

# De-Risking Solar Investments: A Data-Driven, Portfolio-Based Approach

Dani Jackson – Regional Project Manager

[Danielle.Jacson@teesvalley-ca.gov.uk](mailto:Danielle.Jacson@teesvalley-ca.gov.uk)

# Solar Canopies Deployment



Energy Secretary Mr Miliband:

*“Right now, the sun is shining on hundreds of thousands of car parking spaces across the country which could be used to power our homes and businesses”*

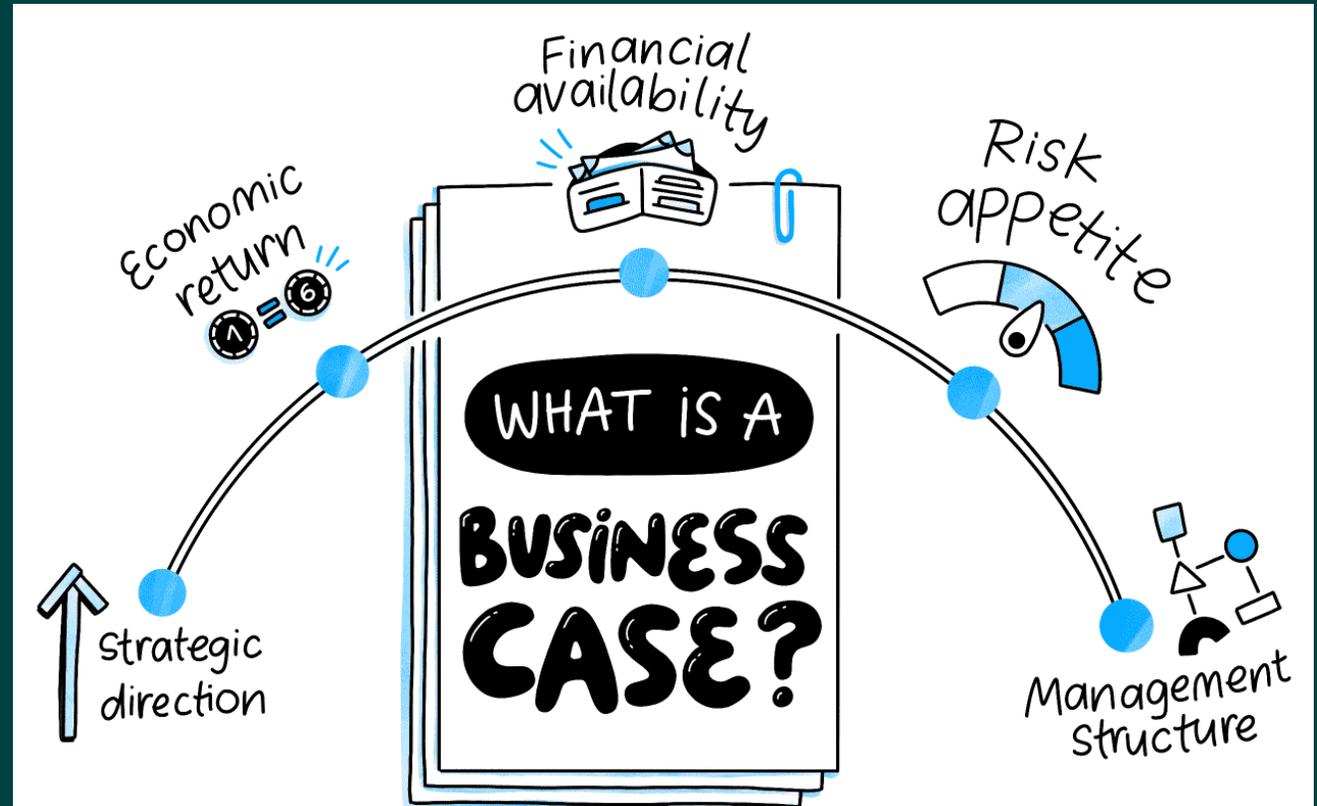
## How do we deliver Ed Miliband's dream projects without public funding when costs are high?

**Portfolio approach** = Economies of scale

**Develop the right investment model**

- Concession models
- PPAs
- Low price borrowing to invest

**Data driven filtering: The Toolkit**



# Unlocking the Potential of Car Park Solar Canopies with a Practical Toolkit



- **Purpose:** To create a tool to test the relative feasibility of publicly owned car parks for solar canopy installation.
- **User:** Local authority officers, public sector officers, external consultants.
- **Form:** An excel toolkit with input, analysis and output modules.
- **Outputs:**
  - Site feasibility ranking
  - Solar generation and local supply potential
  - Carbon impact assessment
  - Financial viability metrics
  - Site constraints scoring

## Data Inputs

Name  
Location  
Parking Bays  
Area

**Site Information**

**Environmental Constraints**

**Cultural Constraints**

**Technical Constraints**

**Energy Resource**

Site Area  
Solar Resource  
Shading

**Financial Metrics**

Finance Source / Rate  
Grant Funding Rate

**Energy Opportunities**

Local Supply  
EV Charging Demand

## Toolkit

Shading Analysis

Constraint Score

Stage 1

**Analysis Toolkit**

Stage 2

Generation Model

Local Supply Match

Financial Analysis

## Outputs

**Constraint Scoring**

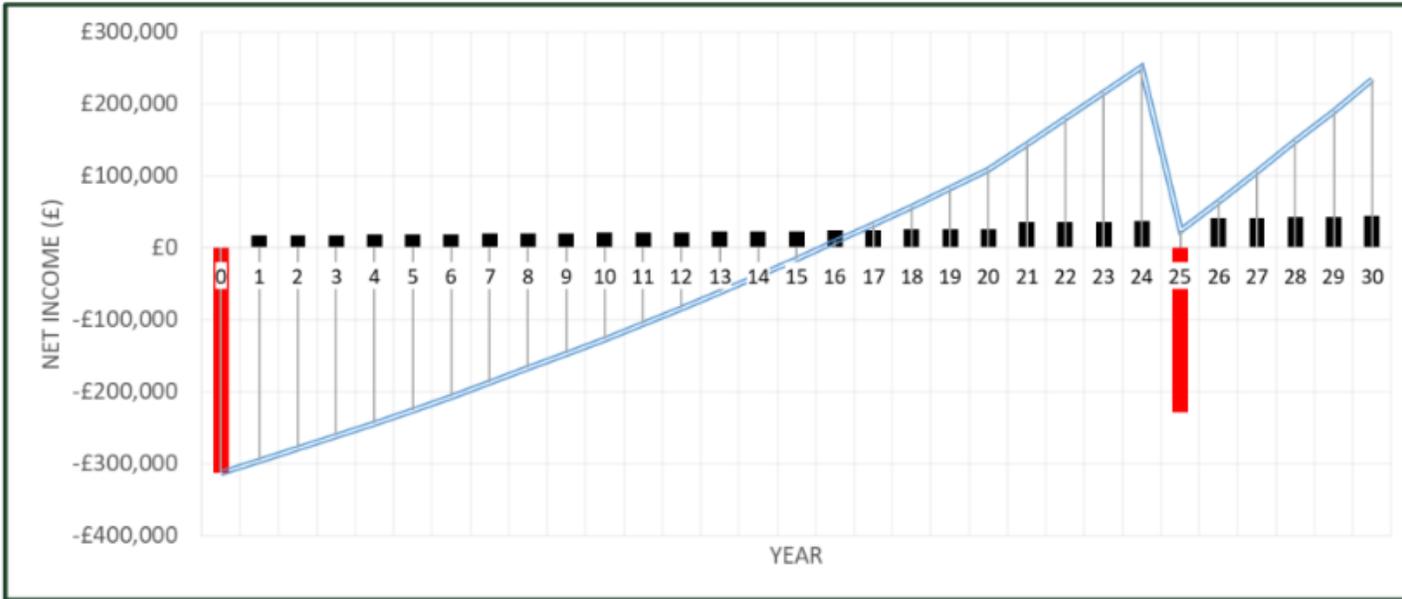
**Generation Potential**

**Carbon Impact**

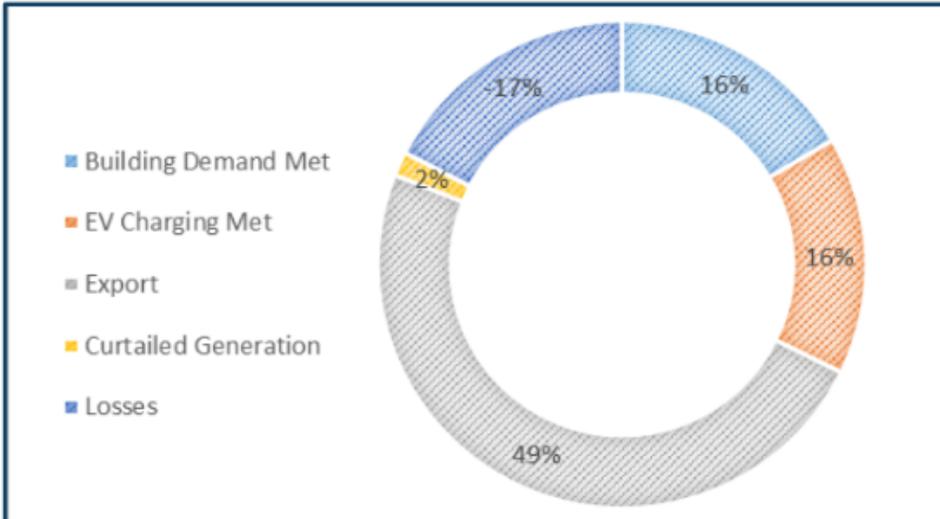
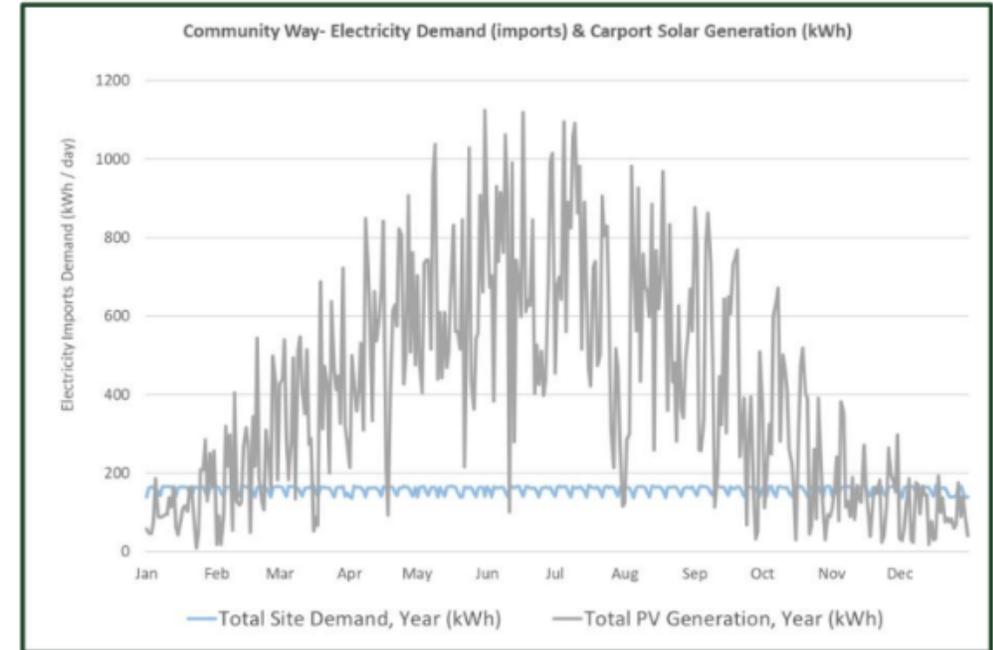
**Financial Viability**

**Site Prioritisation**

## Lifetime Cashflow



## Energy Balance



## Energy Utilisation

A	B	C	D	E	F	G	H	I	J	K	
1	Name of Carpark	Location	Ownership details	Latitude and longitude of each car park	Number of parking spaces	Any planned changes to the car park	Parking rates and pricing	Number and type of EV chargers installed	EV charger utilisation data	Assumed or modelled charger demand	General utilisation or occupancy data
2	Cat Nab Car Park	T82-B22512 1HD	RCBC owned	54.584611, -0.967820	212	NA	£3.00 FOR 1 HOUR, £5.00 FOR 2 HOURS, £7.00 FOR 3 HOURS, £10.00 ALL DAY, £10 OVERNIGHT	2 x 7 kW	High		Very busy all year
3	Cat Nab Overflow Car Park	T512 1HF	RCBC owned	54.583868, -0.966113	20	NA	£3.00 FOR 1 HOUR, £5.00 FOR 2 HOURS, £7.00 FOR 3 HOURS, £10.00 ALL DAY, £10 OVERNIGHT				Very busy in summer
4	West Duke Road North	T510 3FA	RCBC owned	54.617104, -1.058893	51	NA	£1.00 FOR 1 HOUR, £2.50 ALL DAY	6 x 11 kW			
5	West Duke Road South	T510 2AA	RCBC owned	54.615097, -1.059218	41	NA	£1.00 FOR 1 HOUR, £2.50 ALL DAY				
6	King Street	T510 3DT	RCBC owned	54.618146, -1.062041	18	NA		In planning			
7	Graffenburg Street	T810 3DB	RCBC owned	54.617375, -1.060781	27	NA	£1.50 FOR 1 HOUR, £2.50 FOR 2 HOURS, £4.00 FOR 3 HOURS, £6.00 ALL DAY	1 x 50 kW	High		Busy
8	Turner Street	T510 1AZ	RCBC owned	54.619816, -1.070985	54	NA	£6.00 ALL DAY	In planning			
9	Fishermans Square	T510 3EE	RCBC owned	54.618170, -1.056848	72	NA	£1.00 FOR 1 HOUR, £2.50 ALL DAY	12 x 11 kW			
10	Fountain Street East	T514 6PP	RCBC owned	54.534256, -1.051384	48	NA	FREE SHORT STAY	In planning			
11	Fountain Street West	T514 6PP	RCBC owned	54.533826, -1.052392	50	NA	£1.00 FOR 1 HOUR, £2.50 ALL DAY, £1.50 FOR 2 HOURS, £4.00 FOR 3 HOURS, £6.00 ALL DAY	12			
12	Quisborough Forest & Walkway Centre	T514 6HD	RCBC owned	54.528297, -1.056879	110	NA	£6.00 ALL DAY	2 x 22 kW (more planned)			Very busy all year
13	Reid Terrace	T514 6EB	RCBC owned	54.535917, -1.053813	29	NA	FREE SHORT STAY	In planning			
14	Patten Lane	T514 6PJ	RCBC owned	54.538617, -1.051844	26	NA	£3.30 ALL DAY	In planning			
15	Church Square	T514 6RD	RCBC owned	54.538893, -1.049038	20	NA	FREE SHORT STAY				
16	Majuba Road	T510 5BJ	RCBC owned	54.619660, -1.082315	187	NA	£1.50 FOR 1 HOUR, £2.50 FOR 2 HOURS, £4.00 FOR 3 HOURS, £6.00 ALL DAY	4 planned			Very busy in summer
17	Kirkcoteham Street	T510 1RE	RCBC owned	54.615993, -1.074104	188	NA	£1.30 FOR 1 HOUR, £2.60 FOR 2 HOURS, £4.00 FOR 3 HOURS, £5.30 ALL DAY				
18	Coatham Bowl Car Park	T510 5BJ	RCBC owned	54.619156, -1.077605	100	NA	£1.50 FOR 1 HOUR, £2.50 FOR 2 HOURS, £4.00 FOR 3 HOURS, £6.00 ALL DAY				Very busy in summer
19	Seafield House	T510 1SP	RCBC owned	54.616626, -1.072859	100	NA	£1.30 FOR 1 HOUR, £2.60 FOR 2 HOURS, £4.00 FOR 3 HOURS, £5.30 ALL DAY	2 x 11 kW (2 more planned)	High		Very busy all year

rent EV (epoints)	Planned EV chargepoints	Nearby private sector building	Nearby public sector building	Building rooftop solar (kWp)	electricity consumption (kWh)	Building planned heat pump	Notes
1		Stoneacre, Evans Halshaw (over the road)	Park and Ride building		32970		
1			Woodford Leisure Centre		1055050		
1			Costello Leisure/Stadium		129535		Separate plans for EV canopy; Elec usage mainly for floodlights; A car park to the east adjacent to Warners health (has solar rooftopP and to the west adjacent to stadium.
1			Ennerdale Leisure		676375		
1	Subject to LEVI	HICA Home Care (over the road)					Unmetered lights
13	Subject to LEVI				170725		Unmetered lights; multi-storey
1	Subject to LEVI		Hull Ice Arena		1253910		
			History Centre		385615		
			Maritime Building (adjacent), Hull Guildhall (over road)		9850		Elec for EV chargers only at car park, not the nearby buildings. Criss-cross parking layout
			Wilberforce Health Centre; Jubilee Central				
			Albert Avenue Leisure		806015		
			Stockholm Rd Depot		768000		Solar rooftop planned, potential for nearby wind; long-term planning needed for EV charging
			Wiltshire Road Recycling Centre (over the road)				
			Springhead golf club				Building and elec use is from a third-party charitable trust

Name of Carpark	Location	Ownership details	Latitude and longitude of each car park	Number of parking spaces	Any planned changes to the car park	History Centre	HU2 8BG	Hull	Yes	51	Tarmac	No	4	Subject to LEVI	History Centre	385615
Abbotts Yard	Bondgate, Darlington	Darlington Borough Council	DL3 7JE	89 inc 22 Disabled Bays	No	Lowgate	HU1 2AA	Hull	Yes	61	Tarmac	No	2	Subject to LEVI	Maritime Building (adjacent), Hull Guildhall (over road)	9850
Commercial Street West	Commercial Street, Darlington	Darlington Borough Council	DL3 6JG	155 inc 7 Disabled Bays	No	Albion St	HU1 3SA	Hull		56	Tarmac	Some on spaces nearest building	None		Wilberforce Health Centre; Jubilee Central	
Feethams Multi Storey	Beaumont Street, Darlington	Darlington Borough Council	54°31'22.4"N 1°33'18.9"W	650 inc 33 Disabled Bays	In 2026 the car park will be upgraded to ANPR system	Albert Av Leisure	HU3 6QE	Hull		50	Tarmac/Brick mix	No	None		Albert Avenue Leisure	806015
Kendrew Street West	Kendrew Street, Darlington	Darlington Borough Council	DL3 6JP	83 inc 6 Disabled Bays	No	Stockholm Rd Depot	HU7 0XW	Hull			Tarmac	Some tree shade in staff parking areas	10		Stockholm Rd Depot	768000
						Wiltshire Rd Car Park	HU4 6PA	Hull		270	Tarmac	No	None		Wiltshire Road Recycling Centre (over the road)	
						Springhead Golf Course	HU5 5JE	Hull		100	Tarmac	No	None		Springhead golf club	
Park Place East	Park Place, Darlington	Darlington Borough Council	DL1 5JR	94 inc 10 Disabled Bays	No						MON TO SAT £1.20 per hour upto 3hrs, £5 per day upto 3 days, £20 (7 day ticket) SUN £2	6 Blink Double Pro Line EV Charging Station				See below
Park Place West	Park Place, Darlington	Darlington Borough Council	DL1 5JW	115 inc 6 Disabled Bays	No						MON TO SAT £1.20 per hour upto 3hrs, £5 per day upto 3 days, £20 (7 day ticket) SUN £2	4 Blink Double Pro Line EV Charging Station				See below
Skerne Bridge	John Dobbin Road, Darlington	Darlington Borough Council	DL1 1LG	207 inc 2 Disabled Bays	No						MON TO SUN £1.20 per hour upto 3hrs, £4 per day	Should have 10 double EVCP points but they have not been installed as yet				See below
Winston Street North	Winston Street, Darlington	Darlington Borough Council		24 inc 1 Disabled Bay	No						MON TO SUN £1.20 per hour, max stay 10 hours £10	5 Blink Double Pro Line EV Charging Station				See below
Feethams multi storey car park	Beaumont Street, Darlington	Darlington Borough Council	54°31'22.4"N 1°33'18.9"W	650							£1.20 per hour, max stay 10 hours £10					

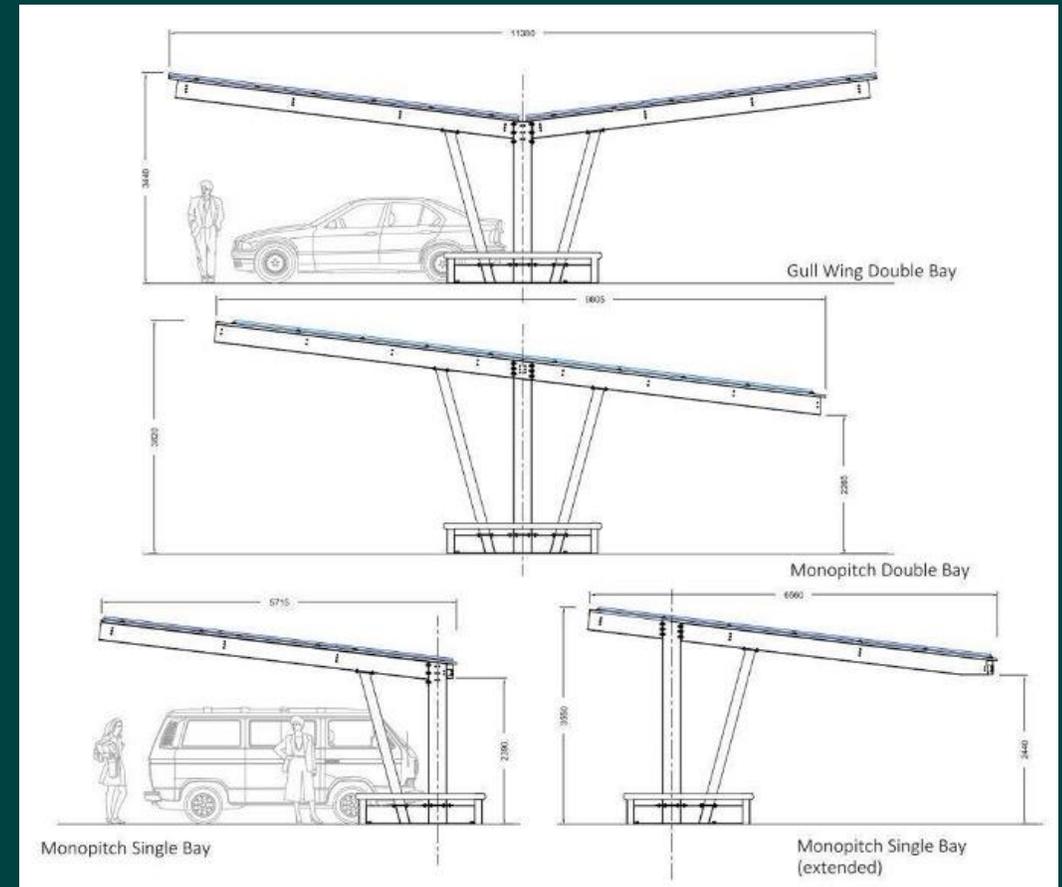
# Challenges and Lessons Learnt

## Challenges

- Public car park datasets were inconsistent across local authorities, requiring effort to validate and compile.
- Each car park presented unique challenges including planning restrictions, grid connection feasibility, and structural limitations.

## Lessons learnt

- **Value of Early Engagement:** Involving local authorities early ensured data quality and increased likelihood of toolkit adoption.
- **Toolkit as a Knowledge Multiplier:** A well-structured toolkit enables rapid scaling of insights beyond initial pilot sites.
- **Adaptability is Key:** Flexibility in project scope allows alignment with emerging insights, stakeholder priorities, and national decarbonisation goals.
- **Cross-Sector Collaboration:** Effective solar canopy deployment requires coordination between technical experts, local authorities, and public sector decision-makers.



# Summary: Unlocking Solar Canopy Projects



- Building a regional portfolio with the pre-feasibility toolkit opens the door to the full investment route to include detailed feasibility costs in the process.
- The Hub acts as a resource to investigate complex technologies like solar canopies, support business case development, and reduce both cost and risk in early project stages.
- Building a portfolio, using data-driven tools and collaboration across authorities enable scalable, investable solar projects at regional level.

## Regional Support



Lizzie Lunn - (North Of Tyne)  
Elizabeth.Lunn@northeast-ca.gov.uk



George Lee (South Yorkshire)  
george.lee@southyorkshire-ca.gov.uk



Dani Southall (Tees Valley)  
Danielle.southall@teesvalley-ca.gov.uk



Femi Omoniyi (West  
Yorkshire) Oluwafemi.Omoniyi@westyorks-ca.gov.uk



Harry Baross (Hull and East Riding)  
h.baross@heylep.com



TBC (York and North Yorkshire)  
TBC@yorknorthyorks-ca.gov.uk

Free for UK local authorities and Net Zero Hubs

Local Net Zero energy projects made easier

Co-created together with  
Local Authorities & Net Zero Hubs

<https://netzerogo.org.uk/>

## What is Net Zero Go

Net Zero Go helps local authorities and Net Zero Hubs to accelerate their projects with the knowledge, tools, and community they need to succeed.

## Who is Net Zero Go designed for?

Net Zero Go is built for local authorities and Net Zero Hubs tackling decarbonisation projects. Trusted by officers from over 300 councils across the UK, covering nearly 85% of all local authorities, it's your go-to platform to build skills, get answers fast, and drive your projects forward.

## What makes Net Zero Go stand out from other platforms?

Net Zero Go is trusted one stop shop for accelerating local decarbonisation. Co-created with local authorities, Net Zero Hubs, and industry experts - and funded by DESNZ - it brings together curated knowledge, proven tools, outputs from strategic hub-led programmes, and real-world insights.

## Who runs Net Zero Go?

Net Zero Go is managed by not-for-profit Energy Systems Catapult, funded & backed by Department for Energy Security & Net Zero.

## We would love your feedback!

Whether you're with a local authority or a Net Zero Hub, your feedback matters.

- Use the 'Feedback' button on the site
- Email us directly at: [user.feedback@netzerogo.org.uk](mailto:user.feedback@netzerogo.org.uk)

Get involved by:

- Sharing case studies
- Contributing templates & tools
- Sharing your expertise on the Forums
- Giving feedback

## Net Zero Go means



Resources



E-learning



Community

*I recommend Net Zero Go to all my friends working in local government. I just wish I had access to this much support when I started out as a climate change officer.*

Emma-Jane, GSENZH



In **ONE** place FREE for all local authorities and Net Zero Hubs