CENTRE FOR Sustainable Finance TOITŪ TAHUA

Aotearoa New Zealand sustainable finance taxonomy (NZ Taxonomy) Energy sector criteria – summary of differences compared with Australian sustainable finance taxonomy version 1

Please note: Australia has not yet developed criteria for the climate change adaptation and resilience (A&R) environmental objective. Therefore, no direct comparison can be made between New Zealand (NZ) and Australia in this area.

Table 1. Climate change mitigation Substantial Contribution (SC) criteria (excluding gas firming guidance) comparison

#	Key changes made to the NZ Taxonomy (relative to the Australian Taxonomy)	Rationale/Notes
1	Scope expansion: From "electricity" (Australia) to "energy" (NZ) generation and supply.	This change better reflects the broader energy system and ensures the NZ Taxonomy captures all possible activities in the sector that make a substantial contribution to emissions reduction, with the scope clarified to cover energy generation and supply only (not end use).
2	Additional activities included in the NZ Taxonomy: • Installation and operation of heat pumps (Activity #8); • Production of heating or cooling from solar thermal, geothermal energy, or bioenergy (Activities #10-12); • Cogeneration of heating/cooling and power from solar energy, geothermal energy, or bioenergy (merged into Activities #1, #5 and #6, given the underlying criteria are the same); and • Research, development and innovation (RD&I) of energy technologies (Activity #17).	Installation and operation of heat pumps: • In other sustainable finance taxonomies, installation and operation of electric heat pumps is recognised as an activity that substantially contributes to climate change mitigation under either Energy (European Union (EU)) or Construction & Buildings (Australia). • Energy TAG strongly prefers including heat pumps – both electric and thermal (using non-fossil heat sources) – as a separate activity under Energy rather than Construction & Buildings. This is because: ○ Heat pumps don't just heat individual buildings, they are also used to supply heat to district heating networks and/or industrial/process facilities. ○ In the Australian Taxonomy, district heating is included under Energy, but heat pumps are not, creating a sense of disconnect. ○ Activities should be placed based on what they do (for heat pumps, energy supply), not where they are installed. ○ Dividing heat pumps of various uses and types across multiple sectors' criteria is

		less usable than centralising under Energy. Production of heating or cooling from solar thermal, geothermal energy, or bioenergy: ● The Australian Taxonomy currently only includes production of heating/cooling from waste heat. Expanding the eligible energy sources to include solar energy, geothermal energy, and bioenergy ensures the NZ Taxonomy captures a broader range of zero-/low-emissions, commercially available renewable heating/cooling solutions. ● Note: These additional activities are also recognised as Green under the EU Taxonomy. Cogeneration of heating/cooling and power from solar energy, geothermal energy, or bioenergy: ● Cogeneration systems can significantly improve energy efficiency by producing electricity and useful heat simultaneously from the same energy input. When powered by renewable sources such as solar, geothermal, or bioenergy, these systems can deliver high overall efficiency and substantial emissions reductions. ● Including renewable cogeneration activities ensures the NZ Taxonomy recognises integrated energy systems that maximise resource efficiency and support emissions reduction of both electricity and thermal energy supply. These systems are particularly relevant for district energy networks, industrial processes, and community energy systems, where simultaneous electricity and heat demand exists. ● Note: These activities are also recognised as Green under the EU Taxonomy. RD&I of energy technologies: ● Given NZ's staggered sectoral development approach, including a standalone, cross-cutting RD&I activity (as seen in the EU Taxonomy) is not feasible at this stage. RD&I (with a technology readiness level (TRL) of 5 and above) focused on solutions that reduce, avoid, or remove greenhouse gas (GHG) emissions should therefore be included at the sector level, including within Energy (noting that a standalone RD&I category already exists under Agriculture & Forestry in the NZ Taxonomy). ● The RD&I criteria proposed for NZ are broadly consistent with the relevant provisions of the EU Taxonomy, with several targeted adaptations for the local context and in response to technical groups' feedback. These include: ○ Expanded scope, to include RD&I for Energy sector activities not yet covered in the NZ Taxonomy, provided they make a substantial contribution to climate change mitigation and, until 2030, have lifecycle emissions below 100 grams of carbon dioxide equivalent per kilowatt-hour (gCO_2e/kWh).

		○ Lowered TRL threshold, from 6 (EU) to 5 (NZ), to support earlier-stage deployment, at a stage where there is certainty in the technology's ability to demonstrate climate change mitigation benefits within a reasonable time horizon and where material efficiency gains are typically realised at pace. ○ Streamlined lifecycle GHG emissions calculation approach, to permit the use of International Organisation for Standardisation (ISO) 14067:2018 or ISO 14064-1:2018 for calculating lifecycle GHG emissions for technologies at TRL 5-7 (as already allowed for TRL 8+).
3	Recognition of vehicle-to-grid (V2G) and demand-flex solutions under transmission and distribution (T&D) of electricity (Activity #13)/storage of energy (Activity #16) in the NZ Taxonomy.	V2G as energy storage: ● V2G is fundamentally an energy storage solution, not a transport activity. ● To be clear, only specific grid-related technologies and components are included – such as bi-directional chargers, telematics/internet of things (IoT) in vehicles, cloud-based optimisation platforms, and repurposed second-life electric vehicle (EV) batteries for stationary energy storage – not the entire EV asset. Recognition of demand response/flex solutions: ● Some demand-side activities act like energy generation or storage and should be recognised as such – i.e., while not "generation" in the traditional sense, they reduce or shift energy demand, which can be economically valued as if additional supply were provided. ● To be clear, two types of demand-flex solutions exist: ○ Enabling infrastructure and smart appliances – these are explicitly recognised as Green under T&D of electricity (Activity #13) and storage of energy (Activity #16). ○ Behaviour change by consumers – more difficult to capture as an investment activity and requires system-level safeguards, hence not currently recognised under the NZ Taxonomy.
4	Recognition of carbon reinjection technology under electricity generation, including cogeneration of heating/cooling and power, from geothermal energy/bioenergy (Activities #5 and #6) in the NZ Taxonomy, with supporting guidance/requirements provided in the appendix.	To clarify, carbon reinjection/carbon capture and storage (CCS)/carbon capture and utilisation (CCU) technologies are not recognised as standalone Taxonomy-aligned measures. They are part of the overall power plant and must contribute sufficiently to help it meet the Green threshold at the facility level. A portion of the investment in a Green-aligned geothermal or bioenergy power plant can be channelled towards these technologies. Further safeguards for the transportation, storage, and utilisation of captured carbon dioxide (CO_2)

		are detained in Appendix 1.
5	Ineligible cases (for activities without lifecycle emissions thresholds): Inclusion of a safeguard in the NZ Taxonomy, stating that projects that result in degradation of land with high carbon stock are not permitted.	Activities that substantially contribute to climate change mitigation are not required to be assessed against the climate change mitigation activity-specific Do No Significant Harm (DNSH) criteria (only criteria pertaining to the other five environmental objectives). For some activities, lifecycle emissions thresholds are imposed under the climate change mitigation SC criteria. These capture emissions from new builds and help prevent projects that could result in higher net emissions from qualifying as Green. However, some activities (e.g., electricity generation from wind, solar, or ocean energy) are automatically eligible as Green under the climate change mitigation SC criteria and do not have lifecycle emissions thresholds applied. An additional safeguard is therefore needed to prevent activities that could lead to higher net emissions (e.g., wind farm construction on peatlands) from qualifying for NZ Taxonomy alignment.
6	Application of the "until 2030" timeframe: Included across all relevant NZ Taxonomy Energy sector activities where this is not specified in the Australian criteria (i.e., electricity generation or production of heating/cooling from hydropower or geothermal energy).	To ensure consistency.
7	Electricity generation, including cogeneration of heating/cooling and power, from solar photovoltaic (PV), concentrated solar power (CSP), and photovoltaic-thermal (PVT) systems (Activity #1): The NZ Taxonomy specifically includes PVT hybrid systems in the activity's heading.	To make clear that electricity generation (including cogeneration of heating/cooling and power) using PVT hybrid systems falls within the activity's scope.
8	Electricity generation, including cogeneration of heating/cooling and power, from bioenergy (Activity #6):	Logic clarification: • This explains which criteria an activity must meet in full (A, B, C and D) versus which criteria are alternatives (B1 or B2). Inclusion of examples:

	• Criteria logic (use of "and"/"or") clarified in the NZ version. • Examples of "bioenergy produced from waste and residues" added for NZ. • New criterion introduced for NZ: "Leak detection and repair mechanisms, and a plan to avoid and minimise gas leakages, must be presented".	• This provides clarity on the types of waste and residues that are eligible for Taxonomy alignment for bioenergy generation. Inclusion of the leak detection and repair requirement: • The inclusion is necessary to minimise methane leakage from biogas generation processes and to encourage best practice in methane abatement. Similar criteria are also required for the "T&D of renewable and low-carbon gases" activity under both the NZ and Australian sustainable finance taxonomies.
9	T&D of electricity (Activity #13): Criterion C revised from "new or upgrades to existing infrastructure that enable the increased integration of renewable electricity into the system" (Australia) to "transmission and distribution infrastructure where until 2030, the average system grid emissions factor on a lifecycle basis is less than 100gCO_2e/kWh over a five-year rolling period" (NZ).	This is to better align with global taxonomies, including those in the EU, Singapore, and other jurisdictions in the region. Under these frameworks, there are typically two approaches to assessing T&D at the overall grid level: • Option 1 – average system grid emissions factor: The average system grid emissions factor, on a lifecycle basis, should be less than 100gCO_2e/kWh over a five-year rolling period. • Option 2 – renewable share of new generation capacity added: At least 67% of newly connected generation capacity in the system meets the Green thresholds over a five-year rolling period. These options are designed to ensure that grid modernisation happens alongside increased renewable generation. They do not pose interoperability risks with Australia, as the underlying objective – enhancing grid capacity to support increased renewable generation – is consistent across frameworks. Per TEG's offline feedback, Option 1 provides a more straightforward assessment approach and is therefore preferred for the NZ Taxonomy. Selecting this option is not expected to pose any operational challenges for the country, given NZ's already highly decarbonised grid.[1]
10	T&D of renewable and low-carbon gases (Activity #14): • The 100% threshold in Criterion A remains unchanged, However, in the NZ Taxonomy, a footnote has been added to allow for	Allowance for minor trace gases, impurities and non-fossil gases in pipelines: • This footnote acknowledges that small amounts of trace gases or impurities may be present within the renewable or low-carbon gas share. • Emerging research and development also suggests that minor quantities of other non-fossil gases (e.g., oxygen) may be introduced to address technical issues such as

[1] Currently around 68-81gCO_2e/kWh, projected to decline to approximately 50-53gCO_2e/kWh by 2030, based on Climate Change Commission modelling. It is important to note, however, that these figures reflect direct emissions; a lifecycle emissions calculation would still be required to demonstrate alignment with the Taxonomy threshold.

	minor amounts (e.g., up to 2%) of trace gases, impurities, and non-fossil gases where necessary to reduce pipe embrittlement. • Biogas explicitly recognised as a type of low-carbon gas under Criterion B for NZ.	pipeline embrittlement. Explicit recognition of biogas: • So that it's clear biogas is not excluded from Green alignment.
11	Remote and micro-grid systems (Activity #15): • Clarified in the NZ Taxonomy's activity description that it refers to the construction, retrofitting, or operation of remote, standalone, and islanded microgrid systems for electricity, and removed "or the connection is intermittent" from criterion A(a). • Threshold increased from 90% (Australia) to 95% (NZ) for systems "designed to run on renewable energy". • List of eligible renewable energy sources expanded in the NZ Taxonomy. • Maximum grid size reduced from 10 megawatts (MW) (Australia) to 5MW for NZ.	Clarifications to activity scope: • To clarify that the activity specifically captures unconnected systems (i.e., islanded microgrids). Threshold increase for systems operating on renewable energy: • A 90% share would mean the grid runs on fossil fuels for roughly 37 days per year. Hence, an increase to 95% has been suggested. • Some Energy TAG members also noted that NZ microgrids are generally less remote from a base than Australian grids (and therefore require fewer days of fossil reliance in cases where renewable plants are offline), which may justify a higher threshold. Expansion of list of eligible renewable energy sources: • To ensure the criteria are not overly restrictive and allow solutions suitable for local/community deployment (e.g., run-of-river hydro, micro hydro, irrigation canals) to qualify. Change in max grid size: • Adjusted to i) better reflect the NZ context (whereby microgrids are typically within the range of 3MW), and to ii) provide flexibility for future growth in community size, energy demand, and distributed energy use.
12	Storage of energy (Activity #16): Criterion D revised from "electrochemical storage systems" (Australia) to "chemical energy storage systems, including electrochemical storage systems and low-emissions fuels" (NZ).	This ensures the NZ Taxonomy recognises a wider range of green storage solutions.

Table 2. Activity-specific Do No Significant Harm (DNSH) criteria comparison

#	Key changes made to the NZ Taxonomy (relative to the Australian Taxonomy)	Rationale/Notes
1	Activity-specific DNSH criteria for i) production of heating/cooling from thermal heating/geothermal energy/bioenergy and ii) RD&I of energy technologies introduced for NZ.	These activities are unique to the NZ Taxonomy, and hence do not have Australian activity-specific DNSH criteria as a precedent for reference. Heating/cooling from thermal heating/geothermal energy/bioenergy: Activity-specific DNSH criteria align with those applied to equivalent electricity generation activities. RD&I of energy technologies: • For climate change mitigation, a projected lifecycle emissions intensity threshold of <150gCO_2e/kWh is applied. • For the other five environmental objectives, rather than requiring full environmental impact assessments (EIAs) for example (which may be impractical for technologies still under development), the criteria instead focus on identifying and managing any potentially material environmental risks associated with the researched technology, product or solution. This is consistent with the framing used in the EU Taxonomy. Note that although installation and operation of heat pumps is also a new activity introduced for NZ, no activity-specific DNSH criteria are required: • For climate change mitigation, the activity is automatically eligible for substantial contribution; therefore, no DNSH assessment is needed. • For all other environmental objectives, generic DNSH criteria apply.
2	Climate change mitigation activity-specific DNSH criteria introduced for NZ.	Unlike Australia, which in Version 1 developed SC criteria only for climate change mitigation, the NZ Taxonomy develops SC criteria for both climate change mitigation and climate change A&R. As a result, activities contributing substantially to climate change A&R must also demonstrate they do no significant harm to climate change mitigation, necessitating the development of activity-specific DNSH criteria for this environmental objective. The NZ approach is as follows: • Activities automatically eligible for substantial contribution to climate change mitigation (e.g., electricity or heat/cooling generation from solar/wind/ocean energy/waste heat; energy storage; district heating and cooling systems; installation and operation of heat

		pumps): No DNSH assessment for climate change mitigation is required. • Activities subjected to an emissions intensity threshold for demonstrating substantial contribution to climate change mitigation (e.g., electricity or heat/cooling generation from hydro/geothermal/bioenergy; T&D of electricity): Generic climate change mitigation DNSH criteria must be met. This includes conducting a lifecycle GHG inventory and ensuring emissions intensity stays below the set threshold (150gCO_2e/kWh). ○ Note: For hydropower, a corresponding power density threshold (≥ 3.5 watts per square metre (W/m^2)) linked to the 150gCO_2e/kWh lifecycle emissions intensity threshold is also included, as an alternative (and easier) approach to demonstrate alignment. • (Specific to) T&D of renewable and low-carbon gases: Activity-specific DNSH requires no increase in gas T&D capacity or extension of network lifespan (unless dedicated to renewable and low-carbon gases).
3	Compensatory measures for restoring river continuity introduced in NZ's hydropower activity-specific DNSH.	Adopted from the EU Taxonomy, this provision allows flexibility in cases of river fragmentation, provided that restoration measures are implemented within the same river basin.