  
earth angel

**CMPA**   
Canadian Media  
Producers Association

**TELEFILM** **PARTENAIRE**  
**CANADA** **DE**  
**CHOIX**

# Animation Production Case Study

TELEFILM PRESENTATION BY ANALAURA GIACOMEL AND MELISSA FELDER

# our services



## production sustainability

Long & Short Form  
Sustainability Management



## corporate consulting

Sustainability Strategy, Facility  
Sustainability, Research Studies



## good riddance

Material Repurposing for Strike  
& Storage Clean-Outs



## eco labs

Trainings, Panels, Keynotes &  
Intensive Workshops



## zero waste kits

Eco Equipment & Products



# where we work

Earth Angel projects



Canada  
Toronto: 2  
Vancouver: 5  
**Total: 7**

United States  
New York: 17  
California: 10  
Atlanta: 3  
Massachusetts: 1  
Louisiana: 1  
**Total: 32**

Mexico  
**Total: 1**

United Kingdom  
London: 1  
**Total: 1**

South Africa  
**Total: 1**

France  
Paris: 1  
**Total: 1**

Colombia  
Bogota: 1  
**Total: 1**



entertainment &  
the environment



# Areas of Impact



utilities



fuel



housing



paper



waste



charter & helicopter flights



commercial air travel

# waste streams by department

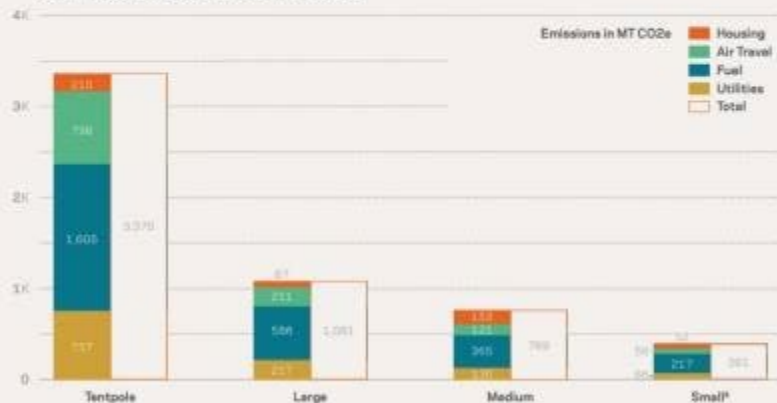


# carbon emissions of Film & TV production

Sustainable Production Alliance (SPA) report released in March 2021

## Feature Films

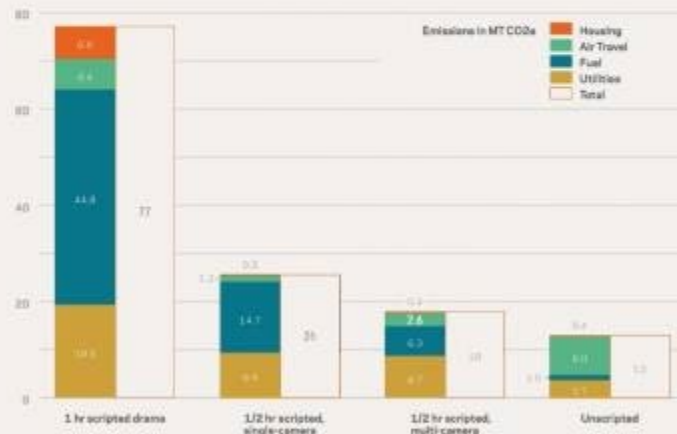
Average Emissions per Feature



The data from tentpole productions showed the average carbon footprint of **3,370 metric tons** - or about **33 metric tons** per shooting day. Large films had a carbon footprint of **1,081 metric tons**, medium films had a carbon footprint of **769 metric tons**, while small films had a carbon footprint of **391 metric tons**.

## Television Series

Average Emissions per Episode

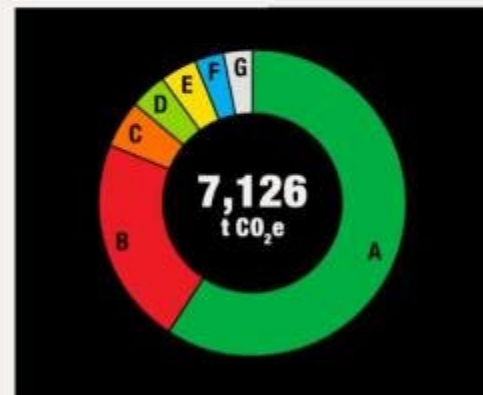


For television, the data from 159 one-hour scripted dramas showed that the average carbon footprint per episode was **77 metric tons**.<sup>9</sup> The 1/2 hour scripted single-camera shows had a carbon footprint of **26 metric tons**, and the 1/2 hour scripted multi-camera shows average **18 metric tons**. Unscripted shows had a carbon footprint of **13 metric tons**.

# carbon emissions of Film & TV production

Telefilm report released in Fall of 2023

## Canadian Industry Extrapolations – Feature Films



|          |                    |     |
|----------|--------------------|-----|
| <b>A</b> | Travel & Transport | 60% |
| <b>B</b> | Materials          | 22% |
| <b>C</b> | Non-filming Spaces | 5%  |
| <b>D</b> | Filming Spaces     | 4%  |
| <b>E</b> | Accommodation      | 4%  |
| <b>F</b> | Post-production    | 3%  |
| <b>G</b> | Disposal           | 3%  |

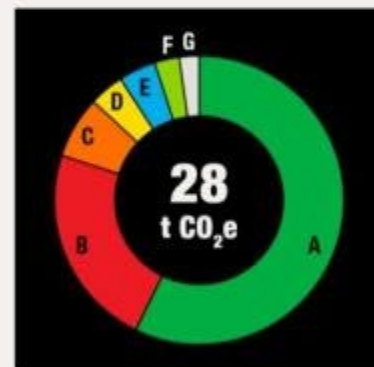
 = 2,183 passenger vehicles / year

 = 1,669 homes' energy / year


\* Estimated emissions were based on 3-year average using production data by budget from the CMPA's annual Profile reports.


## Average Emissions per Content Hour

(all study productions)



|          |                    |     |
|----------|--------------------|-----|
| <b>A</b> | Travel & Transport | 58% |
| <b>B</b> | Materials          | 23% |
| <b>C</b> | Non-filming Spaces | 7%  |
| <b>D</b> | Accommodation      | 4%  |
| <b>E</b> | Post-production    | 4%  |
| <b>F</b> | Filming Spaces     | 3%  |
| <b>G</b> | Disposal           | 2%  |

 = 8.6 passenger vehicles / year

 = 6.6 homes' energy / year



# carbon emissions of Film & TV production

CBC report released in September of 2023

**9,508**

tonnes CO<sub>2</sub>e

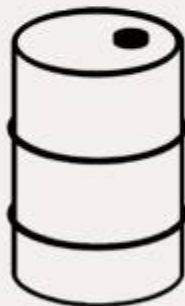
**36**

tonnes/hour CO<sub>2</sub>e

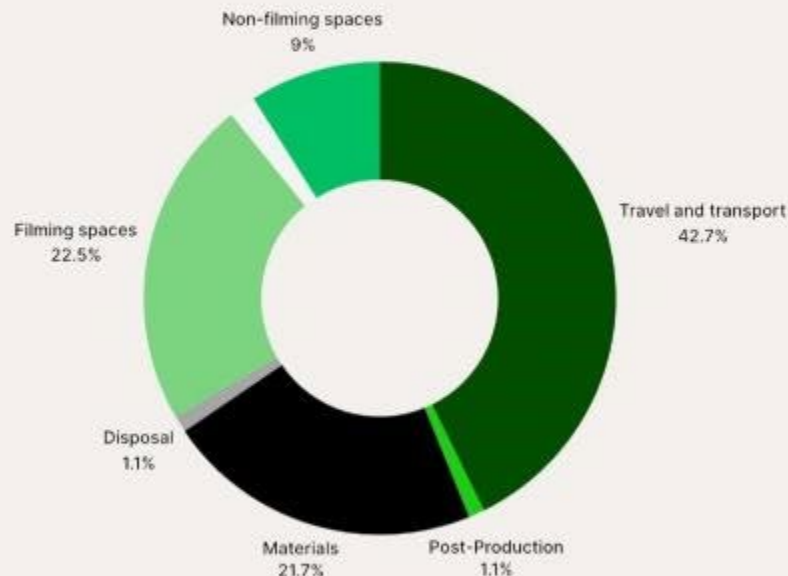
Which is equivalent to...



**2,227 homes' energy use  
for one year**



**81 barrels of oil  
consumed**



Total Carbon Footprint Breakdown

# the problem

according to our data, one single long form production averages...



1,000

tonnes of CO2e



225

tonnes of waste



74,000

single-use water bottles



1.9 million

litres of fuel

making movies without  
making a mess



# our solution

the Sustainability  
Department!



# Energy Strategy Highlights



EPS Solar Generator



Solar Hybrid Camera  
Truck



Moxion E-Generator



VPS E-Generator



# waste reduction - “upstream”

reducing *waste at the source*



refill *not* landfill



create reuse plan



rent & return materials



opting for reusable



# waste diversion - “downstream”

*how to address* responsible disposal



transparency &  
accountability in waste  
hauling



clearly labeled recycling  
stations



community composting  
programs



donate food first  
compost what remains



Working together,  
we can make a  
difference.







# Introduction

In Spring 2023, the CMPA-BC, with the support of Telefilm, contracted Earth Angel to further develop its understanding of the carbon footprint of animation production in Canada, based on a case study.

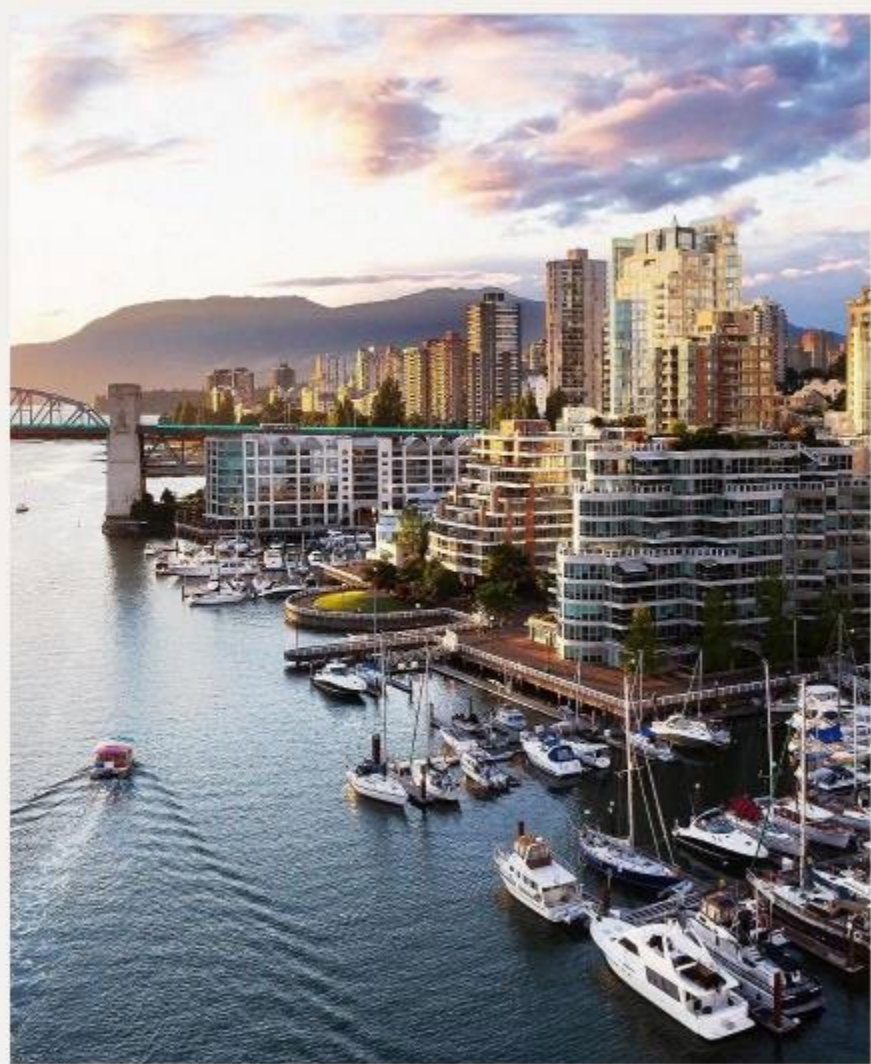
The study (*also available in French*) is intended to help inform areas that will have **relevance for the Canadian animation-based industries**, in light of growing imperatives to address climate change.



# Scope

Over May to October 2023, and with the support of its Animation Studio (“AS”) case study partner, Earth Angel (EA) conducted primary and secondary data on the energy and waste impact of animation production in Canada.

Main focus areas were energy consumed and waste produced by operation of the head-office and energy consumed during the animation process, as well as the energy consumed off-site by the AS’s remote workforce (95%+ of the workforce).





# Objectives

To provide an understanding of the carbon footprint of a “standard” animation studio in Canada, and:

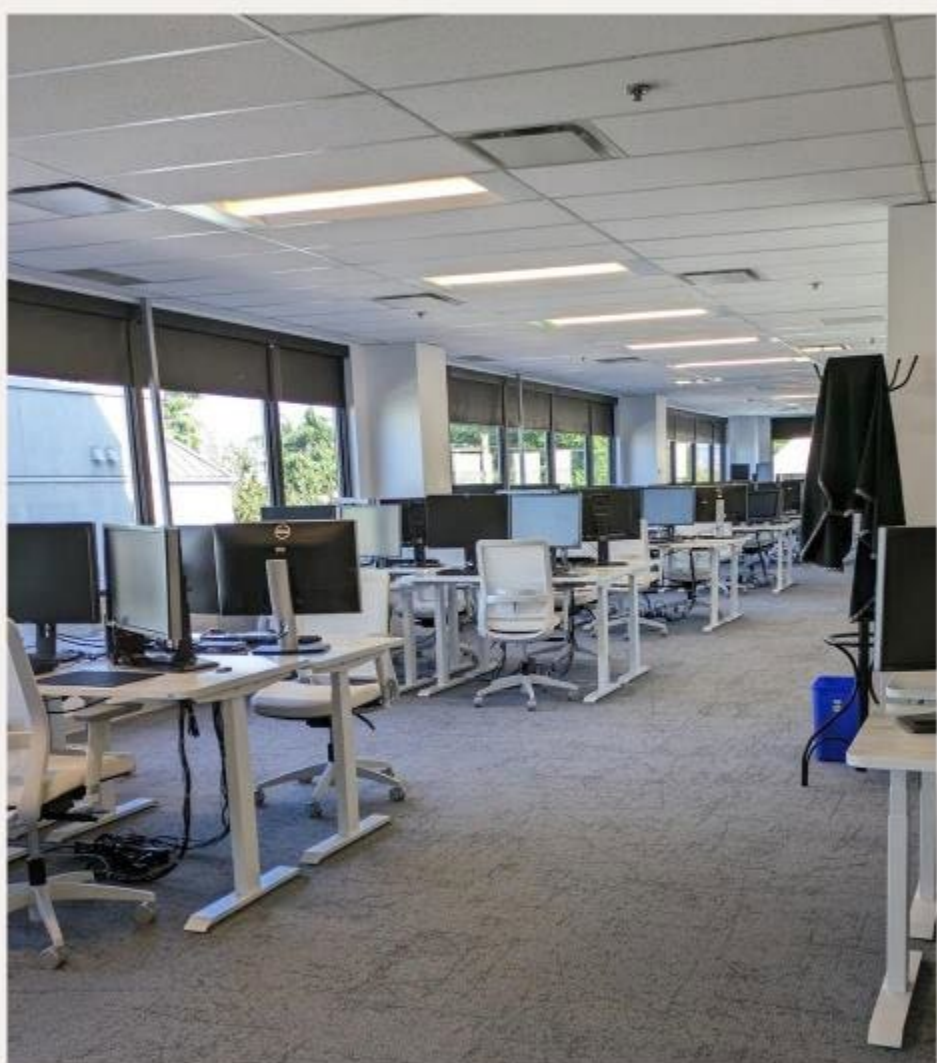
- 1 Identify an animation studio's major impacts
- 2 Estimate the carbon emissions footprint
- 3 Recommend best practices



# Office facility

AS has a large and urban-based headquarter facility which uses electricity for lighting and animation production, as well as natural gas for space heating...

Impacts estimated via utility invoices



# Data centre

..as well as an on-site data centre..

As energy is not separately metered, the impact estimate was prepared from ground up.

(ttl # of equipment x estimated energy use).



# Remote Workforce

The majority (95%) of the workforce works from home, which reduces impacts from commuting and onsite facility energy use, however offsite space heating and electricity use needs to be accounted for

Impact calculation:

*Total number + type of equipment used offsite x average energy use*

*Average building type and occupancy in region x average energy use.*





## Other Operational Impacts

There are other impacts, particularly with air travel, transportation, and more...



# Not Accounted For:

Life cycle emissions of equipment and materials, including resource use and extraction, manufacture, transportation... and more.

Downstream impacts of distribution, merchandising and streaming... and more.





For this animation studio, the total estimated carbon footprint for one year of operation is 400 metric tonnes.

This does not include life cycle assessment of the full upstream and downstream impact of this studio.



|                       | Estimated Emissions | % of Total  | Of note   |
|-----------------------|---------------------|---|---|
| Office/headquarters   | 56 tonnes           | The data centre accounts for 60% of this total.               | Data centre impact is estimated from ground up  |
| Remote workforce      | 268 tonnes          | Natural gas for heating usage accounts for 90% of this total. | Electricity grid emissions are low in the region, so do not figure as prominently in impact estimate. |
| Other areas of impact | 79 tonnes           | Air travel accounts for 90% of this total.                    | The average impact is applied based on various calculators.   |
| <b>Total</b>          | <b>403 tonnes</b>   |   |   |



# Thinking about the remote impact...

Nearly 70%, or 268 tonnes of the carbon impact is attributed to the space and heating required for the remote workforce, due to the estimated energy needed to heat (natural gas) and power (electricity) the at-home workplace!



# Thinking about limitations

The quantitative and qualitative values expressed in this report are most reflective of the **single case study** reviewed, and in particular its **operating region** due to the influence of the regional electricity grid on final emissions values.

These values are thus **most applicable** to animation companies situated in the **same region**, and having a **similar size and structure** as the case study.







# Energy

- Consider office space in energy efficient buildings
- Installation of programmable thermostats
- Prioritize natural lighting and LEDs
- Use EnergySTAR certified equipment and appliances
- Consider switching to a 100% renewable energy supplier
- Source more energy efficient electronic equipment



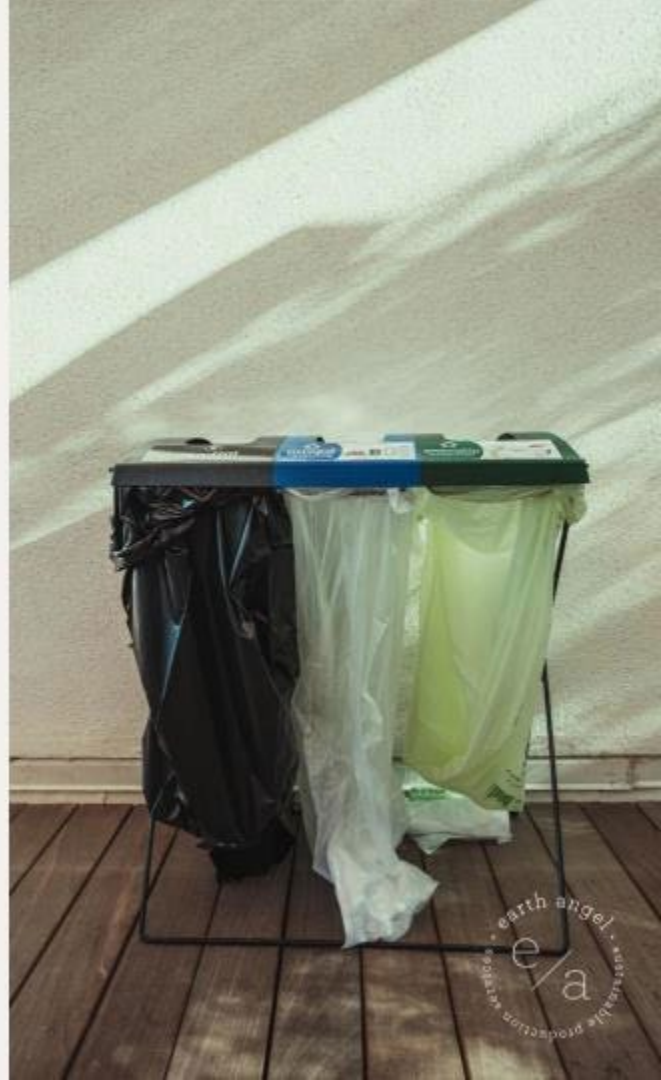
# Remote Workforce

- Consider the purchase of renewable energy offsets to displace the estimated electricity and natural gas consumed by the remote workforce
- Develop initiatives to support workers in reducing their home office electric and heating consumption



# Waste

- Contract a reputable compost waste hauler and request waste diversion reporting
- Prioritize the setup of a comprehensive waste management system with detailed signage
- Reduce paper consumption
- Donate and properly recycle spent electronic items
- Right size catering requests and donate any leftover food items



# Material Sourcing

- Avoid plastic waste
- Buy in bulk
- Opt for reusable dishware over disposable
- Source sustainably sourced paper products
- Source sustainable cleaning products





# Recommendations for Further Study

- 1 Extend the evaluation to consider upstream and downstream impacts.

Having more comprehensive data would identify opportunities to address the impact of production across the [full animation production chain](#).

- 2 Expand the evaluation to include additional studio types and locations.

This would better capture the range of potential impacts based on different studio sizes, practices, and operating jurisdictions. This would help inform a [more robust understanding](#) of the environmental impacts of this sector in Canada.

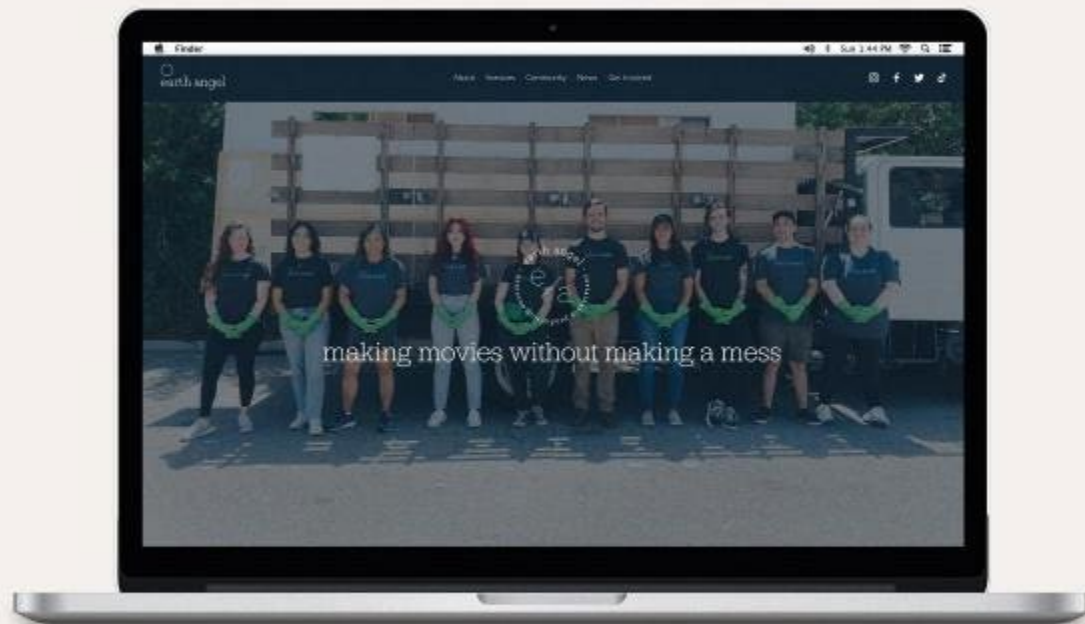
## In Closing...

This research provides an initial foundation for understanding the impact of animation production, based on a case study approach.

Further study across (1) the full chain of impact and (2) including additional case studies would identify broader impacts of this sector, as well as opportunities to support sector-based mitigation efforts.



# Thank you!



[www.earthangelsets.com](http://www.earthangelsets.com)



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