

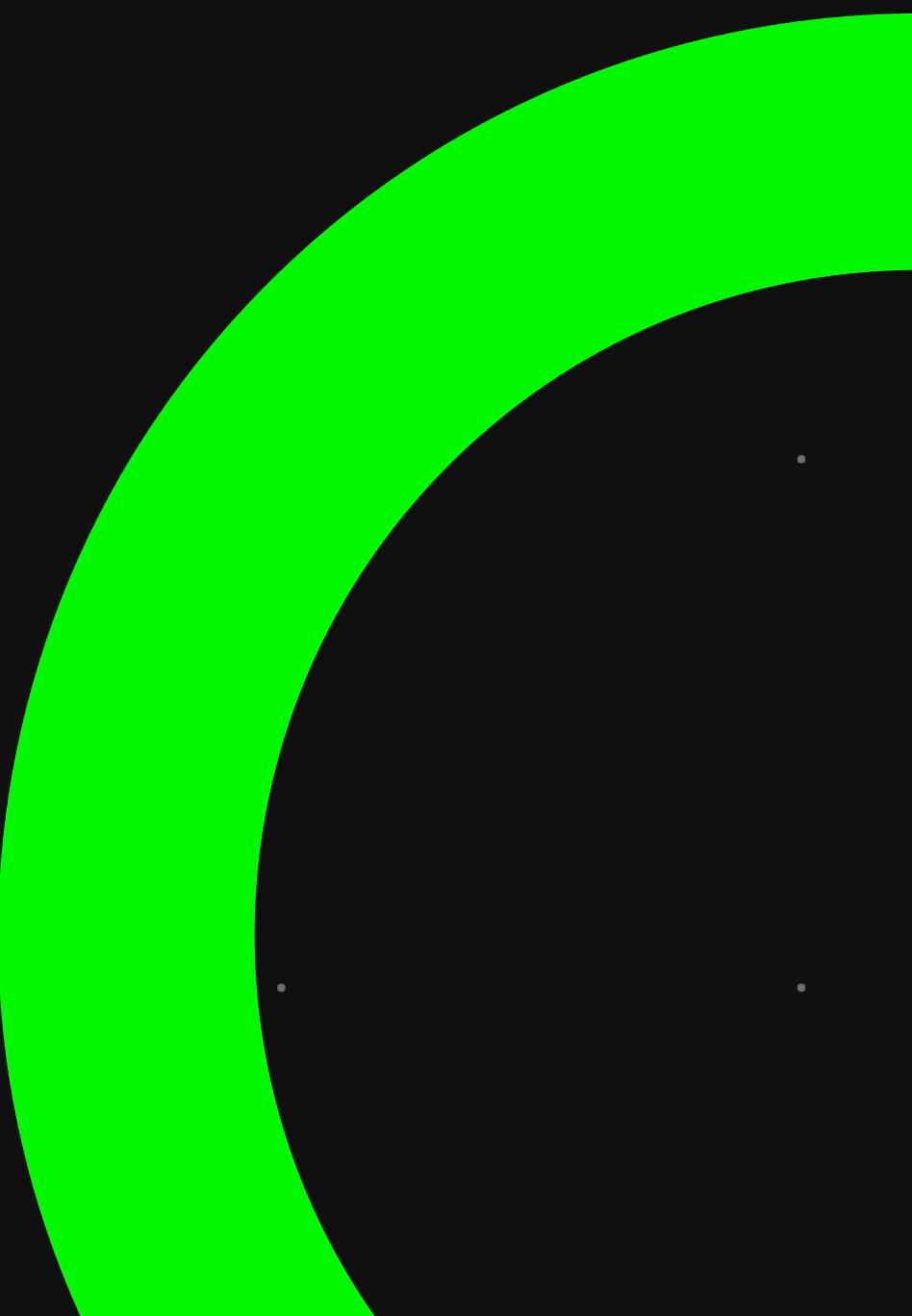


Real Estate + DeFi.

LitePaper



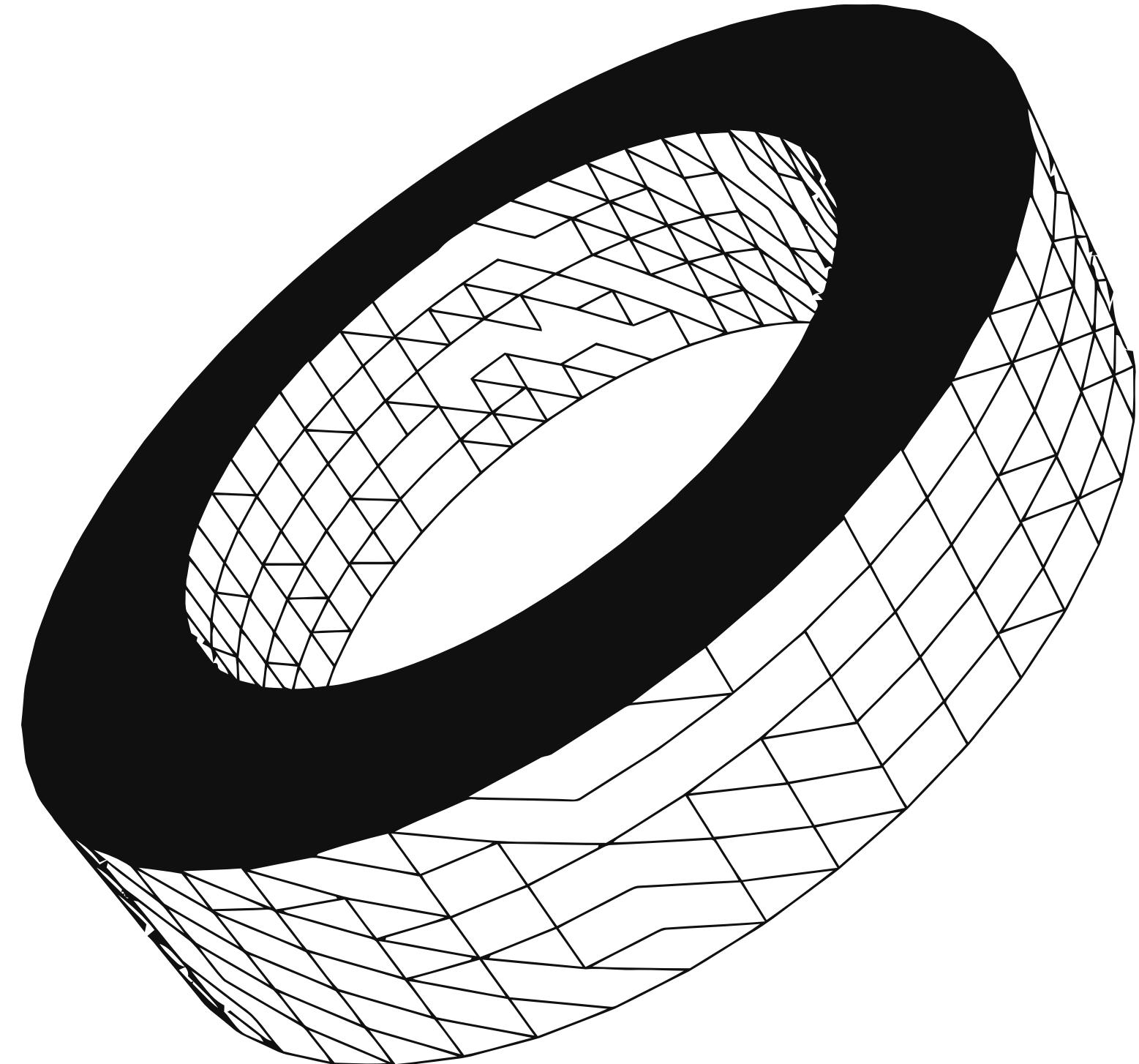
Version 1.0.0



Introduction

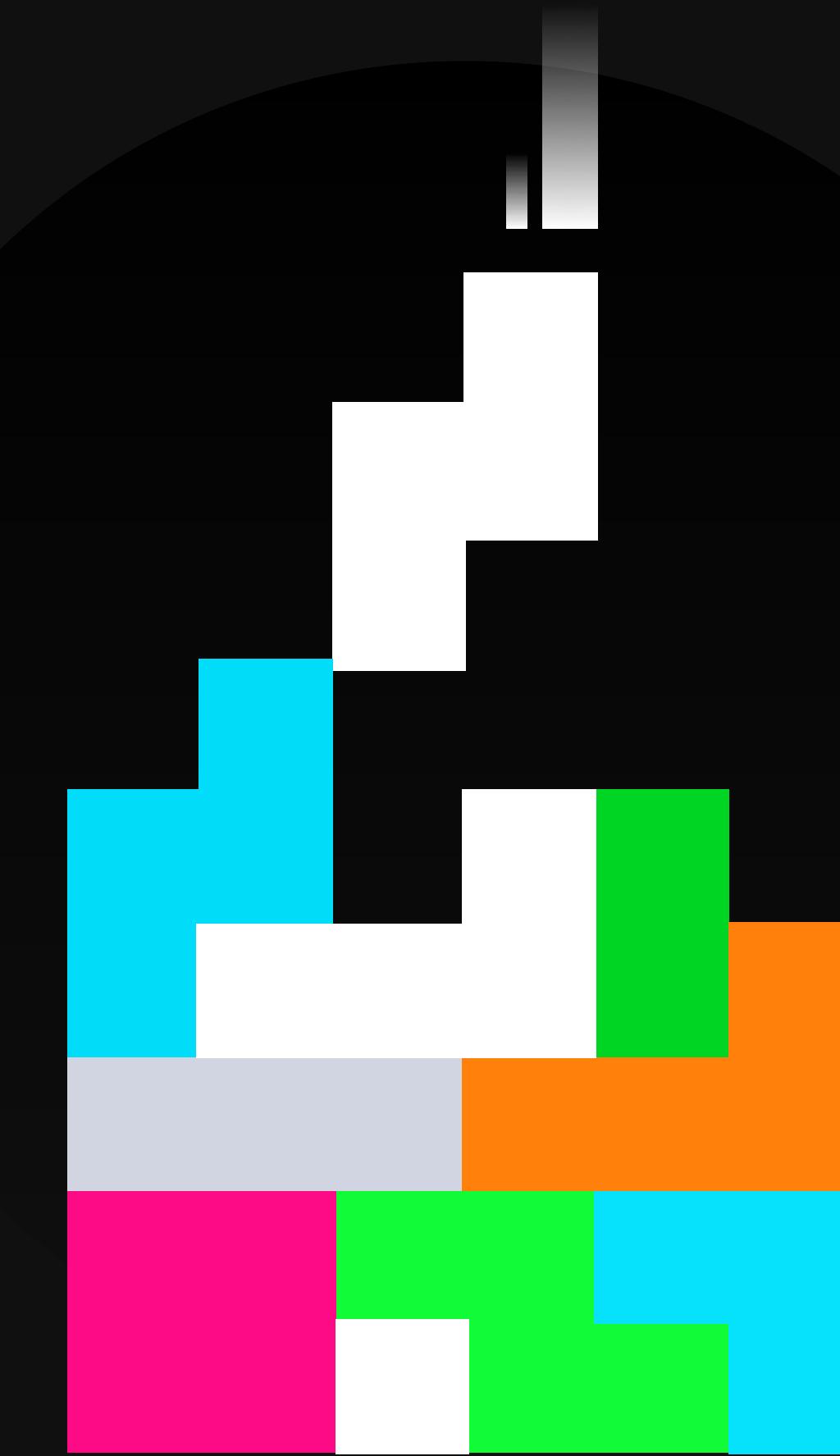
HaloDeFi is the backbone for real estate investing in DeFi, allowing anyone, anywhere to gain on-chain exposure to high yield US real estate markets. The protocol is powered by non-custodial management, staking pools, and decentralized governance.

HaloDeFi will continue to achieve the goal of anchoring crypto to real-world property by harnessing models that have aided DeFi in its growth. At its core HaloDeFi is an automated market making (AMM) decentralized exchange (DEX) currently running on the Ethereum blockchain bridging decentralized finance and real estate, providing lending and liquidity through its creation of StableBonds.



CHARTER

**Develop the
Building blocks to
create a solid
foundation for real
estate investing
and trading in DeFi.**



WHY WE CREATED HALODEFI

Tokenized real estate introduces diversification to cryptocurrencies which today are dangerously correlated.

Cryptocurrency is highly correlated. Volatility of demand directly translates into the volatility of price, especially in limited supply cryptocurrency. This creates exposure to the risk of cascading loss.

Real estate introduces a pipeline of assets, non-correlated to crypto, surfacing diversity; introducing an incredibly valuable new building block for decentralized finance.

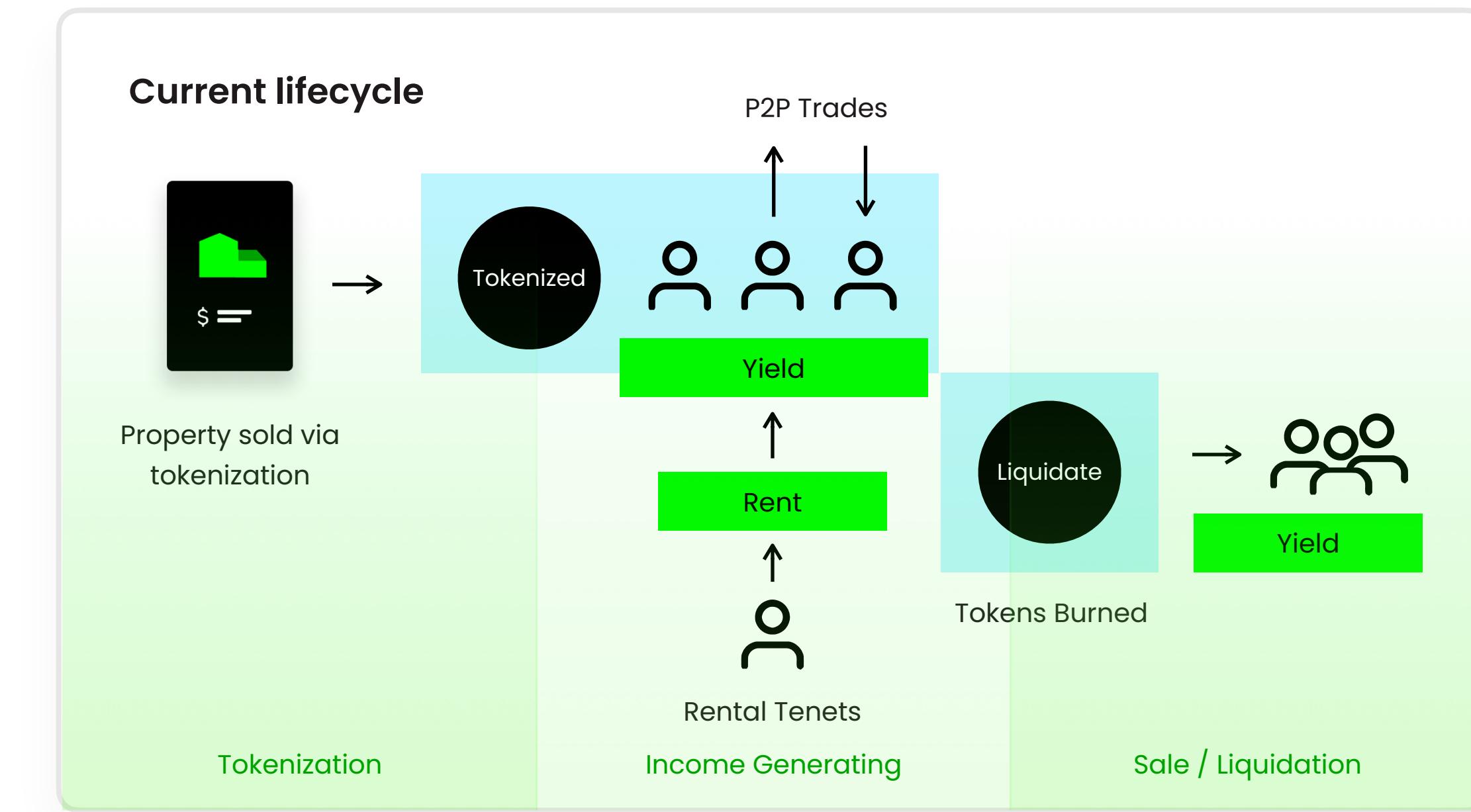


**Innovative, growth-centered
and community driven.**

Existing lifecycle gaps & opportunities.

Key Finding: Market data

Real estate, as an externally regulated market, inherently increases in value over time. With these increases, there is no decentralized oracle presenting new market data (market value, rental price) to reflect in the tokens themselves. Peer to peer markets must rely on centrally hosted websites whom originally issued the tokens for property details as these tokenized sales aren't conducted via traditional MLS services.



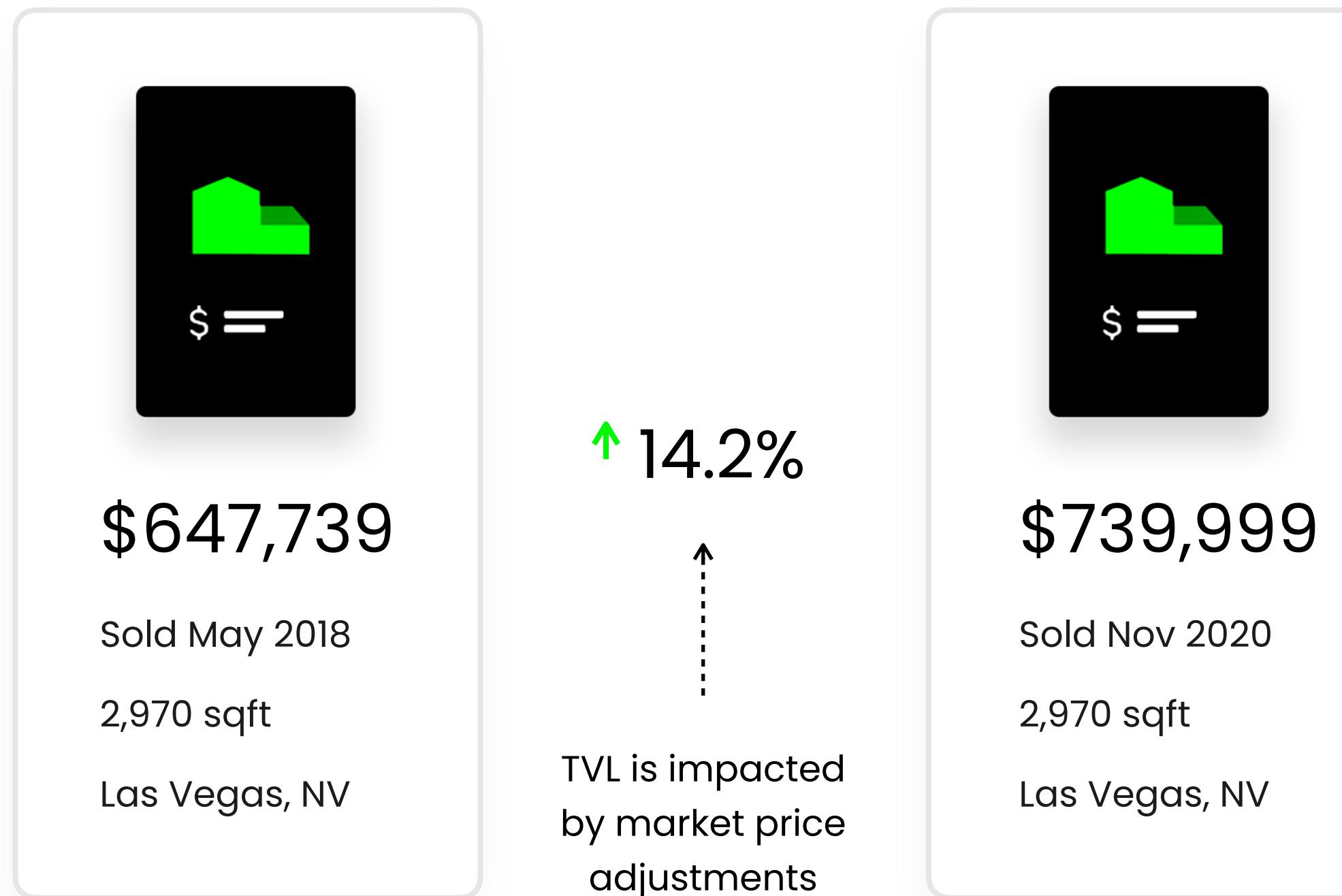
Key Finding: Fee Subsidization

The onramp of USD rental payments distributed into smart contracts create fees (gas), this at times can be costly. Further, withdrawals of these rental incomes create fees as well, effectively reducing gains.

Key Finding: Mainstream bridge

Participants across the lifecycle have traditional banking UX expectations and settlements as close to USD as possible.

Real estate property value adjusts locked liquidity



Key Finding:

Token price impact from market price adjustments has significant impact to TVL and liquidity across an exchange. Rental income changes, which historically increase and adjust to inflation, impact APY yield, resulting in greater value of tokens.

Opportunity

Create a pricing oracle to leverage real market value (see hxMLS)

Ecosystem.

Legally Tokenizing Real Estate

Buying US Based Real Estate

Real estate can't directly be tokenized, but legal entities can. In tokenized real estate, each property is owned by a Limited Liability Corporation (LLC). Each LLC is tokenized to specific tokens and made available for purchase.

Ownership of tokens represents the ownership of the company holding the specific piece of real estate.

These aren't bundled assets in a fund, this is actual property ownership.



RealT Token
Reg S
(International Investors)



Homestead
Reg CF
(US-Based Investors)



Rent Buffers

Daily Rent Payments

Rent is paid by tenant monthly to property management company. Rent income escrow is converted into daily payments and deployed to token holders via smart contract. Daily yields make the tokens attractive to crypto markets.

Property Maintenance

Addressing maintenance

A maintenance fund is escrowed on compound. The associated property management company sources tenants, collects rent, and manages repairs, so the token holders don't have to.



Open Markets

Trading Tokens

Tokens locked into 1 year maturity can be placed in Vault and traded freely as StableBonds. For mature tokens, holders can trade openly on the HaloDeFi DEX.

Trustless open research on specific property value can be surfaced via hxMLS listings.

Property Governance

Voting to sell the property

Real estate property sale in markets with significant growth can produce high earnings for token holders. Holders can vote to sell, resulting in payout based on percentage ownership and token burn.



Underlying Mechanisms

HaloDeFi is a suite of decentralized finance (DeFi) mechanisms which support the protocol, underlying it by providing automated market making, micro pooling, lending and liquidity, as a backbone to make blockchain based real estate transactions fee-efficient and liquid on a decentralized exchange.



HaloDeFi AMM/DEX

HaloDeFi at its core is a decentralized exchange tuned for tokenized real estate.

Features extend to yield farming, swapping, micro pooling, staking, and lending.



HFI

HFI is an ERC-20 token. It is used to stake in the system, revenue share and as governance token.

HFI token is tradeable on any exchange and storable on any wallet.



StableBond

A stabilized, yielding, synthesized asset backed by tokenized real-estate.

Real estate stakes are pooled with HFI and placed in vault. Bond generates rent APY and additional yield in vault.



hxMLS

Distributed real estate listings directory and price oracle.

NFT based listings containing real estate property information related to the sell, ongoing rent yield and governance of the property.

Use Cases

The unique incentives, nonvolatile yields, and monetary qualities of HaloDeFi make it suited to introduce transformative use cases.

Crypto coins and tokens are largely correlated. Bitcoin enters a bear market, many of the correlated coins go bearish — the value of Ethereum's ETH goes down, much of the tokens powered by that system go with it. Traders often move to stable coins to average down the loss.

Real estate provides a predictable liquidity backbone resulting in an incentivized alternative to Stablecoins that is adaptable to volatility. Defi lending without excessive overcollateralization can be realized through pool liquidity of stabilized assets not correlated to crypto markets.

Medium Term

DeFi Building Block

A stabilized, yielding, synthesized asset backed by tokenized US real-estate.

Near Term

Automated Gateway Routing

Streamlined way to go in and out of defi and traditional finance in a seamless and frictionless swap.

Medium Term

Yield earning stable asset

Real estate is stable, predictable and regulated value which continues to introduce new outside liquidity on a fixed basis.

Long Term

Buying a home / Lending

Buy a new home direct using a collateralized debt instrument coordinated by a specialized smart contract.

Long Term

Land Development

Yield drivers through commercial land development.

Long Term

Deflationary Offset

Inflation offset driven by new liquidity introduced through real estate.

Near Term

Fee Efficiency

Yield mechanisms to reconcile fee's generated from micro transactions.

Long Term

REIT-Like bucket

Bucket of diversified property tokens represented in a portfolio.

HaloDeFi AMM/DEX

The Uniswap/Sushiswap based automated market making protocol power HaloDeFi's decentralized exchange. Case specific efficiencies are essential in providing a defi solution that scales with real-world real estate property needs and expectations. To address we're pooling liquidity into a DEX to solve for the following:

Problem: Today Ethereum is not optimized for micro transactions which are the very life blood of rental income in tokenized real estate. The value of introducing new liquidity into the ecosystem, on a predictable, consistent basis is high demand.

Solution: HaloDeFi rewards real estate token holders who produce locked liquidity via their tokens through yield targeting fee recovery. Other innovations surface when real estate liquidity is locked value on HaloDeFi.

Problem: Tokenized real estate itself is a security and has strict guidelines

around trading before a certain time period. This is problematic and disruptive to the notion of having true liquidity at the time of purchase.

Solution: Provisions have been made enabling real estate token holders to place their tokens in a vault, in exchange receiving tokens representing synthesized debt of the underlying real estate value that can instantly be leveraged and traded. Over time rental yield, property reappraisal and property sale reconciles vault debt obligation. Alternatively, vault can be unlocked by supplying the debt balance.

Problem: Real estate investing in a mainstream business activity, people need a mainstream-like banking experience for buying, selling and earning rental income from tokenized property.

Solution: Frictionless way to go between defi and traditional finance in a seamless and frictionless swap with routes optimized for lowest fees.

Risk Coverage

It's essential to network effects to emphasize confidence in a project's security. At launch, HaloDeFi will use an allocation of its treasury to help provide exploit protection to the community. As an extension, Coverage will be used in the event of a bug, hack or exploit.

COVER Protocol allows DeFi users to be protected against smart contract risk.

A pool would be launched with incentives directly on HaloDeFi. A proposal out to Coverage would be made to have a Cover pool as well so LPs can maximize rewards for providing coverage.

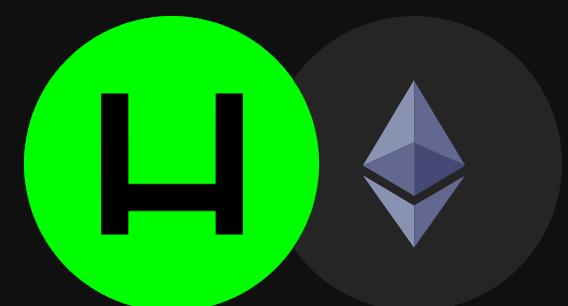
The HaloDeFi treasury would allocate a portion of its funds towards being a market maker and/or coverage provider by minting CLAIM and NOCLAIM tokens and providing liquidity with those tokens.



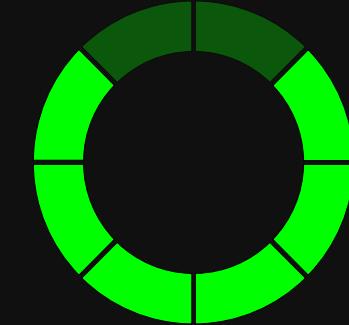
Sharecropping.

Group yield farming in micro pools on AMM/DEX.

Incentives to amplify network effects and reward communities for providing liquidity, while buying back and burning HFI exposed to inflation.



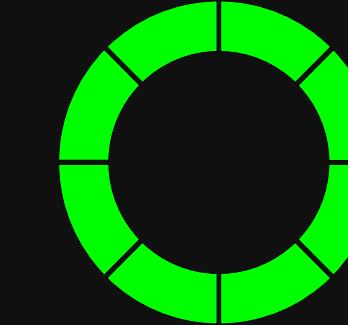
Provide liquidity to earn



Standard APY

Earn standard interest yield for providing liquidity. Use your wallet-address-specific URL to invite up to 7 others to join the micro pool and unlock higher reward APY.

Additional Unlocked yield is used to buy back HFI and burn as deflationary mechanism.



Activate higher APY

When all 8 participating wallets have pooled liquidity, the higher APY is unlocked. Rewards generated are shared proportionately by the participants.

HFI / Governance

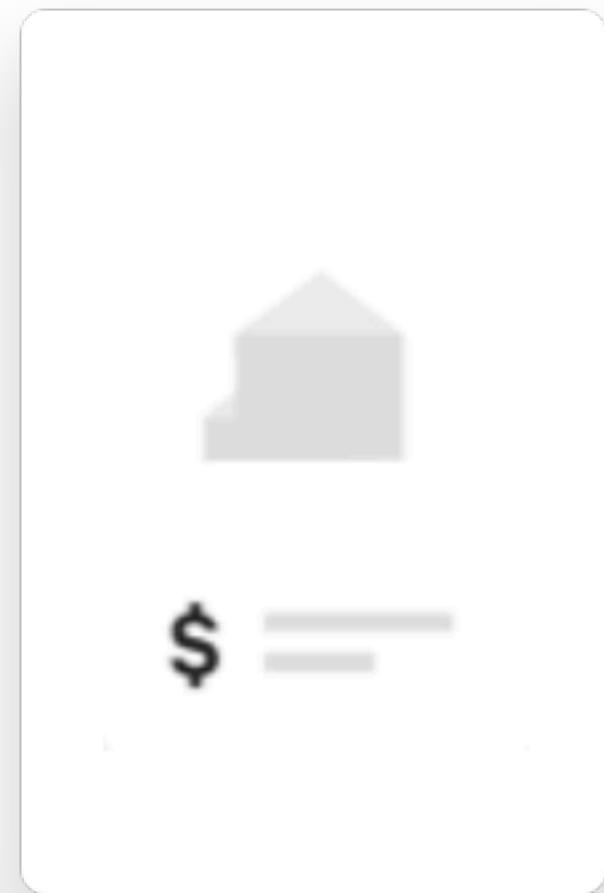
HFI is an ERC-20 token. It is used to stake in the system, revenue share exchange fees and as a governance token. HFI token is tradeable on any exchange and storable on any wallet – allowing anyone in the world to access it.

HaloDeFi is managed by a decentralized community of HFI token-holders who propose and vote on upgrades to the protocol and overall governance of the platform.

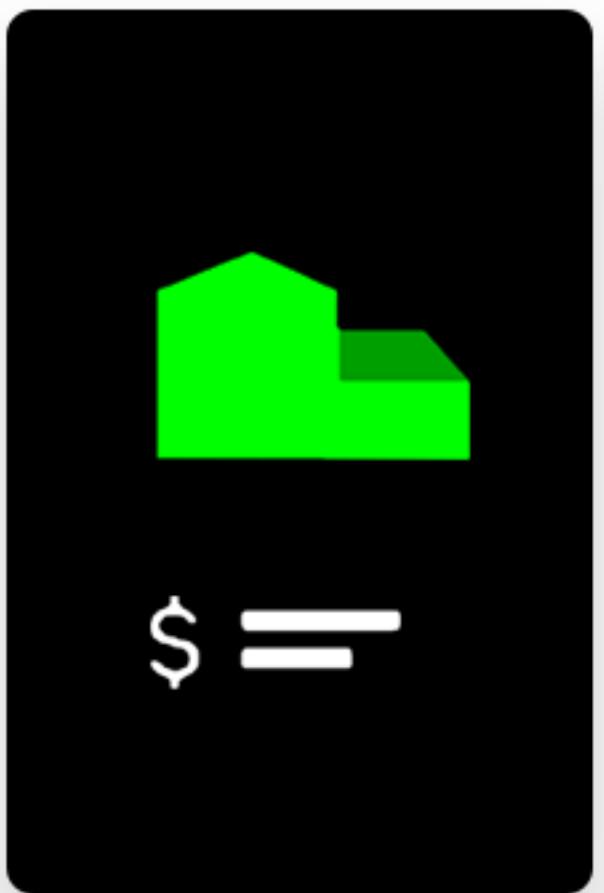


HFI / Governance

Experienced real estate investors understand the importance of picking the right property. To ensure quality, when properties are supplied, the community must vote via the governance portal to accept listings. The proposals move on chain, fundamentally minting the tokens necessary for distribution post an initial selling event. The listings that win the vote are moved into the tokenized selling process.



In Progress



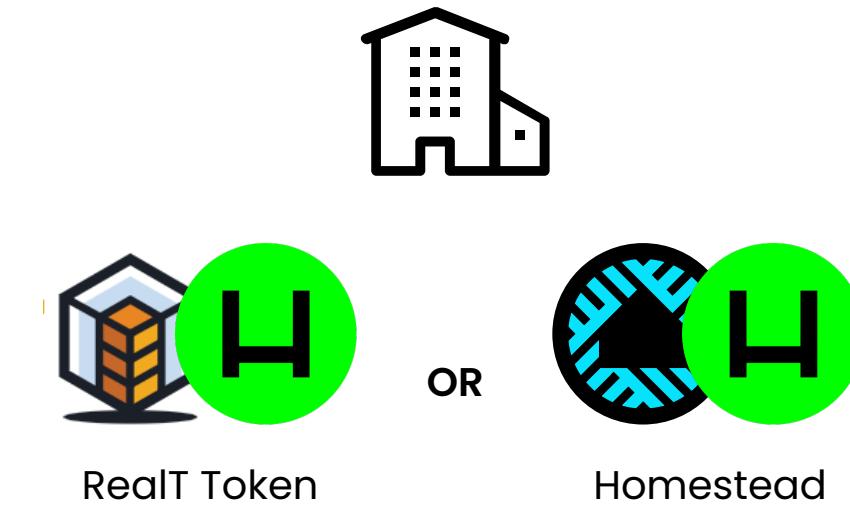
Yes



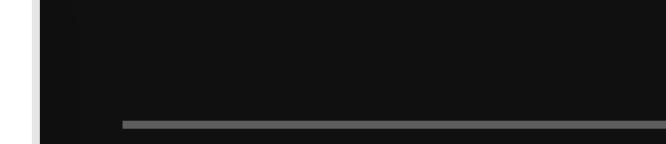
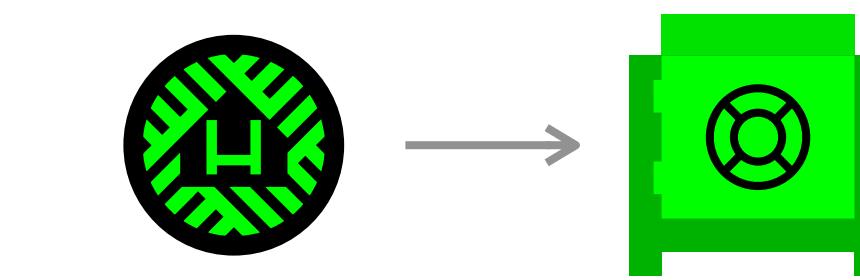
No

Step 1
Supply Real Estate Token

Pool a HomeStead, RealT or other property based token to HaloDeFi. Receive LP token.


Step 2a
LP token is placed in Vault

The pooled token is placed in vault, a StableBond is minted.



StableBond

Step 3
Assets generate Interest

The yield bucket is created based on the value of the asset portfolio and distributed accordingly. First to reduce remedy fee impact in daily rents (as yield), second to reward micro pool liquidity providers. Interest is paid in the compound provided token.


Step 2b
Micro pool liquidity is added

Pooled liquidity is bundled supplying native tokens to leverage in high yield stable coin markets. Bundle is placed in the vault.



StableBond.

Unlocking liquidity and underwriting transfer fees (gas) in yield producing real estate backed tokens is requisite to fully unlocking the value.

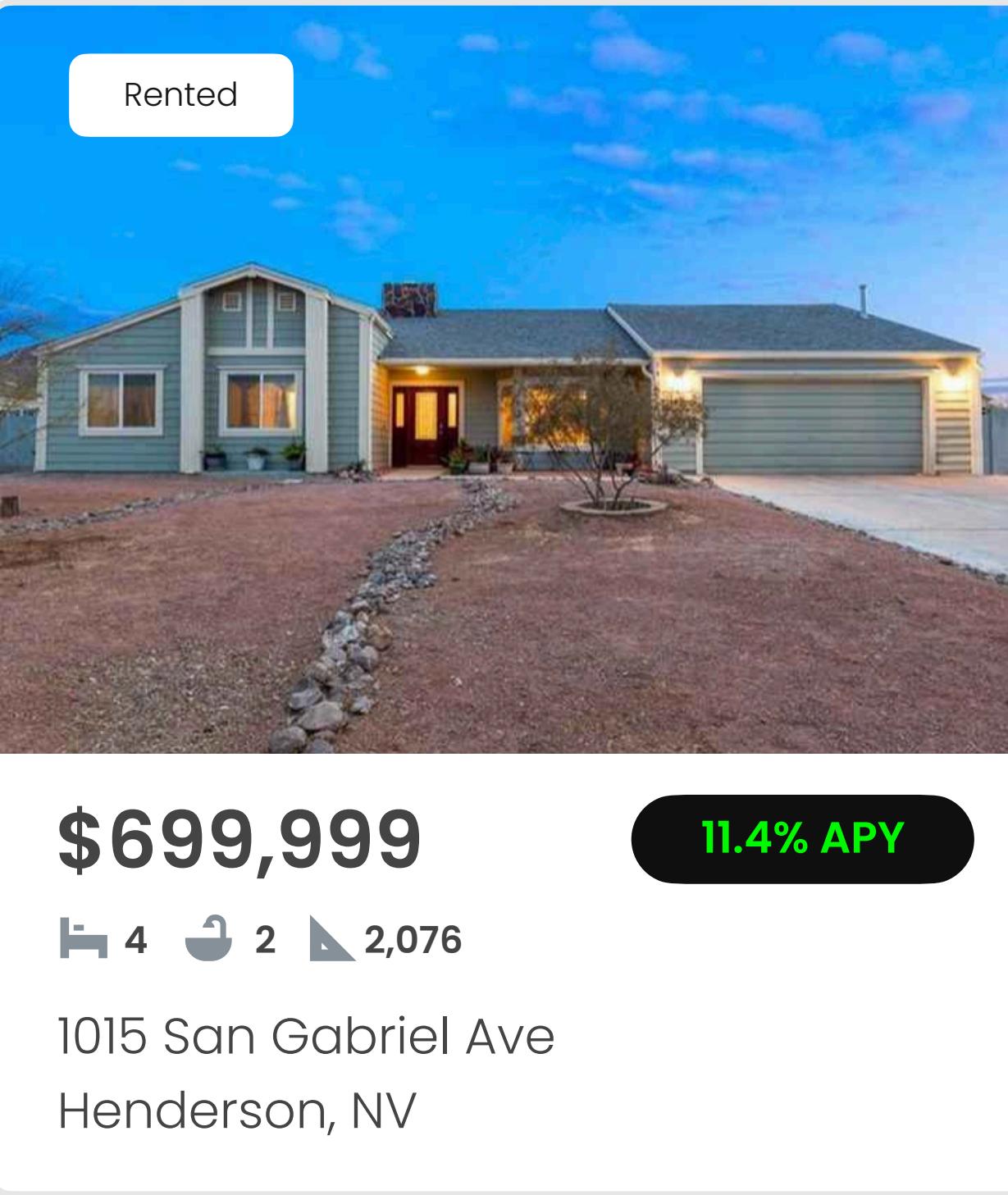
DeFi is in its infancy resulting in a lack of efficiencies across yield and lending protocols. In today's financial markets, pulling yield from numerous sources in a tranche exists. Doing so with proper incentives, liquidity provisions, asset types unlocks liquidity and additional yield opportunities in real estate backed assets.

hxMLS.

In traditional real estate sales, brokers upload specifics of the property they are looking to sell. Official photos, details of the property, pricing and other related data is aggregated into multiple listing service (MLS) systems. Websites and apps use the data as a source of truth with regard to the sales details of each property.

Until now, real estate that has been tokenized and sold relies on the token issuer website to surface this information. In the event of that company dissolved, token based property holders are limited in having an accurate record beyond the transactions related to the property.

To truly realize decentralization, attributes of property must not require the dependency of a centralized web site. hxMLS is an NFT (erc-721) that is used as an on-chain augmentation of property data related to tokenized real estate.

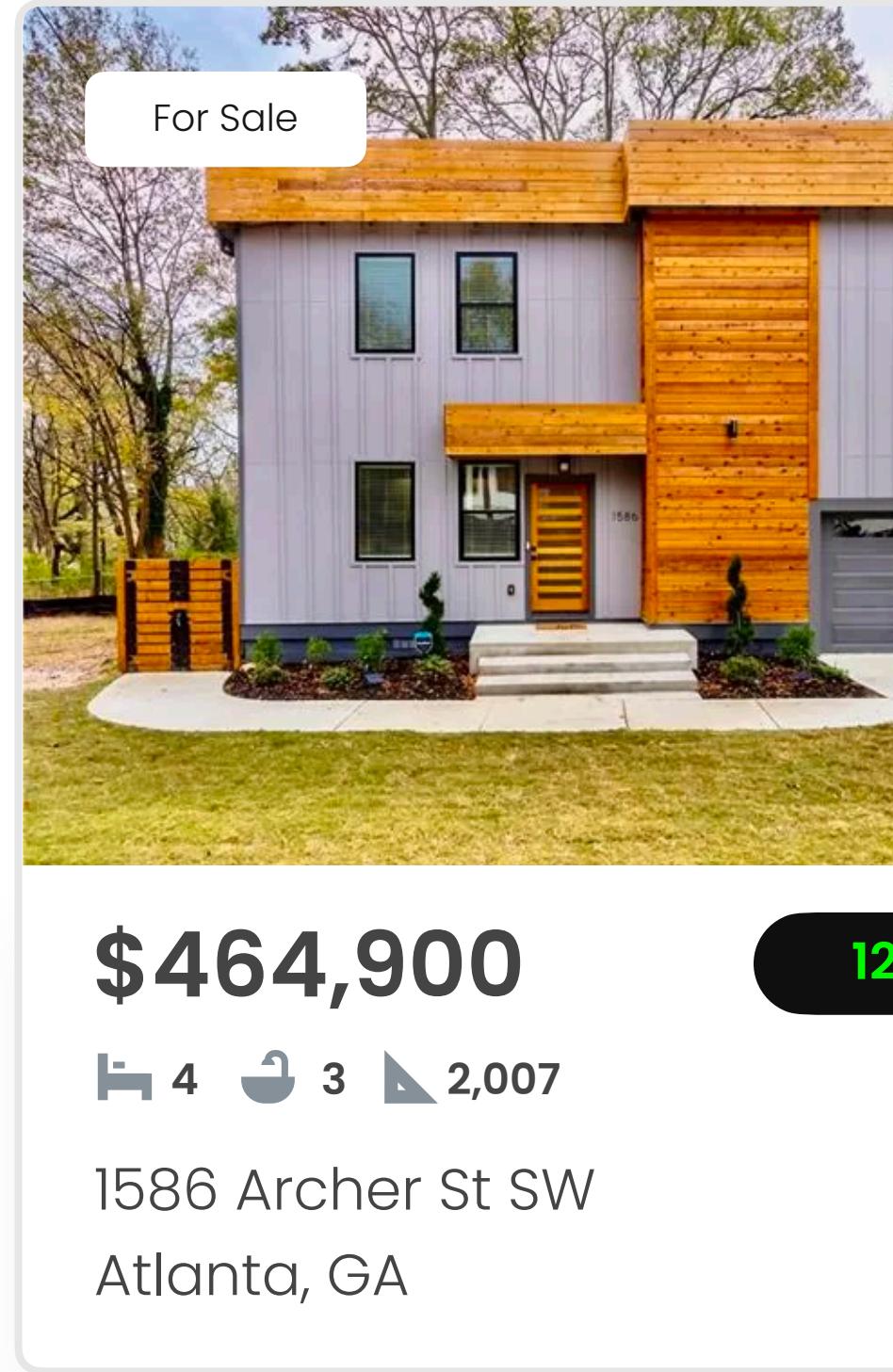


Rented

\$699,999 11.4% APY

4 2 2,076

1015 San Gabriel Ave
Henderson, NV



For Sale

\$464,900 12

4 3 2,007

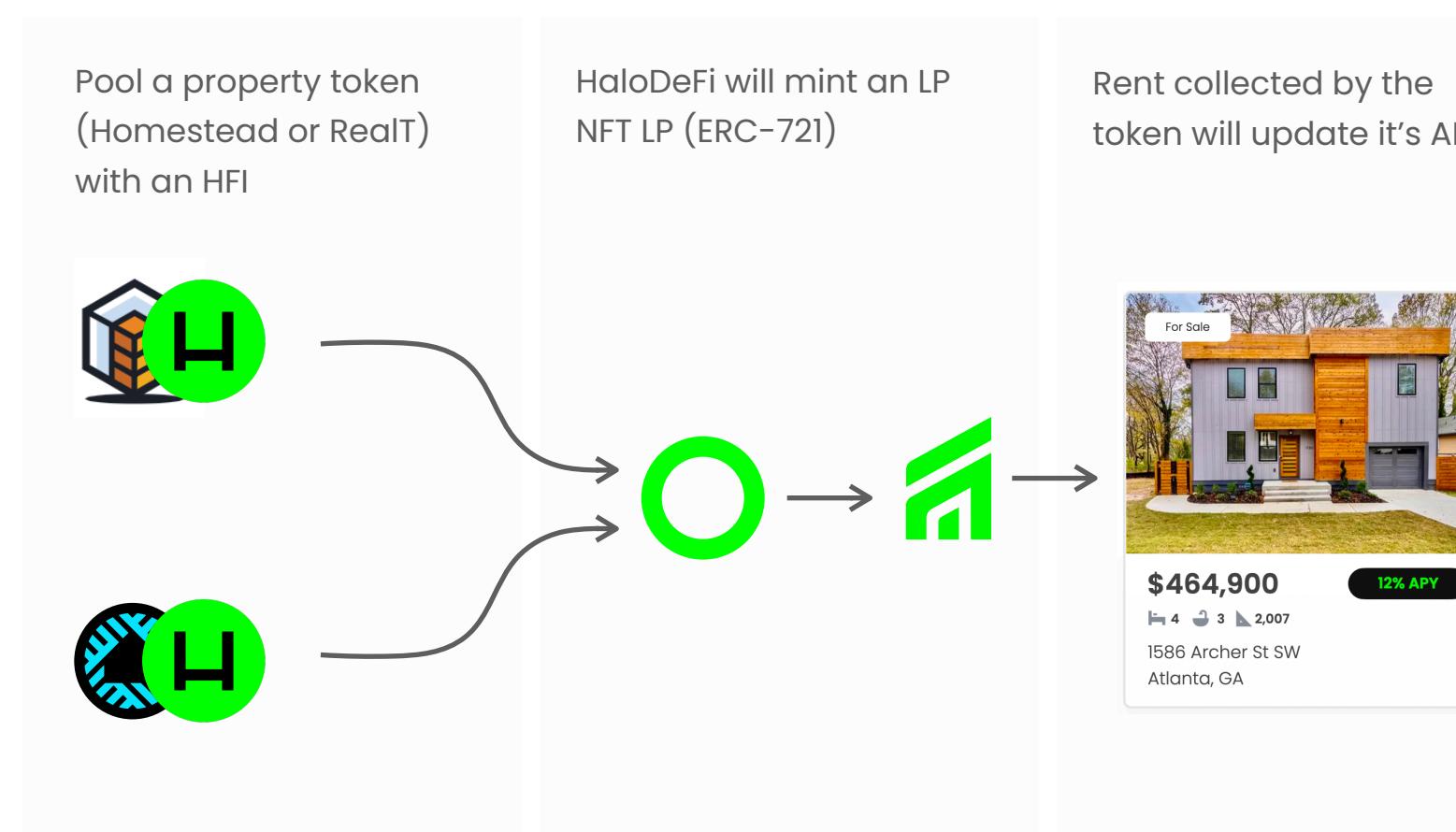
1586 Archer St SW
Atlanta, GA

Long Term

Market Oracle

Harness ChainLink to create periodic mapping to off-chain market pricing and update real estate property market rates for fair price tokens in open market.

External market data
Oracles

hxMLS

An hxMLS NFT can be minted by effectively staking a token representing ownership of the property. When a property token is staked, the LP hxMLS token is generated. When the property eventually sells, liquidating the tokens, the hxMLS LP token and NFT is burned.

Staking a single property token is required to ensure authenticity, and surface rental yield real-time. Reported yield is capture based on rents collected by specific token in relation to the unit economics of the property.

Initially, rent yield will accumulate in the staked token. In the future, that accumulated value will be used to cover ChainLink/Graph calls to get new pricing data.

Near Term

hxMLS Listings on Rairable

Distribute hxMLS listings to Rairable (and automatically to Opensea) for discovery and decentralized accessibility.

Public hxMLS NFT listings



hxMLS launching Decentralized-First (De-First)

With the intent to always operate decentralized, the hxMLS will launch decentralized first (de-first) on Rairable open marketplace for NFTs. Beyond discovery, the idea is to start at the end goal of decentralized available and governance and work backwards, eventually to have a dedicated instance of the xMLS listings.



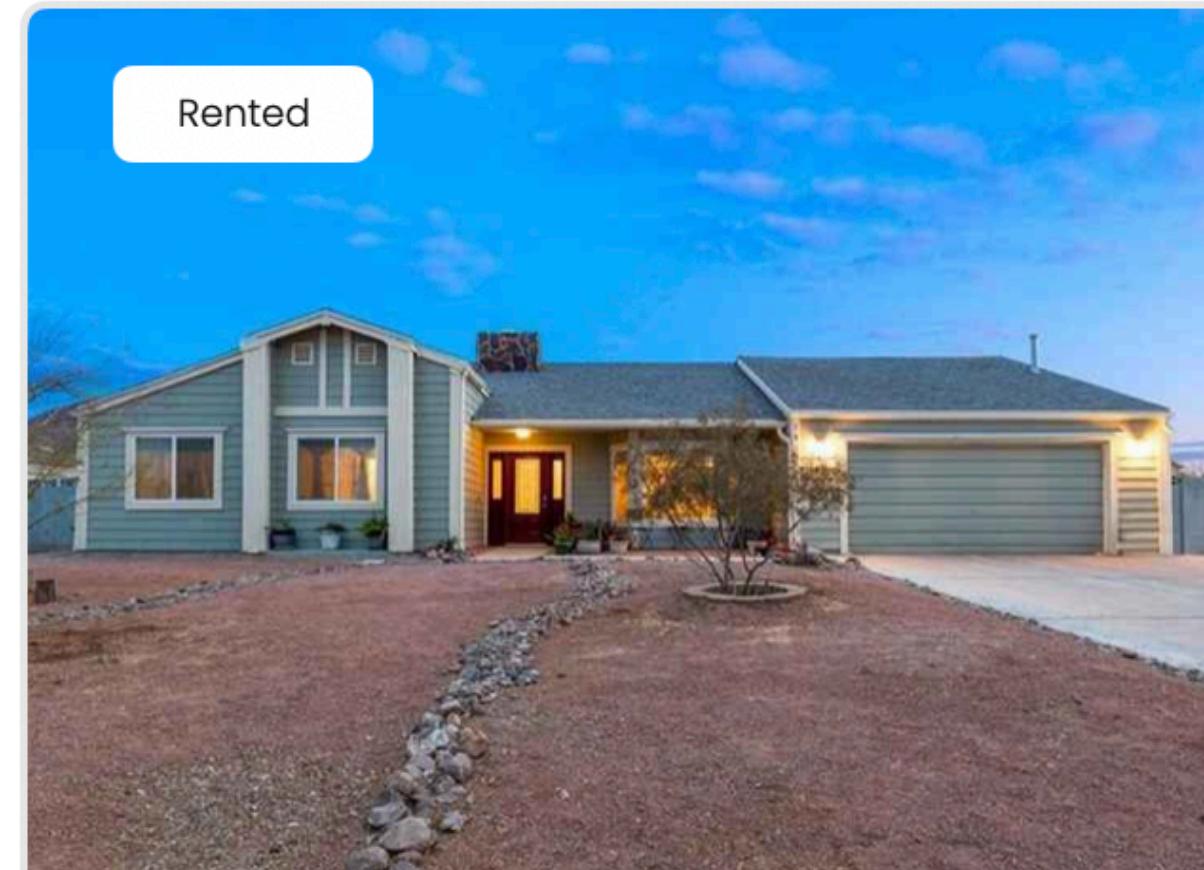
Search by location or Tx address



Add List

All homes available in xMLS

124 homes total

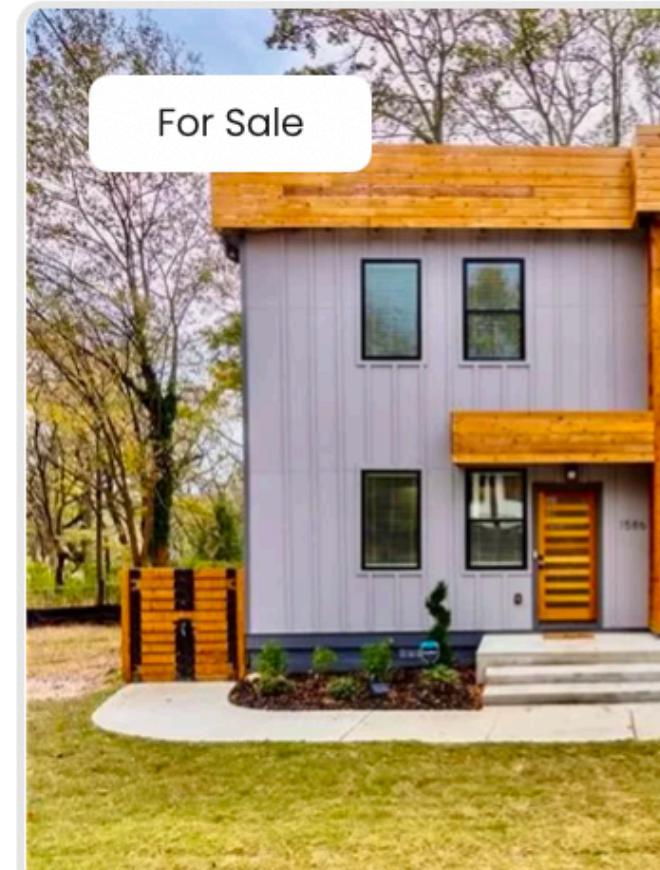


\$699,999

11.4% APY

4 2,076

1015 San Gabriel Ave
Henderson, NV



\$464,900

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Atlanta, GA

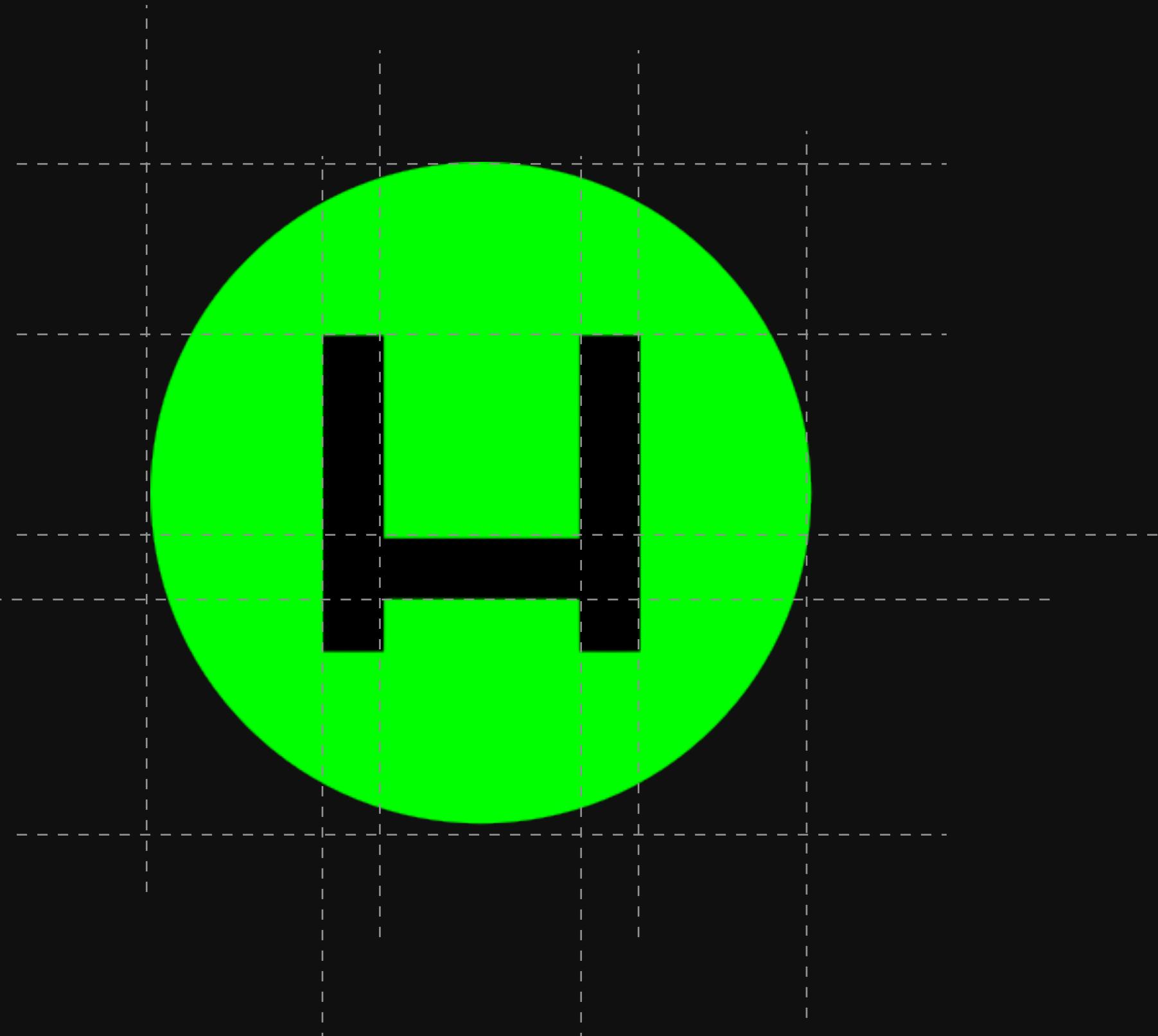
Token Economics

Launch

At launch there is no initial supply of tokens, HaloDeFi will begin actively minting tokens. There is no pre-sale and no VC allocation.

Always minting new HFI creates inflation. In the case of HaloDeFi inflation is not necessarily a bad thing; in fact, it was incorporated by design, in order to encourage people to actively provide liquidity. This will not decrease the market cap of HFI, but rather will increase the supply. Deflationary mechanisms within the protocol will burn excess regularly to adjust HFI price target against inflation.

HaloDeFi takes a 0.3% fee on each trade; 0.25% goes to liquidity providers, and the remaining 0.05% is converted into HFI and distributed to HFI token holders as the 0.05% reward amount. Token holder rewards activate after the initial launch period.



Token Economics

Emissions Rate

There's currently no hard cap on the supply of HFI token, making it an inflationary token (see ETH as an example). HaloDeFi's primary function is to incentivize providing liquidity to the exchange. Without block rewards, there would be much less incentive for traders to provide liquidity.

Post-launch - After the liquidity mining phase, 25 HFI will be minted per block. These will be distributed among LP token holders (i.e. the protocol's liquidity providers).

After liquidity mining phase, block emission rates will be reduced. In a planned proposal to the community, HaloDeFi will reduce block rate emissions.

	Emissions/Block	Emissions/Day
Emission	40	1,200,000
Burned	-15	-450,000
Effective Emission	25	750,000

Distribution to	Reward/Block (%)	Reward/Block	Reward/Day
Farmers	60%	15	450,000
Pool	40%	10	300,000

Native Incentives

The protocol has several scheduled (native) incentives. Additional incentives can be proposed and voted on through governance.

Liquidity Mining Phase

During the first 100,000 blocks (~2 weeks), dubbed the liquidity mining phase, 1000 HFI will be minted per block. These are being distributed to anyone staking tokens in specific approved pools divided by the proportional share of the pool. This is with the exception of the "Block Party!" pool which has an additional 2x bonus.

Block reward distribution will be allocated differently during liquidity mining phase to support the creation of a treasury, and pool for ongoing development. Liquidity captured in dev treasury will be managed in a multisig wallet. It will begin at 10%, reduce to 5% trending towards 1% once the treasury is adequately healthy.

Deflationary Mechanisms

Tokens will fundamentally be burned, limiting supply, resulting in HFI's market price's ability to break ceiling. The protocol has a built-in demand generator that can serve to offset inflation. Recall that 0.05% of all trading volume will be used to buy back HFI tokens from the market and distribute them to existing HFI token holders – this value is the 0.05% reward amount.

- Unrealized yield from sharecropping (micro pools) will be burned.
- 10% of HFI harvested from farms is sent to the dev, then burned.

Real estate tokenization and daily yield transactions introduce new network liquidity (locked) countering inflationary risks.

Rationale:

Backed: All new HFI minted are treated as "unbacked" – and thus contribute to inflation – but this is offset by the number of "backed" tokens purchased in the same time period.

Unbacked: HFI which is bought back from the market by the protocol in order to fulfill the 0.05% reward amount is considered to be "backed" by real value – thus offsetting the minting of unbacked tokens

Weekly Burns: Burns will be conducted weekly for efficiency and cost.

Token price impacts

Real Estate Owners: Tokenized real estate owners will introduce new, yield producing liquidity, as a floor rent yield APYs target 11%+.

Hodlers: Yield farmers and traders will HODL, decreasing the inflationary impact of the minting functionality.

Dumpers: Sell pressure generated by yield farmers and other speculators who will dump their HFI for quick returns or to get in on the next yield farming opportunity.

FOMO and panic sellers : Buy-side demand as a result of investors wanting to get in on the action, or for sell-side demand as a result of panic sellers. Impact of this over time is low, as FOMO-and-panic-driven trades will eventually subside and the token price will correct.

Devshare: Earned HFI burned and dumped by multisig key holders.

Liquidity: - The contract executing the buy-back function for the 0.05% reward amount will be able to purchase an arbitrary amount of HFI at market price. However, if liquidity in HaloDeFi's HFI pool is low (e.g. traders aren't hodling), the buy-back will execute at above market price, impacting the proportion of new HFI minted which is backed by real value.

Governance: The ability for this to impact buy-side demand is hard to quantify, but it is certainly a non-zero amount.

Acknowledgements

ChainLink

Connect your smart contract to the outside world

Chainlink's decentralized oracle network provides reliable, tamper-proof inputs and outputs for complex smart contracts on any blockchain.

<https://chain.link/>

RealT

Fractional and frictionless real estate investing

<https://realt.co/>

Compound

Compound is an algorithmic, autonomous interest rate protocol built for developers, to unlock a universe of open financial applications.

<https://compound.finance/>

MakerDAO

One of the earliest projects in decentralized finance (DeFi) build decentralized financial products on top of Ethereum, vaults and algorithm-based stable coins.

<https://makerdao.com/en/>

MLS

Multiple Listing Service - the original Real Estate Advertising Service Company for Real Estate firms, Mortgage firms and Insurance companies.

<http://www.mls.com/>

UniSwap

A fully decentralized protocol for automated liquidity provision on Ethereum.

<https://uniswap.org/>

Rarible

Rarible is the first community-owned NFT marketplace

<https://rarible.com/>

Cover

COVER Protocol allows DeFi users to be protected against smart contract risk. It stabilizes the turbulent DeFi space by instilling confidence and trust between protocols and their users. By bridging the gap between decentralized finance and traditional finance, COVER Protocol will open the doors of DeFi to all investors.

<https://www.coverprotocol.com/>

The Graph

The Graph is an indexing protocol for querying data for networks like Ethereum and IPFS, powering many applications in both DeFi and the broader Web3 ecosystem.

<https://thegraph.com/>



Contact

Community

Twitter

 @haloDeFi

Telegram

 Community t.me/HaloDeFi

 Announcements t.me/Halo_DeFi

Disclaimer

This document describes the current design and ideas of the HaloDeFi protocol. Ideas and design are subject to change along the way, to fit market and user needs.



www.haloDefi.org