

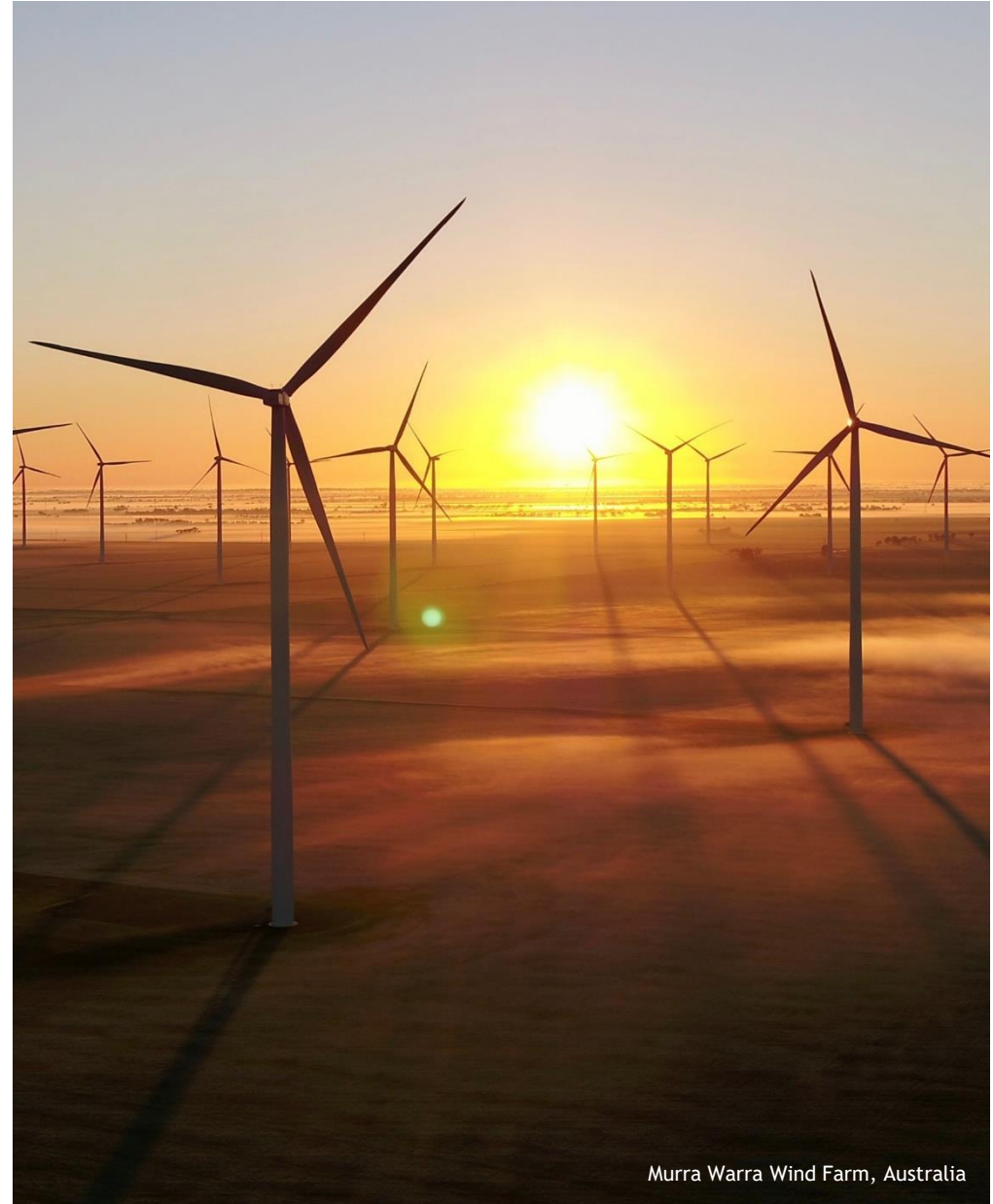
Intro to RES & RES Anatolia

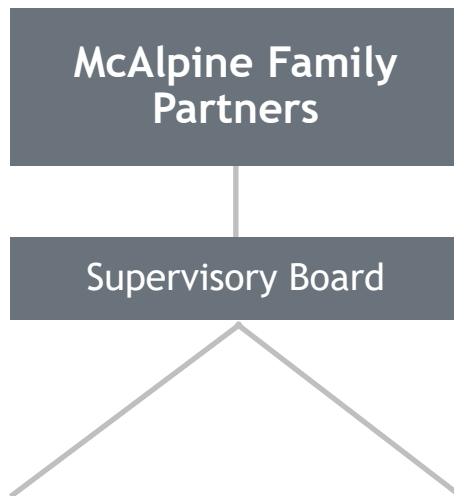
Asset Management (AM) Services Overview

- Commercial AM Services
- Technical AM Services

Value Improvement

- Analyse & Optimization Service(AOS)
 - AOS Team
 - AOS Method
- Control Centre
- UNO





RES celebrated its 40 anniversary in 2021



SRM celebrated its 150 anniversary in 2019



RES

AT A GLANCE

ACTIVITIES



DEVELOP



CONSTRUCT



SUPPORT
SERVICES

TECHNOLOGIES



WIND



SOLAR



STORAGE



T&D

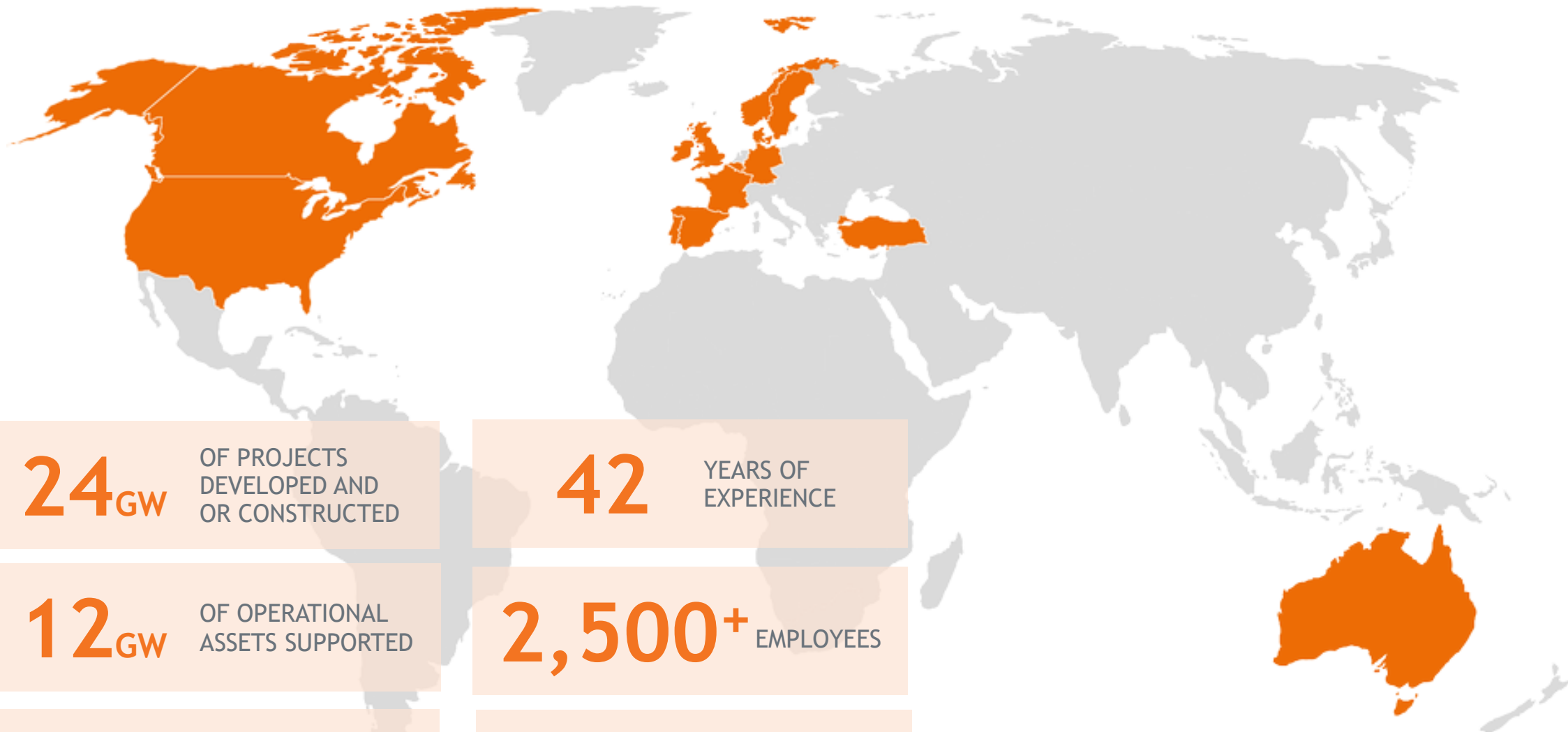


GREEN
HYDROGEN

RES is the world's largest independent renewable energy company



The world's largest independent renewable energy company



24_{GW}

OF PROJECTS
DEVELOPED AND
OR CONSTRUCTED

42

YEARS OF
EXPERIENCE

12_{GW}

OF OPERATIONAL
ASSETS SUPPORTED

2,500⁺

EMPLOYEES

500_{MW}

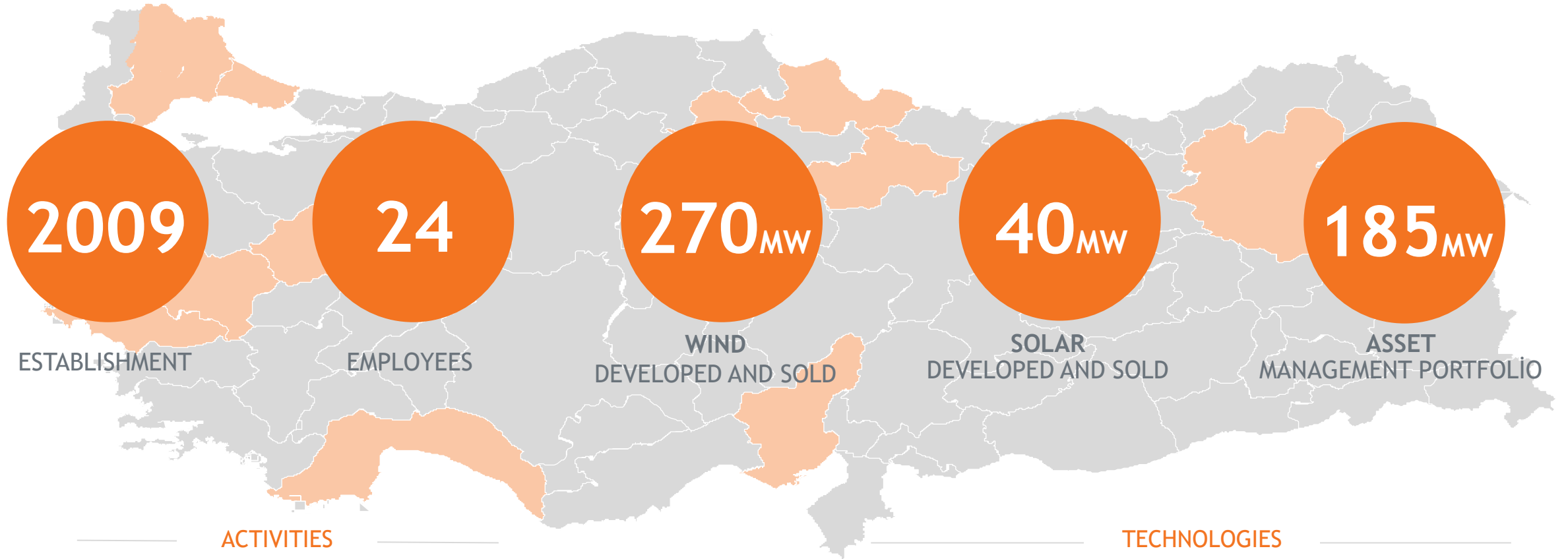
OF STORAGE
PORTFOLIO

2.1_{GW}

PPAs

RES in Türkiye

AT A GLANCE



ACTIVITIES



DEVELOPMENT

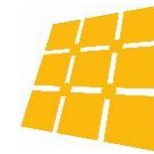


SUPPORT SERVICES

TECHNOLOGIES



WIND



SOLAR

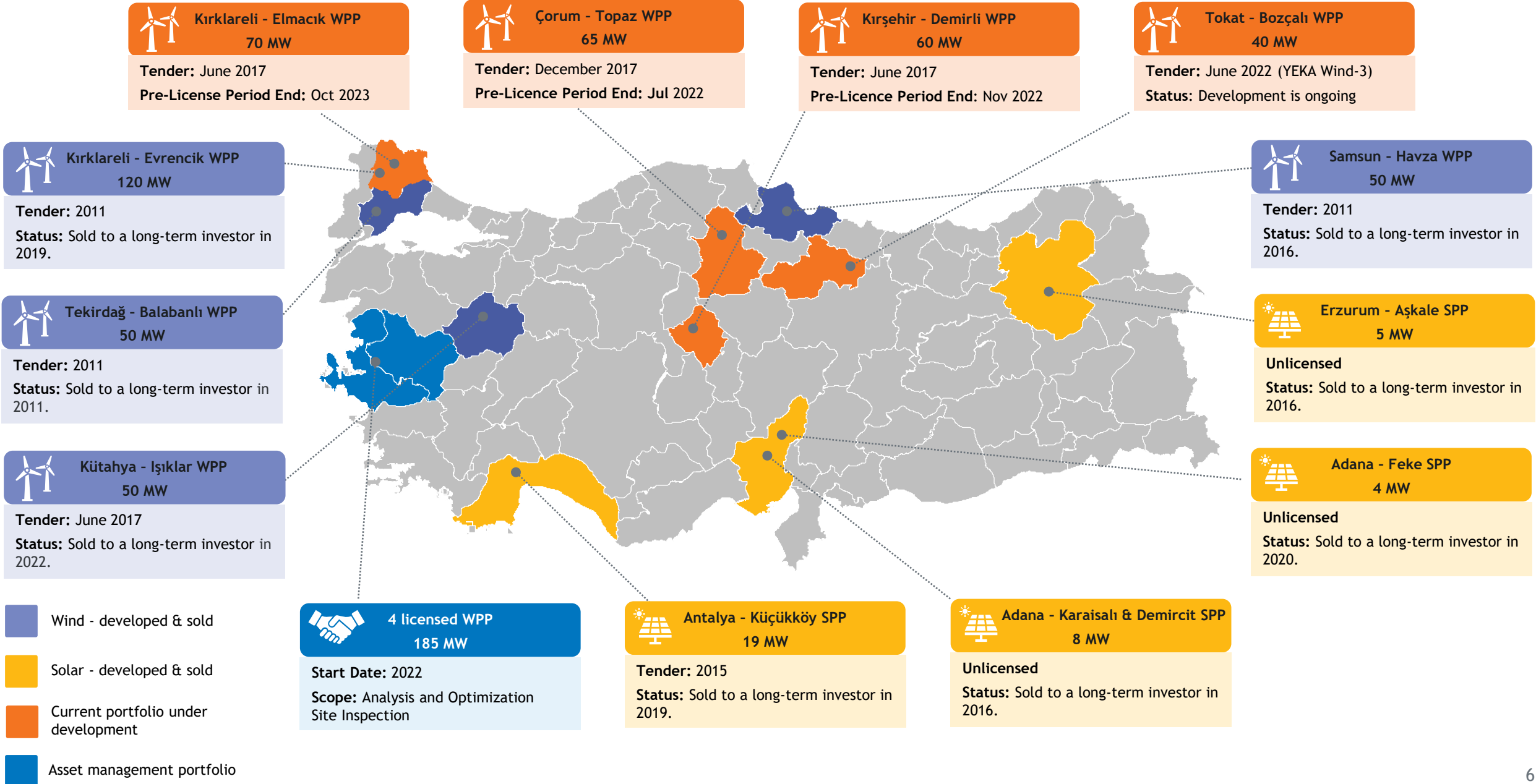


STORAGE



GREEN HYDROGEN

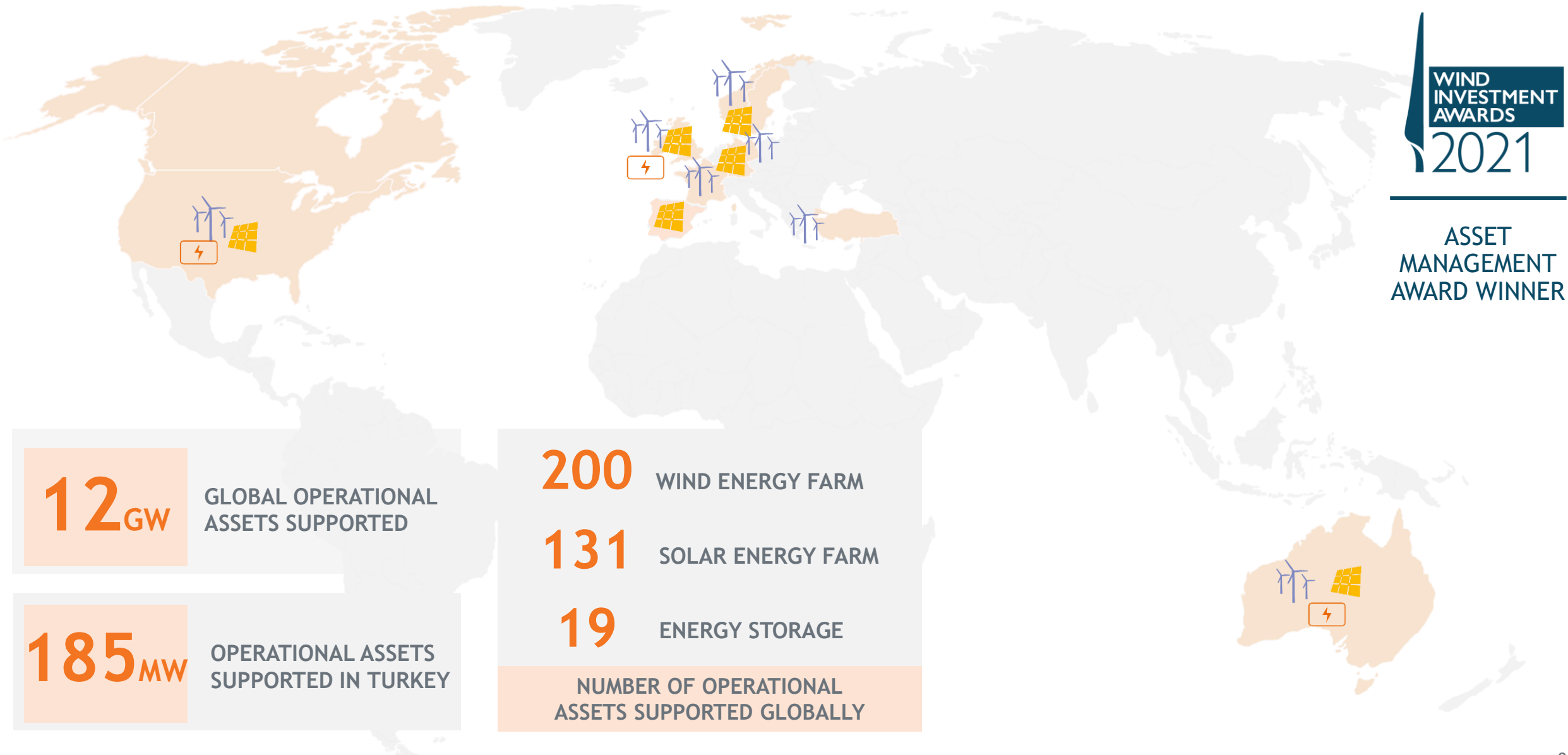
RES in Türkiye - Project Portfolio



Asset Management Services Overview



Increasing the value of your renewable assets



WIND INVESTMENT AWARDS
2021

ASSET MANAGEMENT AWARD WINNER

12_{GW}

GLOBAL OPERATIONAL ASSETS SUPPORTED

185_{MW}

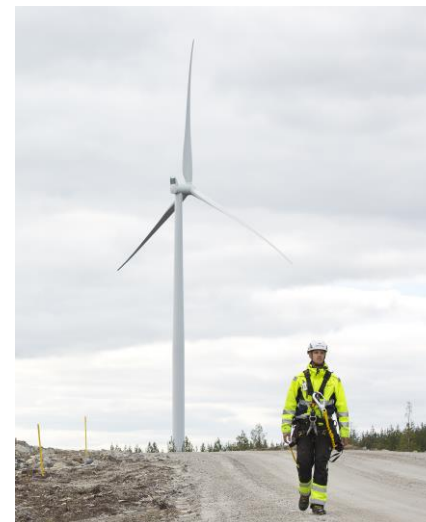
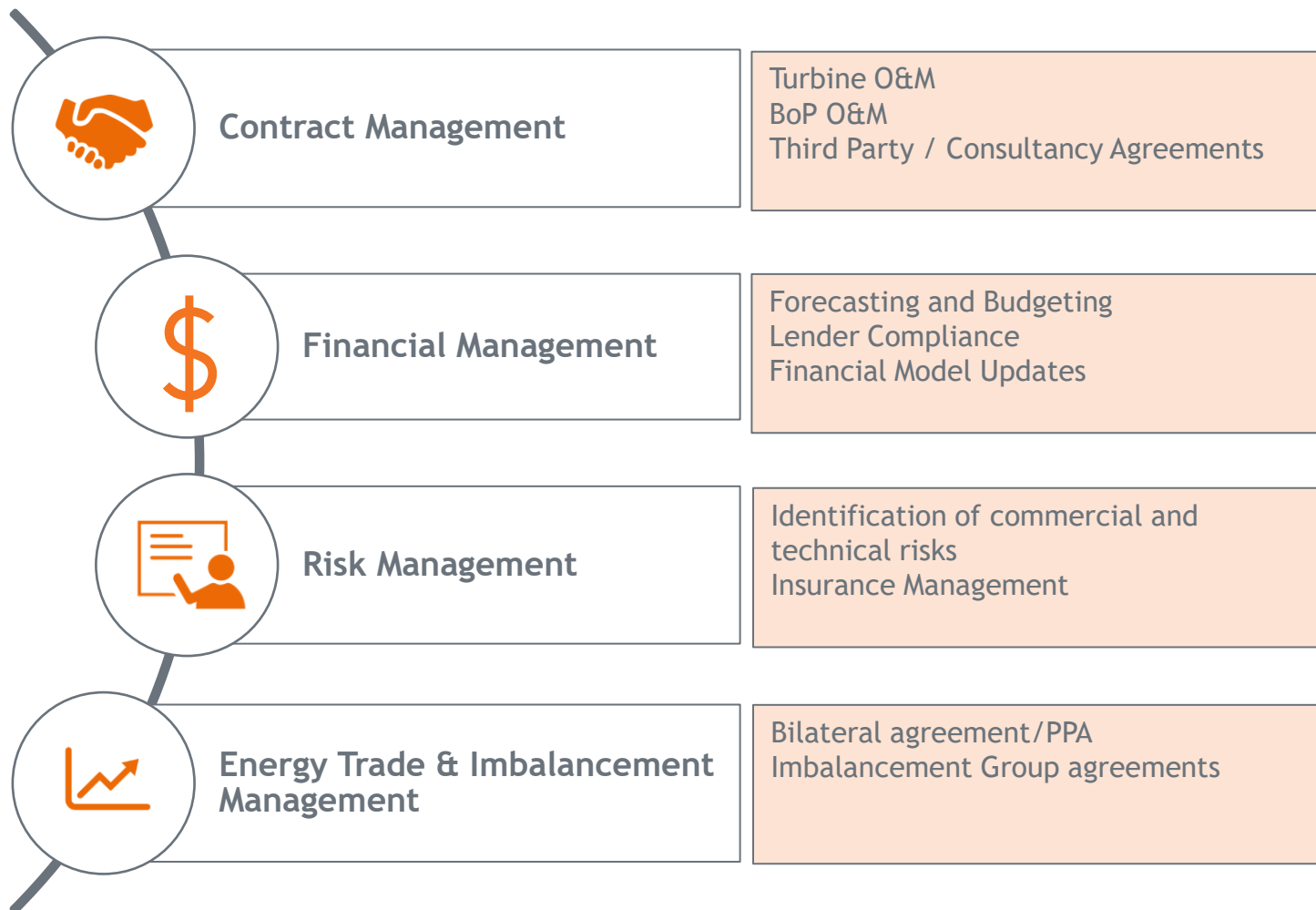
OPERATIONAL ASSETS SUPPORTED IN TURKEY

- 200** WIND ENERGY FARM
 - 131** SOLAR ENERGY FARM
 - 19** ENERGY STORAGE
- NUMBER OF OPERATIONAL ASSETS SUPPORTED GLOBALLY

ASSET MANAGEMENT Services

Our experience and in-depth knowledge of the energy industry allow us to deliver innovative and tailor-made solutions for your assets.





	Performance Analysis & Optimisation	Performance Indicator Downtime & Operating Lost Production Condition Monitoring
	24/7/365 Control Centre	Site access and work control Fault escalation Emergency response
	Site Management	Site/Asset Inspections Operations Management HV BoP Management
	Compliance	Health and Safety Standards Grid Code & Valid Regulations Environmental, Social & Governance -ESG
	Engineering	MV Electrical Engineering HV Electrical Engineering Civil Engineering
	Project Development	Capacity Extension Repowering Hybrid & Storage



VALUE IMPROVEMENT FOR YOUR RENEWABLE ASSET



Analysis & Optimisation
Services (AOS)



Site Inspection



Renewables
Portfolio Platform



Control Centre &
Live Asset Monitoring

Our experience as an operator ensures your assets are in safe hands



ANALYSIS & OPTIMISATION SERVICES TEAM



Who we are

- Team of 38 engineers globally
- Established in 2009
- Supported by design, O&M and technology specialists



Global Monitoring

- 13 countries; UK&I, Nordics, France, Belgium, Germany, Türkiye, Australia, Canada, US, Spain
- Several turbine technologies; Siemens, Gamesa, GE, Vestas, Nordex, Enercon



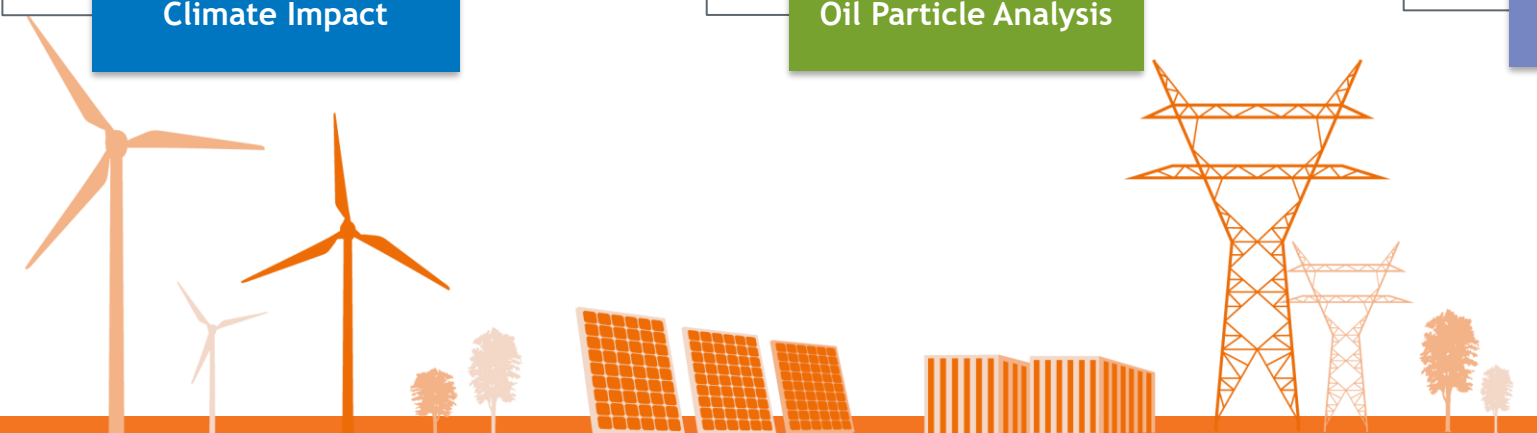
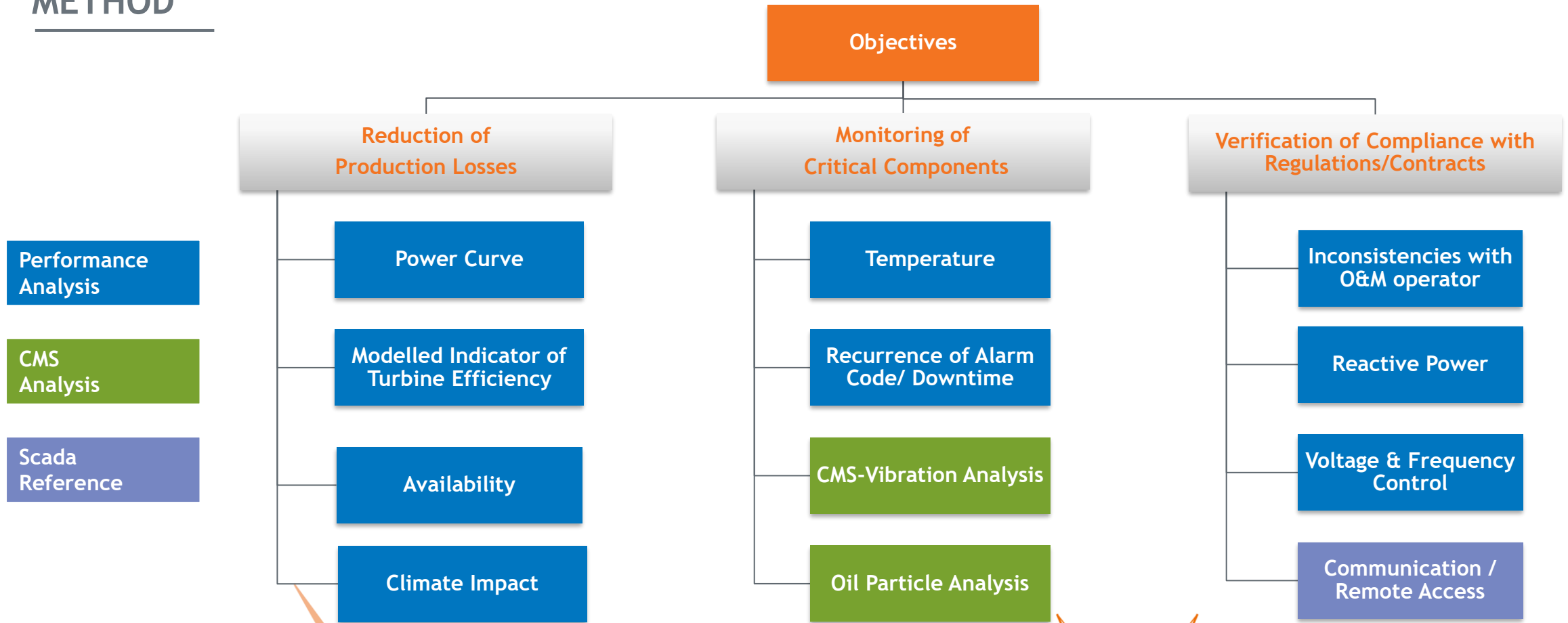
CMS Experience

- BINDT Vibration Analyst Cat I & II
- Cumulative 25 years WTG CMS experience



ANALYSIS & OPTIMISATION SERVICES

METHOD



ANALYSIS & OPTIMISATION SERVICES

Production Loss

Method & Period

AOS team checks on a weekly/monthly basis that the turbines are in optimal operating range in accordance with the guaranteed power curves.

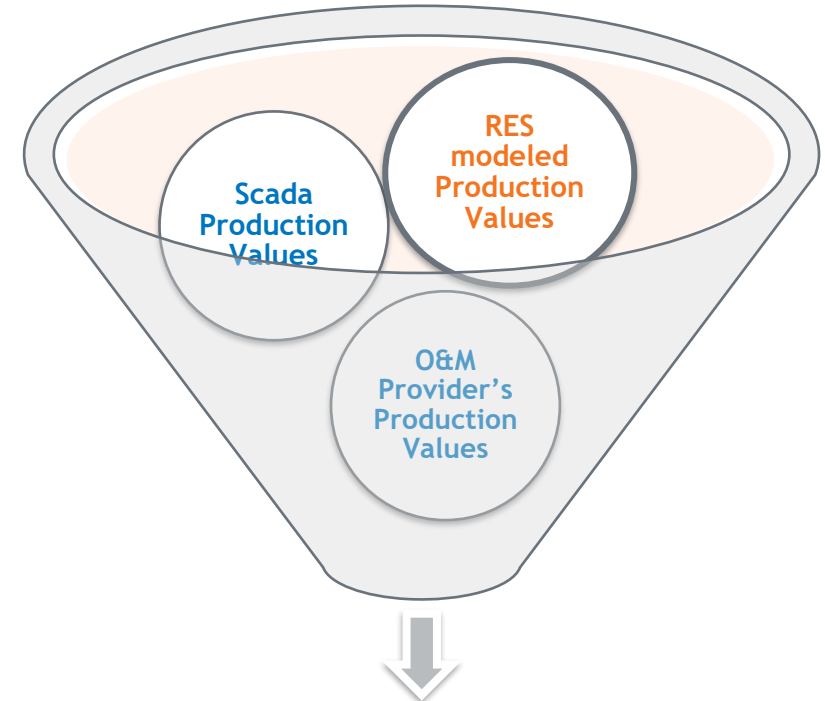
Smart Wind

In RES model, **Machine Learning Operating Curves** - trained on wind farm data so that it represents **real expected behaviour**.

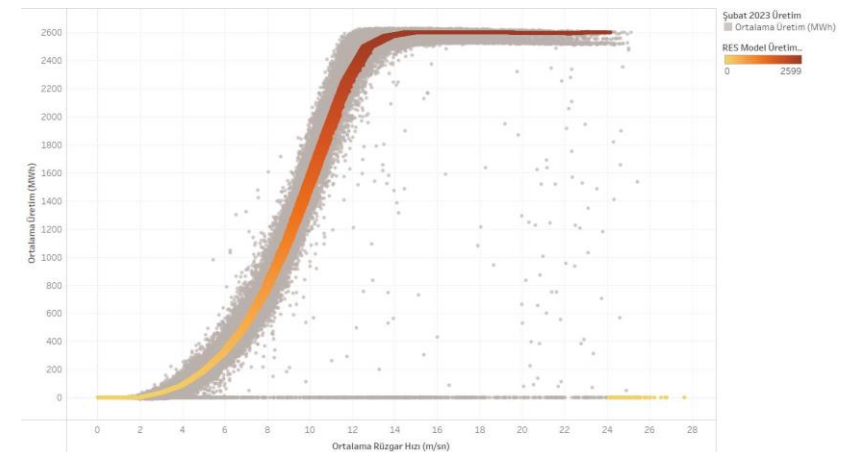
Performance indicators

Be created to identify **operating losses**. Main contributors towards Operational Losses:

- Unnecessary curtailment - caused by SCADA controller
- Performance degradation - component failures.
- Parameter changes causing non-optimal control of wind turbine.

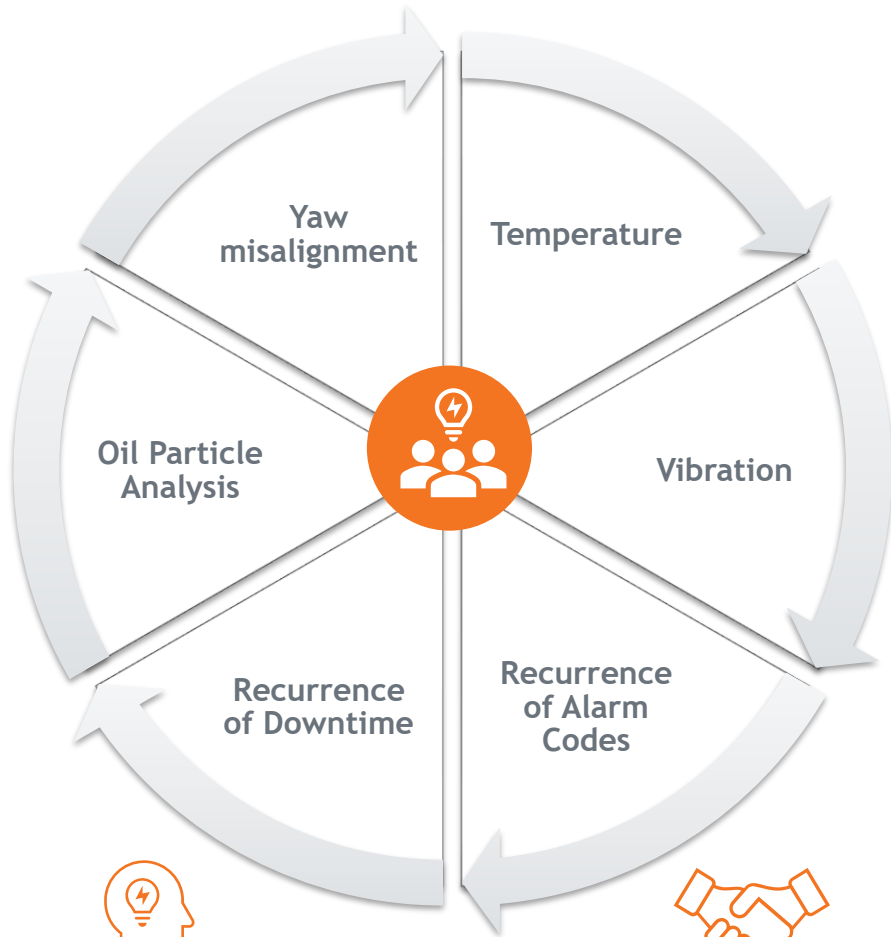


Reduction of Downtime & Operating Losses



ANALYSIS & OPTIMISATION SERVICES

Monitoring & Analytics



INNOVATIVE

Tailor-made solutions for your assets.



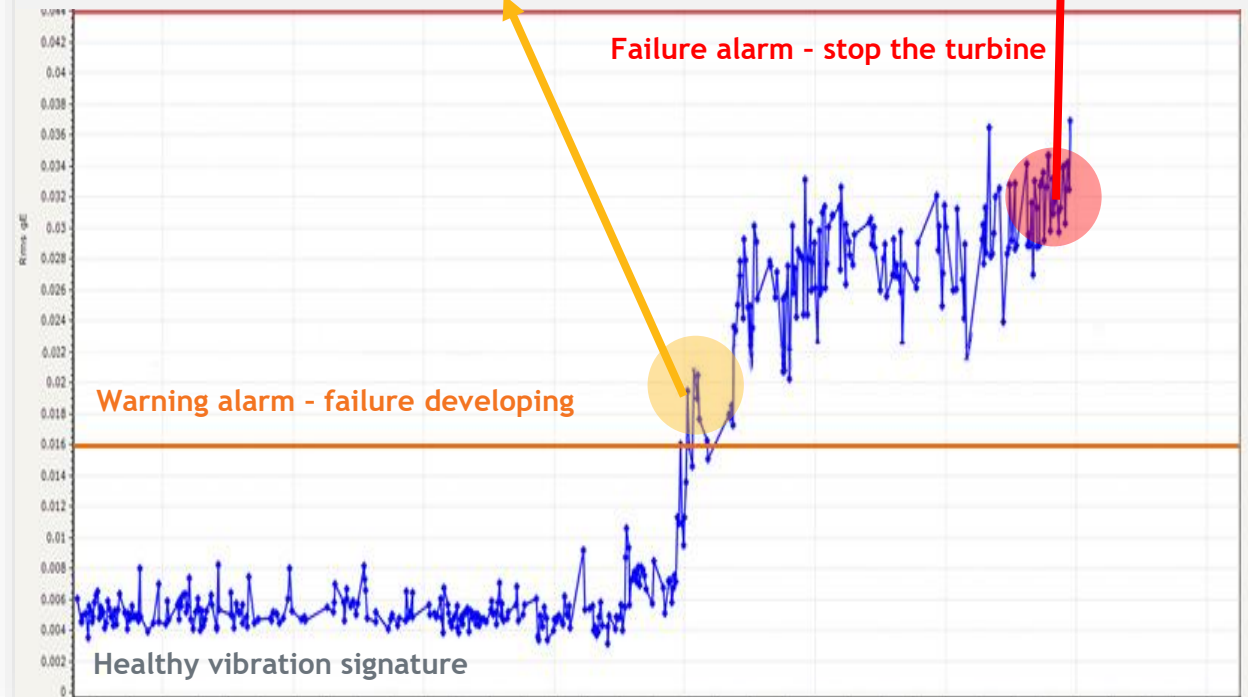
EXTENSIVE RELATIONSHIPS

with turbine suppliers, equipment manufacturers and service providers.

CASE STUDY



Act early - saving \$180k



24/7/365

GLOBAL CONTROL CENTRE

CUTTING-EDGE

Robust and fully redundant power and comms system

HIGHLY EXPERIENCED OPERATORS

Drawn from the coastguard, major utilities and wind turbine maintenance backgrounds.

250+
PROJECTS
MANAGED GLOBALLY

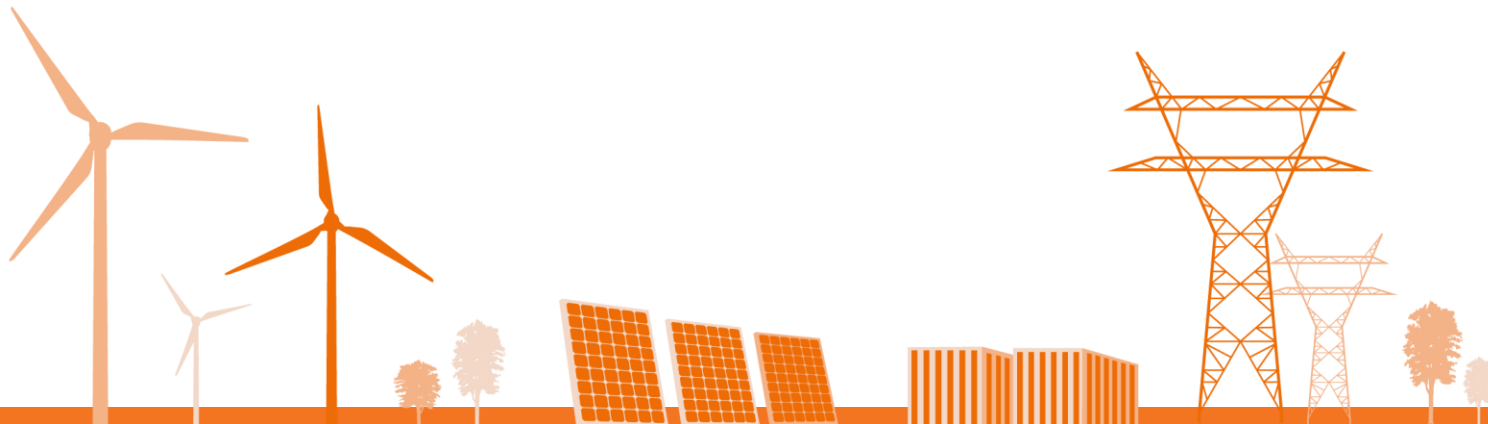
4GW
CAPACITY

LOCATION

Chosen for stability of its communications infrastructure (shared with national TV broadcaster)

BESPOKE

Can also be utilised on a bespoke basis to provide standalone control services across all technologies and markets



24/7/365

GLOBAL CONTROL CENTRE



SITE ACCESS AND
WORK CONTROL



FAULT ESCALATION
& RESETS



EMERGENCY
RESPONSE



MONITORING



GRID CODE
SERVICES

res

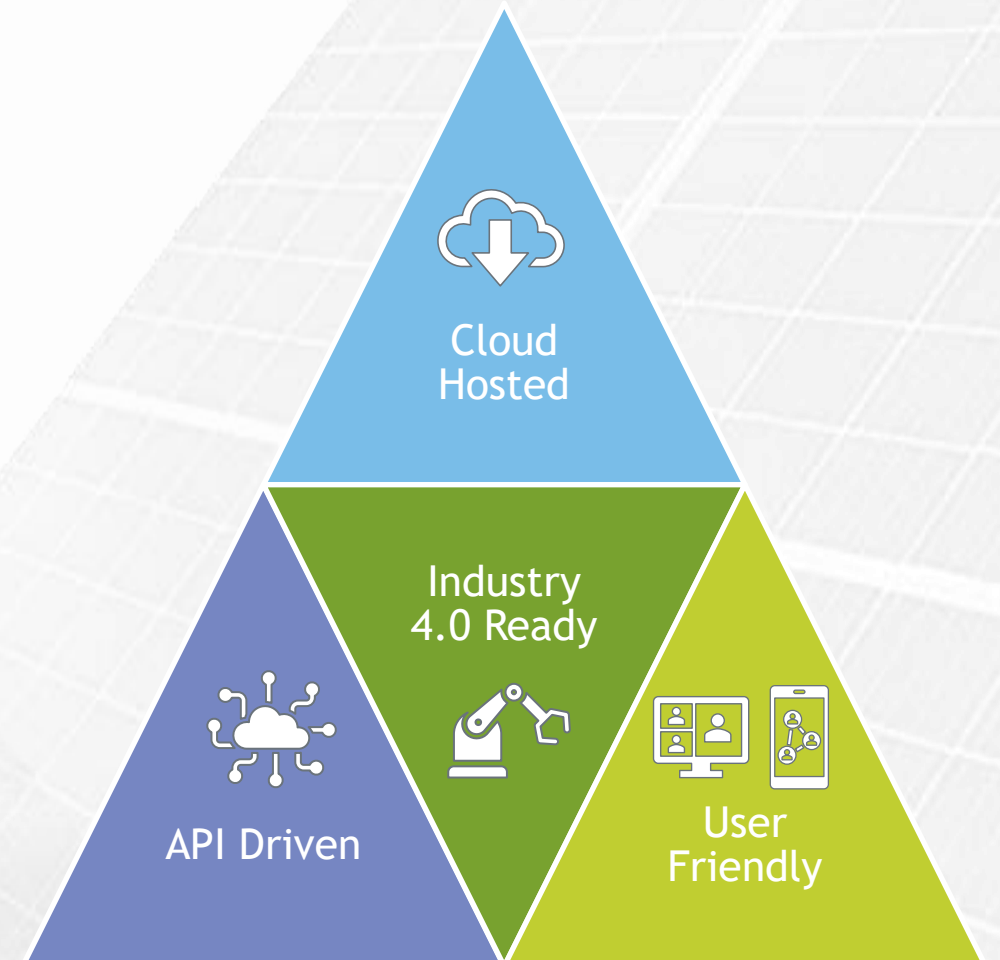


Monitoring asset performance and maximising energy production remains at the forefront of our operations.

UNO

Introduction

- A **digital hub** for owners and managers to gain a holistic overview of the performance of their assets
- Collects the digital outputs from a range of services in a single place



A single integrated tool...

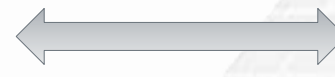
- ...where live and historic asset or portfolio performance can be viewed in one place

smart



Analytics

UNO
powered by res



Recommendations



Specialists

- Performance Engineers
- Data Scientists

Green Light + 28 MW

Power: 23.3 MW (1 minute ago)

Wind Speed: 13.9 m/s (1 minute ago)

12 of 14 ready

May 2022

Performance (May 1, 2022 – May 26, 2022)

- 6,694 MWh Production (14.4% above budget)
- 641k GBP Estimated Revenue (14.4% above budget)
- 94.1% Operational Availability (2.6% below budget)
- 94.1% Site Availability (2.6% below budget)

Production vs Budget

Actual, Budget, Actual to date, Budget to date

Activity

- Lost production due to downtime – Main Bearing(s) (Monitoring — E10) 16 Apr 2022, 12:16 (4 days ago)
- E25 has an open fault – significant (more than 72 hours) (Monitoring, Maintenance — E25) 16 Apr 2022, 00:11 (5 days ago)
- Lost production due to downtime – Sensors/Instrumentation (Monitoring — E06) 2 Apr 2022, 17:40 (18 days ago)
- Lost production due to downtime – Sensors/Instrumentation (Monitoring — E07) 2 Apr 2022, 17:40 (18 days ago)

COMMITTED TO DELIVERING EXEMPLARY H&S PERFORMANCE

Robust safe systems of work built upon decades of experience in the renewable industry

Founding members of SafetyOn, H&S body for the onshore wind industry.



High standards of training applied to all field technicians and regular involvement in safety improvement activities.



Focus on continuous improvement and lessons learned.



Behavioural safety focus applied to both RES staff and sub-contractors and strong focus on sub-contractor engagement.





**A future where everyone has access to
affordable zero carbon energy**



Thank you!

Cem Yumruktepe
Asset Management Director
+90 212 240 15 98
cem.yumruktepe@res-group.com

