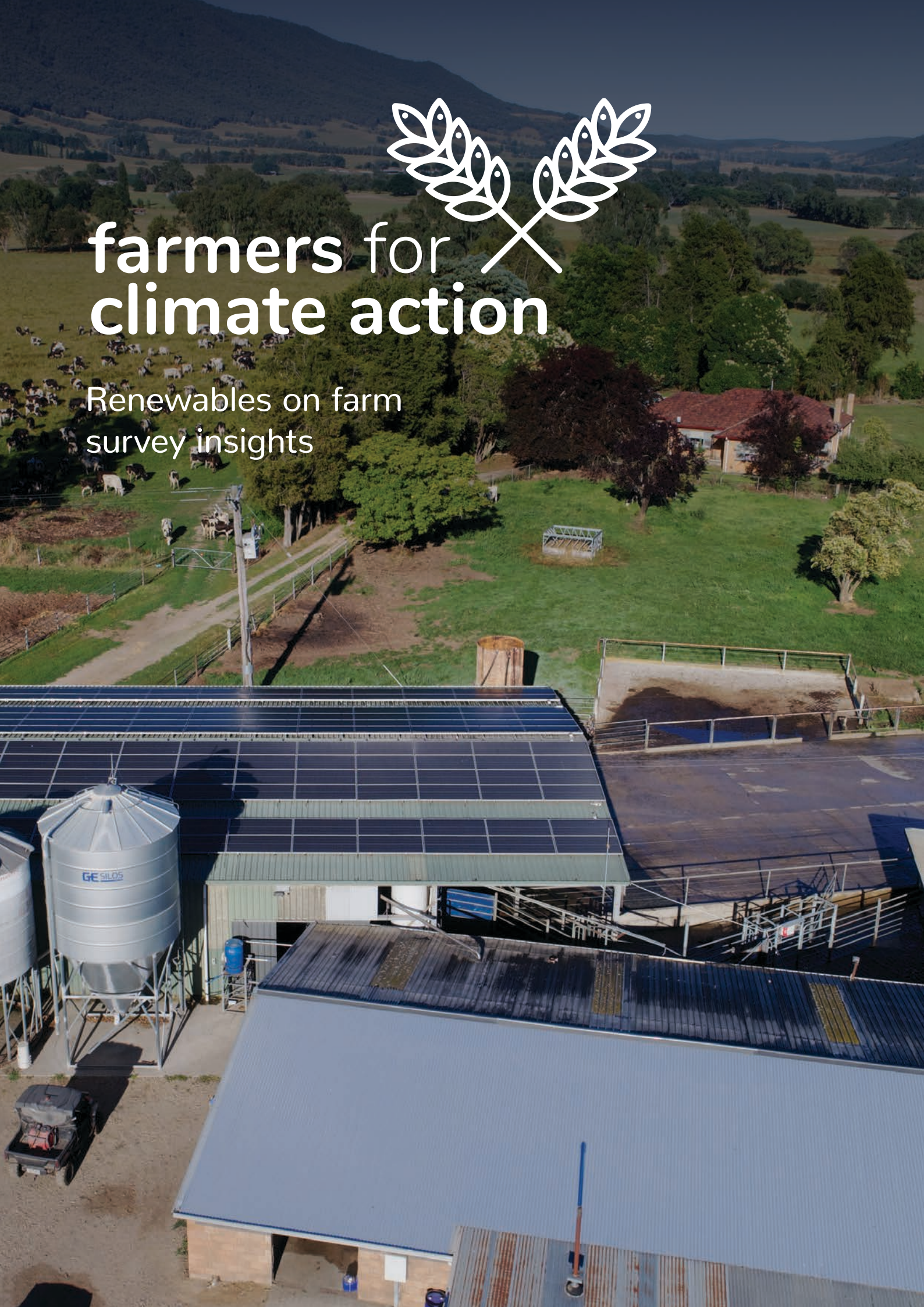
farmers for climate action

Renewables on farm survey insights



Cover image: Simon Duncan

A note from our CEO

Farmers for Climate Action represents more than 8,000 farmers across Australia and 45,000 supporters committed to deep emissions reductions across the economy this decade.

Our goal is to protect the future of farms and food security. So, we strongly support the deployment of renewable energy to achieve deep emissions reduction in a way that respects farmers and regional communities, to limit climate change impacts.

In September 2023, we asked farmers in our network to participate in a comprehensive survey about renewables on farm. Building on our recent report *Farm Powered,* which explored opportunities for regional communities in the renewable energy shift, our aim was to:

- Measure the uptake potential of policy solutions recommended in *Farm Powered*
- Quantify the solutions farmers are already implementing on farm
- Assess receptiveness and obstacles to renewables on farm, and
- Propose actionable solutions for policymakers to consider.

The in-depth insights provided by more than 300 farmers offers us invaluable guidance for policy formulation for all stakeholders involved in renewable energy generation, regional development and transmission.

Farmers for Climate Action strongly advocates that the rapid deployment of renewable energy must be done in partnership with farming communities in ways that work for for farmers and their communities. This survey shows that Australia is facing social license challenges for transmission infrastructure due to poor consultation and a lack of equity for regional communities.

I urge you to consider and endorse the policy section of this report, where we propose fourteen recommendations required to facilitate and enhance the implementation of renewable energy initiatives in regional Australia.

Our farmers support:

- A diversion of subsidies from fossil fuels, to instead incentivise the rapid uptake of renewables and opportunities to electrify on farm operations (i.e, vehicles).
- Improved long-term community benefit sharing in areas hosting renewable energy developments and associated transmission.
- An equitable entry to energy markets to allow rural Australians to supply excess energy generation into the grid.

I'd like to especially thank all of the farmers who took the time to respond to the survey and for your continued support.

Natalie Collard
CEO, Farmers for Climate Action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About this Report

The following snapshot report outlines the findings from a survey of farmers in the Farmers for Climate Action Network undertaken in September, 2023.

The report is split into 4 key sections relevant to Australia's shift to renewables.

1. **Renewable energy generation**
2. **Electrifying farm operations**
3. **Large-scale renewables**
4. **Transmission**

Alongside the survey findings, we have outlined our recommendations to policy makers and companies working in renewable generation and transmission.

Survey Sample

Respondents: More than 300 farmers
Survey length: 30 minutes
Geographical spread: NSW, VIC, Queensland, WA, Tasmania, ACT, South Australia

Farming type: from 76,000 hectare cattle stations to 10 acre market gardens, respondents operate across a vast range of enterprises - including beef, dairy, sheep (wool and meat), cropping, horticulture and viticulture.

We acknowledge the Farmers for Climate Action respondent base is biased towards farmers who want the shift to a renewable electricity grid to succeed.

Survey Highlights

92%
of farmer respondents are supportive of Australia's acceleration to more renewable energy in our national grid (with only 3.6% saying no)

64%
believe their communities are very opposed or somewhat opposed to transmission projects in their region

44%
think more extensive and genuine consultation around transmission projects would lead to better community support

95%
of farmers with no existing renewable energy projects are open to generating or hosting on their property, while 96% who already generate renewable energy are open to doing more

1. Renewable energy generation on farm

Over the past two decades, many farmers have opted to invest in renewable energy infrastructure to cut their household and enterprise costs and to access more certainty of supply than grid electricity. This adoption of renewables has enabled many farming businesses to reduce their diesel use, providing a significant economic and environmental benefit.

Amongst the 75% of respondents who have made the shift to more energy independence, a portion have opted to remove reliance and ultimately grid connection. While this provides certainty for these farming businesses, it also presents a missed opportunity for farmers to feed excess renewable energy into the grid – where it is needed for the economy-wide energy shift.

75%
of farmers surveyed already generate renewable energy or host renewable energy infrastructure on their farms

What type of renewable infrastructure are farmers already investing in?

Of the 75% of respondents who already generate renewables:

97%
have invested in solar panels

39.5%
have batteries

31%
have solar pumps, replacing diesel in most instances

9%
have wind turbines

Opportunity to scale

While 75% of respondents have renewable energy and/ or storage on their farms, the vast majority (73%) of projects are small-scale, or less than 1MW.

Only 7% are large-scale (5MW+) and 17% mid-scale (1-5MW).

This indicates an opportunity to scale up generation. However, fundamental barriers are preventing this from occurring, including any projects over 5MW being unable to supply energy to the grid, without significant investment for connectors.

Barriers to renewables on farm

All farmers surveyed, whether they had existing projects or not, reported similar barriers.

95% **of surveyed farmers who don't have existing projects on their farms reported that with the right support (financial and otherwise) and technology in place, they would consider generating or hosting renewable energy and/or storage.**

We asked respondents to highlight the main barriers or challenges in integrating (or adding more) renewable energy and/or storage into their farm operations:

	Farmers with existing projects	Farmers without existing projects
Upfront capital costs are too high	70%	65%
Lack of appropriate expertise and advice	33%	35%
Challenges with maintenance and tech support	29%	24%
Technology that suits my enterprise is not developed enough	17%	27%
Challenges with distribution	22%	24%
Too much bureaucracy/ red tape	23%	21%
Concern about the amount of farmland it would require	11%	21%
Worried about opinions of other farmers	2%	4%

"Generating is not a problem, but storing is."

"At present our local grid capacity limits the amount we can supply. I have been told the grid actually has the capacity but current economics mean it is not viable to negotiate supplying more. I'm unsure??"

"We'd love to see two-way EV chargers which enable houses and sheds to run from the EV battery"

"Upfront capital costs are too high and the challenges with system maintenance and tech support."

"Frustratingly, we are not allowed to return electricity to[the] grid as [we are] at [the] end of [the] line."

2. Electrifying farm operations

Around half (53%) of respondents reported that they have already electrified at least part of their farm operations.

This indicates a huge scope to electrify further, with 97% agreeing that with the right support (financial or otherwise) they would electrify more of their farm operations, while 94% of farmers who had yet to electrify any of their farm operations would do so with the right support.

When asked to select the top two priorities for electrifying

55%
want to electrify their domestic vehicles

45%
water pumps

41%
the farm household

40%
farm machinery, including tractors and other farm equipment.

The main barriers to electrifying farm operations are:

	Farmers with existing projects	Farmers without existing projects
Upfront capital costs are too high	76%	82%
Technology that suits their enterprise is not developed enough	41%	37%
Lack of access to appropriate expertise and advice	28%	35%
Challenges with maintenance and repairs	18%	30%
Don't understand how it works	-	16%
Too time poor	11%	11%
Too much bureaucracy/red tape	12%	10%

"The barriers for us are the upfront cost and lack of support for anything outside the box."

"Australia not importing 4wd ute's suitable for our farm and even if they were we would be paying the luxury goods tax."

"I could replace the quad-bike with an electric side-by-side, but they are so expensive."

"I run a second hand diesel tractor which I would dearly love to swap out for electric, but costs are not comparable."

"We have tried new technology concepts but have found the expense through equipment and need for steep learning curve and huge assistance is difficult in more remote areas where skills have to travel out."

3. Large-scale renewable projects

In addition to understanding renewable projects used to power farm households and operations, we sought respondent views to understand the current state of large-scale projects on farming land and the social licence of large-scale renewables. As an action-oriented advocacy group, we also explored how barriers could be navigated.

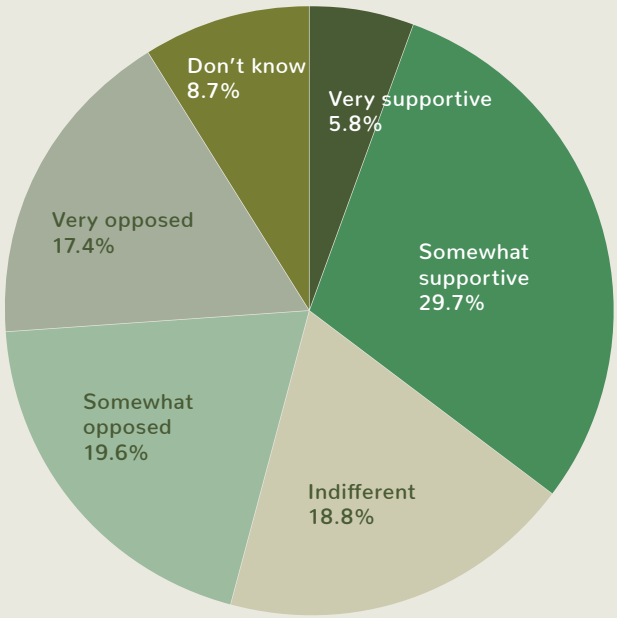
52% of farmers who responded to the survey said they would be open to hosting large-scale renewables and storage infrastructure on their farms, such as wind turbines, large batteries or agrivoltaics.

24% said no 22% were unsure and 2% said they already had projects on their land.

45% of farmers said that large-scale renewable projects were either established or under construction in their community.

Respondents reported that the split between those supportive and opposed is roughly equal, with 36% either somewhat or very supportive and 37% somewhat or very opposed.

Community support for large-scale renewable projects



What would make farming communities more supportive of large-scale renewable projects

- 54% support community ownership of renewable infrastructure (e.g. opportunities to own shares in projects)
- 51% want more extensive and genuine community consultation around renewable projects
- 48% want more care taken with the location of renewable projects
- 44% want funding for significant community benefit programs in communities hosting infrastructure
- 35% want higher annual payments for hosting renewables on their land
- 34% payments to impacted neighbours (i.e. those on neighbouring blocks)
- 34% want direct financial incentives to individuals in the locality of the infrastructure (i.e. cheaper or free energy bills)

Solutions to increase generation, storage and the electrification of farm operations

It was critical to look at what enabling factors are needed to engage further with the farming community on renewable energy generation.

So we asked what solutions would provide farmers with the most support to generate or store renewable energy and/or to electrify farm operations (or to do more).

- 63% want more electric farm vehicles and machinery in the market, at more affordable price points.
- 57% want governments to incentivise batteries on farms by halving the price for farm businesses, to assist with up front costs and reduce the average payback period from ten-years to five-years.
- 53% want regional redistribution networks to be improved to make it easier for farmers to export excess electricity to the grid or share excess energy through small-scale renewable power hubs.
- 51% want governments to subsidise the purchasing of electric farm vehicles and tools where available (e.g. electric utes, bikes, side by sides and drones) to assist with upfront costs.
- 46% want governments to subsidise the cost of renewable energy generation (e.g. solar panels) to assist with upfront costs.
- 39% want governments to subsidise the cost of two-way EV chargers which enable houses and sheds to run from the EV battery.
- 38% support a program that provides advice, expertise and demonstration sites around integrating renewable energy, electrification and storage into farm operations to boost farm profitability.
- 35% want extension services that assist farmers with tailored advice around integrating renewables, electrification and storage on-farm.
- 19% want legislation to be amended to allow farmers to access renewable energy produced on different titles within the one farm business.

"Battery storage is critical for us and will be the priority investment to hedge against our regular grid failures."

"Having access to accurate and supportive information and advice may provide enough confidence to look further into developing my renewable system."

"If the costs for a battery setup was a lot more reasonable I would be quite keen to have that facility."

"The system needs to work better to give farmers a good financial reason to invest and upgrade. Government loans are not the answer. Too much red tape."

"We see the best use of our farm's ability to generate renewable energy would be to allow distribution of that excess power to our off-farm home and those of our family. Ie a community of users with the farm as a power station."

"It's hard to get the time to do the research needed."

"There are not electric, or other options suitable to our enterprise (markets), if there are, we dont know about them (extension) or we cant see how to integrate to our operation over time (demonstration sites), and we cant afford it (capital)."

"We would electrify to cut costs with co-investment and assistance from Government."

"If second hand panels were allowed to be connected to the grid, I would consider reconnecting - then the grid could have access to an additional 50kW of power from my farm alone, and I would consider installing another 50kW. This would support a number of farms around us, we could become a micro grid. Also the grid would have access to our 80kWh of battery capacity."

4. Transmission

In contrast to the positivity surrounding renewable generation on farms – with 95% open to implementing on-farm renewables with the right support and more than 50% being open to hosting large-scale infrastructure – farmers reported reservations about hosting transmission line infrastructure on their properties:

23% of farmer respondents are open to hosting transmission

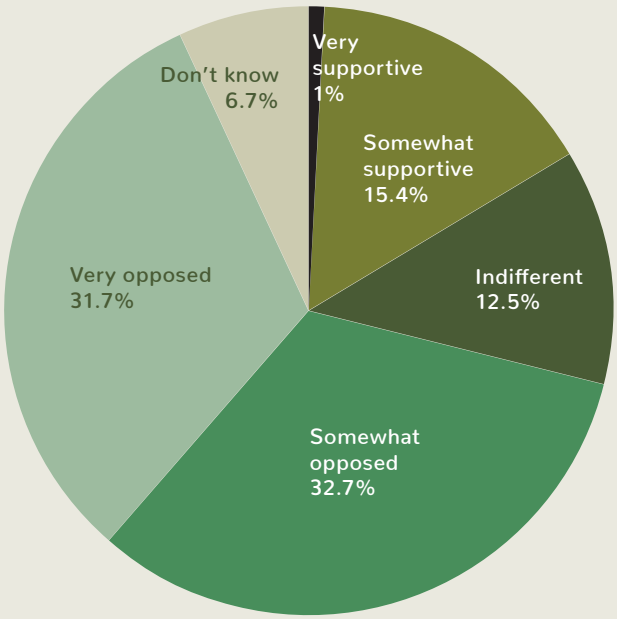
29% are against, and 48% said it depends.

Recalling that 92% of respondents are supportive of Australia's acceleration to more renewable energy in our national grid - if 48% of respondents are on the fence when it comes to hosting transmission it indicates that transmission rollout faces significant social licence obstacles in regional communities.

Community acceptance

When asked to consider how their communities feel about transmission projects in their region, there is a clear view that the community is opposed, rather than supportive. Those either somewhat or very opposed equating to 63% and those somewhat or very supportive only 16%.

Respondents cited many more challenges than benefits when discussing their experiences with transmission.



"They like jobs and would be happy for lower power costs but wary of being bulldozed by corporations and of unsuitable routes."

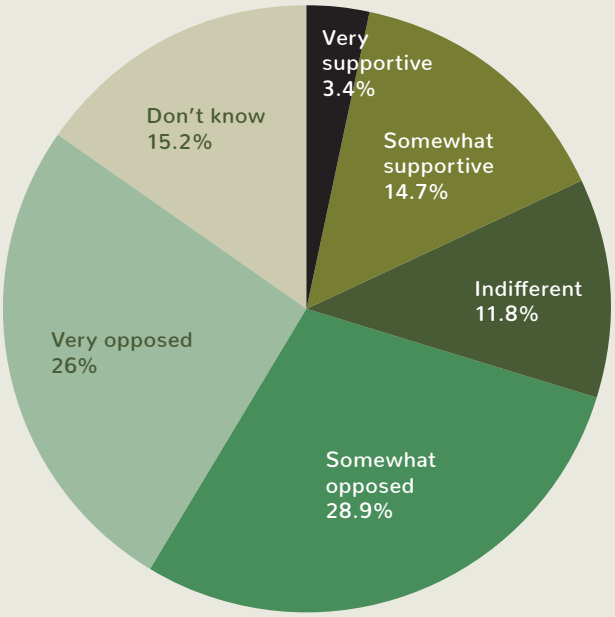
"Too many farmers with the 'not in my back-yard' mentality. The situation is now so dire that we need to see how we can be a part of the solution and not an automatic opposition."

"Depends on benefit being achieved and how local that benefit is. Difficult when costs [are] all local and benefits all geographically far away. If [it] brings some local benefits, including opportunities to connect and then develop and export renewable power, that would help. Undergrounding would be better but we realise it is more expensive and thus probably not practical."

"The power companies can not be trusted and are renowned for causing wilful damage with "no care or responsibility."

"Nimbyism mainly. Mainstream media are also playing a spoiling and very unhelpful role. The benefits to society as a whole need to be better explained, understood and accepted. I think more could be done to minimise the visual impact of transmission infrastructure."

When asked about the level of support they think their communities would have for the future construction of transmission in the region, there was similar feedback of perceived community opposition.



What benefits would lead to community support for transmission infrastructure?

- 55% thought putting transmission infrastructure underground in certain locations
- 44% thought more extensive and genuine community consultation around transmission projects
- 39% thought higher annual payments to farmers for each tower they host on their land (noting payments currently vary per state between $10,000 per year per km for 25 years in Vic and one-off payments of $200,000 per km in NSW and $300,000 per km in QLD)
- 36% thought funding for significant community benefit programs in communities that host the infrastructure (i.e. enabling the broader community to share the financial benefits of the towers)
- 36% thought payments to impacted neighbours (i.e. those on adjoining properties to the transmission infrastructure)
- 34% thought support for community ownership of transmission infrastructure (e.g. opportunities for the community to hold equity shares in the projects)
- 30% thought direct financial incentives to individuals in the locality of the infrastructure, e.g. cheaper or free energy bills
- 28% thought a more reliable local energy grid, e.g. reducing brownouts / blackouts

"If power costs were substantially reduced in exchange for hosting renewable infrastructure, the acceptance would increase exponentially."

"Community wants power lines underground but government refuses."

"The challenge is mostly due to poor consultation and lies that [has] resulted in mistrust."

"Being paid for it makes sense, blackouts need to be minimised. Cheaper energy prices [are] needed for farmers.

"When people are fairly compensated it goes better. But we also need some type of visible reward/benefit for the rest of the community. We also need accurate and open communication about issues such as recycling of renewables.

"I'm watching what's happening in Victoria. If there's an opportunity for lines to be underground, I want to understand why or how that is better than large scale transformers. Further, I'm not interested in seeing transformers on high conservation value farming land. For eg, we graze several large native grass paddocks (never cropped or put to pasture). I would never support any form of transmission (above or below ground) in these areas."

5. Policy

Farmers across the Farmers for Climate Action network support a diversion of subsidies from fossil fuels, to instead incentivise the rapid uptake of renewables in rural communities, and opportunities to electrify on farm operations (i.e, vehicles).

We propose this is achieved by:

- **Developing a Model Code of Conduct** (MCC): Farmers for Climate Action proposes the development of an MCC that includes best practice principles for integrating renewables and transmission, developed by farmers, for farmers, with genuine recompense and mitigation options.
- **Improved, long-term community benefit sharing**: Farmers for Climate Action encourages TNSPs and energy companies to explore improved benefit-sharing arrangements such as discounted electricity bills for affected postcodes, higher payments to hosts, support for impacted neighbours, and long-term funding for community benefit programs.
- **Addressing inequity in farm businesses' ability to supply power**: Address the inequity in rural households' capacity to supply renewable energy to the grid by enabling them to feed power into the grid and subsidising connectors for larger projects.
- **Eliminating state regulatory restrictions**: Eliminate restrictions preventing farmers from generating energy on one property and sharing it with adjacent properties, even where these properties do not share the same title.

Targets to drive change

We asked respondents if they supported targets for renewable energy generation and storage for the ag sector.

- 88% support the federal government setting a national target for renewable energy generation for Australia's agriculture sector, provided sufficient incentives and support were also implemented to achieve this target
- 88% also supporting the federal government setting a national target for renewable energy storage for Australia's agriculture sector, provided sufficient incentives and support were also implemented

Key recommendations to support the electrification of farm households and operations:

1. Implement renewable energy installation incentives for farmers, supported by a national energy audit program, to increase rapid uptake and reduce input costs.
2. Reduce the current payback period for batteries from ten years to five to enable farm households and work sheds to use the renewable energy stored and to future-proof the grid as the energy mix changes.
3. Change regulatory restrictions which stop a farmer from using renewable energy generated on one property title on their farm on another title.
4. Install extra wires on existing poles in regional areas. Rural residents, who generally have a one-power (Single Wire Earth Return) line system are unable to export excess power generated into the grid. Updating to three-phase transmission will provide more incentive for electrification.
5. Implement a strong, mandatory Fuel Efficiency Standard for Australia to increase the range and choice of electric utes, 4WDs and motorcycles available for farmers to purchase, and drastically reduce diesel costs.
6. Explore the regulatory barriers that currently prevent regional and on-farm vehicle-to-home/shed charging. Enabling two-way batteries (vehicle-to-home or V2H) between EVs (cars and farm machinery) would support farmers to reduce reliance on the grid, especially at peak times.
7. Establish an agricultural program within the Australian Renewable Energy Agency (ARENA) to fund demonstration and knowledge sharing projects for renewable energy and battery solutions on farm.
8. Allocate funding to establish an agrivoltaics research and knowledge sharing program to boost farm profitability and show communities that agriculture and energy production can co-exist.
9. Support community ownership / equity shares in large-scale renewable projects.
10. Ensure support is available for farmers and communities within existing Renewable Energy Zones, with independent advice provided in the contract negotiation stage of renewable energy developments.

"We've reduced our energy costs and [are] proud to be providing a contribution to easing grid demand."

"We've invested in renewables because [of] cheaper electricity bills and just knowing I am helping the environment - even though it is only a drop in the ocean."

"We have income secure from drought and livestock market downturns. Improved farm access. Improved farm productivity due to smaller paddocks derived from wind farm access arrangements. Improved livestock handling through use of fenced road network."

"Reduced energy costs, cleaner air quality, peace of mind that we are mitigating the effects of climate change.

"Saved heaps of money and felt good offsetting unavoidable emissions."

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