Workshop with customers Energy Track & Trace

European cooperation on real-time tracking of sustainable energy.

November 17th 2021

Agenda Workshop #1

1. Setting the scene
2. Snapshot of 2025: 2 user journeys
3. Comments & voting
4. Next step

Our goal of today:
- Get you up to speed
- Get input to 2 user journeys

ENERGY **TRACK&TRACE**

![ENERGY TRACK&TRACE logo]

Why join this initiative?

Together, we set new standards by creating solutions that work.

1) Co-Create and influence the Granular Certificate development of the future

2) Voice what brings value to you and is relevant for you and your industry

3) Use your First-mover position to accelerating RE and thereby ensure more sustainable and cost-effective energy

4) Concrete demonstrator project, build on data and digitalization
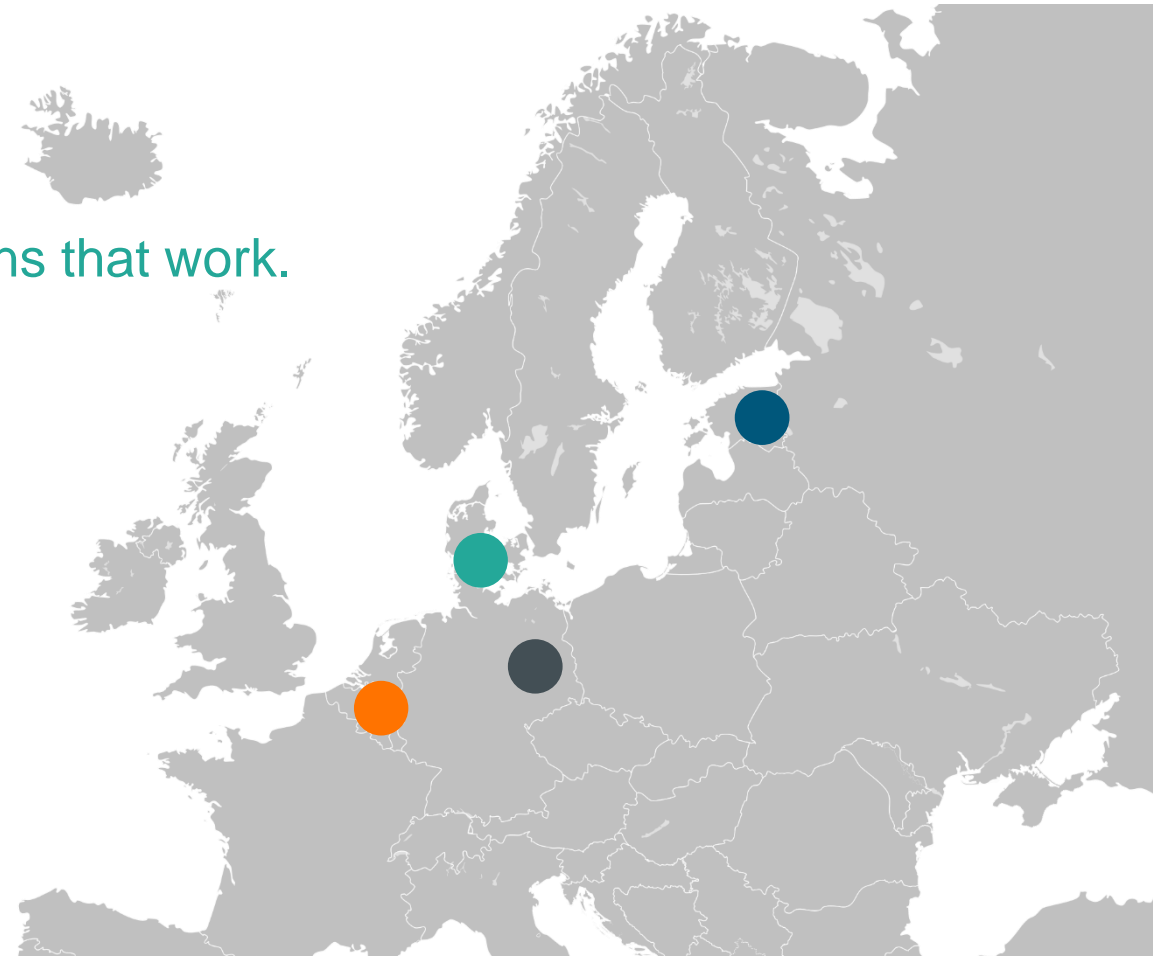
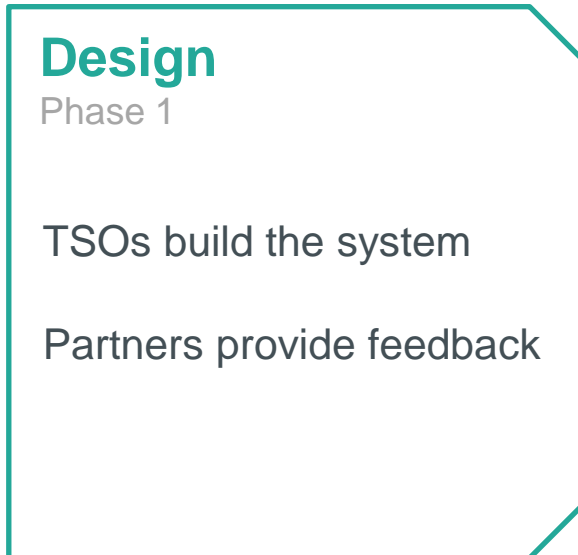### 3 TSOs drive Energy Track and Trace initiative:

elia group	elering	ENERGINET
East Germany and Belgium	Estonia	Denmark

Timeline

Sep 2021 – March 2022

Design
Phase 1

TSOs build the system

Partners provide feedback
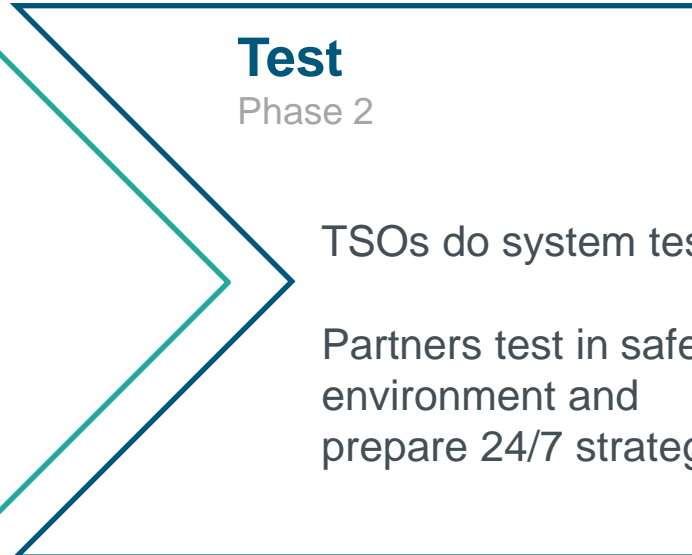
The TSOs need feedback to make sure it is moving into the right direction. Feedback during three workshops.

April 2022 – December 2022

Test
Phase 2

TSOs do system testing

Partners test in safe environment and prepare 24/7 strategy

No cost, based on actual data. Preparations for go-to-market. Developing communication and branding.

2023

Launch
Phase 3

TSOs launch the system

Partners buy and sell GCs

Go-to-market, launch as voluntary system that will be potentially regulated. Pave the path as we go.

Commitments from partners

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Sep 2021 – March 2022

June 2022 – December 2022

2023

Design
Step 1

Test
Step 2

Launch
Step 3

Partners commit to:

Providing feedback
One workshop every 2 months workshops on concrete challenges.

make sure it is moving into the right direction. Feedback during three workshops.

Partners commit to:

Share data
Invest time for testing
Develop a 24/7 strategy (including communication strategy)

Syste... on actual data. Risk-free testing in a safe environment. Partners develop strategies.

Partners commit to:

Buying and selling GC
as much or as little as fits your strategy

Go-to-marke... voluntary system that will be potentially regulated. Pave the path as we go.

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Elia | 50Hertz | EGI

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3 TSOs – 3 Journeys – 1 shared vision

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Current setup
- Team focused on technical deliveries
- Team focused on market/user journey
- Legal adviser / regulatory affairs

What we bring
- Technical functional prototype ready by Christmas
- Ready to onboard data

What we seek
- Customers who will engage with data
- International voice

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Current setup
- Team focused on concepts
- DataHubs and registries for renewable electricity and gas

What we bring
- Electricity and gas expertise – TSO, data hub and registry operator, GO issuing body

What we seek
- Expanding the usage of GOs
- International voice

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Current setup
- Full scale IT-system (EnergiOprindelse) in DataHub build Open-source
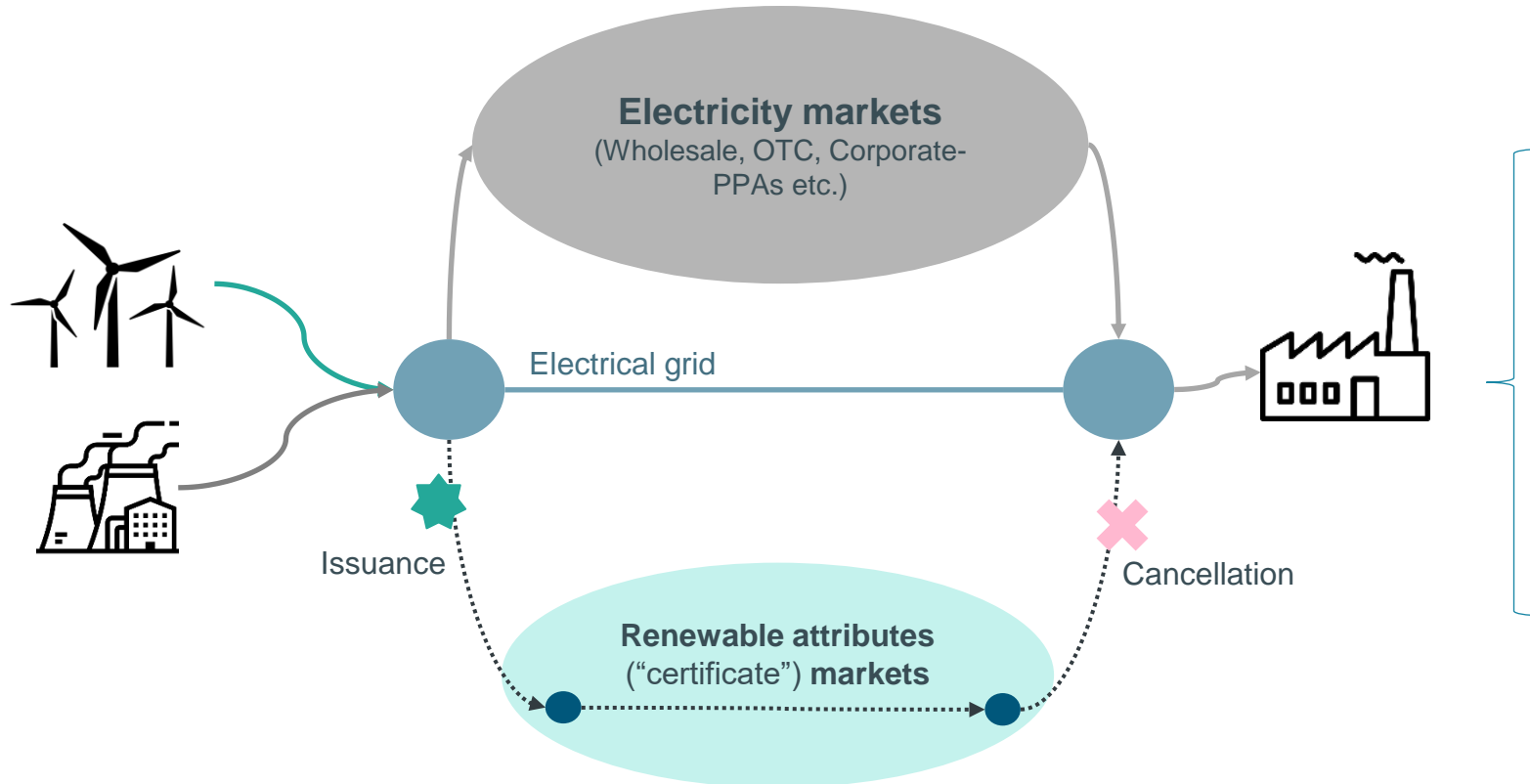- 5 streams engaged, incl. Legal advisers

What we bring
- Prove of Concept May 2021 approved
- Basic system release Q1-2022
- Market and regulatory muscles

What we seek
- Scaling opportunities
- Customers who will engage with data
- International voice

The target picture (2025):
Fundamental principles

The book-and-claim approach will be maintained for certification of renewable electricity…

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Electricity markets
(Wholesale, OTC, Corporate-PPAs etc.)

Electrical grid

Issuance

Cancellation

Renewable attributes
("certificate") markets

The book-and-claim approach brings the **maximum liquidity** to the commodity „electricity" (and makes it tradable as such).

From a regulated base layer to the end-customers

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Consumers (pursuing 24/7 sourcing strategy)

Suppliers (that offer 24/7 green contracts | SLAs)

User layer

Market places for granular certificates | Matching algorithms

Market layer

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Production (Issuance) → **Transaction** → **Consumption (Cancellation)**

(potentially regulated) base layer
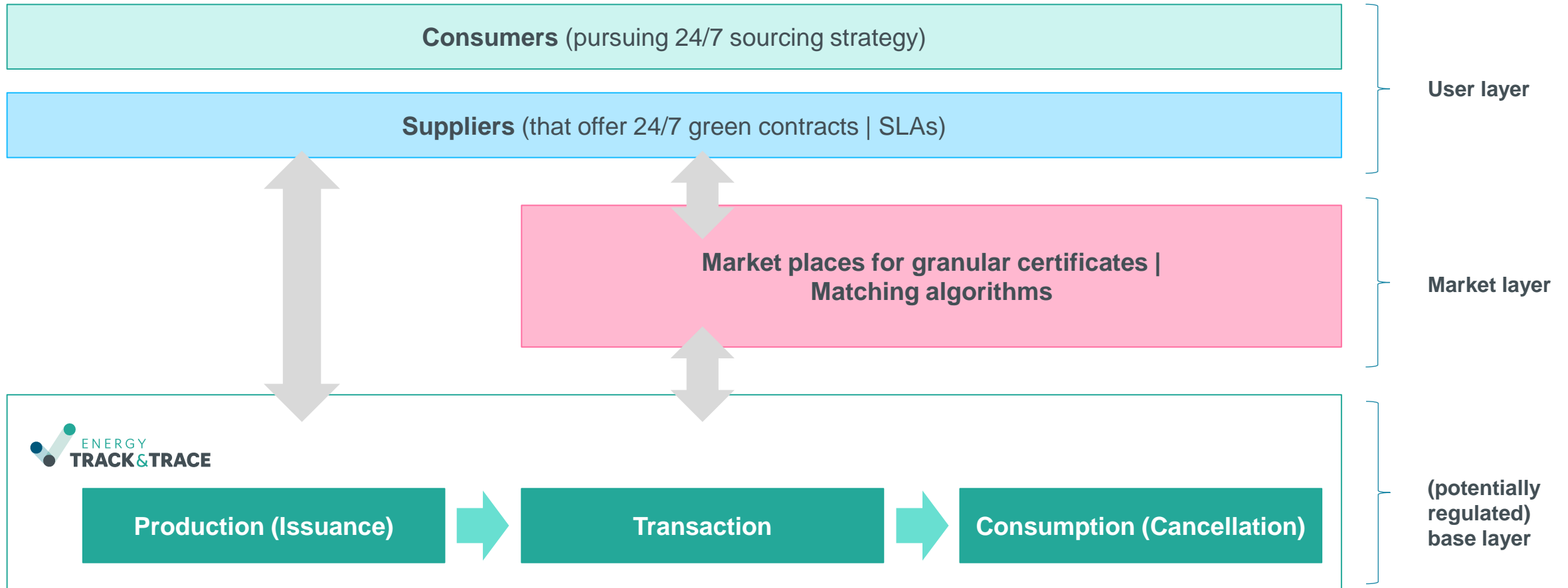
The target picture (2025):
2 use-cases of the future

Case 1: A large **data-center operator** willing to become 24/7 green via PPAs.

Case 2: A **small producer** of plastic bottles is willing to become 24/7 green.
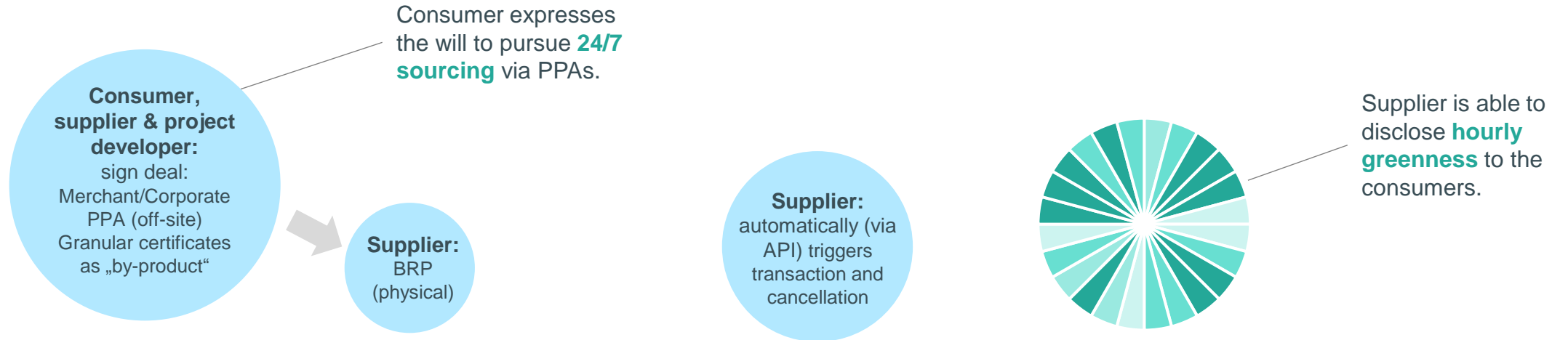
Case 1 - User journey for large consumers (corporate PPA use-case)

Users layer

Consumer expresses the will to pursue **24/7 sourcing** via PPAs.

Consumer, supplier & project developer:
sign deal: Merchant/Corporate PPA (off-site) Granular certificates as „by-product"

Supplier:
BRP (physical)

Supplier:
automatically (via API) triggers transaction and cancellation

Supplier is able to disclose **hourly greenness** to the consumers.

Market layer

API communication

Base layer

On-boarding:
Generation units and consumption points (i.e. via EAN codes)

Issuance:
Granular Certificates (GCs) are issued (every 15 min.)

Transaction and cancellation:
GCs are transacted to consumption points and cancelled

Case 1 - User journey for large consumers (corporate PPA use-case)

Users layer

Consumer, supplier & project developer:
sign deal:
Merchant/Corporate PPA (off-site)
Granular certificates as „by-product"

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BRP (physical)

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automatically (via API) triggers transaction and cancellation

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Market layer

Front-end or direct **API communication**

Base layer

On-boarding:
Generation units and consumption points (i.e. via EAN codes)

Issuance:
Granular Certificates (GCs) are issued for the generation units (every 15 min.)

Transaction and cancellation:
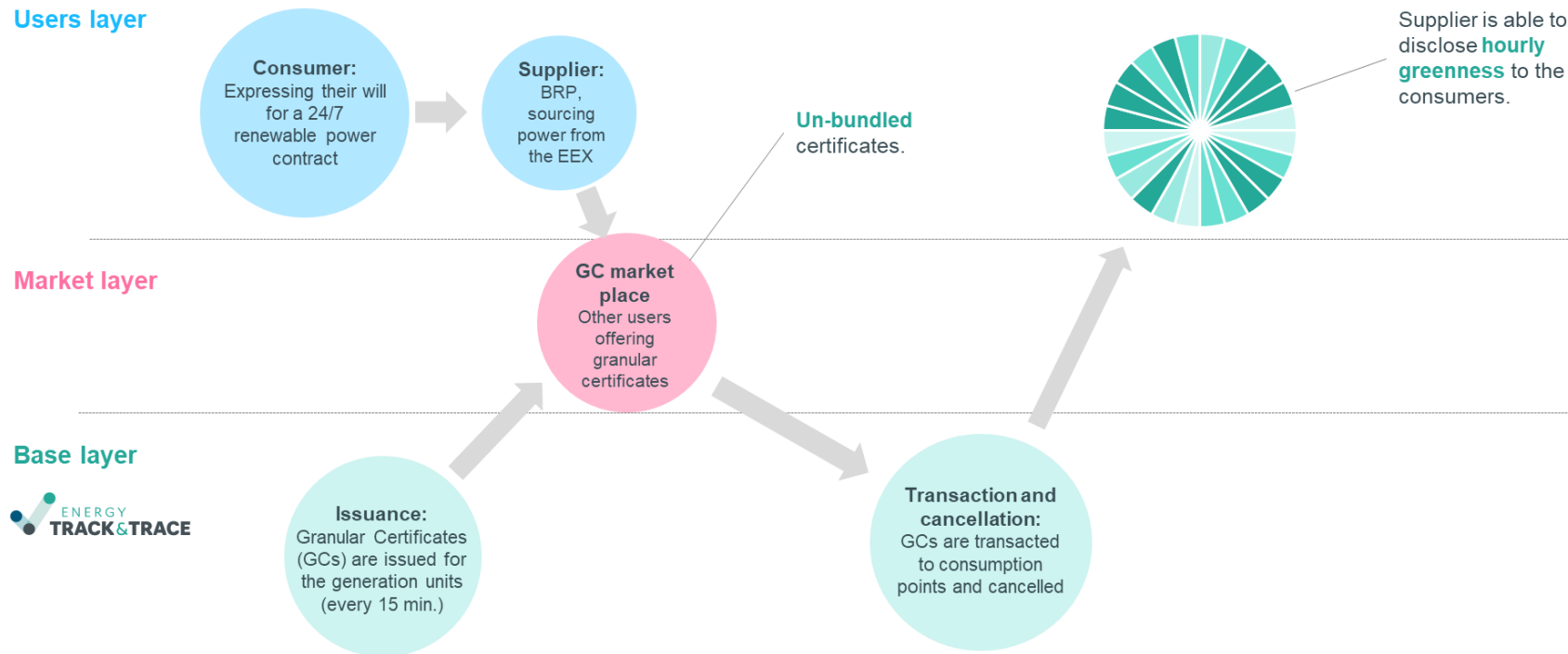GCs are transacted to consumption points and cancelled

Way to get to 100% green:

- Investment in **further PPAs** | over-production.
- **Demand side** flexibility (in line with process requirements and grid tariff structure).
- Investment in **storage**.

Case 2 - The user journey for smaller consumers (no-PPA use case)

Users layer

Consumer:
Expressing their will for a 24/7 renewable power contract

Supplier:
BRP, sourcing power from the EEX

Un-bundled certificates

Supplier is able to disclose **hourly greenness** to the consumers.

Market layer

GC market place
Other producers offering granular certificates

Base layer

Issuance:
Granular Certificates (GCs) are issued for the generation units (every 15 min.)

Transaction and cancellation:
GCs are transacted to consumption points and cancelled

The user journey for smaller consumers (no-PPA use case)

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Users layer

Consumer: Expressing their will for a 24/7 renewable power contract

Supplier: BRP, sourcing power from the EEX

Un-bundled certificates.

Supplier is able to disclose **hourly greenness** to the consumers.

Market layer

GC market place Other users offering granular certificates

Base layer

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Issuance: Granular Certificates (GCs) are issued for the generation units (every 15 min.)

Transaction and cancellation: GCs are transacted to consumption points and cancelled

Way to get to 100% green:

- **Active procurement** of granular certificates (and thereby supporting renewable expansion)

Go to **www.menti.com** and use the code **4255 4036**

Comments and voting

The 2 user journeys

Let's engage in Mentimeter for online voting

Case 1

User journey for large consumers
(corporate PPA use case)

Case 2

User journey for smaller consumers
(no-PPA use case)

(ex-post) Market design for Granular Certificates

Market layer

Continuous Market Place

Regular Auctions

Producers (Sellers) of Granular Certificates: Anytime after the production happened, sellers can place offers on the market.

Consumer/Suppliers: The can apply filters and continuously buy granular certificates.

Such as:
- **Price**
- **Wh for sale**
- **Further information** (such as energy source, commissioning date, location)

Consumers will know **exactly what they get**.

Consumer/ Suppliers: Expressing their will to buy (price)

Producers (Sellers) of Granular Certificates: Anytime after the production happened, sellers can place offers on the market.

Auction: On a regular basis.

Random allocation of granular certificates

Comments and voting

The 2 market concepts + no central market – results below:
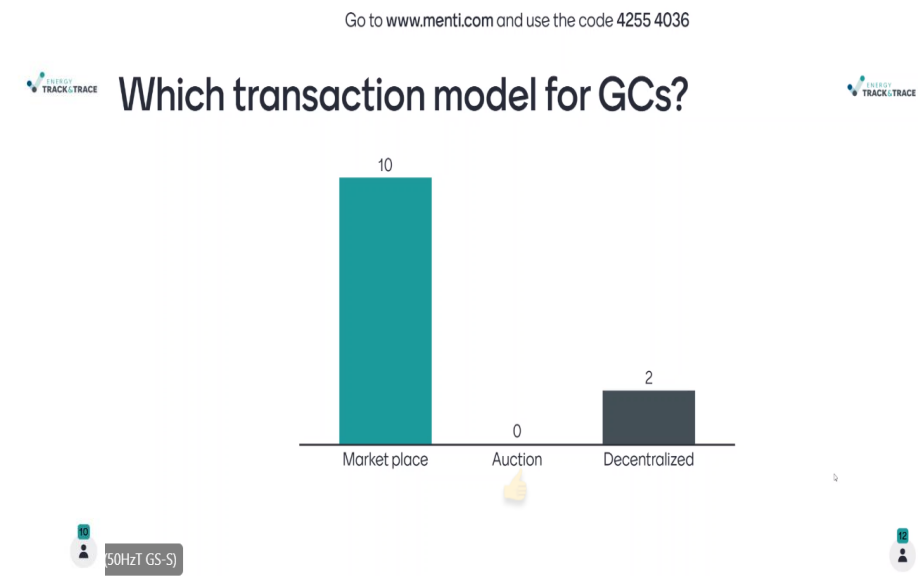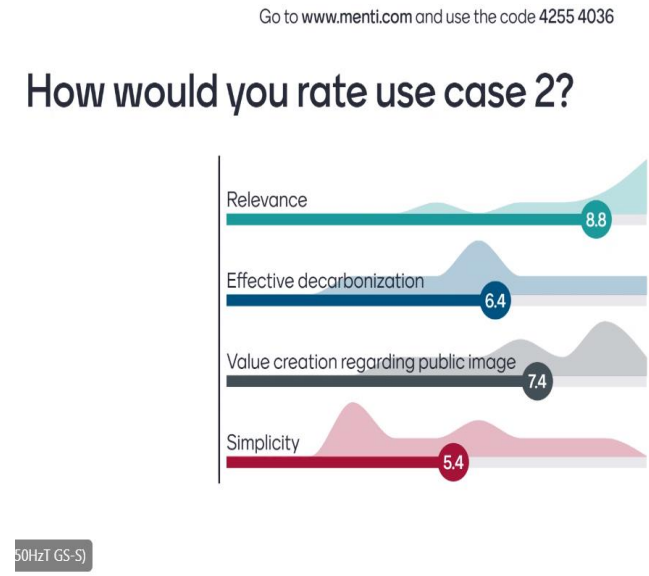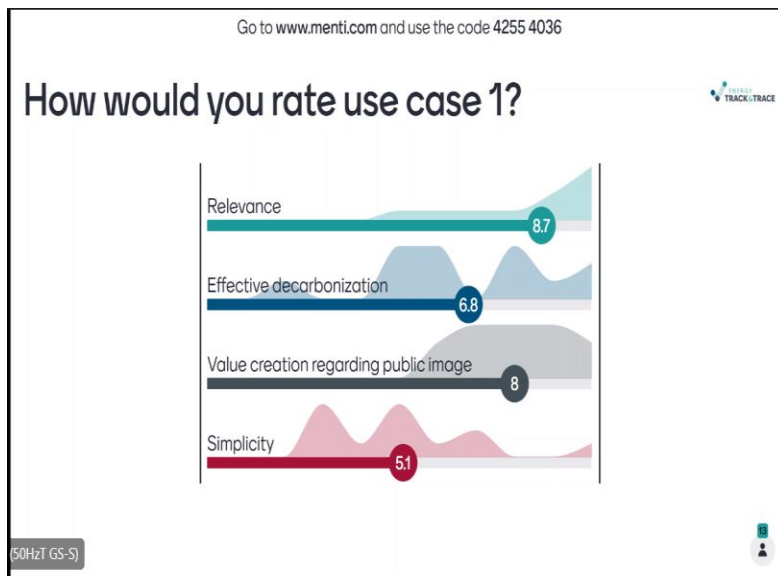
To make this fly…

Barriers

1. Regulatory

2. GO vs GC (Double counting)

3. How to onboard consuming Granular certificates?

4. Communication

…and initiatives to tackle them

1. REDIII, CEN standard being addressed through signals sent to national administration and European Commission

2. Collaboration & co-creation how to overcome these obstacles with relevant authorities and specialists

3. Workshops – facilitated by e.g. Energy Track and Trace, EnergyTag etc.

4. Web&SoMe, Panel talks, Press releases, www.energytrackandtrace.com

Summing up and next step

1. Collecting your comments and input

2. Workshop "2 will take place January 27 2022

- Focus points for Workshop #2 – Barriers to succeed - how to tackle the them...
- Mobilize for data sharing