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Use cases

Agentic AI for energy and utilities: real-time cost, grid and ESG

Make energy a real-time decision and bring explainable, agentic operations to distributed assets — lower cost and peak load, with the ESG evidence as a by-product.

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EXECUTIVE SUMMARY

Energy and utility operators carry one of the largest controllable costs in any sector and the least real-time visibility into it. This use-case paper shows how Humael Urja turns consumption into a live decision — NILM fault detection, forecasting, EV smart-charging, V2G and demand response — while agentic operations bring explainable monitoring to distributed assets, all deployable inside operational-technology constraints, producing cost savings and auditable ESG evidence from one system.

The cost you can't see until it's spent

Energy is committed continuously and billed monthly, so most operators discover what they spent long after they could have acted. A degrading chiller draws excess power for weeks; a peak-demand charge is set by a single fifteen-minute window nobody watched. The data exists in the meters — the visibility does not.

Energy as a real-time decision (Humael Urja)

Humael Urja turns meter data into live visibility, forecasting and savings across every site. Three levers most teams leave unused: appliance-level NILM detection that catches a failing asset from its electrical signature without instrumenting everything; EV smart-charging and vehicle-to-grid that schedule around price and turn parked fleets into a grid asset; and demand response that shaves peak load and earns revenue for flexibility you already have.

Real time

visibility of every watt, every site

Forecast

spend and peak load before the bill

NILM

fault detection without full instrumentation

Revenue

from V2G and demand response

Cost and ESG from one system

Sustainability reporting and cost reduction are usually two projects. Urja collapses them: the same disaggregation and forecasting that lower cost and peak load produce the auditable evidence behind ESG reporting. Lower operating cost and a credible, evidence-backed sustainability story come from a single source of truth.

Built for OT constraints

Utilities and energy operators run sensitive operational-technology environments. Urja deploys in the cloud or on-premise alongside existing building- and energy-management systems, modelling savings on your meters rather than a brochure's assumptions.

Conclusion

Energy feels uncontrollable because it is measured too late to control. Make it visible and predictable in real time, add disaggregation, smart-charging and demand response, and one of the sector's largest costs becomes a managed, optimised, reportable decision.