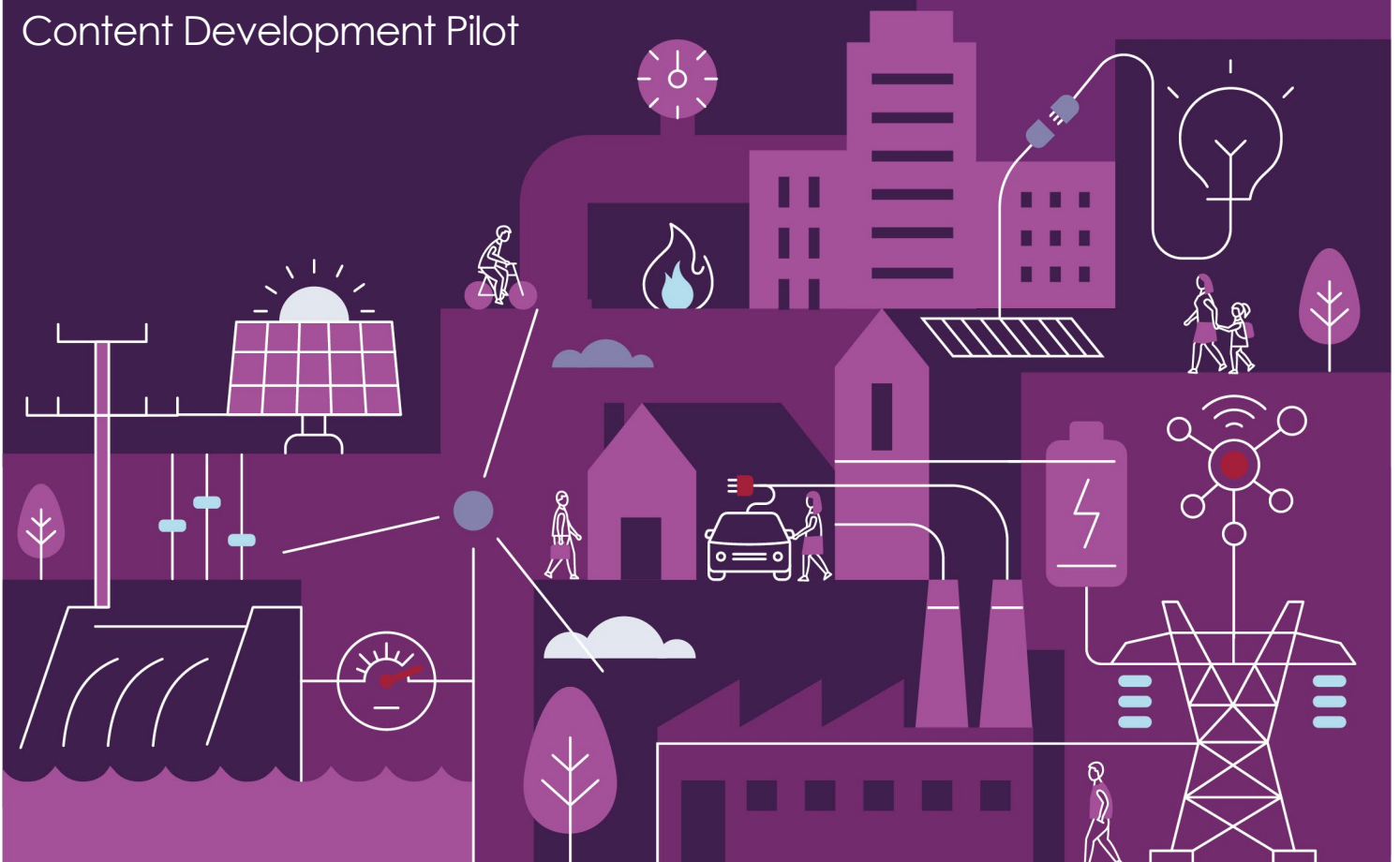


POWER SYSTEM OPERATORS TRAINING FRAMEWORK – PSOT

April 2025

Phase 2 Project Report
Content Development Pilot





We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country; and hope that our work can benefit both people and Country.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO Group is proud to have launched its first [Reconciliation Action Plan](#) in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation - a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Important notice

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1 Executive summary

1.1 Background and Project Overview

In 2020, AEMO and Thomson Bridge (now RelyOn Australia) launched a collaborative initiative to establish the Power Systems Operator National Training Framework (the Framework). The project was envisioned to progress through four distinct phases, outlined as follows:

- **Phase 1:** Development of the Framework through wide-ranging industry engagement.
- **Phase 2:** Content development and assessment of a selection of Pilot modules.
- **Phase 3:** Development and strategic commercialisation of the Framework
- **Phase 4:** Business-as-usual implementation and finalisation of the project.

Phase 1, between AEMO and Thomson Bridge (later acquired by RelyOn) was initiated in 2021 and concluded in early 2023.

Building on the partnership, Phase 2 was launched in late 2023. Eleven pilot modules, selected from the Fundamentals tier of the Framework, were carefully chosen for further assessment. Their development took place between 2024 and early 2025, with the outcomes of Phase 2 detailed in this report.

1.2 Pilot Phase Methodology

AEMO, with input from the PSOT Steering Committee, selected eleven modules to address a diverse range of topics, spanning both foundational and more complex subject matter. The modules chosen from the fundamental group included:

1. Electricity Networks and Elements of Electrical Power Systems
2. Renewables and Emerging Technologies
3. Electrical Fundamentals – AC
4. Electrical Fundamentals – Basic Electrical
5. Protection Fundamentals
6. Switching Fundamentals
7. Management and Coordination of Work Parties and Field Operators
8. Voltage Control and Reactive Power
9. Power Control and the Energy Market
10. Human Factors – Communications
11. Human Factors – Decision Making and Situational Awareness

The Phase 2 methodology focused on the practical development of content designed for deployment within a commercial learning management system. This content was created using cutting-edge adaptive learning technology, Area9 Rhapsode™. A more detailed explanation of Adaptive Learning can be found in [Appendix 1](#).

The content development followed a staged approach, structured into three blocks over a 12-month period. RelyOn engaged courseware developers and internal subject matter experts (SMEs) to create the modules, while

faculty from Macquarie University contributed to the design of the two Human Factors modules. A detailed overview of the Content Development process is provided in [Appendix 2](#). As each module was completed, it was made available via a portal dashboard for review by selected industry representatives and AEMO staff. In the later phase, after several modules had been developed, a demonstration content management system was established to showcase how the content could be commercially deployed using existing RelyOn applications. Further details on the content deployment approach can be found in [Appendix 3](#).

1.3 Pilot Phase Outcomes

The pilot outcomes have been well received by all stakeholders involved in Phase 2, including AEMO staff, industry representatives, content developers, and system administrators.

Rhapsode's adaptive learning technologies received highly positive reviews, praised for its well-structured design, ease of use, engaging content, and ability to maintain attention. The modules stood out as particularly valuable, setting a strong standard for training and serving as an industry benchmark. As an eLearning platform assessed by industry representatives, Rhapsode achieved impressive ratings—87.3% for usability and 85.5% for functionality and overall satisfaction. While the pilot study involved a small sample group, the feedback aligns with comments from Rhapsode users across various industries².

The content development process was overseen by a RelyOn courseware specialist, with the actual development carried out by RelyOn's global Digital Team. A crucial factor in ensuring success was maintaining consistency by keeping the same RelyOn personnel in their respective roles and functions. This continuity allowed for significant improvements in both content quality and process control throughout the pilot.

The greatest challenge for the pilot and any future development lies in creating high-quality material despite limited resources—subject matter experts, developers, and reviewers—as well as time constraints, particularly when relying on external input. Resource allocation will be further tested as both standard and advanced modules are developed, especially in cases where instructor-led or blended delivery modes are introduced. A thorough training needs analysis to refine learning objectives, close collaboration with regulators and Network Service Provider (NSP) resources, and effective management of any production deviations are also essential factors for success.

The deployment and management of content within a web and learning management environment proved to be both successful and seamless. This process leveraged existing RelyOn applications, which were effectively adapted to meet the needs of the pilot. These positive outcomes establish a strong benchmark for the continued development of the Framework and its eventual commercial rollout.

1.4 Conclusion

Phase 2 of the Framework project has confirmed that adaptive learning and content deployment approaches are highly effective in making the Framework accessible to the electrical industry. Additionally, it has highlighted the exceptional benefits of adaptive learning as a teaching tool, proving its relevance in addressing the industry's specific training needs.

Phase 2 has established a robust model for the future development and deployment of Framework content. If Phase 3 is implemented, this model will facilitate the efficient creation and deployment of remaining content and future requirements in a well-tested, effective manner. [Appendix 4](#) provides a proposed outline for Phase 3, including case studies on personalised learning at scale from Area9 Lyceum.

The implementation of Phase 3 is strongly recommended.

2 Pilot Phase 2 Report

The following section provides a comprehensive overview of Phase 2.

3 Background

The Australian Energy Market Operator, (AEMO) have continued to work on the development of an appropriate framework to deliver the objectives of adopting standardised training for Power System Operators.

As a direction from the National Electricity Market Operations Committee (NEMOC), the Operations Training Working Group (OTWG) introduced the possibility of adopting a training framework. Aside from the NEMOC, issues with Power Systems Operator (PSO) knowledge and training have been raised at several forums, including the Control Room Operations Working Group (CROWG), with participants eager to see a training culture shift and the implementation of industry training standards via a National Training Framework¹.

AEMO partnered with Thomson Bridge (now RelyOn Australia), a Registered Training Organisation (RTO), to develop the Power Systems Operator National Training Framework (the Framework) under a four Phase project.

Phase 1 of the project (the development of the Framework) was delivered by Thomson Bridge in 2021.

Phase 2 of the project was the design and development of 11 pilot modules using adaptive learning technology. The aim of the pilot was to test development processes, adaptive learning technology and content hosting and deployment. In early 2025, Phase 2 was completed by RelyOn (who partially acquired Thomson Bridge in September 2022 and fully acquired the company on 15 March 2024).

4 Introduction

The transformation of the industry and the introduction of new technologies means the existing areas of accountability and interoperability within the network are breaking down as are the traditional entry pathways.

The Framework is designed to complement existing training options. It is specifically focused on power system operators across the spectrum of generation, transmission, and distribution. The Framework provides guidance on critical elements of skills and knowledge for PSOs across a matrix of foundational, intermediate, and advanced levels.

¹ p1. National Training Framework – Courseware Development and Training Delivery Brief, Australian Energy Market Operator, 2021



The Framework is intended to be a “living document” that will adapt over time to meet industry needs.

After negotiations between AEMO and RelyOn in late 2023, Phase 2 was launched as a collaborative partnership in early 2024. This phase focused on delivering 11 modules of the Framework, serving as both content and technology pilot demonstrators to guide the development of the remaining modules.

5 Project Overview

The Framework project is structured into four distinct phases, each contributing to its overall development. These phases are:

- | | |
|----------------|---|
| Phase 1 | Collaboration and consultation to define a skills management and governance framework (the Framework) and the initial high level training needs analysis for the foundation suite of modules. Provision of the proposed Framework for industry review. |
| Phase 2 | Based on the training needs analysis, design and develop initial courseware, define delivery mechanisms, and conduct pilot programs with selected operators to validate and refine the approach. |
| Phase 3 | Refine the overall approach for the management of the Framework including the design of an expanded suite of content, workplace performance and competency standards, content development and delivery modes, and program evaluation and improvement processes. |
| Phase 4 | Implement the Framework including ongoing evaluation and continual refinement. |

The anticipated timeline for the project was as follows:

- Phase 1 spanned 3 to 4 months, allowing for initial consultation, follow-up tasks, and validation of findings. This phase was successfully completed in 2021.
- Phase 2 was shaped by the requirements outlined in Phase 1 and was expected to take approximately 12 months. It commenced in early 2024 and concluded in early 2025.
- Phase 3 is dependent on insights gained from Phase 2, and current proposals are under review to determine its implementation.
- Phase 4 will integrate the content development and deployment outcomes of Phase 3, ensuring a seamless transition to business-as-usual operations.

Phase 1 was successfully completed in 2021. In late 2023, RelyOn and AEMO formed a partnership to develop a suite of pilot modules aligned with Phase 2 of the Framework. By early 2024, 11 modules from the fundamental

level of the Framework were carefully chosen, covering a diverse range of topics. These modules encompassed both basic concepts and more complex subject matter, ensuring a comprehensive learning experience. The selected modules were:

1. Electricity Networks and Elements of Electrical Power Systems
2. Renewables and Emerging Technologies
3. Electrical Fundamentals – AC
4. Electrical Fundamentals – Basic Electrical
5. Protection Fundamentals
6. Switching Fundamentals
7. Management and Coordination of Work Parties and Field Operators
8. Voltage Control and Reactive Power
9. Power Control and the Energy Market
10. Human Factors – Communications
11. Human Factors – Decision Making and Situational Awareness

6 Methodology and Findings

The methodology for Phase 2 focused on the practical development of content designed for deployment within a commercial learning management system. This content was created using cutting-edge adaptive learning technology, Area9 Rhapsode™, with further details on Adaptive Learning provided in [Appendix 1](#). The process followed a staged approach, building content in three phases over a 12-month period.

As each module was developed, it was made accessible via a portal dashboard for review by selected industry representatives and AEMO staff. Notably, the two Human Factors modules were designed with input from faculty at Macquarie University. The Content Development process is outlined in [Appendix 2](#).

Later in Phase 2, once multiple modules had been completed, a demonstration content management system was introduced to illustrate how the content could be commercially deployed. Further details on the content deployment approach are available in [Appendix 3](#).

The key stages of this phase were:

- a. Stage one: Governance – set up a committee with representatives from AEMO and RelyOn, and engage NSP's to provide representatives for input and review;
- b. Stage two: The design and development of courseware; and
- c. Stage three: The piloting, evaluation, and deployment of the courseware.

Reviews were conducted by 3 separate groups:

a. Industry Representatives, including AEMO staff

Testing was conducted with 11 industry participants, who completed multiple pilot modules over a two-month period. Additionally, two AEMO representatives—serving as key contacts for the project—

participated in testing activities. AEMO also evaluated content deployment options within the learning management system. Feedback was gathered through post-testing emails, phone calls, and discussions during working group meetings. This data was then analysed to identify common themes and areas for potential improvement.

b. Content Developers, including internal RelyOn Subject Matter Experts

Feedback was provided by the principal courseware developer at RelyOn and the Director of the RelyOn Digital Team, ensuring expert insights into content creation and refinement.

c. Systems Developers

Input was collected from the website programmer and RelyOn Australia's learning management administrator, both of whom played key roles in developing the pilot concepts.

6.1 Findings:

1. Summary Findings of Industry Representatives - Content Review:

Overall, users found the module engaging and enjoyable to undertake, but there were some initial challenges with navigating through content. These were addressed during the one-on-one communication and training we provided for testers during testing period².

The following table summarises the average completion time for the top five most tested modules and align with timings suggested for each module:

MODULE	AVERAGE COMPLETION TIME
1.02 Renewables and Emerging Technologies	1.5 – 2 hours
1.06 Electricity Fundamentals – AC	1.5 – 2 hours
1.13 Switching Fundamentals	45 minutes
1.15 Voltage Control and Reactive Power	30 – 45 minutes
1.23 Human Factors – Decision Making	1.5 – 2 hours

Table 1: Module Average Completion Time Sample

Ultimately, feedback was positive and encouraging, with an average rating of 87.3% (4.4 out of 5) for usability and 85.5% (4.3 out of 5) for functionality and overall user satisfaction. Percentages are based on testers providing a verbal score out of 5 for each of the three categories, usability, functionality, and overall satisfaction. Testing feedback was collated into topics, with the top comments shown below³:

i. Navigation:

- Positive: Whilst completing the module end-to-end, participants found the module easy to navigate and understand where they were supposed to click to move to the next section.

² p1, AEMO ©, *FEEDBACK REPORT FOR PSOT PILOT MODULE TESTING* | MARCH 2025

³ p2,3, AEMO ©, *FEEDBACK REPORT FOR PSOT PILOT MODULE TESTING* | MARCH 2025

- Constructive: However, as previously stated, it was questioned whether there is a way to highlight the location of the Navigation and History panes, to make it easier to return to the beginning of the module, find their way through the module and see their progress.
- ii. Content:
- Positive: "The coach's voice was clear and the videos were high quality."
 - Positive: "I particularly enjoyed the case studies and real-world examples."
 - Constructive: "I would like to see more real-world case studies included."
- iii. Quizzes:
- Positive: "The quizzes and assessments were a great way to reinforce my learning."
 - Positive: "The quizzes were actually helpful and a great way to reinforce learning and made concepts easier to understand."
 - Constructive: "Some terminology in the quiz questions were a bit confusing and slightly different to the content delivered."
- iv. Overall comments:
- Positive: "The module was very well-structured and easy to follow."
 - Positive: "I found the content engaging and kept my attention throughout."
 - Positive: "The module and PSOT are particularly good and valuable for us as a standard of training and a benchmark for the industry"
 - Constructive: "The module could benefit from more control room based, real-world examples to use as quizzes."
 - Constructive: "The self-assessment slider needs a bit more explanation"

Content Deployment Feedback:

An AEMO representative undertook the content deployment options testing. This included accessing content as a pay-as-you-go learner using a credit card to pay for content and as a pre-paid learner where access was given without the need to pay at the entry gateway. A third option of being directly enrolled in a curriculum and using an email link to access content was not available for testing but is an option (using existing functionality). The summary comment of this testing was:

- Overall, the portal and process provided a successful and straightforward experience⁴.

2. Summary Findings of Content Developers:

The process of analysis and design with a courseware specialist and SME followed by development by learning engineers (LE) and graphic designers of the RelyOn Digital team with final review by the courseware specialist and SME was effective⁵.

⁴ Feedback from AEMO, RE: *Welcome to PSOT Deployment Testing*, 10 February 2025

⁵ Feedback from Developers, RE: *AEMO Review Inputs*, 11 and 14 April 2025

- A key factor was keeping the same (internal RelyOn) people in the same roles/functions which effectively allowed improvements to be made in both content quality and process control, throughout the pilot.
- Learning Engineering work was presented to the Digital development team from the courseware specialist in a highly organised and timely manner, making scheduling, resourcing, and facilitating the work an efficient process to schedule and complete on time.
- Close work between SME and LE allowed the product (i.e. Module) size and shape to be understood and subtly refined upon delivery of each individual workstream (where useful).
- The biggest challenge for the pilot, and any subsequent development, is trying to produce material with limited resources (SME, developers, and reviewers) and time (especially getting input from external sources). The resourcing component will be further tested as standard and advanced modules are developed especially where instructor-led and blended modes of delivery are identified.
- Establishing adequate resourcing and clearly defining what outcomes can be achieved in any given period, is a key learning from the pilot. Expectations of SME availability and time taken for review comments to return were overly optimistic during the pilot and impacted delivery timelines.
- The detailed training needs analysis to refine learning objectives, close liaison with regulators and NSP resources, and how any deviations are managed during production has also been identified as a critical requirement. For instance, this could include greater involvement of the Australian Energy Regulator (AER) in the design process. Similarly, obtaining input from SME with the relevant experience and currency will be required.
- The use of Learning Objectives as the key module building blocks has proven especially useful as they can be reused for building other modules where appropriate. However, the early design of building whole modules did require extra work to extract and reuse some objectives.
- The Digital development team were given a relatively free rein to create a product 'look and feel' which seems to have been appreciated by the client. There were no issues with sourcing suitable image/content for the visual development side of things.
- The process to develop human factors content was assisted by ensuring that the learning objectives were very clear initially. This provided a logical structure for the presentation of the material, drawing on the existing evidence and appropriate models etc.⁶
- Having established the structure and initial text of the human factors modules, it was helpful to liaise with the courseware specialist who was able to draw on his experience and make the link between what we were presenting, and what occurs in practice, including examples and providing clarification⁷.
- Working with the Digital team in the UK was excellent. They are clearly very experienced. In the initial stages of developing the human factors modules things were rushed at times, and mistakes were made, but nothing too drastic, although it meant more time to check and then fix things. Similarly, improvements in instructional design direction to ensure the material is not repetitious and is presented well can be made⁸.

⁶ Human Factors Feedback, Re_ AEMO Human Factors Module Development Review, 15 April 2025

⁷ Human Factors Feedback, Re_ AEMO Human Factors Module Development Review, 15 April 2025

⁸ Human Factors Feedback, Re_ AEMO Human Factors Module Development Review, 15 April 2025

- The Rhapsode application of Curator was effective for review and comment. To improve the review, process all SME comments were channelled through the courseware specialist for entry into Curator. This simplified analysis of feedback by the Digital team.
- The use of a Dashboard to enable selective access for SME and industry representatives proved an effective way to manage viewing rights. Feedback from AEMO to the Digital team seemed to be very timely and concise, which was appreciated given the schedule and volume of content.
- A weekly courseware production management meeting internal to RelyOn was highly effective in being able to manage outputs and timelines.
- The governance committee process enabled the project to be managed from a client perspective but competing priorities and workloads meant review comments were not always received in a timely manner for the courseware design process.

3. Summary Findings of Systems Developers:

The pilot process leveraged existing RelyOn technologies and applications to showcase potential options for the commercial deployment of content.

The private web page was efficiently built at RelyOn's expense, aligning with established commercial processes. Since the modifications fit within existing ROA functionality, minimal testing and setup were required. However, the pilot web page included some hardcoded layout and branding elements, meaning any future changes would require manual adjustments¹⁴.

Achieving full functionality to model the Framework offerings will require further development, but this can be accomplished iteratively as the Framework is built and expanded—assuming Phase 3 moves forward. However, the pilot has successfully validated the underlying functionality.

The RelyOn Australia (ROA) learning management system (LMS) facilitated the deployment of offerings, learner enrolment, content presentation, completion tracking, and certification issuance. Notably, no modifications were necessary to align LMS functionality with the Pilot's requirements.

RelyOn also ensured that AEMO content within Area9 was fully integrated with the ROA LMS, funding this effort independently. This integration proved successful, with testing confirming seamless functionality.

7 Pilot Outcomes Overview

The outcomes of the pilot have been widely accepted by all stakeholders involved in Phase 2, including AEMO staff, industry representatives, content developers, and system administrators.

Rhapsode's adaptive learning technologies received highly positive reviews, praised for their well-structured design, ease of use, engaging content, and ability to maintain attention. The modules stood out as particularly valuable, serving as both a strong training standard and an industry benchmark. As an eLearning platform assessed by industry representatives, Rhapsode achieved impressive ratings—87.3% for usability and 85.5% for functionality and overall satisfaction. Although the pilot involved a small sample group, the feedback aligned with responses from Rhapsode users across various industries.

The content development process was successful, despite initial challenges due to limited access and long response times from external subject matter experts (SMEs). This issue was resolved by leveraging internal SMEs from RelyOn for technical reviews. The structured approach to production meetings proved effective in overseeing the development, approval, and delivery of AEMO content, while also ensuring appropriate briefings for AEMO staff under project governance requirements.

Lastly, the deployment and management of content within web and learning management environments were smooth and effective. These outcomes establish a solid benchmark for the continued development of the Framework and its commercial rollout.

8 Conclusion

Phase 2 of the Framework project has clearly demonstrated that adaptive learning and content deployment approaches are highly effective in making the Framework accessible to the electrical industry.

Additionally, it has highlighted the significant advantages of adaptive learning as an instructional method, proving its applicability to the industry's training requirements.

Phase 2 has also established a strong model for the future development and deployment of Framework content. If Phase 3 is implemented, this model will support the efficient creation and delivery of remaining content and evolving industry needs. A proposed outline for Phase 3 is provided in [Appendix 4](#).

Given these positive outcomes, the implementation of Phase 3 is strongly recommended.

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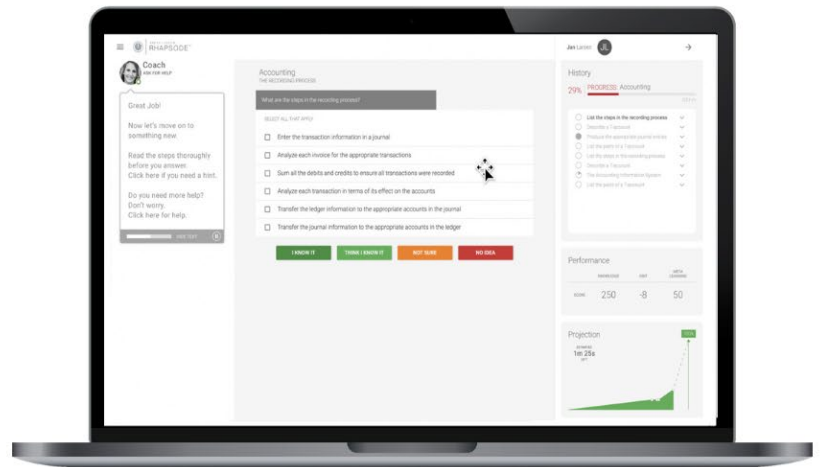
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Appendix 1 - Adaptive Learning

INTRODUCING



The World's First **Multidimensional**
Adaptive Learning Platform



Developed with 25 years of cognitive research **Rhapsode Learner**™ guides learners step-by-step to the path of proficiency using **adaptive learning**. With over 30 million plus learners in 185 countries and billions of responses through 100's of subject areas Rhapsode provides unparalleled data driven adaptive learning design.

What is Adaptive Learning?

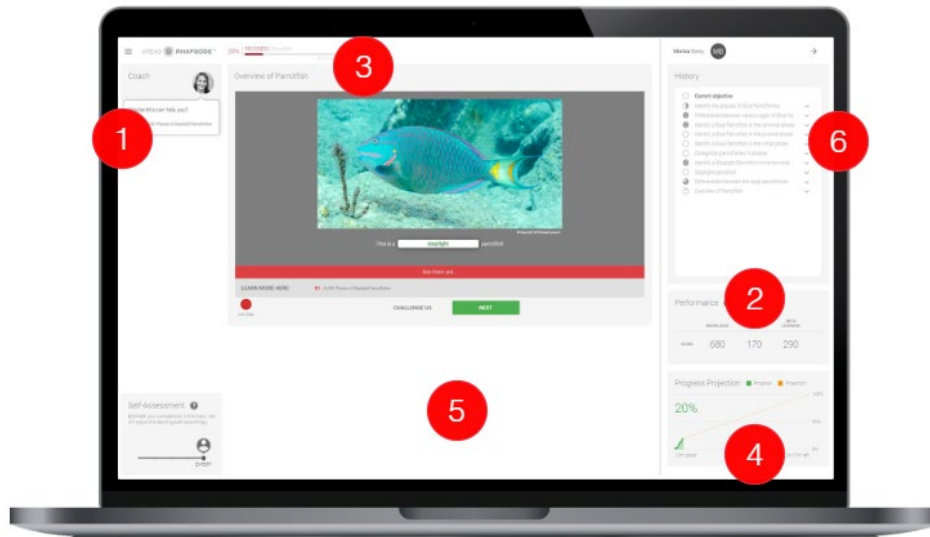
- An online delivery method that automatically adjusts to the needs of each learner. Rather than the traditional method of eLearning that presents content and then asks questions, adaptive learning asks questions in a non-threatening environment, and then depending on the learner's response, adapts to the learners needs to present content or continue asking questions. This saves the learner, and the business, time and promotes the speedy development of mastery and proficiency.
- It recreates at scale the optimal teaching approach of a one-to-one personal tutor. The system responds to a learner's journey and provides observations on how the individual learner is performing. This enhances the learner's experience and helps create a learning frame-of-mind.
- It uses proven data analytics and intelligent technologies to adjust in real-time to deliver an optimal experience. The collection of data enables analysis of the learning journey of individual learners and groups of learners that can be used to identify topics that people find difficult or easy, or where individuals are struggling, and to improve the design of learning objectives and questions.

What are the benefits of Adaptive Learning?

- Compared to traditional training:
 - Cuts training time in half
 - Creates higher proficiency
 - No one left behind
- Eliminates boredom and frustration

- Improves business outcomes
- Uncovers and fixes unconscious incompetence
- Retention and reinforcement

What does it look like?



- i. Coach: Feedback on topics when you need it.
- ii. Performance: Measures your knowledge, grit, and meta learning, helping you become a 4D learner.
- iii. Progress Bar: Monitor your status towards learning the current objective.
- iv. Projection: Graphical representation of your path to proficiency.
- v. Interactive Learning: Personalised learning activities that adapt to help you reach content mastery.
- vi. Content Objective: Remaining topics at-a-glance.

Experience it at <https://area9lyceum.com/experience-adaptive/collections/>

Appendix 2 - Content Development Process

The development of pilot content using adaptive learning followed a structured methodology, encompassing module analysis, design, and development.

RelyOn engaged courseware specialists with expertise in both course design and electrical systems to lead the initial analysis and design process. These specialists collaborated closely with subject matter experts in the electrical industry to ensure the module designs aligned with desired learning outcomes.

The design phase defined individual module objectives, underlying learning goals, and the necessary assets for module creation. The finalised designs were then handed off to the RelyOn Digital production team, which included learning engineers and graphic designers responsible for building the modules within the Rhapsode adaptive learning application. The RelyOn Design team leveraged its specialised expertise to ensure the modules met the functionality and outcomes detailed in [Appendix 1](#). The development process was iterative, involving frequent reviews with courseware specialists and subject matter experts to refine and enhance the content.

For the two Human Factors modules, psychology faculty members from Macquarie University contributed expert input under an agreement with RelyOn, working alongside courseware specialists to shape the module designs.

Upon completion, an additional pilot-specific review step was conducted. This allowed AEMO and industry representatives to assess the content via a portal dashboard, enabling further evaluation of both the material and the adaptive learning approach.

After approval, selected modules were implemented in a content deployment pilot, marking a key phase of the project. Details on this deployment pilot are provided in [Appendix 3](#).

Appendix 3 - Content Deployment

1. Pilot Functionality

As part of the pilot, RelyOn developed and implemented a content deployment model. While only a beta version for testing purposes, the site provided reviewers with a clear understanding of the available concepts and options.

The proposed deployment approach included both pay-as-you-go and prepaid options. This demonstrated how learners could individually purchase and access content or, alternatively, how an organisation could pre-pay for selected learners, granting them access to the pre-funded content.

Additionally, the offerings included both individual modules and a broader curriculum (learning plan) consisting of selected modules. This approach showcased the flexibility of learning pathways—allowing general access to Framework modules while also enabling organisations to curate module groupings tailored to specific cohorts of their staff.

A private website page was developed to provide selected clients with access to Framework content. The pilot page is depicted in Image 1.

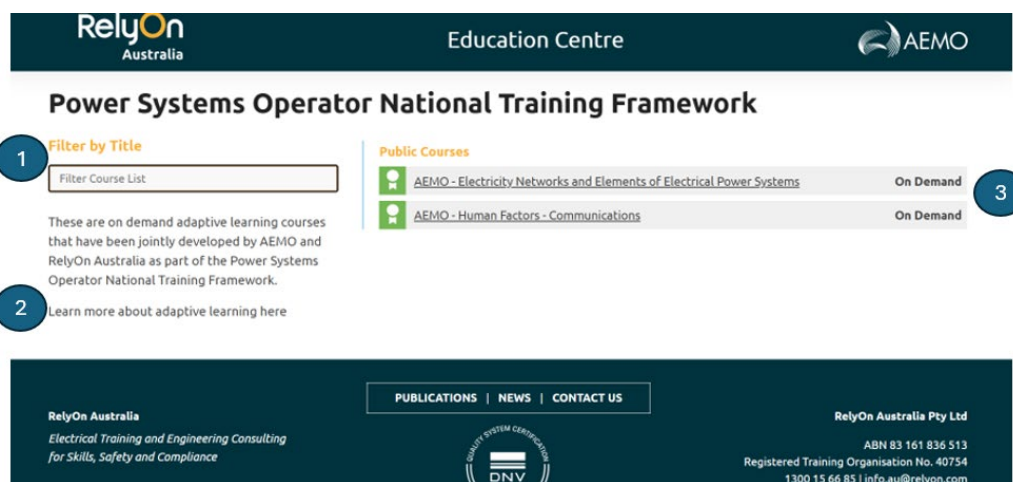


Image 1. Pilot webpage for the Framework Content

The key elements of the page were:

- A Navigation panel that enabled the user to search by title.
- An information section that provides more information about Adaptive Learning.
- A Content panel that displays the relevant modules available, or the search results.

There was also an option where specified learners were enrolled in a curriculum and those learners received an email invite to complete the curated suite of modules. This option was not deployed during the pilot, but it is existing functionality and could be made available separate to the web page access portal.

Once a module is selected a page with detailed module information is then made available. An example of this page is depicted in Image 2.

AEMO - Electricity Networks and Elements of Electrical Power Systems

Course aim

The aim of this course is to introduce power systems operators to the Australian Electricity Networks and elements of power systems. This course is part of the Power Systems Operator National Training Framework.

Target learner group

Power Systems Operators within the Australian Electrical Market

Learning activities

This course is an online module that enables you to set your knowledge level and then adapts to how you progress through the course (adaptive learning).

Learning outcomes

On successful completion of the course a participant will be able to:

1. Describe the NEM principles and structure
2. Describe the role of AEMO as it relates to the NEM
3. Explain the regulatory principles applicable to the NEM
4. Explain the process of network planning, network losses and their impact on the market
5. List characteristics and limits of the power supply system
6. Explain the importance of supply and demand balance in the NEM

Duration

This course will adapt to your knowledge level but may take up to 2 hours.

Cost

\$1

Price is per person including GST. (\$0.90 ex. GST per person).

For Corporate and Private Courses, please discuss your requirements with our Training Services Team via our Office

Equipment & PPE

As an online course you will need a computer or laptop with an internet connection and compatible web browser (preferably Chrome). It is not recommended to do this training on a mobile digital device. This course does have audio, so use of a headset or being able to do this in a separate room is recommended.

Assessment approach

Adaptive learning will guide you to achieve 100% which is the desired outcome.

Course Entry Requirements

There are no pre-requisites required for this course.

Accreditation Status

This is not an accredited National Register course. A certificate of completion will be issued on successful completion of the content (100%).

Prior to enrolling in any of our courses, please take the time to review your rights and responsibilities by clicking the links below:

- [Student Handbook](#)
- [Complaints and Appeals Policy](#)

Upcoming Class Schedule

Start Date	Finish Date	Location	Availability	
On Demand	On Demand	Self-paced Online	Yes	Enrol Now

\$1.00 incl. GST

[Need to discuss your training requirements with us? Call Us or Request a Call Back below.](#)

Image 2. Module Information

The functionality of this page can be adapted to support instructor-led and blended module versions as they are developed, contingent on the implementation of Phase 3. For the pilot, the modules were exclusively on-demand eLearning offerings.

Additionally, the page allowed users to enrol directly. To ensure learner identity verification, unique identifiers were requested during the enrolment process. The functionality built for the pilot is illustrated in Image 3.

Selected Class starts On Demand and ends On Demand. Class Delivery Location is Self-paced Online.

Student Enrolment Form

Please provide the details that match your USI. [Don't have a USI?](#)

Organisation

Given Name **Family Name**

Email **USI**

Date of Birth

-- Select Date -- -- Select Month -- -- Select Year --

Total Cost: \$1.00 incl. GST

[Validate Details](#)

Image 3. Learner Validation Function

After validation, the learner will either be directed to a pay-as-you-go payment gateway or, if already identified as prepaid, taken directly to the module start page.

As learners progress through the adaptive learning offerings, the data analysis functionality will enable comprehensive reporting on both individual and group performance. Additionally, it will support content review and continuous module improvement.

2. Future Development

If Phase 3 is implemented, the web functionality will be enhanced and expanded to offer additional features, including:

- i. **Search Capabilities** – Learners will be able to filter content by Framework streams (Generation, Transmission, Distribution) and by learning levels (Fundamentals, Standard, and Advanced).
- ii. **Additional Information Links** – Direct access to resources related to both the Framework and Adaptive Learning.
- iii. **Module Panel Enhancements** – The module panel will be refined to display available (“public”) modules, along with expanded search results.
- iv. **Flexible Learning Pathways** – In addition to individual module offerings, structured curriculums of selected modules will be made available. These may be accessible to the general public or designated as “private” offerings tailored to specific client organisations. Private offerings will consist of module groupings that specified learners within the organisation must complete.

Beyond web-based enrolment, this functionality will also accommodate direct learner enrolment outside the platform. Additionally, private offerings will simplify the management of pre-paid learners, who will receive email invitations for module access.

Under Phase 3, the web page functionality is expected to launch with the pilot modules, with additional modules incorporated iteratively as they are developed and approved for release. This approach ensures learners can access existing content immediately, rather than waiting for the full completion of all modules.

The web page itself will evolve progressively, expanding its capabilities as new modules are published across different streams and learning levels.

Pricing for individual modules will be determined based on market rates. For consulting services or organisation-specific curriculum design, commercial negotiations will define the scope, requirements, and corresponding pricing..

Appendix 4 - Phase 3 Outline

The proposed outline for deploying existing content and developing further Framework content is described below.

The Framework as it currently stands consists of a matrix of 70 modules across the Transmission, Distribution and Generation streams and levels of fundamental, standard, and advanced.

All			
Fundamental	1.1 Australian Networks and Elements of Electrical Power Systems. 1.2 Renewables and Emerging Technologies. 1.3 Communication Technologies. 1.4 Legislation and Regulation Overview. 1.5. Electrical Fundamentals - DC. 1.6. Electrical Fundamentals - AC. 1.7. Electrical Fundamentals – Use drawings, schedules, codes, and specifications 1.8. Electrical Fundamentals - Electromagnetics	1.9. Electrical Fundamentals - basic electrical computational problems. 1.10. Electrical Fundamentals - Provide engineering solutions to problems in complex polyphase power circuits. 1.11. Electrical Fundamentals – Electrical measurements 1.12. Protection Fundamentals 1.13. Switching Fundamentals 1.14. Management and coordination of work parties and field operators 1.15. Voltage Control and Reactive Power	1.16. Reliability Operating Limits and Reliability 1.17. Power Control and the Energy Market 1.18. Emergency Operations 1.19. Resource and Demand Balancing 1.20. Human Factors – Effective Communications 1.21. Human Factors – Fatigue and Fatigue Management 1.22. Human Factors – Human Machine Interface 1.23. Human Factors – Decision making and degradation factors
	Transmission	Distribution	Generation
Standard	2.1 System Ride Through 2.2 Power System Disturbance and Contingency Response 2.3 Coordination 2.4 Power System Stability 2.5 Fault Finding and Management 2.6 Monitor and control field staff 2.7 Respond to protection operations 2.8 Develop switching programs 2.9 Operate and monitor system SCADA	3.1 System Ride Through 3.2 Power System Disturbance and Contingency Response 3.3 Coordination 3.4 Power System Stability 3.5 Fault Finding and Management 3.6 Transmission Operations 3.7 Monitor and control field staff 3.8 Respond to protection operations 3.9 Develop switching programs 3.10 Operate and monitor system SCADA	4.1 System Ride Through 4.2 Power System Disturbance and Contingency Response 4.3 Coordination 4.4 Energy Market Services 4.5 Fault Finding and Management 4.6 Monitor and control operations staff 4.7 Respond to protection operations 4.8 Operate and monitor generation system Thermal Wind Solar Hydro
Advanced	5.1 Synchrophases 5.2 Transmission Planning 5.3 Facilities Design, Connections and Maintenance 5.4 Power System Simulation 5.5 Power System Restoration 5.6 Cyber Infrastructure and Security 5.7 Respond to complex protection operations 5.8 Lead and coordinate a control room 5.9 Transmission Congestion	6.1 Power System Simulation 6.2 Power System Restoration 6.3 Cyber Infrastructure and Security 6.4 Respond to complex protection operations 6.5 Lead and coordinate a control room 6.6 Design and interface of Distributed Energy Resources on the Distribution Network 7.1 Transmission Congestion	7.2 Power System Restoration 7.3 Cyber Infrastructure and Security 7.4 Respond to complex protection operations 7.5 Lead and coordinate a control room

Image 1. PSO National Training Framework.

The Framework is envisioned as a dynamic, evolving resource that will be continuously updated to address emerging industry needs beyond the existing modules.

Phase 3 outlines the introduction of three key services:

1. Content Deployment – Implementation and delivery of content, as detailed in [Appendix 3](#).

2. Content Development – Expansion of the Framework modules beyond the initial 11 pilot modules. This will follow a structured, phased approach, with selected modules developed over time in accordance with the process outlined in [Appendix 2](#).
3. In addition to adaptive eLearning modules, more complex instructional designs—including instructor-led and blended learning options—will be introduced as required. The pilot underscored the importance of consulting services to facilitate close collaboration between AEMO, NSP resources, and other stakeholders. This engagement is crucial for defining training needs, confirming available resources, and ensuring adequate SME and reviewer input. The process will ultimately determine both the scope and timeline for deliverables within each phase.
4. Consulting Services – Support for client organisations in conducting training needs analyses and developing customised curriculum structures that integrate with their overall training matrix.

Due to intellectual property considerations, licensing agreements, and system design limitations, the Framework module content and coding will not be made available to individual organisations or industry bodies for independent hosting and deployment.