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Improving Australia's renewable energy project policy and planning: A multiple stakeholder analysis

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HIGHLIGHTS

- Highlights the over A$200 billion spent annually on global RE projects.
- Describes a typical two stage, multi-layered governance RE project approval process.
- Exposes long 3 year and multi-million dollar cost approvals for RE projects.
- Identifies multi-million dollar remote grid connections as an RE project impediment.
- Outlines RE project policy and guidelines shortcomings and proposed improvements.

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ABSTRACT

Renewable Energy (RE) is part of Australia's and the world's energy supply matrix with over A$100 billion spent annually on RE projects since 2007. Businesses seeking to invest in RE projects, particularly in the wind and solar energy sectors, may face an onerous collection of planning approvals and permitting processes that impede investment and implementation. In this study, we draw on international and domestic stakeholder inputs to a governmental inquiry in Australia to show how RE projects might be approved in shortened timeframes with reduced associated costs. The process mapping and stakeholder analysis demonstrates that RE supply projects can benefit from standardized approval processes and documentation, a 360° deep engagement with stakeholders, and expanded electricity grid access in resource areas, augmented through supportive public policy and planning frameworks. In addition, stakeholder objections to project approval and implementation streamlining were used to contrast the efficacy of the proposed changes in policy.

1. Introduction

The Cape Wind Renewable Energy (RE) project in Nantucket Sound, off Cape Cod, in Massachusetts, United States is a poignant reminder that environmental and planning approvals can often prove to be complex exercises for business and government (Ziza, 2008; Martin, 2010; Kimmell and Stalenhoef, 2011; Marinakos, 2012). Having commenced its planning in 2001, and despite ongoing legal difficulties, work may finally commence on the offshore wind farm project in 2015 (Cape Wind Associates, 2015; Goossens, 2015). So, while RE plants might assist in ameliorating the effects of climate change, these plants might also be viewed as having negative impacts on environments and amenity (Toke, 2005; van der Horst, 2007). Accordingly, planning approvals and permitting may be subjected to several lengthy and costly delays (Cape Wind Associates, 2015). Given potential stoppages, this study posits: How can shifts in policy increase the velocity of RE project approvals and permitting?

Extant studies tell us that inefficient multi-layered government hierarchies, convoluted approvals processes, local activism and 'Not in My Back Yard' (NIMBY) movements, fossil fuel-centric electricity networks, and aggressive litigation can delay project approvals (Kahn, 2000; Rabe, 2007; van der Horst, 2007; Ellis et al., 2009). Also, environmental impact studies and the assessment of indigenous heritage-cultural aspects of proposed sites may serve to lengthen the approval process (Painuly, 2001; Glasson et al., 2011; Lüthi and Prässler, 2011). It should be highlighted that even in states such as South Australia, where the government

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RE Project Approval	Policy, Legislative, Regulatory Area	Government Layer		
		Federal	State	Local
Environmental	*Environment* *Biodiversity* *Native Vegetation*	EPBC Act (1999)	Environmental Planning and Assessment Act (1979) [a] Native Vegetation Act (1991) [c]	Each local government – city municipality or shire – will have their own set of policies, plans and operating regulations in the areas of building and development planning; environmental health; environmental management; and roads and infrastructure. Developers will need to comply with these local government requirements to gain project approval.
Permitting	*Development & Planning (incl. Air Services & Civil Aviation approvals)*	Civil Aviation Safety Authority (2007) Advisory Circular 139-18(0) Obstacle Marking and Lighting of Wind Farms	Sustainable Planning Act (2009) [b] Development Act (1993) [c] WA State Planning Policies [e]	
	Native Title	Native Title Act (1993)	Native Title Act (1994) [c] Traditional Owner Settlement Act (2010) [d]	
	Indigenous Culture & Heritage	Aboriginal and Torres Strait Islander Heritage Protection Act (1984)	Aboriginal Heritage (SA) Act (1988) [c] Aboriginal Heritage (Vic.) Act (2006) [d]	
	Land Management		Land Act (1994) [b] Pastoral Land Management and Conservation Act (1989) [c]	
	Natural Resource Management		Natural Resource Management Act (2004) [c] Water (Resource Management) Act (2005) [d]	
	Roads & Traffic		Transport Infrastructure Act (1994) [b] Road Management Act (2004) [d]	
	Electricity Supply		Electricity (Qld) Act (1994) [b] Electricity (SA) Act (1996) [c]	
	Health & Safety		EPA (2000), NSW Industrial Noise Policy [a] Occupational Health, Safety and Welfare Act (1986) [c]	

Examples taken from state legislature: [a] New South Wales, [b] Queensland, [c] South Australia, [d] Victoria, [e] Western Australia

Fig. 1. Block diagram of Australian RE related policies, legislation and regulations.

has successfully developed large-scale wind generation capacity, Australia has a plethora of policies, legislation and regulations that underpin RE developer compliance (e.g. Large-scale RE Target (LRET) policy for large-scale RE plants, Biodiversity Conservation (EPBC) Act 1999 that safeguards environment and biodiversity impacts) and longer project approval times (see block diagram with other examples in Fig. 1) (Commonwealth of Australia, 1999, 2011a).

In an economic context, RE projects in Australia have also had to endure arguments and scrutiny over higher costs of generation when compared with traditional coal plants. Using data from Australian government studies, we have compiled a list of the indicative Levelised Cost of Energy (LCOE) for various RE technologies versus traditional coal plants (Table 1). We used comparative LCOE as it defines 'the minimum cost of energy at which a generator must sell the produced electricity in order to achieve its desired economic return', and takes account of capital and financing costs, operations and maintenance costs, and the cost of fuel (Commonwealth of Australia, 2013b). Given the indicative cost differences, complementary and supportive RE policies, such as the LRET, are arguably a critical aspect of gaining project funding

Table 1
Levelised Cost of Energy (LCOE) for RE and traditional coal plants.

Large-scale energy source	LCOE (A$/MWh)
Wind – Onshore	85–140
Wind – Offshore	150–245
Solar – nil or single axis tracking	165–275
Biomass	80–170
Sugarcane	75–135
Traditional coal plant – black and brown coal	29–39

Data: EPRI (2006), Buckman and Diesendorf (2010), Commonwealth of Australia (2013b).