Mt Piper BESS

2025 STEAM Schools Program

Impact Report

EnergyAustralia

LIGHT THE WAY

PROJECT	Mt Piper BESS	**DATE**	10 February 2026
GROUP	Community Engagement	**STATUS**	FINAL
AUTHOR	Cath Russell	**REVISION**	8.0
COMPANY	EnergyAustralia		

Contents

Introduction

The energy transition does not begin with infrastructure — it begins with curiosity.

EnergyAustralia delivered the 2025 Mt Piper BESS STEAM Schools Program early in the project's development because we believe the energy transition must leave a legacy in the communities that host it.

In Lithgow, where generations of families have grown up alongside Mt Piper Power Station — where parents, grandparents, aunts, uncles, friends and neighbours have worked — the connection to energy is deeply personal. It is only right that young people who have grown up with this history in their backyard can also see themselves in its future.

Big batteries like the Mt Piper Battery Energy Storage System provide a powerful educational lens: turning complex ideas about electricity, storage and system reliability into something tangible, local and relevant. By bringing these concepts into classrooms, we are helping students understand not only how the energy system is changing, but where they might fit within it.

In every classroom we entered, we began with a simple question: *"Who knows someone who works at Mt Piper Power Station?"* Hands went up instantly — followed by stories of family members and community connections working in energy. Those moments of recognition became the starting point for deeper learning, curiosity and aspiration.

This report summarises the engagement activities EnergyAustralia undertook during the development phase of the Mt Piper BESS project for the 2025 STEAM Schools Program.

The 2025 STEAM Schools Program, delivered while the project is in development, provides a foundational step in delivering shared benefits through the Mt Piper BESS project. The engagement with local schools, students and teachers provided early insights into local values, priorities and pathways for the next stage of benefit sharing and local impact investment.

Figure 1 La Salle students undertaking the potato challenge

Building skills for the future

Science, Technology, Engineering, Arts and Mathematics (STEAM) education is foundational to prepare young people for the future — not just for careers in energy, but for participation in a rapidly changing world.

As Australia navigates technological change, climate transition and evolving workforce needs, STEAM skills underpin critical thinking, problem-solving, creativity and collaboration. These capabilities are increasingly essential across all industries, enabling young people to adapt, innovate and contribute meaningfully to society.

By introducing STEAM concepts early — and grounding them in real-world applications — we help students move beyond abstract learning to understand how knowledge is applied, why it matters, and where it can take them.

Figure 2 Mt Piper BESS visualisation adjacent to the current Mt Piper Power Station

Why Mt Piper Bess? A big battery in our backyard

Large-scale batteries like the Mt Piper Battery Energy Storage System (BESS) are transforming the way electricity is generated, stored and delivered across Australia.

Located on land already dedicated to energy generation, Mt Piper BESS provides a powerful, tangible example of the energy transition happening in students' own backyard. It turns complex concepts — such as energy storage, grid stability and renewable integration — into something visible, relevant and easy to explore.

Using Mt Piper BESS as the centrepiece of the program allowed students to connect classroom learning with a real project they can see, talk about and feel part of. It transformed a major piece of energy infrastructure into an accessible, hands-on educational tool — bringing the future of energy to life.

Table 1 A battery as a learning tool

Tangible and relatable	Batteries are familiar to students—they power their toys, phones, and laptops. A large-scale battery project builds on that familiarity, showing them how the same principles power homes and support entire communities.
Cross-disciplinary learning	Battery projects naturally integrate all elements of STEAM: • **Science:** Chemistry of energy storage, electricity, circuits. • **Technology:** Energy systems, monitoring tools, renewable integration. • **Engineering:** Design, safety, and construction of large-scale storage. • **Arts:** Designing, interpretation, visualisations/renders • **Math:** Measuring charge, efficiency, and energy flow.
Hands-on learning opportunities	Simple experiments like potato batteries or circuit-building let students apply theoretical concepts in fun, interactive ways that reinforce understanding and encourage problem-solving.
Real-world relevance	Energy storage is a growing field critical to the future of renewable energy. Learning about batteries helps students understand how we transition to cleaner, more reliable energy systems—making STEM meaningful and urgent.
Inspires future careers	Exposing students to emerging technologies in their own communities (like the Mt Piper BESS) shows them STEM isn't just something you learn—it's something you can *do* in the real world. That can spark interest in careers in engineering, clean energy, or tech innovation.

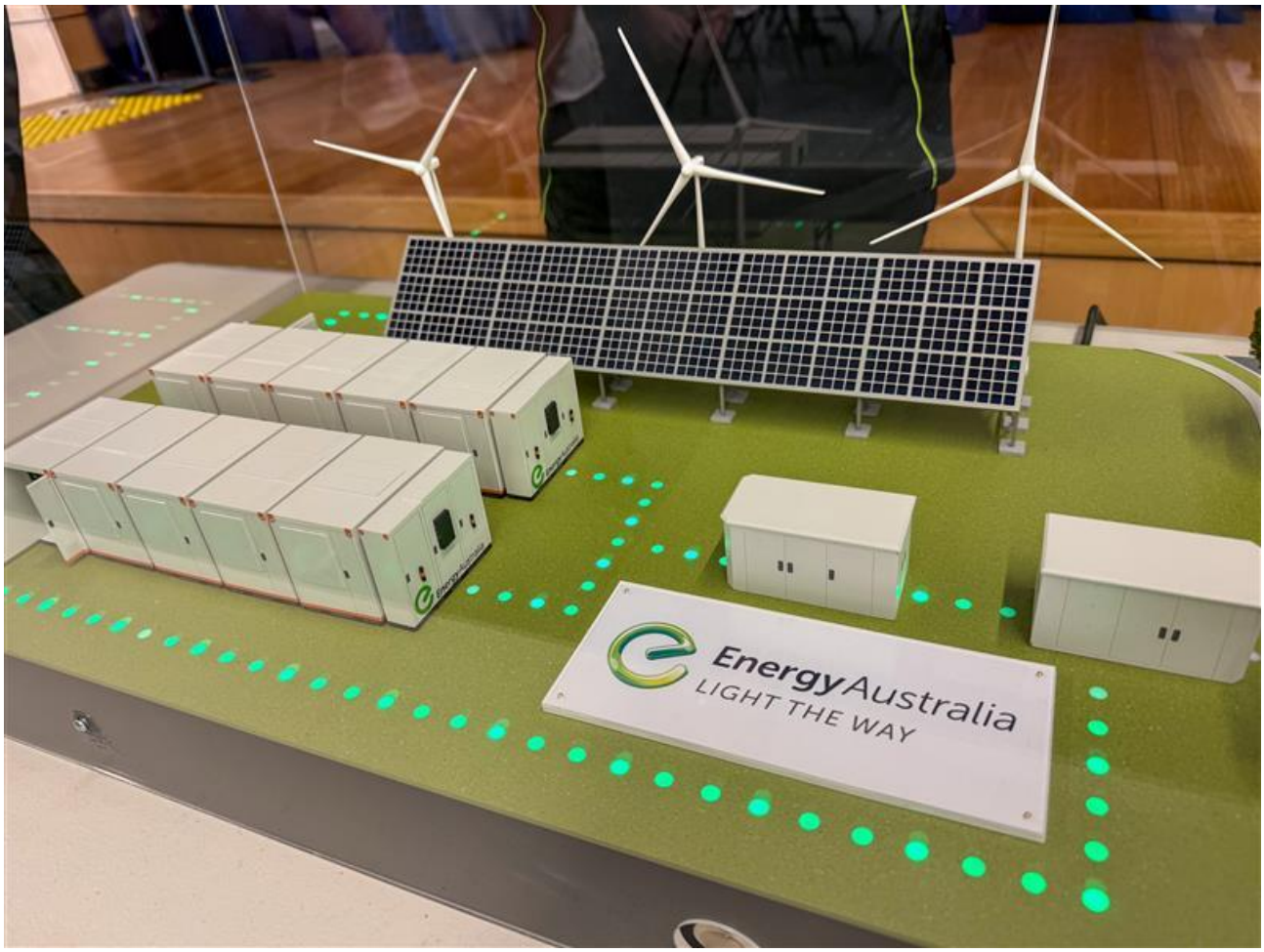


Figure 3 BESS model for classroom demonstrations

Lithgow where the classroom is the frontline of the energy transition

For more than 70 years, Lithgow has played a critical role in powering New South Wales. As the energy system evolves, the region remains central to Australia's clean energy future — and local classrooms are where this future begins.

Lithgow City Council's Local Government Area has an estimated population of around 20,700 residents (2024 estimate) living across the region. According to the most recent (2021) Australian Bureau of Statistics data, approximately 3,417 residents were aged 0–14 years — representing around 16.4 % of the total LGA population[1]. This demographic represents the pool of local children who will form the future workforce, many of whom will pursue further education and careers in STEM-related fields.

Engaging this cohort through locally relevant, experiential STEAM learning helps build energy literacy, supports aspirations into future careers, and strengthens community ties to the energy transition happening right in their own backyard.

Figure 4 STEAM session at Cullen Bullen School

[1] Australian Bureau of Statistics (ABS) (2021). *2021 Census QuickStats: Lithgow (LGA14870).* Available at: https://abs.gov.au/census/find-census-data/quickstats/2021/LGA14870 (Accessed: 19 October 2025)

Impact

From aim to outcome

The expansion of the program was driven by strong interest from schools and educators, who identified the program's local relevance and EnergyAustralia's connection to the community as key factors supporting participation.

Table 2 Original aim to delivered outcome

Original Aim	Delivered Outcome
Engage students aged 8–12	Engaged students aged 6–16
Work with 3 schools	Delivered across 9 schools
Reach >100 students	Reached 1088 students

From objectives to outcomes

The table below outlines what the program aimed to achieve, how it was delivered, and the early outcomes demonstrating its influence in local classrooms and communities.

Objective	Approach	Outcomes
1. Build foundational energy literacy in a host community during the project development phase	• Use the Mt Piper BESS as a real-world, local case study • Deliver hands-on experiments, models and demonstrations explaining energy generation, storage and transmission • Embed learning in familiar local infrastructure and language	• Students demonstrated improved understanding of how the energy system works • Increased awareness of energy storage and clean energy technologies • Ability to relate abstract energy concepts to local projects and places
2. Spark curiosity and sustained interest in STEAM through experiential, place-based learning	• Design interactive, age-appropriate activities and experiments • Prioritise hands-on learning, games and problem-solving over passive instruction • Adapt content to suit a wide range of year levels and learning environments	• Strong engagement across age groups, particularly upper primary cohorts • High recall of experiments and activities, indicating memorable learning experiences • Student feedback reframing STEAM as engaging, practical and enjoyable
3. Support early awareness of energy-sector pathways and the future clean-energy workforce	• Leverage EnergyAustralia's role as a local energy operator and developer • Acknowledge and validate students' family and community connections to Mt Piper Power Station • Position new technologies as an evolution of existing energy roles	• Increased visibility of energy careers as local and attainable • Early recognition that STEAM skills link to real jobs in the energy sector Reinforcement of • Lithgow's ongoing role in Australia's energy future

Creating public value

The logic model below shows how EnergyAustralia's investment in the STEAM Schools Program translates into public value through improved energy literacy, STEAM engagement and early workforce awareness in a host community.

Logic stage	Description
Input (Investment)	• EnergyAustralia staff expertise and facilitation time • Contracted STEAM education support • 183 hours of direct classroom delivery • 365–400 hours of preparation, coordination and logistics • Interactive Mt Piper BESS physical model • Hands-on learning materials, experiments and worksheets • Established relationships with Lithgow schools
Activities (Delivery)	Designed place-based STEAM content linked to Mt Piper BESS • Invited local schools to participate during project development • Delivered facilitated classroom sessions across multiple year levels • Used Mt Piper Power Station and BESS as real-world case studies • Adapted program delivery in response to educator feedback • Collected qualitative feedback from students and teachers
Outputs (What was delivered)	• 30 STEAM sessions delivered over a six-week period • Program delivered across nine schools • Students engaged from Kindergarten to Year 11 • Hands-on experiments and interactive learning experiences • Direct engagement between EnergyAustralia and local students
Short-term outcomes (early results)	• Improved understanding of energy generation, storage and transmission • Increased curiosity and engagement with STEAM learning • Stronger connection between classroom learning and local energy infrastructure • Greater awareness of clean energy projects in the region
Immediate outcomes	• Increased energy literacy within a host community • Positive perceptions of emerging energy technologies • Normalisation of clean energy as part of Lithgow's energy identity • Early awareness of STEAM and energy-sector pathways
Longer term impacts (Public value)	• Contribution to future clean energy workforce readiness • Stronger community confidence and trust in new energy projects • Enduring social licence through visible, locally relevant investment • Continued role for Lithgow as a centre of energy skills and capability

Approach

Designing a place-based STEAM program

The Program was intentionally designed as a place-based learning experience, using a real energy project in the Lithgow region to anchor STEAM concepts in students' everyday environment.

Program design focused on:

- translating complex energy concepts into age-appropriate, hands-on learning
- using the Mt Piper BESS as a tangible case study for energy storage and system operation
- aligning content with NSW Department of Education STEM curriculum priorities
- creating interactive experiences that prioritised curiosity, participation and discovery

Initial content was developed for students in Years 3–8, aligned to curriculum learning capabilities and priorities. As the program unfolded, additional activities were developed to support students from Kindergarten through to Year 12, ensuring learning remained relevant across a wide range of ages and school contexts.

To support educator confidence and integration into classroom learning, teacher guidance documents were developed in the familiar format of lesson plans. These materials were reviewed by independent teachers in an advisory capacity to confirm suitability, curriculum alignment and educational value.

Calling for participation through local schools

Schools across the Lithgow Local Government Area were invited to participate in early March 2025, ahead of Term 2 delivery.

The invitation emphasised:

- The local relevance of Mt Piper Power Station and the Mt Piper BESS project
- EnergyAustralia's role as both an energy operator and project developer
- The opportunity for students to engage with real-world applications of STEAM

Feedback from educators indicated that EnergyAustralia's longstanding presence in the region, and its connection to local families and employment pathways, were key drivers of interest and participation.

Table 3 Participating schools

High School	La Salle Academy	Lithgow High
Central School	Portland Central	
Primary	St Patricks	Lithgow Public
	St Joseph's	Cooerwull Public
Small	Cullen Bullen	Hampton

Structuring delivery for diverse learning environments

The program was delivered within school settings over a defined six-week period, allowing consistency while accommodating differences in school size, age cohorts and learning needs.

Sessions were designed as 90-minute interactive, inquiry-based workshops, supported by:

- classroom-based activities using physical models and experiments
- small-group problem-solving and facilitated discussion
- age-appropriate worksheets and visual learning materials
- opportunities for questions and two-way dialogue

Learning tools included stimulus materials such as fact sheets, short videos and animations, diagrams and flowcharts, sensory materials, and a simple interactive BESS model. Students used worksheets to record observations and critical thinking, while facilitators used structured run sheets outlining learning goals, activity sequencing, resources and roles.

Younger students engaged through imaginative storytelling and creative activities, while older students explored technical concepts, systems thinking and energy analysis. Across all year levels, students engaged with the core themes of renewable energy, energy storage and the role of batteries in a meaningful and memorable way.

Table 4 Activities by school year

Activity	K–2	Years 3–4	Years 5–6	Years 7–8	Years 9–10	Years 11–12
Stored energy: light up an LED bulb		✓	✓	✓		✓
Draw a renewable energy future (transport)	✓			✓	✓	
Energy transfer: create a power grid	✓					
Wind energy exploration	✓	✓				
Build an energy-efficient house		✓	✓			

Adapting in response to school and educator feedback

As interest from schools increased, requests were received to broaden the program beyond its initial scope. In response, EnergyAustralia adapted the program to remain inclusive and responsive to local needs.

Adaptations included:

- expanding content to suit a wider age range, from kindergarten to senior secondary students
- modifying session formats for different school types, including small and central schools
- scaling materials and facilitation approaches while maintaining quality and consistency

This adaptive approach reflects EnergyAustralia's commitment to responsive engagement and high-quality educational delivery during the project development phase.

Figure 5 The popular potato challenge

Outcomes

This section outlines the key outcomes of the Mt Piper BESS STEAM Schools Program, drawing on delivery data and participant feedback to highlight early impacts on energy literacy, STEAM engagement and awareness of future energy-sector pathways.

Student and teacher feedback indicates high levels of engagement and educational value.

More than 90% of students reported moderate to high engagement, with younger students in particular demonstrating strong enthusiasm during sessions. This was reinforced by positive anecdotal feedback from both students and parents. Demand for repeat delivery was strong, with 93% of teachers requesting the program be run again and most students indicating they would like to participate in future sessions.

Learning outcomes were also evident. Nearly 90% of students reported learning something new, and teachers consistently observed strong collaboration, problem-solving and engagement across cohorts. Educators noted that the inquiry-based, hands-on format extended classroom learning in ways that are often difficult to achieve within standard teaching constraints. All teachers surveyed confirmed the program was relevant to their students' stage of learning, with the majority reporting improved understanding of clean energy and battery storage concepts.

Table 5 What we heard summary

Local connection	Experiencing change	Sparking interest
We know friends or family that have worked or work at Mt Piper Power Station	We know about renewable projects like solar, wind, pumped hydro and batteries in happening in our area	We can see that STEM is more than just maths and science, it can be fun
Energy system understanding	**Real-world relevance**	**Meaningful and memorable**
We now understand how energy generation, storage and transmission work	We would like you to run this STEAM program again because it is relatable - the students can see the power station and your projects in their local community	We learnt something new – we will always remember making a light globe shine with the energy of a potato

Objective 1: Build foundational energy literacy in a host community during the project development phase

Delivery outputs

- 30 facilitated STEAM sessions delivered over six weeks
- Interactive learning centred on Mt Piper Power Station and Mt Piper BESS
- 183 hours of direct classroom delivery and an estimated 365–400 hours invested in preparation, coordination and logistics

Observed outcomes

- Students demonstrated improved understanding of:
- How electricity is generated, stored and transmitted
- The role of large-scale batteries in the energy system
- How local energy infrastructure connects to the broader grid
- Learning shifted from abstract concepts to place-based understanding, with students consistently referencing Mt Piper Power Station and Mt Piper BESS in feedback and discussion
- Increased awareness of renewable and storage technologies operating in the local region

What this tells us

- Early, development-phase engagement can meaningfully lift energy literacy
- Using local infrastructure as a teaching tool demystifies emerging technologies
- Students are better able to contextualise the energy transition when it is framed as something happening *here*, not elsewhere

Table 6 Delivery investment – classroom time by hours

	La Salle Academy	Lithgow High	Portland Central	St Patricks	Lithgow Public	St Joseph's	Cooerwull Public	Cullen Bullen	Hampton	Total
Students #	100	194	90	140	240	60	140	12	12	**1088**
Cath Russell	12					6		3		21
Rob Setter	3				9		12			24
Jen Cordina	6								3	9
Leanne Walding		15	12	9	15	6			3	60
David Simpfendorfer							12			12
Contractor Support		15	12	9		6	12	3		57
Total Time	121	224	114	158	264	78	176	18	18	**183**

Table 7 Non-delivery investment – preparation, coordination and logistics

Activity	Estimated hours
Tailoring activities (K–10, multiple schools)	120–150
Materials sourcing, prep & packing	60–80
School coordination & scheduling	70–90
Logistics, travel planning, risk & admin	60–80
Internal coordination & contractor management	40–50
Estimated total (non-delivery)	**365–400 hrs**

Objective 2: Spark curiosity and sustained interest in STEAM through experiential, place-based learning

Delivery outputs

- Program adapted for students aged 6–16 (K–Year 11)
- Activities included experiments, games, worksheets and hands-on demonstrations
- Delivered across a mix of high schools, central schools, primary schools and small schools

Observed outcomes

- Strong engagement across cohorts, with highest participation among Years 5–6 students
- High recall of hands-on experiments, indicating memorable learning moments
- Student feedback reframed STEAM as engaging, practical and enjoyable:
- “STEM is more than just maths and science — it can be fun”
- Strong requests from schools for repeat delivery, reflecting perceived educational value

What this tells us

- Experiential, hands-on learning is effective at sparking curiosity and sustaining interest in STEAM
- Upper primary years are a critical window for engagement with real-world systems
- Place-based programs reduce barriers to engagement, particularly in regional settings

Objective 3: Support early awareness of energy sector pathways and the future clean energy workforce

Delivery outputs

- Program delivered by EnergyAustralia staff and contractors with direct industry experience
- Content explicitly linked energy concepts to real projects and local employment history
- Classroom discussions intentionally acknowledged community and family connections to Mt Piper

Observed outcomes

- Students readily identified family members and community connections working in energy
- Increased visibility of energy careers as local, attainable and evolving
- Students demonstrated understanding of:
  - Continuity between traditional energy roles and clean energy technologies
  - The relevance of STEAM skills to real jobs in their region

What this tells us

- While not a careers program, the initiative supported **early aspiration-setting**
- Validating existing community connections helps position the energy transition as evolution, not replacement
- Programs like this contribute to longer-term workforce readiness by normalising clean energy careers from a young age

Cross-cutting outcomes and likely longer-term impacts

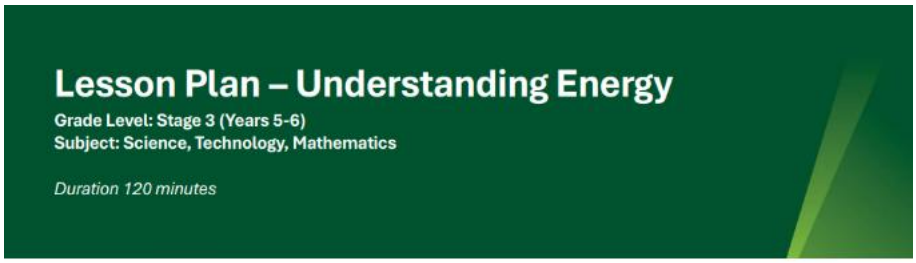
Taken together, the outcomes indicate that the program has established foundational conditions for longer-term benefits:

- Increased energy literacy among young people in a host community
- Sustained curiosity and engagement with STEAM learning
- Early awareness of clean energy career pathways within the local region
- Strengthened trust and social licence through visible, locally relevant investment during project development

These impacts are foundational rather than immediate, supporting longer-term outcomes such as workforce participation, community confidence and enduring community–project relationships as Mt Piper BESS progresses.

Appendix

Appendix A – Lesson plan example



Learning Objectives:

- Students will understand the concept of energy, including storage, supply and demand and energy saving.
- Students will identify sources of energy and their uses in daily life and how to reduce use.
- Students will explore the transformation of energy from one form to another.

Materials needed:

- Full list of resources outlined below.

Lesson Outline

Introduction (10 minutes)

1. Introduce team members; provide overview of objective of session and what students can expect.
2. Begin with a brief discussion on what energy is. Ask students to categorise renewable and non-renewable energy sources and technology. Write down students' responses on a whiteboard.
3. Introduce the concept of energy being the ability to help us in our everyday lives.

Activity 1: Energy sources (15 minutes)	**Activity 2: Saving energy experiment (30 minutes)**
1. Divide students into small groups and ask them to record how we use energy in our homes and our local streets. 2. Discuss as a class: What do we think our group discussion tells us about how we use energy in our town?	1. Discuss the group activity and provide examples of energy efficient materials. 2. In their groups, have students create their own streetscape and an energy efficient home. 3. Students should record their observations on the provided worksheets.

Discussion and reflection (15 minutes)

1. Groups to share their findings from the experiment.
2. Discuss the importance of energy conservation and how we can use energy more efficiently in our daily lives.

Appendix B – Participation certificates

Appendix C – Preliminary summary report

Mt Piper BESS

What we heard

STEM Schools Program

The science, technology, engineering and maths (STEM) program was built around an interactive model of the Mt Piper Battery Energy Storage System (BESS), designed to engage students through real-world energy concepts.

Lithgow schools were invited to participate in early March with the program delivered Term 2 (May/June 2025)

- BESS model
- Hands-on activities
- Experiments
- Games
- Worksheets
- Lesson plans
- Feedback surveys

Feedback from teachers and students has been grouped into several themes and summarised below:

Local connection

We know friends or family that have worked or work at Mt Piper Power Station

Experiencing change

We know about renewable projects like solar, wind, pumped hydro and batteries in happening in our area

Sparking interest

We can see that STEM is more than just maths and science, it can be fun

Energy system understanding

We now understand how energy generation, storage and transmission work

Real-world relevance

We would like you to run this STEM program again because students can see the power station and your projects in their local community

Energising memories

We will always remember making a light globe shine with the energy of a potato

Why we did it

We launched our STEM schools' program in Lithgow as part of a broader, collective effort to address one of Australia's most pressing challenges: preparing young people for the jobs and challenges of tomorrow.

Australia is falling behind in STEM — with declining student performance, a shortage of qualified teachers, and limited awareness of STEM career pathways. Meanwhile, employers across industries are facing growing skills shortages and recruitment challenges in critical STEM areas.

We know that future careers will require not only strong foundations in science, technology, engineering and maths, but also essential 21st century skills like critical thinking, creativity and collaboration. That's why our program goes beyond the classroom, helping students understand the real-world value of STEM and connecting them to the opportunities ahead within their local community.

Improve student outcomes

Growing demand for skilled teachers

Expanding awareness of STEM career pathway

Changing local economy

High demand for future ready skills

Enhanced recruitment outcomes

Information current as at July 2025

EnergyAustralia
LIGHT THE WAY

EnergyAustralia Pty Ltd ABN 99 086 014 968.
Locked Bag 14060, Melbourne, Vic. 8001