Digital Twins of National Infrastructure

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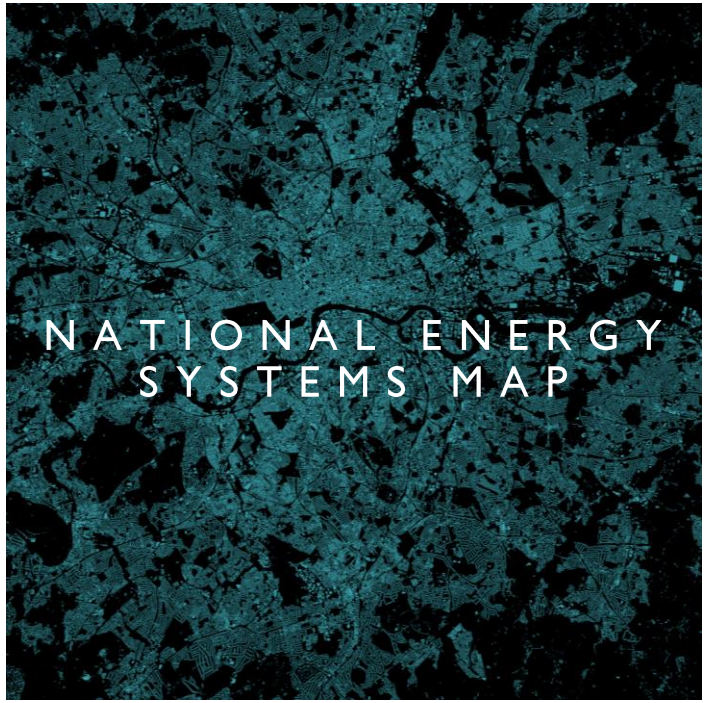
Strategic Propositions

Ordnance Survey

SEE > BETTER PLACE

Overview



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Data integration needs = Digital Twin characteristics

Dynamic data

Data from multiple, disparate sources

Interoperability (findability, accessibility, linkability, …)

UK National Digital Twin Programme
Centre for Digital Built Britain at Cambridge University

CDBB definition of a Digital Twin

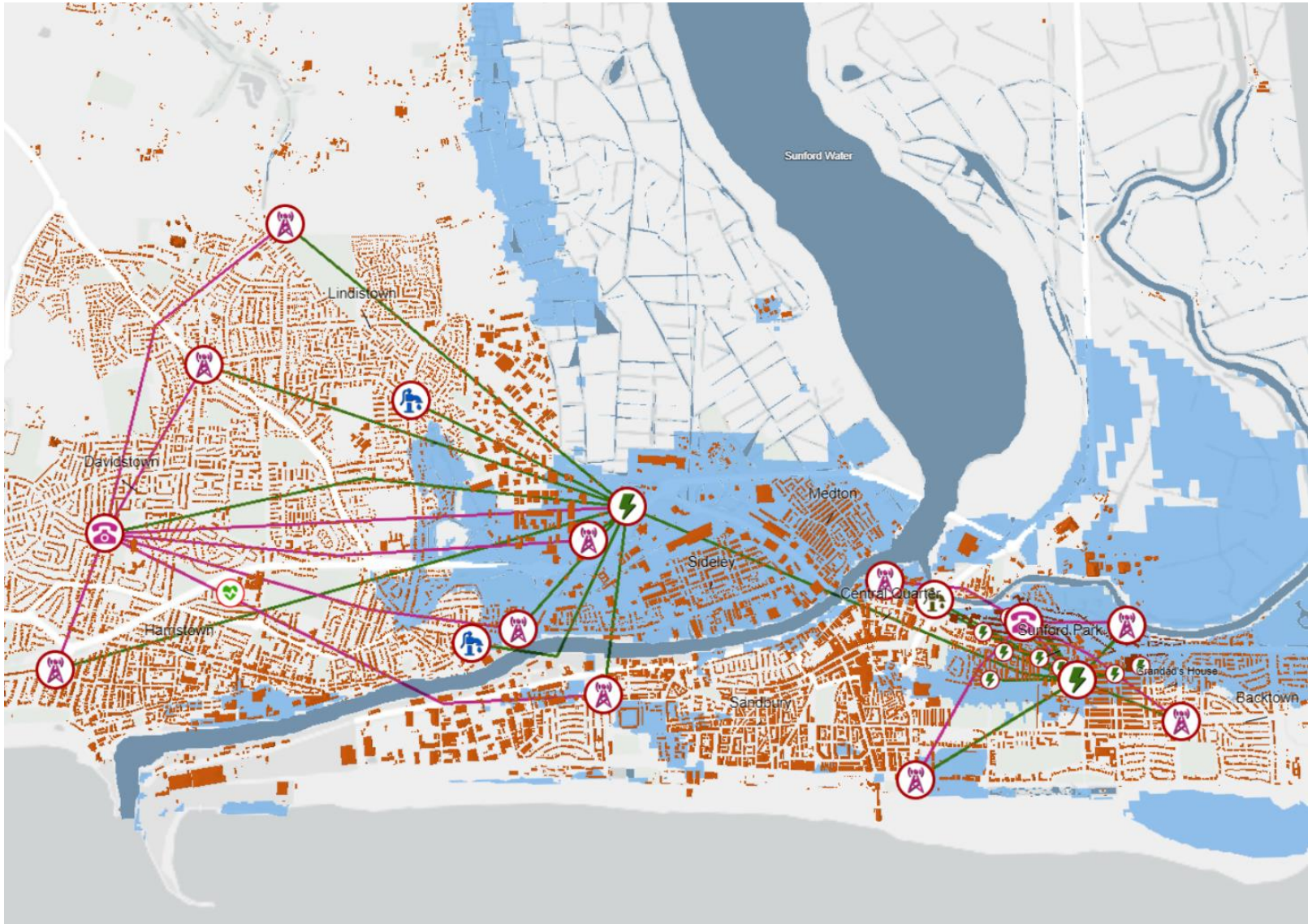
A digital twin is a realistic digital representation of assets, processes or systems in the built or natural environment.

https://digitaltwinhub.co.uk/credo-film/#credoapp

CReDo:

Climate
Resilience
Demonstrator

CDBB/nDTP



National Digital Twin (CDBB)

An ecosystem of Digital Twins connected via securely shared data.

It is envisaged to consist of ‘federations’ of Digital Twins joined together via secure, resilient and interoperable data.

Not all Digital Twins will be connected, and will be only when it delivers value.

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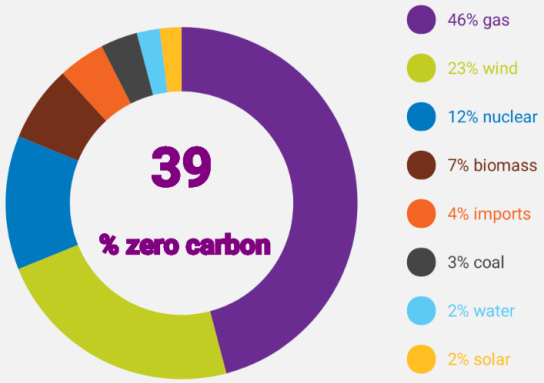
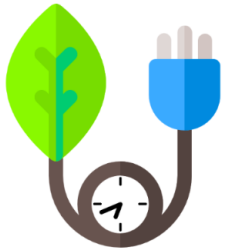
GB Generation Mix



When To Use



Our Carbon Imp

Home

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When Electricity Is Cleanest

(gCO_2/kWh)

11:00 - 13:00	13:00 - 15:00	15:00 - 17:00
231	226	235
17:00 - 19:00	19:00 - 21:00	21:00 - 23:00
232	213	170

Home

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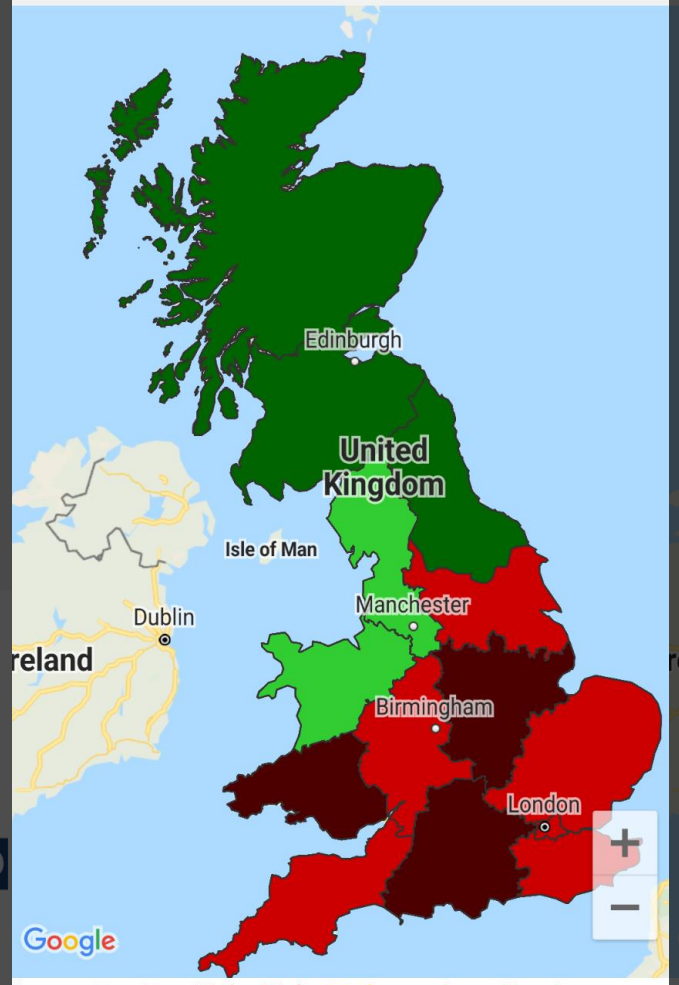
Tap for Regional Info



Key: Very High - High - Moderate - Low - Very Low

Map

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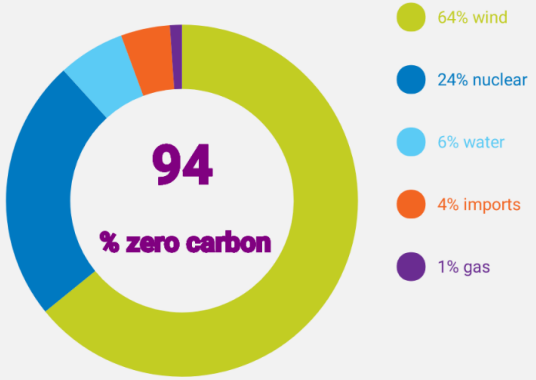
South Scotland

Current Carbon Intensity

25

gCO_2/kWh



Map

UK National Energy System Map

ena energynetworks association

1spatial YOUR WORLD SMARTER

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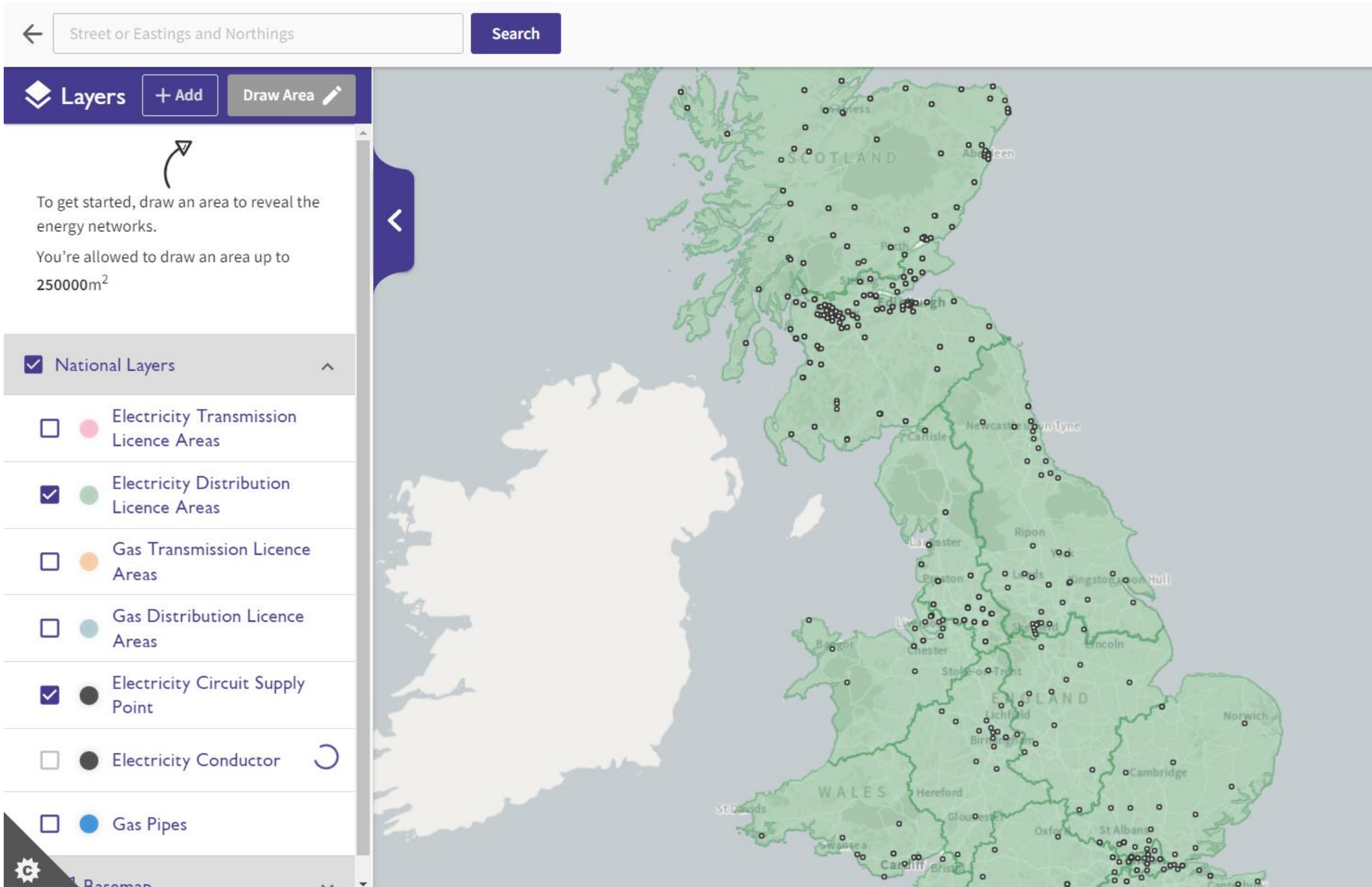
Supply areas and grid supply points (electricity)



Upgrading bus depots to electric charging

	A	B	C	D	E	F	G	H	I
1		No. Buses	Longditude	Lattitude	Current Connection	Charge Window (hours)	Required Connection Upgrade (MW)		
2	Bus Garage A	50	57.4815977	-4.22548	50kW	6	2.9		
3	Bus Garage B	75	57.5053385	-1.79009	100kW	8	3.3		
4	Bus Garage C	100	57.1262445	-2.09219	100 kW	6	5.8		
5	Bus Garage D	25	56.8194686	-5.10823	25kW	12	0.7		
6									

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Street or Eastings and Northings

Search

Layers

+ Add

Draw Area

To get started, draw an area to reveal the energy networks.

You're allowed to draw an area up to 250000m^2

National Layers

- Electricity Transmission Licence Areas
- Electricity Distribution Licence Areas
- Gas Transmission Licence Areas
- Gas Distribution Licence Areas
- Electricity Circuit Supply Point
- Electricity Conductor
- Gas Pipes

Basemap

Add a layer

Upload a data layer from your device. Accepted formats are Shapefile (Zip) and GeoJSON.

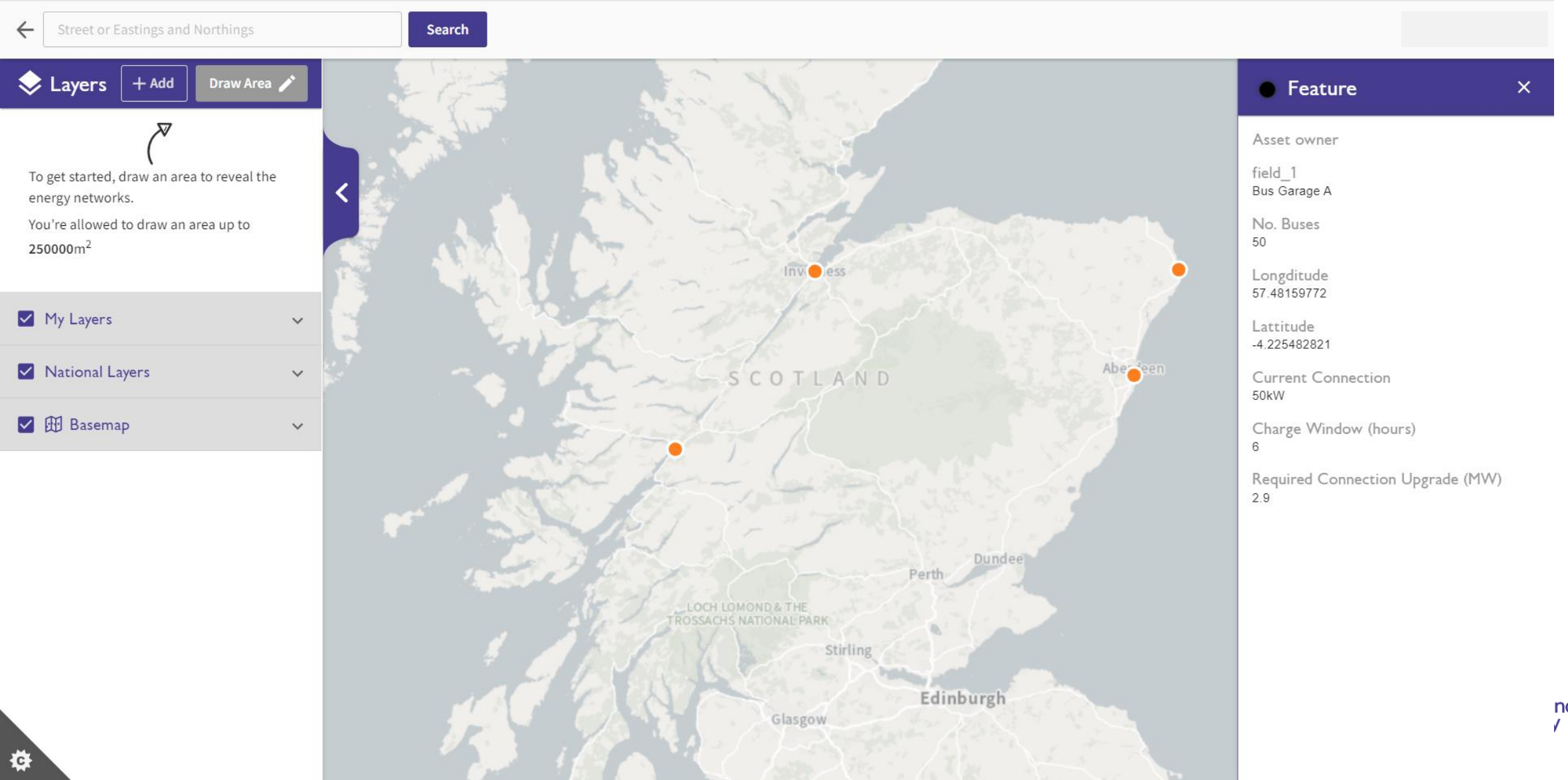
	Shapefile	GeoJson
Max. size	5Mb	5Mb
Compression	must be zipped	none
Projection	BNG (EPSG:27700)	BNG (EPSG:27700)

Your data remains private. Uploaded data is not permanently stored or ever shared with other users

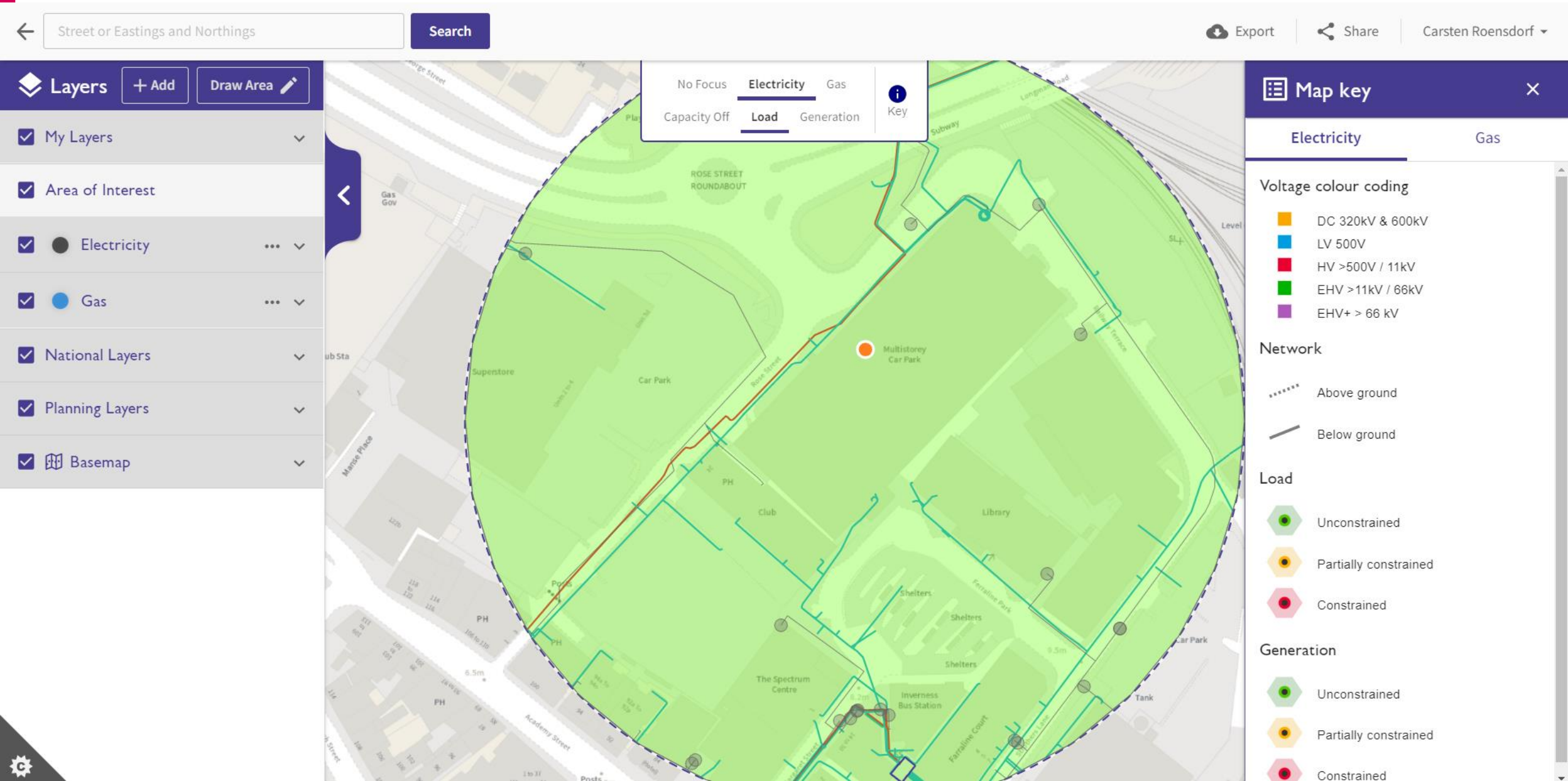
Drag and drop .shp or .geojson

Select from my device...

Bus depot overlay



Check local substation capacity (headroom)

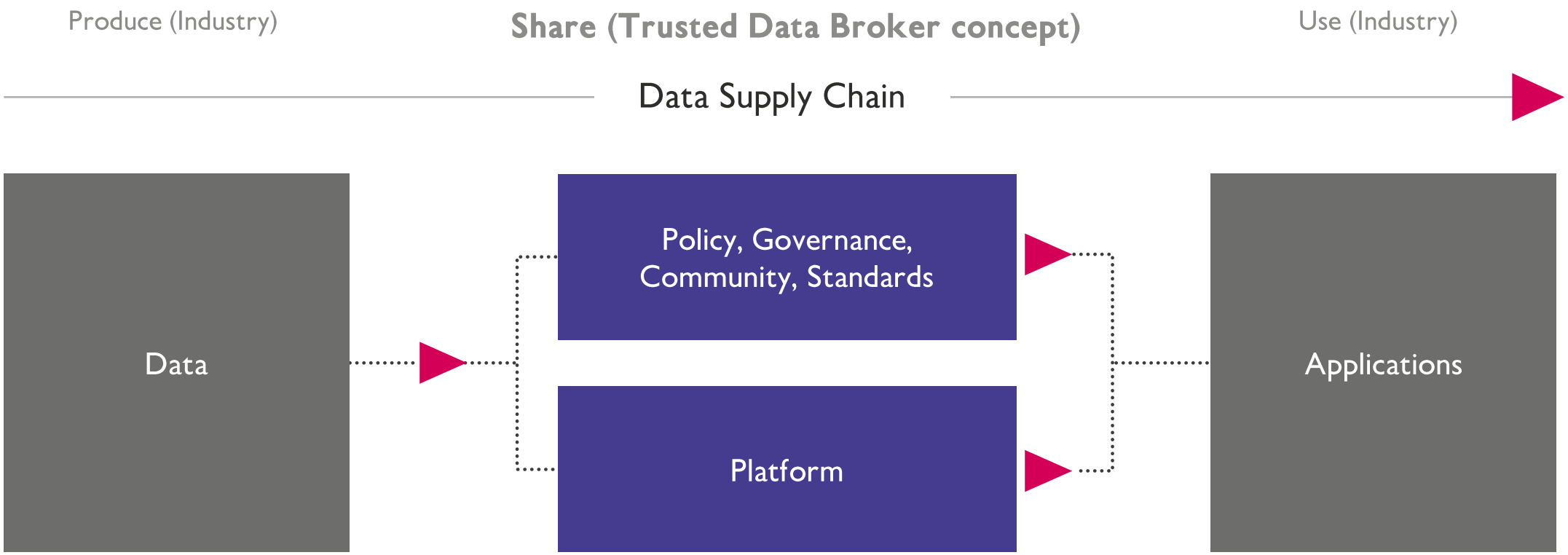


National Energy System Map

Before you can visualise data on a platform, you need to address

More information on blog post
https://www.ordnancesurvey.co.uk/newsroom/insights/mapping-the-uks-energy-network

NMCA as trusted data broker



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Is there a role for NMCAs to facilitate the creation/provision of Digital Twin aligned to government policies and innovation/investment activities ?

Having real-time info on where to charge vehicles and the expected demand on the grid means we can plan efficient EV infrastructure.

Thank you.

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