

# New Dialogics: Broadening Engagement: Using art to account for climate change

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We need to cut this  
to 5tCO<sub>2</sub>e by 2020.

Glasgow produces 5.87tCO<sub>2</sub>e\*  
per person per year.

This has to change now.

We have to act to cut our  
emissions to 5tCO<sub>2</sub>e by 2020.  
Together we can reach this  
target!

What you eat, what you choose  
to buy, matters. Everything we  
do causes these emissions, but  
some less than others. The  
choices we make influence  
what people can sell us, what  
we use, what we eat, and what  
we throw away.

This will contribute to  
keeping Glasgow and  
the Earth clean, cool  
and green.

Small changes add up,  
to help us reach the  
5tCO<sub>2</sub>e target by 2020.



University  
of Glasgow

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Adam Smith  
Business School

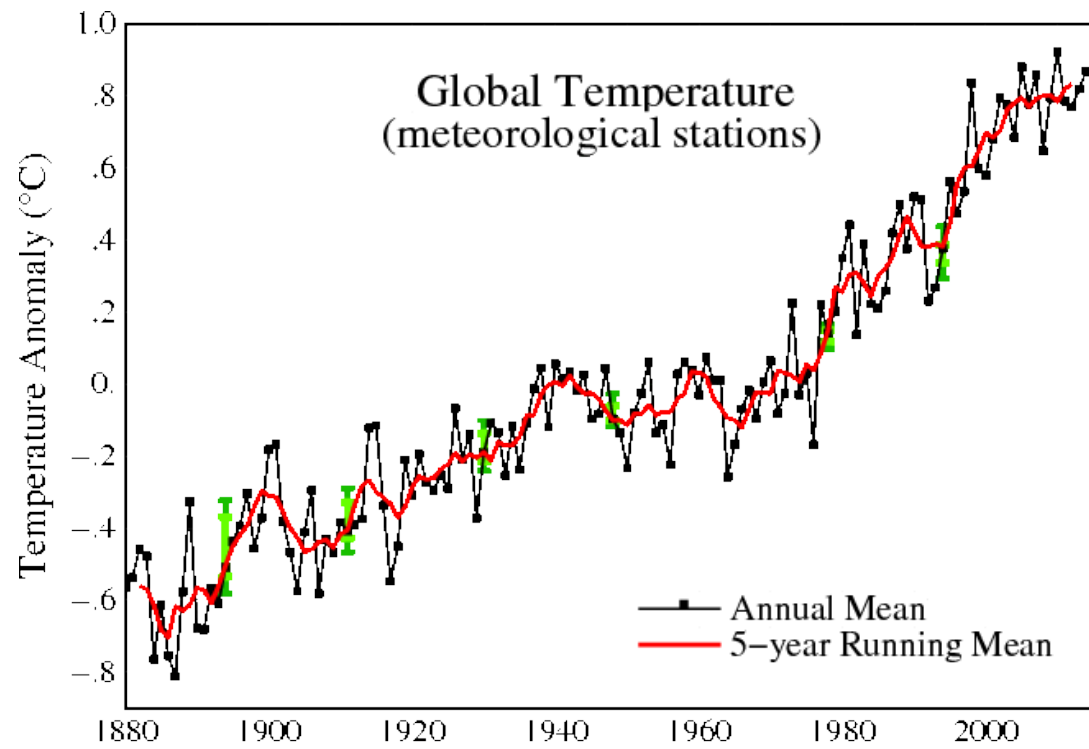
**GS<sub>FA</sub>**  
**SUSTAINABILITY**

# The Issue

- Complex data is too....complex
- Organisations need to present their data better
- It needs to fit a wide range of audiences
- Glasgow City Council as lead client
- Such an approach needs a mix of partnerships:
  - Social accountants
  - Sustainability & Environmentalists
  - Communication Designers

# Objectives of the research

- To understand how the general public in Glasgow would like to receive information on carbon emissions;
- To identify the advantages and disadvantages of using graphic art to disclose on carbon emissions;
- To explore the responses of the public when receiving information on carbon emissions via graphic arts.



Observed change in average surface temperature 1901–2012

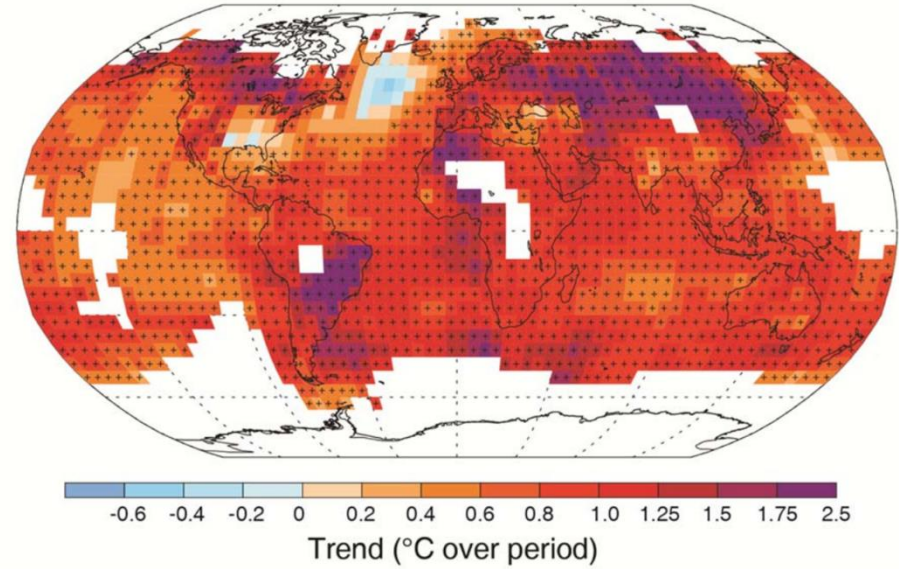


Figure2: Projected Change for Rainfed Maize Yields for 2050 Compared to the 1961-90 Baseline Period

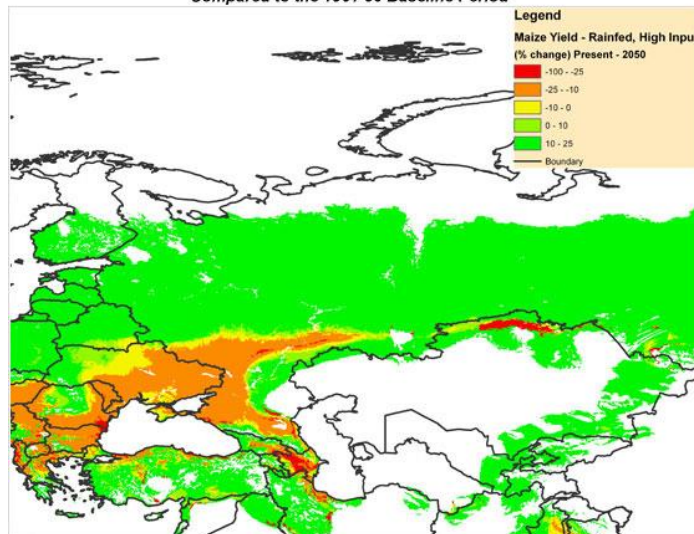


Table 1: Key Data for the 10 Largest CO<sub>2</sub> Emitters

Country	CCPI Rank 2015	CCPI Rank 2014	Share of Global GDP	Share of World Population	Share of Global CO <sub>2</sub> Emissions*	Share of Global Primary Energy Supply
Germany	22	22	3.44%	1.16%	2.23%	2.34%
Indonesia	23	26	2.35%	3.51%	2.31%	1.60%
India	31	36	6.72%	17.57%	5.70%	5.89%
United States	44	44	17.17%	4.47%	14.69%	16.01%
China	45	46	16.03%	19.30%	23.43%	21.76%
Brazil	49	35	3.05%	2.82%	4.17%	2.11%
Japan	53	52	4.82%	1.81%	3.61%	3.38%
Korea	55	55	1.69%	0.71%	1.75%	1.97%
Russian Federation	56	56	2.63%	2.04%	4.87%	5.66%
Canada	58	58	1.56%	0.50%	1.57%	1.88%
Total			59.45%	53.89%	64.32%	62.59%

\*energy-related emissions and emissions from deforestation

© Germanwatch 2014

Performance: Very good (green), Good (light green), Moderate (yellow), Poor (orange), Very poor (red)



A 3 stage approach: Interviews, group discussions and a workshop to allow reflection and discussion.



Reporters and reportees highlighted problems they perceived related to current practices on accounting for carbon, for example:

- Lack of connection between the 'global' problem and individual choices/responsibilities.
- Necessity to communicate that social justice is related to environmental justice and protection of a heritage.
- Difficulties in explaining how carbon can fit within levels of quality of life.
- Problems with public perceptions that only local authorities are the ones responsible for emissions reductions.
- Need to promote more involvement of media, such as newspaper and TV.
- Reporters and reportees also provided some alternatives to improve public engagement within carbon reporting practices, such as:
  - Take bottom-up and not a top-down approach, emphasising on a democracy and dialogue.
  - Provide a local perspective based on individuals' experiences and motivations.
  - Celebrate peoples' achievement rather than scare the public.
  - Improve engagement of variety of groups from different backgrounds, nationalities and age.
  - Involve different types of arts because it can quickly communicate a message, crossing barriers.

# Benefits of Engagement

- Reporters and reportees mentioned what they understood better as a result of taking part of the research procedures (e.g. interviews and workshop). A summary of the feedback received is listed below.
- Helped to comprehend better the impact of each individual in the wide environment.
- Realized the need to disclose emissions data clearly and to diverse societal groups, using within different formats of communication.
- Importance of promoting community awareness of what Glasgow City Council is trying to do and engage more with citizens.
- Become conscious that monetizing may not be the best tool for represent an action.
- Sharing experiences is powerful to understand individuals' motivations.
- Facilitated a reflection on recycling, transport and products 'origin.



# The Data



## 1 THE CURRENT CONTEXT Global / Scotland / Glasgow

### Greenhouse gases emissions (tonnes of CO<sub>2</sub>e) in 2014

Global: 53,526,302,828 (data only available for 2012)

**Scotland: 46,700,000**

**Glasgow 2,983,500** ie 6.4% of the national total

Glasgow City Council 171,220 (as a public organisation)

### Greenhouse gases per capita (tonnes of CO<sub>2</sub>e) in 2014

Global (data only available for 2010):

Low income countries 1.4

High income countries 13 (ie 9 times more)

UK 8.37

England 7.84

Wales 15.29

N Ireland 11.32

**Scotland 8.73**

**Glasgow 5.00** see below for breakdown of sources

### Source of emissions per capita for Glasgow:

Transport 28%

Industry and commercial 41%

Domestic 31%

### Other local authorities per capita emissions in 2014 (tCO<sub>2</sub>)

Aberdeen City Council	6.15
Aberdeenshire Council	6.09
Argyle and Bute Angus Council	1.13 6.51
City of Edinburgh Council	5.17
Clackmannanshire Council	10.42
Comhairle nan Eilean Siar	10.65
Dumfries and Galloway Ccl	-0.27
Dundee City Council	5.11
East Ayrshire Council	3.80
EastDunbartonshire Ccl	4.56
East Lothian Council	11.39
East Renfrewshire Council	4.71
Falkirk Council	14.55
Fife council	8.21
Glasgow City Council	5.00
Highland Council	0.34
Inverclyde Council	4.88
Midlothian Council	5.22
Moray Council	4.70
North Ayrshire Council	6.97
North Lanarkshire Council	5.83
Orkney Islands Council	10.49
Perth and Kinross Council	7.01
Renfrewshire Council	5.92
Scottish Borders Council	4.71
Shetland Islands Council	11.22
South Ayrshire Council	3.93
South Lanarkshire Council	5.33
Stirling Council	5.75
West Dunbartonshire Ccl	4.63
West Lothian Council	6.31

Category	Action	Description	Key Fact
Utility Consumption	Switch to LED lights	LED lights consume far less energy than even Compact Fluorescents. Replacing halogen spotlights with LED equivalents could save 90% of the consumption of that light.	If every household in Glasgow swapped one halogen spotlight with an LED equivalent it would save the City one tonne of CO <sub>2</sub> every hour.
	Take control of your heating	Installing timers, room and radiator thermostats will ensure heating is only on when required.	A family home installing controls and being more responsible with their heating will save 200 kg (0.2 tonnes) of CO <sub>2</sub> a year. ‘Being more responsible’ could include, turning the heating down and dress appropriately for the season, switch heating off before opening windows, close doors (and keep unoccupied rooms cooler), only have heating on when the house is occupied.”
Natural Resources	Plant flowering plants	Without ‘Pollinators’ (insects that pollinate) we would have no food. Albert Einstein once stated that if the bee disappears from the surface of the earth, man would have no more than four years to live.	It is difficult to attribute a quantitative value to this action, however trees and flowers require pollination to grow and reproduce. Trees and plants act as a carbon sink so by planting these, there is a positive CO <sub>2</sub> impact.
Food	Grow your own food	As well as the sequestration of carbon, growing food locally offsets the transport related emissions.	E.g.: A recent Study by Aberdeen University has suggested that each potato grown and consumed in the UK is responsible for 1.25kg CO <sub>2</sub> . Home grown equivalents will be virtually 0 kgCO <sub>2</sub> .
Waste/ Recycling	Reduce what you buy and buy second-hand	Recycling is prevalent these days however if you consider the ‘Waste Hierarchy’, it’s still the third worst method of waste treatment. We should all aim to reduce what we buy in the first place.	The average person’s carbon footprint related to waste is 2.7 tCO <sub>2</sub> . Impossible to quantify but buying less, making your products last longer, purchasing second-hand and disposing in a way that allows re-use will have huge impacts. E.g.: 1 tonnes of cotton is responsible for over 14 tonnes of CO <sub>2</sub> .
	Compost garden and food waste	When putrescible (waste that rots) waste ends up in landfill, it decomposes under anaerobic conditions (without oxygen). This produces methane which is 1,300 more potent than CO <sub>2</sub> as a greenhouse gas.	For every tonne of food waste composted 0.296 tCO <sub>2</sub> will be saved.
Transport	Shift in transport modes	The average Scottish motorist drives 5,315 miles a year. Changing how they travel can significantly reduce the impact.	5,315 miles would release approx. 1.6 tonnes of CO <sub>2</sub> . Commuting accounted for 1,330 miles and 0.405 tCO <sub>2</sub> . This CO <sub>2</sub> will be saved, if commuting is undertaken by bike or on foot.

**24 planned and implemented renewable energy/energy saving measures on council estate buildings, including schools, sports centres, care homes and administrative offices**

**3 District Heating schemes already in the city and others being planned**

**Cathkin Wind turbine produces 7300 kilowatts of energy a year, enough to provide electricity to almost 700 homes, or the equivalent CO<sub>2</sub> emissions of around 1000 cars.**

**Winner of the Community Energy Scotland Award for the most Solar Photovoltaic panels installed in 2014**

**Glasgow's cycle lanes have increased over the last few years with over 301km in place in 2015**

**The Mach bike scheme has been used over 20,000 times since it's launch in June 2014 which averages at about 250 cycle journeys a day, with 700 a day at it's peak during the 2014 Commonwealth games.**

**Free electric vehicle charging points at 56 points throughout the city**

**Glasgow Recycling and Renewable energy centre once finished will handle 200,000 tonnes of waste a year, and produce enough energy for 22,000 households.**

NEGATIVE/NO ACTION	POSITIVE/ACTION
Who will act first (chicken and the egg dilemma)	It all adds up if we work together
Big business is in charge! I do not have to do it	Small changes by all collectively make a big contribution
I will only do it if it saves money!	We are all connected and part of nature
It is too big problem for me to make a thing difference	Make it smaller, do something, do one
I feel guilty	Keep it positive and achievable

## **A positive approach**

Not telling-off or scary

Optimistic and confident those actions will produce change

Working together for the greater good

Make people feel part of something, it all adds up

Small local actions = a better locality and World

Connect ourselves to nature, each other and community as a whole

Develop interest and action groups

Empower local democracy and action

Not just for the council to tell us what to do, what can groups of citizens achieve?

## **Taking Action**

Take back the language from climate change deniers and doomsayers

The future can be better if we act now

Personalise it and make inter-generational links to our children

Groups not isolation

We need to act now, or we'll have to do a lot more, at much greater cost, later

We can change, do better, and live as well as before

## **Appeal to sense of being Glaswegian**

Glasgow is proud, resilient, likes a challenge





**CREATIVE  
STUDENTS'  
REACTION TO  
DATA**

Glasgow emits on average 5.87 tCO<sub>2</sub>e\* per person per year.

We need to cut this to 5tCO<sub>2</sub>e by 2020.

What you eat, what you choose to buy, matters. **Everything** we do causes these emissions, but some less and some more. The choices we make influences what people can sell us, what we use, what we eat, and what we throw away.

This will contribute to keeping Glasgow and the Earth clean, cool and green.

Small changes add up, to help us reach the 5tCO<sub>2</sub>e target by 2020.

For more information and to give your feedback visit:  
[newdialogics.wordpress.com](http://newdialogics.wordpress.com)  
[#newdialogics](https://twitter.com/newdialogics)

# 5.87

Glasgow produces 5.87tCO<sub>2</sub>e\* per person per year.

**This has to change now.**

We have to act to cut our emissions to 5tCO<sub>2</sub>e by 2020. Together we can reach this target!

\*tCO<sub>2</sub>e: t is for tonnes. CO<sub>2</sub>e is for "carbon dioxide equivalent" – all the greenhouse gases adjusted to the equivalent amount of carbon dioxide. More on the data here [www.gsasustainability.org.uk/visualising-data](http://www.gsasustainability.org.uk/visualising-data)

## Other personal actions you can take

Buy less, re-use what you can, recycle more.

The carbon cost of what we throw away averages 2.7tCO<sub>2</sub>e a year.

Avoid the car - for short trips walk or cycle.

Cutting out one car commute a year saves an average of 1,330 car miles or 0.405tCO<sub>2</sub>e.

If you eat more fruit and vegetables,

it's healthier, cuts the risk of cancer, heart disease and cuts your carbon emissions.

Grow your own food, plant flowers to support bees and soak up some CO<sub>2</sub>.

One shop-bought potato produces 1.25kg of CO<sub>2</sub>e vs home grown potatoes that produce virtually zero CO<sub>2</sub>e.

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# THE POWER OF ONE



It would take every household in Glasgow to change just **one halogen for one LED light bulb**, to **save 1 tonne of CO<sub>2</sub>e** an hour.

# THE POWER OF MANY

By taking small actions like switching to more efficient light bulbs or turning down the heating, we can all make a positive impact.





# It's progress!

Glasgow is heading in the right direction, and our personal changes are making a big difference to help keep the Earth clean, cool and green.

Now Glasgow needs your support to reduce our individual impact on the environment to an average of **5tCO<sub>2</sub>e\*** per person per year by 2020.

This will help meet the target to restrict world temperature increase to 2°C. Can you meet all of the objectives?

- 1 In 2006 each Glaswegian caused on average 7.17tCO<sub>2</sub>e to be emitted...
- 2 2013 saw a reduction to 5.87tCO<sub>2</sub>e per person...
- 3 Cycle and walk more
- 4 Grow what you can: veg and flowers
- 5 Eat less meat
- 6 Buy less, re-use more and recycle what you can
- 7 Switch off lights and turn down the heating
- 8 We meet the target of 5tCO<sub>2</sub>e!

## FINISH

## START



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# GLASGOW NOW GREENEST CITY!

- Glasgow achieves target of 5tCO<sub>2</sub>e on average per year per person.

**HENK FORDSMITH**  
GLASGOW

5tCO<sub>2</sub>e PER YEAR

LATEST

GLASGOW ACHIEVES EMISSIONS TARGET OF 5tCO<sub>2</sub>e PER YEAR

CARBON COUNT PER PERSON



“ I started walking to work, now look at me... I've contributed to keep Glasgow and the Earth clean, cool and green too! ”

## BANKS OF THE RIVER CLYDE SAVED AS FLOOD IS AVERTED!



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2.19

Highlands

THE RACE IS ON AND GLASGOW IS ALMOST THERE!

FINISH LINE

tCO<sub>2</sub>e TARGET

5

5.30

South Lanarkshire

5.84

Edinburgh

5.87

Glasgow

5.87

Dundee

6.50

North Lanarkshire

6.55

Aberdeen

7.41

North Ayrshire

8.74

Angus

9.15

Fife

10.65

Comhairle nan Eilean Siar

11.58

Orkney

13.28

Shetland

**Glasgow is on track to achieve lower levels of emissions in Scotland.**

This will contribute to keep Glasgow and the Earth clean, cool and green.

A great achievement! Only 0.87tCO<sub>2</sub>e\* to go for Glasgow to achieve its 2020 target.

We are doing well, but how can you help?

- Cycle and walk more
- Grow what you can; veg and flowers
- Eat less meat
- Buy less, re-use more and recycle what you can
- Switch off lights and turn down the heating

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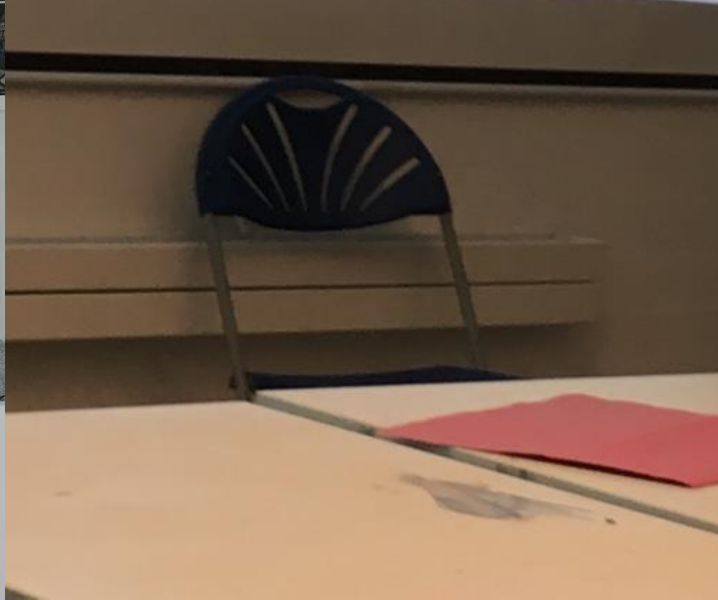
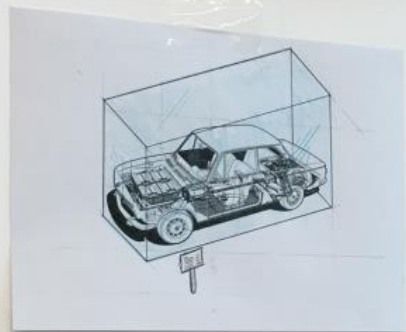
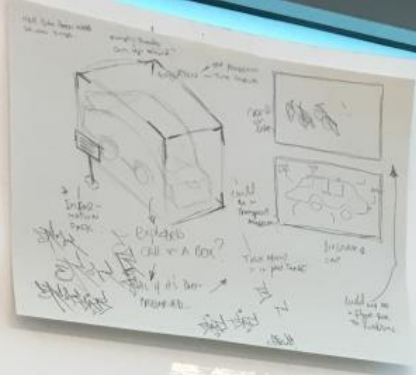
# Results

- H&S and practical presentation meant compromises
- Data was too complex
- The brief managed to be both too broad and too narrow
- Creative students hated being constrained
- The practical demonstration day went well
- Good work was produced
- Lessons learned for Year 2



# Year 2









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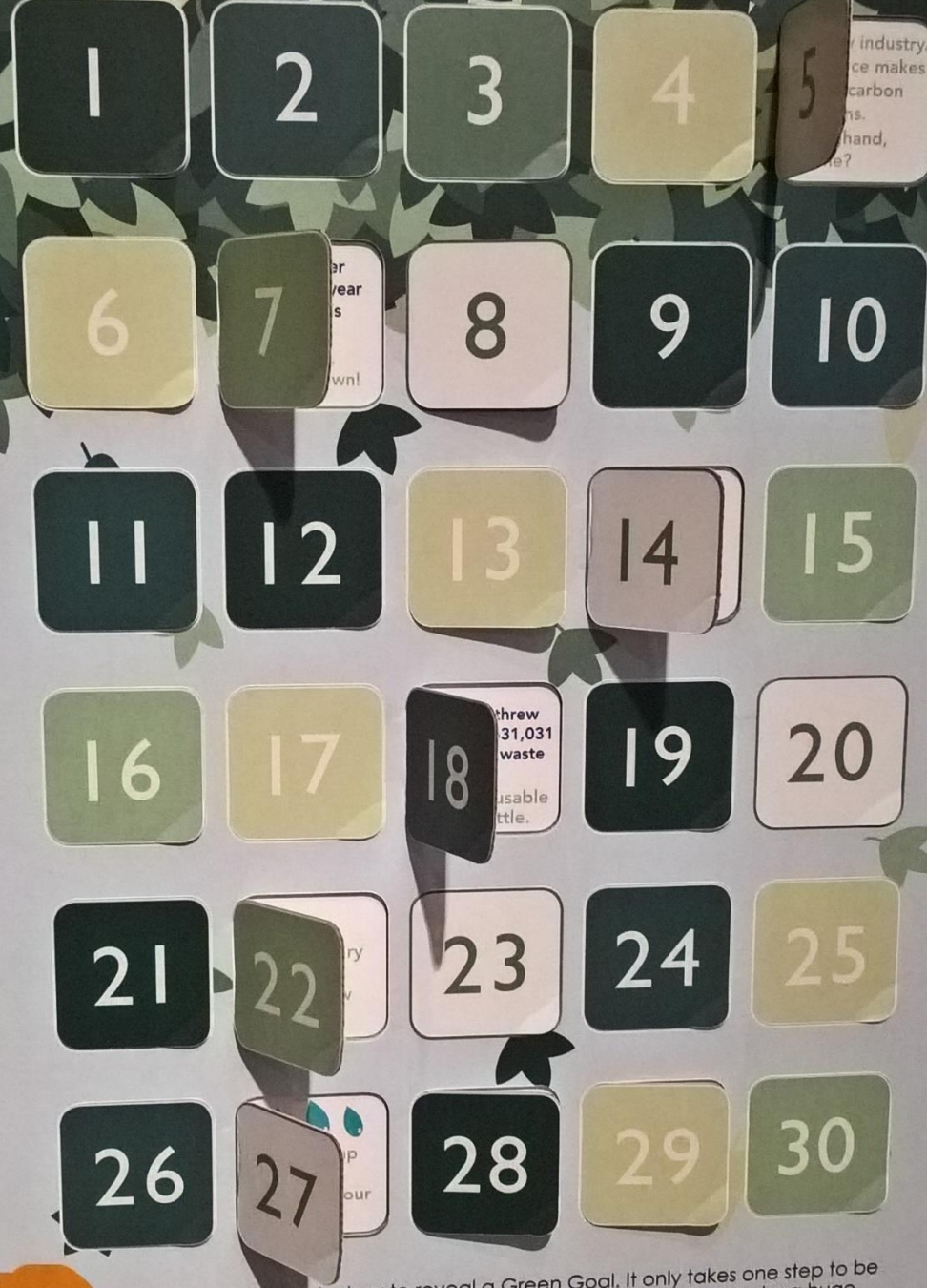
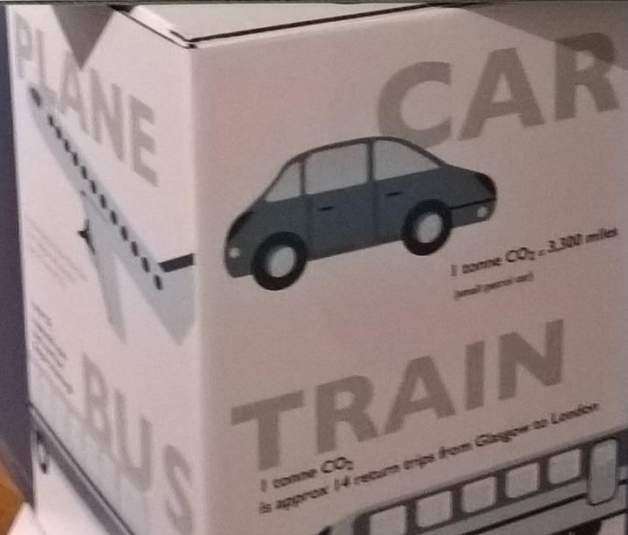
- make
- Turn up event
- Top gear
- cycle
- be creat
- other per

2 screens  
1 screen showing all  
angry traffic lanes



A Scottish motorist on average drives  
5,315 miles per year (1.6 tCO<sub>2</sub>/ year).

Together we can save this CO<sub>2</sub> !



Open today's door to reveal a Green Goal. It only takes one step to be  
nice to our planet but if we work together our changes make a huge  
difference. Help us reduce Glaswegian emissions to 4.81 tCO<sub>2</sub>e.  
For more information and to give your feedback visit:



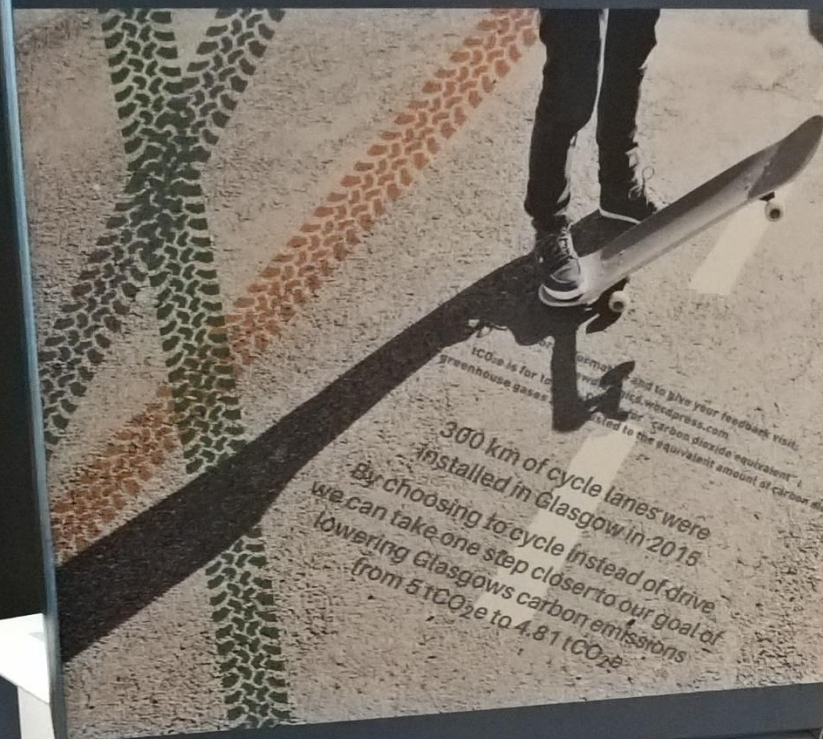


### Why Restrict Your View?

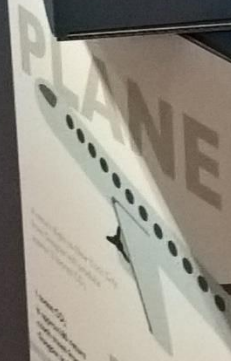
In 2015, 300 km of cycle lanes were installed in Glasgow and 20,000 Morehub were lined over 7 years after its launch in 2014. Opening your world and not just looking up at the sky instead of down at the ground. Cycling not only has health benefits but is a step towards helping the environment. Together we can lower Glasgow's carbon emissions to 4.81 tCO<sub>2</sub>e by choosing the most sustainable mode.



For more information visit: [www.glasgowcitycouncil.com](http://www.glasgowcitycouncil.com)



300 km of cycle lanes were installed in Glasgow in 2015. By choosing to cycle instead of drive we can take one step closer to our goal of lowering Glasgow's carbon emissions from 5 tCO<sub>2</sub>e to 4.81 tCO<sub>2</sub>e.



1 tonne CO<sub>2</sub> = 3,300 miles (small petrol car)





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Ferguson et al.  
(2016)

"The objective of this paper is to explore corporate communications related to climate change in both a voluntary and mandatory setting."

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Electric Clan

PLANE CAR TRAIN

Angela Heaney  
Stirling Council

# And finally....Feedback received from the public so far shows that the art/design material helped individuals to:

- Visualise and understand what makes up personal carbon emissions;
- Compare how Glasgow City Council is reducing emissions related to other areas in Scotland;
- Be informed on what individuals can do to reduce personal emissions;
- The public also had the opportunity to engage with the reported data by providing suggestions to Glasgow City Council as follows;
- Make recycling more accessible and easy, especially in public spaces;
- Start up more sustainable and organic food markets;
- Incentivise more common farms and common spaces for people grow their own vegetables;
- Build more cyclepaths and footpaths;
- Exclude parking spaces in key areas;
- Improve public transport and regulation on transport (e.g. congestion charges);
- Invest more in business to promote carbon neutral organisations;
- Provide more information and more often;
- Raise more awareness and motivate public engagement, using creative ways.



# Links

- <https://newdialogics.wordpress.com/>
- <https://www.abdn.ac.uk/business/research/profiles/thereza.deaguiar>
- <http://www.gsasustainability.org.uk/people/john-thorne>