**Creating scenarios or creating and sustaining social worlds? Towards new sociological understandings of the use and impacts of scenario planning**

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***Abstract***

Many management scholars, and some practitioners, argue that scenario planning remains under-theorised, that it has a weak evidence base, and that in practice it is often too reactive. Responding to these critiques, we contribute to the development of sociologically informed scenario practices which are more proactive (or “transformative”). The paper is grounded in an examination of scenario practices at CSIRO (Australia’s national science organisation), focussed on the Future Fuels Forum, and a theory of social fields. The case illustrates that both convening a scenario exercise and the construction and/or use of scenarios can be forms of context-specific strategic action, often aimed at inducing cooperation as part of skilled social action. It also illustrates that the impacts of scenario exercises are influenced by the fluidity of the situation and associated field-level processes; the social skill of actors and their ability to construct and use scenarios in ways that help to solve related problems; and the outcomes of political processes. We also identify key implications for practice.

**Key words:** scenario planning; participatory processes; social fields; strategic action

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1. **Introduction**

Large claims are often made about the benefits of scenario planning and scenario thinking exercises. For example, Wright and Cairns (2011) argue it can reduce strategic inertia. Others claim that scenario planning delivers a wide range of cognitive, risk management and decision-making benefits (Healey & Hodgkinson 2008; van der Heijden 1996; Wright, Bradfield & Cairns 2013), for example by functioning as a cognitive reflection tool (van der Heijden 1996), challenging mental models, or providing a so-called ‘safe space’ in which to rehearse decisions (Hayward & Morrow 2009). However, over the past decade, scholars and practitioners have more seriously considered the rigour of such practices. Management scholars argue that the evidence-base is dominated by anecdotal accounts written by scenario planning practitioners and is generally poor, and that the theoretical underpinning of such practices remains inadequate (Chermack 2011; Hodgkinson & Healey 2008).

Additionally, some scenario planning scholar-practitioners argue that existing scenario planning practices are often too reactive. That is, practitioners treat the external environment as an exogenous force that is mostly beyond actors’ control, the core focus is on enabling adaptation *to* multiple plausible future contexts, and the main goal is to improve the overall fit between an organisation and its environment (Ramirez & van Der Heijden 2007; Kahane, 2012a). This approach is sometimes termed ‘scenarios-to-strategy’ (or S2S).[[1]](#endnote-1) These authors also argue that this S2S approach is insufficiently entrepreneurial.

In contrast to such reactive approaches, it is clear that actors not only respond to their environments (or try to “fit” them) but often also try to shape them. Sociological research has shown that human actors *actively* perceive, define and manipulate their environments in order to achieve goals (Charon, 1992). Scenario planning theory and practice inadequately considers these basic sociological insights. For example, the use of such methods could be a tactic used strategically by actors when seeking to shape their environments.

This paper contributes to more proactive or transformative approaches to scenario planning – proposed by Ramirez and van Der Heijden (2007) and Kahane (2012a, 2012b), respectively – and considers how sociological theory can contribute to these. We draw on a theory of “social fields” (outlined in Section 3) and the associated ‘political-cultural’ approach to strategic action advanced by Fligstein and McAdam (2012a, 2012b). The political-cultural perspective theorises the ways that actors fashion and then seek to maintain social orders, such as a new market, by utilising cultural and political means and producing institutions. The agency and politics involved in creating, maintaining and transforming such social orders is theorised from a sociological perspective, potentially injecting new insights.[[2]](#endnote-2)

The paper proceeds by reviewing scenario planning theory and practice and introducing a theory of fields (Sections 2 and 3). We then introduce the larger study this research is part of and the case that is explored (Section 4). Rather than being a formal case study, we use the case as an illustrative example. We consider what insights a field theory perspective might provide and how this can contribute to scenario planning (Sections 5 and 6).

1. **Scenario planning theory and practice and emerging critiques**

Conventionally, a scenario planning exercise aims to assess the robustness of strategic options or possible actions under a range of plausible future conditions (i.e. under different scenarios). Ringland (2006) outlined related common uses of scenarios such as using them as strategy “test beds”. Regardless of the language and process that is used, typically a main objective is to test possible strategies *against* plausible future contexts.

In recent years, some scholars have drawn attention to the limitations of scenario planning. A claimed limitation of existing practice is the emphasis placed on improved adaptation to change (Kahane 2012a). Some criticise the consideration of external ‘environments’ as exogenous constraints (e.g. Ramirez & van der Heijden, 2007). Wright (2004, p. 9), who critiques scenario planning from a social constructionist perspective, similarly argues that in common practice “the scenario context exists independently of the explorer(s)”.

Second, epistemological issues and inconsistencies plague scenario planning. Ramirez and van der Heijden (2007, pp. 97-8) lament that scenario planning “ended up lodged in … [a] rationalist positivist corner”. Wright (2004) argues that scenario planning was a reaction to the limitations of positivistic forecasting and strategic planning methods but contends that positivism remains present in many underpinning assumptions.

Third, scenario planning practices often emphasise assessment of existing strategic options, such as through so-called ‘wind-tunnelling’ exercises. Others contend that effective strategic thinking also requires identification of new strategic options and find existing scenario practices lacking in this respect (e.g. Ramirez & van Der Heijden (2007).

Finally, some critics argue that the contextual limits of scenario planning processes need more attention and that existing approaches have been reified (Wright, 2004).

* 1. **Alternative approaches and perspectives**

These critics have proposed alternative scenario planning approaches. Consistent with the aims of this paper, they offer starting points for sociologically-informed practice.

Ramirez and van Der Heijden (2007, p. 90) proposed an approach they term staging which aims to enable collective action to be jointly conceived so that a group of stakeholders can subsequently “colonize and exploit new areas of their joint environment to obtain common strategic advantage”. This scenario construction process primarily seeks to identify new options and to ‘pre-experience’ such futures. Drawing on psychoanalytical theory they argue scenarios and scenario planning can function as a “transitional space”.

Wright (2004) proposed a social constructionist approach to scenario planning. This “would firstly see the scenario planners acknowledging that by their behaviors and actions they will influence whatever futures are created” (p. 8). Scenario planning is also argued to involve “acts of multiple and competing interpretations and sensemaking” (Wright 2004, p. 13), during both scenario creation and scenario use. According to this view, making a scenario meaningful always requires subjective interpretation (Wright 2004).

These approaches beg elaboration and raise further questions. For example, the nature of *collective* action – as per Ramirez & van der Heijden’s (2007) “staging” approach – requires theoretical and practical elaboration. Under what conditions is such collective strategic action possible? What agentic capacity does it require? There is also a need to examine the political and social processes that may be involved, not just the psychological aspects. In these ways it may be beneficial to draw on sociological theory and related concepts.

1. **Overview of a theory of social fields**

The fundamental premise of all forms of social field theory is that the social world is composed of a vast array of *constructed* social arenas – that is, “fields” – within which actors vie for advantage (Fligstein & McAdam 2012b). Such arenas include markets, policy/issue domains, economic sectors, and formal organisations. Action is seen as taking place in meso-level social orders where something is at stake, and which are constituted on a situational basis when “actors come to take one another into account in their actions” (Fligstein & McAdam 2014, p. 317) and produce shared understandings.

The theory of fields developed by Fligstein and McAdam (2012b) is a middle range theory which combines social constructionist aspects of sociological theory with a focus on real-world processes. Their focus is on meso-level social orders, and the theory emphasises how people engage in collective action and the demands of coordinated action.

Key elements such as the theories of social space, social skill and strategic action – and the underlying perspective on social worlds – are outlined below.

*Theorising social space: ‘strategic action fields’ and their relationships*

In the theory of fields used here, a social field is more formally termed a ‘strategic action field’ (hereafter SAF). The “strategic action” part of the concept aims to highlight the roles of *actors* and social action in fashioning or maintaining a SAF (Fligstein 2013). The “field” part conveys the *structuring* of social space, such as via the institutionalisation of the ‘rules of the game’. A SAF is a meso-level social order (Fligstein & McAdam 2012b).

A SAF typically contains actors which have different amounts of power and resources, i.e. ‘incumbents’ and ‘challengers’, along with internal governance units (IGUs). An IGU (e.g. an industry or trade association) oversees compliance to the field rules and seeks to ensure smooth reproduction of the field (Fligstein & McAdam 2012b). Three additional elements of field situations are actors’ resources, distribution of social skill (see below), and rules.

A stable SAF requires the creation of explicit or implicit social understandings. Fligstein and McAdam (2012b, p. 88) emphasise four main agreements on: 1) what is at stake; 2) the main actors in a field, their positions and role structures; 3) the rules governing action; and 4) an ‘interpretive frame’ that is used to make sense of what actors are doing in the field. Actors have achieved an institutional “settlement” when they reach these agreements (Fligstein & McAdam 2012b). Additionally, by using hierarchical power or by creating political coalitions actors create or maintain field stability (Fligstein & McAdam 2012b, p.14). As per social theories of cognition (see Dobbin 2004), the conceptualisation and institutionalisation of settlements typically constrains the ability of actors to envisage alternatives.

There are three main field states: emerging fields; institutionalised stability; and periods of crisis and change. Similarly, field theorists’ distinguish between institutionalised and “unorganised” forms of social space (Fligstein & McAdam 2012b).

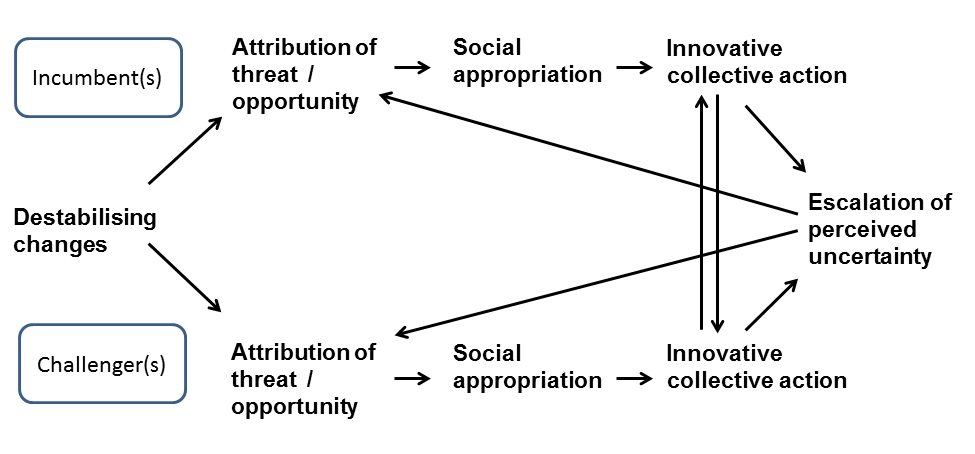
Finally, social space is further conceptualised as a “web” of SAFs, in which fields are “embedded in complex webs of other fields” (Fligstein & McAdam 2012b, p.18).[[3]](#endnote-3) SAFs can be proximate or distant to one another; dependent, interdependent or independent; or state or nonstate. As discussed in more detail below, these relationships can generate turbulence. Fligstein and McAdam (2012b) also contend that organisations are comprised of webs of fields (e.g. functional divisions, their relationships and related power relations).

*Social skill and social action*

Social skill is the ability to induce cooperation especially “by appealing to and helping to create shared meaning and collective identities” (Fligstein & McAdam 2012b, p. 46; see Fligstein 2001b). The basic problem facing such actors is working out how “to frame “stories” so that they help to induce cooperation” and can be used “to frame actions against various opponents” (Fligstein & McAdam 2012b, pp. 50-1). Fligstein and McAdam (2012b, p. 46) foreground *collaborative* meaning making and identity, arguing that the need for meaning and membership are at the core of “how people create and sustain a mesolevel social world”. The concept of social skill describes what actors do in SAFs and how actors attain collective action, building on the human capacity to take the perspective of others.

*Exogenous shocks, episodes of contention, and mobilisation*

An implication of the interdependence of SAFs is that the broader “field environment” can be a source of turbulence. Perturbations can be the source of ‘shocks’ which disrupt a SAF and can result in an ‘episode of contention’ (Fligstein & McAdam, 2012b). Complex mobilisation processes influence whether destabilising changes result in a crisis (see *Figure 1*).

*Figure 1: Contingent mobilisation processes (Fligstein & McAdam 2012b, p. 20)*

*The general problem of strategic action*

Strategic action, in general, is “the attempt by social actors to create and sustain social worlds by securing the cooperation of others” (Fligstein & McAdam 2012a, p.17). Strategic action usually seeks control in a given context (Fligstein & McAdam 2012a). The theory posits that the dynamics of such action vary under different conditions – for example, innovative action is easier (and therefore expected to occur) in less institutionalised social space.

A tangible example is the problems facing actors in markets, such as when seeking to form a stable new market. Fligstein (2001a, p.71) argues that “no actor can determine which behaviours will maximise profits (either a priori or post hoc), and action is therefore directed towards the creation of stable worlds”. Related needs include finding solutions to problems of uncertainty and price competition (Fligstein 2001a). Additionally, political “control” projects are part of market formation processes such as efforts to resolve internal power struggles in organisations (see Fligstein 2001a for a theory of markets as social fields).

*Underlying perspective on the social world and human actors*

Field theory provides a general theory of social order and change which also presupposes a particular conception of the social world and human actors. That is, social orders are “continuously contested” (Fligstein & McAdam, 2011, p. 5), always in some flux, and rarely organised around truly consensual ‘taken for granted’ reality. Fligstein and McAdam (2012b, p. 206) argue that:

Conflict and piecemeal change are ubiquitous in the life of fields. Challengers are not automatons, lulled by “dominant logics” into unconscious conformity to the “taken for granted” routines of the field. Nor are the incumbents normally on cruise control, dominating the field with little or no effort. Socially skilled actors are always working to improve or defend their position.

Finally, the theory of fields considered here asserts that the “the material/instrumental and the existential are inextricably linked” (Fligstein & McAdam 2012b, p. 201). In Fligstein & McAdam’s (2012b, p. 201) words “people do what they do both to achieve instrumental advantage and to fashion meaningful worlds for themselves and others or, more accurately, in our microfoundational view, because as a species we can do nothing else”.

Such social theory may assist with improving the theoretical underpinning of more proactive forms of scenario planning. To ground further consideration of this perspective, we next consider an illustrative case.

1. **Introduction to the illustrative case and associated research**

This research reported here is part of a study of the scenario practices of a research group – the Energy Transformed Flagship (now called the Energy Flagship [hereafter the Flagship]) – at CSIRO, Australia’s national science organisation. The overarching goal of the Flagship, at the time of the exercise reviewed here, was to help Australia to halve its greenhouse gas emissions and double the efficiency of new energy generation, supply and use. Linked with this mission, the initial Director saw the Flagship “as a way of changing the energy focus at CSIRO”, functioning as an institutional entrepreneur.[[4]](#endnote-4) The related National Research Flagships program was an organisational change initiated due to concerns about the future viability of CSIRO, in particular funding uncertainties (Sandland & Thompson 2012).

The discussion of the Flagship and the Future Fuels Forum (FFF) below draws on interviews undertaken with Flagship staff and FFF participants, analysis of relevant documents (e.g. meeting notes from the FFF) and associated media, and a participant survey.

* 1. **The formation of the Flagship and their use of scenario planning**

Flagship management decided to create an energy futures group charged with “looking at the future of energy and then pulling out of that research and development themes, tools, priorities”.[[5]](#endnote-5) They adopted a participatory approach whereby its stakeholders, in particular industry stakeholders, could inform the Flagship’s research agenda and planning. They also believed that a scenario approach had other important advantages, in particular incorporating multiple perspectives “without pushing any one point of view”.[[6]](#endnote-6) The Director saw these exercises as a way of ensuring relevance of their research and providing “a mechanism with which to defend the research and development we were doing in the Flagship”.[[7]](#endnote-7)

In addition to providing input to strategic planning, the initial two energy forums clearly had other strategic objectives. Firstly, they wanted to influence the Flagship’s relationships with important stakeholders.[[8]](#endnote-8) Second, Flagship staff aimed to defend and develop research and development options by gaining access to resources (e.g. research capabilities of relevant Divisions in CSIRO) or by identifying mutually beneficial opportunities.[[9]](#endnote-9)

* 1. **The Future Fuels Forum (FFF)**

The Flagship convened the FFF in late 2007 as part of the Flagship’s low emissions transport research program. In addition to the strategic objectives noted above the Director was also concerned that “the fuel area was one that we really didn’t have a great deal of vision on where it was going to go, and where it could go”.[[10]](#endnote-10) Of concern was “the general confused scene as to where oil prices were going, as well as transport technology and how that was changing”.[[11]](#endnote-11) The Flagship Director consequently wanted to “navigate our way through” such uncertainties. In these ways, the FFF was a risk management exercise.[[12]](#endnote-12)

The FFF was a nine-month long “structured scenario development and analysis exercise” involving a wide range of cross-sectoral actors representing 31 organisations (CSIRO 2007). Like the Flagship, some participating organisations were also seeking to navigate strategic uncertainties and forum participants could subsequently use the scenarios and analysis in their own strategic planning or decision-making processes. The FFF provided participants with techno-economic modelling outputs that, together with qualitative insights from stakeholder dialogue, were drawn on “to articulate the major challenges for Australia in arriving at a secure and sustainable transport fuel mix to 2050” (CSIRO 2007).

In June 2008, CSIRO released the main public report entitled *Fuel for Thought* (CSIRO 2008) and an associated modelling report. The scenarios contained in these reports explored different trajectories for international oil supplies (including near-term ‘peak oil’ events, where this occurred by 2013), climate policy, and alternative fuels.[[13]](#endnote-13)

Below we explore this case to consider the utility of a field perspective to scenario planning. We use field theory “as a set of orienting concepts” (Fligstein & McAdam 2012b, p. 185).

1. **Considering the Future Fuels Forum through the lens of field theory**
   1. **Process context: Field states and the broader field environment**

As noted in section 3 various social orders can be conceptualised as SAFs including markets, industry sectors, policy domains, and formal organisations (e.g. firms and government organisations). In this respect, all FFF participants can be analysed as SAFs. Here, we focus on a limited number of SAFs (see *Table 1*): the convenor (i.e. the Flagship), CSIRO, private sector organisations who participated in the FFF, and associated economic fields.

***Table 1: Field states (at the time of the Future Fuels Forum) and key participants***

|  |  |  |  |
| --- | --- | --- | --- |
| **Fields(s)** | **Field state** | **Key forum participant(s)** | **Related forum participants** |
| Flagship and CSIRO | Flagship: still stabilising (emerging); needed to stabilise internal relations and secure external partnerships. | * Flagship staff | * Potential Flagship clients from industry (E.g. GM Holden) and government agencies * Government agencies |
| CSIRO: seeking to stabilise the field ‘resettlement’ and improved government relations | * None | * None |
| Australian automotive sector | Large vehicle market and local automotive manufacturing sector: developing crises, with multiple external “shocks” causing destabilisation | * GM Holden | * Victorian Government * South Australian Government * Motoring groups (e.g. NRMA) |
| Electric vehicle (EV) market: nascent/emerging field | * EDay Life | * Future Climate Australia (EV advocate) |
| Australian biofuels industry | An emerging field. Also a ‘challenger’ in the broader liquid fuels sector. | * Biofuels Association of Australia * Rocky Point Distillery | * Caltex Australia Ltd (leading biofuels retailer in Australia) * Regional Development Victoria |
| Gas-to-liquids sector | Actors attempting field formation (i.e. advocating new industry development) | * Sasol Chevron | * Representatives from related government departments |
| Australian oil refining industry | Rapidly reducing industry competiveness: viability issues, developing contention | * Caltex Australia Ltd (leading local fuel refiner) | * None |
| Australian retail sector | Stable mature social field | * Woolworths Limited | * Caltex Australian Ltd (fuel retailing joint venture partner) |

As part of field stabilisation, the Flagship itself was further developing its low-emissions transport research theme. This required the Director to secure support for its research agenda (e.g. from CSIRO management and research Divisions) and the Flagship to develop external relationships.[[14]](#endnote-14) At this time to access the internal funding allocated to it the Flagship Director had to justify their priorities to CSIRO management such as by making persuasive arguments that drew on industry consultation and the findings of these energy forums. Additionally, CSIRO remained somewhat destabilised due to the implementation of organisational changes. These changes shifted resource distributions and power relations and this destabilisation created political issues the Director had to manage.[[15]](#endnote-15)

Beyond the Flagship and CSIRO, what can also be concluded from the summary in *Table 1* is that the FFF principally attracted participants from emerging/nascent SAFs, and SAFs that were characterised by developing or potential crises. This is not surprising, given both field states are characterised by a high uncertainty and, often, political challenges.

*The broader field environment*

The Australian liquid fuels sector is a larger ensemble of fields in ‘upstream’ fuel exploration and production activities, and ‘downstream’ fuel refining, marketing, and retailing. The sector is dominated by conventional fossil fuel-derived fuels which account for 95% of fuel use (Australian Government 2011). Thus, in a sense, actors developing and promoting alternative transport fuels are challenger groups within this sector.

Related to the liquid fuels sector are political and policy fields associated with the production, supply, price and use of transport fuels. Energy policy in Australian is largely national and, further, State Governments in Australia tend to avoid these issues (e.g. concerns about fuel prices).[[16]](#endnote-16) Many groups also sought to influence government policy and routinely took one another into account (e.g. major refiners and fuel retailers, automotive user groups, peak bodies). These aspects indicate a *national* field of liquid fuels policy.

Importantly, the FFF took place within a context in which some groups argued that Australia faced a transport fuels crisis. There was emerging contention over oil prices, increasing import dependency, decline of the local oil refining sector, and the environmental impacts of fossil-based fuels. Some groups argued that Australia’s fuel security was under *imminent* threat, challenging existing understandings of what is at stake in many SAFs. [[17]](#endnote-17) A coalition of actors sought to transform and create related SAFs, and to challenge the existing settlement of the liquid fuel policy field. This growing “social turbulence” generated decision-making and policy-making challenges that motivated some actors to participate in the FFF.

Additionally, related shocks – especially the oil price spike in 2007-08 – were destabilising forces. These shocks strongly affected local car manufacturing (Bracks 2008).

* 1. **Private and public sector participation and actors’ field positions**

Almost all private sector and some public sector participants had a pre-existing interest in advancing or adopting alternative transport fuels. Many were promoting alternative fuels (e.g. Sasol Chevron, Biofuels Association). Participation motivations can also be examined in terms of field states and positions, such ‘challengers’ and ‘incumbents’.

Participants from emerging or nascent fields had objectives related to the problem of field formation. For example, a core strategic need of the biofuels sector was to maintain and ideally increase state support (and associated government interventions).[[18]](#endnote-18) A senior biofuel industry executive asserted that “anything which is looking at putting a projection out there saying that biofuels are an integral part of our future would’ve been very much aligned with our goals”.[[19]](#endnote-19) Sasol Chevron hoped the exercise would help to convey the benefits of developing new gas-to-liquids (GTL) fuels. A related goal was “planting the seed in potential stakeholders’ minds.”[[20]](#endnote-20) GTL sector development required further cross-sectoral coordination and for players throughout the value chain to operate in greater sync.[[21]](#endnote-21)

Incumbents had different motivations and needs. GM Holden was dealing with a shrinking large passenger vehicles market, related internal tension, and reputational issues due their reputation for making “gas guzzlers”.[[22]](#endnote-22) Participation was seen as providing “independent third-party data” that could provide “endorsement for a particular strategy”.[[23]](#endnote-23) Woolworths sought information relevant to managing its trucking fleet and supply chain.

The destabilisation of the local car manufacturing also influenced participation. This issue motivated the participation of Victorian and South Australian state governments.[[24]](#endnote-24)

Overall, rather than being a “microcosm” of a single system (as called for by transformative scenario planning guides, e.g. Kahane 2012a), participants were members of a range of SAFs with varying relationships. Some were interdependent (e.g. automotive and downstream fuel fields); others were in competition (e.g. contending alternative fuels).

* 1. **Field formation attempts and processes**

Given the state of many SAFs, field formation attempts and processes are an important consideration. Four dynamics are often important (see Fligstein & McAdam 2012b): 1) emergent mobilisation, where “collective actors fashion new lines of interaction with other actors based on altered understandings of the opportunities or threats to group interests they perceive” (p.91); 2) use of social skill to foster a settlement; 3) “state facilitation” e.g. via legislation; and 4) creation of IGUs. Fligstein (2013) argues field emergence also requires actors to both solve their problems and to manage relationships to nearby fields.

*Flagship stabilisation/formation*

The Flagship aimed to use the process to help it manage its relationships to nearby fields, such as other CSIRO fields (e.g. research Divisions whose cooperation and resources they required) and with nearby fields, such as transport-related fields.[[25]](#endnote-25) The leader of transport biofuels research in the Flagship sought to trigger emergent mobilisation:

The hope is always that there is a collective realisation of what research needs to be done, and that this collective realisation is so strong that the stakeholders suddenly throw dollars at you to then make it happen… What you’re hoping for by bringing together the researchers, industry and regulators together is … a shared view of the future that people will feel passionate enough about to want to act on it.[[26]](#endnote-26)

The Flagship was also targeting industry sectors that it hoped would fund its research. For example, the Flagship targeted the aviation industry and this contributed to their interest in biofuels, based on its understanding of the views of actors in that sector.[[27]](#endnote-27)

The Flagship Director used the outputs to help the Flagship to secure access to resources, especially internally through senior management approvals and from CSIRO Divisions.[[28]](#endnote-28) The forum reports and modelling described related options (e.g. developing advanced algae-derived biofuels, along with other options including fuels promoted by forum participants). The public report called attention to the emerging viability of alternative fuels (CSIRO 2008, e.g. pp. 26-27) and potential risks associated with conventional liquid fuels. Within the Flagship, the forum contributed to shared understandings (see Section 5.5).

Overall, the Flagship subsequently better managed its relationships to nearby CSIRO fields but was unable to secure the desired external support for research on alternative fuels.[[29]](#endnote-29) The post-forum focus on petrol risks (not diesel fuel risks) also disappointed some staff.[[30]](#endnote-30) However, the FFF did contribute to local airlines (e.g. Qantas) and other groups contracting the Flagship to lead the development of a sustainable aviation fuels roadmap.[[31]](#endnote-31)

*Other field formation attempts*

The Australian biofuels sector is another example. It illustrates the difficulties often faced during SAF formation. As noted earlier, the sector saw state facilitation as essential for further developing the sector and building stable new markets. Forum participation was a strategic opportunity to put such arguments to government via a credible independent body (CSIRO).[[32]](#endnote-32) An IGU – the Biofuels Association of Australia (BAA) – led advocacy activities. Biofuels advocates also promoted more focus on “liquid fuel security” and argued oil supply risks, along with the reduction of greenhouse gas emissions, justified further support (e.g. Harrison 2008).[[33]](#endnote-33) An alliance mobilised – including BAA, and motoring and farming groups (e.g. National Farmers Federation) – to put this argument to government.

Despite all such strategies and activities, the status of alternative fuels remains “fledgling” (Australian Automobile Association, 2011). Advocates have been unable to maintain state support and *facilitation* (e.g. support for favourable fuel taxation arrangements has reduced and is now being wound back). Industry advocates argue that the power and interests of ‘big oil’ incumbents have limited market access and hampered market creation.[[34]](#endnote-34)

Additional field formation attempts also stalled or were unsuccessful. Sasol Chevron was unable to advance a GTL industry in Australia. The post-GFC commercial environment also contributed to a decision to abandon the joint venture company soon after the forum, as it limited strategic consideration of alternative transport fuels.[[35]](#endnote-35) Small-scale trials of electric vehicles were also conducted (e.g. in Victoria), but little investment followed.

* 1. **Field destabilisation and attempted restabilisation**

Incumbent groups in destabilised fields typically try to maintain the status quo, but may seek to institutionalise a new settlement that retains as many advantages as possible (Fligstein & McAdam, 2012b). The desire to find way to stabilise one’s environment often motivates participation in learning activities like a cross-sectoral forum (Fligstein 2001a).

The clearest example from the FFF is GM Holden.[[36]](#endnote-36) Their decision, post-forum, to introduce new “flex-fuel” Commodore vehicles which could run on E85 (85% ethanol) blend fuel in partnership with Caltex can, in part, be interpreted as part of the firm’s attempt to restabilise the large passenger vehicle SAF given the fuel consumption/cost vulnerability of larger passenger vehicles. Prior to the forum, General Motors had adopted an energy diversification strategy and the FFF outputs were see as third-party *endorsement* for this strategy and used accordingly internally by GM Holden staff.[[37]](#endnote-37) The firm saw energy diversification as a unique strength and externally promoted approaches aligned with its strengths.

Importantly, the General Manager of GM Holden offered to host the public launch of the FFF report in order to promote this approach and signal its interests. His opening address at this event called on the government to play a stronger role, argued that it was time to “unleverage ourselves from fossil fuels” and address import dependency issues. He also argued that government should further support the automotive manufacturing sector, arguing that local production is necessary to meet the unique needs of the local market (Reuss 2008). Although this was largely an unsuccessful move (especially if judged in terms of convincing the Australian government to play a stronger role and securing greater industry assistance to protect the local car manufacturing industry), it highlights the ways that frames – such as ‘import dependency’ and ‘liquid fuel security’ – are used. Field theory similarly posits that a collaborative “meaning project” is usually central to field resettlement.[[38]](#endnote-38)

The company also used the modelling to argue against introduction of new mandatory vehicle requirements (GM Holden 2008). Company executives advocated non-regulatory measures (i.e. to encourage adoption and production of lower-emissions vehicles) and, linked with this, saw the FFF modelling results as consistent with the company’s position.

Finally, though not directly related to the FFF, post-forum GM Holden was part of a consortium that explored the viability of developing local biofuel supply chains, such as building a waste-to-fuel ethanol plant. This strategic move reveals that GM Holden explored entering adjacent fields as part of these SAF restabilisation attempts.

A second example is the resettlement of the national field of liquid fuels policy. Contention, including public advocacy by some FFF participants, prompted the Federal Government to commission liquid fuel vulnerability assessments (ACIL Tasman 2008, 2011) and National Energy Security Assessments (NESAs). Contrary to the claims of alternative fuel advocates, the then Federal Minister drew on these assessments to argue that import dependency “is not an energy security issue in itself” and being “part of a global supply chain ... helps provide our energy security” (Ferguson 2011). That is, the Minister argued that Australia’s liquid fuel security is not at stake. The Minister also argued against a central planning style approach to energy security (Ferguson 2011). The Australian Government’s (2011) ‘Strategic Framework for Alternative Transport Fuels’ also argued that intervention is not warranted. The outcome of contention was, to a significant extent, reestablishment of the prior order.

* 1. **Social skill and the ‘existential function’ of the social**

The creation, sustaining and resettlement of a SAF is argued to turn more on collaborative *meaning* projects than on ‘cold’ instrumental logic (Fligstein & McAdam 2012b). Part of the argument is that actors must exercise social skill. The FFF highlights the ways that actors can use scenarios to try to induce cooperation and disable opponents.

This section focusses on the Flagship and the Flagship Director. Interviews with Flagship staff indicate that the FFF helped to create a more stable SAF, although it did not lead to signicant new industry parterships and related funding. In particular, the Flagship secured internal support and further internal funding for pre-commercial biofuels research.

The Flagship Director drew on the forum when justifying these research priorities, such as when presenting to internal management committees that controlled funding.[[39]](#endnote-39) The forum also strengthened his views on the need for greater preparedness for contingencies, such as via more research on alternative liquid fuels.[[40]](#endnote-40) The Flagship Director argued that the findings of the FFF highlighted Australia’s vulnerability and associated challenges, such as simultaneously addressing greenhouse gas emissions and oil supply risks (Wright 2008). The leader of the transport biofuels program similarly drew on the outputs when justifying their research on algae-derived biodiesel and related emerging technologies.[[41]](#endnote-41)

Further, the leader of one of the Flagship’s main biofuels projects noted that, after the FFF, CSIRO was more willing to fund ongoing biofuel research even without co-investment (e.g. industry co-investment). Central to this outcome was the development of shared understandings about the potential contribution to fuel security, potential emissions reduction benefits, and potential price competitiveness.[[42]](#endnote-42)

Flagship researchers drew on the outputs and discussions when developing and committing to research programs. For example, one participant who led the Flagship’s ‘Sustainable Biomass Production’ project reflected that:

I was just amazed and alarmed at what top executives from the likes big companies thought was plausible and the information that was revealed about how much oil there really isn’t in the system in Australia, refined oil in particular, with our dwindling refining capability. I guess that is what had a really profound impact on me and made me feel more committed to biofuels research… I began to see it as definitely worth my career time and my professional credibility to look at ways that this can be done sustainably at scale.[[43]](#endnote-43)

This researcher referred to a “startling” situation described by participating experts: “at any one time there is only 7-21 days’ worth of fuel in reserve… [Therefore] the idea of having a domestic biofuels industry which could give you a buffer is attractive”.[[44]](#endnote-44)

These quotations suggest that a collaborative meaning project provided an “existential ballast” (Fligstein & McAdam, 2012b), propelling the field project forwards.

1. **Discussion**

In this section, we further explore two key questions: what new insights emerge from a social field perspective and the illustrative case? What are the implications for practice? Given the core ambitions of a proactive (or ‘transformative’) scenario planning perspective – that is, to shape environments and not only adapt – a central issue is agency. We focus on considerations related to the potential for scenario planning to influence change or stability in emerging or established fields along with related social factors/forces.

* 1. **Key considerations for more proactive or transformative scenario planning**

*Reconsidering ‘scenarios’ and process convening*

The theory of fields suggests two key considerations regarding ‘scenarios’. First, in many situations, scenario construction could be reconceptualised from the perspective of skilled social action and the problem of effectively framing ‘stories’. According to this perspective, in proactive scenario planning a ‘scenario’ is often a strategically framed story constructed with a view to inducing cooperation and disabling opponents (not simply a ‘plausible future context’). Additionally, a scenario is a resource that can be used instrumentally more so than for *preparing* for possible futures. Second, field membership and positions can influence what scenarios are constructed and seen as plausible.[[45]](#endnote-45) As noted earlier the ability of incumbents and actors from IGUs to envisage alternative worlds is likely to be constrained. These aspects indicate important political-cultural factors in scenario planning.

Field theory also prompts us to consider process convening and participation from a SAF perspective. For example, rather than seeking a balanced “microcosm” of an existing system (Kahane 2012a; 2012b), convenors could consider which actors are needed or more likely to form a coalition and seek their participation, given the ‘settlement’ of a new SAF and field stability is often achieved through political coalitions. This is more likely when resources are distributed evenly. Convenors could consider how the scenario process could be designed to help actors to find a motivating frame and collective definition of interest(s).

The case also points to participation considerations, as highlighted by the biofuels partnership between GM Holden and Caltex. Convenors could consider the wider field environment and possible moves (e.g. moving into proximate fields) and how the process could assist.

*Reconsidering scenario planning contexts and actor motivations*

A second insight is the need to consider the context-sensitivity of more proactive forms of scenario planning. The case illustrates that the needs and motivations of actors were shaped by field states, such as if they were in an emerging SAF (e.g. biofuels and GTL players) or a destabilised SAF (e.g. GM Holden), and the broader field environment. These contexts influenced the perceived relevance and utility of the process and outputs. Actors often sought to leverage the process or outputs for related goals, with varying success.

In field theory terms, at the time of the FFF the Flagship was a somewhat stable social space but was still forming and stabilising important internal and external relations, in the context of a destabilised SAF (CSIRO) and many other nearby and interdependent SAFs. The Flagship was not a “self-contained, autonomous world” (Fligstein & McAdam 2011, p. 8) and this placed demands on Flagship staff and shaped the impact pathways (see below). Had the Flagship been in a different state, such as crisis, actors would have been trying to solve different problems and this would have shaped the relevance of such an exercise.

*Reconsidering impact pathways*

Field theorists such as McAdam (2002) argue action is *always* a contingent accomplishment. For example, actors must spot opportunities or threats, often need to convince others of these, and must command the necessary resources to mobilise and sustain action (Fligstein & McAdam 2012). We saw this in the FFF, as the Flagship Director saw the need for (or an opportunity to conduct) an alternative fuel research program but needed to convince others such as CSIRO management and secure the necessary resources. Legitimising these proposals was therefore a key impact pathway, along with transforming internal relations.

Field theorists also argue that action is often “the result of creating and producing an organisational field [i.e. a SAF]” (Fligstein 1997, p. 397). That is, creating a stable social space often enhances agency (Fligstein 2013). Similarly, many FFF participants sought to advance field formation. Scenario planning could be designed to advance these processes such as by involving actors that are likely to be influential in field emergence.

Given field formation requires actors to manage their relationships to nearby fields, a further possibility is that scenario-building could enhance actors’ awareness of the broader “field environment” in which they’re operating. Participatory processes are well suited to fostering such awareness. The Flagship’s effort to involve actors from a range of SAFs (for example see *Table 1* above) is consistent with this and produced related benefits.

Impact may also be shaped by collaborative meaning making processes, the shaping of actors’ identities, and related existential issues What this means in the context of scenario planning is that some aspects of actors’ motives may be inadequately considered, which can influence whether scenarios are engaged with and whether they influence subsequent action. Existing scenario planning theory and practice fails to consider this.

*Reconsidering the social structuring of agency and process outcomes*

Fields are social structures which, along with current conditions (e.g. institutionalised field stability), influence actors’ agency. Fields enable *and* constrain action and some forms of action are better suited to different conditions. For example, entrepreneurs often have more opportunities in emerging and destabilised SAFs (Fligstein & McAdam 2012b).

The case suggests that the Flagship Director was better able to play the role of an institutional entrepreneur partly because key fields were destabilised. Others such as biofuels advocates were less successful and were in a more fraught position as ‘challengers’ in the liquid fuels sector. Resettlement of the liquid fuel policy field also reduced their agency.

Additionally, the interdependence of SAFs also shapes the potential for change and stability (Fligstein & McAdam 2012b). In the FFF case, and in alternative fuels development more generally, there were many interdependent fields. Similarly, the General Manager of GM Holden pointed to a “chicken and egg scenario” that could hamper change and innovation (Reuss 2008). This refers to how the production and purchasing of vehicles using alternative fuels depends, in part, on the existence of associated fuel supply chains and infrastructures and vice versa (Reuss 2008). Biofuels developers argue they face market access and market creation problems due to incumbent’s control of fuel distribution infrastructure and fuel retailing.[[46]](#endnote-46) This creates challenges for entrepreneurs. Consequently, the emergence of new fields can require the transformation of existing fields. Awareness of such dynamics could enable scenario planners to better understand *and* shape intervention outcomes.

*Reconsidering scenario construction and use*

Finally, scenario construction and use is socially embedded (e.g. within social field situations and processes). Similar to the discussion of what a ‘scenario’ is or is not in proactive scenario planning, the case illustrates that scenario construction, scenario use, and scenario planning can be a form of “expectations work” (also see Farla et al. 2012). Although a key stated goal of the FFF was to describe a set of plausible scenarios to inform decision-making (as per conventional scenario planning) more *strategic* behaviour was often evident. This included constructing scenario stories which included favoured options, selectively emphasising those scenarios that were more aligned with actors’ interests (and also largely ignoring the other scenarios), and use of scenario analysis as “political ammunition” (Weiss 1979).

* 1. **Putting it all together**

These considerations indicate that the influence of a scenario planning exercise on change or stability in emerging or established fields is shaped by both the strategic capacities of the involved actors’ (e.g. their social skill, social position, etc) and wider social forces, similar to all human behaviour. An important example is that context influences the capacity of actors to play the role of an institutional entrepreneur and the utility of scenario planning exercises for such entrepreneurs. This role is more available under particular conditions (Fligstein & McAdam, 2012b). Thus, a number of considerations are interconnected including the social context (e.g. current field states, resource distribution, field environment, etc), potential impact pathways, and potential for scenario planning to enhance agency. Greater strategic awareness of such contexts, related social processes, and the political-cultural dynamics of collective action could increase the influence of scenario planning exercises.

There are also further connections between the scenario planning context, impact pathways and scenario use. The combination of “both power/interests and the existential functions of a field” (Fligstein & McAdam, 2012b, p.201) is central. For example, in the FFF the scenario stories, modelling and the resulting reports were, in part, shaped by power/interests brought to bear during the process (e.g. modelling a scenario in which algae-based biofuels become available at low cost, the exclusion of nuclear power as an energy option from the scenarios included in the main report, etc). The existential function of fields also shapes impact pathways. For example, a scenario exercise could help actors to fashion a meaningful world during field formation. A scenario exercises could also help to sustain such meaningful social worlds during a crisis. Both such impact pathways were evident in the FFF.

The political-cultural perspective suggests further insights, in particular regarding the conflict and contention that is *ubiquitous* and often intense. Consistent with this general feature of the social world, conflict and contention will shape scenario planning exercises – perhaps to a significant extent. This aspect especially speaks to scenario planning contexts, the need for careful process convening, impact pathways (e.g. constructing scenarios to better secure cooperation or reduce conflict), and scenario use.

1. **Conclusion**

This paper has sought to address the reactive aspects of much scenario planning theory and practice, informed by the insight that actors not only respond to their environments but often also try to shape them. The illustrative case provided real world examples of how the convening of scenario planning exercises and the use of scenarios can be part of efforts to shape actors’ environments (i.e. not *only* responding to change or preparing for possible futures). The theory of fields and related perspectives on meso-level social worlds considered here can also ground a deeper understanding of how and why scenarios are constructed and used. It also provides insights into the social processes that influence the efficacy of these efforts. By contributing to greater consideration of more proactive forms of scenario planning and the utility of sociological theory the paper provides new insights for practitioners and points to new research directions, given the full breadth of social scientific theory that could underpin proactive forms of scenario planning.

Our use of the term ‘illustrative case’ points to inherent limitations that ought to be kept in mind when considering these conclusions. Additionally, only a portion of FFF participants and related stakeholders provided input. We also only partially considered which actors have the capacity to shape their environments and which, perhaps, should be reactive. This demands further consideration of power (see Wright & Cairns, 2011) and the extent to which elements of these environments are “actor contingent” (Hughes et al 2013). Further research – including the larger study we are conducting – should address these limitations.

Finally, the sociological perspectives advanced here may hold both evaluative and formative power. The paper demonstrated how these can used when considering the impacts of a scenario planning exercises as indicated by the illustrative case. More speculatively, social field theory may have formative power. For instance, practitioners could think about how to harness the social processes and political-cultural dynamics described here to generate more impactful scenario planning processes. While further work is needed to explore this we anticipate further exploration of scenario planning exercises as part of skilled action (not only the ‘wind-tunnelling’ pre-existing options) and purposeful process convening. It might also be possible to draw on such social theory when constructing sets of scenarios.

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**Endnotes**

1. Ramirez and van Der Heijden (2007) argue that the “S2S” approach is the dominant way that scenarios are currently used in strategy. For a recent example of a S2S approach see Ram and Montibeller (2013). [↑](#endnote-ref-1)
2. Some strategy and management theorists have also looked at how strategic action, such as particular types of strategic moves, can lead to the creation of new market spaces such as by rethinking market boundaries (e.g. Kim & Mauborgne 2005). These perspectives tend to under-theorise the agency and politics involved. [↑](#endnote-ref-2)
3. Although the theory has a strong focus on the mesolevel, Fligstein and McAdam (2014, p. 317) note that they “also articulate a distinctive macro view of social life, with ensembles of fields serving as larger meta-structures that powerfully impact the prospects for stability, conflict, and change in all “affiliated” fields.” [↑](#endnote-ref-3)
4. Interview with Dr John Wright (Flagship Director at time of the Future Fuels Forum) conducted on 09/06/14. [↑](#endnote-ref-4)
5. Ibid. [↑](#endnote-ref-5)
6. Ibid. [↑](#endnote-ref-6)
7. Ibid. [↑](#endnote-ref-7)
8. Ibid. [↑](#endnote-ref-8)
9. Interview with Dr John Wright (Flagship Director at time of the forum) and with Dr Tom Beer (CSIRO) [↑](#endnote-ref-9)
10. Interview with Dr John Wright (Flagship Director at time of the Future Fuels Forum) conducted on 15/08/14 [↑](#endnote-ref-10)
11. Ibid. [↑](#endnote-ref-11)
12. Ibid. [↑](#endnote-ref-12)
13. The inclusion and prominence of the ‘peak oil’-oriented scenarios reflected both the context (when concerns about peak oil had grown during the 2007-08 oil price spike and the forum participants, which included peak oil activists and other environmental groups. We take up the issue of participation later in the paper. [↑](#endnote-ref-13)
14. Interview with Dr John Wright (Flagship Director at time of the Future Fuels Forum) conducted on 25/08/14 [↑](#endnote-ref-14)
15. Ibid. [↑](#endnote-ref-15)
16. Interview with Kristian Handberg (former Senior Policy Officer, Victorian Department of Sustainability and Environment [at time of the Future Fuels Forum]) conducted on 28/11/2014 [↑](#endnote-ref-16)
17. Interview with Gavin Hughes (current CEO, Biofuels Association of Australia), conducted 07/10/14; interview with Bruce Robinson (Convenor– Australian Association for the Study of Peak Oil & Gas [ASPO-Australia]) conducted on 23/10/2014; interview with Monica Richter (former Sustainable Australia Program Manager, Australian Conservation Foundation [ACF]) conducted on 13/10/14. Some groups, including biofuels advocates, ASPO and the ACF conducted collaborative political lobbying after the forum. [↑](#endnote-ref-17)
18. Interview with Gavin Hughes (current CEO, Biofuels Association of Australia), conducted 07/10/14. [↑](#endnote-ref-18)
19. Ibid. [↑](#endnote-ref-19)
20. Interview with Eric van der Wateren (former General Manager – Global Marketing at Sasol Chevron) conducted on 30/10/2014 [↑](#endnote-ref-20)
21. Ibid. [↑](#endnote-ref-21)
22. Interview with Richard Marshall (then Director of Innovation, GM Holden), conducted on 23/10/2014. At the report launch the General Manager of GM Mark Reuss described the context as an “incredibly vibrant and dynamic period” and “some of the most challenging market conditions in recent history” (Reuss 2008). [↑](#endnote-ref-22)
23. Interview with Richard Marshall (then Director of Innovation, GM Holden), conducted on 23/10/2014 [↑](#endnote-ref-23)
24. Interview with Kristian Handberg (former Senior Policy Officer, Victorian Department of Sustainability and Environment [at time of the Future Fuels Forum]) conducted on 28/11/2014 [↑](#endnote-ref-24)
25. Interviews with Dr John Wright (Flagship Director at the time of the Future Fuels Forum) [↑](#endnote-ref-25)
26. Interview with Dr Tom Beer (CSIRO), conducted on 14/09/2014 [↑](#endnote-ref-26)
27. Ibid. [↑](#endnote-ref-27)
28. Interview with Dr John Wright (Flagship Director at the time of the Future Fuels Forum) conducted 25/08/14 [↑](#endnote-ref-28)
29. Interviews with and John Wright (Former Flagship Director), Tom Beer (CSIRO) and David Lamb (Former Theme Leader for low-emissions transport in the Energy Transformed Flagship) [↑](#endnote-ref-29)
30. Interview with Dr Tom Beer (CSIRO), conducted on 14/09/2014 [↑](#endnote-ref-30)
31. Interview with Nicole Williamson (Former Group Manager, Climate Change Strategy and Programs, Qantas Airways Limited), conducted on 06/11/14 [↑](#endnote-ref-31)
32. Interview with Gavin Hughes (current CEO, Biofuels Association of Australia), conducted 07/10/14 [↑](#endnote-ref-32)
33. Ibid. [↑](#endnote-ref-33)
34. Interview with Gavin Hughes (current CEO, Biofuels Association of Australia), conducted 07/10/14 [↑](#endnote-ref-34)
35. Interview with Eric van der Wateren (former General Manager – Global Marketing at Sasol Chevron) conducted on 30/10/2014 [↑](#endnote-ref-35)
36. Additionally, post-forum Caltex has had to address an emerging, intensifying crisis in the Australian downstream oil industry. The firm’s argument for policy-makers to take account of issues that influence liquid fuel security (Topham 2009) and, linked with this, the argument that local refineries add security (e.g. to the supply chain) could be viewed as consistent with the field-theory derived hypothesis that *‘resettlement of a destabilised field requires a meaning project’* and that crafting such a project is part of skilled action. [↑](#endnote-ref-36)
37. Interview with Richard Marshall (then Director of Innovation, GM Holden), conducted on 23/10/2014 [↑](#endnote-ref-37)
38. Fligstein and McAdam (2012b, p.92) argue that “[a]s much as anything, field settlements embody the seemingly unique human capacity for collaborative symbolic activity and need for meaning and membership”. The also assert that “for us, the creation of a settlement ordinarily turns more on the cultural creativity of the meaning project that grounds the field than on the presumed instrumental logic of the initiative” [↑](#endnote-ref-38)
39. Interview with Dr John Wright (Flagship Director at time of FFF) conducted on 25/08/2014 [↑](#endnote-ref-39)
40. Ibid. [↑](#endnote-ref-40)
41. Interview with Dr Tom Beer (CSIRO), conducted on 14/09/2014 [↑](#endnote-ref-41)
42. Interview with Deborah O’Connell (Principal Research Scientist, CSIRO), conducted on 04/09/2014 [↑](#endnote-ref-42)
43. Ibid. [↑](#endnote-ref-43)
44. Ibid. [↑](#endnote-ref-44)
45. Interview with Paul Graham (Chief Economist, Energy Transformed Flagship) on 06/06/2014. Graham observed that ‘challengers’ “will want to stretch things, they might be the ones arguing for more creative, more ‘stretchy’ scenarios, whereas the incumbents will be arguing that that’s not plausible… Quite often the incumbent groups will be looking to the modelling and the data to ‘pull in’ the analysis, to bring the thinking back to what they regard as being more realistic. Whereas the challengers will be talking to the data and modelling team about having less conservative assumptions around how much things could change”. [↑](#endnote-ref-45)
46. Interview with Gavin Hughes (current CEO, Biofuels Association of Australia), conducted 07/10/14 [↑](#endnote-ref-46)