

## 6 RENEWABLE ENERGY TRENDS TO WATCH IN 2019\*

### 1. Energy Storage

Energy storage plays an important role in balancing power supply and demand and is key to tackling the intermittency issues of renewable energy. Pairing a storage system with a renewable energy source ensures a smooth and steady power supply, even when weather conditions are not optimal for energy generation.

### 2. Microgrids and AI

Microgrids are local energy grids that can operate either autonomously or while connected to a larger traditional grid. They provide energy independence, efficiency and protection during emergencies. Using the machine learning capabilities of Artificial Intelligence (AI) with microgrid controllers allows for continuous adaptation and improvement of operation.

### 3. Energy Blockchain And IoT

Originally developed to record cryptocurrency transactions, blockchain technology is being adapted for use in the energy market. Blockchain is an incorruptible digital ledger that conducts and records transactions through a peer-to-peer network. The lack of centralization in blockchain leaves it as ideal for eliminating the middlemen of electricity suppliers. It reduces energy inequality and inefficiency and empowers consumers to buy and sell energy from other consumers directly.

Pairing the distributed ledger technology of blockchain with the everyday devices that we use to receive and convey information, now commonly referred to as the Internet of Things (IoT), stands to have a profound impact on energy systems. With the correct applications, devices can autonomously buy and sell energy at the optimal times, optimize energy system settings in a real-time context and monitor and analyze performance of energy-consuming devices.

### 4. Grid Parity and Falling Costs

Grid parity occurs when an alternative energy can generate power at a cost and performance level equal to or less than electricity generated from conventional methods. Solar and wind have reached parity in both price and performance in many regions, and new technologies continue to hone their competitive edge.

### 5. Big Commitments

An increasing number of corporations, cities and countries are embracing emissions reduction targets and climate action plans to meet the goal of limiting the rise in global temperature. To date, over 100 cities worldwide report that at least 70 percent of their energy production is from renewables, and more than 40 are currently operating on 100 percent renewable electricity. Hundreds more have pledged to work towards the

goal of energy generation that is 100 percent based on renewables. Recognizing their impact on climate change, 158 companies have also committed to transitioning to 100 percent renewables.

## 6. Energy Access Advances in Developing Countries

When talking about exciting new innovations in energy technology, it can be easy to forget that a significant percentage of the world's population remains without access to energy at all. A billion people live without electricity and hundreds of millions have unreliable or prohibitively expensive energy sources. Achieving universal access to energy is a critical component of addressing global development challenges. The changes that are occurring in the energy market offer a solution to the problem of energy access. Community-based microgrids could represent the most cost-effective way of delivering affordable and reliable power to those currently living without it. Clean, modular and renewable energy systems are ideal for many of the communities that have been unable to benefit from conventional centralized forms of energy generation and delivery.