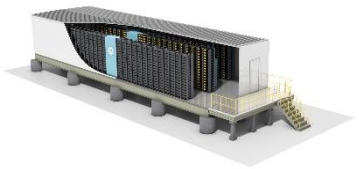
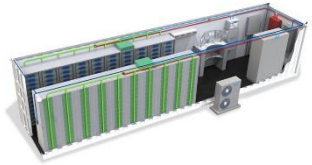
Using the grid to maximise the value of your assets – Marc Wynn

This guide has been created to provide Local Authorities with all the necessary information and reasons to instigate a strategy to deliver a standalone battery programme.



What Is Standalone Battery Storage?

Answer : It is a battery on a small parcel of ground that has no requirement for renewable energy generation

Electricity is purchased from the grid when prices are at their lowest and then resold between 4-7pm during the Red Zone when the highest prices can be obtained.

This transaction is controlled by an ‘energy trader’ whose responsibility it is to manage the battery and maximise the financial income achievable.

The battery must be carefully ‘specified’ to be able to charge and discharge quickly in order to for the process to be repeated at peak times. The quicker the process, the greater the revenue earning potential.

Procurement of energy trader and battery must be managed as a package.

Electricity purchased at low costs in early morning

Electricity sold at higher prices 4pm-7pm

Reasons To Consider Standalone Battery Storage?

Reason 1 : Financial Returns
- Attractive income for 10+ years
- Capital repayment within 7 years

Reason 2 : Urgency is Required
- Limited connection capacity in the grid
- Private developers are ‘capacity bagging’ in the same way as they did with ground mounted solar
- National Grid’s storage contracts have been allocated to energy traders who are allocating them to battery owners on a first come basis

LOCAL AUTHORITIES SHOULD MAKE FORMAL GRID APPLICATIONS AT THE EARLIEST POINT TO SECURE THEIR POSITION WITH THE GRID

Reason 3 : Small Parcels of Land Required
- 1 MW of Battery Storage = 40ft container = 90 sq m of land required

Reason 4 : Local Authority Can Choose Level of Financial Risk and Financial Reward
- Three possible options available

Reason 5 : De Risked Delivery Process
- APSE Energy can de-risk the delivery process and provide the local authorities with investment options to match a risk and reward profile

Key Strategic Actions and Considerations

Securing The Grid Connection
The starting point to secure the grid connection.

There is limited capacity in the grid and if the Local Authority fails to secure a grid connection, a private developer will.

Enhanced Land Value
The grid connection demonstrates the site can be developed for battery storage.

This site therefore has a value to battery investors, which enhances the land value.

Ownership and Investment Options Available
The Local Authority has the ability to choose the level of risk and reward required.

Option 1 : Local Authority Owns and Operates the Battery	HIGHER RISK :HIGHER REWARD
Option 2 : Shared Income / Profit Model	MEDIUM RISK : MEDIUM REWARD
Option 3: Local Authority Receives Rental income for 15 years	LOWER RISK : LOWER REWARD

Questions You Should Be Asking

Grid Connection

How do I know if there is capacity in the grid for a battery?

How much import and export capacity is required?

How do I make a formal application to the DNO?

How can this application process be managed effectively?

How can my application be ahead of the competition?

How can I reduce my connection costs?

Battery Choice and Location

What size and type of battery is required?

What size of land is required?

What distance do the battery sites need to be located to the DNO's connection point into the network?

What effect does that distance have on the connection cost and the financial returns?

Financial

How is money made from the battery?

Who will managed the energy trading element?

How do I know this is being managed effectively?

What level of financial return can be achieved?

How can I use battery storage to enhance the capital value of my land?

How can I limit risk by working with a battery investor?

Delivery Process

What is the process from project commencement, to grid connection, to procurement to operation?

How can consultancy fees be limited to de-risk the project?

How can 'gateways' be built into the project to protect the local authority?

How can procurement procedures be managed effectively?

How do you procure a battery and an energy trading contract?

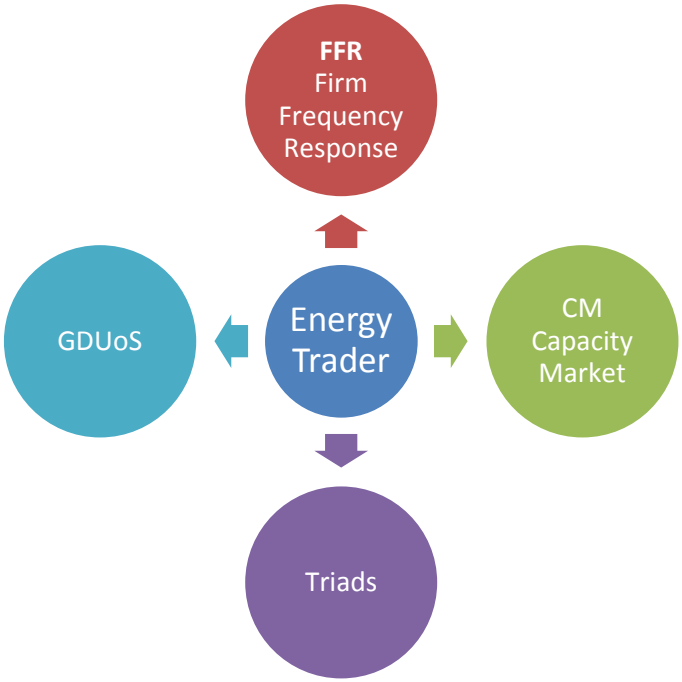
How quickly can an income be generated?

Battery Technology + Energy Trader = Required as a Package

Energy traders have the contracts with National Grid, which battery owners require to access

Energy traders will only accept projects that have a proven viability :

- Site Survey
- Full Financial Feasibility



Ownership and Investment Options

There are principally three options with different levels of risk and reward that can be considered.

	Option 1 Local Authority Owns the Battery HIGHER RISK : HIGHER REWARD	Option 2 Shared Income / Profit Model MEDIUM RISK : MEDIUM REWARD	Option 3 Local Authority Receives Rental income for 15 years LOWER RISK : LOWER REWARD
Reward Potential	Capital repayment within 7 years	By negotiation **	£7,000-£10,000 pa rental for a 1 MW battery
Grid Application *	Local Authority	Local Authority	Local Authority
Procures and Pays for Battery	Local Authority	Investor	Investor
Planning Application	Local Authority	Local Authority / Investor	Investor
Pays for Grid Connection	Local Authority	Local Authority / Investor **	Investor
Appoints and Manages the Energy Trader	Local Authority	Investor	Investor

Notes

* Grid Application – securing connection capacity increases the land's capital value. The capital value will be further enhanced if no further capacity is available to other battery developers

** Share of Income or Profit – this is by negotiation on a site by site basis. The local authority is able to define what they wish to commit to the project e.g. the land, capital, the cost of the grid connection etc. which defines the financial reward received.

Delivery Process

1 month

Defined by local authority

3 months

Defined by local authority

Delivery Process

Gateway 1 : Viability Assessment Timescale : 1 month

Report demonstrating the viability of battery storage, the extent of delivery and financial benefits to the local authority.

This assessment ensures that the local authority only commits funding into viable projects

Grid Assessment
: Assess the import and export capacity at all DNO primary substations in the local authority area

→ **OUTPUT**
: This defines the size and number of batteries that can be connected to each substation

Site Location Assessment
: Identify the distance sites can be located from each primary substation,

→ **OUTPUT**
: Location report recommending where land should be identified

Energy Trading and Financial Modelling
: Produce a financial model (high level) to understand possible returns SEE NEXT SLIDE
: 'Energy trader' confirmation of the different incomes available at each primary eg Capacity Market and FFR (Firm Frequency Response)

→ **OUTPUT**
: Financial modelling to demonstrate viability
: Access to key players with National Grid contracts

Battery Storage Ownership and Investment Options
: Options provided that illustrate levels of risk and reward and the key players in the market

→ **OUTPUT**
: Local authority able to evaluate financial returns

Key Battery Storage Information
: Key information regarding battery container and land sizes, recycling, planning, visual impact etc

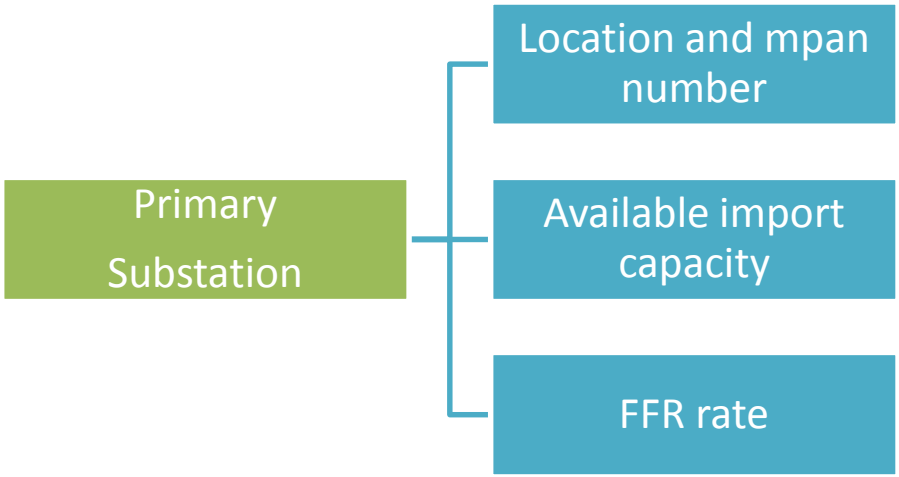
→ **OUTPUT**
: Local authority able to strategically plan more effectively

Delivery Process

Gateway 1 : Viability Assessment

Energy Trading and Financial Modelling

: Financial models (high level) are different at EACH primary substation



GRID WORK

: required because each primary substation produces different results

: Local Authority can assess the financial viability of battery storage for each primary substations

Delivery Process : Site Identification – Local Authority

Local Authority locates sites within agreed distances to each primary substation.

Local authority can also consider purchasing suitable land.

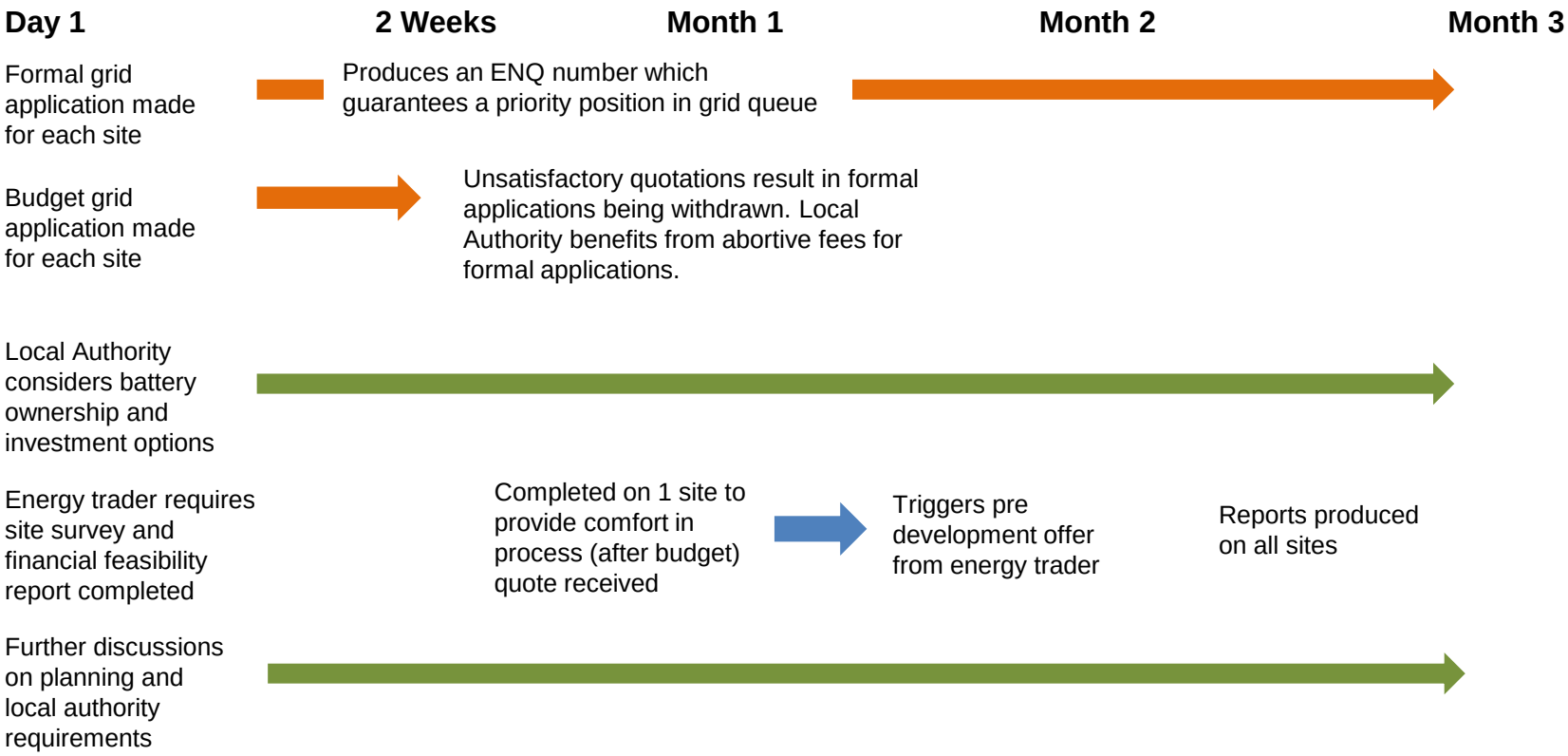
Delivery Process

Gateway 2 : Grid Delivery Timescale : 3 months

Delivering the project is completely subject to securing a grid connection.

Local Authorities can during the 3 month grid process complete all necessary due diligence

Timescale



Delivery Process : Project Delivery - Local Authority

Project Delivery
is driven by the Local Authority and includes the stages and timescales to achieve cabinet approval.

Within this Gateway are the following considerations :

- Procurement of choice of battery and energy trader or negotiations with battery investor
- Timescale for battery ordering (typically 4 months)
- Commencement of planning application
- Acceptance of DNO formal offer (will have 90 day validity period)
- Instruction of DNO works and connection
- Instruction of onsite grid connection works
- Cabinet report and approval

Next Stages

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