

STORIES OF ENERGY IN CONTEMPORARY NOVELS: REFRAMING ENERGY THROUGH NARRATIVES, GENRES AND METAPHORS - AXEL GOODBODY

Abstract

This article considers the role which literary representations play in challenging public perceptions of energy, and argues that literary critics have a particular contribution to make to the emerging field of 'energy humanities' by raising critical awareness of the framing of energy choices through narratives, generic conventions and metaphors. It examines three twenty-first-century novels, each of which is concerned with a different primary energy source. Andreas Eschbach's *Ausgebrannt (Burned Out, 2007)* explores the economic, political and social consequences of the exhaustion of oil supplies. Ian McEwan's *Solar (2010)* casts doubt on humanity's ability to learn to live sustainably, despite presenting a technological breakthrough to unlimited renewable energy as within reach. Jonathan Franzen's *Freedom (also 2010)* critiques a way of thinking in mainstream American environmentalism by telling the story of a man who is paradoxically led to advocate coal mining in the particularly destructive form of Mountain Top Removal in order to preserve the habitat of an endangered species of bird. In each novel, the re-shaping of perceptions of energy sourcing and consumption through narratives, genres, metaphors and cultural references is discussed. The article argues that insights into this process can inform public debates on energy, the use of natural resources, and climate change.

1. Decarbonisation, energy humanities, and literary criticism

Energy conservation and decarbonisation are among the most pressing challenges facing society in the twenty-first century. Change is necessitated on the one hand by the depletion of natural energy resources. Over the last hundred years, oil has, as a cheap, highly concentrated and easily transportable energy source, come to play a central role, not merely in the economy, but also in our daily lives and our culture (see LeMenager). However, oil production is already in decline, and despite the fall in price since the 2008 recession and the development of fracking, it is set to become increasingly expensive in the longer run as the world's remaining reserves become more difficult to access. The second factor necessitating change is global warming. There is probably enough coal to outlast oil and provide electricity for centuries to come, but climate change, rising sea levels, species loss and damage from extreme weather events make the transition from fossil fuels to renewable energy imperative. Technological innovation is playing and will play a crucial part in meeting the challenge. But attitudes towards energy use and patterns of behaviour characteristic of modernity also require revision. Assuming a limitless supply of safe, cheap energy in the future is calculated to set the stage for future conflicts, and may even lead to societal collapse (see "Energy at the Turn of the Third Millen-

nium", the final part of Crosby; Welzer). More than ever, energy choices are today inseparable from value sets, world views and questions about how we want to live in the future, how importantly we rate the wellbeing of other people and species, and what responsibility we acknowledge for the flourishing of future generations on earth.

Although forms of energy production and consumption impact on our daily lives in a multitude of ways, we are rarely conscious of them, and a constant supply of electricity and fuel is taken for granted in the western world. Fossil fuels are the foundation on which modernity has been built (see Chakrabarty). They have liberated us from the geographical and temporal limitations associated with the sourcing of energy from forestry, crop raising and domestic animals, wind and water power, and permitted urbanisation, population growth and vast increases in production, affording affluence and giving individuals unprecedented mobility. Reluctance to give up these gains and freedoms, and the unobtrusive character of much petro-infrastructure, render the material basis and consequences of our energy consumption invisible. Given the implications of the growth of world population and the even more rapid growth of global energy consumption, it is problematic that energy does not ordinarily attract public attention beyond expressions of alarm over pollution incidents such as the Deepwater Horizon oil spill in the Gulf of Mexico in 2010, and sporadic concerns over national energy supplies and energy security. We should all be playing a part in making energy-related decisions, and public expertise on energy is highly desirable.

Attitudes towards energy are related to collective perceptions and patterns of behaviour, in local communities and in a given society or nation. They are shaped by culture, in the sense of people's understanding of self, and of their relationship with others and the natural world. As Paula Farca notes in her introduction to a recent collection of essays on energy in literature: "We understand how energy is used, reused, wasted or conserved through the lens of culture and society." (2). Understanding the role of culture in shaping attitudes towards energy, and more specifically the part played by narratives and images, is one of the aims of the "Stories of Change" project, of which this essay constitutes an output.¹ The project seeks to set the transition to renewables in historical and cultural context by juxtaposing new oral narratives recorded from members of different communities with stories of energy sourcing, conversion and use, pollution and climatic change taken from historical documents, policy scenarios, and (last but not least) literary sources such as novels and plays. Speculative fiction, non-fiction writing (essays, travel writing, autobiography, journalism, popular science and philosophy), films and art are all rich resources, presenting and making available to scrutiny scenarios of energy system change and future abundance and scarcity, and exploring the causes and possible outcomes of conflicts. Much can be learned about how energy is perceived and interpreted from their handling of the subject.

At the same time, analysis of the framing of energy issues through modes of writing (the principal ones being apocalyptic, pastoral/ elegiac and satirical), genres (these range from thriller and disaster novel to science fiction and fantasy, detective story, *Bildungsroman*/ novel of development and young adult fiction), images and structuring metaphors (images for energy and its various primary sources, for our appetite for it, and for climate change include factory chimneys and geysers, sex, food and smoking, air travel and cars, melting ice, heat and violent storms), and the adaptation of cultural narratives such as expulsion from Eden and the Tower of Babel gives insight into the part played by literature in sometimes mediating, but more often adapting or critiquing commonly held views, and reminding us of alternatives. Literary critics possess special expertise which they can bring to bear in

interdisciplinary projects collecting and examining the stories which we are telling about our use of energy, its role in our lives, and the future, by revealing where perception has been blocked by historical experiences and cultural traditions resulting from them, and publicising counter-narratives and images.

2. Literary representations as a focus for Energy Humanities

Recognition and redefinition of our relationship with the natural world have been constant aims of the Energy Humanities which have emerged in the last fifteen years as the study of the historical and cultural record of our relationship with energy. In their think piece "Breaking the impasse: The rise of energy humanities", Dominic Boyer and Imre Szeman describe the new field as a form of humanistic enquiry "researching the cultural landscape around us and imagining the future relationship between energy and society that we need to strive toward" (Boyer and Szeman). Christophe Bonneuil and Jean-Baptiste Fressoz have written similarly of the need for a new environmental humanities embracing a "joint history of the Earth and of human society [...] as the co-evolution of metabolic (material-energetic) regimes and social orders" (Bonneuil and Fressoz 37), and called for a rewriting of the history of thermo-industrial civilisation focused less on determination of developments through the natural resources available, and more on actors, motivations and decisions. The history of the "thermocene" whose outline they sketch in Chapter 5 of *The Shock of the Anthropocene* comprises a "history of additions" (additions of new energy sources, rather than transitions from one to another), a history of "energy inefficiency", a history of "alternatives" ("political, military and ideological choices that the historian has to analyse, by relating them to the strategic interests and objectives of certain social groups", 107), and a "political history of CO₂" including political conditions that encourage one source of energy rather than another (for instance the profoundly harmful and largely avoidable suburbanisation and motorisation of Western societies). The contribution of literature and other cultural media to public debates on energy is the subject of recent work including the Petrocultures Research Group publication, *After Oil* (see especially the section "The Arts, Humanities, and Energy", 41-54), and Bellamy. The arts supplement thinking about energy through the principal disciplinary routes of politics, economics, sociology, geography, physics, engineering and law, by drawing attention to its social, cultural, psychological (affect-related), ethical (social justice), and aesthetic dimensions. Literature, art and film arouse public interest through dramatization, and typically seek to promote change by presenting provocative, non-hegemonic positions.

At first glance, energy appears abstract and invisible in the literary canon. However, on further examination, we find wood and water power, coal, oil and nuclear energy depicted in many works (see Yaeger; Scott). Indeed, one of the key achievements of novelists has arguably been making the presence of energy in our lives visible. Key themes in the literature of energy are the commodification and exploitation of the natural environment and human labour in coal mining, oil drilling and dam building, and the risks associated with new technologies (nuclear accidents and their consequences). While acknowledging the pleasures afforded by energy (in evocations of the exhilaration of driving and fantasies of energy abundance), and depicting scenarios of energy scarcity, novelists have above all exposed hidden mechanisms of power and social hierarchy, and revealed the inappropriateness of ways in which we tend to think about energy generation and consumption, and our relationship with the material world more generally.

The American environmental writer and farmer Wendell Berry argued in the mid-1970s, in an essay entitled "The Use of Energy", that "by farming we enact our fundamental connection with energy": all bodies, plant, animal and human, are

joined "in a kind of energy community". By generating energy from biomass we respect the energy economy and the environment. However, "our agriculture, potentially capable of a large measure of independence, is absolutely dependent on petroleum, on the oil companies, and on the vagaries of politics." (Berry 87) Berry formulated a widely held counter-cultural view when he wrote that the issue at stake was ultimately one of morality, voluntary restraint, and choosing not to do something which it is in our power to do. Over the past fifty years, his compatriot Gary Snyder has also articulated and popularised a cultural critique of the consumption of fossil fuels, in poems and essays castigating the developed world for its energy addiction, while acknowledging the attraction of oil and our almost universal complicity in its recreational use (see Snyder).

Given such intellectual precedents, academic occupation with energy as a literary theme is a surprisingly recent development. Systematic research into the subject originated in Postcolonial and American Studies. Literary energy studies is usually held to have started with a book review by the Bengali novelist and essayist Amitav Ghosh in 1992. Ghosh lamented the dearth of writing doing justice to the "horror, sympathy, guilt, rage, and a great deal else" evoked by the ugly story of American and European oil extraction in the Middle East, and called for a new genre of "petrofiction". (For more recent contributions to postcolonial energy criticism, see Wenzel; Lincoln; Macdonald.) However, for understandable reasons (American society being that most radically shaped by oil and the car), the main focus lies in American Studies. Especially since 2010, having received new impetus from climate change and debates around the concept of the Anthropocene, Oil Studies has begun to gain recognition among American scholars as an autonomous field of study, focused on twentieth-century works from Upton Sinclair's novel *Oil!* (1922) to the 2007 film inspired by it, *There Will be Blood* (see Hitchcock; Ziser; Buell; Szeman, *Petrofictions*; Barrett and Worden 2012 and 2014; LeMenager; Slovic/ Bishop/ Lyndgaard). Viewed through the lens of the Anthropocene, the American twentieth century appears as the apogee of high-energy society and a fossil-fuel civilisation which may be coming to an end.

Energy humanities is also gaining ground in comparative literature – Paula Farca's collection of essays *Energy in Literature* (2015) includes studies of British, Australian, Nigerian, Spanish, French and South and Central American writing – and in research into other national literatures. In German writing a rich seam of textual representations awaits exploration, including novels of the working world by writers associated with the *Bitterfelder Weg* in the GDR (Fühmann, Reimann, Wolf) and members of the *Gruppe 61* and the *Werkkreis Literatur der Arbeitswelt* in West Germany, poetry and prose on nuclear energy by Enzensberger, Amery and Wolf, writing by Grass, Maron and Hilbig on landscapes poisoned by fly ash from coal power stations, and depictions of the devastation resulting from open cast brown coal mining by Braun and Koch, as well as *Lessons of Darkness*, Werner Herzog's poetic documentary film on Kuwait's burning oilfields in 1992.

By no means all research into energy in literature is concerned with twentieth-century texts. In the Editor's Column of a 2011 number of the journal *PMLA*, Patricia Yaeger has argued that studying energy in literature means rethinking the traditional arrangement of research according to time periods and national literatures. She called for a redistribution of texts, not by the centuries in which they were written, or by categories harnessing the history of ideas (Enlightenment, Romanticism), but "according to the energy sources that made them possible". The six short essays which follow explore the roles of tallow, wood, coal, oil, human labour, and energy futures in a variety of texts. Researchers in Victorian literature (Gold; MacDuffie) have reinterpreted novels and non-fiction in the context of nineteenth-

century scientific and political debates on energy and entropy, and examined reflections on the impact of coal and the steam engine on working conditions, public health and the state of the nation. Many of today's energy-related concerns (depletion of resources and waste disposal, pollution and cost to health, and the social and political consequences of energy system change) are prefigured in the writing of Dickens, Eliot, Ruskin, Conrad, Stephenson and Wells. Nineteenth-century literature served, at least in part, as an ecologically anxious counter-discourse in the face of heroic, energy-intensive industrialisation. At the same time, nineteenth and early twentieth-century novels such as Edward Bulwer-Lytton's *The Coming Race* (1871) and H.G. Wells' *The World Set Free* (1914) anticipated utopian visions of unlimited energy in the future.

As Heidi Scott has written, literature witnesses to and holds up to critical scrutiny ways in which different energy regimes configure the interface between self, society and nature, giving emotionally and philosophically robust insights which the social and natural sciences are unable to provide. Reading energy literature from Homer's *Odyssey* to Kerouac's *On the Road* "instructs us out of the fossil fuel mindset of world domination and back to a physical realm in which we are small actors in a world guided by capricious forces" (Scott 1). As a counter-discourse reminding readers of historical alternatives and imagining new ones, and inviting us to question our current energy decisions and policies, some literature positions itself directly as a medium for reflection and an agent of change. Such writers tell stories about people's energy use. They experiment with the consequences of individuals' actions in specific spatial, temporal and cultural frameworks. Their stories explore and reveal how people feel, quantify, choose and politicise energy.

But there is also value in studying literature which does not actively advocate change, or yield critical insight into inequitable and unsustainable social practices and assumptions. 'Energy' is now mainly encountered as a synonym of 'power', and understood as a force derived from the utilisation of physical and chemical resources, used to heat, light, and drive machines. However, in the original Greek the term referred to the strength and vitality required for sustained physical and mental activity, including strength of expression in speech and writing. In this respect it was synonymous with 'vitality', 'vigour', and 'spirit'. There is a long tradition of literary writing opposing the dualist view of man and nature, promoting a sense of the currents of energy which circulate between them, as a holistic alternative to the purely materialistic understanding of energy conversion through combustion. In Goethe's thinking, for instance, energy is a force connecting mind, body and world. This is the conception of energy articulated in a famous passage from the nineteenth-century Transcendentalist Ralf Waldo Emerson's essay "Nature":

In the woods, we return to reason and faith. There I feel that nothing can befall me in life, – no disgrace, no calamity, (leaving me my eyes,) which nature cannot repair. Standing on the bare ground, – my head bathed by the blithe air, and uplifted into infinite space, – all mean egotism vanishes. I become a transparent eye-ball; I am nothing; I see all; the currents of the Universal Being circulate through me; I am part or particle of God. (Emerson 10)

Many other poets, dramatists and novelists have subscribed to this view of energy as a pervasive animating force, as much spiritual as physical. Conceiving energy in this way reminds us of our corporeality and the agency of matter, and is conducive to a less instrumental and exploitative relationship with the world around us.

Energy in literature has been approached from issue-driven angles and theoretical positions ranging from postcolonialism to gender and sexuality studies, animal studies, posthumanism and material ecocriticism. Here, however, my focus

is on the role played by literature in what the French Marxist theorist Jacques Rancière (and his English translator) have called the “distribution of the sensible”. *Le partage du sensible* determines the roles and modes of participation in the social sphere through aesthetic ‘regimes’, that is forms of organisation in representations which regulate the visibility of phenomena, including energy and the ways in which it is generated and consumed, and how these actions are conceptualised (Rancière 1, 85).

Affect plays a major role in the impact of the stories which novelists tell of the consequences of our use of coal and oil, nuclear and renewable energy. Writers associate energy choices with characters whose thoughts and actions either attract or repulse us (sometimes both simultaneously). They personalise and play out conflicts over energy, offering ‘good’ and ‘bad’ models of energy use, for instance in coal mines, which emerge as complex sites of both energy production and destruction, serving as testing grounds of societal and cultural values. Familiar master plots such as conversion, development, conflict and the quest for redemption are adapted. In the literature and culture of oil, the apocalyptic trope is of central importance, but other aesthetic templates used include Gothic horror, the sublime, what Stephanie LeMenager has called “petro-melancholia” (i.e. the yearning for a simpler, slower life before fossil-fuelled modernity), and the “petro-magical-realism” identified by Jennifer Wenzel in representations of oil extraction in the Niger delta combining fantastic and material elements. Literary stories of energy blend realism with techniques of abstraction (symbolism, allegory) in differing measures and ways: metaphors are commonly used to link mining with the rape of Mother Earth, oil with her blood, and drilling with idealised hyper-masculinity. Like fast driving, which is associated with the thrill of speed and personal freedom but also with danger, the wanton waste of fossil fuels can be invested with seductive beauty at the very moment its addictive and self-destructive qualities are laid bare.

In the following, I examine the framing of energy generation and consumption in three recent literary texts through genres, narratives and images, and the alignment of positions with individual value sets and collective identities through allusions to myths, fictions and historical narratives.

3. Energy as a theme, and its representation through genre, plot and character depiction in three contemporary novels

Genre and mode of writing

The first novel to be discussed here, Andreas Eschbach’s bestseller *Ausgebrannt* (Burned Out, 2007), corresponds to the Canadian novelist Margret Atwood’s definition of near-future “speculative fiction” as a subset of science fiction consisting of works concerning “things that really could happen, but just hadn’t completely happened when the authors wrote the books”. It paints a bleak picture of the economic, political and social collapse resulting from sudden exhaustion of the world’s oil reserves, and hesitant adaptation to a life of energy scarcity. Eschbach portrays attitudes and behaviours which have led to this situation, and imagines what impact the end of cheap oil will have on individuals and society, and how some of the problems might be solved. The book was marketed as a “Science Thriller”: detailed information is inserted at intervals in the narrative on the history of oil production and its part in international politics, on geological structures and oil reserves, on the technology of drilling and on the sometimes surprising ways in which we are dependent on oil. The author, who studied aeronautical engineering and worked as a software engineer before becoming a successful science fiction writer, also has a thing or two to say about the stock market, the construction of the Bagdad railway, solar cells and other things. The novel manages to keep the reader’s interest through

suspense: Eschbach introduces mysterious events and gradually exposes conspiracies, revealing a series of power games associated with oil. *Ausgebrannt* incorporates elements of the disaster novel, and the development of the central character from the epitome of high-energy modernity to proponent of a low-energy way of life follows the pattern of the ecological *Erziehungs-* or *Bildungsroman* (novel of education/ development). Less successful is the romantic narrative: the characters lack depth and the writing is clichéd. The book is also disappointing in that Eschbach could have gone further in describing the impact of oil scarcity on ordinary people's lives, and its economic and political consequences. He does, however, discuss new energy sources, and ways to reduce energy consumption. The book was nevertheless welcomed by reviewers for being both well researched and good entertainment (Lewald, Spiegel).

Whereas Eschbach's book was written at a time of acute public concern over climate change and anxiety about oil supplies, the second novel, Ian McEwan's *Solar* (2010), reflects and responds to the public disenchantment with climate science and disillusionment with climate politics after the Climategate affair and the collapse of the Copenhagen summit in the winter of 2009. (The action is set in the recent past, with the three sections into which the book is divided being dated 2000, 2005 and 2009.) McEwan has described his experience during a week spent on a ship in the Arctic hosted by the art and climate change organisation Cape Farewell in 2005 as having provided the germ for the novel. While writers, artists and scientists brought there to see and be inspired by the consequences of global warming spent the evenings talking about climate change and the need for a fundamental cultural change, the boot room where their outdoor gear was stored descended into chaos. "It was this disparity between the self-made disorder in our lives on the ship, and our aspirations, our ideals, that suggested that one approach to this subject was through a kind of forgiving humour", he has commented in an interview (McEwan, "in Conversation"). His belief in the inalterable conflictedness of human nature is reflected in an overtly allegorical scene in the novel based on this experience, and in the allegorical figure of the protagonist, who is capable of inspiration and hard work, but deeply selfish and lazy. Like *Ausgebrannt*, *Solar* blends elements of different genres, including tragicomedy and the picaresque. But it is above all satire. McEwan combines classical human satire (exposing self-interest and greed as fundamental flaws of human nature) with social satire (exposing dishonesty and petty personal ambition in the world of science). He presents renewable energy as a sector attracting a new kind of financial and technological speculation, more venture capitalists than environmentalists, and one particularly vulnerable to fraud. Here too there is a measure of carefully researched science (including quantum physics as well as a possible form of artificial photosynthesis). But it is McEwan's aim to expose naïve idealism and ask difficult questions about the drivers of human behaviour rather than to provide readers with scientific information.

The third novel, Jonathan Franzen's *Freedom* (also 2010), is a work of social and psychological realism, which presents a panorama of contemporary American society. His sharply observed portrayal of what has become of the ethically-minded, white middle class since the 1970s is scathingly critical, but at the same time poignant and funny. The energy-related dimension of this sprawling novel explores the psychology and misanthropic leanings of a Puritan strand of American environmentalism today as well as the economic, social and political challenges faced by the environmental movement. The book includes powerful passages listing ways in which modern society is destroying the natural environment, not least through coal mining, but presents a strange story of the contradictions in which the main proponent of environmental concerns, Walter Berglund, becomes entangled,

depicting him, despite investing him with the author's left-wing liberal political and environmentalist views and arousing our sympathy for him in various ways, as a crank and a not particularly likable person.

On a basic level, the novels could be said to exemplify key modes of writing on energy and environment: the apocalyptic-dystopian narrative in *Ausgebrannt* works with fear, the comic-satirical in *Solar* affords pleasure, and *Freedom's* pastoral-elegiac structure prompts sadness. However, this would be to over-simplify three complex and sophisticated works, the second and third of which are quite oblique in their take on the unsustainable nature of our energy regime. The first novel has a clear message, seeking to open readers' eyes to our addiction to oil and its approaching exhaustion. The second takes the necessity for transition to renewable energy for granted but expresses detachment from naive, well-meant environmentalism. And the third embeds environmentalist views and quasi-didactic passages in a complex narrative told from different perspectives. Franzen starts with a short history of the Berglund family from the perspective of nosy neighbours, follows this with an 160-page 'autobiography' of Walter's wife, Patty, alternates between third-person perspectives (Walter's friend Richard's, his son Joey's, and his own), presents an addendum to Patty's memoir, and ends with a second marital account from the perspective of a new set of neighbours. Within the individual parts of the novel, the author's voice is only discernible through the masks of the characters' voices: the detachment which this presentational perspectivisation and the irony of Franzen's diction introduce means that judgement of the characters and their actions is left to the reader.

Plots and characters

Ausgebrannt opens with a car crash, which is followed by a flashback lasting almost three hundred pages: we read them in the knowledge that disaster is looming. The protagonist Markus Westermann leaves Germany for America to make his fortune. Personifying the greed-driven, parasitic world of investment consultancy and venture capital, he forms an oil exploration company with an Austrian engineer, who claims to have a new, intuitive way of locating oil, and believes the global reserves are much greater than generally thought. However, his Austrian partner turns out to be a crank, and the sudden revelation that Saudi Arabia's principal oilfields are exhausted sends shock waves across the global economy. Markus's business collapses, prompting him to abandon a life centred on materialistic consumption and self-realisation at the expense of others, and, admittedly only partially and grudgingly, to acknowledge social and environmental responsibilities. Eschbach sketches several versions of a simple life after oil: Markus lands up for a couple of months in a remote community of fundamentalist survivalists practising autarky in the American midwest, before settling down to family life on a farm.

Meanwhile back in Germany the rising price of oil forces his sister and her husband to give up their villa in the country with heated swimming pool and the daily commute by car to work in the city, and to adapt to a more modest provincial lifestyle. The decline in oil production leads to anarchy and crime in America outside the urban centres, and while the economy is eventually stabilised with the help of mass-produced small-scale plants generating energy from biomass, it is gradually reduced to a primarily agrarian state. The change is less extreme in Europe, because the continent is less dependent on oil. In a subplot concerned with Markus's older brother, Eschbach outlines a cooperative project with the Arab world producing solar energy in the desert. A brief epilogue thirty years later hints at the decline of American political hegemony. The book ends with the reflection that it is as well

that the oil has run out, because people would have been mad enough to poison the atmosphere with carbon dioxide had more been found.

McEwan's *Solar* also appears initially to depict the conversion of the protagonist to a sustainable approach to energy. Michael Beard, a brilliant physicist in his youth but now a middle-aged nonentity, is at the outset the personification of self-indulgence and social irresponsibility, with his five marriages, his infidelity, gluttony and dishonesty. Although he has accepted a position as director of an institute for sustainable energy, he is scornful of environmental activists, and sceptical about alarmist claims of the consequences of global warming. A series of personal crises (marital, financial and professional) lead him to become an advocate of solar energy. Beard's new-found dedication to saving the planet is, however, founded on the theft of a younger colleague's work and driven by the need to extricate himself from the mess his life has descended into. Then action culminates at the launch of a plant in Texas which will power the region by means of a new process of artificial photosynthesis. Beard is on the point of restoring his reputation and making a fortune. But he proves unable to learn from the mistakes of the past, and is undone when the people he has wronged catch up with him.

Beard understands that decarbonisation will never happen as long as it is presented as a matter of idealism and caring for future generations. Reason and self-interest must be appealed to, rather than our better natures. In a central passage in *Solar*, Beard makes a pitch to potential investors in a London hotel, in a brilliant speech making it sound like common sense to take financial advantage of the opportunity to invest in his plant. However, McEwan undercuts the speech with constant references to the overweight Beard's nausea (he has just eaten a dozen salmon sandwiches). At the end of the speech he has to duck behind a curtain and throw up. Beard's years of repulsive over-indulgence are a synecdoche for the energy-splurging habits of western publics. McEwan suggests through Beard that the human mind is deeply divided, and the voice of reason will always be defeated in the moment of "vivid confrontation with the affirming tidbit, the extra course, the meal he did not really need" (118). The novel ends with his daughter demanding his attention, in a scene which can be read as representing the claim of posterity to consideration in our response to resource depletion and climate change. McEwan leaves open whether the pain which Beard feels is a heart attack, and whether he will manage to weather or escape the coming storm.

Where McEwan presents fundamental characteristics of human nature as likely to determine whether humanity can respond to the challenge of energy sourcing and use in the future, Franzen's novel focuses on exploring the role of personality, childhood experience and marital relations in shaping attitudes towards environment and energy. The complexity of the plot demands a somewhat longer account. The protagonist in the energy-related dimension of *Freedom* is Walter Berglund, and not his wife Patty, whose psychology and unhappy marriage in the Midwest city of Saint Paul, Minnesota are the main focus in the first half of the book. Patty's suppression of her true feelings plunges her into depression, makes her act irrationally towards her rebellious teenage son Joey, and leads her to betray her husband in an affair with his best friend Richard. But what concerns us is the portrait of the kind but nerdy Walter, a mild-mannered lawyer who combines environmentalist idealism with a melancholic bent. His interest in energy conservation goes back to the late 1970s, when we are told he was less worried by the Three Mile Island nuclear accident than the low cost of petrol, the need for a high speed rail system and curbing population growth (92). Marriage to Patty, payments on their house and their two children lead him to set aside these concerns and get a safe job with the locally headquartered multinational conglomerate 3M.

After fifteen years, however, Walter quits and moves to New York. Here he goes “over to the dark side” (212), working for an oil and gas tycoon who claims to want to create a nature reserve for an endangered species of bird. Walter’s own interest in birds and his desperation in the face of the public apathy over the alarming rate of extinction of species are factors in his embrace of the task of partnering with coal companies to create a vast private sanctuary for the bird in the wilds of West Virginia. In order to finance the project, coal extraction is to be permitted first on a third of the land: after the mining, the area is to be re-naturalised and protected in perpetuity. Walter talks eloquently of “science-based reclamation”, and “compassionate relocation and retraining of people displaced by endangered species conservation” (301). He even agrees to link the project with America’s oil war in Iraq, by obtaining jobs making body armour for the farmers who are displaced from their land to create the reserve. However, it becomes clear that Walter has been hired as a bona fide environmentalist in order to persuade the public of the genuineness of a project which is in reality driven by the material interest of the investors.

News of Walter’s unconventional conservationist scheme having leaked out, it begins to fall apart because of adverse publicity and the protest action of a radical environmentalist group blocking access to the area which is to be mined. Walter, who had always hoped to be able to use some of the funding to promote a campaign to educate people against having children, makes a volte face, and launches into a vicious attack on the project in a public speech at the opening of the body armour factory. He taunts his audience, challenging them to “help denude every last scrap of native habitat in Asia, Africa and South America”, buy six-foot plasma TVs that consume unbelievable amounts of energy, strip mine their ancestral hills, bring on global warming and acid rain, drive vehicles with an obscenely heavy fuel consumption, and wage wars to steal other people’s oil (483). His heartfelt but misanthropic conservationist rant about humanity as a “cancer on the planet” goes viral on the web, and provides him with a dubious new support base for his continuing campaign against over-population. Only the tragic death in a car crash of his young Asian assistant Lalitha, whose commitment to fighting overpopulation is “as humanitarian and practical as Walter’s was abstract and misanthropic” (491), brings him to give up his efforts to change public attitudes towards having children. He retreats to a solitary life in a remote part of rural Minnesota and lives there alone for five years before finally accepting Patty back into his life.

Franzen presents factual arguments underpinning Walter’s actions, in striking passages recounting the creeping destruction of nature in the US through population growth, urban development, and the millions of barrels of oil being burned (e.g. 342f.). But his behaviour is also explained by a morose Scandinavian temperament he has inherited, and childhood experiences with an alcoholic father and bullying older brother, which have left him longing to safeguard pockets of nature from “loutish country people”. Walter projects his personal wish to be left alone by noisy human beings onto birds (457). Tortured by the questions how we should live, whether it is morally acceptable to consume so much, and even to have children, he develops an unhealthy obsession with apocalyptic scenarios and becomes increasingly misanthropic. The reader is not expected to endorse his eccentric behaviour, but we cannot avoid sympathising with him, and are emotionally torn when he goes wrong. Later, when Walter develops a fixation on the one million songbirds killed daily by domestic cats in the USA (545), Franzen accentuates his eccentricity to the point of estranging the reader from him. However, after his reluctant reconciliation with the contrite Patty, Walter is effectively redeemed and enabled to realise his longstanding wish to protect birds on a modest scale, by turning his lakeside family holiday home into a cat-proof fenced bird sanctuary.

This ambivalence probably derives from Franzen's use of his writing to work through unanswered questions rather than to mediate readymade answers. Walter Berglund is a fictionalised self-portrait in which certain qualities of the author are exaggerated into grotesque proportions. Franzen had acknowledged a questionably intense interest in birds in the final chapter of his 2006 memoir, *The Discomfort Zone*, entitled "My Bird Problem". Here he wrote of his concern over global warming and environmental politics, but admitted that his at times obsessive bird watching was to an extent a way of avoiding contact with other people. It took him till 2015 to arrive at a clear, no longer apologetic position. In an article in the *New Yorker*, he has described himself as "someone who cares more about birds than the next man" ("Carbon Capture") and is therefore deeply troubled by the subordination of concern over loss of species to the overriding imperative of climate action. Franzen now argues for bird watching as embodying a 'Franciscan' attitude towards the environment contrasting positively with the doom and gloom of guilt-driven environmental Puritanism fixated on climate change. He is still susceptible to the latter, but increasingly "attracted to a countervailing strain of Christianity, inspired by St Francis of Assisi's example of loving what's concrete and vulnerable and right in front of us". "I came to feel miserably conflicted about climate change", he writes. "I accepted its supremacy as the environmental issue of our time, but I felt bullied by its dominance. [...] It made me feel selfish for caring more about birds in the present than about people in the future." "To prevent extinctions in the future, it's not enough to curb our carbon emissions", he concludes. "*We also have to keep a whole lot of wild birds alive right now.*" (ibid.)

4. Metaphors and cultural allusions

The three novelists thus adopt different narrative strategies, draw on different genre conventions, portray different characters, and use plots to develop them in different ways. Each approach affords its own insights, but comes equally with its own limitations. To an extent, the novels reflect master narratives in their national cultures: a German tendency to apocalypticism, a British approach via humour and irony, and American visions of a fallen world and yearning for redemption. But the differences on the level of metaphor and cultural allusion are less pronounced: they all draw on a universal repertoire of images serving either to deconstruct or to re-configure perceptions of energy.

First, fast cars, frequent flights and vast amounts of luxury food are recurring images for the uninhibited consumption of energy and resources, in *life before 'ecological' conversion*. This is the principal theme in the first half of *Ausgebrannt*. Drilling for oil is described in erotic terms in a scene where Markus Westermann falls head over heels for the nymphomaniac Amy Lee Wang – who turns out to be spying for her millionaire father, but somewhat implausibly ends up falling in love with him. (The old association of oil itself with blood, as life-blood of the earth, is referenced in the red oil barrels featured on the cover of Eschbach's novel.) The couple's hedonistic life style is characterised by sex, drugs, conspicuous consumption, and frenetic mobility: Markus is constantly on the road in America, and later flies from the Middle East to New York every weekend. His fascination with wealth, power and the American way of life finds a fitting symbol in the phallic Westermann Tower which he plans to build in New York as a company headquarters. In *Solar*, Michael Beard's appetite for sex and food again symbolises the excess of contemporary western consumption. Further metaphors for the dangers of self-indulgence and unchecked growth include Beard's bloated body, and the cancerous growth on his hand. Beard draws a parallel between congested cities like London and the fungal growths on the abandoned remains of ready meals in his neglected flat in

Marylebone. "When the fuel ran out", he muses, "they would dry to a smear of charcoal dust." "How could we ever begin to restrain ourselves?" he asks, comparing humanity to "a spreading lichen, a ravaging bloom of algae, a mould enveloping a soft fruit", and concludes cynically that humankind will consume its fuel to the point of extinction: "We were such a wild success. Up there with the spores!" (111) In *Freedom*, Franzen also links profligate energy relations with succumbing to sexual temptation in the figure of Walter's son Joey, and references humanity as a "cancer" on the planet, its uncontrolled growth undermining the material basis for existence.

Images for *life after conversion* are less salient, however they include living and working locally, walking, family life with marriage and children, self-sufficiency, and rural surroundings. *The end of energy-intensive living* is symbolically marked in *Ausgebrannt* by Markus' car crash. This is caused by running out of petrol while overtaking a truck, because his fuel gauge is not working: "You can still accelerate with the last drop of gas" is the first sentence of the book. The crash, which nearly kills Markus and leaves him in a coma from which he only slowly recovers, coincides with the collapse of his business. Much later, *acceptance of a low-energy way of life* comes when the 'Westermann Machine' is delivered to his farm. He recognises in the shape of this domestic generator based on his technical plans, which is fuelled by biomass and eases the transition to a world without oil, an ironic substitute for the gleaming steel and glass Westermann Tower which he had dreamed of before the crash. It is perhaps not fanciful to see here also a tacit reference to the Biblical story of the Tower of Babel, with its lesson of the punishment of human overreach, and to seek indirect allusions elsewhere in *Ausgebrannt* to the Last Judgement, and in *Freedom* to expulsion from the Garden of Eden. A further Biblical narrative is echoed in Markus's rebellion against his father, which recalls the parable of the Prodigal Son. In a broader sense, the peak oil narrative belongs to a long line of literary works depicting the punishment of hubris, just as Michael Beard can be read as a comic Prometheus, who has stolen knowledge of the sun's power from the postdoc Tom Aldous.

5. The contribution of literature to debates on energy

The editors of *Currents of the Universal Being* assert in their introduction that the literature of energy "provides a medium through which readers can reflect critically upon complicated energy issues whose solutions will inevitably involve personal (and societal) sacrifices and transformations" (Slovic/ Bishop/ Lyndgaard xix). The novels discussed here illustrate key ways in which literary fiction responds to the need to imagine the transition to renewable energy. While they do not seek to provide answers to the problems associated with the change, they may contribute to public debate by drawing attention to the issue. They do so by exploring the consequences of our predicament for individuals, developing conflicts in human dramas, and investing energy issues with affect. Affective engagement and an emotional response from the reader are widely recognised as prerequisites for perception and reinterpretation. They also make our relationship with energy visible by framing it in familiar aesthetic templates (genres and narratives), encapsulating it in images which resonate with readers' experience, and linking it with myths. *Ausgebrannt* is the most predictable: a popular novel written to a formula, it is nevertheless thoroughly researched and skilfully constructed. Avoiding the alarmist extremes of many post-apocalyptic novels, it dramatises the depletion of natural resources, and thereby combats the expropriation of the senses which Ulrich Beck sees as characterising the "risk society". Like Eschbach's novel, *Solar* sets out to expose false suppositions. In this case, however, what is at stake is the potential of idealistic ap-

peals to save the world, and McEwan's approach is one of gentle mocking. For him, facing the ethical and political challenges of climate change starts by acknowledging the age-old tensions between selfish instinct and enlightened rationalism, and being realistic about our expectations and hopes. Franzen's novel combines painfully honest self-examination with scrutiny of the motives and actions of his generation. While they provide a measure of factual information, the main focus of the three novels lies in engaging readers emotionally, exposing the mental, emotional and social dilemmas and conflicts associated with our energy use to scrutiny, and prompting ethical judgement on different forms of behaviour.

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Notes

- 1 "Stories of Change: Energy in the past, present and future" is a project funded by the UK Arts & Humanities Research Council under the Connected Communities programme, running from 2014 to 2017 (see storiesofchange.ac.uk). Its principal aim is to revive stalled public and political conversations about energy in Britain through a combination of research, artistic projects and innovation in the use of digital media. Working through areas of current concern with hitherto marginalised actors and exploring elements of a collective vision for the future, "Stories of Change" is assembling and curating an online collection of oral narratives.

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