Shatt Al-Arab University

جامعة شط العرب

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Times Higher Education
Impact Rankings

SUSTAINABLE DEVELOPMENT GOALS · UNIVERSITY COMMITMENT

SDG 7: Affordable & Clean Energy

SUSTAINABLE DEVELOPMENT GOAL

7

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CLEAN ENERGY

Affordable & Clean Energy

Ensure access to affordable, reliable, sustainable, and modern energy for all — across our campus and the Basra community.

Contents

Sustainable Development Goal 7, Affordable and Clean Energy · Evidence Submission, Times Higher Education Impact Rankings 2026.

7.1 Introduction: the university's commitment to clean energy

How does Shatt Al-Arab University advance affordable, reliable, and clean energy across its campus and community?

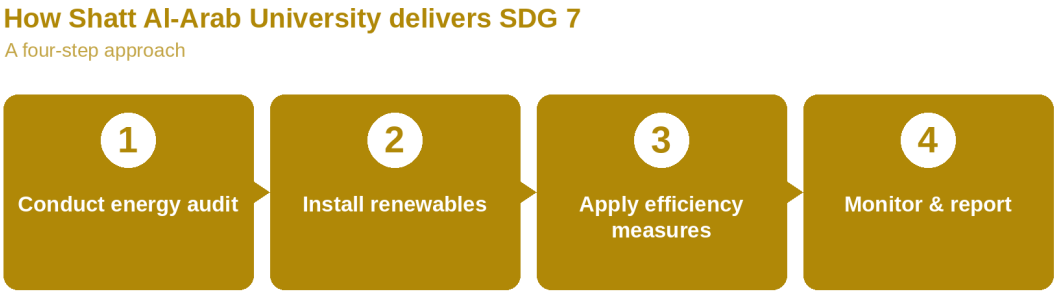

Figure 1. A four-step delivery approach.

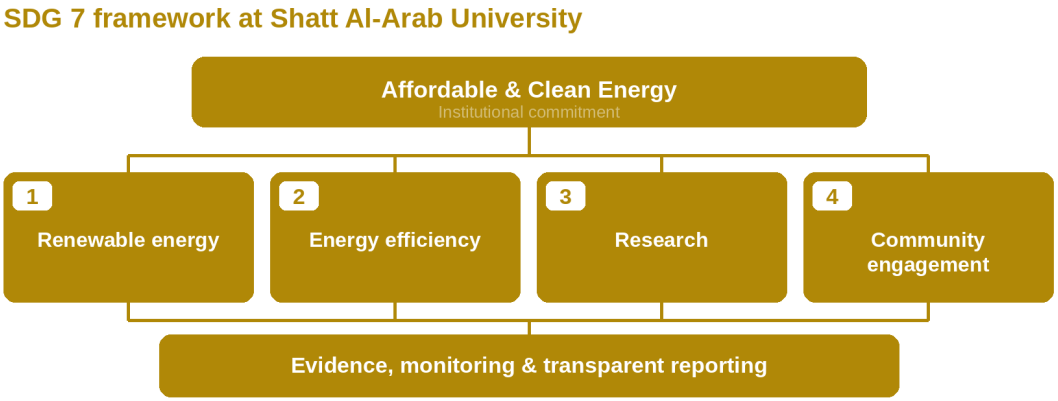

Figure 2. Institutional framework and reporting.

Sustainable Development Goal 7 calls for access to affordable, reliable, sustainable, and modern energy for all. Renewable energy is becoming cheaper, more reliable, and more efficient every year, while continued reliance on fossil fuels is both unsustainable and harmful to the planet. Moving quickly to cleaner energy is therefore essential to confront climate change — one of the greatest threats to our shared future.

Shatt Al-Arab University embeds sustainability into the core of its work: integrating it into the curriculum, providing an environmentally friendly

campus, encouraging environmental awareness, supporting applied research, helping to solve community problems, and building partnerships toward the Sustainable Development Goals. This report sets out the university's contribution to clean and affordable energy, following the framework of the Times Higher Education (THE) Impact Rankings.

7.2 Why clean energy matters for universities

Universities are large, continuous energy users — running classrooms, laboratories, libraries, and administrative buildings every day — which places them well to lead on clean energy. Adopting renewable systems such as solar power brings benefits that reach well beyond the electricity bill.

7.2.1 Financial sustainability

Clean energy lowers running costs. Because solar panels generate most of their power during the day, when campuses consume the most, they reduce dependence on the grid and deliver steady monthly savings. With a typical lifespan of 25–30 years and payback often within five to seven years, solar is a long-term investment that also shields the university from volatile grid

prices and supports predictable budgeting; where net metering is available, surplus power can even be returned to the grid.

7.2.2 Education and research

On-campus renewable systems become living laboratories. Real-time generation data can be built into the curriculum, letting students study how energy is produced, measured, and used, and giving hands-on experience in the design, installation, and maintenance of clean-energy technologies. The same infrastructure supports research into next-generation panels and storage, and inspires interest in renewable-energy careers.

7.2.3 Environmental leadership

Solar power produces electricity without harmful emissions, cutting the university's carbon footprint and improving local air quality for students, staff, and neighbouring communities. A visible commitment to clean energy also strengthens a culture of sustainability on campus and enhances the institution's standing with prospective students, partners, and accreditation bodies.

7.2.4 Energy independence and reliability

Paired with battery storage, solar reduces reliance on the local grid and helps keep critical systems — computer labs, servers, and security — running during outages. Universities also tend to have large, underused rooftops and parking areas well suited to generating their own power, giving them greater control over operations and planning.

7.3 Energy-efficiency measures on campus

Shatt Al-Arab University pursues energy savings through proactive energy management, empowering every part of the institution to assess its consumption and act on its savings potential. Building on earlier success — upgrading air conditioners, displays, heaters, printers, and refrigerators

to inverter technology, and converting more than 90% of lighting to LED — the university is introducing a further set of measures:

- Optimised inverter technology — reviewing all inverter-equipped appliances to ensure they run at peak efficiency, using their smart features for adaptive consumption.
- Enhanced smart lighting — installing dimmable LED systems in key areas to fine-tune light levels to natural light and occupancy.
- Occupancy and daylight-harvesting sensors — fitting classrooms and offices with sensors that detect presence and ambient light, supplementing daylight only when needed.
- "Energy Savers Pledge" campaign — a campus-wide drive encouraging students and staff to unplug chargers, switch off lights, and report inefficiencies, supported by workshops on personal energy conservation.
- Energy-efficient computing — prioritising Energy Star-certified desktops and laptops in all new purchases and replacements.

These measures are reinforced by simple everyday habits, which the university promotes across campus:

Step	Everyday action
1	Switch appliances off at the socket, and turn off lights when they are not in use.
2	Turn off air conditioning where possible — open a window or use a fan instead.
3	Choose rechargeable electronics rather than single-use batteries.
4	Avoid running several devices at once; use them only when needed.
5	Use solar energy where you can — panels, chargers, and solar-powered devices.

7.4 Renewable energy: solar power

7.4.1 Solar integration on campus

As the first phase of its move toward renewable self-sufficiency, the university is installing solar panels on selected building rooftops. This initial phase is designed to offset a significant share of daytime electricity use — particularly in common areas and administrative offices — and to lay the groundwork for wider adoption across the campus.

7.4.2 Suggested implementation areas

Looking ahead, the university sees several practical opportunities to expand clean-energy generation:

- Rooftop photovoltaic systems on dormitories, libraries, and academic buildings.
- Solar carports that provide shade in parking areas while generating power.
- Solar-powered electric-vehicle charging stations that encourage greener transport on campus.

7.5 Education, research, and engineering applications

The university connects clean-energy learning to real-world practice. In March 2025 it hosted a renewable-energy systems workshop offering hands-on training in the installation and maintenance of small-scale technologies such as residential solar panels and mini wind turbines. Open to engineering students and members of the local community, the workshop bridged academic learning with practical application.

The university also launched an industry initiative on energy efficiency in partnership with the South Refineries Company, providing expert consultation aimed at optimising energy use in manufacturing. The initiative supported local industry while giving students valuable exposure to applied energy solutions in a real industrial setting. More broadly, energy engineering offers a promising future — developing cleaner, more efficient technologies, from energy storage to improved fuel efficiency and new renewable sources, and contributing to sustainability through innovation and scientific research.

7.6 Environmental sustainability and community engagement

Beyond its own campus, the university works to advance environmental sustainability across Basra Governorate. On 6 March 2025 it presented an exhibition titled “Innovations in Oil Extraction and Fuel Conversion for Environmental Sustainability” at the Basra Governorate Building. The exhibition was organised and delivered entirely by students under their professors’ supervision, showcasing tools and setups designed to meet sustainable environmental goals, and included a talk on “Climate Change and Its Effects on the Environment”.

Through awareness events, student-led initiatives, and partnerships with industry and the wider community, the university fosters a culture of environmental responsibility and shares its expertise beyond the campus — helping to build the cleaner, more resilient energy future that SDG 7 envisions.

Research contributions (Scopus-indexed publications)

Shatt Al-Arab University's research is indexed in Scopus and mapped to the UN Sustainable Development Goals by Elsevier - the same data source the THE Impact Rankings use for their research metric. The university currently records 179 documents from 59 authors (Scopus ID 60109790; last updated May 2026). The chart below shows how this output is distributed across the goals.

Figure. Scopus-indexed publications by SDG (data source: Scopus).

The following publications are mapped to SDG 7 in the Elsevier/Scopus SDG dataset (showing 10 of 29 documents):

#	Publication title	Source & year
1	**Heat pipe-based thermal management in photovoltaic/thermal systems: recent advances and machine learning-driven performance optimization** *Ali, A.A., M.D.Alketife, A., Abdullah, M.D., et al.*	Applied Thermal Engineering, 2026
2	**A machine learning-based optimization framework for estimating gas injection and enhancing oil recovery in petroleum reservoirs** *Alaidany, A.A., Altimary, M., Attoof, H., Ali, A.Z.*	African Journal of Applied Research, 2026
3	**High-efficiency PV/T system with embedded two-phase enhanced heat pipe (EHP) and secondary water cooling** *Sabry, A.H., Biyikoglu, A., Camdali, U.*	Applied Thermal Engineering, 2026
4	**Development of IoT-based energy management system to maximize energy savings in Iraq** *Salman, H., Pasupuleti, J., Sabry, A.H.*	Electric Power Systems Research, 2026
5	**Design of a solar system with a PID controller based on the Tyrannosaurus optimization algorithm** *Rahimah, K.S., Abed, I.A., Kadhim, A.A.A.*	Int. Journal of Reconfigurable and Embedded Systems, 2026
6	**A comprehensive review of UAV-based thermal imaging and deep learning for PV power plant anomaly detection and performance assessment** *Sabry, A.H., Biyikoglu, A., Camdali, U.*	Engineering Applications of Artificial Intelligence, 2026
7	**PUF-LAMT+: a lightweight authentication protocol with CRP throttling and hybrid fuzzy extractors for modeling-resistant medical IoT security** *Mattar, A.K., Al-Husseini, K.A.O., Saare, M.A., et al.*	Journal of Robotics and Control (JRC), 2026
8	**Impact of pulse-width modulation techniques on inverter efficiency and motor current quality in PMSM drives: a simulation study** *Mohammed, H.S., Sabry, A.H., Hameed, H.K., Ugurenver, A.*	Measurement, 2026

#	Publication title	Source & year
9	**Evolving trends in energy management systems (EMS) research using scientometric analysis** *Mohd Noor, M.I., Nik Ali, N.H., Ayu, A.M., et al.*	Jurnal Kejuruteraan, 2026
10	**Design and evaluation of secure software architectures for 5G-enabled vehicular driving system** *Saare, M.A., Mattar, A.K., Sari, S.A., Wong, S.Y.*	Journal of Robotics and Control (JRC), 2025