



# TJ EFFENEY AWARD 2023 REPORT



The Australian  
Power Institute

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# The TJ Effeney Award



**The Late TJ Effeney**

In honour of the late Terry Effeney (one of the Australian energy industry's greatest contributors), API along with The Effeney Family, Ergon Energy & Energex (as part of the Energy Queensland Group), have created the T.J Effeney Award.

This Award was created to support one of Terry's great passions which was to support the next generation. This annual award will allow successful applicants (API Bursary Holders) to be apart of a national group of students attending EECON.

## 2023 Wrap Up



Thank you to the Terry Effeney family for their continued support of this award along with the support of Energy Queensland and ESSA, that make this program possible.

This year, the Australian Power Institute selected a group of 20 students from all over the country to participate in the EECON event held in Melbourne. The three-day conference kicked off with an informative AEMO site tour and a presentation from our Deputy Chair, Heidi Sick.



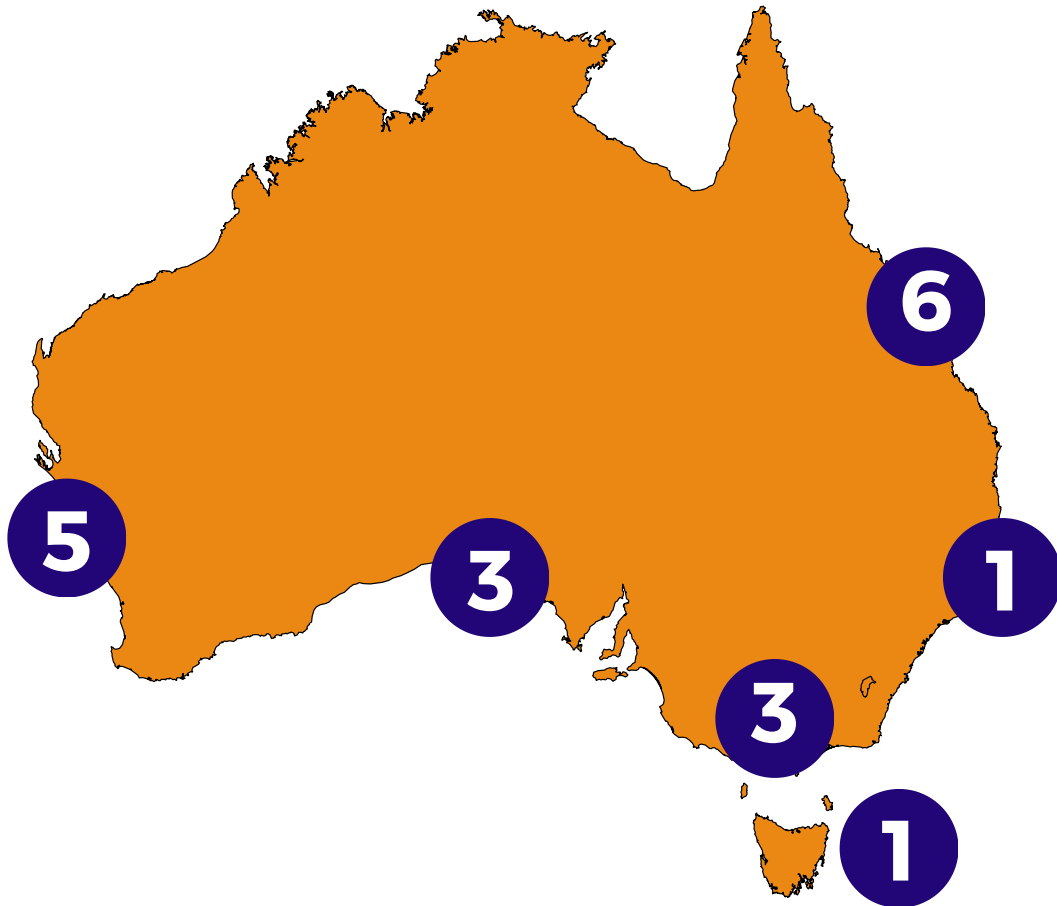
To break the ice, we introduced the new students to a game of putt-putt at Holey Moley that evening. It was a fun-filled night of laughter, though I must admit, my mini-golf skills were a bit rusty!

The remaining two days of the conference were packed with insightful ideas and inspiring speeches from various speakers. The students were fully engaged, and many approached me with questions about the contest of ideas presented. We explored future energy needs and emerging industry challenges, and I found their enthusiasm to be quite refreshing.

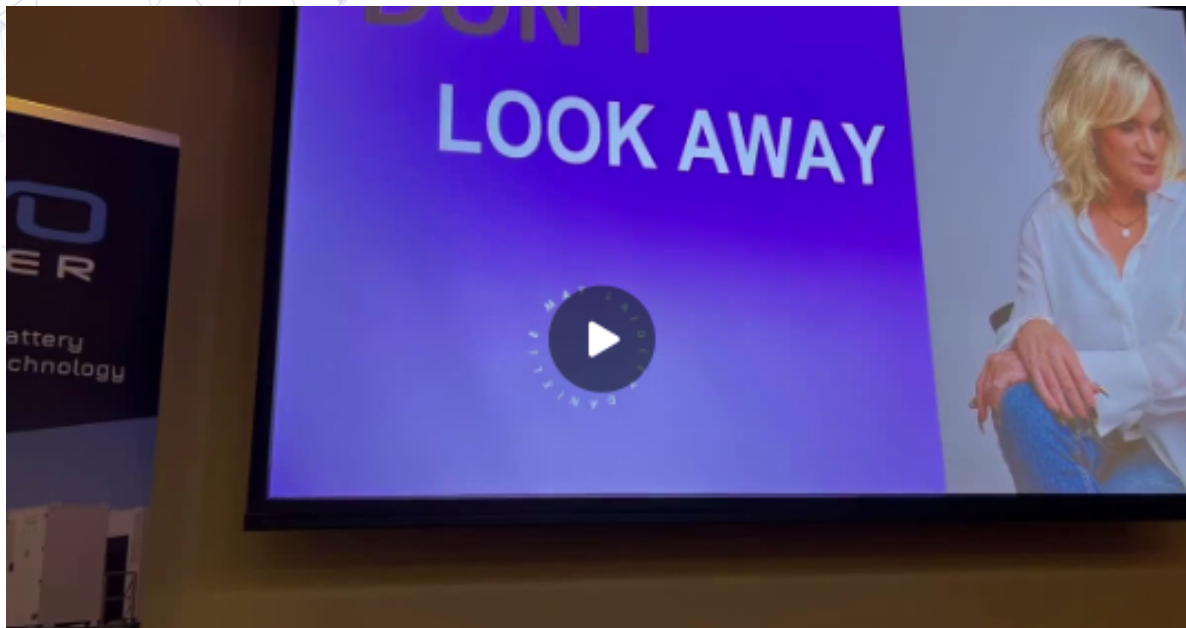
At the API Exhibitor stall, industry professionals were impressed with the young leaders we had brought along. They were asking amazing questions and engaging well with everyone in attendance. Overall, I found the experience to be incredibly inspiring. It was a privilege to be around such a talented and motivated group of students who are eager to tackle and resolve industry issues.

**Laura Wong - Undergraduate Program Manager**

**3 DAYS!**  
**20 STUDENTS!**  
**FROM 10 UNIVERSITIES!**



# Sana



Attending EECCON 2023 with API was a unique experience for me because I got to connect with a lot of like-minded people and have fun. I remember the very first day when I stepped in the hotel to drop off my bags before heading off to the site tour at AEMO, everyone was so warm and welcoming as we made our way to the site. The site tour was an amazing experience as I had heard about AEMO before, but never fully understood the depth of their work. So, it was nice to understand how the energy market operates and what are some of the potential opportunities that I could be looking at when applying for jobs with such firms.



There were some nice teams building events like Holey-Moley at Crown and to top it all off, us students bonded so well that we decided to go and enjoy escape room activities where we worked as a team, playing off each other's strengths to try and get out of the room (we couldn't but still had so much fun). The API staff were always so nice and easily accessible which made the whole experience easy and safe to navigate. The conference itself was so well organised, all the way from the order of speakers and topics to the exhibitors. Everything meshed well with the theme of the conference. I would recommend attending such events and being a part of such initiatives like API, which offer access to unique opportunities for students.



# Matthew

Participating in EECON23 marked a significant milestone in my professional journey. As a first-time attendee at a professional conference within the energy industry, the experience was nothing short of invigorating. Each day was brimming with informative keynote speeches, engaging panel discussions, and diverse presentations delivered by industry leaders. EECON23 focused on enhancing the energy sector's resilience while aiming for net-zero objectives. A standout session featured Brodie Stephenson & Dan Garvey from CitiPower and Powercor, who discussed Rapid Earth Fault Current Limiters (REFCL).

Their presentation provided an insightful exploration into REFCL's challenges in pinpointing faults on powerlines. They highlighted the complexities involved, shedding light on the technology's limitations in fault detection. While acknowledging REFCL's benefits in mitigating hazards, their discussion underscored the ongoing challenges in precisely locating earth faults when a REFCL is used, since the current is very low, it becomes extremely hard to locate the fault. Their insights revealed the complexities inherent in this technology and the essential considerations needed to improve its efficacy, acknowledging the work yet to be done to enhance power grid resilience.

Among the wealth of insights gained, networking emerged as the most invaluable aspect. Engaging in meaningful one-on-one dialogues with established industry professionals further improved my understanding of the topics being discussed at the conference. Through simple yet probing questions like "What was your takeaway from that?" I was able to gain further insights into the topics being discussed.

I extend my gratitude to the Australian Power Institute (API), the TJ Effeny Family, Energex, and the Electrical Energy Society of Australia (EESA) for their invaluable support, making my participation in EECON23 possible. This experience has propelled me with immense enthusiasm and readiness as I continue into my second year at university. The knowledge acquired and connections established during EECON23, particularly from the insights provided by Brodie Stephenson & Dan Garvey's presentation, have significantly shaped my aspirations within the energy industry. I look forward to the challenges and opportunities that await throughout my study, but also throughout my professional career.





# Jack

Although prior education has informed my knowledge of the impact climate change has on the power sector, the EECON23 conference enlightened me toward the broad impact on the overarching energy sector. Dr. Alan Finkel's keynote speech was the primary source of this enlightenment - as he detailed what is required to remove the barriers to achieving net zero in Australia.

The key to this speech was the criticality placed on the entire supply chain: from raw materials to power infrastructure, the workforce, transportation and household customers. What this highlighted was that the energy transition does not only involve the energy sector, but requires collaboration across the largest sectors in the world - a movement that if successful, will go down as the Electric Age. Thursday morning's session on Future-proofing networks against changing demand was another highlight for me, expanding my previous studies on the modelling of DERs and CERs at university. I was specifically taken by Ausgrid's efforts to advance their network planning through agent-based modelling of CER-influenced network load. The use of agents characterised by CER uptake percentages in the area provided an effective and efficient way to further inform loadflows at the zone substation level, and thus better plan future networks. Brendan Banfield built on this advanced modelling perfectly through explaining Gridsight's model-free approach to enhancing a DSO's vision of dynamic hosting capacity. The ability to apply this to smart-meter-enabled distribution networks empowers the energy transition significantly through further educating asset management and network planning. Overall, the EECON23 conference was an exceptional experience - providing the means to learn and network with top industrial professionals. I seek to expand on and base my career around these insights as I pursue a future within the power sector.

Thanks again for the incredible experience Laura!

# Ansuree

The EECON Conference 2023, held on November 15-16 in Melbourne, was a landmark event focusing on Leading the Energy Transition the Australian Way, with the theme "Powering up with Resilience." Over 50 specialists from throughout the country gathered at the conference to discuss crucial issues confronting the Australian energy supply business as it faced the challenges of climate change, resource depletion, and environmental degradation.

One of the distinguished speakers, Professor Julie Arblaster from Monash University, a renowned climate scientist, shared groundbreaking insights into climate modelling during her presentation. Prof. Arblaster, who received the Anton Hales Medal in 2014 and the Priestley Medal in 2017, brought authority and experience to her presentation of the causes of climate variability and extremes. She stressed the critical importance of global efforts to achieve net-zero emissions in order to avoid the potentially disastrous effects of climate change. We as a part of Australian Power Institute got an opportunity to engage in enlightening sessions, site tours, and networking opportunities, gaining essential knowledge and creating contacts within the Electric Energy industry. The exhibition featured products, equipment, and services from sponsors and exhibitors, providing guests with a valuable opportunity to learn about the most recent innovations in the area. EECON 2023 motivated and prepared its attendees with the knowledge and excitement required to actively contribute to the continuing transformation of the Australian energy sector. The conference set the framework for a more sustainable and balanced future, where humanity can give back to nature and reduce the environmental concerns that threaten our existence, by focusing on resilience and harnessing Australian know-how.



# Emma

Being selected by the Australian Power Institute to attend this year's EECON in Melbourne has been a great opportunity and professional development experience, which I am very grateful for. It first introduced me to a network of other students throughout the country studying similar degrees either also in Electrical Engineering or closely aligned STEM fields. Being able to learn from each other's experiences so far in our degrees and learn about the variety in career aspirations has given me more idea about what options exist for me post-studies.

The conference itself exposed me to a large number of leading organisations in the industry, and let me speak face-to-face with representatives who know about the forefront issues and developments in the electric energy space. Some of these companies I was already familiar with, but others have broadened my knowledge in this regard. I made a deliberate effort to also engage fully with all of the talks themselves – taking plenty of notes – in order to take advantage of the wealth of knowledge being offered by the academics, policymakers, scientists and of course all of the engineers in attendance.

I feel as though I now have a comprehensive picture of what the current environment is like for engineers working in this field and striving to improve the usage of renewable energy sources whilst ensuring strong reliability for Australians, and what the core challenges are in achieving this goal. I will certainly be applying the learnings gained during the conference in my future studies, and hope to maintain connections with the cohort of API students.



# Bashir

I am sincerely grateful to be a part of the TJ program in 2023, an experience that has proven invaluable in shaping my professional growth. This unique opportunity has allowed me to gain a wealth of knowledge and skills, significantly contributing to both my personal and career development.

Throughout the program, I have had the privilege of networking with accomplished individuals whose insights have been instrumental in broadening my perspective. Engaging with these respected figures has not only provided me with a glimpse into their established career journeys but has also enabled me to absorb their wisdom and apply it to my own aspirations.

The TJ program's emphasis on mentorship has been particularly impactful. Establishing connections with mentors who generously shared their expertise has accelerated my learning curve. Their guidance has not only enhanced my understanding of industry dynamics but has also equipped me with practical strategies to navigate challenges.

Moreover, the collaborative environment within the TJ program, alongside fellow students who share similar career journeys, has been very beneficial and has opened my eyes through their shared learning experiences.

In conclusion, being a part of the TJ program in 2023 has been transformative, providing me with a solid foundation for future endeavours. I eagerly anticipate applying the knowledge and skills acquired during this program to make meaningful contributions in my chosen field.

# Annelise



Attending the EECON2023 conference has truly opened my eyes to the challenges currently facing the power sector regarding achieving net zero.

One solution is to build nuclear reactors, which have the benefit of being controllable in the sense that we can decide how much energy to produce at any given point in time, allowing the generators to respond to the needs of the network. The issue with nuclear generators is they are expensive and time-consuming to build, which due to political issues now means we may not have time to build reactors in time to achieve net zero.

The other solution is to increase our wind and solar farms and use large batteries to store the energy for when we need it. The drawback of this is that we need an exorbitant amount of energy storage to meet the demands of the grid, we need to redesign the grid for two-way flow and find a way to deal with overloading the grid on windy sunny days. This is presented as a cheaper way to achieve net zero but leads to a significantly higher cost of electricity for the consumer. Although we have the time to do this, again, due to political issues, we may not build the infrastructure in time to remain under 1.5 degrees Celsius.

The talks have led me to conclude that the issues facing the power sector are less technical and more ones of politics and cost, with society and the government being unwilling to sacrifice or compromise in any way in order to save ourselves from global warming.

# Cooper



I recently had the privilege of attending EECON 2023, thanks to the TJ Effeneay Award from the Australian Power Institute. During my time in Melbourne, Laura and David provided valuable opportunities for us to gain insights into AEMO's operations and interact with like-minded individuals in similar fields of study. They consistently empowered and encouraged us to be confident, urging us to make the most of our time and experience at EECON.

Since we were introduced as students, we were warmly welcomed by the EECON community and EESA event staff. This introduction facilitated interactions with industry professionals and allowed us to expand our professional network and obtain valuable insights into potential future careers. This process was further assisted by the API team through activities that ensured the inclusivity of the students with the companies attending EECON.

My vague goal when originally deciding to attend EECON through the API was to broaden my network and knowledge of the power sector. However, not only did I achieve that, but I was also able to engage with motivated and like-minded students and participate in discussions with the top engineers leading Australia through the renewable energy transition. The seminar that stuck with me was Robert Parker's discussion on the unbanning of Nuclear Power to assist us with the transition, as I too believe it is a wasted opportunity if we don't truly consider all our options.

Based on my experience, I would strongly recommend that my fellow students actively engage with the API community and consider participating in events like EECON.



# Vaughn



# Aditya

From 15-16th November, I attended the EECON23 conference in Melbourne on leading the energy transition the Australian way as a TJ Effeney award recipient. Not completely knowing what to expect, as this was my first professional conference, I was a bit nervous but excited to network with others and learn more about this important topic.



Immediately on Tuesday when I arrived at the hotel and met the other TJ Effeney recipients, I was put at ease by our friendly everyone was and the similar passions we shared in electrical energy and the renewable transition. Beginning with some presentations and a tour of AEMO, I was inspired by the speakers I heard from to absorb as much as I could from the conference.

The conference began on Wednesday and I was immediately struck with just how important this energy transition is and how large the problems ahead are. I was engrossed by the speakers and my desire to contribute in solving these problems was reaffirmed. In the breaks between presentation, I was able to visit many booths of different companies that are working in this space. Networking with experienced professionals helped increase my clarity about what ways and in what careers I could contribute to the energy transition. It gave me a better idea of all the stakeholders in the industry and what they were doing to combat the new, fast-changing problems being generated as Australia transitions to renewable energy sources.

The second day of the conference was more hopeful. I heard more about very novel and interesting solutions to some of the problems described earlier and in the end, overall strategies that could help Australia not only face the problem of climate change but capture the opportunity that it creates. One of the most excited talks I found was on a big battery built in Victoria. The developer Akaysha, partnered with many amazing companies was able to design and build the world's most powerful battery where a coal fired generator used to be, utilizing the existing transmission systems and infrastructure efficiently rather than having to build everything entirely new. It struck me how important these sustainable and intelligent solutions will be in the future. I left the conference with a better understanding of the enormity of the problem but also more hopeful about how many amazing people are working on all different aspects of it.

# Donna

The EECON2023 conference was a transformative experience, offering invaluable insights into the challenges faced by the electrical energy sector in its pursuit of net-zero goals. I had the amazing opportunity to engage with experts and high-ranking industry professionals, to learn about critical issues such as storage, location, grid stability and capacity. The conference highlighted the importance of mobilising communities and promoting energy efficiency for a fair and accessible net-zero transition.

The TJ Effeney Award facilitated my attendance, providing a unique opportunity to connect with like-minded individuals, expand my network, and gain insights not attainable in a university setting. The event's organization was commendable, featuring a diverse mix of informative and technical sessions, each contributing to a holistic understanding of the industry.

I fostered meaningful conversations with industry professionals. The conference allowed for direct interactions with experts, creating a conducive environment for learning and networking. While some sessions were technically advanced, I took the opportunity to expand my industry-specific knowledge, reinforcing my commitment to a future career in the field.

EECON2023's emphasis on achieving net-zero resonated deeply. The event showcased informative presentations and innovations, offering a glimpse into the changes needed for net-zero targets by 2050. The commitment of industry leaders left me inspired and reassured about my role in contributing to a sustainable future. I am extremely grateful for the TJ Effeney Award and the API's support, and I look forward working in the electrical energy sector.

# Sarthak

The opportunity to have attended the EECON 2023 Conference was an invaluable experience in being able to gain insight into the current trends within the power industry while also being able to meet bright and talented individuals across the sector. As a student, the experience was incredibly helpful in being able to see the various applications of theory that I had learned in university, such as across power, telecommunications and electronics, to understand how these skills were being used to tackle many of the challenges associated with reliability, decarbonisation and renewable energy integration.

While attending the various speeches at the conference was insightful, the opportunity to talk to industry leaders and speakers was also an important highlight. Being able to converse with professionals and companies from the industry, such as AEMO, Siemens or Ausnet, to learn about topics such as energy forecasting, grid planning and battery storage solutions was especially captivating. As a student who wants to enter the power industry to overcome the various challenges within the energy sector, these ideas were particularly critical to understand and interpret.

However, the experiences of any event are only as great as the people who you share them with. Not only was the API team, including David, Stephanie and Laura, extremely helpful and accommodating in helping everyone feel comfortable and valued, but the students who I was able to attend the conference with were extremely intelligent and great to spend time with. Despite all of us being from different states in Australia, it was great to connect with everyone and it really showed that despite our different backgrounds, we were all very eager to learn and work closely with one another.

Overall, the EECON 2023 Conference was an irreplaceable experience and I am very thankful to the API for providing the opportunity to attend the event and network with amazing industry professionals and like-minded students.



# Liana

I recently attended my second EECON and sensed a clear shift in Australia's leading power industry experts' sentiments. The rate of change within just a year is so exciting. As we run towards net-zero and embrace renewable energy, we've encountered numerous obstacles but also witnessed substantial innovation in the market. Our industry is pioneering new standards while integrating tried-and-true methods to ensure a consistent supply of reliable electricity.



We were reminded that we must diversify our electricity generation with various technologies to meet increasing demands and reduce our reliance on any single technology. Some technologies will provide immediate power, while others will stand by to compensate for dips in daytime generation, ensuring a steady base load through effective capture, storage, and release systems. The demand for electricity is surging as energy consumption and consequently, generation soars. The shift from fossil fuels, the rapid adoption of electric vehicles and rooftop solar challenge us to rethink energy distribution. We need to construct transmission lines to carry electricity to populated areas from the often remote generation sites. Although rooftop solar generates ample power during peak daylight hours, this energy often goes unused because people are at work, only to return home and consume energy at night. This mismatch presents significant challenges in integrating production back into the grid and necessitates innovative storage solutions. We are at the early stages of a major transformation in the power industry. It will require collaboration between seasoned experts and creative new graduates to devise tomorrow's solutions. Conferences like EECON provide a platform for professionals and students to step back, look at the bigger picture while seeing the interconnectedness of our efforts. It is a reminder of the exciting nature of the industry and how we are on the bleeding edge of innovation and how much exciting work there is to be done.

# Bharat

Participating in the EECON conference hosted by EESA in Melbourne was a unique opportunity to network with key industry representatives from the utility sector, but also featured a diverse range of keynote speakers who shared insightful perspectives on navigating the energy transition to net zero by 2050.



While it was evident that a shift away from fossil fuels was necessary, Professor Arblaster's climate modelling lecture emphasized the urgent need to decarbonize to prevent temperatures from rising above 1.5 degrees. Various perspectives emerged on the optimal solutions to ensure reliability, resiliency, and affordability across the "NEM" network which was outlined through the Integrated System Plan by AEMO. This included talks on the use of Distributed Energy Resources through rooftop solar and battery storage, planned renewable energy zones (REZ) and private sector engagement with companies like Akaysha through their exciting development project the Waratah Super Battery. Furthermore, one memorable although controversial topic was by Robert Park highlighting the importance of the inclusion of nuclear energy for decarbonization while also dispelling myths and critiquing the inefficiencies of solar and wind technologies. As a current engineering student attending the conference, these lectures provided a deeper appreciation for the pivotal role engineers play in addressing global climate challenges, and once I graduate, I will be at the forefront of exciting new technologies across many diverse and emerging sectors!

I would finally thank the team from the API including Laura Wong, David Pointing, Stephanie Sommerville, and the T.J Effeney family. Their unwavering support has not only facilitated my participation in the conference but has also created a platform for me to engage with engineering students from across Australia, allowing me to broaden my perspectives and deepen my understanding of the critical issues we face in the field.

# Noah



As a TJ Effeney Award recipient, I had the privilege of diving headfirst into the real-world challenges of the power industry at the EECON 2023 Conference. This two-day event, themed "Leading the Energy Transition the Australian Way - Powering up with Resilience," was a unique platform to explore critical topics such as Reducing our Carbon Footprint – Meeting Net Zero, Maintaining grid strength/stability, and much more. It was a unique opportunity to explore the evolving power sector, learn from industry experts, and engage in sustainability conversations. The conference was a remarkable opportunity for us young professionals to gain industry exposure. The TJ Effeney experience allowed me to connect with passionate peers in the energy industry, immersing me in a dynamic exchange of innovative ideas. These interactions deepened my understanding of the industry's role in climate change mitigation and the transition towards a sustainable, Net Zero future. It was akin to being part of a dynamic think tank, brimming with passionate individuals from the energy industry.

In particular, Dr. Alan Finkel AO, a speaker who left an indelible mark on me, wove a compelling narrative around the integration of health, engineering, and entrepreneurship. His talk highlighted the role of government and regulators, the challenges of getting to "Net Zero," and the importance of reliable and resilient energy sources. His insights reaffirmed my belief in the transformative power of interdisciplinary thinking in driving positive change in the power industry and beyond. Through this, I was gratified to learn of the industry's commitment and dedication towards this goal, knowing I, too, could make a positive difference in this profession.

Looking ahead, I'm thrilled about the path that lies before me and my potential role in shaping a sustainable future. I eagerly anticipate contributing to the power industry's growth and am confident of a rewarding career ahead. I extend my heartfelt gratitude to the Effeney family, the API, and the Electric Energy Society of Australia for this golden opportunity. The future is not just promising; it's electrifying, and I can't wait to be a part of it!



# Oscar



Last week, I was lucky enough to attend EECON 2023, hosted by EESA. I would like to thank the Australian power institute and the Effney family for the opportunity to attend this event.

Being my first engineering related conference, I was eager to get a glimpse into some of the fascinating (and often too complex for me) topics which were being discussed.

A speech which particularly interested me was Robert Parker's, on behalf of nuclear for climate Australia. His research as well as dr Robert Barr's not only contradicted that of what dr Alan Finkel's presentation displayed (AEMO ISP), but also showed an alternative plan to reach net zero emissions by 2050, in which nuclear was a key part. Although I do not understand enough about the intricacies of the numerous topics covered in these speeches to make an informed decision on which plan (Robert Parker's or Dr Alan Finkel's) provides a more accurate forecast of the route Australia's energy sector needs to take (using nuclear or not) I am fascinated by these conflicting reports, which have inspired me to do my own research into the future of Australia's energy.

I was also fascinated by Mu Liang's (IND technology) speech and his firesafe SWER EFD technology which measures frequencies within the power lines and uses this data to provide early fault detection predictions as well as their location on the power line, accurate to a 100m long section. This allows potential fault areas to be rectified before a fault actually occurs, mitigating the risk of a catastrophic event such as a bushfire.

It was interesting to see the contrast in the topics which were discussed at the conference. On one hand there was the big picture discussions regarding the whole national shift to renewables as discussed in my first paragraph, and on the other hand there were small technological systems such as SWER EFD. I found EECON particularly helpful for me and my career aspirations as I got to see these polar opposite perspectives of engineering in the power sector and decide what interested me the most.

**“Attending EECON has inspired me to delve deeper into my passion for engineering as well as to start being more proactive in networking and seeking potential future employment. The event has led me to not only create valuable connections, but also has left me feeling like I have a foot in the door to what could be the career I pursue for the rest of my life.”**

**Oscar**

# Erica

The EECON2023 conference, themed "Leading the Energy Transition the Australian Way - Powering up with Resilience," unfolded valuable perspectives and captivating discussions around the efforts of various companies in pursuit to tackle the universal goal embraced by engineers: achieving net-zero emissions by 2050. Firstly, I would like to mention a thank you to the TJ Effene family and the wonderful API team as this opportunity would not have happened without them. This was a unique opportunity to network with industry and also students from all across Australia providing a special experience that you would not find elsewhere. During the conference various distinguished keynote speakers shared diverse perspectives, evolving ideas and challenges, offering a comprehensive overview of the Electric Energy industry. The conference served as a platform for illuminating initiatives in place that currently address the ongoing energy transition and the associated complexities and challenges around them, furthermore, showcasing the strategies to maximize benefits and progress towards the net-zero target.

The urgency for immediate action in reducing emissions was a recurring theme throughout the conference, underlined by the recognition of limited resources and budget constraints. Simultaneously, the importance to maintain reasonable electricity prices for Australians added an additional layer of complexity. The conference provided an insight into the multifaceted roles and factors shaping the energy transition, offering a glimpse into the industry landscape that us as future engineers will navigate. It pinpointed the need for strategic, innovative solutions to address the challenges ahead and affirmed the pivotal role engineers will play in shaping a sustainable energy future and transitioning to a clean future.



I attended the EECON23 conference in Melbourne as an awardee of the TJ Effene scholarship from the Australian Power Institute (API). On the first day, it was great to meet all my fellow recipients. It was a pleasant surprise how fast we bonded, giving the impression that we had already known each other.

The AEMO site tour especially Melanie's engagement and the insights obtained from the gas control room, provided a direct understanding of AEMO's control structure. The practical experience was beneficial. The program's social components introduced a fun dynamic - the mini-golf event provided a fun environment in which everyone could connect as friends!

# Anush

Being my first professional conference, I was initially very nervous, but the group being around helped calm the nerves. The keynote lecture by Dr. Alan Finkel was a highlight, and his comment on the transition from solar to batteries emphasised an important message for me. Though we were disappointed not to be able to hear Hon. Lily D'Ambrosio speak in person, her motivating remarks struck true, emphasising our generation's importance in influencing the industry's future.

The plenary sessions were packed with information. Scott Ryan's views on the role of networks in reaching net zero emissions were particularly instructive since they corresponded to my present job in the distribution industry. Chris Mock's presentation on AEMO's Engineering Roadmap to 100% Renewables was crucial in providing a thorough knowledge of AEMO's strategic direction and its influence on the energy sector. Seeing my own professor, Dr. Reza present his study on Accurate Fault Location Techniques, was featured in the concluding session, which highlighted the practical uses of academic research.

The next day, Ed White's talk on estimating consumer CER uptake coincided with my final year research, adding practical relevance. Highlights included insights on V2G technology implementations and the Waratah Super Battery. Additionally, engaging with industry leaders, including CEOs and higher-ups, has led to opportunities for permanent roles.

Finally, EECON23 was a great opportunity that not only broadened my awareness of the industry but also opened networking possibilities that are critical. I am grateful to the Effene family, Energy Queensland, and the API for this amazing opportunity.

# Medina

EECON 2023, hosted by The Electric Energy Society of Australia in Melbourne and made possible through the TJ Effeney Award and the sponsorship of the Australian Power Institute, was an enriching experience for me. As one of the TJ Effeney Award recipients, my trip turned out to be quite the event - a mix of the unexpected, a bit of fun, and plenty of learning.

So, the conference had a bit of a rocky start for me on Tuesday with an incident at the AEMO gas control room causing a delay to my Wednesday morning, the first day of the conference. Then, there was my own mini adventure getting to the Crown Promenade Room from the Ink Hotel. What should have been a quick 400-meter walk turned into a bit of a detour - I guess I got a free tour of Southbank, courtesy of my not-so-great sense of direction!

The sessions I attended were packed with information. In the "Reliability and Resilience" session, Conan Jones from Redflow International got me thinking about the resilience needed in Battery Energy Storage Systems (BESS). Melanie Koerner from AEMO Services discussed planning for a reliable and resilient clean energy system, and Amandine Denis-Ryan's take on DER and electrification highlighted the balance between risk and opportunity.

I was particularly interested in the "Future-proofing Networks against Changing Demands" session. Edward Burstinghaus from Elexsys Energy shared insights from the RACE for 2030 project, and Gregor Verbic's discussion on the role of grid-forming inverters was fascinating.

In the "Reducing our Carbon Footprint – Meeting Net Zero" session, Chris Weaver and Julian Wilson from APD Engineering tackled the system strength rule change in the NEM. Philippe Reboul's perspective on lifecycle analysis of transformer oils and David Barlow's talk on hydrogen-enabled power systems were eye-openers.

Networking was one of the highlights. I connected with people from all over Australia from industry and other students like myself. I even snagged some great merch from APD Engineering – who knew energy conferences had such cool freebies?

Reflecting on the conference, it was more than just the sessions and the unexpected happenings during my first trip to Melbourne. It was about the new ideas, new connections, and the broader perspective on the energy sector that I gained. EECON23 was an enriching experience, both professionally and personally. Can't wait to see what's next on this journey in the energy sector as I graduate university and begin my career as a graduate!

Thank you to the team from the API especially Laura Wong, Stephanie Somerville and David Pointing for making this such a memorable experience and one that I'm sure will be very influential to my future career.



# Cameron

On the 15th and 16th of November this year I had the privilege of attending EECON2023 - An electrical energy convention which this year had the theme of 'Leading the Energy Transition the Australian Way'. With the power industry being a relatively unexplored industry for me outside of my university studies I set the goal to keep my ears open and become privy to the issues and solutions at the heart of Australia's transition to net zero.

As it stands, Solar and Wind energy along with Battery energy storage systems (BESS) are the energy generation and storage methods selected to power Australia's energy transition. With Australia's abundance of sunshine and wind we are an excellent candidate for these energy generation methods with rooftop solar already making up 10% of Australia's generated electricity. However some disappointing statistics were presented by the former chief scientist of Australia, Alan Finkel, who had the example that for NSW to reach its clean energy targets it needs to build at least three new wind farms each year.

However zero new wind farms have been approved for over 2 years in NSW. These delays in the development of new infrastructure admittedly leave me slightly skeptical about whether solar, wind and BESS alone can meet our energy needs. I also have concerns around supply chain issues of supplying the critical materials to make batteries for energy storage systems, not to mention electric vehicle's and wind turbines. In addition, the short operational lifetime of utility scale BESS will mean that these battery systems will need to be continuously replaced and to recycle the existing batteries when they reach the end of their life cycle is difficult.

I was fortunate enough to have some interesting conversations with industry experts about these points who provided alternate perspectives about the solar and wind powered energy transition in favor of energy generation forms such as nuclear energy. Nuclear energy could be an important piece to the energy puzzle which unfortunately seems to be clouded by politics, misconceptions and preconceived ideas about the technology. Ultimately, I believe that the adoption of nuclear power, although initially expensive, should happen sooner rather than later because I believe it's going to take all forms of energy generation to move us to net zero. The worst thing that could happen in this clean energy transition would be that increased energy costs are passed onto everyday families who have to endure the burden of an increased cost of living or that coal power stations need to be re commissioned because our clean energy solutions cannot meet future energy demands. One message that came through clearly at EECON was that we are in an unprecedented time in terms of the technical, social and political challenges when it comes to delivering reliable, affordable and sustainable energy to Australians. With these complex problems on the table to be solved I've learnt that promising careers in the power industry are possible and such roles will provide the opportunity to make a real impact! Of course, these great industry insights and experiences would not be possible without the support of the Australian Power Institute, its sponsors and the TJ Effeney family.

I thank them all greatly for making this opportunity a reality





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## TJ EFFENEY REPORT

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