# **Powering Up the Future competition as an assignment**

# **How to use this document:**

1. This document contains all assignment resources aligned to Years 9 and 10 of the Australian Curriculum.
2. It is editable so you can tailor it to suit your students and teaching schedule.
3. Make any changes needed to adapt the content for your class.
4. Use the document as a single reference point to make changes, then separate into the task sheet, assessment rubric, and student self-assessment checklist for your students as needed.

## **In this resource you will find:**

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| **The assignment instructions and  task description** | **The assignment marking rubric** | **The student self-assessment checklist** |
| The context and prompt are provided in the assignment instructions and task description.  Students can either:   * Enter the competition individually, or * Submit their entry to you, and you submit on their behalf.   Before submitting any student work, please use the document titled ‘1 Guardian and Parent Communication Template’ to ensure appropriate consent has been obtained for sharing student images. | One assignment rubric is provided, aligned to AC (v9) **Years 9 and 10.** The rubric includes:   * Key criteria for a successful competition entry * Links to general capabilities and cross-curriculum priorities * The far-right column shows the curriculum links. These can be cross-referenced in the ‘2 Curriculum Alignment’ document.   We recommend removing this column before sharing with students. Each criterion is graded on a 1–4 scale. The Scientific Understanding criterion is optional and highlighted in green. Other optional, non-assessed criteria that still link to the curriculum are shaded grey. | The student checklist includes a checklist statement for each row of the rubric.  Science Understanding content is:   * Shaded green * Aligned to the relevant year level (noted in the ‘Notes’ column)   If you do not wish to assess Science Understanding, simply remove these rows from both the rubric and the checklist. |

# **Assignment instructions and task description**

**How would you help to build a future powered by   
sustainable energy?**

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| **Imagine it’s the year 2050. You wake up in your home, head to school, or walk through your community. Everything runs smarter, cleaner, and more efficiently.**  *How did we get there?* |

**2025 Competition Task**

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| As a Snowy Hydro futurist, it is your mission to:  **invent a bold new idea, technology, or system that helps save or reuse energy to lower emissions.** |

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| **Your project will have two parts:** | **How to enter the competition:** |
| * **Part 1:** An idea or invention that creatively addresses energy conservation or emission reduction. * **Part 2:** An explanation (written or video) that clearly answers:   + What is the problem you are addressing?   + What is your idea?   + How does it work? | Once you have finished your assignment, you can submit your entry to win prizes on the [Powering Up the Future competition](https://www.snowyhydro.com.au/poweringup/) website for your chance to win you and your school prizes of up to $3000!  Each class can submit their entries all at once, so check with your teacher to see if they want you to submit your entry to them first.  Make sure you read the [2025 competition terms and conditions](https://www.snowyhydro.com.au/wp-content/uploads/2025/07/Snowy-Hydros-Powering-Up-The-Future-Competition-Terms-and-Conditions-2025.pdf) before you enter. |

## **Assessment rubric**

| **Criteria** | **1 – Beginning** | **2 – Developing** | **3 – At level** | **4 – Extending** | **Teacher notes: Curriculum & Capability Links** |
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| **Creativity & Innovation** | Idea lacks originality or is unrelated to emissions or renewables. | Some originality or connection to real-world problems. | Innovative idea with relevance to reducing emissions using renewable principles. | Highly original, well-developed idea that demonstrates deep insight into environmental sustainability. | *Critical & Creative Thinking – Generating* |
| **Explanation of the Problem** | Problem is vague or poorly defined. | General problem identified, with basic relevance. | Clear identification of a real-world environmental issue. | In-depth exploration of the issue using evidence or data. | *Influence of science in society* |
| **How the Invention Works** | Limited or unclear description. | Some explanation of function or design. | Logical and clear explanation of how the invention works. | Sophisticated explanation, includes science behind mechanisms and components. | *Communicating scientific ideas* |
| **Connection to Reducing Emissions** | Weak or no connection to emissions reduction. | General connection; limited explanation. | Clear link to how invention supports emissions reduction. | Strong, evidence-based rationale for environmental impact. | *Societal influence on science research* |
| **Year 9 Science Understanding content** *(optional)* | Does not describe energy transfer clearly. | Identifies wave or particle model, with basic explanation. | Describes and applies wave and particle models to show how energy moves through mediums (e.g., air, wires). | Thorough, accurate use of both models. Evaluates usefulness and limitations of models in context of invention. | *AC9S9U04 - Use wave and particle models to describe energy transfer through different mediums and examine the usefulness of each model for explaining phenomena.* |
| **Year 9 Science Understanding content** *(optional)* | Does not demonstrate understanding of conservation or efficiency. | Describes energy input/output but with limited clarity. | Applies the law of conservation of energy and shows where energy is lost (e.g. heat). Mentions efficiency. | Detailed analysis of energy transfers, transformations, and system efficiency. Uses relevant examples (e.g. wind vs coal energy, appliance star ratings). | *AC9S9U05 - Apply the law of conservation of energy to analyse system efficiency in terms of energy inputs, outputs, transfers and transformations.* |
| **Year 10 Science Understanding content** *(optional)* | No reference to systems or climate change. | Identifies some components of Earth systems. | Describes energy flow between Earth systems and relates it to climate patterns. | Detailed explanation of energy interactions across systems. Shows how invention relates to or mitigates climate change using scientific models. | *AC9S10U04 - Use models of energy flow between the geosphere, biosphere, hydrosphere and atmosphere to explain patterns of global climate change.* |
| **Ethical, Cultural & Social Considerations**  *(optional)* | Not addressed. | Some awareness of ethical or social issues. | Ethical and cultural implications considered and integrated. | Deep, balanced reflection on ethical, cultural, and societal issues connected to innovation. | *Ethical Understanding* |
| **Science Communication & Presentation**  *(optional)* | Poorly structured, unclear. | Communicates message, but lacks clarity or cohesion. | Clearly communicates using structure and appropriate format. | Persuasive, engaging communication tailored for audience, using excellent digital and language features. | *Communicating scientific ideas* |
| **Use of Evidence & Evaluation** *(optional)* | Makes general claims without evidence. | Uses some evidence or examples, but not analysed. | Draws conclusions based on relevant evidence. | Sophisticated use of multiple sources, weighs evidence, and critically evaluates reliability. | *Evaluating information* |
| **Use of Digital Tools** *(optional)* | Limited or no digital components. | Digital tools used with limited effectiveness. | Digital tools used purposefully and clearly. | Polished use of digital media to enhance meaning and engagement. | *Digital Literacy – Collaborate & Communicate* |
| **Collaboration & Leadership (if in group)** *(optional)* | Poor collaboration or contribution. | Participates with prompting. | Contributes consistently to group work. | Demonstrates leadership, manages tasks and communicates effectively. | *Personal & Social Capability – Communication & Leadership* |

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## **Student self-assessment checklist**

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|  | **📝 Checklist** | **✅  I did this well** | **🔄 I'm still working on this** | **✍️ Notes for myself** |
| 💡 | I presented a clear and creative idea to reduce emissions in a renewable world. | **☐** | **☐** |  |
| 🧠 | I explained how my invention works using relevant scientific ideas. | **☐** | **☐** |  |
| 🌍 | I made clear connections between my invention and reducing emissions. | **☐** | **☐** |  |
| 🧪 | I used scientific evidence or examples to explain my thinking. | **☐** | **☐** |  |
| 📣 | I communicated my idea clearly and effectively for the audience. | **☐** | **☐** |  |
| 🌊 | I used wave or particle models to explain energy transfer in my invention. | ☐ | ☐ | **\*\*Year 9 Science Understanding Content** |
| ♻️ | I explained how energy is conserved and analysed the efficiency of my system. | ☐ | ☐ | **\*\*Year 9 Science Understanding Content** |
| 🌐 | I explained how energy flows between Earth systems (geosphere, atmosphere, etc.) and related this to global climate change. | ☐ | ☐ | **\*\*Year 10 Science Understanding Content** |
| 🤔 | I considered ethical, cultural or social aspects related to my idea. | ☐ | ☐ |  |
| 💻 | I used digital tools to present or support my idea. | ☐ | ☐ |  |
| 👥 | I contributed to my group (if in a team), showed leadership or worked respectfully. | ☐ | ☐ |  |