

Bold energy plan from eucalyptus oil

By MAL GILL

KALANNIE potentially could become a showpiece for a national energy plan under a proposal by Kochii Australian Eucalyptus Oil to repower the Wheatbelt town by burning oil mallee biomass waste from its distillation operation there.

A microgrid proposal to repower Kalannie was announced to 140 guests at Kochii Australian Eucalyptus Oil's first open day and field walk last Friday, a day after the Federal government announced \$1.9 billion of investment in emerging energy and emissions reduction technology.

Prime Minister Scott Morrison on Thursday announced the government's energy plan for the future was to unlock new technologies "to help drive down costs, create jobs, improve reliability and reduce emissions".

Some \$67 million of the investment will support development of new electricity microgrids in regional and remote communities, Mr Morrison announced.

On Friday Kochii chief executive officer Steve Meerwald said the company's aim was to use spent biomass – a by-product of planned increased eucalyptus oil production at Kalannie – to provide cheap, sustainable and reliable electricity for a microgrid to power the town.

It would be a standalone generation plant able to be replicated at other Wheatbelt towns at the end of the State grid where there was unreliable power and a ready source of biomass as fuel, Mr Meerwald explained.

Oil production had already provided employment, some of it part-time, for 15 people in Kalannie – jobs that otherwise would not have been there – and Kochii's plans to expand into power generation and environmental products would create new job opportunities, he pointed out.

Mr Morrison announced an extra \$1.62b would be provided as part of the Federal government's energy plan to enable the Australian Renewable Energy Agency and the Clean Energy Finance Corporation to support new technologies that will reduce emissions in manufacturing, agriculture and transport.

As well, Mr Morrison announced proposed changes to the Emissions Reduction Fund to halve the time it takes and to involve industry in a co-design process to develop approved methodology for projects.

A \$50m investment in carbon capture projects through the Carbon Capture Use and Storage Development Fund to help cut emissions, was also announced by Mr



□ Kochii Eucalyptus Oil's director and local farmer Ian Stanley (left) chief executive officer Steve Meerwald, manager Mike Walter and manager forestry, science and compliance Dan Wildy at a harvest site on the McCreery family farm at Kalannie.

Morrison as part of his government's energy plan.

Mr Meerwald and Ian Stanley – a Kochii Australian Eucalyptus Oil director and third-generation farmer from a Kalannie Kochii Eucalyptus pioneering family – told guests Kochii had a co-operative arrangement with Rainbow Bee Eater, a company developing pyrolysis (low-oxygen combustion) technology.

Mr Stanley is also a director of Rainbow Bee Eater and Kochii's oil distillery furnace on a corner of the Stanley farm at Kalannie has been the test bed for some of Rainbow Bee Eater's technology.

A successful pilot trial in Tantanoola, South Australia, supported by State government agencies there, proved commercial application of the pyrolysis process.

Rainbow Bee Eater pyrolysis equipment, using shredded waste timber as fuel, produced syngas to operate, heat and supply a carbon dioxide-enriched atmosphere for massive commercial hydroponic fruit and vegetable production greenhouses.

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□ Ian Stanley (left) and harvest manager Mike Kerkmans in the distillation room where steam and eucalyptus oil are condensed and separated and the oil syphoned off.

Industries SA have since purchased the technology and are selling a biochar byproduct from the pyrolysis

running the greenhouses to a Mt Gambier landscaping supplies and garden products company.

Mr Meerwald and Mr Stanley told Kochii guests a similar pilot pyrolysis plant to produce biochar and wood

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vinegar would be commissioned in Kalannie next month or in November “to prove the market for these products”.

But for COVID-19 delaying delivery of some Rainbow Bee Eater parts from Melbourne, the plant would have been operating, Mr Stanley said.

Biochar is charcoal comprising mainly carbon and recognised as a soil amendment for both soil health benefits and for carbon sequestration – capturing carbon dioxide out of the atmosphere and storing it away underground.

Wood vinegar, or pyroligneous acid, is used as a natural liquid fertiliser for improved seed germination and plant growth.

“Both are environment enhancing products with financial and social benefits to the community,” Mr Meerwald said.

He explained that Kochii’s eucalyptus oil production had grown exponentially from 185 kilograms in 2015 to 92.7 tonnes in the current year.

“We’ve achieved average growth in production in the last three years of 112 per cent,” he said.

Kochii is continuing to develop international markets, he said, with 720kg of Kochii eucalyptus oil on its way to the USA for a November product launch there.

As well, the company has undertaken organic certification for its Newland farm with more than one million oil mallee trees on 1200 hectares at North Bodallin.

“By mid 2021 we will be producing certified organic eucalyptus oil and have organic biomass to produce organic biochar and wood vinegar,” Mr Meerwald said.

But once green foliage from the trees was steamed to extract oil, only a tiny fraction of the spent biomass is needed to fire the boiler and Kochii

already has a small mountain of spent biomass at its production site.

Hence its progress towards developing markets for the natural syngas, biochar and wood vinegar byproducts of the pyrolysis process, incredibly with its timing seeming to dovetail with the Federal government’s energy plan and investments.

The pilot plant about to be commissioned will produce 2000t of biochar and 900t of wood vinegar a year to test markets, Mr Meerwald said.

“Once they are proved, stage three is larger, more sophisticated pyrolysis plants and a further multi-million-dollar investment including renewable base-load power generation,” he said.

“Kalannie will be the capital of Australian eucalyptus oil production, plus consuming 9400t of biomass to produce some 6000t of char, 4000t of wood vinegar and 31,000 megajoules of syngas to generate 600 kilowatts of base load electricity.

“The end game is 400-600t of high-grade eucalyptus oil (a year), 20,000t of biochar, 12,000t of wood vinegar, 2mw of base-load renewable energy and an annual carbon saving of in excess of 30,000t of environmental carbon dioxide.

“This all relies on these remarkable little trees that thrive in our harsh Aussie climate and the farmers who had the vision to plant and care for them.”

Mr Stanley told visitors his father Don, a former forester, had been the driver behind farmers across the Wheatbelt, planting the hardy native species *Eucalyptus kochii* from the mid 1990s, initially to help control rising salinity and to hold fragile topsoils together, but also as one of the best eucalypt varieties for oil.

It was recognised from the start a commercial product derived from the



Representatives of five of the original six Kalannie families which founded Kalannie Distillers – that later became Kochii Australian Eucalyptus Oil – in front of the mountain of biomass that the company plans to use to generate electricity and produce biochar and wood vinegar. Pictured are Helen and Rob Millsteed (left), Robyn and Ian Stanley, Elva Rolinson, Angela and Mark Waters and Helen and Robert Nixon.

trees was needed to cover the cost of propagating and planting them, he said.

Kalannie Distillers was created by six local families, the Nixons, Stanleys, Waters, Rolinsons, Millsteeds and Hudsons, sitting around the Nixon family’s dining table one night, with representatives from five of those families in attendance on Friday.

Ultimately Kalannie Distillers was purchased by Kochii Australian Eucalyptus Oil in 2015 which continues the original aim of establishing copses of trees on farms that can be regularly harvested for oil and other commercial products to help the environment and the trees regrow again after harvest to complete a “sustainable circle”, Mr Stanley said.



Jason Uyen (left) and Reece Ward at the hopper which feeds some of the spent dried biomass from previous distillations into a furnace that turns water in a tank above it into steam to be pumped through a shipping container packed with green eucalyptus biomass to extract the oil.



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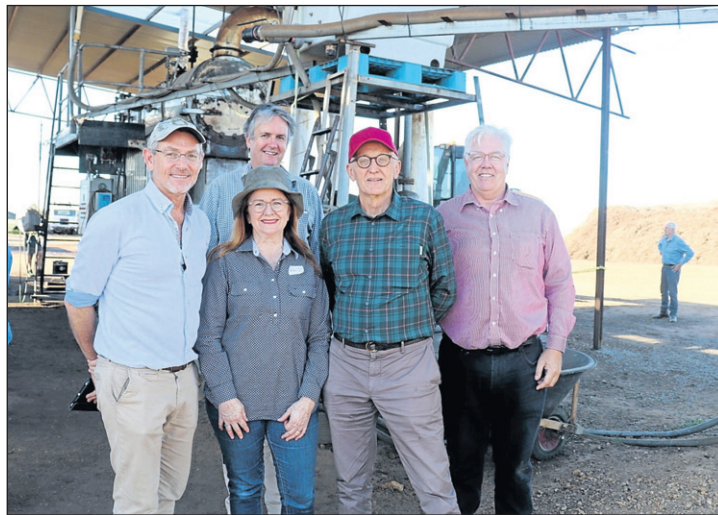
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Eucalyptus oil open day draws a crowd

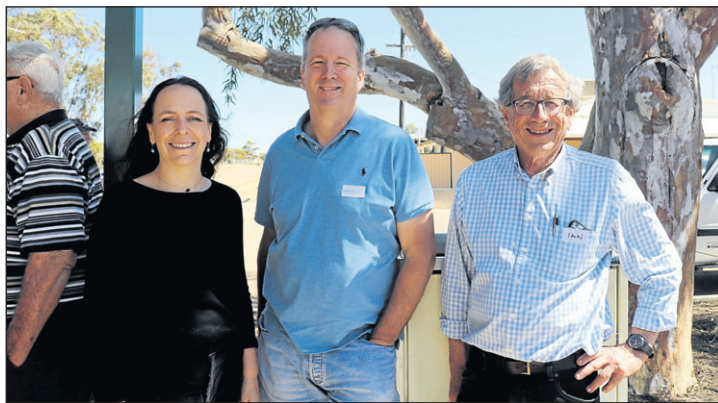
THE population of Wheatbelt town Kalannie was almost doubled on Friday with an influx of visitors for the first Kochii Eucalyptus Oil open day and field walk.

More than 140 people – many drove up from Perth – and others came in from surrounding farming areas – accepted invitations to inspect Kochii eucalyptus oil mallee trees being harvested and regrowth after harvest of eucalyptus polybractea trees on the McCreery family farm just out of town. The visitors then moved on to the Stanley family farm at the other end of town to inspect Kochii's eucalyptus oil distillery and hear about its ambitious plans for continued expansion of oil production and to use a mountain of spent kochii biomass from that production to generate electricity for the town, as well as produce biochar, syngas and wood vinegar products.

MAL GILL attended for *Farm Weekly*.



□ Jonathan Bloch (left), ANZ Bank head of strategic banking, Dr Ricki Hewitt, Management Projects, professor Richard Harper, Murdoch University School of Veterinary and Life Sciences' agricultural sciences division (rear), Simon Dawkins, Oil Mallee Association of Australia director and Anthony Fels, agribusiness transaction services senior manager for Colliers International.



□ Maud Eijkenboom from natural pain relief marketer Better Nature, Andrew Barker from RSM Australia and Ian Wildy, Mungilup.



□ Former Elders New Zealand national manager Ron Eacott (left), Toodyay, David Johnston, RSM Australia, Michael Adamson, Liffrite, Emilie Bell from essential oils marketer doTERRA and Brittany Pettitt, RSM Australia.



□ RIGHT: Retired Gnowangerup farmer Rod House (left), with Daniel Dowsett and Neil McKinnon who drove up from Perth.



□ Nick Priest (left), Bonnie Rock and Kochii Eucalyptus Oil's manager forestry, science and compliance Dan Wildy. Mr Priest has eucalyptus trees on his farm that were planted about 2010, harvested three years ago for oil and are now ready to be reharvested.



□ Perth visitors Robyn (left) and Wayne Loxley with Jan Walters.



□ Dale Ure (left), Harmony Agriculture and Food Company's local Westbeef feedlot business manager, Garry Robinson, Harmony's western operations manager and Justin Wolfgang, co-founder of RegenWA.



□ Beacon friends Marian Kirby (left), who has eucalyptus trees ready for harvest and Faye Clark, whose trees have been harvested by Kochii Eucalyptus Oil.



□ Beacon farmers with eucalyptus trees on their properties, Bill Clark (left) and Brian Kirby.



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