

# Social licence for bioenergy: Prospects in the NSW Northern Rivers

*A Northern Rivers BioHubs project led by Sustain Energy*

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The Northern Rivers BioHubs project is led by Sustain Energy, a working group of Sustain Northern Rivers. This project was funded by the NSW Office of Environment and Heritage.

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**Front cover images** (*clockwise from top left*):

Nimbin Valley Dairy

Existing (aerobic) waste digester at Stone & Wood Brewery, Murwillumbah

Group deliberation at one of the project workshops

## EXECUTIVE SUMMARY

### Rationale

The Northern Rivers region of New South Wales offers promising opportunities for cost-effective renewable energy. The region's climate, land fertility, existing industries, and demographics make bioenergy an especially appealing prospect. Nevertheless, following recent experiences with coal-seam-gas exploration, local communities are likely to scrutinise any energy proposal very closely. For this reason, previous studies have identified that social licence will be critical to the feasibility of any bioenergy project in the Northern Rivers.

### What we wanted to know

For this study, instigated by the Northern Rivers BioHubs Consortium and led by Sustain Energy, we wanted to find out what level of support currently exists for bioenergy in the Northern Rivers, and what 'boundary conditions' might exist around a social licence. Thus we developed four research questions:

1. Is bioenergy in general likely to enjoy the support of the Northern Rivers community?
2. What level of social licence might communities grant for specific forms of bioenergy?
3. Does the level of social licence differ in different locations?
4. What are the most significant factors or concerns, or conditions and boundaries, influencing social licence for bioenergy?

### What is a social licence?

'Social licence' is not a legal right of veto, so does not imply that communities have the final say on whether a project proceeds. Rather, it usually refers to the degree of ongoing acceptance or approval from the local community and other stakeholders for an organisation or project. It can exist at various levels, and can vary over time. It is shaped by people's perceptions of something relative to their expectations. It tends to be higher not only when impacts are positive, but also when people feel they are involved and respected, and when concerns are acted upon.

### What we did

During October 2015, four two-hour workshops were held across the region to seek opinions and encourage discussion on prospects for bioenergy. The workshops were facilitated by a locally-based, independent consultant, and a total of 61 members of the public attended. In addition, surveys were distributed at local public events. This work built on previous Sustain Energy initiatives such as the North Coast Energy Forum.

The workshop format included explanations of social licence, general information about bioenergy, and brief discussion of proposed local bioenergy projects. The workshops comprised methods for gathering both quantitative data and qualitative insights regarding participants' support for bioenergy. Participants completed an identical survey before and after workshop discussions, to see whether their support or opinions changed. 152 surveys were completed in total, including 35 at the local public events.

### What we found

This study identified which forms of bioenergy are most likely to be supported in the region, and what factors might influence people's propensity to support a project. The main findings are:

1. Bioenergy in general enjoyed high support among participants across the region.
2. Among bioenergy **technologies**, *anaerobic digestion* was clearly the most supported, followed by pyrolysis.

3. Among bioenergy **feedstocks**, *municipal waste* and *agricultural wastes* were clearly the most supported, with forestry residues and energy crops being markedly less well supported.
4. Combustion was clearly the least well supported option among both technologies and feedstocks, and is therefore likely to receive the lowest level of social licence.
5. Support for every form of bioenergy decreased somewhat following the workshops. This suggests that discussions and presentations were unbiased and well balanced between benefits and concerns, rather than acting as promotional tools – this is a mark of effective engagement.
6. Participants from Casino registered higher support for nearly all forms of bioenergy than those in Lismore, Nimbin, and Murwillumbah.
7. Participants identified five factors influencing their support – these are ‘*critical conditions*’ for maximising social licence for a bioenergy project:
  - Land and feedstocks are used in ways that minimise ‘waste’.
  - Perceived benefits outweigh perceived costs.
  - There is ongoing engagement and education on the impacts of projects.
  - Transport of feedstocks is minimised.
  - Governance and regulation enable community involvement.
8. Feedback on the workshop process itself was very positive, and participants were enthusiastic about the prospect of further engagement on specific projects.

### What next?

The Northern Rivers BioHubs Consortium has found that strong support exists for certain types of bioenergy, and that bioenergy projects may be able to achieve a high level of social licence if they meet certain conditions.

By using the findings of this report, project proponents can implement effective engagement processes to maximise their social licence. To apply the general, regional basis of this report to local bioenergy projects, the following three steps are recommended:

1. Consistent with social licence theory, the Consortium’s objective should be restated as: “*to achieve the highest possible level of social licence for prospective bioenergy projects*”.
2. Develop a set of community engagement principles for achieving the highest possible level of social licence for bioenergy projects. These might include:
  - All activities of a bioenergy project will seek to align with community values.
  - Local concerns are paramount, but engagement will include broader views in society.
  - Bioenergy proponents will seek ongoing consent and agreement from their stakeholders.
  - Bioenergy proponents will engage with dissent constructively.
3. Underpinned by these Consortium principles, project proponents can then design and apply social-licence assessment processes. Assessment processes should be tailored to local contexts – that is, to local concerns, aspirations, values, and expectations. A rigorous assessment process will enable proponents not only to practise effective engagement, but also to communicate their project’s actual level of support to all stakeholders.

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## 1. INTRODUCTION

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This report outlines a process for assessing support for bioenergy in the Northern Rivers region of New South Wales (NSW), Australia. It also describes findings from a preliminary investigation into the level of 'social licence' that communities in the region might grant towards potential bioenergy industries or projects.

### **Context - Northern Rivers BioHubs**

The Northern Rivers BioHubs Consortium is an initiative of Sustain Energy, a working group of Sustain Northern Rivers. Sustain Northern Rivers is a collaboration of organisations in local government, state government, and non-governmental organisations involved with regional development, education, environmental protection, health and social service provision. The collaboration works to address the needs for action on climate-change mitigation and adaptation.

The Sustain Energy working group acts as the steering committee for Northern Rivers BioHubs, and comprises:

- Ballina Shire Council
- Byron Shire Council
- Kyogle Shire Council
- Lismore City Council
- Tweed Shire Council
- NSW Office of Regional Development, Department of Industry
- NSW Office of Environment & Heritage
- Regional Development Australia-Northern Rivers
- Nimbin Neighbourhood and Information Centre (NNIC) (lead agency for this project)
- Local Community Services Association (LCSA) Far North Coast (represented by NNIC)
- Byron Community College
- TAFE North Coast
- Southern Cross University

The Northern Rivers BioHubs Consortium was funded by the NSW Office of Environment & Heritage and Regional Development Australia-Northern Rivers to undertake the Northern Rivers BioHubs project. The Consortium was established as a partnership between Sustain Energy, North Coast Energy Forum (NCEF) and Northern Rivers Energy (now Enova). NCEF and Enova are now partners of the Consortium for this project, along with Nimbin Valley Dairy.

There have been two previous stages of this initiative – the 2014 NCEF and an assessment of community support and feasibility for bioenergy in the Northern Rivers. Together, these form the foundation for the present project, and are summarised below.

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### *Stage 1: The 2014 North Coast Energy Forum*

The 2014 NCEF was the fourth such forum. Through these forums, strong stakeholder interest in bioenergy opportunities emerged. The 2014 NCEF identified social licence as critical to the success of bioenergy in the Northern Rivers. The forum also:

- identified advantages and disadvantages of proactively creating a social licence for bioenergy;
- identified the types of information that people and organisations might need in order to assess their support for bioenergy;
- developed a picture of what a successful social licence might look like in practice;
- listed some potential methods and tools for developing a social licence for bioenergy;
- listed some people and organisations who should be involved;
- identified the first steps to take; these included assessing feasibility and engaging the community.

(See [http://ncef.net.au/wp-content/uploads/2014/11/Social\\_License\\_Bioenergy\\_Data.pdf](http://ncef.net.au/wp-content/uploads/2014/11/Social_License_Bioenergy_Data.pdf).)

### *Stage 2: An assessment of community support and feasibility for bioenergy in the Northern Rivers*

This 2015 assessment comprised three components:

- a case study on the feasibility of anaerobic digestion at Nimbin Valley Dairy;
- 24 interviews with key stakeholders;
- an online community survey completed by 208 people.

The first two items, plus part of the survey, are documented in a report by Erlebacher (2015).

Combining her report with the community survey, the following findings are relevant:

- A regional bioenergy industry could be very successful if social licence is developed correctly.
- Municipal waste (85% of respondents), agricultural residues (76%), wet wastes (75%), and commercial waste (74%) were the most supported feedstocks among survey participants. These were followed by plantation forestry residues (50%) and energy crops (39%), with native forestry residues (28%) the least supported feedstock.
- Asked to select their most preferred conversion technology, survey participants favoured anaerobic digestion (62%) over pyrolysis (23%), combustion (11%) and torrefaction (5%).
- Regional 'biohubs' could make bioenergy facilities more feasible.
- More extensive feasibility studies should be conducted to determine the seasonal availability of feedstocks and conversion technologies.
- Education needs to be a major component of ongoing processes, since community awareness was relatively low and a lot of misconceptions existed. This education should include creating demonstration plants.
- Workshops should be held to bring together various stakeholders.
- A campaign should target those responsible for funding, incentives, and regulations.

### *Stage 3: Pre-feasibility and social licence investigations*

The present stage of the project builds on the findings of these previous stages, and has two concurrent components:

- Pre-feasibility investigations into technical, economic, and environmental considerations of three potential biogas projects in the Northern Rivers – at Nimbin, Casino and Murwillumbah.

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- A study to investigate the extent to which the communities of the Northern Rivers, particularly in the above three locations, are likely to grant a social licence for various bioenergy technologies and feedstocks, and to identify any parameters or conditions influencing their decisions.

This report addresses the second component only, while the first component is investigated separately.

### Bioenergy in the Northern Rivers

The Northern Rivers region of NSW (Figure 1) offers a strong opportunity for identifying new and emerging options for cost-effective renewable energy. This opportunity derives from five related factors:

1. The region has highly fertile land, making it a significant agricultural and horticultural production area; it generates large volumes of biomass from growing, harvesting, processing and manufacturing of food and fibre.
2. Energy is a major input for many of these activities.
3. Increasing national and international efforts to curb greenhouse-gas emissions will require multiple solutions using diverse resources.
4. The region's climate and geography are unsuitable for large-scale solar or wind farms.
5. According to the 2015 community survey, there is very strong community desire for locally-sourced, reliable energy, and for local energy security. There is an equally strong desire to reduce reliance on fossil fuels, greenhouse-gas emissions, and landfill.



Figure 1: The Northern Rivers region of NSW (<http://rdanorthernrivers.org.au/our-region/>)



## **Social licence for bioenergy: Prospects in the NSW Northern Rivers**

The NSW North Coast Bio Energy Scoping Study (Ison et al., 2013) researched the opportunities and challenges of industries that have biomass or biogas resources with potential for stationary bioenergy. The study found that annual energy generation of approximately 1,100GWh could be achieved for feedstocks including forest residues and sawmill waste, sugar cane, and municipal solid waste. This is equivalent to approximately 28% of the region's annual electricity consumption. The report also identified significant opportunities for the development of regional bioenergy facilities, located close to the biomass resources to reduce material supply costs. This report ultimately led to the formation of the Northern Rivers BioHubs Consortium.

The idea of a 'BioHub' derives from the need to make any bioenergy project economically feasible. It assumes that a project may be more feasible if similar forms of biomass are processed together at 'central' sites (Erlebacher, 2015). As well as needing to be economically feasible, projects will need to consider a 'social licence' if they are to receive the support of the local and regional community.

### **Study aims**

The 2014 North Coast Energy Forum identified social licence as critical to the success of bioenergy in the Northern Rivers (NCEF, 2014). Thus Erlebacher (2015), in her assessment of perceptions and awareness of bioenergy in the Northern Rivers, sought to identify the requirements for a social licence for the industry. The present report continues Erlebacher's work, plus the online community survey, in beginning a process of quantifying and describing the nature of this social licence. It considers the following questions:

1. Is bioenergy in general likely to enjoy the support of the Northern Rivers community?
2. What level of social licence might communities grant for specific forms of bioenergy?
3. Does the level of social licence differ in different locations?
4. What are the most significant factors or concerns, or conditions and boundaries, influencing social licence for bioenergy?

These questions highlight the significance of social licence as a concept in understanding the prospects for bioenergy. Social licence is a poorly understood concept, however, and thus is often misused. To apply it effectively requires a basic understanding of its essential principles and characteristics.

## 2. UNDERSTANDING SOCIAL LICENCE

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Social licence, often expressed as ‘social licence to operate’, describes an organisation’s relationship with society and/or local communities. Most commonly, it refers to the degree of ongoing acceptance or approval from the local community and other stakeholders (Graafland, 2002; Joyce & Thomson, 2000; Nelsen & Scoble, 2006; Parker et al., 2008; Thomson & Joyce, 2008). In this way, social licence differs from statutory licences: it is intangible and unwritten, and cannot be granted by formal civil, political, or legal authorities (Franks & Cohen, 2012). Nor does it imply that communities have a right of veto on whether a project proceeds.

### Principles of social licence

The idea of a social licence emerged in response to a perceived threat to the minerals industry’s legitimacy as a result of environmental disasters in the late 1990s (Thomson & Boutilier, 2011). The assertion that industries, companies, and even specific projects need a licence not only from regulators, but also from society and/or local communities, arguably helps communities to influence the nature of those projects, without necessarily being able to veto them. In this way, it suggests that communities have a certain amount of power. This power may be expressed via protests or blockades, by organising product boycotts, through media campaigns, by lobbying governments, or by legally challenging activities (e.g., Boulet, 2010; Gunningham, Kagan, and Thornton, 2004; Prno & Scott Slocombe, 2012; Slack, 2008; Warhurst, 2001).

Social licence is best understood as existing at various possible levels, as portrayed in Thomson & Boutilier’s (2011) pyramid model (Figure 2). At the lowest level, where stakeholders perceive a project to have little or no legitimacy, social licence is effectively withheld or withdrawn. This model then progresses upwards through

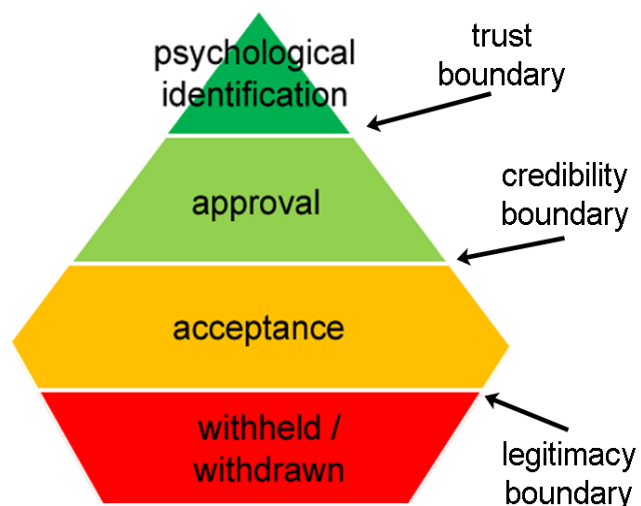


Figure 2: The 'pyramid' model of social licence (Boutilier & Thomson, 2011)

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‘acceptance’, where a project is considered legitimate by stakeholders, to ‘approval’, where credibility is established, to ‘psychological identification’, where trust is established.

While these labels and terms may be debatable, and the boundaries between levels may be fuzzy in practice, the important point is that social licence is not binary; it is not something that is either completely present or completely absent. Rather, it exists at a number of possible levels, and it can vary over time (Parsons & Moffat, 2014a).

Social licence can be seen also as a set of demands and expectations held by local stakeholders and broader civil society, for how a business should operate (Gunningham et al., 2004), or as the degree of match between expectations and behaviour (Salzmann et al., 2006). Moffat and Zhang (2014) found community experiences of social impacts *relative to expectations* affected their level of support. They also demonstrated that relational elements of social licence are inextricably linked to the way impacts are experienced. Specifically, perceptions of impacts were more favourable when stakeholders felt that:

- they were involved in company decision-making processes;
- they were respected;
- their concerns were acted upon.

These findings suggest that companies must try to meet community expectations of impacts and benefits, and that these expectations are at least partly shaped and renegotiated by communities and companies through their interactions. In turn, Parsons, Lacey and Moffat (2014), drawing on interviews with social-licence practitioners, suggest that higher levels of social licence may be achieved when the following conditions are met:

- Company behaviour aligns with wider cultural values rather than merely with rights-based perceptions of legitimacy.
- The views of broader society are considered alongside local-level concerns.
- Companies seek consent and agreement from their stakeholders repeatedly, rather than on a one-off basis.
- Companies try to engage with, rather than marginalise, dissent.

### Limitations of social licence

As a concept, social licence has important limitations. Owen & Kemp (2013) argue that it encourages a risk orientation that entrenches defensiveness, perhaps reflecting its origins in a highly-contested industry. Similarly, Williams & Walton (2013) find that it tends to be viewed by industry through a transactional lens, as opposed to a relational orientation (Thomson & Boutilier, 2011). As noted above, the relational aspects of social licence are critical in shaping perceptions of impacts.

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Minerals industry managers, when thinking about social licence, tend to privilege localised, manageable issues such as dust and noise over societal-level, more contested issues such as climate change or land use (Parsons, Lacey & Moffat, 2014). Furthermore, in corporate usage, social licence oversimplifies complex relationship and communication processes into unverifiable assertions (Parsons & Moffat, 2014b). Finally, companies often struggle to account for relatively intangible aspects of social licence (Bice, 2014).

These limitations may reflect the concept's history as a response to perceived threats to an industry's legitimacy. It is possible that a new industry such as bioenergy, if it is underpinned by values of environmental and social sustainability, may be able to apply social licence in a more nuanced way that demonstrates greater appreciation for its relational and societal dimensions.

### **The relevance of social licence for bioenergy**

As already noted, social licence was originally applied to the mining industry. In mining and other extractive industries, it has been used largely either to assert legitimacy (when used by project proponents) or to express dissent (when used by project opponents). In these ways, therefore, it has tended to promote antagonism. Bioenergy now offers the opportunity to apply it in a more consensual manner that promotes mutually desirable outcomes.

Notwithstanding the multiple possible forms of bioenergy – and associated variability in community perceptions – bioenergy is likely to attract greater support than extractive industries, especially given the above five factors that characterise the Northern Rivers region. Applying social licence in this context could help us to describe and, where appropriate, to quantify the nature and degree of community support, and to identify critical factors influencing that support. This would mean transforming social licence from an antagonistic concept into a constructive one.

The Northern Rivers BioHubs Consortium has demonstrated unusual foresight in appreciating the significance of social licence for the feasibility of any bioenergy industry. Conventionally, an emerging industry would think about 'feasibility' largely in economic and logistical terms, giving scant attention to social implications. Typical feasibility questions might be:

- Is this industry potentially profitable?
- What are the practical, managerial, and administrative considerations?

The inclusion of social licence as a fundamental part of feasibility can be seen as deriving from both general and specific developments. The general development is a growing recognition of the role of

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civil society as a 'stakeholder' in major decisions. This is illustrated by practices of community engagement and social impact assessment becoming commonplace (e.g., Black, 2013; Esteves, Franks, & Vanclay, 2012).

The specific development is the experience of coal-seam gas (CSG) development in the Northern Rivers region (Lloyd, Luke & Boyd, 2013). Deeply concerned about potential environmental and social impacts of a CSG industry, communities adopted the term 'social licence' as a rhetorical tool of opposition. What was previously a concept used predominantly by industry was thus appropriated by others to highlight its perceived absence. In this way, the idea of social licence having various possible levels was lost in a binary argument that views a company as either having or not having a social licence.

The enduring implication is that any new energy industry in this region will be very closely scrutinised by the community. Social licence is more important than ever if any new (bio)energy industry is to succeed. As Erlebacher (2015, p. 34) notes, "the events that occurred surrounding CSG can teach us a lot about how to proceed with bioenergy."

Integrated with established methods of social impact assessment, social licence assessment can help to gauge feasibility and is essential for effective stakeholder engagement (Parsons & Moffat, 2014a).

To summarise, social licence has the following characteristics:

- It usually refers to levels of community acceptance or approval for an organisation.
- It is concerned with legitimacy, credibility, trust, demands, and expectations.
- It is intangible and unwritten.
- It exists at various levels.
- It changes over time.
- It is a fundamental part of a project's feasibility.

An understanding of these characteristics should underpin any effort to assess community support for bioenergy.

### 3. METHODS

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#### **Building on previous work**

The methods for this study were designed to build on the previous stages of the project. As noted in the introduction, the 2014 NCEF identified social licence as critical to the success of bioenergy in the Northern Rivers, and described a potential process for developing this social licence. Subsequently, the 2015 assessment of community support and feasibility, as well as comparing acceptability for various bioenergy technologies and feedstocks, concluded that workshops should be held to bring together various stakeholders. For the present study, therefore, a workshop format was used to seek opinions and encourage discussion on bioenergy and social licence.

#### **Workshops**

The rationale for a workshop format was twofold. Firstly, holding workshops would convey the message that major decisions on bioenergy industries are yet to be made, and that such decisions should be the collective endeavour of all stakeholders. Secondly, workshops can enable everyone to participate equally, diminishing power and knowledge inequalities.

During October 2015, two-hour workshops were held in four locations – Nimbin, Murwillumbah, Casino, and Lismore. The first three were selected because they are proposed host locations for bioenergy facilities. Lismore was chosen as the region's largest population centre and origin of public discussion on social licence for coal-seam gas.

#### **Recruiting participants**

Members of the general public were invited to attend the workshops through a wide variety of media. The aim was to reach not only those already involved in bioenergy, but also anyone who might be interested in its prospects, concerned about its impacts, or just curious to learn more about it. Promotions included:

- two local radio interviews
- features in seven local newspapers
- features on seven key regional websites, email lists & e-newsletters
- extensive social media coverage
- media releases from Lismore City Council and Tweed Shire Council
- hosting a stand at the Lismore Sustainable House Expo
- hosting an informal talk at the Nimbin Country Show

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For a complete list of media used to promote the workshops, see **Appendix A – Media used to promote workshops**.

A total of 61 participants attended the four workshops (see Table 1). While they were not asked to identify any organisational affiliation, most attendees probably had one or more of the following reasons for attending:

- They were already working with bioenergy.
- They worked for an organisation that is considering installing a bioenergy facility.
- They worked for a department of a statutory body that is responsible for energy and/or sustainability.
- They were local residents with a keen interest in the future of energy supply.
- They were curious to learn more about bioenergy.

### Workshop format

All four workshops took place over two hours in the evening, and the process for one of the workshops is represented graphically in **Appendix B – Graphic capture of workshop**. Workshops followed an identical format, comprising a deliberative process in which the level of support for bioenergy was assessed both before and after presentations and discussions. The aim was to learn about:

- the pre-existing levels of social licence for different forms of bioenergy among participants;
- whether these levels might change following exposure to information and discussions.

The workshop began with an explanation of ‘social licence’ by Richard Parsons, who has researched this concept extensively. This was followed by the initial survey to assess baseline levels of support.

The survey is reproduced in **Appendix C – Survey questions**.

Location	Presenters on bioenergy in general	Presenters on proposed local bioenergy project	Number of attendees
Nimbin	Natalie Meyer, <i>Nimbin Neighbourhood and Information Centre</i>	Paul Wilson, <i>Nimbin Valley Dairy</i>	18
Murwillumbah	Debbie Firestone, <i>Tweed Shire Council</i>	Nick Cornish, <i>Stone &amp; Wood Brewing Co.</i>	13
Casino	Craig Jenkins, <i>Office of Regional Development, NSW Dept of Industry</i>	Colin Cole, <i>Richmond Dairies</i> Trevor Moore, <i>Northern Co-operative Meat Company Ltd</i>	11
Lismore	Mark Glover, <i>Eco Waste Pty Ltd</i>	n/a	19

Table 1: Workshop presenters and attendees

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Next was an introduction to bioenergy itself. This was delivered by different presenters at each location (see Table 1). While this approach inevitably leads to varying results between workshops, it enabled a number of people involved to share their knowledge. At the Nimbin, Murwillumbah, and Casino workshops, a general presentation on bioenergy was followed by a specific presentation on local projects. At Lismore, where there is no proposed local project, participants were informed about proposals at the other three locations. The format is summarised in Table 2.

Time	Activity	Details
10 minutes	Introduction to workshop	<ul style="list-style-type: none"> <li>— Explanation of context, purpose and structure of workshop</li> <li>— Introduction of presenters and participants</li> </ul>
10 minutes	Introduction to social licence	<ul style="list-style-type: none"> <li>— Explanation of what social licence means in theory and how it has been used in practice</li> </ul>
10 minutes	<b>Initial survey</b>	<ul style="list-style-type: none"> <li>— Pre- discussion assessment of support for bioenergy</li> </ul>
30 minutes	Presentations and general discussion on bioenergy	<ul style="list-style-type: none"> <li>— Definition of bioenergy</li> <li>— Explanation of current state of bioenergy industries in Australia</li> <li>— Comparison of bioenergy technologies and feedstocks (sources)</li> <li>— Comparison of feasible options for the NSW Northern Rivers region</li> <li>— Identification of benefits and challenges</li> <li>— Introduction to prospective local projects</li> </ul>
20 minutes	Conversation mapping	<ul style="list-style-type: none"> <li>— Participants were divided in groups of 4-6.</li> <li>— They were asked to identify and prioritise benefits, opportunities, concerns, and challenges on a conversation 'map' (see below).</li> </ul>
10 minutes	Feedback to whole group	<ul style="list-style-type: none"> <li>— A spokesperson from each group reported back their findings to the whole workshop.</li> </ul>
10 minutes	<b>Follow-up survey</b>	<ul style="list-style-type: none"> <li>— Post-discussion survey of support for bioenergy</li> </ul>
15 minutes	Concluding remarks and questions	<ul style="list-style-type: none"> <li>— Explanation of how findings will (and will not) be used</li> </ul>

Table 2: Workshop structure

### Conversation mapping

Following the initial survey and the presentations, workshop participants were asked to form small groups and engage in a deliberative 'conversation mapping' exercise. Conversation mapping is a qualitative method that encourages participants to share their varying perspectives on a subject. It is designed to elicit a rich picture of the matters of concern to participants (Harris et al., 2009, p. 85). The rationale for using this technique, therefore, was not only to provide a bridge between the two



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surveys, but also particularly to address the fourth question in the study's aims: *What are the most significant factors or concerns, or conditions and boundaries, influencing social licence for bioenergy?*

When choosing group colleagues, participants were requested to seek group diversity, rather than just congregating around people similar to themselves; this aims to maximise diversity of perspectives and views (Wallis, 2012). They were then asked to think about the issues that arose in their minds, relating to potential bioenergy industries in the region, in the light of the foregoing presentations. They were asked to identify benefits, opportunities, concerns, and challenges. Rather than doing this independently, each group was given a large sheet of paper on which to write, and asked to link identified issues in order that a narrative 'map' might emerge. The word 'bioenergy' was written in large type in the middle of each sheet, to trigger thought and reflection.

The first ten minutes of this process were conducted in silence, to minimise potential for anyone's voice either dominating or being marginalised from the conversations. After the mapping process, participants were asked to review their group's work, and prioritise the benefits, opportunities, concerns, and challenges. This encourages participants to converge their ideas into themes (Wallis, 2012). They then presented their key points back to the whole workshop.

The follow-up surveys then took place immediately after the conversation mapping. When completing these surveys, participants were thereby prompted to reconsider their views in the light of three processes of communication – listening to presentations, participating in silent group conversation, and engaging in group discussion. The conversation maps, together with the converged themes, were then combined with the survey responses for analysis.

### **Additional surveys**

To reach a broader cross-section of the regional community beyond workshop attendees, the survey was also handed out at two local events. As a result, 29 more surveys were completed at the Lismore Sustainable House Expo, and six at the Nimbin Country Show. Since these surveys were completed without exposure to the workshop process, they are grouped with the 61 initial workshop surveys for analysis purposes. In total, therefore, 152 surveys were completed:

- 96 completed surveys classified as 'initial surveys'
- 56 completed surveys<sup>1</sup> classified as 'follow-up surveys'

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<sup>1</sup> Since five of the 61 workshop participants left before the end, only 56 completed the follow-up survey.

## 4. FINDINGS

This section presents the findings of the study. To reiterate, the questions that the study sought to answer were:

1. Is bioenergy in general likely to enjoy the support of the Northern Rivers community?
2. What level of social licence might communities grant for specific forms of bioenergy?
3. Does the level of social licence differ in different locations?
4. What are the most significant factors or concerns, or conditions and boundaries, influencing social licence for bioenergy?

### Comparing support for various bioenergy technologies and feedstocks

To ascertain a baseline-level social-licence prospects for different forms of bioenergy, participants were asked to rate their support for a range of technologies and feedstocks on a scale from 0 to 10. *This addressed the first two study questions.*

Here we are interested in the initial surveys – that is, the surveys completed at the start of the workshops plus those completed at the two community events. The average (mean) level of support for each form of bioenergy is presented in Table 3 and Figure 3.

technology/feedstock		mean level of support (0 = no support, 10 = complete support)
technologies	combustion	5.45
	pyrolysis	7.33
	anaerobic digestion	8.74
feedstocks	municipal waste	8.56
	agricultural wastes	8.64
	forestry residues	7.14
	energy crops	6.61

Table 3: Comparing support for various bioenergy technologies and feedstocks (initial surveys only)

There are three main findings here. Firstly, it is clear that, among our participants, bioenergy in general enjoys good support. Five out of seven forms of bioenergy received an average support score of at least 7 out of 10, and three received an average of over 8.5.

Secondly, among bioenergy *technologies*, anaerobic digestion clearly enjoys higher support than pyrolysis, which in turn has more support than combustion. Thirdly, among bioenergy *feedstocks*, municipal waste and agricultural wastes have equally high levels of support, followed by forestry residues and energy crops. These results are largely consistent with the findings of the 2015 community survey and Erlebacher's (2015) report.

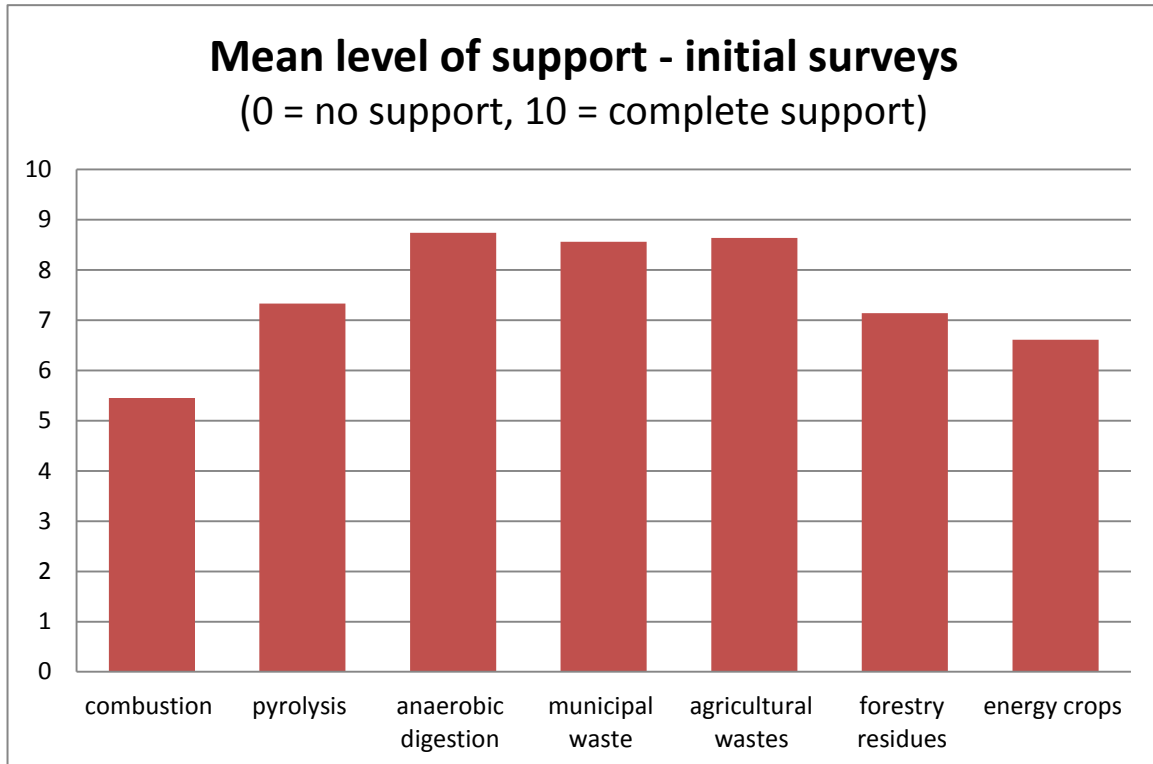


Figure 3: Comparing support for various bioenergy technologies and feedstocks (initial surveys only)

### Comparing support before and after workshops

As explained in the Methods section, we also wanted to know whether levels of support might change following exposure to information and discussions. This is important because any effort to develop bioenergy will require public discussion, education, and the sharing of information and opinion. What effect might these social processes have on support for bioenergy itself? The workshop presentations and discussions can be seen as a small-scale example of this process.

At the point, it is useful to note that ‘information’ is never wholly objective, because it is shaped by the underlying values, assumptions, and world views of those presenting it. Listening to presentations on bioenergy does not inevitably lead participants closer to ‘the truth’ about bioenergy. Thus the follow-up survey findings should be read not as a more ‘truthful’ indication of social licence, but simply as illustrating how public attitudes might change following exposure to discussion. The nature of any change in opinions will vary in different contexts, and may be significantly influenced by who is delivering any ‘information’.

The usefulness of comparing findings before and after this exposure, therefore, is in identifying the potential value of public discussion and debate in influencing support for bioenergy. Specifically, did

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this exposure increase or decrease support, and did any shift in support differ for alternative forms of bioenergy? To make these comparisons, the findings from the 56 follow-up surveys are presented alongside the previous findings in Table 4 and Figure 4.

technology/feedstock		mean level of support (0 = no support, 10 = complete support)	
		initial surveys	follow-up surveys
technologies	combustion	5.45	5.44
	pyrolysis	7.33	7.08
	anaerobic digestion	8.74	8.58
feedstocks	municipal waste	8.56	8.31
	agricultural wastes	8.64	8.17
	forestry residues	7.14	6.41
	energy crops	6.61	6.44

Table 4: Comparing support for various bioenergy technologies and feedstocks before and after workshops

Support for every form of bioenergy decreased somewhat following the workshops. The largest decrease was for forestry residues, and the smallest was for combustion. This may appear counterintuitive – would we not expect people’s support to increase when they understand more about potential benefits?

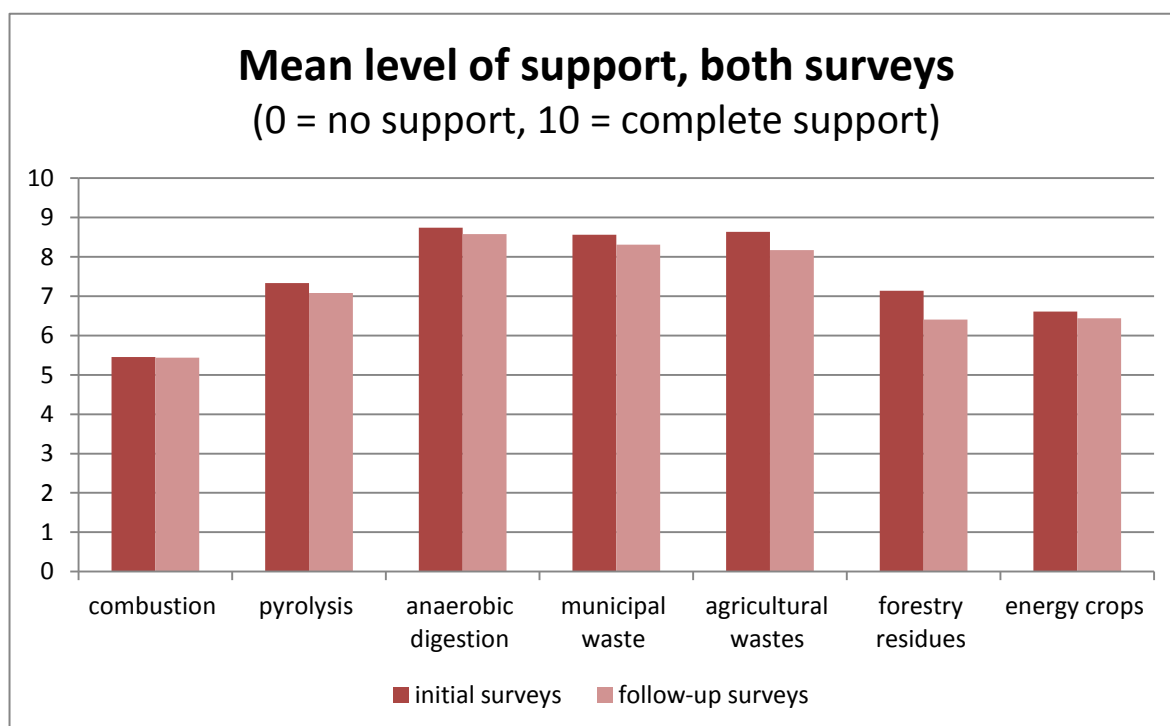


Figure 4: Comparing support for various bioenergy technologies and feedstocks before and after workshops

The drop in support may suggest that the content of presentations and discussions was well balanced between benefits, concerns, and challenges of bioenergy. Not only were attendees educated and informed about the beneficial potential that bioenergy promises, but also they were

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made aware of the potential pitfalls and difficulties in developing this potential. This should serve to demonstrate that the workshops were not simply designed to persuade people to support bioenergy, but to encourage genuine, unbiased dialogue.

Notwithstanding these differences, a clear finding is that:

- **anaerobic digestion**, as a technology,
- **municipal waste**, as a feedstock, and
- **agricultural wastes**, as a feedstock,

enjoyed over 80% support among participants in both surveys. This supports the results from the 2015 community survey, which found municipal waste and agricultural residues to be the most supported feedstocks in the region, and anaerobic digestion the most preferred conversion technology.

Three other findings from the 2015 community survey and Erlebacher's (2015) report have been clarified here. Firstly, Erlebacher proposed that forest residues from plantations should be researched further before advancing in development, and that native forest residues received low support (28%). In the present study, **forestry residues** as a whole received moderate support. This level of support suggests that there are critical conditions around social licence. A similar situation exists for **pyrolysis** – there is some support, but clearly less than for anaerobic digestion. These apparently 'conditional' social licences are thus explored further in the qualitative findings below (see 'Factors or concerns influencing social licence').

Secondly, the community survey and Erlebacher's report found some support for **combustion**, and some opposition, indicating that further analysis was needed. Findings from the present study suggest that combustion is the least likely technology to enjoy support, and is substantially less supported than anaerobic digestion.

Thirdly, **energy crops** were the second-least supported feedstock in the 2015 community survey. While the actual level of support for energy crops is higher in the present study, and is marginally higher than for forestry residues in the follow-up survey, it is the least supported overall across the two surveys. Clearly, there is likely to be significant community concern around developing energy crops.

## Comparing locations

The Northern Rivers region incorporates a diversity of environments, industries, demographics, and lifestyles. Considering this diversity concurrent with the various potential forms of bioenergy, it is useful to understand any differences in support across the region. Thus this part of the analysis addresses the third study question: *Does the level of social licence differ in different locations?*

To consider the possible impact of location on support for bioenergy, responses were analysed according to the respondents' stated nearest town. This means that, even if someone attended a workshop in a different location to their home town (as some did), their responses were grouped according to the place where a bioenergy project might most affect them. It also enables responses from the 35 surveys collected outside the four workshops to be included in the analysis. Figure 5 shows how respondents' support varies in the four locations.

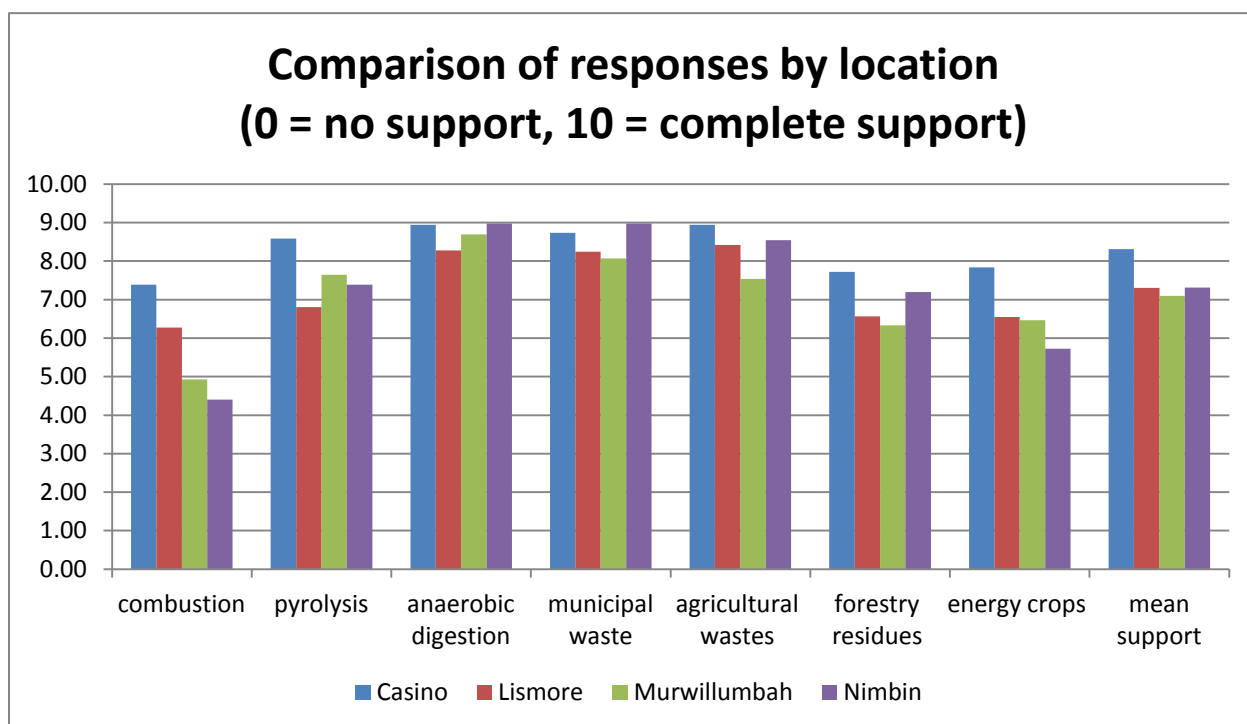


Figure 5: Comparison of responses by location

The principal findings are:

- Casino has the highest support overall, as it does for most forms of bioenergy, and especially for combustion and energy crops.
- Lismore, Murwillumbah, and Nimbin have similar levels of support on average.
- Combustion and energy crops have the greatest variability in support by location.
- Nimbin has the lowest support for combustion and energy crops, and marginally the highest for anaerobic digestion and municipal waste.

On this evidence, *Casino appears likely to grant the highest level of social licence for bioenergy.*

## Factors or concerns influencing social licence

The conversation mapping process conducted at the four workshops produced 12 narrative ‘maps’ for analysis (see example in Figure 6). These maps provide rich insights into participants’ views, enabling us to conduct qualitative analysis to complement the quantitative survey findings. This is important because it addresses the fourth question in the study’s aims: *What are the most significant factors or concerns, or conditions and boundaries, influencing social licence for bioenergy?*

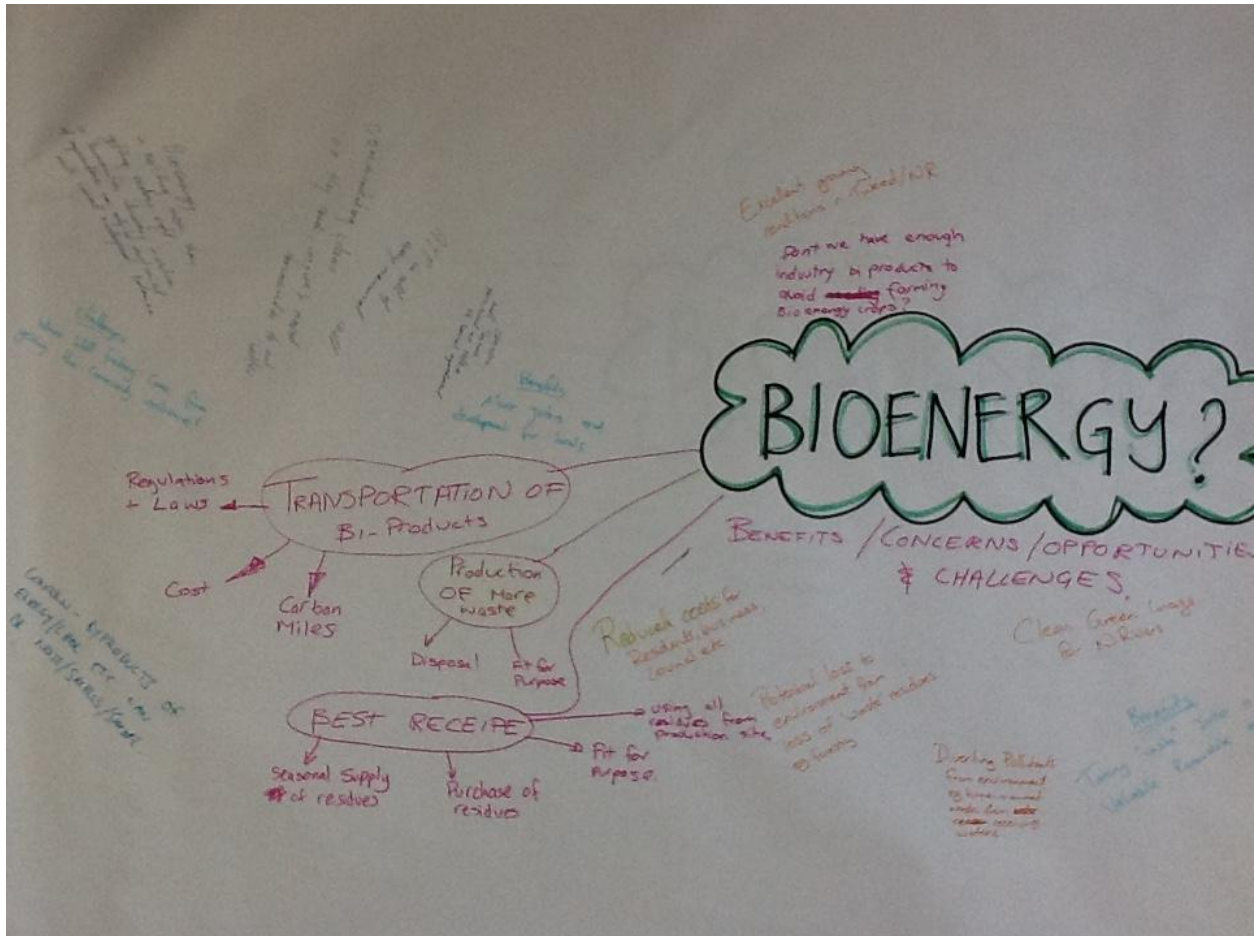


Figure 6: Section of conversation map from one of the workshops

For the purposes of this analysis, the material from the maps was combined with the responses to the two open-ended questions in the survey, in which respondents were asked to describe what factors or concerns might either *increase* or *decrease* their support for bioenergy. The combined material was analysed to identify dominant concerns and recurring themes. The resulting findings enable us to pinpoint the critical influences on social licence decision-making.

Initially, conversation topics were separated into four generic categories: environmental, social, economic and logistical. However, it soon became clear that many topics (e.g., transport) had

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concerns that overlap these categories, and that narrative themes could better represent participants' views. These themes are the critical 'influencing factors' on social licence for bioenergy, according to this study's participants.

### **Influencing factor 1: Using land and feedstocks appropriately**

Among our participants, the topic of perhaps greatest concern with any bioenergy project was about competing uses for resources. Given that underlying the motivation for bioenergy are values of sustainability and deep concern for the future of the planet, participants were particularly adamant that 'waste' should be minimised and that land and resources must be used as efficiently as possible.

For this reason, participants raised specific concerns about some potential practices or impacts. They cited the following as practices that would diminish their support (and thereby jeopardise, or reduce the level of, social licence):

- clearing forest
- using food-producing land for energy
- using feedstocks that have other, more valuable uses
- eroding soil or damaging land when harvesting biomass crops
- diminishing habitat or biodiversity
- over-cropping
- depleting soil humus

Perhaps most significantly, participants generally favoured using things that already exist (e.g., 'waste', residues, and weeds), rather than producing new things (e.g. crops) for energy.

### **Influencing factor 2: Relative costs and benefits**

There was considerable uncertainty over the costs of implementing any bioenergy project. Participants queried the costs of transport, technology, processing, and associated infrastructure. They wanted to know who will fund these costs.

At the same time, they identified numerous potential benefits. Most prominent of these was the potential to use 'waste' more efficiently, or even to 'close the loop' and avoid waste and landfill altogether. Associated benefits mentioned include using resources more efficiently, and using them in the local area, reducing 'energy miles'. Many participants spoke of a role for bioenergy in achieving sustainability. They also saw bioenergy as enabling reduction in fossil-fuel use, and contributing to baseload power. In terms of socio-economic benefits, many participants saw bioenergy as promising opportunities for local employment and business.



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To maximise social licence, benefits will need to outweigh costs. At one workshop, comprehensive life-cycle analysis was advocated to understand impacts. However, since calculating every cost and benefit is impossible, much will depend on *perceptions* of costs and benefits.

### **Influencing factor 3: Community engagement and education**

To address perceptions of impacts (costs and benefits), participants argued that ongoing community engagement and education will be required. This is consistent with Erlebacher's (2015) findings. Many participants identified the need for much more information and education before they could decide whether they would support a particular bioenergy project. Many proposed that more information by itself would increase their support – though this is not confirmed by the survey findings above. Some wanted to see more peer-reviewed, scientific research including examples from other regions and/or internationally, providing evidence of the benefits of bioenergy.

Similarly, many stressed that dialogue is essential. The nature of this dialogue is crucial, too, for example by demonstrating honesty about any negative impacts and risks, and by using plain language in all communications. They want to be able to engage in the process, and they want periodic assessment of community sentiment toward particular projects.

### **Influencing factor 4: Minimising transport**

As well as raising questions over cost, transport emerged as having multiple dimensions. Environmentally, participants welcomed the prospect of resources being used locally, and wanted transport distances for feedstocks minimised. This is consistent with the 2015 community survey, in which long-distance transport was the greatest concern for participants; 74% of stated that the transportation distance for biomass to processing plants should be less than 50km.

Economically and logistically, they wanted to know how the costs of transporting feedstocks would affect feasibility, and they noted that the location of bioenergy projects was thus critical. Socially, they were concerned about the possible impact on local communities of heavy traffic transporting feedstocks. They noted that smells, noise, and safety could affect support.

### **Influencing factor 5: Ownership, governance, and regulation**

Many participants said they are more likely to trust a bioenergy project if it is community-owned and governed, or locally-owned and managed. There was some concern that the profit motive inherent in corporate or private ownership may compromise the integrity of the operation. For this reason,

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many opposed commercialisation of bioenergy, preferring community ownership as a model that gives local residents a direct stake in the success of any project.

Essentially, this is about governance structures needing to support community involvement. It does not necessarily mean that a bioenergy facility at a privately-owned enterprise, such as Nimbin Valley Dairy, or Stone & Wood Brewing, would not be accepted. It means that all projects will need to be open to community scrutiny and transparent in their decision-making. Governance arrangements must therefore include measures to facilitate such scrutiny, where appropriate. Not all governance decisions will require close community scrutiny, but proponents will need to be particularly mindful of community sentiment when making decisions on sensitive matters.

Whatever ownership structure is in place, participants wanted to see adequate regulatory support. Some also expressed concern that regulatory authorities might struggle to keep up with the industry's growth. It will be important, therefore, that the community feels able to trust the regulators to oversee the industry responsibly.

### **Summary of influencing factors**

In summary, the social licence for a bioenergy project is likely to be higher if:

1. land and feedstocks are used in ways that minimise waste;
2. perceived benefits outweigh perceived costs;
3. there is ongoing engagement and education on the impacts of projects;
4. transport of feedstocks is minimised;
5. governance and regulation enable community involvement.

Collectively, these four factors will influence the level of social licence that any project might enjoy. The more effectively a project is able to respond to these influencing factors, or meet these conditions, the more likely community members are to accept, approve of, and trust the project.

### **Additional insights from workshop evaluation**

Following each workshop, participants were invited to provide feedback via an online survey. This gave them a further opportunity to express their views, and to do so after reflecting on the workshop itself. It also enables us to gauge the effectiveness of the methodology and will help in developing appropriate next steps for assessing social licence.

There were four rating-style questions and three open-ended questions. Of the 56 attendees, 23 (41%) completed the survey. The key findings from the rating-style questions are in Table 5.

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Question	Average satisfaction (0 = not at all satisfied; 5 = wholly satisfied)
To what extent did the workshop meet your expectations?	3.70
How satisfied were you with the technical content of the workshop?	3.35
How satisfied were you with the delivery and presentation?	4.04

**Table 5: Workshop evaluation summary**

Results suggest that participants were generally satisfied with the content and delivery of the workshops, and felt that their expectations were met. The finding that 74% of participants rated the delivery and presentation either 4 or 5 out of 5 (39% were ‘wholly satisfied’) was valuable affirmation for the workshop process itself. This suggests that the workshops provided a solid platform for deeper and broader evaluation of social licence. As one commented:

*I was very impressed by the effort taken to reach out to the community – especially regarding social licence, what it means to the community, and how it can be maintained... My most positive sentiment regarding this forum process was that it offered a rare platform for getting disparate community elements in dialogue over a positive and essential current/future issue.*

In the open-ended questions, respondents were asked:

- What did you most like about the workshop?
- What would you change about the workshop?
- Do you have any other comments or suggestions?

The most appreciative comments related to the fact that the workshops actually happened. Several participants were appreciative of the opportunity to engage and to hear the perspectives of others, especially the real case studies. Having played a part in this initial engagement, they confirmed that social licence would be a central part of the success or failure of any bioenergy project.

Many participants noted that two hours was not long enough to really understand the operations or full implications of bioenergy. One or two were concerned that the workshops could be (mis)used to infer universal support for all bioenergy alternatives. However, most largely understood that these workshops were a preliminary exercise, and looked forward to participating in deeper, more focused engagement processes on specific project proposals. They affirmed the view that bioenergy will play a significant role in our energy future. They were keen to learn more, and to better understand the technical and practical aspects of bioenergy. This is consistent with the above finding that costs and benefits must be communicated honestly, and indicates that the specifics of each project will significantly influence community opinion and support.

## 5. CONCLUSIONS

### Summary of findings

This study has built upon earlier stages of the Northern Rivers BioHubs project, and largely confirmed the findings of those stages while adding some further details and insights. From these studies, we can compare the likely levels of social licence for different technologies and feedstocks, on a scale from *most likely* to be acceptable to *least likely* to be acceptable. These are presented in

Table 6, along with the four critical conditions that may be required to maximise the level of social licence.

<b>ACCEPTABILITY</b>	<b>Most likely</b> <span style="font-size: 2em;">←————→</span> <b>Least likely</b>		
<b>TECHNOLOGIES</b>	ANAEROBIC DIGESTION	PYROLYSIS	COMBUSTION
<b>FEEDSTOCKS</b>	MUNICIPAL WASTE AGRICULTURAL WASTES		FORESTRY RESIDUES ENERGY CROPS
<b>CRITICAL CONDITIONS FOR MAXIMISING SOCIAL LICENCE FOR BIOENERGY</b>			
<ol style="list-style-type: none"> <li>1. Land and feedstocks are used in ways that minimise ‘waste’.</li> <li>2. Perceived benefits outweigh perceived costs.</li> <li>3. There is ongoing engagement and education on the impacts of projects.</li> <li>4. Transport of feedstocks is minimised.</li> <li>5. Governance and regulation enable community involvement.</li> </ol>			

Table 6: Summary of social licence prospects for different technologies and feedstocks (Note: relative locations of bioenergy types on the scale are indicative only.)

It should be emphasised that ‘most likely’ does not mean 100% unconditional support, and ‘least likely’ does not mean zero support regardless of conditions. Rather, the table indicates the *relative* levels of support, and identifies what needs to happen for *any* of these technologies and feedstocks to receive the greatest possible support.

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The double arrow for ‘acceptability’ represents the dynamic nature of social licence – that is, the possibility that any technology or feedstock may become more or less acceptable if conditions change over time.

Additional findings are as follows:

- Support for bioenergy decreased somewhat after participants engaged in discussion, indicating unbiased, well-balanced dialogue.
- Casino-based participants recorded the highest level of support overall, and for nearly all forms of bioenergy.
- Lismore, Murwillumbah, and Nimbin have similar levels of support on average.
- The workshop process was well received and provides a solid platform for deeper engagement and evaluation of social licence of specific projects.

### Next steps

This study has clearly indicated strong support for some forms of bioenergy in the NSW Northern Rivers – notably anaerobic digestion, municipal waste, and agricultural wastes. It has largely confirmed the findings of previous stages of the project. It has also validated the relevance of the social licence concept in developing industries that have maximum community support. The next steps involve applying the findings of this study, and translating a regional study into local projects. The following three-step process is recommended.

#### Step 1 – Clarify the objective

Perhaps the first step is simply to clarify the objective of Northern Rivers BioHubs. The objective should be restated not as being to ‘obtain’ a social licence for bioenergy, but to achieve the highest possible *level of social licence* for prospective bioenergy projects.

#### Step 2 – Develop principles for engagement

As a second step, Northern Rivers BioHubs can develop a set of overriding principles for achieving the highest possible level of social licence for bioenergy projects. Drawing on the likely conditions outlined above (Parsons, Lacey and Moffat, 2014), such ‘principles for engagement’ might include the following:

- All activities of a bioenergy project will seek to align with community values.
- Local concerns are paramount, but engagement will include broader views in society.
- Bioenergy proponents will seek ongoing consent and agreement from their stakeholders.

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- Bioenergy proponents will engage with dissent constructively.

Having clear principles such as these will help prospective bioenergy proponents to develop effective processes for engaging communities.

### **Step 3 – Design contextual social-licence assessment processes**

The third step is for project proponents to design and apply social-licence assessment processes that accord with these principles. Since many factors will influence social licence, any assessment process should be tailored to the context of the proposed bioenergy project. The findings of a broad, regional process will not apply to every local context. Furthermore, we cannot be sure about the extent to which a sample of 61 workshop participants and 152 survey responses represents broader community opinion.

Further engagement activities should be designed to enable people to understand *specific likely impacts, and be sensitive to local concerns, aspirations, values, and expectations*. Only in this way can community members make informed assessments of their support. Communities do not necessarily need to be involved in every step of a project's development, but in general, social licence is likely to be higher where there is greater community involvement.

While there is no one-size-fits-all tool for assessing social licence, therefore, Boutilier & Thomson (2011) have developed a methodology for measuring and modelling it. Their survey tool can be used to assess social licence at either company or site level. This methodology could be adapted to inform an approach for assessing social licence for individual bioenergy projects.

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## APPENDIX A – MEDIA USED TO PROMOTE WORKSHOPS

### *Radio interviews*

- ABC North Coast: interview with Richard Parsons, 15th October 2015
- ZZZ FM: interview with Richard Parsons, 15th October 2015

### *Newspaper & e-newspaper features*

- Echonetdaily
- Nimbin Good Times
- Northern Rivers Echo
- Richmond River Express Examiner
- Tweed Daily News
- Tweed Link
- Tweed Valley Weekly

### *Websites, email lists & e-newsletters*

- Nimbin Neighbourhood and Information Centre
- Northern Rivers Social Development Council
- North Coast Energy Forum
- Local Community Services Association - Far North Coast
- RDA-Northern Rivers
- Sustain Energy
- Tweed Landcare

### *Social media pages*

- 7 Sibley St
- Eventzbiz
- Nimbin Neighbourhood and Information Centre
- Murwillumbah Tweed Valley Community Life
- Nimbin hook-ups
- Nimbin Food Security
- RDA-Northern Rivers
- Richmond River Express Examiner
- Stokers Siding Village Market
- Tweed Heads Community
- Tyalgum Energy Project
- Uki community and social group

### *Additional promotion initiatives:*

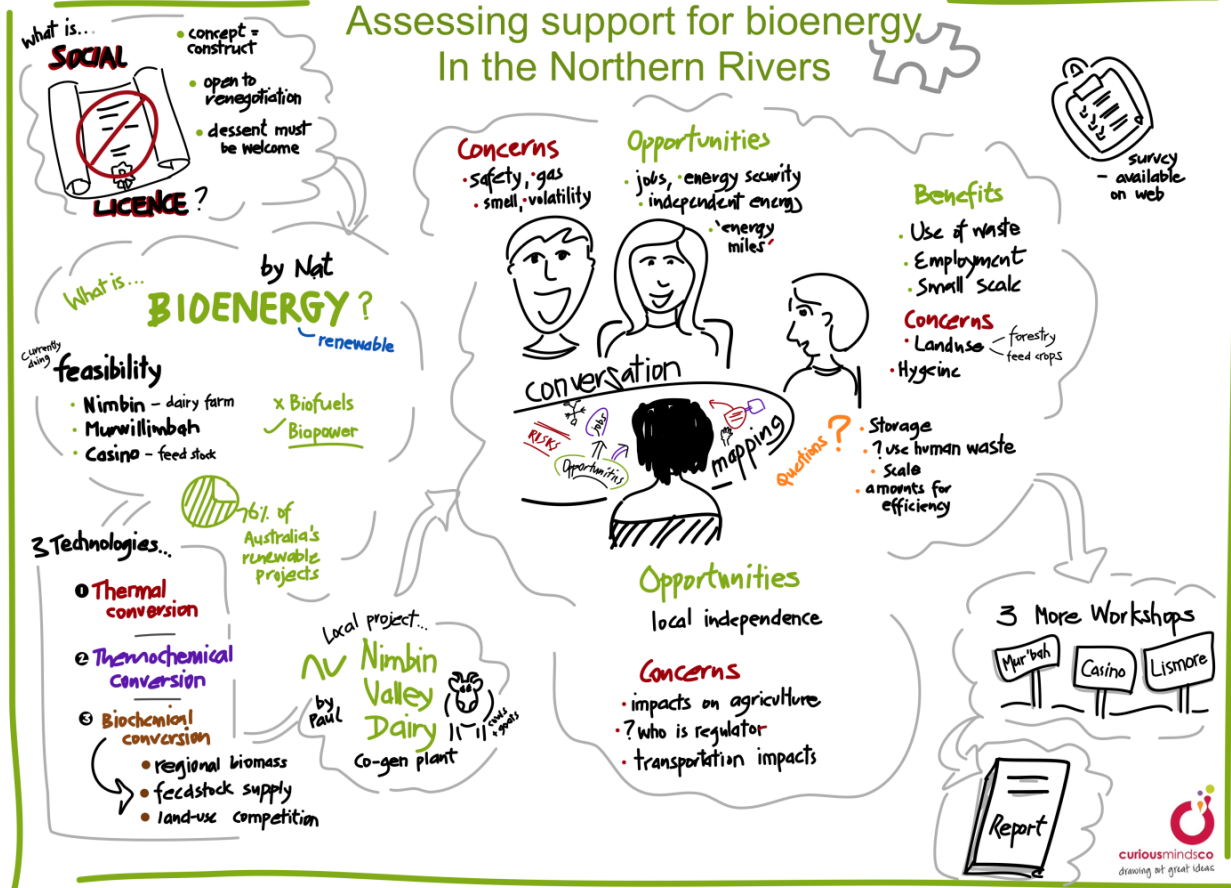
- Many individuals shared promotion pages with friends and associates on social media.
- Certain people known to have an interest in bioenergy and/or social licence were specifically invited (e.g. contacts at Southern Cross University).
- Lismore City Council and Tweed Shire Council issued media releases.
- Flyers were handed out at the Lismore Sustainable House Expo, at the Nimbin Country Show, and displayed at various community locations and on noticeboards.

## APPENDIX B – GRAPHIC CAPTURE OF WORKSHOP

Created by Michelle Walker, local resident and professional graphic-capture practitioner

Facilitated- Richard Parsons

Nimbin 15.10.15



## APPENDIX C – SURVEY QUESTIONS

### Assessing support for bioenergy in the Northern Rivers

*A project initiated by the Northern Rivers BioHubs Consortium*

Bioenergy is a form of energy produced from biomass, i.e. materials derived from plants, animals and their by-products. The purpose of this survey is to assess likely community support for prospective bioenergy projects in the Northern Rivers.

Please answer the questions based on your current understanding, opinions, and concerns. Your participation is completely voluntary and you are free to omit any question. The findings of this survey will be made publicly available. They will be reported anonymously so that you cannot be identified as a participant.

**PART A:** To what extent do you support the following types of bioenergy:

*Please circle your level of support where 0 = no support and 10 = complete support*

1. <b>combustion</b> (burning biomass to produce energy)	0	1	2	3	4	5	6	7	8	9	10	don't know
2. <b>pyrolysis</b> (heating biomass to produce methane & biochar)	0	1	2	3	4	5	6	7	8	9	10	don't know
3. <b>anaerobic digestion</b> (decomposing biomass to produce methane & fertiliser)	0	1	2	3	4	5	6	7	8	9	10	don't know
4. <b>municipal waste</b> as energy source (e.g. household waste & garden prunings)	0	1	2	3	4	5	6	7	8	9	10	don't know
5. <b>agricultural wastes</b> as energy source (e.g. sugar cane residue, livestock waste)	0	1	2	3	4	5	6	7	8	9	10	don't know
6. <b>forestry residues</b> as energy source (e.g. sawmill material & managed forestry)	0	1	2	3	4	5	6	7	8	9	10	don't know
7. <b>energy crops</b> as energy source (e.g. plants/weeds grown for energy)	0	1	2	3	4	5	6	7	8	9	10	don't know

### PART B

8. What measures/impacts might <i>increase</i> your support for bioenergy?	
9. What measures/impacts might <i>decrease</i> your support for bioenergy?	

**PART C:** Please indicate your:

	<b>Age group</b>	<b>Nearest town</b>
<b>Gender</b>	under 18	Lismore
	18-35	Casino
	35-50	Murwillumbah
	51-65	Nimbin
	over 65	other (please specify)
male		
female		