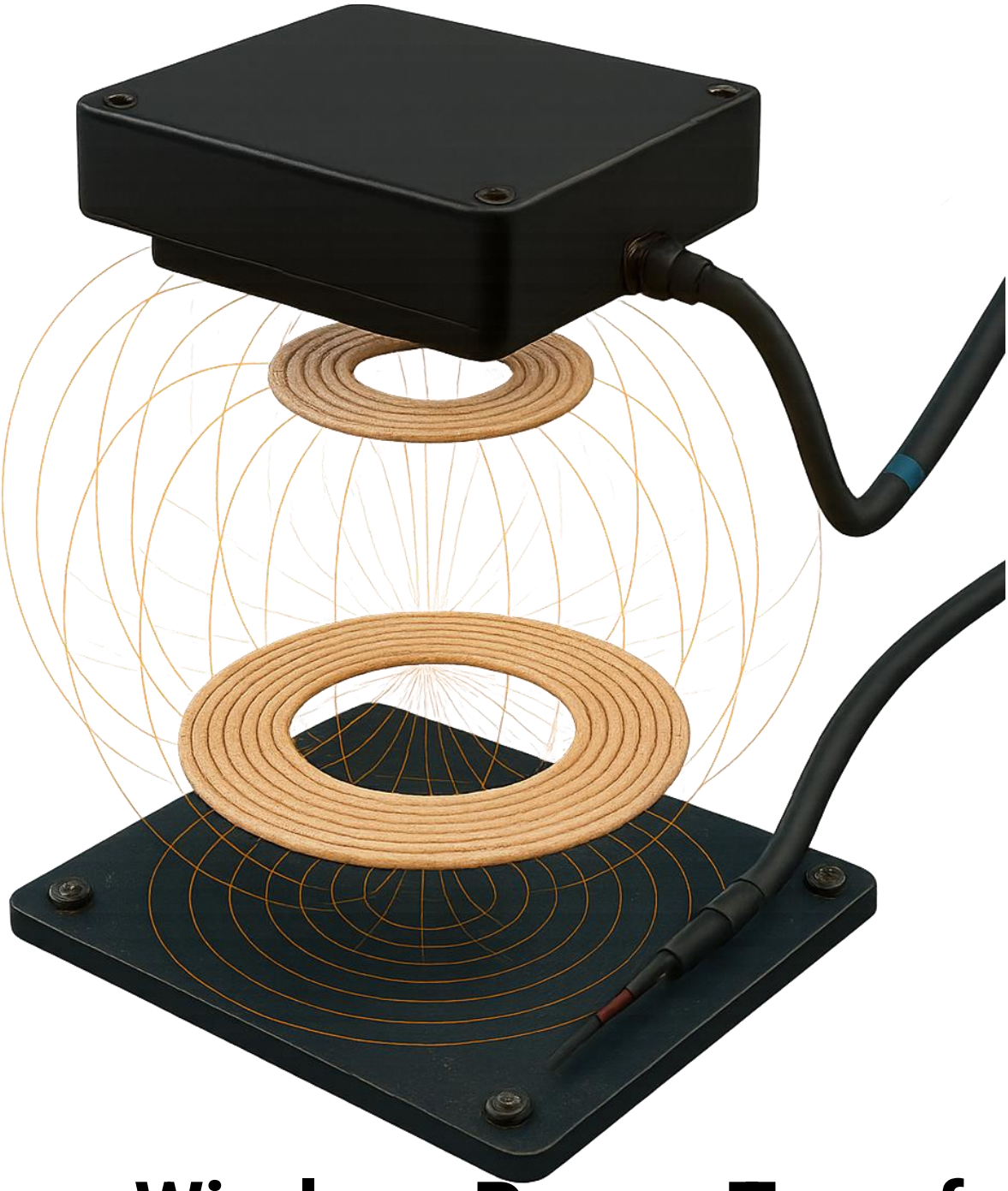
zerowire

Wireless Power, redefined.



How Wireless Power Transfer is changing the way we move, work and live

Summary

In a world where everything is becoming more connected, electric, and automated, the way we power our devices, vehicles, and infrastructure must also evolve. Plugging in is no longer enough.
Cables, connectors, and manual charging points were designed for a world where people stop and plug things in. But what happens when machines move on their own, when robots operate 24/7, or when vehicles must recharge while performing their job? This is where Wireless Power Transfer (WPT) comes in.

What is Wireless Power transfer?

Wireless Power Transfer (WPT) is a technology that enables electricity to be transmitted through the air using magnetic fields—similar to how wireless chargers power your phone, but on a larger, smarter, and more efficient scale. With WPT, a charging pad can be installed underground, embedded in a warehouse floor, or built into an industrial workstation. A compatible device—whether a vehicle, a robot, or a sensor—automatically begins charging as soon as it's properly aligned. No plugs, no downtime, no human error. This frictionless approach to power delivery is unlocking a broad range of applications across sectors. Electric and autonomous vehicles can recharge wirelessly while parked or during brief operational stops. In the near future, dynamic charging could allow vehicles to top up along the route—without ever stopping to plug in.
In industrial settings, robots and automated guided vehicles (AGVs) can receive power as they work, wait, or move, without interrupting workflows. Urban infrastructure such as traffic lights, digital signage, and smart lighting poles could benefit from simplified maintenance and seamless integration with real-time data systems. In healthcare and aerospace, medical implants, drones, and wearables gain enhanced safety, reliability, and hygiene by eliminating physical connectors.
As the technology continues to mature, WPT is poised to serve as an invisible, embedded layer of power distribution—bringing energy exactly where and when it's needed, without relying on manual connections.

The grid challenges

As the world moves toward electrification and automation, the current power grid is struggling to keep pace. Designed for a time when energy was produced centrally and consumed in predictable, static locations, the grid now faces a reality where consumption is mobile, distributed, and increasingly autonomous.
Electric vehicles, robots, drones, and smart infrastructure require energy in places—and at times—the grid was never designed to reach.
This creates critical friction points: energy demand grows unpredictably, often peaking during operational cycles when the grid is already under stress; local infrastructure lacks the flexibility to deliver power dynamically where it's needed most; and centralized models of distribution are no longer sufficient for edge applications such as smart cities, ports, and industrial hubs.
At the same time, the process of charging remains largely disconnected from digital workflows, making it difficult to monitor, optimize, or automate. As autonomy becomes the norm, relying on manual connections and fixed charging stations becomes a bottleneck, not just in terms of usability but also in terms of scalability.
These limitations threaten the sustainability, efficiency, and resilience of modern systems. To overcome them, we need to rethink the way energy is delivered—moving from static, reactive infrastructure to distributed, embedded, and intelligent systems. Wireless Power Transfer offers a key piece of this puzzle: it allows energy to flow where the grid cannot follow, enabling seamless, automated, and context-aware power delivery for the connected world

Enhancing energy operations through Wireless Power Transfer

Zerowire's Wireless Power Transfer (WPT) systems enable a new generation of energy infrastructure—more efficient, automated, and natively integrated with smart operations. By removing cables and manual connections, WPT paves the way for seamless electrification across mobility, industrial manufacturing, E&U and public services.

HANDS FREE OPERATIONS

With Zerowire WPT charging becomes a background process. Whether for electric vehicles, automated guided vehicles (AGVs), or service equipment, energy is transferred automatically during parking, idle moments, or task transitions—without cables, physical connectors, or human interaction. This reduces operational downtime and simplifies the design of automated workflows. In industrial and urban environments, it means less congestion, fewer mechanical failures, and uninterrupted service cycles.

SAFETY AND INFRASTRUCTURE SIMPLIFICATION

Wireless Power Transfer eliminates many of the risks associated with traditional charging systems. No exposed contacts, no need for plugging and unplugging, no wear on connectors.
The result is a safer, cleaner, and more reliable infrastructure—particularly in environments with high foot traffic, weather exposure, or autonomous vehicles in operation. At the same time, WPT reduces maintenance needs and simplifies the layout of charging areas, removing clutter and points of failure.

SMART ENERGY INTEGRATION

Zerowire's systems are designed to be interoperable with smart grids and energy management platforms. Charging stations become intelligent nodes capable of aligning with grid capacity, usage schedules, or energy priorities defined by operators. This allows for smoother integration into broader electrification strategies—whether in cities, campuses, depots, or logistics hubs—without the need for over dimensioned infrastructure or manual scheduling.

SCALABLE DEPLOYMENT & INTELLIGENT CONTROL

The systems are modular and easy to deploy across multiple sites. Once installed, they can be monitored through centralized dashboards, offering full visibility on energy use, asset status, and system efficiency. By integrating AI and machine learning, the platform can analyze charging patterns and operational data to optimize schedules, reduce idle time, and support dynamic load balancing. This makes energy delivery smarter, more efficient, and easier to scale.

Benefits of wireless power integration

*Zerowire's Wireless Power Transfer solutions is not only enabling contactless charging—it's accelerating the **digital transformation** of energy operations across mobility, industrial, and infrastructure. By eliminating manual tasks, integrating with real-time control systems, and supporting scalable deployment, WPT creates a smarter, safer, and more autonomous operational ecosystem*

Grid Stabilization through Wireless Vehicle-to-Grid (V2G)

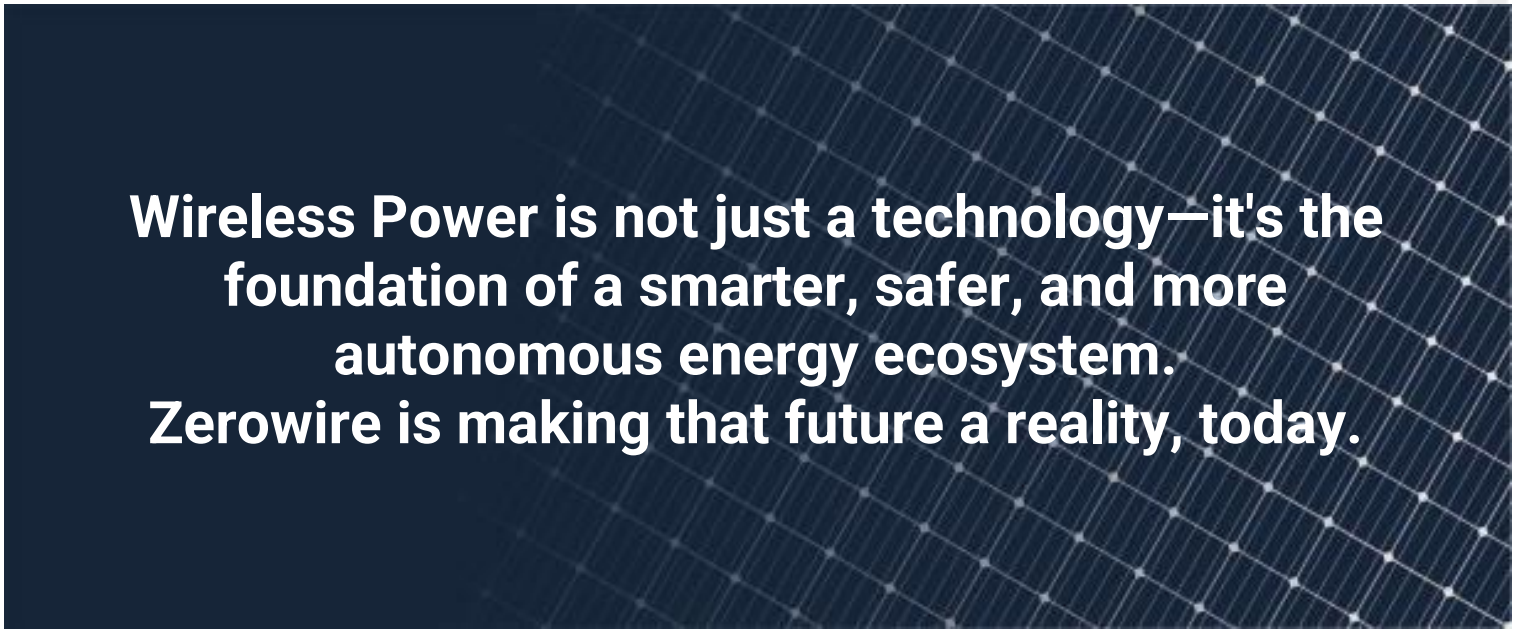
Wireless charging systems can enable bidirectional energy flow. This allows EVs to return power to the grid during peak demand.
It supports grid stability without human intervention.

Autonomy-Ready Charging for Smart Mobility

Wireless power is key for autonomous vehicles and robotics. No need for plugs or manual operations. Vehicles can charge automatically at every stop. It supports 24/7 operations and reduces downtime.

Enhanced Safety and User Convenience

No exposed cables or connectors means less wear and no shock risks. Wireless systems are sealed, safe, and durable. Charging is automatic and user-friendly. Ideal for public, residential, and industrial use.

AI & ML-Driven Energy Optimization

WPT generate rich data on energy usage and behavior. These insights fuel predictive models for energy demand and battery health. AI/ML algorithms help optimize fleet charging schedules. Enhances efficiency and lowers energy waste.