Renewable Energy Capacity Is Expanding Faster Than Grids Can Coordinate It

PERTH, WA, AUSTRALIA, May 17, 2026 /EINPresswire.com/ -- Global renewable energy capacity has expanded rapidly over the past decade, but the operational systems required to coordinate distributed energy resources in real time are struggling to keep pace.

Electricity networks originally designed around predictable, centralised generation are now managing increasingly dynamic bidirectional flows from rooftop solar, battery systems, EV charging infrastructure, demand response assets, and distributed storage operating across multiple ownership, metering, and control environments.

The International Energy Agency projects renewable capacity growth will continue accelerating through the decade as electrification and distributed energy adoption increase globally.

At the same time, utilities, distribution network operators, and energy market participants are facing growing operational pressure associated with feeder-level visibility limitations, renewable curtailment, network congestion, and distributed asset coordination.

The Operational Coordination Problem

Arnowa said the challenge is no longer primarily about renewable generation volume, but about operational coordination capability. Each distributed energy resource added to a network increases the complexity of balancing, dispatch, forecasting, and local network management unless operators have sufficient real-time operational visibility and coordination capability across the grid edge.

In Australia, rooftop solar now contributes a significant share of National Electricity Market generation output, yet visibility below the distribution zone substation level remains limited across many parts of the network.

Across North America and Europe, utilities and market operators are also facing increasing pressure to improve coordination of distributed energy resources participating in flexibility markets, demand response programs, virtual power plants, and decentralised energy environments.

Operational issues including renewable curtailment, localised voltage instability, thermal

constraints, and underutilisation of distributed flexibility assets are becoming increasingly visible across high-DER markets globally.

“The world has deployed distributed generation at extraordinary scale. The operational infrastructure required to coordinate it intelligently has not expanded at the same pace,” said Vinod Tiwari, Senior Advisor- Energy Markets at Arnowa. “That operational gap is increasingly visible in curtailment, coordination inefficiencies, local network constraints, and system reliability pressure. Distributed energy systems require continuous operational visibility and real-time coordination capability if they are going to operate efficiently at scale.”

Operational Intelligence at the Grid Edge

Arnowa said utilities, embedded network operators, commercial precincts, and industrial energy users are increasingly seeking operational intelligence platforms capable of improving distributed asset visibility, coordination, and real-time operational response across dynamic energy environments. The company’s Arnowa Analytics Platform combines real-time operational monitoring, distributed asset coordination, predictive analytics, anomaly detection, and operational reporting across distributed energy systems and infrastructure environments.

Arnowa said the platform is designed to support increasingly decentralised energy systems where operational coordination, local visibility, and rapid response capability are becoming critical to maintaining reliability, efficiency, and network stability.

The company’s existing client base includes utilities and infrastructure operators operating in high-distributed-energy environments where renewable integration and distributed coordination challenges are becoming increasingly operationally significant. Arnowa operates across Australia, the USA, the UK, and international markets supporting utilities, infrastructure operators, industrial organisations, energy service providers, and distributed infrastructure environments managing increasingly complex operational energy systems.

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