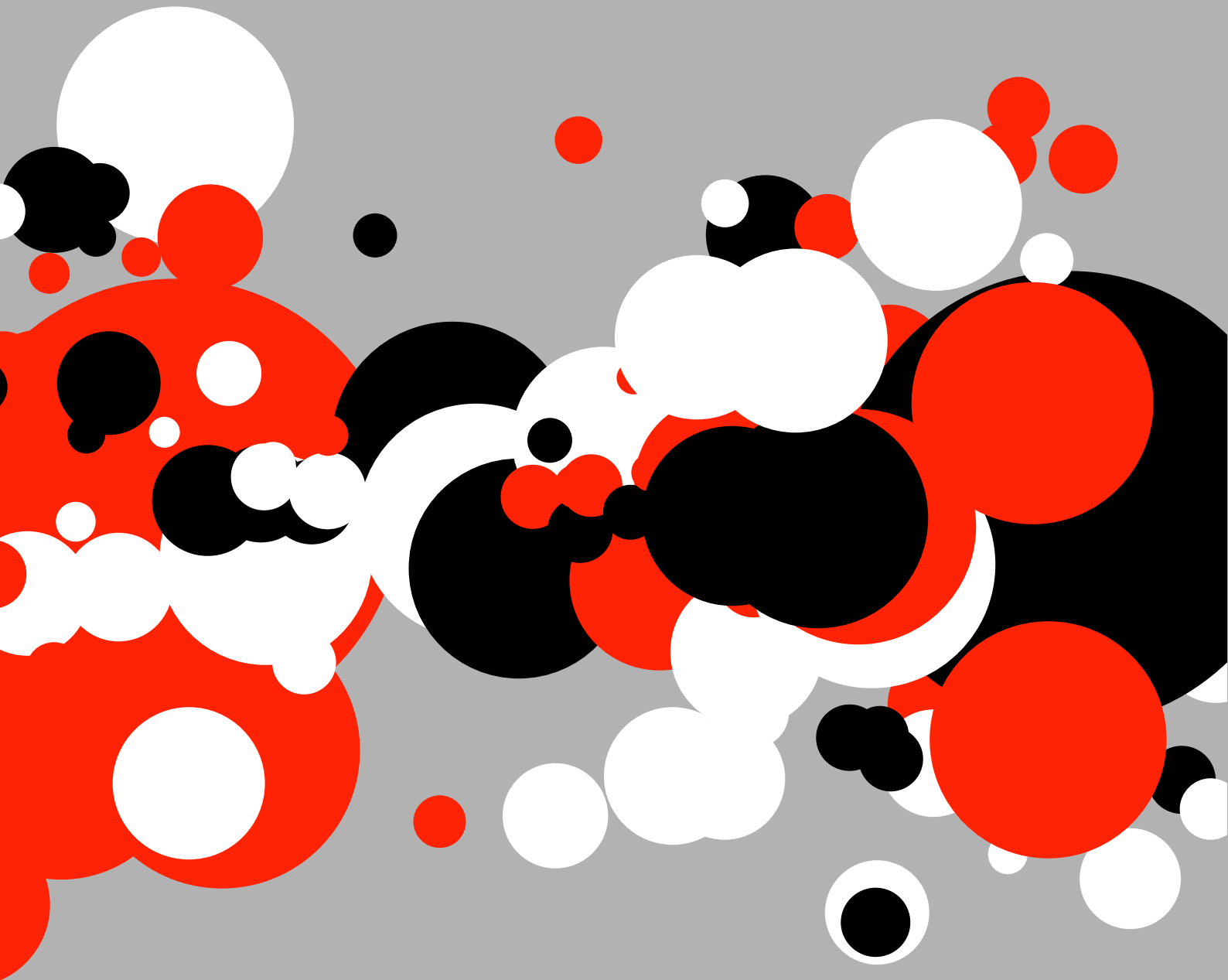




# Research Approach - ECA Farmer Network Engagement

Institute for Sustainable Futures



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# 1 Introduction

## 1.1 About the project

Electricity costs are a core input for much of Australian agricultural products. For irrigated agriculture, more than a third of overall cost of production can be comprised by energy. ACCC's 2017 inquiry into electricity prices further shows that electricity costs are now making Australian irrigated products less competitive (Sapere Research Group, 2017).

Electricity bills for irrigators have increased by up to 300 per cent over the period (2009–2014), mainly due to rising network charges. Typically, regulated network charges and other costs represent around 50% to 56% of farmers' electricity bills (Agriculture Industries Energy and Taskforce, 2017). With the discontinuation of irrigation tariffs and the introduction of demand based tariffs in Queensland and New South Wales, these prices are further expected to increase.

The adoption of water efficient infrastructure on farm has delivered significant water savings but resulted in substantially higher electricity consumption for irrigators. Irrigation operational times are constrained by crop water requirements and regulation governing water access (i.e. via water sharing/management plans), that generally limit flexibility in responding to different electricity price signals (i.e. peak vs shoulder electricity rates).

Irrigators are increasingly looking for alternative options including renewable energy sources on farm to reduce energy costs. Many irrigators have installed renewable energy generators and attempted to feed excess energy generated back into the grid. However they have encountered a range of operational, legal, financial and regulatory barriers. These concerns have been felt keenly and raised by members of the NSW Irrigators' Council (NSWIC), Cotton Australia and the Queensland Farmers' Federation (QFF).

While acknowledging the many challenges faced by farmers around the energy-water nexus, this project focuses on the relationship between farmers and distribution network service providers (DNSPs) on renewable energy generation. A multi-method research design including case studies, focus groups and surveys will be used to understand, document and provide solutions on how to better align farmer and network business interests in relation to grid-connected on-farm generated energy, including both network and non-network solutions in regional areas that could have multiple benefits for farmers, networks and local communities. The aim of the project is to enable a more productive dialogue between irrigators/farmers and the network businesses to better coordinate the integration of renewable energy generation.

We will use the information gathered to

- analyse whether the 2014 AEMC rule change that amended Chapter 5 of the National Electricity Rules has assisted embedded generation under 5MW to connect to the grid
- engage and discuss issues raised with network businesses to identify possible future opportunities for renewable energy projects

This evidence-based approach will assist in collating information on current barriers, analyse any gaps and prepare information material for irrigators/farmers who are considering installing renewable energy opportunities in the future. The results of this analysis will be used for

- educating irrigators/farmers about potential future opportunities as well as risks and challenges in the installation of renewable energy generation on farm;
- engaging with network businesses to realise possible future opportunities;
- further policy/advocacy efforts by the agricultural representative bodies with the AER and the AEMC.



## 1.2 About the document

This is an internal document (between partners) for the purpose of defining the scope and the approach of the research. The first section presents a short overview of the project and its objectives. Section 2 expands on the scope of the research detailing the sites and stakeholders as well as the themes the research will unpack. Finally section 3 elaborates on the case study methodology and the instruments that will be used during the research.

# 2 Scoping

## 2.1 Study Area

The study will be conducted in two states: Queensland and New South Wales.

### **New South Wales**

NSW irrigators/farmers have experienced significant electricity price increases over the last six years, mainly due to increased investment in the NSW distribution network (including the prolonged legal challenge by the DNSPs on the 2014-2019 revenue determination).

Further, 186 primary producers in NSW have been transitioned to demand tariffs that are “likely to result in significant billing increases for the majority of these customers if their future energy consumption patterns remain the same”. Analysis shows that implementation of demand tariffs on irrigators in St George will increase electricity bills between 200% and 300% (Schulte and Muller, 2017).

### **Queensland**

Irrigation electricity tariffs in Queensland have risen a minimum of 136 per cent over the past decade, and for some more than 200 per cent. In regional Queensland, there are about 42,000 electricity connections for businesses, almost a third of regional business connections, on eight different tariffs classified as transitional or obsolete. Almost half of connections are for agricultural purposes (Tobin, 2018).

Rural tariffs specifically designed to meet the needs of irrigation and specific farming activities are to be phased out no later than 30 June 2020, leaving farmers to negotiate demand-based tariffs. Over 30% of small customers and over 90% of large customers would be worse off with these new tariffs.

The rising electricity costs cannot be offset by growers and irrigators because they are price takers in international commodity markets and have therefore no ability to dictate returns achieved for their food and fibre products (Schulte and Muller, 2017).

## 2.2 Stakeholders

There are two key stakeholder groups involved in this research: farmers/irrigators and the distribution network service provider.

### **Irrigators:**

The study seeks to identify and document the challenges faced by farmers in regional NSW and Queensland in installing distributed renewable energy sources on farm. It focuses on farmers who have already installed RE generation assets and tried to feed the excess energy generated back into the grid.



As there is a lot of diversity within the farmers group, the case studies will be selected to capture as much of the diversity in geography, cropping and irrigation practices as possible. Case study selection is described in more detail in section **Error! Reference source not found.**

## Network Companies

This research aims to create a dialogue between the two stakeholder groups to identify possible future opportunities with network businesses for RE projects.

There are two DNSPs active in the study area: Essential Energy in NSW and Energy Queensland in Queensland. The research will closely engage with them to unpack the issues faced by farmers as well as network constraints to explore mutually beneficial network and non-network solutions.

## 2.3 Case Study Selection

The research will select locations for the four case studies from across regional Queensland and New South Wales. The selection will focus on maximising the:

- Geographic spread
- Range of different crop types
- Range of irrigation practices and water availability constraints
- Diversity of network constraints and network opportunities

### Geographic spread:

This research will focus on four regions, two in New South Wales (northern NSW and Southern NSW) and two in Queensland (North/East and South). The regions represent specific cultivation practices/ types, which have an impact on the electricity demand of farms. In particular water efficient irrigation practices and technologies are energy intensive and can vary between crop types.

### Crop Types and Irrigation Practices:

The case studies will attempt to cover a range of different crop types across the two states to understand the difference and similarities in the challenges faced by farmers in different regions and dealing with different water regimes. Thus the case studies will include farmers growing cotton, sugarcane or horticulture crops.

As cotton is grown in both states, it will be interesting to look at a cross border comparison for cotton farmers in Northern NSW and Southern Queensland. The different regulatory environments will have a bearing on how farmers cope with the challenges of connecting RE to the grid.

On the other hand, farmers in Southern New South Wales grow a larger variety of (horticulture) crops and have distinct irrigation needs from the Cotton farmers in the North. This comparison within the state based on different crop types and water usage patterns will throw up the different challenges faced by farmers across NSW.

For the final case study we propose looking at sugarcane farmers in East Queensland (Bundaberg). The different water requirements and longer growth cycle of sugarcane presents a unique case distinct from the other crop types explored above.

This approach will allow us to compare cross-state contexts and experiences of farmers with renewable energy projects and the grid connection process.

The final selection of the sites will be informed by the network constraints identified by the network opportunity maps, conversations with the DNSPs and inputs from the partners on where farmers have faced challenges in connecting on farm RE to the grid.



## 2.4 Network constrained areas

### 2.4.1 Approach

The Network Opportunity Maps (NOM), developed by ISF, provide transparent information to identify opportunities for distributed generation, energy storage and other non-network solutions to address network capacity constraints and reduce costs for customers. Electricity Networks have reported this data for some time in their Distribution Annual Planning Reports (DAPRs), however this information is difficult to interpret. The maps represent a commitment from networks to make this information more transparent.

The maps identify key investment hotspots relating to impending constraints down to the zone substation level, however:

1. Other investment at the local feeder may also present opportunities for farmers, and
2. Drivers of service quality improvement regarding power quality and reliability are not yet presented in map form in the NOM.

Therefore our approach integrates analysis from the Network Opportunity Maps and parallel conversations with DNSPs to understand the full range of drivers for network investment and delivering network value.

The area identified through this process will then be overlaid with areas where farmers have reported issues within the regions of interest to select specific farm case studies.

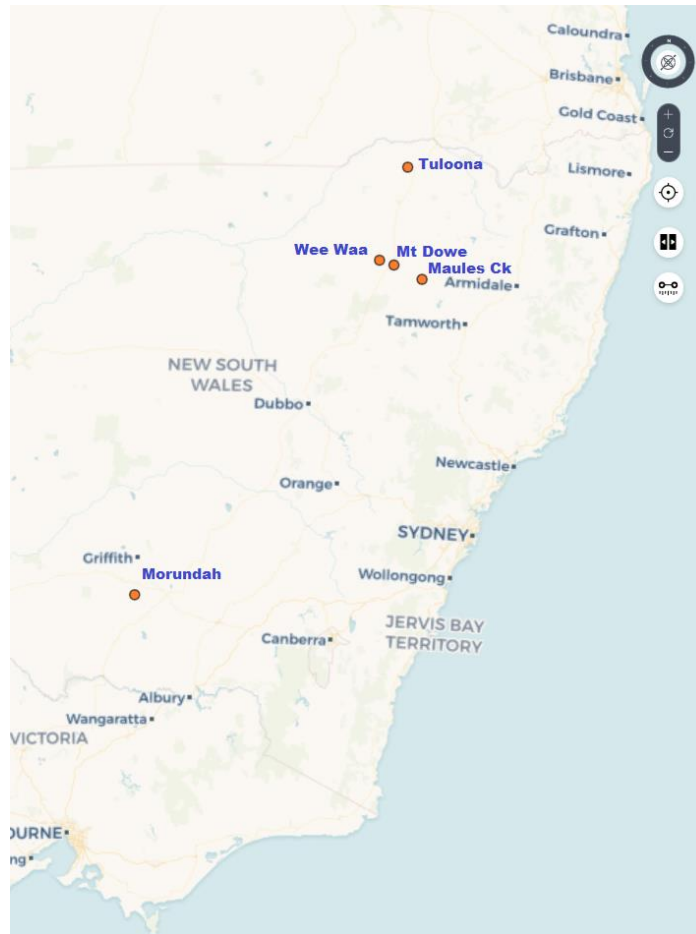
### 2.4.2 NOM Analysis

The map shows areas where we can see that there is investment planned for June 2019. The investments are not currently listed as deferrable, but they also have not been committed. These include:

- Tulloona (1hr North of Moree, 1hr South of Goondawindi)  
\$280,000 investment for HV reconductoring in June 2019
- Morundah, Riverina  
\$300,597 investment for reconductoring and extending third phase in June 2019
- Wee Waa  
\$210,000 investment in HV reconductoring due to multiple splices in June 2019
- Mt Dowe near Narrabri  
\$270,000 investment in HV reconductoring due multiple failures on section, June 2019
- Maules Ck  
\$225,000 investment in HV reconductoring, June 2019

The next step is to engage with Essential Energy on the potential for deferral by non-network solutions before finalizing locations.





**Figure 1: Network Opportunity Map for NSW**

Network data from Queensland is older and does not show any constraints. The locations will be shortlisted through discussions with Energy Queensland.

### 2.4.3 Recommended case study locations (TBC)

Based on inputs from partners, the following locations have been shortlisted. The final case study sites will be selected informed on inputs from the networks.

#### New South Wales:

##### Southern NSW

- Murray Valley
- Murrumbidgee Valley

##### Northern NSW *(to be informed by Jon Welsh)*

- Namoi Valley (around Narrabri) - cotton
- Macquarie Valley (around Dubbo)

#### Queensland:

- St. George - cotton
- Bundaberg - sugarcane



## 2.5 Barriers

The barrier matrix has been developed in collaboration with partners following a secondary literature review and drawing on concerns raised by growers to partners. It focuses on and categorises the different issues faced by farmers in the process of getting RE connection on farm.



**Figure 2: Barriers faced by Farmers**

It is important to note that this frame is indicative. The farmer interviews will further flesh out / add to these challenges and provide empirical evidence to take these issues up with the DNSPs.

These barriers will be plotted against the lifecycle of the connection approval process as described in Chapter 5.3 of the National Electricity Rules. The 4 steps in this process include.

- Planning / Pre-connection

This is prior to applying for a connection approval and not a formal part of the process. However, it is important as it involves the steps and decisions the farmer has to take in order to prepare themselves for the application process. It looks at site planning criteria, organising finance and technical support, etc.

- Preliminary Enquiry connection stage

This is the first screening for the connection process. Farmers or their consultants submit the preliminary connection enquiry and the NSP has to provide a response that dictate the movement to the next stage or exit.

- Detailed Enquiry connection stage

This stage sees proponents submit a detailed enquiry as per the requirements of the preliminary enquiry response accompanied by the enquiry fee. The NSP review provides a detailed response to accept or reject the application.

- Connection Application stage.

As the final stage of the process, on submission of a connection application and the fee, proponents receive an offer including detailed design, cost estimates, program and the terms and conditions of the connection. Proponents have a short window of opportunity to accept, renegotiate or exit the process.

The case studies will be used to further understand these barriers and prioritise them from the farmer's perspective and in the future inform farmers to better manage their RE projects. The case studies selected will offer a wide coverage of these themes.





For the Barrier Summary report, the identified barriers will be mapped across the lifecycle in a matrix as shown below. This is indicative only and will change to respond to the information collected during the case studies.

**Table 1: Indicative Farmer Barriers in Connecting RE to Grid (to be filled for final report)**

	Planning / Pre Connection	Preliminary Enquiry	Detailed Enquiry	Connection Application
Technical	Location and site planning	Access to technical expertise		
Financial			Cost of compliance (application fees, etc.)	
Contractual / Legal				Lack of timely informal low cost dispute resolution process
Social		Communication with NSP		

### 2.5.1 Other areas beyond current project scope

Conversations with partners have highlighted many other barriers related to

- Different business models like commercial renewable energy farms leasing land from farmers, local electricity trading among the community, community microgrids, etc.
- Planning guidelines and legislations

While the scope of this project is limited and cannot address all of these issues, we will draw lessons from other ISF projects that reflect on these concern to share with partners.

## 3 Proposed approach

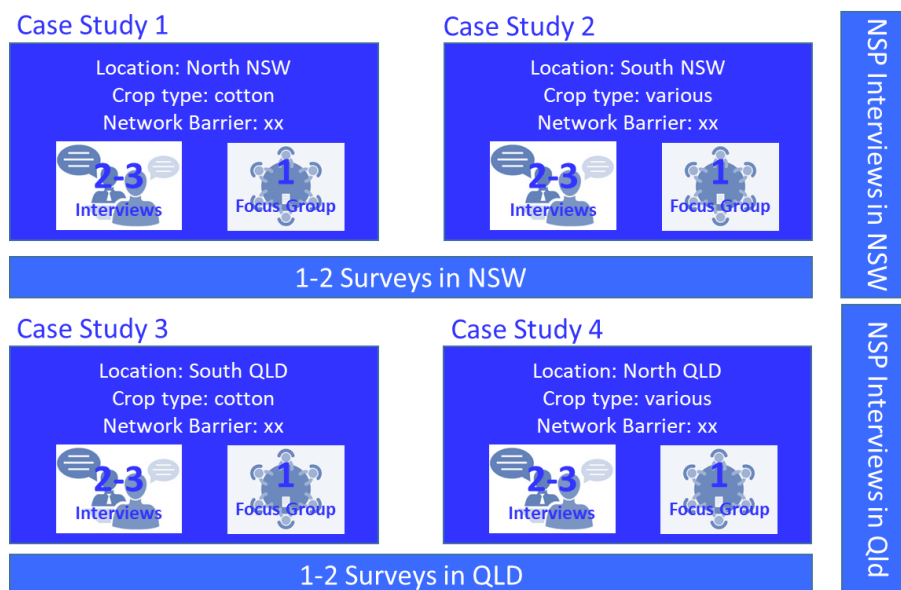
### 3.1 Methodology

The study adopts a bottom-up evidence based approach using a multi-method research design (case studies, focus groups, survey) to collect information. The focus is on engaging with farmers and network companies to understand their concerns and develop viable opportunities for them to work together. A mixed methods research design will enable us to collect quantitative and qualitative data to answer the research questions. The methods include interviews, focus group discussions and survey questionnaire with the farmers and interviews with the network companies. The combination of the three forms of data collection allows us to synthesise and triangulate the results and gain a richer picture.

For the case studies, we will seek out farmers who have experienced issues and barriers in obtaining on farm RE connections. Survey data will be used to understand the prevalence of particular issues. With a limited number of case studies feasible within this study, the focus of the case studies is to get an in-depth understanding of the barriers in practice. This will influence the farmer selection process.



We will select four case study locations for which we gather data from multiple respondents (individual farmers) to enable analytic conclusions from more than one single case.



**Figure 3: Summary of research approach**

## Qualitative research:

### Farmer Interviews

Interviews with selected farmers will be the start of the research and used to get an in-depth understanding of farmers experience in grid-connecting their RE projects. Face-to-face and on-farm interviews are seen as advantageous since they allow the interviewer to establish a relationship with the interviewee, talk to them in their “natural environment” and thus achieve a greater understanding of the situation and context. As this method is time consuming and resource intensive, we will limit the number of interviews for each case study location to a maximum of three face to face meetings, subject to assistance in setting up interviews with neighbouring farmers. It will be considered if there is a need to seek follow up information over the phone. The selection of interview partners is based on the scope of each case study location as detailed in Section 2, while the project partners (NSWIC, Cotton Australia and QFF) will refer and introduce us to individual interviewees.

The interviews will be guided by a questionnaire (see Annex 1) and are expected to take approximately 1 to 2 hours. All interviews will be recorded with the consent of the farmer and if possible notes will be taken.

### Focus Group Discussions with Farmers

Focus groups will complement the small-scale qualitative analysis of the interview approach by capturing a broader audience and gathering rich data on opinions, perspectives and reactions to RE connection issues of farmers. The groups’ participants should have similar characteristics to the interviewees (e.g. location, crops, socio-economic situation and adoption of RE), in order to allow for further insights into experiences of farmers in the respective case study location.

A focus group will generally consist of 8 to 12 farmers and will take about 1 to 2 hours. The researcher will facilitate the discussion being guided by a questionnaire (focus group guide). The focus group guide will contain similar questions as the interview questionnaire (see Annex 1).



The conversation will be recorded, replayed and similar to the interview conversations ultimately written up in form of a summary.

### **Network Interviews**

Semi-structured interviews will also be conducted with representatives of the network companies. This will include members who are engaged in network planning, demand management, executive management, regulatory and generator connections. The interviews will be held over the phone or face to face for 45 minutes to 1 hour. The interviews will be used to objectively evaluate the network connection assessment and approval processes. The challenges that come up through the farmer interviews will also be discussed with the network companies (anonymously). This will help them to better understand their customer base and the issues they are facing, to develop processes to work together more effectively. They will also delve into network constraints and the opportunities for non-network solutions that farmers can be a part of. A key output of these interviews is to identify opportunities of where on farm DRE can be genuinely helpful.

The conversation will be guided by a questionnaire which is currently in preparation. The conversations will be recorded and written up in summarised form.

### **Quantitative research:**

#### **Surveys**

Surveys can capture both qualitative and quantitative data about a topic, potentially from a large sample. A survey questionnaire will be the last step of our data collection. We will design the two sets of survey questionnaires by drawing on the results and insights from the qualitative research to include identified themes and issues of farmers in the two states. We expect to send the survey to a large number of farmers. Thus, we can test the extent to which the issues of individual farmers are experienced by a larger cohort and can be claimed as representative for the respective region.

The survey will include both open end and closed questions and should not take longer than 10 to 15 minutes to complete. The preferred method of distribution is as an online form.

A paper based survey could achieve higher response and feedback rates but the time to record results from a paper based survey is not viable for this project. Another alternative is to have volunteers equipped with Wi-Fi connected tablets (i-Pads) on event days, where participants can fill in the surveys during registrations and/ or breaks. For ease of data collection, the questionnaire would comprise closed questions.

## **3.2 Participant Recruitment**

### **Farmer Interviews:**

The interview participants (farmers) will be selected and approached by the partners. The interviews can be held at the farm or at a neutral local location, depending on the comfort levels of the participants. Partners will set up these meetings around the focus group discussions at that location.

#### **Interviewee Details (to be filled by partners)**

Name of Participant	Location	Interview Date and Time	Consent Given



Interview and FGD participants will be informed about the project, the process and how the results will be used. ISF will share the project information sheet which can be sent to participants before.

### Farmer Focus Group Discussions:

Focus group participants will be selected by the partners in the location of the 4 case studies. This will comprise of 8 -12 farmers who have already installed renewable energy sources on their farms or are in the process of doing so currently (including initial interest).

#### Focus Group Details (to be filled by partners)

Partner	Location	Number of Participants	Date & Time	Details of Participants
NSWIC				
NSWIC / CA				
QFF				
QFF/ CA				

Partners will invite farmers from their networks based on previous interactions where they have raised barriers/ challenges in the process of getting connection approvals. They will organize for the participants to get together for a 2 hour discussion at a local community building or in a meeting room of the partner organisation local office.

### Farmer Survey:

The surveys will be administered to members of our partner organisations (NSWIC, QFF and CA) who attend the regular meetings scheduled in June and July. The (e-) surveys will be distributed at selected events (during registration or breaks) and will be collected before the end of the day.

There is also potential to circulate e-surveys to member groups via emails that can be further disseminated through their networks. Participants will be given 3 weeks to respond to the surveys and we can introduce a lucky draw gift as an incentive.

In both instances, the members will be thoroughly informed about the project, the survey and how the results will be used. ISF will share the project information sheet which can be sent to participants with the survey. The surveys will be designed to be completed in 10 -15 minutes.

#### Event Details (to be filled in by partners)

Partner	Date	Location	Expected Participation	# of E-Survey Participants
Cotton Australia				
NSW Irrigators Council				
Queensland Farmers Federation				

### Network interviews

Partners will introduce the team to key contacts in the NSPs who have been briefed on the project. The interviews will be held either in person or over the phone depending on the convenience of the participants. Participants will be informed about the project, the process and how the results will be used. ISF will share the project information sheet with participants before.

#### NSP Contacts (to be filled in by partners)

NSP	Name	Position	Phone	Email



Essential Energy				
Energy Queensland				



# Annex 1: Farmer Interview Guide/Questionnaire

## ECA Farmer Network Engagement

This document shall assist and guide the interviews with selected farmers in the targeted locations. The planned interviews will take 60 to 120 minutes for each of the participants, so the range of questions that can be asked will vary depending on length. They will take place face to face at a venue agreed with the participant, such as their farm, or local venue easy to access. All participants will be asked to give informed consent for the use of data they provide.

If given consent, we would consider to take pictures of the individual farmers' renewable energy systems for the final report.

### 1. General information about the farm

Could you tell us about your farm and the size of your business?

- Type of business?
- How many acres of land?
- What crops are you growing?

### 2. Motivation

- What was your motivation to get renewable energy?
- Do your neighbours have renewable energy?

### 3. General technical information

- Could you tell us about your renewable energy system?
  - What type is it? What is the size of your system?
  - Why did you chose this particular system and size? Did you have help to choose your system?
  - Where is it located (e.g. on land, sheds, dams etc.)?
  - Did you have help in the planning and design process? Have you been aware of the optimal way to integrate the system in your farm's operations and the local context (road, public access etc.)?
  - By whom and when was it installed?
- Could you tell us how the system works/ performs and how is it integrated in the farm's operation?
  - How much of the consumption is covered by the renewable energy system?
  - Do you know when is it used most? What activity is it most used for?
  - Does the system help to reduce your electricity bill? If not, what do you think are the reasons?



- How much does it cover from your overall electricity bill (part or all farm operations)? Is that in line with your expectations? Are you happy with your choice of system?
- What other systems do you use as a back-up (e.g. diesel generation)?
- Who looks after the operations and maintenance of the system?

## 4. Finance

- How did you fund your renewable energy system? What was the equity and loan component?
  - *If it doesn't come up, probe:*
    - *What do you think about other funding opportunities like government grants, regional/ national bank loans, farmers' cooperative, community finance, family and/ or friends support?*
- What issues did you face in securing the finance for the project? How did you address those?

## 5. Grid Connection Process

- Could you talk us through each step of the connection process of your renewable energy system, and what challenges you experienced throughout?

*When the interviewee explains the process, we will prompt him/ her to elaborate on the following questions:*

- How informed did you feel to make decisions in the process?
- Were you aware of the necessary steps? Where/ from whom did you get the information from?
- Did you seek help ((privately (through neighbours/family/representative organisations) or through professional experts (e.g. agronomists, lawyers) or the networks businesses)), and did you have to pay for it?

*If it hasn't come up before, prompt the interviewee to think of the following specific challenges in:*

### **Finance and costs:**

- What were the costs associated with the connection process (each stage)? What was the biggest cost factor and did pose the biggest challenge for you (e.g. consultants for feasibility study, fees etc.)?
- How did you feel informed about the upcoming costs across of the grid connection approval process (planning and detailed enquiry)?
- Did you try to access to finance e.g. equity capital during the application process? If yes, at what stage of the process and did you experience any challenges? (*Question to be posed depending on the interviewees experience and way how he/she funded their system*)
- Who bore the costs of the dispute resolution process? (*Question to be posed depending on the interviewees experience*)
- Did you face any other financial barriers during or after the grid connection application process? Where there any unexpected costs?



### **Technical:**

- How informed did you feel about the technical results / part of the enquiry response? Did you feel you had sufficient support / time on the technical assessments?
- Have you been informed about any technical limitations by the network provider and that adding further capacities to the grid in your area might pose challenges for them?
- Has the network provider offered any advice on location and better placement of your system?
- Did you face any challenges regarding communicating with the network service provider?
- What other technical issues did you face dealing with the network service provider?
- If your application was unsuccessful, what were the reasons? What other options do you have right now? (*Question to be posed depending on the interviewees experience*)

### **Contract and legal requirements:**

- Did you seek any legal advice prior to installing the renewable energy system?
- Do you think the information provided by the local network service provider allowed you to make informed decisions? Did you feel you had sufficient time to take decisions?
- Did you have any issues related to the timing of responses and expected feedback from network service provider?
- After you received the official approval for grid connection was there enough time to secure the funding for the project?
- Did you have to go through a dispute process? If yes, how did you feel supported in this process? What were the main issues you experienced?

## **6. Enablers**

- Could you think of aspects that worked (particularly) well in the grid connection application process?
- Is there a platform or space where you can share your experiences with renewable energy system installations?
- How would you assess the quality of your engagement with the network businesses with respect to your renewable energy installations?

## **7. Recommendations**

- What would have helped you in the application process?
- What would you do differently knowing what you know now?
- Do you have recommendations for fellow farmers?

## **8. Wrap up**

- Do you have any further comments or feedback for us the grid connection process from a farmers' perspective? Anything that you like us to consider or specifically address to facilitate the process for farmers to set up their own renewable energy systems?

**Many thanks for your attendance and feedback!**





## Annex 2: Online Survey Link

The online survey is available at : <https://goo.gl/forms/LLHcGirF2QiK9DrC2>



## Annex 3: Focus Group Invitation

# INVITATION

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The Queensland Farmers Federation, Cotton Australia, NSW Irrigators' Council and the University of Technology Sydney invites participants for a Focus Group on Thursday 26<sup>th</sup> July at [place]. We are seeking up to 12 people for a conversation about solar power.

We would like to invite you to participate in a focus group to inform on how to better align farmer and network business interest in relation to grid-connected on-farm renewable energy generation. Our project, titled "Irrigators – the flow on benefits of regionally embedded generation", aims to enable a more productive dialogue between farmers (irrigators) and the network businesses to better coordinate the integration of renewable energy generation.



We'd like to learn more about your experience with developing renewable energy systems and learn more about your engagement with your local network service providers in order to help improve these processes in the future.

If you can spare two hours to participate, **please register your attendance with [enter contact]. Please note that there are only 12 spots available.**

**When:** Thursday 26 July, 6 to 8 pm.

**Where:** [enter place]



# Annex 4: Network Interview Guide/Questionnaire

This document shall assist and guide the interviews with network companies in the targeted locations. The planned interviews will take about 60 mins. This will include members who are engaged in network planning, demand management, executive management, regulatory and generator connections. They will take place face to face at a venue agreed with the participant, or as a teleconference. All participants will be asked to give informed consent for the use of data they provide. Interviews will be recorded and the transcripts will be shared with participants for final approval / clarification. The sections have been divided on the basis of the different stakeholders we will be interviewing.



## Connection Application / Approval Team

### Application Process

- Can you run us through how the connection application process typically works at your end with a real life example?
  - How long does the process take? How does this compare with NER guidelines? Is that sufficient time to respond appropriately?
  - How do the preliminary and detailed enquiry stage processes differ?
  - What is the nature / format of the outputs at each level? What is the process to ensure consistency in responses given out, especially in the preliminary enquiry stage?
  - Who do you engage with at the generator end – irrigators / consultants? How do you engage with them?
- Are the technical requirements understood and met by applicants?
- What have been the impacts of the NER guidelines (positive and negative)?

### Approval Process

- What are the main factors the decision to grant or reject an application is based on?
  - How is this communicated to the application?
  - How does this work for negotiated contracts as separate from standard contracts?

### Barriers / Challenges

- What are the bottlenecks in this process? What are the specific issues you face?
  - What would help to smooth them out?
- How often do disputes occur with applicants?
  - What are the key issues that lead to disputes?
  - How are they resolved? How effective are the dispute resolution processes?

### Best Practice

- Could you think of aspects that work (particularly) well in the grid connection application process?
- How would you assess the quality of your engagement with the farmers with respect to their renewable energy installations?
- Is there a platform or space for productive dialogue with farmers / applicants that would help the process?

### Recommendations & Wrap Up

- Do you have advice or recommendations for farmers putting in connection approvals?
- What would have helped you in streamlining the application approval process?
- Are there any changes to the NER guidelines that would improve the process?
- Do you have any further comments or feedback for us the grid connection process from the network's perspective? Anything that you like us to consider or specifically address to facilitate the process for farmers to set up their own renewable energy systems?

**Many thanks for your attendance and feedback!**



## Planning Engineers

### Network Constraints

- Confirm network constrained areas from NOM analysis
  - Are these areas currently constricted? What is the status of plans for network investments?
  - What will it take to defer them in favour of non-network solutions? What is the level of non-network solution required?
  - How does this impact the hosting capacity of the network? What factors dictate the limits set on the amount of solar that can be installed within different parts of the network?
- Are there other areas in your experiences where investments are planned but can be possibly deferred for non-network solutions?

### Best Practice

- How could higher proportions of renewable energy generation be integrated into distribution networks?
- How can you provide information on network issues to better inform the choices of irrigators that are considering renewable energy?
- Have you employed / are considering any non-network solutions for this constraint?

### Recommendations & Wrap Up

- Do you have recommendations for farmers putting in connection approvals?
- What in your opinion will help in streamlining the application approval process?
- Do you have any further comments or feedback for us the grid connection process from the network's perspective? Anything that you like us to consider or specifically address to facilitate the process for farmers to set up their own renewable energy systems?

**Many thanks for your attendance and feedback!**



## Innovation Team / Executive Management

### Network Opportunities

- How could higher proportions of renewable energy generation be integrated into distribution networks?
- What are the steps / plans in this direction?
- What is the strategic perspective on non-network solutions especially with farmers?
  - What role can demand management play? Is that a viable solution in these / other locations especially with farmers and their larger installed capacities?
- How does this play with network obligations and regulations like the NER /NEG/ DMIS/ RIT-D?
- What do you see as major bottlenecks / challenges to increasing renewable energy generation and mainstreaming other non-network solutions?
  - What can help overcome these challenges?
- How can you provide information on network issues to better inform the choices of irrigators that are considering renewable energy?
- How do 3<sup>rd</sup> party aggregate generators (solar farm leases) fit into this space?
  - How does this impact the hosting capacity / ability of individual farmers to connect to export to the grid?
  - How this this impact the connection approval process?

### Recommendations & Wrap up

- Do you have recommendations for farmers interesting in installing DRE on farm?
- Do you have any further comments or feedback for us the grid connection process from the network's perspective? Anything that you like us to consider or specifically address to facilitate the process for farmers to set up their own renewable energy systems?

**Many thanks for your attendance and feedback!**

