



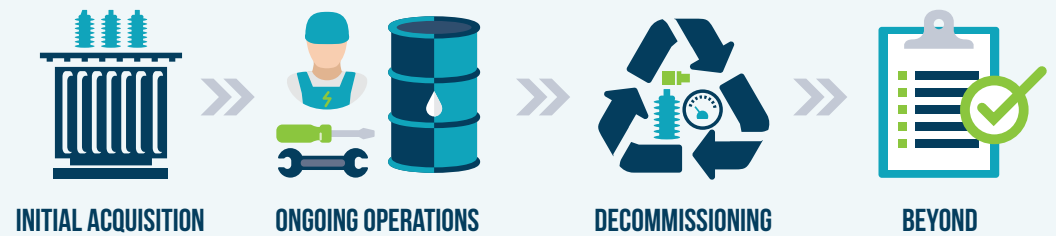
REFURBISH, REMANUFACTURE, AND RECYCLE YOUR WAY TO A BETTER TRANSFORMER ROI

In today's demanding and complex energy environment, transmission and distribution organizations face intense pressure to deliver reliability, profitability, and sustainability. Groups ranging from investor-owned utilities to co-ops, municipalities, and even large industrial facilities are constantly looking for new ways to maximize the impact that every expenditure has on these critical metrics.

Transformer refurbishment and recycling have the potential to deliver significant benefits in all three of these areas, helping organizations make their operations more reliable, profitable, and sustainable. The key to fully unlocking this potential is understanding the way that refurbishment, remanufacturing, and recycling can be used across the full transformer lifecycle, along with knowing what to look for in a qualified refurbishment and recycling partner.

BENEFITS ACROSS THE LIFECYCLE

Transformer refurbishment and recycling don't deliver benefits only at the beginning or end of a transformer's life. In fact, they yield value throughout the entire transformer lifecycle, including for years after it has been removed from service.



Initial Acquisition

- Reduce costs, shorten acquisition time, and improve sustainability metrics with refurbished transformers.

Ongoing Operations

- Increase uptime with the high reliability and low failure rate of a refurbished transformer.
- Simplify transformer asset management (TAM) with better availability of spare transformers.
- Lower your total cost of ownership (TCO) and extend transformer life with warranty-provided service.
- Know that used oil and other contaminants are being handled properly.

Decommissioning

- Obtain the best price for your retired electrical equipment.
- Ensure the safety of your personnel and property with a highly qualified removal crew.

Beyond

- Protect against future liability with proper equipment disposal, thorough record-keeping, and indemnification.

REFURBISHED TRANSFORMERS — DELIVERING MORE THAN JUST A REDUCED PRICE

Refurbished transformers and other electrical equipment offer benefits far beyond a lower initial acquisition cost. They also offer increased availability and flexibility, as well as being more reliable and serviceable than their new counterparts. Refurbished transformers also have obvious sustainability benefits, reducing waste and minimizing resource usage.

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Lower Cost for an As-New Product

A refurbished transformer can offer a 30-70% initial cost savings over new equipment. When it comes from a leading supplier of refurbished transformers, it will be in like-new condition, with all worn parts and oil replaced. It may also be backed by a more extensive warranty than a comparable new unit. Emerald Transformer's refurbished units, for example, include an industry-leading three-year warranty period that outpaces most OEM coverage.

Reduced Ongoing Cost and Ancillary Expenses

In addition to a lower initial acquisition cost, using a like-new refurbished transformer instead of a new model can reduce the need for new poles, cement pads, or vaults at the time of installation, as new equipment is larger and heavier than ever before.

Readily Available

Unlike new transformers, which can take 3-6 months to fabricate and deliver, a wide variety of refurbished transformers are readily available in common voltages. This availability allows you to get a replacement transformer up and running faster, with minimum downtime. Refurbished transformers can also be customized quickly for specific applications.

Increased Operational Flexibility

The wider availability of refurbished transformers can also lessen the need to keep spare transformers on hand. This simplifies Transformer Asset Management (TAM) and reduces the amount of capital tied up in replacement inventory.

More Sustainable

Deploying a refurbished transformer is an excellent way to minimize waste and reuse valuable resources. Refurbishing a transformer is more efficient than recycling its component materials and also reduces the demand for energy and materials needed to manufacture new transformers from scratch.

REMANUFACTURING — KEEPING YOUR OWN EQUIPMENT ONLINE LONGER



Before it's time to replace end-of-life transformers with refurbished equipment, you can extend the life of your existing transformers with reconditioning or rewinding.

These methods are an excellent way to keep assets in service, often extending their lives by 10 years or more. Remanufacturing can often be completed in as little as 30 days, minimizing lost capacity and decreasing the risk of overloading other assets. Remanufactured equipment also makes ideal spares, ready for part-time use or emergency situations.

OIL RECYCLING — SUPPORTING CORPORATE SUSTAINABILITY GOALS



Sustainability has become a top priority for many organizations, leading to a growing emphasis on the efficient use of natural resources.

Oil recycling is a powerful tool in helping companies meet their sustainability goals. Like copper, aluminum, and other resources integral to the energy industry, oil can be refined and used over and over again.

Qualified processors refine previously used, non-hazardous transformer oil with a process that removes water, particulates, and gases to return it to the same spec as new oil. In some cases, this process actually enhances the dielectric strength of the oil, making it a better insulator than new mineral oil.

DECOMMISSIONING — MAXIMIZING RETURNS AND MINIMIZING RISK



Decommissioning seems simple. Contract with a provider, accept a price, and let them haul the transformer away. Dig a little deeper, however, and it's clear that the quality of decommissioning arrangements can vary widely, as can the quality of partners. Accepting an offer without thoroughly researching your options may mean lowering the amount you recover from the asset, or even exposing your organization to significant future liability.

Getting the Most for Your Asset

The amount you receive for your decommissioned transformer will be determined by the purchaser's ability to monetize its key components or reuse it entirely. These components are its salvageable parts (tap changers, bushings, etc.), its oil, and its metals. By choosing a decommissioning partner that has direct relationships with metals processors, recycles oil in-house, and reuses transformer accessories for refurbishing, you'll dramatically increase the value of your transformer. In some cases, you may even find that your transformer is still a candidate for refurbishment by highly skilled technicians, giving it even more value.

Know Who Is Removing and Handling Your Materials

In addition to helping you get the best price for your asset, working with an experienced and reputable decommissioning partner will also help protect you from short- and long-term liability. Do they have experience in the environment you are asking them to work in? Have they decommissioned entire substations? Are they using subcontractors or performing the work themselves? You should also be aware that some recyclers serve as middlemen who hand off your materials to third parties for processing. Their mishandling of PCBs or poor record-keeping can leave you open to fines or other legal actions years into the future.

A reputable partner will also have the proper licensing and insurance requirements in place. The company should have positive existing relationships with regulatory agencies and completely understand the various legalities of recycling to protect your interests. This provides an additional safeguard between you and your retired assets and increases your indemnity protection, typically at no direct cost to you.

THE EMERALD TRANSFORMER ADVANTAGE

Emerald Transformer's vertically integrated approach is ideally suited to this full lifecycle concept. We maintain one of the nation's largest inventories of refurbished transformers and other electrical equipment, offer an industry-leading three-year warranty, provide maintenance and repair services from a network of eight locations around the country, and provide decommissioning services that utilize our extensive processing capabilities to maximize the value of your asset and support your commitment to sustainability.

Contact Emerald Transformer at 800-908-8800 to talk about how we can help you leverage the power of refurbishment, remanufacturing, and recycling to increase the return on your transformer investments.