The government of Saudi Arabia has developed a vision of the country's economy that depends on a non-oil resource, which is clearly confirmed in the 2030 Vision by diversification of energy sources, including renewable and alternative energy through producing 3.5GW of renewable energy by 2020 and 9.5GW of renewable energy by 2030.

The Kingdom's Notable efforts in Energy include:

1. The Crown Prince Mohammed bin Salman signed a Memorandum of Understanding with "SoftBank Vision Fund" to implement the 2030 solar energy plan, the biggest solar energy production plan worldwide.

2. Initiative to increase the efficiency of energy consumption in iron, cement and petrochemical industries.

3. Introduction of fuel economy labeling of vehicles and adopting fuel economy standards.

4. Motivating new factories to be energy-efficient according to global normative standards.

5. Introducing new Saudi specifications for energy consumption efficiency.

6. Project of energy intensity certificate for existing and new buildings.

7. Initiative to rehabilitate government buildings and motivate the private sector to invest in energy efficiency services.

8. Developing and updating the energy efficiency standards for small and large-capacity air conditioners.

9. Initiative high-efficiency air conditioners

United Nations : Saudi Arabia

Goal 7 Targets

7.1 By 2030, ensure universal access to affordable, reliable and modern energy services

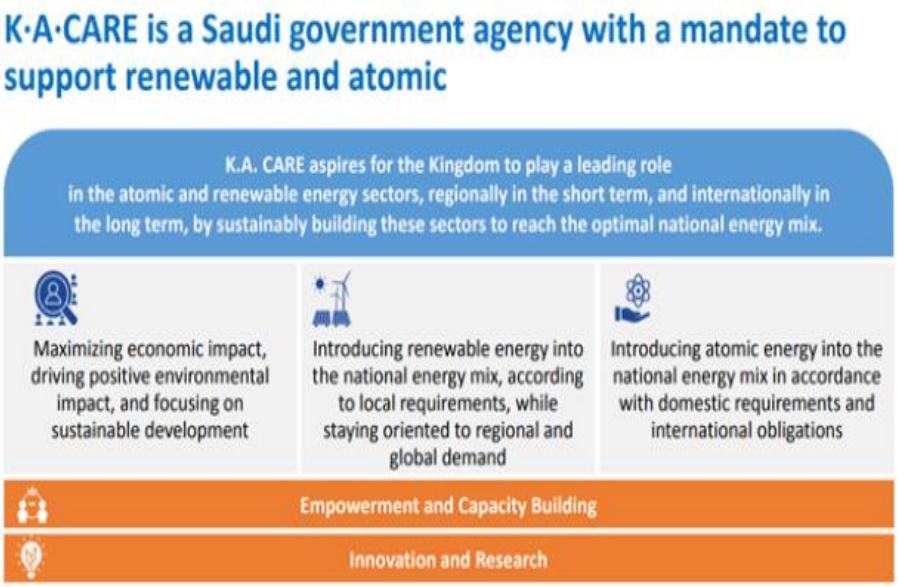
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix

7.3 By 2030, double the global rate of improvement in energy efficiency

7.A By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

7.B By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support.

Introducing KACARE's Technology Localization and Commercialization (TLC) Initiative Round 3 RFPs



The Initiative focuses on technology localization and commercialization

Promote and facilitate technology localization to enable sustainable development of the Renewable Energy sector in the kingdom.

Strategic Goals:

A. Introducing Technologies to the Kingdom

B. Finding mechanisms to create a Sustainable Supply of Emerging Technologies

C. Enabling the Private Sector to Commercialize Renewable Energy Technologies

The Technology Localization & Commercialization Department Roles and Responsibilities

ROLES:

1. Utilizing reports to identify targeted technologies

2. Planning and developing technology localization programs

3. Cooperate with the private sector to execute technology localization programs

4. Developing and implementation of technology localization plan

5. Monitoring the localization and commercialization of technologies

6. Supporting the industry as necessary to create a sustainable economy

Renewable Energy Sources in PNU Campus

Princess Nourah University choose to provide the pathways light with solar power for energy saving.

The universityinstalled a solar power station on the roofs of the administration buildings, library, laboratory building and teaching buildings within the campus.

Energy efficient appliances usage

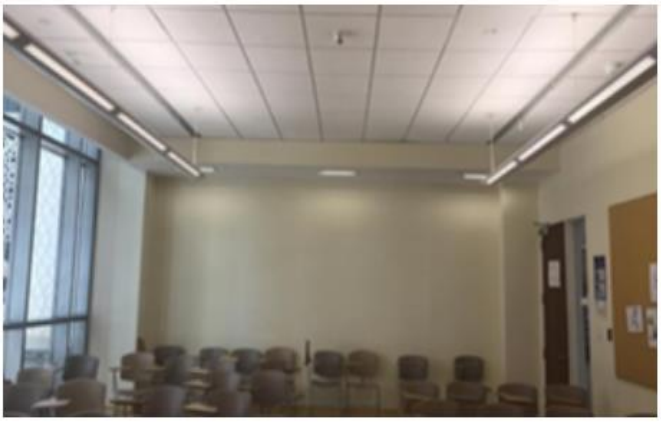
Princess Nourah University intends to realize further energy savings by paying close attention to energy management. All parts of the organization can assess their own energy consumption and realize their own energy-saving potential by means of, for example, insulation, LED lighting and the deployment of sustainable technology

2.1.0 School of Medicine				
Lighting Efficiency	Lighting Type	qty	prg%	
Efficient	FL Qty	2055	30.4851	94% of the total building area
	CFL Qty	1799	26.6874	
	LED Qty	2530	37.5315	
Non-Efficient	MH Qty	64	0.94941	6%of the total building area
	HG Qty	249	3.69381	
	INC Qty	44	0.65272	
	Total Qty	6741		

Solar panels

LED lighting

Princess Nourah University has a policy on improvement of overall electrical appliances in the university. fluorescent light bulbs were replaced for LED light bulbs



Energy and Climate Change

The university's attention is expected to increase the energy efficiency effort across the country and become more concerned with nature and energy resources. Energy use and issues related to climate change will be the indicator for this particular area of interest. Focusing on the use of low consumption appliances, an energy conservation program, green construction, a climate change mitigation and adaptation program, and policies for the use of renewable energy and the reduction of greenhouse gas emissions.

2.1.0 School of Medicine				
Lighting Efficiency	Lighting Type	qty	prg%	
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	Total Qty	6741		

Energy Efficient Appliances Usage: Solar absorption boiler plant

Energy efficient appliances usage

Princess Nourah University intends to realize further energy savings by paying close attention to energy management. All parts of the organization can assess their own energy consumption and realize their own energy-saving potential by means of, for example, insulation, LED lighting and the deployment of sustainable technology.

Smart Building Implementation

All LEED certified buildings are considered smart: Below are copies of certificates.

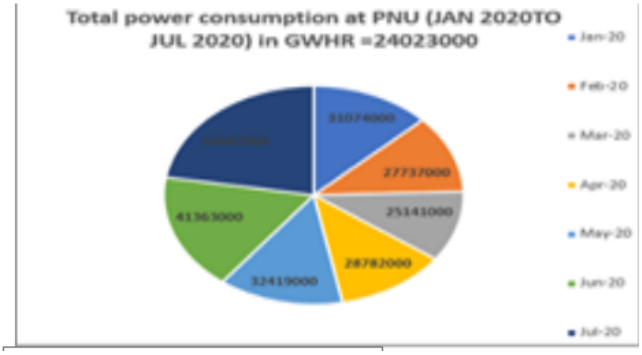
(1,158,601/3,000,000)*100=38.6%.

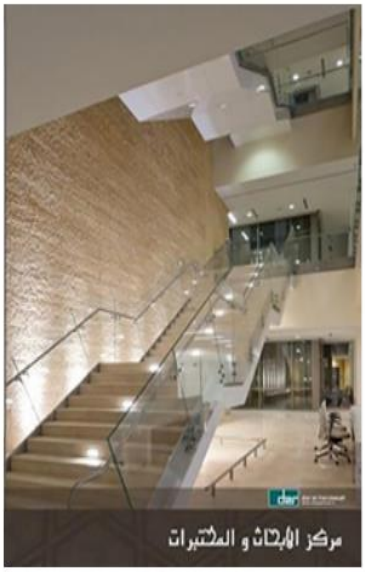
Renewable Energy Sources in Campus

Princess Nourah University installed a solar photovoltaic power station on the roofs of the administration buildings, library, laboratory building, teaching buildings and dormitories within the campus.

Electricity Usage per Year (in Kilowatt hour)

Princess Nourah University it is planned to achieve a reduction of approximately 30% in annual energy consumption through the introduction of new technologies and applications and the launch of public awareness campaigns on energy rationaliza.





Elements of Green Building Implementation as Reflected in All Construction and Renovation Policies

The Princess Nourah University set itself the goal of constructing and renovating the facilities in addition to the construction of new buildings. The purpose of the university is the intelligent design of buildings that implement renewable energy, natural ventilation and lighting, and green building elements to increase energy efficiency in the building.

Please provide total carbon footprint (CO2 emission in the last 12 months, in metric tons)

CO2 emission from electricity

= (electricity usage per year in KwH / 1000) x 0.84

= (513,000,000 KwH/1000) x 0.84

= 430,920 metric ton

Electricity Usage per year In KWH	513,000,000 KWH
Coefficient to convert from KWH to Metric Ton	0.84
Number of shuttle bus in university	1,000
Number of cars in university	15,000
Approximate travel distance of vehicle each day	3.5 KM
Total trips for a vehicle per day	2 trips
Number of Student: 41,456	41,456
Number of Academic and Administrative Staff: 6,300 + contractors 6000	12,300
Number of Working days per year	180
Coefficient to calculate the emission in metric ton per 100 KM for bus	0.01
Coefficient to calculate the emission in metric ton per 100 KM for car	0.02

Environmental Licenses

The National Center for Monitoring Environmental Compliance

The National Center for Monitoring Environmental Compliance was established to carry out several basic tasks through which it seeks to achieve environmental sustainability and prosperity in developmental halls and to improve the quality of life.The services are:

Environmental Clearance Service:

A service provided to clear ozone-depleting gases in various fields: refrigeration, industry, maintenance, and fire fighting by national regulations and international agreements.

Environmental rehabilitation service in the field of environmental consulting and studies offices:

This service is provided for environmental assessment and auditing of non-existing and existing projects from an environmental point of view, classifying them according to the general environment system and issuing environmental permits according to their category

Environmental permits issuance service:

Entities working in the field of environmental services can issue or renew a qualification certificate through the National Center for Monitoring Environmental Compliance.

Commercial environmental permit service:

This service allows the issuance of environmental permits or approvals for establishments and entities with activities related to the environment and affecting them in the commercial field.

Agricultural Environmental Permit Service:

This service allows issuance of environmental permits or approvals for establishments and entities with activities related to the environment and affecting them in the agricultural field.

Environmental qualification in the field of municipal solid waste management:

This service allows environmental rehabilitation for companies, private institutions, and government agencies to work in the field of municipal solid waste

Renewable Energy

The National Renewable Energy Program in the Kingdom

The Kingdom of Saudi Arabia has launched a comprehensive national development strategy to support the diversification of energy sources to

achieve the goal of reaching (3.45) gigawatts of renewable energy by 2020, (9.5) gigawatts by 2030, and (54) gigawatts by 2040. The Kingdom is also working towards reviewing the legal and regulatory framework in private sector investment in renewable energy sources, localize the industry by encouraging partnerships between the public and private sectors, and ensure the competitiveness of renewable energy by gradually liberalizing the hydrocarbon market.

The Kingdom's Efforts in Renewable Energy

1. The Kingdom joins the International Solar Energy Alliance.

2. Signing an agreement with a soft bank of 200 gigawatts at the cost of $ 200 billion.

3. Announcing the Kingdom's 2030 plan to build a sustainable solar energy sector.

4. Establishing the Renewable Energy Projects Development Office at the Ministry of Energy.

5. Attract foreign capital to contribute to building this sector.

6. Connecting medium and small solar energy projects to the Saudi electricity grid.

7. Finding training institutes to rehabilitate Saudi youth.

8. Providing jobs for citizens in the field of renewable energy.

9. Establishing a local renewable energy industry.
10. Supporting local renewable energy research centers.