

# Opportunities for smart/flexible energy for landowners



Smart Energy Marketplace: 28 Mar 2017

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# Outline – an agricultural viewpoint

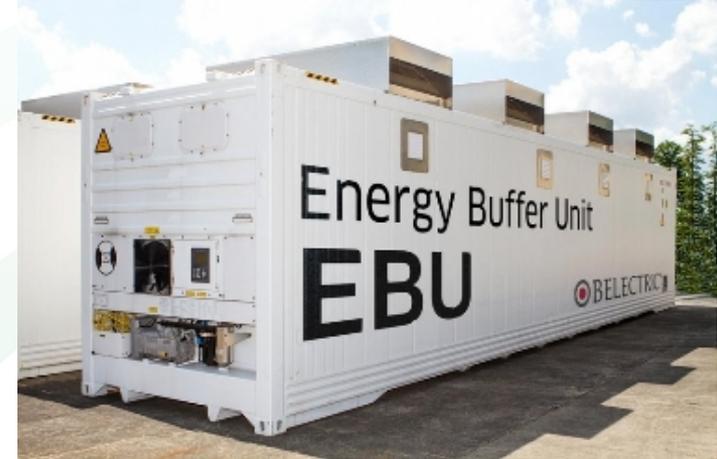


- The NFU and energy policy – farmer interest in renewables
- Renewables support food production: >30% uptake by farmers
- Farmers and growers very interested in enhancing investment in on-site energy or in new opportunities for utility-scale storage

# Electricity storage: a new kid on the block

## Fast-growing energy service opportunity

- costs falling dramatically over next 2-3 years, just like solar PV since 2010
- up to 1000 MW by 2020? e.g. half utility and half 'behind-the-meter'
- 3000-8000 MW (up to 2x Drax Power) projected by 2030: 1000s of installations



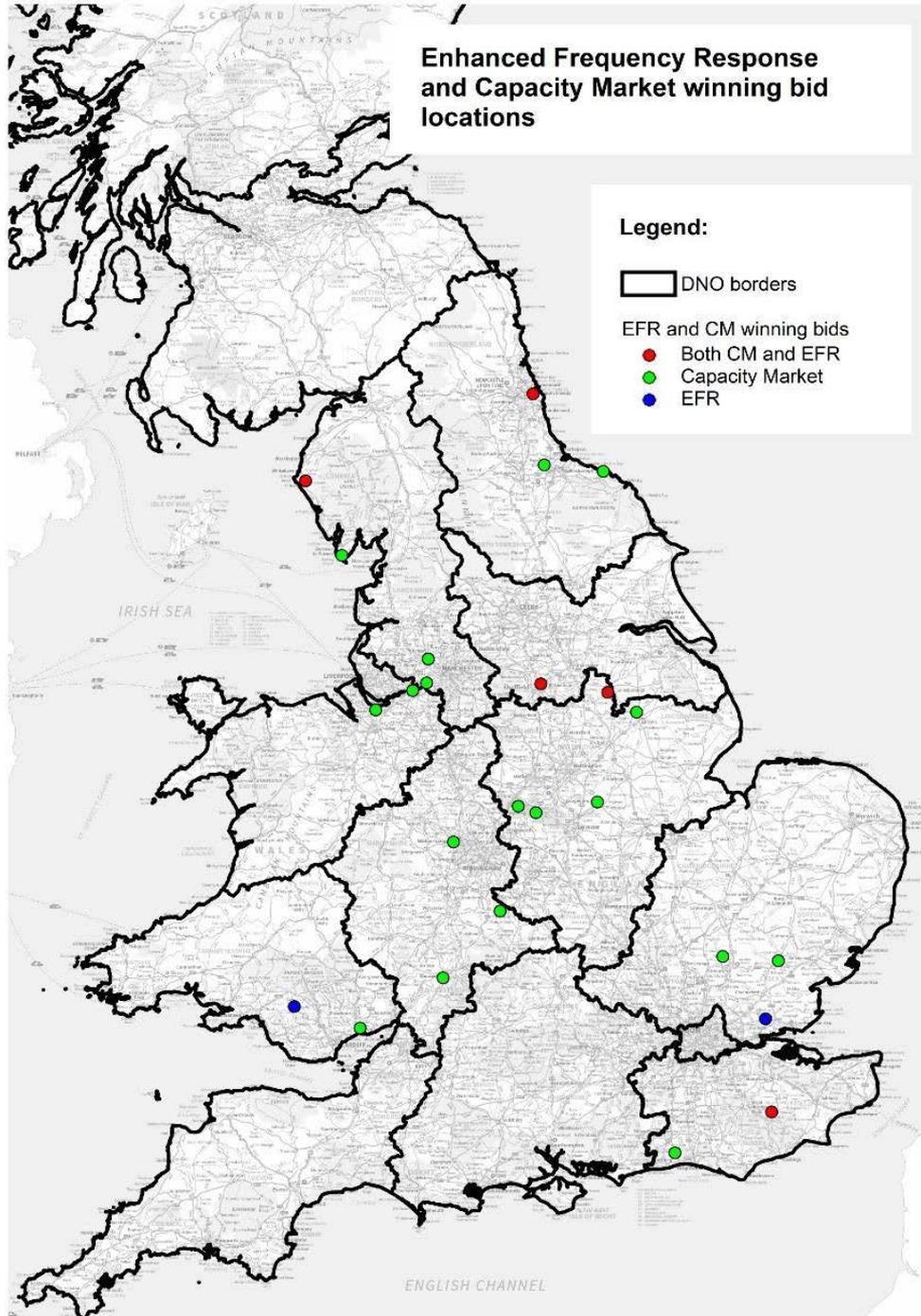
## Likely range of profitable on-farm applications

- small to medium sized domestic or commercial systems that capture and release electricity from solar or wind generation
- easier connection of intermittent renewables to weak electricity networks
- large (utility-scale) electricity stores, connected directly to the electricity distribution network or coupled to solar/wind farms

NFU supported by



## Enhanced Frequency Response and Capacity Market winning bid locations



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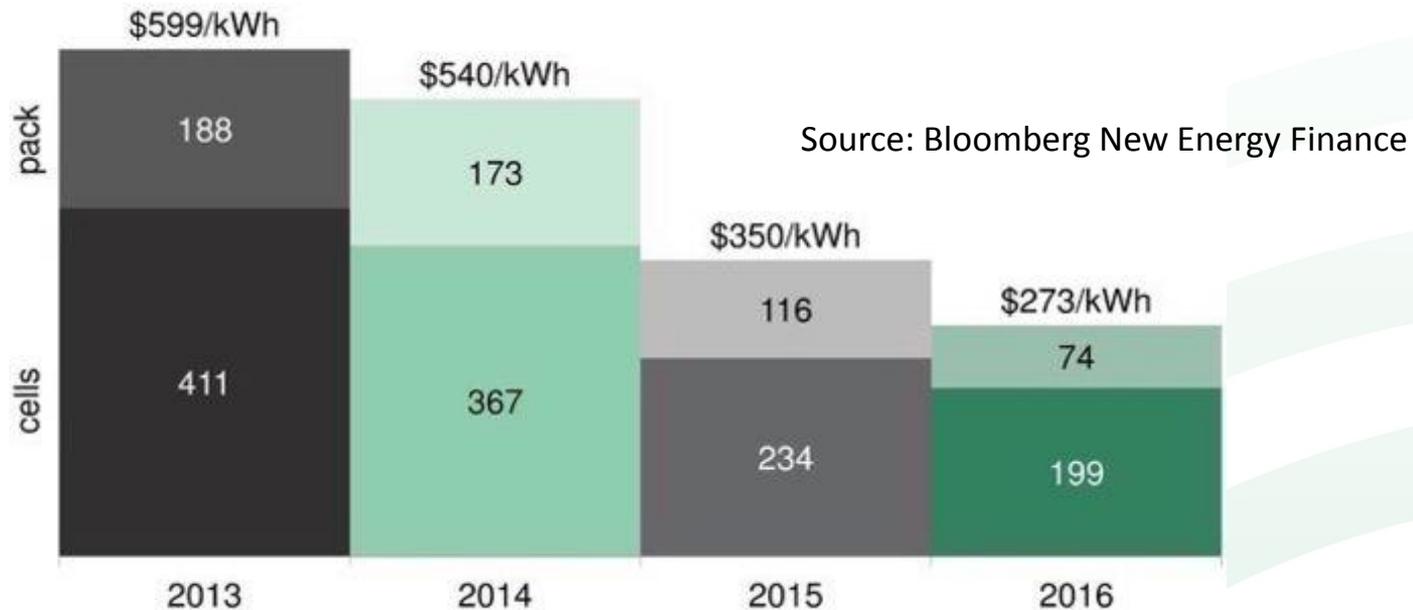
**Domestic and Small Scale Energy  
Storage Forum  
31 January 2017  
Burgess Salmon, Bristol**

Pipeline of 1000's of MW already

562 MW of grid response/reserve  
service projects going ahead in  
2017/18

# Dramatic fall in capital costs

## Battery Prices Are Falling Fast



REA "Energy Storage in the UK" (Dec 2015)

STA/Aurora Energy "Intermittency & cost of integrating solar..." (Oct 2016)

UKERC – flexibility more important now than intermittency (Feb 2017)

First large projects (>10 MW/10MWh) from mid-2017 - Roosecote £180m

Government deregulation (not subsidy) needed to reward early entrants?

# What NFU is doing for its members

Our role as the leading agricultural trade association:

- develop possible “heads of terms” for agreements between farmers/landowners and energy storage providers
- dialogue on physical/regulatory constraints for deploying/using energy storage in agricultural settings
- work with relevant trade associations on forecasting market developments
- help to shape emerging standards of service/performance for energy storage installers/providers
- response to Government consultation on “Smart Flexible Energy System”, January 2017 – also highlighted in Industrial Strategy green paper response



# Farm technology of the near future?

## John Deere SESAM prototype

- 174hp continuous power
- 4-hour run time between charges
- 6R Series tractor chassis



- Based in machinery sheds with solar + storage batteries, earning income towards their charging and maintenance costs



# Our messages

- Farmers and growers are not just ‘in the front line’ of climate change – the NFU believes strongly we offer solutions in post-Brexit world
- Government must recognise the potential of land-based renewables and storage as a source of national energy security
- Need greater consistency in low-carbon energy policy across incentives, planning, grid access *and energy storage*

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Tesla 20 MW/80 MWh Mira Loma project, Ca – SCE