

Airfield operations

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BRIGHT IDEAS

Of course, with all this runway and ramp condition detection activity, it helps to have some light on the subject. But with escalating energy prices, keeping check on operating costs is key, especially for smaller airports working to tight margins.

Warsaw-based airfield lighting company S4GA supplies a variety of solar-powered lights for runway approach, threshold, taxiways, and illuminated airport guidance lighting, which are for implementation at regional and larger scale airports.

“Running costs for solar lighting systems are minimal,” Dmytro Kuczeruk, Business Development Director of S4GA, told *Regional Gateway*. “The typical annual cost of runway electricity is around £50-60,000 in a conventional system. Sunshine is more economical.”

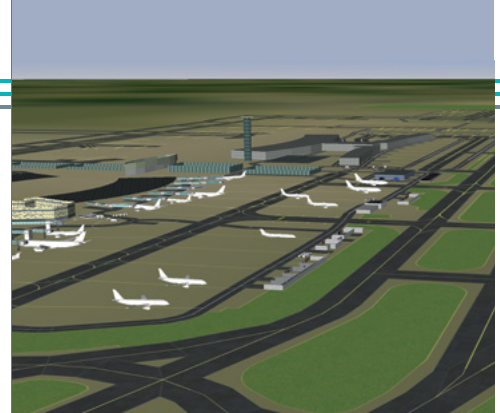
Maintenance costs for traditional wired systems are around 10% of system CapEx annually, whereas solar maintenance is usually under 1% of system CapEx yearly, due to solar being low voltage and maintainable by regular airport staff.

S4GA’s implementations at regional airports include Ethiopia’s Jijiga (Wilwal) Airport, where electrical power supply is intermittent due to an unstable electrical grid. S4GA, together with its partner Alpha Airport, provided a solar LED airfield lighting system equipped with five-level protection against system failure.

In another scenario at Lithuania’s



Daylight savings: S4GA’s solar-powered airfield lighting solutions offer low running costs.



AirTOP can be used to simulate scenarios and configurations on the runway.

Improving runway design and capacity and minimising congestion

With air traffic on the rise, understanding movements on the airfield and planning enhancements to improve infrastructure is integral to optimising efficiency and futureproofing airports. Transoft Solutions’ AirTOP offers a gate-to-gate fast-time airport and air traffic modelling simulation tool that can be used to monitor, assess, and improve runway, taxiway, and apron operations by replicating an airport’s physical and procedural characteristics. If an airport wants to improve its runway capacity or carry out runway maintenance for instance, AirTOP can be used to simulate different scenarios and configurations to test performance or determine when the optimal time would be to close a runway for refurbishment. In a recent project, AirTOP was used to estimate the capacity of the runway system at Olbia Costa Smeralda Airport, in northern Sardinia, to demonstrate that rapid exit taxiways were a valid way of increasing traffic volumes by reducing runway occupancy time for arrival flights. AirTOP can be used in conjunction with AviPLAN, which is used for airside design and planning and allows for a more geometric level of detail in terms of the spatial requirements that aircraft and vehicles require when manoeuvring around the runway, taxiways, and apron, or parking at the stand.

AviPLAN offers a geometric level of detail in terms of spatial requirements.



Aleksotas Airport, when municipal authorities decided to renovate the airport for business and GA use, a hard-wired runway lighting system was beyond the airport’s budget.

S4GA, in collaboration with airfield system integrators FIMA, implemented a permanent ICAO-compliant solar runway lighting system incorporating a specially designed mounting assembly that could be installed without disrupting operations and without drilling into the runway.

It is often assumed that solar lighting is only feasible in sunny regions. However, as Kuczeruk explains: “Airports such as Scotland’s Campbeltown, where we installed solar lighting, generate enough power during the winter to provide around three hours of lighting per day. For them that’s enough for the low frequency of flights during low light conditions.”

In situations where a single runway airport needs to be closed for several months for refurbishment, a parallel taxiway can sometimes be activated as a temporary runway during the construction.

“These airports don’t want to abort operations while they refurb the main runway,” says Kuczeruk. “But they can continue to operate using solar lights, and so this is how our system is also used.”

S4GA is currently offering a free trial of the system to interested airports.” ■