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Can Malaysia power its utilities sustainably?

The Edge, Malaysia



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BY GEOFF CHILDS

The world is undergoing its most significant energy transition since the Industrial Revolution, and Malaysia has no intention of being left behind. As part of the National Energy Transition Roadmap (NETR), the country has committed to achieving 70% renewable energy capacity by 2050.

Malaysia certainly has what it takes in terms of resources. But meeting such ambitious goals will not happen on good intentions (or infrastructure) alone. Decarbonisation requires bold digital transformation, underpinned by modern platforms capable of integrating renewable and distributed energy resources at scale. Artificial intelligence (AI) and cloud technologies will be essential to accelerating progress and supporting the transition.

Transitioning to renewable energies is already a tall order. Doing so while electricity demand is expected to rise by more than 20% in the next decade due to the country's growing economy and expansion of energy-intensive industries, that's where it gets tricky.

Malaysia's power system remains rooted in centralised, legacy infrastructure designed to store and deliver excess capacity. This must evolve into a more distributed and flexible model, as technologies such as rooftop solar, home batteries and electric vehicles (EVs) are set to drastically change how, and when, energy is generated and consumed across the country.

However, decentralisation at this scale introduces new layers of complexity, particularly in balancing supply and demand.

Legacy enterprise software often lacks the agility and sector-specific capabilities needed to meet such demands. Therefore, purpose-built solutions tailored to the energy sector will be essential for navigating regulatory complexity, market volatility and rising customer expectations within Malaysia's utilities space.

As the primary energy provider for the peninsula, Tenaga Nasional Bhd is leading the charge in addressing these challenges.

DATA-POWERED DECARBONISATION

One of the biggest challenges in energy retail today is managing the exponential

explosion of data. Once reliant on largely analogue operations, energy providers are now expected to analyse complex data and translate it into actionable insights that are clear, timely and accessible, whether via mobile apps, customer service calls or digital portals.

Legacy systems, designed for a different era, are unlikely to keep pace. This is where AI becomes essential.

Consider a customer looking to purchase an EV. They want to understand its impact on bills, how it compares to petrol or diesel and if charging times affect costs. With AI embedded in a cloud-based, utilities-specific platform, it is possible to analyse the customer's past 12 months of energy usage, down to five-minute intervals, and generate a forward-looking consumption forecast.

Utilities can also leverage low-code/no-code platforms that empower business users to quickly launch, test and iterate services without heavy reliance on technical teams. This is an essential capability in today's fast-moving, deregulated markets.

Within seconds, the customer is presented with visual projections and tailored cost estimates to support confident, informed decision-making. This level of insight and automation, delivered through elegant, easy-to-understand charts and figures, simply isn't possible without the scale, speed and intelligence that cloud technologies provide.

POWERING CHANGE THROUGH CUSTOMERS

As more Malaysians shift from passive consumers to active participants in the nation's energy transition — embracing solar panels, EVs and smart home technology — utilities must rethink how they engage with customers, starting by placing customer experience (CX) at the heart of their strategy.

The future of retail energy is undeniably customer centric. Personalised services, dynamic pricing models and intuitive, insights-driven digital experiences are increasingly guiding consumers to actively manage their energy footprint.

The shift is enabled by seamlessly integrating customer relationship management (CRM) and billing into a single, cloud-based API-first platform. This approach supports

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omnichannel engagement, offers vendor flexibility and provides deep insights from detailed usage data, allowing utilities to better understand and serve their customers.

Utilities can also raise the bar for personalisation by using platforms like Agentforce that deliver real-time recommendations based on customer profiles, usage patterns and pricing plans, significantly enhancing both customer experience and operational efficiency.

The bottom line is that there is no shortage of ways utilities can harness AI and cloud technologies to shape the future of energy.

However, successful transformation depends on more than just technology. It also requires strong change management, sector-specific expertise and close alignment between IT and business stakeholders to fully realise the benefits of digital modernisation.

TOWARDS A SUSTAINABLE ENERGY FUTURE

One thing is certain: Energy companies today must ensure they have flexible, configurable technology in place to adapt and respond to the ever-evolving customer needs. The energy consumer of today will look different in five years' time, and different again in 10.

Malaysia joins a growing list of countries aiming for net zero in the coming decades and utilities have a central role to play in ensuring that the country is well positioned to navigate the changing energy market.

To do so, they must:

- Transition to modern, cloud-native utility platforms that are equipped to meet the demands of a more decentralised, data-rich energy landscape.
- Adopt sector-specific innovations tailored to the complexities of the energy retail sector, rather than relying on generic enterprise solutions.
- Embed smart tools such as DERMS (Distributed Energy Resources Management System), CRM and AI into day-to-day operations to better manage demand and customer expectations.
- Use low-code platforms to accelerate the deployment of new services and respond quickly to changing market or regulatory requirements.
- Empower customers with services that are personalised, transparent and intelligent.
- There is little time to waste. The energy transition is already underway, and the choices utilities make today will determine if, and when, Malaysia can realise its renewable energy ambitions. ■



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