Cynulliad Hinsawdd
Climate Assembly

Carbon Foot-printing
Blaenau Gwent Climate Assembly

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This analysis is based heavily on the work of Mike Berners-Lee, professor and fellow of the Institute for Social Futures at Lancaster University and the UK's leading exponent of carbon foot-printing, author of *How Bad Are Bananas – the Carbon Footprint of Everything.*

The virtual Blaenau Gwent Climate Assembly does not have a significant footprint itself but the embodied carbon of the equipment it relies upon is the main issue. When compared to the footprint of an assembly requiring people to travel and meet in person, we see that an online assembly is preferable.

> According to Berners-Lee, the emissions foot print of a Zoom conference call (or Teams / Skype etc.) depends on the equipment used.

All units in grams / kilograms CO_2e per hour of use (does not included the embodied emissions associated with manufacture)

CO2e per hour of use

These figures are what he quotes for general use as well as the specific use of a video call.

13 inch MacBook Pro	**2g / hour**
Average laptop	**10g / hour**
Desktop with screen	**50g / hour**

CO_2e emissions of manufacturing

The embodied emissions of manufacture again depend on the make and model.

13 inch MacBook Pro	**326kg**
Low cost laptop	**329kg**
Desktop with screen	**620kg**

> On average a new laptop has the carbon footprint of a flight from London to Rome.

We took a mid point figure to account for the variety of equipment being used in the Assembly. This gives us about 21g CO_2e per hour of use.

The duration of the online activity was as follows:

- 23 hours online for the Assembly
- 12 hours of online time around the main sessions

(Total 35 hours)

- 3 hours of additional tech support

75 people participated.

For each person:

(Use footprint x time of use)

(0.021 x 35) = 0.735Kg CO_2e

Now we multiply by the number of people involved. This includes facilitators, participants, speakers, observers and tech support – approximately 75 in total.

75 x (0.021 x 35) = **55.13 Kg CO_2e**

The tech support only adds 0.021 x 3 = **0.063Kg CO_2e** or 63g

Grand total for online activity

= 55.193 Kg CO2e*

**This however does not include the embodied footprint of all the computers and screens that were used. To include this however we would need to work out the proportion of the life time use of the equipment the Assembly represents and divide the embodied footprint of each item by that factor.*

Face to face meetings

Now let's compare this to a face to face meeting.

Assumption 1

Most people – even locals – will drive to the location and most will be in single occupancy cars (i.e. very few will car share) but the meeting organisers will use the Ebbw Vale Institute so that there is the option of travelling by train.

Assumption 2

Catering will be minimal – teas and coffees and no food. So the tea / coffee consumed at home cancels out the catering.

Calculations and assumptions

The Assembly required five separate meetings. For each meeting there were 47 participants, 18 facilitators, and various speakers, observers and technical support staff. Let's assume that each meeting involved 75 people.

Assume two thirds of these people (about 48) drive or are driven to the venue from a distance of 1 to 10 miles.

Of the remaining 27 people, ten car share in four cars, ten come by public transport and seven walk or cycle.

To give us a very rough idea of the transport emissions, see the following table:

Solo Journeys				
	per round trip kg CO2e	Total for all five meetings	Indicative numbers of individuals	Total emissions in kg CO2e
Beaufort	1.1	5.4	15	81.3
Tredegar round trip	1.9	9.5	12	113.9
Crumlin round trip	4.7	23.6	8	188.7
Pontypool	7.6	38.0	7	265.7
Pontypridd	11.9	59.6	4	238.6
Cardiff round trip	16.3	81.3	2	162.6
Car share				
Car 1	4.7	23.5	2	23.5
Car 2	7.6	38	2	38
Car 3	11.9	59.5	3	59.5
Car 4	16.3	81.5	3	81.5
Rail				
Cardiff	2.6	12.929	2	25.9
Llanhilleth	0.7	3.568404	1	3.6
Rogerstone	0.9	4.4328	1	4.4
London	15.8	79.0516	2	158.1
Bus				
Cwm	1.2	5.77185	1	5.8
Tredegar	1.5	7.689825	3	23.1
Walk / cycle			7	
			75	**1474.0**

Only one incidence occurs where travelling to a meeting is slightly more efficient than holding the meeting online but this would have little impact on the overall assembly.

Single online meeting

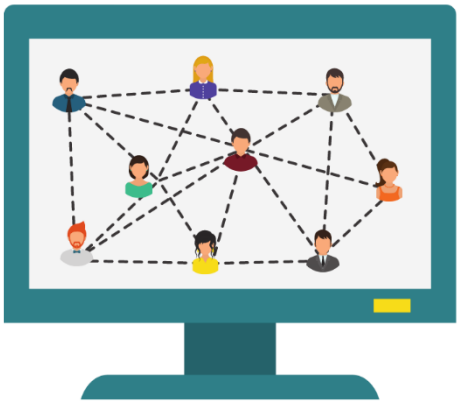
0.735 Kg CO2e

Vs

Round trip to Ebbw Vale from Llanhilleth via train (shortest train journey)

0.7 kg CO2e

So without factoring in the embodied emissions of the IT equipment and just comparing energy use when participating from home with energy use when travelling to a venue:



The total energy use online is:

55.93 Kg CO2e

Vs

Compared to a total travel footprint of:

1474 kg CO2e

An online Climate Assembly is (VERY) approximately 27 times less carbon intensive than a face to face one.

These calculations are based on our assumptions and rough estimates. However, we hope the above is helpful in identifying some of the key elements contributing to carbon emissions in this context.