

ISO 50001 Energy Management System Case Study

2020

United Arab Emirates

ENOC RETAIL LLC.

ENOC Retail has introduced in 2017 the first Smart Petrol Station in Middle East, with "Smart Design and Energy Efficient Technologies" with plans to ensure that all new sites being "Smart Stations" in the coming years and meeting the ISO 50001 standard.



ENOC Smart Station

Organization Profile & Business Case

ENOC Retail is major player in fuel retailing and currently operates petrol stations in Dubai and Northern of which 22 sites are certified to ISO 50001. The station facilities include forecourt for vehicle fueling, convenient store, automotive services consist of oil change, maintenance and car wash facility. Building smart station is one of the strategic initiatives of ENOC Retail and implementation of Energy Management System plays a vital pillar to achieve the ENOC Group Vision and Mission.

Vision: To be an innovative energy partner, delivery sustainable value and industry-leading performance.

Mission: Deliver world class sustainable and integrated energy solutions, striving for excellence in operations, innovation and happiness of employees, customers and partners.

ENOC Retail started the implementation of ISO 50001 in 2015 for 6 sites and later after realizing the improvements and advantages, certification to EnMS becomes a standard for newly opened Smart Station starting from 2017.

“ISO 50001 is a system that helps ENOC better manage energy use, thus improving productivity by implementing energy policies, setting energy savings target, and designing action plans to monitor and measure progress.”

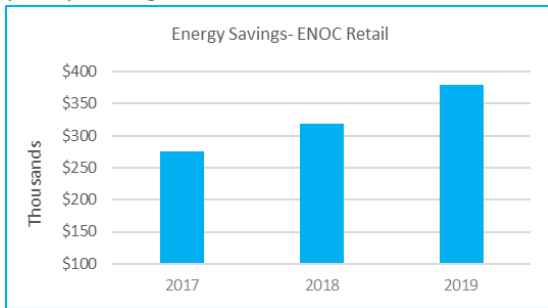
— H.E .Saif Humaid Al Falasi, Group Chief Executive Officer ENOC

Case Study Snapshot	
Industry	Oil & Gas
Product/Service	Fuel Station
Location	Dubai, UAE
Energy management system	ISO 50001
Energy performance improvement period, in years	03 Years
Energy Performance Improvement (%) over improvement period	30%
Total energy cost savings over improvement period	522,055 USD
Cost to implement EnMS	243,104 USD
Total Energy Savings over improvement period	15,340 (GJ)
Total CO ₂ -e emission reduction over improvement period	2,216 (Metric tons)

Business Benefits

With the implementation of ISO 50001, energy efficiency becomes one of the business scored card objectives which requires the business to achieve a minimum of 3% energy savings against the baseline consumption. This objective is being realized through the annual Energy & Resource Business Plan where energy savings initiatives are planned for ISO 50001 certified sites and even with non-certified stations. Below are the business benefit highlights:

- ENOC Retail 22 EnMS sites which is the scope of this case study has achieved 30% energy performance improvement over 3 years improvement period. And resulted to energy cost savings of USD 522,055
- Including both certified and non-certified sites, energy & resource monetary savings in 2017-19 resulted to USD 973,417 from electricity, water and fuel reduction initiatives. Below graph details the yearly savings.



- ENOC Retail achieved 100% energy efficiency target yearly and reduced energy intensity in 2019 by 4.2%
- Other business intangible benefits are:
 - Reduce and optimize growing energy demand
 - Refined energy objectives and targets
 - Improve overall energy performance
 - Set energy baseline and benchmarking data
 - Addition of smart metering and sub- metering
 - Improve understanding of significant energy users
 - Green procurement policy
 - Increase employee’s awareness in energy and resource management



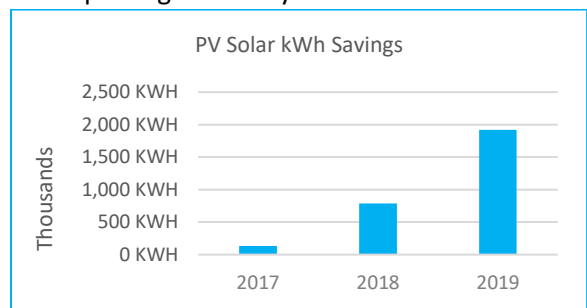
ENOC Retail station standard design includes LED lightings, signages and digital displays with below smart features to optimize energy reduction.

- Vehicle fueling area LED lights equipped with smart dimming system as per occupancy
- Using LED in digital displays and communication screens



PV Solar feature and benefits in ENOC petrol station:

- Utilize solar renewable energy to reduce electricity cost and annual reduction of carbon emission
- Effective use of non-utilized petrol station roof top and canopy
- Supported with smart technology of customized solar data acquisition system for monitoring, reporting and analysis





Vapor Recovery System is a system that captures displaced petrol vapor during product transfer and vehicle fueling converted to re-saleable fuel. VRS feature and benefits in ENOC Petrol station includes:

- Improves environment by controlling VOC emission that are harmful to human health, carcinogenic and contribute to depletion if the ozone.
- Increases fuel margin by recovering lost vapor to maximize profit
- Supported with smart system of accounting of recovered fuel for sales and volume reconciliation

“One of our key success factors in Energy Management implementations and achievements is the committed and dedicated cross-functional team from design, maintenance, operations & other support team. - Zaid Alqufaidi, Managing Director – ENOC Retail



ENOC Retail Energy Management Committee headed by Managing Director and members from cross-functional teams.

Plan

At ENOC, management commitment and support in energy management implementation is secured through ENOC Energy & Resource Steering Committee where all Directors from different Business Units are members and periodic meetings are conducted.

The Energy Management objectives specifically the energy efficiency target is part of Business Scorecard where the annual targets are agreed and set at Q4 in preparation for the succeeding year implementation.

Implementing EnMS at multiple sites is challenging at initial stage and later with support of energy sub-metering to establish an effective energy aspect register realized lots of saving opportunities.

To ensure saving opportunities are materialized, securing of resources to put the energy initiatives into action plan is part of annual budget planning for the investment required for energy efficient technologies.

During the ISO 50001 recertification in 2017, the focus was to improve the effectiveness of the EnMS approaches and improving energy saving targets compare to initial certification where meeting efforts were on meeting the minimum requirements.

Do, Check, Act

ENOC Retail Energy Management Committee under the sponsorship of the Managing Director has been instituted to establish and champion the implementation of Energy Management System requirements. The team comprises of personnel from different support business departments who will have an impact on energy use, consumption, initiation and monitoring of energy projects and implementation of energy operational controls.

Top management provides continuous motivation and support to the business units and its EnMS team through ENOC Annual Energy Award which covers both business unit and individual employee award category. Continuous EnMS-related training are both provided for

management awareness and technical competency development.

The energy review process compels substantial planning inputs which will be detailed in the following sections which are critical requirements to carry out an effective and valuable energy review and expected to produce energy planning outputs that are practicable and reasonable measures to the organization activities leading to continual improvement to energy performance

The energy savings reflected in the case study is as per the baseline period of one year (2016) and reporting period is the following three succeeding years (2017-2019). The reporting period selected to start in 2017 since this the year where the newly built petrol station standard design was changed from conventional to smart station.

In monitoring and analyzing the energy performance of SEU's, factors are used to normalize the data like weather, cooling degree days and occupancy in square meters for SEU Air Conditioning, fuel in tones for overall site energy consumption and vapor recovery system.

With the EnMS implementation it pushed the organization to set its green procurement objectives and this is supported with Green Procurement Procedure and assigned a dedicated Green Procurement Analyst. The green procurement target is set as 30% in 2017, 2018 and revised to 70% in 2019.

Transparency

In ENOC, achievements and accomplishments in Energy Management System including ISO 50001 certification is communicated to employees and society in different venues and communication platforms. ENOC issue Energy Efficiency Annual Report and Sustainability Report where collective efforts across the group and respective business unit energy initiatives are showcase. This report is published in ENOC company website which is open to public and this book is also distributed in

Energy-related conferences sponsored and participated by ENOC.



ENOC Retail ISO 50001 certification announcement also by posting certificate at each retail site. And another public awareness is through application to EnMS related award similar to CEM like UAE Energy Management Insight Award where ENOC Retail received an award in 2017 from Ministry of Energy.

ENOC is member of several external committees where ISO 50001 certification achievement is also highlighted. Some of the key groups include Dubai Supreme council of Energy, Green procurement Committee and Dubai Carbon Abatement Strategy.

Lessons Learned

During the EnMS implementation period, there are lots of lessons learned in different aspects of energy management and below are some key areas.

- Have a good online data management system is key for timely monitoring and effective data analysis of significant energy users (SEU)
- Improve verification methodology of SEU performance results
- Convert manual sheet of energy aspect register to software or online register
- Improve internal benchmarking approach and select appropriate external benchmarking
- To consider renewable projects implemented in new built smart site for refurbishing old sites