

# Energy DePIN

The world needs \ \$21 trillion in new grid infrastructure by 2050 to achieve a sustainable energy future, driven by rising electricity demand (EV adoption, generative AI) and net-zero climate goals. Decentralized Physical Infrastructure Networks (DePINs) use token incentives and open blockchain protocols to (1) expand clean energy capacity cost-effectively and (2) coordinate a fragmented grid of solar panels, batteries, and EV chargers. By pooling millions of DERs, DePINs form robust Virtual Power Plants and Demand Response Programs, surpassing centralized utility approaches.

Over the long term, Energy DePINs could unlock trillions in value by:

- **Lowering CapEx Barriers:** Tokens draw more capital into solar, wind, and storage projects.
- **Boosting Grid Efficiency:** Real-time DER data sharing cuts blackouts, curbs volatility, and monetizes grid services.
- **Enabling P2P Energy Markets:** Wealth shifts from utilities to consumers, driving peer-to-peer energy trading and tokenized carbon credits.

Though still nascent, Energy DePIN growth will likely accelerate as 2030 nears, when policymakers and corporates seek agile, decentralized solutions to meet urgent climate targets. For investors, this sector offers an early foothold in one of crypto's most promising and impactful frontiers.

Global energy demand is soaring—fueled by rising EV adoption, generative AI usage, and population growth—and governments aim to reach net-zero emissions by 2050. Fulfilling these climate and energy requirements calls for \$21 trillion in new grid infrastructure. Traditional, centralized utility models can't keep pace with this massive buildout, particularly as the grid becomes increasingly decentralized with the rise of rooftop solar, battery storage, and electric vehicles.

Decentralized Physical Infrastructure Networks (DePINs) address two core challenges: (1) how to accelerate the deployment of clean energy assets in a capital-efficient manner, and (2) how to coordinate a fast-growing network of Distributed Energy Resources (DERs). By tapping into token incentives and open-source blockchain protocols, DePINs bootstrap large-scale renewable capacity and incentivize DER owners to share real-time data for Virtual Power Plants, Demand Response Programs, and other grid services.

Over time, Energy DePINs could unlock trillions of dollars in economic potential by:

- 1. Lowering Capital Barriers:** Tokens reward early-stage deployment of solar panels, batteries, and EV chargers, spurring rapid expansion.
- 2. Enhancing Grid Efficiency:** Real-time DER data reduces blackouts, volatility, and inefficiencies, creating new revenue streams for participants.
- 3. Enabling P2P Energy Markets:** DePIN protocols can shift wealth from centralized utilities to consumers, potentially allowing peer-to-peer energy trading and tokenized carbon credits.

Two Project we like in this category and will look for opportunity post-TGE is Sourceful and Fuse.



DePIN