

Prospering from the Energy Revolution:

A UK initiative to stimulate the growth of Smart Local Energy Systems

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On behalf of Rob Saunders (Challenge Director)

Outline:



- 1) UK energy system challenges
- 2) The opportunity for a fresh approach
- 3) Industrial Strategy Challenge Fund
- 4) The Prospering from the Energy Revolution programme
- 5) Next steps
- 6) Questions for this audience
- 7) How to get involved
- 8) Q&A

The UK is facing multiple energy system challenges

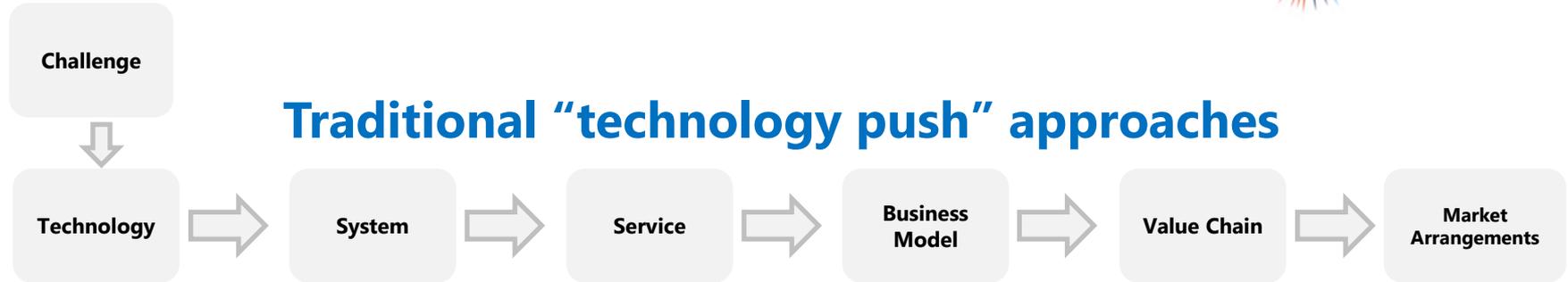


- Clean Air
- Greenhouse Gas Emissions
- Comfort (e.g. summer & winter)
- Mobility
- Cost competitiveness
- Fuel poverty
- Energy (in)security incl. cyber
- Changing consumer preferences
- Environmental and social changes
- Economic growth
- Supply chain and skills development
- Network constraints & investment

At a time when our energy supply and demand are changing rapidly

- Decommissioning of older fossil and nuclear power stations.
- Rise of wind and solar power generation and novel energy storage
- Adoption of electric vehicles
- Smart meter roll-out and convergence with new digital platforms and consumer-based control systems
- Evolving demand-side, energy storage and peer-to-peer markets
- Emergence of hydrogen and bio-energy value chains
- Changing workforce

Hypothesis: Better outcomes by changing our approach



Combined with better "market pull" approach...



Should deliver better outcomes



Prospering from the Energy Revolution: Opportunities for fresh approaches



- Increasing number and quality of local energy initiatives, with several successful demos
- Cost reduction and emissions reduction by looking at power, transport, heat and storage together?
- Replace asset-based and kWh-based approaches with service models
- New digital infrastructure and data management to manage distributed assets flexibly rather than centralised approach
- Strong UK research, financing, policy backdrop

Industrial Strategy Challenge Fund... ...not business-as-usual Innovation



- Focused on **improving productivity and economic benefit** across the UK
- Learning from DARPA & ARPA-E approach
- Clear **measureable** challenges
- Needs clear **industry buy-in** to be successful and should be **ambitious**



Prospering from the Energy Revolution: Our challenge:



Prove by 2022 that local, investable, consumer-centric energy approaches can create prosperous clean energy communities across the UK

Inputs

£102.5 million HM Government Industrial Strategy Challenge Fund
Matched local, regional & private investment
BEIS, OFGEM, UKRI, industry and local alignment & support
Leading recent and ongoing energy system research, development and initiatives

Activities

Energy Revolution Research Consortium
Concept and Design studies
Detailed Designs
Demonstrators
Collaborative R&D projects
Supportive infrastructure and outreach
International engagement

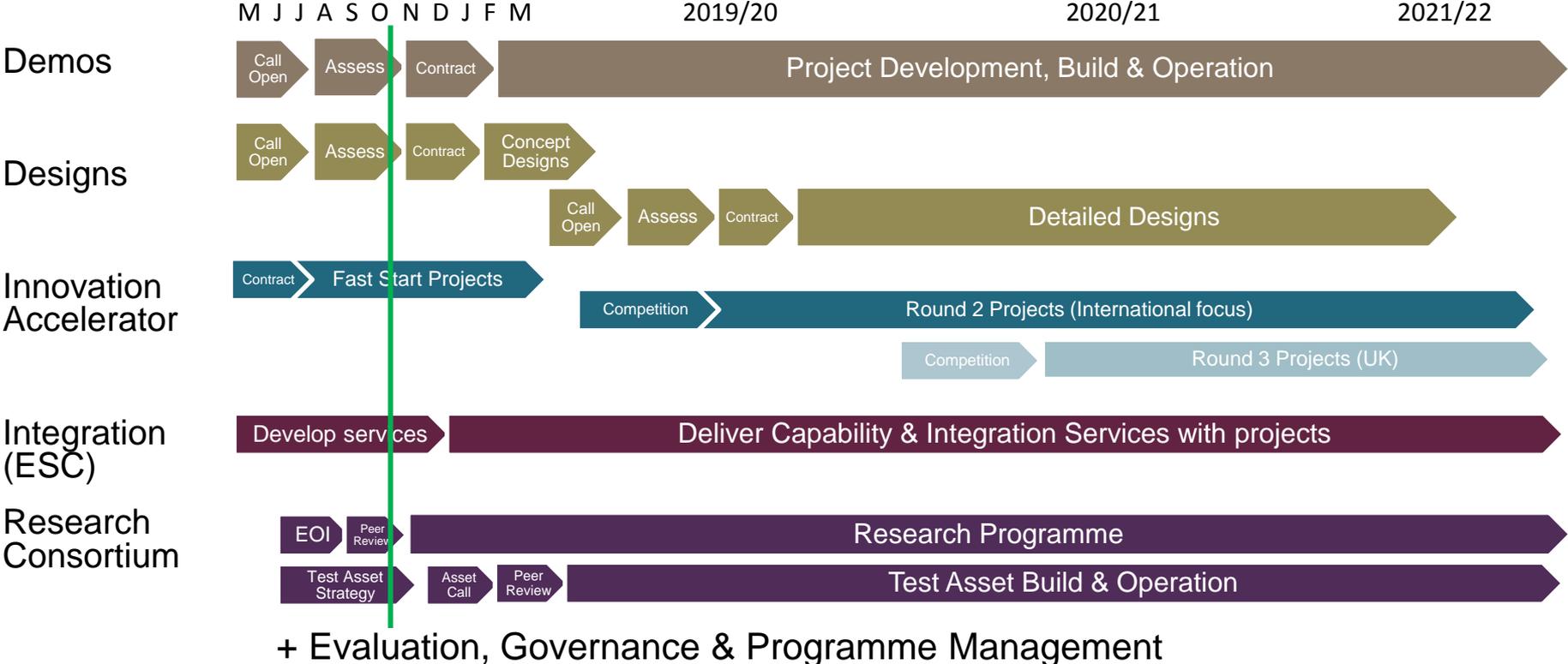
Desired Outputs

Validated integrated, intelligent and investable approaches that reduce energy system costs and emissions
High value job creation in demonstrator areas
New knowledge and practical insights about local energy system implementation

Desired Outcomes

Local business models scaled and replicated
cleaner, cheaper energy services
Accelerated progress to meet carbon and air quality targets
more prosperous and resilient communities
whole system benefits
10x future private investment
new products and services commercialised

Prospering from the Energy Revolution: Our timescales

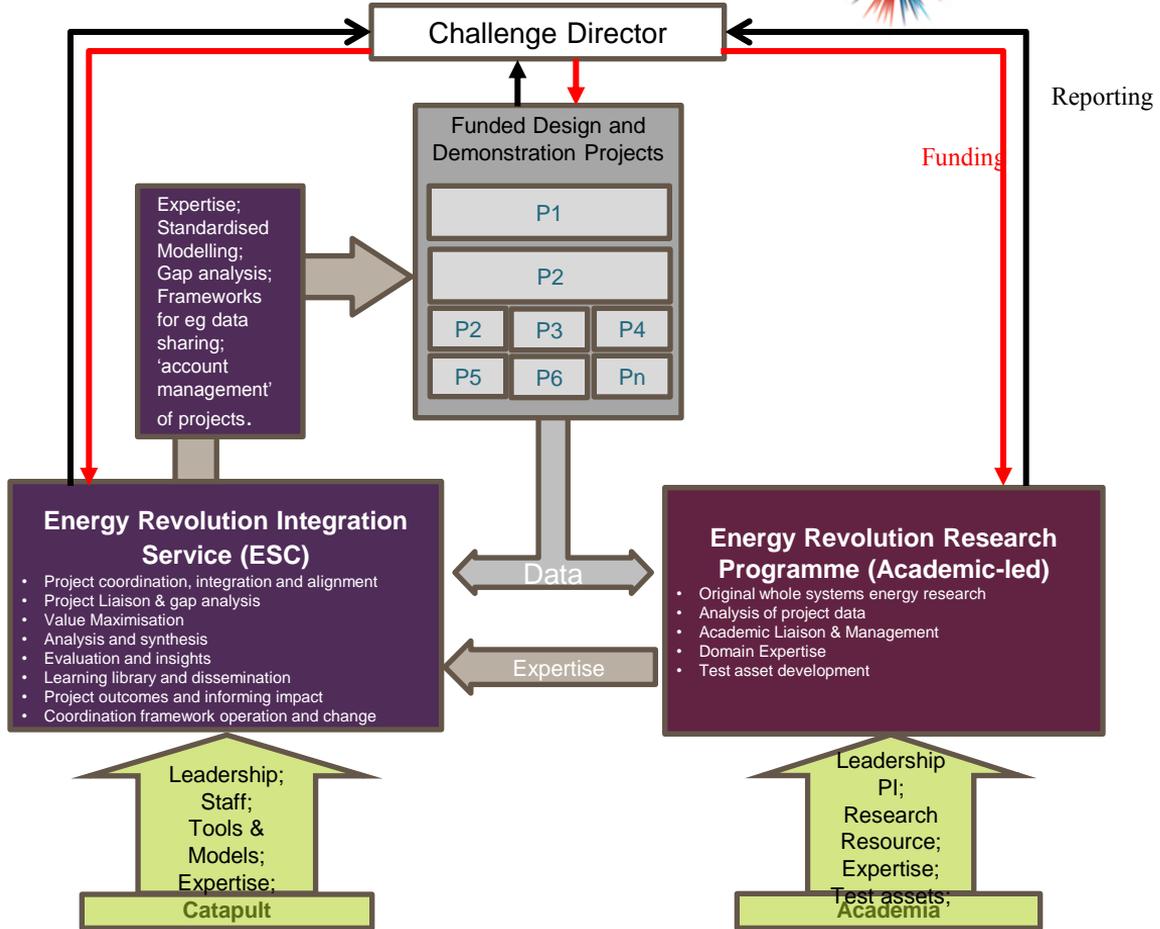


Our approach: Integration & Research Service Model



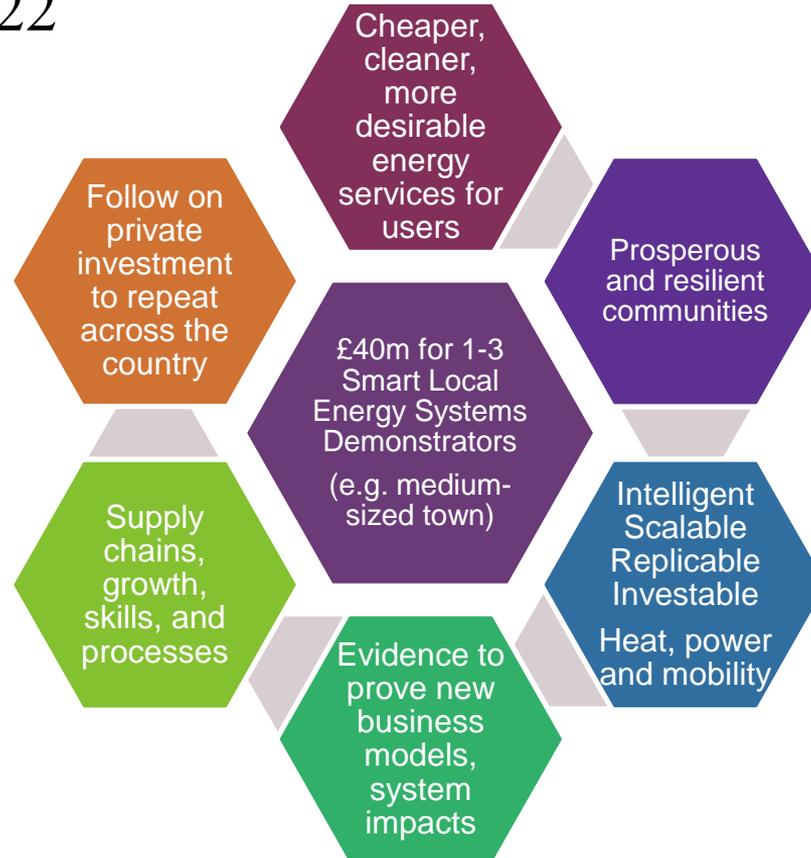
Delivering:

- Integrated projects
- Co-ordinated outputs
- Insights & knowledge



UK Research and Innovation

£40 m collaborative R&D grant funding for Smart Local Energy System Demonstrators that will deliver ambitious outcomes by 2022

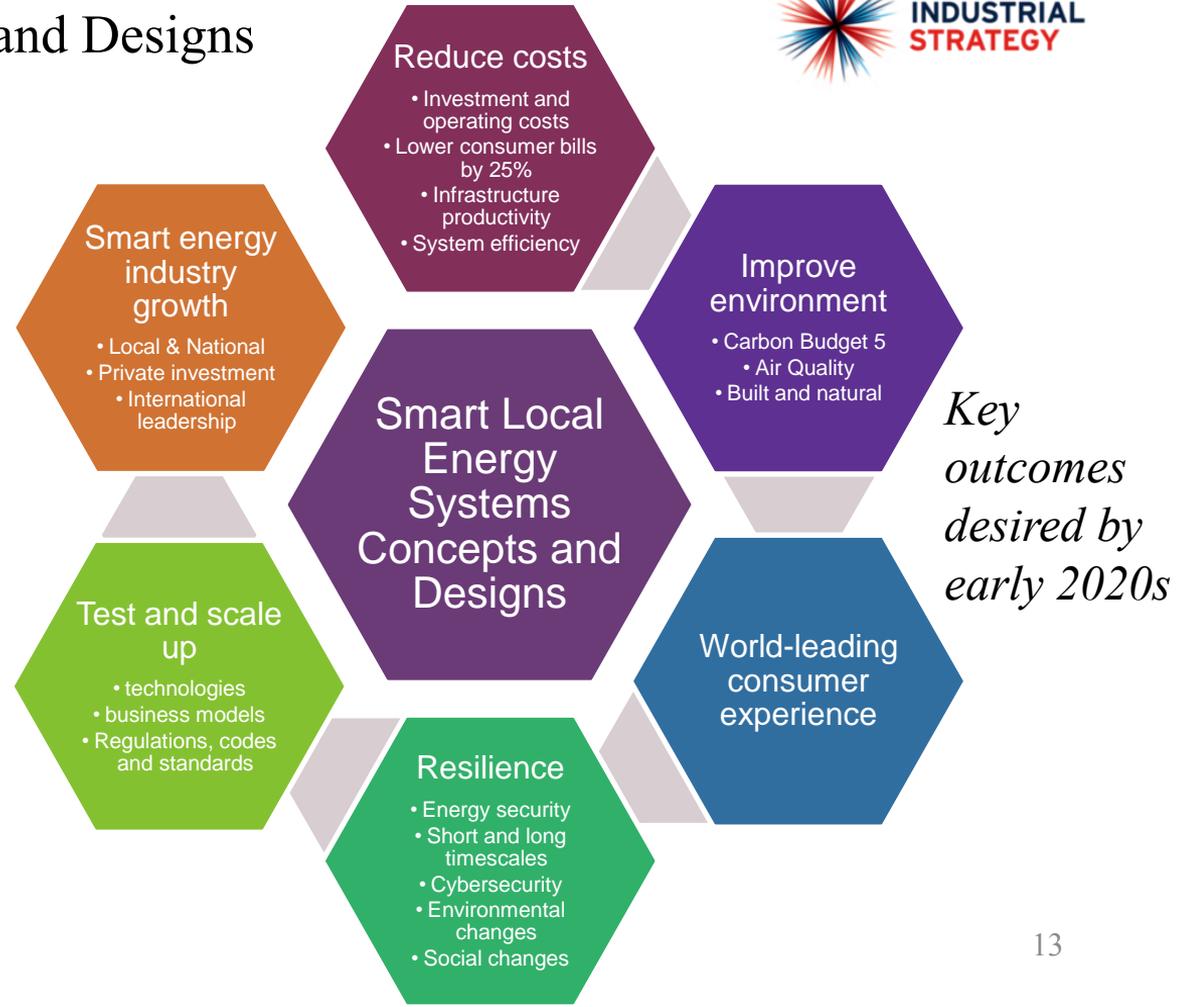


£1.5 million grant funding available for a portfolio of 10-20 Smart Local Energy System Concepts and Designs

These will give an opportunity to develop and assess radical concepts and designs for smart local energy systems holistically, in terms of their local and national economic, environmental and societal benefits.

The best of these will be invited to participate in a subsequent funding competition for detailed development.

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Prospering from the Energy Revolution: Next steps:



- Announce and start-up the smart local energy system concept, designs & demonstrators (Dec 18- Feb19)
- Announce and start up research programme (by Nov/Dec 2018)
- Energy Revolution Integration Service to support projects to work together and provide rapid feedback to stakeholders
- **International engagement – *your advice appreciated!***

Prospering from the Energy Revolution:

Contact details:



- Please get in touch if you wish to follow up
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- Rob.Saunders@innovateuk.ukri.org (Challenge Director)