



Unlocking RIIO-ED3 Success

From Reactive to Predictive LV Network Management

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Executive Summary

The RIIO-ED3 framework (2028–2033) represents a fundamental step-change in how Distribution Network Operators (DNOs) must plan, operate, and invest. Ofgem’s direction demands integrated long-term plans to 2035 aligned with Regional Energy Strategic Plans (tRESs), robust evidence for investment justification, delivery of consumer value, net zero outcomes, resilience, and connections performance. DNOs can no longer rely on assumption-based or purely reactive models; they must demonstrate foresight, data-driven optimisation, and measurable performance improvements.

At the core of this challenge is the low-voltage (LV) network. As the part of the system closest to customers and most exposed to the impacts of electrification, LV networks suffer from a critical visibility gap. This gap turns capacity management into a visibility problem rather than a pure infrastructure problem, leading to conservative assumptions, delayed connections, unnecessary reinforcement, and missed opportunities to “touch the network once.”

Reactive network management, while familiar, carries hidden costs that directly undermine RIIO-ED3 objectives. Repeated interventions, inefficient workforce deployment, prolonged customer interruptions, and cross-functional inefficiencies erode performance against incentives such as the Interruptions Incentive Scheme and make it harder to evidence prudent investment.

This report demonstrates why enhanced, continuous LV monitoring is now essential for RIIO-ED3 readiness and delivers the granular, real-time insight DNOs need to shift to predictive, proactive operations. Combining continuous monitoring with advanced analytics enables pre fault detection, precise fault location, capacity release, optimised intervention selection, and stronger evidence for business plan submissions.

Key Benefits of predictive LV network management

- + Unlock latent capacity and accelerate connections
- + Reduce Customer Minutes Lost (CML) and repeat interventions significantly
- + Improve workforce efficiency and lower fault costs
- + Provide defensible, evidence-based justification for investments in ED3 and beyond
- + Future-proof networks for net zero and resilience requirements

Network Operators (DNOs) that adopt predictive LV strategies will be best positioned to outperform under RIIO-ED3 scrutiny and deliver superior consumer outcomes.



Why ED3 Demands a new Network Strategy

RIIO-ED3 places unprecedented emphasis on long-term, integrated, evidence-led planning. DNOs must submit comprehensive business plans demonstrating alignment with tRESPs, proactive investment and utilisation of flexibility, robust delivery assurance, and clear links between network insight, investment decisions, and consumer/regulatory outcomes.

LV networks represent both the greatest opportunity and the biggest risk in this new regime. They constitute a substantial portion of the asset base yet have historically received limited real-time visibility compared to higher voltages. With accelerating electrification, LV assets now face volatile demand, reverse power flows, localised constraints, and accelerated degradation — conditions that traditional reactive approaches and smart meter data alone cannot adequately address.

Limited LV visibility forces DNOs into conservative planning, delaying connections and investment or triggering premature reinforcement. This conflicts directly with RIIO-ED3 expectations for efficient, targeted investment and optimal consumer value. Enhanced visibility transforms decision-making from assumption-based to evidence-based, enabling DNOs to confidently identify available headroom, prioritise interventions, and justify plans with data.

Continuous, high-resolution LV insights that integrates with broader network intelligence platforms, supports the foresight and adaptability Ofgem now requires.



The Hidden Cost of Reactive Networks

Reactive management has long been viewed as pragmatic, but under RIIO-ED3 it exposes DNOs to significant risks and inefficiencies. **Crews respond to symptoms rather than root causes, leading to repeated site visits, temporary fixes, prolonged outages, and inefficient resource use** — all of which undermine workforce productivity, customer satisfaction, and regulatory performance metrics.

These hidden costs extend far beyond direct repair expenses, affecting operations, customer service, asset management, investment planning, and regulatory compliance.

At a time when DNOs face rising delivery requirements and constrained skills availability, reactive dispatch consumes capacity that could otherwise be directed to planned work, preventative maintenance and connection-enabling activity. In ED3, where the scale of network delivery is expected to grow, inefficient use of field resources becomes a material constraint.

The financial impact is not limited to direct repair cost. Reactive networks generate cross-functional cost across operations, customer service, asset management, investment planning and regulatory performance. These costs are often recorded in different places, making the full value of preventative action harder to evidence.

Comparison of Approaches:

ASPECT	REACTIVE APPROACH 	PROACTIVE APPROACH 	RIIO-ED3 BENEFIT 
+ Fault Detection	After customer impact	Before customer impact	Improved CI/CML/CSAT
+ Intervention Timing	Urgent / reactive	Planned and targeted	Workforce efficiency & CSAT improvement
+ Repeat Activity	High	Significantly reduced	Lower fault costs
+ Investment Justification	Assumption-based	Data-led	Well-justified business plans
+ Asset Life	Shortened by unknown stress	Extended through early intervention	Deferred / optimised capex across investment categories
+ Regulatory Alignment	Hard to demonstrate	Improved consumer service & outcomes	Frontier performance within the regulatory contract
+ Capacity	Long wait times for connections	Proactive planning for future needs	Support faster, smarter, more efficient connections

Spotlight

Evidence of Proactive Network Management in Practice

The benefits of moving from reactive fault response to proactive network management are already being demonstrated across UK electricity networks.

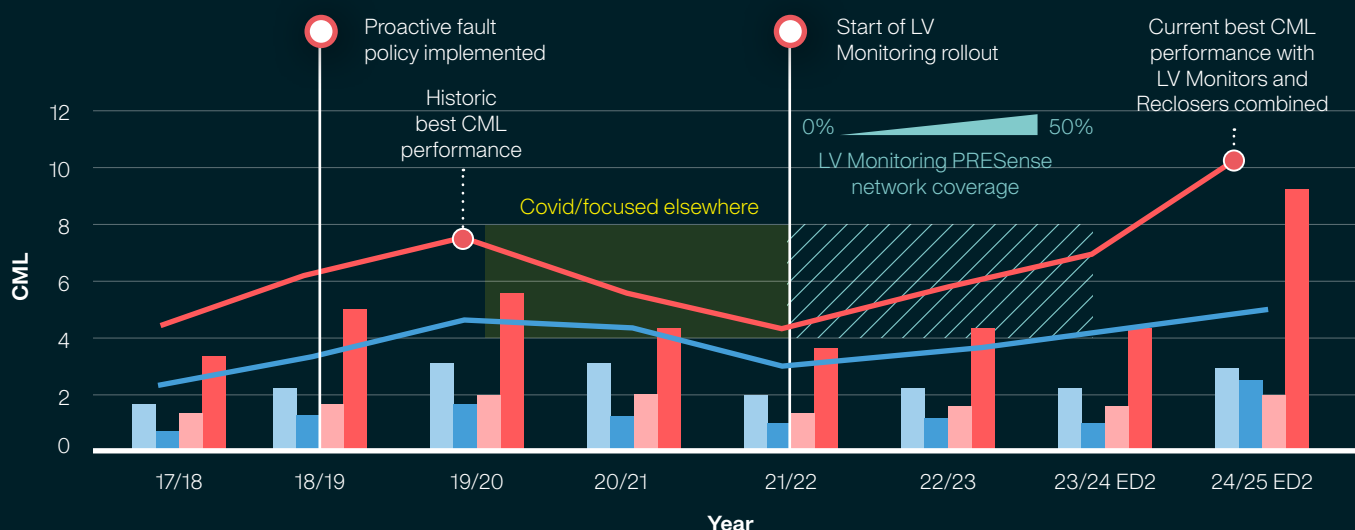
Real-world deployments demonstrate the transformative impact of continuous LV monitoring. In one large-scale implementation with a Network Operator (DNO), combining PREsense monitoring with proactive fault management delivered over 128% improvement in Customer Minutes Lost (CML) savings, with CML reduced dramatically (e.g., from baseline levels equivalent to 4.0 to 10.5+ in targeted metrics).

Key Outcomes

- + Earlier fault identification and faster location
- + Reduced repeat operational activity
- + More targeted intervention planning
- + Better workforce deployment
- + Improved utilisation of existing assets

These results prove that visibility is not merely operational; it is a strategic enabler for RII0-ED3 success, delivering better network outcomes, customer experience, and evidence for investment decisions.

Benefit | Other DNOs journey from reactive to managing LV faults proactively



Key

CI: Customer Interruptions

CML: Customer Minutes Lost

ED2: Electricity distribution price control period set out by UK regulator OFGEM

CI Reclosures

CI Fault Locations

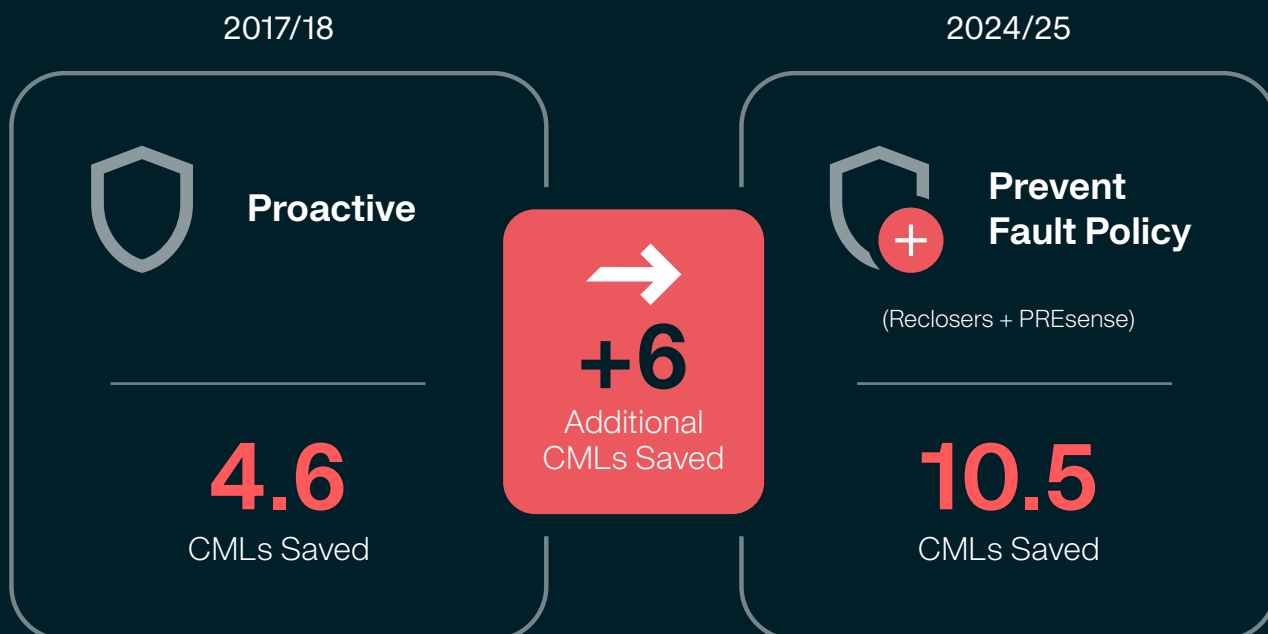
CML Reclosures

CML Fault Locations

CI Total

CML Total

Performance Improvement



*Cumulative CML achieved in the year

This case study demonstrates the impact on CI and CML UK DNO has achieved by utilising Auto-Reclosers and PRESense on their LV networks using our solutions.

Note that CI/CML reduce and follow with the rate of equipment being used for reclosing and locating faults, while the decrease in CML caused by fault locations has an exceptional increase with the implementation PRESense.

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From Visibility to Reliability



Analysis from a large-scale LV monitoring deployment shows this clear relationship between increased network visibility and improved reliability performance. As LV monitoring coverage expanded and proactive fault management practices were adopted, Customer Minutes Lost (CML) savings increased significantly over the reporting period.

The False Economy of ‘Good Enough’ Monitoring

Under RIIO-ED3, short-term cost-saving choices in monitoring technology risk becoming a false economy. Solutions lacking continuous, granular data and predictive capability may address immediate faults but fail to support long-term planning, capacity optimisation, or evidence requirements.

High resolution, continuous monitoring technologies and advanced analytics provides the data, insights and asset visibility to unlock opportunities for proactive and integrated network investment to prevent faults ever occurring and reduce the time and cost of responding to faults when they have occurred. As such, they form a critical foundation for the transition towards more intelligent, adaptive, and resilient power systems.

A solution that relies on reactive dispatch, limited visibility or siloed data may resolve immediate operational challenges but may miss opportunities to address root causes, future demand growth or wider ED3 outcomes. It cannot insulate consumers and communities from the impact of inefficient or uncoordinated network activities across faults and future needs. Solutions that lack longevity or capability, particularly in terms of data and insight, may resolve immediate issues but do not contribute to a more resilient or intelligent network. In many cases, cheaper upfront investment becomes more expensive over the regulatory cycle.

By combining continuous monitoring, predictive analytics and portfolio-level asset intelligence, DNOs can identify emerging trends across asset classes, detect developing failure modes and inform longer-term replacement and reinforcement strategies.



Meaningful and granular network visibility, bringing together multiple data sets and analysis of present and predicted future health and capacity scenarios removes the reactive loop where decisions are made based on the latest fault rather than the underlying condition of the network and projected future network needs.

An ED3 ready, proactive approach with continuous monitoring capabilities informing network intervention strategies that are fit for the future will enable optimised investment, better decision-making, and stronger long-term network performance.

“Under RIIO-ED3, short-term cost-saving choices in monitoring technology risk becoming a false economy.”

From Visibility to Predictive Network Management

True RIIO-ED3 readiness requires moving beyond basic visibility to predictive, intelligence-driven operations. DNOs need to understand how LV assets are behaving in real conditions, not only how they are expected to behave using theoretical models.

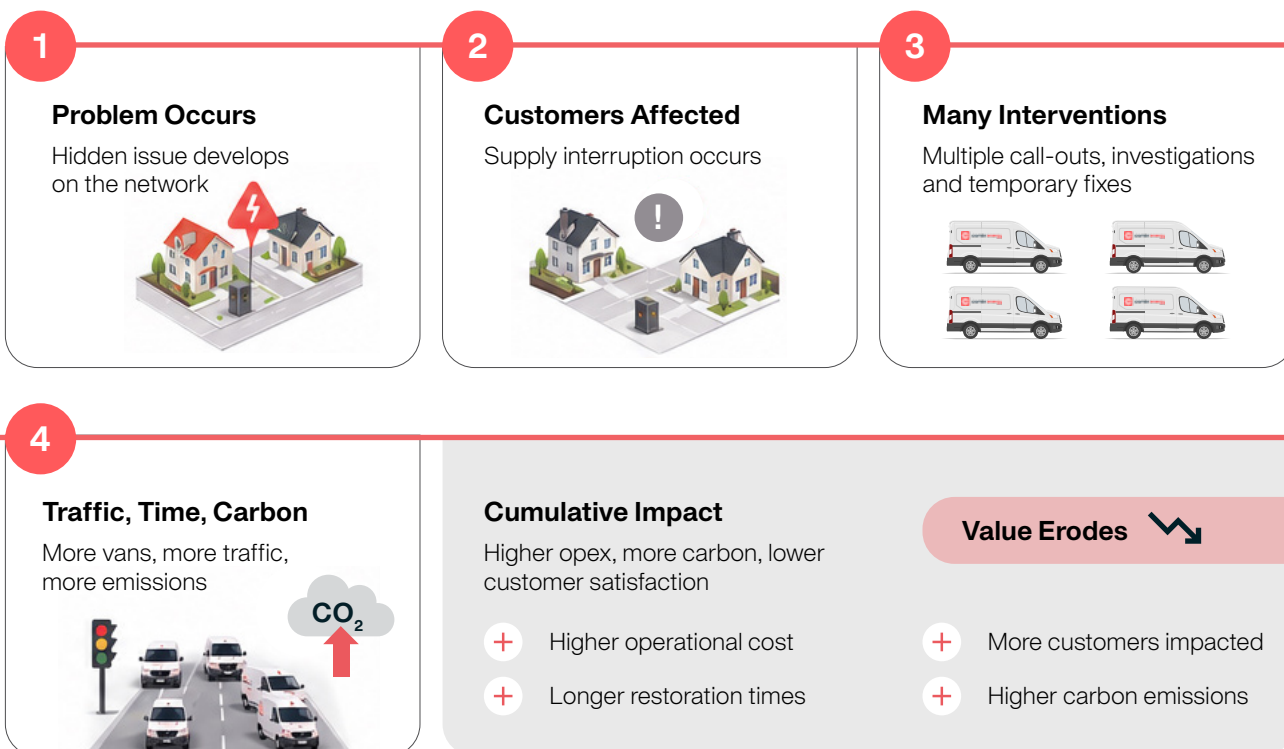
Advanced monitoring technologies such as PRESense provide this missing layer of insight. **It empowers earlier, more precise interventions, capacity release, and evidence-based reinforcement planning,** identifying developing issues before they become customer-impacting events,

PRESense should also be considered as part of a wider network intelligence model. When combined with HV monitoring, transformer insight and analytics platforms, DNOs can build a more integrated picture across voltage levels. This supports better coordination between operations, asset management, connections, DSO teams and regulatory planning.

The value is not simply better data. The value is from data driven insights informing better decisions. ED3 will reward DNOs that can convert network visibility into targeted action, robust investment cases and measurable outcomes.

Reactive Network Management

Blind spots lead to avoidable cost and disruption



The hidden cost of blind spots:



More vans



More people



More delays



More time



More cost

Predictive Network Management With PRESense

Visibility drives better decisions and better outcomes

PRESense provides the insight to detect issues early, target interventions and invest with confidence.

1

Continuous Visibility

Smart sensors monitor the real network



2

Early Detection

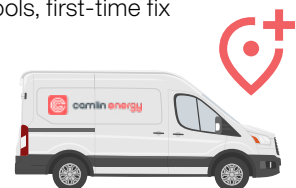
Potential issues identified before customers are affected



3

Targeted Action

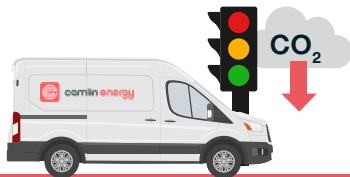
Right crew, right tools, first-time fix



4

Efficiency & Impact

Fewer interventions, less traffic, lower emissions



Better Outcomes

Lower cost, happier customers, more resilient network

- + Lower operational cost
- + Fewer customers impacted

Value Grows



- + Faster restoration times
- + Lower carbon emissions

PRESense brings clarity to every decision

The Financial Impact Of Better Visibility



20-40%

reduction in LV operational cost



30-50%

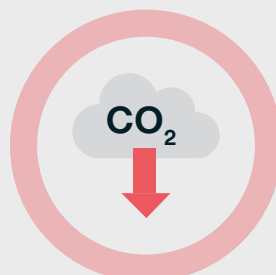
fewer repeat interventions



25-60%

faster fault location and restoration

Significant reduction in carbon emissions



Touch the network once.
Safeguard it for the future.



The ED3 Investment Opportunity

Delivering Better Outcomes for Customers

RIIO-ED3 sets a clear expectation: every pound invested in the electricity distribution network must demonstrably improve outcomes for the customers who ultimately pay for it. The central challenge for DNOs is no longer simply how much to invest, but how to ensure that investment delivers tangible benefits - more reliable power, faster connections for low-carbon technologies, lower long-term costs, and excellent service, particularly for vulnerable customers.

The low-voltage network is where these customer outcomes are won or lost. It is the part of the system closest to homes and businesses, yet it has historically lacked the real-time visibility needed for precise, proactive management. Without it, DNOs are forced into conservative, assumption-based planning that can lead to delayed connections, unnecessary reinforcements, repeat interventions, and higher costs ultimately borne by customers.

PRESense changes this equation by delivering continuous, granular LV network intelligence. This capability directly translates into superior customer outcomes:

- + Fewer interruptions and faster restoration:**
Proactive fault detection and precise location reduce Customer Interruptions (CI) and Customer Minutes Lost (CML). Real-world deployments combining PRESense with proactive practices have delivered over 128% improvement in CML savings, meaning customers experience significantly less disruption to their daily lives.
- + Accelerated net zero connections:**
Real-time visibility into available headroom allows DNOs to approve EV chargers, heat pumps and distributed generation faster and with greater confidence — helping customers decarbonise their homes and transport without frustrating delays.

+ More efficient investment and lower bills:

By identifying where reinforcement is genuinely needed and where assets can be optimised or deferred, PRESense helps DNOs avoid premature or over-specified investment. This protects customers from unnecessary costs while ensuring the network is ready for future demand.

+ Better service for vulnerable customers:

Enhanced data enables smarter prioritisation of work and resources, ensuring those most reliant on reliable supply receive focused attention and faster response when issues arise.

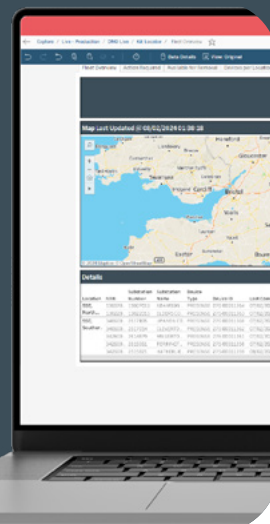
+ Greater resilience to extreme weather and demand growth:

Early insight into network stress points allows DNOs to strengthen the system proactively, reducing the impact of storms, heatwaves and rapid electrification on customers.

DNOs that equip their LV networks with this level of visibility and predictive capability will not only navigate ED3 scrutiny more effectively - they will deliver:

-  **Reliable**
-  **Affordable**
-  **Low-Carbon Energy services**

That customers expect and deserve.



Conclusion

Acting Earlier, Planning Better - For the Customers Who Depend on Us

The ED3 regulatory period will see DNOs successfully manage the most complex transformation the electricity system has seen in a generation. It will reward those who can move beyond reactive, assumption-driven models and build the data foundations for proactive, evidence-led decision making — especially at LV level, where electrification meets the customer and where visibility has historically been weakest.

Camlin Energy's PRESense has already proven its value in thousands of UK deployments. Its combination of continuous high-resolution monitoring, advanced analytics and future-proof architecture delivers measurable improvements in the outcomes that matter most to customers: fewer power cuts, faster low-carbon connections, more efficient use of their money, and a more resilient supply.

Superior customer outcomes are the ultimate measure of success.

PreSENSE delivers the data and insights that enable DNOs to invest with evidence, act proactively to prevent problems before they affect homes and businesses, and use real-time insight to “touch the network once” — minimising disruption while maximising value for the people they serve.

