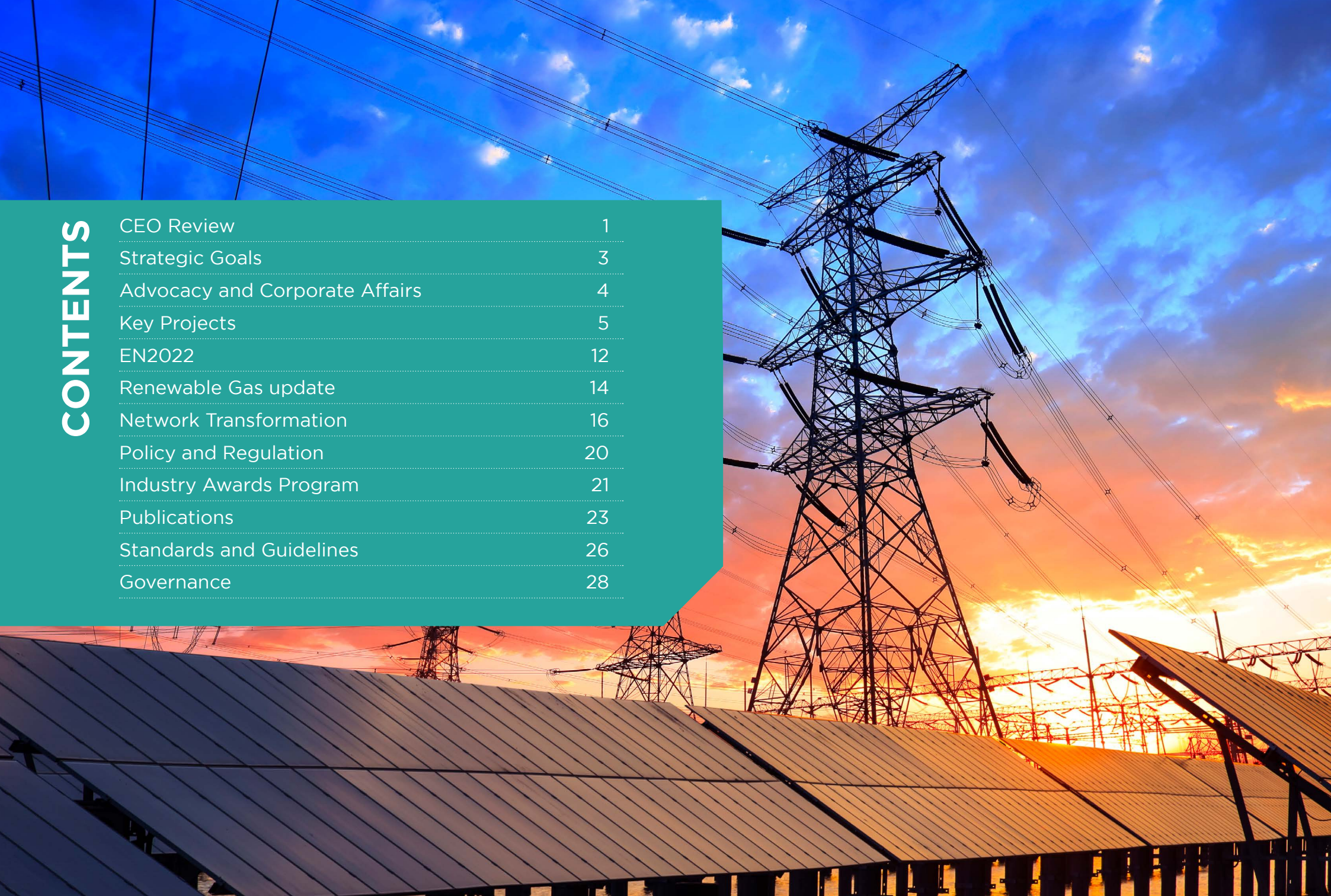
Energy Networks Australia

YEAR IN REVIEW 2021-22

REPRESENTING AUSTRALIA'S ENERGY NETWORKS
ENABLING A CLEAN ENERGY FUTURE FOR ALL AUSTRALIANS



CONTENTS

CEO Review	1
Strategic Goals	3
Advocacy and Corporate Affairs	4
Key Projects	5
EN2022	12
Renewable Gas update	14
Network Transformation	16
Policy and Regulation	20
Industry Awards Program	21
Publications	23
Standards and Guidelines	26
Governance	28

CEO REVIEW

The past financial year has seen the disruptive transformation of the energy system gather even more pace.

The key electricity challenge continues to be integrating increasing amounts of distributed energy resources and accommodating growing utility-scale renewable generation. More extreme weather has caused huge disruption to networks, communities and customers and highlighted the need for a more resilient energy system. Major market reforms continue. Social licence issues from the development of significant new transmission projects have emerged as a key risk to these essential infrastructure works.

In this dynamic and challenging environment, the politics of energy prices took a back seat for much of the year, largely because of cheap renewable generation pushing wholesale prices down. Then Russia invaded Ukraine.

The resultant disruption to the energy supply chain, along with generator outages, an unusually cold winter and rampant post-pandemic inflation gave the NEM the highest wholesale gas and electricity prices ever seen, culminating on 15 June with the unprecedented suspension of the market by the Australian Energy Market Operator.

Into this perfect storm of events came a new Labor Government and Energy Minister in Chris Bowen, with an energy policy comprising a $20bn fund to facilitate the development of new transmission in recognition of the critical need for a more connected market. ENA has sharpened its policy and advocacy focus on investibility and the need for network expenditure on infrastructure to enable the least-cost transition to net zero.

ENA FOCUS

Emerging from the pandemic over the past financial year saw a gradual return to the office and, within ENA, the adoption of an ongoing flexible approach.

These hybrid working arrangements were reflected in our engagement with members and stakeholders, with committee meetings, working groups and other project-related gatherings held mostly online.

The major shift back towards normality from the isolated working environment of the past two years was our hugely successful Energy Networks 2022 Conference and Exhibition in Brisbane in March.

After four postponements, the fifth and final scheduled date was kept, with more than 930 delegates attending. This was ENA's most successful conference in terms of delegates and sponsor and exhibitor numbers. The extensive program was extremely well received with widespread praise for keynote speakers and content.

This was no mean feat given the multiple postponements over several years. Considerable work was undertaken during the delays to ensure the program was refreshed and remained relevant. Feedback from members and other attendees on the official feedback survey was overwhelmingly positive.

The success of this event has highlighted the value of ENA's role in thought leadership, advocacy on behalf of the network sector and in facilitating engagement between members and with other energy sector stakeholders.

ENA's focus this past year has been on promoting gas and electricity networks' critical role in delivering the transition to a renewables-based, net zero emissions energy system.

This included the development, in consultation with consumer representatives and market bodies, of the Energy Network Vision, describing how our three network types will work together to enable a decarbonised system.

Other key work in this space included a third report in the **Gas Vision series** demonstrating the readiness of gas networks to deliver renewable gas to customers, a natural gas decarbonisation plan and the well-received **Guide to Climate Change and its Likely Effects**.

The climate change report has supported work being undertaken by networks on resilience frameworks, including extensive customer consultation. The increasing frequency of extreme weather, as experienced this year on both sides of the continent with major storms, cyclones, fires, and floods, has underscored the need for network investment to enable better preparation for and recovery from these climate-change related events. Part of ENA's work on behalf of members has been advocating for appropriate regulatory reform to recognise and allow for expenditure to support resilience.

Another significant focus for ENA and our Rate of Return Working Group has been on strategy and responses to the Rate of Return Instrument process undertaken by the Australian Energy Regulator. The draft RoRI was released on June 16 (see Policy and Regulation section).

ENGAGEMENT AND ADVOCACY

ENA has heavily engaged over the past year with market bodies on the various market reform projects that are underway, including the ESB's Post 2025 Market Design and Transmission Access Reform.

Fifty submissions were made over the past financial year on a wide range of topics including the above consultations, Australian Energy Regulator (AER) Incentive Scheme Review, The Australian Energy Market Commission (AEMC) review into extending the natural gas regulatory framework, hydrogen and renewable gas reforms, The AER's Better Resets Handbook, review of the regulatory framework for metering services, and AER's export tariff guidelines. A full list can be found by clicking on **submissions page of our website**.

As well as ongoing federal government advocacy, ENA continued to increase focus on state-based engagement in response to increasing jurisdictional activities and policy implementation. This have included the NSW Electricity Infrastructure Roadmap, Queensland Energy Transition Roadmaps, the WA Energy Roadmap and Sectoral Emissions Reduction Strategy and Victorian Gas Substitution Roadmap.

Member engagement remains a priority, with our Gas Committee, Transmission Committee, Asset Management Committee and Policy and Strategy Committee meeting bi-monthly. The various working groups that sit under these committees also have undertaken regular meetings, with excellent engagement by members.

LOOKING FORWARD

The extraordinary challenges of recent years have demonstrated that all we can be sure of in the future is rapid change. Networks are adapting quickly in response to the demands of the swiftly transforming system, but there is always more work to be done.

Our team at ENA is a dedicated and talented group of individuals who have done a great job serving our members and the network sector across 2021-22. I am proud of our team's achievements over the past 12 months that are highlighted in this report and look forward to another productive year in 2022-23. Thank you to our Chair Frank Tudor, the ENA Board and member CEOs for their continued support and advice.

50 SUBMISSIONS WERE MADE OVER THE PAST FINANCIAL YEAR ON A WIDE RANGE OF TOPICS

STRATEGIC GOALS

1. COMMUNITY AND CUSTOMER TRUST

The energy networks sector is trusted as it engages with customers and stakeholders to increase alignment of interests. Network businesses are seen as 'part of the solution' to achieve Australia's energy transformation objectives.

2. POLICY AND REGULATION REFLECTS ALIGNMENT OF CUSTOMERS AND NSPs

Energy policies and regulation which aligns the interests of networks and their customers, delivering flexible outcomes that customers value. Policy is evidence based and regulation provides confidence to all stakeholders including investors.

3. TRANSFORMING ELECTRICITY AND GAS NETWORKS

Innovation in network services and business models delivers solutions valued by customers.

ADVOCACY AND CORPORATE AFFAIRS

Energy Networks Australia's advocacy and corporate affairs team works with members to provide effective and accurate messaging to the energy sector, market bodies and the media.

This year ENA's advocacy efforts have focused on the critical role of networks as the platforms to enable the energy transition and advocating for a whole-of-system approach, the importance of timely investment in transmission infrastructure and appropriate social license settings and promoting the EN2022 Conference + Exhibition.

KEY MESSAGES

- Australia's electricity and gas grids are the essential platforms enabling and delivering Australia's transition to net zero while keeping supplies safe, secure, reliable and affordable.
- Energy regulation must support investment in the grid to enable a safe, secure, reliable transition to renewables and deliver lower prices for customers.
- More transmission infrastructure and interconnection between states is essential to support renewable power generation, keep electricity reliable and link markets to keep customer costs down.
- Networks are adapting to make the electricity grid smarter so it can support increasing amounts of rooftop solar, storage and other high-tech devices, giving customers greater choice about how to manage their energy use.
- A smarter grid will offer cheaper power prices at different times of the day to allow customers to use their solar, batteries, electric vehicles and smart appliances to save on their electricity bills.
- Renewable gas can be used for household and commercial heating and cooking and to provide feedstock and high temperature heat for industry. Hydrogen can be made from solar and wind power while also providing back up for variable renewable generation. Replacing our gas supplies with renewable gas allows the transition to net-zero emissions to occur at half the cost of electrifying that heating load.

RENEWABLE GAS CAN BE USED FOR HOUSEHOLD AND COMMERCIAL HEATING AND COOKING

KEY PROJECTS

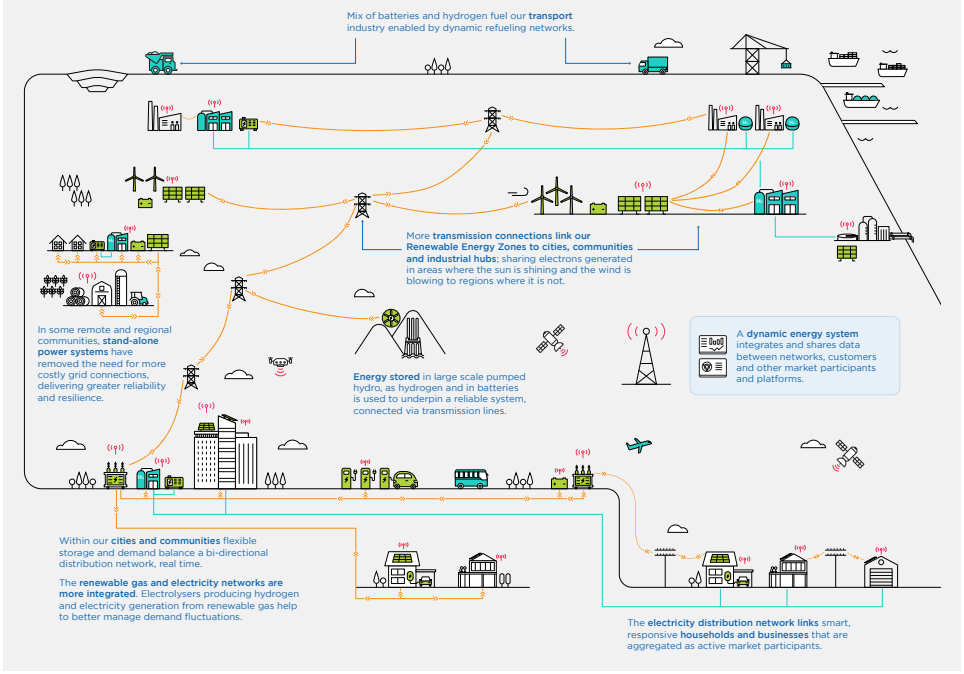
NETWORK VISION

Australia's power and gas grids are becoming smarter, more integrated, and more efficient as they play a critical role in delivering the clean energy transition.

This is the future described in **Energy Networks Australia's Energy Vision**, released in March 2022.

Developed in consultation with networks, consumer groups and energy market bodies over 12 months, the vision describes how our three network types – electricity transmission and distribution and gas distribution - will work together and with customers to help deliver a secure and reliable net zero energy future, giving consumers greater control over their energy use and driving down costs.

With a whole-of-system focus, the vision highlights the critical nature of networks as the platforms to enable and deliver Australia's net zero ambitions.

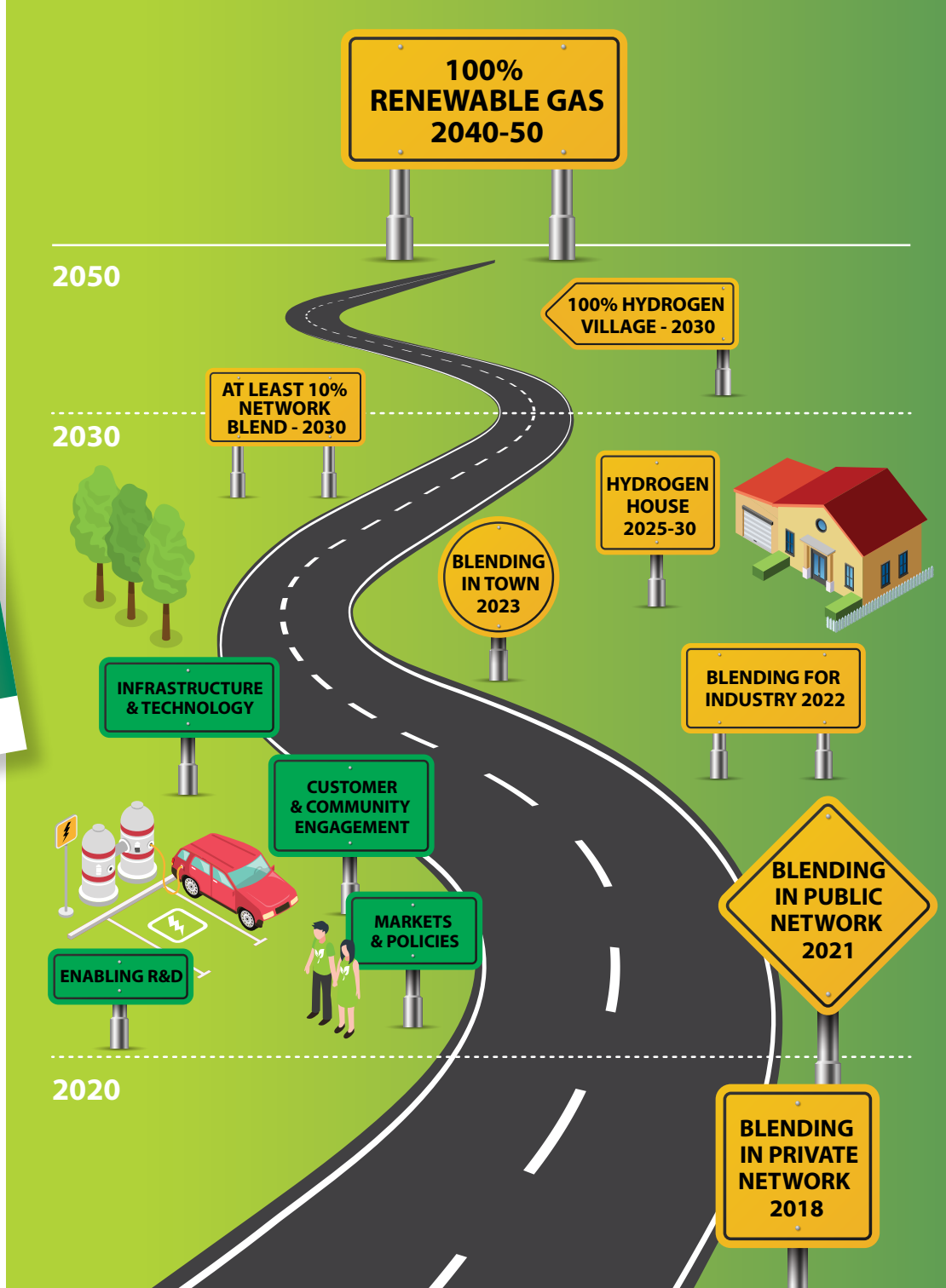


GAS VISION 2050: DELIVERING THE PATHWAY TO NET ZERO FOR AUSTRALIA – 2022 OUTLOOK

In April 2022, ENA launched an update to Gas Vision 2050.

This report identified key actions to be taken to deliver renewable gas. The three main priorities identified were: market development, development of 100 per cent hydrogen appliances and a detailed assessment of Australia's biomethane potential.

DEVELOPMENT OF 100 PER CENT HYDROGEN APPLIANCES AND A DETAILED ASSESSMENT OF AUSTRALIA'S BIOMETHANE POTENTIAL.



CLIMATE CHANGE GUIDE

In the last year there has been a renewed focus from all parts on society on climate change, the path to net zero and the energy transition.

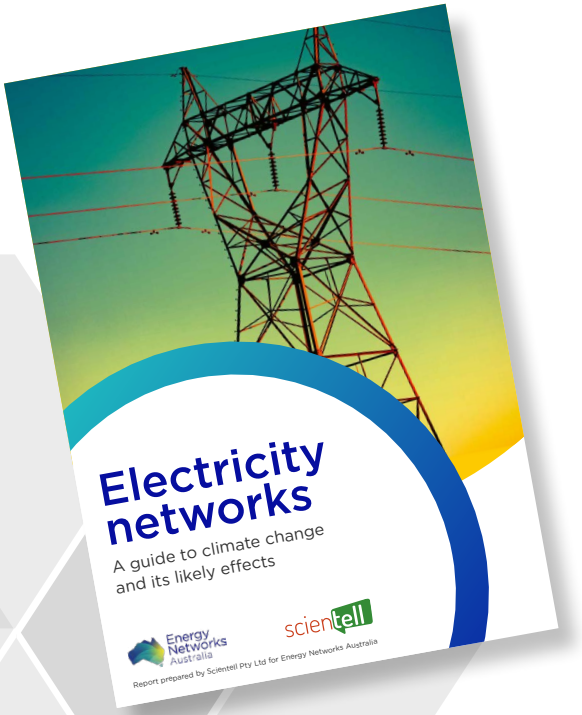
This focus intensified at the COP26 held in Glasgow and after the release of subsequent Intergovernmental Panel on Climate Change (IPCC) reports.

In Australia the resilience of energy networks to climate change has been sorely tested. From bushfires to floods, to storms and tropical typhoons, Australian electricity networks have had to adapt and respond to a rapidly changing climate while continuing to deliver safe, reliable and affordable power.

To support networks' understanding about the impacts of climate change on essential electricity infrastructure and the communities it serves, ENA commissioned a report that drew on the latest climate change science to distill information into jurisdictionally relevant and actionable insights.

The report *Electricity Networks: A guide to climate change and its likely effects* was well received by not only members, but key industry stakeholders, governments and market bodies.

Resilience is expected to play a significant role in ENA's future policy and advocacy work and the report will have relevance to this for many years to come.



There are lessons here for everyone. There are lessons for the transmission and distribution network operators, to help them plan for the impacts of climate change. There are lessons for engineers and researchers, to help them understand what those impacts will mean for their professions.

I encourage you to read on with intent. By working together and with careful planning, we can build a system that survives and adapts to extreme weather events in a changing climate.

Dr Alan Finkel AO
Chair, Technology Investment Advisory Council, Australian Government
Chief Scientist of Australia (2016-2020)

RENNIE REVIEW

It is a time of major disruption and change for Australia's economy and energy sector particularly as the nation works to deliver net zero.

For peak bodies that represent networks and industry, understanding how to meet evolving member needs while maintaining a voice within a rapidly transitioning environment is becoming increasingly challenging.

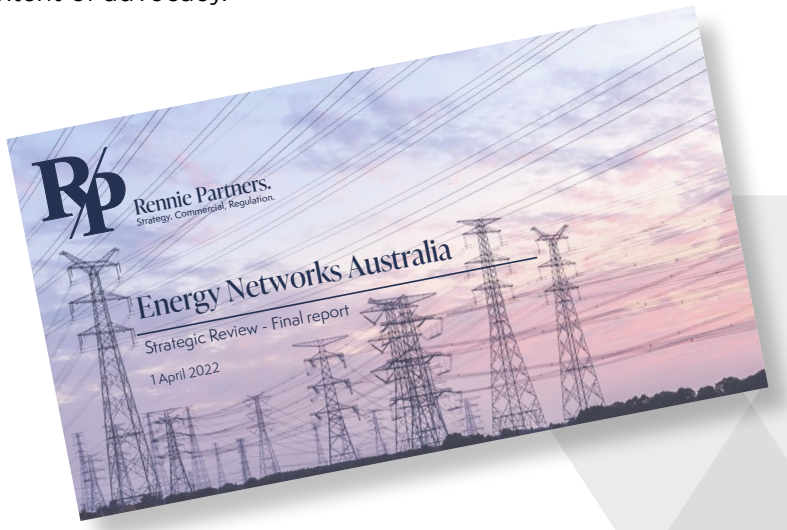
It was for this reason that ENA appointed Rennie Partners to undertake a strategic review of our services and governance.

The objective of the project was to assess whether ENA's structure, services and resourcing were fit for purpose to provide business resilience and ensure members were appropriately supported at a time of major disruption and change in the sector.

KEY FINDINGS

- High degree of member satisfaction with ENA across the four areas canvassed: organisational structure; member structure, service offerings and future transition planning.
- 61 per cent of members considered ENA has an adequate profile and influence. On balance members agreed a slightly higher media and brand profile could be a useful focus.
- Members saw value in the advocacy, thought leadership and connectivity provided by ENA and most felt this was being done well and at the right levels across government and jurisdictions – but expectations differed about extent of advocacy.
- Most members agree that ENA has strong core capability and suggested a flexible approach as the industry evolves
- All members are concerned about the pace of the transition and looking to ENA to provide a collective vision for the industry.

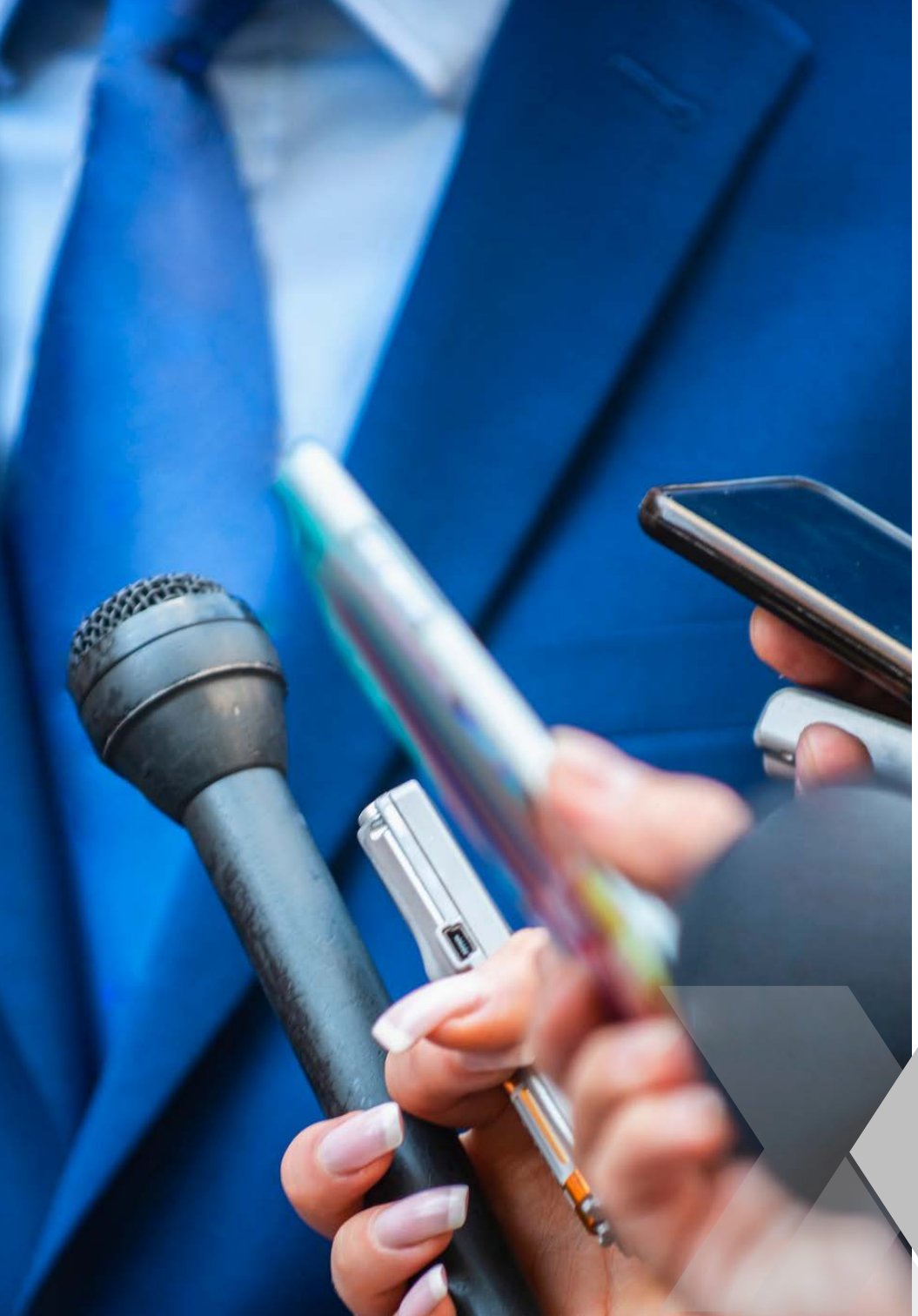
This report has been an important internal-facing project to assess member views about ENA's role, value and effectiveness. The outcomes were very positive and have helped inform the coming financial year's business plan and work strategy.



"ENA has a lot of credibility as an organisationthat can bring an authority voice and take everyone's needs into account"

"The connections that I have been able to connect with through the ENA circle have been invaluable "

"Committees are great to have chats on and off the record with other CEOs – there is probably more value in that than I realised"



MEDIA COVERAGE

The past year has seen significant engagement with national newspaper journalists and industry media.

This was mainly due to EN2022, the change of federal government and the emphasis placed on energy as an election issue and the quickening of the energy transition.

From 1 July 2021 to June 30, 2022, Energy Networks Australia recorded 676 items in earned media. Our leading print sources were the Australian newspaper and the Australian Financial Review.

CEO Andrew Dillon also had two opinion pieces published in the Australian and the AFR, both stressed the importance of transmission investment to aid in the transition to net zero.

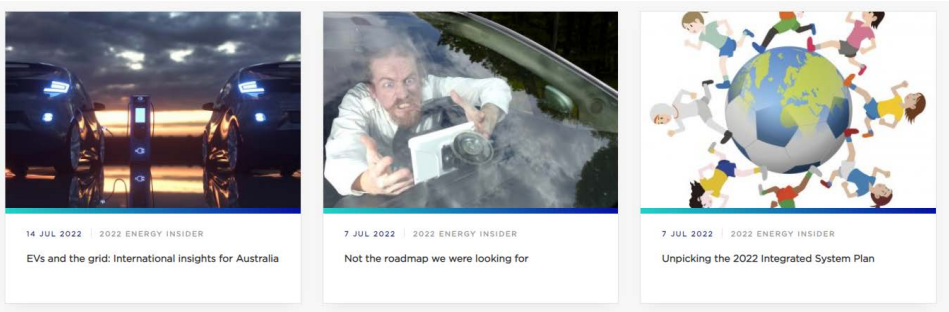
During EN2022 both the then federal Energy Minister Angus Taylor and the then Shadow Minister for Energy, Chris Bowen used their address to the conference to make significant energy announcements. This resulted in considerable media from journalists covering the event.

Social media Impressions

604,700

website views

168,500



ENGAGEMENT

The Corporate Affairs team worked with other streams of the business to develop a range of projects that are designed to inform and advocate key issues for our members.

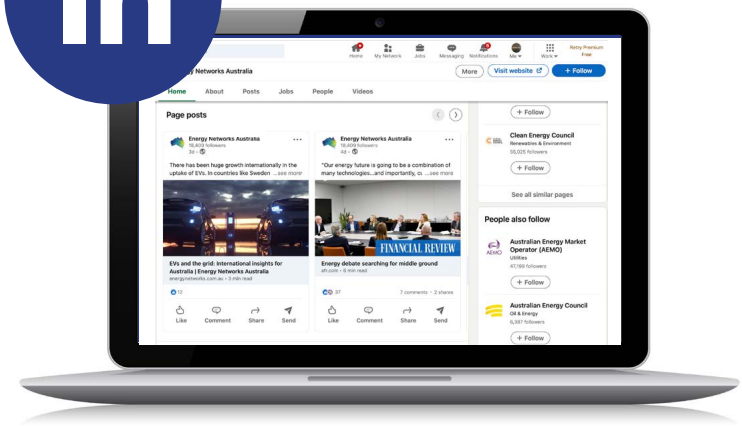
Customer-facing projects have been promoted through media and owned communication channels (such as our website, digital media, the weekly EnergyInsider newsletter and monthly Energy Networks Update newsletter).

Twitter followers

5,400

LinkedIn followers

18,400



Energy Networks Australia | AUSTRALIAN ENERGY COUNCIL

EnergyInsider

26 May 2022

Time to Power Australia

The yard signs and billboards are coming down, the nightly campaign trail wrap-ups have ended, we've had our democracy sausage (or two) and Australia has a new government. While Prime Minister Albanese muses over who will make up his new cabinet, we look at the election promises made for the energy sector. Read more

For more, contact Jemma Townson, Energy Networks Australia

CopperString 2.0: A look at the numbers

The challenge of accommodating increasing amounts of renewable generation in Australian grids has been much discussed and the recent impact of high wholesale prices is likely to help sharpen the debate about the energy transition. We take a look at the impact of the shifting generation mix in Australia and the United States. Read more

For more, contact Mitchell C
Council

Riding the energy transition roller-coaster

As we ride the roller-coaster
system, big decisions must
keep the lights on. How we
uncertain time will determine
customers. The recently rele
Dynamics report from AEMO
on past and future decisions

For more, contact Dominic
Australia

Wholesale Prices

The Volume-Weighted Average (VWA) prices, week ending

Electricity spot prices

NSW $254.51/MWh

QLD $352.12/MWh

Energy Insider subscribers

3,500

COMMUNICATIONS AND CONSUMER ENGAGEMENT

Energy Networks Australia manages the Communications and Consumer Engagement Working Group comprising a network of professionals from member organisations in a variety of areas such as communications, media, consumer engagement, corporate affairs, public relations, customer innovation, brand management and government relations.

This group typically meets bimonthly on a variety of topics to share information, resources and to hear from guest speakers.

The theme for the first meeting was 'DER and residential' and featured guest speakers from the AEMC and ENA.

The theme for the second meeting was 'Future Fuels' and featured guest speakers from ENA, AGIG and Horizon Power about the gas and hydrogen projects currently being undertaken.

The theme for the third meeting was 'Greening gas' and guest speakers were AGIG, AusNet Services about the Victorian Gas Networks Access Arrangement and Jemena on the Western Sydney Green Gas Project.

The theme for the fourth meeting was 'what we are hearing from energy customers' and guest speakers were Ausgrid and BD Infrastructure who ran an interactive workshop to validate what they had heard from their consumer panels when consulting for their regulatory reset.

In addition, ENA held two consumer advocate forums with the working group. The theme for the first was 'Consumer groups with specific energy needs and featured guest speakers from various consumer advocate groups.

The theme for the second one was 'New energy technology from a consumer perspective – Batteries, Electric Vehicles' and guest speakers were from JetCharge and Energy Consumers Australia.

ENGAGEMENT WITH CONSUMER ADVOCATES REMAINS A PRIORITY FOR ENA AS WE WORK TO PROMOTE THE SECTOR'S EFFORTS TO ENHANCE CUSTOMER OUTCOMES FROM THE ENERGY TRANSFORMATION.

Several key consumer advocates are involved on the judging panels for the ENA Industry Awards program, in addition to being consulted on a variety of initiatives.

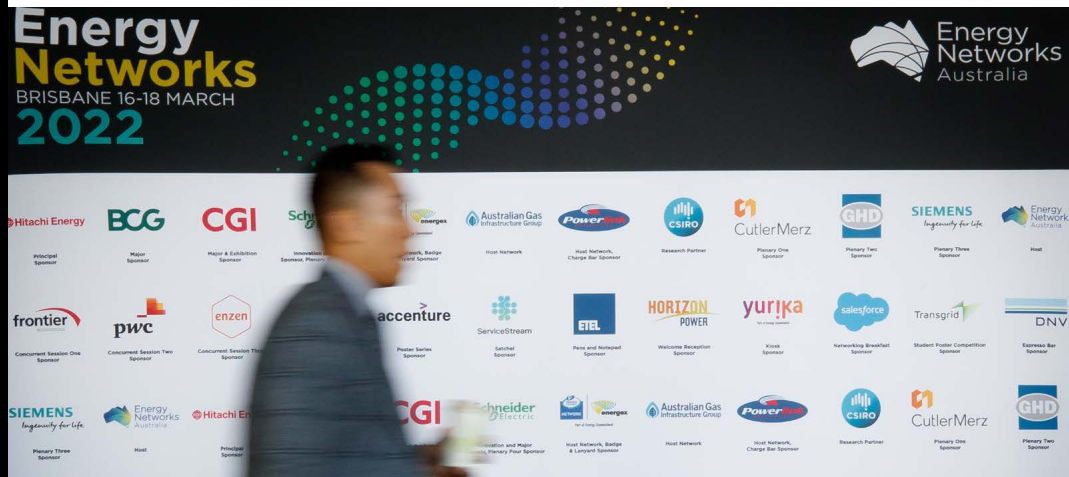
EN2022

The Energy Networks 2022 Conference and Exhibition was held at the Brisbane Conference and Exhibition Centre, 16 to 18 March 2022, following four postponements due to the global pandemic (COVID-19).

It was a great success, with positive feedback from delegates, speakers, sponsors and exhibitors.

Thanks to:

- board representatives, Rob Stobbe, CEO SAPN and Rod Duke, CEO Energy Queensland for their support and oversight of EN2022,
- 14 member representatives on the Program Development Committee for their guidance, intellectual capital and expertise to review 239 abstracts,
- Hitachi Energy as principal sponsor,
- 24 sponsors and 78 exhibitors for staying the course over more than three years,
- three media partners Energy Source & Distribution; Transmission & Distribution and Energy Magazine
- industry and members for attending despite it being the first big event after two years of various restrictions.



SUMMARY HIGHLIGHTS

- 934 delegates including 35 from overseas and 72 virtual
- Recordings of all sessions are available on the home page of our website
- 135 international and national speakers across keynote, plenary panels, concurrent sessions and poster presentations
- 23 sponsors
- An attractive exhibition hall with 76 exhibitors occupying 73 booths
- Delegate tours to six academic research centres and commercial enterprises around Brisbane
- Four social networking functions
- Seamless registration process with kiosks
- Stunning poster series
- Inaugural student poster competition with two awards presented at networking reception
- Technology service providers and utilities including networks were the largest represented industry sectors
- Conference app
- An extensive marketing campaign which included 60 electronic direct mail promotions between July 2019 and April 2022
- LinkedIn impressions for conference related posts exceed 262,000
- EN2022_AU was the official conference twitter account with 56000 impressions

A SURVEY AFTER THE EVENT WITH 313 RESPONDENTS FOUND:

- Program elements rated between 88 per cent and 98.66 per cent as good, very good and excellent.
- Networking was an extremely high priority – not surprising after two years of pandemic isolation. The social network functions were well received.
- Speakers were 100 per cent happy with the support and communications they received from ENA.
- 100 per cent of sponsors and exhibitors would recommend others to attend or participate in EN2024.

TESTIMONIALS

What an amazing event! We talk about flexibility and resilience, Energy Networks Australia had the courage and confidence that produced an exceptional event, despite Covid delays, flood impacts and everything else short of Armageddon. Andrew Dillon, Alicia White and the team, thank you!

James Colbert, Schneider Electric

Everything about the event was perfect - from the program and speakers, venue, networking events, vendor displays - through to the quality of the catering.

Andrew D. Dyer, Australian Energy Infrastructure Commissioner

Personally, I'm grateful for your commitment to our partnership and appreciate your quick actions and accommodating our requests... I'm looking forward to continuing this partnership

KC Lu, Salesforce

RENEWABLE GAS UPDATE

VICTORIA'S GAS SUBSTITUTION ROADMAP

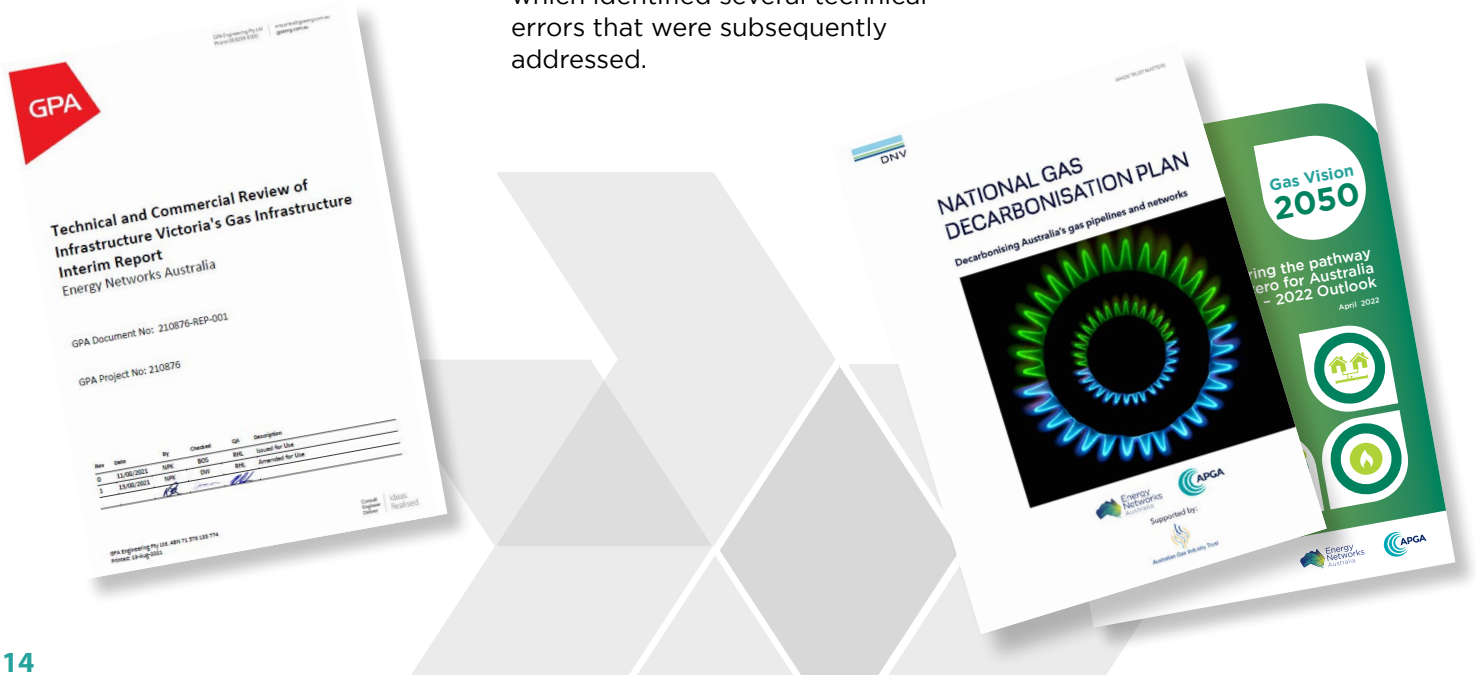
Energy Networks Australia actively engaged with the Victorian government during the development of the Victorian Gas Substitution Roadmap. The stated intention of the roadmap was to identify pathways for Victoria to reduce emissions from natural gas consumption.

Meetings were held with the Minister, the Departmental Secretary and the policy officers in the department. In our submissions we identified the opportunities for renewable gas and identified the risks of increased emissions and customer bills associated with electrification. The roadmap was not released until July 2022.

A technical and commercial review was undertaken of an information paper by Infrastructure Victoria which identified several technical errors that were subsequently addressed.

REVIEW INTO EXTENDING THE NATURAL GAS REGULATORY FRAMEWORK

A range of reforms of the National Gas Law were progressed throughout the year to support the introduction of hydrogen and biomethane as fuels into gas distribution networks. It is expected that the reforms, and the associated rules, will become effective in mid-2023.



RENEWABLE GAS CERTIFICATION

Energetics was commissioned to identify design principles for a biomethane certification scheme. The principles were used to inform a pilot for biomethane certification via GreenPower. The principles align with the hydrogen certification scheme being developed by the Commonwealth Government.

NETWORK DECARBONISATION PLAN

Energy Networks Australia commissioned DNV GL to develop a plan to demonstrate how gas networks will enable the blending of 10 per cent renewable and decarbonised gas into their networks by 2030 and de-risk conversion of the networks to 100 per cent renewable and decarbonised gas by 2050. This plan identified a range of actions across customer focus, safety, security of supply, market development and the supply chain. The plan was been used to produce an update to Gas Vision 2050.

FUTURE FUELS CRC

Future Fuels CRC completed its fourth year of operation in 2021/22. Gas Committee members continued to be actively engaged in all aspects of the three FFCRC research program. FFCRC held seven webinars during the year to publicly share the findings of its research.

Major projects were completed in the Future Fuel Technologies, Systems and Markets program including:

- Modelling future fuel options for Australia.
- Integrated electricity and gas systems studies: electrification of heating.
- Underground storage of hydrogen: mapping out the options for Australia.
- Assessment framework for biomethane injection in gas networks (including viability assessments for Griffiths and Adelaide)

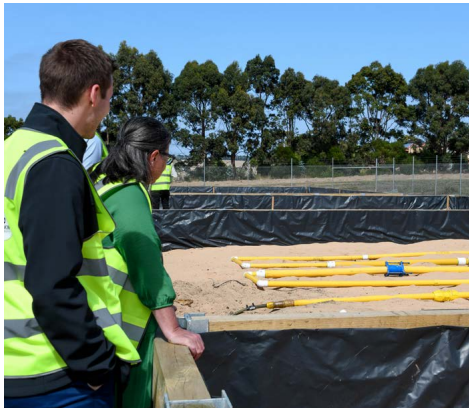
A user tool was completed to allow users to complete a techno-economic assessment of a biomethane project.

In the Social Acceptance, Public Safety and Security of Supply research program a major study was completed on identifying the drivers of policy and practices regarding future gas uses in the built environment. This study identified several opportunities to engage with the built environment planning sector. A new project to design a renewable gas target was started and is expected to be completed in late 2022.

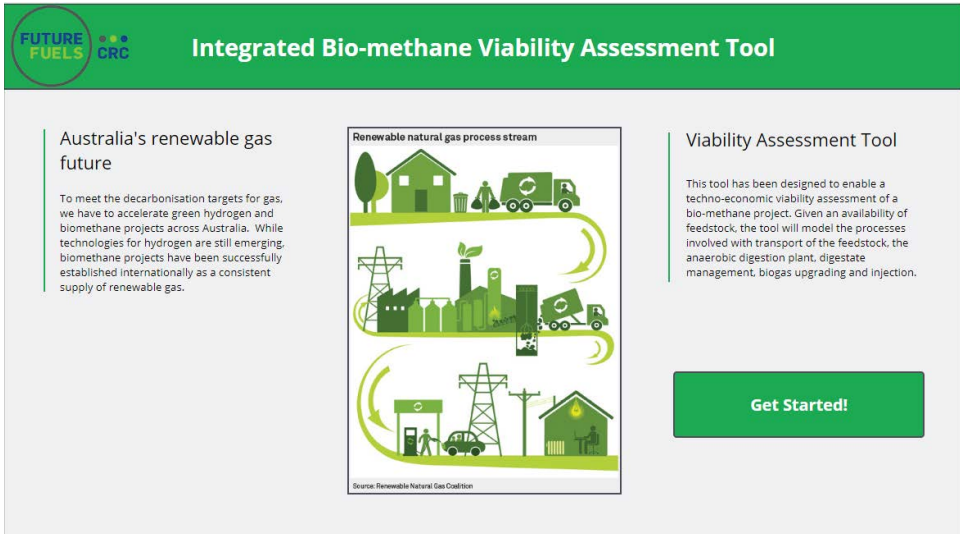
The Network Lifecycle Management program researched vital components of the energy transfer infrastructure from concept to end of life to safely introducing low carbon fuels. A major achievement was the establishment of a long-term test bed demonstrator containing different plastic resin types and joining methods.

The test bed is being used to determine the compatibility of different grades of plastic pipes and elastomers with pure hydrogen and hydrogen carriers.

FFCRC research outcomes have been used in ENA's fact-based advocacy in response to consultation processes such as the Victorina Gas Substitution Roadmap and the National Construction Code 2022 - whole of home energy provisions.



Hydrogen test bed facility at HYCEL, Deakin University, Warrnambool (Photo courtesy of FFCRC).



FFCRC's integrated biomethane viability assessment tool

NETWORK TRANSFORMATION

DER AND FUTURE NETWORKS

The speed at which networks must adapt continues to beat expectations and the impacts of the rise of variable renewable energy (VRE) are becoming more pronounced. Some of the key topics being addressed by ENA and members include

- Network resilience to climate change and natural disasters
- Increasing DER hosting capacity (i.e. ability to export)
- Network visibility and smart metering
- Minimum Demand/System Load
- Voltage management
- Electric Vehicle integration
- Cybersecurity
- Technical Standards

Over the past year, ENA has supported networks through the energy transition with a range of activities and collaborations including:

- Knowledge sharing events – e.g., Future Network forums and climate literacy workshops
- Technical and Regulatory working groups – on distribution system operator (DSO), AEMC reviews, rule changes, Australia Energy Market Operator (AEMO) advisory groups, safety and resilience
- Advisory groups and steering committees – for both government and industry initiatives/projects.

OVER THE PAST YEAR, ENA HAS SUPPORTED NETWORKS THROUGH THE ENERGY TRANSITION

KEY INDUSTRY COLLABORATIONS

ENA represented members in more than 60 industry collaborations and projects. Key industry partners included (but not limited to):

- Market bodies – AEMO, AEMC, AER, ERA and ESB rule changes, consultations, working groups and projects
- Consumer advocacy groups – e.g., Energy Consumers Australia (ECA), Australian Council of Social Services (ACOSS), Total Environment Centre (TEC), St Vincent de Paul
- State and Federal Government – jurisdictional consultations and initiatives such as DER strategies, social license and renewable industry zones
- ARENA – Distributed Energy Integration Program (DEIP) projects
- Academic and research – Projects in collaborations between networks and RACE for 2030.

ENERGY SECURITY BOARD (ESB) COLLABORATION

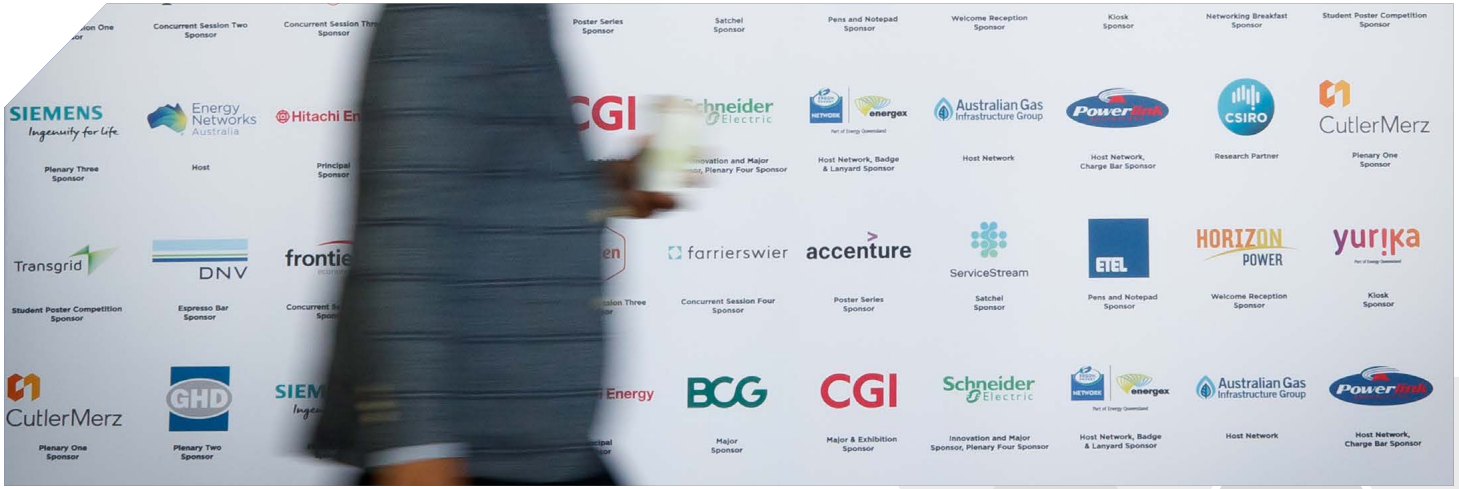
The Energy Security Board continued to progress its DER Implementation Plan with an ambitious agenda of topics for the next three years. ENA was intimately involved in DER and data strategy workstreams and continues to positively influence the direction of their policy development.

We represent members in multiple forums at various levels

- DER Advisory Group
- DER Stakeholder working group
- ESB Customer Insights Collaboration
- Technical advisory groups

ENA will continue to represent and advise members on the outcomes of the various ESB initiatives.

ENA WILL CONTINUE TO REPRESENT AND ADVISE MEMBERS ON THE OUTCOMES OF THE VARIOUS ESB INITIATIVES.



AUSTRALIAN STRATEGIC TECHNOLOGY PROGRAM (ASTP)

A long-running initiative of the ENA Asset Management Committee and the Australian Power Institute, the ASTP had two projects over the past year:

- EV Integration Project: Researching the impacts of electric vehicles (EVs) on distribution networks and possible solutions to mitigate these impacts. Several knowledge sharing webinars were conducted and one webinar will be delivered towards the end of the project in October 2022.
- Non-Destructive Testing (NDT) for Condition Assessment of Wooden Poles: A technical assessment was undertaken of various NDT devices to identify the most appropriate NDT devices for use on a range of wood poles through cost and benefits analysis. The project started in February 2022 with expected completion in Q1 2024.

OTHER RESEARCH INITIATIVES:

ENA is planning to engage a consultant to scope a project to develop an interactive tool for accessing weather and climate data to predict climate change hazard impacts across electricity distribution and transmission networks. Several virtual workshops and a face-to-face workshop will be held in Q3 of 2022. A variety of stakeholders within ENA's members will be invited to attend these workshops to ensure that the tool serves the broad purposes of the organisations involved.

TRANSMISSION PLANNING AND INVESTMENT

The actionable Integrated System Plan (ISP) rules framework commenced on 1 July 2020, with the final 2022 ISP released by AEMO on 29 June 2022. AEMO noted several risks to delivering the ISP – gaining and retaining social licence, supply chain issues, resourcing and financeability.

The AEMC started a Transmission Planning and Investment Review (TPIR) to address efficient and timely delivery of transmission infrastructure. This review covers both incremental change to the ISP rules and longer-term reform.

The short-term incremental changes seek to provide some improvements to financeability by allowing the AER to consider alternative depreciation, improved clarity for social licence and improving the timeliness of AEMO feedback loop decisions.

Further phases of the TPIR will focus on improving the timeliness of the ISP and regulatory processes and consider contestability options. ENA is actively engaged with members and the AEMC on this review.

GENERATION CAPACITY AND TRANSMISSION ACCESS

The ESB continued the development of transmission access and confidence in generation capacity through two workstreams;

- Transmission access reform with models considering investment and operational timeframes
- Capacity mechanism – to ensure that generation is available to supply when and where it is needed at any time when the power system is under stress.

Transmission remains a critical enabler in the move to net zero by 2050. ESB has a significant challenge to deliver detailed approaches supported with rules drafting to energy ministers by the end of 2022. ENA is keen to support longer term reforms where there is a demonstrated cost benefit to consumers and is seeking to ensure that the implementation costs are efficiently managed.

As the penetration of variable renewable energy generation increases and ageing synchronous generation retires, it will be critical to ensure that power system security is maintained. ENA supports TNSPs delivering optimal levels of system strength to maintain the power system in investment timeframes. In the past year, the AER commenced development of the system strength pricing methodology arrangements and ENA will continue to be actively involved with members on the pricing methodology revisions.

Various essential system services rules are progressing through rule changes. The operational security mechanism has implications for system strength usage and costs in operational timeframes.

ENA and its members will continue to be involved in the development of these reforms on technical working groups and the implementation of these rule changes.

NSW legislated to enable its NSW Electricity Infrastructure Roadmap and is progressing the development of underlying regulation as is the AER. ENA responded to consultations seeking clarity of roles and responsibilities, prudency and efficiency assessment of costs and transparency of costs and the cost allocation processes. The devil is in the detail and complexities of bvpassing the national electricity rules and the operational processes that straddle frameworks. Ultimately the costs of these new frameworks and bodies will be borne by NSW electricity consumers.

Victoria and Queensland are also progressing their renewable energy state policies.

POLICY AND REGULATION

RATE OF RETURN AND FINANCEABILITY

ENA worked with the AER and the representatives of the specially appointed Consumer Reference Group during the early stages of the 2022 Rate of Return review, which commenced its most active phased from January. The more front-loaded process of engagement and discussion for this review enabled exploration and settlement on some key issues earlier in the process, providing the capacity to better focus on the remaining issues through the year.

A core focus of ENA's advocacy in the review was to ensure regulatory settings were robust to recently experienced market conditions, as well as those that could arise over the life of the Instrument.

ENA encouraged longer-term development of scenario-based-thinking approaches, and the provision of clearly financeable benchmark settings – to promote efficient investment to underpin customer outcomes.

ENA will continue to work with stakeholders in pursuit of a final rate of return that promotes the long-term interests of customers in efficient levels of network investment by providing an appropriate and commercially sustainable return on investments made.

ENA also contributed to the parallel Rate of Return Instrument review process conducted by the WA Economic Regulation Authority. In the review's draft determination, the ERA proposed - consistent with the analysis and evidence advanced by the network sector through both reviews - to move to a standard 10-year assumed term of equity estimation approach.

ENABLING A DISTRIBUTED ENERGY FUTURE

The AEMC released its final access and pricing determination for DER in August 2021 with the milestone decision enabling more customers to embrace and benefit from distributed energy technologies such as rooftop solar, batteries and electric vehicles. ENA engaged extensively in the process, and our robust collaboration with the AEMC and other stakeholders was influential in the recognition of export services and the progression of equitable network pricing reform.

Through its ring-fencing review, the AER also introduced a broad-based exemption for stand-alone power systems (SAPS) in November 2021. ENA strongly advocated for its introduction highlighting that technologies such as SAPS are propelling the energy transition and offering better outcomes for customers.

INCENTIVE REGULATION

ENA worked closely with the AER on its review of incentive schemes and released an independent consumer benefits report in March 2022 following engagement with the AER and its review Consumer Challenge Panel. Produced by HoustonKemp for ENA, the analysis shows how the AER's incentive schemes have benefited customers by delivering lower network prices and improved service quality, producing outcomes that are in the long-term interests of consumers.

ENA will continue to work with stakeholders as the review progresses, strongly advocating for the retention of the expenditure incentive schemes as designed, ensuring that networks have a strong and constant incentive to continually lower their costs and improve service performance.

INDUSTRY AWARDS PROGRAM

INDUSTRY INNOVATION AWARD

The Industry Innovation Award was hotly contested in 2021 with ten applications. The winner was Energy Queensland – Maximising Distributed Energy Resources using State Estimation. Other shortlisted firms were:

- AGIG - Hydrogen Park SA
- Horizon Power - Carnarvon DER trials; and
- Western Power – Flexibility Services Pilot.

The award was presented in person by Lucy Moon of ENA, hosted by Rod Duke, with the rest of the judging panel and ENA staff online.

THE JUDGING PANEL COMPRISED:

- Jill Cainey, (former) General Manager Networks, Energy Networks Australia (Chair)
- David Feeney, EGM Networks, Australian Energy Market Commission
- Violette Mouchaileh, Executive General Manager, Emerging Markets & Services, Australian Energy Market Operator
- Craig Chambers, Director, Business Development & Transactions, Australian Renewable Energy Agency
- Darren Gladman, Director, Distributed Energy, Clean Energy Council
- Gavin Dufty, Manager Policy and Research, St Vincent de Paul Society

CONSUMER ENGAGEMENT AWARD

The Customer Engagement Award, jointly run with Energy Consumers Australia celebrated its fifth year. Of the ten submissions received, Powerlink won the award for its consumer engagement approach during its 2023-27 revenue determination process. Other shortlisted firms included:

- Australian Gas Networks (SA) - Codesigning Services for Vulnerable Customers
- Ergon Energy (QLD) - Consumer developed Load Control Tariffs
- Horizon Power (WA) - Exmouth integrated resource plan

The award was presented in person by two judges Merryn York, then representing the AEMC and Robyn Robinson of COTA in Brisbane with the rest of the judging panel and ENA staff online.

THE JUDGING PANEL COMPRISED:

- Lynne Gallagher, Chief Executive Officer, Energy Consumers Australia (Chair)
- Catriona Lowe, Board Member, Australian Energy Regulator
- Merryn York, formerly Commissioner, Australian Energy Market Commission
- Robyn Robinson, Non-Executive Director, Council on the Ageing
- Gavin Dufty, Manager Policy and Research, St Vincent De Paul Society
- Mark Henley, Manager Advocacy and Energy Advocate, Uniting Communities

INDUSTRY CONTRIBUTION AWARD

Nigel Wilmot of Western Power received the ENA Industry Contribution Award for 2020.
Mr Wilmot was recognised for driving the development of new Australian technical standards that govern the connection of renewable energy devices to Australian households and businesses.

ENA General Manager Corporate Affairs and Western Australia Tamatha Smith presented the award to Nigel at a hybrid on-line and in-person ceremony. It was hosted at Western Power and supported by Nigel's colleagues and then CEO Ed Kalajzic.

All three awards were presented publicly at the EN2022 Gala Dinner by Queensland Energy Minister Mick De Brenni.

PUBLICATIONS FOR 2021-2022

As well as publications highlighted in other parts of this document, Energy Networks Australia comissioned the following reports and publications during 2021-22.

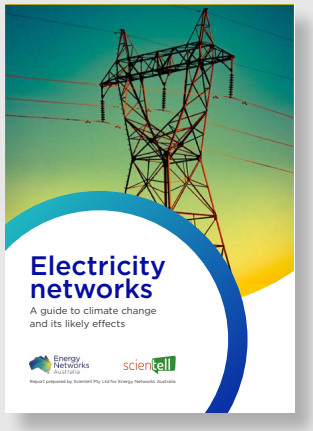
CLICK

CEPA: AEMO BUDGET AND FINANCE COMMITTEE

Following its 2020 review of stakeholder engagement, the Australian Energy Market Operator (AEMO) has proposed to introduce a new budget and finance sub-committee. Energy Networks Australia and the Australia Energy Council engaged Cambridge Economic Policy Associates (CEPA) to provide advice on the potential arrangements for the committee and its accountability.

CLICK

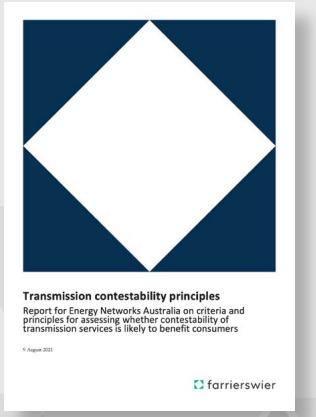
YEAR IN REVIEW 2020-2021



CLICK

ELECTRICITY NETWORKS: A GUIDE TO CLIMATE CHANGE AND ITS LIKELY EFFECTS

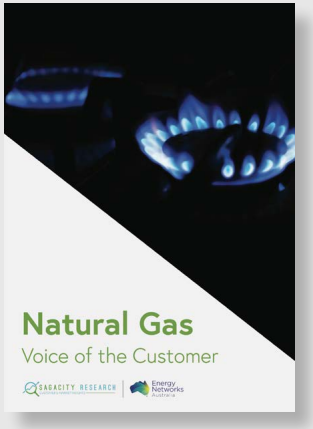
Weather and climate extremes represent a major threat to Australia's electricity transmission and distribution system, henceforth referred to as 'electricity networks'. Human-induced climate change is making some of these extremes more frequent and severe. This report presents the latest authoritative information on climate change and its likely impacts on Australia's electricity networks, including the transmission towers, substations, poles and wires



CLICK

TRANSMISSION CONTESTABILITY PRINCIPLES BY FSC

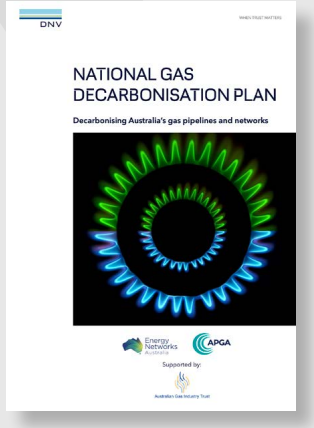
The report sets out the criteria and principles for assessing whether contestability of transmission is likely to promote the long term interests of consumers. These may be applied by policy makers to assess the efficiency and transparency of decision making on this issue.



CLICK

NATURAL GAS: VOICE OF THE CUSTOMER

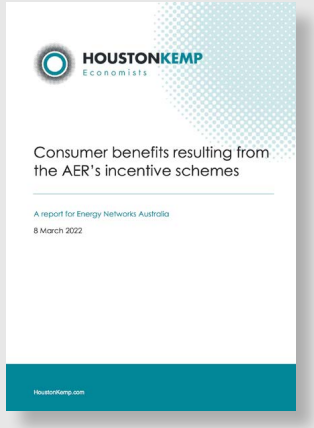
In June 2022, we launched a summary of extensive customer engagement exploring energy preferences and importance of natural gas, trends in appliance usage and attitudes and sentiment towards renewable gas. Seventy two percent of customers noted that they are keen to utilise renewable gas to help the environment.



CLICK

NATIONAL GAS DECARBONISATION PLAN

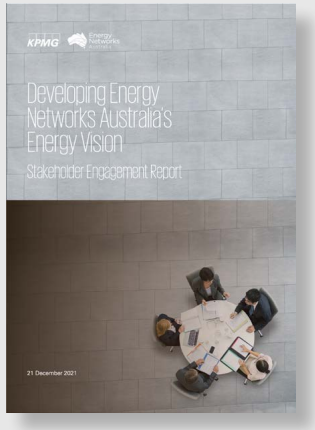
This report provides a detailed national work plan for decarbonising Australia's gas transmission pipelines and distribution networks, supporting national emissions reduction commitments and state and territory net zero targets.



CLICK

HOUSTONKEMP: CONSUMER BENEFITS RESULTING FROM THE AER'S INCENTIVE SCHEMES

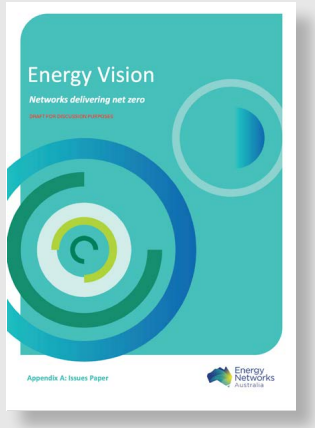
Energy Networks Australia asked HoustonKemp to provide an independent estimate of the consumer benefits that have arisen (and are expected to continue to accrue in future) from networks responding to the incentive schemes that form part of the Australian Energy Regulator (AER's) overall regulatory framework.



CLICK

DEVELOPING ENERGY NETWORKS AUSTRALIA'S ENERGY VISION

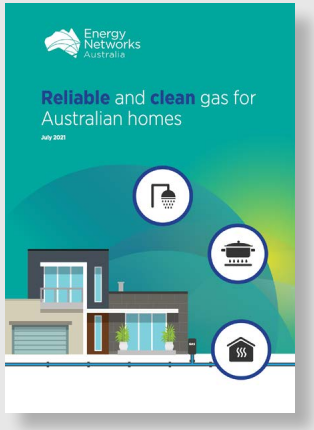
Having developed a draft ENA Energy Vision in consultation with its members, ENA engaged KPMG to facilitate a stakeholder engagement process.



CLICK

ENERGY VISION: NETWORKS DELIVERING NET ZERO: ISSUES PAPER

Energy Networks Australia's draft energy vision is a starting point to take forward to co-design with key stakeholders. This paper provides a preliminary view of the issues emanating from changing energy uses and customer needs on the journey to net zero.



CLICK

RELIABLE AND CLEAN GAS FOR AUSTRALIAN HOMES

In July, ENA launched an updated fact sheet on the role of natural gas in homes. This showed that gas networks connect over 5.1 million homes to gas and that gas continues to be provided to homes at below half the cost of electricity.

Gas Vision 2050: Delivering the pathway to net zero for Australia – 2022 Outlook

CLICK

EXTREME WEATHER AND ELECTRICITY SUPPLY

Energy Networks Australia and the Australian Energy Council released a fact sheet explaining how the energy sector prepares for summer's extreme weather, including a La Nina weather season.

STANDARDS AND GUIDELINES

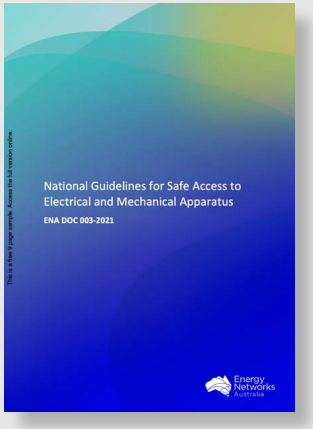
Standards and Guidelines are a key part of ENA's value to members. Ensuring that Australian Standards and our public catalogue of industry guidelines are current and correct enables ENA and our members to influence suppliers and vendors to provide the right products that address members' needs.

Not only to ensure fit-for-purpose / best practice process, products and procedures, this also plays a large role in protecting members' interests from other legal, commercial and financial risks.

We undertake yearly reviews of our catalogue of guidelines to ensure they are relevant, effective and address current and future member requirements.

The sale of our publications also helps support ENA.

UPDATED AND NEW GUIDELINES OVER THE PAST YEAR ARE:

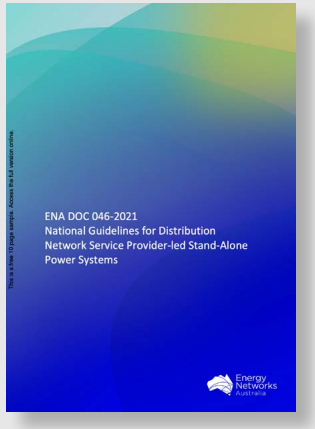


CLICK

NATIONAL GUIDELINES FOR SAFE ACCESS TO ELECTRICAL AND MECHANICAL

(ENA DOC 003-2021)

These guidelines provide principles and responsibilities for network operators, control authorities, service providers and contractors for access to apparatus associated with the transmission and distribution of electricity.



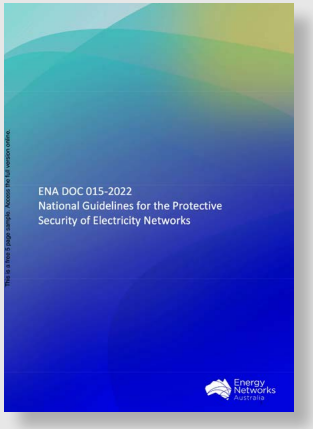
CLICK

NATIONAL GUIDELINES FOR DISTRIBUTION NETWORK SERVICE PROVIDER-LED STAND-ALONE POWER SYSTEMS

(ENA DOC 046:2021)

This is a new Guideline which has been produced to provide a common approach across Distribution Networks Service Providers (DNSPs) for designing, installing, commissioning, operating, maintaining, decommissioning and disposal of DNSP-led Stand-Alone Power Systems (SAPS). This Guideline provides an approach which may differ from traditional SAPS design and installation methodologies with some supporting background and specific requirements that DNSP require for their SAPS.

ENERGY NETWORKS AUSTRALIA IS A MEMBER OF STANDARDS AUSTRALIA GIVING THE OPPORTUNITY FOR SUBJECT MATTER EXPERTS FROM ENA MEMBERS TO PARTICIPATE IN DEVELOPING AND INFLUENCING THE DIRECTION OF AUSTRALIAN STANDARDS, ENSURING THEY CONTINUE TO BE FIT FOR PURPOSE.

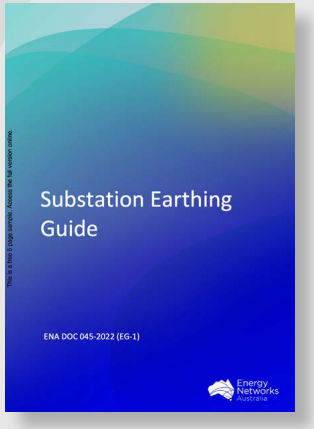


CLICK

NATIONAL GUIDELINES FOR PROTECTIVE SECURITY OF ELECTRICITY NETWORKS

(ENA DOC 015:2022)

This document provides Network Services Providers (NSPs) with a best practice starting point for the development and/or augmentation of their physical security program, in response to the evolving regulatory and security risk environment.

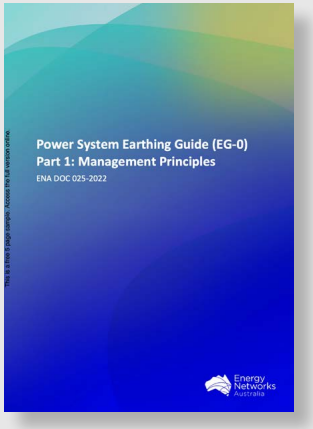


CLICK

SUBSTATION EARTHING GUIDE

(ENA DOC 045-2022)

The purpose of this guide is to provide guidelines for the design, installation, testing and maintenance of earthing systems associated with electrical substations. Earthing systems that are covered in this guide include those associated with generating plant, industrial installations, transmission and distribution stations.

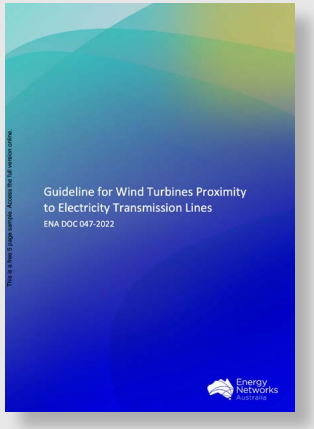


CLICK

POWER SYSTEM EARTHING GUIDE (EG-0) PART 1: MANAGEMENT PRINCIPLES

(ENA DOC 025-2022)

This document addresses the high-level aspects of management policies and strategies associated with power system earthing. It provides a framework for managing earthing system related risk associated with electrical power systems to meet societally acceptable and tolerable levels.



CLICK

GUIDELINE FOR WIND TURBINES PROXIMITY TO ELECTRICITY TRANSMISSION LINES

(ENA DOC 047-2022)

The is a new Guideline which provides a basic overview of the risks associated with WTGs in close proximity to electricity lines. It provides information on the failure modes and approximate failure rates of WTGs based on historical performance. In particular, the two failure modes which could have consequences for nearby electricity lines: wind turbine structure collapse and blade impact (following a blade detachment event), have been studied in greater detail.

GOVERNANCE

CEO FORUM

The CEO Forum, which comprises CEOs from all ENA's full members, provides strategic guidance for the activities of the ENA Board, secretariat, and member committees.

The CEO Forum met in September 2021 by video conference and in April 2022 as a hybrid event.

BOARD

The Energy Networks Australia Board comprises:

- Frank Tudor (Chair)
- John Cleland (Deputy Chair)
- Tim Rourke
- Richard Gross
- Guy Chalkley
- Stephanie Unwin
- Rod Duke
- Paul Simshauser
- Djuna Pollard
- Craig de Laine
- Sean McGoldrick

Craig de Laine (CEO of AGIG), Djuna Pollard (CEO of Power and Water Corporation) and Sean McGoldrick (CEO of TasNetworks) joined the Board in November 2021.

Ben Wilson (CEO AGIG) and Rob Stobbe (CEO of SA Power Networks) resigned from the Board in November 2021, and Ed Kalajzic (CEO of Western Power) resigned from the Board in March 2022.

Frank Tudor (Chair)

John Cleland (Deputy Chair)

Tim Rourke

Richard Gross

Guy Chalkley

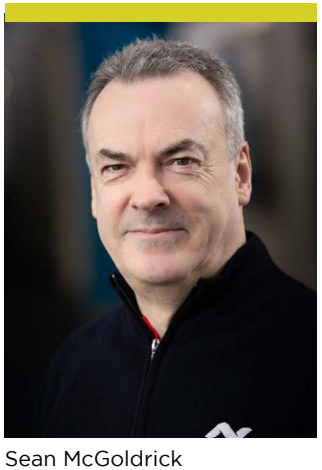
Stephanie Unwin

Rod Duke

Paul Simshauser

Djuna Pollard

Craig de Laine

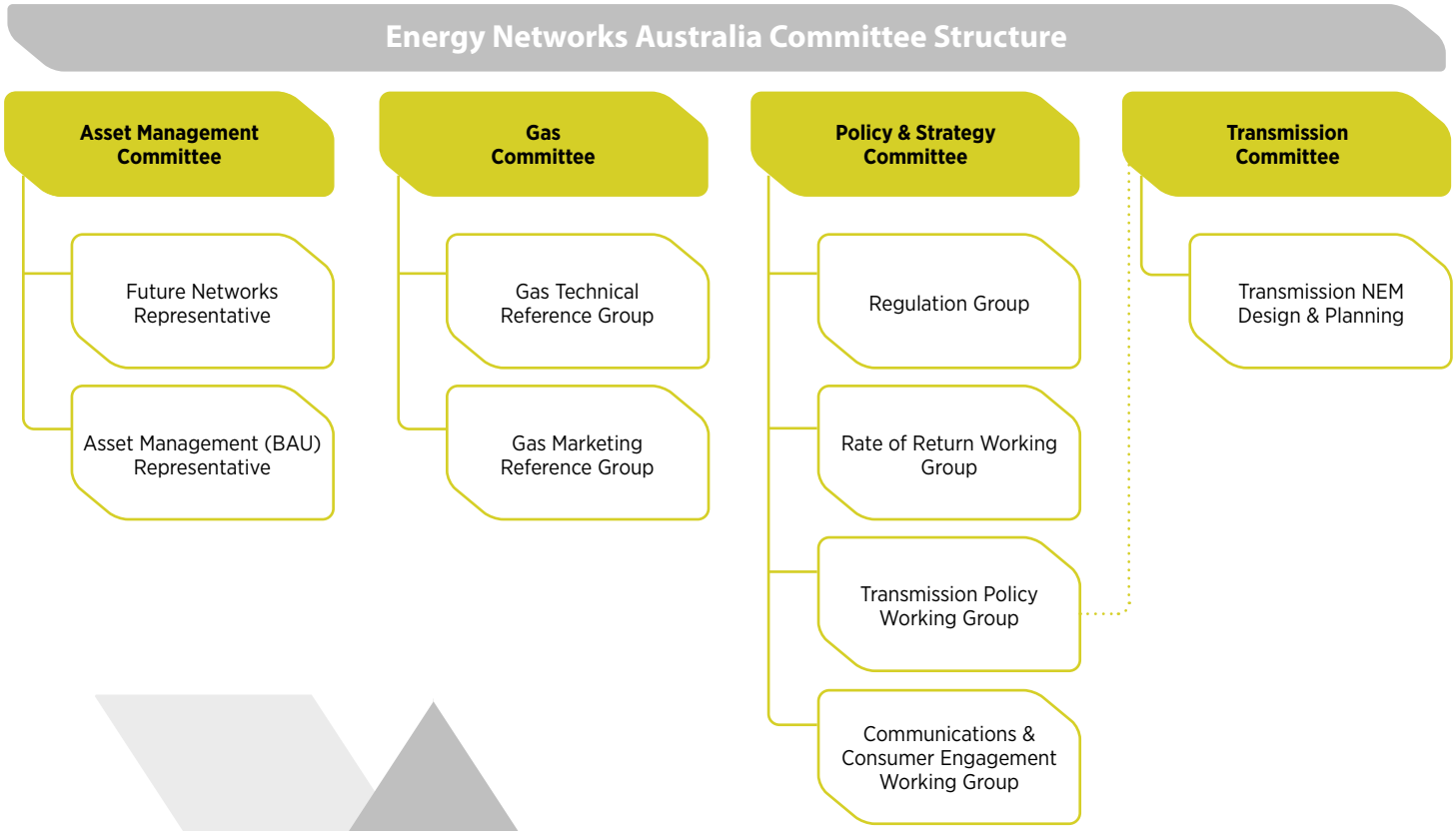


Sean McGoldrick

COMMITTEE STRUCTURE

The Board is supported by several corporate governance and policy committees including:

- The Remuneration Committee chaired by Frank Tudor.
- The Finance, Audit and Risk Management Committee chaired by Guy Chalkley.
- The Policy and Strategy Committee chaired by Richard Gross.
- The Asset Management Committee chaired by John Cleland.
- The Gas Committee chaired by Craig de Laine.
- The Transmission Committee chaired by Paul Simshauser.



MEMBERSHIP

- ATCO Gas Australia
- Ausgrid
- AusNet Services
- Australian Gas Networks & Multinet Gas Networks (part of the Australian Gas Infrastructure Group)
- CitiPower, Powercor & United Energy Australia
- ElectraNet
- Endeavour Energy
- Ergon Energy & Energex (part of the Energy Queensland group)
- Essential Energy
- Evoenergy
- Horizon Power
- Jemena
- Power and Water Corporation
- Powerlink Queensland
- SA Power Networks
- TasGas
- TasNetworks
- TransGrid
- Western Power

ASSOCIATE MEMBERS

- APA Group
- Marinus Link
- Orion Group, New Zealand
- PowerCo, New Zealand
- Unison, New Zealand

AFFILIATES

The ENA affiliate program offers business, government, academia and supply chain partners a new way to connect with and support the work of Energy Networks Australia.

Our affiliates, at 30 June 2022, were:

- ADAPT Australia
- Aeropower
- Amokabel
- Boston Consulting Group (BCG)
- Ecojoule Energy
- Energy Users Association of Australia (EUAA)
- KPMG
- Logsys Power Services
- Oakley Greenwood
- Spark Infrastructure
- Clean Energy Finance Corporation (CEFC)
- TEN Group
- Electrix
- Schneider Electric

Energy Networks Australia
P +61 3 9103 0400 **E** info@energynetworks.com.au
Suite 5, Level 12, 385 Bourke St, Melbourne VIC 3000

www.energynetworks.com.au

DESIGN WWW.WHITEFOX.COM.AU