

AGGREKO

Enerji Depolama Sistemleri ve Kiralama Modeliyle Esnek Bir Çözüm

Dr. Burak Türker
Head of Modelling – Aggreko Microgrid and Storage Solutions

GT'2019 TÜRKİYE JEOTERMAL KONGRESİ, 6-7 Şubat 2019, Ankara

About Aggreko

Aggreko is a customer focused specialist provider of power, temperature control and energy services on a global basis.

These services are based on modular and mobile operated on a digital platform with a market leading integration capability.

KEY FACTS

9,920 MW

Power in our fleet

£1,720m

2017 revenue

208 locations

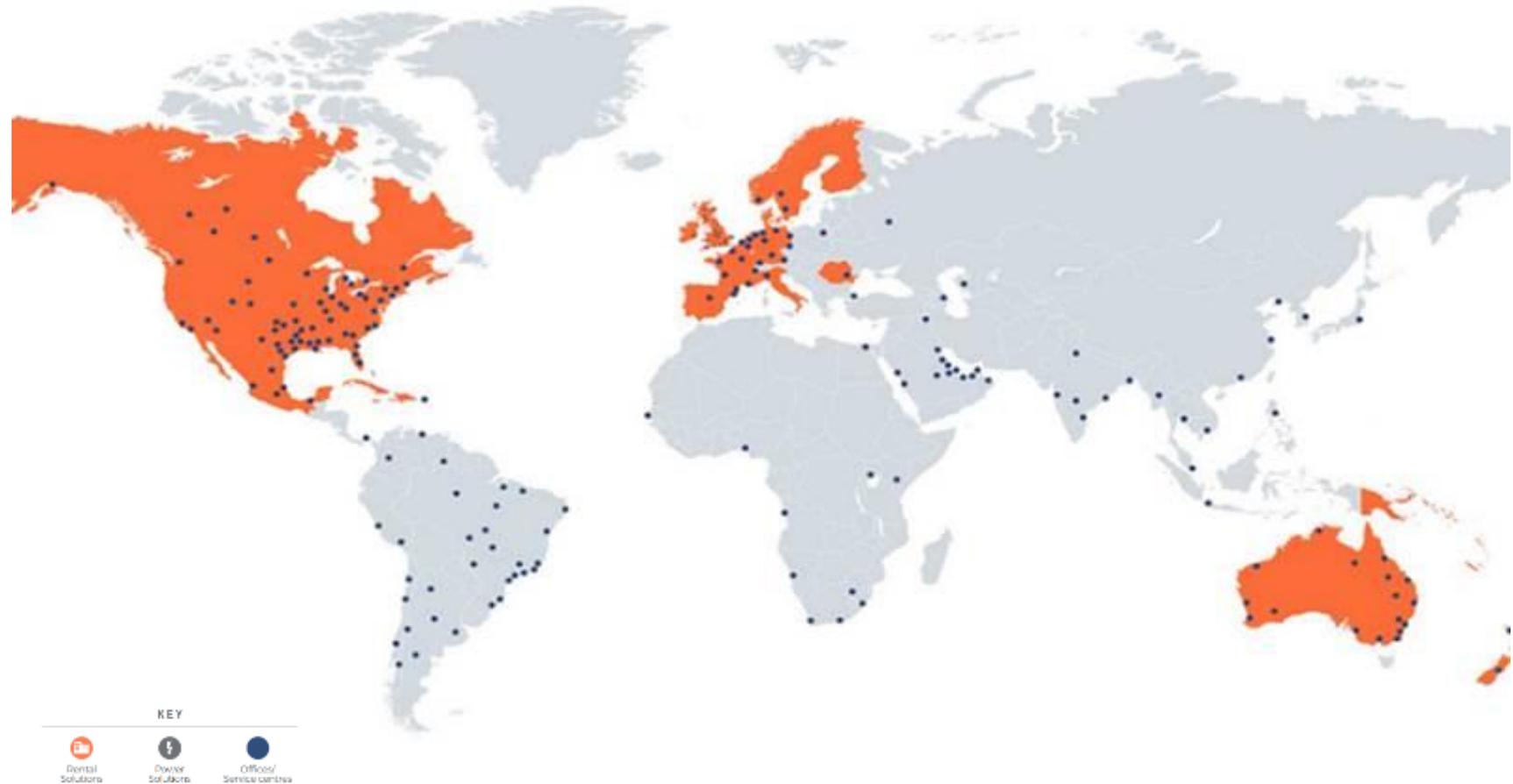
Sales and services centres

6,000 employees

Permanent & temporary

124 countries

Where we operate



A global company, listed on the London Stock Exchange

Local expertise to help our customers make their difference

WHAT WE DO



Our products

The products we use are much more than big boxes – they power cities, they cool rockets and help communities thrive.

Power

Whether a developing country is seeking a multi-megawatt power plant while a permanent grid is established, or a small entertainment company wants to put on a local event with the help of reliable rental power, we have the experience and know-how to get the job done.

Heating & cooling

When it comes to temperature control, we're the ones you want on your team. Because we're also experts in providing stable, ambient temperatures for all types of industry and circumstance – essential for health and working conditions – and to enable operations to run safely.



Our technology

Diesel

Gas

HFO

Solar-Diesel Hybrid

Heat exchangers

Load banks

Chillers

Dehumidifiers

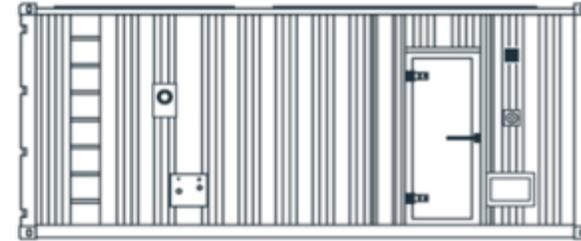
Air conditioners

Cooling towers

Battery storage

Benefits

of working with aggreko



Rapid response
Equipment is available at short notice and can be delivered and installed rapidly to meet your needs (days/week for thermal, months for solar)



Turn-Key service
Our specialist services include everything from initial assessment of needs to service back-up site. And this is all bundled in a single contract. It's a one-stop shop.



No Capex
Renting equipment eliminates the need for capital expenditure when purchasing equipment. It incurs no large down payments or interest costs and preserves your borrowing capacity.



Guaranteed reliability
Built-in redundancy and on-site technicians mean that you can rest assured that the power supplied by our power plant is reliable and will run 24/7 if needed.



Reduced risk
We're fully accountable for the equipment, the people and the operation of the power plant, reducing your exposure to any associated risks.

On complex hybrid projects, we completely absorb the technology risk through our performance guarantees.



Fuel Flexible
We are fuel flexible, and have power generators that can run on diesel, gas (CNG, LNG, APG, LPG), HFO and solar hybrid.



Flexible capacity
The installed capacity of a power package can be increased or decrease incrementally and equipment is available on a short or long-term basis, depending on your power needs.

Pricing flexibility
We can work together to agree on a pricing structure that works well with your operation.



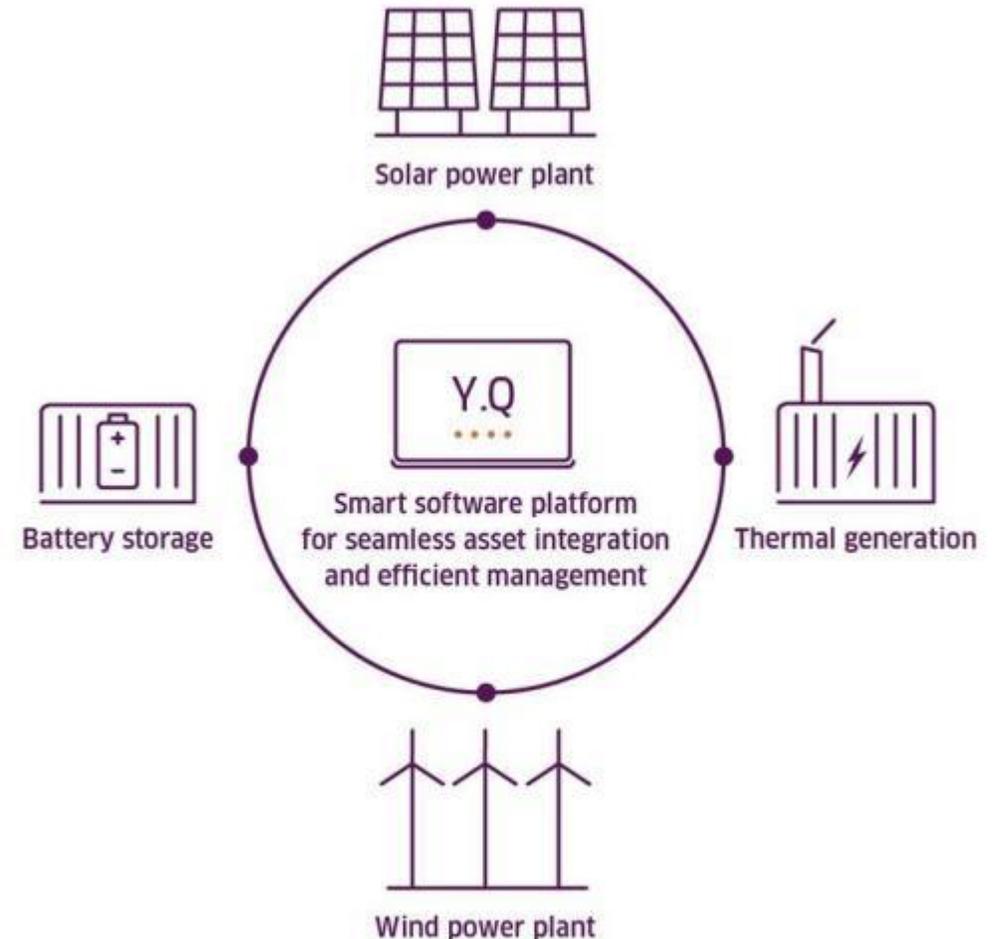
Duration flexibility
Need flexible contract duration? No problem. We can do short term contracts (starting around 5 years for solar).

Commercial flexibility
Need flexible commercial terms? No problem. We can work with you to agree on flexible terms that make us both happy.

Aggreko Microgrid and Storage Solutions

WHAT WE DO

- Offer Energy-as-a-service and Microgrid-as-a-service-contracts
- Combine benefits of renewables, thermal generation and battery storage in one single contract
- Better economics, more flexibility and lower emissions
- Increased renewable penetration
- Optimized use of generators to lower fuel and O&M costs



AT A GLANCE

6 Months

Minimum duration of contract

24/7

Availability of reliable power

€0

No upfront capital outlay

aggreko

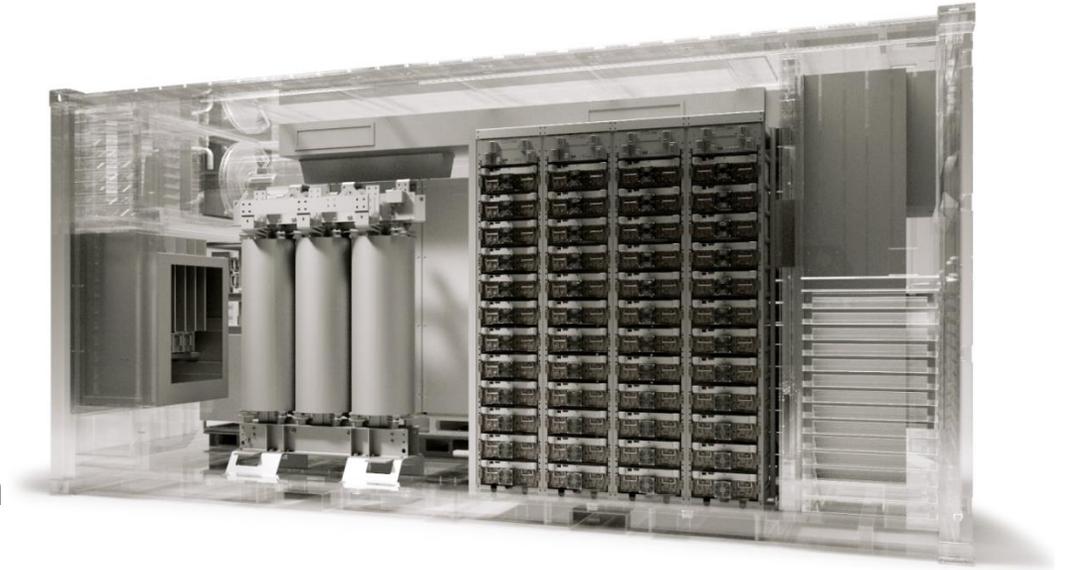


PRODUCT VERSION	ENCLOSURE	POWER	DURATION	TECHNOLOGY
Y.Cube 30	20ft ISO HC	1,000 KW	30 minutes	Lithium-Ion
Y.Cube 60	20ft ISO HC	1,050 KW	60 minutes	Lithium-Ion

Y.CUBE: FEATURES



- Duration: 30 and 60 minutes
- Power: 1,000 and 1,050 KW
- All-in-one, ready-to-install 20-ft standard container
- Automated storage applications powered by Y.Q
- Grid-connected and grid-forming operation modes
- Integrated thermal management and fire suppression
- Closed ventilation system for deployments in harsh conditions with exposure to dust, sea water or salt spray
- Side-entry cable connection reducing site foundation and installation costs
- Tolerant to sea, road, rail, air transport and type tested to ISO 13355



MULTIPLE APPLICATIONS FOR ENERGY STORAGE



Utility Grid Services

Frequency Response

Capacity

Voltage regulation

Black start

T&D support

PV+storage

C&I (grid-connected)

Demand charge reduction

Grid services BTM

Resiliency

C&I (weak grids)

Bridging power

Power quality

Resiliency

Microgrids **off-grid**

Spinning Reserve Displacement

Increased renewable penetration

Power quality and grid stability

Off-grid gas enablement / optimisation (DC)



Mobile and modular

Single units can be easily combined to deliver the power and energy capacity required for your business



Quick setup on site

All-in-one and ready-to-install storage system reduces site foundation and installation costs



No capex

Rental model gives you flexibility to adapt to your future needs and avoid stranded assets



Easy integration

Fits perfectly with our thermal power systems for an optimised hybrid solution



Fast deployment

Less than 6 months without lengthy financing set up



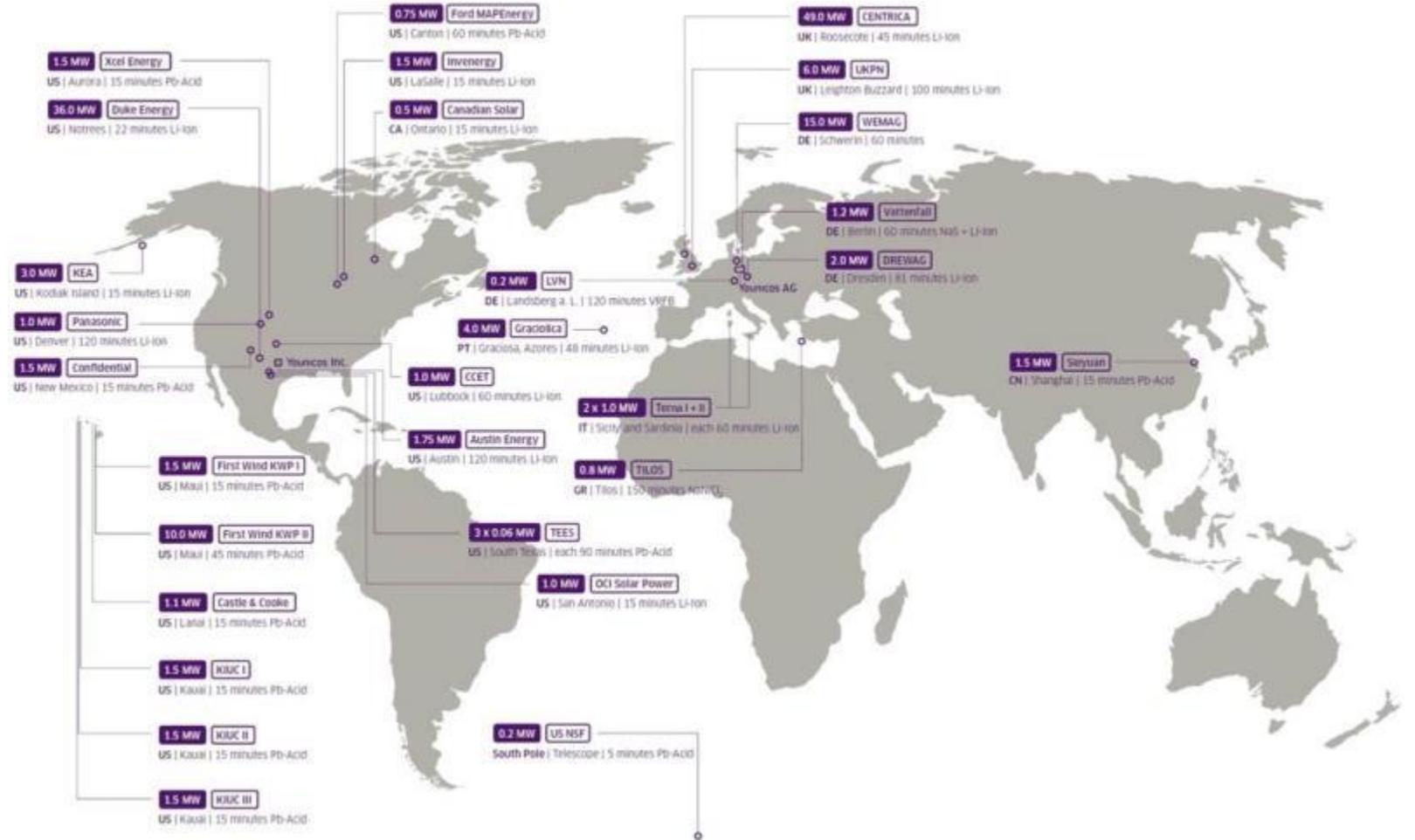
Maximized value

Our smart storage software manages different applications simultaneously, allowing you to stack multiple revenue streams for better returns

REFERENCES

220 MW

Battery storage deployed globally in more than 45 storage projects



PROVIDING ONE OF UK'S LARGEST COMMERCIAL BATTERY STORAGE UNIT FOR GATESHEAD COUNCIL

aggreko



Y.Cube-System Gateshead, UK

Size: 3 MW/3 MWh Li-Ion

Application: Firm Frequency Response (FFR), Distribution Use of System (DUoS), Charges Avoidance

Scope: Integrated system incl. Y.Cube, converters and controls

Commissioning: Q4/2017

Client:

centrica

BATTERY STORAGE ENABLES "SECOND LIFE"-USE OF GAS TURBINE

aggreko



Combined cycle power plant Ludwigshafen, Germany

Size: 9 MW/6.5 MWh Li-Ion

Applications: Frequency regulation, black start of a gas turbine

Scope: Battery and system integration

Commissioning: Q3/2018

Client:

TWL
Meine Energiequelle.

WE HELP REALIZE REVENUE VIA CAPACITY PAYMENTS AND ENERGY PRICING

aggreko



Y.Cube Battery Park Alamo, USA

Size: 1 MW/15 min Li-Ion

Applications: Frequency regulation

Scope: Turnkey system incl. Y.Cube, Y.Converters and Control System

Commissioning: June 2016

Client:



AGGREKO'S SOLAR RENTAL REDUCES ERITREA OFFGRID MINE'S FUEL COST BY 12 PERCENT



Bisha Mine, Eritrea

Size: 22 MW/7.5 MWp of Solar

Applications: Diesel optimization, fuel cost reduction, emission reduction

Scope: Solar-diesel-hybrid

Commissioned

Client:



aggreko

Thanks for you attention!

 **@aggreko.com**

 **+49 30 81879**

 **Aggreko Microgrid and Storage Solution (AMSS)
Am Studio 16, 12489 Berlin**