NEXA

Sound money at internet scale

What makes Nexa different from Bitcoin and Ethereum

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The critique of crypto is mostly right

Energy

Bitcoin burns about 140 TWh a year, roughly Norway's entire electricity consumption, to process around 7 transactions per second.

E-waste

Bitcoin ASICs do one job, are obsolete after about 1.3 years, and generate around 30,700 tonnes of electronic scrap a year.

Financialization

Premines, ICOs and staking yields hand the gains to insiders. NFT gas auctions turn a simple item into a speculative market.

Nexa was designed from the start to avoid all three. Here is how.

At scale, Nexa is up to 13,000× more energy efficient than Bitcoin

BITCOIN

580 kWh

per transaction · two weeks of household electricity

NEXA TODAY

0.104 kWh

at 42,000 TPS benchmarked · about 5,600× less

NEXA + BLITZ

0.044 kWh

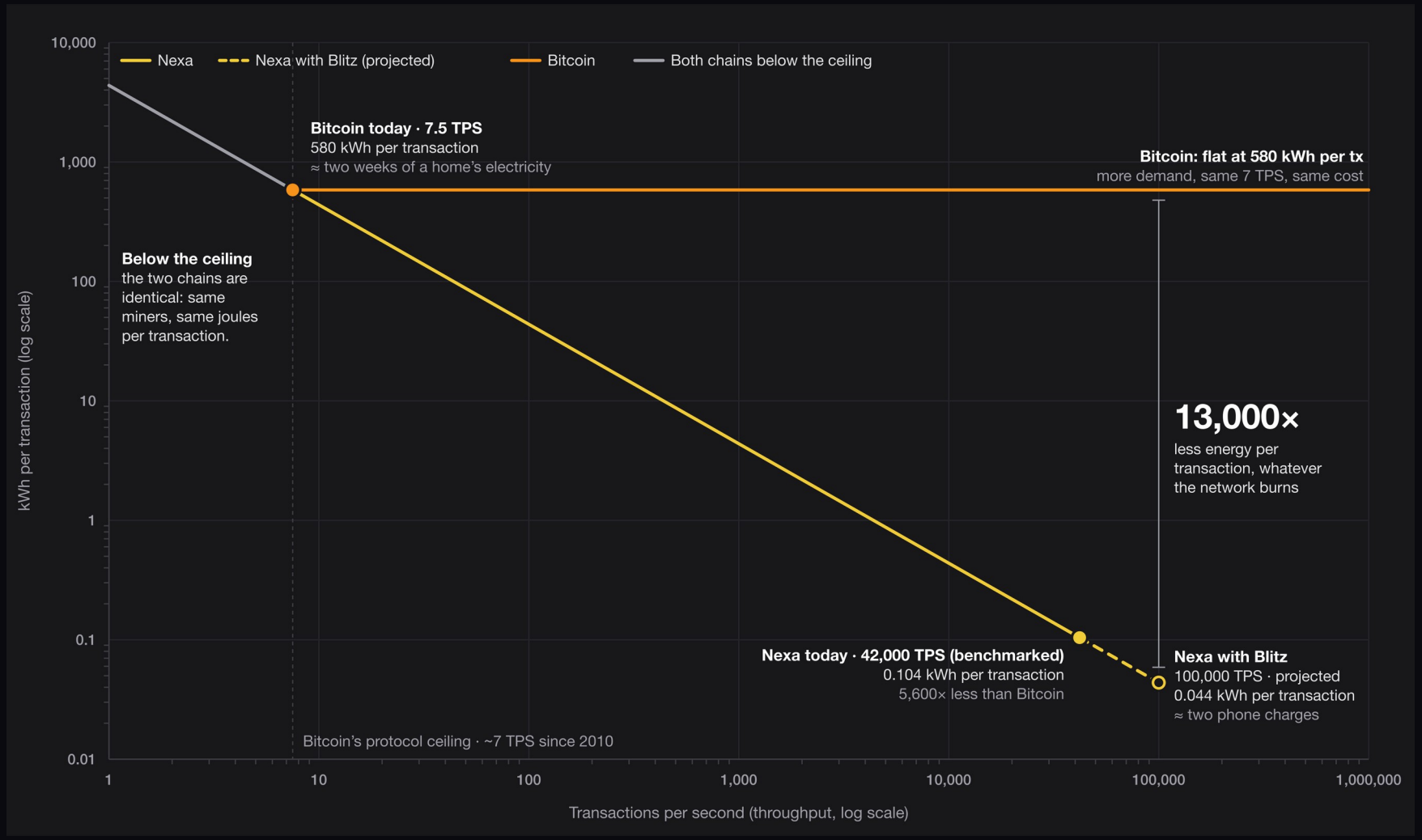
at 100,000 TPS projected · two phone charges

1. Miners burn whatever the block reward pays for, whether the chain carries 10 or 10 million transactions. So energy per transaction is simply network electricity divided by throughput.

2. Bitcoin: 138 TWh a year at 7.5 TPS gives 580 kWh each. The same electricity on Nexa at 42,000 TPS gives 0.104 kWh; at 100,000 TPS with Blitz, 0.044 kWh.

3. Bitcoin's protocol caps out at 7 to 14 TPS. Even at its busiest day ever it needed 425 kWh per transaction. The gap can never shrink below about 1,000×.

Same joules, different denominator



kWh per transaction = 4,376 ÷ TPS at 138 TWh/yr (Cambridge CBECI). Both chains get the same network electricity, so the lines differ only in throughput. Nexa's 42,000 TPS is benchmarked; 100,000 with Blitz is a projection.

Nexa can use as much electricity as Bitcoin if enough people mine. At scale, it is far more energy efficient

Bitcoin

≈ 16 GW for about 7 TPS

Miners on any proof-of-work chain burn roughly what the block reward is worth, regardless of use. Cambridge's 2026 estimate is 16 GW, about Norway's average grid load, to carry 7 transactions per second.

Ethereum

≈ 0.3 MW on proof of stake

About 0.0026 TWh a year since the Merge. Energy is genuinely solved on Ethereum. The trade-offs there are distribution and complexity, covered later in this deck.

Nexa

Megawatts today, gigawatts if it wins

Nexa is proof of work too. Today about 5 to 15 MW of GPUs; valued like Bitcoin, its miners would spend like Bitcoin's. The difference: that electricity would carry 42,000 to 100,000 transactions per second, not 7.

NTNU Norway research: the greenest kilowatt-hour is the one you never need

Clean power still costs nature

Borgelt et al., NTNU Norway (2026): building the wind, solar and grid Norway needs by 2050 could raise habitat loss by up to 28%. The most effective protection is “to lower electricity demand through energy efficiency measures”.

No kilowatt-hour is free

Hertwich, Gibon et al., NTNU Norway (PNAS 2014): the first global life-cycle assessment of renewable electricity. Hydro, wind and solar beat fossil fuels by far, but still carry land, material and emission footprints.

Efficiency is the “first fuel”

HighEFF, the SINTEF/NTNU Norway efficiency centre: Norway committed at COP28 to energy efficiency as the first fuel, “a conflict-free measure that frees energy to be used for other purposes”. A payment rail doing 13,000× more per kWh is exactly that.

Borgelt, Gilad, May & Verones, “Renewable energy growth amplifies land pressure on Norwegian biodiversity”, Cleaner Energy Systems 13 (2026) · Hertwich et al., “Integrated life-cycle assessment of electricity-supply scenarios”, PNAS (2014) · HighEFF at NTNU Norway Energy Transition Week (2024)

No single-purpose hardware, no mountain of e-waste

Bitcoin: ASICs built to be scrapped

A Bitcoin ASIC computes SHA-256 and nothing else. It is obsolete after about 1.3 years: 30,700 tonnes of e-waste a year, 272 grams per transaction, about the weight of an iPhone.

Nexa: ordinary gaming GPUs

NexaPoW is GPU-friendly on NVIDIA and AMD cards. A card that stops mining goes back to gaming, AI or rendering. Nothing in the network is built to be thrown away.

Next: reprogrammable FPGAs

Blitz is an FPGA card that verifies signatures for the node. FPGAs are reprogrammed, not replaced, and NexaPoW's mining work is the same signature math the chain needs anyway.

Fair launch: zero premine, zero ICO, zero venture capital

Bitcoin

Fair in 2009, closed today

The first million coins were mined on ordinary PCs. A newcomer in 2026 competes with industrial ASIC farms on subsidised power. The door is open in theory only.

Ethereum

72 million ETH created at genesis

Around 60% of today's supply existed before the network did, most of it sold in a 2014 ICO. Insiders were paid before the first block.

Nexa

0 premine, 0 team coins, 0 VCs

Launched 21 June 2022. All of the 21 trillion supply is mined in public on GPUs, and the network is four years old, not seventeen. Latecomers are still early.

Scale: 42,000 transactions per second on today's hardware

BITCOIN

≈ 7 TPS

unchanged since 2010 · hard-capped by block size

ETHEREUM L1

≈ 26 TPS

Q1 2026 daily average · users pushed to layer 2s

NEXA

42,000 TPS

benchmarked · 100,000 projected with Blitz

1. Bitcoin has carried about 7 TPS since 2010. Ethereum's base layer averaged 26 TPS in early 2026 and relies on layer 2 networks, each with its own bridge, fees and trust assumptions.

2. Nexa is a UTXO chain: every transaction validates independently and in parallel, so throughput grows with hardware rather than with committee decisions.

3. The two real bottlenecks, signature checks and UTXO lookups, move off the CPU onto Blitz FPGAs. The same boards later absorb post-quantum signatures, which are 10 to 40 times larger.

Payments that feel like Vipps: under two seconds, about 3 NEXA (under $0.0001)

Instant

Zero-confirmation payments secured by double-spend proofs confirm in under two seconds. Blocks follow every two minutes, and after Hard Fork 2 Tailstorm adds a proof-of-work-backed sub-block every second.

Near-zero fees

A typical transaction pays about 3 NEXA in fees, roughly $0.000004 at today's price and a fraction of an øre. Compare fees measured in dollars on Bitcoin and gas auctions on Ethereum's base layer.

New kinds of payments

Micropayments, in-game economies and machine-to-machine payments that card networks, Bitcoin and Ethereum cannot price. Sound money that also works as cash.

Tokens and NFTs are built into the protocol, not bolted on

Native, not a contract

Group tokens are a primitive of the chain itself. No smart contract means no contract bug to exploit, which is where most Ethereum token hacks come from.

A fraction of a cent to mint

Minting is an ordinary transaction that costs a few NEXA, with no gas auction, so an NFT does not need a speculative market to justify the cost of existing. It can simply be a ticket, a key or a game item.

Built for utility

Tickets, in-game items, certificates, identity: the item itself, transferable and verifiable by anyone, rather than a bet on the item.

Minting rights are coins too: authority batons

Authority lives in a UTXO

A token group's powers, MINT, MELT, SUBGROUP, RESCRIPT and BATON, are flags on a special output. Minting means spending a MINT authority in a transaction that creates the new tokens. There is no admin key inside a contract and no owner() function to hack.

Send a baton like any coin

BATON is the right to create new authorities. Split the baton into a pool of MINT-only authorities, hand one to a partner who may issue but never destroy, and keep the baton itself cold. Used as a read-only input, a baton grants its powers without being consumed.

Or hand it to a smart contract

Pay an authority into a script-template contract and the contract's rules decide when tokens are minted: mint-on-demand where the NFT is created only when the buyer pays, or a covenant that only lets the authority continue inside the same contract. Lose the authority output and you lose the mint.

Open outcry trading over CAPD: shout an offer, anyone can take it

Shout the offer to the network

CAPD (Counterparty and Protocol Discovery) is a message bus carried by the same nodes that relay transactions. You broadcast a half-signed offer, say 100 tokens for 5,000 NEXA, and every node passes it on, like a trader calling out a price on the floor.

No exchange, no order-book server

Whoever wants the deal completes the half-signed transaction and broadcasts it. The swap settles on-chain in one atomic transaction, with no exchange, listing fee or matching server in between. Bitcoin has no such layer; on Ethereum it takes a DEX contract and gas per trade.

Proof of work instead of fees, then it disappears

Senders solve a small proof of work instead of paying a fee, which keeps spam out. Offers are ephemeral: they fade from relay in about ten minutes unless re-broadcast, can be withdrawn early, and never touch the blockchain until someone takes them.

Token Secrets: sell the secret together with the token

A token that carries a secret

The token commits to the public key of a secret, an elliptic-curve private key, at mint or inside the group id. Whoever holds the token holds the secret: a game key, a ticket, the key to encrypted content.

Revealed to the buyer, hidden from everyone else

The transfer transaction runs a Diffie-Hellman key exchange, so the secret is delivered to the buyer encrypted inside the transaction. The public chain leaks nothing, and the chain verifies that it is the real secret, so the seller cannot swap in a fake one.

Atomic exchange, not DRM

Token and secret change hands in the same transaction, with no trusted middleman. The seller still knows the secret afterwards, so this secures the exchange rather than copy protection. Bitcoin and Ethereum have no equivalent primitive.

What you can build with it: practical use cases

Tokens and batons

A game studio mints its items as native tokens and keeps the baton cold. The in-game shop holds a MINT-only authority inside a mint-on-demand contract, so a sword exists only once a player has paid. A season pass is a subgroup melted when the season ends; a festival hands a partner venue a MINT authority for its own ticket allotment.

CAPD open outcry

A player-to-player item market with no marketplace operator: sellers broadcast half-signed offers, buyers take them, and the swap settles atomically. A ticket exchange where a covenant caps resale at face value. A local NEXA-for-tokens board at a meetup or a LAN party, running on nothing but the nodes.

Token Secrets

A game key delivered inside the purchase transaction: the buyer gets the token and the licence key in one step, and nobody else can read it. Encrypted DLC or a paywalled article where the token carries the decryption key. A concert ticket that carries the door code, revealed only to the holder.

Smart contracts without the EVM

Script templates

Contracts are small, deterministic scripts attached to coins and validated in parallel like any other transaction. There is no global state machine to congest.

No EVM overhead

No gas market, no reentrancy class of bugs, no fee spike for everyone when one app gets popular. Contracts run at the same 42,000 TPS as plain payments.

A full platform

Wallet login with on-chain identity, payment requests to the user's wallet and peer-to-peer messaging are part of the stack, with Kotlin and JavaScript libraries.

Identity and payments live in the wallet, not on the merchant's server

Log in with the phone, no password (nexid)

The site shows a challenge in a QR code, the phone signs it with a key derived per site, and the answer goes straight from the phone to the server. The key never leaves the phone, every site gets its own identity, and lookalike domains fail. The BankID experience without a bank.

Prove ownership without spending

Challenge transactions: you sign a deliberately invalid transaction that is never broadcast. That proves control of coins, NFTs or a multisig under any script, and it is what makes token-gated access possible.

Subscriptions the wallet controls (DPP)

A merchant registers with your wallet and proposes limits per payment, day, week and month. The wallet decides whether a payment runs automatically or asks you; the merchant cannot force it, and you cancel everything in one place. The opposite of a card on file.

Why this matters in Norway

A clean grid under pressure

98% of Norway's electricity is hydro and wind, yet in 2025 the government froze new proof-of-work data centres to protect grid capacity. Nexa mining runs on ordinary GPUs and does not depend on data centres.

Bitcoin ≈ Norway

Bitcoin's roughly 140 TWh a year equals Norway's entire electricity consumption, for 7 transactions per second. The same electricity on Nexa would carry thousands of times more payments.

A cashless country

Norwegians already pay by phone in seconds. A sound-money rail that settles in two seconds for a fraction of an øre fits how people here already live.

Comparison overview

Concern	Bitcoin	Ethereum	Nexa
Energy and hardware	≈ 16 GW. Single-purpose ASICs, 30,700 t of e-waste a year.	≈ 0.3 MW on proof of stake. Commodity servers.	Proof of work too, so power follows price. Reusable GPUs, and at scale up to 13,000× more transactions per kWh than Bitcoin.
Who gets the new coins	Fair launch in 2009; today only industrial farms can mine.	72M ETH premined. Rewards proportional to stake held.	No premine, no ICO, no VCs. 100% mined in public since 2022, open to anyone with a GPU.
Tokens and NFTs	Not native. Inscriptions compete for scarce block space.	Smart-contract tokens: gas auctions and contract exploits.	Protocol-native, a fraction of a cent to mint. Designed as tickets, items and identity, not a market.
Finding a counterparty	No native layer. Trading means a centralised exchange.	On-chain DEX contracts, gas for every order and trade.	CAPD open outcry: broadcast the offer off-chain, settle on-chain, no exchange in between.

Three things to remember

Energy

Proof of work costs what miners are paid, on any chain. At scale, Nexa gets up to 13,000× more transactions out of every kilowatt-hour than Bitcoin, on reusable GPUs, not throw-away ASICs.

Fairness

No premine, no ICO, no venture capital. 100% of the supply mined in public since 2022, open to anyone with a graphics card.

Utility

Two-second, sub-cent payments, protocol-native tokens for games, tickets and identity, and open outcry trading over CAPD. Built for use, not for speculation.

Sources: Cambridge CBECI (2026) · de Vries & Stoll, Bitcoin's growing e-waste problem (2021) · ethereum.org · nexa.org and spec.nexa.org · Statistics Norway (SSB) · Norwegian government data-centre regulation (June 2025) · NTNU Norway: Borgelt et al. (2026), Hertwich et al. (2014), HighEFF (2024) · jqrgen.medium.com (Sept 2026)