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Vol. 5



PETER LANG

New York • Washington, D.C./Baltimore • Bern  
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# Climate Change and the Media

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different editorial responsibilities. (FUTERRA Sustainability Communications, 2005)

At a time when some parts of the media are still having difficulty in managing the tension between accuracy and impartiality, such a tactic was likely to be viewed with suspicion by many journalists. Hence a debate about the role of the BBC in reporting climate change and other environment issues generated the following response from Peter Barron (2007), editor of BBC television's *Newsnight* programme:

There's currently huge interest among the public in leading more sustainable lifestyles and we should reflect and explore that....But I don't think it's the BBC's job to try to save the planet.

By contrast, Lynas (2007) made the counter-argument for journalists to be co-opted: "If more of today's media commentators can summon up the courage to help defend the planet, even against the powerful vested interests that continue to profit from its destruction, then maybe the coming holocaust of global warming can be averted without such a deep and bitter conflict."

While some parts of the UK media, such as *The Independent* newspaper, clearly do regard it as their role to campaign for action on climate change (Ward, 2008b), most journalists are likely to be unwilling to sacrifice their profession's notions of impartiality.

## Conclusions

The public debate about climate change has reached a watershed moment in the UK, with the overwhelming majority of the public accepting that a problem exists and that solutions are needed. This stage has been reached to a large extent through media coverage driven by campaigns from scientists, environmental organisations, and policy makers.

However, it is less clear what role media campaigns should play in the next stage of the public debate. These campaigns need to shift their emphasis away from warning of the potentially serious consequences of climate change, to creating advertising campaigns that make public participation in tackling greenhouse gas emissions seem desirable. Such a shift in emphasis is likely to be uncomfortable both for campaigners and journalists, who will need to tread warily around the issues of accuracy and impartiality in the media.

## CHAPTER 6

# The Climate Change Docudrama

## Challenges in Simultaneously Entertaining and Informing Audiences

■ Grace Reid

Most people's first encounter with formal instruction and explanation of science takes place in the classroom. However, outside of the classroom, popular media are playing a role in public understanding of science, especially in the area of climate change knowledge (Stamm, Clark, & Eblacas, 2000: 230). This has caused social science researchers to become interested in studying media representations of climate change because they believe that it will lead to a better understanding of how these representations affect public perceptions of climate change and related scientific policy. In particular, a significant amount of academic attention has focused on how climate change is depicted in news media, with most of these studies focusing on newspapers (e.g., Carvalho, 2007; McComas & Shanalian, 1999; Trumbo, 1996; Wilkins, 1993; Zehr, 2000), and a few also examining broadcast news (e.g., Bell, 1994; Boykoff, 2008a). There are hardly any studies that consider how ideas and images about climate change are produced, represented, or received in entertainment media.

Kirby (2003: 262) writes, "Given the enormous audience for fictional films and television, it is important to broaden our conception of 'public understanding of science' to include fictional entertainment media." In response to this agenda, there have

been three studies about the Hollywood climate change blockbuster *The Day After Tomorrow* (Emmerich, 2004). Perkowicz (2007) looks at how climate change is presented in *The Day After Tomorrow* film text, while Leiserowitz (2004) and Lowé et al. (2006) use survey and focus group methods to understand how the film affects public perceptions of climate change.

In line with this research on entertainment media, this chapter focuses on the climate change drama *Burn Up* (Madha, 2008). *Burn Up* is a two-part television miniseries that follows a high-powered CEO of an oil company, as he struggles to come to terms with the impact that fossil fuel emissions have on world climate change. It is written by Simon Beaufoy, who is best known for writing the Oscar-winning film *The Full Monty* (Cattaneo, 1997), and features renowned actors such as Bradley Whitford, who played the character of Josh Lyman in the television series *The West Wing* (Schlamme, 1999). The programme was a 15-million dollar, joint UK/Canadian production that was broadcast on BBC Two in July 2008, and on Canadian Global Television in June 2008. It averaged 1.98 million viewers over the course of two nights on BBC Two, but only garnered an average of 381,000 viewers on Global.

The press material promoted *Burn Up* as a political thriller or a drama; however, the programme can also be classified as a docudrama, in order to emphasize the extensive research that forms the foundation of the drama. The docudrama is a genre that combines documentary research with dramatic conventions, while consistently prioritizing the drama (Paget, 1998: 112, 157). Most people think of docudramas as films that dramatise events from history or life stories of famous historical figures. However, Paget (1998: 61) says that docudramas can also "portray [current] issues of concern to national or international communities in order to provoke discussion about them." *Burn Up* meets the requirements for this third type of docudrama. Tom Cox (personal communication, 2008), one of *Burn Up*'s executive producers, said:

I still talk to people who either question the reality of climate change or, if they are willing to accept that it exists, question that it is caused by human actions. So, I think that in addition to entertaining audiences, the goal of this film was to shed light on the issue of climate change, and encourage audiences to examine their own view of it.

Having classified *Burn Up* as a docudrama, this chapter turns to exploring the difficulties associated with producing a programme about climate change that is both dramatic and informative. It begins by offering a detailed description of *Burn Up*, followed by an explanation of the chapter's research methods. The chapter then identifies six key challenges that the *Burn Up* production team encountered in creating a climate change docudrama, and concludes by reflecting on what these findings mean for the docudrama genre.

### Programme Description

*Burn Up* is a two-part docudrama set approximately one year in the future. Part 1 opens in the Saudi desert, where all but one member in a team of British geologists

are shot and murdered. The surviving geologist, Masud Kamil, manages to escape with valuable data.

Back in London, the plot alludes to the fact that these murders have some connection to the resignation of Arrow Oil's CEO Sir Mark Foxbay, who is succeeded by his young son-in-law, Tom McConnell. During a party to celebrate Tom's new position, an Inuit woman (who is a climate change scientist and activist) interrupts the festivities to hand Tom a writ. The writ demands that Arrow Oil accept responsibility for the burning of fossil fuels, which releases carbon dioxide (CO<sub>2</sub>) into the atmosphere and, in turn, increases the earth's atmospheric temperature. According to the writ, the warming has had a detrimental effect on the Inuit's livelihood (e.g., seals have moved north and hunters have fallen through melting ice never to be seen again).

In short, "They're trying to pin global warming on us!" says Tom. Tom and his best friend, James Mackintosh (aka Mack), a pro-oil lobbyist, discuss plans to deal with the writ. Mack decides that the best way to proceed is to discredit the science of global warming at the upcoming US Senate hearings on climate change. It seems this strategy is successful because the writ is eventually thrown out of court. In response to the court's decision, the Inuit woman who initiated the writ douses herself in gasoline and lights herself on fire. The woman's death causes Tom to question his commitment to the oil industry. He begins to investigate the science of climate change, and even has an opportunity to witness how melting permafrost releases methane (a greenhouse gas 20 times more powerful than CO<sub>2</sub>) into the atmosphere. Tom is finally persuaded that something must be done about climate change; however, it is after he begins an extramarital affair with Arrow Oil's Head of Renewables, Holly Dernay.

As Tom begins to have a change of heart, the geologist who escaped the murders in Saudi Arabia resurfaces in London. Masud is anxious to get rid of the data for which he was nearly killed. He therefore contacts the former CEO of Arrow Oil (who commissioned the data) in an attempt to return it to its rightful owner. The meeting between the two goes awry, however, when the former CEO is intentionally hit and killed by an unknown vehicle.

In the second part of the drama, Tom's newfound passion for saving the environment takes him to Calgary for the Kyoto 2 Summit. In Calgary, Tom works secretly with the environmental groups to get the United States to commit to CO<sub>2</sub> emission cuts, because the US is responsible for approximately a quarter of the world's CO<sub>2</sub> emissions. However, Tom's actions are undermined by best friend Mack, who is scheming for the Open Business Coalition.

During the summit, geologist Masud approaches Tom and Holly in order to turn over the elusive data, which contain evidence that there is virtually no oil left in the Saudi desert. Together, Tom and Holly debate whether or not to release the data, but eventually Tom decides not to go public with the data because he worries that the information will generate oil wars and send the world economy into a free fall. Holly, however, disagrees with this decision. She therefore takes it upon herself to use the data to blackmail the US government into signing the Kyoto 2 agreement. Holly threatens to release the data if the United States does not sign. Unfortunately for

Holly, though, the United States does not respond well to blackmail, and one of the operatives for the Open Business Coalition murders Holly to prevent her from releasing the data (this same group is also responsible for the murders of the geologists and the former Arrow Oil CEO). Holly's death leaves Mack disillusioned with his role in the coalition.

The Kyoto 2 Summit ends with an announcement that the United States will not sign the agreement. Following this announcement, Tom and Mack have an intense confrontation where they ultimately decide that releasing the data is the only way to change the world's reliance on oil and save the climate. Mack therefore betrays the Open Business Coalition and releases the data. The docudrama ends by painting a gloomy picture of the world, as governments and citizens struggle to come to terms with the idea that peak oil was yesterday.

## Research Methods

This chapter uses a combination of interview, focus group, and programme analysis methods. Four hour-long interviews were conducted with key members of the *Burn Up* production team:

- Simon Beaufoy: *Burn Up* writer
- Christopher Hall: *Burn Up* producer (Kudos Film and Television)
- Tom Cox: One of *Burn Up*'s executive producers (Seven24 Films)
- Dr. Joe Smith: *Burn Up* scientific consultant (Open University)

In addition to the interviews, two focus groups were also organised with natural and social scientists who research climate change at the University of Alberta. There were five scientists in each group (see Tables 1 and 2 below for further information about participants). The scientists were identified through the university Web site and were contacted to participate through cold call e-mails. Prior to the focus groups, each scientist was mailed a copy of *Burn Up* and asked to view it in preparation for the group. During the focus groups, participants spent an hour discussing the *Burn Up* docudrama. The goal of these groups was to understand scientists' ideas and opinions about the *Burn Up* docudrama.

### Challenge One:

#### Finding the Drama in Climate Change

One of *Burn Up*'s executive producers, Tom Cox, said that in order to grab audiences interested in climate change, "you first have to make sure that the programme is dramatic, entertaining and engaging." This presented a major challenge for the production team, who quickly came to the conclusion that while the topic of fossil fuel CO<sub>2</sub> emissions is important, it is also "highly undramatic." *Burn Up* producer Christopher

Hall (personal communication, 2008) summed up the challenge best when he asked, "How do you make a sexy drama about a gas that you can't see or smell?" Simon Beaufoy, the writer of *Burn Up*, eventually answered this question by finding drama in the political scheming that takes place behind the scenes of climate change CO<sub>2</sub> debates.

*Burn Up* therefore highlights the dramatic ways that scientists and environmentalists try to put climate change on the agenda, as well as the astounding ways that industry tries to undermine this agenda. For example in the *Burn Up* programme, one way that the scientific and environmental side tries to garner support for climate change is through the actions of the Inuit woman who initiates a writ against Arrow Oil. This woman shocks audiences when she later lights herself on fire in an effort to draw further attention to her cause. Drama can also be found in the way that industry's chicanery is revealed in *Burn Up*. Throughout the programme, industry engages in both minor and major transgressions to undercut the scientific/environmental agenda. For instance, pro-oil lobbyist Mack digs up information about an alleged affair to discredit a Royal Society climate change scientist. The Open Business Coalition also murders geologists, as well as the former Arrow Oil CEO and Holly, in order to prevent the release of data about Saudi's oil deposits. Although these events create a significant amount of drama, the *Burn Up* production team said that it is more than just this exciting plot that makes *Burn Up* engaging. It is also the intriguing characters, interesting dialogue, exotic locations, and the employment of big name actors that make the programme dramatic (Hall, personal communication, 2008).

*Burn Up*'s scientific consultant, Dr. Joe Smith, said that he was pleasantly surprised by the amount of drama that the production team was able to generate in the final product:

If someone had said to me at the beginning of last year that I would work on a major BBC Two drama centring on United Nation climate change negotiations, I would have said, "No thanks!" I mean I can't imagine a less promising prospect; I've been to those proceedings and they're dire. So I think that the show's biggest achievement was giving dynamism to the issue of climate change.

Most of the climate change scientists in the focus groups agreed with Dr. Joe Smith's belief that the *Burn Up* production team successfully found the drama in climate change. However, not all of the focus group participants did. Taylor<sup>1</sup> (Focus Group 1) said:

I would say that the producers haven't done their job because the drama isn't really entertaining. There is not enough interesting character development and there's not enough action. I mean I had to wait three hours before Holly was killed off.

While some of the other participants were willing to agree that there was some "canned Hollywood drama," such as the extramarital affair, they also acknowledged

1 Focus group participants' names have been changed to protect their confidentiality.

that they enjoyed these dramatic events. Mario (Focus Group 1) said, "I disagree with you Taylor. I watched it with my wife and we found it quite entertaining."

### Challenge Two: Ensuring the Drama Has a Foundation in Reality

While the docudrama genre prioritises the dramatic aspects of the programme, it is still important that the programme has a strong underpinning in real-life science and policy. Writer Simon Beaufoy said:

We went to incredible lengths to ensure that the programme was grounded in reality....I didn't want it to be rejected as science fiction. It's all too easy [for audiences] to say, "It's science fiction and it has nothing to do with me." This creates an emotional disconnect, where suddenly audiences don't have a responsibility to do anything about climate change.

In order to ensure that the film was "grounded in reality," Simon Beaufoy began researching various angles of climate change four years before the docudrama was broadcast. This involved reading books about climate change, attending climate change conferences, and talking to people on all sides of the climate change issue (e.g., scientists, environmental groups, policy makers, and oil executives). A scientific consultant was also hired to ensure that the science and policy in *Burn Up* were plausible. According to producer Christopher Hall, each piece of information was double and triple checked.

The production team's attention to detail seems to have paid off, because the climate change scientists who participated in the focus groups were for the most part very impressed with the accuracy of the climate change information. Taylor (Focus Group 1) said that the production team did an "extremely good job" of conveying the science and policy. Another scientist said that he could find a "kernel of truth" in each part of the programme (Focus Group 2). However, while some participants acknowledged the accuracy of the research, many also felt that there could have been more information in the docudrama and that the information presented was sometimes overdramatized (these ideas will be discussed further below).

### Challenge Three: Climate Change Fact Catching Fiction

Having carried out the extensive research that is required for a docudrama, the production team subsequently had to adapt the facts into believable fiction. To make sure that the programme didn't become full-fledged science fiction, the production team set the docudrama in the very near future. Unfortunately, this meant that the reality of climate change was constantly catching up to the fiction that they had created.

Producer Christopher Hall said, "when Simon Beaufoy started writing [the script] a lot of people said, 'This is all science fiction,' but one by one, almost everything he wrote proved true." In terms of practical considerations, this meant that the production team was constantly forced to amend their projections in the script.

For example, the script underwent several revisions with regard to the price of oil. Simon Beaufoy's first draft put the price of oil at 69 dollars a barrel. However, by the time the production team was ready to shoot, the price of oil was already at 80 dollars a barrel. The production team therefore decided to set oil at 98.12 dollars a barrel in the final programme. "We were worrying about 98 dollars a barrel, which at the time was very high," said scientific consultant Dr. Joe Smith. "We had to ask ourselves, 'Could we really imagine it going that high? Would the audience find it improbable?' And of course by the time it was screened, oil was at 125."

Another example of fact and fiction merging was the scene where the Inuit woman serves the head of Arrow Oil with a writ. This scene was already shot when in real life an Alaskan Inuit village filed a lawsuit against 24 oil, power, and coal companies in February 2008. Similar to the writ in *Burn Up*, the Alaskan lawsuit claims that these companies should be held responsible for releasing the greenhouse gases that have caused climate change and thereby affected the village's traditional way of life (Hagens Berman Sobol Shapiro, 2008). This real-life development meant that the production team had to check with its lawyers to ensure that they were still legally safe to broadcast the scene. As Paget (1998: 36–60) points out, films that reflect reality too closely can be a legal minefield.

A final example of fact catching fiction occurred in relation to the science about methane release. Methane is a greenhouse gas that has a significantly more powerful impact on the climate than CO<sub>2</sub>. In the *Burn Up* script, climate change causes a lake to warm, melting the permafrost on the lake's floor. This melted permafrost then releases methane, which bubbles to the lake's surface but remains trapped as long as the lake's surface is frozen. Characters Tom and Holly release this methane however, when they chip a hole in the ice and light a match. The match sets the invisible methane on fire, causing a fairly substantial burst of flames. This scene provides Tom and Holly with evidence that climate change is happening.

*Burn Up*'s scientific consultant Dr. Joe Smith and executive producer Tom Cox both admitted that when they read the script, they were very sceptical about the way this scene was written. However, just before the production team went to shoot the scene, the BBC broadcasted a documentary where a geologist in Siberia did the exact same experiment that writer Simon Beaufoy had described in the script. In this particular situation, fact catching fiction actually proved beneficial because the production team was able to show the documentary footage to their special effects technicians, who were then able to re-create the same experiment in *Burn Up*.

A number of the climate change scientists in the focus groups, however, still felt that the science in this scene was far-fetched. Josh (Focus Group 2) was not convinced that the flame would be that large, while Seth (Focus Group 2) just felt it was bad science, "I was thinking gosh this is a horrible experiment. They didn't go there ten

years ago to see if the methane was burning, so has this actually changed or was it something that was always there?" Despite these criticisms, all four members of the *Burn Up* production team stand by the science in this scene. Although, they did concede that the docudrama downplays the actual distance that the characters would have needed to drive in order to reach a point where they could find methane release.

### Challenge Four: Communicating the Degree of Scientific Consent and Dissent in Climate Change Science

After addressing the issue of fact catching fiction, the *Burn Up* production team's next challenge came in deciding how to represent diverging scientific opinions in the climate change debate. Several studies (e.g., Boykoff & Boykoff, 2004; Boykoff, 2008a; Zehr, 2000) examining US news coverage of climate change suggest that reporters often overemphasize the disagreement associated with climate change. One way that reporters do this is through the use of the journalistic principle of "balance," which advocates that both sides of an issue are given equal attention in media coverage. However, this is problematic when scientific consensus is juxtaposed against a small number of sceptics, as is often the case with climate change science. The 2007 Intergovernmental Panel on Climate Change (IPCC) concluded that mainstream scientists believe that climate change is occurring and that they are more than 90 per cent certain that increases in anthropological activities are causing it (Bernstein et al., 2007: 27, 39). Consequently, giving equal weight to those who support climate change and those who deny it actually leaves readers with a biased and inaccurate picture of climate change (Boykoff & Boykoff, 2004). Wilson (2000b: 11) writes, "Perhaps a modification of the journalistic tenet to find 'balance' in every story would be beneficial in climate change reporting, and perhaps all scientific reporting... Quality reporting on climate change needs to portray the scientific consensus and dissent accurately."

The docudrama does not have the same obligation to balance as do news media. However, several members of the production team said that the fact that *Burn Up* was funded and broadcasted by the BBC did place some restrictions on the team in terms of balance. Writer Simon Beaufoy said:

I was in favour of the science being absolutely fact checked and correct, but the more we did that, the more the BBC got frightened of its documentary sense. Because as soon as it starts to be factual, they have an extremely complex and rigorous remit about factual material and its bias.

The BBC's caution in this matter was no doubt emphasized by the fact that Channel 4 was heavily criticised for broadcasting *The Great Global Warming Swindle* (Durkin, 2007), because a number of scientists felt that the documentary misled audi-

ences by arguing against the anthropological causes of climate change, which Ward explores further in chapter 5. The BBC's concern about the appearance of bias did place some limitations on the *Burn Up* script in terms of balance. For example, producer Christopher Hall talked about how the original script described one of the women in the Open Business Coalition as a sexual predator with bad teeth, but the BBC came back and said that a climate change sceptic "shouldn't be portrayed as a sexual predator with bad teeth." Consequently, the production team amended this part of the script.

Despite these changes however, the BBC did allow *Burn Up* to present a persuasive case in favour of climate change and its anthropological origins. The docudrama presents both sides of the climate change debate, while still managing to convey the idea that climate change is happening and is caused by human activities. To do this, the *Burn Up* production team linked the belief that climate change is occurring to protagonists Tom and Holly, with whom audiences are likely to identify. Sceptical attitudes about change attitudes, though, are held by the antagonists of the film, and even these characters admit that they only deny that human actions are causing climate change to protect their business interests.

For these reasons, the climate change scientists in the focus groups felt that *Burn Up* did an excellent job of accurately conveying the scientific consent and dissent associated with climate change. One climate change scientist worried, however, that "lay" audiences might still buy into the idea that human actions are not responsible for climate change, even though the idea is clearly discredited in the docudrama. He therefore felt that the producers should not have presented this line of reasoning in the film.

### Challenge Five: Conveying the Uncertainty of Climate Change Science

While there is consensus that climate change is happening and that increases in anthropological activities are causing it, there is still some uncertainty surrounding the degree and speed of climate change (Bernstein et al., 2007). This uncertainty presented a challenge for the *Burn Up* production team, in terms of how they would present the science of climate change.

Writer Simon Beaufoy described how the production team dealt with uncertainty when presenting scientific figures:

I'm sure you know that projections have a low and high range, so we always chose the middle range to be safe. We didn't want to make any outrageous statements that couldn't be backed up or seemed to be hysterical.

Having selected the middle range projection, Simon Beaufoy was then careful to word the projections in such a way that it would be clear to audiences that it was a scientific estimate as opposed to a scientific fact. The best example of this occurs in

the scene where a Royal Society scientist, Sir Richard Langham, is trying to convince a British political servant of the severity of climate change. The scientist says, "It seems likely that by 2030 there won't be any summer sea ice in the arctic at all." Later in the conversation the scientist says, "Even a conservative estimate makes that a global rise in sea level of about 78 centimetres by the end of the century." Sir Richard then lists several places, such as Bangladesh and Miami, which would be flooded due to this rise in sea level. He concludes the conversation by saying, "I think we've got between five and 10 years before the warming becomes unstoppable." In this scene, the use of words such as "it seems likely," "estimate," and "I think" convey the idea that there is uncertainty associated with these projections.

One of the scientists in the focus groups mentioned this scene during the discussion. Seth (Focus Group 2) said:

I think the Royal Society scientist had a good strategy for addressing the little waves of uncertainty that can accompany scientific data. The scientist character would say things like, "We can't say with complete certainty," and I thought that those types of phrases allowed him to address the issue of uncertainty in science without overemphasizing it.

In contrast, Cindy, another scientist in this group, overlooked the way Sir Richard uses language in this scene to subtly convey the uncertainty associated with climate change. Consequently, she felt that this part of the docudrama presented the science of climate change as quite certain. Cindy (Focus Group 2) said, "I thought the leading scientist was quite deterministic in the way he talked about the effects of climate change. I mean he talked definitively about the way that various countries and cities would flood." She went on to explain that she felt that this certainty "was absolutely appropriate for a television show, because a show should target viewers' emotions and get them to go 'Wow.'" She concluded by saying that the docudrama's message about the impact of climate change "would not have been as powerful if the scientist had said, 'Well, there's an 80 percent chance that Bangladesh will be underwater, and there's a 60 percent chance New Orleans will be underwater.'"

In another scene later in the *Burn Up* docudrama, the production team manages to further communicate the uncertainty associated with climate change science. This occurs during the scene where Senate hearings on climate change take place. The scene is noteworthy because it not only expresses the idea that there is uncertainty in climate change science but also the notion that groups who refuse to recognise the validity of climate change often use uncertainty to undermine the scientific agenda. For example, before Tom (who at this point of the film is still pro-oil) enters the Senate hearings to testify, his friend Mack chides, "Remember, doubt is our friend." During Tom's testimony, he says:

You've asked me whether I am absolutely certain of the effects of carbon dioxide on the planet's temperature. [pause] No. And we absolutely need to be, because if you're certain and I mean really certain then we have to stop burning oil. And that means no driving, no flying, no heating our hospital, day care centres, schools. You have to be very very sure of your science to do that. Are we?

In this speech, Tom emphasizes the uncertainty as a way to give the committee an opportunity to reject climate change, so that they can then keep the luxuries to which people have become accustomed.

Tom's testimony is later followed by Sir Richard's deposition. At one point the scientist says, "It is my fear and my belief that this cycle could cause an irreversible warming situation. As far as I know the first time humanity has ever faced such a possibility." In response to this statement, a senator who is on the committee and also in the pocket of big oil says, "Belief and fear and possibility. I must admit that I was hoping for something a little more scientific from the author of the Langham reports, Sir Richard. [pause] A little more certainty." The scientist replies, "This is a projection, a scientific projection based on NASA's temperature data. By the time you have certainty, the water will be lapping at our feet." The senator retorts, "Projections, they're notoriously unreliable aren't they? I mean my broker's forever making them and he hasn't got a damn one right yet!" This comment causes the room to erupt in laughter, and with that, the senator has rather successfully played on the uncertainty associated with climate change science to undercut the scientist's testimony.

One of the focus groups discussed how this scene in *Burn Up* skilfully dealt with the uncertainty of climate change:

Seth: One thing I did like was when the programme used the hearing to show how scientific uncertainty can be used to belittle scientific data. I think that was quite a realistic portrayal of how science is used by climate change sceptics.

Tony: Yes, the show managed to get across the idea that uncertainty can be used against science, as opposed to [the idea that] science is inherently uncertain. The show didn't spend time discussing the true scientific uncertainty of the research [interrupted].

Cindy: And I think that's fine. I don't think that uncertainty is something that should have been emphasized in the movie.

Josh: I agree. Most scientists aren't really bothered by uncertainty. It just reflects the limits of our knowledge and uncertainty typically decreases over time. (Focus Group 2)

The scientists therefore concluded that *Burn Up* manages to go beyond presenting climate change science through a frame of uncertainty (as is common in newspaper coverage), in order to address some of the ways that uncertainty can be used to undermine that scientific agenda.

### Challenge Six: Striking the Right Compromise between Documentary and Drama

The *Burn Up* production team's final challenge came in deciding how much documentary and how much drama should be included in the programme. Too much documentary and *Burn Up* would have resembled a science lecture; too much drama and

it would have become *The Day After Tomorrow*, which has been criticised for its unrealistic portrayal of climate change (e.g., Perkowitz, 2007: 88–89). “It’s a tricky balance,” said Tom Cox, an executive producer for *Burn Up*. “Are we ever one hundred percent successful? I doubt it, but I actually think that this is one of the programmes that comes pretty close.” He went on to explain:

There may not be enough facts for a rigorous scientist...but for normal audience members I think there is enough fact that they can go, “Hmmm, I believe that this is a real issue that I should consider,” and strong enough fiction that they are immersed in the characters, story and drama until the end.

Tom Cox was certainly right in his assumption that there were not enough facts in the *Burn Up* drama to satisfy climate change scientists. The scientific consultant, Dr. Joe Smith, talked about how there were some changes that he might have made to the script if it had been left entirely up to him. For example, he would have liked to have seen the Inuit woman, who was supposed to be a scientist, actually doing some science in the programme. He also would have softened the representation of American big business as the bad guys. Although, he did achieve a modest victory on that front, when he convinced the production team to acknowledge in the script that there are opportunities for oil executives to become investors or leaders in renewables. There is therefore a brief moment in *Burn Up* where Tom tries to convince the board of Arrow Oil to invest in renewables when he says, “China’s already produced its first solar billionaire, do I see any oil billionaires in the room?”

This sort of give and take between a scientific consultant and other members of the production team has been well documented in other production studies of science films. Kirby (2003: 268) writes:

Although they may be authors on the film, it would be naive to believe that scientists have as much control over the science in a film as the director or the production designers have...often times “scientific accuracy” takes a back seat to issues of filmability, budget, and drama.

This was one of the biggest surprises to Dr. Joe Smith, who said that his involvement with *Burn Up* taught him just how little science and scientific policy you can get into a science docudrama. Although, Dr. Joe Smith was quick to acknowledge that he could see why the producers did not take all his advice onboard. “I would write a very poor drama,” he said. Then he explained that he understood that the producers did not have time to show the Inuit woman conducting science experiments, and that the caricature of big business produced a strong antagonist that is a requirement for a good drama. Rosenstone (2003: 338) has also argued that stereotypes, such as the one of big business in *Burn Up*, are “part of the way film delivers its messages. The realities of the world are pretty messy. Stereotypes simplify the world and its issues... if you want depth psychology, go to the novel but certainly not the film.”

Like Dr. Joe Smith, many of the climate change scientists in the focus groups also felt that there was not enough fact in the programme. “I think there was maybe only five minutes of science in the whole movie,” said Josh (Focus Group 2). These scientists were also quick to give their ideas about where more fact could have been added

to the script. However, as the list grew longer in both groups, one or two people would suddenly recognize that they had turned *Burn Up* into a documentary as opposed to a docudrama. Three of the scientists seemed to realise that “the point of fictional media is not to devise accurate/educational communications about science, but to produce images of science that are entertaining” (Kirby, 2003: 236). Cindy (Focus Group 2) said:

I don’t think this type of show is the right vehicle for educating people about climate change. I think it’s an opportunity to get people interested and thinking about climate change and then hopeful they’ll go and get educated about climate change from somewhere else.

In response to this comment, another participant in the group suggested that *Burn Up* might peak audience interest in seeing Al Gore’s documentary *An Inconvenient Truth* (Guggenheim, 2006).

## Conclusion

As this chapter has shown, the *Burn Up* production team faced a number of challenges in creating a climate change docudrama that would both entertain and inform audiences. Some of the challenges that the *Burn Up* production team encountered were similar to those tackled by producers of a purely entertainment genre (i.e., trying to generate drama and excitement for a complex subject such as climate change). Whereas others were more closely associated with producing a factual genre (i.e., ensuring the facts have been accurately researched, communicating the degree of scientific consent/dissent, and conveying the uncertainty associated with climate change science). However, there was also a category of challenges that were unique to the docudrama genre. For example, the predicament of fact catching fiction and the difficulty of making a programme that has the perfect combination of drama and documentary are two production challenges that can only be found in a genre that merges both fact and fiction. These findings suggest that creating a docudrama presents more challenges than those encountered when producing an exclusively fictional or an exclusively factual genre.<sup>2</sup>

This chapter has viewed several of the efforts that the production team undertook to resolve these challenges, and described the impact that these production decisions had on the final *Burn Up* script. On the one hand, the *Burn Up* production team helped to guarantee that the docudrama had a strong grounding in reality by hiring a scientific consultant who verified that the script’s scenario was scientifically plausible. On the other hand, the producers overcame the difficulty of conveying the uncer-

2 Haran and colleagues (2008) and Hill (2007) claim that it is difficult to find an exclusively fictional or factual genre because the boundaries between fact and fiction are merging within genres. While this may be true, there are still genres such as films that are considered to be entertainment media, and other genres such as documentaries and news that are typically classified as factual media.



tainty associated with climate change by using phrases such as "it seems likely" and "I think" to describe the uncertainty associated with scientific projections. The production team also used the Senate hearing scene to show how climate change sceptics can overemphasize uncertainty, in order to undermine the validity of scientific projections. This scene shows how the *Burn Up* production team often had to be creative in resolving production challenges.

The focus groups gave climate change scientists an opportunity to view the docudrama, and weigh in on whether or not the production team was successful in resolving the dilemmas that it faced. The scientists in the focus groups were often in disagreement about how a climate change docudrama should be portrayed. For example, while most participants were pleased with the amount of drama in the programme, a couple of people felt that *Burn Up* was lacking sufficient drama and excitement to entertain audiences. Similarly, while the majority of scientists thought that *Burn Up* did a good job of weighing both sides of the climate change debate, one scientist worried that the programme's introduction of arguments that discredit climate change science could have a negative effect on audiences' perceptions of climate change. Many of the scientists also wanted to see more factual information in *Burn Up*, while a few of the scientists understood that "films do not re-create the world on screen, but deal instead with certain kinds of proximities" (Rosenstone, 2003: 338). These findings indicate that perhaps the ultimate challenge of the docudrama genre, and indeed any media form, is creating a programme that satisfies the diverse expectations of various audiences. While it is not possible to create a programme that meets everyone's needs, docudrama producers must still make every effort to generate a programme that leaves the majority of viewers both entertained and better informed.

**Table 1: Focus Group 1: University of Alberta Climate Change Scientists**

Participants	Sex	Academic Rank	Department	Research Area
Participant 1	F	Postdoctoral Researcher	Renewable Resources	Impact of climate change on Douglas-fir growth
Participant 2	M	Professor	Earth and Atmospheric Sciences	Role of sea ice in climate change
Participant 3	M	Professor	Earth and Atmospheric Sciences	Paleoclimate and long-term climate evolution
Participant 4	M	Assistant Professor	Renewable Resources	Impact of climate change on insects

Participant 5	F	Postdoctoral Researcher	Renewable Resources	Impact of climate change on Douglas-fir growth
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**Table 2: Focus Group 2: University of Alberta Climate Change Scientists**

Participants	Sex	Academic Rank	Department	Research Area
Participant 1	M	Professor	Renewable Resources	Impact of climate change on terrestrial ecosystems
Participant 2	F	Associate Professor	Rural Economy	Social impact of climate change
Participant 3	F	Associate Professor	Rural Economy	Environmental and energy policies that support oil dependency
Participant 4	M	Associate Professor	Biological Sciences	Impact that animal grazing has on climate change
Participant 5	M	Professor	Biological Sciences	Landscapes' release of greenhouse gases

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