

Introduction to Demand Side Response

RegenSW



Who is KiWi Power?

WHAT WE DO:

KiWi Power is a leading energy technology innovator and the UK's leading demand response aggregator

OUR VISION:

To be the global leader in innovative energy technology through innovative smart grid technology: sustainably and cost effectively



7
Countries



800+
Sites



2009
Founded

Yoav Zingher, CEO
Ziko Abram, Co-Founder



50+
Employees



191%
CAGR
from 2009

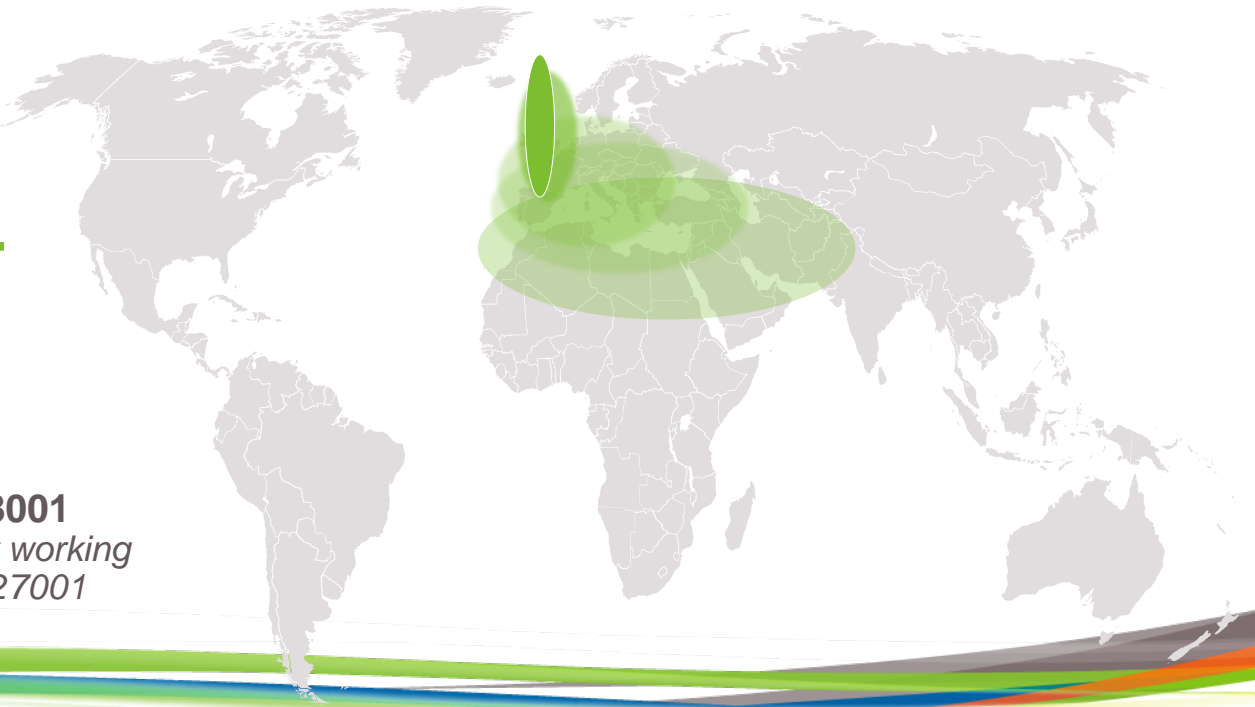


Supportive
Shareholders
ENGIE &
Family Offices



Crown
Commercial
Service
Supplier

ISO
9001, 18001
Currently working
towards 27001



Proven technical expertise. Multiple industry sectors. 800+ sites

Retail	Commercial operations	Public sector	Hospitality	Utilities and more	Our partners
					
	<p>Trinity Mirror plc</p>	<p>Crown Commercial Service Supplier</p>			
		 <p>Ministry of Defence</p>			

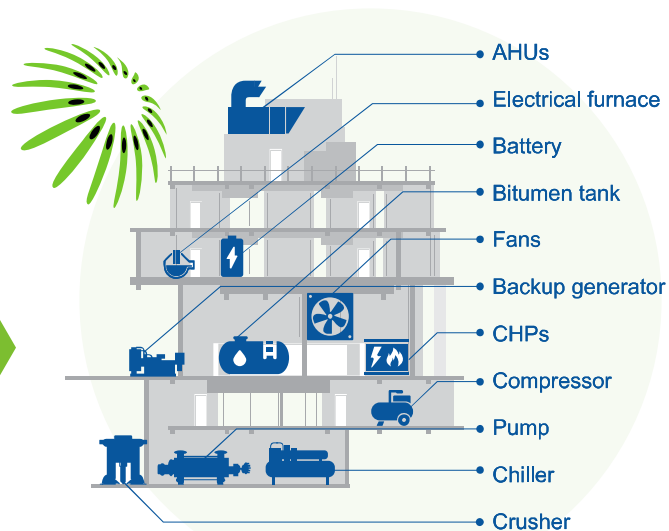
What is Demand Response?

Demand response is a way of shifting or reducing electricity usage during peak periods.

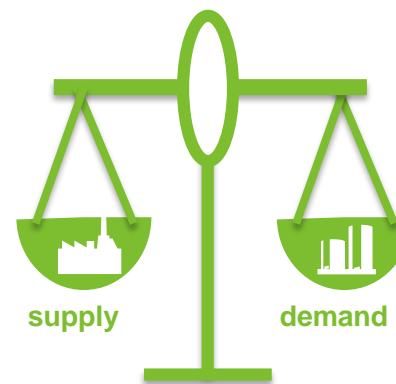
When electricity demand exceeds supply on the grid



Clients' electrical asset consumption is adjusted using our technology



This shift returns power to the grid -restoring balance in a cost effective, green way



Our clients earn revenues simply for participating and being available



Why do we need Demand Response?

INCREASING DEMAND

By 2050, electricity demand is set to double, as we switch transport and heating and more devices onto the electricity grid.

DEMAND
2016



DEMAND
2050



OUTDATED INFRASTRUCTURE

Significant and extensive investment is required to update existing networks to bring them in line with future requirements



MORE RENEWABLE ENERGY SOURCES

Greater use of renewable energy sources creates intermittent, unpredictable supply which is wasted when not integrated.



Benefits to customers



NEW REVENUES

Significant new, annual recurring revenue streams.



COST SAVINGS

Participants save on consumption during demand response events and can take part in automated peak tariff avoidance schemes.



CONDITIONED EQUIPMENT

Continued monitoring and activation of controls and electrical equipment in demand response programmes ensures operational readiness



ENERGY INSIGHTS

Real time metering of participating electrical assets and access to a wealth of consumption data for use in forecasting, reporting and CO₂ reduction schemes.



NO COST

There is no up front cost to participants for KiWi Power's proprietary enabling technology.

50%

Goal for UK balancing to be provided by Demand Response

CEO National Grid, Power Responsive Conference
June 2015



£400 million

Value of DSR to National Grid per year

Based on 50% of 2015 balancing costs



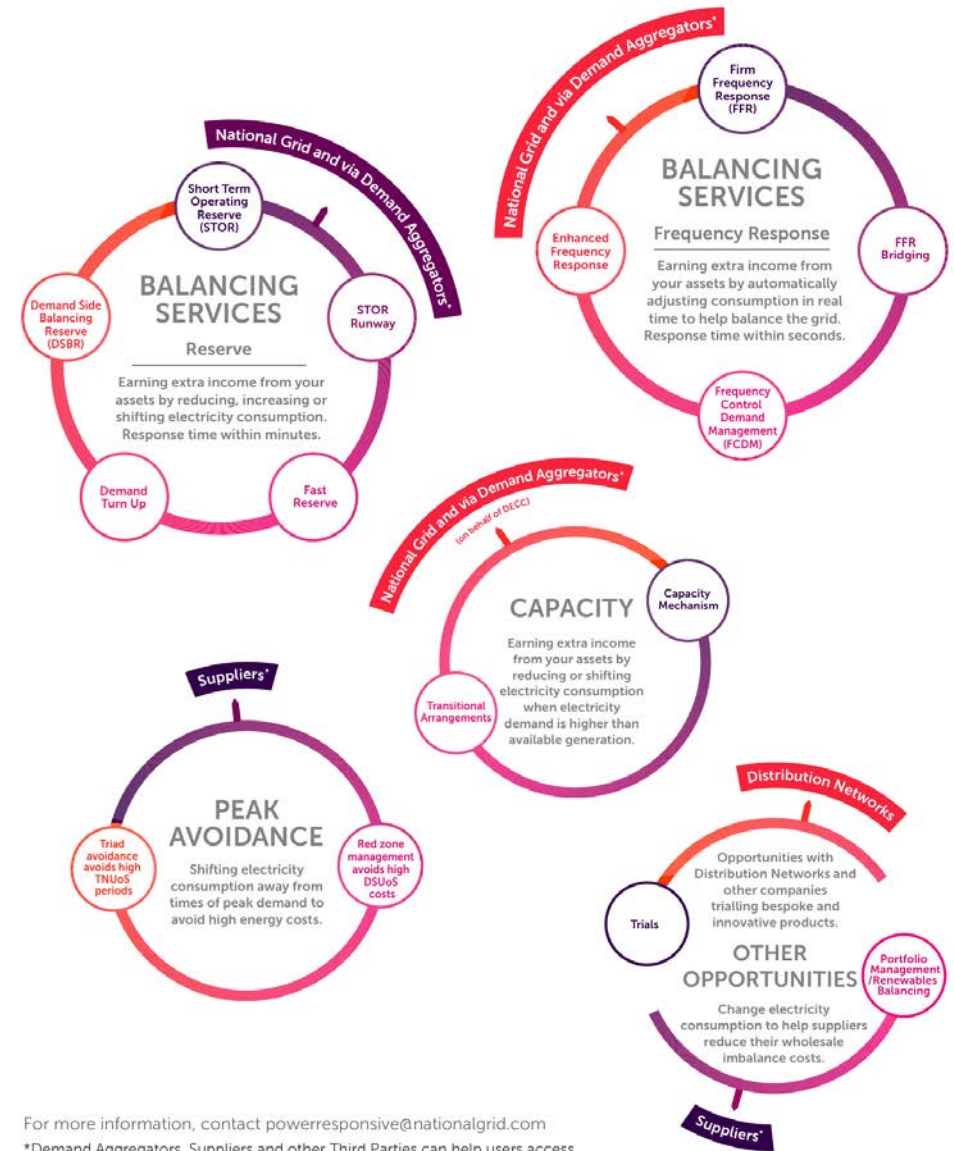
£8 billion

Annual savings to UK consumers from deployment of DSR, interconnectors and storage

National Infrastructure Commission Report, "Smart Power"
March 2016

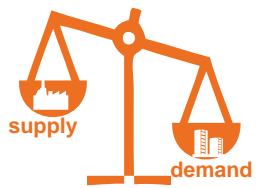
Routes to Market

- Market fit with assets and flexibility
- Pricing and tendering strategies
- Modeling and analytics
- Batteries



For more information, contact powerresponsive@nationalgrid.com
 *Demand Aggregators, Suppliers and other Third Parties can help users access these opportunities and identify combinations that work best for them.

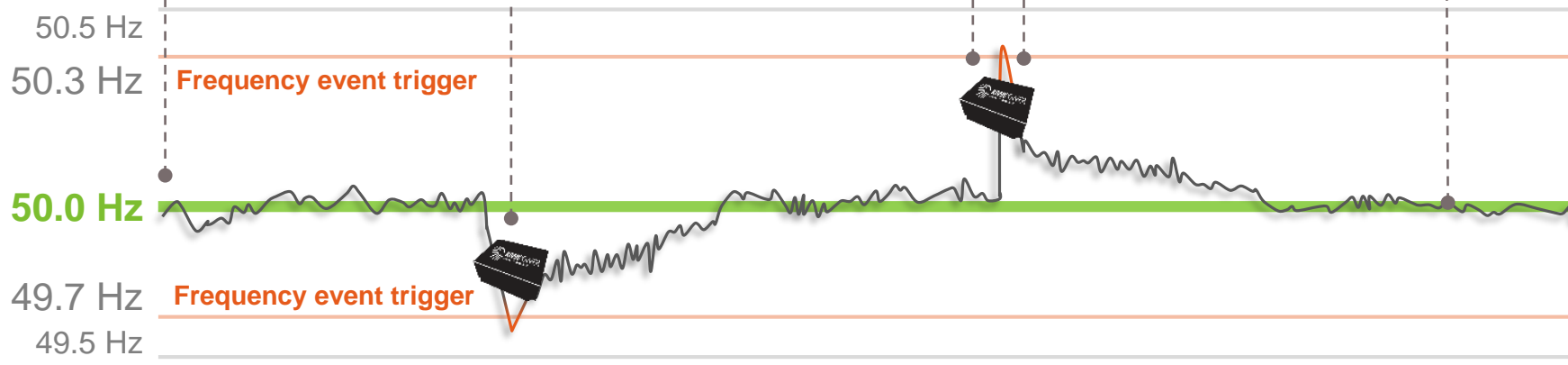
Frequency Response - Batteries




OR



- 1 National Grid is responsible for keeping frequency **balanced** at 50.0 Hz. A **change in grid frequency** is caused by an **imbalance** of supply and demand
- 2 When there is not enough power, batteries discharge **under frequency preventing black and brown outs**
- 3 To balance **over frequency** batteries are charged to prevent **dangerous spikes across electricity infrastructure**
- 4 PiP (Power information Pod) is **installed on each site** to monitor frequency and trigger site assets to respond during a frequency event
- 5 KiWi Power's portfolio will be **triggered** to respond automatically, as required, during a **frequency trip event**



KiWi Power will pay clients significant annual, recurring revenue streams



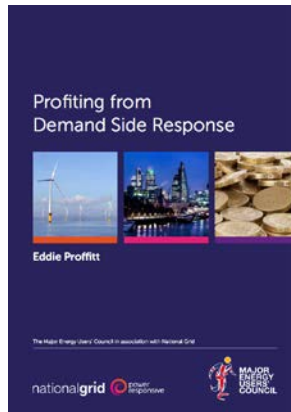
Barriers

- Complex multiple markets and rules

The Capacity Market (Amendment) (No. 2) Rules 2016



500+ pages



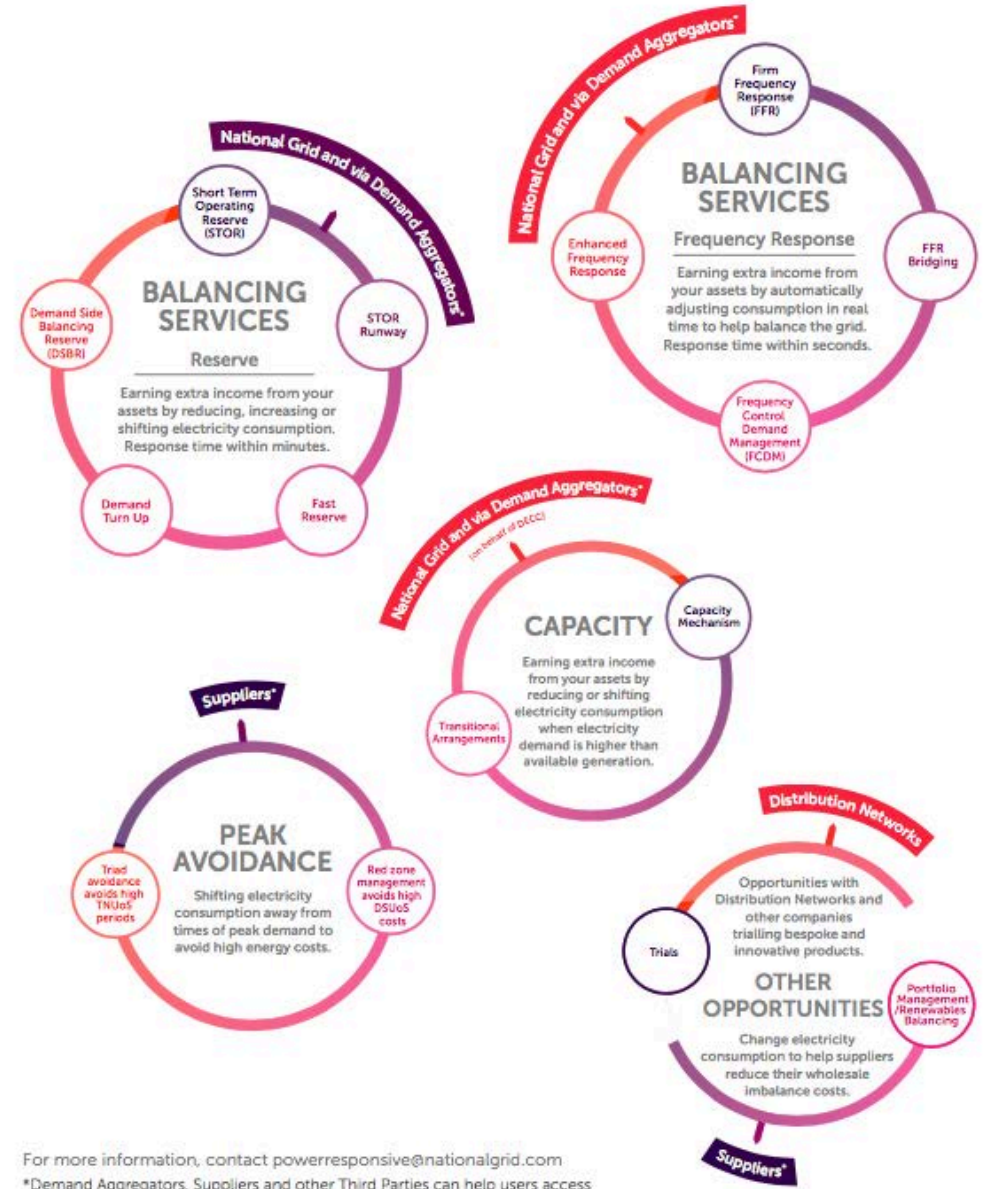
66 pages

power responsive nationalgrid
A short guide to how your business can profit from Demand Side Response



24 pages

- Policy
- Access to Markets



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Direct

- ✓ Large to very large capacity
- ✓ Bespoke bids
- ✗ Market expertise – present and future
- ✗ Asset analytics
- ✗ Project management
- ✗ Metering, controls and communications technology development capability
- ✗ Single site risk
- ✗ Bidding risk
- ✗ 24/7 in-house DSR team

Aggregator

- ✓ Small to large capacity
- ✓ Access to all markets
- ✓ **Technology**
- ✓ Outsourced turnkey solution
- ✓ Project management and upgrades
- ✓ Earnings protection through portfolio management
- ✗ Fee



Thank you.

Please contact KiWi Power today:

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