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Blockchain and IoT-Driven Carbon Offsetting for a Decentralized Carbon Economy

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Abstract: *As climate trade intensifies the constraints of conventional carbon offsetting systems including restricted transparency high prices and scalability issues have become increasingly more apparent this studies introduces a decentralised framework the use of blockchain and iot to allow a transparent comfy and scalable technique to carbon offsetting and buying and selling iot sensors capture actual-time statistics on co emissions thats then recorded on a blockchain for tamper-proof monitoring and verification by leveraging clever contracts the framework enables a peer-to-peer marketplace for carbon credit lowering dependency on intermediaries and improving transaction performance a case examine within the production and logistics sectors demonstrates the frameworks ability for wide application suggesting it may support stakeholder engagement and foster worldwide sustainable practices the take a look at concludes with a discussion on regulatory challenges and destiny studies pathways to extend the frameworks impact across industries.*

Keywords: Decentralized Carbon Economy, Blockchain, IoT (Internet of Things), Carbon Offsetting, Smart Contracts, Carbon Credit Trading, Environmental Monitoring, Peer-to-Peer Marketplace