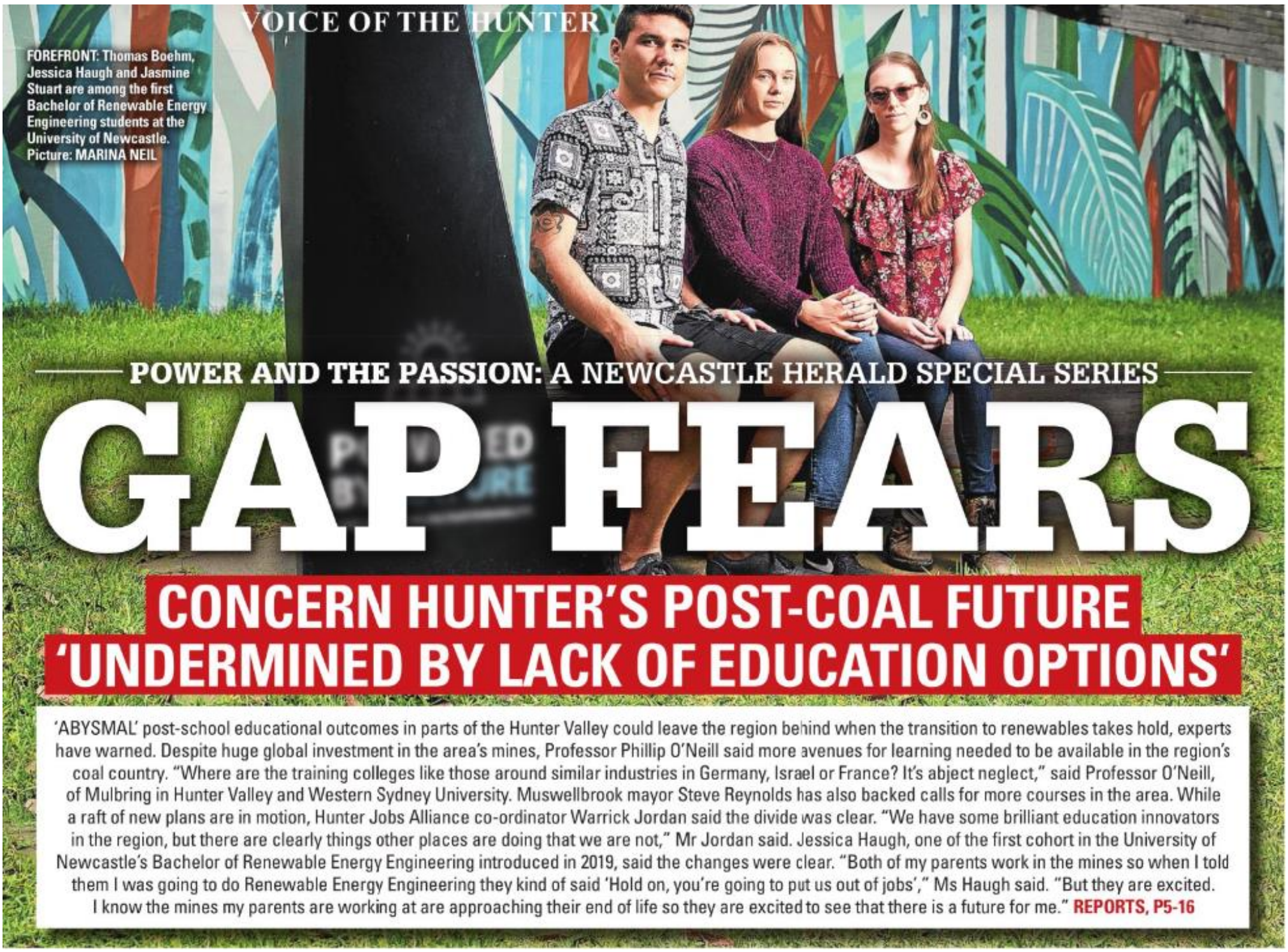
VOICE OF THE HUNTER



FOREFRONT: Thomas Boehm, Jessica Haugh and Jasmine Stuart are among the first Bachelor of Renewable Energy Engineering students at the University of Newcastle. Picture: MARINA NEIL

POWER AND THE PASSION: A NEWCASTLE HERALD SPECIAL SERIES

GAP FEARS

CONCERN HUNTER'S POST-COAL FUTURE 'UNDERMINED BY LACK OF EDUCATION OPTIONS'

'ABYSMAL' post-school educational outcomes in parts of the Hunter Valley could leave the region behind when the transition to renewables takes hold, experts have warned. Despite huge global investment in the area's mines, Professor Phillip O'Neill said more avenues for learning needed to be available in the region's coal country. "Where are the training colleges like those around similar industries in Germany, Israel or France? It's abject neglect," said Professor O'Neill, of Mulbring in Hunter Valley and Western Sydney University. Muswellbrook mayor Steve Reynolds has also backed calls for more courses in the area. While a raft of new plans are in motion, Hunter Jobs Alliance co-ordinator Warrick Jordan said the divide was clear. "We have some brilliant education innovators in the region, but there are clearly things other places are doing that we are not," Mr Jordan said. Jessica Haugh, one of the first cohort in the University of Newcastle's Bachelor of Renewable Energy Engineering introduced in 2019, said the changes were clear. "Both of my parents work in the mines so when I told them I was going to do Renewable Energy Engineering they kind of said 'Hold on, you're going to put us out of jobs'," Ms Haugh said. "But they are excited. I know the mines my parents are working at are approaching their end of life so they are excited to see that there is a future for me." REPORTS, P5-16

Job renewal by degrees

BY **ETHAN HAMILTON**

AS THE Hunter grapples with a future beyond coal-fired energy generation, the University of Newcastle has been expanding it's School of Engineering to better accommodate renewable industry.

Introduced in 2019, the Bachelor of Renewable Energy Engineering presents an option for students seeking a future in diversified energy technologies.

"I always wanted to do something environmentally based," fourth-year student Jasmine Stuart said.

"I was looking for degrees at the University of Newcastle and when I saw this was an option it just kind of clicked for me. I liked science and maths in school and this degree seemed really future-focused."

Along with Thomas Boehm and Jessica Haugh, Jasmine Stuart was part of the first cohort to enrol in the degree back in 2019.

Building on "a good mix of chemical and electrical engineering" the degree looks specifically at major renewable technologies such as solar, wind, bioenergy, geothermal, hydro and tidal, according to the students.

"In our renewable subjects there is always that discussion around learning the limitations, infrastructure required, energy storage and grid connections to support the system," Ms Stuart said.

"We need a diversity of storage - not just batteries."

From a mining background, Jessica Haugh said introducing the degree was an "important step the university needed to take".

"Both of my parents work in the mines so when I told them I was going to do Renewable Energy Engineering they kind of said 'Hold on, you're going to put us out of jobs'," Ms Haugh said.

"But they are excited. I know the mines my parents are working at are approaching their end of life so they are excited to see that there is a future for me."

As a member of the Australian Youth Climate Coalition, Jasmine Stuart is working to make climate action a focus of the upcoming federal election.

She's not alone, a recent survey of *Newcastle Herald* readers put climate change as the top election priority.

Ms Stuart said establishing pathways to alternative industry now, will save the region a great deal of heartache in the future.

"I think it is going to be really important for the Hunter as a mining community to invest in alternative industries because we know coal mining isn't going to be around forever," she said.

"Getting people into these future-focused fields is really important but what is also important is retraining of coal workers who are very rightfully concerned about their futures."

HEAD START: University of Newcastle Associate Professor Dr Elham Doroodchi is program convener for the Bachelor of Renewable Energy Engineering.

Associate Professor in the School of Engineering at the university, Dr Elham Doroodchi, is program convener for the renewable energy degree.

With a background in chemical engineering, Dr Doroodchi said community concerns around energy security, affordability and climate change more generally contributed to the degree being established.

"We saw the trends in terms of global decarbonisation and thought we needed to address the shortage of skilled graduates," Dr Doroodchi said.

"There are three ingredients to a decarbonised world - technology, a market push with an end user pull and also a skilled workforce.

"We do have those first two steps but the need for a skilled workforce was a driver for us to complete this ecosystem."

Dr Doroodchi said the Hunter's energy legacy means the region, along with the students, are well positioned to take advantage of a renewable future.

"The Hunter has been the heart of the nation in generating power for years and I believe we are the place to lead this transition," she said.

"Being connected to the industry and to technological advancements, the students are at the cutting edge of research."

GREEN SHOOTS: Thomas Boehm, Jessica Haugh and Jasmine Stuart were part of the first cohort to enrol in the Bachelor of Renewable Energy Engineering at the University of Newcastle back in 2019. **Picture: Marina Neil**

Currently employed with an energy consultancy group working mostly in traditional energy generation, Jasmine Stuart said she sees a natural move towards renewables in the industry - whether companies intend it or not.

While Ms Stuart said the transition to renewables "is not as simple as some activists want to believe", she added there is a lot of potential in the Hunter.

"I think with our solar and wind resource along with our transmission infrastructure and the port, the Hunter is very well placed."

Jessica Haugh is already employed in the Hunter's renewable sector. She works with a company called Zenviron, focusing on balance of plant contracting for wind farms.

Beyond the ever-growing path of renewable consultancy, Dr Doroodchi said there a range of employment opportunities for graduates.

"They can be in research and development, sales and marketing, advisors in government agencies and developing and implementing new renewable technologies."

In the 2021 Times Higher Education Impact Ranking placed the University of Newcastle (UoN) at 12 out of 1118 universities worldwide for meeting the United Nations sustainable development goals.

UoN spruiks its research innovation as a key pathway to sustainability. Having ranked number one in Australia for industry collaboration in a 2020 report, many of these innovations become a viable reality.

One such innovation - out of the university's Newcastle Institute for Energy and Resources (NIER) - uses solar energy to harvest pure water from the air before creating "green hydrogen" through electrolysis.

"I think green hydrogen will take off and be a great investment for the Hunter," Thomas Boehm said.

Now in his ultimate year, Mr Boehm is working on his final year project. He and Ms Haugh are focusing their research on green hydrogen.

"It's exciting. We are actually being given the opportunity to work on something