Department for Energy Security & Net Zero

Ready for RESP:

Net Zero Planning Masterclass: Transport

Greater South East Net Zero Hub | Midlands Net Zero Hub | north east & yorkshire Net Zero Hub | north west net zero hub | South West Net Zero Hub

Programme delivered by Catapult Energy Systems

Catapult team:
Chris Brierley, Dr Anna Stegman, Sandeep Kang & Georgios Gkogkidis

Housekeeping

Ready for RESP

AGENDA

1. 1200 – 1205 Intro to the Ready for RESP programme, tRESP Guide and polls
2. 1205 – 1210 Sarah Hassenpflug (NESO RESP) intro and update
3. 1210- 1230 Net Zero Data – Cardiff Solar Car Port Case Study
4. 1230 – Introduction - Tom Worthington (NESO RESP)
5. 1235 – 1300 – tRESP RFI case study example – EV charging hub
6. 5 minute break
7. 1305 – 1335 – LAEP modelling and Transport data
8. 1340 – 1350 Q&A

13.50: Wrap up

Programme delivered by CATAPULT Energy Systems

Ready for RESP

Literature review, stakeholder consultations, and Catapult experience collated

Library of evidence collated

Series of simple language guides
1: Ready for tRESP
2: Ready for RESP
3: Local Government Resourcing plan
4: Local Net Zero Plan Guidance

Hub engagement plan

Game style workshop to bring the interactions of local and regional stakeholder objectives together, demonstrating the value RESP and planning can provide.
Plus follow up in person regional sessions

Change Management training day

Deliver subject specific webinars (buildings, renewable generation, energy networks, transport, industry, hydrogen)

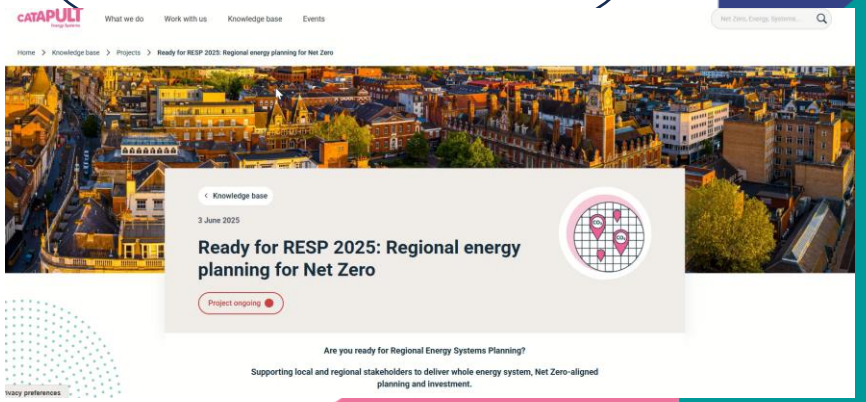
National stakeholder engagement plan

Disseminate guides with 3 interactive online briefing sessions for each region

LA survey and findings to understand regional readiness for Local Net Zero planning

Briefing notes to summarise Guide content for different audiences

Outputs from each activity hosted on Net Zero Go



Ready for RESP

Guests from NESO

Sarah Hassenpflug
RESP Manager

Tom Worthington
RESP Manager

Programme delivered by
CATAPULT
Energy Systems

Ready for RESP

QUICK POLLS:

- What are the challenges local authorities face with regards to transport decarbonisation planning?
- Have your local authorities come to you for support to complete the tRESP RFI?
- If yes – what have they asked for in relation to transport projects?

Programme delivered by
CATAPULT
Energy Systems

Ready for RESP

Sandeep Kang

Senior Product Manager

NET ZERO DATA

Programme delivered by

CATAPULT Energy Systems

Net Zero Data

Quick and easy access at:

www.netzeromarket.org.uk

What is Net Zero Data?

High quality data

Data bundles

GB coverage

Ready to use

API & common file formats

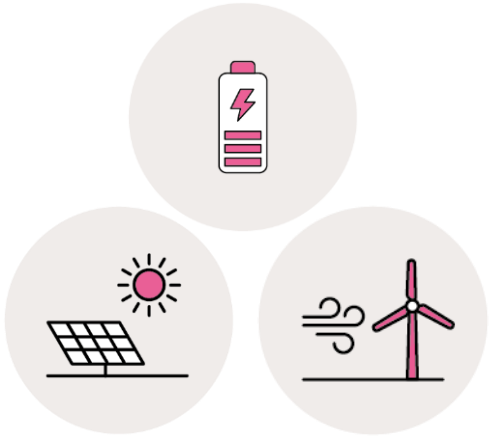
Regular updates

Flexible pricing

Optional visualisation tool

Net Zero Data Datasets

Potential for: Renewables and Storage

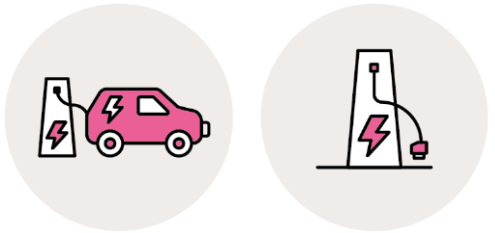


- Large Scale Wind Potential
- Solar PV Ground Mount Potential
- Battery Storage - Domestic
- Rooftop Solar PV Potential - Domestic
- Rooftop Solar PV Potential - Non-Domestic

Potential for: Heat

- Air Source Heat Pump Potential - Domestic
- Air Source Heat Pump Potential - Non-Domestic
- Ground Source Heat Pump Potential - Domestic
- Ground Source Heat Pump Potential - Non-Domestic

Potential for: Transport



- Off Street Parking Potential - Domestic
- On Street Charging Potential - Domestic
- Potential locations for EV Hubs
- Potential locations for Solar Carports
- Existing Charge Point Locations

Buildings and Energy

- EPC Actual & Inferred - Domestic
- Buildings & Modelled Energy Demand - Domestic
- Buildings & Modelled Energy Demand - Non-Domestic
- Non-Building Energy Demand
- DNO demand headroom & capacity

Case Study – Cardiff City Council

Customer need

"We need to understand how much potential carparks have in terms of renewable generation in the city, both on council owned carparks and privately owned carparks."

Requirements

- To be able to understand what installing solar PV in carparks would look like from an opportunity and options perspective.
- To have visibility of all opportunities across all public, large retail, and industrial carparks in Cardiff City, irrespective of land ownership.
- Council owned carparks will be a priority for Cardiff City Council however these don't need to be explicitly identified in the data.
    - Cardiff City Council overlayed their own asset data.
- To be able to understand what local energy network capacity might exist based on available capacity & headroom.
    - Network constraints should not be used to exclude locations.

How did we meet Cardiff's needs?

As an existing Net Zero Data customer, we worked with Cardiff we developed a new dataset within in a couple of weeks, that quickly gave them the insights they needed to determine whether Cardiff City had potentially suitable locations for solar carports whilst also taking into consideration local network constraints.

What did we do next?

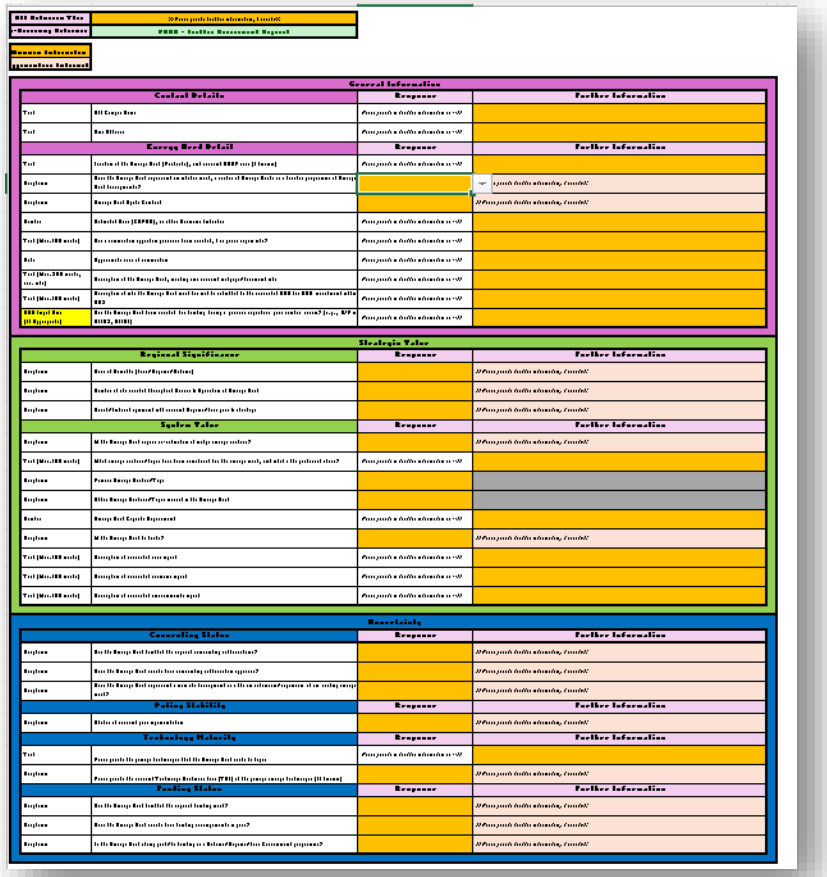
Although the initial requirement was specific to Cardiff, the work we delivered enabled us to further develop a GB wide dataset that is available to buy on our marketplace.

Ready for RESP

tRESP RFI Case Study

Tom Worthington

RESP Manager



Programme delivered by CATAPULT Energy Systems

Ready for RESP

Transport data and how it relates to RESP

Georgios Gkogkidis

Modelling Analyst

Programme delivered by

CATAPULT Energy Systems

Transport is critical to Net Zero Planning

UK Emissions from Transport

Around 30% of UK emissions come from domestic transport – with over half of that from cars and taxis.

Influence of Local Authorities

Local Authorities influence transport-related enablers of decarbonisation like public charging infrastructure and parking.

Energy Levers

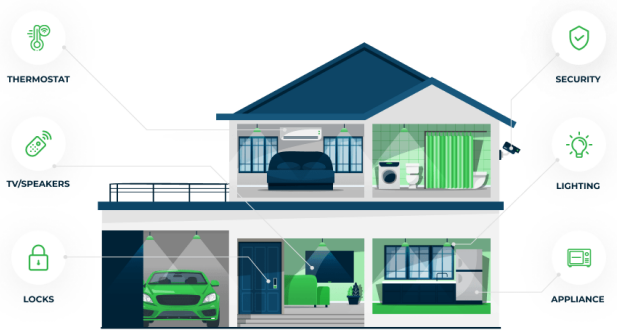
Apply levers: modal shift (e.g. to public or active transport) and electrification of vehicles.

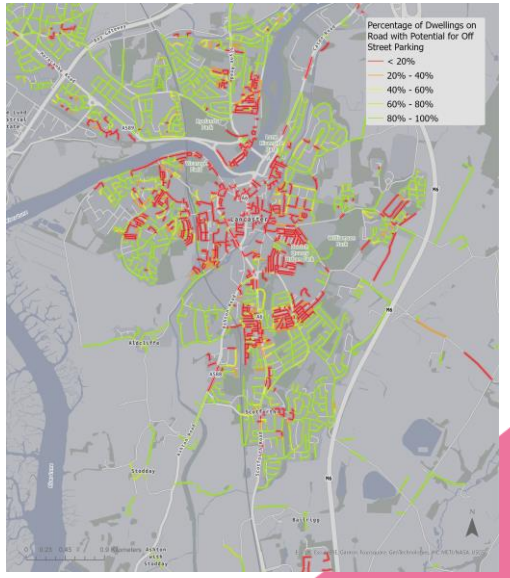
Programme delivered by CATAPULT Energy Systems

Role of transport in a LAEP

- Carbon footprint
- Decarbonisation of fleet
- Infrastructure
- Synergies with other technologies
- Network constraints

```
7]: def create_subsets_minimize_difference(nums, num_groups):
        nums.sort(reverse=True)  # Sort the numbers in decreasing order
        subsets = [[] for _ in range(num_groups)]
        subset_sums = [0] * num_groups

        for num in nums:
            # Assign the current number to the subset with the smallest sum
            min_subset_index = subset_sums.index(min(subset_sums))
            subsets[min_subset_index].append(num)
            subset_sums[min_subset_index] += num

        return subsets

    # Example usage:
    #knime have table and i use group by node to chage column like list
    nums = [3, 3, 10, 11, 14, 14, 17, 18,18,20,23,23,25,30,30,31,38,38]
    #auto set
    num_groups = 5

    result = create_subsets_minimize_difference(nums, num_groups)
    sumslist=[sum(sublist)for sublist in result]
    print (result)
    print(sumslist)

    [[38, 20, 11, 10], [38, 18, 14, 3], [31, 23, 17], [30, 25, 14, 3], [30, 23, 18]]
    [79, 73, 71, 72, 71]
```





Programme delivered by CATAPULT Energy Systems

Transport Data & LAEP Modelling

Spatial Datasets

- Existing public charge point locations
- Off street parking potential – domestic buildings
- On street charging potential – Domestic buildings
- Potential locations for EV Hubs
- Network data

Non-Spatial Datasets

- Number of registered vehicles
- Demand for travelling
- Charging demand profiles

Driver & Vehicle Licensing Agency

NET ZERO DATA

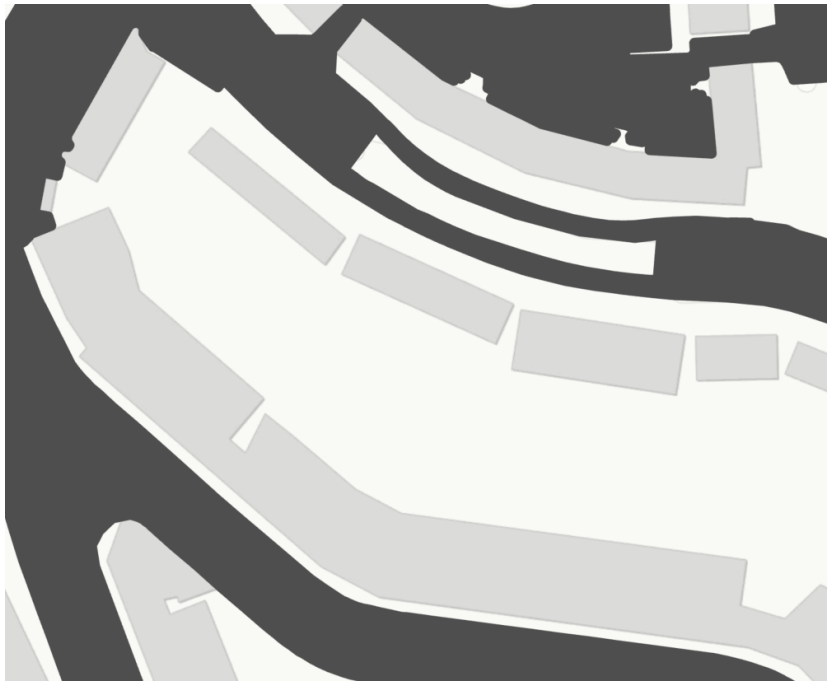
Department for Transport

zapmap

Open Charge Map

Programme delivered by CATAPULT Energy Systems

Off street parking potential

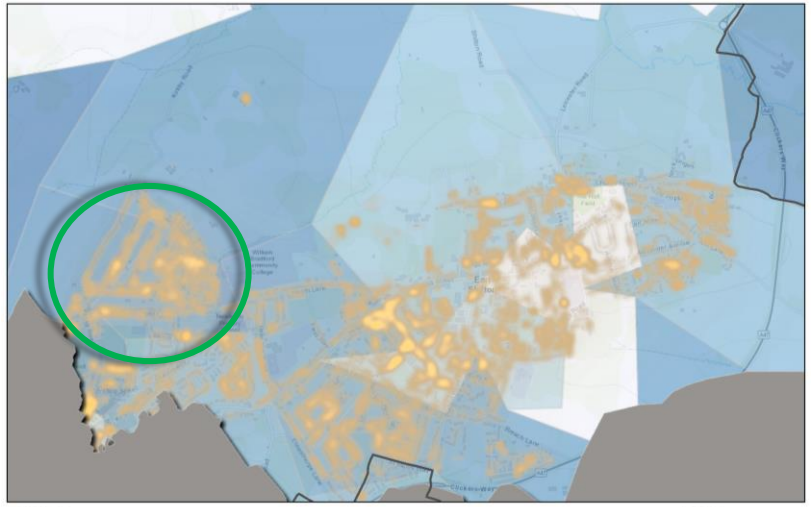


- OS Input Data
- Road Network
- Land Parcels
- Buildings Footprint

- Red / Amber / Green flag
- Indicates suitability for Off street parking

Programme delivered by CATAPULT Energy Systems

From inputs to outputs



- Network data
- Net Zero Data data
- Modelling
- Post-modelling processing

- Domestic flexibility
- On-Street residential charging

Transport Data - Going the Extra Mile

- Local transport strategies to identify future demand
- Plans for public charging infrastructure deployment
- Insights from real-world charging demand data

RESP Gaps & Opportunities

- Assess wider electricity network impact
- Include more means and modes of transport: HGVs, buses, etc.
- Target main road network locations, such as service stations in motorways
- Reinforce priorities and collaboration among adjacent local authorities.

Programme delivered by CATAPULT Energy Systems

Any Questions?

Coming up next

Are people happy to move to a 1330-1500 slot ?

- 19th September: Heat networks
- 25th September: Flexibility and smart local energy systems
- 2nd October: Industrial clusters & hydrogen

Coming up next

Upcoming Guides

- Net Zero Planning approaches
- Resourcing the delivery of Net Zero Plans

Other activities

- Self assessment tool to help local authorities identify best approach for them

Ready for RESP

QUICK POLL:

- How well did todays session meet your expectations?
- What else would you like to hear in future sessions and how can we improve?

Programme delivered by

CATAPULT Energy Systems

Department for Energy Security & Net Zero

Greater South East Net Zero Hub

MIDLANDS NET ZERO HUB

north east & yorkshire NET ZERO HUB

north west net zero hub

South West NET ZERO HUB

Ready for RESP

Thank you

Any questions/comments please email us:
Anna.Stegman@es.catapult.org.uk or
Chris.Brierley@es.catapult.org.uk

Programme delivered by

CATAPULT Energy Systems