SUSTAINABILITY REPORT
Royal Commission Yanbu
MASTERPLANNING + ENVIRONMENTAL PROTECTION + RESPONSIBLE INDUSTRY = SUSTAINABILITY
Sustainable city
2 TABLE OF CONTENTS
3 About this report
4 Chairman’s foreword
5 Green City
6 About Yanbu industrial city
7 City of Sustainability
8 The National Commission and Sustainability
9 1975 MARKS THE RISE OF 2 NEW GRAVES
9 1975 NEW ENTRY
9 A formula

Sustainability in our development
10 INTRODUCTION
11 A MODEL OF MASTERSMANNING
12 1987 THE YEAR OF SUSTAINABILITY
12 1988 ANOTHER LANDMARK FOR THE ROYAL COMMISSION
13 THE DREAM OF A NATION
14 INTRO – A SIMPLE IDEA – A COMPLEX DESIGN
15 INDUSTRY AND COMMUNITY IN HARMONY

Sustainability in our operations
16 ENVIRONMENTAL PROTECTION
17 RESPONSIBLE INDUSTRIES
17 THE ROYAL COMMISSION STANDARDS AND REGULATIONS
17 ENVIRONMENTAL PERMITS FOR CONSTRUCTION & OPERATION
18 MONITORING & COMPLIANCE PROGRAM
18 AIR QUALITY
19 METROLOGICAL PARAMETERS
19 WATER QUALITY
20 Marine Environment
21 HAZARDOUS WASTE MANAGEMENT

Role of sustainability in project
22 PENALTY SYSTEM
22 PROTECTING MANGROVE BEDS
23 ENVIRONMENTAL AWARENESS PROGRAM
24 ENVIRONMENTAL AWARDS

Sustainable growth in Royal Commission
Report summary
25 STATE OF THE ART SYSTEMS IN DEVELOPMENT
FUTURE GROWTH PLANS NUMBER INDUSTRIES UNDER CONSTRUCTION
FUTURE GROWTH PLANS INVESTMENT (SR BILLIONS)
NUMBER INDUSTRIES UNDER CONSTRUCTION SOLAR WATER HEATING
ENVIRONMENTAL AWARENESS PROGRAM
SUSTAINABLE TOURISM AT IT BEST
THE NEW YANBU WATERFRONT
ENERGY EFFICIENCY TASK FORCE
2013

TABLE OF CONTENTS
This report gives an overview of the Royal Commission’s environmental performance in line with the pillars of sustainability: social, environmental, and economics of our city of the future. The sustainability report published in 2013 covers the long journey of the Royal Commission toward the concept of sustainability since its establishment in 1974. Data collection and management systems developed for this report will serve as the foundation for an increasingly robust reporting framework in the years to come. Sustainability report covers our sustainability performance since start-up of the RC. Protection of the Environment is a priority in the Royal Commission master planning. The report presents real cases of sustainability and environmental protection, i.e., air quality, water conservation and reclamation, alternative energy, protection of natural resources, combating global warming, etc.

Social responsibility aspects presented in the report shows RC role to continue its long time endeavour of maintaining a high quality of life in Yanbu in the areas of housing, recreation and medical services and other social principles. Economic development achievements indicate that Yanbu (RCY) is the petrochemical and industrial city of choice.

This report translates the efforts made by the Royal Commission toward the concept of sustainability since its establishment in 1974. Data collection and management systems developed for this report will serve as the foundation for an increasingly robust reporting framework in the years to come. Sustainability report covers our sustainability performance since start-up of the RC. Protection of the Environment is a priority in the Royal Commission master planning. The report presents real cases of sustainability and environmental protection, i.e., air quality, water conservation and reclamation, alternative energy, protection of natural resources, combating global warming, etc.

Social responsibility aspects presented in the report shows RC role to continue its long time endeavour of maintaining a high quality of life in Yanbu in the areas of housing, recreation and medical services and other social principles. Economic development achievements indicate that Yanbu (RCY) is the petrochemical and industrial city of choice.

This report gives an overview of the Royal Commission’s environmental performance in line with the pillars of sustainability: social, environmental, and economics of our city of the future. The sustainability report published in 2013 covers the long journey of the Royal Commission toward the concept of sustainability since its establishment in 1974. Data collection and management systems developed for this report will serve as the foundation for an increasingly robust reporting framework in the years to come. Sustainability report covers our sustainability performance since start-up of the RC. Protection of the Environment is a priority in the Royal Commission master planning. The report presents real cases of sustainability and environmental protection, i.e., air quality, water conservation and reclamation, alternative energy, protection of natural resources, combating global warming, etc.

Social responsibility aspects presented in the report shows RC role to continue its long time endeavour of maintaining a high quality of life in Yanbu in the areas of housing, recreation and medical services and other social principles. Economic development achievements indicate that Yanbu (RCY) is the petrochemical and industrial city of choice.

This report gives an overview of the Royal Commission’s environmental performance in line with the pillars of sustainability: social, environmental, and economics of our city of the future. The sustainability report published in 2013 covers the long journey of the Royal Commission toward the concept of sustainability since its establishment in 1974. Data collection and management systems developed for this report will serve as the foundation for an increasingly robust reporting framework in the years to come. Sustainability report covers our sustainability performance since start-up of the RC. Protection of the Environment is a priority in the Royal Commission master planning. The report presents real cases of sustainability and environmental protection, i.e., air quality, water conservation and reclamation, alternative energy, protection of natural resources, combating global warming, etc.

Social responsibility aspects presented in the report shows RC role to continue its long time endeavour of maintaining a high quality of life in Yanbu in the areas of housing, recreation and medical services and other social principles. Economic development achievements indicate that Yanbu (RCY) is the petrochemical and industrial city of choice.
CHAIRMAN’S MESSAGE

Prince Saud bin Abdullah bin Thenayan Al-Saud

Now as the Royal Commission of Jubail and Yanbu enters its 4th decade, with outstanding achievements in sustainability under the government of the Custodian of the Two Holy Mosques, gaining local, regional and international recognition as it was ahead of its time by applying the principles of sustainability even before issuance by the UN as the Royal Commission’s solid infrastructure and strategic planning have resulted in industrial and commercial development, social well-being, and a safe environment. The Royal Commission for Yanbu has always been recognized as a trend setter in environmental management and has maintained a fine-tuned balance between environmental protection and heavy industrialization. We are committed to environmental excellence by adapting GREEN TECHNOLOGIES as we strive to continually improve and increase our capacity to perform by achieving superior results to reach our objectives.

EXECUTIVE PRESIDENT’S MESSAGE

Dr. Alaa Naseiff

We at the Royal Commission Yanbu share a realistic vision and direction that consists of integrating regulation enforcement with other factors such as investment, treatment technologies, recycling techniques, minimization at sources in order to reach our ultimate aim at applying Best Environmental Waste Management Practices that are in line with the pillars of sustainability. We believe that regulators and industries should join hands in a long path toward a sustainable future by adapting state of the art environmental control technologies right from the early engineering design phase, in addition to safe operations, zero discharge policies, in-house treatment, waste recycling/minimization/elimination at source and adapting energy efficient green technologies. Industries and the environment in Yanbu have always coexisted in a harmony through accountability, transparency, use of environmentally friendly technologies, influence positively on local communities, reduction of environmental impacts, constant improvement of energy and material efficiency, and finally uphold the highest ethical standards. We are continuing our transition toward “Greener Economic Development” which will maximize resource productivity with respect to our sustainable development objectives for future generations.
ABOUT THE ROYAL COMMISION OF YANBU

Yanbu Industrial City is a modern manufacturing and residential community located on Saudi Arabia’s Red Sea coast, 335 kilometres northwest of Jeddah.

Yanbu is blessed with a choice natural setting facing the Red Sea with its world famous coral reefs and backed up by the rugged Hejaz Mountains.

The industrial city enjoys a 25 kilometer long shoreline that includes stretches of beach interspersed with inlets and mangrove colonies.

Because of these natural advantages, Yanbu is bidding to become a major seaside resort.
A TREND SETTER FOR SUSTAINABILITY

This report describes the planning, programs, and resources that have made Yanbu into what it is today: a model of sustainability.

RC has established its own dedicated energy efficiency task force (EETF) for developing energy efficiency applications at all levels: transport, production, source reduction, education, and use of Best Available Technologies.

For the first time, the RC has launched its Energy Efficiency Policy.

Royal commission of Yanbu has invested in environmental projects for 2012-2013.
THE ROYAL COMMISSION AND SUSTAINABILITY

From day one, The Royal Commission has determined that Yanbu would be a model of environmental planning, as well as a productive manufacturing centre in a modern sustainable fashion.

From a simple idea, to a complex design. Transferring crude and gas from east coast to west coast of the Arabian Peninsula crossing 1400 km of hard terrain. Converting oil by products into useful chemicals, polymers and fertilizers plus refining of crude into oil derivatives of various grades.

Transforming the small fishing village of Yanbu on the Red Sea into a modern industrial and sustainable city.
1975 MARKS THE RISE OF 2 NEW GIANTS

This year was an important year for the Kingdom of Saudi Arabia.

The Royal Commission was established as a fully independent government entity with unlimited powers and funding and reporting to the Custodian of the two holy mosques.

SABIC, Saudi Arabian Basic Industries Company, was formed to produce viable petrochemical products using unutilized before gas feeds supplied by SAUDI ARAMCO.
A FORMULA OF SUCCESS

Saudi Aramco

Was a main pillar in the establishment of the royal commission constructing its mega pipelines from its facilities in the eastern province and transporting crude oil and natural gas was an essential success ingredient in the creation of both the RC and Sabic.

The Kingdom enters for the first time the petrochemical industry by producing a wide array of petrochemical products that contribute high to world market needs by its new company, Sabic.
INTRODUCTION AND REGULATIONS

Built to last sustainable infrastructure

Yanbu is located on the west coast of Saudi Arabia. Now a model and trend setter for other cities. Sustainability applications have been introduced long before the introduction of the Concept of Sustainability in the late 80s. Sustainability is one of the important factors in environmental footprint evaluation.

Royal Commission was ahead of its time when it started in 1975 with the formation of 2 new cities. Wide range of attractive sustainable features. Passes any environmental impact assessment by today’s standards. Endless positive outputs on socio-economic ecological and environmental aspects. Solid infrastructure settings.

Sustainability at its best is seen almost everywhere in Yanbu; streets, public and private buildings, homes, landscape, recreation, beaches education, training and developing highly skilled Saudi workforces.
Building a new city from scratch is not an easy task. Sustainable development is one of the main outcomes of the RC project. At the Royal Commission, we go one step further beyond the term “Sustainable Development” and we define it as: “development that provides a high quality of life for the present communities and a better future for generations to come.”

1987
THE YEAR OF SUSTAINABILITY
In 1987 the UN issued the Bruntland report on sustainability describing it as
Sustainable development, as defined by the Brundtland commission in 1987, is development that “meets the needs of the present without compromising the ability of future generations to meet their own needs (UNECE, 2005).”
INTRO - THE DREAM OF A NATION

Early planning started in early 70s by King Faisal

King Khalid signed Royal Decree for establishing Royal Commission for Jubail and Yanbu on 21 September 1975

Custodian of the two holy mosques King Fahd was head of the board of the Royal Commission

Custodian of the two holy mosques King Abdullah launched YANBU 2
1988 ANOTHER LANDMARK FOR THE ROYAL COMMISSION

RC Was Awarded the Prestigious Sasakawa Prize From the UN For its Significant achievements in environmental planning and sustainable development.

CITY IDENTITY

From day one, RC had its own un-mistaken identity. From its simple yet colorful logo that instantly sends a message of industrial development. To its buildings, houses and mosques that clearly translate a new concept by merging of modern contemporary art forms and traditional heritage themed design cues from days past.
INTRO - A SIMPLE IDEA – A COMPLEX DESIGN

ARAMCO

NATURAL GAS GOING TO WASTE

NEW ENTRY IN PETROCHEMICAL INDUSTRY

PLASTICS

METALS

ENERGY

REFINED OIL DERIVATIVES FOR LOCAL/INTL MARKETS

PLANNING

EST. OF RC AS NEW INDEPENDENT CITY MANAGER AND PROVIDER FOR POWER, WATER AND INFRASTRUCTURE

ROYAL COMMISSION OF YANBU

CRUDE OIL

FERTILIZERS

CHEMICALS

POLYMERS

METALS

PLASTICS
INDUSTRY AND COMMUNITY IN HARMONY

Fine tuned balance between industrial development and environmental stewardship of natural resources
ENVIRONMENTAL PROTECTION PROGRAM

This program was developed in late 70s and early 80s for sustainable growth and industrial development by ensuring that exploiting hydrocarbon and natural resources of the Kingdom does not adversely impact the environment.

RC applies several measures and policies right from the planning stage. It consists of the following:

1. Environmental Permits for Construction & Operation
2. Monitoring & Compliance Program covering:
   - Air Environment.
   - Water Environment.
   - Marine Environment.
   - Penalty System.
3. Comprehensive Environmental Awareness Programs for Community.

RESPONSIBLE INDUSTRIES


INDUSTRIAL INFRASTRUCTURE BUILT TO LAST

This program was developed in late 70s and early 80s for sustainable growth and industrial development by ensuring that exploiting hydrocarbon and natural resources of the Kingdom does not adversely impact the environment.

RC applies several measures and policies right from the planning stage. It consists of the following:

1. Environmental Permits for Construction & Operation
2. Monitoring & Compliance Program covering:
   - Air Environment.
   - Water Environment.
   - Marine Environment.
   - Penalty System.
3. Comprehensive Environmental Awareness Programs for Community.

RESPONSIBLE INDUSTRIES


INDUSTRIAL INFRASTRUCTURE BUILT TO LAST

This program was developed in late 70s and early 80s for sustainable growth and industrial development by ensuring that exploiting hydrocarbon and natural resources of the Kingdom does not adversely impact the environment.

RC applies several measures and policies right from the planning stage. It consists of the following:

1. Environmental Permits for Construction & Operation
2. Monitoring & Compliance Program covering:
   - Air Environment.
   - Water Environment.
   - Marine Environment.
   - Penalty System.
3. Comprehensive Environmental Awareness Programs for Community.
The standards and regulations in effect at Yanbu were adapted from national standards and those in use in other countries with pioneering environmental programs, particularly the United States and EU. In many cases, the Royal Commission’s criteria and guidelines are more stringent than the national standards due to its heavy industrialized nature.

The foundation for this environmental program is a set of strict standards, regulations, and design review criteria. These aim at restricting industrial air emissions and effluent discharges to levels consistent with the best-available or maximum-achievable control technology.

Over the years, the Royal Commission has adopted standards and regulations, implemented policies and programs, and acquired resources that make its environmental control program at Yanbu one of the most comprehensive and effective of its kind.
PENALTY SYSTEM

Industrialization with environmental protection is a major objective of the Royal Commission.

All citizens, public bodies and private sector organizations in Yanbu Industrial City, join in a common effort to maintain the quality of the environment.

The Royal Commission Environmental Regulations provide a framework to ensure that this objective is achieved.

Though voluntary compliance is desirable, the Environmental Penalty Scheme has been designed to supplement such compliance and ensure adherence with regulations.

Accomplishing the goals of the Royal Commission by deterring violations and encouraging voluntary compliance with RC Environmental Regulations.

MONITORING & COMPLIANCE PROGRAM COVER

Air Environment.
Water Environment.
Marine Environment.
Penalty System.
To better understand the local dispersion of pollutants, the following meteorological parameters are monitored at Yanbu:

1. Wind Speed and Direction
2. Ambient Temperature
3. Humidity
4. Solar Radiation
5. Rainfall
6. Evaporation Rate
7. Atmospheric Pressure

AIR QUALITY

4 Met Stations

6 Air Quality Stations

48 Analyzers (SO2, NOx, Etc.)
Source monitoring is conducted at individual industrial sites wherever air emissions and wastewater discharges occur. Industrial waste disposal practices are also closely monitored, especially when they concern hazardous wastes from major waste generating industries.

While Yanbu’s industries are enjoined to monitor their own air and water quality, the Royal Commission’s Environmental Control Department also routinely checks industrial air emissions and wastewater discharges. To facilitate monitoring, the department runs a modern environmental testing laboratory, which is fully equipped for rapid and accurate analyses of air, water, soil, and hazardous wastes.

Source monitoring is conducted at individual industrial sites wherever air emissions and wastewater discharges occur. Industrial waste disposal practices are also closely monitored, especially when they concern hazardous wastes from major waste generating industries.

While Yanbu’s industries are enjoined to monitor their own air and water quality, the Royal Commission’s Environmental Control Department also routinely checks industrial air emissions and wastewater discharges. To facilitate monitoring, the department runs a modern environmental testing laboratory, which is fully equipped for rapid and accurate analyses of air, water, soil, and hazardous wastes.

Source monitoring is conducted at individual industrial sites wherever air emissions and wastewater discharges occur. Industrial waste disposal practices are also closely monitored, especially when they concern hazardous wastes from major waste generating industries.

While Yanbu’s industries are enjoined to monitor their own air and water quality, the Royal Commission’s Environmental Control Department also routinely checks industrial air emissions and wastewater discharges. To facilitate monitoring, the department runs a modern environmental testing laboratory, which is fully equipped for rapid and accurate analyses of air, water, soil, and hazardous wastes.

Source monitoring is conducted at individual industrial sites wherever air emissions and wastewater discharges occur. Industrial waste disposal practices are also closely monitored, especially when they concern hazardous wastes from major waste generating industries.

While Yanbu’s industries are enjoined to monitor their own air and water quality, the Royal Commission’s Environmental Control Department also routinely checks industrial air emissions and wastewater discharges. To facilitate monitoring, the department runs a modern environmental testing laboratory, which is fully equipped for rapid and accurate analyses of air, water, soil, and hazardous wastes.
HAZARDOUS WASTE MANAGEMENT

RC has a strict waste management program regulated under RCER 2010. The system is effective for tracking and documenting all waste types and quantities. Regulations are updated every 5 years and in line with sustainability concepts.

RC environmental regulation requires treatment and disposal of all industrial and hazardous wastes at specialized licensed facilities.

Royal Commission waste management system covers collection, transport, treatment and final disposal of industrial wastes.

The aim of this system is to prevent or control any potential damage that may arise to human health and the environment due to waste generation and disposal.

At the Royal Commission, recycling of waste and waste minimization should be the main objective of our industries.

We target Green Technologies and BEST waste management practices that save energy and preserve natural resources.

WATER QUALITY

Yanbu’s essential water needs are met by the Red Sea. Local desalination plants produce freshwater for drinking, industrial processes, and firefighting, while the city’s major industries use raw seawater to cool their process operations. Because the Red Sea is paramount to Yanbu’s physical and economic well-being, discharge of pollutants is prohibited, either directly or through contamination of seawater used for industrial cooling. This ban extends to both chemical and thermal pollution.

The only type of discharge allowed to the Red Sea is through the central wastewater treatment facility receiving both sanitary and industrial waste water streams from industries and the community. Freshwater is precious in a desert environment and expensive to produce by desalination. Thus, all sanitary wastewaters generated at Yanbu are reclaimed, treated, and subsequently reused in landscape irrigation. Following similar treatment, some industrial wastewater is being reused for process water and other purposes, and plans exist to reuse it all in future.

These two water management principles – safeguarding the integrity of the Red Sea and maximizing the use of desalinated water – are the focus of Royal Commission water quality monitoring programs at Yanbu.

Yanbu’s essential water needs are met by the Red Sea. Local desalination plants produce freshwater for drinking, industrial processes, and firefighting, while the city’s major industries use raw seawater to cool their process operations. Because the Red Sea is paramount to Yanbu’s physical and economic well-being, discharge of pollutants is prohibited, either directly or through contamination of seawater used for industrial cooling. This ban extends to both chemical and thermal pollution.

The only type of discharge allowed to the Red Sea is through the central wastewater treatment facility receiving both sanitary and industrial waste water streams from industries and the community. Freshwater is precious in a desert environment and expensive to produce by desalination. Thus, all sanitary wastewaters generated at Yanbu are reclaimed, treated, and subsequently reused in landscape irrigation. Following similar treatment, some industrial wastewater is being reused for process water and other purposes, and plans exist to reuse it all in future.

These two water management principles – safeguarding the integrity of the Red Sea and maximizing the use of desalinated water – are the focus of Royal Commission water quality monitoring programs at Yanbu.

WATER QUALITY

Waste Water 3112 Samples 5517 Analyses

Potable Water 398 Samples 3863 Analyses

Irrigation Water 148 Samples 816 Analyses

These two water management principles – safeguarding the integrity of the Red Sea and maximizing the use of desalinated water – are the focus of Royal Commission water quality monitoring programs at Yanbu.
Marine special studies are conducted on a routine basis to protect the valuable rich resources of the Red Sea, and the following studies are conducted:

- Sea grass distribution study.
- Sea Water pH Study.
- Monitoring port barrier coral reef.
- Impact of intake & outfall channel on marine eco-system thermal pollution impact.
- Sea water characteristics.
- Sea water thermal dispersion study.
- Sea water circulation study.
- Zooplankton and Phytoplankton distribution study.
- Coral reef study.
- Bioaccumulation study.

- OIL SKIMMERS

- OIL BOOM 1200 M

- BOATS

- CURRENT METERS
Protecting our mangroves is priority ONE

ROYAL COMMISSION began it’s planning stages at Yanbu in the 1970s with a thorough study of the proposed project site of Yanbu Industrial City. Yanbu was merely a desert plain paralleling the Red Sea coast. The first surveys identified one of the most extensive stands of mangroves north of the Tropic of Cancer. Special conservation areas were designated within Yanbu City. Three mangrove communities are protected by the Royal Commission. Any industrial or recreational activity leading to ecological degradation is strictly forbidden.
Protecting Mangrove Beds

Mangroves play a major role in marine environments and are utilized as breeding grounds and protection for some marine organisms.

Mangroves are also a source of nutrients. Mangroves are essential as buffer zones and to protect coastlines from further erosion by binding sediment.

Migrating birds use mangrove stands here in Yanbu as feeding areas before they proceed to final destinations in their migration.
Effective environmental awareness programs:
- Education classes in environmental related topics in Schools.
- Scientific lectures and Site visits for schools and colleges.
- Exhibitions/Seminars for awareness in public places.
- Participation in local and international conferences.

<table>
<thead>
<tr>
<th>Publications</th>
<th>Awareness Programs</th>
<th>Student Training</th>
<th>Summer Training Courses (Co-op)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>18</td>
<td>1500</td>
<td>20</td>
</tr>
</tbody>
</table>

ENVIRONMENTAL AWARENESS PROGRAM
ENVIRONMENTAL AWARDS

The Royal Commission has received a number of environmental awards, in 1988 UN Sasakawa Environmental Prize, and other Awards & Prizes from other world-known environmental organizations from Europe & the Middle East such as the 1988 Environmental Award from the Regional Organization for Protection of the Marine Environment, and the 1998 Arab League Award for Sustainable Development of Coastal Areas.

10 ENVIRONMENTAL AWARDS

This year the Royal Commission Yanbu won a highly prestigious environmental prize in the 2013 International Awards for Liveable Communities in collaboration with UNEP under 6 criteria as follows:

LivCom awards, launched in 1997 is the world’s only competition on international best practice for local communities that focuses on environmental management and creation of liveable communities. The 2013 international competition included the participation by over 60 communities from around the world.

This award has confirmed the success of Yanbu industrial city complex as an environmentally friendly and a sustainable liveable community and a trend setter in sustainability, environmental protection, pollution control, alternatives for energy efficiency, sustainability, material conservation, renewable energy experiments and pilot studies and environmental awareness.

With Best Environmental Practices, the Royal Commission at Yanbu will undoubtedly continue to grow as a liveable community and maintain its competitive image at national and international levels.
Recycling is achieved by re-refining of oily wastes generated by local refineries and petrochemical plants that would otherwise be disposed of without the high energy recovery value from recovering usable oil with a high recovery rate of 80-90%, depending upon feed quality with minimal final residues requiring disposal.
WORKING WITH INDUSTRIES FOR A BETTER ENVIRONMENT

As part of Yanbu Refinery Department (YRD) efforts to enhance environmental compliance and reduce SO2 emissions, performance testing of the Sulfur Recovery Unit (SRU) was performed and results showed that YRD SRU meets its high design efficiency of 99%.

Commissioning a new system to convert its emergency flare to a smokeless flare by steam injection its emergency flare is just another positive environmental feature.

Reductions in energy consumption by 2% is achieved annually.

 ROAD SYSTEM

Yanbu has 608 km of paved roads to serve the needs of business and residents.

Since the beginning of Yanbu’s roadway maintenance service, over 350,000 square kilometers of road have been replaced, repaired, or upgraded.

16 projects for road improvements and utility improvements, are slated for completion in 2015 at a cost of 283 million SAR.

Yanbu’s road system has an extensive installation of equipment with over 22,000 street lights, 487 illuminated street signs, 3,500 street signs, 6,000 traffic signs, 63 signalized intersections for traffic control.

As part of Yanbu Refinery Department (YRD) efforts to enhance environmental compliance and reduce SO2 emissions, performance testing of the Sulfur Recovery Unit (SRU) was performed and results showed that YRD SRU meets its high design efficiency of 99%.

Commissioning a new system to convert its emergency flare to a smokeless flare by steam injection its emergency flare is just another positive environmental feature.

Reductions in energy consumption by 2% is achieved annually.

A new scrubber system for sulfur dioxide removal utilizes sea water.

As a result of providing a vent, reduction in wastewater generation down to 5 Tons/Hr.

Reduction wastewater generated.

An initiative was taken to reduce formation of fouling odor in the vicinity of Ethylene Unit.

Routing quench water drain points to a closed tar settler vessel equipped with a pump thus resulting in draining to close system and significant reduction of fouling odor.

SABTANK, in coordination with YANSAB, has installed a new Vapor Control System, Marine Combustion Unit, aimed at reducing air pollution potential from ships loading activities by capturing vapors otherwise lost to atmosphere.

GAS facility uses advanced technology and raw material is in the form of atmospheric air with no negative outputs to the environment.

As a result, emissions have dropped from 65 tons per day to less than 1 ton per day.

As a result of Yanbu Refinery Department (YRD) efforts to enhance environmental compliance and reduce SO2 emissions, performance testing of the Sulfur Recovery Unit (SRU) was performed and results showed that YRD SRU meets its high design efficiency of 99%.

Commissioning a new system to convert its emergency flare to a smokeless flare by steam injection its emergency flare is just another positive environmental feature.

Reductions in energy consumption by 2% is achieved annually.

A new scrubber system for sulfur dioxide removal utilizes sea water.

As a result of providing a vent, reduction in wastewater generation down to 5 Tons/Hr.

Reduction wastewater generated.

An initiative was taken to reduce formation of fouling odor in the vicinity of Ethylene Unit.

Routing quench water drain points to a closed tar settler vessel equipped with a pump thus resulting in draining to close system and significant reduction of fouling odor.

SABTANK, in coordination with YANSAB, has installed a new Vapor Control System, Marine Combustion Unit, aimed at reducing air pollution potential from ships loading activities by capturing vapors otherwise lost to atmosphere.

GAS facility uses advanced technology and raw material is in the form of atmospheric air with no negative outputs to the environment.

As a result, emissions have dropped from 65 tons per day to less than 1 ton per day.
LANDSCAPING 40% OF THE CITY

Landscaping provides many benefits from shade, and beautification, to greenhouse gas adsorption. Over the past two decades, more than 170,000 trees and shrubs have been planted amid some 220,000 square meters of grass and other ground cover.

For 2012:
- 62,000 square meters of landscape,
- 3,100 trees,
- 29,600 bushes,
- 3,100 hydroponically supplied plants were planted to add to the livability of Yanbu.

Afforestation area 6548797 m²
Plant and tree statistic 110000
Water usage annually 6590655 m³
Total Green area 1215145
410,000 meters of CATV (cable TV) cable have been installed to provide residents in Yanbu with internet and cable television. Yanbu is upgrading to the ranks of most wired cities in the region and globally. By improving Broadband penetration, speed and price improving Broadband. Improving Broadband penetration, speed and prices would have positive implications on Yanbu’s local economy through improving the business environment, tourism, and job opportunities especially for the youth.

47 installations are currently in service that are made up of recreation centers, swimming pools. Over 250 SR million has been invested in developing just the infrastructure of over eight miles of prime road sea coast with future investments in world class resorts, commercial and recreational facilities projected for the future along the sea coast road, football fields, and tennis courts.
A modern school system is critical to sustaining development by attracting and keeping the talent needed to grow Yanbu as a community.

Seven new schools are planned to serve the expansion in population at a cost of 243 million SAR. The current infrastructure serves over 18,000 primary and secondary school students.

Nine projects to expand dormitory capacity and housing for teaching staff at the colleges is valued at 976 million SAR.

The existing school system includes two schools of higher education, Yanbu Industrial College and Yanbu University with a combined enrollment of 7,000 students.
HEALTH FACILITIES AND MEDICAL FACILITIES

Yanbu contains one 300+ Bed hospital, 6 satellite clinics, and four health centers. Sophisticated ambulance and paramedic teams are on alert 24/7. The Royal Commission Hospital alone saw 103,000 emergency cases and 7 projects varying from the hospital expansion to housing and construction of clinics is valued at 361 million SAR. 284,000 outpatient visits for 2012.
The number of housing units built gradually increased from the total of 19,958 in 2010 to 21,329 in 2012 representing a nearly 7% increase. Five projects to expand the available supply of housing is underway with a value of 1,082 million SAR. 21,000 units currently exist although, more than 75% of all units constructed were done so by the Royal Commission, the majority of new units built over the last three years have been constructed by the private sector. 5 projects to expand the available supply of housing is underway with a value of 1,082 million SAR. 21,000 units currently exist with more units under construction. Companies and investors have built 4,727 units of housing by 2012 representing a 23% increase over what was built by them in 2010.
INFORMATION TECHNOLOGY

The implementation of the 27 Objectives of the Information Technology (IT) Department continue to be at the forefront of RCY issues in 2013. Enhanced use of E-Services, development of shared databases, and effective use of Geographic Information Systems (GIS).

IT Strategic Plan specifies that a Program Management Office (PMO) is created to help organize the various IT projects. The IT department create a PMO in 2013 which will track and achieve the goals put forth in the Information Technology Strategic Plan (ITSP). The Wireless Network (Mesh) project initiative provides wireless internet access for public parks in the MYAS area.

MESH project will eliminate the need for wiring thus indirectly contributing to less wire and cable waste.

By 2013 The project cover over 10 public parks enabling community families to be able to use their favorite web enabled devices (iPad, iPhone, laptop computers, etc.) to keep in touch with their community and the world.

TRAINING

RC Human Resource Division proposes to conduct training programs at a cost of SAR 12.6 million throughout the year 2013. An annually effort will be made to survey trainees to help determine the effectiveness of RC training programs.

RC focuses on providing tailor made training activities that translate into improvement of daily work. Specialized training and certifications such as seen with the Project Management Professional (PMP) certification training.
Environmental protection continues to be on the priority list of core issues of the RC. There were so many new avenues that have arisen throughout the years that required the RC to enter as challenges such as; water conservation and reclamation, alternative energy, protection of natural resources, combating global warming, clean energy mechanisms etc. Recently, the RCY embark on a number of initiatives aimed at working toward the goal of environmental sustainability. A very important step toward sustainability is to help control or reduce the carbon footprint of development.

INSTALLATION SYSTEMS IN DEVELOPMENT

Installing digital timers, modifying electrical circuits in RCY facilities and for 1,000 street light poles along primary and secondary roads. The power would be turned off electricity at main building from 12 am-5 am. Implementing a pilot project to experiment LED technology by installing 120 LED Luminaires along Al-Bahr Street. Creating environmental public awareness programs related to waste recycling and water conservation. Developing and maintaining Leadership in Energy and Environmental Design (LEED) initiatives for RCY projects. Endeavoring to achieve LEED status for the new RCY Headquarters Building. Installing thermal film for windows in RCY facilities the Economic Plan has identified an initiative related to this called, Launching Smart Coatings Industry in Yanbu. Utilization of solar energy in operation of street lighting columns. Drafting Green Building Codes and a draft Rooftop Solar program.
IRRIGATION WATER

A prime source of water for landscaping in Yanbu. Irrigation water is reclaimed from the sanitary wastewater stream that would otherwise be sent to the Red Sea. This supply is invaluable as a source of desalinated water. Water is treated to remove potential pathogens and is distributed throughout the city via a distribution system that includes subsurface irrigation. Enough water is available to easily supply current and future landscaping needs.

FUEL SUBSTITUTION

Several industries that routinely used fuel oil to provide heat for their industrial processes have substituted natural gas for fuel oil. Natural gas provides a much cleaner source of energy with large reductions in emissions of particulates and sulfur dioxide.

Utility
Yanbu’s utility provider and sister company, MARAFIQ supplies domestic power and water for Yanbu’s residents and provides industries with water and electricity. The utility is adding 690 megawatts of generation capacity and two desalinization plants to produce an additional 60,000 cubic meters of water per day to sustain industrial and civic development.
Yanbu Industrial City is one of the largest continuing development projects in the world. The entire Yanbu site covers 185 square kilometers of land and accommodate scores of industries and well over 100,000 people. The number of permanent residents increases every year as new industrial and commercial enterprises are established.

Today, 20 major plants in Yanbu’s industrial park are helping satisfy local and world demand for refinery products, petrochemicals, and other commodities. Approximately 80 smaller manufacturing and support industries are also in operation, while several more plants are being designed or constructed for the new industrial expansion of Yanbu 2 to 420 km² of developed land with solid infrastructure.

<table>
<thead>
<tr>
<th>Primary</th>
<th>Secondary</th>
<th>Light</th>
<th>Number Industries in Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>20</td>
<td>70</td>
<td>104</td>
</tr>
</tbody>
</table>

FUTURE GROWTH PLANS

NUMBER INDUSTRIES IN OPERATION
FUTURE GROWTH PLANS

Industrial expansion increase from just 5 in 1985 to 80 in 2012 over a 27 year time frame with more expansion projects in the planning stage.

Royal Commission encourages expansion with various incentives which include providing competitive prices for developed land rental and power/water supplies.

Future growth with adherence to environmental and standards and goals is a trademark of the Royal Commission.

This exceptional industrial growth has led to an expansion of housing and utilities. No community can expand without sufficient water and electric power. The MARAFIQ desalination plant in Yanbu generates over 10,000 cubic meters of potable water daily.

RC has approved the expansion of utilities to supply new construction projects with needed water and electric power. Additional infrastructure from road improvements to new schools is a hallmark of our growth here in Yanbu.

INVESTMENT (SR BILLIONS)

FUTURE GROWTH PLANS

72

INVESTMENT (SR BILLIONS)

73
SOLAR WATER HEATING

Existing rooftop water heaters are planned to be replaced with modern units. Solar development is part of the Royal Commission’s Clean Development Mechanism to develop and utilize clean and renewable energy sources. Replacing Sodium Vapor Street Lights with Light Emitting Diode Technology. Replacement of existing street lights with light emitting diodes (LEDs) will result in a significant savings in electric power consumption, maintenance, and a reduced carbon footprint via reduced energy consumption.

Fuel savings is more than 3072 cubic meters of fuel/year.
EXPANSION OF YANBU

One positive development is the expansion of the city of Yanbu to include an additional 420 square kilometers of land bringing the city land area to roughly 602 kilometers. Currently, Yanbu’s residential area takes up 185 square kilometers. Future expansion is envisioned for the area east of Tareeq Al-Malik Abdulaziz Road (TAMA Road) on the order of 420 square kilometers. Increase of 226% over the original area, bringing the total area to 606 square kilometers.

This in turn will require more infrastructure: roads, utilities/housing, schools, restaurants, shopping centers, and other service related businesses.

Population, if expanded in proportion to available area and housing could increase from 102,000 currently to potentially 230,000 for Yanbu Industrial City.

Over the last 12 years, the population has grown at an average of 6.43%. With the limitations on available land in the existing area, expansion of the town east of Tareeq Al-Malik Abdulaziz Road is anticipated to begin in 2016.

This in turn will require more infrastructure: roads, utilities/housing, schools, restaurants, shopping centers, and other service related businesses. Population, if expanded in proportion to available area and housing could increase from 102,000 currently to potentially 230,000 for Yanbu Industrial City.

Increase of 226% over the original area, bringing the total area to 606 square kilometers.

WATER FRONT

Development of water front cost about 1 billion SR.

Development of water front cost about 1 billion SR.

In the conceptual phase is a plan to build a spa and twelve hotels ranging from hotels catering to businessmen, spas, resorts, to economy priced accommodations. The spas, located in the resorts would be of world class caliber with specialists in massage and physical fitness brought initially. Training of Saudi citizens in new professions would be a priority and provide stable employment opportunities. These resorts consist of hotels, pools, restaurants, water park, scuba, fishing, and sailing. Special activities will be either relegated to hotels catering to divers, or resorts providing scuba venues.

Numerous projects for water front development
SUSTAINABLE TOURISM AT IT BEST

Land is readily available and existing utilities are sufficient to handle demand through 2017.

The Red Sea is a first class scuba diving area and would attract divers from all over the world.

Infrastructure for diving would include staff, boats, equipment, docking facilities- both wet and dry, and maintenance personnel for all watercraft.

A blueprint for the diving center/marina would be similar to Bonaire in the Caribbean. Bonaire has twenty-three hotels on the island, many dedicated to scuba diving.

A typical room for two, based on Bonaire rates would be on the order of 10,000 SAR for a two week stay.

For a 300-room resort, this translates into 78 million SAR annually for full occupancy.

The estimated cost for the one resort is on the order of 164 million SAR.

Use of local material and resources in building this new resort.

Traditional handicrafts and heritage themed souvenirs are a shining example of sustainable tourism.
Fishing is another sporting attraction. The Red sea is host to marlin, tuna, red fish, grouper, emperor fish, and other species not found in the Atlantic Ocean.

The proposed marina would serve as base for all fishing excursions.

Tourists in Yanbu enjoy the wonders of the Red Sea
THE NEW YANBU WATERFRONT

Transforming un-utilized rough terrain into a world class beach resort without disturbing natural mangrove areas.

Success story in ultimate sustainable tourism and a case study for other coastal projects.

12 km of extensive development to transform Yanbu into a modern tourist attraction.
ENERGY EFFICIENCY TASK FORCE 2013

The RC has always been a pioneer in sustainability. Energy efficiency concepts in various applications. Community and industrial projects in RC apply latest energy efficiency concepts.

RC has established its own Energy Efficiency Task Force for 2013. The RC has executed best practices in energy efficiency.
"We target Green Technologies and BEST practices that save energy and preserve natural resources."