

6th November 2019

Attention: Anthony Ko
Major Projects
NSW Department of Planning, Industry and Environment

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Dear Sir,

Submission to the Snowy 2.0 main works environmental impact statement, SSI-9687

We welcome a major initiative aimed at expanding renewable power capacity and note that if this is to truly safeguard our national environment into the future that it needs to demonstrate benefits across a broad range of environmental matters.

We emphasise that we do not countenance a major development inside a conservation reserve such as Kosciuszko National Park. Snowy Hydro propose to use publicly owned water and land in a national heritage site, undertake activities that will have some lasting impacts, to develop what will be a highly profitable business. These uses are not appropriate for a national park. The reserve system covers only 10% of NSW, well below international standards of 17%, and the Snowy 2.0 proposal to further damage Kosciuszko National park erodes NSW's already small protected area system.

However, if the proposed development is to proceed it must minimise the direct impacts of construction and operations to the maximum extent possible and fund exemplary offsets. We outline here the key areas for minimising impact and providing for long-term maintenance of a full suite of offsets.

The integrity of Kosciuszko National Park is threatened first by climate change and resulting impacts from changing hydrology, fire and impacts on biodiversity. The other major impact on the Park is from weeds and feral animals, notably the expansion of feral deer, pig and horse populations. Snowy 2.0 may result in a permanent conversion of ~100 ha of terrestrial and much freshwater habitat. Yet it would contribute significantly to reducing greenhouse gas emissions from electricity generation (e.g. by adding 2 GW of 15 GW of electricity storage needed in the National Energy Market by the 2040's), and as such, the Federal and state governments may judge this is a trade-off worth making.

We are researchers with particular expertise in different aspects of conservation of alpine, mountain and freshwater ecosystems. Our joint submission here is focussed on two elements:

1. Those aspects of the proposed Snowy 2.0 development where we ask Snowy Hydro and the governments to make additional efforts to minimise impacts; and

2. The additional environmental benefits (offsets) that we consider that the NSW and Federal governments should require of Snowy Hydro in order for Snowy 2.0 to proceed.

Beyond reducing greenhouse gas emissions from the eastern Australian electricity supply system, our recommendations focus on the environmental opportunities to:

- a. Minimize impacts of construction;
- b. Better conserve the health of alpine rivers; and
- c. Restore the catchments that supply water that the hydropower scheme depends upon.

This statement adds to our May 2018 advice on issues and options presented to Federal and state governments on measures to maximise benefits and minimize the negative impacts from the proposed Snowy 2.0 project.

1. Further reducing direct project impacts

a) Transfer of exotic fish and viruses

The proposal not to screen off the Talbingo portal (M.2) is reconsidered to prevent spread of pest fish and disease up the tunnel to Tantangara as it is not adequately justified in the text of the EIS. In our discussions with Snowy Hydro staff, they elaborated on the complex engineering required to screen the lower portal due to the large volumes of fast moving water, the high cost and high risk of failure. Yet the transfer of exotic, predatory fish and a fish virus to Tantangara Reservoir would be irreversible, and once in that reservoir there seems a high probability that it could get through fish screens to infect the upper Murrumbidgee and Snowy rivers. We ask Snowy Hydro and the governments to:

- a. Further assess the costs, benefits and risks of screening the Talbingo portal;
- b. Consider lowering the Talbingo portal elevation in the water column to further reduce the likelihood of fish being entrained;
- c. Provide more convincing details of the three proposed fish screens in the Tantangara catchment to demonstrate their efficiency and consider back up systems to minimise the impacts of any failure (e.g. double screening systems); and
- d. Fund translocation of Stocky Galaxias to establish additional populations in habitats at less risk.

b) Tantangara reservoir fluctuations

The reservoir above the ~ 20% level floods organic-rich soils and peatlands. The proposed rapid infill-outflow proposed will erode these soils and move silt and organic matter into the water, while preventing aquatic vegetation from stabilising the riparian zone. The proposed fluctuating zone requires stabilisation which could include bunds to retain soils, gabions to rebuild and stabilise stream lines and possible active planting of species tolerant of changing water levels. Hence we suggest the solutions be carefully studied and remediation incorporated before storage commences. The main creek entering the reservoir from the north is currently gullied following grazing and should be remediated to spread flows and prevent scouring.

c) Electricity transmission lines

While not directly part of this EIS, the potential for a 10 km x 120 m power line easement resulting from the Snowy 2.0 project would have a major impact on the park environment through clearing

of an access track plus ~120 x 120 m clearings around pylons on ridge tops. The transmission lines are subject to a separate EIS from TransGrid but to manage the cumulative impacts of development decisions, the NSW Government should give direction now on less impactful alternatives, such as submersed cables in Talbingo reservoir and underground cables along existing access routes.

2. Additional environmental benefits

In response to the Snowy 2.0 main works EIS, September 2019, we welcome Snowy Hydro's proposals to fund work to part fund implementation of proposals to restore the alpine catchment as proposed by Worboys and Good¹, as well as measures for conservation of listed threatened biota. In addition, we ask that the NSW and Federal governments consider the following measures to improve the environmental outcomes if Snowy 2.0 proceeds.

- a. *More than the minimum.* The offsets required of Snowy Hydro should be much more the minimum required under the NSW Biodiversity Conservation Act offset formula (M.3) since they will be using public lands and water and damaging a national heritage area;
- b. *Snowy 1.0.* Offsets are required for further restoration of Snowy 1.0 sites. There is no recent, publicly available information on progress with the clean-up of 400 damaged sites from the original scheme under the Rehabilitation of Former Snowy Scheme Sites Program. The full cost of rehabilitation was calculated by NSW Government agencies as \$100 million yet only \$32 million was allocated to a trust fund in the 2002 Snowy Deed of Agreement process. While half the sites were treated by 2013², it is probable that more funding is required to remediate the 200 sites that remained at that time. This involves work such as stabilising spoil dumps and revegetation of old town sites, quarries and vehicle access tracks, and weed control;
- c. *Trust fund with annual contributions.* The NSW Government needs to establish a trust fund to manage the offset monies in perpetuity (including compulsory annual additional contributions from Snowy Hydro's profits) for essential applied catchment research including condition and trend in condition monitoring of species, habitats and ecosystems, for long-term restoration management and for responding to novel environments in a climate change world;
- d. *Remove minor infrastructure.* The Snowy Scheme was built last century and many pieces of minor infrastructure are located in high altitude areas of great environmental importance. A review of these assets is needed to identify those that can be removed with little impact on Snowy Hydro's operations. For example, the Guthega to Geehi and Aaminaby to Cabramurra low voltage power lines cross the high alpine ecosystems of the main range causing unnecessary impacts from their management vehicle access tracks. Visually these lines are an eyesore and could be replaced from existing low elevation line easements. As another example, Guthega Dam and the Mungyang aqueduct damage one of the most significant river headwaters and areas of alpine flora in the national park. Guthega power station currently

¹ Worboys, G.L., Good, R.B., and Spate, A. (2011) Caring for our Australian Alps catchments: A climate change action strategy for the Australian Alps to conserve the natural condition of the catchments and to help minimise threats to high quality water yields. Australian Alps Liaison Committee and Department of Climate Change and Energy Efficiency, Canberra.

² MacPhee, E., and Wilks, G. (2013) Rehabilitation of former Snowy Scheme sites in Kosciuszko National Park. *Ecological Management & Restoration* 14(3), 159-171.

provides only 60 MW capacity out of a proposed 6,100 MW scheme (<1%), and water from this catchment is still captured in the scheme at a lower altitude for hydropower generation.

- e. *Feral horse and deer removal.* Feral horses and deer are out of control in the Alps; they destroy native vegetation, impact wetlands and streams and cause erosion³. Hydropower is negatively affected as the peat bogs that store and slowly release water are destroyed, and as eroded sediment fills up reservoirs. An accelerated program of horse removal (as recommended in January 2017 by the Independent Technical Review of wild horses in Kosciuszko National Park) is required and is highly feasible. There is also a need to research and implement new methods to control deer.
- f. *Weed control.* The original Snowy Scheme introduced many invasive plants to the alpine area⁴. Many were introduced as ornamental species, others inadvertently, and they took advantage of the environmental disturbance caused by construction to invade. Strict protocols are required with Snowy 2.0 to prevent the introduction of new weeds. A major investment is required to bring under control existing weed species introduced into Kosciuszko National Park by the original Snowy Scheme.
- g. *Restore alpine rivers.* The original Snowy scheme caused significant damage to most rivers in Kosciuszko National Park and beyond. In the 2002 Snowy Water Inquiry Outcomes Implementation Deed⁵ this was recognized with agreement to restore a minor portion of the original flows to a number of rivers that were deprived of water through hydropower diversions. However this agreement has not been fully implemented. Flows in the Snowy River should be increased from 21% (212 billion litres per year on average) of natural to 28% (294 billion litres per year on average) of natural (an extra 82 billion litres per year on average) as foreshadowed in the 2002 Snowy Water Inquiry Outcomes Implementation Deed. Further, the governments' original Expert Panel Report recommended the removal of the diversion weirs across the Mowamba River and Cobbin Creek to reconnect headwater streams for migratory species and to increase inflows of dissolved organic carbon that is the basis of a healthier river food chain. Restoring Snowy River flows would reduce Scheme power generation by less than 2%. Under the Deed, the government owners agreed to share the cost of compensation to Snowy Hydro for loss of hydropower generation for any "Snowy River Increased Flows" and "an agreed capital works programme" to ensure that water allocations for consumptive use in the Murray-Darling Basin are not affected⁵. In our view approval for Snowy Hydro to increase its generating capacity by 50% in Snowy 2.0 is sufficient compensation for increasing flows in the Snowy River to 28%.
- h. *Hydrological monitoring.* Further investment in hydrological monitoring in the Park is needed to track water yield, water quality and water flow regimes for mountain catchments. The data needed to track the effects of climate change and to assess the benefits of restoration measures.

³ Driscoll D, Scheele B, & McDonald T (2019) Feral horses in the Australian Alps: an introduction to the special issue. *Ecol. Manage. Restor.* 20(1):3-3.

⁴ Johnston, F.M., and Pickering, C.M. (2001) Alien Plants in the Australian Alps. *Mountain Research and Development* 21(3), 284-291

⁵ The Commonwealth of Australia, et al. (2002). Snowy Water Inquiry Outcomes Implementation Deed. Dated 3 June 2002. Snowy Corporatisation Snowy Water Inquiry Outcomes Implementation Deed Document No. NWEWG 21 (Conformed Execution Version). Canberra, The Commonwealth of Australia, The State of New South Wales, The State of Victoria.

We thank you for considering these points and would welcome opportunities to provide further information.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Jamie Pittock', with a stylized flourish at the end.

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