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Labour and megaprojects: Rethinking productivity and industrial relations policy

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Abstract
The coronavirus pandemic has brought industrial relations policy to the centre of attention in many countries. In 2020, the Australian government convened tripartite bodies to address policy in several areas, one being for agreement-making to cover labour on 'megaprojects'. This initiative revisited criticisms of unions for driving costs up and productivity down on these worksites, the most expensive of which had been Chevron's Gorgon site, a liquefied natural gas project off the north-west Australian coast. Drawing on four usually siloed literatures – on industrial relations policy, megaprojects, the economic geography of resources and labour process – this article explains concerns about costs, delays and productivity in terms of project work itself. This approach leads to a different understanding of the merits of changing policy to address megaproject's problems and productivity more broadly.

JEL Codes: J52, J58, L71

Keywords
Agreement-making, economic geography, industrial relations policy, labour, labour process, liquefied natural gas, megaprojects, productivity, unions

Introduction

The coronavirus pandemic has brought industrial relations policy to the centre of attention around the world, with states responding in different ways, from reducing minimum standards and encouraging 'flexibilities' to engaging in negotiations with peak bodies to resolve not only immediate but long-standing workplace and labour market tensions

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(Van Barneveld et al., 2020). In Australia, both sets of reactions have been in play, with employers and governments seeking ‘flexibilities’ in workplace agreements and also establishing consultative structures. Sometimes, the reactions have overlapped, as these new bodies revisit familiar debates, notably ‘greenfields agreements’ which cover, among other fields of work, construction in the resources sector (Attorney-General’s Department, 2019, 2020). Employers have long argued that these ‘megaprojects’ can be hostage to militant unions, rising labour costs, delays and, more simply, to uncertainty when agreements expire before construction is completed (Australian Mines and Metals Association, 2015, 2019).

This article takes issue with this reading of greenfields agreements and the megaprojects to which they apply by examining the most expensive such venture undertaken in Australia, the ‘Gorgon project’, a liquefied natural gas (LNG) site initially budgeted at US$37 billion. Drawing on scholarship not only about industrial relations policy but also about megaprojects, the geography of resources and labour process, the article argues that labour’s role in megaprojects has been misconstrued in most public commentary. Reframing the discussion in these bodies of literature has significant implications for any contemplation of policy-making.

The Gorgon project was led by the US-based multinational energy firm Chevron, constructing liquefaction ‘gas trains’ on Barrow Island, off the coast of Western Australia from 2009. In 5 years thereafter, the budget blew out by almost 50% to US$54 billion (Macdonald-Smith, 2014). ‘First gas’ had been promised by 2014, but the first shipment was not until March 2016 (Chevron, 2016). The most common explanation for the project’s problems was, in a word, labour, be it workers, unions, cost, productivity or agreement-making. The typical narrative became interwoven with more general concerns about productivity, investment and jobs – and industrial relations policy. Instead of focusing on ‘labour as a problem’, this article sees labour as a source of value and insight into the workings of megaprojects; that is to say, both the conceptualisation and research method are different from policy debates and media accounts.

Rethinking policy debates: Work on megaprojects

While a vast body of scholarship addresses agreement-making and greenfields sites, studies of megaprojects, the geography of resources and labour process are less relied upon in analysing industrial relations policy. This section draws on all these fields to frame the empirical study, beginning with policy itself.

Legislative changes to ‘agreement-making’ have been central to industrial relations policy in Australia for 30 years. Shifts in the scale of bargaining from the national to the workplace or even individual agreement-making, along with hostility to unions, have marked many ‘post-industrial’ economies. In Australia, these changes have been striking, as has the centrality of industrial relations policies to national politics (Cooper and Ellem, 2017). Distinctive agreement-making features have emerged in Australia, such as non-union collective agreements (Bray et al., 2020) and, the issue here, greenfields agreements for major projects (Purdon, 2015; Schofield-Georgeson and Rawling, 2020).

Greenfields *sites* have long been discussed in terms of providing employers with the opportunity to change work practices (Baird, 2001) while greenfields *agreements* have been contentious in terms of balancing workers' rights with certainty for investors and managers (Purdon, 2015; Schofield-Georgeson and Rawling, 2020). Australia's Fair Work Act, 2009, mandates that greenfields agreements, unlike others, must be made with unions. They have maximum terms of 4 years. This timing is the element of most concern for employers who argue that, because most resource construction projects run for longer, there is scope for uncertainty, distraction and delay while new deals are negotiated. Worse, unions have the opportunity to take 'protected' (i.e. lawful) industrial action in these bargaining periods (Australian Mines and Metals Association, 2015, 2019; Australian Petroleum Production and Exploration Association, 2014). The national government shares these concerns (Attorney-General's Department, 2019; Macneil et al., 2020).

The focus on greenfield agreements is in one sense disproportionate: they account for only 3% of all enterprise agreements, albeit over 50% in construction (Attorney-General's Department, 2019: 3). The concern attests to an unusual feature of Australian political economy: the resources sector employs under 2% of the workforce but produces well over half of all export income (Australian Bureau of Statistics, 2020; Department of Foreign Affairs and Trade, 2020). The sector is therefore strategically important, and it is dominated by the world's biggest resource transnationals which have been influential in policymaking over Indigenous land rights, taxation and environment as well as industrial relations (Brett, 2020).

There is a great deal of research, which cannot be dealt with in detail here, that puts the greenfields agreement-making debate into a wider context. First, many studies temper the claims routinely made about the capacity of the resources sector to generate downstream employment and tax revenue and, therefore, governments' obligations to the sector (e.g., Brett, 2020: 13 on coal). Second, others examine how resource employers, not least in the State of Western Australia where Gorgon is sited, have driven a 30-year campaign to limit, if not eradicate, unionism (Ellem, 2017). The push to limit strike action under greenfields agreements must be seen in that historical context. Third, as with much debate about economic performance, notably productivity, it is often assumed, rather than demonstrated, that rejigging the bargaining framework unlocks major gains. This is despite over 20 years of evidence that legislation is at best a second-order issue in driving economic performance (Hancock, 2012; Peetz, 2015).

Stepping back from the scholarship on greenfields agreements and industrial relations policy, several studies shed light on the inherent complexities of megaprojects themselves. This research rarely appears in industrial relations policy debates, which is to say that those debates are held without reference to projects' worksites or labour processes. The work of Flyvbjerg in several studies, including a particularly comprehensive one with colleagues in 2003, shows that delays are more common than not and that 9 out of 10 projects have cost overruns. Since World War Two there has been no improvement in the accuracy of cost-estimates. Flyvbjerg et al. (2003) explain this not in terms of industrial relations policy but in two other ways: 'optimism bias' (a psychological explanation) and 'strategic misrepresentation' (political and economic explanations), which together mean that costs are routinely underestimated while revenues are routinely overestimated.

Industry research-centres and consultancies argue similar things. Work by RISC, a consultancy based in Western Australia, shows that major oil and gas projects around the world have average cost over-runs of 98%. In reporting these findings, one business journalist echoes Flyvbjerg et al. (2003) in pointing to '[o]ver-optimism and wishful thinking' in the industry, and cites a RISC partner's observation that 'it's tempting for management to quote things that the audience could get the impression are outside the company's control' (Macdonald-Smith, 2013; see also Wilkes, 2014).

On LNG projects, each step in the construction and production process is capital-intensive and logistically difficult: mapping and exploration; deep-sea drilling; constructing subsea gathering systems; laying pipes and constructing gas trains; and then piping, liquefying, and shipping the gas, and regasifying it for consumers. Drilling at greater depths and more remote sites add to costs (Weems and Hwang, 2013). Factor in commercial considerations and the sector appears to exemplify Streeck's (1987) much-quoted argument that a central task for employers is the 'management of uncertainty'.

Assessing projects holistically, rather than starting with labour as an assumed problem, these academic and industry analyses provide a different perspective on megaprojects and agreement-making from those grounded in industrial relations policy alone. They allow for a more layered discourse around cost, uncertainty and labour.

The geography of the resources sector must be taken into account because it marks industrial relations so deeply. Mineral and energy resources are literally embedded in particular places (Dicken, 2011) which means that transnational corporations are both marked by, and seek to shape, 'the local'. Many arguments in industrial relations policy around attracting investment are premised on the view that capital is highly mobile, just as it is in some manufacturing and information-based sectors. Employers routinely assert that industrial relations policy plays a role in investment decisions in competitive global markets. While acknowledging the financial and competitive pressures arising 'from heavy dependence on equity finance' (Parker et al., 2017: 51), it remains the case that resource firms are constrained by the embeddedness of minerals and gas. They have less mobility than other firms (Bridge, 2008). A country such as Australia, with political and social stability and well-developed infrastructure, is an attractive production site.

For global resource firms, securing local control over workforces or policy is important, because these firms are not 'footloose' (Ellem, 2006). In short, 'the dependency on natural production limits . . . spatial flexibility' (Bridge, 2008: 412). As economic geographers explain, capital sustains itself through the creation of new sites of accumulation (Harvey, 1982) but, as production requires labour, then workers may create their own 'spatial fixes' to defend and improve their conditions (Herod, 1997). Similarly, labour processes, and workers' senses of them, take different forms from place to place because 'the economic landscape' has been shaped by physical and human geography (Rainnie et al., 2010: 303). This is markedly so in resources, as revealed by fly-in-fly-out (FIFO) labour, and extended 'swings' on site away from home. Employers, most notably in iron ore mining, have set out to take control of resources regions and worksites, and there is a history of political contests over labour market regulation (Ellem, 2017). This is the terrain over which state policy is enacted.

Having drawn on scholarship on industrial relations policy, megaprojects and geography, we can now examine labour, not as a problem but as a necessary component in constructing these sites of production. For two generations now, following Braverman (1974), various schools of labour process analysis have focused on struggles for control in the workplace as the site of the extraction of surplus value (for overviews: Edwards, 2010; Thompson and Smith, 2010). In megaproject workplaces, a highly bureaucratised form of control (Burawoy, 1979) appears to be the norm and, despite all the media concern, workers' open resistance is rare. Two things follow. First, in a fuller account of the labour process than this article can provide, it would be necessary to examine these structures of control because they are masked, as on other projects, by complex contracting arrangements and supply chains. Second, we must ask whether the absence of open resistance means that workers have succumbed to 'normative control' (for an overview: Jaros, 2010) or whether they find other ways to make sense of their work (Coe and Jordhus-Lier, 2011). As will be shown, some of these foundational concerns of labour process theory are articulated in workers' own accounts of their skills and their assertions that their capacity to integrate conception and execution are under-rated.

Megaprojects are complex, whatever form agreement-making takes. In this case, these complexities have been largely ignored in public debate. As costs, productivity and delays have become media and political fodder, labour has been cast as a prime cause of disruption, just as unions and legislation have been in other debates about industrial relations policy. The conceptual material brought together thus far raises doubts about these views. This argument is developed in the next section by setting out the research methods used to test perceptions of labour relations in the Gorgon case, and then examining the debates about greenfields wages and productivity before moving on to report on how workers explained the problems on this emblematic megaproject.

Research methods

For contextual information, publicly available company and industry sources and interviews with leaders of the three main unions covering the project at the time were used (Interviews, AMWU (Australian Manufacturing Workers Union), CFMEU (Construction, Forestry, Mining and Energy Union), MUA (Maritime Union of Australia)). Employer lobby groups, most importantly the Australian Petroleum Production and Exploration Association (APPEA) and the Australian Mines and Metals Association (AMMA) have published many reports, submissions and press releases about greenfields agreements and industrial relations policy more generally. The first empirical section of the paper draws on public documents such as these and media accounts, particularly from 2014 when debate about Gorgon was at its height. The arguments from that time flow directly into current policy discussions about greenfields agreements.

In April 2014, I carried out initial interviews with a protocol approved by the University of Sydney's Ethics Office, guaranteeing anonymity to participants. These interviews and focus groups provided evidence from Gorgon's worksites in Western Australia: assembly and maintenance workplaces, wharves and ships. I spoke to a total of almost 40 workers: fitters and other trades workers, seafarers, cooks, stevedores, and riggers. My open-ended questions asked about 'on-the-job' work experience, job satisfaction and the general operation of the project. I was provided with a great deal of documentary material by some of the interviewees, including 'leading-hand logs' from the waterfront. For several months after the initial research, I was approached by other workers who wished to tell their stories. Former managers, industry experts and small-business owners also contacted me but commercial constraints typically limited their willingness to speak on record. I have not drawn on these discussions. In 2020, I revisited the original documentary material and added to it as the policy debate revived.

That interviews and focus groups provide a depth of detail which statistical datasets cannot match is well accepted. Interviews draw upon '[d]etailed, vivid and inclusive accounts of events and processes' (Whipp, 1998: 54), enabling 'the reader to "hear" what the researcher heard' (Reinharz, 1992: 39). Nonetheless, these methods raise the question of credibility. I raised this matter with respondents, asking them about the proposition that they had undermined the project and that their answers might therefore be evasive. They responded that it was in their material interest to look to the longer term; for example: 'there's that . . . thought of the next contract . . . that was what everyone was aiming for, to be able to make it work' (FG1).

Making – and costing – the Gorgon project

The Gorgon project's site on Barrow Island was widely seen as the costliest private-sector project in Australia's history. The scale of the project, and the problems on it – as delays grew and costs increased from US$37 billion in 2009 to US$54billion in 2014 – generated intense public attention, mostly but not only in the financial press. This section draws on and adds to that material in rethinking arguments about labour costs and productivity, which, then as now, drive arguments about legislative change.

Gorgon was, like most megaprojects, organisationally intricate. The lead firm, Chevron, held a 47.3% stake and was joined by Shell and ExxonMobil and, as junior partners, Japanese firms, along with local contractors and labour hire firms. It was also geographically complex. Barrow Island lies 100 kilometres off the continent's coast, nearly 1600 kilometres north of Perth, the chief source of labour. The gas was to be piped from two subsea fields further offshore to the island where the partners planned eventually to build five gas-trains to liquefy the gas for transportation. There is little by way of social infrastructure in the sparsely populated region on the mainland adjacent to the island, where the main work is in the iron ore industry that is increasingly FIFO-based. Materials for Barrow Island came from six sites across Asia – Ulsan in South Korea, Qingdao in China, Lumut in Malaysia, and Batam, Karimun and Bandar Lampung in Indonesia. These supplies were shipped to Henderson, just south of Perth, the State capital, where they were assembled, at times, according to trades-workers, after 'reworking' (FG2), and loaded onto barges bound for Barrow Island. The geography of Barrow Island itself is problematical: it is a windy site, exposed to major swells; it is also a nature reserve, which means that there are strict quarantine processes on the site.

As the budget and timeline blew out, media, government, employers and business lobby groups mostly ignored these complexities and the general problems to which megaprojects are prone, preferring a simpler explanation in terms of impositions by unions and workers protected by industrial relations policy. The issues attracting most attention were wages and productivity. APPEA's annual conference, in April 2014, was a showcase for these arguments. Chevron Australia's Managing Director, Roy Krzywosinski, told delegates that wages for some classifications had doubled since 2008: 'This wage growth is . . . currently crippling Australian industry and is simply not sustainable'. He went on: 'Rising labour costs are hampering competitiveness, and combined with low productivity, will ultimately cost jobs (quoted in Stevens, 2014).

Two industry reports were critical in developing this narrative, sustained by a usually uncritical media. Deloitte Access Economics (2013) produced a report for AMMA targeting the MUA in arguing that wages growth in the sector was above national norms and putting the profitability of vessel operators, if not the sector overall, at risk. It reiterated a claim made by Gary Grey (Federal Minister for Resources and Energy) that cooks could be paid AUD$230,000 per year, and his observation that care was needed so that 'these sorts of wage demands don't kill the golden goose' (Deloitte Access Economics, 2013: 33). APPEA's report (2014) was wider in scope, pushing for changes to agreement-making – anticipating the arguments in the policy debates of 2019–2020 – and other policy areas. It argued that total costs were higher in Australia than elsewhere and that it was 'more important than ever for Australia to address the costs and productivity challenges affecting current and future waves of investment' (Australian Petroleum Production and Exploration Association, 2014: 2; also 4, 6, 41). It did not examine labour costs in detail. Legislative change was essential to facilitate cost reductions: '[T]he current regulatory framework governing enterprise bargaining is inflating labour costs and reducing productivity outcomes on major project construction in Australia' (Australian Petroleum Production and Exploration Association, 2014: 6). Taken as a whole, the argument was explicitly about reducing unions' involvement in agreement-making and worksite access.

After APPEA's conference, AMMA's Scott Barklamb reiterated that the MUA's wage campaign had been 'a major contributor to the competitive decline of Australia's oil and gas sector' (quoted in Earls, 2014). The Deloitte-AMMA report and other commentary even suggested that on-shore sites like the Gorgon project might be priced out of business by floating-LNG operations (Deloitte Access Economics, 2013: 16; Stevens, 2014; cf Collins, 2020, on the largest such facility, off the Western Australian coast, shutting down in 2020).

If the chief organisational villain in this story was the MUA, whose members crewed the vessels and worked as stevedores, then the emblematic individual was the cook earning AUD$230,000 annually. Indeed, several accounts asserted that 'cooks and laundry hands [were] earning up to A$350,000 a year installing rigs and pipelines' (Reuters, 2014; see Bourne, 2014 quoting Krzywosinski on these figures; see also Earls, 2014; Massola, 2014; Stevens, 2014). Presumably cooks and laundry hands were not physically laying pipes, but what of the overall validity of the wages arguments?

The agreements locked in wage rates at the start of the project, so for some years, they were a given, not an unexpected cost. Project delays meant that employers' concerns about possible strike action came to the fore when new agreements were needed. This enlivened, then as now, the push for length-of-project agreements, as employers feared the distraction of negotiating agreements and the uncertainty this process might generate.

It is quite another thing, however, to argue that wages growth explained the rise in overall project costs. The Deloitte assessment relied in part on a survey of vessel operators assessing profits and costs, particularly in relation to the wages of 'Integrated Ratings' (an internationally recognised qualification for crew members, with 18 months training) to argue that wage costs had far outstripped other occupations. A BIS-Shrapnel report commissioned by the MUA took the Deloitte study (and by extension similar arguments) to task, arguing that compared to other *resource* employees, the wages of Integrated Ratings were not increasing exceptionally.

Most importantly, drawing on other public data, the BIS-Shrapnel report argued that Integrated Ratings' wages accounted for 'approximately 0.25% of the total project cost' and that total maritime wages were less than 1% of project costs (BIS Shrapnel, 2013: 12). Estimating 'bought in cost' at 87.5%, the report suggested that increased wages simply could not account for US$17 billion in additional costs.

Media reporting did not explain the figure of AUD$230,000 or AUD$350,000 for the maritime cooks. Enterprise agreements showed that the annual rate at the start of the project had been AUD$128,601 for a chief cook (e.g. Fair Work Australia Agreements, 2011). Some enterprise agreements set cooks' earnings at AUD$161,927 by 2013. Typical increases from 2008 until then were about one-third, not the claimed doubling (summarised in BIS Shrapnel, 2014: 8). My examination of more than 40 payslips and tax returns failed to uncover the AUD$230,000, far less the AUD$350,000, cook. Follow-up research direct with workers revealed only good-humoured ambition to find, or to be, such a person.

Running alongside and at times intertwining with the wage controversy were arguments about productivity. Employers were anxious about limits on managerial prerogative in existing agreements (Australian Petroleum Production and Exploration Association, 2014: 15) and wage demands without accompanying efficiency offsets (Australian Petroleum Production and Exploration Association, 2014: 19; Deloitte Access Economics, 2013: 19; 2, 22, 33; see also Stevens, 2014). Typically, the claim that productivity was poor on the project or in the sector overall was asserted rather than explained. McKinsey's analysis in *Extending the LNG Boom* (2013) was an exception. This analysis argued that the Australian industry faced cost and productivity problems but mostly located them in major shifts in exchange rates against the US dollar, corporate relationships, tax, regulation, supply chains and management strategy. Labour costs were but one factor and, even then, not understood solely as wage costs. Among the recommended solutions in this report was a Nordic one: cooperation between firms and with governments (McKinsey, 2013: 2, 26–28).

At times, employers and the financial press acknowledged that the Gorgon project was necessarily difficult. One of the unions' sternest media critics conceded that there was '[n]o question, there has to be an element of management dysfunction that allows a project like Gorgon to endure . . . cost blowouts' (Stevens, 2014) but there was no evaluation of that 'dysfunction'. Nor were the implications of commercial trends for the Gorgon debate fully explored, be it oversupply and low spot-prices potentially reducing pressure on LNG projects to deliver (Poten, n.d.) or the major fall in Chevron's US profits in 2014 increasing this pressure (Macdonald-Smith, 2015).

There were occasional insights into an alternative reading of the project which accorded with the arguments set out by Flyvbjerg et al. (2003). Most notably, in October 2013, before the discussion occasioned by the APPEA conference, Chevron Managing Director Krzywosinski himself told a parliamentary inquiry into 'Floating Liquefied Natural Gas Operations' that

> there is no doubting the fact that being on not just a class A nature reserve but an island resulted in some challenges because you are limited in your supply chains and marine vessels and boats

> and things of that nature to deliver materials . . . We got the infrastructure in place . . . started mobilising people, anticipating that we were going to have the material to feed the workers so they can actually start completing their work scopes. What we found is that it was just much more difficult to get . . . the volume of material up to the island to feed the workforce so that they could be productive. As a result we had some logistics issues impact the productivity in the whole project. (Western Australian Parliament, 2013)

There was no mention of labour in this statement. Two months later, a Chevron announcement highlighted 'the high Australian dollar, high wages, low productivity, weather delays and the logistical challenges of building a gas plant on Barrow Island, a Class A nature reserve as the major reasons for the delays and cost overruns' (Australian Broadcasting Corporation, 2013).

Two episodes – well before the wages furore broke – also fitted with academic and consultant accounts of megaproject risk. In June 2012, media outlets reported that the cost of the Barrow Island jetty (over 2000 m long) and other marine structures (lifting facilities, pens for tugboats and navigation aids) had 'more than doubled . . . to $1.85 billion'. The construction firm attributed this to 'weather challenges' and difficulties with fabrication and transportation (Perthnow, 2012). In July the next year, an Australian naval submarine was hit by a vessel chartered to the Gorgon project, Combi-Dock III. The vessel was impounded for 2 months by the Australian Government. The incident cost the owners about AUD$10 million. In a subsequent focus group discussion among stevedores, one of them all but captured newspaper headlines from memory: 'Boat left mooring, comes out and slammed into Australian submarine' (FG1).

That so much attention came to be on 'workers as problem' invites questions about the wider discourse which framed the Gorgon 'crisis'. This question goes beyond the scope of this article but merits an aside to understand employers' arguments. Recent Australian opinion polls show that unions are generally viewed more favourably than big business (Cameron and McAllister, 2016: 84) and in 2007 a union campaign unseated the federal government. Nonetheless, union membership has fallen to the lowest levels officially recorded, and *militant* unions are routinely demonised by conservative politicians and media partly to attack the Labour Party, partly as a discourse about national competitiveness under globalisation. This has been the case for nearly 30 years as employers and governments have turned against unions and collective bargaining (Cooper and Ellem, 2017). The debate about greenfields agreements is a current manifestation of that trend. When political and business leaders condemned unions for driving up Gorgon's costs and disrupting construction – as with the State Premier chastising workers who were 'highly paid in good and safe conditions' for seeking changes to rosters (quoted in Parker, 2015) – their messaging sat within this frame. It also tapped into a wider discourse about the resources sector, in which high wages appear to generate resentment: blue-collar workers should not be so well-off (Pini et al., 2012).

To return to the central argument: labour on the Gorgon project and in LNG more generally was understood as a cost, not as a source of value, and productivity problems were more or less assumed to be labour's 'fault'. Legislative redress, not an assessment of the sector, was held up as the solution despite suggestions of alternative explanations. Moving beyond the public spaces where these arguments played out, we now turn to work-spaces, drawing on workers' analyses to examine what might be called 'management dysfunction'.

At work on the project

In reporting on how workers assessed the Gorgon megaproject, this section shows that they argued that the problems lay squarely in the project's complexities and the management of them. Among other things, they suggested that delays and cost increases were not separate matters: delay was costly. Three issues are canvassed here: the logistics by which workers gained access to employment, the complexity of the sites, and control and commitment.

Starting work

Industry sources often complain about 'red tape' shaping investment decisions and productivity. Governments or unions are often blamed for this but in any industry, and markedly so on megaprojects, some type of bureaucratic structure is essential, as the long history of changing organisational forms attests.

In this case, administrative complexities began with the process of organising a labour supply. Chevron's contractors used Enterprise Risk Management Solutions (ERMS) to hire employees. ERMS coordinates employers and workers and organises workers' transport. Interviewees claimed that delays in crewing vessels were common, even with a crew ready to go and their host happy to begin work. One union official summed up thus:

> We've had instances . . . [of] the referees saying that they've never been contacted by ERMS . . . so that's . . . probably where a lot of the inefficiencies start . . . an employer that has a critical labour shortage can't get people onto the project. (Interview, MUA1)

FIFO created project-specific complexities for firms and resentment among workers:

> Particularly at the start-up phase of the project where you've got limited flight schedules, we're having employees . . . mucked around no end. So it was causing the employer a lot of difficulty because they couldn't book the flights to suit the employee. (Interview, MUA1)

Inductions necessarily prioritise workplace health and safety on mega-projects. The safety processes are complex in themselves and made more so with a web of regulation through joint-venture partners, contractors, state and federal laws, union rules and workers' own experience. Seafarers insisted, as did their union leaders, that safety had become part of the politics of workplace control: 'we're demonised but all we're doing is saying: "hang on there's a standard here . . . there's a quarantine standard, there's a safety standard, and we need to comply" (FG2).

Workers claimed that processes were unnecessarily cumbersome (FG2). Cynicism threatened the effectiveness of safety protocols because of the volume of the material – 'I can point to those volumes of black folders sitting there' (about 2 m of shelf-space) – and how it might be used:

> they're there basically to be used a sacking tool against our members . . . it's very easy for the employer to drag one of those policies out saying, 'well, you went through a two-week induction you should know what you have to do'. (Interview, MUA1)

Workers worried about inconsistencies in the application of safe working procedures. One focus group member reported how his last vessel had been inspected before sailing to Australia but he claimed it did not meet the lead firm's own safety policies. His frustration with the procedures was palpable: 'I mean, they set them . . . so they can't expect a vessel to come into the country and for it not to operate according to our own policy' (FG3). Problems persisted at apparently mundane but not unimportant levels, as a focus group discussion of galley work at sea made clear: 'the boiler pots didn't have safety release valves on them or pressure gauges; no latches on oven doors, so when they're open they just swing around' (FG3).

Workers and union officials read these problems as do academic analyses of contracting arrangements and megaprojects: 'Every company . . . have their own workplace policies . . . sitting right at the top of all this you've got Chevron's policies and procedures [and] . . . project managers' policies and procedures . . . and then you've got the sub-contractors' (MUA1). That concerns were expressed in these terms suggests that workers were animated by a desire to make work more, not less, productive.

Complexities, productivity and labour

Many of the project's productivity problems seemed to stem from the coordination of intricate operations across vast spaces with different firms. These matters went to the heart of arguments over delay and cost. Stevedores were frustrated over inconsistencies between firms and by the role of insurance firms on the waterfront:

> When we were loading the barges . . . all of a sudden the insurer comes along and says: 'hang on a minute, it's not lashed the way that we want and we're not going to allow it to go until it's done our way' . . . Sometimes it's a half a day going over it . . . re-lashing the job again. Sometimes it's a day. (FG1)

Other workers argued that cost-driven change led to false economies: 'So instead of getting a better system they [the contractor] just tell people to cut their manning. So we've suffered a bit with that . . . in terms of kicking people off the job' (FG1).

These concerns played out in the spatial and temporal coordination of work. For example, lack of space in the lay-down areas on Barrow Island meant that ships were delayed. Workers claimed that at times there was nowhere to unload, with demurrage costing 'up to $400,000 or $500,000 a day'. One vessel had 'sat out at anchor for a week' (FG3); another was 'on the pick [at anchor]' for a whole 5-week 'swing' without work:

> They might be chipping and painting and there's only so much painting you can do on the vessel . . . Now, that's not because our guys are saying we refuse to sail . . . It's just that there is no work that is provided for them. (Interview, MUA1)

Because material shipped from outside to Barrow Island had to be quarantined, problems at other sites caused delays and additional costs. One of the longest stories the

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stevedores told was the 'bird shit saga'. Loaded barges had been anchored offshore but quarantine requirements 'knocked back the whole barge because of the build-up of . . . bird shit'. Hundreds of containers had to be unloaded, re-washed, inspected and reloaded over several days (FG1).

The media, however, typically repeated employer claims that productivity problems were due to workers and, in the most critical accounts, to 'the aggressive actions of . . . the Maritime Union of Australia' which had 'made the supply of goods to Barrow Island a fraught exercise in unnecessary delays, expense and unreliability' (Hewett, 2014: 2). Leading-hand logs on the waterfront told another story. For example, in a (randomly selected) week, one log included entries such as: 'not quarantine compliant'; 'incorrect manning levels because wrong plan'; 'change in vessel allocation – no plan'; 'cargo re-allocated: insufficient equipment – steps tagged out'; 'wind delays as per manufacturer's specs'; 'excessive barge movement could not instal ramps'; 'no truck movements – no traffic control'. 'Wind delays' aroused much comment, stevedores complaining that time was wasted at Henderson because of the limits on the use of cranes. They explained that rules on wind speed were inconsistent between venture partners and manufacturers and argued that work was safe in higher wind speeds than allowed by the local operators (FG 1; and Logs). Again, these arguments up-end the common narrative about efficiency.

For these workers, who understood that they were part of a complex operation, the delays, reduced productivity and therefore increased costs arose from the nature of mega-project work and, in effect, 'management dysfunction'.

Control and commitment on the job

During this research, workers consistently referred to delay and productivity even when these questions were not the main item in the interview or focus group protocols. Similarly, they frequently emphasised their commitment to the job

Delays were common at Henderson because of disputes over cargoes: 'sometimes it wasn't unusual for the stow plans to change . . . three or four times a day' (FG1). Might all this, though, simply be common practice on the waterfront? 'No' was the answer, as this exchange between two stevedores suggested:

> If they were working over the road here for Patrick [another stevedore firm], . . . you would be just dealing with a port captain and your own plans within your own company.
>
> Yeah . . . when I was with DP World . . . they used to . . . get all the planners together . . . before the ship's even berthed, they got the sequence sheets worked out. (FG1)

The labour process was central to this discontent. This was as striking in discussions with metal trades-workers as with seafarers and stevedores. Employed by contractors at Henderson to assemble and prepare material for Barrow Island, trades-workers complained about what labour process scholars describe as forms of 'technical control' (following Edwards, 1979). This was not simply a broad-brush reaction but a view about particular work rules. For example, an experienced boilermaker complained about how policies in response to a mistake by an apprentice interfered with his work. The apprentice had set his shirt alight while cutting steel. The managerial reaction was less flexibility,

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more bureaucratisation. The workers' response was common to skilled workers down the years:

> I'm a boilermaker tradesman, I have been for x amount of years . . . If you are trying to make something . . . I would grab a grinder, I would put a cutting disc in it . . . Now you can't do that . . . So I would have to either go and get a sabre-saw or the oxy or something like that. (FG2)

Workers accepted that complications in the production system were inevitable, but they also felt that the layers of administration were unhelpful. The simple matter of accessing bolts was complicated by new forms of workplace control: 'when you're putting up structural steel you have a bin with all the different sized bolts in it' but a system was introduced which meant that this process was referred to a supervisor, then an engineer and, once checked off, then the worker 'had to go down to the store with the supervisor, open the door and make sure you've got the right bolts' (FG2).

The organisation and control of work was, therefore, a source of tension, workers claiming that their skills were routinely under-utilised. One of the stevedores summed up thus: 'We know how to lash things on boats, whether it be a ship, whether it be a barge or whatever. We know how it should be done and we're told to do it a different way' (FG1). Another agreed: 'We know how to do the job. We'll make you look good, no worries . . . Leave us alone and we'll do it' (FG1). Trades-workers in assembly were equally frustrated with the contractors' engineers wasting their own time and money with re-worked drawings: 'I could have worked it out for him to start with' (FG2). Similarly on the construction site:

> The old days when you . . . used to have site managers and project managers that have at one stage worked on the tools and they've worked their way up. They've got the respect of their employees, they know the job, they understand the industry and they know that we're dealing with people as well. (Interview, MUA1)

These discussions always came to the question of effort. Interviewees were proud of their work: 'working at sea, it takes so much time from your life. You . . . end up almost defining yourself as a seafarer. So, if your work's shitty then you're probably not a great seafarer' (FG3). One of the women made clear that this work was not just about one project or the next:

> We just have stewardship of our jobs and . . . our jobs will then go to the next generation of Australian seafarers . . . I believe that we have a culture of this so I'm very driven by that. That's why I get involved as often as I can, putting as much effort as I can . . . for me this isn't just about a job. For me this is part of my work culture if you can understand that. (FG3)

Workers who criticised the management of the project also spoke of their commitment to their own work. This evidence reveals a pride in the job and challenges the discourse around workers undermining projects, be it as employees or unionists.

Conclusion

In the generation-long set of arguments about Australian industrial relations policy and the more recent debate over greenfields agreements, many employers and policy-makers, and, with them, much media commentary, focus on megaprojects such as Gorgon. These often remote sites become the epicentre of discussion about labour – be it law, unions, costs, productivity or workers themselves. In the Gorgon controversy, wages were the focus of attention in seeking to explain why the project had gone so much over budget. This argument ignored the fact that wage increases were only a small part of overall costs; wage rises simply could not explain a US$17 billion cost blow-out. Similarly, references to poor productivity were rarely explained, far less was labour's performance assessed. There were passing references, even from Chevron, to the many problems on the project but it appears that, rather than investigate them, it was easier to blame workers, unions and the agreement-making process for delays and apparent inefficiencies.

Different explanations, more attuned to the complexity of work and the politics of industrial relations, are possible when these arguments are reframed in terms of studies of megaprojects, the geography of resources and the labour process, not policy-making itself. These bodies of work invite a different approach, more sensitive to the organisation – and daily realities – of work on megaprojects. Re-assessing wages data, and drawing on workers' insights into work and productivity, allow us to read these debates afresh. Workers argued that their skills were under-utilised, that the structure of work frustrated them (not the reverse) and that the delays on the project were a root cause of cost increases. Returning to the literature around resources, it is unsurprising that the sectors' employers framed the need to control costs and time as a labour issue. It follows from their relative immobility and aligns with a certain national discourse about competitiveness, unions and law.

The overlap between academic studies of megaprojects, the geographical complexity of resources and conflict in the labour process on one hand and, on the other, the way that some workers read these issues is striking. Re-thinking work on megaprojects in the light of this framework and evidence recasts policy debates. Focusing on agreement-making is not the best way to think about the complexities of project work. Reworking, yet again, the legislative apparatus may not be the main game in contemplating workplace efficiencies or, indeed, rebuilding economies. Concentrating on forms of workplace regulation shuts off other lines of inquiry and invites scepticism about employer and state motivation in perennially seeking amendments to labour law. Rather, there is research to be done to explain the complexities of work and their connections to policy settings and then to craft imaginative ways to 'rework work'.

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Author's focus group, FG3: Seafarers, Henderson, 11 April 2014.
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Author's interview, MUA1: Senior official, Maritime Union of Australia, Western Australia, 9 April 2014.
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