

What's Going on Behind the Meter?

Accelerating Innovation, Efficiency, and CX in Australia's Energy Sector

Executive Summary

The Australian energy sector is at a pivotal moment. The rapid proliferation of smart meters, distributed energy resources (DER), and evolving customer demands, coupled with significant regulatory shifts, is reshaping the landscape. Our recent event brought together industry leaders to discuss these transformative forces, revealing a shared urgency to innovate, overcome technological bottlenecks, and ethically harness the power of AI.

This whitepaper delves "**behind the meter**" to explore the critical challenges facing retailers, distributors, and embedded networks. We'll uncover how legacy systems, stringent compliance demands, and talent gaps are stifling progress. We'll also highlight the immense potential of real-time data and intelligent automation to drive revenue, enhance reliability, and deliver unparalleled customer experiences. Finally, we'll address the crucial need for responsible AI adoption, ensuring that innovation is not just effective but also ethical and trustworthy.

From Flux to Future: Seizing Energy's New Era

Smart Meters, Smarter Demands: The Imperative for Digital Reinvention

The Australian energy market is in constant flux. From the widespread rollout of smart meters to the rise of rooftop solar and battery storage, the traditional energy grid is evolving into a complex, interconnected ecosystem. Customers, now more empowered than ever, demand personalised experiences, greater control over their energy consumption, and transparent interactions. Simultaneously, regulatory bodies are tightening their grip, pushing for increased operational resilience and data accountability.

These pressures are not just challenges; they are catalysts for digital reinvention. Energy companies are grappling with the need to modernise infrastructure, leverage vast amounts of new data, and adapt to a rapidly changing competitive landscape. This paper will explore three core narratives that define this transformation:



Unpacking the Data and Tech Roadblocks

Why are innovation pipelines still stuck in the 2010s?



Moving from Reactive to Real-Time

Maximising real-time insights for better revenue, reliability, and customer experience.



Making AI Real

Getting your AI projects off the ground without stalling mid-runway.

Innovation Interrupted: Unpacking Energy's Bottlenecks

Why Are Innovation Pipelines Still Stuck in the 2010s?

Despite significant investments in digital transformation, many Australian energy companies find themselves battling familiar foes: entrenched legacy systems, fragmented data, and a growing compliance burden. These challenges aren't just inconveniences; they are throttling innovation and slowing time to market.

Challenge 1: Your Data is Trapped: The Hidden Costs of Legacy IT in Energy

? **The reality on the ground is stark: 76–78%** of Australian energy companies are still battling data silos, with nearly half admitting it's their biggest operational constraint. This isn't just a technical problem; it's a business inhibitor, costing companies dearly in:



? These silos prevent a holistic view of operations and customer interactions, making agility a distant dream. While some players are pushing low-code platforms and unified data layers, **solutions that are API-first, Cloud-native, and middleware-intelligent** are proving to be game changers. This approach means faster integration, cleaner pipelines, and data that's ready to use, helping you smash those silos for good.

Challenge 2: Compliance Crunch and Why It's About to Get Worse

- ? With mandates like APRA's new Prudential Standard APS 230 going live from July 2025, data governance, operational risk, and third-party oversight are under a magnifying glass. While APS 230 is designed for financial institutions, it signals a broader regulatory trend towards data accountability and operational resilience, which energy firms are not immune to, especially given their critical infrastructure role.
- ? **The strain is real: 75%** of ANZ executives say the cost and risk of data is ballooning due to fragmentation. Non-compliance not only invites penalties, it disrupts investor confidence and operational stability at a time when transformation can't afford delays.
- ? Consulting giants are pivoting toward flexible, innovation-friendly governance models moving away from checklist compliance to frameworks that allow for agility, experimentation, and controlled risk. A smart move for energy firms is to **adopt automated metadata tracking, compliance-ready data pipelines, and real-time quality dashboards**. These capabilities help you stay agile and audit-ready, ensuring innovation breathes while controls remain robust.

Challenge 3: Talent Gaps – Who's Going to Build All This?

- ? The ambition for digital transformation often outpaces the available talent. Australia needs **52,000** new tech professionals annually until 2030, yet **less than 1%** of graduates are truly job-ready. Bridging this gap is costly and time-consuming, taking approximately **7.5 months** and **~\$6,900 per employee** for reskilling.
- ? This skills deficit directly impacts the pace and quality of digital projects. While others cope with blended delivery models and certification programs, **a model that blends onshore expertise with offshore execution and wraps it in a fast-track upskilling and certification program** can ensure your data and digital teams hit the ground running, equipped with the skills needed to drive real change.

The "Now" Economy: Real-Time Power Plays

The Need for Speed: Monetising Moments in the Energy Now-Economy

Revenue, Reliability, and CX in the Age of Now

- ⚡ In today's dynamic energy market, speed is everything. The ability to capture, process, and act on data in real-time is no longer a luxury but a necessity for maximising revenue, ensuring reliability, and delivering superior customer experiences.

Data Latency – The Invisible Revenue Killer

- ⚡ With the utility IoT market in Australia topping **\$1.1B in 2024** and growing fast, delay equals decay. Minutes of lag can translate into missed alerts, service disruptions, and lost revenue opportunities. Being reactive means you're always a step behind, unable to capitalise on fleeting moments of opportunity or mitigate emerging risks.
- ⚡ While market leaders like Siemens, Cisco, and IBM are investing heavily in edge computing and real-time pipelines, **IoT-native, real-time analytics architectures** offer a distinct advantage. These solutions get you from data to action in near real-time. You're not just reacting; you're responding, proactively optimising operations and engaging customers.

Insights That Go Nowhere

- ⚡ It's one thing to generate insights; it's another to act on them. Only **16%** of Australian utilities have embedded AI, and even among those, valuable insights often gather dust, failing to translate into tangible business outcomes. The promise of AI remains unfulfilled if it doesn't drive actionable decisions.
- ⚡ The new playbook involves AI-driven decision engines that automate responses to real-time data. Think dynamic tariff models, automated outage rerouting, or predictive maintenance triggers. **Building AI that acts**, with automated triggers and real-time workflows, means CX wins your customers notice.

One-Size-Fits-None Customer Experience

- ⚡ Customers today expect personalisation. The Australian energy management market is set to hit over **\$162 billion** next year, with a **10% CAGR**, driven by this demand for tailored services. Yet, many competitors are still personalising based on yesterday's batch data, missing the dynamic nature of customer needs.
- ⚡ A key differentiator lies in **the ability to segment and personalise in real-time**. This means suggesting tariffs, notifying customers of consumption spikes, or triggering alerts based on current usage profiles. The focus shifts to micro-moments, not mass mailers, ensuring every customer interaction is relevant, timely, and impactful.

AI's True North: Foundations, ROI, Ethics

AI's Ascent: Navigating the Runway to Real-World Impact

AI holds immense promise for the energy sector, but getting projects off the ground without stalling mid-runway requires more than just a PowerPoint presentation. It demands robust data foundations, a clear path to ROI, and an unwavering commitment to ethical implementation.

Poor Data Foundations – Garbage In = Garbage Out

- ⚡ No matter how advanced your AI model is, if your data is messy, unlabelled, or outdated, your AI is going nowhere. Garbage in, garbage out still rules in the AI era. No algorithm can fix mislabelled, fragmented, or outdated data. It's why **70%** of AI pilots fail – not because the models are wrong, but because the foundation is broken.
- ⚡ While leading firms are undertaking large-scale data lake modernisation projects, shifting from "store everything" to "store with purpose," **building ML-ready data foundations – clean, labelled, structured** is crucial so your AI doesn't just pilot. It scales. This involves focusing on real-time ingestion, metadata governance, data cataloguing, and pipeline health monitoring to ensure your data is an active engine for structured, secure, and timely delivery.

ROI Hesitation – Where's the ROI and When Do We See It?

- ⚡ CFOs don't fund buzzwords. They fund value. And with AI, the lack of tangible, early wins leads to caution or cutbacks. Building confidence requires demonstrating quick, measurable gains and not vague promises. CFOs know that AI doesn't always follow traditional IT ROI patterns, but they are watching closely for early wins.
- ⚡ Smart firms run micro-pilots (predictive maintenance, dynamic billing) that build executive confidence. A key element is the focus on swift pilot programs that yield clear, actionable results. Like **30%** faster resolutions or **20%** lower churn, focusing on proving value before scaling, by designing high-impact, low-risk experiments that deliver results in months, not years.

AI Ethics & Regulatory Fog

- ⚡ AI adoption without governance is a time bomb with underlying dangers of unchecked automation. Trust in AI begins with responsibility: explainability, fairness, and governance must be built in from day one. The public mood is clear: **58%** of Australians worry about AI and data misuse.
- ⚡ A critical commitment for any AI initiative is to **bake in AI ethics: privacy, explainability, fairness from day zero**. Compliance isn't an afterthought. It's part of the build, ensuring that AI solutions are not just powerful but also responsible and trustworthy.

The Quantum Leap: Architecting Future Energy Value

Igniting the Future: A Roadmap for Australia's Energy Leaders

The Australian energy sector stands on the precipice of unprecedented transformation. The path forward requires a clear understanding that:

- ⚡ **Digital maturity ≠ digital execution:** Having the technology isn't enough; it's about how effectively you deploy and integrate it.
- ⚡ **Real-time + AI = differentiator:** The ability to act on insights as they emerge is the key to unlocking new revenue streams, enhancing reliability, and delivering superior customer experiences.
- ⚡ **Innovation needs the right infrastructure:** Without modern, flexible, and ethical foundations, even the most ambitious digital initiatives will falter.

Empowering Your Energy Future:

Navigating the evolving energy landscape demands a strategic partner. We empower companies to thrive through:

- ⚡ **Agile Data Foundations:** Leveraging API-first, Cloud-native, and middleware integration to build faster, cleaner data pipelines and ensure compliance with automated metadata tracking and quality dashboards.
- ⚡ **Talent Transformation:** Bridging skill gaps with a hybrid + upskilling model that delivers job-ready professionals.
- ⚡ **Real-Time Intelligence:** Implementing IoT-native architecture for immediate analytics, enabling AI-driven automation for impactful customer experiences.
- ⚡ **Personalised Engagement:** Specialising in real-time segmentation and "moment marketing" for truly tailored customer interactions.
- ⚡ **Scalable & Ethical AI:** Laying ML-ready foundations and integrating built-in governance and explainability for trustworthy AI solutions.

The energy sector's future is dynamic, intelligent, and customer centric. Don't let outdated systems hinder your progress. Discover how a tailored approach can accelerate your innovation, efficiency, and customer experience journey. Connect with us for a consultation to unlock what's truly possible behind your meter.

Igniting the Path Forward




Centelon Solutions's Behind-the-Meter Roundtable in Melbourne was more than an event; it was a meeting of minds from across the Australian energy and utilities landscape. Senior leaders from diverse enterprises came together to candidly discuss the challenges and opportunities shaping the future of the sector.

What stood out most was the alignment between what the leaders voiced in the room and the broader trends emerging from industry research. The persistence of data silos, cited by almost 80% of Australian utilities in independent surveys, echoed through the discussion on entrenched legacy systems and compliance burdens. The sense of urgency around real-time intelligence resonated with forecasts that the Australian utility IoT market will continue double-digit growth over the next three years. And the debate over the high failure rates of AI pilots (close to 70% globally) underscored the sector's recognition that data quality, governance, and ethics must form the bedrock of innovation.

The insights from the roundtable strongly mirror findings from leading Australian energy reports. The Australian Energy Market Operator (AEMO) has repeatedly emphasised the importance of digital integration to manage the complexity of a decentralised grid. Similarly, CSIRO's Electricity Network Transformation Roadmap highlights the need for advanced analytics and consumer-centric digital platforms to enable flexible, low-emission energy systems. The Clean Energy Regulator has also pointed to the growing compliance and reporting obligations that make robust, auditable data frameworks essential. Together, these external perspectives validate the concerns raised by energy leaders in Melbourne and underline the urgency of action.

A Shared Road Ahead

This convergence of practitioner insight and market evidence highlights an industry at an inflection point. The path forward will not be linear, but the direction is clear:

-  **Data as Infrastructure:** Building agile, integrated, and compliant data foundations is no longer optional; it is a prerequisite for efficiency, regulatory confidence, and future innovation.
-  **Real-Time Intelligence:** Utilities that can move beyond historical reporting to predictive, IoT-native analytics will not only improve reliability but also unlock new revenue streams and differentiated customer experiences.
-  **Ethical, Scalable AI:** From resolving issues **30%** faster to reducing churn by **20%**, the potential gains are significant, but only if AI is implemented with explainability, fairness, and trust at the core.

Centelon Solutions is proud to have convened this dialogue and to play a role in bridging vision with execution. The road ahead will require collaborative innovation—combining the lived experience of industry leaders with proven technology solutions that can deliver measurable impact.

Australia's energy future will be defined by those who act boldly now. At Centelon Solutions, we stand ready to partner with forward-looking organisations to translate insights into action, helping the sector become more intelligent, resilient, and customer-centric, both at and behind the meter.



About Centelon Solutions

Centelon Solutions is a trusted business-technology solutions partner, helping large to mid-size organisations across various industry verticals in their digital transformation journey. Our core strength lies in aligning technology with investment goals and defining a strategic roadmap to continuous transformation. We aim to integrate digital technology built on a foundation of our own platforms and IP, combined with best-of-breed COTS solutions, into all areas of businesses to deliver better customer value.

We work with customers to keep pace with new trends and achieve dynamic objectives such as: higher and faster value with business-driven technology implementation using agile methodology and DevOps; technology excellence through automation, continuous delivery, application modernisation, and leveraging next-generation technologies; as well as enhanced cost optimisation through reduced cost and improved quality with cutting-edge proprietary accelerators and platforms.