

Sessão convERSE

“Flexibilidade – a emergência
dos mercados locais de
energia” –
Exemplos de UK

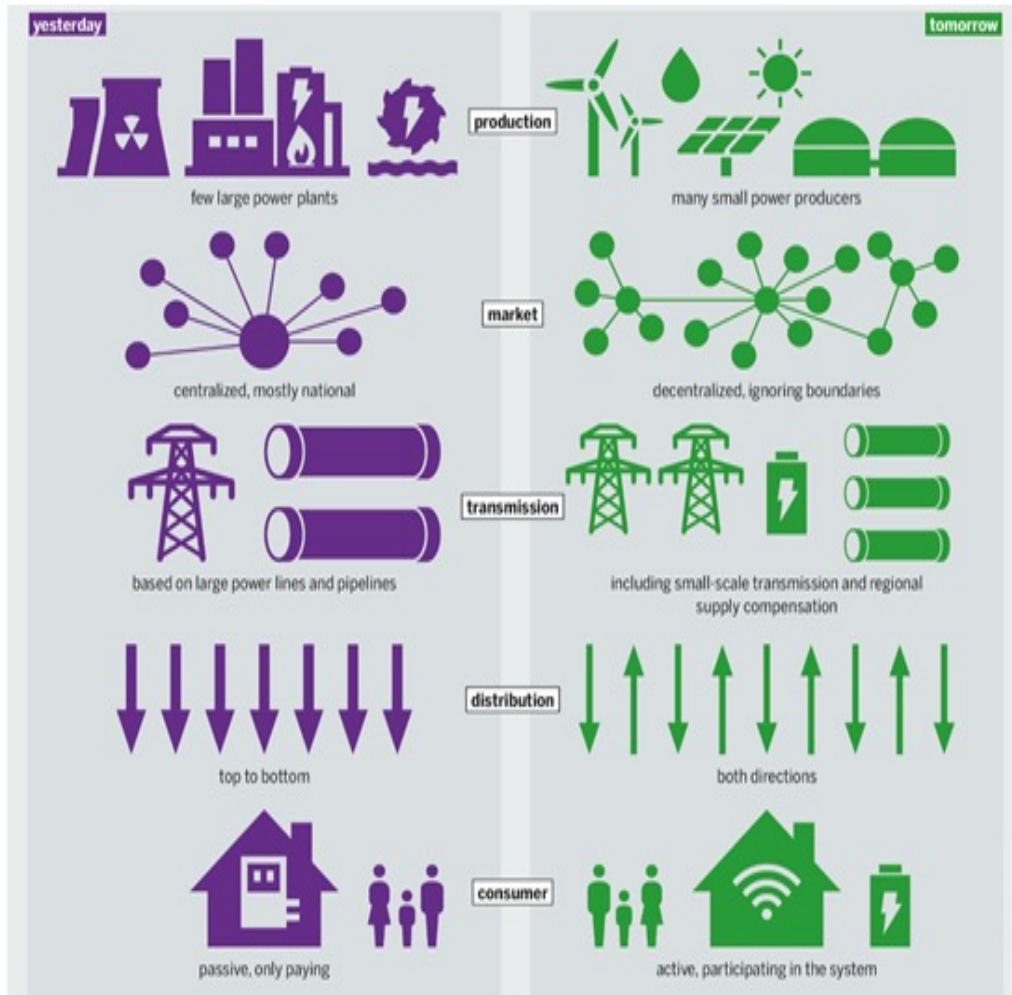


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Flexibilidade nos sistemas Locais: O exemplo de UK em 5 Áreas



- a) Demand Side Response / Serviços de Flexibilidade de Rede
- b) Armazenamento em Baterias de rede
- c) CERs, Smart Grids, GoG e VPP (Virtual Power Plants)
- d) Mobilidade Verde (Veículos elétricos e a hidrogénio, abastecimento)
- e) Produção Distribuída e Corporate PPAs

A. Demand Side Response

CASO DE ESTUDO – EDF Energy (<https://www.edfenergy.com/large-business/energy-solutions/demand-side-response-dsr>)



Descrição

Demand Side Response - PowerShift

Clientes

Large Users ou Agregadores

Modelo de Negócio

**Compra flexibilidade de
reducao em horas de pico**



[Buying energy](#)

[Selling energy](#)

[Energy solutions](#)

[Existing customers](#)

[Help and support](#)

[Talk Power](#)

Businesses on a Demand Side Response (DSR) scheme commit to reducing or shifting their energy consumption when UK electricity demand from the Grid threatens to exceed supply.

Using our innovative **PowerShift platform**, businesses who can be flexible with their consumption are rewarded for shifting or reducing demand, or by making capacity available through onsite generation, when needed. DSR creates opportunities for flexible businesses to earn revenue by supporting National Grid in times of peak demand or system stress. We help you scope out the energy-saving potential in your existing assets, identify the right scheme for you and get your business DSR-enabled. Once this is done, you can start earning.



B. Battery Storage

CASO DE ESTUDO – Optimeyes Energy Ltd (www.optim-eyes.me)



Descrição

Grid Battery Storage with Land Owners rental

Clientes

Real Estate Owners, Renewable Energy Generation and Grid Operators

Modelo de Negócio

Aluguer de espaço físico com renda fixa garantida



Land Lease Utility Scale Battery Energy Storage Project

UK has made a commitment to be Net Zero in emissions by 2050 and the National Grid has made a commitment to be Net Zero by 2025. As a result, significant growth is expected in solar and wind power generation, leading to requirement for Utility Scale Battery Storage projects to manage this intermittent generation, reduce volatility and stabilize the grid.



Benefits of Utility-Scale Energy Storage

- An efficient, environmentally friendly way to store and deliver energy.
- No air pollution causing health issues for those living nearby
- No water required and no depletion of local water source.

Opportunity for Landowners

- ⇒ Long term stable additional revenue for landowners while contributing to a clean energy future.
- ⇒ If you have unused land between 1-15 acres, you can earn a steady stream of additional income throughout the lifespan of the battery project (typically 30 years).
- ⇒ Landowners do not need to worry about the future condition of their land. A battery project is self-contained and has minimal impact on the local environment as there are no effluents.
- ⇒ Battery projects can even be set up in Green Belt areas where any other urban development is currently not permitted.

Indicative earnings (assuming RPI of 2%)

Min. area in Acres	MW	Lease/MW/Year	Total Earnings First Year	Cum. Earnings 30 years
1	25	£1,500	£37,500	£1,521,303
2	50	£1,500	£75,000	£3,042,606
5	100	£1,500	£150,000	£6,085,212
10	200	£1,500	£300,000	£12,170,424

TYPICAL PROJECT DEVELOPMENT CYCLE

There are three key stages in the development cycle of solar projects in the UK
Progressing BESS Project Development – development usually takes between 12-18 months from screening to planning consent stage

Stage 1: Securing a Viable Grid Connection Offer

- **Milestone 1 - Landlord provides site details including area, boundaries and access**
- Conduct a desktop feasibility survey to assess the site from a planning perspective (1-2 weeks)
- Evaluate feasibility of connection with grid specialists and the DNO/National Grid and identify sub-stations (4-6 weeks)
- **Milestone 2 - Execute LOA and EA with landowner**
- Submit a formal connection application with the DNO/National Grid (2-4 weeks)
- Upon receipt of formal Grid offer from DNO/National Grid, review the same for viability and conditionalities (12-14 weeks)
- Upon establishing the viability and the conditionality of formal offer from DNO/National Grid to be reasonable, accept the same and pay connection deposit to the DNO/National Grid. (10-12 weeks)

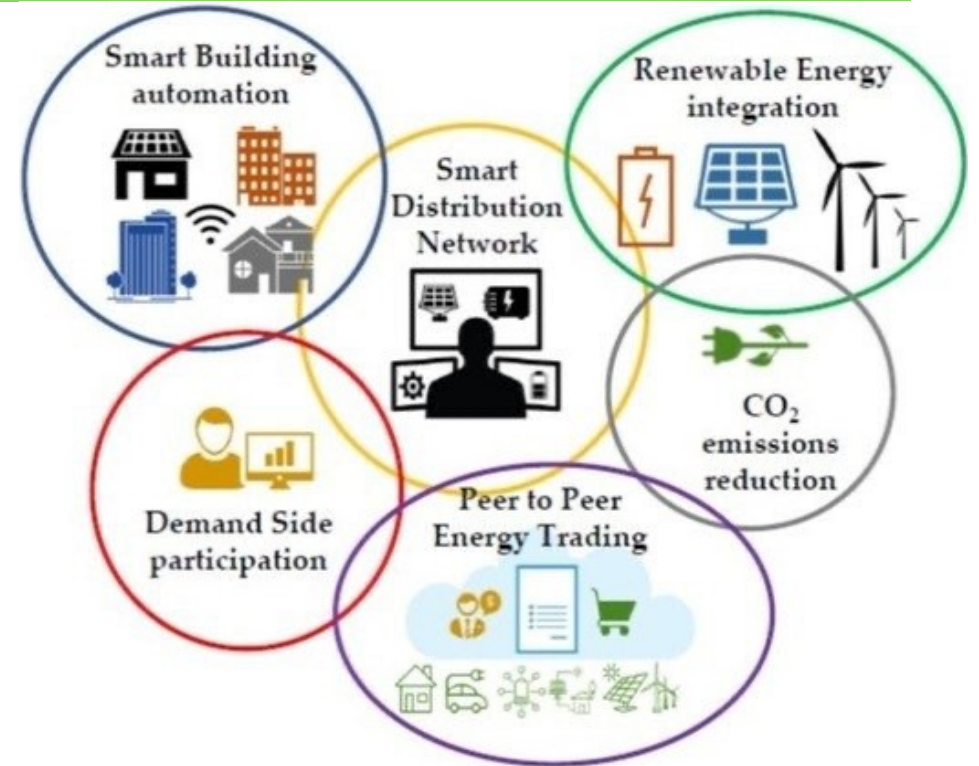
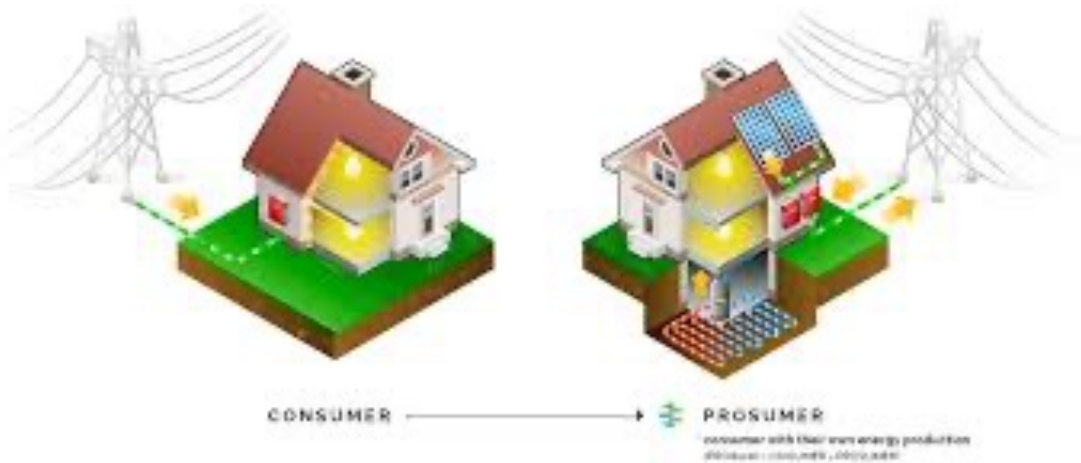
Stage 2: Preparation for Planning Process

- **Milestone 3 – Acceptance of Grid Offer**
- Submit the Pre-application to the local council to outline the scope of the planning application (4-6 weeks from Grid Acceptance)
- Finalise and execute the Heads of Terms (HoT) with the landowners for the Option and Lease of the Land (6-8 weeks from Grid Acceptance)
- For DNO connections, the DNO will commission a Statement of Works or Modified Application process with the National Grid to confirm additional works and costs, if any, to be undertaken by the National Grid (12-14 weeks from Grid Acceptance)
- **Milestone 4 – SOW, Pre-App and HOT Completed**
- Engage with legal advisors to negotiate and execute legally binding option agreements with the landowners (12-14 weeks from completion of SOW, Pre-App and HOT)

Stage 3: Planning Process

- **Milestone 5 – Option Executed**
- Commission all site studies and investigations required to submit a complete planning application (4-6 weeks from execution of option)
- Prepare detailed technical designs to finalize the land requirements in respect of the Project and prepare the layout required to be submitted as a part of the planning application (1-2 weeks from completion of site investigations)
- Carry out public consultation (2-4 weeks from completion of site investigations)
- **Milestone 6 - Submit Planning Application (1-2 weeks after completion of public consultation)**
- **Milestone 7 - Planning Determination (12-14 weeks from submission)**
- **Milestone 8 – Start of Lease (12-14 weeks from successful planning determination)**

C. CER/Renewable Energy Community....



Prosumer Agent

Controllable — Private (red arrow)
 Uncontrollable - - - Shared (green arrow)



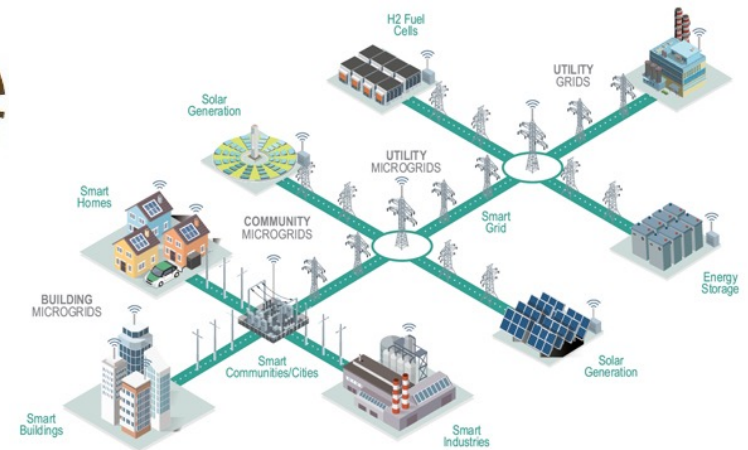
Prosumer Community Coordination



The GoG: A “Grid-of-Grids”



The VPP
aggregated in real
time, wherever,
whenever



D. Mobilidade Verde – Carregamento de VE

CASO DE ESTUDO – UKPN – Active Response (Smart Network <https://innovation.ukpowernetworks.co.uk/projects/active-response/>)



Descrição

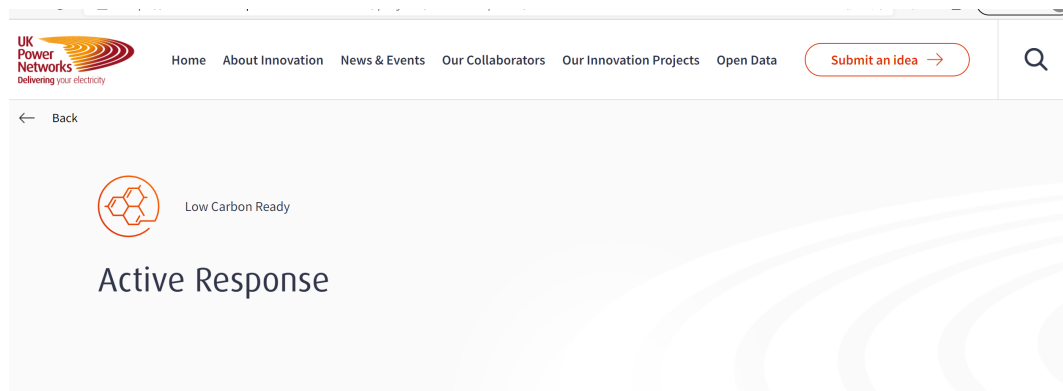
Projecto de redes inteligentes para gestão de peso entre subestações, para gestão eficiente de pico

Clientes

UKPN para permitir integrar carregamento de veículos eléctricos

Modelo de Negócio

Redução de custos de distribuição de energia



Active Response will trial a revolutionary way of managing spare electricity network capacity that could save customers £271 million by 2030 and cut more than 448,000 tonnes of carbon emissions by 2030.



Video introduction to Active Response



E. Produção Distribuída e Corporate PPAs

