

# Cuerva\*

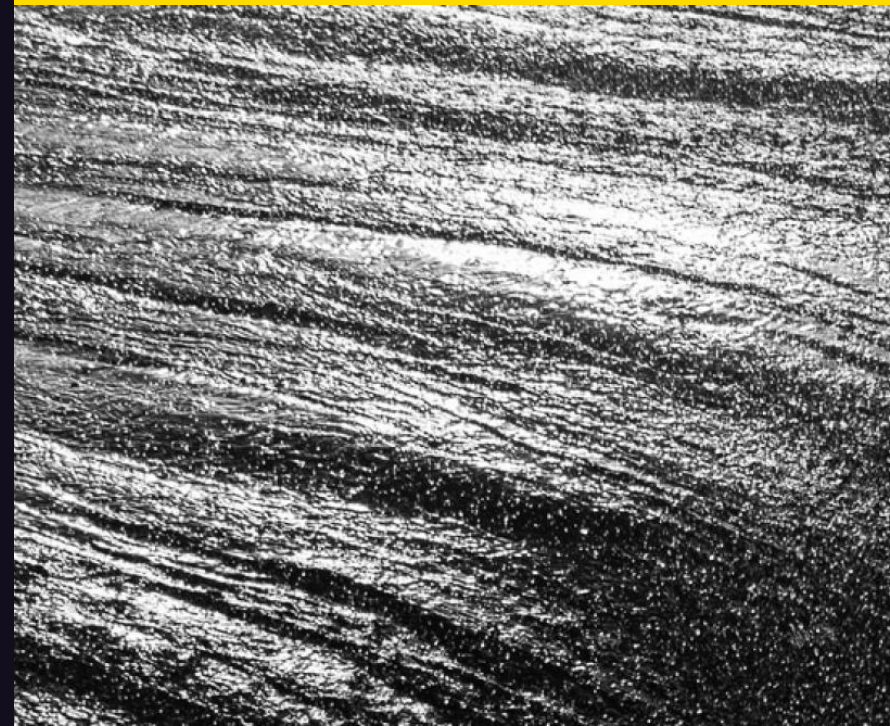
\*Beyond energy

February 2024



# Who are we?

C\*



# A company with a global spirit

Multidisciplinary professional teams with international presence in: Panama, Peru, USA (S. Francisco).

## Key Data

4

Countries

200

Employees

+23

People in  
product and  
innovation

6

Business  
areas

+135

Proyectos  
executed  
each year





# Sharing, connecting and helping to improve the sector

We promote and participate in a network of organisations (Cuerva ecosystem) to achieve a positive energy transformation based on collaboration.



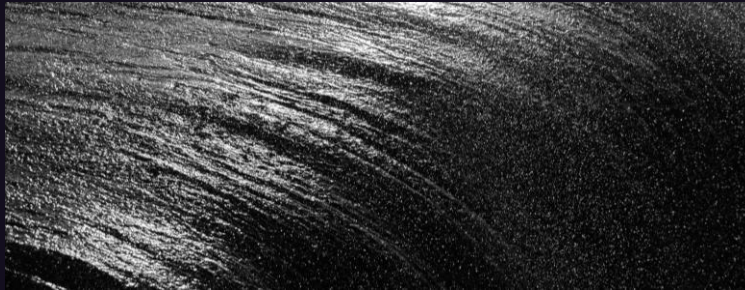
# Our history. Renewable natives.

We want to share with you the past, present and future of Cuerva.



"I let a mule walk, trusting in the instinct of animals to always choose the safest paths. The route the mule took was the route the cable took".

José Cuerva Cobo



"One day, the big electricity companies will realise that they have to go down the road that small hydro is already on: renewable energies.

Gerardo Cuerva Vallet

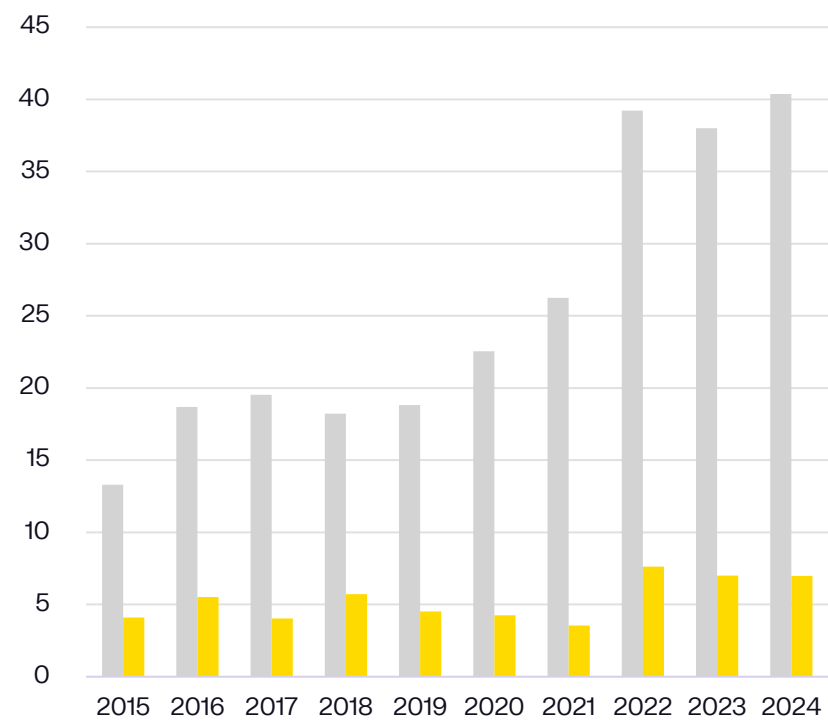


"Leading the progress of renewable energy and electricity grids is a great thrill for us and a constant challenge to be better.

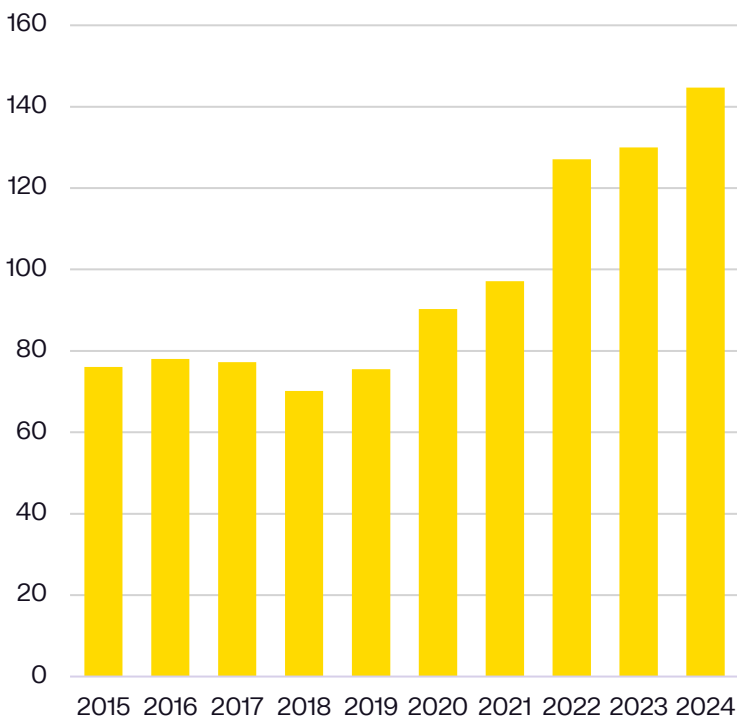
Ignacio Cuerva Valdivia

# Cuerva in numbers

Turnover & EBITDA (Mill €) Evolution



Active Evolution (Mill €)



>144M€

Assets 2023

>40M€

Incomes 2023

7M€

EBITDA 2023

x2

Evolution of the workforce  
over the last 5 years

# 85 years of what today is called the future



1939

Foundation.  
A workshop that specialised in mechanical and electrical repairs and installation of high and low-voltage systems.



1962

The Bermejales HPS comes on line. Cuerva acquires Electrical Alpujarreña and sets up the company Eléctrica Luz del Temple.

1989

Distribuidora Eléctrica Bermejales S.A. founded absorbs distributors Eléctrica Luz del Temple and Alpujarreña.



1992

Commissioning of the La Vega HPS.



2004

Acquisition of Eléctrica San Juan Buenaventura. Power supply to the municipal districts of Alcudia de Guadix and Exfiliana.



2007

Acquisition of Eléctrica San Gregorio. Power Supply to the municipal district of La Calahorra, Granada.



2009

CHC Energía is founded. The Group enters the retail segment of the energy market.



2011

Construction of the Escúzar-Láchar high-voltage overhead power line.



1959

Beginning of the energy distribution activity. Construction of networks for electric power supply to remote towns and villages in the province of Granada, Spain.



1985

Incorporation of Distribuidora Eléctrica Bermejales S.A. Cuerva absorbs the distributors Eléctrica Luz del Temple and Alpujarreña.



1990

HPS Bermejales reopens with upgraded power after being closed for several years.



1995

Commissioning of the Arquillos (in Linares, Jaén) and Cubillas (Granada) hydroelectric power stations.



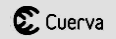
2006

Acquisition of Eléctrica Guadalfeo. Electric power supply to the Alpujarra district of the province of Granada.



2008

Development and sale of 15 MW of solar photovoltaic capacity. Construction of the Escúzar substation with the aim of Enhancing the power supply in the area



2010

Grupo Cuerva is incorporated as a holding company.



2012

Grupo Cuerva Perú is founded. The Group's second international subsidiary.



2015

Construction of hydroelectric stations in Peru.

2018

Development of Living Lab with Various partners in the distribution network.



2020

220/132 kV 1x160 MVA Ilora TS distribution network investment plan: New substation in Ilora Connected to the National Grid (REE).

Upgrading of the 132/66KV 1x100 MVA Escúzar TS as a consequence of the strong demand in the area



2022

Commissioning of the 3.5-MW Guadix experimental wind farm.



Construction and commissioning of the 5.6-MW Camino de Ácula photovoltaic solar plant.



Construction and commissioning of the 1.5-MW Antonio Valverde wind farm, Aldeire.



Vergy is born, a company dedicated to the management of energy communities.



2014

Connection of the San Lorenzo HPS to PANAMA's grid.



2016

Turning Tablets founded. Cuerva's innovation laboratory.

Commissioning of the 4.5 MW Alba de Tormes wind farm.



2019

Commissioning of the 2.4 MW MAMUT wind farm.

Development of new business models for the retail energy sector: Energy Communities, PPAs, Peer 2 Peer, Virtual Communities, etc.



2021

Investment by Cable Energía To highlight electrical mobility, EMS and VPP.

Connection between two distributors: Eléctrica Guadalfeo and Distribuidora Eléctrica Bermejales.

11-km, 132 kV D/C Ilora-Escúzar HVOL: Connection of the new substation to the Láchar area.



Adaion is born, to create a solution to help DSO's in the energy transition through the application of state-of-the-art technologies.



2023

Gridfy is born as a strategic ally in the transformation of networks. Service based on innovation, research and development for the digitization of DSOs.

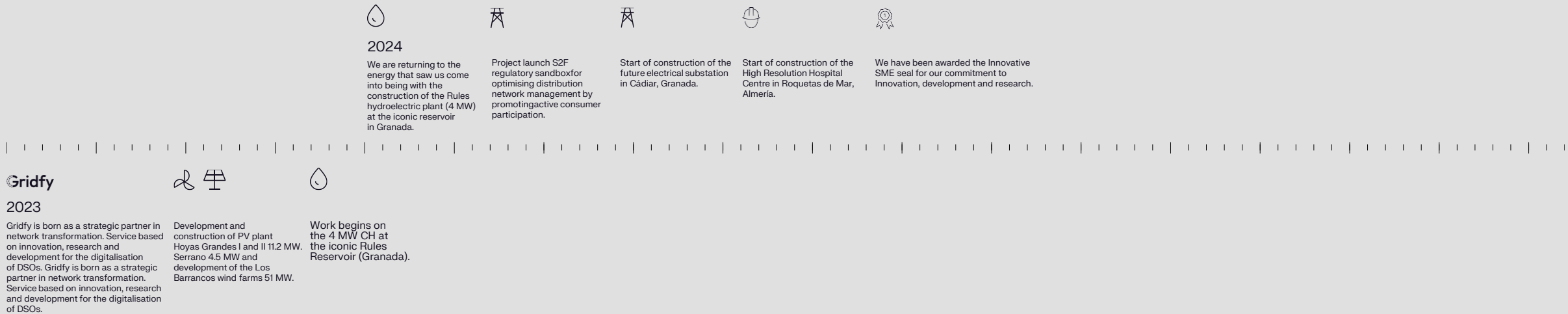


Development and construction of PSFV Hoyas Grandes I and II 11.2 MW. Serrano 4.5 MW and developments of the wind farms of Los Barrancos 51 MW.



Work begins on the of the CH 4 MW in the emblematic Rules reservoir (Granada).

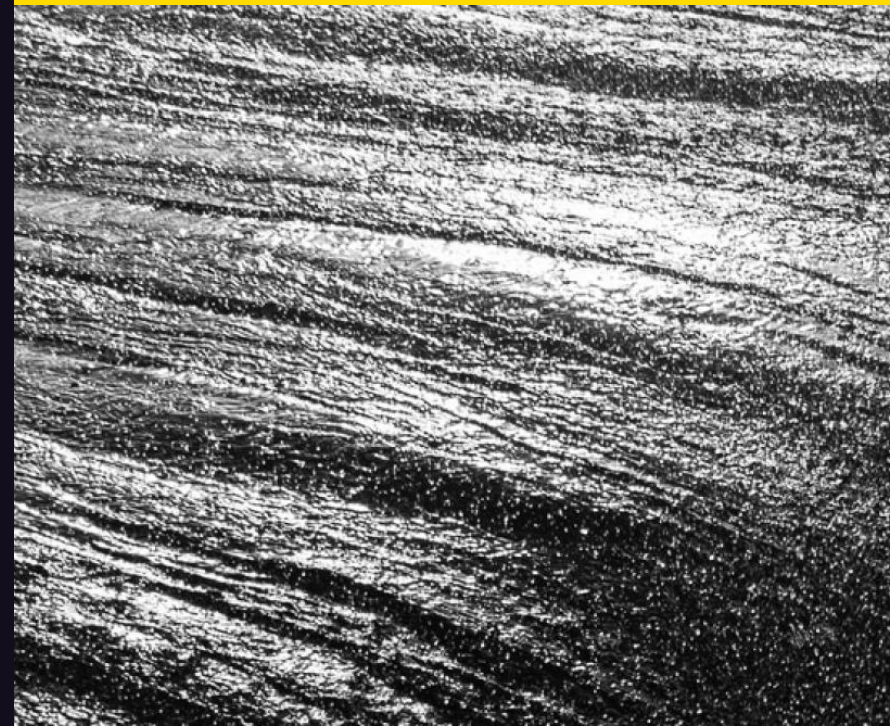
# 85 years of what today is called the future





# What we do?

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# We understand energy as an end-to-end process.

We are active in all service areas of the electricity sector:

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Renewable  
energy  
generation

Electricity  
distribution

Energy retailing

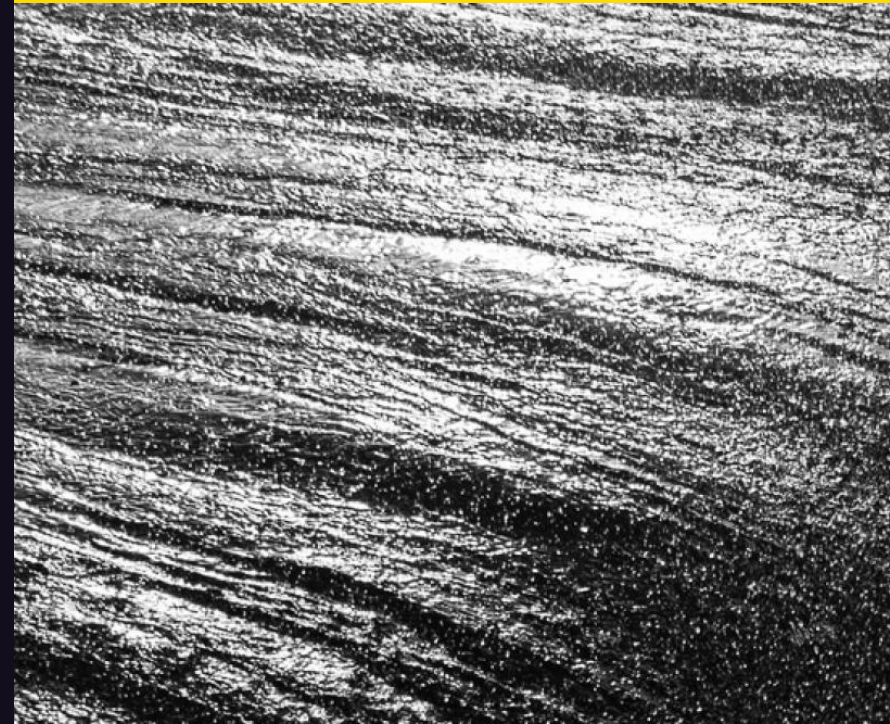
Smart  
services

Energy  
services

Digitisation  
of energy

# Electricity Distribution

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+900 Km of lines

+100.000 MWh/year

+18.000 supply points

+50.000 people

Substations

220<sub>kV</sub> 132<sub>kV</sub> 66<sub>kV</sub>  
(REE)



### Electricity Distributor Bermejales

Rural area. El Temple, La Vega y Costa-Contraviesa.



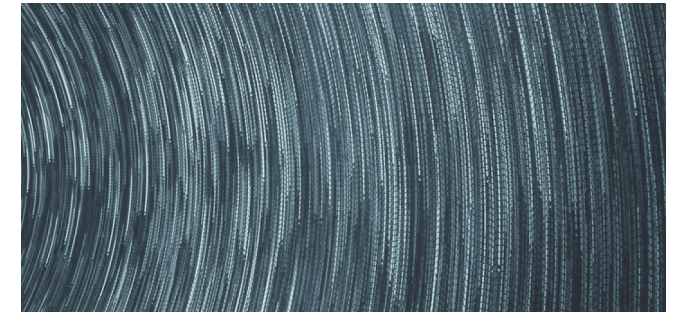
### Hydroelectric San Buenaventura

Urban zone. Municipio de Valle del Zalabí.



### Electric Guadalfeo

Rural area. La Alpujarra Granadina.



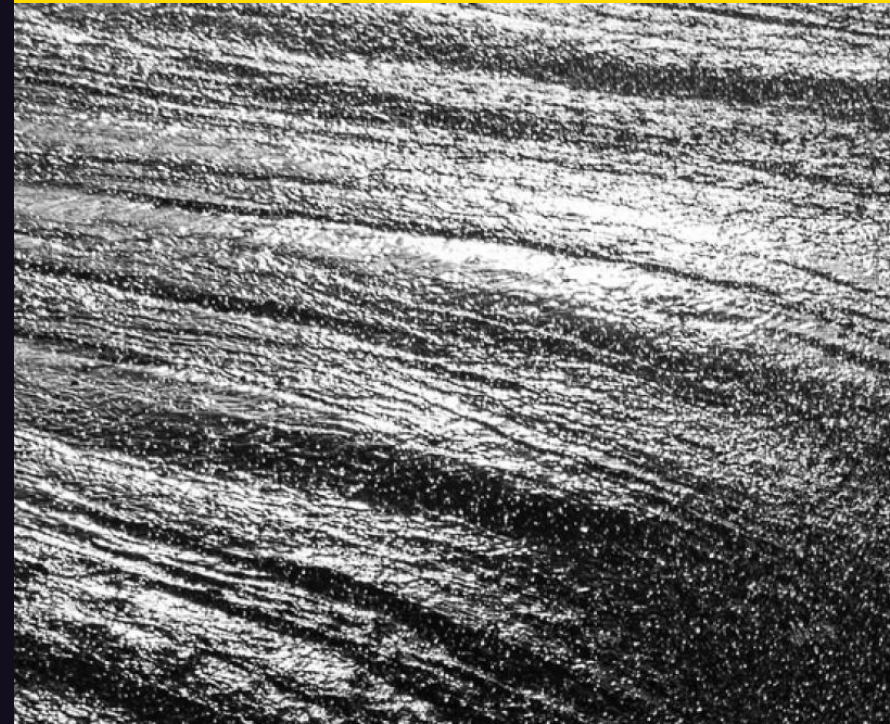
### Electric San Gregorio

Urban zone. Municipio de La Calahorra.



# Renewable energy generation

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211 MW successfully developed

19  
Hydro

63  
Wind

129  
Photovoltaic

52 MW own in commercial operation

28\*  
Hydro

12  
Wind

12\*  
FV hybrid

\*10 MW in construction

\*51 MW in construction

\*Upcoming construction

1.779 MW under development in Spain and LATAM

365  
Reversible Hydro

273  
FV Spain

178  
BESS

489  
FV M&A closed

18  
Hydro  
LATAM

456  
FV LATAM



# Renewable own assets.

## Hydroelectric plants.



### Bermejales hydroelectric power station

- Power: 1.8 MW
- Average production: 5.8 GWh
- Location: Arenas del Rey, Granada



### Cubillas hydroelectric power station

- Power: 750 kW
- Average production: 3.4 GWh
- Location: Atarfe, Granada



### San Lorenzo hydroelectric power station

- Power: 8.7 MW
- Average production: 38.3 GWh
- Location: San Lorenzo, Chiriquí, (Panamá)



### La Vega hydroelectric power station

- Power: 2.2 MW
- Average production: 9.8 GWh
- Location: Monachil, Granada



### Arquillos hydroelectric power station

- Power: 1.4 MW
- Average production: 3.8 GWh
- Location: Linares, Jaén

# Renewable own assets. Wind.



## Alba de Tormes wind farm

- Power: 4.5 MW
- Average production: 9.6 GWh
- Location: Alba de Tormes, Salamanca



## Mamut wind farm

- Power: 2.4 MW
- Average production: 6.3 GWh
- Location: Padul, Granada



## Guadix wind farm

- Power: 3,5 MW
- Average production: 10.2 GWh
- Location: Guadix, Granada



## Antonio Valverde wind farm

- Power: 1,5 MW
- Average production: 3.4 GWh
- Location: Aldeire, Granada



# Renewable assets. Projects in O&M.



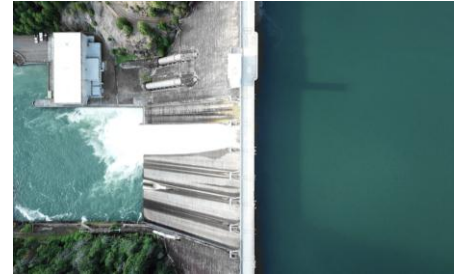
## Camino de Ácula solar farm

- Power: 5.6 MW
- Average production: 9.75 GWh
- Location: Ventas de Huelma, Granada



## Metropolitan Solar Park

- Power: 4,6 MW
- Average production : 10,3 GWh
- Location: Escúzar, Granada



## Bérchules hydroelectric power station

- Power: 0,8 MW
- Average production: 0,6 GWh
- Location: Bérchules, Granada

# Renewable assets EPC. Solar



## Camino de Ácula solar farm

- Power: 5.6 MW
- Average production: 9.75 GWh
- Location: Ventas de Huelma, Granada



## Hoyas Grandes I and II solar farm

- Power : 11,2 MW
- Average production: 19,16 GWh
- Location: Ventas de Huelma, Granada



## PV Serrano

- Power: 4, 5 MW
- Average production: 9,23 GWh
- Location: Dúrcal, Granada



# Renewable assets.

## Solar



### Rules hydroelectric power station

- Power: 4 MW
- Average production: 6,87 GWh
- Location: Vélez de Benaudalla, Granada



### Arenós hydroelectric power station

- Power : 5,77 MW
- Average production: 9,90 GWh
- Location: Montanejos, Valencia



### Barranco del agua I wind farm

- Power: 24 MW
- Average production : 72 GWh
- Location : Escúzar y Alhendín, Granada

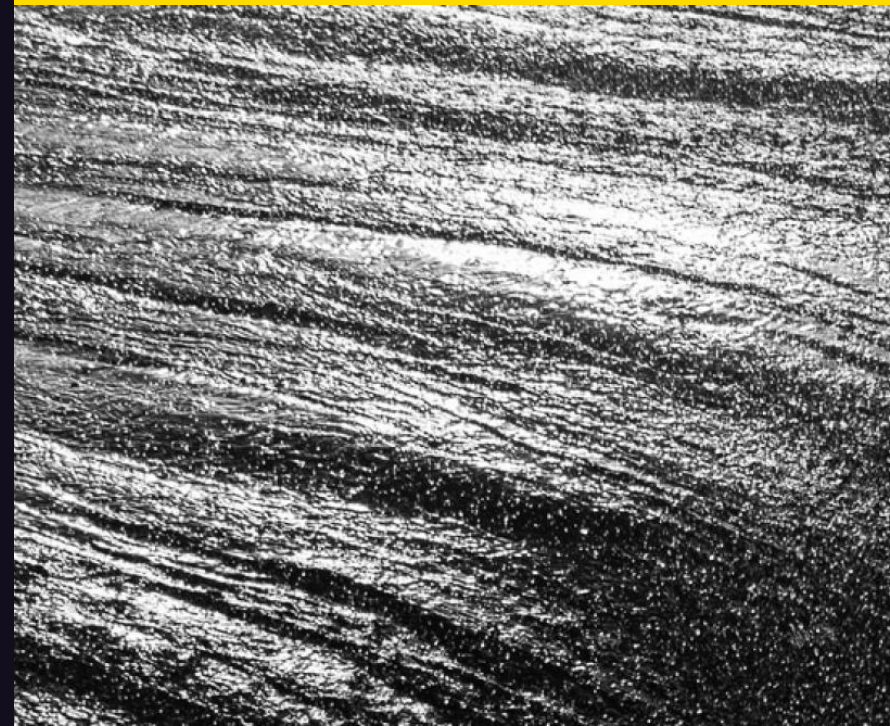


### Barranco del agua II wind farm

- Power : 27 MW
- Average production : 81 GWh
- Location: Villena, Granada

# Energy retailing

C\*



# Energy retailing

The liberalisation of the energy sector in 2009 was an opportunity and a new challenge. It was then that we, at Cuerva, began our collaboration with CHC Energía\* in order to be an active player in electricity trading and to be even closer to our customers.

\* CHC Energía is the seventh largest electricity distributor in Spain. CHC Energía's shareholders are partly made up of members of the CIDE association, made up of more than 200 energy distributors, of which Cuerva is one of the main shareholders.

Our commercial delegation stands out every year by being positioned as leaders in number of clients, total sales and having the lowest abandonment rate.

## Key data

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11.198

Clients in portfolio

18,97 GWh

B2B consumption

80%

Customer satisfaction and trust index

+81%

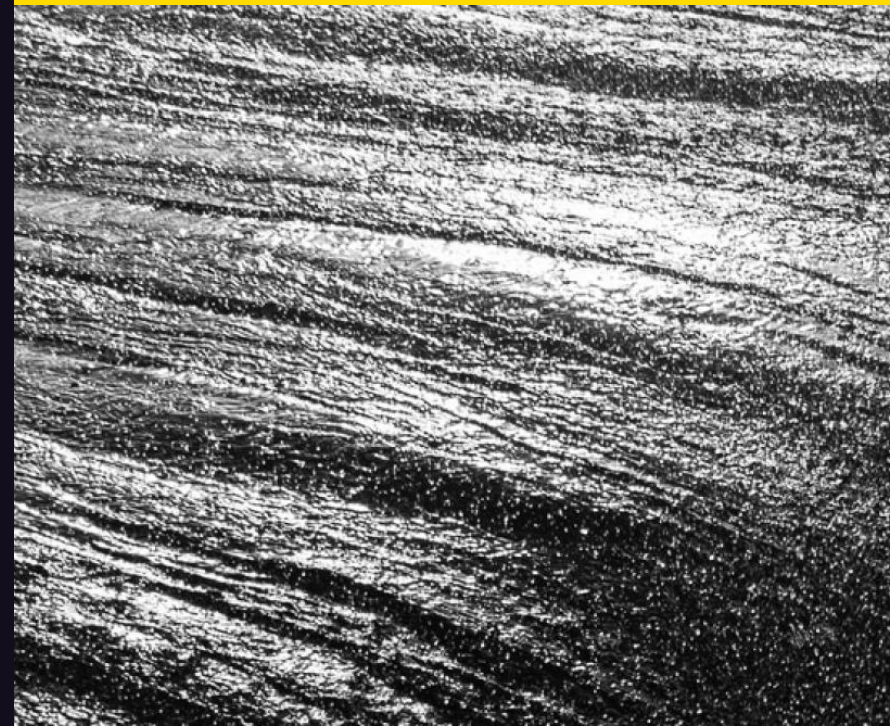
Loyalty and choice index for thousands of families and SMEs





# Smart services

C\*



# Smart services

## Full EPC

- Industrial electrical installations and buildings in HV and LV
- Control, data and telecommunications systems
- Self-consumption in industries and public institutions
- Grid-connected generation plants (PV, wind and hydro)
- Electric mobility with deployment of public and private infrastructure

## Services

- On-site PV and wind PPA contracts
- O&M of electrical and generation systems
- Efficiency 4.0 through Energy Management Systems (EMS)



10,4 M€

Turnover 2023

37 M€

Turnover 2024\*





# Smart services

## EPC and Industrial O&M

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- Photovoltaic and mini-wind self-consumption
- Network/isolated storage systems
- LV, MV and HV electrical systems (220-132-66 KV)
- Control systems, telecommunications, automation and Scada
- Integration of energy management systems (EMS)
- Deployment of public and private fast and semi-fast charging infrastructure.



**+16 MW**

EPC Self-consumption

**+7 MW**

EPC Electric vehicle charger

**+500 cT**

O&M Transformation centers

**+900 KM**

O&M MT network

# Smart services

## EPC and O&M Generation Utility Scale

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- Photovoltaic plants
- Wind farms
- Hydroelectric plants
- Stand-alone photovoltaic
- Utility scale storage system



**47** MW  
EPC Utility Scale

**30** MW  
O&M MT network

# Smart services

## EPC building Installations

---

- LV, MV, HV electrical systems
- Control systems, domotics, IoT, Scada
- Telecommunication systems, structured cabling and wireless networks
- Fire protection systems
- Public address, video surveillance, CCTV (audiovisual) systems

## Customer typology

### Hotels

- Meliá Granada 4\*
- Washington Irving 5\*
- Catedral 4\*
- Ikos Andalusia 5\*
- Palacio Gran Vía
- Royal Hideaway Hotel 5\*

### Residential

**>1.000** luxury homes

- Aedas Homes (Taracea, Tarsia, Talabar, Libella)
- Santa Rufina
- Estepona Hill
- Higuierón West

# Electric mobility

Own network (sold to SHELL 2022)



- Promotion, EPC and O&M in the Peninsula.
- Semi-fast (22KW) and fast (50KW) and super fast (150KW).
- Conventional and V2G.
- Control system and customer interface.

## Mobility services

EPC and O&M services with special attention to intelligent management of energy



Own network

200

developed sites

3.1 MW

installed

Services

30

sites

3.6 MW

installed



# Featured Projects

## Industrial and Building Services

### Industrial photovoltaic installations

- Aceites Maeva
- Nordwik
- Grupo Cariño
- Emasagra
- Herogra Fertilizantes
- Industrias Espadafor

### Electrification of photovoltaic solar parks

- Los Arroyos
- Parque Metropolitano Solar
- Cueva del Negro
- Capitanes

### Integral maintenance of electrical systems

- Renfe Granada
- Knauf Escúzar
- Nuestra Señora
- de la Salud Hospital Granada
- Neuron Biopharma
- IIDF Cabrera PTS building in Granada
- Emasagra's network of Transformer Stations

### Special installations (telecommunications)

- Catedral 4\* hotel
- LIV Student Granada residence
- R+D Building of the Granada Health Technology Park
- Higuerón West 217 luxury residential
- Vithas Xanit Internacional Hospital
- Caña Nature
- Abbott Laboratories

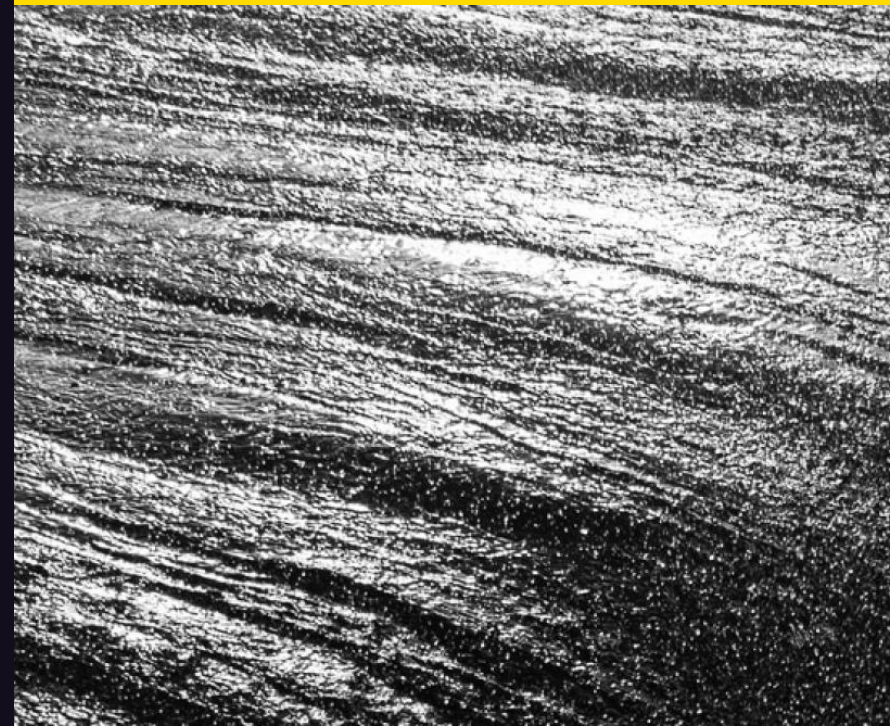
### EPC projects in high, medium and low voltage power grids

- Transformation and switching centre for Amazon logistics
- Alcázar Genil Station (Metropolitano Granada)
- Torre Pelli shopping centre
- Gabia– Escúzar airline
- Escúzar substation
- Street lighting
- Metro Campus de la Salud–Armilla



# Energy services

C\*





# Energy services

- Energy as a service
- Storage as a service
- Continuity as a service
- Efficiency as a service
- Data & Analytics as a service





# Energy communities. Collaborative energy

Vergy was created with the aim of **making clean energy accessible** to everyone through **collaborative generation** and consumption models.

Leveraging on shared self-consumption as a first step, Vergy connects people to energy generation sources located in their local environments.

- Vergy Communities
- Municipal Communities
- Energy Communities

All of this with the vision of identifying the main opportunities that revolve around this new figure, the role that the end user will have in the energy transition, and the impact that this will generate.



28

Vergy Communities

9

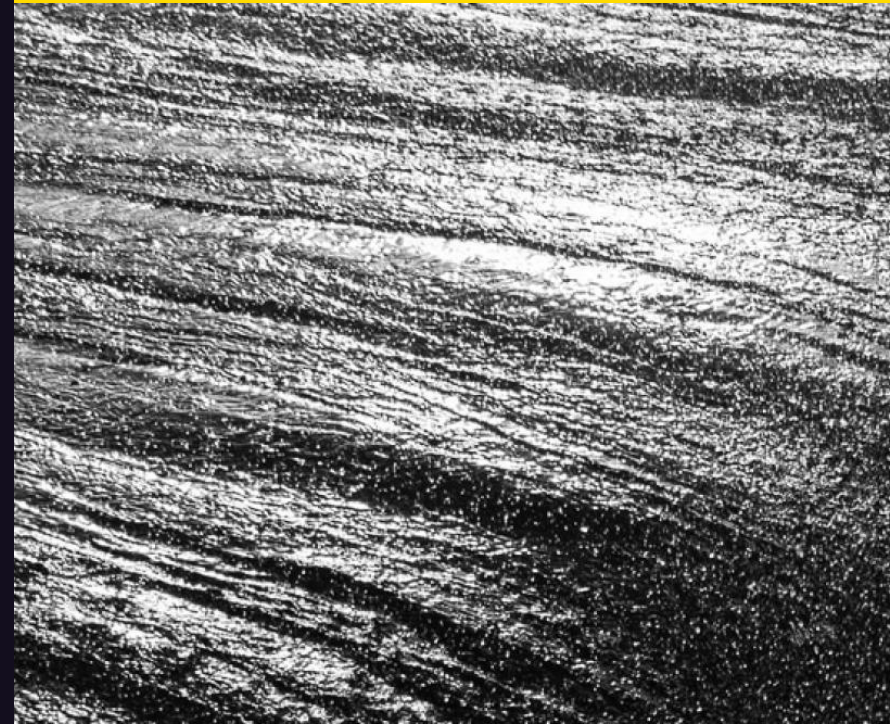
Active Vergy  
Communities

280

Consumer clients

# Digitalisation of energy

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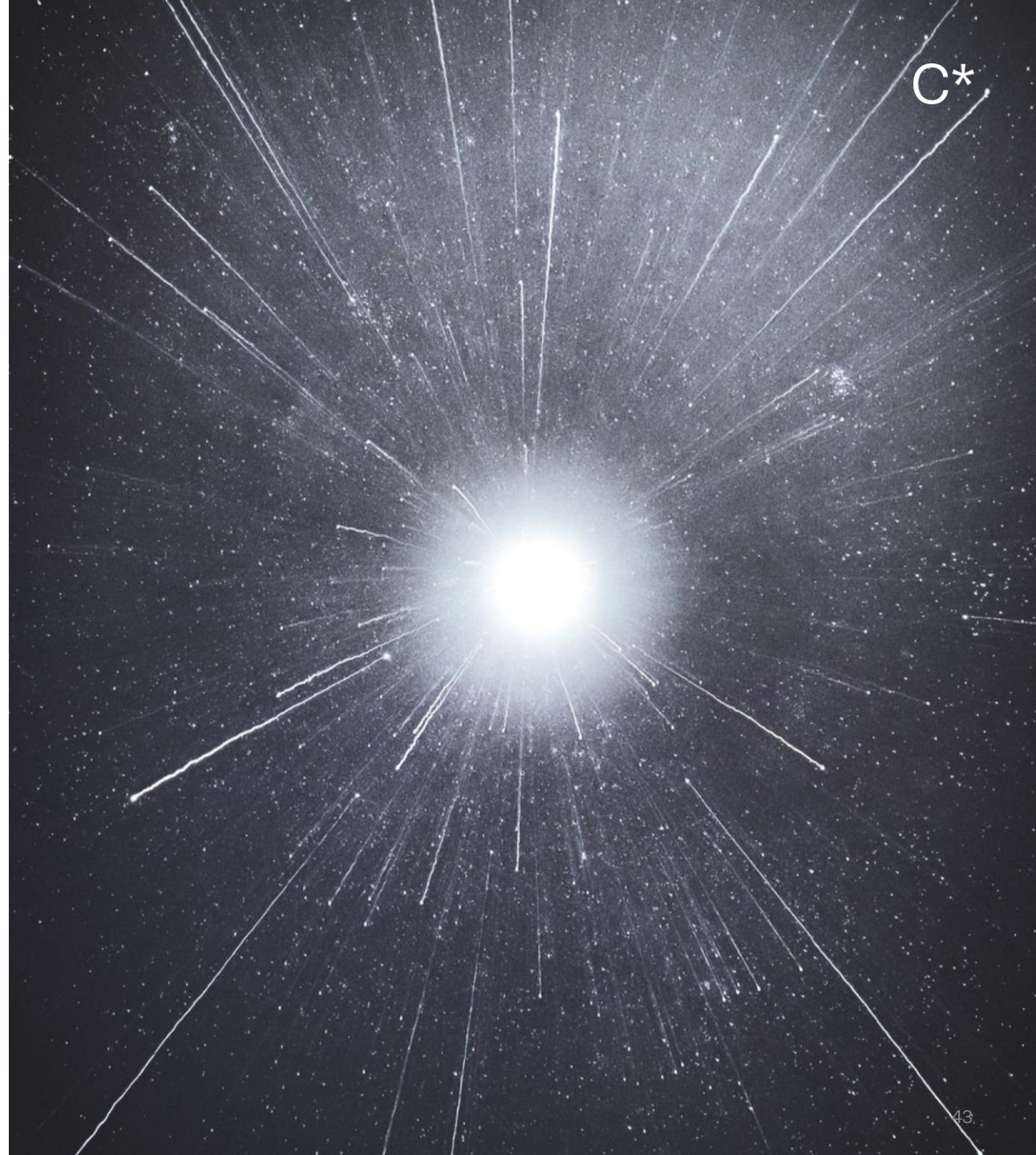




# Digitalisation of energy

We are committed to the evolution of energy. For this reason, we are working to acquire, process and integrate data to build a digital, electrical and energy model that allows us to obtain information on the behaviour of the grid, always seeking to apply these learnings to improve the end user's experience.

We innovate and think about what is to come, we predict new roles for the distributor and network operator and we respond to future needs.



# Iniciativas que llevamos a cabo

## 01. Smart Grids & Micro-networks

We develop smart grids focused on sensorization and equipment selection, with the objective of obtaining real time information from our network to:

- Improve network operation.
- Optimize network planning.
- Improve, through digitalization, management processes.

## 02. Industry and tertiary sector

We create projects in buildings, industries and consumption centers, using a digital model that allows us to understand present and future energy behavior. We use tools such as intelligent energy management and process-based operational optimization, also exploring new energy markets, among others.

## 03. Algorithm development

We work with advanced algorithms based on artificial intelligence and machine learning, with the objective of improving the operations and use of our network, creating digital twins, studies and optimizations that allow us to minimize its performance, both today and in the future.

# Our areas of activity

We work in the development of smart grid consultancy in four different areas:

## 01.

Sensorisation, acquisition and integration of measurements through IoT (Internet of Things) platforms with different options for data availability (real time or historical).

Data availability (real time or historical).

## 02.

Monitoring and advanced analytics applications that allow us to improve grid supply quality, operation and efficiency and increase grid resilience.

Improve grid supply quality, operation and efficiency and increase grid resilience.

## 03.

Development of digital models of:

Digital twins for industry.

- MV and LV networks.
- Industries.
- Tertiary buildings.
- Aggregate consumption centers.

## 04.

Digitalisation of private, closed and micro-networks.

Digitalization of individual consumption points and management, through intelligence systems (EMS).

Digitization and management of energy through virtual power plants (VPP).



# Singular projects. GreenMotril.

GreenMotril is a pioneering project that proposes the transformation of the seaport's current processes into renewable energy communities with the aim of reducing the emissions resulting from them, from 2022 to 2031.

It will develop a microgrid with isolated operation consisting of a 2.5 MW photovoltaic plant and a 4 MWh battery that will provide renewable energy to the Port of Motril.

*"The project will allow the seaport to become the first in Europe to operate off-grid, while maintaining its basic services, as a fully renewable and self-managed energy community". EC Media.*

\*Funded by the Innovation Fund for Small Scale Projects in Europe (1 of 6 projects in Spain).



- 2,5 MW photovoltaic plant
- 4 MWh energy storage system (lithium-ion batteries) with island generation capability
- OPS for ship power supply
- Microgrid Management System
- Cybersecurity Framework

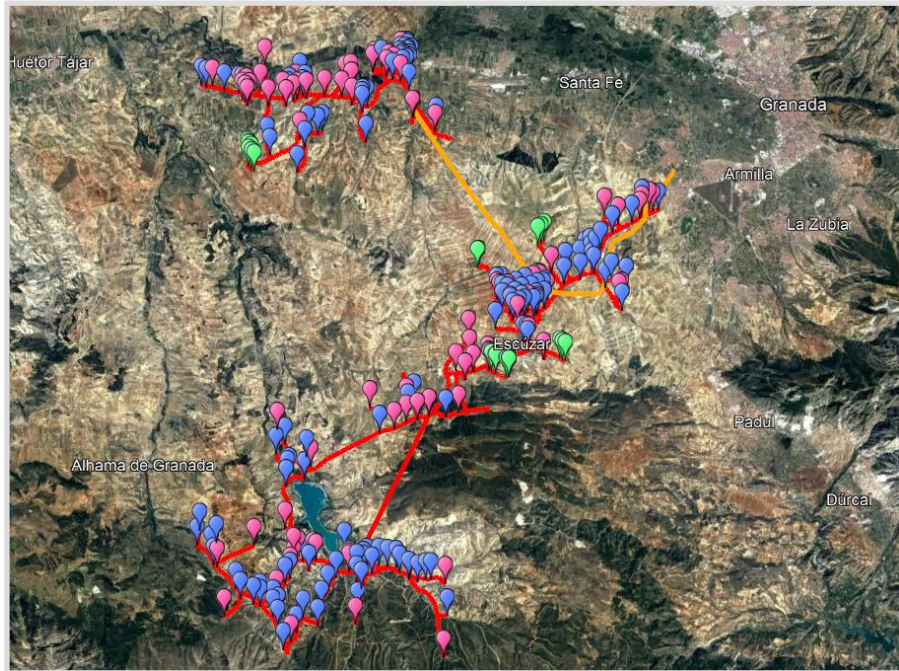


# Project timeline



# Living Lab

Playground where the digitization of the electrical grid and the users coexist to learn about the transformation to smart grids that are capable of facing the challenges of the near future.



# Living Lab

## Purpose

Living Lab is a user-driven, open and collaborative innovation ecosystem in a networked, real-life environment where users co-create, experiment and test new ideas, products and services through user-centric solutions.

On the other hand, the impacts of these new products on the electrical grid are experimented, where the new needs of the operation itself, stability or quality improvement are investigated.

The laboratory is open to the industry, and to the scientific community under an Open Data philosophy. The Utility of the future opens its doors and shares knowledge, data and experience.

## Digitisation

Distribution network: sensorization and digitization above the standards set for sub-second data granularity (<1sec) in both HV and LV.

Users: deployment of submetering to obtain BTM measurements below one second (<1sec).

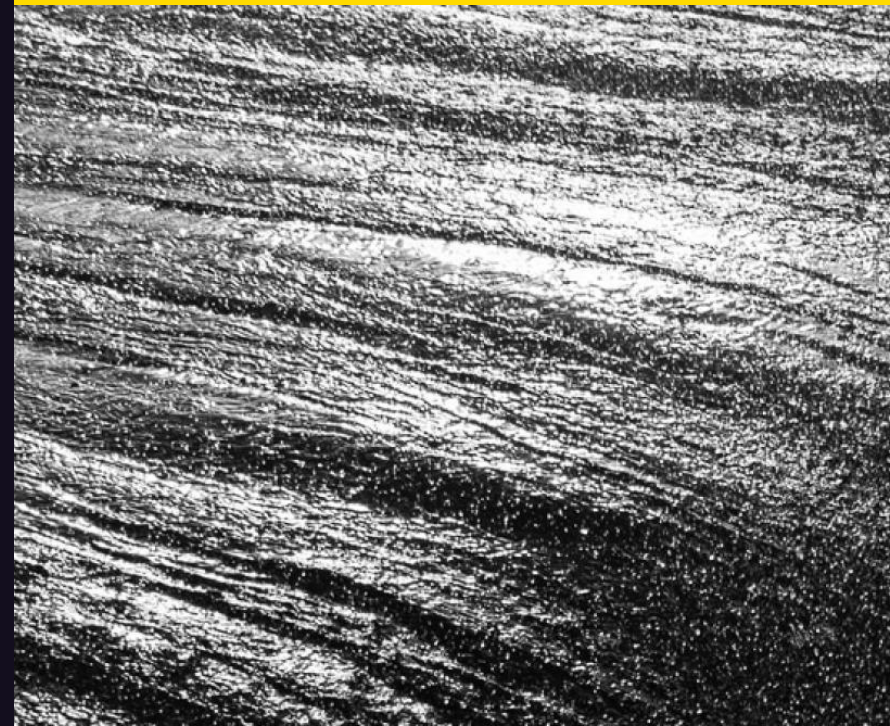
## Reach

Grid: knowing how the grid works to anticipate future scenarios.

Users: Involve them under a community that allows us to learn about.

# What is the future of energy?

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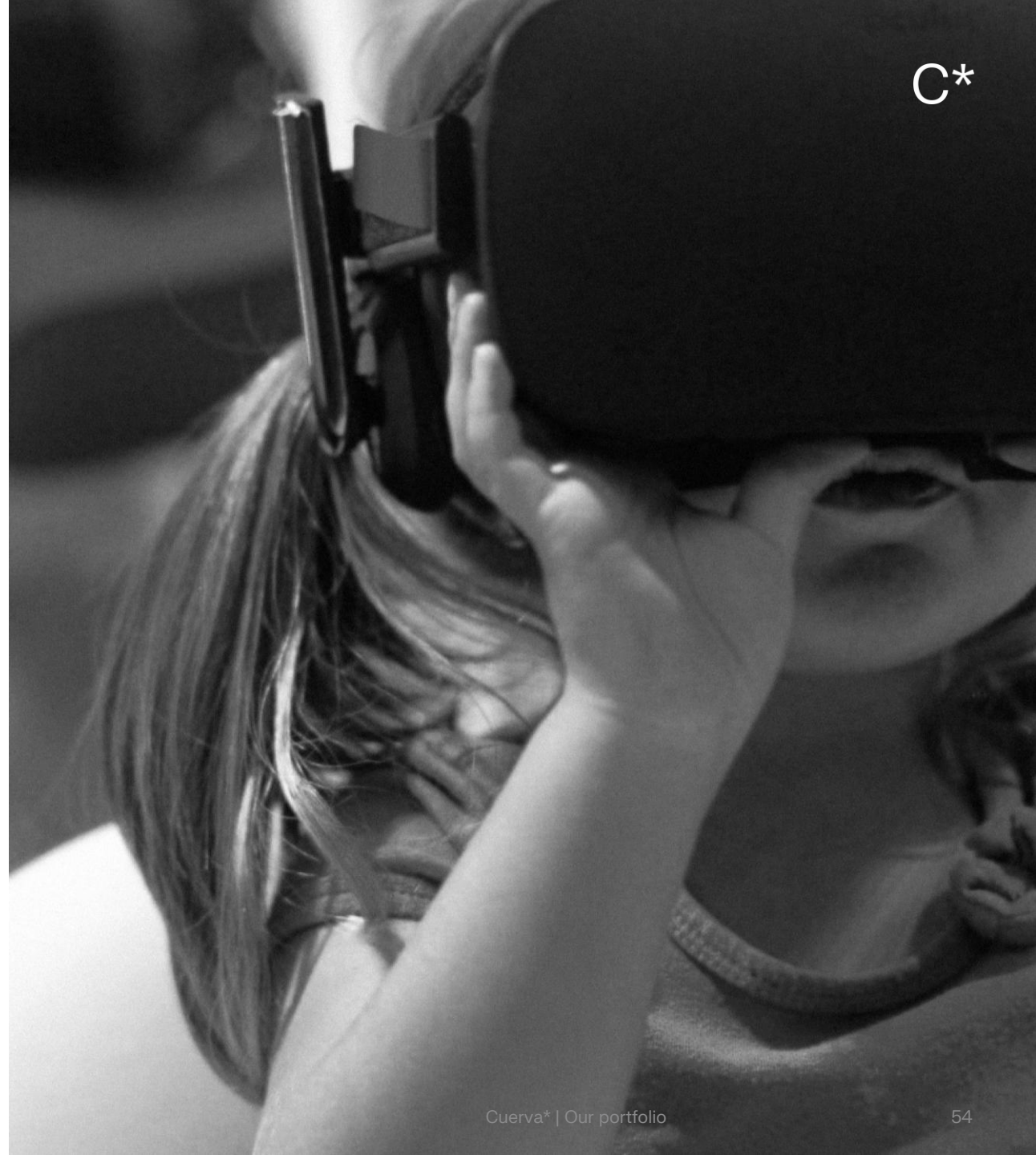


# What is the future of energy?

At Cuerva, we go beyond the known. We want to take energy to the next level\*.

We listen to our environment and are committed to innovation to provide the best solutions for users and the industry. We know that by sharing knowledge and connecting with other organizations, we will achieve a positive energy transformation based on collaboration.

\* To focus on innovation; to put the user at the centre of everything we do; to promote advances and collaboration within the sector itself. Understand energy beyond its traditional utility to continue to add value through the services we offer.



# Innovation and R&D Strategy

## Smart Grids & DSO

Initiatives that allow us to create an experimental grid in which we can approach future grid operation with a high penetration of renewables.

## Smart Energy

Exploring new models Exploring new business models and developing technologies, applications and a wide range of services to empower the user.

01. Grid operation as a DSO

02. Artificial intelligence & Data

03. Grid & Users Flexibility

04. New business models based on energy

05. User engagement and characterization

06. Zero-Emissions

# Ecosystem Business Models approach

## Adaion

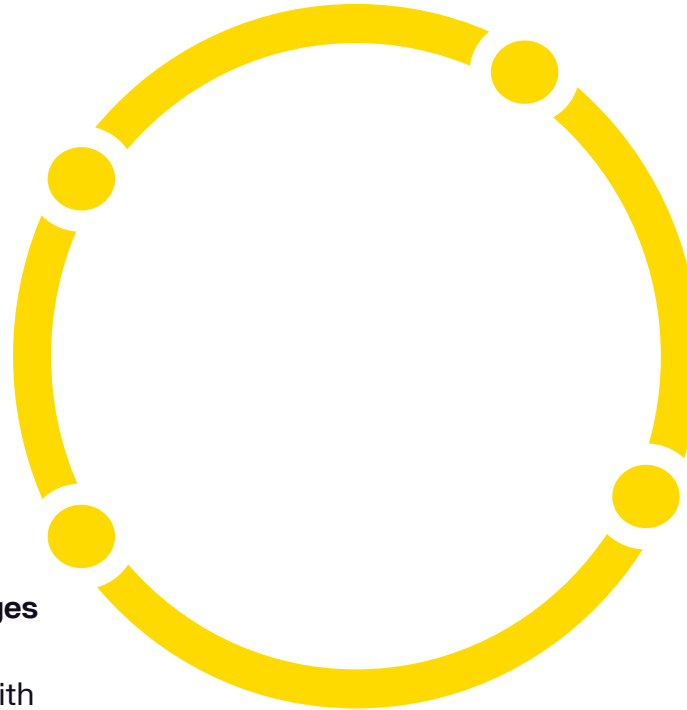
### **Bright data for a bright future.**

Adaion transforms the Power Grid into a Digital Asset to help DSOs gain visibility, predictability, and control by gathering data and generating valuable insights and tools.

### **Our innovation strategy continuously challenges the current landscape of the energy sector.**

We are poised to pioneer the future of energy with innovative solutions.

What's next?



## Gridfy

### **We are your digitalisation team.**

Gridfy was born as a strategic ally that facilitates the transition from current challenges to future ones supporting you in your strategic plans to take your grid to the next level.

## vergy

### **Making clean energy accessible to everyone through collaborative generation.**

Leveraging on shared self-consumption as a first step, Vergy connects people to energy generation sources located in their local environments.

What is the future of energy?

# Gridfy

It is estimated that in 2026 electrical distributors will manage 20x more data than in 2023. Low voltage operation, if not with the help of digitalization and automation or is so granular that it will be impossible to operate it.

In response to these challenges, Gridfy was born as a strategic ally that facilitates the transition from current challenges to future ones.

Through a **comprehensive digitalization solution**, supported by advanced technologies such as data analysis and artificial intelligence, it will allow DSO operations to be enhanced, improve their planning and optimizing their maintenance, meanwhile, enables them to address current and future challenges in the management of the electrical network.

The goal is to become your digitalization team.  
Together, we can make the future of energy possible.



- Analysis and optimization of network measurement systems
- Investments and digitalization deployment sheet
- Know your client
- Prepare your network to use local flexibility markets
- Anthropomorphic analysis of network events in BT
- Simulations of network behavior, operation and planning
- Improvement of administrative and regulatory processes



# Productos y servicios para acompañarte en la digitalización de tu red

We are your strategic partner in the **digital transformation of electrical distribution networks**, facilitating the solution of current and future challenges.

**Gridfy.Strategy** | Development of a strategic plan based on **smart grid** indicators to measure the degree of digitalization of the distribution network and its action plan.

**Gridfy.Portal** | We provide you with a customer portal that goes far beyond regulatory requirements, automating processes such as Access and Connection and bringing the most **value to the user** with their energy behavior.

**180.000**  
CUPS managed

- Improve efficiency of daily and routine operations of a network manager
- To properly and efficiently develop your network planning
- And optimize your network operation to improve the quality of supply.

**Gridfy.360** | We are your digitalization team. We optimize your systems and help you make better decisions by integrating technology based on IOT and data management. We give visibility to the behavior of your network

“

*Data inspiring decisions that transform the energy of tomorrow*

”

Alberto Sánchez  
CEO of Gridfy

What is the future of energy?

# Adaion

Network managers are facing a constantly changing scenario due to the increasing adoption of unmanageable generation assets. This new landscape poses challenges both in terms of system network quality and PLC network communications due to the noise generated.

In this context, it is crucial to **modernise distribution networks by further digitising their infrastructure**. This is where Adaion comes into play, to leverage and optimize data and streamline this process.

A platform that offers the capabilities and services needed to unify network information flows to **improve business analysis and decision-making**, making it easier for network operators to prepare for a future more focused on efficiency and control.

With **Adaion**, we design the “control room of the future of Low Voltage”.

# Adaion



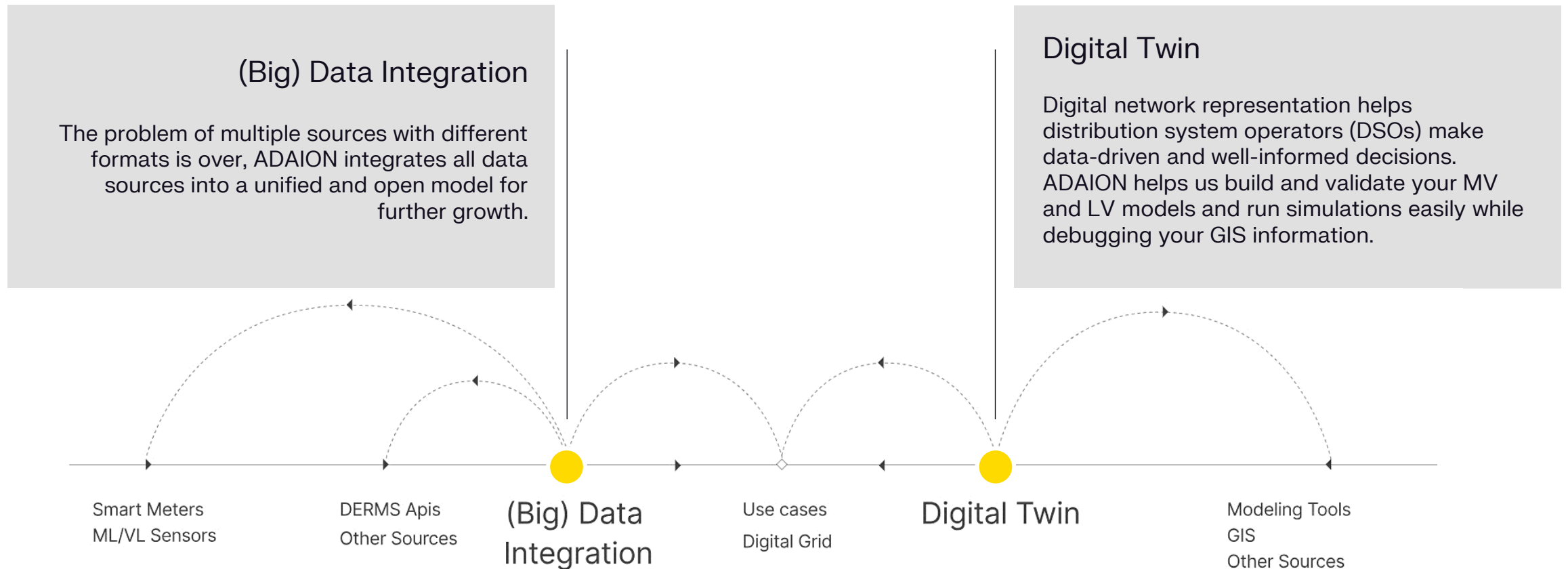
- Interoperability
- Digitisation
- Visualisation
- Automation
- Forecast
- Digital twin

What is the future of energy?



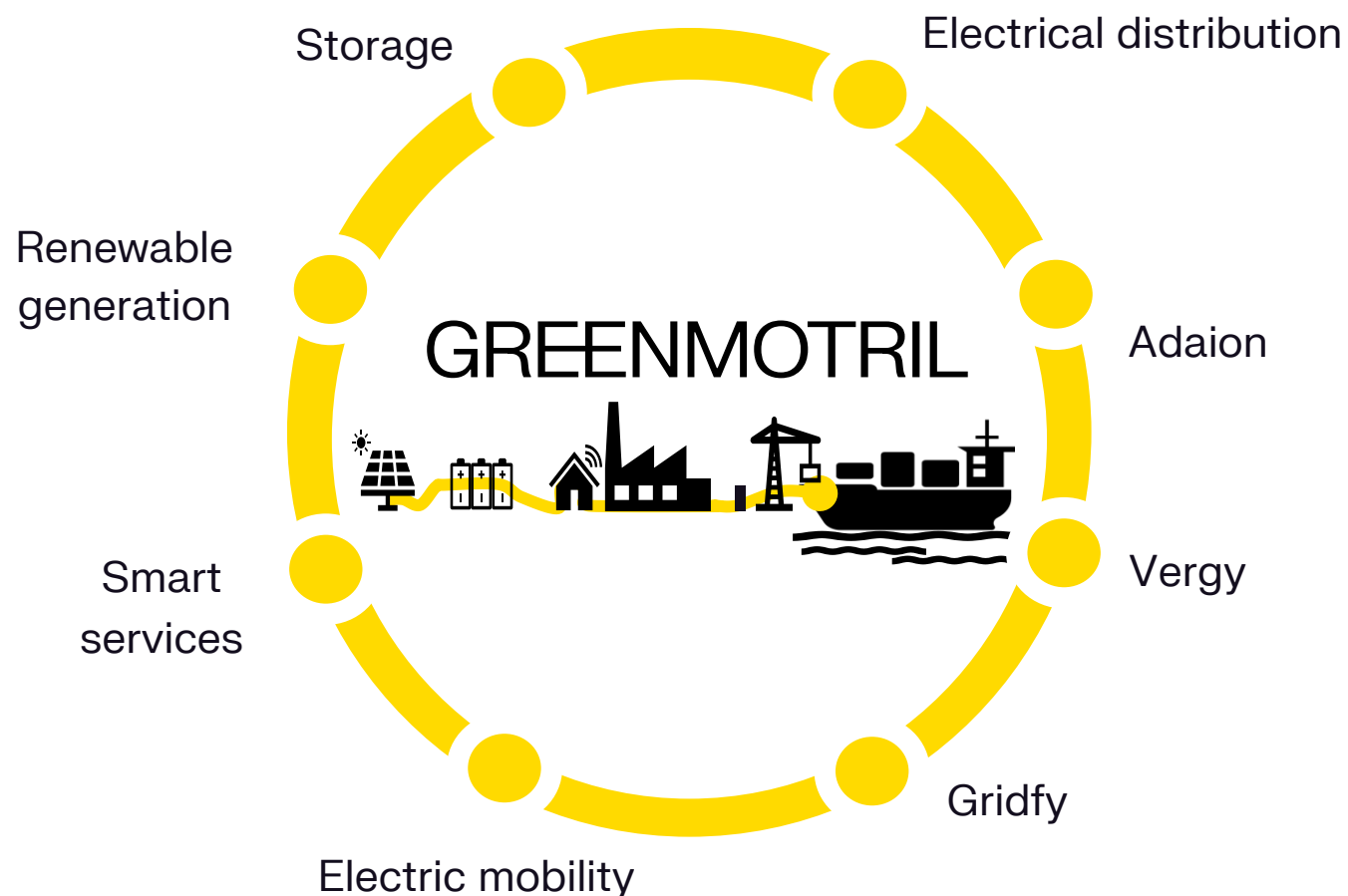
# Grid Operation System

Data integration, digital twin and all AI techniques and tools, such as power flow, constitute the digital network, the basis for further visualization of both LV and MV network and any use case.



What is the future of energy?

# Singular project



C\*

**2,5 MW**  
Photovoltaic plant

**4 MWh**  
Energy storage system (lithium  
ion.lithium batteries)

**OPS**  
For ship power  
supply

Microgrid Management System

Cybersecurity Framework



# Outstanding R&D projects

We participate in 15 active projects:  
3 national and 13 European

## Smart grids & DSOs



## Digital Power Plants & Markets



## Smart Energy & Markets



## Smart grids + SE



## SE & Users&Energy



## Smart grids & Users&Energy



## Smart grids & Digital Power Plants



Do you want your energy to  
take you to the next level?

# ¡Thank you!

Cuerva\*



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