



Albania Green Energy-Efficient Schools

THE PROBLEM Currently, Albania's schools, particularly those in rural areas, suffer frequent power outages because they have limited access to a national electric grid that manages only a 60 percent reliability rate. The school buildings themselves have foundations that are well-suited to energy efficiency with some basic modifications. Major improvements are needed in some areas to make the schools both energy-efficient and compliant with Albania's new EU-based standards for educational facilities.

THE CLIENT Study commissioned by the Albanian Ministry of Education and Sports and sponsored by the Open Society Foundation of Albania.

THE SERVICE A comprehensive study involving literature review; software-based modeling for various energy, comfort and impact scenarios; cost-data gathering and analysis; and evaluations of the results. The ASU Walton team evaluated the opportunities, challenges, impacts, and costs for making Albania's more than 3,300 school buildings safer, healthier, and more energy-efficient and sustainable learning environments.

THE SOLUTIONS ASU researchers and local partners developed multi-tiered intervention options, which have the potential to transform energy efficiency and education in Albania's schools. The four tiers represent differing levels of green improvements that can be made to Albania's schools; each tier builds on the previous tier and involves a greater investment of resources with each gradation.

Tier 1 involves repairs to existing school buildings in order to eliminate moisture and mold. Tier 2 focuses on adapting school buildings to include passive energy efficiency—that is, non-mechanical improvements, including insulation and more energy-efficient windows; these can dramatically improve comfort levels with virtually no increase in energy use. In Tier 3, schools would add energy-efficient heating systems (Tier 3A) and solar photovoltaic (PV) rooftop technology (Tier 3B), which is highly suitable for infrastructure integration because of its point-of-use electricity delivery mechanism. Finally, in Tier 4, schools would expand to include more classrooms and other instruction areas that will enhance the teaching of sustainability-infused curricula.

The following strategies and actions were recommended.

- Implement a pilot program of improvements in a nationally representative sampling of school buildings.
- In partnership with the Ministry of Health, Social Welfare and Youth, initiate the phased development of a domestic solar PV industry.
- Require all new schools to be built to Tier 4 standards.
- Develop a scaling plan based on funding availability and lessons learned in the pilot phase.

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THE OUTLOOK

Short Term: Creation of 220,000 jobs; classrooms that provide greater comfort, better air quality and better lighting; schools equipped with laboratories, athletic facilities and more classroom space per student; curriculum opportunities for incorporating energy and sustainability education.

Medium Term: US\$880 million increase in GDP, decreased student and teacher absenteeism from illness; increased student attention span and improved learning outcomes; energy consumption and carbon dioxide emissions that are 56% lower than if school building were renovated using standard methods.

Long Term: Higher level of education achieved, leading to a more educated workforce and new economic opportunities; a national solar PV industry able to spread to a private sector client base; sustainability-based economic leadership in the region.

“The Ministry of Education and Sports is committed to providing students with safe, positive learning environments. ASU’s Green Energy-Efficient Schools for Albania report will serve as the cornerstone to our efforts to bring Albanian students the practical knowledge they require to contribute to local and global sustainability.”

Arbjan Mazniku, Deputy Minister of Education, Albania

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