aim of identifying the remaining organizational and programmatic activities necessary to fully augment the UAE Peaceful Nuclear Energy Program, with all four reactors operating in accordance with the highest quality and safety standards in the industry. An outline for the GPP was developed which identifies the purpose and scope and includes the necessary elements of the program, the guiding principles for consideration and the details defining each element. The GPP will also set out a 10-year timeline and framework for the creation and maintenance of all the elements necessary for a safe, secure, and sustainable peaceful nuclear energy program in the UAE.

# Program Overview and Progress

In early 2017, ENEC reached peak construction on the four nuclear energy units, and by the end of 2017 overall completion of the four units was over 86%, with Unit 1 at 97% complete. Attention is now moving to ensure the successful testing and commissioning of the units, before the issuance of an operating license to Nawah from the Federal Authority for Nuclear Regulation (FANR) in order to begin the production and supply of electricity to the UAE grid.



2017 progress update: % Completion



Unit 1	Completion of all initial construction activities and the turnover of all plant systems to KEPCO for testing and commissioning, which is in the final stages.
Unit 2	Construction activities are in the final stages of completion with turnover, testing and commissioning of systems progressing steadily.
Unit 3	The reactor containment building dome was completed, a major construction milestone.
Unit 4	Preparation for the reactor containment building dome concrete pouring was completed together with installation of the reactor vessel, steam generators and condenser.

[Take a virtual tour of our plant. Explore the reactor building, turbine hall and control room: www.enec.gov.ae/discover/360](http://www.enec.gov.ae/discover/360)

[Construction Update: www.enec.gov.ae/barakah-npp/construction-program/](http://www.enec.gov.ae/barakah-npp/construction-program/)

## Operating License

Before the plant can become operational, Nawah must receive an Operating License from FANR in order to ensure that all regulatory requirements have been met for the safe operation of the Barakah plant. The 15,000-page Operating License Application (OLA) for Units 1 and 2 was submitted in March 2015 by ENEC on behalf of Nawah and is pending a decision from the FANR. In 2017, Nawah successfully submitted the OLA for Units 3 and 4, which includes the lessons learned and experience gained during the analysis of the application for Units 1 and 2, which is approximately 5,000 pages longer.

 **Regulatory Filings:** [www.enec.gov.ae/barakah-npp/regulatory-filings/](http://www.enec.gov.ae/barakah-npp/regulatory-filings/)

## Memberships

ENEC is a member of the following organizations:



World Association of Nuclear Operators (WANO)



International Atomic Energy Agency (IAEA)



Abu Dhabi Sustainability Group (ADSG)



Electric Power Research Institute (EPRI)



## Awards and Recognition

ENEC received the following awards and recognitions in 2017:



### Committed to Sustainability – Two Stars

ENEC was the first energy and utilities company globally to have achieved Two Stars in the EFQM's Committed to Sustainability Assessment.

### Sustainable Development Goals Pioneer – People Development

ENEC was recognized as an SDG Pioneer by the United Nations Global Compact UAE Network. The award was in honor of ENEC's commitment to people development, specifically the work done through the Energy Pioneers program (see page 91) and Women in Nuclear program (see page 89).

### Best Sustainability Report

The ENEC 2016 Sustainability Report was recognized as the best report by the ADSG in early 2018.

### Energy Deployment of the Year Award

ENEC was recognized in the Energy Deployment of the Year category at the Computer News Middle East's (CNME) 8th annual ICT Achievement Awards. ENEC impressed a panel of judges with its Business Digital Transformation Program, that has delivered greater customer satisfaction, increased productivity, improved efficiency and optimized ENEC's processes.

### Gold Award for Government Communications

MEPRA: ENEC and Four won the gold award for Government Communications for 'Powering-up the nation'.

### Rashid Award for Academic Excellence

The Emirates Nuclear Energy Corporation (ENEC) was honored with the prestigious Sheikh Rashid Award for Academic Excellence, organized by the Dubai Cultural and Scientific Association. ENEC was rewarded in recognition of its key role in developing human capabilities and building sustainable capacity for the peaceful nuclear energy sector.



# Sustainability at ENEC

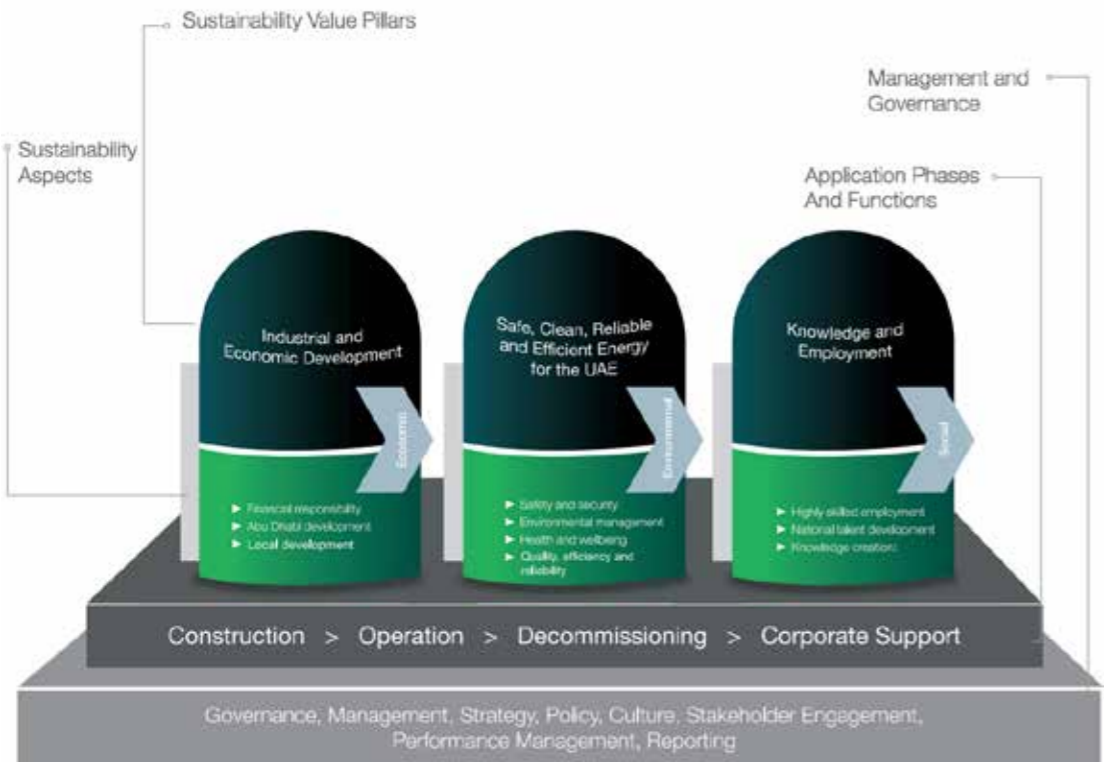
Sustainability Management  
Governance and Management  
Stakeholder Engagement  
The Year of Giving

## Sustainability Management



ENEC's sustainability management strategy focuses its attention on the measurement, management and reporting of performance on the most important economic, environmental and social aspects in order to deliver maximum value for all stakeholders, now and in the future. This strategy outlines three sustainability value pillars and ten sustainability aspects that must be addressed from the construction phase through to plant operations and the ultimate decommissioning of the nuclear energy plants. This strategy also captures the critical elements required for the management and governance of sustainability at ENEC.

See Appendix A for more information on how ENEC identified its material aspects.



The custodian of the sustainability strategy is ENEC's Sustainability and CSR Working Group which is comprised of members from all major functions within ENEC. The group meets, at minimum, once every two months to review progress and drive forward the implementation of sustainability across the organization.

## Sustainability Maturity

To objectively assess ENEC's implementation of sustainability management, the Working Group used the Sustainability Maturity Assessment Tool (SMAT) deployed by the AD SG under the leadership of the Environment Agency – Abu Dhabi (EAD).

The tool has over 150 criteria that assess the sustainability policies, approaches and performance across seven areas, including management, owners, employees, suppliers, customers, community and environment. Responses to criteria were completed by ENEC and then verified by external third-party sustainability experts.

Sustainability Maturity Index			
	2015	2016	2017
Sustainability maturity (%)	57.7	63.2	67.9

The results of the SMAT show that ENEC's sustainability program has continued to mature year-on-year, rising 10% overall from 2015 to 2017, with the biggest increase of 24.4% coming in the management area.

## Contribution to the Global Sustainable Development Goals (SDGs)

ENEC's sustainability strategy helps us track our contribution to the achievement of the United Nations Global Sustainable Development Goals (SDGs). The table below outlines the alignment of ENEC's sustainability aspects and relevant SDGs, more detailed information on ENEC's contribution to the specific targets of each SDG can then be found within the relevant chapters of the report.

Sustainability Value Pillar	Sustainability Aspect	Relevant UN SDG Targets Addressed	Page
Safe, clean, efficient and reliable energy	Safety and security	  	38
	Environmental management		48
	Health and wellbeing		58
	Quality, efficiency and reliability		64
Industrial and economic development	Financial responsibility	  	70
	Supply chain management		73
	National economic development		77
Knowledge and employment	Highly skilled employment	  	84
	National talent development		90
	Knowledge creation		92



## Governance and Management

Robust governance and management structures are essential to ENEC's ability to manage risk and maintain accountability. Led by ENEC's Board of Directors, ENEC continues to strive for excellence in governance by aligning its processes, procedures and performance with the requirements of the World Association of Nuclear Operators (WANO) and the Institute of Nuclear Power Operations (INPO).

[Excellence in Governance: www.enec.gov.ae/about-us/leadership-and-governance/governance/](http://www.enec.gov.ae/about-us/leadership-and-governance/governance/)

### Board of Directors

ENEC's Board of Directors is the ultimate authority responsible for the oversight of the corporation and is accountable to the Government of Abu Dhabi. In 2017 the Board was composed of some of the UAE's leading executives, as well as international energy experts, all of whom are independent and non-executive members. Some members are also present on the Board of Directors of its subsidiaries. All members of the Board receive training in nuclear energy and nuclear safety, and are committed to ensuring the corporation's adherence to extraordinarily high standards of nuclear safety.



ENEC's Board of Directors has four standing committees overseeing the corporation's activities and giving clear direction. Each of ENEC's Board of Directors four committees has a written charter detailing its responsibilities which has been approved by the whole Board.

Committee	Description	Sustainability Issues Addressed
Committee on Nuclear Power (CNP)	This committee oversees and advises the Board of Directors on issues of nuclear safety, security, reliability, regulation, and environmental matters that relate to the construction and eventual operation of ENEC's nuclear units. The CNP consists of three members of the Board of Directors along with external members who have extensive prior nuclear industry experience.	<ul style="list-style-type: none"><li>• Health and safety</li><li>• Security</li><li>• Quality and reliability</li><li>• Environmental management</li></ul>
Audit, Risk and Compliance Committee (ARCC)	This committee assists the Board of Directors in the discharge of its responsibilities overseeing the Audit, Governance, Risk Management and Compliance functions at ENEC. The ARCC is composed of four members and is chaired by the Board of Directors Deputy Chairman. One member of the committee is independent from ENEC's Board of Directors (not a member).	<ul style="list-style-type: none"><li>• Health and safety</li><li>• Governance and accountability</li><li>• Risk management</li><li>• Ethics</li><li>• Regulatory compliance</li></ul>
Human Capital Committee (HCC)	The HCC, which is composed of at least two Board members, reviews and advises the Board of Directors on issues regarding human resources and staffing, compensation and senior executive succession planning.	<ul style="list-style-type: none"><li>• Resourcing and succession</li><li>• Emiratisation</li><li>• Training and development</li></ul>
Executive Committee (EC)	The EC is composed of at least three members, two of whom must be on the Board of Directors. The EC assists the Board of Directors in fulfilling its oversight responsibilities for project deliverables of a non-nuclear nature and in liaising with external stakeholders to resolve any outstanding multi-party issues associated with the project.	<ul style="list-style-type: none"><li>• Project budgeting and finance</li><li>• Project progress</li><li>• Emergency and security preparedness</li></ul>

Nawah and BOC Board of Directors

The Board of Directors for Nawah and BOC were formed in 2017 at their respective General Assemblies. The Chairman of Nawah's Board of Directors also sits on ENEC's Board of Directors to ensure smooth coordination and cooperation with ENEC.



Nawah Board of Directors	BOC Board of Directors
<ul style="list-style-type: none"><li>- Saeed Fadhel Al Mazrooei (Chairman)</li><li>- David Scott (Vice Chairman)</li><li>- Mohamed Al Hammadi (Member)</li><li>- Ahmed Mohamed Al Rumaithi (Member)</li><li>- Fatima Mohamed Al Shamsi (Member)</li><li>- Ahmed Matar Al Mazrouei (Member)</li><li>- Dr. Arif Sultan Al Hammadi (Member)</li><li>- Jong Hyuck Park KEPCO (Member)</li><li>- Jong Hun Tae KEPCO (Member)</li></ul>	<ul style="list-style-type: none"><li>- Khaled Abdulla Al Qubaisi (Chairman)</li><li>- Mohamed Al Hammadi (Vice Chairman)</li><li>- Khalifa Al Suwaidi (Member)</li><li>- Mohammed Sahoo Al Suwaidi (Member)</li><li>- Jong Hyuck Park KEPCO (Member)</li></ul>

Auditing and Accountability

ENEC has a well-established internal audit function that acts as an assurance provider to the Board of Directors, reporting directly to them via the ARCC. It conducts annual risk assessments across the full program, covering aspects such as projects, schedule, performance, finance, ICT, human resources and any audit-related issues



that arise on an annual basis. ENEC's Internal Audit department adheres to the standards of The Institute of Internal Auditors and the requirements set by the Abu Dhabi Accountability Authority (ADAA) and is subject to periodic assessments by the ADAA.

## Business Principles, Ethics and Compliance

ENEC is committed to the highest standards of business ethics by creating and sustaining a corporate environment in which the affairs of the company and its subsidiaries are conducted in a fair and transparent manner, and by adopting the highest standards of professionalism, honesty and integrity, free from any acts of fraud or misconduct.

ENEC's Code of General Business Principles and Ethics ('The Code'), updated in 2017, frames the ethical and legal practices that ENEC expects all employees and contractors to uphold. The Code covers a wide range of topics including fraud, anti-corruption and misconduct. All staff are required to read and acknowledge the Code on an annual basis and it is mandatory reading for all new hires.

Throughout the year, compliance and anti-fraud training and awareness sessions are provided to employees with the support of senior management. These sessions continue on a monthly basis across all functions. A zero-tolerance approach is taken to any and all forms of fraud or misconduct. No incidents of bribery or corruption took place in 2017 at ENEC or its subsidiaries.

### Whistleblowing

ENEC has an Anti-Fraud and Misconduct Reporting Procedure in place, which allows confidential reporting through e-mails, a mailing system, Intranet (ENET), internet and

a 24/7 Toll-free Hotline. All reports are investigated, and actions are taken immediately with the oversight of the Board of ARCC.

Throughout 2017, the whistleblowing mechanism was promoted to employees and awareness sessions were undertaken, to highlight and explain the mechanism for independent and anonymous reporting of concerns and issues.



**Online whistle blowing mechanism:** [www.enec.gov.ae/about-us/leadership-and-governance/reporting/](http://www.enec.gov.ae/about-us/leadership-and-governance/reporting/)

### Compliance

ENEC upholds the highest standards of business compliance and expects its employees and contractors to comply with its clearly stated approach to ethical business practices. ENEC, and its subsidiaries, received no monetary or non-monetary fines or sanctions for non-compliance in 2017.

## Risk Management Approach

ENEC's Enterprise Risk Management (ERM) Integrated Framework is designed to ensure that risks are proactively identified, assessed and managed in a prioritized, consistent, effective and efficient manner at all levels within ENEC and its subsidiaries, in order to support the safe, effective and efficient delivery of the Barakah Nuclear Energy Plant. Sustainability is embedded in the ERM process through threat and opportunity management. In addition, as part of their annual risk review plan, ERM conducts regular reviews on sustainability risks, threats and opportunities.

To ensure that ENEC adheres to industry best practices in risk management, the ERM references ISO 31000 Risk Management Principles and the Committee of Sponsoring Organizations (COSO) ERM Standards and Frameworks. The ERM framework and process was developed to be consistent and aligned with the requirements of FANR and the ADAA.


In 2017, ENEC implemented an industry-leading software system for the quantitative risk analysis cycle, and also conducted a third-party maturity assessment of its risk management framework and practices. ENEC's ERM Program was shortlisted in the top five, out of 63 government entities, that participated in the Abu Dhabi Award for Excellence in Government Performance (ADAEP).



**Risk management:** [www.enec.gov.ae/about-us/leadership-and-governance/risk-management/](http://www.enec.gov.ae/about-us/leadership-and-governance/risk-management/)

Business Excellence

ENEC has established a dedicated program in order to embed excellence and innovation across the corporation. Based on the European Foundation for Quality Management (EFQM) Excellence Model and the model of the Abu Dhabi Award for Excellence in Government Performance (ADAEP), the program focuses on designing and implementing practices, in order to sustain outstanding levels of performance.

[www.enec.gov.ae/about-us/leadership-and-governance/business-excellence/](http://www.enec.gov.ae/about-us/leadership-and-governance/business-excellence/)

Business excellence:



Excellence maturity index				
	2014	2015	2016	2017
Excellence maturity index	65%	77%	80%	Not yet available

To reinforce a culture of performance excellence, ENEC confers its own internal excellence awards every two years, which is known as the Barakah Excellence Award. This motivates departments, project teams, and individuals to continuously strive for the highest standards in everything they do.



Stakeholder Engagement

Effective engagement with all internal and external stakeholders is fundamental to the successful implementation of the UAE Peaceful Nuclear Energy Program. ENEC focuses on achieving four objectives as part of its pro-active approach to stakeholder engagement:

1. To ensure on-going education about nuclear energy as a source of reliable, clean and efficient electricity.
2. To ensure awareness and understanding about the program at every stage of its development.
3. To ensure ENEC’s stakeholders have the opportunity to provide input into the program.
4. To continue to listen and respond to stakeholder feedback, issues and concerns through genuine two-way communication.

ENEC has a large and diverse stakeholder base, which includes a wide variety of organizations and individuals. Appendix B of this report outlines ENEC’s stakeholder groups in detail and provides more information on how ENEC interacts with them.

Public Engagement and Perception

ENEC makes it a priority to regularly host public forums in order to increase awareness and understanding of the UAE Peaceful Nuclear Energy Program. Led by the CEO, the forums are open to all members of the community and provide a free and interactive space to ask questions and gain a deeper insight into its different aspects such as the economic and social benefits it is already bringing to the UAE. ENEC hosted seven sessions in 2017, attended by hundreds of members of the public.

Results of a survey conducted at the end of the forums shows that 89% of attendees that responded would recommend the forum to a friend or relative, 93% better understood how nuclear energy produces safe electricity, and 98% are in favor of the UAE Peaceful Nuclear Energy Program. The results of these surveys highlight why the public forums are vitally important for ENEC and the sector.

ENEC also continues to measure general public perception of nuclear energy through a national poll. More than 750 people were interviewed across the UAE as part of the study, with a group of respondents reflecting the demographics of the UAE. Results from the 2017 survey show that:

- About 69% believe that peaceful nuclear energy is important for the nation.
- Favorability was highest among Emiratis, at 87%.



- Support for the construction of peaceful nuclear energy plants in the UAE has risen to 79%, an 11% increase from 2013.
- The percentage of residents who believe it is important for the UAE to have a peaceful nuclear energy program in order to be able to meet the nation's electricity needs has risen to 69%, up 6% from 2013.
- The vast majority of UAE residents, 81%, are aware of ENEC, a major increase from 2013 when 56% of residents were aware of ENEC.
- UAE nationals were the most aware of ENEC at 93%.
- Approximately 87% of Emiratis emerge as strong endorsers of moving to a low-carbon energy source, and 86% agree that nuclear energy is a clean, reliable and efficient source of energy production.

## International Engagement

ENEC continues to work closely with industry bodies and attends both local and international events in order to update international stakeholders on the latest progress at Barakah. Some key engagements in 2017 include:

- Actively participating in, and presenting at, the International Ministerial Conference on Nuclear Power in the 21st Century. The event was hosted by the UAE, held in Abu Dhabi, and organized by the International Atomic Energy Agency (IAEA) in cooperation with the Nuclear Energy Agency (OECD/NEA).

- Showcasing progress at the Barakah plant to experts from the International Atomic Energy Agency (IAEA).
- Participating in the inaugural Atlantic Council Global Energy Forum in Abu Dhabi, held by The Atlantic Council in partnership with the UAE Ministry of Energy, ADNOC, Mubadala, and IPIC.
- Platinum Sponsorship of the 10th annual World Future Energy Summit, a part of Abu Dhabi Sustainability Week 2017.
- Participated in the World Nuclear Association (WNA) Symposium which took place in London, U.K.



*International engagements:* [www.enec.gov.ae/news/2017](http://www.enec.gov.ae/news/2017)



## The Year of Giving



In December 2016, the President of the UAE, His Highness Sheikh Khalifa bin Zayed Al Nahyan, declared 2017 as The Year of Giving. The Year of Giving was inspired by the values of hospitality and generosity which lie at the heart of the UAE's Arab identity and the example of the country's founding father, Sheikh Zayed bin Sultan Al Nahyan. One of the three main pillars of this initiative focused on public and private sector involvement through Corporate Social Responsibility (CSR) which included philanthropy, charitable giving, volunteering and the environment.

ENEC's CSR strategy focuses on giving back through the development and initiation of projects that deliver tangible positive impacts for the community, with the following objectives:

- Promoting safety, energy and water efficiency.
- Encouraging small and medium sized enterprises (SME's) and entrepreneurship.
- Supporting primary and secondary education and boosting skills development.



## Promoting Safety

### WorldSkills Abu Dhabi

A team of 'Health and Safety Ambassadors' from ENEC participated in WorldSkills Abu Dhabi 2017, the world's largest vocational skills competition. Their mission was to ensure health and safety were top priorities at the event, and to highlight the importance of a safety culture as part of ENEC's role as official Safety Partner and National Gold Partner for the event.

ENEC's Ambassadors worked closely with international experts to check on any safety hazards during the event build-up phase and continued to support organizers throughout the event. The initiative helped promote important messages around health and safety in the workplace and educated youth on the importance of prioritizing safety before embarking on any project. WorldSkills 2017 aimed to inspire young people to delve deeper into technical education and develop skills that they can use for entrepreneurial endeavors, or to further their vocational careers. This initiative was further supportive of the Abu Dhabi Plan, which aims to nurture and develop the next generation of educated, skilled and ambitious youth within the UAE.



**World skills:** [www.enec.gov.ae/news/enec-to-ensure-major-focus-on-world-class-safety-culture-at-worldskills-abu-dhabi-2017/](http://www.enec.gov.ae/news/enec-to-ensure-major-focus-on-world-class-safety-culture-at-worldskills-abu-dhabi-2017/)

### Safe Ramadan

The CEO's of ENEC and BOC, together with a group of employees, participated in the Ramadan Aman 'Safe Ramadan' campaign, which provided Iftar meals to drivers while raising awareness about traffic and road safety during the Holy Month. The initiative aimed to reduce the number of accidents and excessive speeding by individuals rushing to break their fast. The volunteers were located at busy intersections and in high traffic areas in order to distribute food and beverages to those who might not make it to Iftar in time.

### Supporting Education

ENEC regularly takes an active role in supporting events that promote science, technology, engineering and math (STEM) subjects to young people across the UAE. In 2017, ENEC, and its subsidiaries, were involved in Emirates Skills, a three-day event designed to inspire youth to pursue new trades and technology-based careers. ENEC, and its subsidiaries, also participated in the annual Think Science event.



## Donate to Read

In partnership with the volunteering initiative Takatof, ENEC organized a “Donate to Read” drive, in order to highlight the importance of reading and to give back to the community. Employees were encouraged to donate new or old books and toys, which were given to orphanages, children’s villages, pediatric hospitals and refugee camps across the Middle East and North Africa (MENA).

## Culture and Heritage

ENEC, and its subsidiaries, regularly host, or actively participate in, cultural events within the company and community.

### Liwa Date Festival

ENEC was an active supporter of the Liwa Date Festival, which celebrates the various UAE customs, traditions and heritage, related to the palm tree. This event is held annually under the patronage of H.H. Sheikh Mansour bin Zayed Al Nahyan, Deputy Prime Minister and Minister of Presidential Affairs.

### Ramadan and Eid Initiatives

During Ramadan and Eid our volunteers, together with the Abu Dhabi Red Crescent, distributed Eidiyah to the young residents of 'Dar Zayed for Family Care' (DZFC); they also helped the children build their very own personalized teddy bears with Build-A-Bear Workshop Gulf.

Employees also participated in a “Ramadan Food Basket Distribution” initiative. This initiative provided support to office support staff, cleaners, drivers and security guards during the Holy Month of Ramadan through donations of essential food in which to break their fast.

### Al Dhafra Camel Festival

The Al Dhafra Camel Festival is organized by the Cultural Programs and Heritage Festivals Committee to promote Emirati heritage and preserve the UAE’s cultural legacy. As a part of continued effort to support the economic and social development of the Al Dhafra Region, ENEC was an official sponsor and community and environmental sustainability partner, raising awareness of the importance of reducing the nation’s environmental footprint.

## E-Waste Initiative

In an effort to reduce the impact of electronic waste and to bring social and economic benefit to others, ENEC donated a sizable amount of older ICT equipment to the Dubai Digital Devices Refurbishment Centre (DDRC). The DDRC repairs and upgrades used personal computers and other ICT and distributes them to educational, social and charitable institutions.

After conducting security checks to ensure all sensitive data was deleted, ENEC donated 650 laptops, 223 monitors, 20 desktop computers, 117 desk phones, 10 keyboards, 45 servers, and 5 items of video conferencing equipment, as well as additional equipment such as printers and fax machines.





# Safe, Clean, Efficient and Reliable Energy

Introduction  
HSE Management System  
Safety and Security  
Environmental Management  
Health and Wellbeing  
Quality, Efficiency and Reliability

E SAFE! Without You  
No one will look after me.

# Safe, Clean, Efficient and Reliable Energy

ENEC’s primary contribution to national sustainable development will be the creation of significant volumes of safe and clean electricity for the UAE. This will help reduce the UAE’s greenhouse gas (GHG) emissions and provide long-term energy security for its rapidly growing population.

## Introduction

ENEC was established in 2009 to deliver safe, clean, efficient and reliable electricity to the UAE grid and contribute to the sustainable energy future of the UAE. While the Barakah Nuclear Energy Plant is not yet operational, the principles of ‘safe, clean, efficient and reliable’ have been rigorously applied to the construction of the plant.

## Sustainability Objectives

ENEC’s sustainability objectives are:

1	<b>Safety and Security</b> – Ensure the safety and security of the public and ENEC’s employees, and contractors, through the design and execution of world-class safety and security processes and systems, and the development of a robust Culture of Safety and Security.
2	<b>Environmental Management</b> – Adhere to the highest available standards and regulations, while working to prevent pollution, preserve biodiversity, conserve water and energy resources, and handle waste effectively.
3	<b>Health and Wellbeing</b> – Safeguard the health and well-being of employees, contractors and the local community
4	<b>Quality, Efficiency and Reliability</b> - Achieve operational excellence and the implementation of industry best practices from around the world.



## SDG Targets Addressed

By delivering on these sustainability objectives, ENEC is contributing to the achievement of the following SDG targets:

	<b>Reduce road injuries and deaths</b> By 2020, halve the number of global deaths and injuries from road traffic accidents.
	<b>Reduce illness and death from hazardous chemicals and pollution</b> By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals, air, water, soil pollution and contamination.
	<b>Protect labour rights and promote safe working environments</b> Protect labour rights and promote safe and secure working environments for all workers, including migrant workers (especially female migrants), and those in precarious employment.
	<b>Improve water quality, wastewater treatment and safe reuse</b> By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.
	<b>Universal access to modern energy</b> By 2030, ensure universal access to affordable, reliable and modern energy services.
	<b>Substantially reduce waste generation</b> By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.
	<b>Reduce mortality from non-communicable diseases and promote mental health</b> By 2030, reduce, by one third, premature mortality from non-communicable diseases through prevention and treatment and by promoting mental health and wellbeing.
	<b>Develop sustainable, resilient and inclusive infrastructures</b> Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human wellbeing, with a focus on affordable and equitable access for all.

## HSE Management System

In order to coordinate the management of all aspects of health, safety and environment, ENEC has developed a comprehensive HSE Management System (HSEMS). The HSEMS defines the principles by which ENEC, and its subsidiaries, conduct their business, bringing together all of the systems, processes and procedures for effective management of HSE risks and opportunities.

The HSEMS has been in place since 2010 and is continually updated to ensure alignment with regulatory requirements, international standards and the identification of new and emerging risks and opportunities. In 2017, ENEC upgraded the environmental component to meet ISO 14001:2015 requirements, and successfully completed re-certification to this new standard, as well as, 18001 and the OSHAD Certificate of Approval.

### Working with Contractors

Throughout the construction phase at the Barakah plant, ENEC is responsible for the oversight of the HSE performance of contractors and subcontractors. ENEC has developed comprehensive management procedures for dealing with HSE topics, and its oversight activities, which monitor the effectiveness of their implementation. Daily, weekly and monthly inspections are performed at the construction site along with weekly and monthly cross-organizational meetings.

In total, 102 HSE meetings, 50 cross-organizational HSE inspections, 405 HSE construction joint inspections and 48 camp inspections, were conducted in 2017, demonstrating an extensive interface with contractors.

## Safety and Security

Safety is the overriding priority of the UAE Peaceful Nuclear Energy Program. ENEC, and its subsidiaries, are committed to implementing the highest standards of safety and enforcing an internal culture that enshrines safety as the collective responsibility of everyone involved in the project, from the Board of Directors, to employees, contractors, subcontractors and even visitors to our site.

Every effort is in place to ensure occupational safety and security at corporate and construction locations, as well as to prepare for the safety and security requirements for nuclear material. The existing measures do not only cover prevention of safety



incidents, but also emergency preparedness and business continuity, should a minor or major emergency event occur.



**Safety at ENEC:** [www.enec.gov.ae/safety/safety-at-enec/](http://www.enec.gov.ae/safety/safety-at-enec/)

### Occupational Safety

We work closely with our contractors, regulators and the international nuclear community to develop and maintain a world-class safety culture, policies and procedures. The Executive Management Safety Charter guides ENEC's CEO and Executive Management in supporting and enabling ENEC, and its subsidiaries, to operate their businesses safely. All quarterly executive management meetings conform to this charter.



Each and every employee receives annual training on ENEC’s safety principles and procedures, and our leadership encourages employees to voice any queries and concerns. All meetings at ENEC begin with a safety moment, so that ENEC employees remain safety-conscious at all times.

Regular safety and quality audits are a core part of the Program, ensuring continual improvement in all areas of management and operation. The corporation’s Condition Reporting (CR) program facilitates pro-active reporting of safety concerns and near-miss incidents. The program assigns responsibility for the implementation of corrective actions to the relevant party. In addition, all ENEC employees have a responsibility to stop work activities if an existing or potential threat is observed.

Employee Occupational Safety

Employees of ENEC, and its subsidiaries, are split between the corporate offices in Abu Dhabi and the Barakah plant, with many, regularly travelling between the two. This means that safety risks associated with transportation, construction, operation and nuclear safety on-site must all be incorporated into the management of safety. Data for Nawah from 2017 was not available at the time of reporting, so the below data is for ENEC and BOC only.

ENEC and BOC’s safety performance improved in 2017, with a lost time injury frequency rate (LTIFR) of zero, and no fatalities. There were two medical treatment cases, so the total recordable case frequency rate (TRCFR) dropped to 1.5. The reduction in number of employees from 2016 to 2017 is due to the transition of employees from ENEC to Nawah.

Employee Safety					
	2013	2014	2015	2016	2017*
Number of employees	902	1,372	1,574	1,839	896
Number of employee hours delivered	1,410,815	1,822,384	2,482,720	2,713,752	1,350,012
Fatalities (employees)	0	0	0	0	0
LTIFR (employees)	0.7	0	0.81	1.10	0
TRCFR (employees)	3.34	2.17	1.61	2.20	1.5
Scope: ENEC and BOC - complete Nawah safety data was not yet available for reporting. LTIFR and TRCFR are calculated per million man-hours.					

ENEC, and its subsidiaries, strive to improve their employees HSE awareness through HSE eLearning modules, HSE communications and training sessions. eLearning modules on road safety, HSE management and construction safety were launched in 2017, a defensive driving program was provided to ENEC employees who frequently drive to the Barakah plant, as well as to contracted professional drivers.

Contractor Occupational Safety

ENEC closely monitors the safety performance of the Prime Contractor (KEPCO) and its subcontractors, working closely with them to ensure that the same rigorous safety systems and culture exist throughout throughout all organizations working at the Barakah Nuclear Energy Plant.

Safety performance at the Barakah plant has continued to improve in 2017, with the LTIFR and TRCFR both reaching their lowest levels to date with zero fatalities. Some of the factors which led to the improvement was the categorization of workers based on their tasks and risks, so that supervisors could give them special attention, and the extensive implementation of awareness campaigns, thematic workshops, and the delivery of 3,821 HSE-specific training sessions with over 119,872 participants, all of which acted as a refresher for on-site workers.

Contractor and Subcontractor Safety					
	2013	2014	2015	2016	2017
Number of contractors and subcontractors	11,886	16,997	19,885	21,491	15,031
Contractor and subcontractor hours delivered (millions)	28.2	48.1	59.1	62.6	52.9
Fatalities (contractors and subcontractors)	0	0	0	3	0
LTIFR (contractors and subcontractors)	0.32	0.35	0.14	0.18	0.04
TRCFR (contractors and subcontractors)	4.15	3.37	3.49	2.21	1.02
Scope: KEPCO LTIFR and TRCFR are calculated per million man-hours.					

Implementation of good HSE practices also contributed to a reduction in the severity and probability of safety events; this included reviewing and improving 62 health and safety procedures for their compliance with OSHAD and HSE requirements.

In 2017 ENEC, together with KEPCO and its subcontractors, delivered an HSE awareness campaign covering welding operations and hot work, defensive driving and heavy equipment, personal protective equipment, hazardous chemical handling, hand injuries, work at height, full body harnesses and near miss reporting.

## Nuclear Safety

Nawah is responsible for the operation and maintenance of the four units at the Barakah plant, and is establishing written programs and procedures in line with FANR's requirements related to nuclear-specific safety topics. This includes procedures for everything from the provision of radiation worker medical surveillance to ones for workers involved in receiving nuclear fuel assemblies. These are being developed in close coordination with operations and engineering teams that have the necessary understanding of nuclear safety concepts.

## Security

ENEC, and its subsidiaries, work closely with the Critical Infrastructure and Coastal Protection Authority (CICPA), which is the Abu Dhabi Government agency tasked with handling the protection and security of vital assets and infrastructure, including the Barakah plant. Under the regulation of FANR, and with guidance from the IAEA, CICPA has developed and implemented the highest international security standards at the Barakah plant.

The security teams at ENEC, and its subsidiaries, are responsible for implementing the FANR-approved Physical Protection Plan for construction (PPP-C). The PPP-C addresses the protection of nuclear materials and nuclear facilities against malicious acts, such as the unauthorized removal of nuclear material.

An additional FANR-approved PPP for operations (PPP-O) addresses the organizational structure staffing of security and plant physical protection, including the designation of protected and vital areas, guard training and qualification, information security, cybersecurity, and responses to security contingencies including preparedness for concurrent nuclear safety-related emergencies and security threats. The PPP-O provides assurances that the physical protection strategies will neutralize any threats, including Design Basis Threats, and ensures that the nuclear facility is protected from malicious acts and radiological sabotage.



## Emergency Preparedness

Working together with internal and external stakeholders, ENEC, and its subsidiaries, has developed a comprehensive Emergency Preparedness and Response program. This program covers all aspects of emergency activities, deployment of first responders, emergency equipment, training and awareness.

As the most critical aspect of the project, Nawah is the custodian of the Barakah Emergency Preparedness Program, which ensures that for commissioning and operations, all programs, processes, and activities are developed, implemented, and completed as required.

This comprehensive program also focuses on a commitment to the protection of the health and safety of the public, our employees and the environment from a potential radiological event, and the development and implementation of function roles and capabilities in the following areas:

- The on-site emergency preparedness interface
- The on-site emergency preparedness interface



- All emergency response equipment and facilities
- Emergency response training
- Drill and exercise programs
- The Barakah Emergency Plan and associated implementing procedures

The ability of Nawah to respond to a radiological emergency at the Barakah plant in a timely and effective manner must be periodically demonstrated in order to obtain, and maintain, an operating license from FANR. Emergency drills and exercises are scheduled at periodic intervals to test the effectiveness of Nawah's Emergency Plan, and its implementing procedures, which include; emergency communications, the timely response of the Emergency Response Facilities, the adequacy of emergency response resources, and the coordination between the various agencies involved.

As part of fuel load preparations, Nawah is working closely with FANR, local stakeholders, the IAEA and international nuclear experts, to ensure that their Emergency Preparedness and Response Program adheres to the highest global standards, and is thoroughly tested, ahead of the initial nuclear fuel load at the Barakah plant.

To support these preparations, in 2017, the Emergency Preparedness program was tested during the following activities;

- The WANO Emergency Preparedness Technical Support Mission
- The IAEA Pre-Operational Safety and Review Team Assessment (no adverse findings and two nuclear industry best practices)
- The FANR Fuel Load Readiness Inspection

The Emergency Preparedness program also successfully completed stress tests, in the following areas;

- Five Emergency Response Organization (ERO) tabletops
- Ten ERO Drills, some with off-site stakeholder participation
- A dress rehearsal drill with off-site stakeholder participation

In addition, Emergency Preparedness conducted a FANR evaluated fuel load exercise with the participation of off-site stakeholders. The exercise evaluated 53 objectives, with 91% of those objectives being successfully met. All of the risk significant performance standards were also met.

During commissioning and operations Key Performance Indicators, as described in Nawah's Business Plan, will be closely monitored to ensure all aspects of the Emergency Preparedness and Response program are maintained to the highest levels.

## Business Continuity Management

As part of the Abu Dhabi government's ongoing efforts to improve government and private sector readiness for an emergency, crisis or disaster, all government entities must comply with the requirements of AE/HSC/NCEMA 7000, Business Continuity Management (BCM) standard established by the National Emergency Crisis and Disasters Management Authority (NCEMA).

ENEC’s BCM Program is designed to maintain the continuity of essential and time-sensitive business processes. The Strategy follows a multi-phased approach, which includes alignment and integration with the recovery of ICT systems and applications.

In order to meet the requirements of GSEC Circular No (4) 2014 and NCEMA 7000, ENEC has developed a variety of plans and procedures, categorized at the highest level into two types: Radiological Events and Non-Radiological Events.

- Radiological events are managed by Nawah in accordance with the on-site and off-site emergency response plans for the Barakah plant.
- Non-Radiological events are managed by ENEC in accordance with the plans and procedures developed by the relevant departments and cover:
  - Corporate, Cyber/Information, and Site Security, which protects the corporate assets, resources, data and information covered by the company’s Incident Management Program, Security Systems, and Cyber/Information Security Management procedures.
  - Business Departments, which maintain and operate the corporate business functions, are responsible for their departments business continuity plans.
  - HSES, which maintains health and safety in the corporate workplace, are responsible for the Headquarters Emergency Preparedness and Evacuation Plan and the HSE Emergency Management Procedures.
  - ICT, which maintains the corporate information and telecommunications systems, are responsible for the company’s ICT Disaster Recovery Plan.

ENEC submits quarterly reports on the implementation of its Business Continuity Management program to the General Secretariat (GSEC) of the Government of Abu Dhabi. This report provides the government of Abu Dhabi with an update on ENEC’s BCM program implementation, achievements, challenges and items for consideration.

Business Continuity in the Supply Chain

In 2017, ENEC developed approaches to assess the business continuity of its supply chain. This involved developing a list of BCM requirements for inclusion in the Supplier Prequalification Checklist, and adding a requirement to the standard terms and conditions of new and renewing contracts which requires ENEC suppliers to implement and maintain business continuity programs of their own, that comply with recognized standards, and surveying suppliers to monitor the implementation of these programs.

Incident Management Program

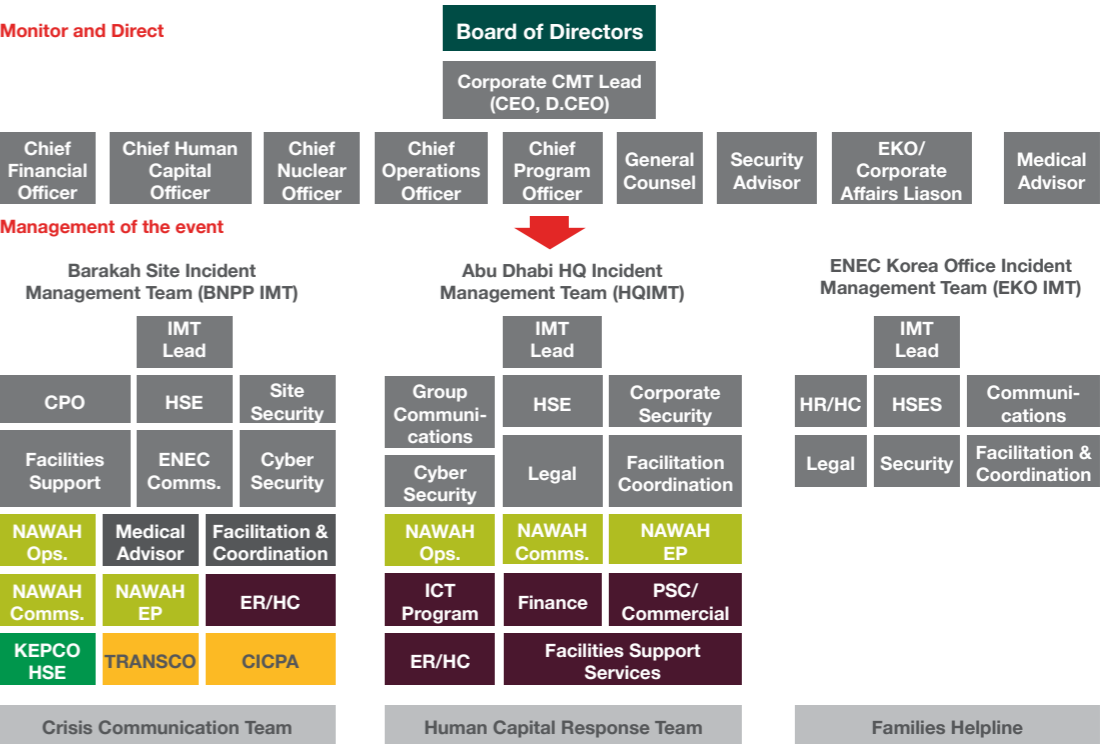
ENEC’s Incident/Crisis Management program describes the process and resources ENEC has developed for the response to, management of, and recovery from, events which:

- Threaten the company’s profitability, legal and financial liability, asset value,

stakeholder confidence, brand, reputation, or achievement of the company’s strategic/business goals

- Disrupt the continuity of the company’s business operations
- Threaten the safety and security of the company’s assets and staff

ENEC’s BCM Program is based on the concept of an integrated incident response within, and across, sites of operation. This includes a Site Incident Management Team (IMT) consisting of management representatives from key business departments, and a Corporate Crisis Management Team consisting of the CEO, Deputy CEO and their direct reports. In turn, these teams are supported by the Crisis Communications Team (CCT) and the employee and family relations support team known as the Human Capital Response Team (HCRT).



## Environmental Management

ENEC, its subsidiaries, and the Prime Contractor, are dedicated to minimizing the environmental footprint caused by the construction, operations and eventual decommissioning of the Barakah Nuclear Energy Plant.

While the current focus is still on reduction and mitigation during the construction phase, one of the key environmental advantages of building a nuclear energy plant is that it can produce electricity with almost zero carbon emissions. This makes the Barakah Nuclear Energy Plant a key component in the UAE's aspirations to boost cleaner energy sources, reduce its carbon footprint, and achieve international commitments made as part of the Paris Climate Change Agreement.

### Environmental Management Approach

Protection of the environment has been a key consideration since day one of the project. The selection of an appropriate site for the plant factored in environmental considerations, and construction did not begin until all required environmental studies and licenses were granted by EAD.

Throughout the construction process, monthly monitoring and reporting on the natural environment, and the environmental performance of the entire project, was completed in accordance with EAD permit conditions and national environmental regulations. A Barakah Environment and Sustainability Charter was also signed between ENEC and KEPCO to demonstrate the commitment of the Prime Contractor to minimizing the impact of construction on the natural environment.

This commitment to protecting the environment will continue beyond construction with the implementation of an Operational Environmental Management Plan (OEMP) and adherence to environmental permits issued by EAD.

ENEC's Environment Management System is ISO 14001 certified, and Nawah's environmental policy is to continue achieving this international certification in the future. In 2017, ENEC, and its subsidiaries, recorded zero significant or reportable environmental incidents, and zero breaches of environmental regulations or environmental permit conditions.

 **Site selection and licensing:** [www.enec.gov.ae/barakah-npp/site/](http://www.enec.gov.ae/barakah-npp/site/)



## Material Usage

The construction of a nuclear energy plant requires significant amounts of material input, primarily nuclear-grade concrete and steel, which are vital to the safety and reliability of the plant. Concrete and steel use peaked in 2016 for the overall project and declined in 2017, as a result of the majority of construction work being completed on Units 1 and 2. It is expected to reduce year after year as the construction phase moves towards completion.

Materials				
	2014	2015	2016	2017
Concrete used in construction (cubic meters)	614,935	584,680	1,334,838	182,817
Steel used in construction (metric tons)	38,489	56,900	101,257	19,162

Beyond the large amounts of material required for construction, ENEC, and its subsidiaries, also track the consumption of office-based materials such as paper, plastic water bottles and printer cartridges. Tracking and reporting of materials required to operate the plant will begin in 2018.

### Waste

Significant quantities of waste are an expected output from one of the largest construction projects in the world. Together with the Prime Contractor, ENEC and its subsidiaries, have developed and implemented a comprehensive waste management program. ENEC tracks all waste streams in order to document the chain of custody and monitor volumes against planned targets.

Given that construction peaked in 2016, waste created and disposed of began to plateau in 2017 and is expected to decline year after year from 2018 onwards. To reinforce a culture of responsible waste management, a one-month waste minimization campaign was conducted in 2017. Awareness sessions were held and attended by 6,574 people and 4,000 awareness brochures were distributed in English, Urdu and Hindi.



Hazardous Waste

Hazardous waste is created on-site during the construction process with the vast majority being held in temporary storage until a new municipal facility equipped to handle it is completed. As a result, no hazardous waste was disposed to landfill in 2017, and the minimal amount of 5.5 tons of battery waste was recycled by licensed companies.

Hazardous Waste				
	2014	2015	2016	2017
Hazardous waste disposed (metric tons)	19	0	0	0
Hazardous waste recycled (metric tons)	12	0	0	5.5
Percentage of total hazardous waste recycled	39%	N/A	N/A	100%
Scope: ENEC, Nawah, BOC and KEPCO				

Following successful discussions with the Abu Dhabi Centre for Waste Management (Tadweer) in 2017, a significant volume of empty metal and plastic containers for paint and other liquids, originally designated as hazardous waste, will be recycled in 2018. The containers are being transferred to a recycling facility that deals with the material and is subject to strict assessment criterias.

Non-Hazardous Waste

The majority of non-hazardous waste being created is in the form of construction materials, with low levels of recycling due to the remoteness of the Barakah plant from the recycling facilities.

Waste being collected from the office facilities in Abu Dhabi and at the Barakah Plant, which is segregated, is recycled at much higher levels.

Non-hazardous Waste				
	2014	2015	2016	2017
Non-hazardous waste disposed (metric tons)	62,394	89,930	104,807	107,734
Non-hazardous waste recycled (metric tons)	11,585	18,817	4,369	7,910
Percentage of total non-hazardous waste recycled	16%	17%	4%	7%
Scope: ENEC, Nawah, BOC and KEPCO				

In 2017, ENEC, its subsidiaries and contractors, disposed of, or recycled, over 115,000 metric tons of non-hazardous waste. A total of 7% was recycled, a slight increase from the previous year. It is expected that as construction activities continue to decrease, the amount of non-hazardous waste being disposed of will fall, and recycling rates will increase further.

Liquid Waste

Liquid waste produced at the construction site consists primarily of grey water (sewage), from the accommodations for the workforce and other hazardous liquid waste, such as oils and paint. All wastewater, both hazardous and non-hazardous, is recycled either on or off-site.

Liquid Waste				
	2014	2015	2016	2017
Wastewater recycled off-site (million liters)	301.9	397.9	692.0	637.3
Wastewater recycled on-site (million liters)	940.0	1,470.3	1,637.7	1,595.4
Percentage of wastewater recycled on-site	76%	79%	70%	71%
Hazardous liquid waste disposed (liters)	0	0	0	0
Hazardous liquid waste recycled (liters)	24,380	21,900	67,240	147,322
Scope: ENEC, Nawah, BOC and KEPCO				



In 2017, 71% of the non-hazardous wastewater was treated on-site in accordance with the standards of the Regulation and Supervision Bureau (RSB) and re-used for irrigation and dust suppression. The remaining 29% was sent off-site for treatment at a municipal sewage treatment plant. Hazardous liquid waste is 100% recycled by qualified and certified third-party contractors.

Battery Recycling

To engage employees and raise awareness of recycling, in April 2017, household battery recycling was introduced at the Barakah plant . During the campaign, 1,473 household batteries and 2,280 kg of large batteries (similar to car batteries) were sent for recycling. Initially intended as a one-off campaign, it has now become a permanent activity at the Barakah plant, with permanent collection points throughout the offices.

Energy and Water Management

Energy and water resources are required in large quantities during the construction of the plant, for worker accommodation and offices. ENEC works together with subsidiaries and contractors to ensure that resources are used efficiently and with minimal waste. An annual water and energy conservation campaign is conducted with awareness sessions and brochures being distributed to employees and contractors. In 2017 over 7,000 contractor personnel attended these awareness sessions.

Energy

The majority of energy used is in the form of indirect energy which includes electricity for lighting, equipment and ancillary buildings, and is sourced from the national grid. Large quantities of direct energy is also used in the form of vehicle and heavy machinery fuel.

Energy				
	2014	2015	2016	2017
Total energy consumption (GJ)	358,896	477,811	597,761	560,945
Energy intensity (GJ/person)	20	22	26	32
Direct energy (liters)	1,608,632	1,919,927	1,554,902	2,103,817
Direct energy (GJ)	5,791	6,912	5,598	7,574

Indirect energy (kwh)	98,084,742	130,805,298	164,489,841	153,714,069
Indirect energy (GJ)	353,105	470,899	592,163	553,371
Scope: ENEC, Nawah, BOC and KEPCO				

Total energy consumed by ENEC, its subsidiaries, on-site contractors and sub-contractors, reduced by 6% from 2016 to 2017. The reduction is primarily the result of construction reaching its peak. Energy intensity however has increased due to a drop in the overall number of people located at the Barakah plant.

Indirect energy dropped by 7%, as the number of contractor and subcontractor employees living and working on-site began to decrease in 2017. Direct energy has continued to fluctuate between 1.5 and 2 million liters of fuel due to the figures being tracked when the fuel was purchased and stored, and not when it is directly consumed. The amount of fuel purchased also increased in 2017, due to the significant increase in ENEC, BOC and Nawah employees based across the Abu Dhabi and Barakah plant based offices.

Water

Water is primarily used for mixing concrete, worker accommodations, irrigation, dust suppression and by employees based in office buildings in Barakah and Abu Dhabi. Fresh water is sourced from the Shuweihat Desalination Plant and the potable water mains network, and water utilized for irrigation and dust suppression is obtained from the on-site treatment of sewage to standards set by the RSB and verified by monthly laboratory testing.

The amount of water used across all facilities, as well as the construction site, dropped significantly in 2017. Some of the reasons for this significant reduction include the vast reduction in concrete being mixed and used, the decrease in contractors and subcontractors living and working at site, and the implementation of water efficiency initiatives.

Water				
	2014	2015	2016	2017
Total water consumed (cubic meters)	5,310,939	11,803,930	9,574,817	3,931,917
Water Intensity (cubic meters/person)	289	550	408	223
Scope: ENEC, Nawah, BOC and KEPCO				



GHG and Air Emissions

Electricity generation has traditionally been a high greenhouse gas (GHG) emitting activity due to the burning of fossil fuels. Nuclear energy is a near zero-emission form of electricity generation, and once the Barkah Nuclear Energy Plant is fully operational, it will help the UAE meet its voluntary commitment under the Paris Climate Change Agreement.

ENEC takes a complete lifecycle approach to the measurement and accounting of GHG emissions. This means we track direct and indirect emissions from the construction and operation of the plant (including the sourcing of fuel) and its future decommissioning.

Overall, GHG emissions in 2017 decreased by 71% from 2016 levels, with emission intensity dropping by 61%. This significant reduction is primarily due to the large decrease in concrete and steel being purchased for construction.

GHG Emissions				
	2014	2015	2016	2017
Total emissions (MTCO <sub>2</sub> Eq.)	267,716	310,578	563,262	163,395
Emissions intensity (MTCO <sub>2</sub> Eq./person)	14.6	14.5	24.1	9.3
Scope 1 emissions - vehicle fuel (MTCO <sub>2</sub> Eq.)	3,873	4,531	3,644	4,892
Scope 2 emissions - electricity (MTCO <sub>2</sub> Eq.)	57,762	77,030	96,868	90,522
Scope 3 emissions (MTCO <sub>2</sub> Eq.)	206,081	229,071	462,750	67,981
Scope 3 – bus travel (MTCO <sub>2</sub> Eq.)	239	212	694	229
Scope 3 – concrete (MTCO <sub>2</sub> Eq.)	69,280	102,420	182,263	34,492
Scope 3 – steel (MTCO <sub>2</sub> Eq.)	127,106	120,852	275,908	28,891
Scope 3 – air travel (MTCO <sub>2</sub> Eq.)	9,456	5,533	3,885	4,369
Scope: ENEC, Nawah, BOC and KEPCO				

**Scope 1** emissions are generated from the burning of fossil fuels - in this case petrol and diesel used for heavy machinery, generators and light vehicles. Total direct emissions increased in 2017 as consumption of fuel increased.

**Scope 2** emissions are generated from the use of electricity and are known as ‘indirect’ since the actual emissions are generated by energy plants elsewhere. Total indirect emissions have dropped by 7% in keeping with the reductions in electricity consumption.

**Scope 3** emissions are known as ‘other indirect emissions’ since they occur outside of the boundaries of the organization, during procurement of goods and services. At present this is the largest source of emissions due to the procurement of large quantities of concrete and steel that are created using highly energy-intensive processes. Total scope 3 emissions dropped by 85% in 2017 after construction project reached its peak near the end of 2016.

Other Air Emissions

Background air quality monitoring of NOx, SOx, PM10 (particulate matter up to 10 micrometers in diameter) and O3 around the plant is conducted daily by a third party contractor. The regulator, EAD, is notified if regulatory limits are exceeded. Monitoring is conducted and periodic reports are submitted to the EAD for their review.

Biodiversity

Impacts on the natural environment are inevitable for a project the size of the Barakah plant. However all efforts are made to try and reduce, mitigate or replace biodiversity impact. Some of the biggest potential biodiversity impact challenges that ENEC and its subsidiaries have identified include; spills affecting seawater and soil, marine habitat loss, species displacement and marine sediment quality impacts due to cooling water intake and discharge.

Spills

In 2017, no significant spills were recorded or reported as per EAD requirements; some smaller spills, primarily of sewage, were recorded by ENEC and its subsidiaries, and remedial action was taken. To raise awareness on this issue, a month-long ‘spill prevention’ campaign was conducted with contractors to improve their understanding of the impact of pollution and the measures needed to prevent and respond to incidents.

## Barakah Artificial Reef

ENEC and Nawah, in partnership with the National Marine Dredging Company (NMDC), and with guidance from EAD, have constructed an artificial reef and breakwaters along the shoreline of Barakah. The breakwater structures are comprised of quarry rock and concrete and have a combined length of approximately 15 km.



A 6,700 square meter reef was constructed using recycled and molded concrete core-locs originally utilized in the assembly of Barakah's coastal breakwater. Almost 1,800 of the large concrete units were carefully positioned on the ocean floor to create the underwater reef structure. The lattice formation of the reef is designed to replicate a natural coral reef and stimulates the local ecosystem by improving the existing seabed habitat, providing shelter for marine life, and encouraging biodiversity.

Results reveal that a diverse and abundant marine ecosystem has taken root at Barakah, including in the artificial reef. More than 63 marine species are utilizing the breakwater habitats, and 35 are utilizing the artificial reef habitat. Deployment of the artificial reef has significantly enhanced the flat, largely featureless, environment by providing shelter and adding structural complexity. Despite its relatively recent creation, the reef already supports a significant variety of fish species.

## Coral Propagation Study

In accordance with the Barakah Compensatory Mitigation Plan, Nawah, together with Zayed University, initiated a three-year Coral Propagation Study in 2016. During 2017, they identified good candidates for rearing coral larvae for Arabian Gulf coral reefs' rehabilitation efforts. Knowledge transfer through integrative experimental learning on coral spawning preparation, coral spawning techniques, settlement of larvae and survival of coral recruits, re-deployment of corals after spawning and building coral trees and tables were provided to UAE nationals.

## Radiological Monitoring Lab

The Environmental Radiochemistry Lab was one of the first divisions to begin operations at Nawah. The main goal of the lab is to study and monitor background radiation, in and around the Barakah plant, and to ensure the public's health and safety. The Lab sends bi-annual reports to FANR, containing the results of radiological tests performed on several samples including soil, mud, fish, crustaceans, air, drinking water and seawater. Test results have been reported for 2016 and 2017, and all results indicate that radiation levels are normal.

## Osprey Nesting Project

Following a number of sightings around Barakah, Nawah implemented an osprey nesting project. A number of nesting platforms, made from recycled wood, were placed in a secluded area of the Barakah plant, near the shoreline, which is the birds preferred habitat. Observation shows that a pair of ospreys regularly use the platforms as roosts.

## Beach Clean-up

In October 2017, an annual beach clean-up was held with over 350 participants from ENEC, Nawah, KEPCO and other subcontractors. This was the best attended beach clean-up held to date with over one ton of waste collected from the beach in the vicinity of the Barakah plant.

# Health and Wellbeing

ENEC, and its subsidiaries, take a comprehensive approach to employee and contractor health and well-being. This involves preventative measures such as occupational health risk assessments, personal health checks and screenings, and food sampling and awareness sessions. Should a health-related incident occur, the appropriate first responders, equipment and support is in place to ensure the appropriate actions are taken as swiftly as possible.



## Occupational Health

All job categories within ENEC, and its subsidiaries, have been assessed for potential occupational health risks as part of a thorough Occupational Health Risk Assessment. This allows ENEC to quantify the effects of unmanaged occupational health risks on employees and take appropriate actions to control the risk.

ENEC maintains an annual Health Program that facilitates the ongoing development of health-related codes of practice. It is expected that ENEC's contractors and subcontractors deploy similar codes of practice to ensure risks are identified and avoided. In 2017, zero occupational health illnesses (not including heat-stress) were recorded among ENEC's employees, contractors and subcontractors.

Occupational Illness					
	2013	2014	2015	2016	2017
Reportable occupational illnesses (employees)	0	0	0	0	0
Reportable occupational illnesses (contractors and subcontractors)	0	0	0	0	0
Scope: ENEC, Nawah, BOC and KEPCO					

## Heat Stress

Heat stress has been identified as one of the highest occupational health risks, primarily for those employees, contractors and subcontractors working outdoors in the summer months. The focus for ENEC, and its subsidiaries, is to avoid heat stress incidents with control measures and awareness that ensure employees are not overexposed to the sun and remain hydrated at all times.



In 2017, there were zero incidents of heat stress among employees, and ten incidents among contractors and subcontractors, a decrease of 47% year after year. This decrease is partly due to the 25% reduction in the number of contractors and subcontractors on-site.

Heat Stress					
	2013	2014	2015	2016	2017
Heat stress incidents (employees)	0	0	0	0	0
Heat stress incidents (contractors and subcontractors)	31	34	43	19	10
Scope: ENEC, Nawah, BOC and KEPCO					

The continued reduction in heat stress incidents over the last three years can be attributed to the efforts of the HSE teams and employees across the project raising awareness and being more attuned to their team members' wellbeing. In 2017, ENEC, and its subsidiaries, conducted one of its largest heat stress campaigns, reaching 16,500 participants over a five-month period.

## Medical Services and First Aid

Due to its large number of contractors and subcontractors, KEPCO maintains first aid and medical services at the Barakah plant. These services are inspected regularly by ENEC, and assessed on a monthly basis, to make sure they conform to all Department of Health (DOH) standards and registration requirements.

At all ENEC and subsidiary offices, first aid boxes and Automated External Defibrillators (AED) have been placed on each floor and are clearly identified on the emergency evacuation maps located at each exit. Up-to-date lists of the first aiders, both male and female, with their contact details, are posted next to each unit. The contact details and physical office locations of the first aiders are confirmed and amended quarterly. The contents of the first aid units are fully inspected on a monthly basis and replenished immediately to conform to OSHAD and ENEC First Aid requirements.

## Food Safety

Food safety has consistently been identified as a high health risk, especially within the large population of contractors and subcontractors living at the Barakah plant. A comprehensive food safety assessment was conducted in 2017, to assess the services provided by the contracted catering companies in order to identify opportunities to improve the catering services and avoid a potential large-scale health issue.

The food safety assessment was conducted over a 3-week period and covered 28 catering facilities and food service areas. An assessment report was prepared with all of the findings and recommendations and ENEC, and its subsidiaries, are now seeking to implement its directions. This, in addition to a bi-weekly monitoring program, allows contractors to raise concerns with KEPCO and ENEC.

For employees, ENEC has implemented a bi-monthly catering services inspection program and a quarterly assessment to ensure the highest levels of quality and hygiene in the preparation of food for employees.

## Nawah Industrial Hygiene

As Barakah Nuclear Energy Plant moves closer to operations, Nawah has established four industrial hygiene procedures and initiated programs within Units 1 and 2, including identification of oxygen deficient areas, control of confined spaces, noise control areas and management of hazardous substances. Respirator and self-contained breathing apparatus training has been developed, and fit testing equipment has been procured. Every candidate must have their breathing apparatus tested to ensure a proper fit.



A plant oxygen deficient program has been developed and implemented for the constant monitoring of the work environment within the Barakah plant. Nawah has also issued 350 individual oxygen monitors to employees. Several surveys have been conducted identifying and confirming the locations of confined spaces within the plant. Three office ambient air quality surveys were completed identifying areas for improvement. All necessary improvements and amendments to management systems were made to address and improve the office work environment.

## Health Screening

Health screening and medical surveillance is mandatory for all employees and consists of visiting an occupational health physician and completing a health history questionnaire in order to determine current medical issues and identify previous occupational incidents that may have resulted in a medical issue.

All results and recommendations from the screening are processed in a highly confidential manner. Each employee will undergo this assessment periodically based on the risks associated with their job category in order to conform to OSHAD and FANR statutory requirements.

## Health Engagement and Awareness

A wide range of health and wellbeing engagement and awareness sessions have been conducted across ENEC and its subsidiaries, both at the Barakah plant and at the corporate offices. Some of the main initiatives conducted in 2017, include:

- **6 Food for Thought (F4T) Sessions:** Medical experts from hospitals addressed lifestyle health issues with our employees in a structured awareness session promoting a questioning attitude in a networking environment, accompanied by a healthy lunch.
- **34 ENET Newsletter Articles:** Sharing information and useful links with our employees on techniques to manage their health and monitor their risk factors. Some of these articles included topics like breast cancer awareness, eye health and precautionary measures to take while working in heat.
- **3 Health Calendar Events:** Employees were given the opportunity to have one-on-one consultations with specialized physicians from selected health partners, and undergo minor medical investigations and vital statistic monitoring and diagnosis. Such events included blood donation drives, flu vaccination and stress management.
- **8 First Aid Courses:** Training 33 first aiders at ENEC HQ, and 30 first aiders at the Barakah Nuclear Energy Plant, and issuing them with internationally recognized first aid certification.
- **Other targeted initiatives:** Breaking the fast and healthy eating suggestions during the Holy Month of Ramadan and awareness sessions about the importance of hydration and staying cool during the hot summer months.

## Stress Management

Stress was identified as a major health risk primarily for office-based employees. The aim of the Stress Management Program is to evaluate and study current levels of stress among ENEC employees and to take actions to reduce stress and improve productivity.

The first part of the study involved interviewing 17 employees with a series of scenario-based questions that focused on their experiences at ENEC and addressed specific areas that, if present, were likely to cause stress. After collecting all relevant information, six stress management workshops were organized to help employees develop the skills they need to lead a more stress-free lifestyle. These included:

- Teaching them to identify different types of stress.
- Teaching them how to protect themselves from negative influences.
- Empowering them to respond effectively during 'high stakes' situations.
- Boosting their confidence in dealing with difficult relationships

## Health Grievances

All employees were able to raise health-related concerns through the appropriate internal Condition Reporting (CR) mechanism, all of which were addressed. For contractors and subcontractors, grievances were collected through planned meetings open to all workers. There were 18 'welfare meetings' held in 2017, with representatives from ENEC, its subsidiaries, contractors and subcontractors, present to address worker concerns and grievances.

A number of employee grievances were raised within ENEC and Nawah relating to food safety, the potential for mold in the accommodations at the Barakah plant, and office ergonomics. All of these were assessed and addressed, and future actions, such as a planned 2018 Nawah office ergonomics assessment, have been scheduled.



## Quality, Efficiency and Reliability



ENEC's Integrated Management System (IMS) is a framework that helps ENEC meet its goals and objectives while maintaining a focus on safety, security and quality.



**IMS Accreditations:** [www.enec.gov.ae/about-us/leadership-and-governance/international-standards-and-certifications/](http://www.enec.gov.ae/about-us/leadership-and-governance/international-standards-and-certifications/)



As part of its commitment to safety, security and transparency, ENEC has established a rigorous Quality Assurance (QA) program that ensures that the UAE's first nuclear energy plant is designed, constructed, commissioned and operated in line with the best industry practices, governing codes, standards, regulations and licensing requirements.

Audits are conducted on a regular basis to ensure the program's high standards are being met and continually improved upon. In 2017, ENEC conducted 54 audits (largely performance-based) on all aspects of ENEC's IMS and QA programs. This included 19 internal and 19 external (supplier) QA audits. A further 16 audits / assessments were undertaken for Management Systems.



**Quality Assurance:** [www.enec.gov.ae/about-us/leadership-and-governance/quality-assurance/](http://www.enec.gov.ae/about-us/leadership-and-governance/quality-assurance/)





## Industrial and Economic Development at ENEC

Introduction  
Financial Responsibility  
Supply Chain Management  
National Economic  
Development

# Industrial and Economic Development

ENEC is supporting the nation’s economic growth and diversification by investing responsibly in a local peaceful nuclear energy industry that can contribute to national, regional and international nuclear supply chains.



## Introduction

The UAE Peaceful Nuclear Energy Program is a multibillion-dollar investment in economic and industrial growth and diversification. This strategic and responsible deployment of government funds will deliver large amounts of reliable energy for the future growth of the country and it is already delivering highly-skilled jobs, new business opportunities for companies of all types and sizes, and investment in the Al Dhafra region of Abu Dhabi. As the first nuclear energy plant in the region, and with other countries now looking to follow the UAE’s lead, the Barakah Nuclear Energy Plant will continue to deliver value well into the future as UAE companies and talent compete for business in the regional and international nuclear energy sector.



## Sustainability Objectives

ENEC’s industrial and economic development sustainability objectives are:

1	<b>Financial responsibility</b> – Deliver cost-effective power through a combination of financial responsibility and effective operational execution.
2	<b>Supply chain management</b> – Develop a supply chain that is increasingly locally based and that meets the environmental, social and quality standards of the nuclear industry.
3	<b>National economic development</b> – Become a driving force behind the UAE’s investment plan, providing business development opportunities and contributing to the UAE’s GDP.

# SDG Targets Addressed

By delivering on these sustainability objectives, ENEC is contributing to the achievement of the following SDG targets:

	<b>TARGET 8.2</b> Diversify, innovate and upgrade for economic productivity Achieve higher levels of economic productivity through diversification, technological upgrading and innovation. Including through a focus on high-value added and labor-intensive sectors.
	<b>TARGET 8.3</b> Promote policies to support job creation and growing enterprises Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services.
	<b>TARGET 8.2</b> Promote inclusive and sustainable industrialization Promote inclusive and sustainable industrialization and, by 2030, significantly raise the industry’s share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries.
	<b>TARGET 12.7</b> Promote sustainable public procurement practices Promote public procurement practices that are sustainable, in accordance with national policies and priorities.



## Financial Responsibility



ENEC, and its subsidiaries, have put in place the policies and procedures needed to conduct its business in an accountable and efficient manner and to ensure the program makes optimal use of resources.

Measures are in place to ensure funds are spent efficiently and within budget. Expenditures are monitored closely and, before being committed, all expenses are approved by authorized personnel per the appropriate Delegation of Authority (DOA).

Payments are then approved based on the limit authorized in the DOA / Sub-DOA, which is reviewed and updated periodically.

## Project Financing

ENEC established a comprehensive, sound financial structure that allows for the construction of the UAE's first nuclear energy plant and the infrastructure needed to move forward towards the delivery of Units 1 to 4. The overall project financing requirements are estimated at USD 24.5 billion:

- USD 16.2 billion comes from a direct loan from the Department of Finance of Abu Dhabi.
- USD 2.5 billion has been provided as a direct loan from KEXIM.
- USD 250 million was generated through loan agreements with local and international commercial banks.
- A total of USD 4.7 billion in equity commitments were made for the establishment of the BOC in exchange for equity interest in the company, shared between ENEC and KEPCO.

## Budgeting and Spending

ENEC's relatively short construction period, compared to most nuclear energy plants, makes the project economically competitive and sustainable. Overall project expenditure is managed by ENEC, including expenditures for both subsidiaries, and has remained steady at around USD 3-4 billion each year for the past four years.





*Project Expenditure					
	2013	2014	2015	2016	2017
Total capital expenditure (USD millions)	2,171	2,932	3,610	3,195	2,710
Total operating expenditure (USD millions)	205	331	418	446	659
Scope: ENEC, Nawah and BOC Please note that figures for 2013-2016 have been restated*					

Capital Expenditure (CAPEX) represents payments made towards ENEC’s \$20 billion contractual agreement with the Prime Contractor (KEPCO). Between 2016 and 2017, our CAPEX decreased by 15% as a reflection of the winding down of construction activities.

Operating expenditure covers the costs of ENEC, and its subsidiaries, employees and service contractors, communication, administration and capacity building, including the scholarship program. Between 2016 and 2017, OPEX increased by 48%, mainly a reflection of the rapid growth of Nawah as preparations advance towards operations for Unit 1.

Auditing and Accountability

ENEC reports its financial performance, and the performance of its subsidiaries, regularly to the General Secretariat of the Executive Council (GSEC), the Department of Finance (DoF) and RSB. To ensure timely, meaningful and reliable disclosures of its financial performance, the following mechanisms are in place:

- 1. **Statutory Audit:** Conducted by the government auditor (Abu Dhabi Accountability Authority), which performs the role of a statutory auditor and also audits the activities of ENEC’s internal auditors to ensure compliance.
- 2. **Internal Audit:** Regular reviews and audits of ENEC’s financial and non-financial systems, processes and results.
- 3. **External Audit:** Carried out annually by an independent third-party auditor, with the findings reported directly to ENEC’s Board of Directors.



Supply Chain Management

The overall supply chain required to construct the Barakah Nuclear Energy Plant is both extensive and global. ENEC, and its subsidiaries, have over 3,000 registered suppliers that compete for over USD 1 billion’s worth of contracts, on average, every year. These suppliers range from locally owned SMEs to large-scale multinational companies.

ENEC, and its subsidiaries, are responsible for corporate procurement requirements, including expert services, ICT equipment and site-related support services. ENEC’s Procurement and Supply Chain (PSC) function provides a central procurement and contracting service ensuring ENEC’s goods and services are procured to the best contractual terms and conditions, in full compliance with legal and regulatory requirements, and supporting ENEC’s sustainability objectives.

The Prime Contractor (KEPCO) has thousands of suppliers and sub-contractors of its own that it is using to construct the nuclear energy plant, with guidance, oversight and performance tracking by ENEC, to ensure its standards and UAE requirements are implemented.

Supply Chain Overview						
	2012	2013	2014	2015	2016	2017
Number of registered suppliers (Cumulative)	199	1,384	1,827	2,344	2,800	3,053
Total procurement spending (USD millions)	127	2,258	267	611	1,380	1,449
Scope: ENEC, Nawah and BOC						

Total procurement spending varies substantially from year to year because ENEC is still in the project phase. The overall trend is an increase in spending, as would be expected as ENEC approaches completion of Unit 1 and the start of operations.

Procurement and Supply Chain Governance

The implementation of the comprehensive Procurement and Supply Chain Governance Framework continued in 2017. The framework includes a procurement process situations matrix, a register of reported situations, a process for verification and reporting of identified situations, and the identification of opportunities for improvement. This helps to ensure that ENEC is procuring goods and services in accordance with the highest ethical and governance standards.

Supply Chain Localization

To bring the maximum economic benefit to the UAE from the nuclear energy project, and also improve the security of supply, ENEC strives to procure its goods and services from locally based suppliers whenever possible. In total, 77% of the suppliers registered with ENEC, and its subsidiaries, are locally based, and 65% of the 2017 procurement budget (excluding the Prime Contract), , equaling a total of \$939 million, was placed with placed with locally based suppliers.

Local Procurement						
	2012	2013	2014	2015	2016	2017
Percentage of registered suppliers that are locally based (%)	79%	84%	82%	82%	81%	77%
Total procurement spending on suppliers based in the UAE (USD millions)	99	47	232	389	664	939
Percentage of procurement spending on locally based suppliers (%)	78%	2%	87%	64%	48%	65%
Number of Khalifa Fund suppliers registered (Locally owned SME companies funded by Sheikh Khalifa) (Cumulative)	2	8	11	34	36	35
Scope: ENEC, Nawah and BOC						

ENEC is an active supporter of the Khalifa Fund for Enterprise Development (KFED) – a dynamic organization that promotes and supports entrepreneurial ventures in Abu Dhabi. To date, 35 KFED companies have registered as suppliers with ENEC, and are being actively encouraged to bid for future contracts.



Supply Chain Sustainability Impacts

To safeguard against potential risk and satisfy internal HSE requirements, ENEC takes an active role in ensuring its supply chain meets the highest ethical standards and that relevant suppliers implement all environmental, social, and labor-related policies and procedures required to operate responsibly.

Selected suppliers go through ENEC’s pre-qualification process, which helps to identify their level of compliance with necessary standards and regulations. ENEC conducts risk-driven pre-qualification exercises to ensure that potential suppliers meet specified standards for quality and safety. In addition, pre-qualification exercises gather business continuity information from the supplier to help gauge the maturity of the supplier’s business continuity planning capability.

Code of Conduct

All suppliers registered through ENEC’s supplier portal must agree to our ‘Supplier Code of Conduct’, which sets out the principles and standards of conduct expected of every supplier. The document covers topics such as fraud, ethical behavior, conflicts of interest, whistleblowing, compliance with the law and ENEC’s environmental and sustainability leadership.

 **Supplier Code of Conduct:** [www.enec.gov.ae/doc/psc-ref-111-02-supplier-code-of-conduct-rev4-supplier-portal-5937c63de21a2.pdf](http://www.enec.gov.ae/doc/psc-ref-111-02-supplier-code-of-conduct-rev4-supplier-portal-5937c63de21a2.pdf)



The Code of Conduct was updated in 2017 to align with the changes made to ENEC’s internal business ethics policies. ENEC is not aware of any breaches in supplier compliance with the Supplier Code of Conduct in 2017.

Health, Safety and Environment

HSE criteria are screened at the pre-qualification stage for selected suppliers. In addition, for products and services being procured that are classed as having significant HSE risks attached, bidders will be assessed against a range of project-specific HSE requirements. Should a bidder fail to achieve the necessary HSE score, they will automatically fail and be removed from the selection pool.

All contracts require some form of HSE consideration to be incorporated, depending on the level of risk.

[Contractor HSE Management Procedure: www.enec.gov.ae/doc/contractor-hse-management-procedure-5a9eac506876a.pdf](http://www.enec.gov.ae/doc/contractor-hse-management-procedure-5a9eac506876a.pdf)

Labor Practices

ENEC, and its subsidiaries, view compliance with all labor laws and good worker welfare practices as a prerequisite for being registered as a supplier or being awarded a contract. To verify this, ENEC requests suppliers sign a statement of compliance regarding worker welfare. In 2017, 100% of new suppliers signed the statement, bringing the total number of registered suppliers to 1,646.

Supply Chain Worker Welfare			
	2015	2016	2017
Number of registered suppliers that have signed a statement of compliance regarding worker welfare (cumulative).	718	1,118	1,646
Scope: ENEC, Nawah and BOC			

Due to the nature of ENEC’s procurement requirements, no significant human rights-related risks have been identified within the supply chain, so no additional screening is carried out. No suppliers have been identified as having a risk related to forced, compulsory or child labor.



National Economic Development

The development of the Barakah Nuclear Energy Plant is a major driver of short- and long-term economic development for the Al Dhafra region and the UAE as a whole. The project has created thousands of jobs and has led to significant investment in local infrastructure that will benefit the region for decades to come. More specifically, the project has provided an opportunity for local businesses to meet the necessary quality standards required to join a global nuclear supply chain that could be worth as much \$67 billion by 2019.

Job Creation

In 2017, ENEC, and its subsidiaries, supported 2,569 highly-skilled jobs at its corporate offices in Abu Dhabi and on-site in Barakah - a 40% increase, or 730 additional positions, from its 2016 level. It is expected that this figure will continue to rise until at least 2020 as Nawah scales up through the ongoing handover and operation of all four units.

This rapidly growing workforce is having a direct impact on the economy through the spending of wages and benefits, which in turn indirectly supports job creation in other sectors. There is also an additional indirect impact as many internationals bring their families to the country, spurring further economic activity by either renting or buying property, and through spending on transportation, education, health, food and goods and services within the UAE.

In 2017, KEPCO and its subcontractors supported a further 15,000, predominantly lower-skilled construction jobs, a drop of 30% from 2016 due to the project reaching its peak and beginning to wind down in 2017. While some of the wages of international employees are remitted, the associated economic impact of supporting this large workforce brings economic benefits to the Al Dhafra region.

Industrial Development

Any company that aspires to supply materials used in the construction and operation of a nuclear energy plant must achieve nuclear-grade quality assurance standards, depending on the classification of the material.

To maximise the benefit of the nuclear energy project for the national economy in the long term, ENEC and its subsidiaries have been supporting UAE businesses in reaching the necessary standards required to provide their products and services

to the nuclear supply chain. This should give UAE companies a competitive edge, as once achieved, companies can compete for projects with KEPCO, ENEC and its subsidiaries, as well as exploit export opportunities to supply nuclear energy projects in other GCC countries looking to invest in their own nuclear energy projects, and globally.

Since the start of the project, over 1,400 companies in the UAE have been awarded contracts relating to the Prime Contract for construction totaling USD 3.25 billion; this includes major contracts for nuclear-grade steel, concrete and cables that have been awarded to Emirates Steel, National Cement, and Dubai Cable Company (Ducab), respectively. Having successfully supplied the Barakah Nuclear Energy Plant, these companies are now actively bidding on, and winning, new work to supply other nuclear energy plant construction projects around the world, resulting in the UAE joining the international nuclear supply chain.

In 2017, ENEC's Industrial Development Team shifted its focus to working with UAE-based companies in order to help them become certified nuclear maintenance service providers. This included working with Drydocks Dubai to upgrade their quality assurance program from ISO 9001 to ASME NQA-1 in preparation for auditing in early 2018. They will become the first company in the MENA region to obtain this accreditation.

## Investment in Local Infrastructure

The Al Dhafra Investment Roadmap, developed by the Western Region Development Council, found that the nuclear energy industry will contribute USD 16 billion to the economy of the Al Dhafra Region over the lifetime of the Barakah plant. Furthermore, public services and infrastructure are being developed as part of the project, including new housing and the upgrade of communications systems and highways, which all contributed to an improved quality of life for residents of the region. It is expected that real estate values will also rise as a result of ENEC's activities.





# Knowledge and Employment

Introduction  
Highly Skilled Employment  
National Talent Development  
Knowledge Creation


# Knowledge and Employment

The UAE Peaceful Nuclear Energy Program will provide high-value jobs for its citizens, while also bringing new knowledge and expertise to the country. The Program represents an opportunity for talented and highly skilled UAE nationals to become leaders in a rapidly growing international sector.



## Introduction

Thousands of highly-skilled individuals with a wide range of knowledge, expertise and training, have come together as a team to construct and operate the Barakah Nuclear Energy Plant. As the first such project in the region, ENEC, and its subsidiaries, have drawn from the best national and international talent while simultaneously investing heavily in the creation of knowledge through highly specialised nuclear energy education and training programs for UAE Nationals.



## Sustainability Objectives

ENEC’s knowledge and employment sustainability objectives are:

1	Highly skilled employment – to generate jobs, recruit and retain high-quality people within ENEC and the nuclear energy sector.
2	National talent development – to develop Emirati talent for employment at ENEC and in the nuclear energy sector.
3	Knowledge creation – to contribute to the development of a knowledge-based economy benefiting from international experience and the provision of world-class training and education programs.

## SDG Targets Addressed

By delivering on these sustainability objectives, ENEC is contributing to the achievement of the following SDG targets:

	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
	Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.
	By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.
	By 2020, substantially reduce the proportion of youth not in employment, education or training.





## Highly Skilled Employment



ENEC, and its subsidiaries, strive to be the employers of choice, recruiting and retaining highly skilled talent from the UAE and around the world by providing an open and engaging work environment where employees can perform at their best. Encouraging women to join the nuclear sector is also a key priority with initiatives such as Women in Nuclear (WiN) supporting current and future female employees.

### Workforce Profile

The workforce of ENEC, and its subsidiaries, is comprised of the highest caliber of professionals and specialists who are helping to deliver one of the largest projects globally, and the most exciting project in UAE history. In total, the group had 2,569 employees in 2017, 891 of which worked at ENEC and BOC, with the remaining 1,678 employed at Nawah.

The 40% increase in the total workforce in one year is due to the expansion of Nawah as it prepares for operations, following commissioning and the attainment of the appropriate licenses. The total number of employees is expected to continue to grow rapidly, and Nawah is expected to have over 2,500 employees by 2020.

Workforce Profile						
	2012	2013	2014	2015	2016	2017
Total number of employees	554	902	1,372	1,574	1,839	2,569
By gender						
Female	165	220	291	315	353	465
Male	389	682	1,081	1,259	1,486	2,104
By age						
18-30	246	442	582	642	698	840
31-50	270	372	574	669	818	1,207

51+	38	88	216	263	323	522
By nationality						
Middle East and North Africa	384	638	890	1,005	1,186	1,383
Africa	10	10	17	21	40	84
Americas	42	84	199	218	225	374
Europe / EU / Turkey	37	53	94	114	146	223
Asia / Australia / New Zealand	81	117	172	216	242	505
Scope: ENEC, Nawah and BOC						

The workforce has representation from over 55 nationalities, with the majority of employees coming from the Middle East and North Africa. ENEC, and its subsidiaries, also employ 840 young people (18-30), contributing to national goals and targets for youth employment.

### Recruitment and Onboarding

Recruiting capable professionals is essential to achieving the organizational strategy of ENEC and its subsidiaries; quality control measures are in place to guarantee merit-based recruitment.

In 2017, ENEC, and its subsidiaries, recruited an additional 678 employees, including 231 more UAE nationals, 115 more women and 184 young people (18-30). Procedures to streamline the recruitment process continued to be improved, with the average time to fill a vacancy rising from 66 days in 2016 to 94 days in 2017.

All new employees undergo a rigorous induction program entitled ‘Becoming a Nuclear Professional’. The training covers ENEC’s regulatory requirements, safety culture, radiological restrictions and risks, all per the corporation’s policies, procedures and internal systems.



Recruitment					
	2013	2014	2015	2016	2017
Number of employees hired	404	533	290	460	678
By gender					
Female	69	94	47	83	115
Male	335	439	243	377	563
By age					
18-30	241	208	149	183	184
31-50	108	197	87	164	328
51+	55	128	54	113	166
By nationality					
UAE nationals	124	282	164	240	231
Other nationals	280	251	126	220	447
Scope: ENEC, Nawah and BOC					

ENEC, and its subsidiaries, continue to search for talent from all over the world to fill vacancies existing primarily within Nawah, most of which are jobs relate to the future operations of Barakah Nuclear Energy Plant.

 [Careers at ENEC: careers.enec.gov.ae/en/job-search-results/](https://careers.enec.gov.ae/en/job-search-results/)

Engagement and Satisfaction

Good employee engagement helps to ensure high levels of satisfaction, retention and productivity, all of which support the achievement of ENEC’s vision, mission and corporate strategy. Keeping attrition rates below the target of 5% allows ENEC to retain knowledge and expertise, and ultimately saves the company time and money. Competitive salary and benefits packages provide the foundation, while proactive employee engagement, career development, and wellbeing initiatives help employees stay committed to personal and professional goals. ENEC also strives to create a

transparent and open culture across the corporation where employees can voice their opinions and contribute to the corporation’s success.

Employee turnover for ENEC, and its subsidiaries, was 4.1% in 2017, with only 104 employees leaving the company, a reduction from 6.7% (117 employees) leaving in 2016. The reduction in turnover rate is partly due to the large increase in the number of employees as well as a reduction in the number of employees leaving.

Retention						
	2012	2013	2014	2015	2016	2017
Total employee turnover rate	11.7%	8.9%	7.3%	5.7%	6.7%	4.1%
Number of employees that left ENEC (forced or voluntary)				84	117	104
By gender						
Number of male leavers				62	89	79
Number of female leavers				22	28	25
By nationality						
Number of Emirati leavers				50	64	52
Number of expatriate leavers				34	53	52
Scope: ENEC, Nawah and BOC						

ENEC, and its subsidiaries, engage with employees through a range of tools and initiatives including weekly alignment meetings, the employee intranet, regular new and updated emails, voluntary events such as Food for Thought (F4T), innovation programs, CSR events, the Employee Concerns Program (ECP) and through the Sa’ada (Happiness) Program.

Sa’ada (Happiness) Program

The Sa’ada Program brings together a range of employee satisfaction initiatives under one umbrella. The initiatives include ENEC Life+ which focuses on employee health and well-being, the majlis where employees can speak their minds, employee recognition schemes such as employee of the month, and the provision of facilities for physical and mental fitness.

In 2017, as part of the Sa'ada Program, ENEC rolled out the “Gift of Giving” (GoG) to spread happiness and joy in the work environment. Based on Arabic tradition and reflecting the humble teachings of Prophet Muhammad (PBUH), the initiative involves the exchange of gifts among friends and colleagues in order to spread kindness and happiness.



Anti-Discrimination

As per ENEC’s policy, employees must make all employment decisions without regard to an individual’s race, color, national origin, religion, gender, age, disability or other characteristics (personal traits). Such employment decisions include selection, hiring, placement, compensation, benefits, transfer, promotion, training, termination and disciplinary action. Employees of ENEC, and its subsidiaries, are also prohibited from committing any act of discrimination in the workplace against any other person based on a personal trait.

Demonstrating commitment to this policy, in 2017 one employee within Nawah was terminated after an incident of discrimination was reported and investigated by Nawah’s Employee Relations Committee, as per company procedure.

Female Participation

ENEC is deeply committed to promoting female employment and participation in the workforce. To encourage female employees to join and remain in the nuclear sector, ENEC has developed an integrated approach to promoting the inclusion of women in its workforce by supporting the new generation of women employed in the nuclear industry, developing their skills, and creating an inclusive workplace that supports work-life balance and wellbeing.

In 2017, ENEC, and its subsidiaries, had 465 female employees, an increase of 32% from 2016. Women made up 18% of the total workforce and 10% of senior management. Importantly, these positions are not just administrative, as many of the women at the Barakah Nuclear Energy Plant are employed in highly technical roles, making it one of the most diverse nuclear energy plants in the world.

Despite the overall number of women increasing significantly, the overall percentage of women at ENEC and its subsidiaries decreased slightly from previous years. The drop is primarily due to a limited pool of female applicants for the large number of technical roles currently being recruited. ENEC is seeking to reverse this trend by actively encouraging women to participate in the Energy Pioneers educational program, which will provide a strong pipeline of highly skilled women in the future.

Female Participation						
	2012	2013	2014	2015	2016	2017
Number of female employees	165	220	291	315	353	465
Female employment rate	30%	24%	21%	20%	19%	18%
Number of females in senior management positions				3	8	10
Percentage of females in senior management positions				4.5%	10%	10%
Percentage of females on the Board of Directors			15%	15%	16%	16%
Scope: ENEC, Nawah and BOC						

Women in Nuclear

“Women in Nuclear” is a global working group with a UAE chapter that supports the overall role of women in the nuclear industry. It focuses on women working professionally in various fields of nuclear energy. The working group addresses general concerns about nuclear energy and supports the overall understanding of women’s needs within the company, taking into consideration the UAE’s culture and the significant number of women employed at the Barakah Nuclear Energy Plant.

[Women in Nuclear: www.nawah.ae/en/about-nawah/women-in-nuclear.html](http://www.nawah.ae/en/about-nawah/women-in-nuclear.html)

## National Talent Development

It is vital that UAE nationals play a central role in the national nuclear energy program, from construction, through 60 years of operations and maintenance, and the eventual decommissioning of the plant. Building a national workforce in a brand new technical industry is a major undertaking and ENEC has set ambitious targets to achieve 60% Emiratization.

To build a pipeline of future nuclear qualified talent, ENEC has developed the Energy Pioneers, a program which brings together partners such as KEPCO, regulators, international associations and universities to create an intensive and comprehensive program of national nuclear professional development.

### Emiratization

ENEC has a dedicated Emiratization department which is responsible for attracting and retaining national talent in order to reduce reliance on international expertise. Together with its subsidiaries, ENEC employs 1,257 UAE nationals, 114 more than in 2016, representing an increase of 8%.

Due to the large-scale hiring of qualified international nuclear professionals by Nawah, combined with the time it takes to qualify a new nuclear professional, the number of nationals, as a percentage of the overall workforce, decreased in 2017 to 49%. It is expected that this figure will rise again over time as operations begin and the pipeline of qualified UAE-national nuclear professionals increases. ENEC itself maintained an Emiratization rate of 62% in 2017 for all employees, with a rate of 79% for senior management.



Emiratization						
	2012	2013	2014	2015	2016	2017
Number of UAE nationals	361	610	857	970	1,143	1,257
Emiratization rate (%)	65%	68%	62%	62%	60%	49%
Number of UAE nationals in senior Management				37	59	46
Senior management Emiratization rate (%)	18%	33%	43%	64%	59%	51%
Scope: ENEC, Nawah and BOC						

ENEC's Internship and Summer Programs give UAE students and graduates the opportunity to get a taste of what it is like to be part of the company and enhances their learning experiences by involving them in on-the-job training within different departments at headquarters and on-site. This program is delivered in cooperation with governmental and private academic institutions.

### Energy Pioneers



ENEC works with local universities to ensure a UAE workforce that is qualified for jobs in the nuclear energy sector, including senior technical and management careers. The Energy Pioneers Program offers a variety of scholarships and training opportunities to the most talented science students and experienced professionals.

 **Scholarships:** [www.enec.gov.ae/careers-and-scholarships/scholarships/](http://www.enec.gov.ae/careers-and-scholarships/scholarships/)

UAE nationals who want to become a part of the emerging nuclear energy sector can apply for a scholarship to enrol in the program at Abu Dhabi Polytechnic, or for a variety of degrees at Khalifa University of Science and Technology (KU). ENEC provides scholarships to students in both bachelor's and master's degree programs in chemical, nuclear, mechanical, and electrical engineering.

Student Sponsorship	2012	2013	2014	2015	2016	2017
Higher Diploma	-	114	177	152	123	95
Bachelor	-	152	157	157	126	44
Master	-	9	7	10	3	0
PhD	-	1	1	1	1	2
Total Number of Students	-	276	342	320	253	141

The Higher Diploma in Nuclear Technology (HDNT) is a long-term manpower supplier for foundational technical positions at ENEC. The program is a joint venture between Abu Dhabi Polytechnic and ENEC. During the three-year program, students learn various subjects including; Mathematics, Physics, Chemistry, Mechanical Science, Electrical Science, Heat Transfer and Fluid Flow, Nuclear Physics, Plant Systems, Nuclear Safety, Radiation Measurement, Radiation Protection and Nuclear Materials. These courses are taught by Abu Dhabi Polytechnic faculty as well as by our capacity-building nuclear instructors.



The program also includes on-the-job training (OJT), a 23-week program designed to expose students to the various disciplines offered and introduce them to the plant and their specialized fields. A total of 66 HDNT students completed the OJT portion of the program in 2017.

The Energy Pioneer Program met several milestones in 2017, including the conclusion of Main Control Room Simulator Training for the first group of graduates, as well as the completion of training from the Higher Diploma in Nuclear Technology program. These graduates will join ENEC as technicians and local operators at Barakah Nuclear Energy Plant. In addition, the number of scholarship students that feed the internal training pipeline continues to drive ENEC’s Emiratization efforts.

School Outreach

ENEC has a school outreach program that encourages students to study science and advises them of the career possibilities at ENEC. This includes a relationship with the Institute of Applied Technology (IAT), a technical high school focused on producing the scientists, engineers, and technicians needed for the UAE to build a knowledge-based economy. To meet this goal, IAT has included the academic requirements of the Nuclear Technician Program within their curriculum.

Knowledge Creation



The creation of knowledge and skills, internally and externally, is important to the long-term sustainability of the UAE Peaceful Nuclear Energy Program. ENEC, and its subsidiaries, collaborate with a range of academic and governmental institutions to deliver knowledge and skills training for its own employees and the employees of other sector-based companies.

Learning and Development

ENEC, and its subsidiaries, are committed to learning and improvement in accordance with the global nuclear energy industry’s commitment to continual learning and development. We have embraced a lifelong learning approach and employees receive an average of 77 hours of training every year.

In addition to the foundational training program all employees complete when they join the company, ENEC provides ample opportunity for the continuous development of the technical and soft skills crucial for a successful workplace. In recognition of employee time and resources, ENEC blends traditional instructor-led courses with mobile learning in the form of eLearnings, eReads, and workshops, thus providing the freedom to continue personal development at times most suitable to their schedules.

Training and Development					
	2013	2014	2015	2016	2017
Total number of internal and external training hours delivered	36,086	39,916	138,664	122,201	197,227
Average hours of internal and external training per employee	40	29	88	66	77
Internal training hours delivered	25,766	24,748	52,024	84,321	134,560
UAE national employees	---	---	29,132	37,515	75,354
International employees	---	---	22,892	46,806	59,206
External training hours delivered	10,320	15,168	86,640	37,880	62,667
UAE national employees	8,432	12,224	78,328	36,896	60,318
International employees	1,888	2,944	8,312	984	2,349
Number of eLearning and eReads available	---	---	416	509	774
Number of eLearning and eReads completed	---	---	16,860	35,994	75,022
Scope: ENEC, Nawah and BOC					
Training hours delivered does not include initial operations and technical training program that qualify operators, maintenance, engineering, radiation protection and chemistry plant personnel, or time spent on eReads and eLearning since these are untimed and completed at an employee's own pace.					

The total number of training hours delivered in 2017 reached 197,000 hours, a 61% increase from 2016. This increase is primarily due to the 40% rise in the number of employees and also from a concerted effort to increase the number of internally delivered courses available, the number of scheduled offerings, continuous advertising of new soft skills courses, and an increase in courses related to operational readiness.

In 2017, ENEC also invested in the development of five high-potential UAE national leaders and enrolled them in the world-renowned Westinghouse Management Senior Reactor Operator Equivalency Certification Program. The program is intended to provide specific nuclear knowledge to UAE national leaders and familiarize them with integrated plant and systems operation.

### Nawah Becomes a Registered Training Provider

In 2017, Nawah was formally recognized as a National Registered Training Provider (RTP) following a comprehensive external audit by the Vocational Education and Training Awards Council (VETAC), the regulator for the National Qualifications Authority (NQA). This authorizes Nawah to issue nationally-endorsed qualifications. Nawah has the prestigious honor of being the first UAE company, whose primary role is not training, to achieve this national recognition, ahead of all UAE governmental and semi-governmental agencies. The Nawah-developed, nationally-endorsed qualifications will be obtainable by Nawah employees who can demonstrate competence in the national standards. Once implemented, these nationally-endorsed qualifications will be recognized by other UAE institutions for credit transfer and career advancement, in addition to being internationally recognized.

### Knowledge Sharing

ENEC, and its subsidiaries, reach out to their stakeholders to provide formal education and an overview of their programs and technology. In 2017, ENEC trained 60 employees from ADWEC, FANR and Transco on the Nuclear Power Plant APR-1400 systems, building the nuclear knowledge of some of our closest stakeholders and assisting in their professional development.

### Nuclear Energy Management School

ENEC partners with IAEA, KU and FANR to offer the UAE-IAEA Nuclear Energy Management School. This school provides participants with a unique international educational experience aimed at preparing future nuclear energy leaders, while encouraging research and discussion on topics relating to the peaceful use of nuclear technology, and creating a network of nuclear energy peers around the world. In 2017, the UAE-IAEA Nuclear Energy Management School had 51 participants, including 41 from ENEC, FANR and CICPA.





## Appendices

Appendix A – Report Scope, Materiality and Boundaries

Appendix B – Stakeholder Mapping

Appendix C – GRI Content Index

Appendix D – Acronyms and Synonyms

Appendices

Appendix A – Report Scope, Materiality and Boundaries



Materiality

ENEC is committed to prioritizing the management of issues that are most relevant to the creation of long-term value for all of our stakeholders. ENEC has identified and prioritized these issues through a materiality assessment process aligned with the GRI Standards, as outlined in the 2016 sustainability report. The issues were reviewed by the ENEC sustainability team and deemed still relevant for disclosure in this report.

Material Issues	Boundaries
Personal safety (employees, contractors and the community)	ENEC, Nawah, BOC, KEPCO and subcontractors
Exposure to nuclear radiation (employees, contractors and the community)	ENEC, Nawah, BOC, KEPCO and subcontractors
Emergency preparedness	ENEC, Nawah, BOC, KEPCO and subcontractors
Health of employees and contractors	ENEC, Nawah, BOC, KEPCO and subcontractors
On-time construction and transition	ENEC, Nawah, BOC, KEPCO and subcontractors
Radioactive waste management	ENEC, Nawah and BOC
Compliance with environmental regulation	ENEC, Nawah, BOC, KEPCO and subcontractors
Security of fuel supply	ENEC, Nawah and BOC
Localization and security of the supply chain	ENEC, Nawah and BOC
Employment and development of the local population	ENEC, Nawah and BOC
Training and development	ENEC, Nawah and BOC
Anti-corruption	ENEC, Nawah and BOC
Talent attraction, satisfaction and attrition	ENEC, Nawah and BOC
Workforce and contractor grievances	ENEC, Nawah, BOC, KEPCO and subcontractors
Delivery within budget	ENEC, Nawah, BOC and KEPCO
Engagement with the local community	ENEC, Nawah and BOC

Direct and indirect economic contribution	ENEC, Nawah and BOC
Support for nuclear education	ENEC, Nawah and BOC
Supplier environmental impact	ENEC, Nawah, BOC, KEPCO and subcontractors
Supplier social and human rights impacts	ENEC, Nawah, BOC and suppliers
Female representation and non-discrimination	ENEC, Nawah and BOC
Future financial planning	ENEC, Nawah and BOC
Waste hierarchy	ENEC, Nawah, BOC, KEPCO and subcontractors
Biodiversity impact	ENEC, Nawah, BOC, KEPCO and subcontractors
Energy and water management	ENEC, Nawah, BOC, KEPCO and subcontractors
Air quality and GHG emissions	ENEC, Nawah, BOC, KEPCO and subcontractors
Recyclability of materials used	ENEC, Nawah, BOC, KEPCO and subcontractors
Research and development	ENEC, Nawah and BOC

Report Scope and Boundaries

The scope and boundaries of this report includes operations and activities that fall under ENEC’s management control, including corporate offices and activities at leased buildings in Abu Dhabi, and construction-related activities carried out by KEPCO and its contractors at the Barakah plant and ancillary venues. The performance of ENEC’s two subsidiaries, Nawah and BOC, are also represented in the performance and management information provided.

This report was prepared using data and information collected in cooperation with all ENEC departments. In addition, Health, Safety and Environmental data submitted monthly by KEPCO, ENEC’s Prime Contractor on the Barakah plant project has been used in combination with ENEC headquarters’ data to produce this report.

Section of the report	Boundaries of performance reporting
Safe, clean, efficient and reliable energy	
Safety and security	ENEC, Nawah, BOC, KEPCO and subsidiaries
Environmental management	ENEC, Nawah, BOC, KEPCO and subsidiaries
Health and wellbeing	ENEC, Nawah, BOC, KEPCO and subsidiaries
Quality, efficiency and reliability	ENEC, Nawah and BOC
Industrial and economic development	
Financial responsibility	ENEC, Nawah and BOC
Supply chain management	ENEC, Nawah and BOC
National economic development	ENEC, Nawah and BOC



Knowledge and employment	
Highly skilled employment	ENEC, Nawah and BOC
National talent development	ENEC, Nawah and BOC
Knowledge creation	ENEC, Nawah and BOC

The information discussed in this report is based on performance and company status as of December 31, 2017. The reporting period is January 1, 2017 to December 31, 2017. Compiling this report has helped ENEC to better understand the impact of its operations and highlights data streams that ENEC will continue to monitor for future reporting. No limitations for reporting on scope or boundary were identified during the preparation of this report.

Because the Barakah plant is in the construction phase, this report does not address the impacts of consumer use of products.



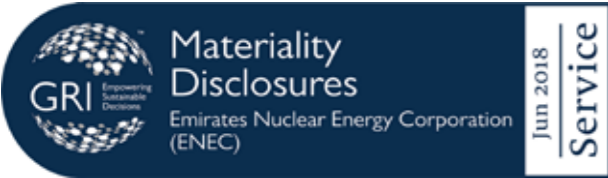
Appendix B – Stakeholder Mapping

ENEC Stakeholder Groups			
Stakeholder	Description	Interest/Role/Expectations	Channels of Engagement
Employees	All persons directly hired and paid a salary by ENEC	A safe, secure and dynamic work environment together with the skills development and support required to deliver effectively	<ul style="list-style-type: none"><li>Internal staff intranet</li><li>All staff and division meetings</li><li>Performance appraisals</li><li>Employee satisfaction surveys</li><li>Grievance system</li><li>Feedback/suggestion systems</li><li>Internal newsletters</li><li>Recognition and awards program</li><li>ENEC Life+</li><li>ENEC Women in Nuclear chapter</li><li>Internal branding and collateral</li></ul>
Potential Suppliers and Contractors	UAE and international companies that seek to supply a range of goods and services for all phases of the program	Regular information about volume and nature of contracts available, QA standards and requirements to tender Transparency in the selection process	<ul style="list-style-type: none"><li>Visits to potential suppliers</li><li>Dedicated industrial development team</li><li>Dedicated procurement portal on ENEC’s corporate website</li><li>Supplier Code of Conduct</li></ul>
Active Suppliers (with current contract with ENEC)	UAE and international companies that supply a range of goods and services, for all phases of the program	Regular information about volume and nature of contracts available, QA standards and requirements to tender Prompt payment and transparency in the selection process	<ul style="list-style-type: none"><li>Meetings with selected suppliers during contract duration</li><li>Bidding and tendering</li><li>Dedicated Industrial Development Team</li><li>Dedicated procurement portal on ENEC’s corporate website</li><li>Supplier Code of Conduct</li></ul>
Government Entities	Federal, regional and local government ministries and authorities	Safety, security, environment, emergency preparedness, adhering to the regulations, circulars, directives, obtaining necessary licenses and agreements, shared infrastructure and other resources Provide the required information on timely manner and provide periodic reports	<ul style="list-style-type: none"><li>Site delegations, facility tours and inspections</li><li>Regular meetings and written correspondence</li><li>Program executive update</li><li>Stakeholder forums</li><li>Participation in governmental initiatives, campaigns and workshops</li><li>Regular reporting of environmental management and timely notification of significant incidents</li></ul>

		<p>Support planning integration for alignment of Barakah Nuclear Energy Plant project and various aspects of the UAE Peaceful Nuclear Energy Program with the Government strategic policies, AD Economic Vision 2030, development plans and master plans</p> <p>Support NOC/NOI workflow management, integrated with eGovernment program</p>	<ul style="list-style-type: none"> <li>Regular reporting of construction progress and operation readiness status and milestones achievement.</li> <li>Formal correspondence</li> <li>Executive Council Affairs System (ECAS)</li> <li>Emails</li> <li>Electronic No Objection Certificate System (eNOC) and Municipal E permitting System (MePS)</li> </ul>
	Local government entities	Communicate with internal RMs and create awareness through site visits, regular meetings with ENEC strategic key stakeholders	<ul style="list-style-type: none"> <li>External Stakeholder Working Group meetings</li> <li>Stakeholder site awareness forums</li> <li>Regular meetings with Strategic stakeholders during National and Eid celebrations</li> <li>Measure satisfaction through external stakeholders' satisfaction surveys</li> </ul>
Communities and Individuals	Residents of the UAE, in particular of Abu Dhabi and the Western Region - the location of the project site.	Potential impacts caused by project conception, construction, operations and decommissioning	<ul style="list-style-type: none"> <li>Joint charitable and research initiatives supporting important local causes, infrastructure and events</li> <li>Regular community forums</li> <li>Public opinion polls</li> <li>Local community events and sponsorships</li> <li>Access to site Communication Officers</li> <li>Engagement in partnership with government, industry bodies, and stakeholder groups (i.e. the Abu Dhabi Sustainability Group)</li> <li>Engagement and collaboration with a variety of NGOs</li> <li>Conducting community engagement meetings as required</li> <li>Our own employees whose families live in the local communities</li> <li>Public reports as required</li> <li>Media relations activities</li> </ul>

Nuclear Industry Organizations	Nuclear-specific industry bodies including multilateral organizations, associations and advisory bodies	Information sharing and knowledge transfer, industry best practices, safety and security, technology, etc.	<ul style="list-style-type: none"> <li>Regular meetings and workshops</li> <li>Regular reports and program updates</li> <li>Delegations to site</li> <li>Shared initiatives</li> <li>Knowledge-sharing forums</li> <li>Interactive dialogue</li> <li>Reporting</li> <li>Media relations activities</li> <li>International Advisory Board</li> <li>Associated events, seminars, conferences and regional events</li> </ul>
Media	Local, regional and international media	On-going access to timely, comprehensive information about the project	<ul style="list-style-type: none"> <li>Regular press releases about the latest project updates and important events</li> <li>In-depth background media briefings</li> <li>Nuclear energy training for journalists</li> <li>Executive interviews and Q&amp;As</li> <li>Project news and updates</li> <li>Media relations activities</li> <li>Public reports</li> <li>Press conferences and events.</li> <li>Social Media.</li> </ul>
International Organizations, Government and Financial Institutions	Multilateral organizations, governments of GCC nations, governments of civilian nuclear energy programs	Ongoing access to timely, comprehensive information about the project	<ul style="list-style-type: none"> <li>Delegations and events</li> <li>Program executive update</li> <li>Responding to ongoing requests for information</li> <li>Public reports</li> <li>Conferences and workshops</li> </ul>
Academic Institutions	Federal, regional and international academic institutions	Involvement in human capacity development, vocational and technical training, bachelors and masters programs	<ul style="list-style-type: none"> <li>Energy Pioneers programs</li> <li>Regular events and career fairs at schools and universities, and dedicated ENEC forums for campuses</li> </ul>
Non-Governmental Organizations	Environmental and social interest groups	Potential environmental and social impacts/ issues during all phases of the project	<ul style="list-style-type: none"> <li>One-to-one meetings with NGOs as appropriate</li> <li>ENEC public forums</li> <li>Reporting</li> <li>Media relations activities</li> </ul>

Appendix C – GRI Content Index



ENEC has developed this report ‘in accordance’ with the GRI Standards core reporting option. As signified by the icon above, the report has successfully completed a Materiality Disclosure Service provided by the GRI. The table below is an index of the GRI disclosures included in this report as per the GRI Standards.

GRI Standard	Disclosure	Page Number	Omissions
GRI 101: Foundation 2016			
GENERAL STANDARD DISCLOSURES			
GRI 102: General Disclosures 2016	ORGANIZATIONAL PROFILE		
	102-1 Name of the organization	5	
	102-2 Activities, brands, products, and services	5, 10, 11	
	102-3 Location of headquarters	Abu Dhabi	
	102-4 Location of operations	10, 11	
	102-5 Ownership and legal form	10, 11	
	102-6 Markets served	5, 10, 11	
	102-7 Scale of the organization	5, 12, 13, 84	
	102-8 Information on employees and other workers	84, 85, 86	
	102-9 Supply chain	73	
	102-10 Significant changes to the organization and its supply chain	5, 10, 11	
	102-11 Precautionary Principle or approach	25	
	102-12 External initiatives	14	
	102-13 Membership of associations	14	



GRI 102: General Disclosures 2016	STRATEGY		
	102-14 Statement from senior decision-maker	6, 7	
	102-15 Key impacts, risks, and opportunities	6, 7, 25	
	ETHICS AND INTEGRITY		
	102-16 Values, principles, standards, and norms of behavior	10, 24, 25	
	102-17 Mechanisms for advice and concerns about ethics	24, 25	
	GOVERNANCE		
	102-18 Governance structure	21, 22, 23	
	102-23 Chair of the highest governance body	21	
	102-27 Collective knowledge of highest governance body	21	
	102-29 Identifying and managing economic, environmental, and social impacts	22	
	STAKEHOLDER ENGAGEMENT		
	102-40 List of stakeholder groups	101, 102, 103	
	102-41 Collective bargaining agreements	The UAE Federal laws does not allow the formation of trade unions.	
	102-42 Identifying and selecting stakeholders	27	
	102-43 Approach to stakeholder engagement	27, 28	
	102-44 Key topics and concerns raised	101, 102, 103	
	REPORTING PRACTICE		
	102-45 Entities included in the consolidated financial statements	ENEC has no public financial statements	
	102-46 Defining report content and topic Boundaries	99	
	102-47 List of material topics	98, 99	
	102-48 Restatements of information	Minor restatement of financial data - 72	
	102-49 Changes in reporting	5	
	102-50 Reporting period	5	
	102-51 Date of most recent report	2017	



GRI 102: General Disclosures 2016	102-52 Reporting cycle	Annual	
	102-53 Contact point for questions regarding the report	5	
	102-54 Claims of reporting in accordance with the GRI Standards	5	
	102-55 GRI content index	104, 105, 106, 107, 108	
	102-56 External assurance	5	

MATERIAL TOPICS			
GRI 200 ECONOMIC STANDARD SERIES			
ECONOMIC PERFORMANCE			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	68, 69, 70, 72	
	103-2 The management approach and its components	68, 69, 70, 72	
	103-3 Evaluation of the management approach	68, 69, 70, 72	
GRI 201: Economic Performance 2016	201-4 Financial assistance received from government	70, 72	
MARKET PRESENCE			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	68, 69, 77, 90	
	103-2 The management approach and its components	68, 69, 77, 90	
	103-3 Evaluation of the management approach	68, 69, 77, 90	
GRI 202: Market Presence 2016	202-2 Proportion of senior management hired from the local community	90	
INDIRECT ECONOMIC IMPACTS			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	68, 69, 77, 78, 79	
	103-2 The management approach and its components	68, 69, 77, 78, 79	
	103-3 Evaluation of the management approach	68, 69, 77, 78, 79	

GRI 203: Indirect Economic Impacts 2016	203-2 Significant indirect economic impacts	77, 78, 79	
PROCUREMENT PRACTICES			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	68, 69, 73	
	103-2 The management approach and its components	68, 69, 73	
	103-3 Evaluation of the management approach	68, 69, 73	
GRI 204: Procurement Practices 2016	204-1 Proportion of spending on local suppliers	73, 74	
ANTI-CORRUPTION			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	68, 69, 77, 78, 79	
	103-2 The management approach and its components	68, 69, 77, 78, 79	
	103-3 Evaluation of the management approach	68, 69, 77, 78, 79	
GRI 205: Anti- corruption 2016	205-1 Operations assessed for risks related to corruption	23, 24, 25	
	205-2 Communication and training about anti-corruption policies and procedures	23, 24, 25	
	205-3 Confirmed incidents of corruption and actions taken	23, 24, 25	

GRI 300 ENVIRONMENTAL STANDARDS SERIES			
MATERIALS			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary		
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 301: Materials 2016	301-1 Materials used by weight or volume	48, 49	



ENERGY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	38, 48, 52	
	103-2 The management approach and its components	38, 48, 52	
	103-3 Evaluation of the management approach	38, 48, 52	
GRI 302: Energy 2016	302-1 Energy consumption within the organization	52, 53	
	302-2 Energy consumption outside of the organization	52, 53	
	302-3 Energy intensity	52, 53	
	302-4 Reduction of energy consumption	52, 53	
WATER			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	38, 48, 52, 53	
	103-2 The management approach and its components	38, 48, 52, 53	
	103-3 Evaluation of the management approach	38, 48, 52, 53	
GRI 303: Water 2016	303-1 Water withdrawal by source	53	
	303-3 Water recycled and reused	52 ,51	
BIODIVERSITY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	38, 48, 55	
	103-2 The management approach and its components	38, 48, 55	
	103-3 Evaluation of the management approach	38, 48, 55	
GRI 304: Biodiversity 2016	304-2 Significant impacts of activities, products, and services on biodiversity	55, 56	
	304-3 Habitats protected or restored	57	



EMISSIONS			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	38, 48, 54	
	103-2 The management approach and its components	38, 48, 54	
	103-3 Evaluation of the management approach	38, 48, 54	
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	54, 55	
	305-2 Energy indirect (Scope 2) GHG emissions	55 ,54	
	3-305 Other indirect (Scope 3) GHG emissions	55 ,54	
	4-305 GHG emissions intensity	55 ,54	
	5-305 Reduction of GHG emissions	55 ,54	
EFFLUENTS AND WASTE			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	38, 48, 49	
	103-2 The management approach and its components	38, 48, 49	
	103-3 Evaluation of the management approach	38, 48, 49	
GRI 304: Biodiversity 2016	306-1 Water discharge by quality and destination	51, 52	
	306-2 Waste by type and disposal method	50, 51	
	306-3 Significant spills	55	
SUPPLIER ENVIRONMENTAL ASSESSMENT			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	75, 76	
	103-2 The management approach and its components	75, 76	
	103-3 Evaluation of the management approach	75, 76	
GRI 308: Supplier Environmental Assessment 2016	308-2 Negative environmental impacts in the supply chain and actions taken	75, 76	



GRI 400 SOCIAL STANDARDS SERIES			
EMPLOYMENT			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	82, 83, 84	
	103-2 The management approach and its components	82, 83, 84	
	103-3 Evaluation of the management approach	82, 83, 84	
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	85, 86, 87	
OCCUPATIONAL HEALTH AND SAFETY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	36, 37, 38, 39, 40, 58	
	103-2 The management approach and its components	36, 37, 38, 39, 40, 58	
	103-3 Evaluation of the management approach	36, 37, 38, 39, 40, 58	
GRI 403: Occupational Health and Safety 2016	403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	40, 41, 42	
	403-3 Workers with high incidence or high risk of diseases related to their occupation	60,61	
TRAINING AND EDUCATION			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	82,83,91,92	
	103-2 The management approach and its components	82,83,91,92	
	103-3 Evaluation of the management approach	82,83,91,92	
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	93	
	404-2 Programs for upgrading employee skills and transition assistance programs	91, 92	

DIVERSITY AND EQUAL OPPORTUNITY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	82, 83, 88, 89	
	103-2 The management approach and its components	82, 83, 88, 89	
	103-3 Evaluation of the management approach	82, 83, 88, 89	
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	21, 84, 85, 89	
NON-DISCRIMINATION			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	82, 83, 88	
	103-2 The management approach and its components	82, 83, 88	
	103-3 Evaluation of the management approach	82, 83, 88	
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	88	
CHILD LABOR			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	75, 76	
	103-2 The management approach and its components	75, 76	
	103-3 Evaluation of the management approach	75, 76	
GRI 408: Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	76	
FORCED OR COMPULSORY LABOR			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	75, 76	
	103-2 The management approach and its components	75, 76	
	103-3 Evaluation of the management approach	75, 76	
GRI 409: Forced or Compulsory Labor 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	76	



SECURITY PRACTICES			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	38, 42	
	103-2 The management approach and its components	38, 42	
	103-3 Evaluation of the management approach	38, 42	
GRI 410: Security Practices 2016	410-1 Security personnel trained in human rights policies or procedures	42	
SUPPLIER SOCIAL ASSESSMENT			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	75, 76	
	103-2 The management approach and its components	75, 76	
	103-3 Evaluation of the management approach	75, 76	
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	76	

## Appendix D – Acronyms and Synonyms

Acronyms			
ADAA	Abu Dhabi Accountability Authority	IAT	Institute of Applied Technology
ADAEP	Abu Dhabi Award for Excellence in Government Performance	IMS	Integrated Management System
ADSG	Abu Dhabi Sustainability Group	INPO	Institute of Nuclear Power Operations
ADWEC	Abu Dhabi Water and Electricity Company	ISO	International Organization for Standardization
AED	United Arab Emirates dirham	KEPCO	Korea Electric Power Corporation
APR	Advanced Power Reactor	KFED	Khalifa Fund for Enterprise Development
ARCC	Audit, Risk and Compliance Committee	KUSTAR	Khalifa University of Science, Technology, and Research
BCM	Business Continuity Management	kWh	Kilowatt hour
BOC	Barakah One Company	m <sup>3</sup>	Cubic Meter
CAPEX	Capital Expenditure	MENA	Middle East and North Africa
CEMP	Construction Environmental Management Plan	MTCO <sub>2</sub> Eq	Metric tons of carbon dioxide equivalent
CEO	Chief Executive Officer	MW	Megawatt
CICPA	Critical Infrastructure and Coastal Protection Authority	Nawah	Nawah Energy Company
CNME	Computer News Middle East's	NERC	Nuclear Emergency Response Center
CR	Condition Report	NGO	Non-governmental organization
CSR	Corporate Social Responsibility	NOx	Nitrogen oxides
DDRC	Dubai Digital Devices Refurbishment Centre	NPP	Nuclear power plant
DOA	Delegation of Authority	O3	Ozone
EAD	Environment Agency - Abu Dhabi	OEMP	Operational Environmental Management Plan
EC	Executive Committee	OEP	On-site emergency plan
EFQM	European Foundation for Quality Management	OHSAS	Occupational Health and Safety Assessment Series
ENEC	Emirates Nuclear Energy Corporation	OLA	Operating License Application
EPRI	Electric Power Research Institute	PSC	Procurement and Supply Chain



ERM	Enterprise Risk (Threat and Opportunity) Management	PPP	Physical Protection Plan
ERMC	Executive Risk Management Committee	QA	Quality Assurance
ERO	Emergency Response Organization	RSB	Regulation and Supervision Bureau
ERT	Emergency Response Team	SDGs	Sustainable Development Goals
FANR	Federal Authority for Nuclear Regulation	SMAT	Sustainability Maturity Assessment Tool
GCC	Gulf Cooperation Council	STEM	science, technology, engineering and math
GDP	Gross Domestic Product	SOx	Sulfur oxides
GHG	Greenhouse Gas	SCSR-WG	Sustainability and Corporate Social Responsibility Working Group
GJ	Gigajoules	Tadweer	Abu Dhabi Centre for Waste Management
GPP	Grand Program Plan	TRCFR	Total Recordable Case Frequency Rate
GRI	Global Reporting Initiative	UAE	United Arab Emirates
GSEC	General Secretariat of the Executive Council	U.K.	United Kingdom
HCC	Human Capital Committee	USD	United States Dollar
HDNT	Higher Diploma in Nuclear Technology	UNGC	United Nations Global Compact
HSE	Health, Safety and Environment	WANO	World Association of Nuclear Operators
HSEMS	Health, Safety and Environment Management System	WBCSD	World Business Council for Sustainable Development
HQ	Headquarters	WiN	Women in Nuclear
IAEA	International Atomic Energy Agency	WRI	World Resources Institute

Glossary	
Climate Change	Describes changes in the variability or average stage of the atmosphere over time scales ranging from decades to millions of years.
Emiratization	A national program initiated by the government of the United Arab Emirates to proactively increase the number of UAE nationals in the public and private sectors, so as to empower nationals and reduce dependency on foreign workers.
Environmental Management System	The management of environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure and planning and resources for developing, implementing and maintaining policy for environmental protection.

G4 Reporting Guidelines	A fourth-generation framework for reporting on an organization's economic, environmental and social performance, managed by the GRI.
Global Reporting Initiative (GRI)	A long-term multi-stakeholder international process whose mission is to develop and disseminate globally applicable sustainability reporting guidelines.
Greenhouse Gas Emissions	Gas emissions which contribute to the trapping of heat inside the atmosphere (resulting in the Global Warming phenomenon). These gases include carbon dioxide, methane or hydrofluorocarbon emissions.
Gulf Cooperation Council	A political and economic union involving the six Arab states of the Arabian Gulf with many economic and social objectives.
Nuclear Energy	The energy released during nuclear fission or fusion, especially when used to generate electricity.
Nuclear Fission	When the nucleus of an atom splits and releases energy, primarily in the form of heat. Nuclear energy plants use steam, turbines and generators to turn the heat released by fission into electricity.
Nuclear Fuel Cycle	The series of industrial processes which involve the production of electricity from uranium in nuclear energy reactors. This can include uranium discovery, conversion, enrichment, deconversion, fuel fabrication, use of fuel in reactors, storage, reprocessing and disposal.
Occupational Health and Safety	A cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment.
Radioactive	Emitting or relating to the emission of ionizing radiation or particles.
Renewable Energy	Energy from a source that is not depleted when used.
Stakeholder Engagement	The process by which a firm's stakeholders engage in dialogue to improve a firm's decision-making and accountability toward sustainable development.
Stakeholders	A party that affects or can be affected by the actions of a business.
Sustainability	Sustainable development has been commonly defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Bruntland Report for the World Commission on Environment and Development (1992)
Sustainability Reporting	The voluntary public presentation of information about an organization's environmental, social and economic performance over a time frame, usually released annually. International standards around reporting, such as GRI, make sustainability reporting a platform for sharing and benchmarking individual company as well as sector-wide performance. Sustainability reporting may be published as a stand-alone document, on a company website or incorporated into an annual report.