GREENPEACE

Friday 11 February, 2022

Australian Energy Market Operator
GPO Box 2008
MELBOURNE VIC 3001

Sent via email to: ISP@aemo.com.au

Draft 2022 Integrated System Plan
Consultation Submission

Dear Sir/Madam,

Greenpeace Australia Pacific welcomes the opportunity to provide comment on the draft 2022 Integrated System Plan (ISP).

Greenpeace is a global environmental organisation campaigning to secure a world capable of nurturing life in all of its magnificent diversity. We are fully independent and have 1.8 million people in our network across all platforms in Australia alone.

As part of our work tackling the climate crisis, Greenpeace Australia Pacific's REenergise campaign calls on all major electricity-using companies across Australia to commit to powering their operations with 100% renewable electricity, and to sign up to the RE100 initiative.[1]

As acknowledged in the draft ISP, the National Electricity Market (NEM) is now undergoing its biggest and fastest transformation ever and consumer adoption of large-scale renewable energy and rooftop solar development is accelerating faster than the 2020 ISP previously assumed. [2]

Greenpeace supports a rapid transition away from polluting fossil fuels to 100% renewable energy in the electricity sector by 2030, and net zero emissions across the whole economy by 2035, to be consistent with limiting global heating to 1.5 degrees or less. As such we welcome the modelling of new and more ambitious scenarios outlined in the ISP, in particular the Step Change and Hydrogen Superpower scenarios, as well as recommendations around early infrastructure investment. However, as our submission details below, Greenpeace is concerned about the ongoing role of gas proposed within the Hydrogen scenario, and the over-reliance on residential uses of hydrogen coupled with fossil-gas.

This submission incorporates two elements:

1. Overarching feedback and comment on the draft ISP
2. Greenpeace Australia Pacific briefer that analyses anticipated corporate consumer demand for renewable electricity. This analysis reinforces findings of the ISP around the

[1] RE100 is a global corporate renewable electricity network
[2] AEMO, 2022

likely speed and scale of the energy transition, and the need for early investment in transmission and infrastructure.

If you require any further information on this submission, please do not hesitate to contact GPAP via the details below.

Sincerely,

Lindsay Soutar

REenergise Campaign Director
Greenpeace Australia Pacific

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Submission to draft 2022 Integrated System Plan

Feedback

1. **Planning and investment must be commensurate with a carbon budget compatible with limiting global warming to 1.5 degrees.**

   The scale and speed of investment in renewables and transmission must match a carbon budget that keeps the world on track for keeping warming below 1.5 degrees. Adding carbon budget modelling is a positive step forward for this years draft ISP, however we call attention to the fact that the central 'Step Change' scenario *does not* align with a carbon budget likely to limit warming to 1.5 degrees, and neither Step Change or Hydrogen Superpower scenarios model high probability of meeting their temperature outcomes.[3]

   Australia is one of the most climate-vulnerable developed countries in the world, and our neighbours in the Pacific are already facing some of the most severe climate impacts anywhere on earth. If we do not decarbonise and rapidly transition away from fossil fuels then our homes, communities and neighbours will be most at risk from climate impacts.

   Australia also has one of the most carbon intensive electricity grids in the world and is the only OECD country in the G20 that relies on coal for more than half of its electricity supply. The International Energy Agency[4], the Intergovernmental Panel on Climate Change[5] and the United Nations[6] concur that all OECD nations must end coal use entirely by 2030. Early investments in the grid must be made to modernise our electricity infrastructure and provide energy security for a transition to 100% renewable electricity by 2030. This should also include the phasing out of all gas generation.

2. **Corporate consumer demand for renewables reinforces draft ISP findings on early coal closure and the need for early transmission works.**

   We draw your attention to our analysis in the briefing below that highlights the increasing consumer demand for renewable electricity which will see 11.5% of corporate

[3] CSIRO 2021
[4] IEA, 2021
[5] IPCC, 2018
[6] UNFCCC, 2021

demand in the NEM (and 7.7% of total NEM demand) shifting to 100% renewable electricity by 2030 through current 100% renewable electricity targets alone.[7] Adding in potential demand from major smelter decarbonisation and net zero commitments, this figure rises to as much as 35% of corporate demand (or 23% of total NEM consumption). [8]

Prioritising early works on transmission and infrastructure is essential to enabling investment in renewables and critical to ensuring the NEM is prepared for early coal closure aligned with consumer demand for clean energy. As companies look to meet 100% renewable electricity commitments by 2025, a significant grid decarbonisation opportunity also exists for corporate renewable power purchase agreements (PPAs) to unlock finance supporting new renewable energy projects.

3. **An ambitious deep electrification alternative to the 'Hydrogen Superpower' scenario should be considered.**

While 'green hydrogen' - namely, hydrogen generated using only energy from renewables - presents a significant opportunity for industrial sector decarbonisation and hard-to-abate applications, it is essential that reducing demand, increasing efficiency, and deep electrification be prioritised.

We support the development of renewable hydrogen from surplus or dedicated renewable electricity production for use in a limited number of applications - those sectors and processes which are hard to decarbonise through direct electrification. It is concerning that the Hydrogen Superpower scenario in the draft ISP proposes locking in residential households to pay for the commercialisation of hydrogen through gas blending where it is not required. Hydrogen should not be used in any case where it is cheaper or more energy efficient to switch directly to electricity from renewable sources e.g. home heating and private transport.

Furthermore, a Hydrogen Superpower scenario must evaluate the environmental and social impacts created by rapid large-scale expansion. This should include considering the impacts of water consumption for green hydrogen on resource scarcity and local ecosystems.

For these reasons, an ambitious alternative to the Hydrogen Superpower should be included to offer a deep electrification pathway aligned with 1.5 degrees without overreliance on hydrogen. This could be done by promoting the 'Strong Electrification' decarbonisation scenario to full consideration.

[7] Calculations based on the draft 2022 ISP forecast for 2022 and only include commitments from NGER reporting businesses.
[8] As above, smelter data as reported in IEEFA, 2020

Briefing: How corporate 100% renewable electricity commitments are supporting new renewable generation

Corporate renewable buyers have arisen as a key segment of the electricity consumer market in recent years, driving new demand for renewable generation by contracting their electricity through corporate PPAs.[9]

This renewable procurement is occurring as major companies set, and work to meet, 100% renewable electricity and net zero climate commitments. Pressure on corporations to switch to renewable energy to reduce Scope 2 emissions is only set to increase with growing expectations from shareholders, staff and customers that companies demonstrate their climate credentials.

To understand the implications of corporate 100% renewable electricity commitments on the National Electricity Market, Greenpeace has analysed the electricity demand of major Australian companies[10] reporting to the National Greenhouse and Energy Reporting scheme who have committed to procuring 100% of their electricity needs from renewable sources.

We have also analysed additional potential demand for renewable electricity through the decarbonisation of the two major smelters operated by Rio Tinto, as well as potential demand from NGER reporting ASX200 companies with net zero commitments.

The results detailed below highlight how corporate commitments are already increasing demand for renewable electricity and how such demand is only likely to continue to grow.

This analysis shows:

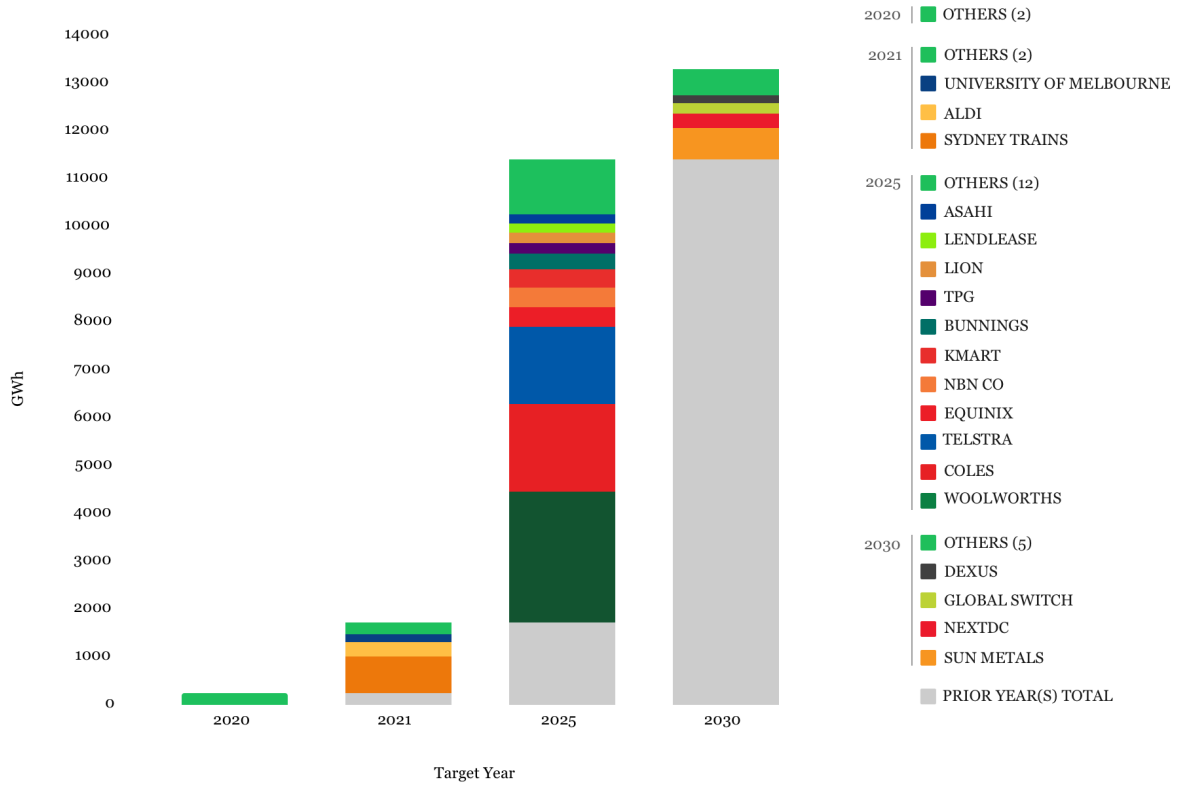
- 41 of the biggest electricity users in Australia have already committed to powering their operations with 100% renewable electricity, underpinning significant and growing corporate demand for renewable electricity. These companies include major supermarkets, retailers, banks, universities, food and beverage makers, and telcos. Familiar names include Coles, Woolworths, Telstra, Sydney Trains, NBN and Bunnings..
- 30 companies aim to reach 100% renewable electricity by 2025, followed by 8 in 2030 and 3 by 2050. If all their commitments were met through power purchase agreements with new renewable projects it would support 4 GW of new generation by 2025.
- These 41 companies currently consume 13,856 gigawatt hours (GWh) representing about 11.5% of corporate electricity demand in the National Electricity Market (NEM) forecast for 2022 (and 7.7% of total NEM demand). [11]

[9] Business Renewables Centre Australia, 2021
[10] Largest electricity users defined as reporting scope 2 emissions to the National Greenhouse and Energy Reporting Scheme.
[11] Based on the draft 2022 ISP forecasting for electricity consumption.

- In addition to the company-wide commitments from some of Australia's largest electricity consumers, the planned 2030 switch to renewable electricity by Rio Tinto's Boyne Island (QLD) and Tomago (NSW) aluminium smelters will require an additional 15,300 GWh per year of clean power[12].

- All major corporations are under significant and growing pressure from stakeholders to demonstrate action on their net zero commitments. An extra 24 ASX200 companies have already committed to net zero by 2050. If these companies switch to renewable electricity by 2030 to eliminate Scope 2 emissions to help meet their goal (consistent with electricity being the easiest part of corporate operations to decarbonise) , it would further increase this cumulative renewable electricity demand to 41,644 GWh.[13].

Figure 1: Renewable electricity demand covered by 100% renewable electricity targets



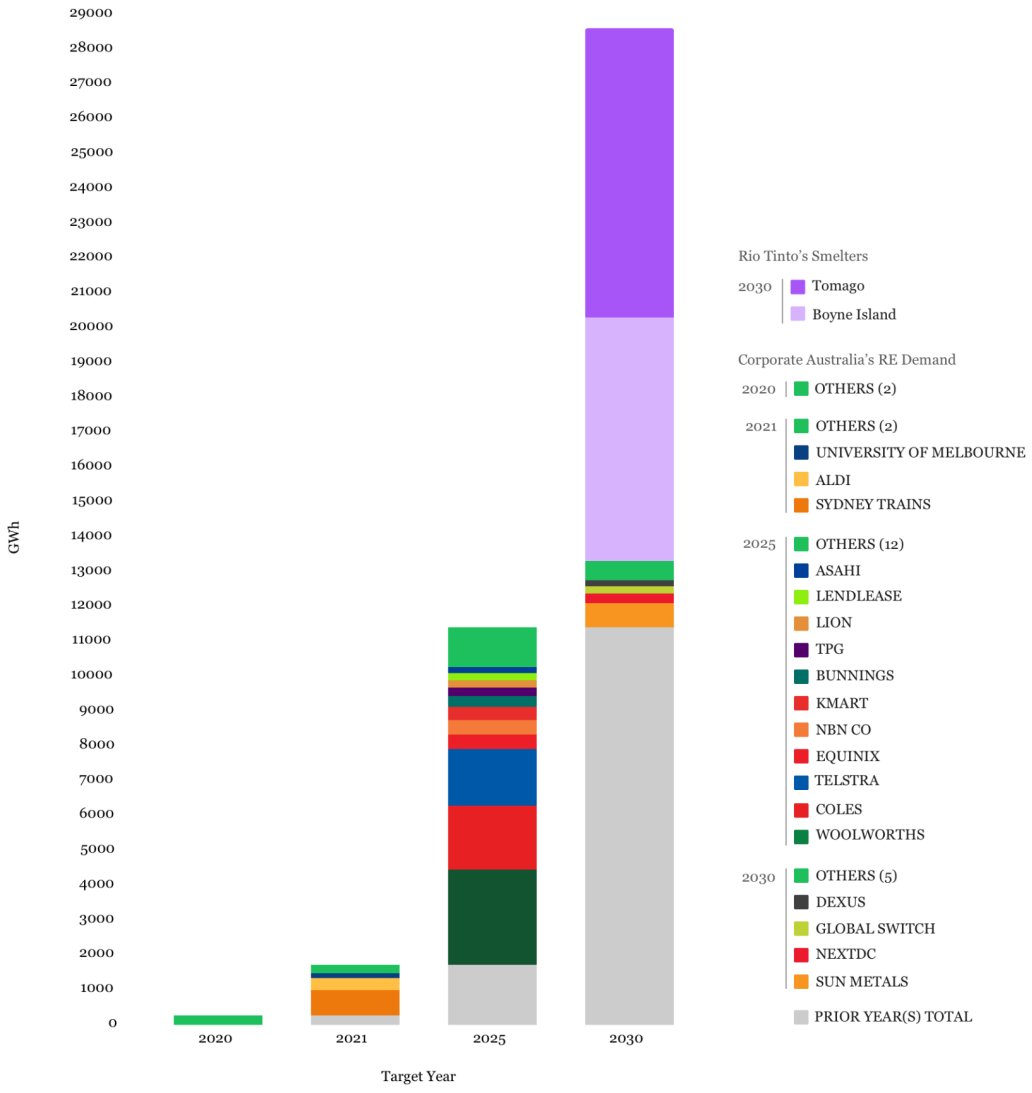
The figure above illustrates the demand from 41 of Australia's largest electricity consumers[14] who have committed to 100% renewable electricity, including the 'big four' banks, major supermarkets, retailers and property companies. It shows the cumulative demand for renewable electricity targets by year. Companies named in the graph are accountable for over

[12] IEEFA, 2020
[13] Including the 100% renewable electricity commitments and ASX200 net zero companies who report to NGER as well as smelter decarbonisation
[14] Analysis is based on National Greenhouse and Energy Reporting Scheme data for the year 2019-2020 and estimated based on scope 2 emissions. A large number of additional businesses who are not required to report under the scheme are excluded from the analysis.

150 GWh of demand, smaller electricity users are aggregated under 'others'.[15] A full list of companies is contained in Appendix A.

The Business Renewables Centre Australia estimates 110 corporate PPAs have been signed since 2017 contracting over 4GW of renewable generation and enabling 10.5GW of project capacity through their investment[16]. The potential corporate demand detailed above presents the opportunity for a two-fold increase in contracted renewable generation by 2030 (from 4GW to a possible 8.7 GW) if companies were to meet these renewable commitments via new PPAs with new build renewable projects. [17]

Figure 2: Additional renewable electricity demand generated by Tomago and Boyne Island smelters



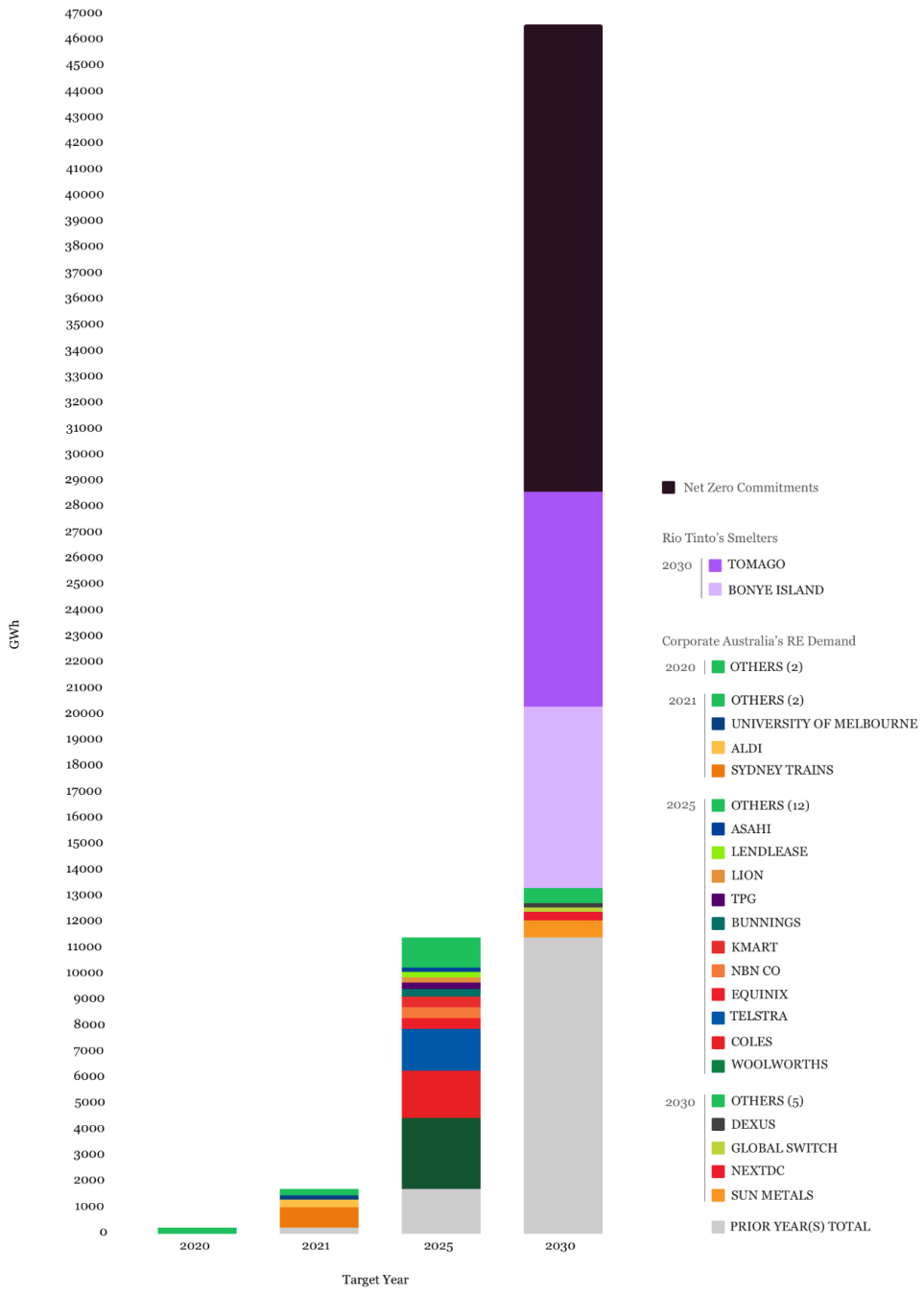
[15] Sun Metals is committed to 100% renewable electricity by 2040 but has an interim commitment of 80% by 2030 reflected in this data.

[16] Business Renewables Centre Australia, 2021

[17] If in addition to historical PPAs NGER reporting companies with renewable commitments were all to contract new renewable projects.

Rio Tinto is Australia's largest electricity user. Their commitment to repower Australia's two largest Aluminium Smelters – Boyne Island (QLD) and Tomago (NSW) – with 100% renewable electricity before 2030[18] more than doubles estimates of corporate demand for clean power[19]. This figure shows the demand generated by the smelters in addition to the previous 100% renewable electricity commitments.

Figure 3: Potential impact of interim commitments by ASX200 companies committed to net zero.



[18] Renew Economy, 2021
[19] Smelter data from IEEFA, 2020

The corporate trend toward net zero commitments has been growing swiftly over the past 5 years. This graph illustrates the potential demand that could be generated for renewable electricity from big businesses in the ASX200 if they were to eliminate Scope 2 emissions by introducing interim emissions reduction goals for the year 2030.[20] If this demand were to be met via new build renewable energy it represents another 4.4 GW of renewable projects.

Together 100% renewable commitments, major smelter decarbonisation and further potential corporate demand from net zero committed companies, represent a potential 41,644 Gwh demand for renewable energy and potential renewable build driven by corporate demand of 14.1 GW by 2030.

The implications of corporate renewable electricity commitments on the National Electricity Market

The analysis above highlights how corporate ESG trends and commitments to address Scope 2 emissions reinforce the likelihood of change occurring in line with the Step Change scenario at a minimum.

The near-term plans of big businesses and consumer appetite for renewable electricity build the case for early investment in transmission, grid and other enabling infrastructure well in advance of escalating consumer demand between 2025 and 2030.

Increasing shareholder, consumer and civil society pressure as well as corporate ambition to decarbonise will continue to deliver rapid change that will outpace conservative expectations.

[20] This graph includes 24 companies committed to net zero who are both in the ASX200 and report via NGER.

Appendix A: Australia's largest (NGERS reporting) companies committed to 100% renewable electricity by target date.

Target Date	Companies committed to 100% renewable electricity
2020	University of Queensland; University of NSW;
2021	Aldi; University of Melbourne; Nestle; Mars Wrigley Australia, Sydney Trains
2025	Woolworths; Coles; Telstra; Equinix; NBN Co; TPG Telecom; Lion Brewery; Lendlease; Amazon corporate services; Asahi; Commonwealth Bank; ANZ; Westpac; National Australia Bank; Charter Hall; University of Sydney; Coca-Cola Amatil; Sydney Airport; Deakin University; Kmart Group; Officeworks; Bunnings; Macquarie Bank;
2030	Next DC; Global Switch; Vicinity; Dexus; Monash University; AMP; Osiris Holdings (David Jones); MIRVAC; McCain Foods
2040	Sun Metals
2050	Fujitsu Australia;

Appendix B: Additional Net Zero Commitments from NGERS reporting companies in the ASX200

Company Name	Net Zero Target Year
Origin Energy Limited	2050
BHP Group Limited	2050
Bluescope Steel Limited	2050
Newcrest Mining Limited	2050
Santos Limited	2040
Agl Energy Limited	2050

South32 Limited	2050
Aurizon Holdings Limited	2050
Scentre Group Limited	2030
Ampol Limited	2050
Adbri Limited	2050
Oz Minerals Limited	2050
Fortescue Metals Group Ltd	2030
Northern Star Resources Ltd	2030
The Star Entertainment Group Limited	2030
Qantas Airways Limited	2050
Gpt Management Holdings Limited	2030
Downer Edi Limited	2050
Stockland Corporation Ltd	2030
Woodside Petroleum Ltd.	2050
St Barbara Limited	2050
Sandfire Resources Limited	2050