



# Key Questions to Ask Before Approving New Metering Infrastructure

**Asking the right questions about AMI and AMx can help avoid common pitfalls with new meter deployments while maximizing flexibility and cost-effectiveness.**

Enabled by modern technology, AMx is a pragmatic, technology-agnostic framework for meter infrastructure investments and management that uses modern technology to improve data access and remove platform compatibility as a hardware differentiator. AMx helps utilities unlock better data from existing meters and provides true meter interoperability at low cost, giving electric, gas, and water utilities more choice and helping them better support affordability, resiliency, and decarbonization initiatives. To learn more, visit [copperlabs.com/amx](https://copperlabs.com/amx), or read the 2024 white paper [AMx: A new framework for utility meter infrastructure investments](#).

To better highlight where AMx may be a particularly good fit compared with “business-as-usual” smart meter (AMI) deployments, the questions on the following page are intended to help utilities and regulators when planning or evaluating new infrastructure needs.



	Question	Context
<b>Affordability</b>	Does the proposed new meter deployment support affordability by maximizing use of existing assets where possible and streamlining new investments?	An AMx approach can enable utilities to unlock better-quality data from existing AMR and AMI meters, helping utilities avoid replacing functional meters just to get higher-resolution data. Additionally, AMx supports true meter interoperability to allow new meter deployments to occur in a more gradual, agile way that avoids the costs associated with comprehensive meter and network replacements while still supporting strategic deployment of advanced meters that can provide unique functionality.
<b>Interoperability</b>	Will the proposed deployment result in vendor lock-in due to proprietary networks?	Most modern AMI networks are proprietary, and meters tend to get locked into a single network due to the use of network interface cards (NICs). This approach often makes it very difficult for utilities to adopt mixed meter portfolios (across types, vintages, or vendors), raising costs and making it harder to get the high-speed data backhaul that is critical for better customer engagement and new real-time utility use cases.
<b>Data Timeliness</b>	Does this proposal ensure that end-use consumers and utility employees can access timely consumption data (preferably within 15 mins of collection)?	While some AMI systems now allow for more timely data sharing, many still force customers or utilities to wait for hours or even a full day before being able to access their data, even when the meter itself is capturing high-frequency data. By using converged infrastructure, particularly existing broadband networks, an AMx approach can ensure that anyone can access meter data within seconds, maximizing its usefulness.
<b>Obsolescence</b>	Does this proposal entail the use of grid-edge computation hardware, and to what extent will data analysis take place locally in the meter vs. virtually in the cloud?	New AMI meters that rely heavily on built-in “grid edge” computation hardware and run apps within the meter itself may face a heightened risk of technological obsolescence before the planned end of useful life (imagine trying to run modern software on a 20-year-old computer). An AMx strategy that pulls data into the cloud for analysis provides a lower-risk solution over the full meter life and can more easily accommodate emerging data use cases and utility needs.
<b>Due Diligence</b>	Has the utility explored multiple data technology solutions that could meet expected needs, beyond those promoted by the major meter vendors?	Many vendors now exist to offer different kinds of meters and meter-reading technology, but the proliferation of proprietary communication networks mean that utilities often only consider a narrow range of technologies that are compatible with their existing network (even if they may not be the best or most cost-effective options).

<b>Cybersecurity</b>	<p>What steps have been taken to assure that metering infrastructure will preserve data privacy and ensure robust ongoing cybersecurity, and who will be responsible for ensuring that relevant security patches are updated on a regular basis?</p>	<p>New AMI meters are designed to connect directly with customers' home Wi-Fi networks, creating myriad new opportunities for cyberattacks. To avoid potential risks, utilities should not only investigate system security upfront, but also have a clear plan to ensure that regular software patches and updates are applied in a timely manner for the full life of the hardware. Alternatively, an AMx strategy can eliminate many of these risks by keeping data securely in the cloud and avoiding direct customer network connections.</p>
<b>Integrated Planning</b>	<p>Does the proposed solution facilitate comparisons of consumption across resources (e.g. electric, gas, or water) to support integrated resource planning and/or decarbonization pathway analysis?</p>	<p>Most meter systems (AMR or AMI) are focused on a single resource (electricity, gas, or water), and offer little-to-no apples-to-apples comparisons of data across resources. But in a modern era where integrated planning is increasingly essential to support decarbonization, natural gas management, and water-energy nexus challenges, data visibility and sharing is essential. AMx can help solve this challenge through interoperability and centralized reporting across meter types.</p>
<b>Customer Benefits</b>	<p>How does the proposed solution ensure that customers will benefit from timely and granular data in an expedient manner as hardware is deployed?</p>	<p>Previous studies have found that as many of 97% of smart meter deployments have not provided the expected benefits to customers. AMx allows utilities to perform smaller, more strategic meter rollouts to test and demonstrate real-world benefits before investing in a full deployment, and to shift approaches if needed by adopting different hardware or systems.</p>
<b>Resiliency</b>	<p>In case of an extreme storm or other natural disaster, how straightforward will it be to replace damaged meters or other related infrastructure, and will like-for-like equipment replacements be required?</p>	<p>Because many utilities are limited in their choice of meters based on compatibility with their communication network, it can be particularly expensive and slow to replace meters on short notice after a natural disaster (especially if vendors face supply chain challenges). By delivering true meter interoperability, AMx allows utilities to select whichever new meters can meet cost, technical, and availability parameters, regardless of network compatibility.</p>