2.7 Affordable and Clean Energy (SDG 7)

In the last few years, the energy management process has been significantly improved at Imam Ja'afar Al-Sadiq University by means of using the sensors for controlling electrical plugs, insulation systems, LED lighting, energy-saving air conditioning systems, and the deployment of sustainable technology. The following is a concise description of the adoption of international standards, the execution of the plans, and the assurance of Imam Ja'afar Al-Sadiq University's energy-saving performance:

1. The combined cooling, heating, and power unit at Imam Ja'afar Al-Sadiq University using biodiesel as fuel, is located in an isolated area of each branch. The rated power of the generator is 30kW, whose waste heat can be used for heating and bathing hot water. Table 1 shows the energy efficient appliances usage at Imam Ja'afar Al-Sadiq University.
2. Researchers from the university have designed and implemented a number of projects in which the energy is generated using mounted Solar Panels. The work is ongoing to employ these projects in real applications at the university.
3. Smart solar mobile chargers were provided by the Zain phone company to be installed at Imam Ja'afar Al-Sadiq University. This street charging unit has been installed at different places on campus to grant free phone charging services to 4 students simultaneously. The charging unit runs entirely on solar panels that have already been exposed to solar energy and work for (24) hours.

Table 1. Energy efficient appliances usage at Imam Ja'afar Al-Sadiq University.

Appliance	Total Number	Total number energy Efficient appliances	Percentage
LED Lamp	45000	39000	88.63%
Air conditions	4000	3500	87.5%
Fan	2000	17000	85%
Computer	2100	2100	100%
Etc.	…	…	…
		Average Percentage	**90.28%**

Examples of Biodiesel and Hydropower Units (Imam Ja'afar Al-Sadiq University, Iraq).

Example of Roof and Façade Mounted Solar Panels (Imam Ja'afar Al-Sadiq University, Iraq).

Smart solar mobile chargers (Imam Ja'afar Al-Sadiq University, Iraq).