

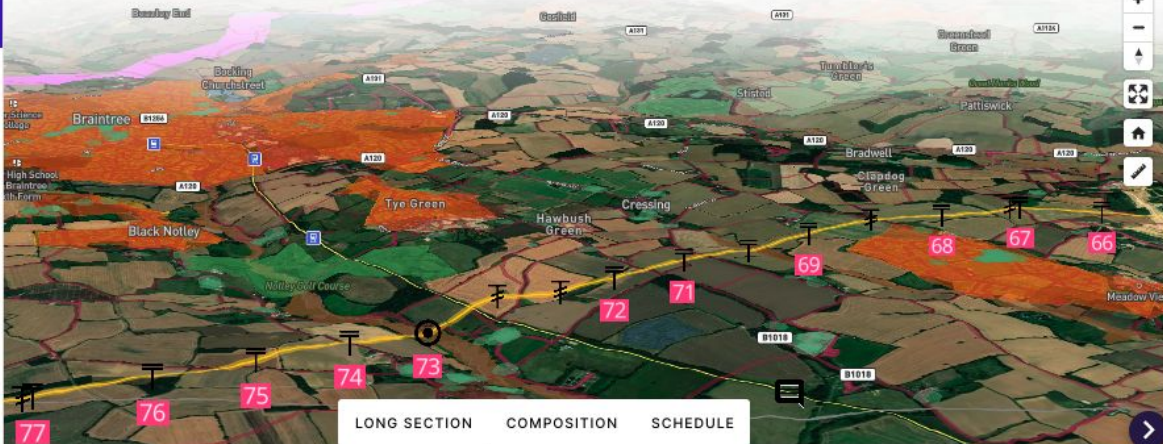
How all our maps got pigeonholed

Miles Gould
@pozorvlak@mathstodon.xyz

- MAP CONTROLS
- RESULTS LIBRARY

Search

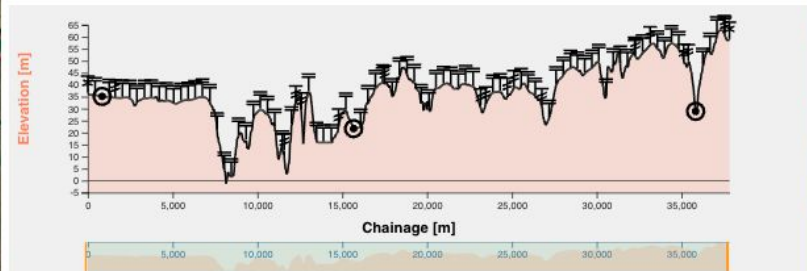
1 km



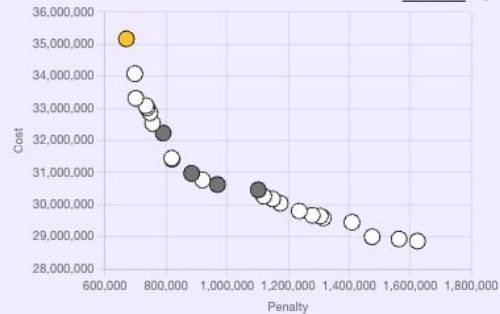
LONG SECTION COMPOSITION SCHEDULE

Option #69297 ACTIVE

Route components Link map



MRH_WP_FES_CORR hide_pareto_front show_slider



Heatmap

MRH_WP_FES_CORR - #OM-7068

Option #69297 ACTIVE

Option Comparison

SAVE METRICS

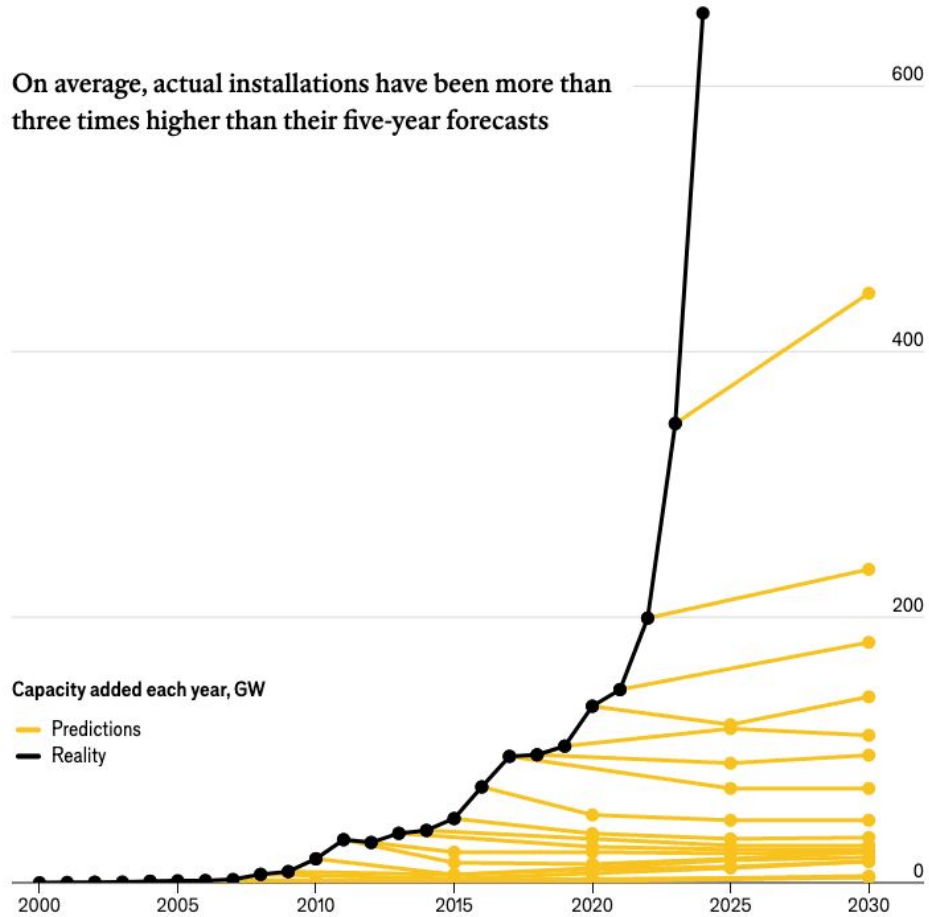
_SUMMARY (CUSTOM) ME...

6 / 785 Parameters selected Clear All

- VERTICAL PROFILE
- SCATTER PLOT
- RADAR PLOT
- TABLE

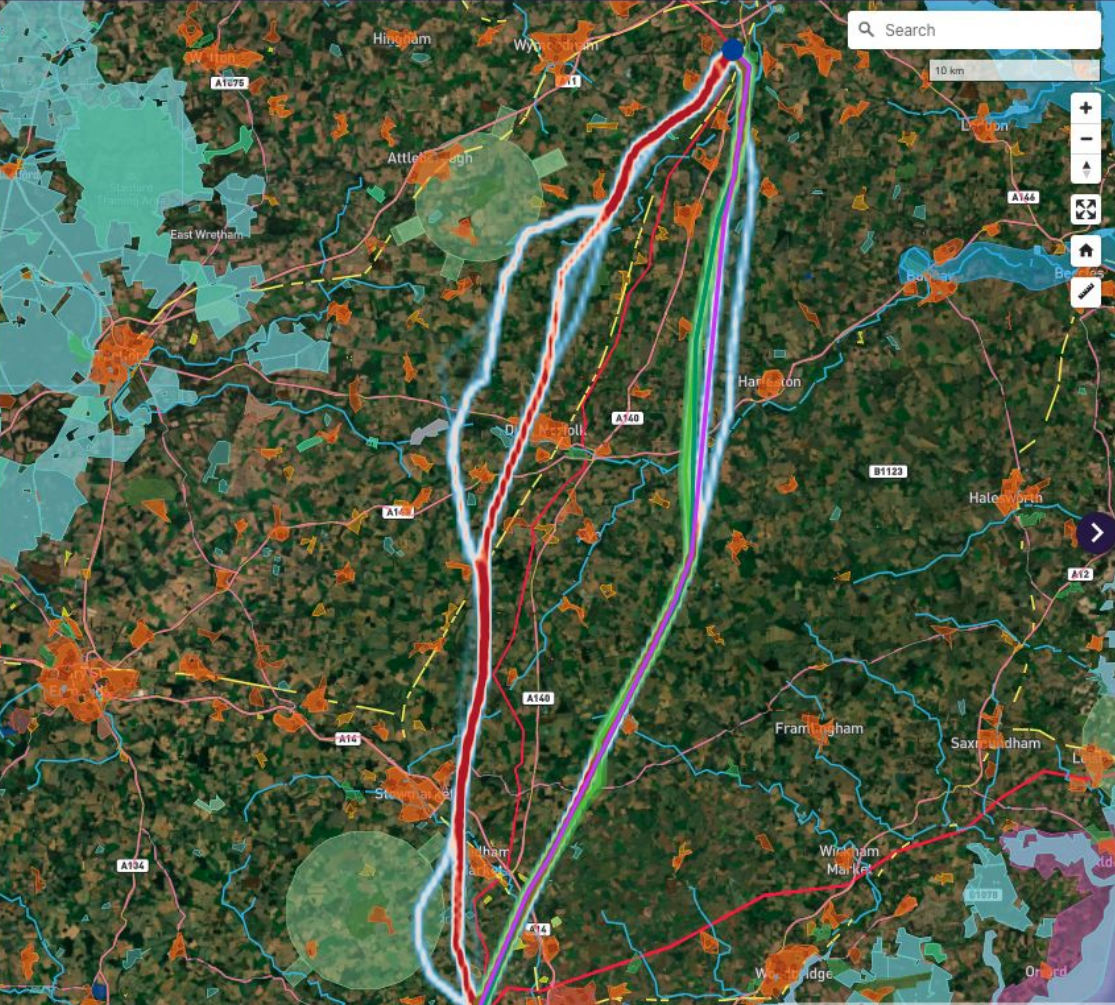
↓ EASY PV *how solar outgrew expectations*

On average, actual installations have been more than three times higher than their five-year forecasts



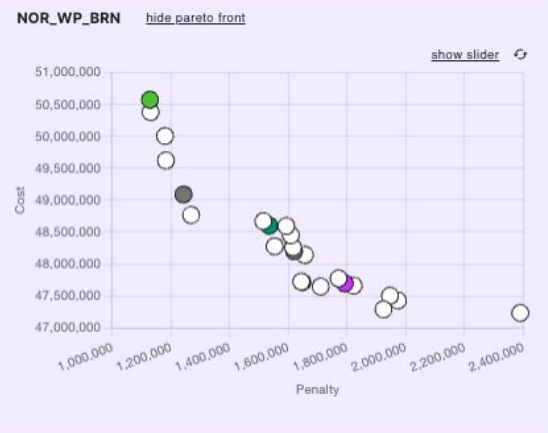
MAP CONTROLS

RESULTS LIBRARY



Option Selection 3/25 Selected CLEAR EXPORT

Add Results to Selection Group By Case



- Heatmap
- NOR_WP_BRN - #OM-7064
- Option #69197 ACTIVE
- Option #69208 \$
- Option #69232 \$

Option Comparison SAVE METRICS

SUMMARY (CUSTOM) ME



LONG SECTION COMPOSITION SCHEDULE

Option #105258 ACTIVE

13 selected
biodi

- Biodiversity Units Ancient Woodland
- Biodiversity Units Area Of Outstanding Natural Beauty (Aonb)
- Biodiversity Units Country Parks
- Biodiversity Units Conservation Areas
- Biodiversity Units Greenspace - Public Parks And Gardens
- Biodiversity Units Habitat Networks - Ancient Semi Natural Woodland
- Biodiversity Units Important Bird Area (Iba)
- Biodiversity Units Parks And Gardens
- Biodiversity Units Peaty Soils
- Biodiversity Units Special Area Of Conservation (Sac)
- Biodiversity Units Special Protection Area (Spa)
- Biodiversity Units Site Of Special Scientific Interest (Sssi)



Results Library

RESULTS SCENARIOS CASE STATUS METRICS

ANALYSIS MODE

Red-Amber-Green

OPTIONS - 12 SELECTED

SAVE MAP

RTE08 - INDICATIVE O...

EDIT SELECTION

METRICS - 6 SELECTED

SAVE METRICS

_SUMMARY (CUSTOM) ME...

EDIT COLUMNS

CUSTOM METRICS

Search...

Result Type

Label

+ ADD TO SELECTION

EXPORT

DELETE

ARCHIVE

Show Only Visible

Show Archived

GROUP BY CASE

Result Name	Objective	Natural Environment - Impact Summary	Social - Impact Summary	Cultural Heritage - Impact Summary	Installation Difficult Impact Summary
MRH_FES_SCLF - #69071	🌿	797	4,394	147	
MRH_FES_SCLF - #69078	💰	3,000	13,995	133	
MRH_FES_SCLF - #69081	👤	2,073	8,204	157	
MRH_FES_SCLF - #69084	ⓘ	3,250	13,869	128	
MRH_FES_SCLF - #69090	🏗️	3,287	9,872	80	
MRH_WP_FES - #69200	🌿	6,581	11,032	701	
MRH_WP_FES - #69214	ⓘ	6,615	11,359	692	

Items per page:

All

1-15 of 15

< < > >

CULTURAL HERITAGE

WOODLAND & FORESTRY

TECHNICAL CHALLENGES

SOCIAL RECEPTORS

NEW REPORT

PROJECT FEATURES 3 LAYERS 9+ BUFFERS 1

ANALYSE



POINTS LINES POLYGONS

- Land Rights Issue ID 6726
Land Rights Issue
Updated: 26/6/2024 Created: 26/6/2024 **Land Rights Issue**
- No Go from Network Rail ID 6718
No Go from Network Rail
Updated: 25/6/2024 Created: 25/6/2024
- Onshore SS - Search Area ID 6120
Onshore SS - Search Area
Updated: 8/5/2024 Created: 8/5/2024 **Search Area**
- Polygon - example ID 6507
Polygon - example
Updated: 7/6/2024 Created: 7/6/2024 **Search Area**
- Recreation ID 6720
Recreation
Updated: 26/6/2024 Created: 26/6/2024 **Recreation**
- Recreation ID 6721
Recreation
Updated: 26/6/2024 Created: 26/6/2024 **Recreation**
- Route Option 1 ID 6633
Route Option 1
Updated: 21/6/2024 Created: 21/6/2024 **Routes**
- Route Option 2 ID 6634
Route Option 2
Updated: 21/6/2024 Created: 21/6/2024 **Routes**
- Route Option 3 ID 6635
Route Option 3

LAYERS

Search Layers

Layer	Route Option 1 Overlap (500)	Route Option 1 Feature Count (500)	Route Option 2 Overlap (500)	Route Option 2 Feature Count (500)	Route Option 3 Overlap (500)	Route Option 3 Feature Count (500)
<input type="checkbox"/> Ancient Woodland	6.96	111	6.95	113	7.36	107
<input type="checkbox"/> Broadleaved, Mixed and Yew Woodland	19.4	3,501	26.9	3,994	23.6	3,854
<input type="checkbox"/> Coniferous Woodland	0.25	35	0.542	80	0.298	47
<input type="checkbox"/> Woodland	5.48	22	13	28	12.6	32
<input type="checkbox"/> National Forest Inventory: Broad-leaved	21.9	892	27.4	1,037	24.1	876
<input type="checkbox"/> National Forest Inventory: Coniferous	2.19	152	4.22	223	3.06	185
<input type="checkbox"/> National Forest Inventory: Estates	0	0	1.02	3	0	0
<input type="checkbox"/> Recreation Areas	0	0	0.000463	2	0	0
<input type="checkbox"/> Habitat Networks - Ancient Semi Natural Woodland	40	391	47.9	460	47	491
<input type="checkbox"/> Habitat Networks - Wood Pasture and Parkland	6.12	6	22.5	61	4.18	3
<input type="checkbox"/> Wood Pasture and Parkland BAP Priority Habitat	2.99	58	5.26	83	3.2	74

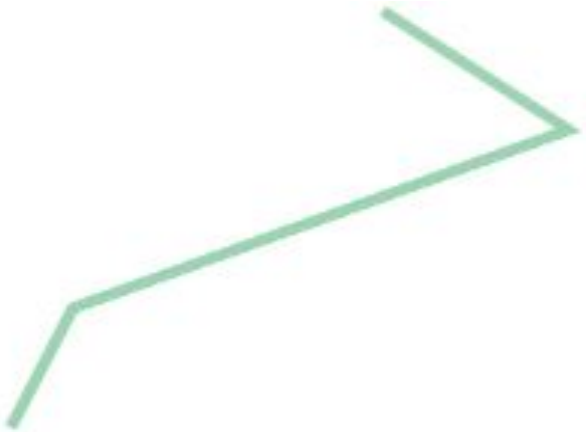
FEATURES

ADD ROUTE POINT

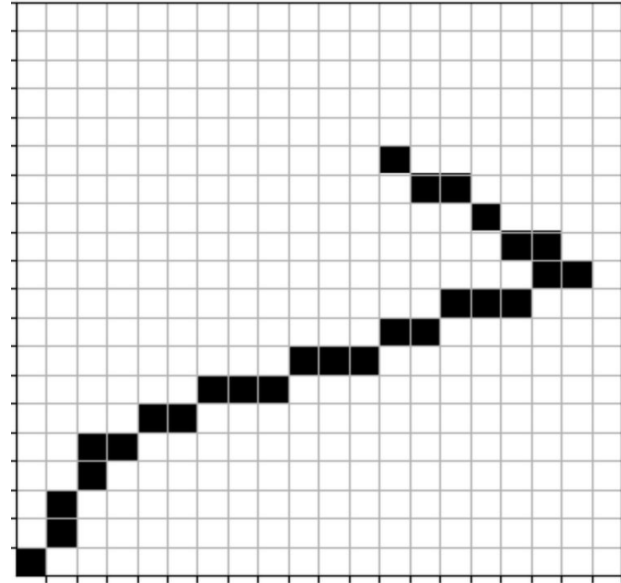


Vector vs raster data

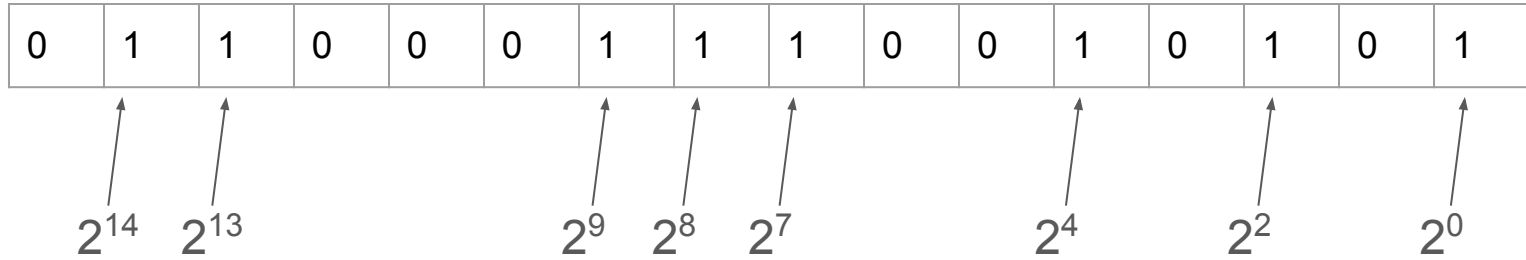
Vector



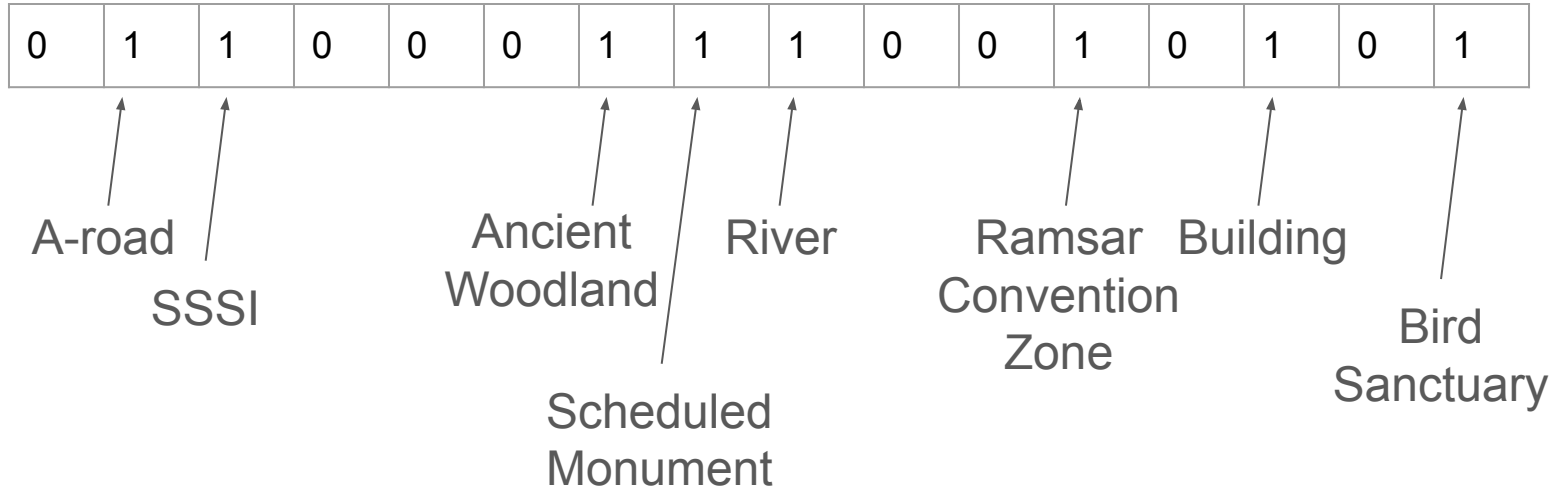
Raster



Binary numbers



Bit fields



Idea: save memory with unique combinations

Combo #0: 0000000000000000

Combo #1: 0000000000000001

...

Combo #173: 001100011100111

Only need 8 bits!

How many layers can we use?

- 64 bits
- 2^{64} possible combinations
- Area of Earth $\approx 5 \times 10^{14} \text{ m}^2$
- Pixel size $\approx \sqrt{5 \times 10^{14} \text{ m}^2 / 2^{64}} \approx 5\text{mm}$
- As many layers as we like!