

EU Emission Trading System on Blockchain

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Roadmap

Step 1: Improving the model based on feedback from different backgrounds

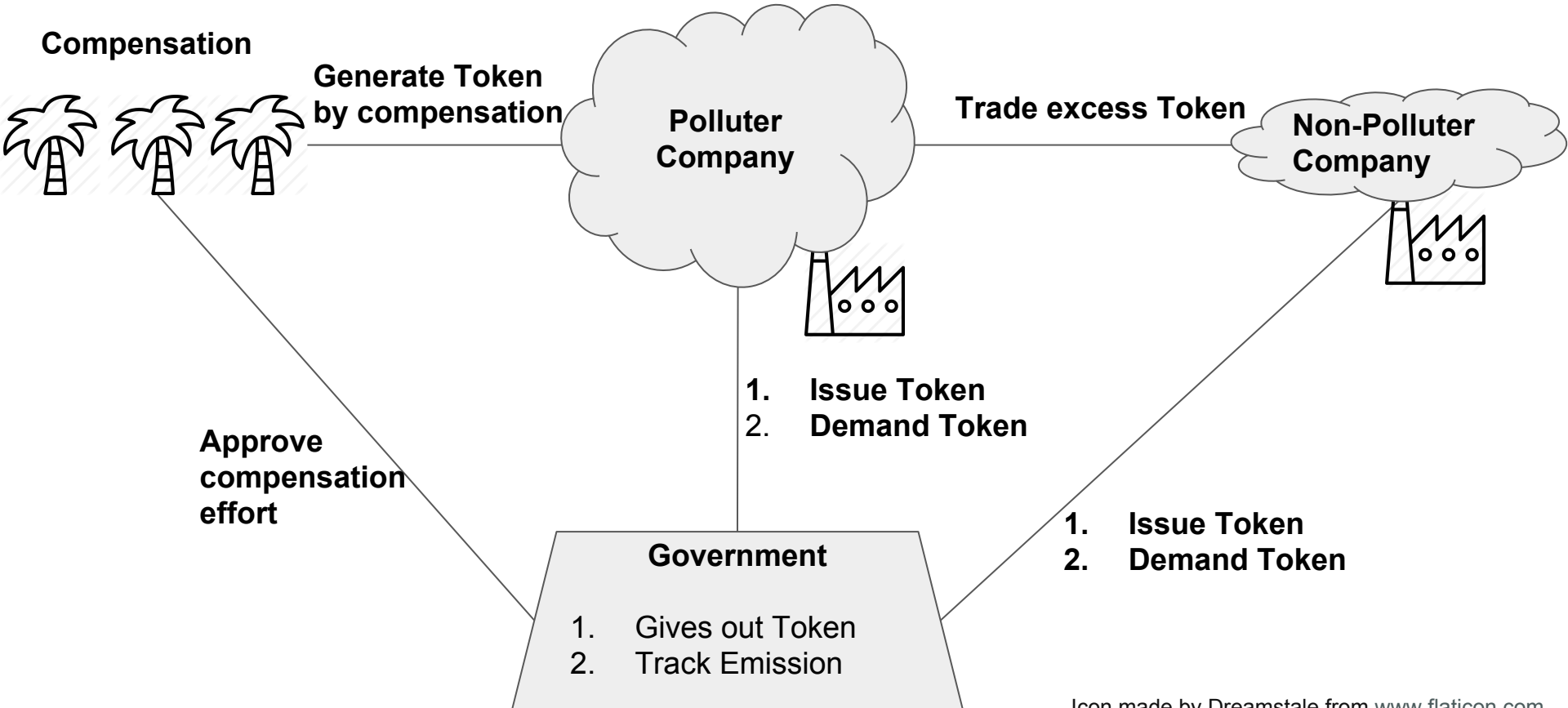
Step 2: Creating a running implementation on Ethereum including User-Interface and an easy to understand tutorial video that explains the concept to non computer scientists

Step 3: Building Government owned Blockchain that is smart contract feasible, Proof of Authority and has a Cryptocurrency with locked 1:1 Euro exchange rate.

Step 4: Analyzing the economic impact and regulations (Token prices) necessary for this model

Goal: Running application to replace the current system

Current European Emission Trading System (ETS)



Problems of current System

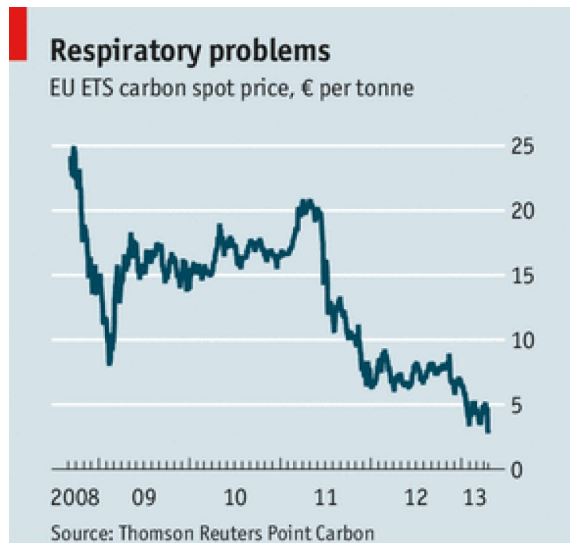
1. The polluter can inflate the system with carbon units by compensating (a lot of critic on inefficient but cheap compensation methods)
2. The only thing small polluter can do with excess Token is to find buyer (only possibility: Polluting companies)

→ Price of Token can only be as high as the smallest of:

- cheapest CO2 reduction within the polluters company
- cheapest compensation price
- punishing price for polluting over cap

Result:

Low carbon unit price makes the system irrelevant



Goals for improvement

- Every money paid by polluting companies goes into supporting renewable industries
- Give biggest incentive towards companies to invest into reducing emission, by allowing companies to not just trade the spillover Token but invest them profitable into renewable industry.
- The Government regulates the system but does not hold the money involved (separate of interest)
- Blockchain making the whole System transparent, therefore giving additional incentive for companies to cut Emission for good PR
- Blockchain security makes hack attacks like 2011 (Token worth ~50 mio) impossible

Setup

Company Polluter

Emission: 120 tCO₂

Allowed: 100 tCO₂

Token: 0



Company Non-Polluter



Emission: 80 tCO₂

Allowed: 100 tCO₂

Token: 0

SMART CONTRACT

1 Token equals 1 tCO₂ Emission

- **Token Price 1: 10 €**
- **Token Price after Cap: 30 €**

Money stored on the Contract: 0€

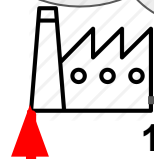
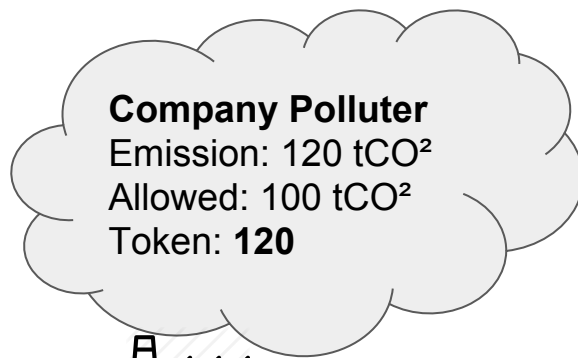
Token in circulation: 0

Money / Circulation = 0€/0 = 0€



Token flow

Polluters buy Token



100 Token for 1000

20 Token for 600 €



80 Token for 800 €

Emission: 80 tCO²
Allowed: 100 tCO²
Token: **80**

SMART CONTRACT

1 Token equals 1 tCO² Emission

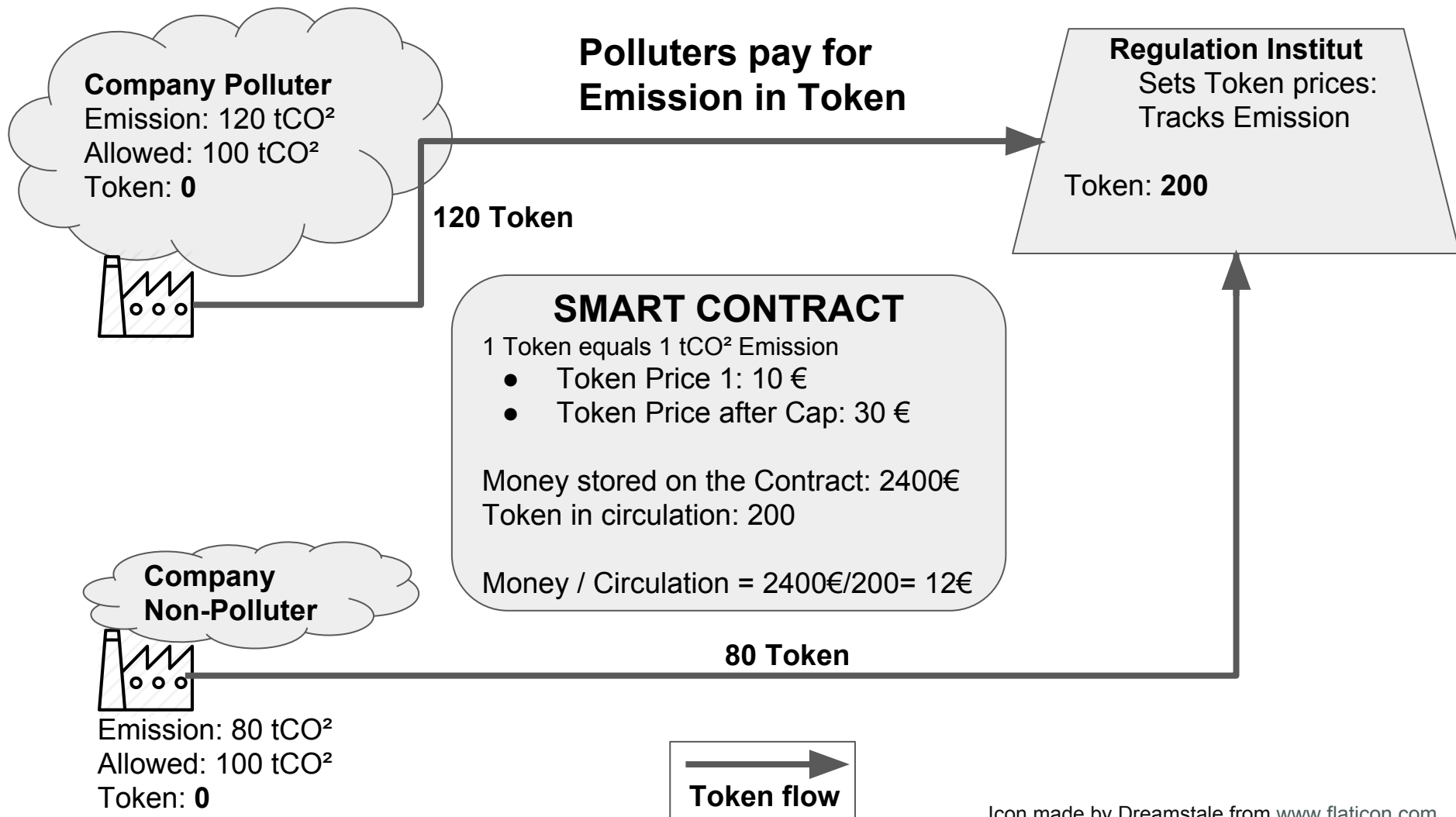
- **Token Price 1: 10 €**
- **Token Price after Cap: 30 €**

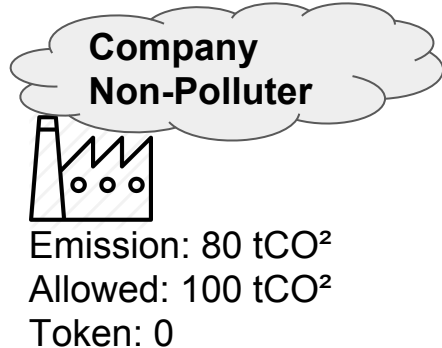
Money stored on the Contract: 2400€
Token in circulation: 200

Money / Circulation = 2400€/200= **12€**



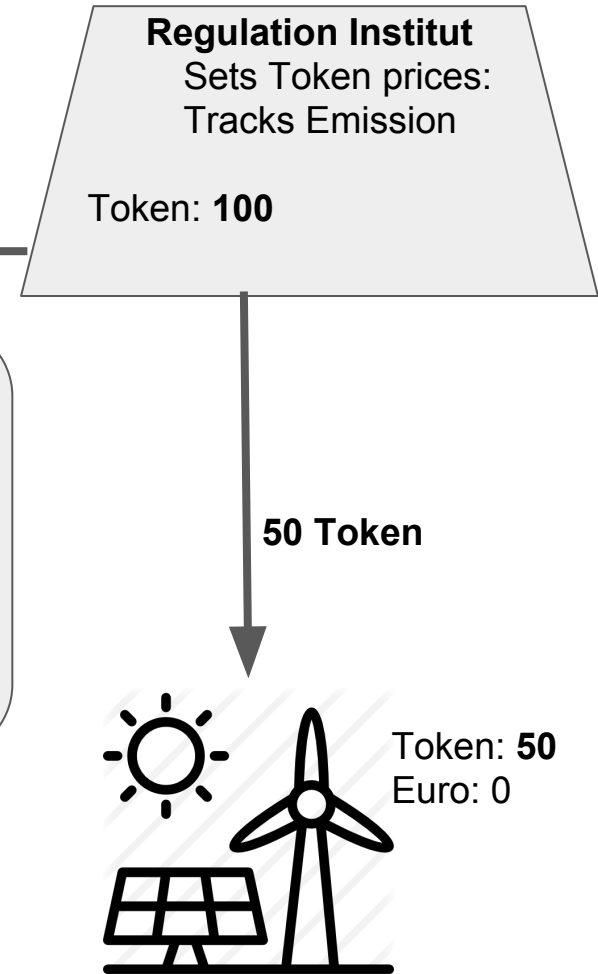
Token flow

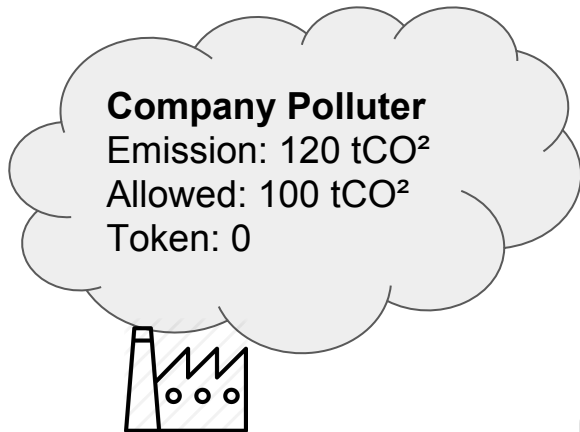




Market regulation:

1. Keep Token for now
2. Take Token out of circulation
→ Increase value
3. Fund research





**Only Renewable Energy
provider can trade Token
for money!**



SMART CONTRACT

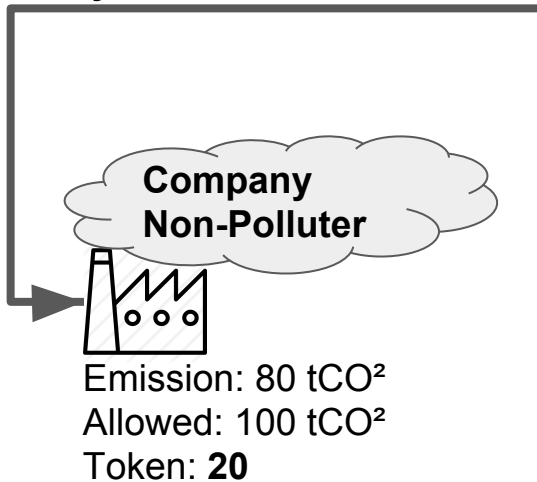
1 Token equals 1 tCO² Emission

- Token Price 1: 10 €
- Token Price after Cap: 30 €

Money stored on the Contract: 1800€
Token in circulation: 120

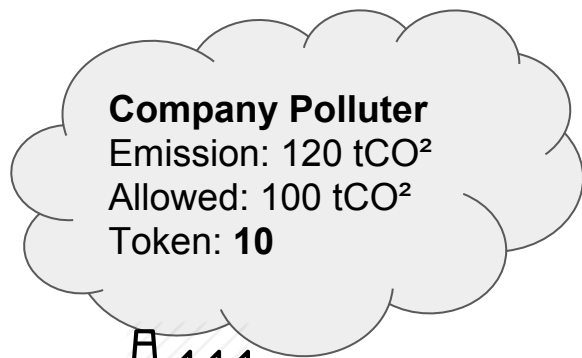
Money / Circulation = $1800\text{€} / 120 = 15\text{€}$

Buy 20 Token for 200 €

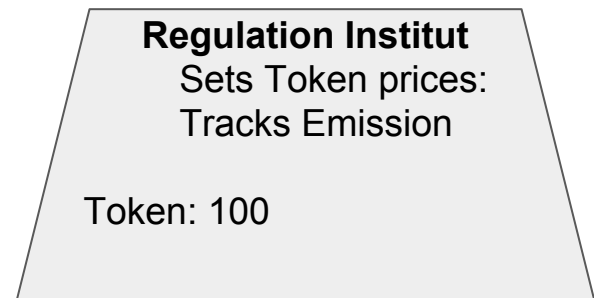


Get 800 € for 50 Token





**Trade excess Token
to other companies
or buy renewable Energy
Products**



Trade
10 Token for ~15 €

SMART CONTRACT

1 Token equals 1 tCO₂ Emission

- Token Price 1: 10 €
- Token Price after Cap: 30 €

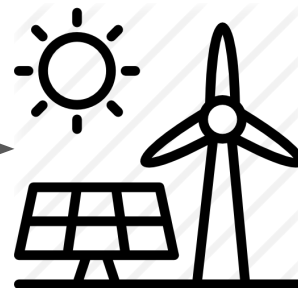
Money stored on the Contract: 1800€
Token in circulation: 120

Money / Circulation = $1800\text{€} / 120 = 15\text{€}$



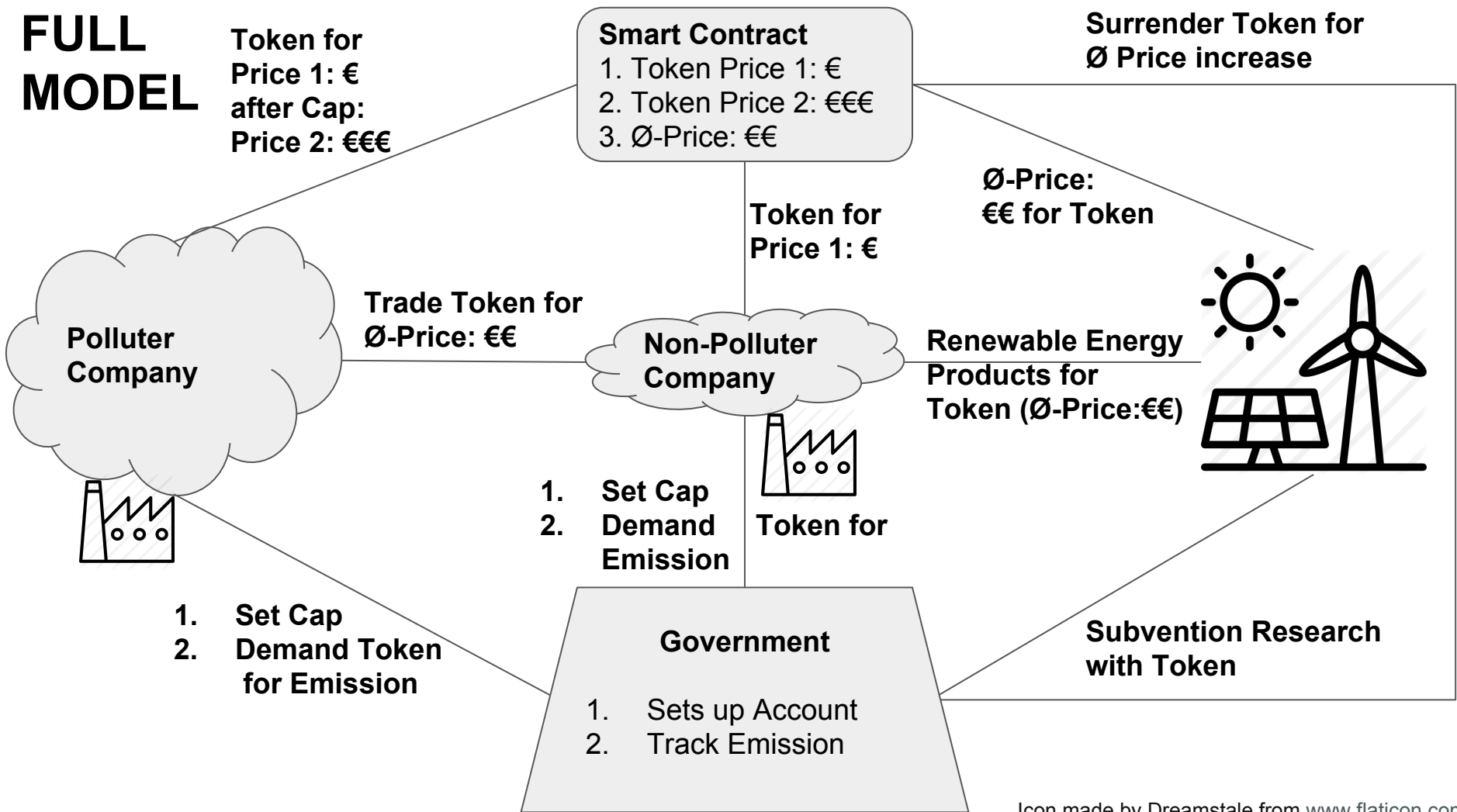
Emission: 80 tCO₂
Allowed: 100 tCO₂
Token: **0**

**10 Token for ~€15 € worth
of Renewable Energy Products**



Token: **10**
Euro: 800€

FULL MODEL



Blockchain requirements:

1. Smart Contracts feasibility
2. Cryptocurrency that is locked 1:1 towards the Euro
3. Proof of Authority as consensus algorithm

Smart Contract

The smart contract issues Token for Euro for two different prices: Token Price 1: € and Token Price 2: €€€
Tracks the amount of Token bought by one contract and only allows the cheaper price based on what the account is allowed.

Sells Euro for Token towards renewable energy accounts based on the average price companies bought them. Therefore 100% of the money spent for polluting goes towards renewable energy.

Government:

Provide accounts for the individual polluting companies (set Token Price 1 Cap) and renewable energy provider.

Track emission and make sure companies pay according amount in Token.

Subvention certain renewable industries with those Token.

Bonus: Allow not European renewable energy provider to create account but with worse Token/€ exchange rate.

Company:

Gets an Account allowed a certain amount of Token Price 1: € to buy from the smart contract. Every Company is forced to pay the Government in Token based on its emission per year (or quarter/month).

Every Company wants to max out what they can buy for the cheap price as they can sell it either to polluting companies as well as buy from renewable Industry.

Renewable Energy Provider (Approved by Government):

Is allowed to trade Token for average amount in Euro (Ø-Price: €€) of what companies paid for it.

Takes Token from companies in exchange for renewable products. Average amount will be higher than Token Price 1: €. Therefore incentives companies that are under the cap to buy all Tokens for Price 1: € and spent it on renewable Energy to limit their own emission and therefore get even more Token for Price 1: € in the next year.