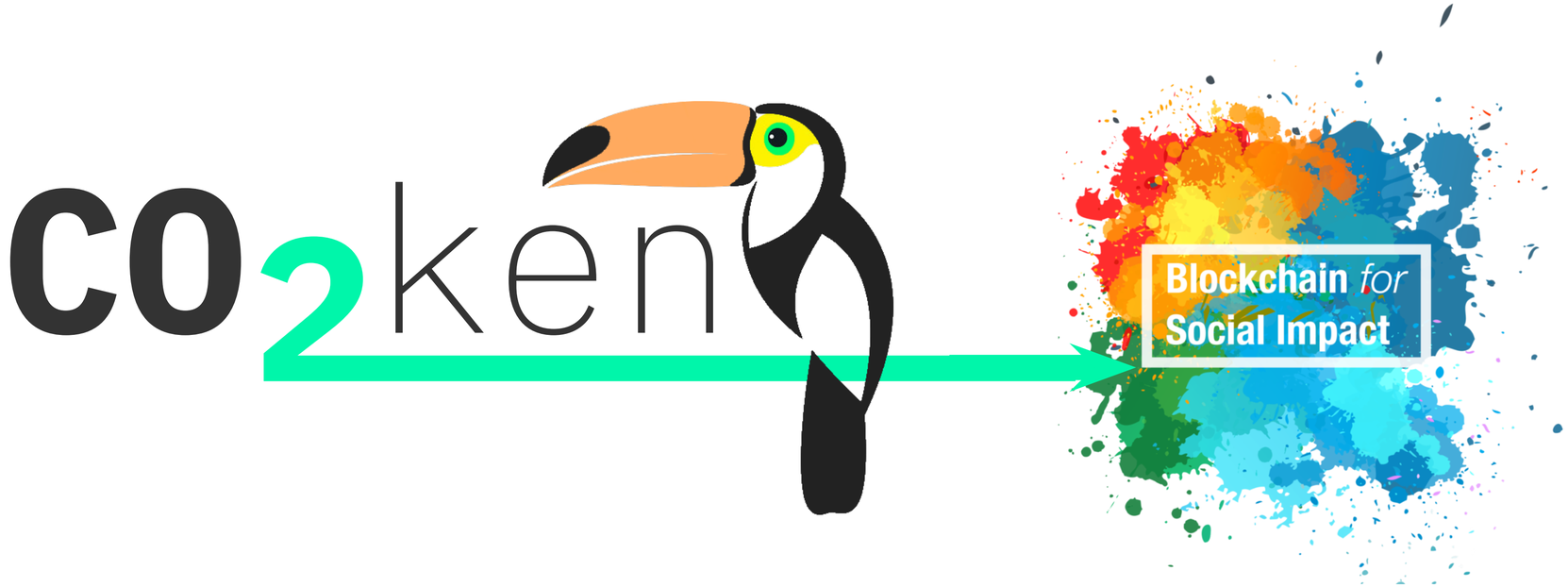
CO2ken

the open & decentralized carbon accounting ecosystem



Adam Spiers & Jan Benes & Nick Cannon & Raphaël Haupt

Vision
carbon
neutral
by 2040

Value Proposition

> *We build the **open carbon accounting ecosystem** needed to achieve this vision*

Problem

Problem We‘re Solving

Nation states, due to negative free rider incentives, cannot effectively account for carbon offsetting. Using blockchain, we solve this „trust problem“ in the carbon offset value chain.

Still not happy with this one!

Tragedy of the Commons

We use our atmosphere as a waste dump!

Free-Riding Nation States

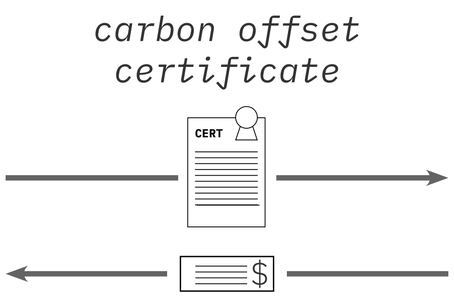
No, YOU start!

Carbon Markets

Put a price on CO2 emissions to internalize the externalities

Reduce CO2 emissios

fuel switching & renewables
avoidance & reduction
sequestration & removal
...



Carbon emitters

industry under regulation
businesses with green values
conscious individuals
...

Put a price on carbon!

Carbon markets try to internalize the externalities

carbon offset certificate

money

Reduce CO2 emissions

fuel switching & renewables
avoidance & reduction
sequestration & removal
...

Carbon emitters

industry under regulation,
businesses with green values,
conscious individuals,
...

4 key principles

additionality

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Carbon markets try to internalize the externalities

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4 key principles

additionality

sustainability

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4 key principles

additionality

sustainability

verifiability

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carbon offset certificate

money

Reduce CO2 emissions

fuel switching & renewables
avoidance & reduction
sequestration & removal
...

Carbon emitters

industry under regulation,
businesses with green values,
conscious individuals,
...

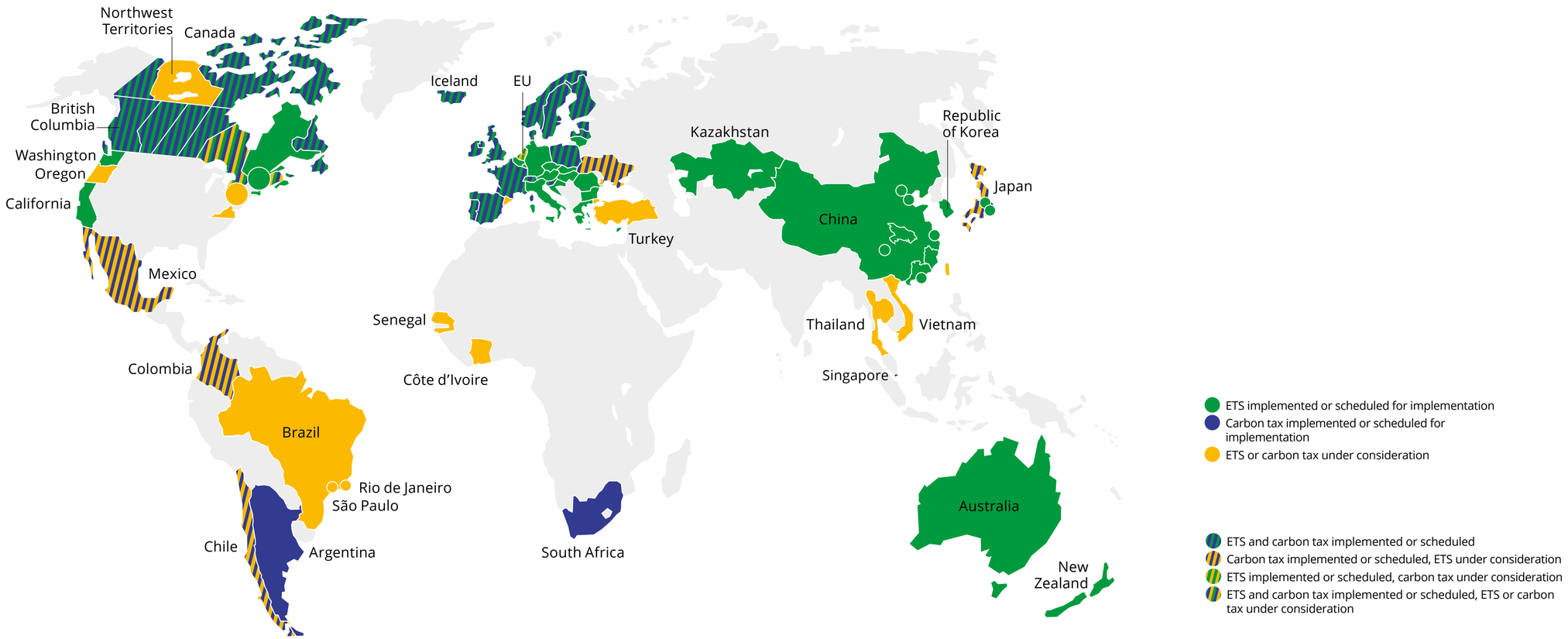
4 key principles

- additionality
- sustainability
- verifiability
- reliability

Problems with Carbon Markets

Fragmented, intransparent & prone to double counting

Emission trading systems



http://documents.worldbank.org/curated/en/191801559846379845/pdf/State-and-Trends-of-Carbon-Pricing-2019.pdf

Problems with Carbon Markets

A plethora of acronyms to describe 1 tCO2e

Emission Trading Systems

↓

AAU
assigned amount unit

EUA
European Union allowances

Clean Development Mechanism

↓

CER
certified emission reduction

Joined Implementation

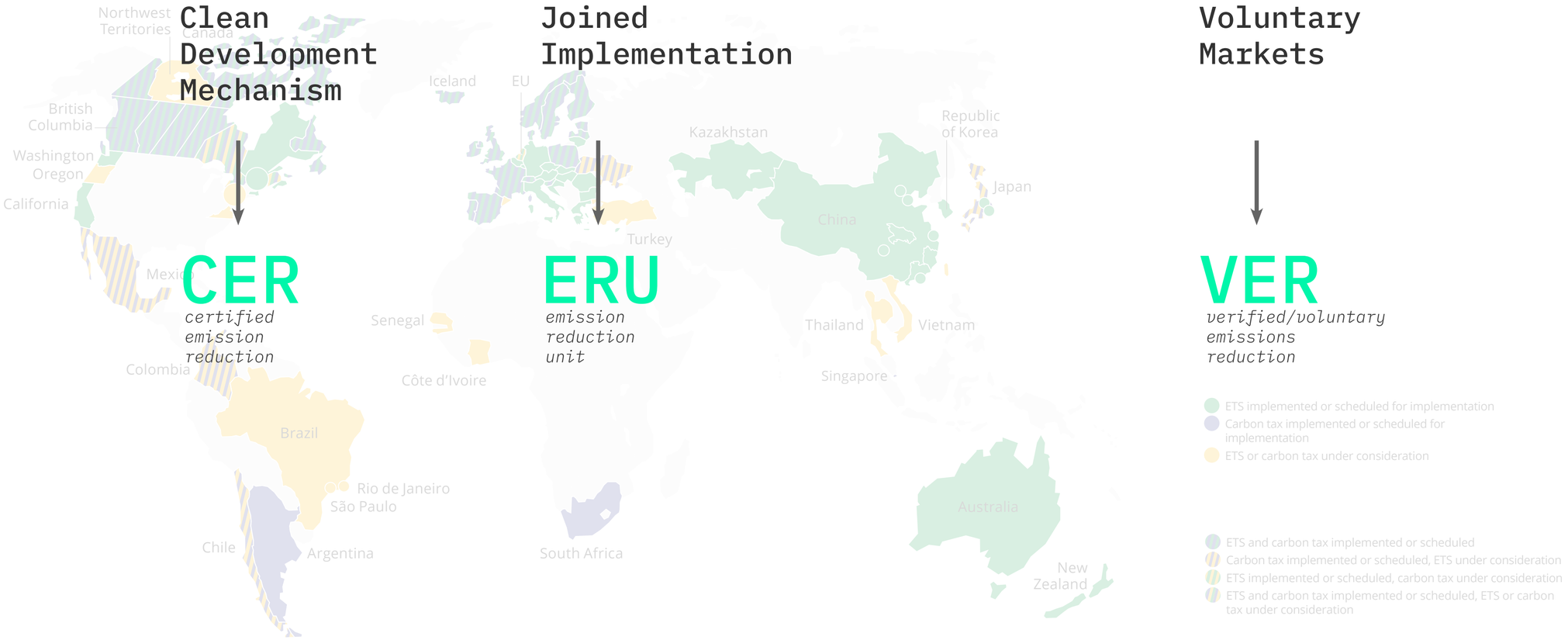
↓

ERU
emission reduction unit

Voluntary Markets

↓

VER
verified/voluntary emissions reduction

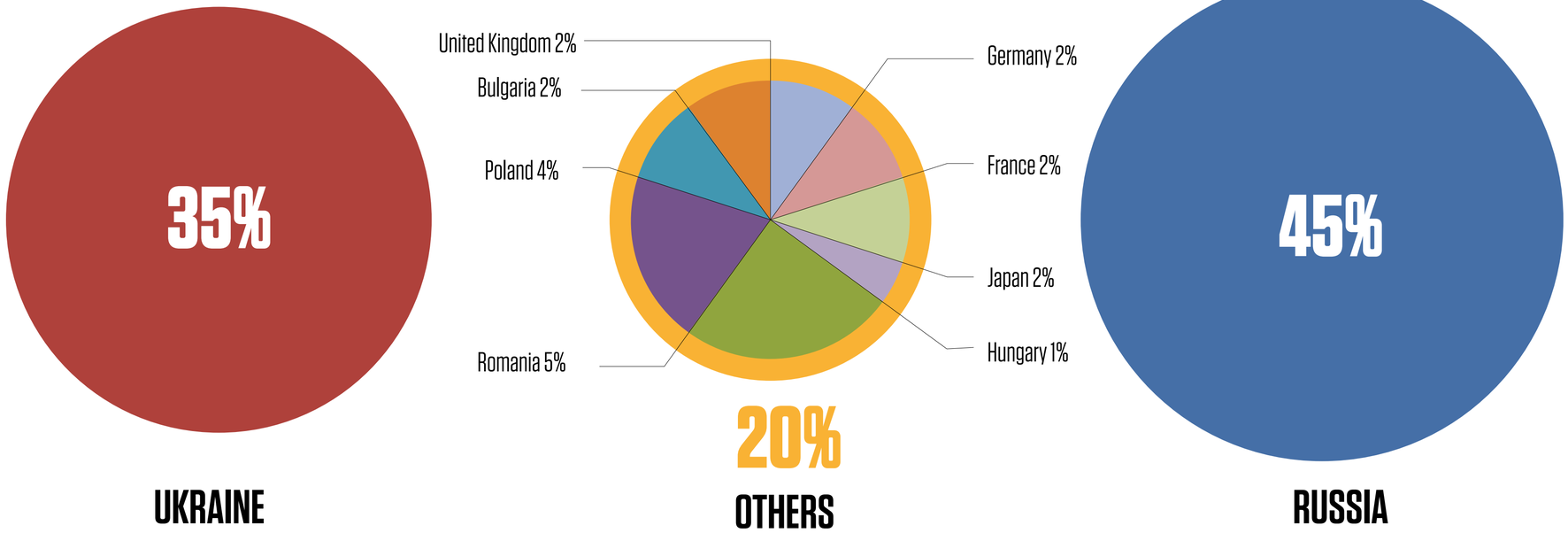


http://documents.worldbank.org/curated/en/191801559846379845/pdf/State-and-Trends-of-Carbon-Pricing-2019.pdf

Problems with Carbon Markets

Flawed incentive design leads to absurd dynamics

AAUs HELD BY COUNTRY



AAUs HELD BY COUNTRY top 10 (Mt CO2e)

Russia 5089
Ukraine 4001
Romania 533
Poland 411
Bulgaria 260
United Kingdon 243
Germany 228
Bulgaria 187
Japan 171
Hungary 169

https://carbonmarketwatch.org/publications/empty-targets-how-to-avoid-trading-of-hot-air-under-the-paris-agreement/

Problems with Carbon Markets

>80% of carbon offsets have no additional positive effect on climate

AAUs HELD BY COUNTRY

AAUs HELD BY COUNTRY
top 10 (Mt CO2e)

Russia 5089
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Hungary 169

https://ec.europa.eu/clima/sites/clima/files/ets/docs/clean_dev_mechanism_en.pdf

No Agreement at COP25

Still no international carbon market mechanism

TIEMPO DE ACTUAR

COP25
CHILE
MADRID 2019

https://www.carbonbrief.org/cop25-key-outcomes-agreed-at-the-un-climate-talks-in-madrid

No Agreement at COP25

Still no international carbon market mechanism

https://www.carbonbrief.org/cop25-key-outcomes-agreed-at-the-un-climate-talks-in-madrid

We have to act fast!

We have to massively scale up the rate at which we remove carbon from the atmosphere

Maybe not need.
And again mixing some stuff :)

global capacity for carbon removal

↓

!

10-1000 ktCO2/year

We have to act fast!

We have to massively scale up the rate at which we remove carbon from the atmosphere

Maybe not need.
And again mixing some stuff :)

x100

10-1000 ktCO2/year

Opportunity Space

Target Market

Attack the voluntary carbon market first.
Go for the big fish compliance market later.

compliance
market

$57 B

TIME

Target Market

Attack the voluntary carbon market first.
Go for the big fish compliance market later.

compliance
market

$57 B

$300M

TIME

https://www.ecosystemmarketplace.com/carbon-markets/ [voluntary market] & https://icapcarbonaction.com/en/?option=com_attach&task=download&id=625 [compliance marekt]

Rising Public Awareness

People are starting to care!

Rising Public Commitment

Companies are starting to care!

Tech

carbon-negative by 2030

Microsoft

Oil & Gas

$300M in offsets

Aviation

offset all domestic flights

BRITISH AIRWAYS

AIR FRANCE

all emissions

easyJet

https://www.ecosystemmarketplace.com/articles/voluntary-carbon-volume-hits-seven-year-high-on-demand-for-natural-climate-solutions/
https://www.edie.net/news/6/-Transformation-through-transparency---How-Microsoft-will-collaborate-to-meet-its-carbon-negative-goals/

Rising Public Commitment

Companies are starting to care!

Tech

carbon-negative by 2030

Microsoft

Oil & Gas

$300M in offsets

Aviation

2.5B tonnes of CO2
$40B in climate finance

IATA CORSIA

Carbon Offsetting Scheme for International Aviation

https://www.ecosystemmarketplace.com/articles/voluntary-carbon-volume-hits-seven-year-high-on-demand-for-natural-climate-solutions/
https://www.edie.net/news/6/-Transformation-through-transparency---How-Microsoft-will-collaborate-to-meet-its-carbon-negative-goals/

COVID–19 & Economic Crisis

Instability is the driver for change!

Nation State Egoism

COVID–19 & Economic Crisis

Instability is the driver for change!

2008

Bitcoin

COVID–19 & Economic Crisis

Instability is the driver for change!

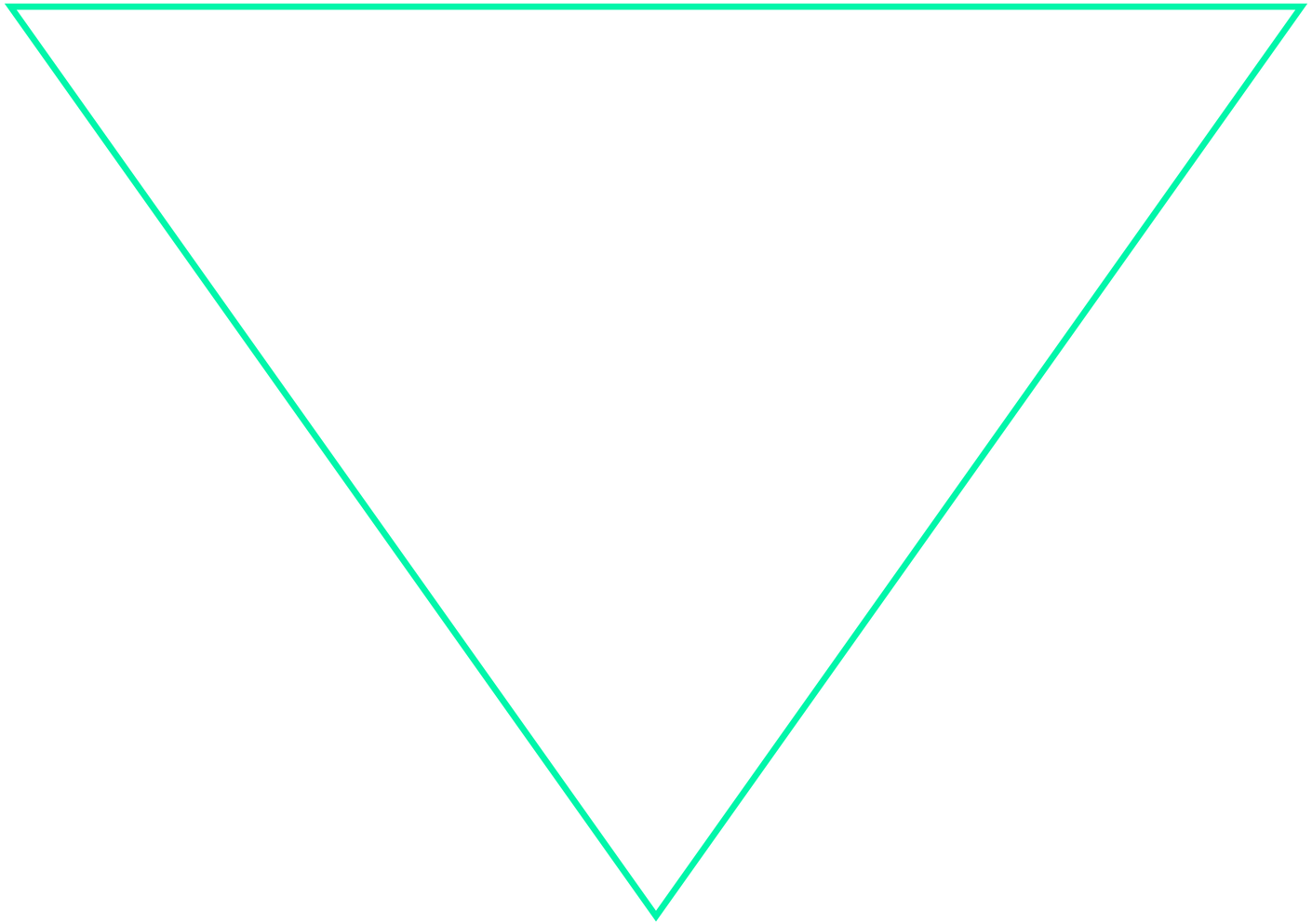
2008

Bitcoin

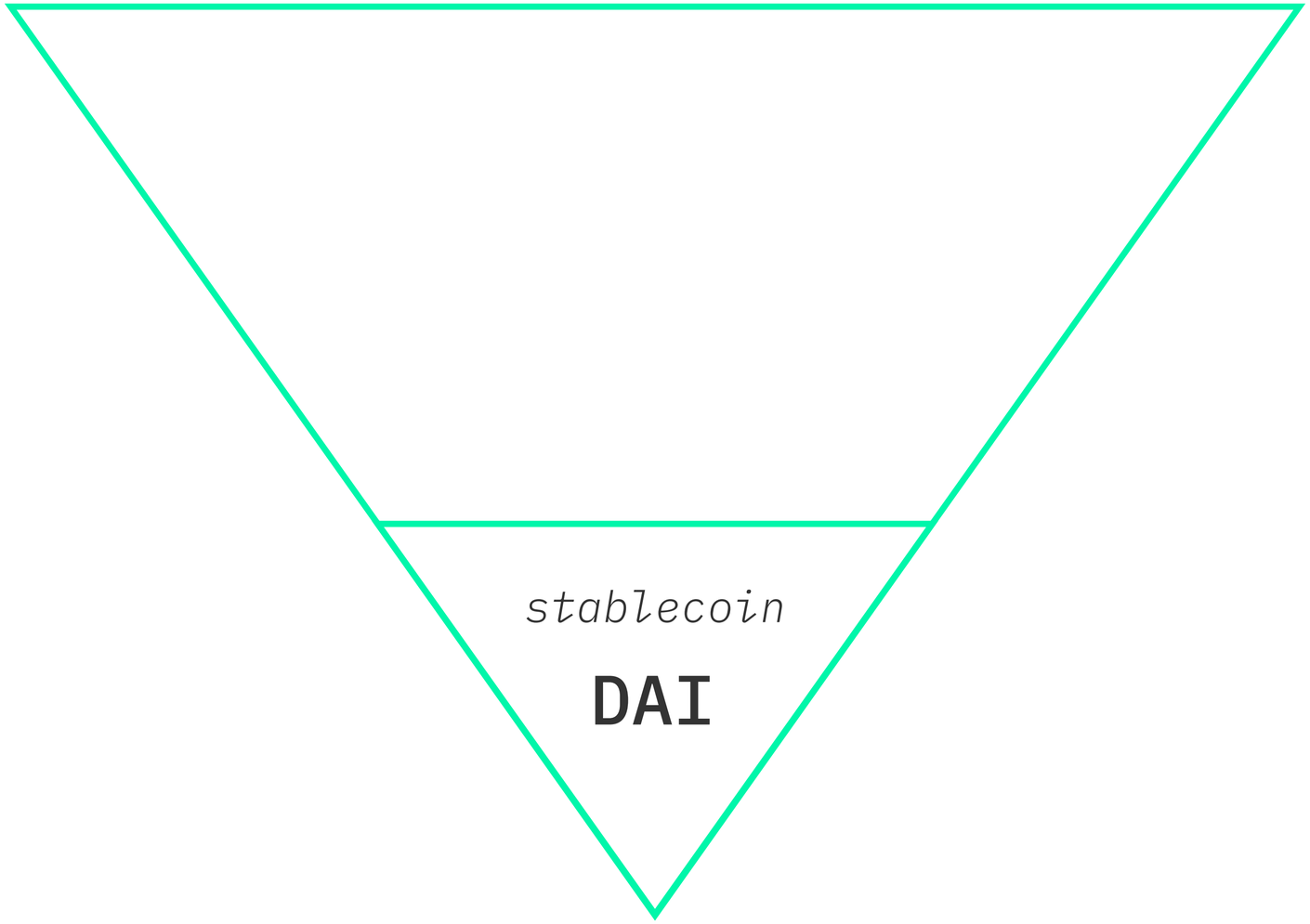
CO2ken

The Solution

DeFi



DeFi



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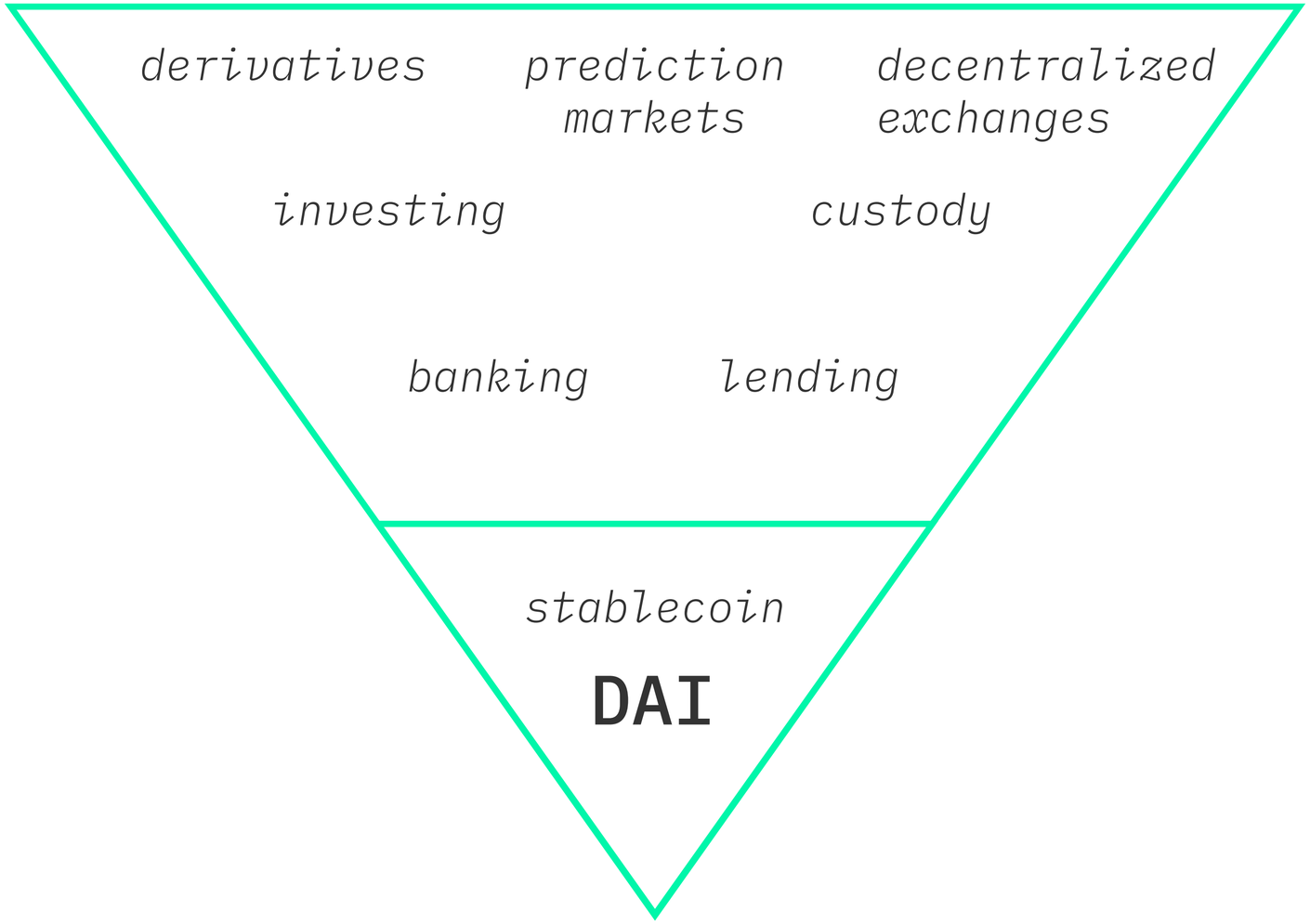
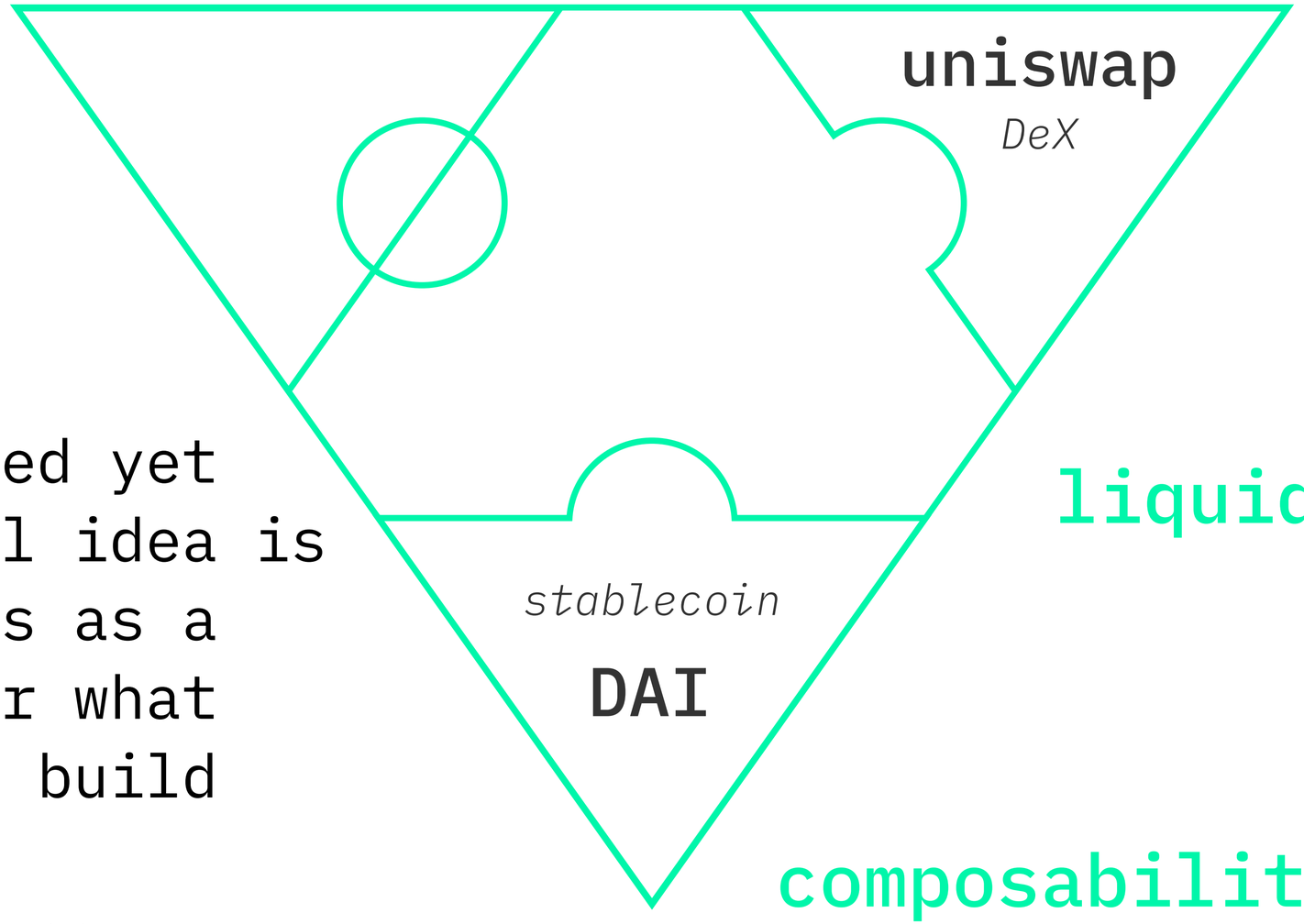

derivatives
prediction markets
decentralized exchanges
investing
custody
banking
lending
stablecoin
DAI

DeFi

new markets



open source

liquidity

composability

Not finished yet
But general idea is to use this as a analogy for what we have to build

The Solution

DeFi

The Solution

DeCA

The Solution

Decentralized Carbon Accounting

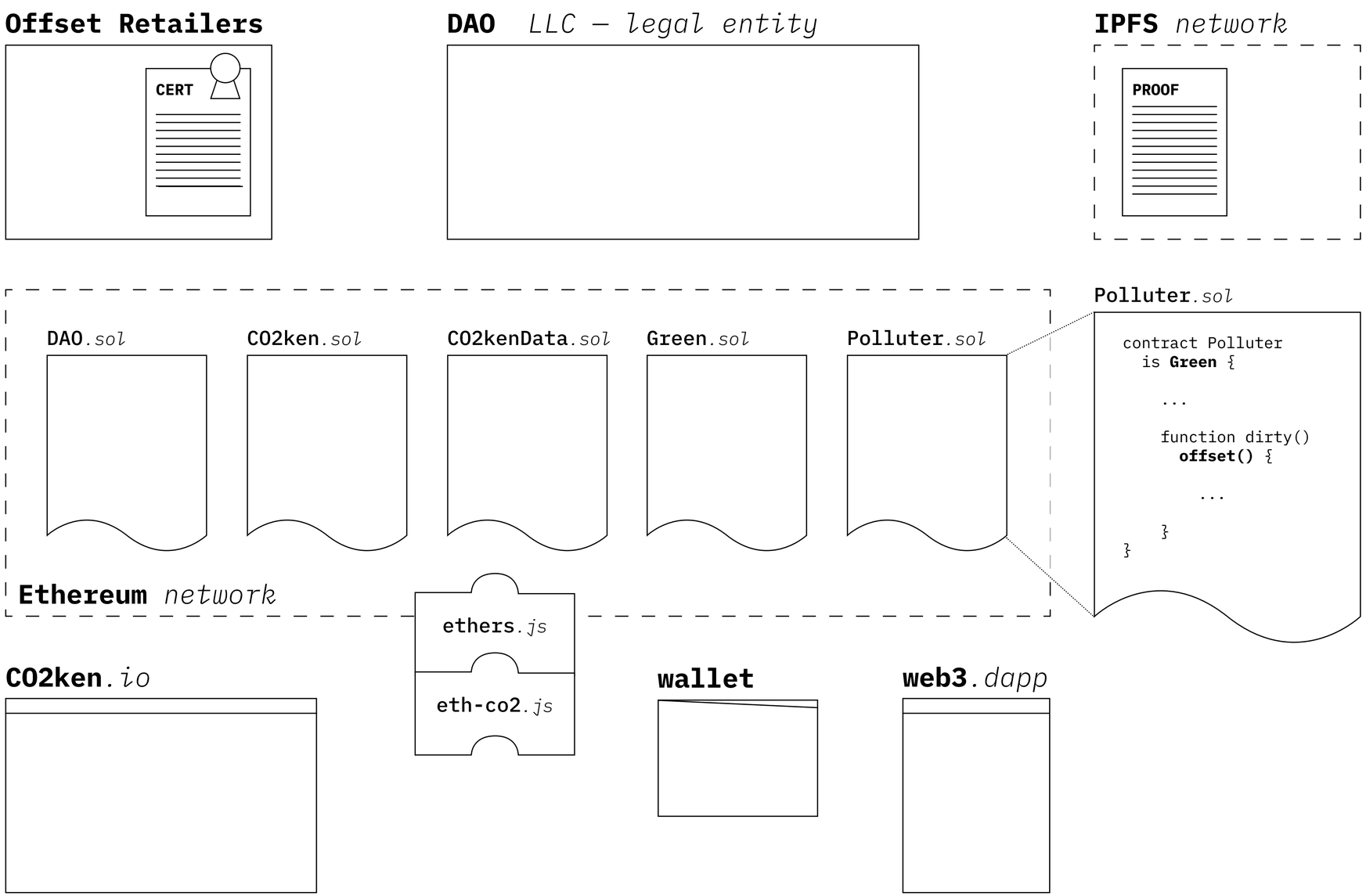
CO2ken Genesis

CO2ken

Kickstart

this ecosystem!

Architecture



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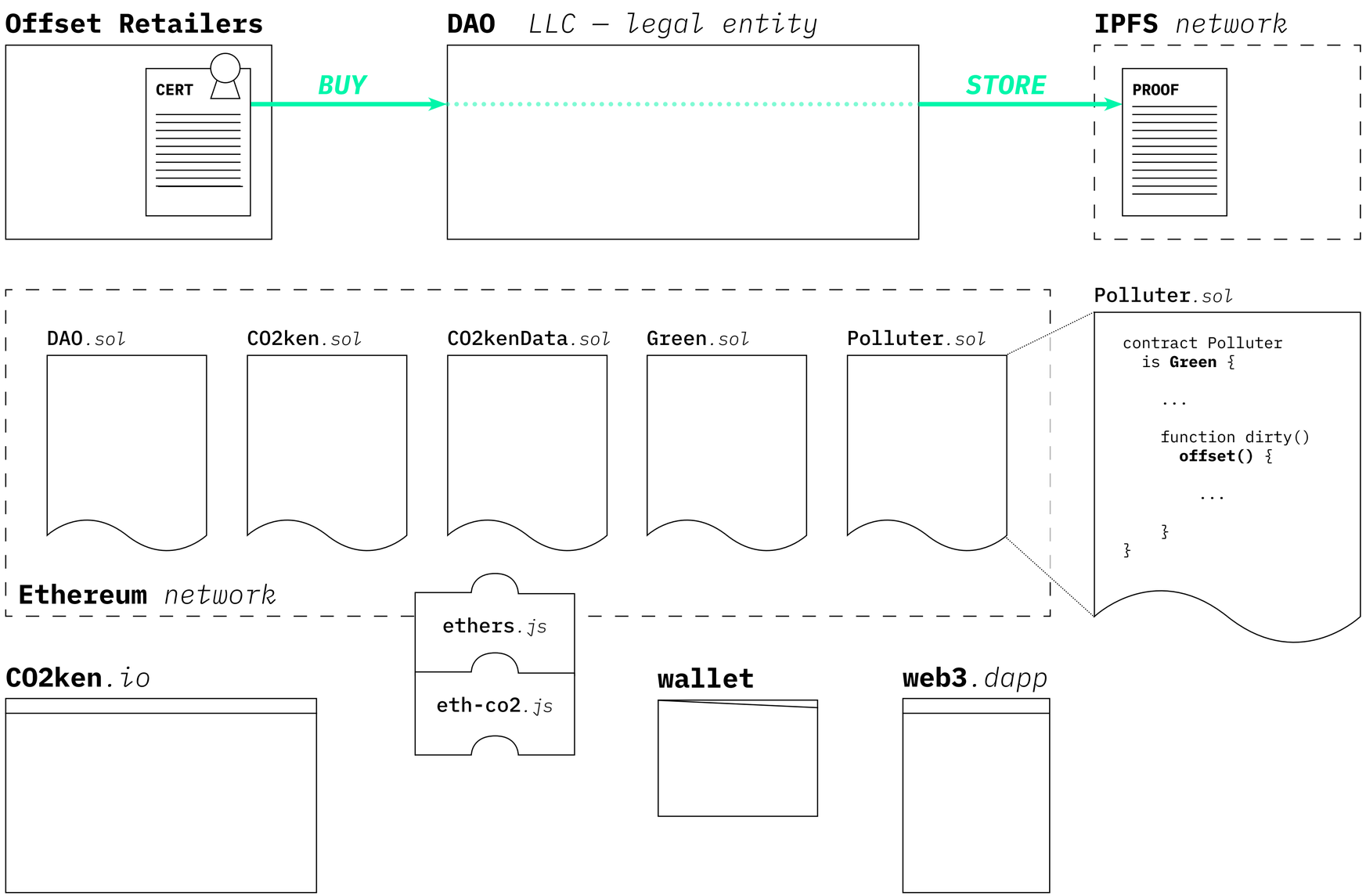

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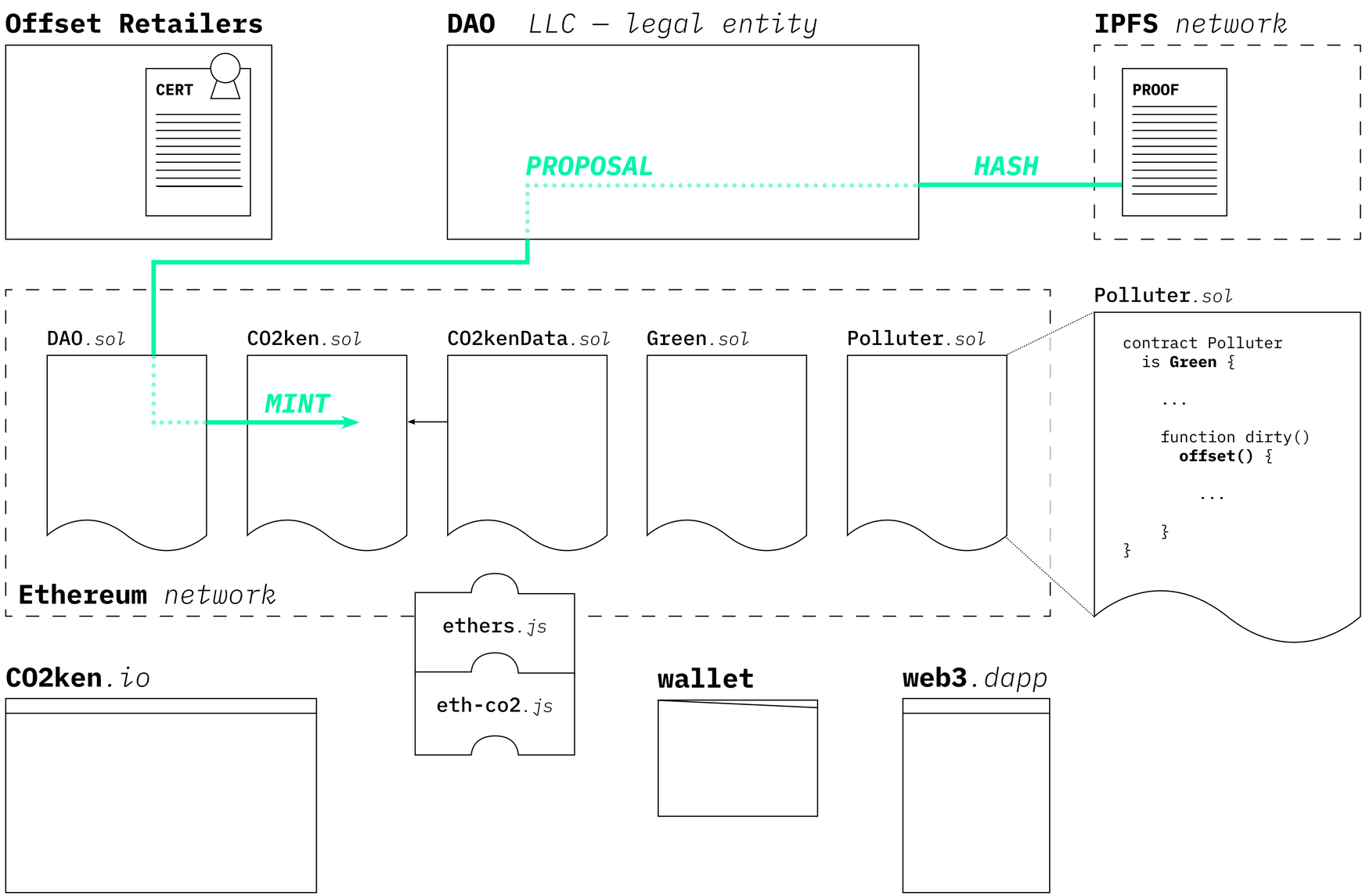

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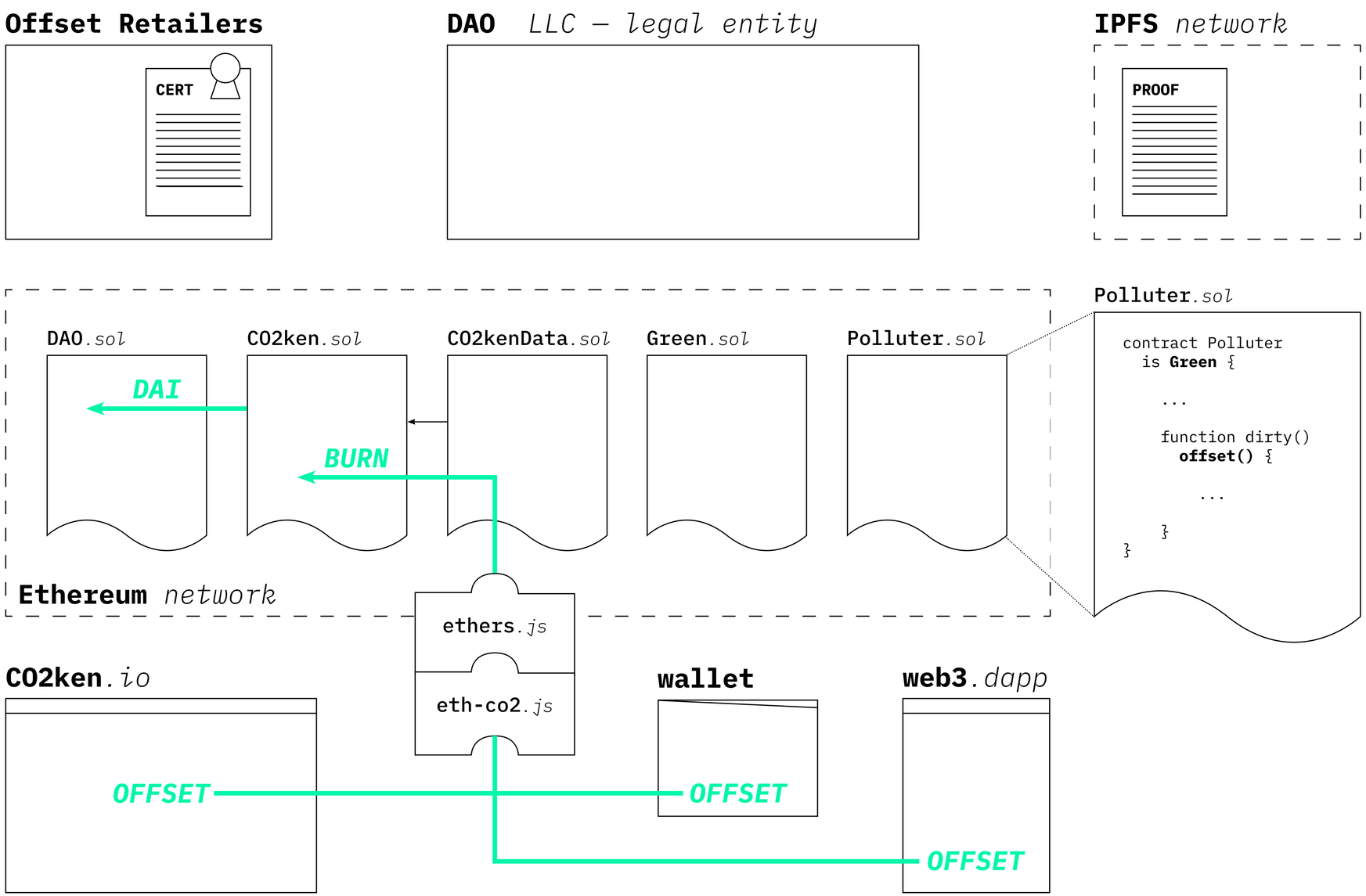

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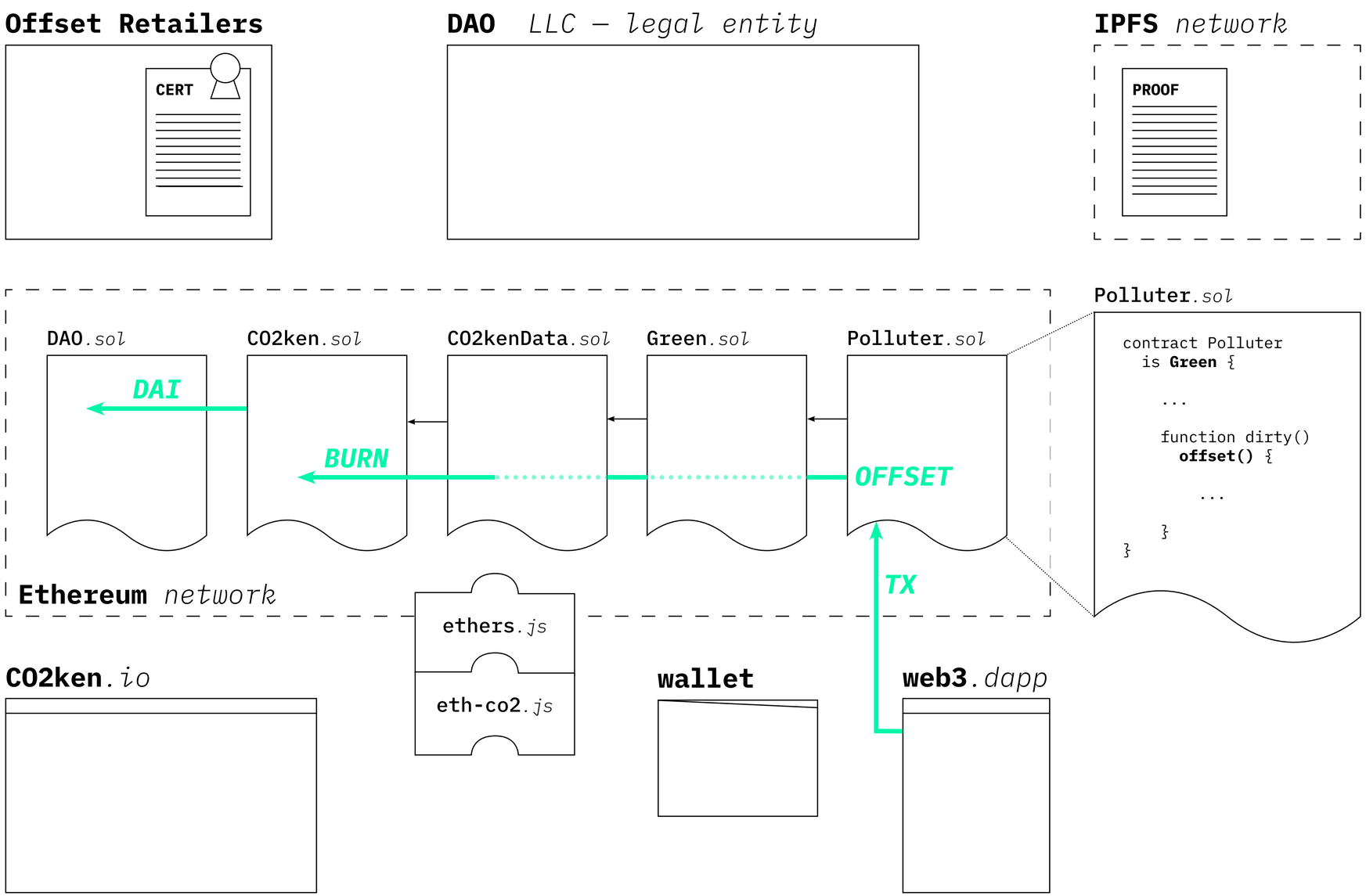

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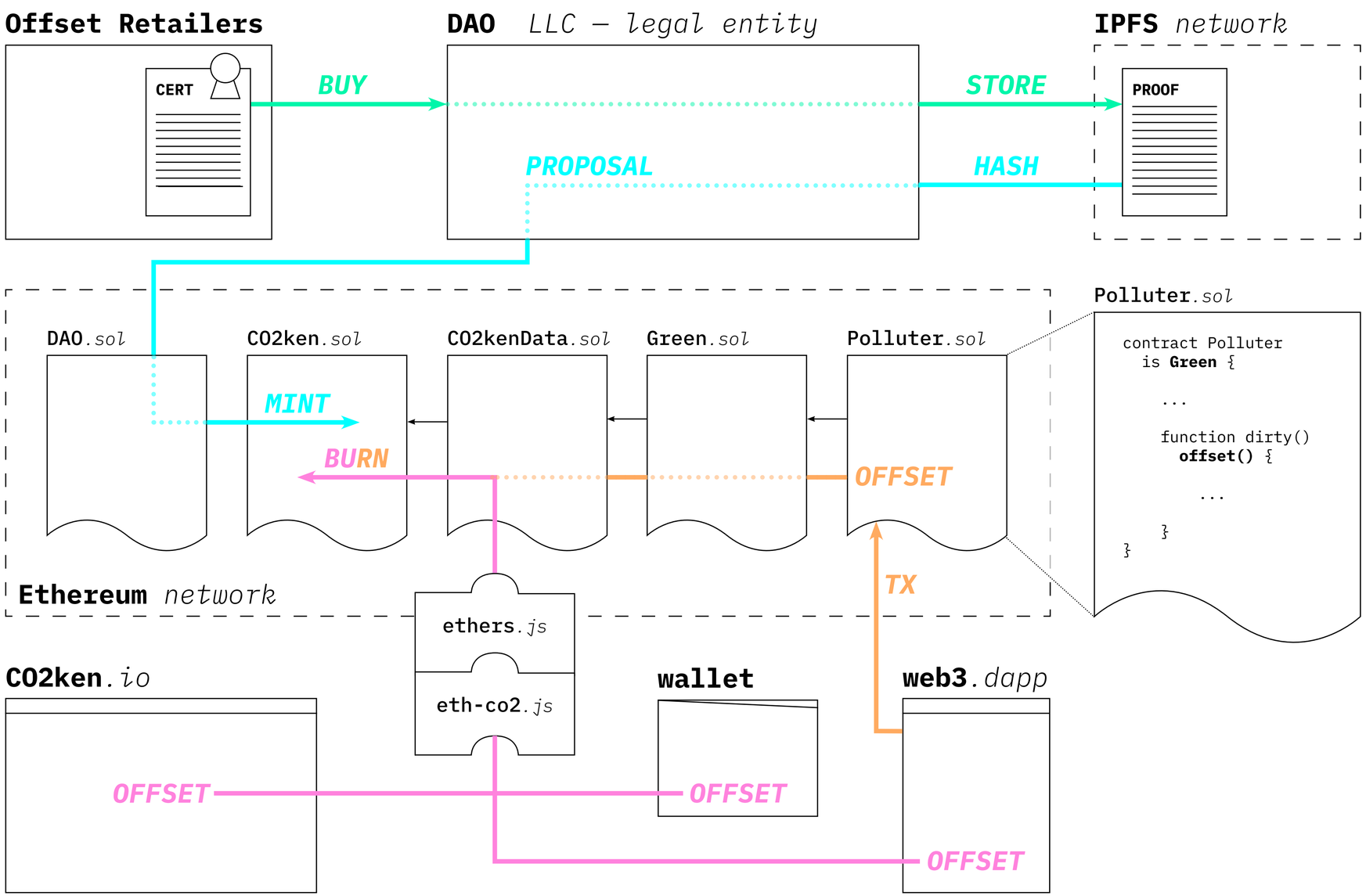

Ecosystem

DeCA
ecosystem

DAO

Proof of carbon removal

- *Carbon offset projects*
- *Auditors*
- *Incentive mechanisms for offset curation*

Integration & adoption

- *Token contracts & parameters*
- *price oracle*
- *API*
- *Solidity modifiers*
- *Wallet integrations*
- *Public track record = Leaderboard*

Drive demand & development

- *Automation & simplicity*
- *A stablecoin backed by tokenized carbon offsets*
- *Ecosystem development*

DeFi

Your project ?

Value Proposition

- Reduce transaction costs for both suppliers and buyers of carbon offsets
- Make carbon offsetting easy by making it „programmable“ -> automation
- Public track record of commitment to climate action!
- Open, pan-national & censorship-resistent system

MVP

DeCA
ecosystem

CarbonDAO

Proof of carbon removal

- *Carbon offset projects*
- *Auditors*
- *Incentive mechanisms for [illegible]*

Gold Standard
Climate Security & Sustainable Development

Integration & adoption

CO2ken

- *Token contracts & parameters*
- *API*
- *Solidity modifiers*
- *dApp*
- *Public track record = Leaderboard*

Drive demand & development

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DeFi

Your project ?

MVP

DeCA
ecosystem

CarbonDAO

Proof of carbon removal

- *Carbon offset projects*
- *Auditors*
- *Incentive mechanism for*

Gold Standard
for Sustainable Development

tokenize

Integration & adoption

co2ken

- *Token contracts & parameters*
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- *Solidity modifiers*
- *dApp*
- *Public track record = Leaderboard*

Drive demand & development

- *Automation & simplicity*
- *A stablecoin backed by tokenized carbon offsets*
- *Ecosystem development*

DeFi

Your project ?

Revenue Model & Impact Measurement

- Transaction fee
- Sell at a premium
- Ecosystem funding through augmented bonding curve

Competitive Analysis

Plan to Validate Customer Segement

- Feature request signaling
- Active market research
- Google analystics

KPIs for Success

- **Are people interested in buying tokenized carbon offsets?**
  Validation: 40 users (like *Dani*) buy CO2kens via our UI.
- **Are investors interested in founding this project?**
  Validation: 1 fund reaching out (unsolicited) with the objective to invest.
- **Are carbon offset projects interested in joining a CarbonDAO?**
  Validation: contact 10 projects with at least 3 positive replies.

Team

Adam

- 25+ years in open source development
- specialized in cloud & distributed systems
- previously Senior Architect at SUSE

Jan

- machine learning graduate
- crypto data scientist

Nick

- founder of EthereumPrice.org in 2016
- runs a network of crypto websites
- newsletter with >10k readers

Raphaël

- co-founder of Curve Labs
- specialized in decentralized energy & carbon markets

Partners

Curve Labs

Curve Labs.

- experts in organizational technologies
- past projects:
  - Aragon Black
  - DAOStack
  - Pando

DSV

Deep Science Ventures

- venture builder with a track record of successful energy companies
- commercialization

Networks

CCC

CLIMATE CHAIN COALITION

- stakeholders in blockchain-based climate action
- 200+ organizations

BSIC

Blockchain for Social Impact

- advisors
- product development
- commercialization

Demo

END

Carbon Offset Lifecycle

Too many intermediaries eating from the pie ...

Carbon Offset Lifecycle

Too many intermediaries eating from the pie ...

1. **Project Design Document** → Project developer / participant

Carbon Offset Lifecycle

Too many intermediaries eating from the pie ...

1. **Project Design Document** → Project developer / participant
2. **Approval** → Designated National Authority

Carbon Offset Lifecycle

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Carbon Offset Lifecycle

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4. **Registration** → Certifier's Executive Board

Carbon Offset Lifecycle

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5. **Monitoring**	→ Project developer / participant

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5. Monitoring	→ Project developer / participant
6. Verification & Certification	→ Designated Operational Entity *(auditor)*
7. Issuance	→ Certifier's Executive Board
	→ Retailers, brokers, ...

Carbon Offset Lifecycle

Too many intermediaries eating from the pie ...

1. Project Design Document
2. Approval
3. Validation
4. Registration
5. Monitoring
6. Verification & Certification
7. Issuance

→ **Project developer / participant**
→ Designated National Authority
→ Designated Operational Entity *(auditor)*
→ Certifier‘s Executive Board
→ Project developer / participant
→ Designated Operational Entity *(auditor)*
→ Certifier‘s Executive Board
→ Retailers, brokers, ...

10%

https://www.c-agg.org/wp-content/uploads/Zook_C-AGG_Presentation_March_8.pdf