The Evolution of Climate On-Screen: What's Changing, What's Missing

A baseline narrative analysis of how climate is portrayed in TV and film 2016-2024, and an updated frequency analysis, 2021-2024

USC Annenberg
Norman Lear Center
Media Impact Project

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The **USC Norman Lear Center** is a nonpartisan research and public policy center that studies the social, political, economic, and cultural impact of entertainment. The Lear Center helps bridge the gap between the entertainment industry and academia, and between them and the public. Through its scholarship, research, and partnerships; its events, publications, and outreach to the creative community; and its role in formulating the field of entertainment studies, the Norman Lear Center works to be at the forefront of discussion and practice—and to illuminate and repair the world.

GOOD ENERGY

Good Energy's mission is to build the narrative infrastructure Hollywood needs to tell strategic, research-backed, commercially successful climate stories. We work alongside partners to equip creators and executives to bring climate into stories at scale and to strengthen climate representation across slates, genres, and content pipelines. Our research and industry partnerships help creators and executives incorporate climate across film and television projects reaching millions of viewers.



The Big Takeaways

This report looks at how often climate change shows up in scripted entertainment and what it looks like when it does—findings from Good Energy and the USC Norman Lear Center, 2016–2024.

Wildfire smoke hangs over Los Angeles in the workplace drama *The Morning Show*. A doctor informs a patient that their lung cancer was caused by air pollution due to climate change in the medical drama *New Amsterdam*. In the comedy series *Ted Lasso*, a soccer team boycotts its sponsor after learning of its ties to a corrupt oil company. And in the coming-of-age film *The Boy Who Harnessed the Wind*, a teenager builds a wind turbine to help his village during a drought. These are just a few ways stories portraying climate change are reaching audiences today.

In our landmark 2022 report, A Glaring Absence, we found climate-related language appeared in only 2.8% of TV and film scripts between 2016 and 2020, and the term "climate change" showed up in just 0.6%.[1]

The same report found that nearly half of Americans who are alarmed, concerned, or cautious about climate change (about three in four U.S. adults) said they'd like to see fictional TV and films with climate themes or stories. A 2023 survey by Rare's Entertainment Lab, weighted to represent all U.S. adults, backed this up: 70% said Hollywood should show climate-friendly actions on-screen to help address climate change.[2]

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1 Giaccardi, S., Rogers, A., & Rosenthal, E. L. (2022). *A glaring absence: The climate crisis is virtually nonexistent in scripted entertainment.* USC Norman Lear Center Media Impact Project. https://learcenter.s3.us-west-1.amazonaws.com/GlaringAbsence_NormanLearCenter.pdf

2 Tiwathia, A., Watamanuk, E., Viana, R. & Thulin, E. (2025). *Measuring demand among US audiences for climate-friendly content in entertainment* [Research report]. Rare. https://rare.org/research-reports/audiences-are-demanding-climate-friendly-behaviors-on-screen



Now, four years later, it was time to see what's changed. We **repeated our baseline frequency analysis,** as well as **broadening our keyword range** to capture a wider vocabulary of the ways climate shows up on-screen, and conducted **a first-of-its-kind narrative analysis** of 100 significant climate storylines, surfacing quantitative narrative insights focused on what these storylines portray and what tones they evoke. We then did a qualitative analysis of a subset of 30 of those storylines, focused on character climate engagement and emotional shifts.

Following are our five main takeaways from our latest narrative and frequency analyses.

TABLE 1. OVERVIEW OF METHODS

	2016-2020	2021-2024
FREQUENCY ANALYSIS	**37,453 SCRIPTS**	**35,120 SCRIPTS**
Longitudinal frequency analysis (36 original keywords)	Baseline study	Current study
Expanded frequency analysis (105 comprehensive keywords)	—	Current study
NARRATIVE ANALYSIS		
Quantitative narrative analysis (100 climate storylines)	Current study	
Qualitative narrative analysis (30 climate storylines)	Current study	

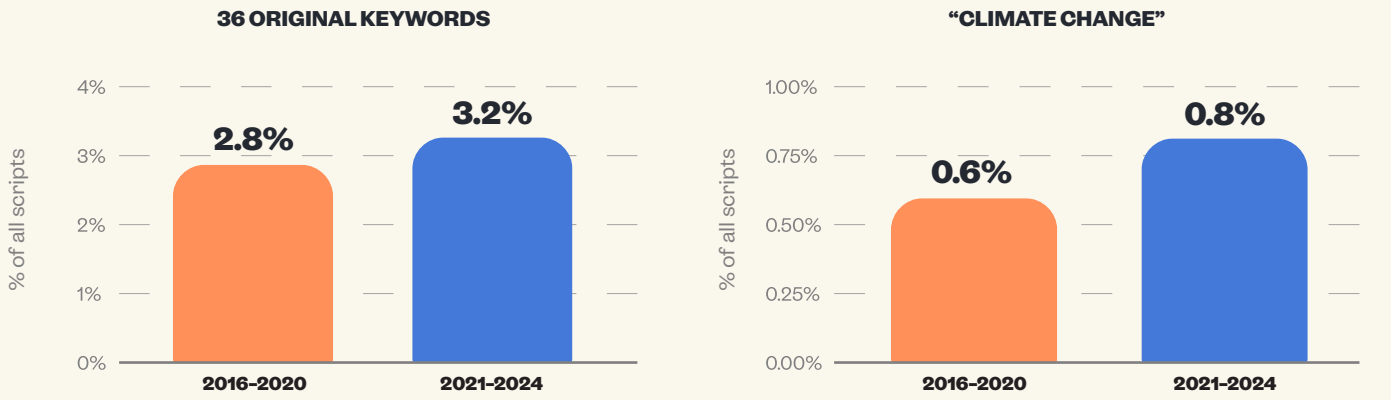
1. Rising Climate Visibility

Mentions of climate change have grown

FREQUENCY ANALYSIS[3]

Climate change is appearing more frequently in entertainment. Our earlier study measuring the prevalence of 36 climate-related keywords in films and TV released from 2016 to 2020 found these words appeared in 2.8% of scripts. In 2021 to 2024, those same words appeared in 3.2% of scripts, **a 14% increase**. The term "climate change," specifically, jumped from 0.6% to 0.8%, **a 33% increase**. These increases are modest in volume, but significant.

FIGURE 1. CLIMATE CHANGE MENTIONS, 2016-2020 VS. 2021-2024



PRESENT IN ONE IN SEVEN SCRIPTS

We also found that 4,992 of the 35,120 scripts that aired in 2021–2024 contained at least one of the 105 climate-related keywords. That's one in seven scripts. This extended keyword list was built to capture a broader vocabulary of the current climate conversation for this study.

THE CLIMATE CRISIS IS NOW

In the narrative analysis, more than two-thirds of the climate storylines (68%) took place in the present, with 14% set in the near past, 21% in the near future, and 4% in the distant future. About one in five storylines (21%) took place in dystopian storyworlds, with the remainder in a mixed or neutral context. No utopias appeared.

3 These frequency analysis statistics come from our latest comprehensive list of 105 keywords (Appendix A) unless stated otherwise.

2. Impacts and Causes Appear

Climate change was shown through its impacts and causes, with impacts leading

FREQUENCY AND NARRATIVE ANALYSES

Across our study, climate appeared relatively often through its impacts and its causes.

In our frequency analysis of scripts from 2021 to 2024, among the scripts that used the term "climate change":

IMPACTS:

34%

had impact terms like flood, drought, hurricane, wildfire, sea-level rise, or crop failure.

CAUSES:

28%

had cause terms like oil, coal, fracking, methane, deforestation, or pollution.

Impacts and causes appeared in the same script in only 13% of scripts that used the term "climate change."

The frequency analysis could not determine whether those impacts and causes were

HOW HEALTH AND CLIMATE INTERSECT

In the frequency analysis, of the 4,992 scripts that included one or more climate keywords, 60% also used health-related language. However, among scripts that used the phrase "climate change," only 10% had a health term in close proximity in the script.

Similarly, mental health terms such as stress, trauma, anxiety, or depression appeared in 40% of climate-inclusive scripts, and physical illness terms appeared in 43%. But only 1% had a mental health term and 8% a physical health term in close proximity to "climate change."

It was not possible to examine whether health and climate terms were explicitly linked in the frequency analysis because writers may have chosen to make the connection explicit elsewhere in the script, implicit, or not at all.

However, in our narrative study, 35% of the storylines portrayed or mentioned health in relation to climate, and the majority showed or stated climate as a cause of the health outcome. Injuries and deaths from disasters were the most frequently portrayed health issue, followed by air quality, mental health, and food systems/ malnutrition.



explicitly linked to climate change, as writers may choose to make the connection explicitly and in proximity, implicitly, or elsewhere in the script. Despite that, we looked at the number of scripts that include impacts or causes within 50 words of the term "climate change." We found that among climate-inclusive scripts:

IMPACTS:

14%

had impact terms like flood, drought, hurricane, wildfire, sea-level rise, or crop failure **within 50 words** of "climate change."

CAUSES:

8%

had cause terms like oil, coal, fracking, methane, deforestation, or pollution **within 50 words** of "climate change."

In our narrative analysis of 100 stories where climate was clearly visible, the pattern was similar:

IMPACTS:

87%

featured climate impacts like rising sea levels, bad air, food stress, or biodiversity loss.

CAUSES:

66%

featured causes of climate change such as oil, plastics, industrial agriculture, or deforestation.

Impacts and causes appeared together in just over half the stories (55%). The study did not examine whether they were explicitly linked.

In our close-read analysis of 30 storylines, the most common moral framing was collective societal failure (17 of 30 stories), followed by a villain or bad actor (8 of 30 stories).

3. The Systemic Solution Gap

Stories mentioned individual climate actions more than systemic solutions

FREQUENCY AND NARRATIVE ANALYSES

Climate solutions were portrayed in two main ways: individual behaviors and bigger systemic solutions. Individual actions dominated.

In the frequency analysis, **climate solutions appeared in 10% of scripts.** Individual consumer behaviors were featured nearly three times as often as clean energy or other systemic solutions:

INDIVIDUAL:

7.8%

mentioned individual behaviors like recycling, eating plant-based foods, driving electric vehicles, or using public transportation.

SYSTEMIC:

2.7%

talked about systemic solutions like clean and renewable energy, carbon capture, net-zero emissions, or green jobs.

DIETS APPEAR, FOOD WASTE AND AG DON'T



Terms related to characters' eating habits, such as plant-based, organic, or local food, showed up in 4.3% of scripts. Plant-based eating was the most common individual climate behavior we tracked, showing up in 3.7% of scripts—more common than recycling, EVs, or public transit. Only 0.4% mentioned food waste and composting, while references to agricultural systems were extremely rare, appearing in less than 0.1% of scripts—or fewer than 1 out of every 1,000 scripts.

Both were rare, though: systemic-solution terms were absent from more than 97% of scripts, and individual-behavior terms from 92%.

When we zoomed in on 231 characters who were closest to climate-related plots in the 100 stories from the narrative analysis, we found that most took or talked about taking climate action. Common actions

included raising awareness through storytelling, art, or education (23% of characters); pushing for policy or legal changes (13% of characters); and getting involved in civic activities (15% of characters). While systemic solutions like advocating for corporate responsibility and consumer actions were less likely to appear, **50% of all characters took action as part of a group or collective.** Clean energy and nature-based solutions were also infrequent.

EXTREME WEATHER AND CLIMATE DISCONNECT

Extreme weather and climate language are showing up together less often. Between 2021 and 2024, 7% of the 3,173 scripts that mentioned extreme weather also included one of our 36 original climate keywords, down from 10% in our 2016–2020 study.

DISASTERS DOMINATE

Of the 100 climate storylines we analyzed, 72% depicted climate change through disasters, mostly floods, extreme heat, and hurricanes or storms.

4. Climate Spans Genres

Climate turned up in subgenres beyond the ones you'd expect

FREQUENCY ANALYSIS

Climate reached well beyond the obvious genres. Based on our expanded 105-keyword list, climate language was most common in **medical (17.4%), romance (17.1%), comedy (16.8%), family (16.6%), and science fiction (15.8%) scripts; children's programming had the lowest rate (8.0%).**

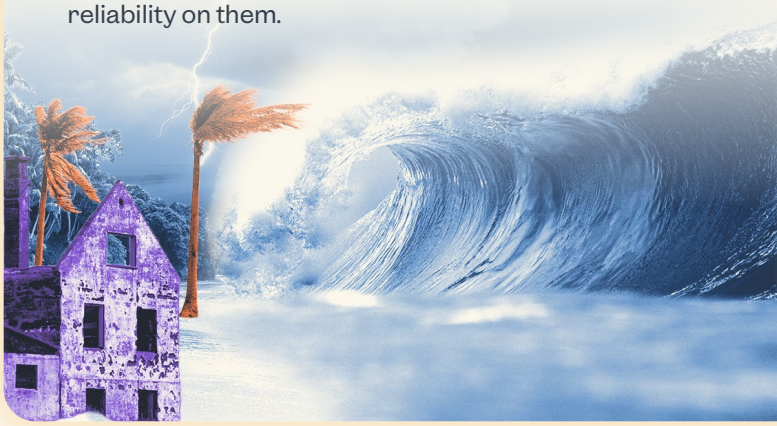
Procedural shows brought the subject into the case of the week, contributing roughly 20 climate-inclusive scripts per year across

HOW WATER, NATURE, AND CLIMATE INTERSECT

In the frequency analysis, of those scripts that included one or more of the 105 climate keywords, 15% also used nature, water, or weather terms such as flood, hurricane, drought, biodiversity, or wetlands.

In the narrative analysis, water issues were a central focus in 38% of the 100 storylines. Floods and sea level rise were the most common, appearing in 35% and 32% of all climate storylines.

Floods were also the most common disaster, showing up in nearly half of the 72 storylines that portrayed or mentioned disasters. Nature-based solutions were so rare in the narrative analysis that we could not measure reliability on them.



shows such as *FBI*, *Elsbeth*, and *Grey's Anatomy*. Comedy punched above its weight in share of scripts. While it made up 34.4% of all scripts, it accounted for 39.3% of scripts that mentioned climate.

5. Moving Beyond Threat

Climate stories opened with threat but moved toward agency

NARRATIVE ANALYSIS

We looked closely at the emotional tone of 100 climate-inclusive storylines along three clusters: threat (emotions centered on danger, loss, or helplessness), agency (emotions expressing empowerment, courage, optimism, solidarity, or determination to act), and wonder (emotions of awe, reverence, love, joy, or connection).

We found that most storylines—63%—began with threat as the dominant tone, with agency accounting for 28% and wonder at 7%. By the end of the climate storyline, however, the mood had shifted: agency became the primary tone in 44% of stories, wonder grew to 26%, and threat shrank to 25%.

Of the 30 stories we looked at most closely, 12 portrayed characters moving from avoiding a climate issue to engaging with climate, while another 10 featured characters already engaged. Fourteen storylines showed a character shifting from fear to finding courage or determination. Climate stories weren't confined to threat and fear, but moved toward agency and resolve. Courage, wonder, and connection proved able to hold the enormity of the subject.

FOSSIL FUELS ARE NEARLY ABSENT

Fossil fuel terms—including oil, coal, fracking, methane, offshore drilling, and petrochemicals—appeared in only 1.1% of the 35,120 scripts we looked at between 2021 and 2024. *Landman*, the Paramount+ drama about the economics and politics of West Texas oil, was the clearest example of a script densely engaging fossil-fuel terminology, alongside explicit discouragement of renewable energy.

RENEWABLES ARE TOO

Clean and renewable energy terms also came in at just 1.1%, mostly referencing wind turbines, solar panels/power, and geothermal energy.

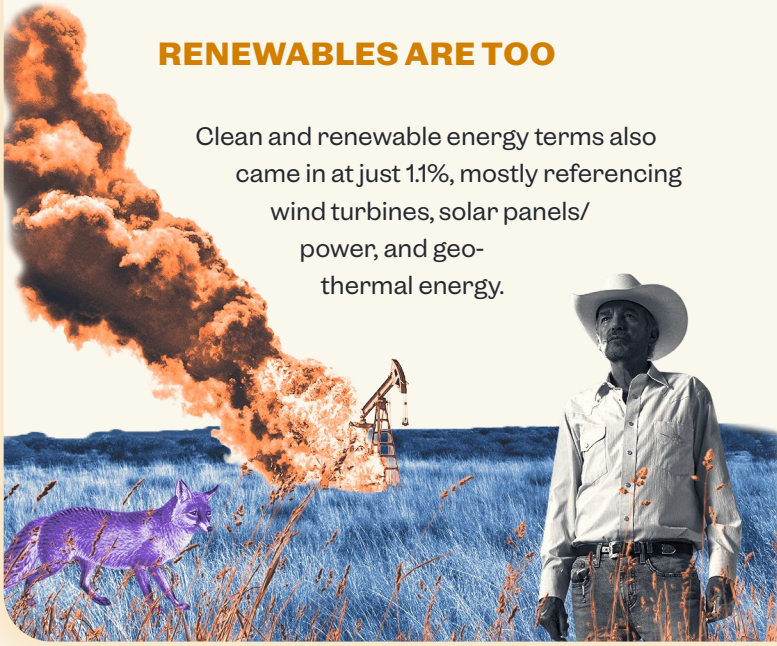
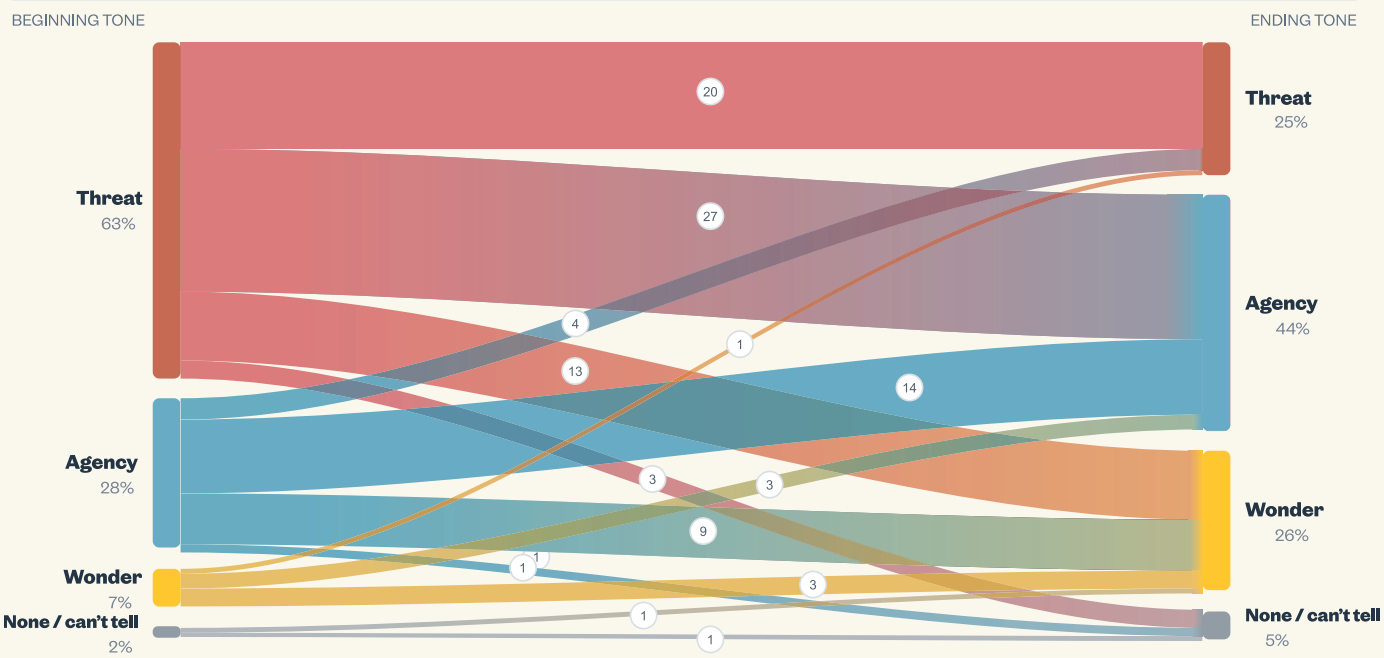


FIGURE 2. EMOTIONAL TONE SHIFTS ACROSS CLIMATE STORYLINES

Observed beginning-to-ending transitions; flow width equals the number of storylines



HOW CLIMATE TALK SHOWED UP

Climate was often invoked through specific story details, such as "fracking" in *Ghostbusters: Afterlife*, "solar energy" in *Despicable Me 4*, "reforestation" in *Ant-Man and the Wasp: Quantumania*, and "biodiversity" in *Outer Banks*.

CHARACTER REPRESENTATION AND TOLL

In the narrative analysis, of the 231 characters most often linked to climate storylines, 53% were men and 67% were white. Nearly half of these characters (48%) were shown as victims of climate events. Climate's human toll showed up most often as migration or displacement (38%), damage to homes (31%), and lost jobs or livelihoods (23%).

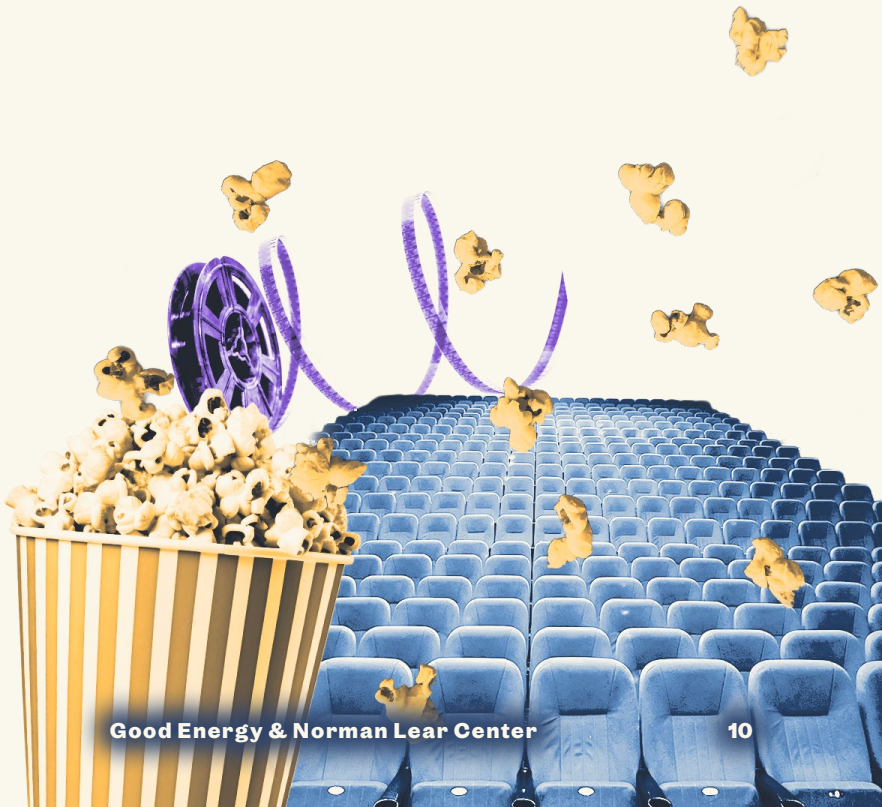
REACH

The frequency analysis for 2021–2024 coded 407 climate-inclusive films (i.e., films that used the 36 keywords). Of those films, 45 had available box office data. This data shows these films earned a combined $2.26 billion in the U.S. in 2021–2024—roughly 8% of the total domestic box office of $29.3 billion during that time.[4] On television, episodes mentioning the original 36 climate keywords drew a combined 12.4 billion hours of Netflix viewing and an average of 303 million broadcast and cable viewers. Examples of scripts with climate language include *Wednesday* and *Ted Lasso* on streaming, *NCIS* and *Grey's Anatomy* on broadcast, and *Deadpool* and *Wolverine* in theaters.

PLATFORMS AND BROADCASTERS

In the frequency analysis, climate language appeared in at least 10% of scripts on every major network and streamer. Among streamers: Apple TV (19.5%), Prime Video (15.4%), Netflix (12.6%), Hulu (12.3%), Paramount+ (12.0%), HBO Max (11.5%), Peacock (11.3%), and Disney+ (11.0%). Among broadcasters: FOX (16.7%), ABC (16.6%), The CW (13.5%), NBC (11.1%), and CBS (10.6%).

Films were more likely than TV episodes to include climate terms, with 19.0% compared to 12.2%.



4 Box Office Mojo. (n.d.). Domestic yearly box office, 2021–2024. IMDbPro. Retrieved August 1, 2026, from https://www.boxofficemojo.com/year.

Study Overview

Our previous research measured how often climate language appeared in scripted entertainment, giving us an initial picture of climate representation today. This study set out to both look deeper and widen the aperture. We used a combination of methods to capture climate storytelling at three resolutions: how often, what kind, and in what spirit. To our knowledge, no comparable analysis of climate stories in scripted TV and film exists.

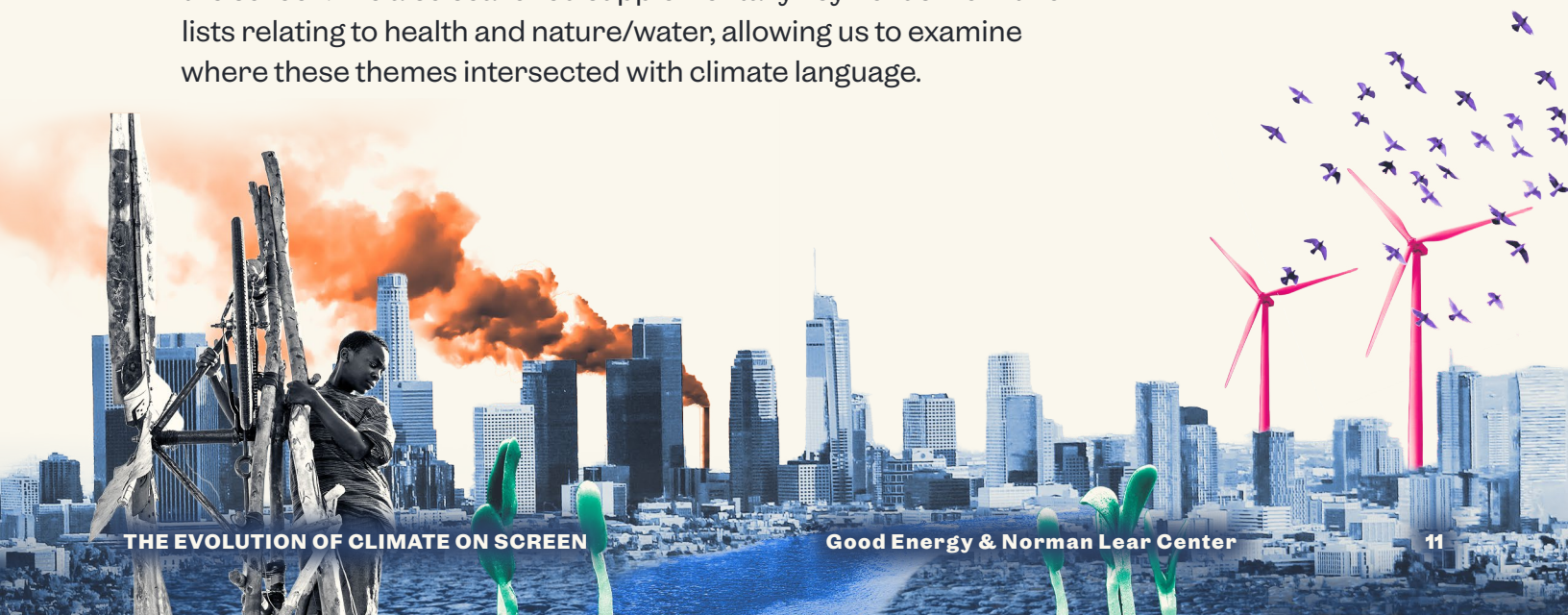
1

The frequency analysis surveys the entire industry's output, tracks changes over time, and shows where climate language is concentrated.

- **We examined transcripts from 35,120 scripts (TV episodes and films), released between 2021 and 2024,** drawn from the Norman Lear Center Script Database.

- For the **longitudinal** component of this analysis, we searched the 2021–2024 corpus for the **original set of 36 climate-related keywords** used to establish the 2016–2020 baseline.

- For the **t** portion of this analysis, we searched the corpus for a more **comprehensive set of 105 keywords** (including the original 36) to capture the wider vocabulary through which climate reaches the screen. We also searched supplementary keywords from two lists relating to health and nature/water, allowing us to examine where these themes intersected with climate language.



2

The quantitative narrative analysis provides substance, distinguishing climate stories from mentions and examining how climate is portrayed.

- Drawing from the frequency analysis results, we identified **100 storylines** (from 35 films and 65 TV episodes) with either primary or secondary climate storylines that aired between 2016 and 2024.

- Coders were trained to analyze time and place setting, storyline prominence, the presence of impacts and causes, connections to health and water, systemic framing, affected populations, emotional tone, and character actions.

3

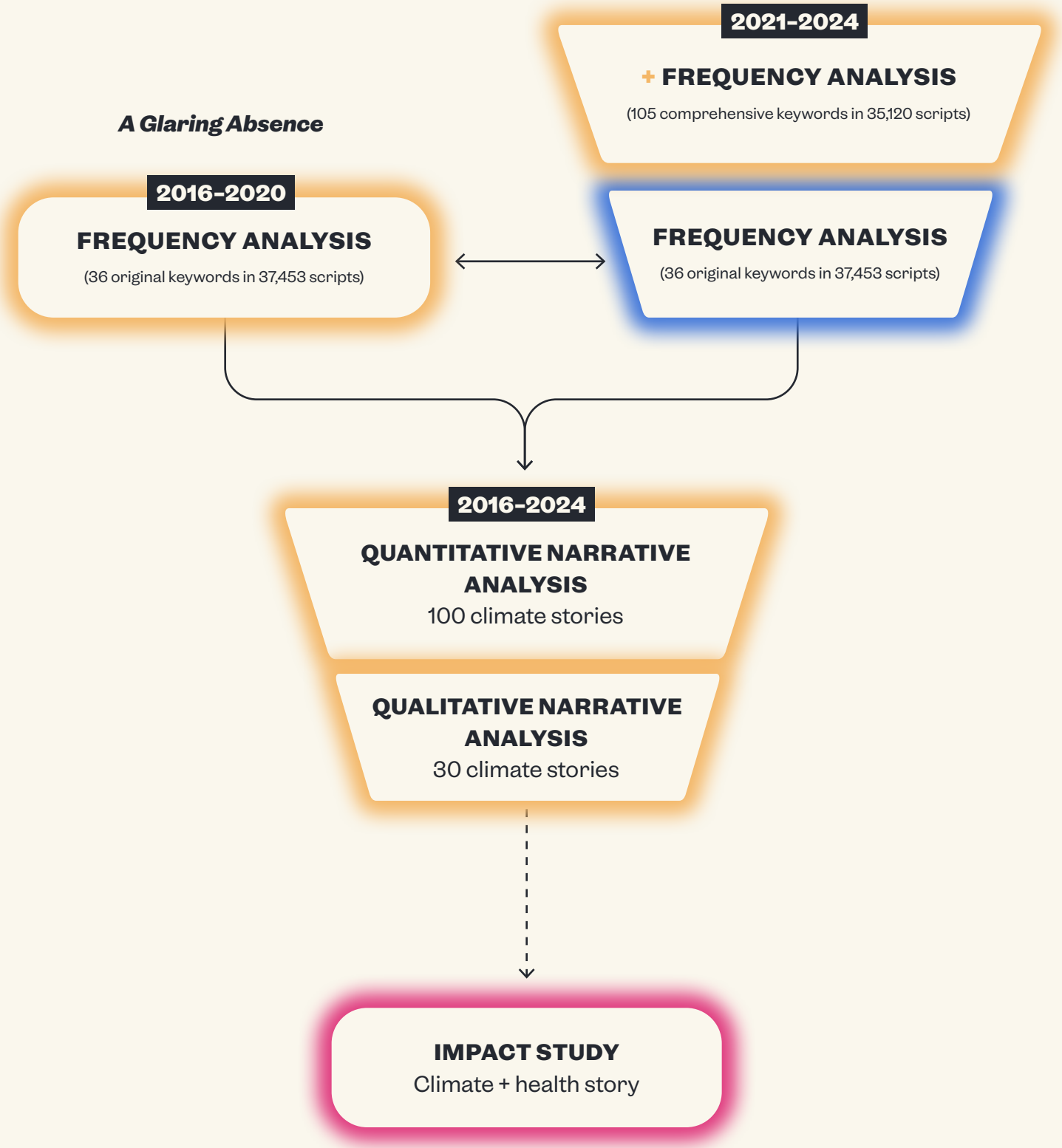
The qualitative narrative analysis adds texture, surfacing the patterns that structured coding would not have known to look for.

- Of the 100 storylines, we selected a subsample of 30 for more in-depth analysis on the basis of popularity, genre diversity, a mix of central and secondary storylines, and the presence of themes relating to water and health.

- Coders examined how stories morally frame the crisis, whether characters are supported or discouraged when they express climate concern, whether climate action is shown to work, how emotional distress is treated, and how characters change over the course of a story.

In the next phase, we will measure the audience impact of the extreme heat and health storyline from season 2 of HBO Max's *The Pitt*.

FIGURE 3. HOW THE ANALYSIS NARROWS FROM FREQUENCY TO STORY



Frequency Analysis

Methods

To measure how often, and how, climate appears in scripted entertainment, we searched the dialogue of 35,120 scripts (from individual TV episodes and films) released between 2021 and 2024.

This analysis had two aims, each using a different set of keywords:[5]

- **LONGITUDINAL FREQUENCY ANALYSIS (ORIGINAL KEYWORDS):** A comparison between the 2021–2024 time period and the 2016–2020 baseline, using the original set of 36 climate keywords.

- **EXPANDED FREQUENCY ANALYSIS (COMPREHENSIVE KEYWORDS):** A more granular analysis of the broader range of ways climate content surfaces on-screen, using a more comprehensive set of 105 keywords (including the original 36), spanning climate topics, behaviors, and impacts.[6] We also analyzed intersections between the comprehensive keyword list and two separate vocabularies addressing water- and health-related topics.

5 Each keyword was searched in its pluralized and stemmed forms.

6 Because the expanded frequency analysis used a larger set of keywords, these findings cannot be compared against the baseline.



Throughout this analysis, the term **"climate-inclusive scripts"** is used as shorthand to refer to the subset of scripts that mention at least one climate keyword.

Longitudinal Frequency Analysis (36 Original Keywords)

Compared against the 2016–2020 baseline, the analysis of the **36 original keywords** tells a story of modest but real growth.

Climate language is more common in scripted entertainment than it was five years ago.

- Climate keywords were 14% more likely to be mentioned in 2021–2024 (3.2% of all scripts) than in 2016–2020 (2.8% of all scripts).
- Mentions of the specific phrase "climate change" increased by 33%, from 0.6% of scripts in 2016–2020 to 0.8% in 2021–2024.
- In raw terms, the number of climate-inclusive scripts increased from 209 to 281 per year on average.
- Across the full nine-year window, annual raw mentions of climate keywords climbed from 338 in 2016 to a peak of 650 in 2022, dipping in 2020.

FIGURE 4.
PERCENTAGE OF SCRIPTS MENTIONING ANY OF 36 ORIGINAL CLIMATE KEYWORDS

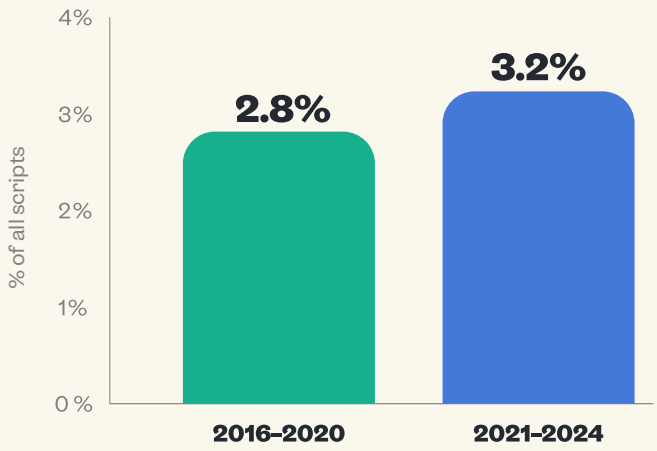
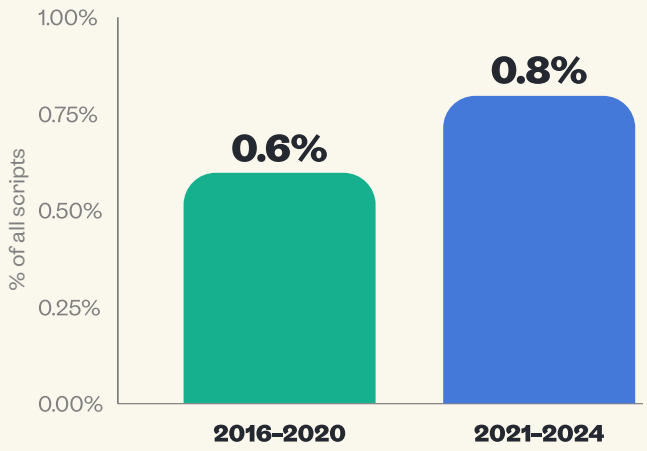


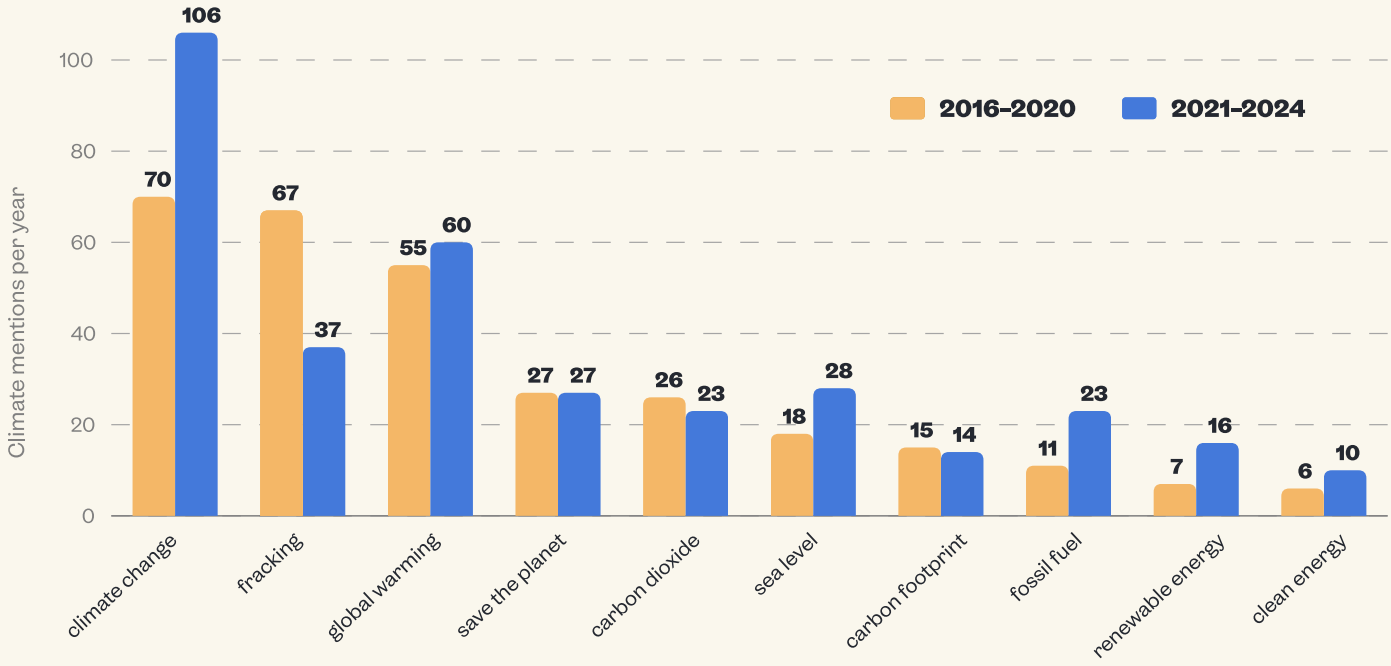
FIGURE 5.
PERCENTAGE OF SCRIPTS MENTIONING "CLIMATE CHANGE"



“Climate change” remains the most frequently mentioned of the 36 original keywords, and it was spoken more often than in previous years.

- Mentions of the phrase “climate change” increased from an average of 70 per year in the baseline period to 106 in 2021–2024.
- Mentions of “global warming” held steady, while “fracking” fell from 67 to 37 mentions a year but still ranks among the five most-used terms.
- Several keywords, while relatively infrequent, saw a substantial increase in their usage over time. These include sea level (55% increase), clean energy (67% increase), fossil fuel (109% increase), and renewable energy (129% increase).

FIGURE 6. TOP 10 MOST FREQUENTLY MENTIONED CLIMATE KEYWORDS (ANNUAL MENTIONS)



Per-year averages normalize the five-year and four-year study periods.

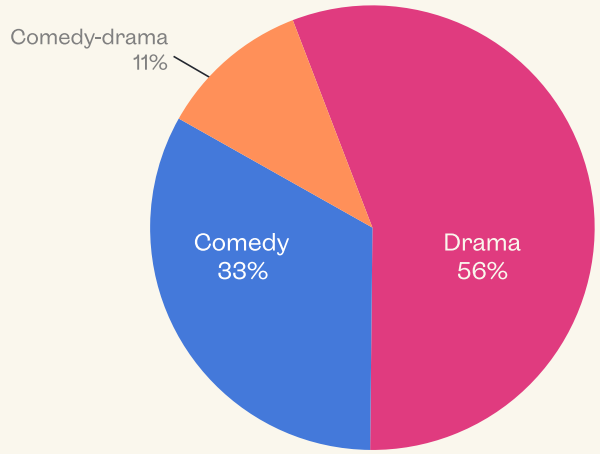
Climate change is slightly overrepresented in comedy relative to its share of all scripts.

- The share of climate-inclusive scripts accounted for by each genre remained relatively unchanged from 2016–2020.

- Dramas accounted for the largest share of climate-inclusive scripts (59%), but represented 63% of all scripts in the analysis.
- Comedy was slightly overrepresented, accounting for 30% of climate-inclusive scripts compared to 25% of all scripts.
- Procedural franchises brought the subject into the case of the week, contributing roughly 20 climate-inclusive scripts per year across shows such as *FBI*, *Elsbeth*, and *Grey's Anatomy*.

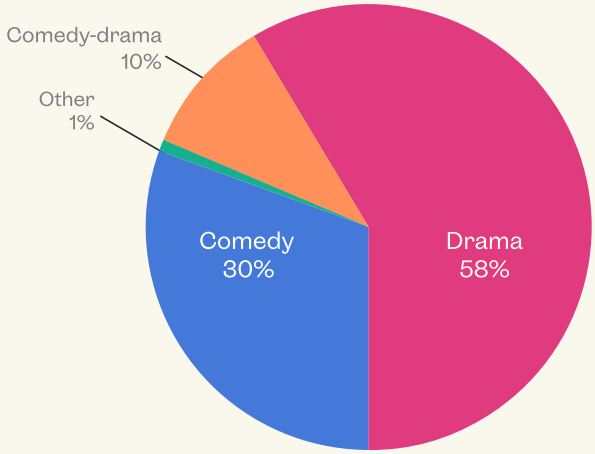
FIGURE 7. CLIMATE-INCLUSIVE SCRIPTS, BY GENRE

Share of climate-inclusive scripts (2016-2020)



n = 1,046 climate-inclusive scripts

Share of climate-inclusive scripts (2021-2024)



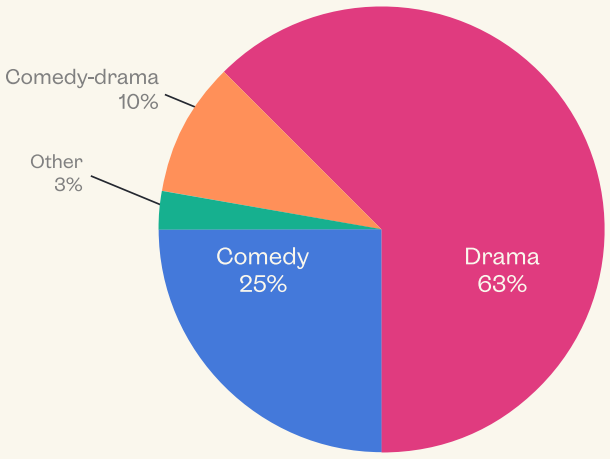
n = 1,121 climate-inclusive scripts

The "connect-the-dots" gap has widened, with audiences increasingly hearing about extreme weather events without an explicit link to climate change.

- In the baseline analysis, we found that in scripts mentioning extreme-weather events, climate keywords appeared only 10% of the time.

FIGURE 8. ALL SCRIPTS, BY GENRE (2021-2024)

Share of all scripts (2021-2024)



n = 35,120 scripts

- That gap has grown; in the 2021–2024 sample, 7% of scripts with extreme weather mentions also included climate keywords.
- About 8% of climate-inclusive scripts also referenced fossil fuels (oil, coal, fracking, methane, pipelines), consistent with 2016–2020.
- Clean and renewable energy terms (wind turbines, solar panels/power, geothermal) appeared in about 1.1% of all scripts—roughly the same prevalence as fossil fuels.

Climate-inclusive scripts reach mass audiences.

- Core climate-inclusive TV episodes drew 12.4 billion Netflix viewing hours and 303 million average broadcast and cable viewers. The 45 climate-inclusive films where box office earnings were available earned $2.26 billion at the U.S. box office.
- These are not niche stories: they include *Wednesday* and *3 Body Problem* on streaming, NCIS and *Grey's Anatomy* on broadcast, and *Deadpool* & *Wolverine* in theaters.

Expanded Frequency Analysis (105 Comprehensive Keywords)

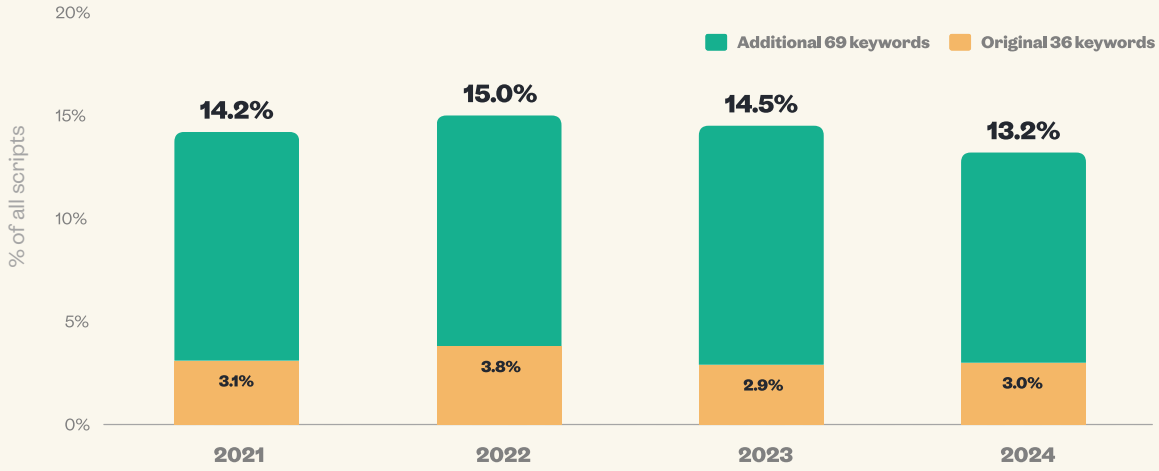
The expanded frequency analysis was run on a more **comprehensive list of 105 keywords,** comprising the original 36 and an additional 69 keywords. These findings describe how climate change appeared in the 2021–2024 time period, rather than how representation has changed over time.

When we expand the aperture to the more comprehensive keyword list, climate is a routine presence, mentioned in about one of every seven scripts.

- One or more of the comprehensive keywords were mentioned in 14.2% of scripts (4,992 of the 35,120 we analyzed).

- This is more than four times the footprint of the original climate keywords (3.2%), and held steady across the analysis period.

FIGURE 9. SCRIPTS THAT INCLUDED THE COMPREHENSIVE AND ORIGINAL CLIMATE KEYWORDS

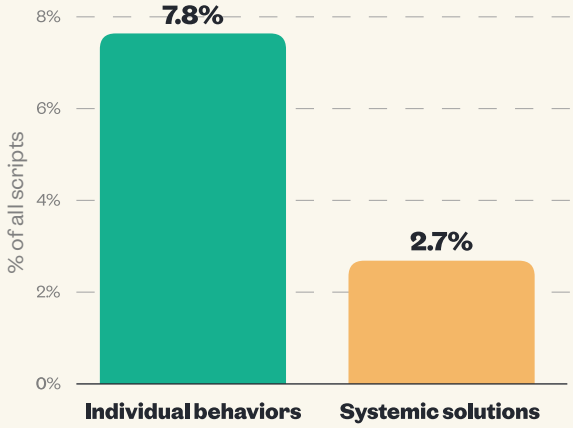


Climate-related dialogue—which discusses behaviors, impacts, and causes—appears through the texture of everyday life. Solutions are overwhelmingly at the individual level.

- Individual climate behaviors (e.g., recycling, plant-based eating, electric vehicles, public transit) were mentioned in 7.8% of scripts, nearly three times as often as systemic solutions (e.g., clean and renewable energy, carbon capture, net zero, and green jobs), which appeared in 2.7%.[7]

- Broader climate topics—including sustainability and the extractive industries—appeared in 5.4% of scripts. A related, narrower set of terms naming specific problems and causes of climate change—the fossil-fuel industry, methane, and deforestation—appeared in 3.8%.[8]

FIGURE 10. SCRIPTS MENTIONING CLIMATE SOLUTIONS



7 This analysis is not able to determine whether narratives frame solutions in terms of personal or structural change; it only establishes which terms are mentioned in the transcript.

8 These two groupings overlap (some terms, such as pollution, fall in both), so the two percentages are not additive.

- 900 scripts (2.6%) named at least one specific cause such as fossil fuels, oil, coal, fracking, methane, deforestation, or pollution. In other words, about two-thirds of the problems-and-causes scripts used concrete, industrial language rather than only general climate framing.

Health topics appear in the majority of climate-inclusive scripts, but rarely in close proximity to climate topics.

- Of scripts that mentioned one or more of the comprehensive keywords, 60% also included health-related language. However, co-occurrence of terms does not imply proximity or direct connection between the topics. Among scripts that explicitly said "climate change," only about 10% mentioned any health term in proximity.[9]

- Mental-health language in particular (e.g., stress, trauma, anxiety, depression) appeared in roughly 40% of climate-inclusive scripts, but only about 1% of those referencing "climate change" mentioned mental health in proximity.

- Physical illness appeared in 43% of climate-inclusive scripts, and 8% of "climate change" scripts had a physical health term nearby.

- The link was clearest in medical and issue-driven scripts. For example, in *New Amsterdam*, a doctor directly links rising lung-cancer rates to pollution and climate change, and in the film *Mercy*, a plea for a plant-based diet connects industrial animal agriculture to future pandemics.

Water and weather are less frequent vehicles for climate mentions, and are rarely explicitly connected to the climate crisis.

- Of scripts that mentioned one or more of the comprehensive keywords, 15% also mentioned nature, water, or weather terms (e.g., floods, hurricanes, drought, wildfire, wetlands, biodiversity).

9 A term is counted as "nearby" if it appears within 50 words of the phrase "climate change" in the same transcript; these percentages are of the 282 scripts that use that phrase.

- Water and weather terms appeared within 50 words of "climate change" in about 12% of the scripts that used the phrase. By contrast, causal terms (oil, coal, fracking, methane, deforestation, pollution) appeared within 50 words of "climate change" in only about 8% of those scripts. So even when a script names climate change explicitly, it references the visible impacts nearby more often than the causes.

- Water and weather language were common on their own, but rarely appeared alongside explicit climate language in the same script. The vocabulary of climate's effects (e.g., floods, wildfires, storms) showed up far more often than the vocabulary that named climate as the cause.

- Of all scripts that used nature or weather language, only about one in three also contained a climate keyword; the remaining two-thirds showed climate's effects without naming climate as the cause. For example, the wildfires in *The Morning Show* and the ocean catastrophe in *Under Paris* stage climate's consequences without connecting them back to climate itself.

TABLE 2. CLIMATE-INCLUSIVE SCRIPTS BY NETWORK/PLATFORM

PLATFORM	CLIMATE-INCLUSIVE SCRIPTS (105 comprehensive keywords)
Apple TV	19.5%
FOX	16.7%
ABC	16.6%
Prime Video	15.4%
The CW	13.5%
Netflix	12.6%
Hulu	12.3%
Paramount+	12.0%
HBO Max	11.5%
Peacock	11.3%
NBC	11.1%
Disney+	11.0%

Food and agriculture topics appear mainly through the plate, not the food system.

- Food-related climate keywords were mentioned in 4.3% of scripts, and nearly all of these mentions pertained to personal diet: plant-based and vegan eating, and organic or local food.

- Food waste and composting were mentioned in only 0.4% of scripts, and the industrial food system barely appeared at all, in less than 0.1% of (or, one in a thousand) scripts.

Fossil fuel topics are present, but limited.

- References to oil, coal, fracking, methane, offshore drilling, and petrochemicals appeared in 1.1% of all scripts.
- The Paramount+ drama *Landman* was the clearest example, built almost entirely around the economics and politics of West Texas oil.

Climate topics are represented on nearly every network and streaming platform.

- Apple TV led the major services, with 19.5% of its scripts including climate keywords, followed among broadcasters by FOX (16.7%) and ABC (16.6%), and among streamers by Prime Video (15.4%).
- Even the lowest of the major networks and streamers had climate-inclusivity rates of at least 10%, and films were more climate-inclusive than television (19.0% vs. 12.2%).

Dramas account for three in five climate-inclusive scripts on the comprehensive list.

- Comedies (28.1%) and comedy-dramas (11.2%) were slightly overrepresented relative to their share of all scripts (24.8% and 9.6% respectively).
- Dramas were slightly underrepresented at 59.1% compared to their share of all scripts (62.9%).

TABLE 3. CLIMATE-INCLUSIVE SCRIPTS WITHIN EACH SUBGENRE

SUBGENRE	CLIMATE-INCLUSIVE SCRIPTS
Medical	17.4%
Romance	17.1%
Comedy	16.8%
Family	16.6%
Science fiction	15.8%
Thriller	13.4%
Crime	12.6%
Children's	8.0%

Climate-related language is fairly evenly distributed across a wide range of subgenres.[10]

- Broadening the scope to the comprehensive set of keywords, climate language was most likely to appear in medical, romance, and comedy scripts.

- Only children's programming fell below 10% inclusivity, but was still well represented at 8.0% (more than six times the footprint of the original keywords).

10 Subgenres are not mutually exclusive; scripts can be tagged with multiple genres. Primary genre categories (drama, comedy, comedy-drama, other) are mutually exclusive, allowing us to calculate the share of all scripts accounted for by each genre.

Quantitative Narrative Analysis

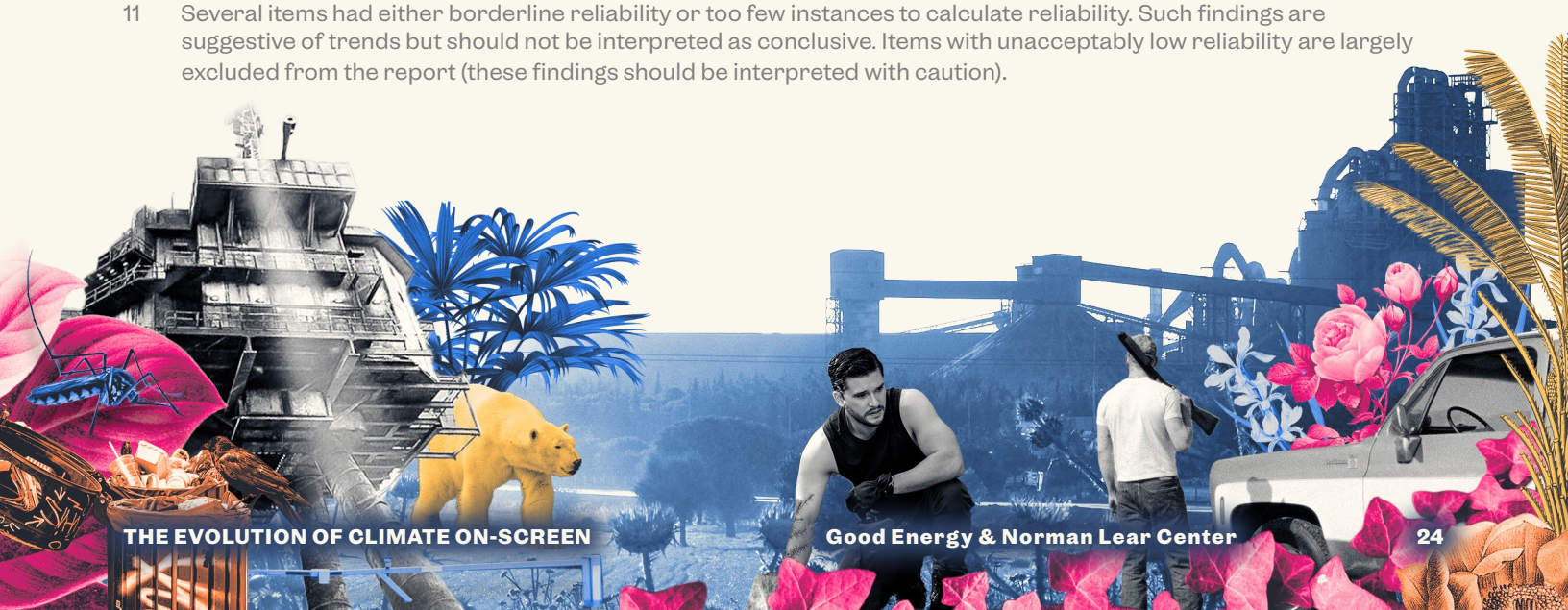
Methods[11]

To dive deeper into insights from the frequency analysis, we selected **100 prominent climate storylines** (comprising 35 films and 65 TV episodes) that aired between 2016 and 2024 for in-depth narrative analysis. For a show or film to be included in the sample, climate change had to appear as either a central storyline (A-plot; 52% of analyzed storylines) or a secondary storyline (B-plot; 48% of analyzed storylines).

- We quantitatively analyzed several variables, including: time setting and location of the plot, climate prominence, environmental impacts, climate–health links, climate–water links, the presence of systemic explanations, the impacts of climate on vulnerable populations, and emotional tone.

- Within the 100 storylines, we identified the three characters closest to the climate story for further analysis. A total of **231 individual characters** were coded for character-level attributes and climate-related actions taken.

11 Several items had either borderline reliability or too few instances to calculate reliability. Such findings are suggestive of trends but should not be interpreted as conclusive. Items with unacceptably low reliability are largely excluded from the report (these findings should be interpreted with caution).



- To augment this analysis, we used IMDb and Box Office Mojo to compile publicly available data on genre, streamer(s) and platform(s), average IMDb rating, and box office earnings.

Setting

The majority of climate storylines were set in a version of our world.

- More than two-thirds of the climate storylines (68%) took place in the present, with 21% set in the near future, 14% in the near past, and 4% in the distant future.[12]

- About one in five storylines (21%) took place in dystopian storyworlds, with the remainder in a mixed or neutral context. No utopias appeared.

Impacts and Causes

Climate impacts and causes were portrayed frequently, and often appeared together.

- 87% of climate storylines portrayed or mentioned climate impacts, including biodiversity loss (42%), sea level rise (32%), air pollution (32%), and food stress (24%).[13]

- 59% portrayed or mentioned social impacts, such as migration (38%), housing/property damage (31%), and job loss (23%).[14]

12 Multiple time settings could coexist in a single episode. There were too few instances of near past and distant future to calculate reliability.

13 Among climate impacts, sea level rise, air pollution, and desertification achieved acceptable levels of reliability. Food stress and biodiversity loss had borderline reliability, and water scarcity, water contamination, and permafrost thaw had unacceptable reliability.

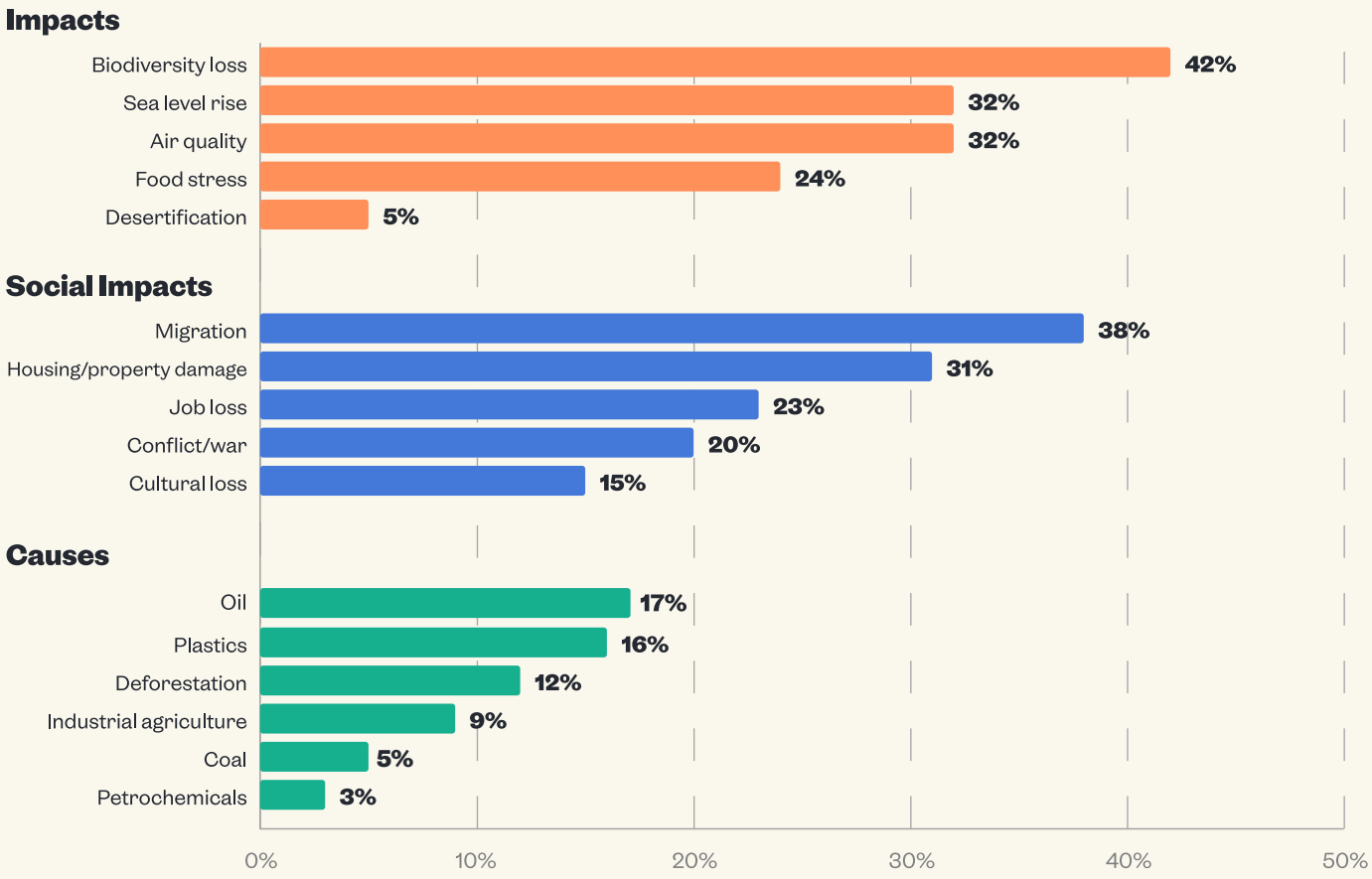
14 The question of whether any social impacts were present had borderline reliability, but each social impact had acceptable levels of reliability.

- 66% portrayed or mentioned a cause behind climate change, including oil (17%), plastics (16%), deforestation (12%), or industrial agriculture (9%).[15]

- Climate impacts and causes appeared together in more than half (55%) of all climate storylines.

FIGURE 11. CLIMATE IMPACTS AND CAUSES

Percentage of climate storylines featuring each impact or cause



15 The question of whether any causes were present had borderline reliability. Among the causes, only deforestation achieved an acceptable level of reliability. Coal, petrochemicals, and industrial agriculture had too few instances to calculate reliability. Oil had unacceptable reliability, but is reported here because it was among the most frequently portrayed causes of climate change. While we cannot place absolute confidence in this exact number, we can conclude that oil appeared with some frequency.

Climate–Water and Climate–Health Storylines

Water-related climate stories frequently emphasized the scale of the problem and ecological disruption, while health-related climate stories focused on human consequences and explicitly pointed to climate change as the cause.

- Water issues were a central focus in 38% of climate storylines,[16] and often served as an entry point by making climate issues visible.
    - Common water-related issues included sea level rise (32% of all storylines) and floods (35% of all storylines).
    - For example, in the film *The Boy Who Harnessed the Wind,* a flood leads the villagers to talk about how both flooding and droughts are becoming more common in their village.

TABLE 4. CLIMATE-WATER STORYLINES

IMPACT	EXAMPLE
Sea level rise	*Five Days at Memorial* illustrates the impact of rising sea levels and catastrophic flooding in New Orleans during Hurricane Katrina by focusing on the failure of critical infrastructure and the rapid engulfment of the city.
Biodiversity loss	*Last Sentinel* depicts severe biodiversity loss and ecological collapse primarily through its environmental setting—the submergence of a city.
Food stress	In *South Park: The Streaming Wars Part 2*, characters are forced to cook with urine since water has become unusable due to climate-driven factors.
Air pollution	*Under Paris* shows air pollution, specifically targeting ocean and water pollution, as a driver of an ecological catastrophe.
Water scarcity	*First Reformed* portrays water scarcity and environmental degradation as results of corporate greed, showing a fictional company pollute rivers including the Hudson River.
Water contamination	*The Commons* portrays a future where natural water sources are compromised by environmental disasters and water has to be rationed.
Desertification	*The Last Bus* depicts a world where, following a disaster involving "cleaning" robots, the environment is transformed into a desolate, barren landscape.

16 The presence of water issues had borderline reliability.

- Health issues appeared in 35% of climate storylines, and the health–climate relationship was explicit when present.[17]
    - Of the 35 storylines that featured climate and health, 32 (91%) portrayed climate as a cause of the health outcome.[18]
    - Frequently portrayed health issues included injury or death from disasters (16% of all storylines), air quality impacts (11%), mental health (11%), and food systems and malnutrition (11%). Maternal health was less frequently portrayed (6%).

TABLE 5. CLIMATE-HEALTH STORYLINES

HEALTH-RELATED IMPACT	FREQUENCY (% of all storylines)	EXAMPLE
Injury/death from disasters	**16**	*Extrapolations* portrays heat waves that hurt and kill people, forcing many to stay in shelters.
Air quality impacts	**11**	*2073* depicts a future "New San Francisco" where the toxic golden haze of the air is linked to environmental collapse.
Food systems/ malnutrition	**11**	*Last Sentinel* features a story where catastrophic flooding leads to extreme food scarcity for a crew on the Sentinel, a remote military base.
Mental health (anxiety, depression, trauma)	**11**	*America Is Sinking* shows climate-linked grief, panic, and trauma.
Infectious disease	**9**	*Madam Secretary* addresses climate change as a driver of multiple disease vectors, including dengue and Zika.
Heat-related illness	**8**	*Grey's Anatomy* shows heat-related health impacts.
Healthcare access/ system strain	**6**	*The Commons* features a near-future Australia where environmental challenges overwhelm existing healthcare infrastructure.
Maternal/reproductive health	**6**	*On Fire* shows the physical and mental stress of a woman who is eight months pregnant escaping a rapidly growing wildfire.

17 The presence of health issues had borderline reliability. Among the specific health impacts, only maternal/reproductive health, air quality, and the health impacts of climate migration/displacement achieved acceptable levels of reliability. Heat impacts, infectious diseases, food systems/malnutrition, injuries/death from disasters, and access to healthcare had too few instances to calculate reliability. Mental health and water quality had borderline reliability.

18 Climate change as a cause of health outcomes had too few instances in the reliability sample to calculate reliability.

HEALTH-RELATED IMPACT	FREQUENCY (% of all storylines)	EXAMPLE
Water quality-related illness	**6**	*How to Blow Up a Pipeline* features water pollution and environmental degradation that directly harm local populations and are tied to the fossil fuel industry.
Migration/ displacement-related health	**3**	*The Sex Lives of College Girls* portrays a fundraiser thrown for a climate refugee.

- Water and health issues appeared together in 17% of all climate storylines.
    - The effects of climate on vulnerable populations were more likely to be mentioned or depicted in water-related storylines than those without water (50% vs. 18%), and in health-related stories than those without (54% vs. 17%).

Disaster and Threat

Climate stories were dominated by a threatening tone at the beginning of the storyline (63%), with agency accounting for 28% and wonder at 7%.[19]

- Over the course of the climate storylines, the dominant framing shifted to agency (44%), with threat representing only 25% and wonder growing to 26%.

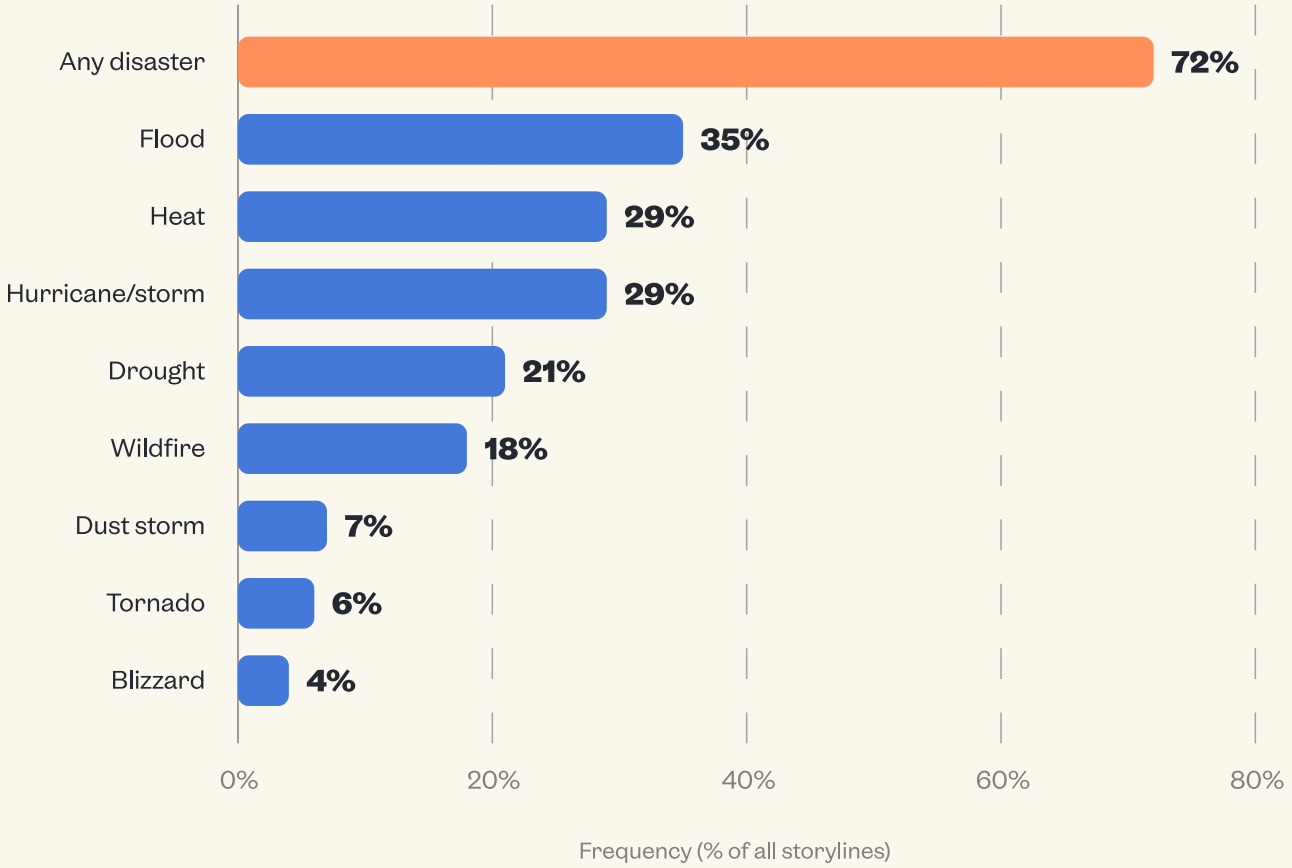
- Appealing to **disasters** was a common climate storytelling strategy, with 72% of climate storylines portraying or mentioning disasters, such as floods (35% of all storylines), heat-related events (29%), and hurricanes/storms (29%).[20]

19 A dominant tone of "threat" was defined as a cluster of emotions centered on danger, loss, or helplessness in relation to climate issues. A tone of "agency" was defined as a cluster of emotions expressing empowerment, courage, optimism, solidarity, or determination to act. A tone of "wonder" was defined as a cluster of emotions of awe, reverence, love, joy, or connection—including connection among humans, with nature, or with inspiring man-made environments. Reliability was acceptable for dominant emotional tone at the start of the storyline and borderline at the end.

20 Tornadoes and blizzards had too few instances to calculate reliability.

- Climate stories that portrayed disaster opened with a threatening tone 75% of the time—a much higher rate than non-disaster stories (of which only 29% started with a threatening tone).

FIGURE 12. FREQUENCY OF DISASTERS AND EXTREME WEATHER IN CLIMATE STORYLINES



Climate stories employed a wide range of storytelling techniques, including humor, flashback/flash-forward, montage, and voiceover.

- Nearly half of all analyzed episodes and films (49%) used humor, irony, or comic relief. Humor-infused stories were less likely to address water (31%, compared to 38% overall) and health impacts (20%, compared to 35% overall). This may suggest that it's challenging to combine serious topics with comic relief.

- Flashback/flash-forward, voiceover, and montage techniques were all used frequently in climate stories (at rates of 35%, 34%, and 27% respectively).[21]

21 The use of montage sequences had borderline reliability.

Characters in Climate Stories

Of the 231 individual characters analyzed, nearly half (48%) were victims of climate-related events or issues.

- More than four in five of these characters (82%) were represented as protagonists (who push the story forward) as opposed to antagonists (who pose challenges or hurdles for the protagonist).[22]
- A slight majority (59%) of these characters were supporting roles, while 41% were lead roles.[23]
- 45% of these characters were women, and 2% were nonbinary. Most were white (67%) and 80% were adults. Nine percent of characters were children and 8% were teens.

The majority of characters took or talked about taking some sort of climate action, and 50% of all characters took action as part of a group or collective.[24]

- Common actions included storytelling, art, education (23%); policy/legal action (13%); civic engagement and advocacy (15%).
- System-level actions (e.g., corporate and consumer actions), clean energy, and nature-based solutions were portrayed less frequently.[25]

22 The categorization of characters as protagonists or antagonists had borderline reliability.

23 Lead roles are defined as: protagonists that drive the unfolding climate-related storyline. Supporting roles are defined as: characters that appear in more than one scene and are instrumental in the action of the climate-related storyline. This variable had borderline reliability.

24 The question of whether characters talked about or took any climate action had inadequate reliability. To avoid overinterpretation, this is reported as "the majority" without reference to a specific number. Taking action alone or as part of a group had borderline reliability.

25 Corporate and consumer actions, clean energy, and nature-based solutions had too few cases to calculate reliability.

Platforms and Viewership

Eighteen films in this sample had audience data available, with average box office earnings of $60,115,058.

- At the high end were blockbuster films like *Aquaman and the Lost Kingdom*, with box office takings of $440,181,226. At the low end were independent films like *2073*, with $59,002.

- Disaster films were the top-grossing films in our sample; they were more likely to be threat oriented and include mentions or portrayals of flooding, storms, or environmental collapse.

The 100 climate storylines had an average IMDb viewer rating of 6.5 out of 10.

- At the high end, we saw prestige and comedy television (e.g., *It's Always Sunny in Philadelphia* with an average rating of 8.8). At the low end, we saw some disaster films (e.g., *Birdemic 2* with an average rating of 1.5).

Apple TV had the highest proportion of A-plot climate stories (83.3%), largely due to the inclusion of multiple episodes of *Extrapolations*, an anthology TV show focused on climate impacts.

- Amazon Prime had the most climate storylines overall (24), followed by Netflix (16), Hulu (8), Apple TV (6), HBO Max (5), and NBC (4).

- HBO Max climate storylines were almost entirely B-plots. Netflix and Amazon Prime included a mix of A- and B-plots.

Qualitative Narrative Analysis

Methods

To build on the quantitative analysis, we selected 30 climate-related films and TV episodes (from the 100 episodes/films with prominent climate change storylines) for additional qualitative analysis. These were identified on the basis of several factors, including popularity, mix of central and secondary storylines, genre diversity, and inclusion of water- and health-related themes. We examined the narrative, framing, and emotional dimensions of climate storytelling in greater depth, with particular attention to how climate, water, health, action, moral framing, emotional distress, and connection/disconnection were represented.

Key Findings

- Climate was most frequently portrayed in one of two ways: as part of background worldbuilding, or as an element in a character's awakening.



- Climate action was rarely portrayed as simply successful or simply futile; the pattern was ambivalent, difficult, or uncertain action.
- When health themes were present, they often made climate issues feel urgent and personal.
- When water themes were present, they often functioned as both threat and symbol.
- Positive emotions were common: 20 of the 30 stories included some positive or connective emotional framing.
- Climate-related emotional distress appeared in 22 of the 30 stories and was most often framed as normal or understandable.
- Although threat was the most common emotion at the beginning of storylines, the narratives diverged from that point on. Many stories (14 of 30) moved from fear toward courage or resolve, and 12 of 30 showed characters moving toward greater climate engagement.
- Climate issues were most often morally framed as a collective societal failure (17 of 30 stories), but often combined threat, distress, and systemic failure with courage, care, community, and forms of agency.

Worldbuilding

The most common narrative type was background worldbuilding, appearing in 9 of 30 stories (30%).

For example, in *The Sex Lives of College Girls,* Bela and Leighton plan a strip show to raise money for climate refugees. However, their primary motivation for the fundraiser is to get back into the good graces of the college administration and fraternities.

Other prominent storyline types included coming-of-awareness, awakening and disaster, and crisis response.

Concern, Engagement, and Action

Overall, there was support for climate concern and action and critique of climate denial and inaction.

- Climate denial or inaction expressed by characters was often criticized (11 of 30), with 16 of 30 stories either supporting climate concern and action or criticizing climate denial and inaction.

- For example, in *Extrapolations*, we see a marine biologist criticize her boss for environmental exploitation.

Stories rarely presented climate engagement in a simple, uniformly positive or negative way. Reactions to climate concern and action expressed by characters were more often mixed (12 of 30) than clearly validated (9 of 30) or discouraged (4 of 30).

- Children's show *Ada Twist, Scientist* showed clear support for climate concern and action. Ada is supported by the Green Team as they use adventures to show Arthur the real-world impact of climate change.

- *Landman* featured prominent discouragement of climate concern and action, notably in a now-viral talk by an oil-industry "crisis consultant" discussing eco-technology with a lawyer. The consultant dismisses green energy as a myth, arguing that renewables are costly and that we are locked into petroleum-based infrastructure.

Climate action was often portrayed as uncertain, contested, and/or emotionally meaningful even when outcomes are unclear.

- Of the 30 stories, 12 portrayed action as working or being worthwhile. For example, in the film *The Boy Who Harnessed the Wind,* a young man is able to build a wind turbine that resolves the drought experienced by his village. In the blockbuster *Aquaman and the Lost Kingdom,* climate action is daunting and bureaucratic but necessary, since the alternative is planetary ruin.

- In seven stories, it was unclear whether the action was effective. In *Big Little Lies*, a teacher educates children about environmental issues, but it's uncertain what happens as a result.

- In six stories, climate action was framed as negative or pointless. For example, *NCIS: Los Angeles* shows an eco-terrorist subplot, showing environmental activism as potentially destructive.

Water and Health Intersections

Water issues operated in two main ways: as a literal climate danger and as a symbolic device tied to loss, place, transformation, or environmental atmosphere. In the 16 stories where water played some role:

- Eight portrayed water as the main climate threat

- Five included it as a background setting only

- Four portrayed water as a symbol of loss/displacement, while three portrayed it as a symbol of transformation or change

Climate-related health themes and topics were present in 15 of the 30 stories. These intersections tended to frame climate as more urgent and consequential than when climate appeared without health themes. In the 15 stories where health played a role:

- Ten showed vulnerability or helplessness

- Nine highlighted urgency or stakes

- Six made climate personal

- Five forced difficult choices

- Four showed inequality or injustice

- Three encouraged caregiving/protection

Emotions

Of the 30 stories, 22 included some form of climate-related emotional distress, the most common being anger (16),[26] anxiety or fear (15), and grief or loss (10).

- Climate-related distress was portrayed as normal or understandable a majority of the time (in 15 of the 22 films where it appeared).

- Climate-related distress was most often portrayed in adults aged 20–49 (in 17 of the 30 stories), but children and teens were also visibly distressed in four storylines for each age group.

Even where climate stories involved threat, loss, or distress, they also often involved positive or agency-oriented emotions, such as courage or hope about the future.

- Positive or connective emotions appeared in 20 of the 30 stories. They included courage or determination (18); hope about the future (12); community or belonging (12); love, care, or emotional closeness (11); and awe, wonder, or reverence for nature (seven).

- Of the 30 climate stories, 10 had no positive or connective emotional framing.

Moral Framing

The most common moral framing was collective societal failure, appearing in 17 of the 30 stories.

- For example, in the family sitcom *One Day at a Time,* most people were apathetic to the crisis, as the main character struggled to confront neighbors with hard truths.

26 Research shows that anger can be associated with a greater likelihood of taking action. Gregersen, T., Andersen, G., & Tvinnereim, E. (2023). The strength and content of climate anger. Global Environmental Change, 82, Article 102738. https://doi.org/10.1016/j.gloenvcha.2023.102738

- Another common moral framing was harms being caused by a villain or bad actor, which occurred in 8 of the 30 stories, including *Ted Lasso,* where environmental damage is caused by a corrupt oil company.

- Three stories framed climate change as being caused by individual behavior. For example, the children's show *Ada Twist, Scientist* links environmental issues to individual dietary, travel, and shopping choices.

In 25 of the 30 stories, climate mattered because of some personal, relational, ethical, place-based, or professional stake rather than remaining purely abstract.

- The most common reason climate felt important to the main character was a threat to themselves or their loved ones, appearing in 9 of 30 stories.

- Other reasons included professional responsibility (seven stories), moral concern or right vs. wrong (six), and loss of home or place (three).

Shifts in Emotional Tone

Although many stories began with fear, a substantial subset shifted toward resolve, possibility, acceptance, or awe.

- Of the 30 stories, 14 showed shifts from fear/anxiety to courage, determination, or resolve, seven to hope or possibility, five to acceptance, two to relief or catharsis, and two to awe or wonder.

- 12 stories showed characters moving from disengagement to greater engagement with climate issues (and another 10 showed some engagement without a major shift).

- 11 episodes showed characters moving toward greater connection, with only one showing characters moving toward disconnection or isolation.

Appendix A: Frequency Analysis Methods

KEYWORD IDENTIFICATION

To establish a longitudinal comparison between the 2016–2020 data from the Glaring Absence report and this 2021–2024 dataset, the same **36 original climate keywords** were carried over.

Additionally, in order to tell a more complete story of how climate appears in scripted TV and film, a **comprehensive keyword list** was developed collaboratively by the Norman Lear Center and Good Energy teams. The comprehensive keyword list was tested in the Norman Lear Center Script Database, and a subset of 100 mentions of each keyword (if there were less than 100 keyword mentions, all mentions were included in the subset) were analyzed by Claude Opus 4.8 for relevance. Importantly, relevance does not require that the mention be directly connected to climate change, but rather that the keyword is used in a sense that *could be* climate-relevant (as opposed to a completely unrelated or alternate usage).

TABLE 6. HYPOTHETICAL EXAMPLES OF RELEVANT AND NON-RELEVANT USAGE OF KEYWORDS

KEYWORD	RELEVANT USAGE	NON-RELEVANT USAGE
Pollution	Air pollution	Noise or light pollution
Sustainable	Energy-efficient behaviors	Long-term financial viability
Saving energy	Energy-efficient behaviors	Preserving one's strength
Recycling	Reuse of physical items	Bringing back an old idea
Drought	A long period of low precipitation	A string of sports losses
Flood	Event caused by heavy rainfall	Overwhelming emotions

The relevance tests were reviewed and validated by Lear Center research staff, and any keywords not reaching 80% relevance were discarded, leaving a total of 105 keywords on the more comprehensive list (the original 36 plus an additional 69).

TABLE 7. FINAL LIST OF KEYWORDS

THIRTY-SIX ORIGINAL KEYWORDS	biodiversity, carbon capture, carbon dioxide, carbon emission, carbon footprint, care about the planet, clean energy, climate catastrophe, climate change, climate crisis, climate disaster, climate emergency, climate justice, climate migration, climate refugee, climate solutions, deforest, dying planet, energy efficient, fossil fuel, fossil fuel industry, fracking, global warming, greenhouse gas, green energy, greenhouse effect, ice caps, melting glaciers, ocean pollution, plastic pollution, reforestation, renewable energy, save the planet, sea level, solar energy, wind energy
SIXTY-NINE ADDITIONAL KEYWORDS ON COMPREHENSIVE LIST	air pollution, air quality, carbon neutral, carbon offset, carpool, clean air, clean fuel, climate action, climate activist, climate aware, climate impact, coal industry, coal mine, compost, eco anxiety, eco friendly, electric bike/bicycle/e-bike, electric car, electric vehicle, environmental impact, extinction, fire season, flexitarian, food waste, geo-thermal, green job, green tech, greenwashing, Greta Thunberg, heat pump, human extinction, hybrid car, induction ovens, induction stoves, industrial farm, insulate, LED light, locally sourced, meat free, meat substitute, methane, microplastics, net zero, offshore rig, oil drilling, oil extraction, oil industry, oil pipeline, oil rigs, organic food, petrochemical, plant based, pollution, public transit, public transport, recycle, regenerative (farming), reuse, save energy, single use, smog, sustainable, train travel, turbines, unsustainable, upcycle, vegan, vegetarian, wind power

Additionally, all keywords were broken down into an expanded set of "terms," which established the stemming and pluralization needed in order to properly search the database (e.g. "frack, fracked, fracking").[27]

DATABASE/ANALYTIC FRAME

The dataset comprises 35,120 scripted television episodes and theatrically released films from 2021–2024, each paired with its full transcript. Title-level metadata—type, season and episode, year, genre and subgenre, country of origin, language, network and platform, viewership, and box office—was assembled from standard industry sources including TMDB, IMDb, OMDb, TVMaze, and *Variety*. Findings are benchmarked against the 2016–2020 baseline study, which analyzed 36 climate keywords across 37,453 scripted TV episodes and films from the Norman Lear Center Script Database.

27 The full list of keywords with associated terms and subcategories is provided in Appendix A1.

TABLE 8. ANNUAL MENTIONS AND CLIMATE-INCLUSIVE SCRIPTS (2016–2024)

		ORIGINAL KEYWORDS			COMPREHENSIVE KEYWORDS		
YEAR	TOTAL SCRIPTS	MENTIONS	CLIMATE-INCLUSIVE SCRIPTS	% CLIMATE-INCLUSIVE SCRIPTS	MENTIONS	CLIMATE-INCLUSIVE SCRIPTS	% CLIMATE-INCLUSIVE SCRIPTS
2016-2020	37,453	1,772	1,046	2.8%	—	—	—
2021	9,598	493	294	3.1%	2,447	1,365	14.2%
2022	8,910	650	339	3.8%	2,509	1,340	15.0%
2023	7,450	406	215	2.9%	2,078	1,077	14.5%
2024	9,162	482	275	3.0%	2,208	1,210	13.2%

ANALYSIS PROCEDURE

Each episode's full transcript was searched case-insensitively for every term using word-boundary matching; overlapping sub-phrases were counted once toward the longest match. To confirm our method was accurate, we reproduced the per-keyword counts published in the 2016–2020 baseline study, *A Glaring Absence;* for example, "climate change" appeared 352 times and "fracking" 336 times across those five years, matching the published totals to within 1%.

Platform type (broadcast/cable/streaming/international) was assigned from each title's originating network/platform; procedurals were classified at the show level against a curated list of case-of-the-week franchises; the drama/comedy binary counted each episode once.

Appendix B: Quantitative Narrative Analysis Methods

SAMPLE IDENTIFICATION

We analyzed 100 films and television episodes with prominent climate change storylines that aired between 2016 and 2024. To be included in the sample, the film or episode had to feature climate change as either a central storyline (A-plot) or a secondary storyline (B-plot):

- **A-storyline:** the central story or conceptual setup of the episode or film. It has the most screen time, and usually relates to the lead character. For example, the main "case" of a procedural.

- **B-storyline:** a secondary storyline or "substory" that often relates to secondary characters or plotlines. For example, a substory might focus on the personal lives of the detectives in a procedural while the central storyline is the case they are working on.

Through a combination of keyword-based script and AI-assisted plot analysis, the films and episodes in the sample were identified as containing climate-related content.

1. First, we used the Norman Lear Center Script Database, which contains more than 175,000 transcripts of TV episodes and films, to identify scripts with at least two mentions of climate-related dialogue.

2. We independently used AI (a combination of Gemini, Claude, and GPT-4o) to hypothesize whether identified content was likely to contain a climate-related storyline (A or B).

3 Next, trained human coders (USC students) adjudicated whether a climate-related storyline was present by watching the content.

4 Finally, for TV shows with multiple episodes that fit the criteria (e.g., *Madam Secretary, Extrapolations*), we limited inclusion to five episodes (based on the highest number of keyword mentions) to allow for more diversity in the sample.

TABLE 9. LIST OF CODED EPISODES

Note: TV episodes/films marked with an asterisk were also included in the subsample of 30 episodes for the qualitative narrative analysis.

TITLE	YEAR	TYPE	SEASON	EPISODE
2073	2024	Movie		
*A Murder at the End of the World**	2023	TV	1	1
A Murder at the End of the World	2023	TV	1	3
Aberdeen	2024	Movie		
*Ada Twist, Scientist**	2021	TV	4	3
Ada Twist, Scientist	2021	TV	4	6
America Is Sinking	2023	Movie		
American Housewife	2016	TV	2	21
American Housewife	2016	TV	3	4
American Housewife	2016	TV	4	3
*Aquaman and the Lost Kingdom**	2023	Movie		
Arctic Apocalypse	2019	Movie		
Arctic Dogs	2019	Movie		
Batman and Harley Quinn	2017	Movie		
*Big Little Lies**	2018	TV	2	3
Billions	2019	TV	4	8
Birdemic 3: Sea Eagle	2022	Movie		
*Blueback**	2022	Movie		

TITLE	YEAR	TYPE	SEASON	EPISODE
Breathe	2024	Movie		
Coffee Wars	2023	Movie		
Continental Split	2024	Movie		
Devil's Triangle	2021	Movie		
Doctor Odyssey	2024	TV	1	4
*Elementary**	2017	TV	6	19
Extended Family	2023	TV	1	3
Extrapolations	2023	TV	1	1
*Extrapolations**	2023	TV	1	2
Extrapolations	2023	TV	1	3
Extrapolations	2023	TV	1	5
Extrapolations	2023	TV	1	7
*First Reformed**	2018	Movie		
*Five Days at Memorial**	2022	TV	1	3
Foe	2023	Movie		
Geostorm	2017	Movie		
*Ghosts**	2022	TV	2	4
*Glass Onion: A Knives Out Mystery**	2022	Movie		
*Good Omens**	2019	TV	1	4
*Grey's Anatomy**	2021	TV	18	3
*Hacks**	2024	TV	3	5
The Handmaid's Tale	2017	TV	1	6
*How to Blow Up a Pipeline**	2022	Movie		
Humane	2024	Movie		
I May Destroy You	2020	TV	1	7
*It's Always Sunny in Philadelphia**	2019	TV	14	7
La Palma	2024	TV	1	1

TITLE	YEAR	TYPE	SEASON	EPISODE
La Palma	2024	TV	1	2
*Landman**	2024	TV	1	3
Last Light	2022	TV	1	5
Last Sentinel	2023	Movie		
*Long Shot**	2019	Movie		
MacGyver	2020	TV	4	12
Madam Secretary	2016	TV	3	1
*Madam Secretary**	2018	TV	5	16
Madam Secretary	2018	TV	5	17
Madam Secretary	2018	TV	5	18
MARS	2016	TV	1	2
*Mixed-ish**	2019	TV	1	21
Monsterland	2021	TV	1	4
Mr. Iglesias	2020	TV	2	4
*NCIS Los Angeles**	2017	TV	9	12
Never Have I Ever	2020	TV	1	5
New Amsterdam	2021	TV	3	11
*Nyad**	2023	Movie		
Octonauts: Above & Beyond	2022	TV	2	2
On Fire	2023	Movie		
*One Day at a Time**	2020	TV	4	4
Our Cartoon President	2018	TV	2	8
Penguin Rescue	2018	Movie		
Reminiscence	2021	Movie		
Resident Evil	2022	TV	1	1
Return to Paradise	2024	TV	1	4
Schooled	2019	TV	2	20

TITLE	YEAR	TYPE	SEASON	EPISODE
South Park: The Streaming Wars Part 2	2022	Movie		
Space Oddity	2022	Movie		
Super Icyclone	2024	Movie		
*Ted Lasso**	2021	TV	2	3
*The Affair**	2019	TV	5	2
The Amazing World of Gumball	2018	TV	6	26
The Blacklist	2016	TV	4	4
*The Boy Who Harnessed the Wind**	2019	Movie		
The Commons	2019	TV	1	1
The Commons	2019	TV	1	4
The Commons	2019	TV	1	5
The Commons	2019	TV	1	8
The End We Start From	2023	Movie		
The Ghost and Molly McGee	2023	TV	2	13
The Good Cop	2018	TV	1	6
The Last Bus	2022	TV	1	1
*The Morning Show**	2019	TV	1	6

CODING PROCEDURE

We developed a structured coding instrument to capture multiple dimensions, including time setting and location of the plot, climate prominence, environmental impacts, climate–health links, climate–water links, the presence of systemic explanations, impacts of climate on vulnerable populations, emotional tone, and character-level attributes. Analysis included descriptive statistics and bivariate crosstabs (e.g., water × health).

A subset of 20 films and episodes (20% of the full sample) were double-coded to calculate inter-rater reliability. Reliability for these comments was calculated using Krippendorff's alpha:

- 1.00: perfect reliability
- 0.60-0.99: acceptable reliability
- 0.40-0.59: borderline reliability
- Less than 0.40: inadequate reliability
- *: items with no positive cases in the reliability sample, too small a sample, or no variability: unable to calculate reliability

TABLE 10. EPISODE-LEVEL CODEBOOK AND RELIABILITY

VARIABLE	KRIPPENDORFF'S α
SETTING	
Physical setting: urban	0.63
Physical setting: suburbs	0.24
Physical setting: rural	0.20
Physical setting: natural	0.49
Time setting: present	0.89
Time setting: near future	0.89
Time setting: distant future	* (0 instances)
Time setting: near past	0.00 (0-1 instances)
Time setting: distant past	* (0 instances)
Time setting: unclear	* (0 instances)
OVERALL THEMES AND TOPICS	
Level of climate issues (A- or B- storyline)	0.72
Were climate issues mentioned, portrayed, or both?	0.56
If yes, were climate issues represented as systemic?	0.42
Was the storyworld utopian, dystopian, or mixed/ neutral?	0.60
Was nature explicitly portrayed or mentioned?	0.12

VARIABLE	KRIPPENDORFF'S α
Was nature represented as a threat?	0.73
Was nature represented with awe or beauty?	0.18
DISASTERS AND EXTREME WEATHER EVENTS	
None	0.88
Heat	0.77
Wildfire	0.88
Hurricane/storm	0.70
Drought	0.75
Tornado	0.49 (0-1 instances)
Flood	0.79
Blizzard	* (0 instances)
Dust storm	1.00
Mudslide	* (0 instances)
If selected, were disasters/extreme events portrayed, mentioned, or both?	0.67
CLIMATE IMPACTS	
None	0.75
Sea level rise	0.73
Water scarcity	0.36
Water contamination	-0.07
Air pollution	0.67
Food stress	0.40
Biodiversity loss	0.51
Permafrost thaw	0.30
Desertification	0.73
If selected, were impacts mentioned, portrayed, or both?	0.58
CLIMATE CAUSES	
None	0.44

VARIABLE	KRIPPENDORFF'S α
Coal	* (0 instances)
Oil	0.31
Gas/fracking	0.46
Plastics	0.46
Petrochemicals	0.00 (0-1 instances)
Industrial agriculture	0.00 (0-1 instances)
Deforestation	0.81
If selected, were causes mentioned, portrayed, or both?	0.54
SOCIAL IMPACTS	
None	0.44
Jobs/livelihoods	0.66
Housing/property damage	0.69
Migration and displacement	0.78
Conflict/war	0.80
Cultural loss	0.73
If selected, were social impacts mentioned, portrayed, or both?	0.44
WATER, MARGINALIZED COMMUNITIES	
Were water issues a central focus in the climate-related storyline? (Water quality, scarcity, drought, flood, sea level rise, etc.)	0.54
Did the story mention or portray members of marginalized communities directly affected by the climate issues?	0.20
If yes, portrayed, mentioned, or both?	0.27 (small total N)
If yes, what group was affected? Named characters	0.01 (small total N)
If yes, what group was affected? Distant groups	0.10 (small total N)
If yes, what group was affected? Unclear	0.10 (small total N)

VARIABLE	KRIPPENDORFF'S α
HEALTH IMPACTS	
Were health issues shown in relation to climate?	0.46
Heat impacts	-0.14 (small total N)
Mental health	0.56
Maternal/reproductive health	1.00
Infectious diseases	0.00 (0-2 instances)
Food systems/malnutrition	-0.33 (small total N)
Air quality	1.00
Water quality	0.56
Injuries or deaths from climate disasters	-0.33 (0-1 instances)
Access to healthcare/systems	0.00 (0-1 instances)
Health impacts of climate migration or displacement	1.00
If yes, was the relationship between climate and health in the episode or film described or portrayed as causal?	0.00 (0-2 instances of "unclear")
EMOTIONAL TONE	
Most prevalent emotional tone at beginning of climate storyline	0.69
Most prevalent emotional tone at end of climate storyline	0.49
Most prevalent emotional tone at end of film/episode	0.37
STORYTELLING TECHNIQUES	
Voiceover/narration	0.66
Montage sequence	0.41
Flashback or flash-forward	0.71
Humor, irony, or comic relief	0.64
Romance/love subplot	0.36
None of the above / can't tell	0.37

TABLE 11. CHARACTER-LEVEL CODEBOOK AND RELIABILITY

VARIABLE	KRIPPENDORFF'S α
CHARACTER DEMOGRAPHICS	
Gender	1.00
Was the character trans?	0.00 (0-1 instances)
Age	0.82
Race	0.72
Immigration status	0.34
Parent or caregiver	0.52
Lead or supporting	0.56
Protagonist or antagonist	0.58
OTHER CHARACTERISTICS	
Victim of climate issues	0.70
Depicted in positive or negative light	0.54
Concerned with climate	0.24
Climate nag trope	0.35 (2-3 instances)
Truth-teller trope	0.28
Explicitly dealt with or talked about climate-related mental health challenges	0.27
ACTIONS	
Took or talked about taking explicit, intentional climate action	0.33
Civic engagement/advocacy	1.00
Policy/legal action	0.69
Community resilience/adaptation	-0.06
Nature-based solutions	0.00 (0-1 instance)
Clean energy	* (0 instances)
Individual lifestyle choice	-0.04
Consumer actions	* (0 instances)
Corporate actions	-0.02 (0-2 instances)

VARIABLE	KRIPPENDORFF'S α
Storytelling, art, education	0.81
If yes, did the character take action or describe taking action alone or were they acting together with another person or as a group?	0.43

SECONDARY RESEARCH

To augment our quantitative narrative analysis, we added a secondary research layer. Using IMDb and Box Office Mojo, we compiled publicly available data on additional variables including:

- Genre
- Production company
- Streamer(s) and platform(s)
- Average IMDb rating
- Box office total

Appendix C: Qualitative Narrative Analysis Methods

SAMPLE IDENTIFICATION

For the qualitative narrative analysis, we selected a purposive sub-sample of 30 climate-related films and TV episodes from the larger quantitative sample (indicated in Appendix B, Table 9). The sample selection was focused on several factors, including popularity, a mix of A- and B- storylines, genre diversity, and inclusion of water- and health-related themes.

CODING PROCEDURE

Trained undergraduate coders completed three one-hour training sessions before final coding. Training focused on identifying the climate-related storyline, applying qualitative narrative categories consistently, and using examples to clarify ambiguous concepts such as climate action, moral framing, emotional distress, and positive/hopeful emotional framing.

Approximately one-third of the qualitative sample was double-coded. This analysis used an agreement-based coding process: disagreements were discussed by coders and adjudicated to produce a final consensus code.

TABLE 12. QUALITATIVE CODEBOOK

What kind of story is the climate storyline? (Choose one or two.)

- Disaster/crisis response
- Investigation/discovery
- Political/institutional conflict
- Interpersonal/family drama
- Adaptation
- Coming-of-awareness/awakening
- Background worldbuilding

Do the main climate-related characters experience support or discouragement connected to climate action or concern?

Do the main climate-related characters experience support or criticism connected to climate denial or inaction?

Do the main climate-related characters find that climate action works?

What role(s) do health impacts play in the climate storyline? (Select all that apply.)

- Makes climate feel personal
- Raises urgency or stakes
- Forces difficult choices
- Shows vulnerability or helplessness
- Encourages caregiving or protection
- Shows inequality or injustice
- Background detail only
- No meaningful role

What role(s) does water play in the story? (Select all that apply.)

- Main climate threat (flooding, rising sea, drought, etc.)
- Resource or shows survival pressure
- Water is restored, protected, or treated as a solution
- Symbol of home or belonging
- Symbol of loss or displacement
- Shows beauty or awe of nature
- Shows transformation or change
- Background setting only
- No meaningful role

Do any of these positive or hopeful emotions help shape the climate-related storyline? (Select all that apply.)

- Hope about the future
- Courage or determination
- Awe, wonder, or reverence for nature
- Love, care, or emotional closeness between people
- Gratitude or appreciation
- Community, belonging, or shared experience
- Joy or celebration
- Peace, calm, or emotional release
- Spiritual or transcendent meaning
- None (no meaningful positive emotion)

How are the climate issues in the storyline framed? (Choose one or two.)

- Injustice/unfair harm
- Tragedy/unavoidable loss
- Caused by individual human behavior
- Caused by a villain or bad actor
- Collective societal failure
- Spiritual or moral issue
- No clear framing

What makes climate feel important to the main character in the climate storyline? (Choose one.)

- Threat to themselves or threat to loved one(s)
- Economic/livelihood threat
- Loss of home or place
- Moral concern (right vs. wrong)
- Identity or cultural connection
- Professional responsibility
- Abstract idea (not personal)
- Not emotionally important

What type of climate-related emotional distress is shown? (Select all that apply.)

- Anxiety or fear
- Grief or loss
- Trauma or shock
- Depression or hopelessness
- Anger
- Emotional numbness
- Obsessive behavior
- Harmful coping (e.g., substance use)
- Relationship problems
- Survivor guilt
- Other: _____
- None

If distress is shown, how is this climate-related distress portrayed? (Choose one.)

- Normal and understandable
- Overwhelming or paralyzing
- Harmful or destructive
- Irrational or exaggerated
- Used for humor
- Not applicable
- Mixed/unclear

How old is the climate-related character(s) that experiences the most climate-related distress? (Choose one.)

- Child (0–12)
- Teen (13–19)
- Adult (20–49)
- Older adult (50+)
- No distress shown

Does the climate-related storyline show any of the following emotional shifts? (Select all that apply.)

- Fear or anxiety → hope or possibility
- Fear or anxiety → courage, determination, or resolve
- Fear or anxiety → awe, wonder
- Fear or anxiety → relief, catharsis, or emotional release
- Fear or anxiety → acceptance, realism, or facing reality
- None of these apply

Does the climate-related storyline show any characters experiencing a shift from disengagement or distance to engagement with climate issues? (Choose one.)

- Clearly shifts from disengagement, distance, or avoidance → personal engagement or involvement
- Some engagement is present, but there is no major shift
- No meaningful engagement

Does the climate-related storyline change whether characters feel alone or connected to others? (Choose one.)

- Moves toward greater connection, support, or shared experience
- Stays about the same
- Moves toward greater isolation or disconnection
- Unclear/mixed responses

Does this climate storyline stand out as an interesting case study of climate-related storytelling? If yes, why? If no, skip.

Any notes?

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GOOD ENERGY



The Evolution of Climate On-Screen

What's Changing, What's Missing: A baseline narrative analysis of how climate was portrayed in TV and film 2016-2024, and an updated frequency analysis, 2021-2024.

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