Smart grid
just got smarter

TRAKEN

Problem

/ Electricity supply system is heavily convoluted
/ Technology and regulatory demands are being shifted
/ Business models and operational approaches are being stretched to their limits

In this environment of uncertainty and market disruption, energy providers must reinvent their organizations with the focus on >>>

Integrity

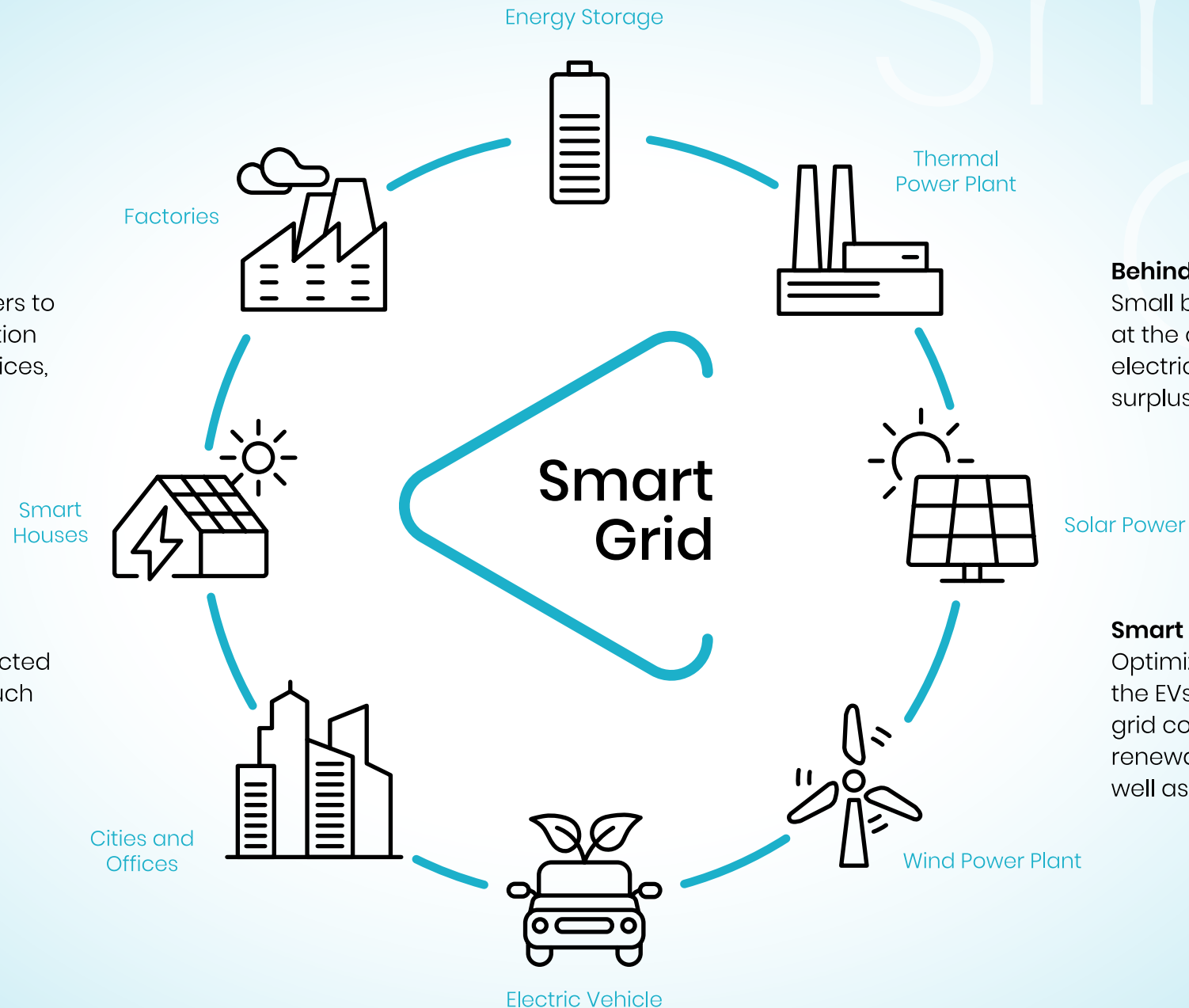Security

Transparency

Simplification

Visibility of assets

Demand Response
Process that enables consumers to alter their electricity consumption patterns and provide grid services, individually or through an aggregator.

Distributed generation
Generation from plants connected at low and medium voltage, such as solar rooftops, micro wind turbines, etc.

Behind-the-meter battery
Small batteries that are connected at the consumer end and store electrical energy during periods of surplus generation

Smart charging electric vehicles
Optimizing the charging cycle of the EVs according to distribution grid constraints and local renewable energy availability, as well as driver preferences.

Energy Storage

Factories

Thermal Power Plant

Smart Houses

Solar Power

Smart Grid

Cities and Offices

Electric Vehicle

Wind Power Plant

In a nutshell

An agile and flexible platform that will transform electricity into a liquid digital asset within the environment of known participants.

Product

TRAKEN is a data tracking, management and exploitation tool for smart electrical grids, that provides a distributed ledger to manage metering records, track physical objects and transfer value without a third party or manual reconciliation.
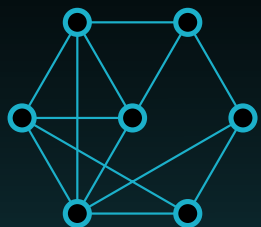
Protocol
Interoperability and seamless flow of data between different networks

Product passport
Framework for standardized product passports generation and protocol for recording of such data to DLT

Distributed energy registry (DER)
validation, time tampering and storing of data

Electric metering
becomes immutable and transparent

OPERATOR BENEFITS ARE NUMEROUS

- Operational performances tracking
- Custom reporting intervals
- Real time service management
- Mobility of consumer accounts
- Consumption patterns tracking
- Supply chain transparency
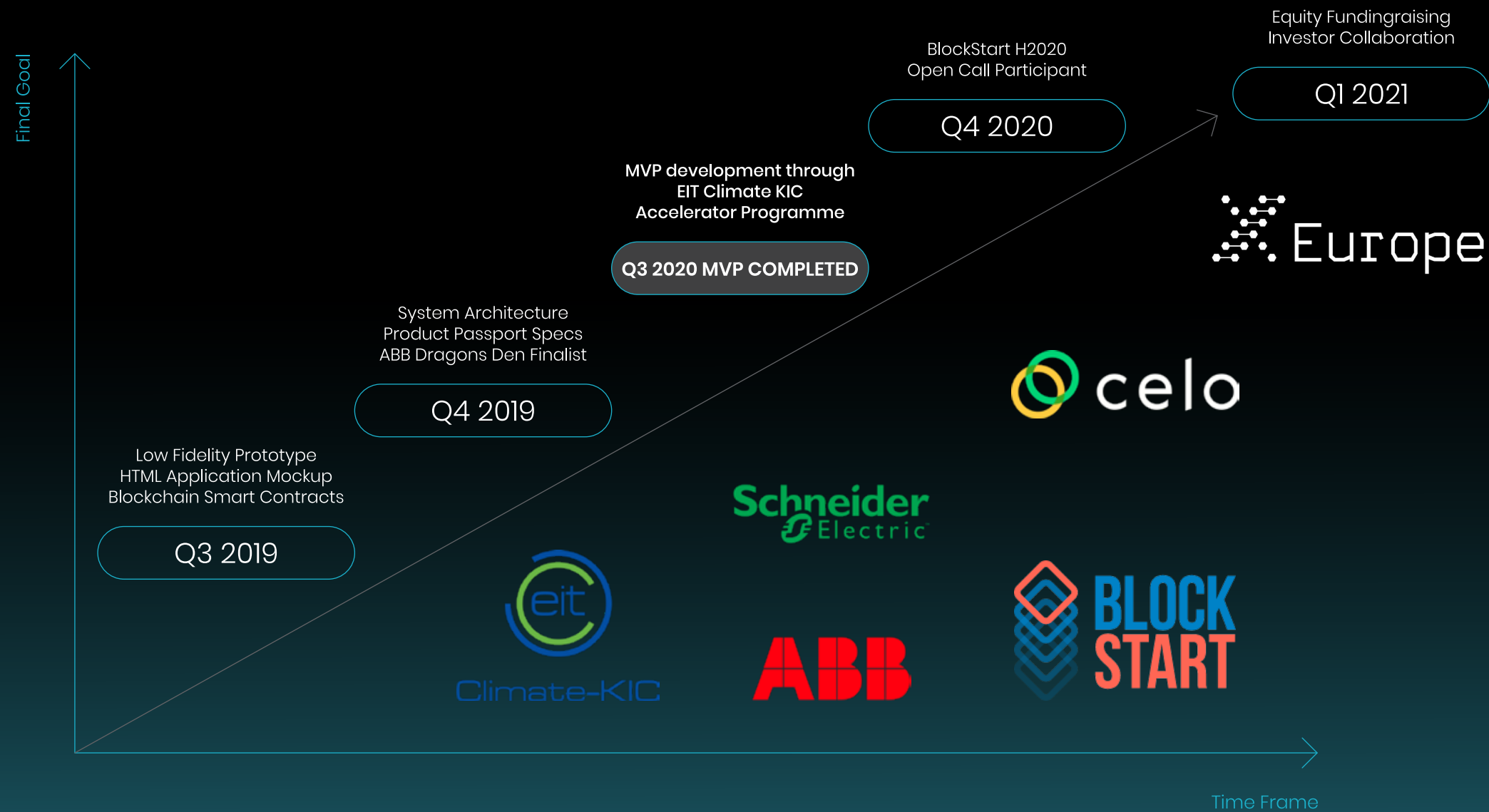- New business models

Electric energy
becomes a liquid asset

CONSUMER BENEFITS ARE AMAZING

- Peer-to-Peer trading
- Real time trading or production permits
- Transparency and provenance
- Origin tracking
- New financing models
- Democratizing investment
- Realization of non-financial value

Results

Equity Fundingraising
Investor Collaboration

Q1 2021

BlockStart H2020
Open Call Participant

Q4 2020

MVP development through
EIT Climate KIC
Accelerator Programme

Q3 2020 MVP COMPLETED

Europe

System Architecture
Product Passport Specs
ABB Dragons Den Finalist

Q4 2019

celo

Low Fidelity Prototype
HTML Application Mockup
Blockchain Smart Contracts

Q3 2019

Schneider Electric

eit Climate-KIC

ABB

BLOCK START

Final Goal

Time Frame

Technology Stack

Hybrid blockchain network
• Private permissioned blockchain
• Public chain that could be deployed on other chain or chains simultaneously providing interoperability

Gateway Protocol
Protocol defines identities, how it is generated, how it is stored and the way it interacts;

Smart contracts
• Executes on its own based on the instructions provided in the computer code
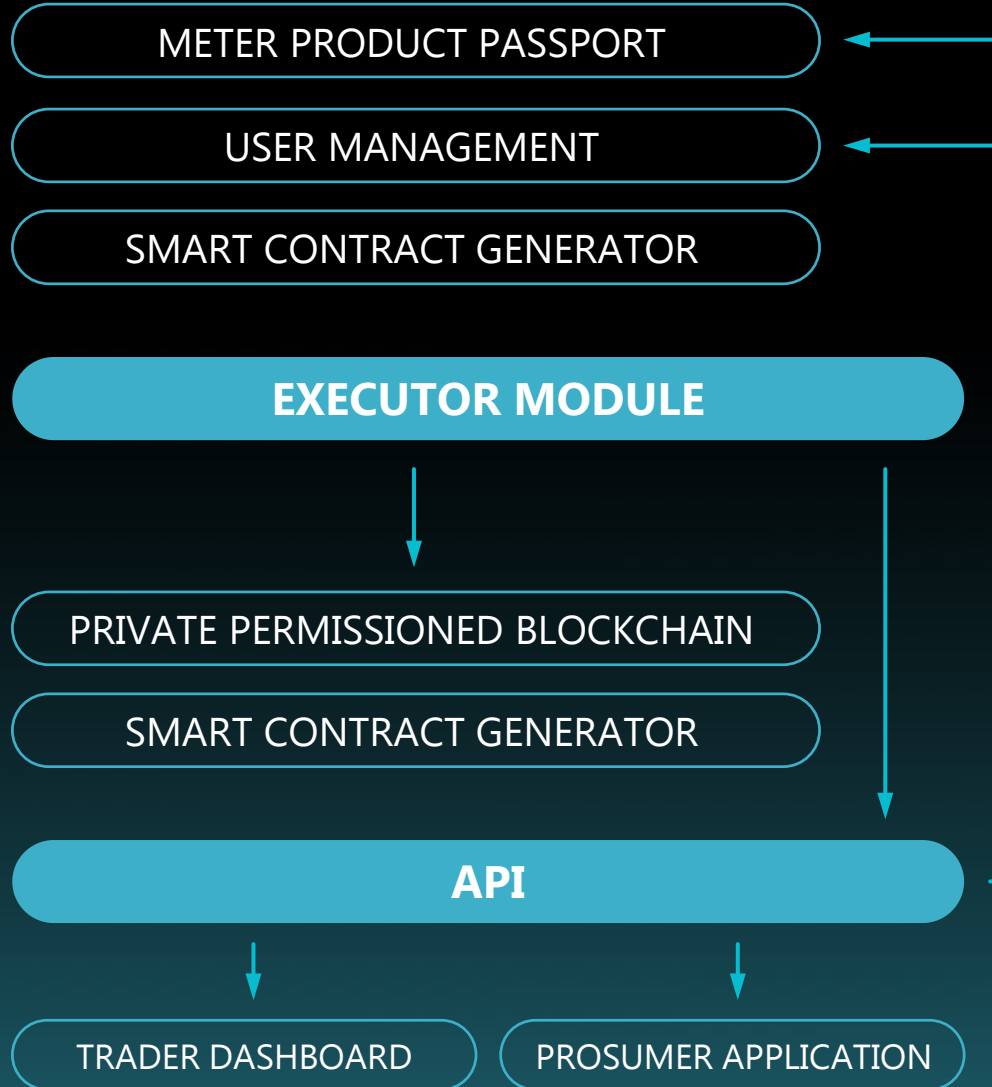• Immutable, self-verifying and auto-enforcing

Ricardian contracts
• Available in printable form, program parsable with all forms equivalent in terms of manifest
• Readable by humans and machines
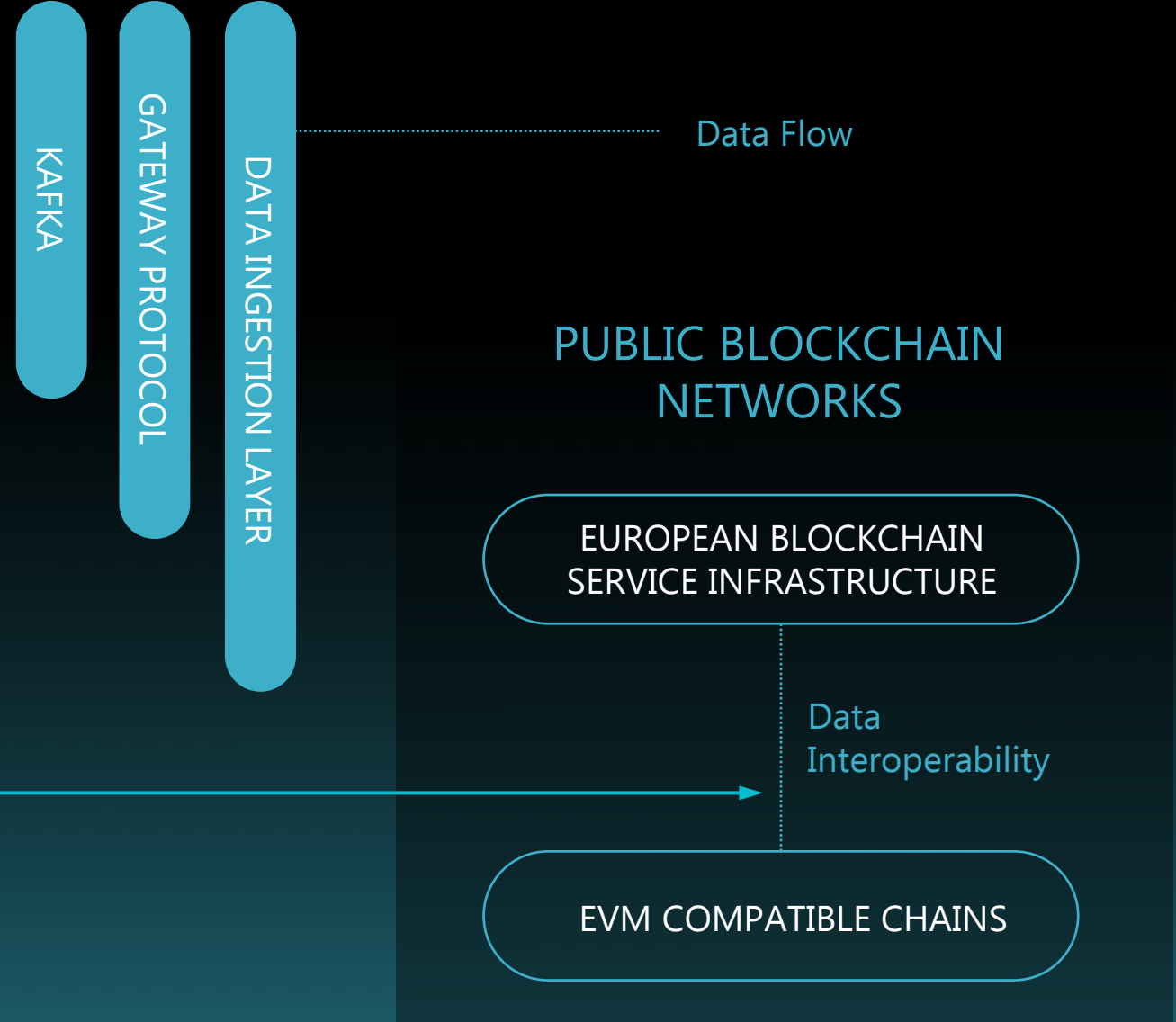• Signed by the issuer and both parties

Data Pipeline
• How it communicates with end points that insert data into the system such as Skada from various manufacturers
• How metadata is stored so that it can be replicated on other systems

TRAKEN

ARCHITECTURE WITH REACH

METER PRODUCT PASSPORT

USER MANAGEMENT

SMART CONTRACT GENERATOR

EXECUTOR MODULE

PRIVATE PERMISSIONED BLOCKCHAIN

SMART CONTRACT GENERATOR

API

TRADER DASHBOARD

PROSUMER APPLICATION

KAFKA

GATEWAY PROTOCOL

DATA INGESTION LAYER

Data Flow

PUBLIC BLOCKCHAIN NETWORKS

EUROPEAN BLOCKCHAIN SERVICE INFRASTRUCTURE

Data Interoperability

EVM COMPATIBLE CHAINS

Team

Executive

Operations

Tech

Strahinja Vukoičić

MSc electrical engineering

Nemanja Petrović

MSc economics

Pavle Batuta

Software engineer,
Blockchain architect

Team

STRAHINJA VUKOIČIĆ
Executive Director and Technology Lead
PROFILE: Holds a BSc in Nanoelectronics and Optoelectronics, and an MSc in Signal Processing and Automation from Faculty of Electrical Engineering, University of Belgrade. As a serial entrepreneur, he founded and developed 5 innovative companies since 2008, 2 engineering companies and 3 startups, made his first exit in 2015 from a company that now has over 600 employees and offices on 3 continents. As an engineer and a project manager he developed software and hardware solutions for multiple smart city and IoT projects including residential and commercial spaces, industrial zones, manufacturing facilities for Michelin and UNESCO protected sites. He has developed and managed multiple software development projects and teams ranging from mobile apps to custom multi-modal ERP/CRM systems.

VENTURES:
HTEC GROUP www.htecgroup.com in 2008,
MOONSTRUCK www.moonstruck.io in 2011,
C2 Communication & Control in 2013,
HONORARCI www.honorarci.rs in 2015,
TRAKEN TECH www.traken.co in 2019

NEMANJA PETROVIC
Business Strategy Advisor
PROFILE: Graduated international business and administration at Grenoble Graduate school of business, MSc in urban and environmental management at UN University for peace. He is a former principal of Stork Venture Capital, managing the innovation processes inside tech portfolio companies, identifying strategies and business opportunities with vast knowledge on sustainable energy and Blockchain; He is currently working as an advisor to the ministry of economy of Serbia in the EUBID project for the capacity building of business incubators and science technology parks financed by European delegation and implemented by GFA consulting GmbH.

VENTURES:
Blinking.id an identity management platform (KYC/AML) and Realmarket.io secondary market trading platform on Hyperledger Fabric.
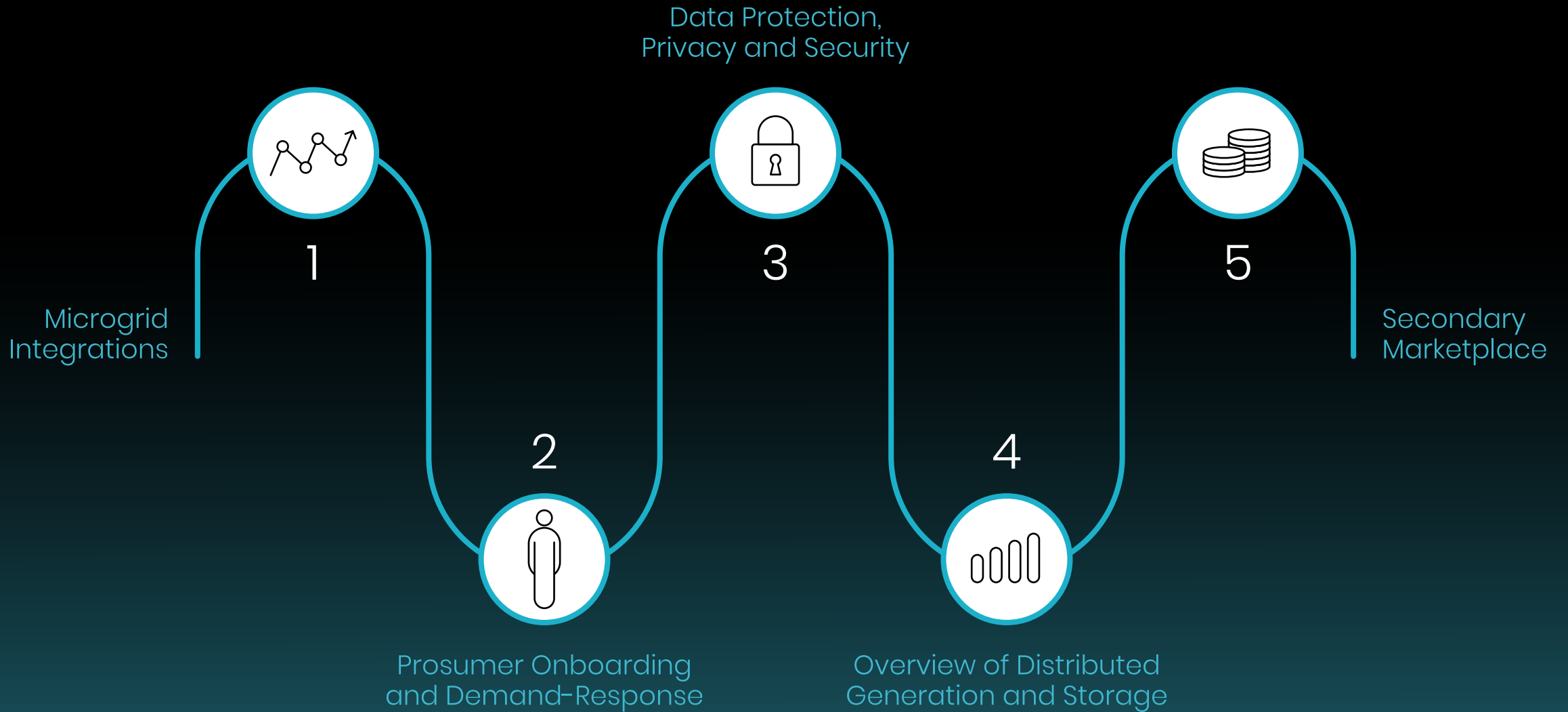
PAVLE BATUTA
Blockchain Development Expert and Software Architect
PROFILE: Holds a BSc in Computer Science from School of Electrical Engineering and Computing, University of Belgrade. He is an expert in Blockchain development with focus on software architecture and physical implementation of Blockchain modules within complex business intelligence systems, ERPs, CRMs, etc. With more than 4 years in Blockchain based projects, he was actively working on several commercial implementations of decentralized ledgers.

VENTURES:
AgAu www.agau.io, GreenPower (DasCoin) www.grnpower.io,
Balkaneum www.balkaneum.com,
Decenter www.decenter.com

ROADMAP KPIs

1

Microgrid
Integrations

2

Prosumer Onboarding
and Demand-Response

Data Protection,
Privacy and Security

3

4

Overview of Distributed
Generation and Storage

5

Secondary
Marketplace

Market potential

G — **3.1 million GWh**
Total annual net electricity generation in the EU

C — **2.8 million GWh**
Total annual electricity consumption in the EU

N — **1.58 MWh**
Electricity consumption per capita in the residential sector in the EU

EU

G — **7,092 TWh**
Total annual net electricity generation in China

C — **6,167 TWh**
Total annual electricity consumption in China

N — **4,546 kWh**
Electricity consumption per capita in the residential sector in China

China

G — **4,429 TWh**
Total annual net electricity generation in the USA

C — **3,971 TWh**
Total annual electricity consumption in the USA

N — **12,573 kWh**
Electricity consumption per capita in the residential sector in the USA

USA

Market potential

Currently, the EU is on track to meet its 20% target established for 2020. The EU could double the renewable share in its energy mix, cost effectively, from 17% in 2015 to 34% (target 27%) in 2030, wind and solar mostly. (IRENA)


19%
Germany

12,6%
EU

10%
Italy

29%
China

18%
USA
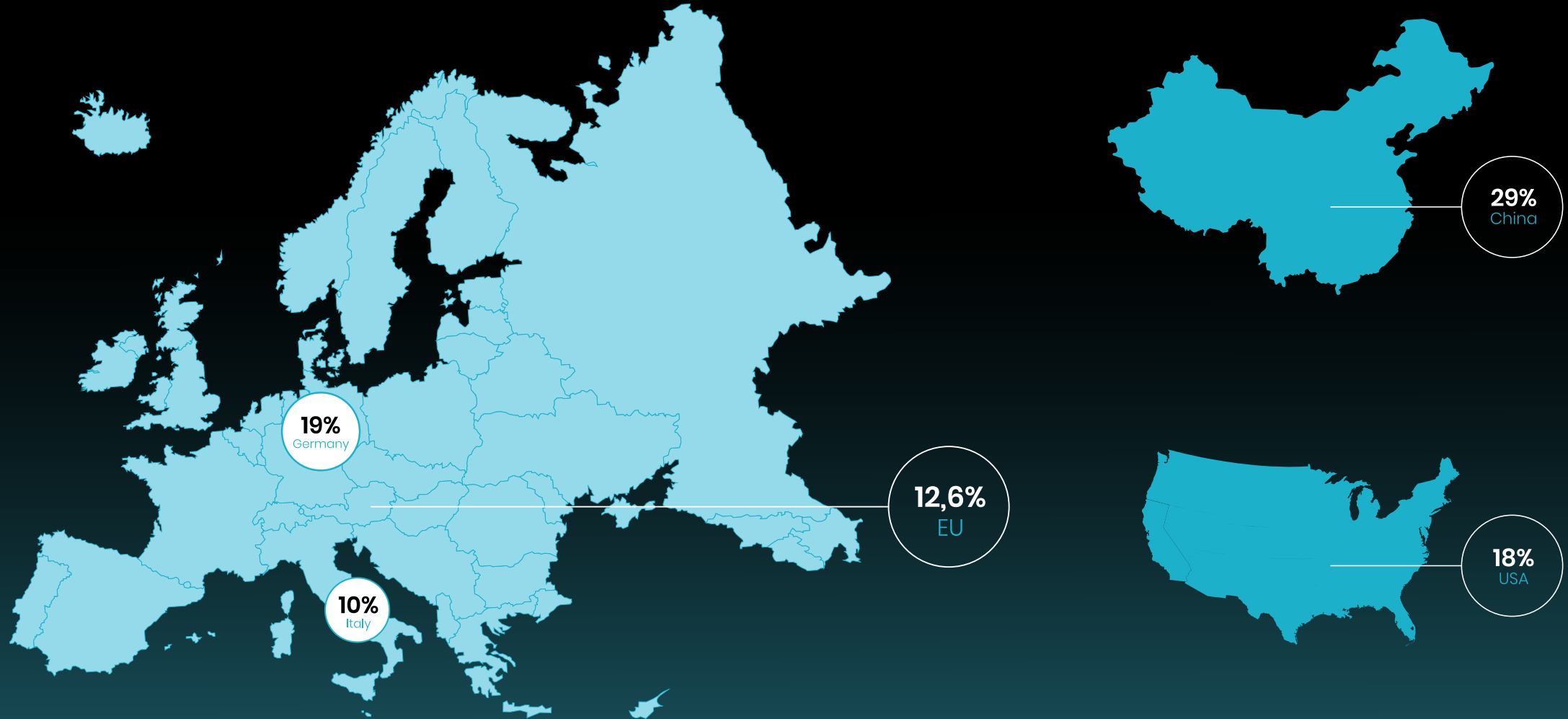
Demand response installed distributed energy capacity: 21 GW (Jiménez, 2017)
EV: 537 340 cars (IEA, 2018)
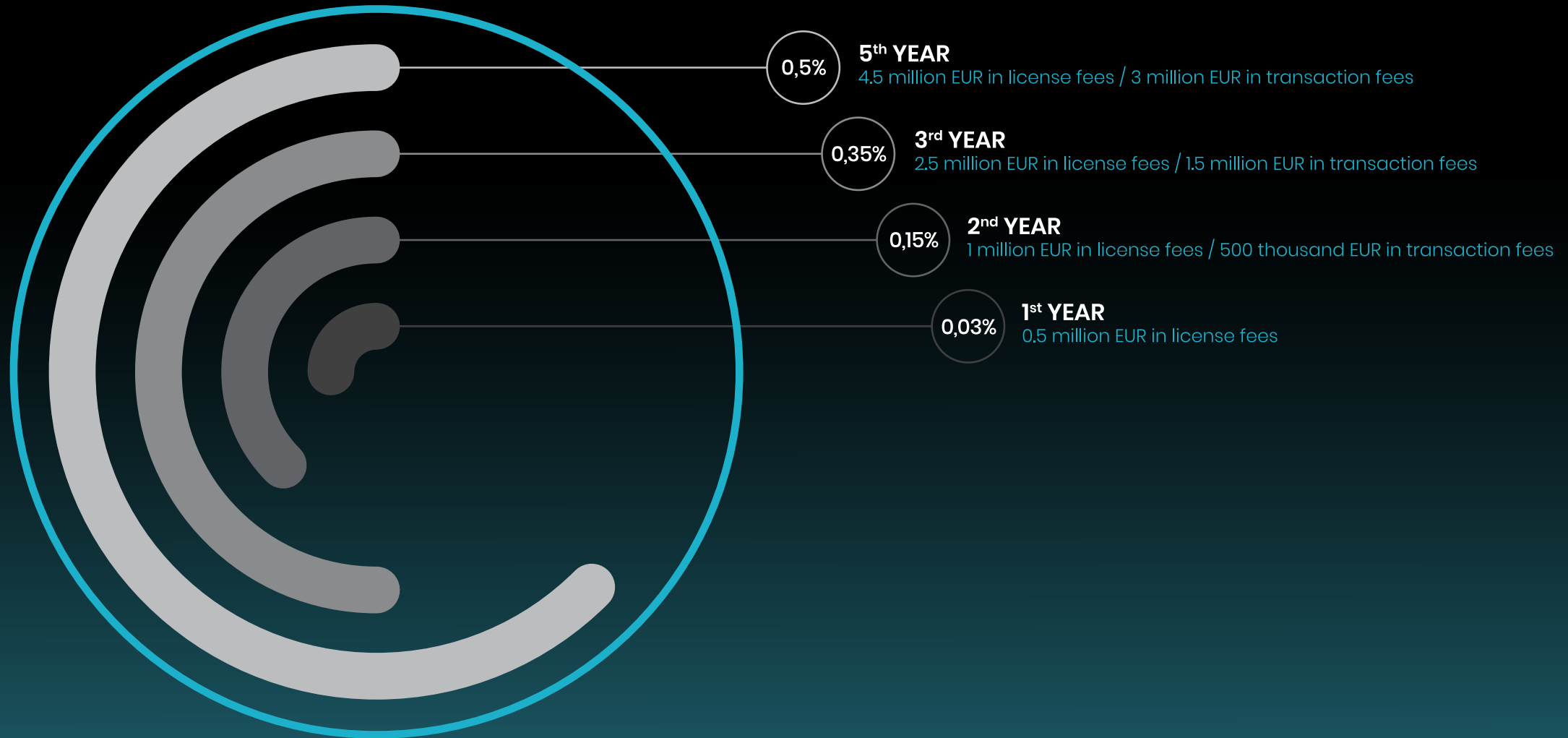
*global electricity consumption

Households consumption of electricity per capita

Figure 1: Renewable share in gross final energy consumption by EU Member State, 2014, 2015 and 2020 target

Legend: ▬ 2014 ▬ 2015 ▬ RED target 2020 RED=Renewable Energy Directive (2009/28/EC)
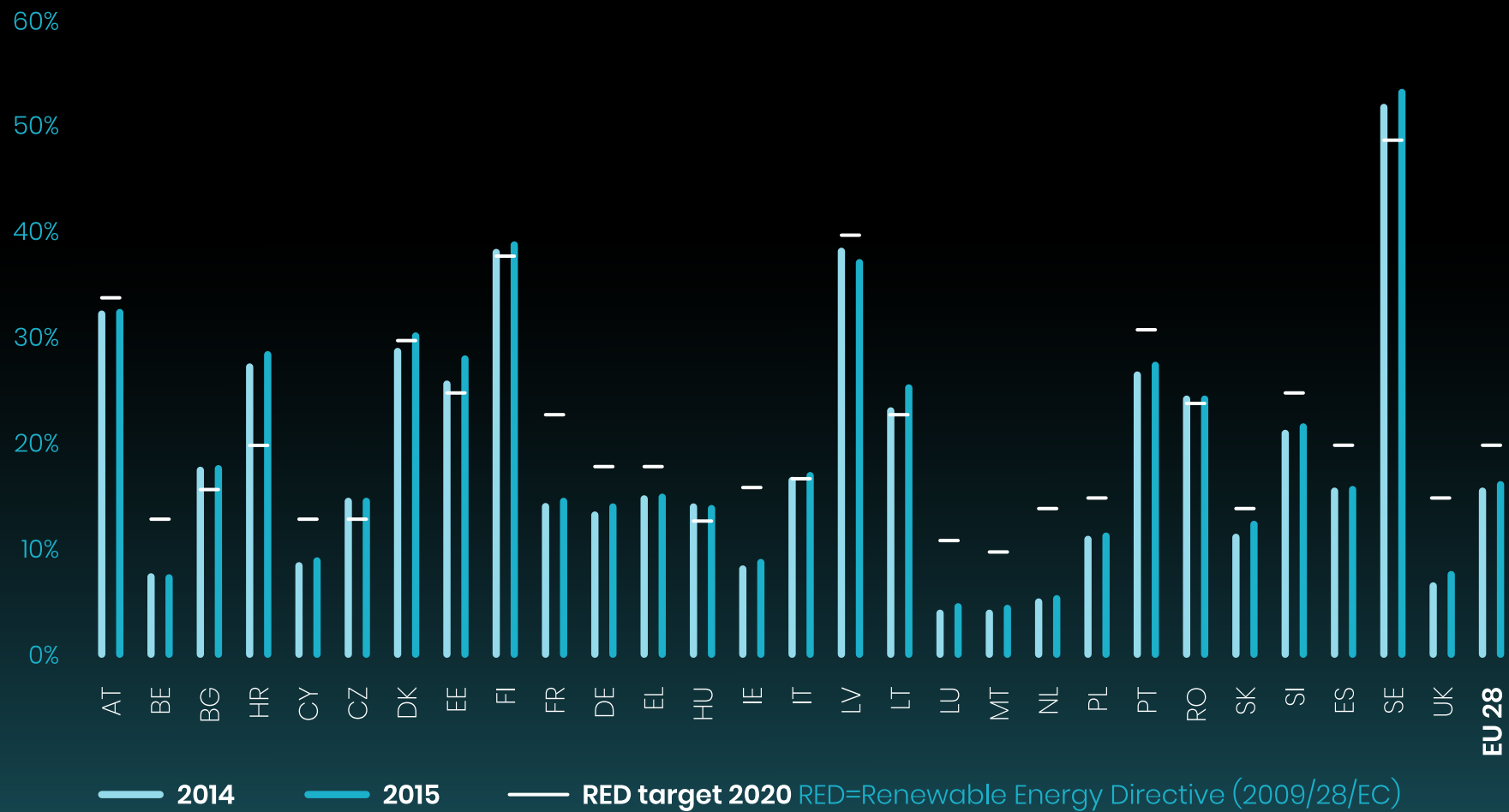
Source for 2014 and 2015 data: Eurostat (2017a). Targets for 2020: Renewable Energy Directive (RED) (2009/28/EC)

50 billion EUR
addressable market

0,5% — **5th YEAR**
4.5 million EUR in license fees / 3 million EUR in transaction fees

0,35% — **3rd YEAR**
2.5 million EUR in license fees / 1.5 million EUR in transaction fees

0,15% — **2nd YEAR**
1 million EUR in license fees / 500 thousand EUR in transaction fees

0,03% — **1st YEAR**
0,5 million EUR in license fees

Business
model

License fee
for DSO companies

Other:
• Aggregators
• Peer-to-peer electricity trading
• Energy-as-a-service
• Community-ownership models
• Pay-as-you-go models

Transaction fee
on microgrid rebalancing

We are looking for >>>
an investment
a smart partnership