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Becour helps companies source renewable energy in a way that adds value to their brands and generates more renewable energy

- Founded January 2018
- Co-owned by a group of clean energy producers, its founders and employees.
- Annual delivery of ~ 15 TWh
- Based in Fredrikstad
- Providing tailored renewable energy solutions to clients globally
- Working directly with producers to increase the supply of renewables
- Marbly launched October 2019

marbly™


BECOUR
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BECOUR
The future is electric, digital and renewable


How the energy we use is produced, **matters**


Commodity …


Coal ...


Nuclear …


Beautiful hydropower…
Renewable energy as a **branded ingredient**
HELGELAND KRAFT
Strøm fra verdens vakreste kyst

Taking care of the blue marble is the essence of Becour

What?

- Impact how corporate energy buyers source renewable energy
- Make sourcing renewable energy transparent and impactful
- Enable increased production of renewable energy

Why?

- Renewable energy is the key to the climate challenge
- Bring the tracking system back to its intention

How?

- Digitalizing the tracing of nonphysical attributes
- Renewable energy as a branded ingredient in products and services
- People and team
- A green hybrid entrepreneur




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amalgamated bank
VAISALA
JUPITER Asset Management
Hewlett Packard Enterprise
SGS
alstria
First German REIT
TATA MOTORS
AVIVA

Terminology and concepts

Non-Physical Attributes

Contractual tracking

Book and Claim

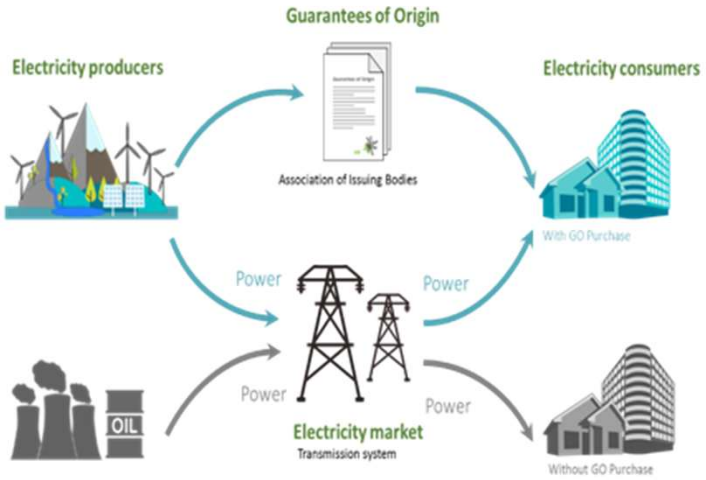
Energy Attribute Certificates (EAC)

GO, REC, I-RECs

What is renewable energy with guarantied origin?

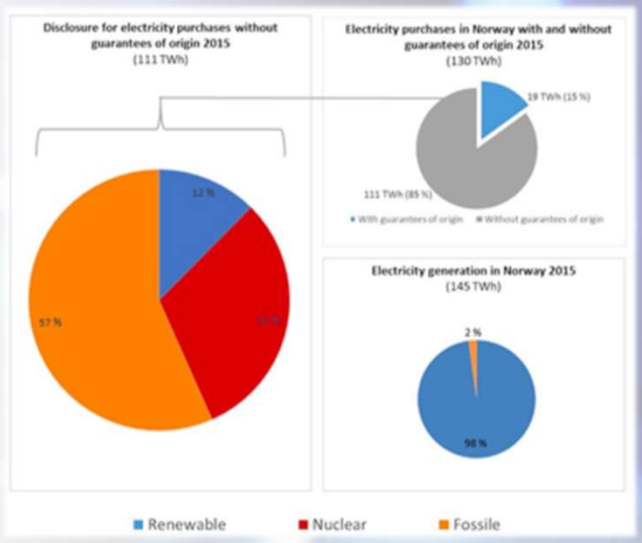
Guaranties of origin

“An electronic document which has the sole function of providing proof to a final customer that a given share or quantity of energy was produced from renewable sources” Directive 2009/28/EC



Electricity disclosure

Suppliers that do not purchase guarantees of origin for their sold electricity, must present the disclosure calculated by national authorities when informing their customers of the production sources behind the energy energy sold



Market size

Demand for documenting the renewable origin of energy consumption is increasing and becoming more global.

The total global market is estimated to be 1350 TWh in 2024. In 2025 the market size is estimated to be 1 600 TWh. This gives a market value of 6 bill. EUR.

Europe (OG):

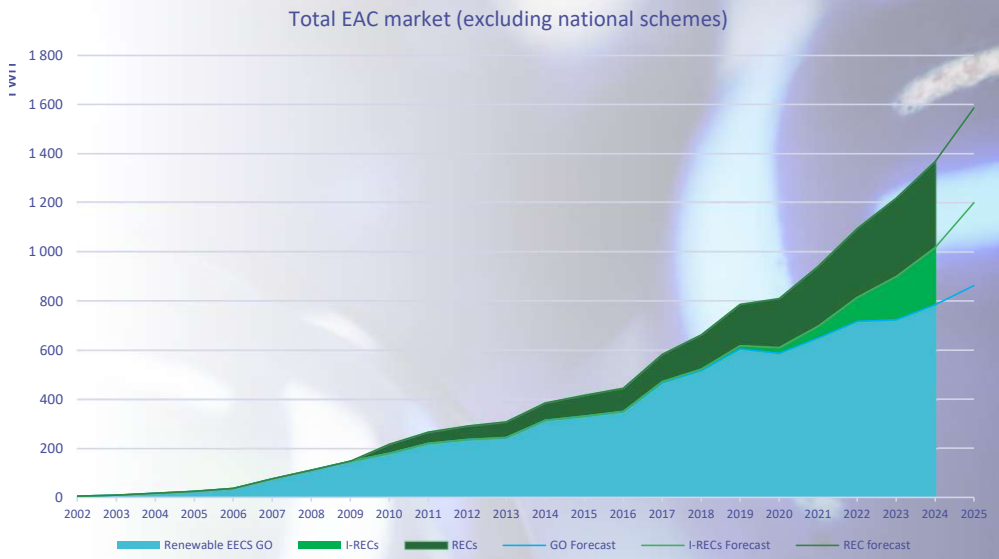
- 2002: 5 Mill GOs consumed. 2021: 650 Mill GOs consumed. Forecast 2025: 900 TWh.
- Hydro is the largest source (500 Mill GOs). Germany the largest consumer (200 Mill GOs). Norway largest producer (155 Mill GOs)

North America (REC):

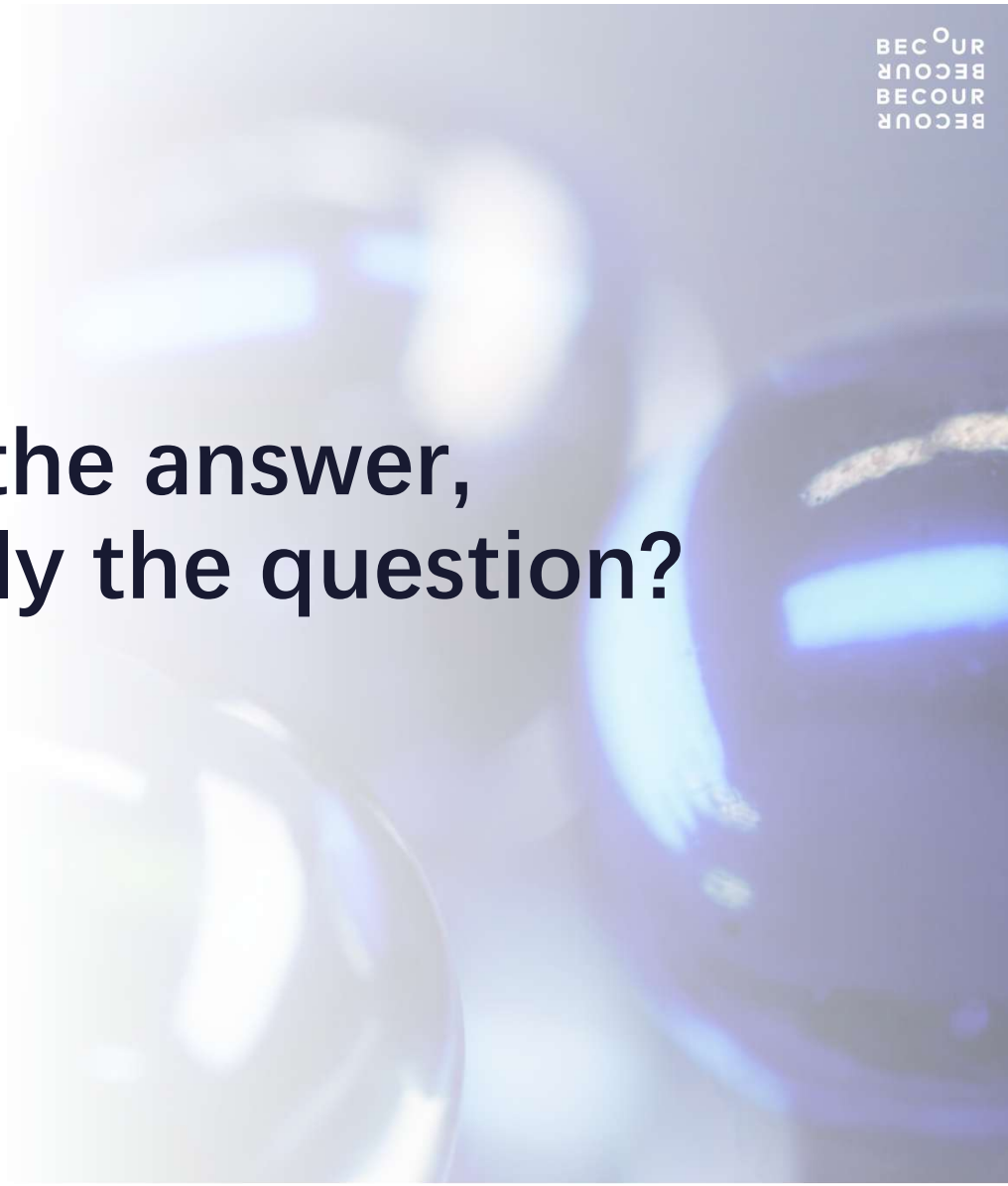
- 2010: 37 Mill RECs consumed. 2020: 192 Mill RECs consumed. 7,5 mill customers, 5% of electricity sales. 2021: 243 Mill RECs consumed. Forecast 2025: 490 TWh.
- California is the largest market with more than 4 mill customers.

Rest of World (I-RECS):

- 2016: 1 Mill I-RECSs consumed. 2021: 48 Mill GOs consumed. 2022: Per Q2 56 Mill GOs were consumed. Forecast 2025: 270 TWh.
- Hydro, the largest source (30 Mill I-RECs). China is the largest consumer (19 Mill I-RECs)



If block chain is the answer, what was actually the question?



DINGO by Becour 2018-2021



DIgitalized Node-trading for renewable energy with Guarantee of Origin

REGIONALE FORSKNINGSFOND OSLOFJORDFONDET

SkatteFUNN

ØSTFOLD ENERGI

Lyse

The main goal for DINGO

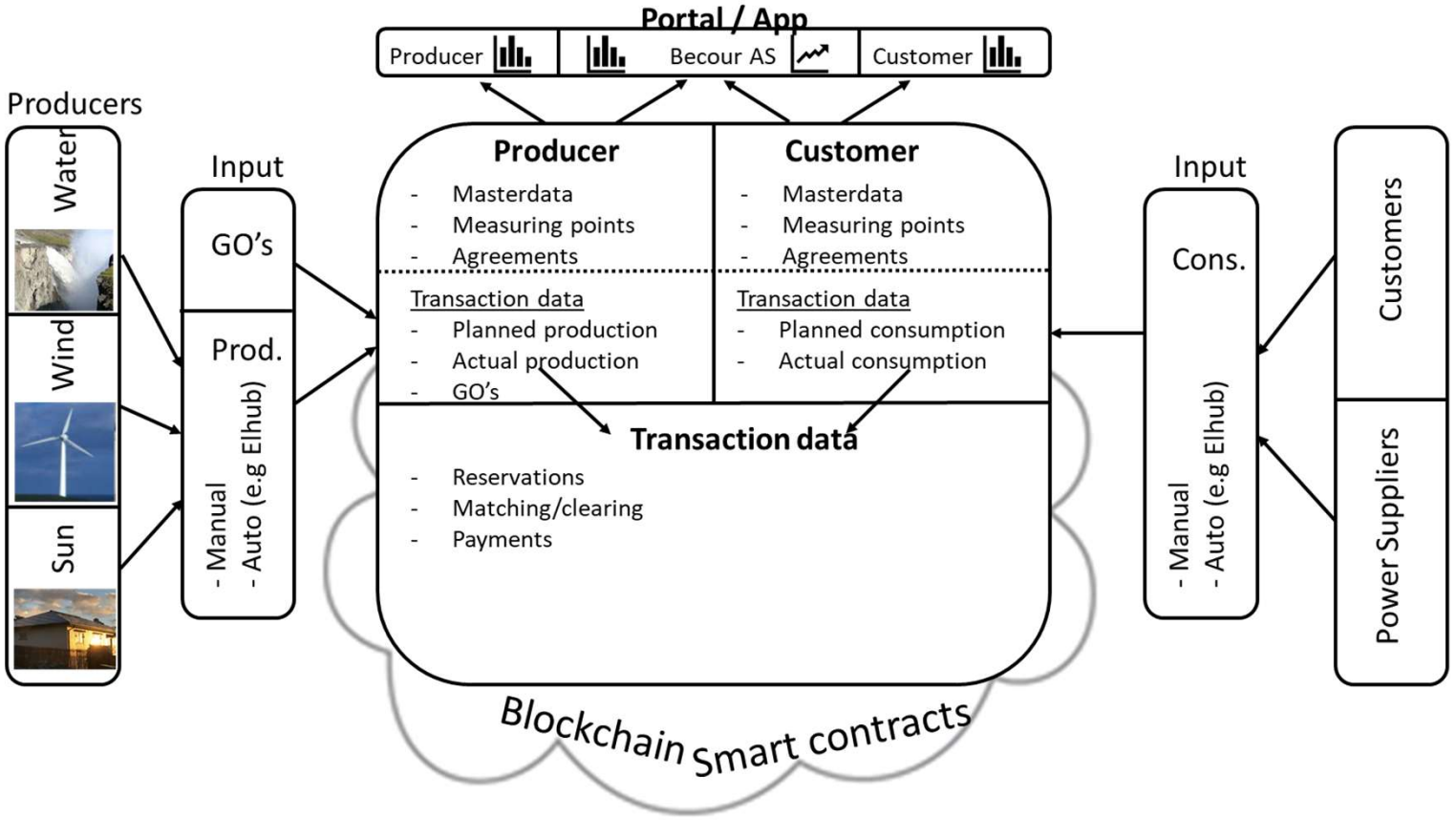
DIgitalized Node-trading for renewable energy with Guarantee of Origin



- **To use digitalization technology to create transparent contracts for tracking of renewable energy between energy producers and energy consumers.**

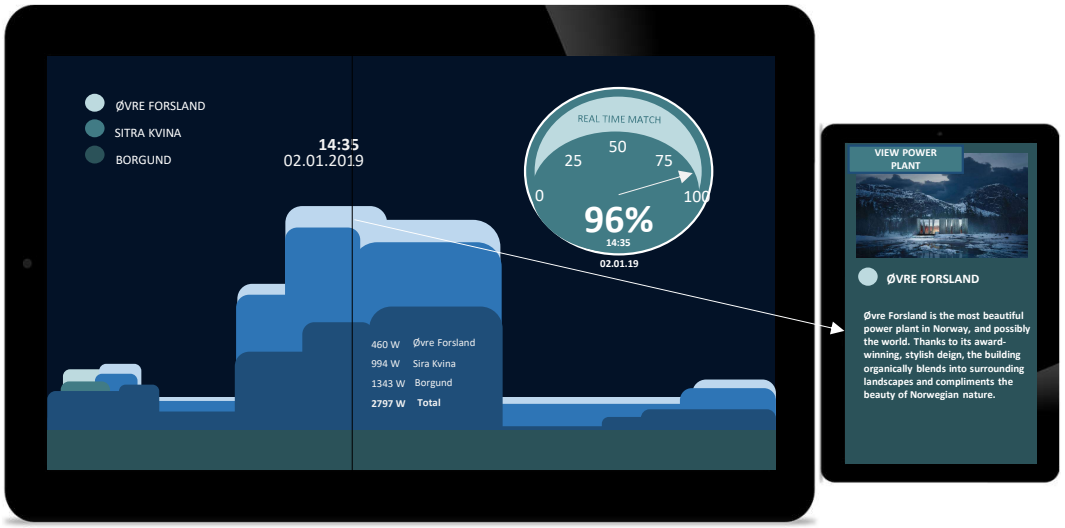
- **The platform is going to promote increased production of renewable energy.**

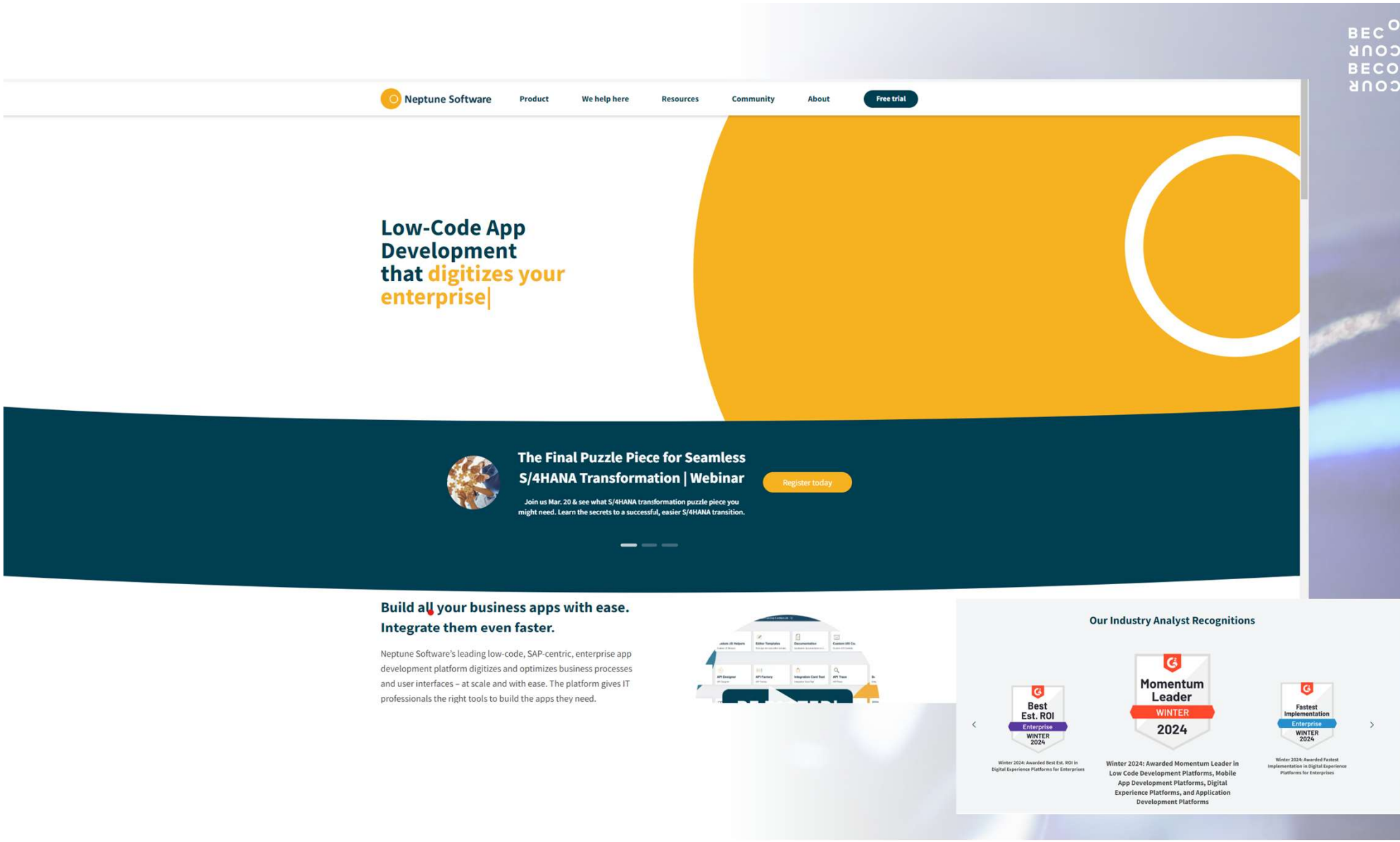
From a «napkin-version»:



Via mockups for a «Digital peer-to-peer plattform»

- Market introduction of peer-to-peer plattform for renewable energy with guarannteed origin
- Matching production of RE with consumption of energi in same time period



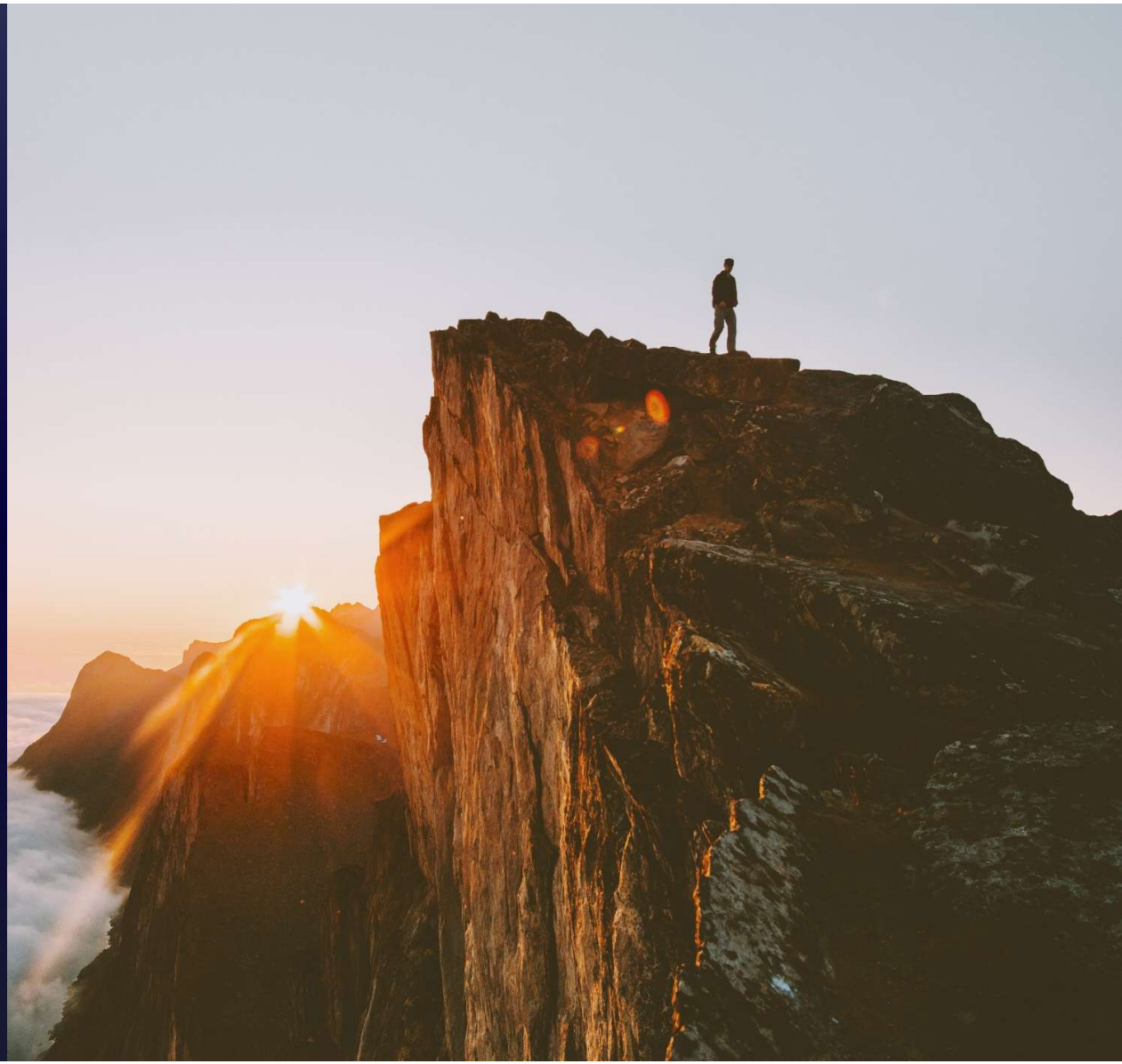

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Enterprise
WINTER 2024
Winter 2024: Awarded Fastest Implementation in Digital Experience Platforms for Enterprises

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Received public subsidy

Country of consumption: Norway

Total electricity consumption: 50 000 MWh

Year of consumption: 2022

Applicable power plants: 73

Can't find power plants in the country you are looking for? We can assist you to find your prefered solution world-wide. Get in touch



Norway Future-build

Godfarfoss

Guarantees of Origin from a Future-build hydropower plant in the middle of Norway. Commissioning in 2022.

Volume available: **Sold out**

Price: **Sold out**

Received public subsidy: **No**

Producer re-investment clause: **Yes**



Norway Hydropower

Øvre Forsland

Guarantees of origin from the world's most beautiful hydropower plant in the north of Norway.

Power plant age: **7 years**

Volume available: **6 000**

Price: **€ 3.4 / MWh**

Received public subsidy: **Yes**

Producer re-investment clause: **No**



Norway Hydropower

Smådøla

Guarantees of origin from hydropower in beautiful Smådøla in the middle of Norway.

Power plant age: **7 years**

Volume available: **10 000**

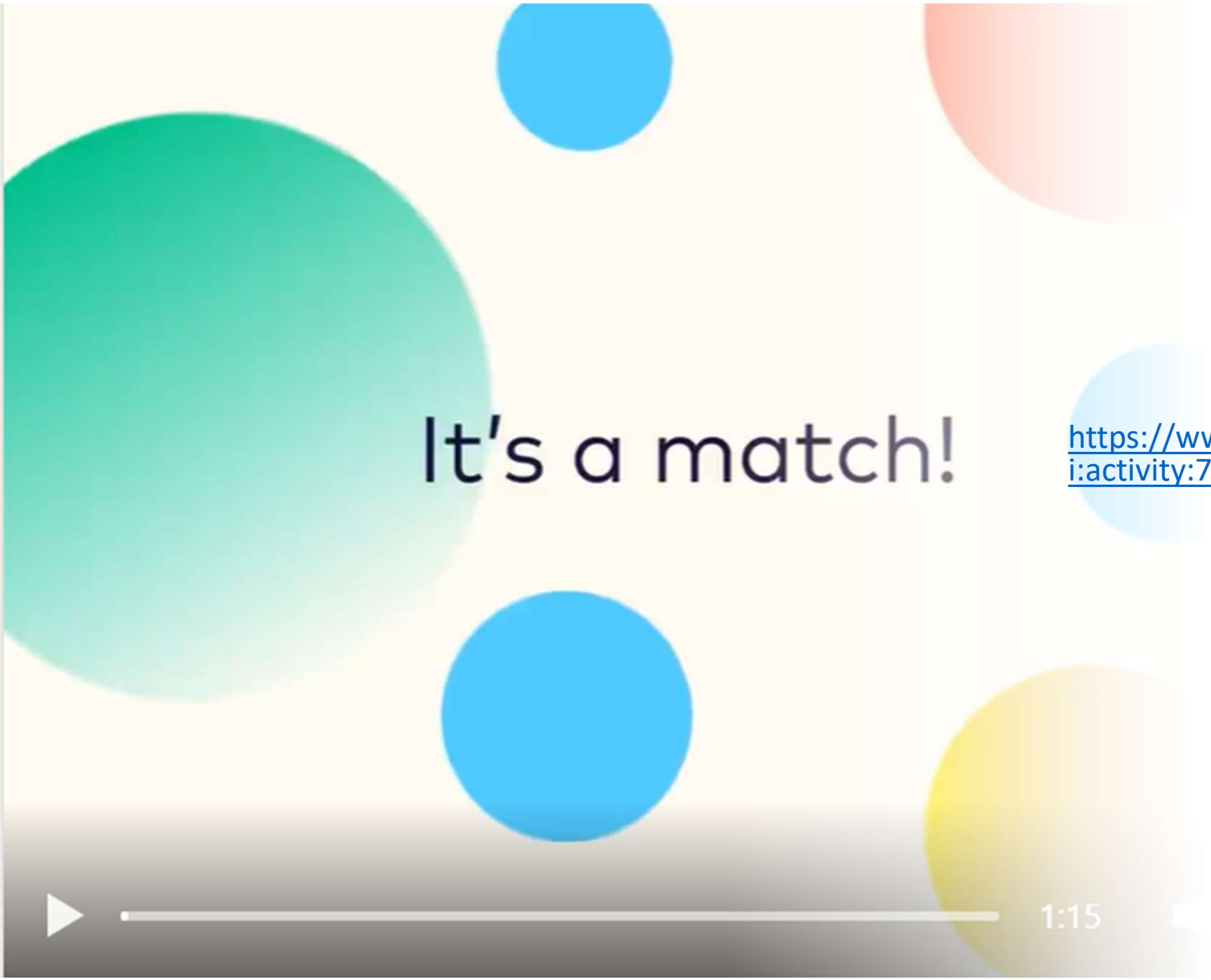
Price: **€ 2.1 / MWh**

Received public subsidy: **Yes**

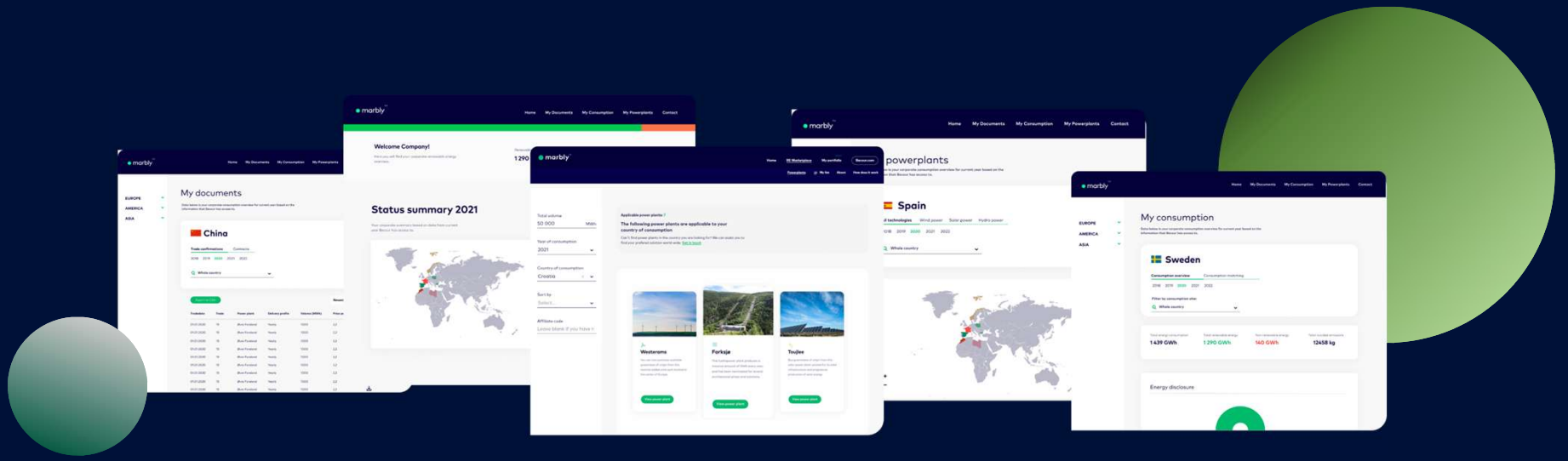
Producer re-investment clause: **No**



Tinder for renewable energy



https://www.linkedin.com/feed/update/urn:li:activity:7038784646611951616



Marbly

Companies documenting the renewable origin of their energy consumption need a transparent way to manage their portfolio, contracts and consumption. To meet this need, Becour developed a service, Marbly, to simplify the procurement process and the management of contracts and information related to EACs.

The service includes Marbly Marketplace for the EACs procurement - and Marbly Portfolio for the management of the renewable electricity portfolio. From the selection of the power plant, to the monitoring of the consumption and avoided emissions, Marbly allows companies to have full control and transparency at every step of the EACs procurement process.

If block chain is the answer, what was actually the question?

- Adding unnecessary complexity?
- Creating parallel systems?
- Energy consumption?
- Transaction speed?
- Transaction cost?
- Verifying physical meters?
- Verifying the consumption/production data?



Key points for not choosing block chain 2018

- Promote more Renewable Energy – why choose a very energy intensive technology
- Already existing verifiers (not to be solved by blockchain)
- Bet on right block chain
- Our platform development will never be finished vs long contracts
- Costs (difficult to predict development of “gas prices”)
  - Transaction
  - Storage
- Data privacy
- Transaction speed

Blockchain-pilot – goal and scope

Goal

Develop a pilot that can demonstrate a secure verification of purchased and cancelled GOs (Guarantees of Origin) for renewable energy.

Description of this pilot

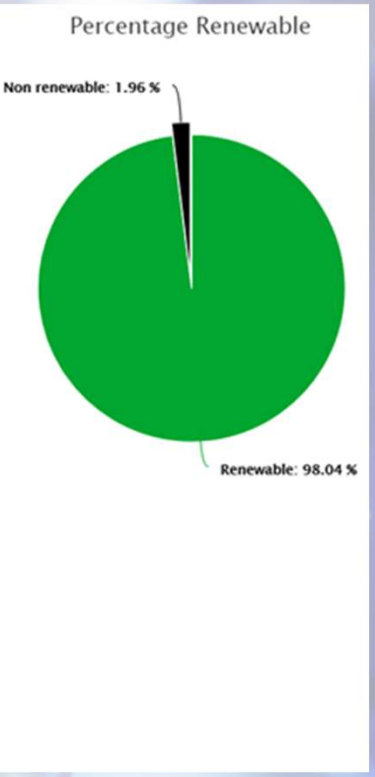
This pilot will publish selected data from Becour's system for GO-trade on the VeChain blockchain by using DNV GL *BYOC*-tool (Bring Your Own Certificate). DNV GL will sign the verified data with a digital signature to ensure credibility. This data will then be published.

Deliverables

A solution where selected GO-data from a company gets published on the VeChain-blockchain (test-net).
An application showing the verified GO-data from a company based on data from the VeChain-blockchain.

Data retrieved from DNV

Company:	Fredrikstad Rådhus
City:	Fredrikstad
Street:	Street 4
Street 2:	
Zip Code:	1234
Country:	Norway
Registration number:	NO 987 65 432
Year:	2021
Consumption Point:	Main meter
Yealy Consumption (MWh):	5.1
Total Number Of Certificates:	5
Percentage Renewable:	98.04
ConsumerID:	2
Consumer Meter Code ID:	3
URL:	Show certificate
QR Code:	



Granular certificates (GC)

- Existing registries (for example GO)
  - Unit 1MWh = 1 certificate
  - Bundles of equal certificates per day

- Units of kWh
- Time unit – hourly or less
- What is needed for 24/7 matching between production and consumption

- Will be a part of new GHG protocol, revision finish in 2027/28

Becour 24/7 matching

- Pilot in 2020
- Partners: INGKA and DNV GL
- Developed principles/rules
- On-site production included



EnergyTag



GoNetZero x UBS Hourly Matching Pilot

Country : Singapore

GoNetZero has utilised blockchain technology to track granular issuance of RECs from a 6 MWp solar generation site, and successfully piloted hourly matching of power consumption with renewable energy for UBS in Singapore.

GoNetZero UBS



Offshore 24/7 energy matching for district heating

Country : The Netherlands

Temporal matching of offshore wind supply for 22 MW e-boiler for better steam production. EAC issuing body (CertiQ) works with FlexiDAO, the GC issuer, to avoid double counting.

FLEXIDAO Eneco certiq



Offshore wind 24/7 matching for Microsoft's data center

Country : The Netherlands

Temporal matching of offshore wind supply for Microsoft's data centre in Amsterdam.

FLEXIDAO Eneco Microsoft



Hourly matching of solar supply for university campus

Country : Australia

Temporal matching of solar to better supply 100 GWh/a of University campus load from large offsite solar PV. Working with Australian regulators to ensure no double counting.

enosi UNSW



Retail customer hourly supply

Country : Norway

24/7 renewable electricity supply of 140 GWh/month for better retail customer supply with temporal matching enabled by GCs linked to the underlying EAC system.

Statkraft UNICORN Statnett



Granular trading platform in Port of Amsterdam

Country : The Netherlands

Granular energy trading platform in Port of Amsterdam.

ENTRNCE



Making GCs available in the US

Country : US

M-RETs issuing body is making GCs available across the M-RETs registry for all consumers. As EAC are not of regulated size in the US it's easier to issue GCs instead of 1 MWh EACs than in the EU.

M-RETS Powerledger



Making GCs available in the UK

Country : United Kingdom

Consortium to establish GC framework and the first trading mechanisms and market price signals for GCs.

GRANULAR NORD POOL UNICORN ELEXON



Data centre hourly supply with wind power

Country : Sweden

Temporal matching of wind and hydro supply for Microsoft data centres in Sweden via Vattenfall hourly matching platform.

Microsoft VATTENFALL



EV fleet charging and monitoring with temporal matching

Country : Spain

Blockchain-powered temporal matching of Solar PV with University Building, Electric Vehicle Fleets blockchain-powered Charging and CO2 Emissions tracking with Real-time Autonomy management and route optimization.

Energy Tag

- Founded 2020
- Non profit
- Creating a global standard for granular matching
  - Issuing
  - Matching
  - Verification
- New areas also included – battery for shifting load
  - Solve timeshifting of energy (solar/wind)
- Two new roles in the market – matcher and Claim Verifier

- Initiatives/Pilots
  - FlexiDAO
  - Granular Energy
  - Energy Track and Trace



FlexiDAO

- Founded 2017 in Spain after master thesis work
- Aim to find use case in energy sector for block chain technology
- Tried ICO
- Regulatories did not understand
- Skepticism amongst big marketplayers/consumers – seen as disruptor
- Microgrid, not right timing
- «consumers needed more transparency and control over where, when, and how renewable energy is produced»
- Pilot for Energy Tag standard

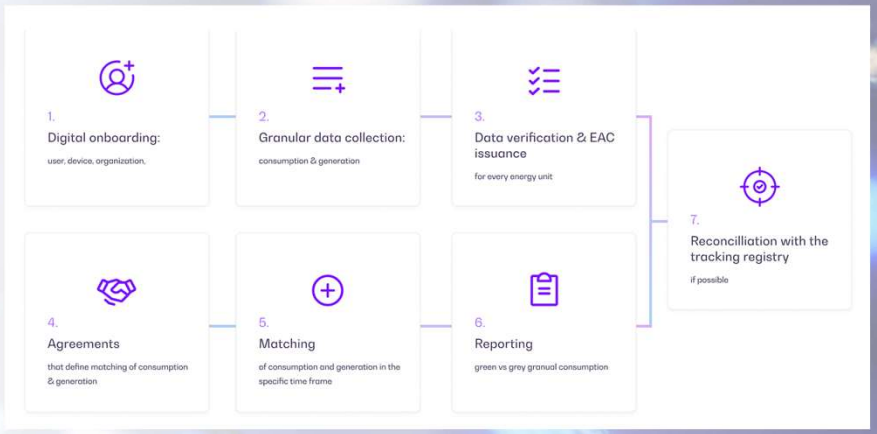
Granular Energy

- Spin off from Energy Tag
- End-to-end certificate management platform
- Partner: ex. Nord Pool and Unicorn
- 2022: Pilot of Granular certificates (in UK)
- Trying to connect buying and matching of GO into daily bids for electricity (centralized auction of hourly certificates)
- Pilot for Energy Tag standard



Energy Web (Foundation)

- Founded 2017
  - 10 founding companies (ex. Shell, Equinor, Engie, Tokyo Electric, Singapore Power)
- Non-profit
- Decarbonize the energy sector
- Ethereum / Web3
- Energy Web Token
- “Open-source software development kit (SDK) to track and match renewable electricity generation and consumption on a 24/7 level”




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