

THE

September 2024

UTILITYSOURCE

Products and Services for Today's Electric, Telecom, and CATV Utilities

Transformers in Circular & Linear Economies

**Copper Labs Unveils
New Utility Portal to
Provide Detailed
Grid-Edge Visibility—
With or Without
Smart Meters**



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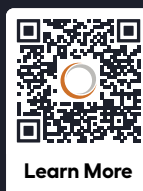
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Transformers in Circular & Linear Economies

Nathan Stenzel & Ben Gulick



Let's look at typical examples of how these two systems play out in the transformer world.

Typical Linear Economy

It is common to remove transformers from service for reasons other than failure. In some cases, the primary voltage may change. Utilities update sections of their distribution network from time to time. In other cases, building expansions need a bigger utility service. This requires a larger transformer. In both situations, the end of the transformer's service life has nothing to do with its condition. Such units are often discarded with the majority of their lifespan intact.

Sometimes a component inside a transformer fails. Examples include bushings, tap changers, or switches. Component failures require repairs which take the unit out of service. In some cases, the entire unit is discarded or set aside. Rather than repair the faulty component, the transformer is replaced with a new unit.

A linear path discards a transformer when it no longer serves its original design. Regardless of how much life is left. For some products, this is understandable. It makes less sense for goods with a low level of obsolescence (like transformers).

Typical Circular Economy

In a circular economy, the same scenarios hold true. Utilities may make voltage changes at the grid. Larger transformers end up replacing smaller ones. Transformer components sometimes fail. The difference is how the transformer is treated after it comes out of service. Rather than going to the scrap yard, the unit gets repurposed elsewhere.

If the transformer taken out of service is of no further use to the end user, it goes to someone who can use it. Users don't want the hassle of selling or repurposing surplus units. The task of repairing, testing, and shipping adds cost and time. But companies like Maddox make this easy. Maddox buys these sur-

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plus units and outfits them for new projects.

Maddox and the Circular Economy

At Maddox, we recondition used transformers to get them back into service. A used transformer sitting in a warehouse or field is no good to anyone. Not when it could be back in service supplying power to a new project. Using existing transformers provides relief to the already-slow supply chain. It also makes efficient use of our nation's scarce raw materials. Both support the circular economy. Let's look at the two main ways Maddox does this.

Transformer Reconditioning

Reconditioning transformers allows Maddox to increase its stock of deployable units. This reduces pressure on new manufacturing. It also promotes the most efficient use of materials, allowing them to reach their true end of life.

Many people choose to recycle, instead of recondition, their old or unused transformers. Recycling costs time, energy, and money. Like building new transformers. Recycling increases the availability of recycled materials for new products. But, it also increases the demand for the same product just taken out of service. At Maddox, we buy units headed for recycling for 5x their scrap value. We then recondition these units and redeploy them on the grid.

Reconditioning processes are easier on the environment too. Transformer reconditioning consumes less energy and emits less greenhouse gasses than new manufacturing.

Repair and Field Service

Beyond reconditioning old units, Maddox also offers repair and field service. This means we can keep transformers out in the field serving our customers longer. Saving them money and time spent waiting for a new replacement. Supporting the idea of a circular economy.

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Conclusion

At Maddox, we promote a circular economy. We work to ensure transformers reach their full potential out in the field. Before scrapping your old transformer, call Maddox. And if you're looking for a transformer for your next project, we've got you covered.

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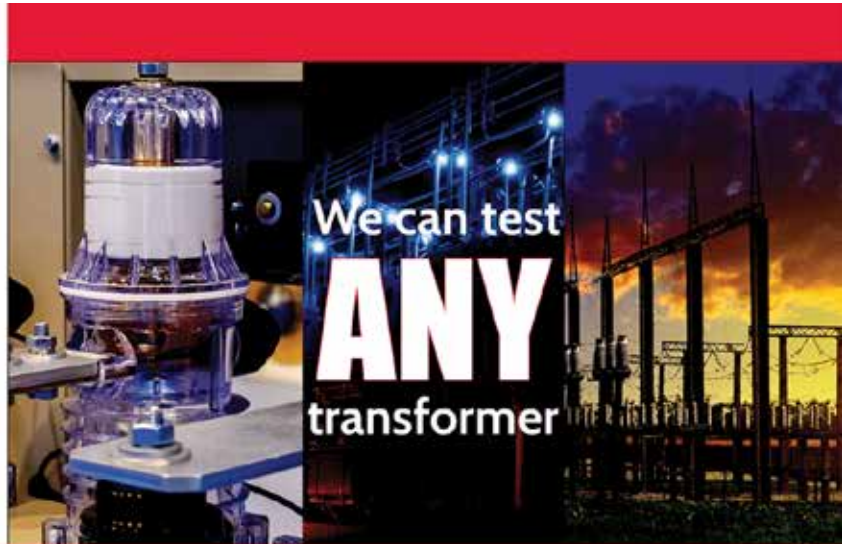


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TESCO Unveils KCTS-8000X: Advanced Transformer Testing System with Traceable Accuracy Down to a 1% Rating Factor

Traceable Accuracy to
1% Rating Factor
for CTs up to
8000 Amps



Extended Range Knopp Current Transformer Testing System

TESCO, a leading provider of utility testing solutions, is proud to introduce its newest product, the KCTS-8000X Current Transformer Testing System. This state-of-the-art system is engineered for traceable accuracy down to a 1% rating factor, setting a new standard for testing transformers with primaries up to 8000 amperes. With its advanced features, the KCTS-8000X offers power utilities unmatched precision, reliability, and efficiency, ensuring that their metering systems remain accurate and compliant.

Addressing Utility Industry Needs

Utility companies rely heavily on accurate transformer testing to ensure precise metering, which directly affects billing and grid stability. Current transformers (CTs) play a crucial role in this process, scaling down high currents so they can be accurately measured. Even minor inaccuracies can lead to incorrect billing, impacting both utility companies and customers.

The KCTS-8000X is designed to solve these issues by offering enhanced testing accuracy for a wide range of current transformers, ensuring that utilities can confidently test transformers and minimize errors. By incorporating advanced features such as electronically compensated burdens and real-time data integration, the KCTS-8000X guarantees precise results with every test.

"We developed the KCTS-8000X in response to the growing demand for more accurate transformer testing in the utility sector," said Tom Lawton, President & CEO at TESCO. "This system provides the

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confidence utility companies need to ensure billing accuracy while reducing operational inefficiencies and test errors.”

Key Features of the KCTS-8000X

The KCTS-8000X offers a range of innovative features that set it apart from other transformer testing systems:

1. *Traceable Accuracy Down to a 1% Rating Factor:* The system can test CTs with primaries up to 8000 amps, providing traceable accuracy down to a 1% rating factor. This makes the KCTS-8000X ideal for utilities needing to test a wide range of transformers with high precision, ensuring accurate billing and regulatory compliance.
2. *Electronically Compensated Burdens:* The KCTS-8000X automatically adjusts for impedance and power factor, providing reliable results even at low current levels. These real-time adjustments improve the accuracy and reliability of test results without the need for manual intervention, making the testing process smoother and more efficient.
3. *Real-Time Burden Measurement and Recording:* The system displays and records live burden measurements, ensuring thorough test validation. By capturing real-time data during the test, utilities can maintain comprehensive records, which are essential for audits and compliance reporting.
4. *TESCO Device Manager Integration:* The KCTS-8000X seamlessly integrates with TESCO Device Manager (TDM), allowing for the efficient collection, storage, and analysis of test data. This feature streamlines the workflow and reduces time spent on data management, helping utility labs improve their operational efficiency.
5. *Safety and Error Prevention Features:* The system includes several built-in safety features, such as protective circuitry and a zero-start safety function that prevents accidental test errors. These features ensure that both the testing system and the transformers being tested are protected from damage, reducing downtime and costly repairs.
6. *Motorized Test Current Control with Automatic Rundown:* The KCTS-8000X automates the test current rundown process, improving efficiency and reducing manual effort. This automation allows techni-



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cians to focus on the accuracy of the results without being burdened by time-consuming manual adjustments.

7. *Demagnetization of Transformers Prior to Testing:* The system features a transformer demagnetization function, which helps reduce erroneous results by ensuring that transformers are fully demagnetized before testing begins. This feature improves the reliability of the testing process and reduces the likelihood of incorrect readings.

Improving Utility Billing and Grid Reliability



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With its unmatched accuracy and comprehensive data integration, the KCTS-8000X is poised to significantly improve billing accuracy and grid reliability for utility companies. The ability to test CTs with traceable accuracy down to a 1% rating factor ensures that even the smallest discrepancies in metering can be detected and corrected. This is crucial in today's utility industry, where errors in energy measurement can lead to financial losses and customer dissatisfaction.

"The KCTS-8000X gives utilities the confidence to test transformers with greater accuracy, reducing billing errors and improving the overall efficiency of their operations," said Tom Lawton. "By offering such precise testing capabilities, this system helps utilities ensure the long-term reliability of their grid infrastructure."

For more information about the KCTS-8000X or to schedule a demonstration, please visit:

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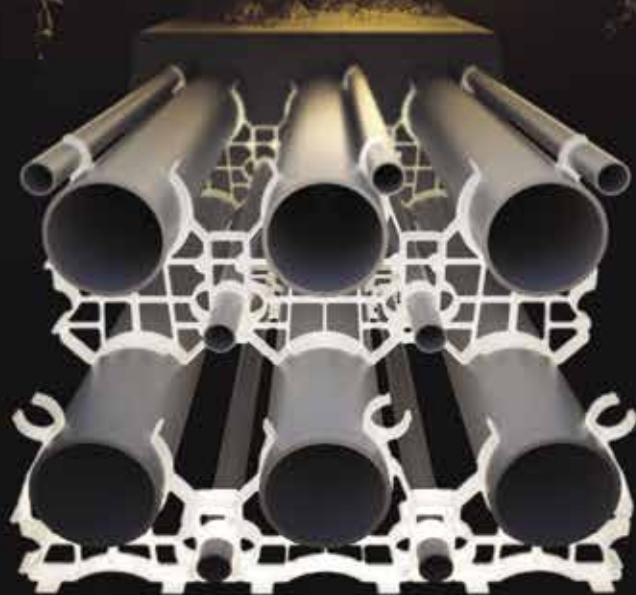
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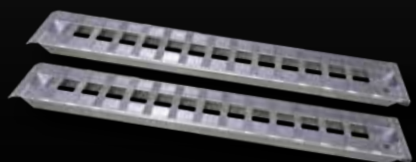


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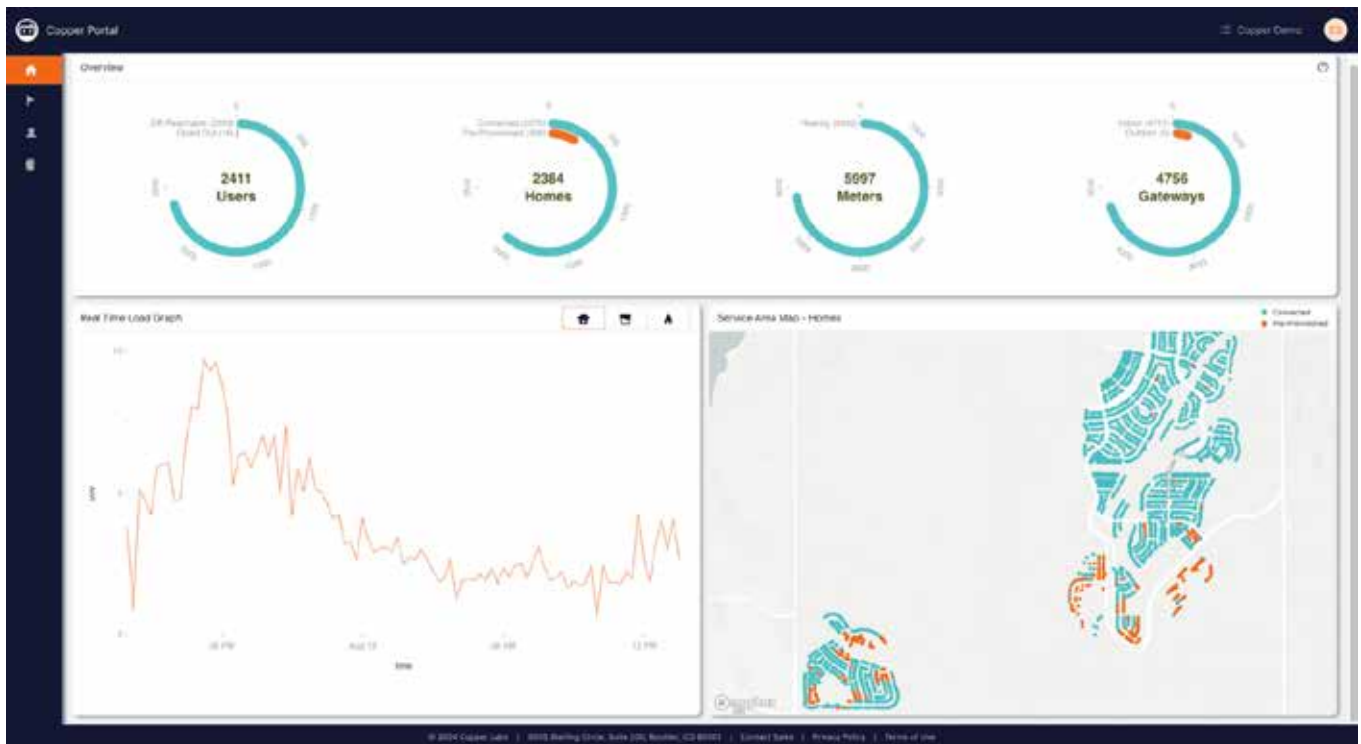
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Copper Labs Unveils New Utility Portal to Provide Detailed Grid-Edge Visibility—With or Without Smart Meters

Copper Labs, a utility hardware and software company whose patented solutions enable true interoperability for electric, gas and water meters, announced an upgraded web-based portal that provides unparalleled grid-edge visibility and deep customer engagement. This centralized and user-friendly resource lets utilities see near-real-time data from existing meters in their territory in a filterable map-based interface, allows for sophisticated and personalized customer outreach, and makes it easy to create behavioral load flexibility events in the moments that matter most.

“Virtually all other grid-edge solutions currently face significant hardware limitations, including reliance on expensive smart meters and the widespread use of proprietary communication networks,” says Dan Forman, CEO of Copper. “Utilities shouldn’t be held captive by a single meter type or vendor to get the visibility they need. Copper is the only solution that unlocks data from a wide array of meters, uses robust existing broadband networks, and facilitates a practical and cost-effective path to digital transformation for all utilities.”

Because Copper’s portal can uniquely bring together data from a mix of different meter types, voltages, and vendors, it offers unprecedented new opportunities to better understand the impacts of electrification pathways down to the customer level, support distributed energy resource (DER) adoption and management, and accelerate integrated electric and gas system planning efforts by making it easier to compare consumption data across resources. “With our powerful new portal, utilities can

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easily see trends across their territories or focus on particular areas of interest, such as neighborhoods where growing EV adoption may strain local distribution transformers,” says Forman.

When paired with its consumer-facing mobile app, Copper’s portal provides a unique channel for customer engagement. With sophisticated and customizable filtering capabilities, utilities can target priority or income-qualified customers, or use AI-driven algorithms to find customers with EV charging or large HVAC loads. They can then send personalized messages to drive program participation, provide education on new time-varying rates, or share other relevant information. The portal also makes it easy for electric, gas, or water utilities to create behavioral load flexibility events so customers can choose to help alleviate peak demand challenges. This approach can help utilities improve reliability and resiliency while enabling deeper decarbonization efforts, expanding customer choice, and empowering consumers with actionable data-driven insights.

Copper is actively working with major utilities across the country, and its solutions are challenging the business-as-usual model of expensive metering infrastructure upgrades. As Forman notes, “by collecting better data from existing meters and enabling true meter interoperability, we’re providing unprecedented grid-edge visibility, improving customer engagement, and allowing meter vendors to quickly prove out the expected benefits of new technologies through small-scale demonstration projects instead of waiting years for standard territory-wide deployments. Ultimately, Copper is putting utilities back in control with a more flexible, centralized, and lower-cost approach.”

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