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Sand-based thermal energy storage, ultra-efficient electric motors and nationwide team spirit – the winners of the 2026 ITU Technology Awards have been chosen

Polar Night Energy's sand battery technology, ABB's motor-drive package and Sitowise's landscape architecture division that operates in eight locations across Finland have been chosen as the winners of this year's ITU Technology Awards by Academic Engineers and Architects in Finland TEK and Tekniska Föreningen i Finland TFiF.

ITU Technology Awards recognise excellence in the field of technology and natural sciences. The Breakthrough Award is given to a person or a team behind an act, idea or innovation that creates something new in the field of technology, the Cornerstone Award to a person or work group that has made a particularly outstanding contribution to research, and the Forerunners Award to a work community or team that shows a particularly strong spirit of working and achieving things together. The award ceremony is taking place in Helsinki today.

Thermal energy from hot sand: Polar Night Energy wins this year's Breakthrough Award

The winner of the 2026 Breakthrough Award, which recognises ideas or innovations that create something new in the field of technology, is Polar Night Energy.

"Polar Night Energy has developed an innovative and scalable energy storage solution called the Sand Battery. The proportion of clean energy production in the energy system, which varies according to the weather, is increasing and creating demand for various kinds of energy storage solutions. Polar Night Energy's Sand Battery is based on advanced technology and enables efficient conversion of energy from electricity to heat", wrote the jury in its assessment.

Polar Night Energy is a Finnish company specialising in thermal energy storage solutions.

"**Markku Ylönen** and I used to discuss energy self-sufficiency, energy price volatility and the need to store energy when we were studying at Tampere University of Technology in the 2010s. Polar Night Energy was born in 2018", says the company's co-founder and CEO **Tommi Eronen**.

The first pilot was built in 2019, and the world's first commercial Sand Battery was assembled in 2022. According to the company, it went 'viral' straight away. The innovation was featured on, for example, the BBC and the CNN.

Polar Night Energy's Sand Battery stores renewable energy as heat in sand or similar material, which enables longer storage and usability periods than electric batteries. The patented closed-loop heat transfer mechanism stores thermal energy in solid material such as sand. Solid materials are slow to release heat, which helps to keep heat loss from the system low.

"The Sand Battery reduces reliance on energy generated by combustion, enhances electricity grid stability and facilitates the transition to renewable energy. It increases local energy security and energy self-sufficiency", Eronen explains.

Polar Night Energy's technology has already been integrated into district heating systems across Finland. The world's first Sand Battery was installed at the Vatajankoski power plant in Kankaanpää in 2022.

"We are currently building a two-megawatt Sand Battery for Lahti Energia in Vääksy and a pilot plant of our own in Valkeakoski, where we intend to test the Sand Battery's ability to convert heat back into electricity."

Taking the performance of electric motors to a new level: ABB's SynRM-VSD work group wins the Cornerstone Award

The 2026 Cornerstone Award went to a group of engineers at ABB who have developed a new energy-efficient and resource-efficient electric motor system. Improving the energy efficiency of electric motors has a huge impact on the climate; in the EU, for example, electric motors account for more than half of all electricity consumption.

”ABB's work group has developed a synchronous reluctance motor (SynRM) and variable speed drive (VSD) package that has quickly become a commercial success. This proves that businesses, too, engage in cutting-edge research”, wrote the jury in its assessment.

Induction motor technology has been the most commonly used technology in electric motors for decades.

”The operation of a synchronous reluctance motor is based purely on guiding magnetic flux and there is no squirrel cage, which results in less loss and higher efficiency and therefore better energy performance”, explains ABB's Global Product Manager **Ari Tammi**.

”The electronic VSDs that are used to regulate the speed of induction motors have become so widely available that it is now possible to also introduce the market to a motor designed specifically for these drives. The SynRM market keeps growing as VSDs become increasingly common and energy performance requirements get tighter and tighter.”

The system developed by ABB meets these rising demands.

”Reaching the highest efficiency levels using induction motors is becoming more and more difficult and less and less cost-effective all the time, but synchronous reluctance motors are an excellent solution to this problem. Meeting energy performance criteria is easier with synchronous reluctance motors than with induction motors, which allows customers to switch to processes with lower emissions.”

”We have achieved a high level of market adoption with our SynRM-VSD system in a matter of a few years, and our turnover from these motor-drive packages now exceeds EUR 10 million. New uses for the technology are being discovered all the time, including water-cooled SynRM and SynRM for explosive atmospheres”, Tammi explains.

Team spirit across eight locations: Sitowise Ltd Landscape wins the Forerunners Award

This year's winner of the Forerunners Award, which recognises excellence in teamwork, was Sitowise Ltd Landscape.

”Having an international team spread across eight different locations while also navigating the rapid growth associated with mergers and acquisitions is not an easy starting point for building morale, but Sitowise Ltd Landscape has managed to forge a strong team spirit and to combine that with high productivity”, wrote the jury in its assessment.

Sitowise Ltd Landscape is the landscape architecture division of a diversified consultancy firm.

Back in 2008, the landscape architecture team consisted of around ten people – now, it is one of Sitowise's largest divisions. In 2018, Sitowise acquired the landscape architecture practice MA-Arkkitehdit, which raised the number of staff to above 30 and inspired the landscape architecture team to draw up a division-specific strategy that factored in not just sales and marketing but also well-being at work and stress management.

”We brainstormed about how we could make our basic processes more efficient and what would be the best ways of working. For example, all our projects end with a debriefing where we review what went well and look for areas where we still have room to improve and how”, explains **Ismo Häkkinen**, Leading Consultant and Project Manager at Sitowise Ltd Landscape.

The team’s commitment to environmental and social sustainability has also set an example for the whole company.

”Our landscape architects have been promoting nature-based storm-water management since the early 2000s, which has turned Sitowise into Finland’s leading consultant on nature-based storm-water management solutions.”

The team speak fluent Finnish and Swedish and also includes reinforcements from Italy and Japan. Sitowise Ltd Landscape has offices in Espoo, Kuopio, Turku, Tampere, Joensuu, Pori, Oulu and Rovaniemi.

Team’s positive atmosphere also boosts performance.

”Sitowise has grown into one of Finland’s largest landscape architecture practices. Our most notable clients are the municipalities of the Helsinki capital region, the cities of Turku and Tampere, the Finnish Transport Infrastructure Agency as well as several large construction firms and green energy companies. The turnover of Sitowise Ltd Landscape has quadrupled in 17 years.”

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