Framing in Literary Energy Narratives

Axel Goodbody

Abstract
This essay is part of a wider project exploring the ability of frame analysis to serve as a common methodology for the description and analysis of oral, media, historical and literary stories about energy. It investigates the application of framing to literary texts depicting and reflecting on our changing use of energy. Taking as starting point the conception and typology of frames in Gamson and Modigliani's study of attitudes towards nuclear energy in the American media (1989), it experiments with the identification of framing mechanisms and frames in three English novels. The first is Jim Crace's recent historical novel, *Harvest* (2013), a tale of enclosure in the sixteenth century; the second Charles Dickens's *Hard Times* (1854), one of the best-known depictions of the Industrial Revolution by a contemporary. The third novel, which is examined in greater depth, is Ian McEwan's account of the challenge posed by the transition to renewable energy today in *Solar* (2010). If the danger of a reductive categorisation of novels according to master frames is to be avoided, the complexity and ambivalence of framing which typify novels in comparison with media texts mean that caution and sensitivity are demanded in approaching narrative strategies which can involve multiple, conflicting framings and merely implicit narrative perspectives. With this caveat, it is, however, argued that the focus on framing foregrounds neglected aspects of literary narration, and gives new insight into similarities and differences between literary and non-literary stories, and hence the part played by literature in energy debates.

Key names and concepts
Names:
Attridge, Derek
Bentham, Jeremy
Carlyle, Thomas
Clare, John
Crace, Jim
Dickens, Charles
Fonda, Jane
Goldsmith, Oliver
Marx, Karl
McEwan, Ian
More, Thomas
Mumford, Lewis

Nussbaum, Martha

Concepts:
- Allegory
- Alterity
- Apocalypse
- Catchphrases
- Causes
- Comedy
- Consequences
- Cost effectivity
- Cultural allusions
- Devil's bargain
- Energy independence/ security
- Energy system change
- Exemplars
- the Fall (expulsion from Eden)
- Financial advantage
- Frame analysis
- Frames/ frame packages
- Genre
- Individual liberty
- Intertextual resonances
- Justice
- Metaphors
- Moral claims
- Pastoral
- Picaresque novel
- Progress
- Runaway science
- Satire
- Social realism
- Soft paths
- Visual images

1. Introduction: framing in energy stories

In the Climate Change Act of 2008 the UK government set the country ambitious targets for decarbonising the economy, while simultaneously seeking to maintain energy security and affordability. While the British public in general accepts the need to switch from coal, oil and gas to renewable energy sources, there are significant forces of resistance to

energy system change,[1] which must be understood if they are to be overcome. This essay is part of a wider project on stories about energy use and decarbonisation funded by the UK Arts & Humanities Research Council, 'Stories of Change: The Past, Present and Future of Energy'. Over a period of three years starting in July 2014, an interdisciplinary team is collecting, curating and analysing oral accounts by members of three different communities in England and Wales of their experiences with changes in the consumption and production of energy.

By giving voice to individuals and communities disadvantaged or otherwise affected by the consequences of our burning of fossil fuels and the transition to renewables, it aims to raise awareness of the diverse impacts of change, stimulate debate, inform policy, and generally facilitate transition to the post-carbon economy. It is also pursuing its aim to promote environmental literacy by commissioning artistic work involving the communities which it is engaging with. Researchers in storytelling and personal narrative from the George Ewart Evans Centre for Storytelling at the University of South Wales are working together with environmental historians, sociologists and literary scholars on the project.[2] A key aim is to set the experiences, dilemmas and decisions captured in digital storytelling in a wider context, by juxtaposing them on the one hand with historical accounts of earlier socio-technical transitions such as the shift from the organic economy to coal power in the industrial revolution, and on the other with literary narratives describing, remembering, interpreting and imagining the implications of past, present and future changes in relations with energy.

Focusing on the framing of energy-related change provides a way of comparing oral, historical, media and literary narratives. The purpose of this paper is therefore to test the application of the principles of frame analysis to works of literature through exploratory case studies. Because energy is abstract and intangible, issues connected with it gain much of their significance for the general public through discursive construction. Exemplification and the association of situations and choices with those encountered in other social issues play

[1] 'Energy system change' is defined as "an interconnected set of transformations in the systems of supply, demand, infrastructure and human behaviour", in a recent study drawing on interviews with stakeholders, workshops and a public opinion survey (Parkhill 2013: 2).

[2] See http://www.storiesofchange.ac.uk.

a key role in energy stories. The media play a central part in shaping debates on energy, typically linking matters of energy production and use with worldviews and political ideologies. However, literature also feeds into the social construction of energy relations, with its staging of scenarios and imagining of the consequences of actions through fictional depiction.

The premise on which the literary dimension of the 'Stories of Change' project is founded is that literary texts make a distinctive contribution to contemporary discourses on energy through their focus on the social, psychological and cultural implications of energy system change rather than its economic and political dimensions (although these last are by no means ignored in novels of social realism and speculative future fiction). Representing and dramatizing individual and collective experiences, novels in particular explore the complex consequences of energy system change, and issues of agency and responsibility. They frame energy choices by embedding them in moral and religious frameworks and aligning them with traditional patterns of thought and cultural narratives. A second common (though not universal) feature of literary texts is their mediation of alterity, [3] here for instance in the form of overlooked or suppressed experiences of energy system change. Working with personalisation, dramatization and emotional focalisation, plays and novels expose the public to the experiences of others, and distribute readers' empathy in ways leading them to identify with new perspectives on energy dilemmas and choices. Conveying alterity can alternatively consist of breaking down existing habits of thought, finding words for thoughts hitherto unformulated. Concreteness and vividness of depiction give novels the ability to push the boundaries of what is imaginable by the public at a given moment.[4]

---

[3] The term 'alterity' is borrowed from Derek Attridge, who has argued that the 'specificity' of literature lies in its characterisation by innovation, uniqueness, and alterity, describing these qualities as "a trinity lying at the heart of Western art as a practice and as an institution" (p. 2). Attridge sees as further inherent dimensions of literature its occurrence as a 'performance' or 'event' which can be endlessly repeated but is never exactly the same, and its engagement with ethical concerns (ibid.).

[4] Attridge's conception of literature as distinguished by vividness, immediacy, cogency, complexity, a congruence of form and content, and an appeal to the emotions as well as the intellect is unobjectionable. However, his insistence that it demands mental and emotional expansion and change in the reader (p. 77), and that it resists instrumentalisation, its effects being too unpredictable to serve as a political or even

In the final part of this essay, Ian McEwan's *Solar* is read in the light of these considerations as a re-imagining of the search for a technical solution to the problem of meeting our ever increasing demands for energy in the age of global warming. McEwan frames energy system change as a matter of the tension between altruism and self-interest. He challenges his readers by rejecting the master narrative of progress and resisting the temptation to indulge in either idealised notions of scientific practice or shallow optimism about human nature. However, before proceeding to discussion of literary texts, it is necessary to explain the concept of framing. William Gamson and André Modigliani's study of shifting public attitudes towards nuclear energy in the United States (Gamson/ Modigliani 1989) is one of the more thoughtful and developed analyses of the framing of an environmental issue. In the following, I ask what their work has to offer for classifying literary energy narratives and understanding the structures and mechanisms by means of which changing patterns of energy use are perceived and evaluated, before looking briefly at two English novels depicting past energy system changes, and finally examining McEwan's account of the current energy predicament in greater detail.

2. Frame analysis in media studies, and its application to literature

In their study of media discourse and public opinion on nuclear power in America over four decades after the Second World War, the sociologists Gamson and Modigliani argue that discourses compose 'interpretive packages' which offer meanings for significant social events, and that they do so through a mix of rational arguments and moral appeals, metaphors and images. They distinguish between three broad types of discourse on issues such as energy: technical/ scientific discourses, the 'political' discourse of officials and administrators, and what they call 'challenger' discourses in the media, in which interpretive packages seek to mobilise audiences and shape public opinion. Media discourses dominate contemporary cultures, reflecting their formation, but at the same time reconfiguring it. Journalists tend to derive ideas and terms from other forums, paraphrasing or quoting, and to draw on the popular culture which they share with their audience.

---

moral programme, (p. 7) is a selective one which does not embrace all works classified by booksellers as 'fiction'.

But they also contribute their own frames, and exercise influence by coining clever catchphrases encapsulating their views (p. 3).

At the heart of media packages, whose function is to make suggested meanings available to the public, are frames. These are central organising ideas, which make sense of events by suggesting what is at stake, for instance:

- progress (whether in terms of scientific knowledge or human emancipation)
- financial advantage
- security
- individual liberty
- justice.

Media frames are normally unspoken and unacknowledged, but they organise the world for journalists, and through them for their readers and viewers. Frames imply a hierarchy of concerns, but within what they posit as the key concern they typically offer a range of positions rather than any single one, allowing for a degree of controversy among those who share a common frame (ibid.). Frame packages make extensive use of condensing symbols, which suggest the core frame and positions in shorthand. Gamson and Modigliani argue that a package can be summarized in a signature matrix that states the frame, the range of positions within it, and its use of eight different types of signature element which point towards its core in a condensed manner. Five of these signature elements are framing devices, which suggest how to think about the issue: metaphors, exemplars (i.e. historical examples from which lessons are drawn), catchphrases, descriptions, and visual images. The other three are reasoning devices, which justify what should be done about the issue: roots (analysis of causes), consequences, and appeals to principle (moral claims).

Gamson and Modigliani distinguished between seven key framings of nuclear energy in the American media: ‘progress’; ‘energy independence’; ‘runaway science’; ‘the devil’s bargain’; ‘not cost effective’; ‘public accountability’; and ‘soft paths’. In the first quarter of a century after the Second World War, the ‘progress’ package went practically unchallenged. By the mid1970s, the energy crisis meant that it was replaced increasingly by a second pronuclear argument, that it provided ‘energy independence’. Simultaneously, however, it was challenged by the rise of an anti-nuclear discourse. One group of environmentalists offered a ‘soft paths’ package, calling for harmony

with the natural environment and decentralised production, and raising health and safety issues. A second, less radical group stressed the threat to individual liberty and democracy as a result of the lack of 'public accountability' inherent in the organisation of nuclear production by profit-making corporations. A third group presented a more pragmatic cost-benefit package describable as 'not cost effective'.

From the second half of the 1970s on, Gamson and Modigliani note the emergence of a new package, which they call 'runaway science'. This is fatalistic or resigned rather than actively opposed to nuclear power. The argument is that we did not understand what we were getting into, and sooner or later there will probably be a terrible price to pay. The runaway science frame has an antinuclear flavour, but is characterised by gallows humour rather than anger or the will to take preventative action. In the 1980s the once dominant progress frame continued to give way to runaway science and public accountability framing. A final new frame also emerged, characterizing nuclear power as a Faustian 'devil's bargain'. In this thoroughly ambivalent package, the pronuclear argument of benefits in terms of energy supply is followed sequentially by the runaway one that sooner or later there will be a terrible price to pay. Gamson and Modigliani concluded that it would be wrong to attempt to characterise American media discourse in the 1980s as either pro- or anti-nuclear: the dominant package in the media was rather the fatalistic combination of the two in the devil's bargain frame.

It cannot of course be assumed that the same frames will be found in other times or places, or in debates over other forms of energy. And they may only relate indirectly to the framing of energy issues in literature. Gamson and Modigliani are only marginally concerned with literature, film and art: they do not regard these as playing a significant part in shaping or even mediating what they call the 'culture' of social issues such as nuclear power. They do, however, discuss the impact of one film, *The China Syndrome* (1979), commenting that this provided a vivid concrete image of how a disastrous nuclear accident might happen, and that the lead actress Jane Fonda became a figurehead of the anti-nuclear movement, giving it a public face and promoting it through her celebrity status. More significantly, they also write that to remain viable, packages must prove themselves capable of incorporating new events into their interpretive frames, and maintaining their attraction over time. To do this they need a storyline or scenario which is flexible

at the same time as being consistent and plausible. Meeting this challenge calls for the ingenuity and skill of what they call 'cultural entrepreneurs' (pp. 4-5). Writers, artists and feature film makers belong to the category of cultural entrepreneurs alongside journalists and the formulators of political policy.[6]

Whereas novelists, poets, dramatists and cultural critics differ from journalists and media workers in attaching greater importance to aesthetics, they are not merely formal and aesthetic innovators: they are also concerned with knowledge and truth in the wider sense, and in particular with the ethics of human behaviour. The philosopher and literary critic Martha Nussbaum has stressed the contribution of literature (more specifically the novels of Henry James, Marcel Proust, Charles Dickens and Samuel Beckett) to moral debates, arguing that moral life is so delicate that it cannot be fully and adequately stated in the language of conventional philosophical prose, but only in a language and in forms themselves more complex, allusive, and attentive to particulars. Only such fiction possesses the emotive force, the subtlety, and imagination appropriate to moral life, she argues: it is an indispensable vehicle for moral enquiry (Nussbaum 1990: 3).

Needless to say, Nussbaum's conception of 'literature' as "carefully written and fully imagined" texts, formulated in a dense, concrete and subtle language, and structured as narrative, in which there is an "organic connection between form and content" (pp. 4-5), excludes works of popular culture on a par with *The China Syndrome*.[7] More important for my argument that literature should be regarded, like the media, as a significant site of contestation over the social construction of reality, and that it should therefore be subjected to frame analysis (albeit in modified form), are the *cultural resonances* which

[6] The social movement theorist, Mayer Zald, has similarly used the term 'moral entrepreneur' to describe journalists, ministers, community and associational leaders, politicians and writers who provide new perspectives and problem-perceptions by reattributing blame, redefining tactics, and generally reframing social issues through use of new metaphors, symbols and iconic events (Zald 1996: 269).

[7] Nussbaum acknowledges that while the novels she has in mind cultivate perception and responsiveness by illustrating them in the characters, and engender them in the reader by setting up a similar complex activity, it is not the case that all novels facilitate experiential learning in this way. Neither novels with an omniscient authorial posture nor ones full of dramatic action are helpful. Certain dramas, biographies and histories can on the other hand give the necessary attention to particularity and emotion (pp. 44-6).

Gamson and Modigliani discuss as prime determinants of the success of a given interpretive package, alongside *sponsor activities* and *media practices*. Certain packages, they argue, have a natural advantage because their ideas and language resonate with larger themes familiar in the culture. Citing the social movement theorists Snow and Benford, they note that some frames "resonate with cultural narrations, that is, with the stories, myths, and folk tales that are part and parcel of one's cultural heritage" (p. 5, with reference to Snow and Benford 1988). Two (diametrically opposed) frames in debates on nuclear energy are singled out as having benefited particularly from cultural resonances in America: *progress* (from narratives celebrating technical progress, efficiency, adaptability, innovation and expansion, images of the inventor as a cultural hero, and tales of mastery over nature), and *soft paths/ runaway science* (which reflect scepticism/ hostility to technology, benefitting from appeals to harmony with nature by the Transcendentalists Emerson and Thoreau, and from instantiations of the narrative of technology out of control such as *Frankenstein*, *Modern Times*, *Brave New World*, and *2001: A Space Odyssey*). Novelists, poets, dramatists and literary essayists make both conscious and unconscious use of cultural resonances in their work, finding new formulations which draw on a reservoir of cultural models. Their work feeds in turn into the popular culture from which journalists derive inspiration.

Although there is, as this suggests, no rigid boundary between literary and media discourses, there are, when it comes to framing issues, differences of degree between them. Journalism is more likely to be directly exposed to the (material) interests of sponsors than literature, and to be under pressure to conform to the publisher's political philosophy. Literary writers often construct a counter-discourse to dominant social positions, but are normally granted the licence to defer closure and withhold judgement in the face of complexity. Whereas journalists tend to simplify their message and shape their material to match the formulae of familiar news stories, for instance making an official interpretation package their starting point in discussing an issue, and seeking to give the impression of objectivity by striking a balance between this and a rival package (thereby reducing controversies to two competing positions). Literary writing is likely to be more experimental and ambivalent than media writing, offering the reader positions (implicitly as well as explicitly), but simultaneously

relativising or undermining them with ironic detachment. While journalism commonly serves as an inter-discourse, engaging with and mediating between scientific, administrative, economic and other discourses, metadiscourse (i.e. reflection on the process of discursive construction) is likely to play a more prominent role in literature (particularly in prose fiction and essays).

In novels and plays, the issues are exemplified by constellations of figures who are sometimes overtly constructed so as to represent a range of attitudes and patterns of behaviour. These characters direct the reader's emotional engagement by linking positions with personal characteristics which are more or less attractive. The consequences of positions and behaviours are then dramatized and played out through plots in ways which also contribute to the construction of the literary interpretive package. In addition to the metaphors, historical exemplars, catchphrases and descriptions encountered in the media, representational conventions and narrative forms (which are often associated with a particular cultural tradition and a related set of values) predispose readers' understanding of literary texts: mode of writing and genre are not the least of the devices which guide our interpretation of the given issue. Intertextual references and other cultural allusions possess a similar function, as already noted.

While literary framing may be assumed to share basic structures and mechanisms with interpretive packages in the media, Gamson and Modigliani's methodology for examining public attitudes towards nuclear energy as reflected in the media cannot therefore be followed too closely, without running the risk of losing sight of the leanings of literature towards ironic detachment, ambivalence, and the direction of readers' attention to the process of framing itself (rather than mobilising them within the parameters of a given ideology). The list of media frames will have to be adapted and the catalogue of framing devices expanded to include allusions to cultural narratives, personification, plot and genre. With these considerations in mind, I now turn to the novelistic depiction of three different energy system transitions.

3. Literary depictions of past energy system changes

The first important energy system change in human history was, as Vaclav Smil writes (2010: 6), the shift from human to domestic animal muscle power which accompanied the transition from hunter-gatherer

to agricultural society. Food provides the primary energy which is converted into mechanical energy by humans and animals, and food production remained the most important part of the energy system until quite recently, despite the gradual introduction of mechanical (inanimate) prime movers. In the English context, the first wave of enclosures, which started with the rise of the wool trade in the late fifteenth century, and continued sporadically up to the nineteenth, marked a caesura in food production. Enclosure facilitated the move from a community-based, largely self-sufficient economy organised around arable farming to the large-scale sheep grazing needed to service domestic textile manufacturing and the lucrative export of wool to the continent. It led to the disbanding of villages and depopulation of the countryside. The devastating impact of enclosure on rural communities, which was recorded in contemporary accounts ranging from passages in Thomas More's *Utopia* (1516) to the eighteenth-century poems of John Clare and Oliver Goldsmith, is the subject of Jim Crace's recent historical novel, *Harvest* (2013).

In an interview, Crace has revealed that he was prompted to write *Harvest* by reading a newspaper article on rural dispossession by soya barons in South America: "I wanted to write about loss of the land and people's relationship with the land" (Wroe 2013). While Crace sought to raise readers' awareness of the losses and injustices incurred in ordinary people's lives in processes of energy system change by means of a historical parallel, he renders the action timeless by avoiding reference to specific historical events, and by writing in a language which combines archaic words and expressions with terms and concepts possessing a modern ring. His portrait of a remote hamlet in Middle England is also geographically universal, a near-mythical deep place in deep time. Readers are encouraged not only to recall, imagine and vicariously experience an incident in the past, but also, by inference, to reflect on parallels in the present.

In Crace's framing, the act of enclosure is a tale of the absence of moral courage, justice and solidarity leading to belated and ill-conceived resistance to change, with disastrous results for the villagers. Whereas his narrator initially adopts an open stance towards the changes which begin to come over the village when the manor house passes into new ownership, they are depicted in increasingly negative terms as the action progresses. Although village life prior to the change is described in terms of unremitting toil and hardship, and shown to be

in a state of decline, it is nevertheless idealised in passages in the bucolic mode as a relatively egalitarian community enjoying simple earthy pleasures. Enclosure is presented as one step in a quasi-universal deterioration of the human condition in the course of modernisation. Towards the end of the book, Crace's elegy to an unalienated way of life in proximity with nature acquires a religious dimension. The unravelling of the old world of the village takes place, like the Creation, over seven days. Although the villagers are already paying "the penalty of Adam" (p. 37) at the outset, toiling in the sweat of their brow, their fate is depicted as a repetition of expulsion from the Garden of Eden. And the destruction of the entire village by fire in an act of revenge by outsiders wronged by the villagers echoes divine punishment in the Apocalypse.

The master narratives, metaphors and literary techniques which used by Crace in his framing of the transition from a sustainable economy based on mixed subsistence farming to an unsustainable one dependent on international trade, one which necessitates rural dispossession and accentuates social inequality, differ from those employed by Charles Dickens in *Hard Times*, his mid-nineteenth-century account of life in the industrial revolution. However, the overall framing is similarly backward-looking and declensionist, despite the hopes associated with the partial restoration of justice at the end of the novel. A classic of social realism, *Hard Times* is as good a place as any to look for a depiction of the impact of the transition from wood, wind and water power to coal as the 'new' energy source, and of the advent of the carbon economy. Set in a fictional manufacturing city in the North of England, but based on the author's first-hand observation of conditions in Preston in January 1854, the book is a passionate indictment of the circumstances in which the workers lived, describing urban constriction, pollution, and the enslavement of men and women in the cotton mills. 'Coketown' is the name Dickens gives to this world of coal-driven machinery and the resultant bondage of workers to economic calculation and rigid work routines. The action in the novel is underpinned by the new pattern of energy conversion and consumption in Coketown's cotton mills. However, energy production in the coal mines is also present on the margins. Dickens describes the once idyllic landscape surrounding the city as 'blotted' with slag heaps, coal shafts and associated machinery, and he narrates, in a key scene

towards the end of the book, how his representative mill worker, Stephen Blackpool, falls to his death down a disused mineshaft.

Hard Times, which is dedicated to the political reformer Thomas Carlyle, drew the soul-destroying regimentation of the workers' lives, unhealthy living conditions in the city, poor safety regulations in the coalmines, and the social injustice of the class system to the attention of contemporaries. However, Dickens interpreted these circumstances as a consequence of the Utilitarian philosophy of Jeremy Bentham, which is encapsulated in the opening pages of the novel in the stultifying educational philosophy of the wealthy merchant Thomas Gradgrind, who urges the teacher in his school, Mr M'Choakumchild, to impart to the children "nothing but Facts, sir, nothing but Facts" (p. 47). Dickens has been much criticised for lack of political insight into industrial relations and failure to recognise the importance of collective action of the workers. In reality, the problem lay less with the aims of Utilitarianism (which supported and achieved important social reforms) than with its implementation by proponents who combined it with laissez-faire capitalism. *Hard Times* nevertheless provided shorthands for many conversations about the social problems associated with the industrial revolution.[9]

Dickens's characters, which are distinguished by bold, vivid, repeated traits, his use of catchphrases, and his effective linking of themes all serve to structure the text and frame the social changes accompanying energy system change. However, it is especially his use of gloomy images and ominous metaphors of imprisonment and spent energy which serve as markers of a perceived moral decline threatening the cohesion and sustainability of British society in the Industrial Revolution. Glowing coals dying and turning to ash is a recurring motif in *Hard Times*. The girl Louisa Gradgrind is repeatedly (pp. 91, 94, 129) depicted as sitting at twilight in the prison-like children's room in Stone Lodge, watching red sparks from the fire drop on the hearth, whiten and die. The scene evokes the extinction of the children's imagination by their exclusively fact-based education, and the looming emptiness of

[9] Karl Marx, an admirer of Dickens's novels, echoed them in his depiction of factory work in Chapters 14 and 15 ('Division of Labour and Manufacturing' and 'Machinery and Modern Industry') of Vol. 1, Part 4 of *Das Kapital*, which was published thirteen years after *Hard Times*. A century later, the American historian and authority on urban life, Lewis Mumford, similarly referenced Coketown in works including *The Culture of Cities* (1940) and *The City in History* (1966).

the dutiful Louisa's life. Coal and education go hand in hand: "Combustion, calcination, calorification" are among the subjects taught to Thomas Gradgrind's children (p. 94). In a wider sense, the reduction of coal to ash also symbolises the joyless lives working people are forced to lead in industrial Britain (e.g. p. 135). The business of the nation is described not as an active process generating energy by burning coal, but as groping in ashes. Parliament is referred to as the "national dust-yard", and Thomas Gradgrind's work as a member of parliament is described as "sifting and sifting at his parliamentary cinder-heap in London (without being observed to turn up many precious articles among the rubbish)" (p. 222). Seen in this light, the opening sentence of the famous passage describing Coketown acquires added significance: "It was a town of red brick, or of brick that would have been red if the smoke and ashes had allowed it […]" (p. 65).

Thinking back to the framings of nuclear energy identified by Gamson and Modigliani, we see that while neither the position of 'progress'-type endorsement nor 'soft paths' opposition to energy system change is closely replicated in the overall framing of the two novels examined so far, there are certain parallels with 'runaway science' and 'the devil's bargain'. Through his narrator, Crace initially adopts a neutral position on modernisation, balancing the benefits it brings against the losses incurred. However, drawing increasingly on biblical narratives, he ultimately paints an overwhelmingly negative picture of the unstoppable nature of change and the inability of humanity to manage it in such a way as to benefit the collective rather than wealthy and powerful individuals. Dickens was for his part deeply troubled by what he perceived as the threat posed by the transition to a fossil fuel-based economy to public health and wellbeing. His images of the combustion of coal expressed contemporary anxieties about the dispersion and loss of national energies through social division and conflict (see MacDuffie 2014; 23-86 ["Thermodynamics and its Discontents"]). On a more personal level, he framed energy system change as a manifestation of the threat he perceived of the extinction of human warmth, imagination and affective concern for others in a world dominated by efficiency and economic calculation, self-interest and the machine. Finally, *Hard Times* reveals the potentially limiting effects of literary framing. The constraints of the literary market, which favoured a melodramatic genre imposing trite, unrealistic solutions on conflicts explored in the novel are apparent where Dickens models the figure of

the power loom-worker Stephen Blackpool on St. Stephen the Martyr, presenting him as a paragon of passive virtue and saintly forbearance appealing to readers' pity, rather than as a political activist persuading them of the importance of workers' rights.

4. *Solar*: framing the transition to renewable energy

How then does a contemporary novelist frame today's faltering transition to renewable energy? Must he or she fall back on such tried and tested (but potentially limiting) strategies, echoing the pastoral in a lament of what is being lost to climate change, seeking to convey a sense of the urgency of action through apocalyptic imagery, or relying on the power of emotional identification and moral exhortation? Can he or she avoid the limitations imposed by traditional narrative forms and generic conventions while still drawing on the persuasive power of narratives, images and cultural resonances?

While *Harvest* makes a parable of a historical socio-technical transition, and *Hard Times* critiques a contemporary one, *Solar* presents responses to the challenge of an energy system change which has yet to come about. At stake here is the "imminent industrial revolution" (p. 244) of "affordable clean energy" (p. 150), that is, the replacement of coal, oil and gas by a process of artificial photosynthesis invented by the Nobel Prize-winning physicist, Michael Beard. Implicitly, the novel is also about the ability of humanity to adopt a way of life reversing ever increasing energy consumption. In other ways too, McEwan's novel differs from Crace's and Dickens's. Whereas these depict the ambivalent consequences of progress and modernisation, castigate abuse of the opportunities which they offer for self-enrichment at the expense of others, and call for justice and compassion in their implementation, McEwan examines the reasons why humanity appears incapable of taking a step which is urgently needed for the benefit, indeed survival of future generations. Where they use affect and pathos to move and persuade readers, he works with humour and irony, and is at pains to avoid the charge of writing with an environmentalist message.

McEwan does not call in question the necessity for decarbonisation. However, rather than exhorting readers to take action, he illustrates forms of naïve optimism and evasion of the implications of climate change. In the course of the novel, he exposes, in turn, the tendency of politicians to simulate concern in their environmental

policies rather than take real action, that of the business world to defend existing investments rather than support change, and that of individuals to put their careers and pleasures before obligations to the welfare of less fortunate others. The implication of the story is that the necessary energy change is not likely to emerge from processes of reasoning and argument. Nor will it be achieved by idealistic environmentalists relying on moral exhortation and artistic agitation to mobilise the public. If the world is to be saved (and McEwan leaves open whether it will be), he implies it will be against the odds, because we are deeply divided, and altruistic aspirations are outweighed by laziness and selfishness.

The issue of global warming and the need to replace fossil fuels by other energy sources is not addressed directly, but rather obliquely, using multiple distancing mechanisms. The proponents of change are minor figures, who are quickly dismissed or made fun of. First there is the 'pony-tail' Tom Aldous, a goofy Physics postdoc in his midtwenties, whose brilliant ideas for modelling photosynthesis are later stolen by Beard. "Coal and then oil have made us, but now we know, burning the stuff will ruin us", Aldous argues. "We need a different fuel or we fail, we sink. It's about another industrial revolution. And there's no way round it, the future is electricity and hydrogen, the only two energy carriers we know that are clean at the point of use." (p. 26) At this point, Beard dismisses Aldous's arguments: put off by the young man's "bucolic" Norfolk accent and holier-than-thou diet of salad and yoghurt, he is suspicious of his talk of "the planet". The irritating enthusiasm with which Aldous insists the world is in peril is encountered again in the artists and writers in whose company Beard is invited to "see global warming for himself" (p. 59) in the Arctic, by witnessing a dramatically melting glacier. They are convinced they can enhance public awareness of global warming and trigger "profound inner change" (p. 66) in individuals through their work. Sceptical about both the urgency of change and its viability, Beard is touched by the artists' good intentions, but doubly alienated by their assumptions about the impact of their efforts, and the moral puritanism of their appeal to austerity.

While vaguely deploring climate change and expecting governments to meet and take action, Beard thus reacts allergically to environmentalist apocalypticism (p. 15). Through a chain of circumstances he becomes an unlikely proponent of solar energy.

Eloquent arguments for transition are put into his mouth, but at moments and in contexts which undermine them. At the mid-point of the novel, he echoes Aldous's words in a set-piece speech to investors explaining the necessity for decarbonisation (pp. 148-56). It is a *tour de force*, operating with a sequence of different frames to appeal to his listeners. However, the whole speech is overshadowed by indications that the nauseous Beard, who has gorged himself on smoked salmon sandwiches, is about to throw up. Similarly, at the end of the novel, the reader's attention is distracted from Beard's stirring words to site workers on the eve of the inauguration of his revolutionary solar energy plant, by hints that everything is about to go spectacularly wrong (pp. 249f.).

More space in the book is in any case devoted to the breakup of Beard's marriage and his relationships with other women, and to his uncontrolled appetite, than to his efforts to generate solar energy. The narrative focuses on the psychology of infidelity and Beard's reluctance to commit to the responsibilities of fatherhood. Beard is an allegorical figure, standing for a humankind constantly deflected from the goal of addressing the world's most important problems by laziness and self-indulgence, repeatedly giving in to the calls of food and sex. (On pp. 170f. he is described as "comfortably" sharing all of humanity's faults.)

McEwan's message is underlined in an overtly allegorical passage about the quasi-entropic circumstances of growing disorder in the boot room of the ship in the Arctic where the climate artists and scientists are accommodated: "How were they to save the earth – assuming it needed saving, which he doubted", Beard asks himself, "when it was so much larger than the boot room?" (p. 78) If Beard's relationships with women symbolise the mis-management of our lives in general, and his appetite for sex and food are metaphors for the consumer society, the book contains a series of further metaphors for our creeping destruction of the environment. These include Beard's bloated body, the cancer on his hand, and congested cities like London, which is described as a vast organism consuming the environment. "How could we ever begin to restrain ourselves?", Beard reflects, looking down on the city from a circling aeroplane. Humanity appears "like a spreading lichen, a ravaging bloom of algae, a mould enveloping a soft fruit – we were such a wild success. Up there with the spores!" (p. 111)

McEwan adopts a writing strategy which, like that of Dickens, personifies positions in the energy debate in graphically delineated characters, but he combines Dickens's blend of social realism and allegory with a greater measure of satire. Like Crace, he builds suspense, but he substitutes rhetorical brilliance for the sensuous richness of *Harvest*'s landscape descriptions. McEwan forces readers to acknowledge conflicting desires and human weakness as barriers in human nature to transition from the carbon economy to renewables. If the book reveals any activist intention, it lies in his sarcasm challenging us to reaffirm our will to change.

5. In conclusion: the applicability of media frames to literary accounts of energy system change

How, finally, does the framing of energy system change in *Solar* then compare with Gamson and Modigliani's media frames and related hierarchies of concerns? They list, as noted above, 'progress', 'financial advantage', 'security', 'individual liberty' and 'justice' as quasi-universal frames in the presentation of environmental problems and their solutions, each with its own implications for who should take action, what should be done, and how. Viewed in this light, McEwan's book presents a strikingly complex picture. It operates within the 'progress' frame inasmuch as it engages with treasured notions of the accumulation and rational application of scientific knowledge – but only to challenge them. While acknowledging that scientific and technological innovation have a central role to play in satisfying future energy needs, McEwan is far from either idealising scientific practice or writing a paean to solar energy.

The 'financial advantage' frame is present on two levels: on the one hand, the financial argument for renewables is found alongside others in Beard's speech to potential investors. On the other, his own efforts to develop solar energy are driven throughout by a quest for personal gain. McEwan also describes the machinations of leaders of research teams seeking to maximise funding streams for their work on renewable energy and the cynical behaviour of politicians seeking public approval. While 'energy security' also features as an argument in Beard's London speech to investors, it does not otherwise play a large role in the novel. Nor does McEwan present resistance to the transition to renewable energy as dominated by fear of 'loss of individual liberty', unless one interprets as such Beard's defence of his freedom to indulge

his needs and desires. The issue of 'justice' is, however, present throughout the novel, in the sense that the monstrous Beard provocatively denies responsibility for future generations, but in the end has to learn to accept the demands of the child he has tried so hard not to conceive.

There remain the three further, more specific framings observed by Gamson and Modigliani in their analysis of nuclear energy debates: 'runaway science', 'soft paths', and the 'devil's bargain'. ('Progress' is present in both sets of terms, and 'energy independence', 'cost effectivity' and 'public accountability' can be regarded as respective subsets of 'security', 'financial advantage' and 'individual liberty'.) Tom Aldous and the artists and writers who Beard meets on his trip to the Arctic represent variants of the 'soft paths', holistic environmentalist frame. They introduce alternatives to Beard's 'financial advantage' perspective, but are marginalised. 'Runaway science' (fear of the dangers of technology), and the 'devil's bargain' (fatalistic combination of acceptance of the benefits of technology with a sense there will be a terrible price to pay in the future) are frames of special significance for nuclear debates, but not for solar energy, and do not feature in this novel. However, *Solar* shares the "gallows humour" observed by Gamson and Modigliani in the 'runaway science' frame. It is not a book written in anger or seeking to stir readers into climate activism. McEwan's position on the conflictedness of human nature ("the old parliament of [Beard's] selfhood was in uproarious division", we are told on p. 262) also corresponds to the ambivalence of the 'devil's bargain' frame.

Solar then juxtaposes and stages conflicts between different frames, and McEwan critically interrogates them rather than simply applying a readymade frame in the fashion of classical journalism. On a deeper level, his treatment of energy system transition might be said to approximate to the 'justice' frame, inasmuch as he implicitly challenges readers to reflect on the morality of denying the implications of climate change for individuals' lives.

Space does not permit closer analysis of how McEwan's literary practice relates to the way media frames are constituted (through condensing symbols, metaphors, exemplars, catchphrases, and images). Suffice it to say that Beard stands out as an allegorical figure, and the scene in the 'boot room' as an image for the difficulties which face environmental governance initiatives. McEwan refreshes familiar

symbols, by investing them with surprising and amusing new meanings. The polar bear, for instance, cuddly icon of global warming campaigns, becomes a dangerous presence when encountered by Beard in the Arctic, and a crucial prop in the slapstick scene where Beard takes Aldous to task for sleeping with his wife.

In terms of literary form as an element framing the issue of energy change and guiding our interpretation, McEwan does not draw on any of the three literary genres and cultural traditions normally associated with depictions of environmental change: the epic (associated with the 'progress' frame and confidence in human ability to solve problems); the tragic or apocalyptic (which frequently accompanies the 'runaway science' counter-tradition warning of the dangers of technology), and the pastoral (often found as a vehicle for the 'soft paths' or 'harmony with nature' frame). Instead, he resorts to comedy, social satire, and the picaresque genre. Beard's actions can be read as exemplifying the behaviour of a humanity which may be weak and foolish, but proves capable of survival through adaptation to circumstances. The protagonist in the picaresque novel is not presented as a virtuous character in charge of his own fate, but as an ignoble one, driven by events, making his way through life in a world of change and uncertainty by means of cunning and deception. At the end of *Solar*, as in the picaresque novel, no problems are solved, no enemies are defeated, no new truths are discovered. But Beard can be seen as the ultimate realist, living off his wit and powers of invention.

Crace presents the dispossession and displacement which drove peasants into the towns and created the English proletariat in the light of the biblical narratives of Edenic expulsion and apocalyptic punishment: the villagers' cowardice in the face of change and their indifference to outsiders appear as parts of human nature which cannot be changed and as manifestations of original sin. *Harvest* exemplifies the continuing shaping presence of the pastoral mode and Biblical narratives in current thinking, and shows how traditional concerns such as the loss of place can be mapped onto changes in the economy of energy.

The newly released energies of the coal-powered economy in the mid nineteenth century, and its potential for both good and evil prompted awe, but also anxiety and abhorrence. Dickens interpreted the exploitation and suffering accompanying energy system change in the Industrial Revolution as a consequence of the tyranny of reason and the

triumph of calculated self-interest over empathetic identification with and support for others, implying that things could be changed for the better by the exercise of moral will.

In comparison, the ending of McEwan's book is ambivalent. It allows interpretation of the narrative trajectory as an inexorable movement towards catastrophe, resulting from inborn human flaws. But the novel can equally be read as a picture of humanity at the mercy of its weaknesses, nevertheless finding inspiration in the hour of need and muddling through – as a picaresque tale of erring but also Faustian striving and dogged perseverance. The latter interpretation finds support in McEwan's comments in an interview. Climate change poses a particular problem for our nature, he noted, because we are being asked to do things for people we'll never meet, people who are unborn: "This requires a scale of long-term thinking that lies outside our biology. I'm hoping to take the reader on that journey of what it means actually for us, how uniquely difficult it is for us, and how our cleverness might win through." (McEwan, 'Interview with Friends of the Earth')

This essay set out to explore how a typology of narratives of energy system change might draw on categories arrived at in environmental media analysis, and adapt them for the classification of literary narratives (and their comparison with oral and historical ones). My examination of *Harvest*, *Hard Times* and *Solar* has shown that while all three novels frame change in such a way as to counter hegemonic narratives of progress, and ultimately seek to activate marginalised forms of experience in imagined counter-worlds, *Solar* complicates this by simultaneously critiquing the naïve assumptions about human nature which underlie well-intentioned appeals to the public to support decarbonisation, and by challenging simplistic notions of the social agency of artists. Literary framing in at least some texts may be too complex and fragmented to serve as a workable basis of classification. Approaching literary texts with the tools of frame analysis nevertheless brings to the fore their conceptual orientation and structuring through metaphors, condensing symbols, genre choice and adaptation, resonances with familiar cultural narratives, and other textual mechanisms. This permits comparisons with the interpretation of energy relations in oral, historical and media narratives, and has the potential to throw new light on the special part which literature plays in energy debates – whether it be a matter of pluralising them by giving

voice to marginalised groups and drawing attention to tensions and conflicts in individuals ignored by policy makers, or one of mobilising readers through emotional engagement and inducement to reflect our ethical responsibilities. Or indeed merely, in the spirit of the "complex particularity" which Nussbaum regards as the key to literature's uniqueness, one of eliciting from readers, through the example of "tentative and uncontrolling relation to the matter at hand, one that holds open the possibility of surprise, bewilderment and change" (p. 33), an open-ended activity of searching and nuanced understanding grounded in both cognition and emotion.

Bibliography

Primary sources

Crace, Jim. 2013. *Harvest*. London: Picador.

Dickens, Charles. 1969. *Hard Times. For These Times* (ed. David Craig). London: Penguin. [1st ed. 1854]

McEwan, Ian. 2011. *Solar*. London: Vintage.

— 'Interview with Friends of the Earth on climate change and *Solar*'. On line at: http://www.ianmcewan.com/bib/books/solar.html (consulted 19.03.2015).

Scholarly publications

Attridge, Derek. 2004. *The Singularity of Literature*. London and New York: Routledge.

Gamson, William A. and André Modligiani. 1989. 'Media Discourse and Public Opinion on Nuclear Power: A Constructionist Approach' in *American Journal of Sociology* 95(1): 1-37.

MacDuffie, Allen. 2014. *Victorian Literature, Energy, and the Ecological Imagination*. Cambridge: Cambridge University Press.

Nussbaum, Martha C. 1990. *Love's Knowledge. Essays on Philosophy and Literature*. New York and Oxford: Oxford University Press.

Parkhill, Karen et al. 2013. *Transforming the UK Energy System: Public Values, Attitudes and Acceptability – Synthesis Report*. London: UKERC. On line at: http://psych.cf.ac.uk/understandingrisk/docs/SYNTHESIS%20FINAL%20SP.pdf (consulted 19.03.2015).

Smil, Vaclav. 2010. *Energy Transitions: History, Requirements, Prospects*. Santa Barbara, CA, etc.: Praeger.

Snow, David A. and Robert D. Benford. 1988. 'Ideology, Frame Resonance, and Participant Mobilization' in Klandermans, Bert, Hanspeter Kriesi and Sidney Tarrow (eds) *From Structure to Action: Social Movement Participation Across Cultures*. Greenwich, Conn.: JAI Press: 197-217.

Wroe, Nicholas. 2013. 'Jim Crace: "At the Watford Gap it hit me that the English landscape was absolutely drenched in narrative". Interview with Jim Crace' in *The Guardian* (16 August 2013). On line at:

http://www.theguardian.com/culture/2013/aug/16/jim-crace-interview (consulted 19.03.2015).

Zald, Mayer N. 1996. 'Culture, Ideology and Strategic Framing' in McAdam, Doug, John D. McCarthy and Mayer N. Zald (eds) *Comparative Perspectives on Social Movements: Political opportunities, mobilizing structures, and cultural framings*. Cambridge: Cambridge University Press: 261-74.