Q1 Which part of the Planning and Design Code would you like to make a submission about? (Please click the circle to select which part of the Code you wish to comment on. You can also see which council areas are included in the rural and urban code via the links below.)

My submission relates to Statewide code

Page 2: Planning and Design Code for South Australia

Q2 Please provide your contact details below (Name, Postcode & Email are mandatory) Please be advised that your submission will be made publicly available on the SA Planning Portal.

Name
Gurney Khera

Company
University of SA

Your Council Area
Norwood

State
SA

Postcode
5000

Email Address

Page 3: Planning and Design Code for South Australia

Q3 Which sector do you associate yourself with?

General Public

Page 4: Planning and Design Code for South Australia

Q4 Would you like to make comment on

Specific Topics for example:
- Rules of Interpretation
- Zones and Sub-zones
- Overlays
- General Provision
- Mapping Land Use Definitions
- Administrative Definitions
- Referrals
- Table of Amendments

Page 5: Planning and Design Code for South Australia
Q5 Enter your feedback for Rules of Interpretation
Respondent skipped this question

Q6 Enter your feedback for Referrals
Respondent skipped this question

Q7 Enter your feedback for Mapping
Respondent skipped this question

Q8 Enter your feedback for Table of Amendments
Respondent skipped this question

Q9 Please enter your feedback for overlays click next at the bottom of the page for next topic
Respondent skipped this question

Q10 Please enter your feedback for zones and subzones click next at the bottom of the page for next topic
Respondent skipped this question

Q11 Please enter your feedback for general policy click next at the bottom of the page for next topic
Please see my attached feedback document

Q12 Please enter your feedback for Land use Definition click next at the bottom of the page for next topic
Please see my attached feedback document

Q13 Please enter your feedback for Admin Definitions click next at the bottom of the page for next topic
Respondent skipped this question

Q14 Please enter your general feedback here
Respondent skipped this question
Q15 Do you have any attachments to upload? (pdf only)

SPCSsubmissionRenewableKhera.pdf (561.1KB)
Response to “Discussion paper on proposed changes to renewable energy policy in the planning and design code”

Gurney S. Khera  
M.Urb.Planning (UniSa), SPIA

This submission is based on a case study research paper I undertook towards a Masters in Urban & Regional Planning at the University of SA, which analysed the environmental impact assessment (EIA) process for The Neoen wind farm at Hornsdale, SA against the planning policy and legislation at the time under the Development Act (1993).

Background

It is projected that by 2021, South Australia’s renewable power will account for 73% of the state’s total power consumption (AEMO 2019, SA Planning Portal 2019) and with over 20 existing wind farms in SA the state’s vast wind resource provides capacity to generate over 30% of Australia’s wind electricity (AEMO 2019).

As a result of global warming concerns due to anthropogenic activity, greenhouse CO2 emissions reductions were ratified in the 2015 Paris Agreement, requiring countries to make national determinations and commitments to meet the 2°C maximum temperature rise target. Australia committed to emissions reduction targets of 28% of 2005 levels by 2030, which represent a 50% reduction in per-capita emissions and a 65% reduction in business economic activity emissions. (Ghd 2016, DPTI 2019). The Clean Energy Legislation Act 2014 introduced a subsidy scheme consisting mainly of funding of projects to reduce emissions from the Emissions Reduction Fund and national large-scale renewable energy target (LRET) was set ramping to 33,000 Gwh by 2020 (Gui, MacGill 2017) under the Commonwealth of Australia Renewable Energy (Electricity Large-scale Generation Shortfall Charge) Act 2000.

Proposed new planning policy

Given the Australian Government’s strong push towards low-emission so-called ‘renewable energy’ as a replacement for high-emission coal or gas-fired power plants, it is difficult to argue against the ‘clean energy’ economic merits of large wind farms in wind-rich South Australia. Increasing costs of electricity in a deregulated national grid coupled with decreasing manufacturing costs of turbines with low on-going operating costs and added income for land owners make the business case highly compelling. The availability of vast
tracks of under-utilized and cleared land with ready accessibility to high voltage transmission lines effectively renders viability of wind farms a ‘no-brainer’ and I would not argue against their adoption as an alternate energy generation business in general.

However, the SA State Planning Commission’s recently released a “Renewable Energy Discussion Paper” (DPTI, 2019) proposes changes for the new Planning and Design Code to restrict renewable projects in “environmentally and culturally sensitive” locations but policy to reduce impacts associated with noise is minor only, with setbacks increasing from 1km to 1.2 km and a progressively greater setback for turbines higher than 150m (DPTI 2019). Positively, the new changes increase public notification to apply to all wind farms and strengthens referrals to the EPA (from ‘regard’ to ‘direction’) giving the EPA a greater say on the management of impacts.

There is reasonable and potentially serious environmental fragility and under-researched environmental impacts as have been highlighted by my case study on the Hornsdale Wind Farm (see below). Local rural community disenchantment against wind farms are coupled with perceptions that these projects are ‘rammed through’ the planning process for quick approval with vast amounts of Government grants and incentives. It may be argued that planning policy has been lagging without update until now but to what extent will the new PDI Act (2016) mandate a more rigorous EIA?

While the policy seeks to encourage wind farm development in normal rural areas, the new proposals are very weak in protection for birds, bats and flying insects with no specific policy on vegetation. With huge increases in wind turbine sizes (from 150m to 250m and more) and based on potentially devastating impact on flying fauna and insects (as well as endangered native grasslands) I would argue for a more detailed, stringent and comprehensive policy with stronger protection for adverse environmental impacts particularly for vulnerable fauna.

The environmental impact process (EIA) and management plans need more rigorous policy with extensive and considered approach to the whole life-cycle of wind farms. The cumulative and end-of-life impacts (DPTI 2019) are particularly problematic and the dumping of unrecyclable used turbine blades and components into huge landfills will create a future environmental disaster.

Because wind farms (and Solar farms) occupy vast swathes of rural acreage cutting across large tracts of land, stronger compliance with and referral to, the Aboriginal Heritage Act 1998 “Aboriginal cultural heritage” should also be introduced in the new PDI Act.

**Hornsdale Wind Farm Case Study**

The Hornsdale Wind Farm is a privately owned and operated wind power generation project consisting of wind turbines located in the locality of Horndale about 10km north of Jamestown in South Australia within a large site area of 7500 hectares. Constructed progressively from 2014 with a construction budget of A$800 million, the farm is owned by French company Neoen (GHD, 2016).
The project aims are to develop an “environmentally and economically sound” (Aurecon, 2011) wind farm providing renewable electricity exported to the national grid for local and national use. It is designed to generate approximately 1,050 GWh (giga-watt hours) per annum which is enough to power approximately 180,000 homes for a year (GHD, 2016). The project business case included the convergence of good wind availability in that locality, the major power line proximity and 20 year fixed-price secure government Power Purchase Agreement (PPA) contracts with the ACT government (GHD 2016). A staged project, it consists of 99 turbines in total with a 309 MW maximum capacity.

The Hornsdale Wind Farm had “sponsorship” from the Crown State Agency since it was providing infrastructure used in the supply of electricity. (Hornsdale 2019) The planning application was subject to approval under Section 49 of the Development Act (South Australia), 1993 with an application lodged with the Development Assessment Commission (DAC) and referred to the relevant State authorities and the Northern Areas Council. S.49(1)(a) specifies the supply of electricity to be “Crown Development and Public Infrastructure” and the Minister can direct that an EIS be undertaken (s 49(16a)), and if so, the development requires approval by the Governor under s.48, and therefore Division 2 processes and procedures will apply.

Division 2 concerns “Major Developments or projects”, and under s.46(1a) may be considered of major environmental importance, in which case s46 part 6(d)(iii) & (iv) specifies that a description of the expected environmental effects must be included along with how these effects can be managed, and moreover (vi) requires information of impacts of the development under the Environment Protection Act, 1993 to be included. Part (10) also enforces the consultation with the Environment Protection Authority in formulating guidelines for the development. Importantly S. 46B details “Specific Provisions” for the EIS process and includes 8 categories of statements within the EIS. It explicitly mentions extent of “consistency with the Environment Protection Act, 1993” and in s.46B(d), the project’s commitments to conditions that an EIS should detail the expected environmental, economic and social impacts of the development and further it must outline the proponents plans to “avoid, mitigate, satisfactorily control and manage potential adverse impacts of the proposed development on the environment” (DAC, 2007).

S46B5(b) expressly states that copies of the EIS must be “made available for public inspection” for thirty business days or more, and interested persons can make written submissions, ensuring a forum for community consultation although within a very tight time-frame (Development Act, 1993). This is to permit members of the public to gain an understanding of, and the need for, the proposal, any alternatives, the affected environment, any potential impacts and mitigating measures. In comparison the Federal EPBC Act (1999) also stipulates public notification and a Public Environment Report released for 20 days consultation process if the project is impact assessed.

Approvals were required under State Native Vegetation Act based on the presence of two vegetation communities and two individual fauna species which took 6 months and the original proposal was declared a ‘controlled action’ under the EPBC Act (1999) and approved after 18 months with relevant conditions (Ebs,2015). The assessment process for Horndale
included local public notification of the planning application and an invitation to make written submissions, as per the legislation, and the proponents had the opportunity to prepare a “Response Document” (Aurecon 2011, GHD 2016). Upon DAC review, an Assessment Report was presented to the then Minister for Urban Development and Planning and approval was granted by the Governor on 4th July 2012 with 15 conditions and advisory instructions covering noise, traffic, native vegetation, environmental management and rehabilitation and construction impacts (GHD, 2016).

The Hornsdale EIS and Key Risks

The significance of this project in-line with the set LRET implies that it would automatically pass the screening phase (Elliott & Thomas 2009) with an EIS recommendation, there being no 'do nothing’ alternatives available for such energy generation. However, at the scoping stage key EIA criteria to be addressed, under the categories of physical (Atmosphere, Water, Soils, Climate), biological (Flora & Fauna) and human (economic, cultural, social) while determining from all potential impacts and alternatives the “key, significant ones.” (Elliott & Thomas 2009). Inadequately for such a large project the Hornsdale EIS was embedded within the development application and not in a separate document (Aurecon, 2011).

The EPA focuses on air quality, noise, radiation, site contamination, waste and water quality issues when undertaking major development assessments (EPA, 2019) however known wind farm impacts as specified in the South Australian Planning Policy Library Principals of Control (Govt of SA, 2019) include hazard minimization from “shadowing, flickering, reflection or blade glint impacts”, “excessive noise”, “modifying vegetation, soils and habitats” and “striking birds or bats”.

Key scoping impacts at construction phase identified vegetation and fauna management impacts which were incorporated into a comprehensive management plan (Ebs, 2011). Threatened communities of nationally significant endangered species the Pygmy Blue-tongue Lizards and the Silver Daisy-bush were mitigated by the offset of 3.1 ha of habitat (Ebs, 2016) and protected under the Native Vegetation Act (1991). Strangely, the Ebs (2011, 2016) reports advocated for extensive resources to the rehabilitation and conservation of Pygmy Blue-tongue Lizards but did not seriously consider threats to other species. Considered the most threatened ecosystem in Australia, temperate native grasslands have lost 99.5% of their coverage in South Australia with less than 2% native remaining (Ebs, 2016) so their conservation and management is paramount within any environmental management plan.

The area contains significant habitat for various vulnerable bird species ranging from bee-eaters to peregrine falcons and the erection of turbines within or between patches of woodland poses potentially significant impacts of death by collision with the turbines (Aurecon, 2011). Each turbine rotors rotate through a significantly large area of 9,850 sqm at high velocity up to 250km/h which can significantly impact flying fauna’s flight zones.

Importantly the EPBC identified 3 threatened ecological communities, 9 threatened species and 10 migratory species of fauna (13 species of birds) and lists 1 critically endangered and 3 vulnerable species of flora in its Protected Matters Report for Hornsdale (Dept of
Sustainability et al, 2012). The management plan stipulated an avoidance of all areas of likely habitat to locate turbines away from potential nests (Ebs, 2016) but this may not adequately mitigate bird fatalities and a more detailed assessment is argued for with such a large range of birdlife over a significant acreage. Sonic impulses from the turbines may also impact and interfere with bats ultrasonic hearing and echo-location mechanisms.

In an important new study, Trieb (2018) reports the serious impacts upon flying insects whereby wind turbine rotors spinning close above the land surface to optimize their energy output result in very large numbers of insects flying through wind farms at critical rotor heights between 20 to 220m (Trieb 2018). Estimating that 1 ton per annum of insect biomass is destroyed by each turbine, this may contribute to the alarming loss of 75% of flying insect biomass during past 30 years. (Hallmann et al, 2017 referenced in Trieb, 2018). Critically endangered bees, ladybirds and butterflies are included (Trieb, 2018) as well as locust, wasp and beetle swarms. Glaringly, impacts on insects were not identified nor mentioned in the Hornsdale application nor its management plan. According to Trieb, “Our model calculation points to an aspect of wind energy that has not yet been comprehensively researched. Approximately 1200 billion flying insects are struck each year as they fly through the rotors of wind farms in Germany. Such a large number of affected insects could be a relevant factor for the stability of the insect population and could thus influence species protection and the food chain.”

In relation to compliance with the Aboriginal Heritage Act 1998 “Aboriginal cultural heritage”, the application states simply that a “desktop assessment” and discussions with the Ngadjuri and Nukunu communities will occur (Aurecon, 2011). No critical analysis of the vast area of over 75 square kilometers was undertaken of potential cultural artifacts nor checks against the Register of the National Estate or the SA Register of Aboriginal Sites and Objects as stipulated by the relevant guidelines (Department of the Environment, 2016).

Noise and vibration are commonly indicated in wind farms as key issues (EPA, 2009). Maximum noise levels differ for the construction and operative phases and the management plan is comprehensive on the construction phase measures to keep noise below the required thresholds with appropriate daytime work hours (Aurecon, 2011). The EPA Wind farms operation noise guidelines specify that the “predicted equivalent noise level” should not exceed 35dB in rural localities and background noise by more than 5dB (EPA, 2009). The Hornsdale development states maximum levels (with 88 of the turbines operating) at a “worst-case” close-up “at turbine” sound power level of 106.6 dBA (Aurecon, 2011). A 3dB increase in sound power corresponds to roughly doubling in volume, with 100 dBA considered reasonably loud. However the minimum 1km distance of residents from turbines means in practice the sound volume is much less at the hearing point and below the specified threshold (EPA, 2009). Trieb (2018) argues that these noise levels are significant to interfere with flying and ground fauna.
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