ST Engineering

IoT SOLUTIONS FOR GREEN ENERGY

IoT Within Reach

The internet of things (IoT) is a steadily growing billion-dollar market largely driven by companies undergoing digitization for greater efficiency and transparency, as well as by 5G and emerging applications like smart cities. Satellite's inherent capabilities — such as its ability to reach remote areas, its ability to scale, to extend coverage for other providers — make it an essential part of a hybrid network needed to support an interoperable IoT system. Many sites are in hard-to-reach areas, out of terrestrial coverage or require resilient back-up options. Satellite becomes critical to deliver total network integration.

IoT and the Green Energy Market

IoT is already widely used in the energy sector for monitoring pipelines, tanks, wells, pumps, and networks as well as collecting data from smart meters. As energy companies undergo their own digital transformation, driven by the need to monitor, manage, automate, and improve energy supply, satellite has become an important part of the sector's connectivity portfolio. Green energy, which is derived from renewable sources such as wind, solar, hydro, and geothermal power, has become an increasingly popular alternative to traditional fossil fuels. In particular, wind parks have become a significant contributor to green energy and play a crucial role in climate control. Wind parks are large-scale projects that use multiple wind turbines to generate electricity.

Market Snapshot

Satellite IoT can enable green energy firms to reliably operate, monitor and collect data from wind parks located in hard-to-reach places.

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They are often located in areas with high wind speeds, such as coastlines or open plains, and can produce significant amounts of electricity. The rise of wind parks has also been driven by advances in technology: Wind turbines have become more efficient and cost-effective, allowing them to produce more electricity at lower costs. Further, Governments worldwide have recognized the importance of reducing greenhouse gas emissions, promoting renewable energy, and supporting sustainable development. As a result, Governments have implemented policies to incentivize the adoption of renewable energy sources such as on-shore and off-shore wind parks contributing to a recent uptake in significant development projects.

IoT Application Summary

Monitoring: Automate tasks such as meter reading and data analysis and collect data on energy production.

Increase Performance: Remotely control the turbines to maximize power output and eliminates the need for engineers to be onsite reducing manpower requirements and lowering operating costs.

Improve Operations: Monitor the health of the turbines. Predict maintenance needs by monitoring temperature and vibration to avoid costly downtime and repairs.

Security & Regulatory Conformity: Monitor for potential security breaches and ensure correct operation according to local regulations, i.e. when located near air traffic flight paths.

Resiliency: Satellite IoT complements existing terrestrial connectivity by offering a dual and diverse backup route delivering high availability.

IoT Within Reach With ST Engineering iDirect

The opportunity for satellite solutions are numerous. Different use cases can be served by either direct to satellite or IoT aggregation using VSAT depending on the data, scale and requirements. At ST Engineering iDirect, our Satellite IoT Solutions serve all of these data requirement use cases. Our Evolution, Velocity and Dialog multi-service platforms are ideal for fixed and mobility applications that range from high to very high data rates (HDR) where the IoT information and voice, data and video requirements have been aggregated and require a reliable, constant stream of data.

However, we recognize that IoT requirements also exist in the low data rate (LDR) and medium data rate (MDR) market segments. Service providers that want to build a new IoT service offering for these markets, or that are new entrants into the IoT market in general, require a highly efficient, cost-effective solution and flexible business model.

That's why ST Engineering iDirect has launched our flexible IoT Solutions to supplement our highly successful platforms and to ease the entry of service providers into the IoT market. This new LDR and MDR offering provides customers with a complete connectivity solution that's built on a flexible service enablement platform paired with IoT-as-a-service options. With our scalable Evolution, Velocity, and Dialog platforms and our small form-factor IoT terminal, powered by hiSky, we can support flexible business models for immediate market access of fixed and mobile IoT environments while reducing the upfront capital investments and operational complexity usually required to launch an IoT platform and service. Our IoT Solutions are ideal for LDR (small data bursts of 10-30 Kbps) and MDR (continuous, on-demand throughput of 10–500 Kbps or 25 MB per month) applications. Our solutions utilize a family of compact, lightweight IoT terminals that feature a tightly integrated satellite modem and flat-panel antenna design in Ka-band or Ku-band variants.

Need more data than that? Our iQ and MDM series modems on our Evolution, Velocity, and Dialog multi-service platforms are ideal for fixed and mobility HDR IoT applications.