



الجامعة الهاشمية



The Hashemite University
Energy Efficiency Policy for
Buildings/Hashemite University
2022-2026



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Introduction:

The Royal Decree to establish the Hashemite University was issued on 19 June 1991. Teaching at the university started on 16 September 1995. The total area of the university's campus is 8519 acres. The Hashemite University, often abbreviated HU, is one of the Jordanian state-run universities. It was established in 1995. The University is located in the vicinity of the city of Zarqa. As regards to the study systems, it applies the credit hour system. Each college has its own number of credit hours. It offers an international admission program, which allows non-Jordanian students to enroll at the university. The university comprises 19 colleges (faculties) and institutes. It offers (52) specialties at undergraduate level and (35) specialties at postgraduate level (doctorate, master, higher diploma, in addition to a number of professional diploma programs). Our institution has developed an environmental and energy management strategy to ensure an energy-efficient campus. Through this strategic approach, we continuously optimize our operations, reduce energy consumption, and embrace sustainability at the core of our academic pursuits.

At The Hashemite University, we firmly believe that sustainability is the cornerstone of our institution's growth and development. As a leading academic institution, we acknowledge our responsibility to address the pressing global challenges posed by climate change. We are committed to promoting sustainability, reducing our carbon footprint, and fostering a culture of environmental stewardship among our faculty, staff, and students.

Hashemite University is committed to sustainability and addressing climate change challenges. This policy combines the university's commitment to energy efficiency for buildings, as outlined in the Jordan Building Codes (JBC), the Green Building Guide Manual, and the National Plan to Raise Energy Efficiency, with the overarching goals of the Hashemite University Sustainability/Climate Action Policy for 2022-2026. This integration ensures that all renovation and new construction projects align with the university's broader sustainability and climate action objectives.



A Vision for a Greener Tomorrow:

At Hashemite University, we envision a smart and green campus that exemplifies sustainability in all facets of its operations. Our dynamic approach to managing all sources of power on the grid enables seamless integration of renewable energy resources, further solidifying our stance as a university focused on innovation and environmental responsibility.

Scope:

This policy applies to all renovation and new construction projects undertaken by or on behalf of Hashemite University. It covers all buildings and facilities, including but not limited to academic buildings, residential complexes, research centers, and recreational areas.

Objective

The primary objective of this policy is to:

- Ensure that all renovation and new construction projects at Hashemite University comply with the latest energy efficiency standards, as defined in the Jordan Building Codes (JBC) and the Green Building Guide Manual.
- Reduce energy consumption and greenhouse gas emissions to minimize the university's environmental footprint, consistent with the Hashemite University Sustainability/Climate Action Policy.
- Rise the culture of sustainability within the university community, in alignment with the broader goals of the Hashemite University Sustainability/Climate Action Policy for 2022-2026.

Policy Statements:

Energy Efficiency Standards:

- a. All renovation and new construction projects at Hashemite University must adhere to the latest energy efficiency standards and codes, particularly the Jordan Building Codes (JBC) and the Green Building Guide Manual, relevant to the Jordanian context.



- b. Design and construction shall be in compliance with the Jordan Building Codes (JBC), which provide specific guidelines for energy efficiency in building design and construction.
- c. Relevant international standards and certifications (e.g., LEED, BREEAM) shall be used as references to supplement the Jordan Building Codes where applicable.

Design and Construction:

- a. The university shall ensure that architects, engineers, and contractors responsible for renovation and new construction projects are informed of the energy efficiency standards set forth in the Jordan Building Codes (JBC) and the Green Building Guide Manual, in line with the Hashemite University Sustainability/Climate Action Policy for 2022-2026.
- b. Building designs should prioritize natural lighting, ventilation, and thermal insulation to reduce the need for artificial heating and cooling, in alignment with the broader sustainability goals.
- c. Use energy-efficient lighting systems, appliances, and HVAC equipment that meet or exceed energy efficiency standards, while contributing to climate action goals.

Monitoring and Compliance:

- a. A designated department or committee shall oversee and monitor the implementation of this policy, including adherence to the Jordan Building Codes and the Green Building Guide Manual.
- b. Regular energy audits and assessments of buildings will be conducted to ensure compliance with energy efficiency standards, and to support the objectives of the Hashemite University Sustainability/Climate Action Policy for 2022-2026.
- c. Non-compliance with this policy may result in corrective action, redesign, or retrofitting of non-compliant structures, consistent with the Sustainability/Climate Action Policy.

Education and Outreach:

- a. The university will provide training and awareness programs to promote energy-efficient practices among students, staff, and contractors, in line with the sustainability and climate action objectives of the Hashemite University Sustainability/Climate Action Policy for 2022-2026.
- b. Educational materials and guidelines for energy-efficient living and working will be made available to the university community in accordance with the broader sustainability goals.



Reporting and Accountability:

- a. Annual reports on the energy efficiency performance of university buildings, in compliance with the Jordan Building Codes (JBC), the Green Building Guide Manual, and the Hashemite University Sustainability/Climate Action Policy, will be generated and made available to the public.
- b. The university leadership will be accountable for ensuring the successful implementation of this policy and support for the Hashemite University Sustainability/Climate Action Policy for 2022-2026.

Continuous Improvement:

Hashemite University will continuously review and update this policy to reflect changes in energy efficiency standards, the Jordan Building Codes (JBC), and the Green Building Guide Manual, ensuring alignment with the overarching Sustainability/Climate Action Policy.

Role of Energy Management and Carbon Emission in The Hashemite University

Towards a net zero future

At Hashemite University, we are fully committed to move towards a future characterized by net zero emissions. To underscore this commitment, we have set forth climate-related objectives that demonstrate our dedication to environmental responsibility. Specifically, we aim to ensure that 100% of our delegated portfolios achieve net zero greenhouse gas emissions by the year 2040. Additionally, we are determined to achieve a significant 50% reduction in emissions by the year 2025. Through these ambitious targets, we actively embrace our role in addressing climate change and strive to make a positive impact on our campus and beyond. By prioritizing sustainability and taking collective action, we are paving the way towards a greener, more sustainable future for the Hashemite University community and the broader global stage.

Towards 100% energy independence

As an integral part of the Climate Policy at Hashemite University, our strategic initiatives have been carefully designed to pave the path towards 100% energy independence. To achieve this ambitious goal, we have implemented cutting-edge photovoltaic (PV) systems, efficiently harnessing solar energy to power significant portions of our campus. By incorporating these sustainable practices



into our Climate Policy, we demonstrate our commitment to reducing our carbon footprint and promoting a greener, more environmentally conscious university. Through collective efforts, we are forging a resilient and sustainable future for our campus community and contributing to global climate action. Additionally, we have made the following climate and energy commitments:

- ✓ 100% of electricity energy committed to be from renewable energy resources net by 2022.
- ✓ Improving the energy efficiency of existing buildings, minimizing energy wastage and optimizing consumption by 2023.
- ✓ Increasing the energy efficacy in the campus by having Smart Energy Meter and Management System (AMI). Smart meter system based IoT technology for all the HU building is our new project. In 2021, we issued the project tender and started the implantation of it which will be completed by 2023. This project aims to remotely monitor and control building energy consumption and improve energy efficiency from heating and air conditioning, to lighting and security systems.
- ✓ Improving the renewable energy generation by 2024: SCADA system for the PV projects in HU: The systems shall include monitoring and control systems to measures and records systems performance parameters. In 2021, we issued a new tender to upgrade the current PV project and developed a SCADA system. In the project, SCADA system will perform all data acquisition, monitoring and control functions of the PV system. In order to improve the energy efficiency, all necessary information concerning process behavior, instrument and integrity controller, sequential control and alarm function shall be immediately available at the operation consoles.

Green buildings.

One of the main commitments at the Hashemite University is that all new buildings must be smart and green. The Climate Policy at Hashemite University places a strong emphasis on energy/water management and sustainability, with a clear focus on enhancing energy/water efficiency and transitioning towards a sustainable future. This is achieved through the adoption of energy and water-saving practices, along with innovative building techniques and renewable energy sources. Notably, the university has made significant strides in the development of new smart and green buildings, encompassing an expansive area of more than 70,000 m². These cutting-edge buildings are equipped with smart technologies, utilizing sensors to remotely monitor and control various



systems, including HVAC, lighting, and security. By being at the forefront of Smart Building applications, Hashemite University provides integrated solutions that enhance building management, ultimately improving efficiency, sustainability, and comfort. This ambitious project, completed in 2020/2021, reflects the university's dedication to staying at the forefront of technological advancements in pursuit of sustainability goals. In line with the objective of achieving 100% energy independence, Hashemite University has successfully implemented photovoltaic (PV) systems in each of the newly constructed expansion projects. These renewable energy installations play a pivotal role in reducing the university's reliance on conventional energy sources and contribute significantly to our commitment to a sustainable and climate-resilient campus. The new green building included new water harvesting systems. By embracing these initiatives and technologies, we are paving the way towards a greener and more energy and water-efficient future for Hashemite University. The smart and green buildings project achieves long-term economic and environmental sustainability for the HU. The energy saving practices in this project are divided into two main categories: Smart building design and optimal energy techniques. Firstly, the design of the new building focused on harnessing the natural resources to create comfortable conditions for the building users, as described in Table 1. Secondly, optimal energy saving techniques for the electromechanical system are used in the new buildings to create comfortable conditions for building users and reduce the energy and water needs, as described in Table 2.

Table 1: The main smart building design techniques used throughout the project.

Technique	Description
Building envelope and materials	The building materials, thermal insulation, windows (types, size location and double glazing) and doors, were designed based on the international green construction guidelines. The design of the buildings to minimize the thermal loss and achieve sustainable buildings.
Building Orientation	The location and orientation of buildings to maximize the benefits of the sunlight and create high living conditions around the buildings.
Louvers and sun-breakers	The south-facing windows were fitted with extruding louvers. This is mainly to minimize the direct sunlight during summer days and maximize during winter days from entering the building.
Skylights	Skylights technique was used in the new buildings to reduce the need for electricity and lighting, by using natural skylight.
Shading	This technique aimed to create an acceptable outdoor thermally areas by building massing, photovoltaic solar canopies and carparks and trees.



Table 2: The main smart and optimal techniques for green campus.

Technique	Description
Lighting	In the new buildings, LED lights are used. In general, the LED light is more comfortable for building users compared to other fluorescent lights with 25% energy reduction.
Heating, ventilation and air conditioning (HVAC)	A highly energy efficient HVAC system based on hybrid central and variable refrigerant flow (VRF) systems is used to decrease the energy losses, gas emissions and energy costs.
Building-Integrated Controllers	Control workstation and sensors employed to automatic control of lights and HVAC systems and to reduce the energy consumption and losses.

Student Experience

Within the context of the Climate Policy at Hashemite University, our paramount focus is to enhance the student experience by fostering a learning environment that emphasizes sustainability.

To achieve this goal, the following priority actions have been identified:

- ✓ All projects in the campus must have a direct positive capacity building and social impact.
- ✓ We are committed to empowering our students to become responsible and active participants in the local community, engaging in initiatives that promote sustainability and contribute positively to the environment.
- ✓ Volunteering and Community Engagement: We encourage students to actively participate in volunteering activities that align with our sustainability goals, fostering a spirit of community engagement and social responsibility.
- ✓ Through diverse opportunities, we promote student engagement in sustainability-related initiatives, enabling them to develop a comprehensive understanding and practical skills in this critical field.
- ✓ Active collaboration with student clubs and organizations fosters a strong network of sustainability advocates, amplifying our collective impact and driving meaningful change.
- ✓ Ensuring our campus is accessible and safe for individuals with disabilities or special needs reflects our commitment to inclusivity, ensuring everyone can actively participate in sustainability efforts.

Through the implementation of these priority actions, our Climate Policy reinforces Hashemite University's dedication to providing a transformative student experience that nurtures sustainability



values and equips graduates with the skills and mindset needed to address pressing climate challenges and contribute positively to a more sustainable future.

Research and Education for Sustainability.

One of the main aims for the Hashemite University is to encourage and improve scientific research and projects to serve local community and industry and to elevate research quality and educational outcomes. As a key component of the Climate Policy at Hashemite University, our Research and Education for Sustainability is devoted to empowering staff and students with comprehensive knowledge and skills in sustainability while promoting cutting-edge research to inform our sustainable practices. The following priority actions guide our endeavors:

- ✓ The university appropriates 5% of its budget to scientific research in term of the sustainability goals
- ✓ Collaborating closely with faculties, we prioritize the inclusion of sustainability education within diverse academic curricula, ensuring that sustainability principles are seamlessly integrated across disciplines.
- ✓ We are committed to offering a range of teaching and learning opportunities that equip staff and students with essential sustainability skills, enabling them to contribute effectively to sustainability efforts within and beyond the university.
- ✓ Recognizing the importance of interdisciplinary cooperation, we encourage students to develop versatile skills that prepare them to work across disciplinary boundaries, fostering innovative and holistic solutions to sustainability challenges.
- ✓ Providing platforms for active involvement, we encourage students to participate in sustainability-focused activities, promoting a sense of responsibility and ownership in building a sustainable campus community.
- ✓ Leveraging social media, website, conferences, and seminars, we actively promote and share sustainability best practices, inspiring collective action and continuous improvement.
- ✓ Building a collaborative environment, we establish networking platforms that encourage interdisciplinary research, facilitating impactful collaborations on sustainability-focused projects.
- ✓ We actively engage and support undergraduate and postgraduate students in their sustainability research, nurturing a culture of research-driven inquiry and innovation.



Risk analysis and management.

At Hashemite University, we recognize climate change as a critical and systemic priority due to its potential impact on our institution's investments and overall resilience. To effectively manage these risks, we employ various sophisticated tools and strategies:

- Risk Management Tools: By utilizing location data, we assess our campus's exposure to various physical risks and perils arising from climate change. This analysis allows us to identify areas that may be more susceptible to climate-related hazards and develop appropriate mitigation measures.
- In line with our commitment to climate resilience and sustainability, we will implement the following measures:
 - ✓ Action Plans and Sub-strategies: We will develop comprehensive action plans and sub-strategies that complement our climate policy. These plans will outline specific, measurable, relevant, and time-bound actions to effectively integrate sustainability practices across the university.
 - ✓ Recognizing the urgency of addressing climate risks, we will prioritize key focus areas over the next five years. This prioritization ensures effective implementation of climate mitigation and adaptation measures.
 - ✓ The university will submit annual reports that showcase our achievements, progress on indicators, and relevant sustainability activities. This transparent reporting ensures accountability and promotes a culture of continuous improvement.

Through robust risk analysis and proactive risk management strategies, Hashemite University aims to foster a climate-resilient campus community and contribute to broader sustainability efforts in addressing climate change challenges.

Conclusion:

This Energy Efficiency Policy reaffirms Hashemite University's commitment to sustainable development, energy efficiency, and responsible environmental stewardship. It emphasizes alignment with the Jordan Building Codes, the Green Building Guide Manual, the National Plan to Raise Energy Efficiency, the End Energy Efficiency initiative, and the Hashemite University Sustainability/Climate Action Policy for 2022-2026.