From Food Miles to Gassy Cows

How Alteryx is used for Carbon Reporting at the National Trust

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Why Carbon Reporting is Relevant

As a conservation charity Climate Change is one of the National Trust's **top five priorities**

Carbon reduction is a key element in the Trust's approach to Climate Change, with the aim to be **net zero carbon as an organisation by 2030**

In order to track progress towards this goal it is essential the Trust has an holistic view of carbon sources across the organisation

Sources of Carbon

Most life on Earth produces carbon to some extent, to keep things focused carbon reporting at the National Trust deals with sources we can manage
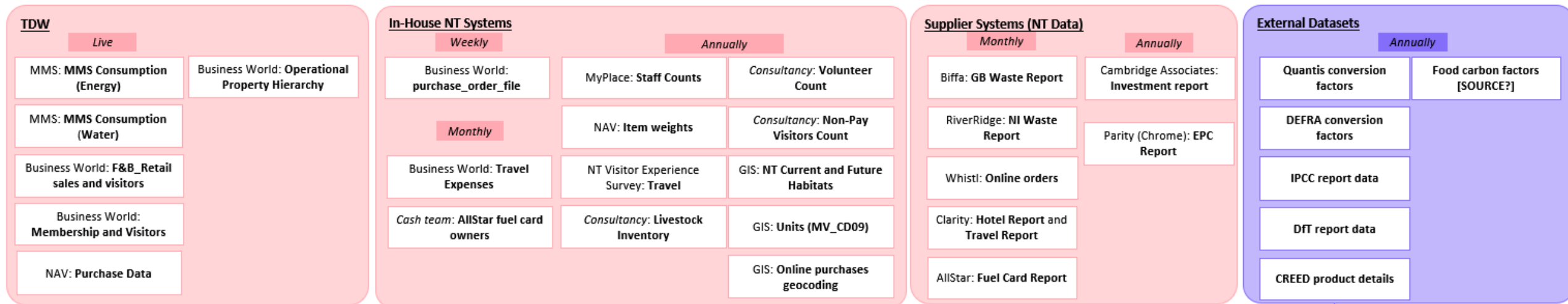
Including:

- food production
- waste production
- energy consumption
- staff mileage
- visitor travel factors
- land usage
- number of animals kept on Trust land
- and more…

Key Systems

We worked with a third party to establish key carbon sources and sinks throughout the organisation and develop a methodology for reporting based on industry best practices and the data available to us

TDW

Live			
MMS: **MMS Consumption (Energy)**	Business World: **Operational Property Hierarchy**		
MMS: **MMS Consumption (Water)**			
Business World: **F&B_Retail sales and visitors**			
Business World: **Membership and Visitors**			
NAV: **Purchase Data**			

In-House NT Systems

Weekly	*Annually*	
Business World: **purchase_order_file**	MyPlace: **Staff Counts**	*Consultancy*: **Volunteer Count**
Monthly	NAV: **Item weights**	*Consultancy*: **Non-Pay Visitors Count**
Business World: **Travel Expenses**	NT Visitor Experience Survey: **Travel**	GIS: **NT Current and Future Habitats**
Cash team: **AllStar fuel card owners**	*Consultancy*: **Livestock Inventory**	GIS: **Units (MV_CD09)**
		GIS: **Online purchases geocoding**

Supplier Systems (NT Data)

Monthly	*Annually*
Biffa: **GB Waste Report**	Cambridge Associates: **Investment report**
RiverRidge: **NI Waste Report**	Parity (Chrome): **EPC Report**
Whistl: **Online orders**	
Clarity: **Hotel Report and Travel Report**	
AllStar: **Fuel Card Report**	

External Datasets

Annually	
Quantis conversion factors	**Food carbon factors [SOURCE?]**
DEFRA conversion factors	
IPCC report data	
DfT report data	
CREED product details	

This was a great first step but only produced an annual report

What we really wanted was a way to refresh the data regularly and respond to any emerging concerns or trends as soon as possible

Enter Alteryx…

Pulling those disparate data sources into a single view:

Daily Schedule

Workflow scheduled to run daily on the NT instance of Alteryx Gallery

Meaning the latest data is pulled in to the report without any manual intervention

Enables National Trust Regions and Properties to drill down further to identify areas of concern and address these

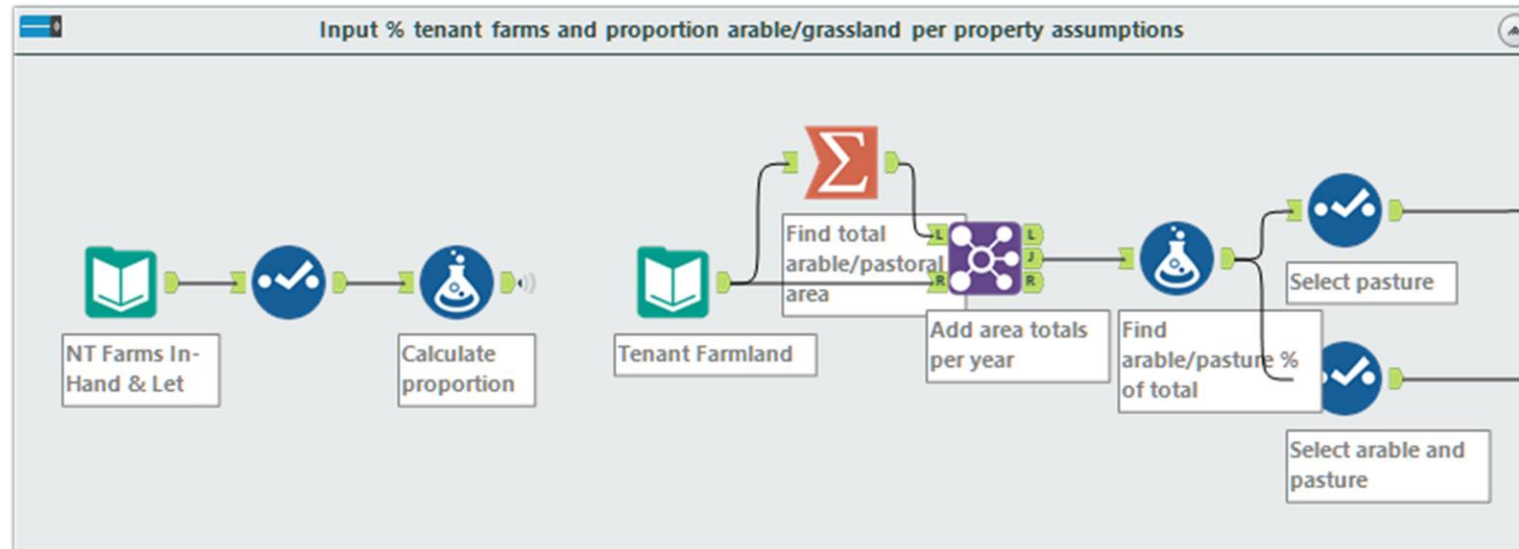Workflow is modular so elements can be added in or stripped out over time

Occurrence: Days/Weeks: at 6:00 AM on every day of the week

Priority: Low

Owner: A

Schedule Timezone: Europe/London

Times Run: 35

Assigned Worker: None

Schedule is enabled

Enteric Fermentation - Example

Start with calculated land use and livestock figures:
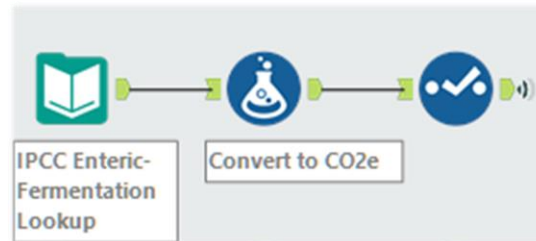
Enteric Fermentation - Example

Add in methane generation for different species from the latest IPCC (Intergovernmental Panel on Climate Change) report:


	Category	Factor	ghg_unit	Report_Date	Source
1	Dairy cattle	100	CH4 kg/head/yr	2023-03-01	IPCC's Fourth Assessment Report
2	Goats	5	CH4 kg/head/yr	2023-03-01	IPCC's Fourth Assessment Report
3	Horses	18	CH4 kg/head/yr	2023-03-01	IPCC's Fourth Assessment Report
4	Mules and Asses	10	CH4 kg/head/yr	2023-03-01	IPCC's Fourth Assessment Report
5	Non-dairy cattle	48	CH4 kg/head/yr	2023-03-01	IPCC's Fourth Assessment Report
6	Poultry	0	CH4 kg/head/yr	2023-03-01	IPCC's Fourth Assessment Report
7	Sheep	8	CH4 kg/head/yr	2023-03-01	IPCC's Fourth Assessment Report
8	Swine	1.5	CH4 kg/head/yr	2023-03-01	IPCC's Fourth Assessment Report
9	Deer	8.82	CH4 kg/head/yr	2023-03-01	UK Greenhouse Gas Inventory National System (2009)
10	Dairy cattle	100	CH4 kg/head/yr	2022-03-01	IPCC's Fourth Assessment Report

Enteric Fermentation - Example

Combine livestock numbers with expected gas production
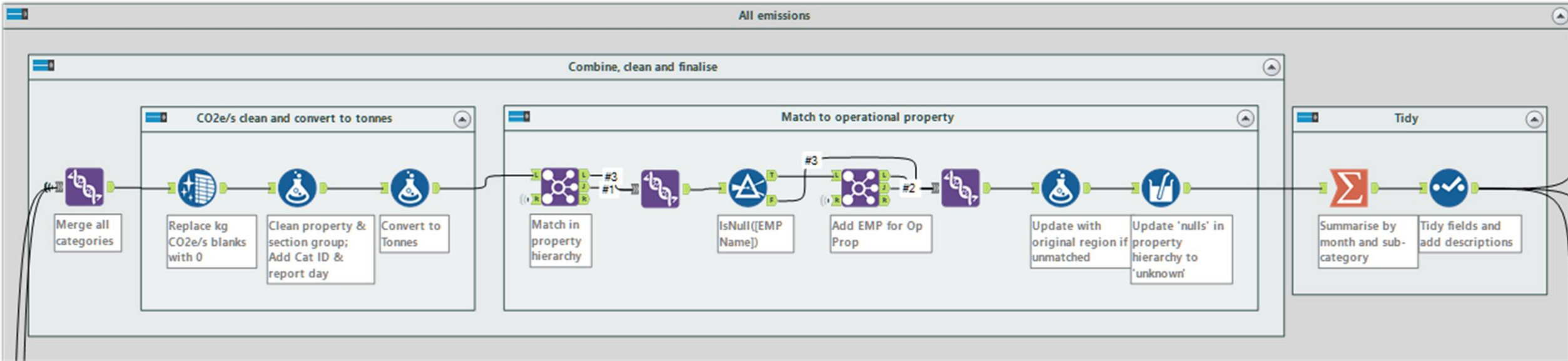to calculate estimated emissions
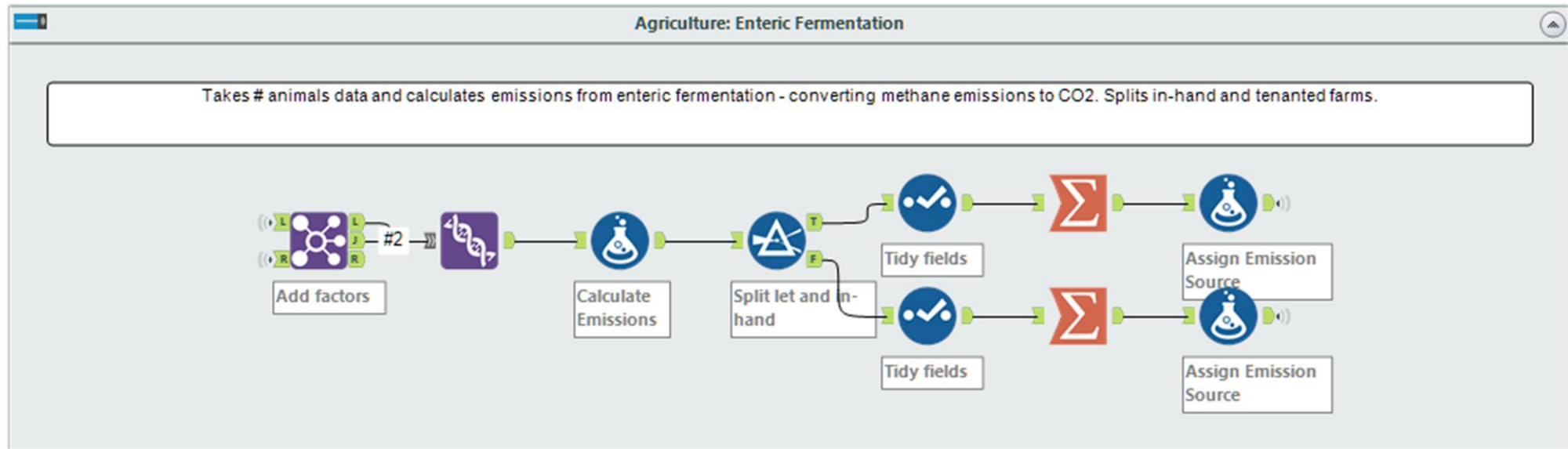
Enteric Fermentation - Example

Add these to other sources of CO_2 and tidy up to ensure data can fed into existing reports

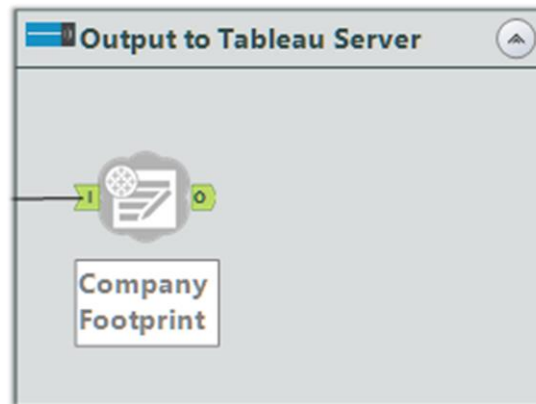# Enteric Fermentation - Example

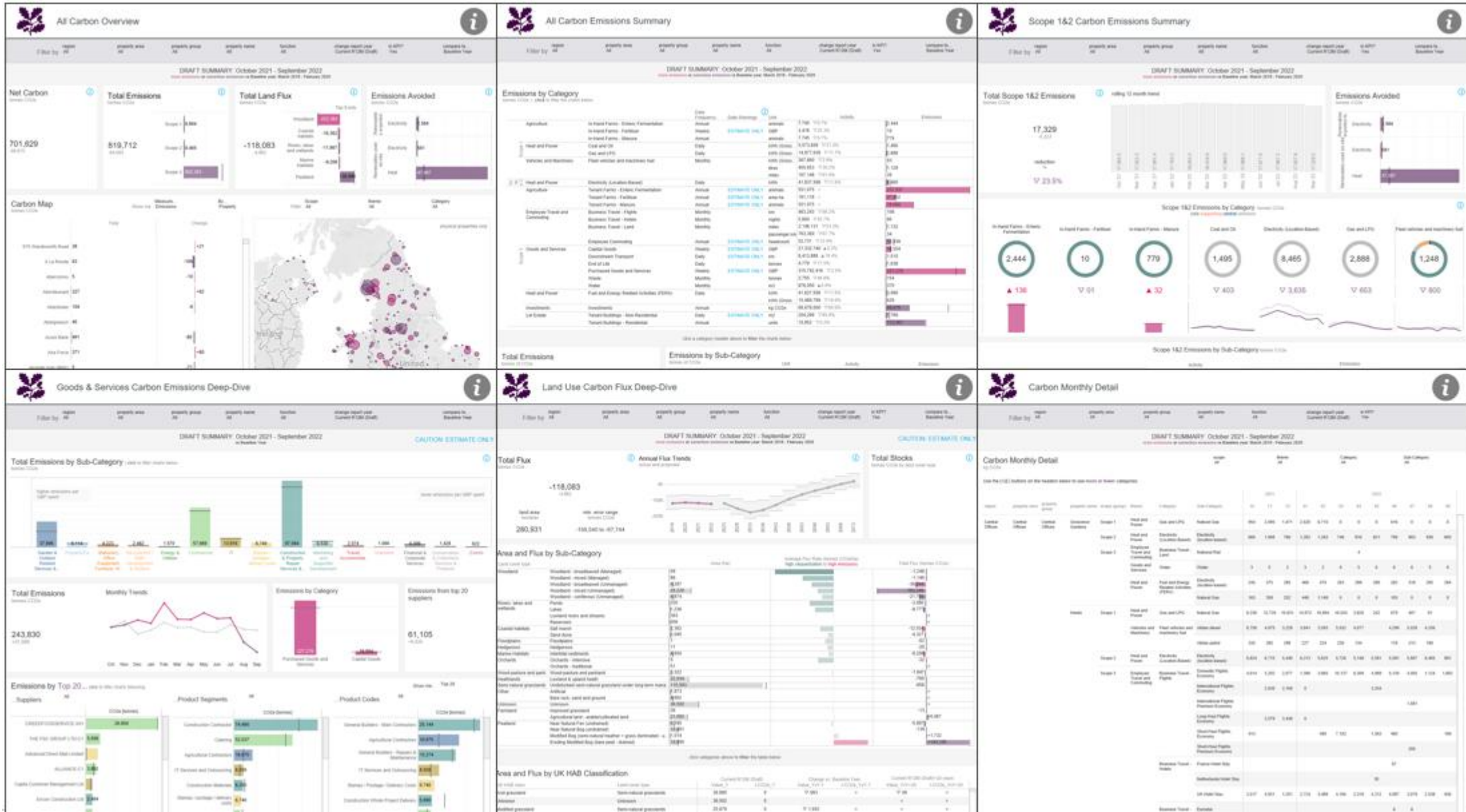Finally output to Tableau Server to update data source used for carbon report

Final Output – Carbon Report

Benefits

Automating data processes in this way ensures we always have the latest data available

Having the latest information to hand enables Trust staff to react and adapt to situations as they arise

This approach saves analyst time – less data prep more data analysis

Combines multiple different sources into a single output, nothing too complex happening with each source but the volume of sources = complexity

Modular approach means elements can be amended over time as different systems and approaches evolve