



Participatory energy scenario development as dramatic scripting: A structural narrative analysis



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ABSTRACT

Drawing on 46 low carbon, backcasted energy scenarios produced with stakeholders in 14 European cities, we illustrate the value of structural narrative analysis for illuminating the dynamics of participatory scenario processes. We show that despite tight technological structuring, the experience of the scenario participants has commonalities with dramatic scripting. These commonalities include: specific characterisation; the development of internally consistent, plausible plots that parallel character development; the construction of plot sequences; and emotional engagement by the writers, who themselves undergo processes of struggle, learning and increased awareness. We suggest that these parallels provide a way of thinking about scenario process design, as dramatic scripting. We particularly focus on the characterisation of 'the public' by the scenario participants, involving a variety of assumptions about likely human behaviour.

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1. Introduction

Scenario development is increasingly common in organisational planning (Coates, 2000), but what makes for a 'good' scenario process, given the wide variety of contexts in which scenario planning is used? Here we are concerned with the design of highly technically structured, participatory scenario processes with stakeholders who are key to the scenario planning, but who are not experts in key technical aspects of the situation. In these and other contexts, scenario development has the potential to help generate mutual, shared expectations of the future, where a common vision and understanding does not currently exist. Such shared expectations can in turn help to co-ordinate action horizontally and vertically, within and between organisations, acting as a 'constitutive force' (Borup et al., 2006) that has a tendency to generate self-fulfilling, corresponding action: expectations are in a sense 'performative' (Brown and Michael, 2003).

There is a literature on participative visioning, including in the context of designing climate mitigation strategies. This emphasises the importance of making information and processes salient and accessible. Sheppard et al. (2011) provide a useful summary of specific experience and advice regarding process design based on literature review, which they condense to three requirements: localising climate change

information and engaging local stakeholders; use of multivariate scenarios that combine multiple aspects of climate change (drivers, impacts and responses; adaptation and mitigation strategies); and the use of visual tools (ibid).

The scenario development process studied here meets the above requirements. However our analytic approach is not principle-based, but rather based on inference from observation of underlying narrative structure. Hence we examine a multi-country, multi-session scenario processes post-hoc, observing structural patterns underlying the scenario development processes. Our case material is thus a large set of participatively-produced, low carbon energy scenarios, derived using a scenario method perceived as useful by key participants.¹ Working retroductively, we find commonalities across the scenario cases that the mirror some of the same basic components and patterns that structural narrative analysts have both advocated and found to be present across different types of text, notably dramatic texts (plays and film scripts), but also mythology and folklore. Although the texts with which we work relate to backcasted² energy system scenario processes for city-regions, the connection with dramatic and mythological narratives arises because scenario development is in key respects *story*

¹ Key participants are defined as those who invited relevant regional stakeholders to the scenario sessions. While not a systematic evaluation, their positive approval of the scenario process is evident in the short interviews available here: <http://getagriponemissions.com/testimonials.html>.

² Backcasted in the sense of envisaging how to reach a pre-defined end-point, namely an 80% GHG reduction for the city.

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writing. Thus although the scenarios that these processes generate involve multiple, quantitative choices and output energy and emissions quantities, these reflect the stories of the future co-written by the participants.

Typically in the development of energy scenarios, scientific models are used that embody more or less widely accepted, empirically-derived relationships between variables, representing aspects of the world. These models may project (forecast) forwards in time from a known baseline or they may be used to help 'backcast' to a desired future (Lovins, 1977; Robinson, 1982; Wang, 2011; and more recently Eames et al., 2013; Carlsson-Kanyama et al., 2013). Yet scenario development in the context of energy and climate policy involves not only technical decisions, but also value choices and assumptions about the way that the world works, how it will develop, particularly how populations will behave, as well as assumptions about the ways that it *should* develop (e.g. to achieve GHG emissions targets). While the physical constants of the models used are usually taken as given (such as coefficients for emission factors), other choices and assumptions are typically debated, negotiated and agreed, delivering scenarios of future energy supply and demand within climate-related emissions constraints. Repeatedly, the bounds of what participants define as plausible is tested and questioned as part of the scenario development process, both in terms of premises and in terms of the numerical values for - and drivers of - specific parameters. While this is particularly the case for participatory backcasting, it also applies, to a lesser degree, to more technically-focussed backcasting and indeed to forecasting, where assumptions of the validity of a range of values (e.g. prices or learning rates) at future points in time are also typically required.

Concurring with other commentators in the field who have also focused on scenario narratives (e.g. Ramirez and Selin, 2014; Li, 2014; Wright, 2004 and Wright, 2005), we highlight the value of a structured narrative perspective in understanding the scenario development process and also for thinking about scenario design. Specifically, we suggest that adherence to the basic Aristotelian dimensions of narratives – a linear process with key passage-points; an internally consistent plot-line; and characters that are convincing within the terms of the scenario or story (Aristotle, 1907) – provides a useful starting point in terms of narrative support that can be supplemented by a number of other structuralist insights. In other words, we view scientifically-grounded scenarios as benefiting from convincing, plausible narratives of the future; we posit that the participative construction of scenarios is likely to involve basic components and patterns, in terms of both process and output, that can to some extent be anticipated; and we suggest that foreknowledge of this can help to inform other, future scenario processes, be these intended to assist low carbon development or for some other purpose.

We propose the above not a priori, but on the basis of examining the structure and content of a programme of scenario development in 14 European cities, involving a total of approximately 350 city-stakeholders in groups of 6–10. Groups of participants deliberated over energy-emissions input model parameters for their city, with most groups producing an energy-emissions reduction scenario on each of three days. For each city, the GRIP (greenhouse gas inventory protocol) model (Carney and Shackley, 2009) provided information on the energy system and emissions consequences of their choices, following which was (for most groups) a fourth day of synthesis scenario production, produced by participants with access to the scenarios of the preceding three days.

The main objectives of the paper are as follows: (i) to show the relevance of structuralist narrative analysis to scenario development; (ii) to illustrate this relevance with qualitative and quantitative data drawn from a pan-European participative scenario process focussed on energy system change for stringent climate targets; (iii) to infer and briefly discuss implications for the design of participative scenario processes. In terms of the structure of the paper, we begin with an overview of the literature on scenario production from a narrative perspective, followed by a brief summary of classical conventions of dramatic

narrative. We then relate both the literature and dramatic conventions to our data. The research design is inductive, moving between theory and empirics and drawing on themes in the scenario narratives literature. We do not claim that every aspect of dramatic narrative design is evident in our transcripts, but we do show that there are parallels. The paper relates primarily to participative energy system scenario development with policy stakeholders and more to the policy interventions and choices involved in backcasting than to the mathematical progressions of forecasting, though forecasting processes, too, may well be amenable to narrative analysis.

2. Theoretical context

2.1. A narrative perspective of scenarios

Organisations are more likely to engage in scenario development under conditions of uncertainty and turbulence (Ramirez et al., 2008; Ramirez and Forsell, 2011). In such circumstances, scenario development can be seen as attempts at organisational sense-making (Wright, 2004, 2005; Ramirez et al., 2008, Ramirez et al., 2013; Wilkinson, 2009). Yet this begs the question of how this form of sense-making may be analysed and supported. As referred to above, there is useful synthesis work on participative scenario design and visioning from relatively applied perspectives (Sheppard et al., 2011), including recognition of the value of visualisation, decision-support and models. Yet the question of the *structure* of scenario process design still seems under-theorised: in general, scenarios and their purpose are taken at face value and arguably Wilkinson's (2009) observation that scenario development is 'very much an area in search of theory' remains apt.

From the perspective of narrative analysis (Riessman, 1993 and Riessman, 2008), scenarios are viewed as future narratives (Li, 2014) in which rhetorical argument is used to establish plausible claims and in which scenarios are used to make sense of the organisation's position in relation to the future. It should be noted that by 'rhetorical argument' is not meant argument without substance, but rather argument – or more generally the use of language – that is intended to persuade (Keith and Lundberg, 2008). From a structuralist perspective of narrative analysis (e.g. Propp, 1968), one would expect to find underlying patterns across scenarios and the processes of their production. Structuralism as an ontology posits that there are structures (regularities) that shape our experience and perception as human beings and that these in turn influence the ways in which the social world is patterned (Blackburn, 2008). For present purposes it is semiotic structuralist philosophy that is most relevant, as this relates to the ways in which people understand and communicate about the world. Hence we follow the educationalist Bruner's (1962) view of narratives as fundamental to the way in which people apprehend, learn about and make sense of the world, complementing the way in which people also use logic and reasoning (ibid).

For Bruner, people use stories to help understand and describe the world, with stories defined in the broad sense of chains of connected ideas, causes and consequences, be these accurate or erroneous from a scientific perspective (ibid). Those stories, visions and accounts that make most sense to those involved are most likely to be favoured (while acknowledging that in organisational contexts, this process will be influenced by a wide range of factors). A similar proposition is reflected in other perspectives that focus on the way in which language is used, such as discourse institutionalism, which examines what makes for more or less successful discourses, including scientific communication (Upham and Dendler, 2015). In general the perceived relevance, adequacy, applicability, appropriateness and resonance of an argument with its audience are all important influences on its chance of acceptance (Schmidt, 2008). The interconnected qualities of persuasiveness and plausibility are multi-dimensional and can be viewed as such a function of affective and normative attributes as logical and scientific content.

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