

Submission

Energy White Paper Department of Industry

140207

Introduction

NSW Irrigators' Council (NSWIC) represents more than 12,000 water access licence holders across NSW. These water licence holders access regulated, unregulated and groundwater systems. Our Members include valley water user associations, food and fibre groups, irrigation corporations and community groups from the rice, cotton, dairy and horticultural industries.

This submission represents the views of Members of NSWIC with respect to the Australian Government's *Energy White Paper*. However, each Member reserves the right to independent policy on issues that directly relate to their areas of operation, or expertise, or any other issue that they may deem relevant.

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Executive Summary

The energy sector is of crucial importance to irrigated agriculture as it provides input into food and fibre production as well as competes for land, labour and water resources. As such, any developments in the energy sector have a direct impact on irrigated agricultural production.

The relationship between energy and irrigation is unique as energy impacts many aspects of irrigated agricultural production. Energy - in the form of electricity and diesel - is used to run irrigation equipment while energy - in the form of coal and coal seam gas (CSG) - is being extracted from underneath some irrigated agricultural land and therefore impacts on water resources which are the cornerstone of irrigated agricultural production. As the existing regulation for each of these energy source differ, irrigators are continuously being challenged to align various policy objectives.

NSWIC acknowledges that the Energy White Paper's primary focus is the "*supply and use of Australia's energy resources to deliver security of supply, increases in new energy sources to ease demand/supply constraints*"¹, but we consider it vital that other industries which are influenced by the energy sector, are also taken into consideration. Agriculture is a key pillar of the Australia economy², however continuous expansion of the energy sector and escalating energy prices have severely impacted food and fibre production and caused significant financial hardship for irrigators.

Firstly, mining and CSG operators are encroaching on prime agricultural land and are competing for vital resources - land, labour and water - which are of crucial importance for the production of food and fibre. In addition, mining and CSG activities have the potential to seriously damage these vital resources which would have detrimental consequences for the immediate and long term viability of irrigated agriculture, the environment and the wider community.

Secondly, electricity and diesel are vital input factors into irrigated agricultural production. The conservationist policies by the previous Government have forced irrigators to undertake large scale structural adjustments on farm to reduce water use. The result has been large scale investments in highly electricity (and diesel) intensive irrigation equipment. With the recent rises in electricity prices, the use of this equipment has in some instances become unviable and many irrigators have been forced to modify their irrigation practices back to less efficient and more water intensive operations.

In order to remain competitive and thrive as an industry, irrigated agriculture must be recognised as an important pillar of the Australian economy and future energy policies must be aligned with the needs and requirements of irrigators. For that purpose, NSWIC will outline a range of energy proposals that we believe will be beneficial for both irrigated agricultural producers and the energy sector. In addition, these proposals will align with the current policy objective of the Federal government to "*improve energy productivity and efficiency*"³.

¹ Energy White Paper, p. i

² <http://www.nationals.org.au/News/tabid/60/articleType/ArticleView/articleId/8532/Profitability-the-key-to-the-Coalitions-Policy-for-a-Competitive-Agriculture-Policy.aspx>

³ Energy White Paper, p.i

Key Recommendations

Electricity:

- Farm business tariffs must be introduced that suit the needs and requirements of irrigators.
- Energy efficiency education campaigns and energy efficiency audits must be made available to all irrigators using electricity.
- Funding for on-farm energy efficiency upgrades must be accessible for all irrigators.

Mining & CSG:

- The Commonwealth must retain environmental approval of CSG projects under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* water trigger so that the impacts of CSG and large mining proposals are systematically assessed at the national level.
- A national and publicly available environmental monitoring system of mining and CSG operations must be established to build a comprehensive understanding of the impact of CSG and mining projects on existing farms and farming areas.
- There must be a consistent application of the Standing Council of Energy and Resource's Multiple Land Use Framework.
- Farmers must have the right to voluntary access agreements for CSG developments on their land.
- Access agreements must ensure that landholders are not liable for incidents resulting from third party access from mining and CSG operations.

General Comments

NSWIC welcomes the opportunity to make a submission to the Department of Industry on the Energy White Paper. We acknowledge that the Energy White Paper process is broad ranging and covers policy issues across the economy. In addition we recognise that the Energy White Paper is being developed in parallel to a number of other key policy initiatives by the Federal Government including the White Paper on Agriculture and the Emission Reduction Fund Green Paper. In this context, NSWIC will address only those issues of the Energy White Paper that are related to irrigated agriculture and are directly relevant to our constituency.

We consider it crucial that the respective policy developments are aligned in order to reach a sensible and efficient outcome and avoid conflicting future policy directives. For that purpose NSWIC seeks a whole of government approach to the respective policy developments.

Throughout this submission, NSWIC will outline a number of policy initiatives that we believe will assist irrigators in meeting their future energy requirements. In addition, these policy initiatives will enable irrigators to increase their energy productivity and allow the sector to remain competitive in international markets.

Energy

As mentioned previously, energy is of significant importance to irrigated agriculture as an input into food and fibre production and a direct competitor for land, labour and water resources. Given the depth and complexity that the energy sector poses to irrigated agriculture, this submission is divided into two sections,

- Electricity
- Mining and CSG

Each of these sections will outline the key problems that energy brings to irrigated agriculture and a range of solutions that we believe will be beneficial for both industries. NSWIC also has policies on both Energy and Mining & Coal Seam Gas which are appended to this submission.

Overall, NSWIC considers it vital that the Federal Government coordinates its policy initiatives in order to reach a sensible solution that will allow both industry - energy and irrigated agriculture - to coexist and thrive.

Electricity

Electricity has become a vital input factor into irrigated agriculture as more irrigators have undertaken structural adjustments on-farm to remain competitive. These structural adjustments have led to productivity gains and water efficiencies but have caused overall electricity use to rise. Greater electricity use and higher electricity rates have been a significant financial burden for irrigators in NSW.

The trade-off between water efficiency and energy intensity has been extremely difficult to reconcile in irrigated agriculture and as a consequence, many irrigators have found it unviable to continue using their electricity intensive irrigation equipment. The losses in terms of efficiency and output have been immense.

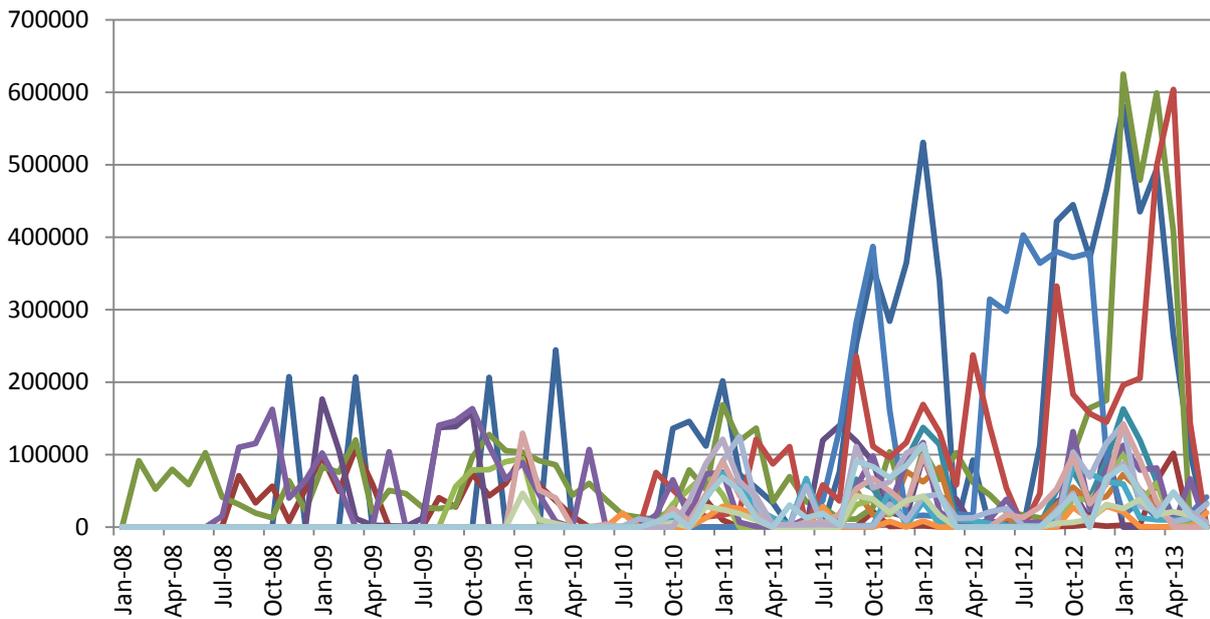
Irrigators are not homogenous in their electricity use. The specific farm set-up, the irrigation equipment and the water needs of the plants and/or other storage facilities make each irrigator's electricity profile unique. While NSWIC recognises that each irrigation operation is different, we have identified three common electricity usage patterns;

1. Episodic use of electric pumps to lift volumes of water when flows are legally available from rivers and/or flood events. The timing is hard to predict as it often depends on natural events. Continuous pumping can last for a couple of hours to a couple of weeks. In some cases, pumping opportunities could last for many months. On average, the pumps used to lift water have a relatively large capacity and will require large amounts of electricity.
2. Relative constant pumping in spring and summer to meet immediate irrigation demands. A typical example may be the pumping of water from an underground aquifer. It usually requires a steady use of electricity over a 4-6 months period. Electricity usage may not necessarily be every week but often is 24 hours a day for a number of days followed by a break of a number of days. Other electricity use could be for direct irrigation through a lateral move or a centre pivot, where the infrastructure capacity requires 24 hours operation.
3. Similar to profile two but where the infrastructure is of a size that primarily only operates during off-peak time periods.

In addition, specific operations will require electricity use at other time intervals due to storage and cooling needs (i.e. dairy).

Irrigators often use electricity on a large scale (above 160 mWh) and are therefore subject to a different tariff structure than residential and small business customers. Furthermore, many irrigators have been moved to demand driven network tariffs as a result of changes in the electricity retail sector. These changes caused many existing electricity contracts to expire. The changeover to the new contracts has often occurred without any consultation and as a result, many irrigators have been moved to 'default' contracts with significant higher charges.

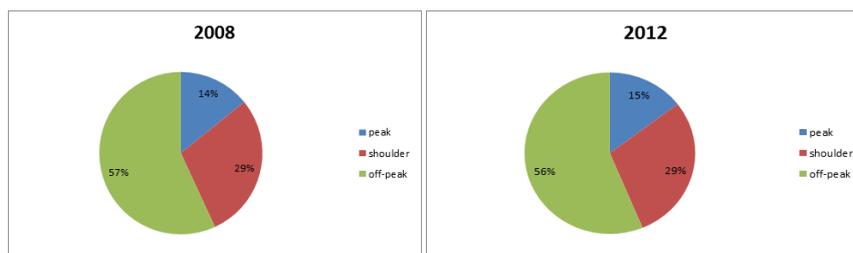
Electricity Use in Irrigation 2008 - 2013



(Graph 1: Based on electricity data gathered through electricity trial conducted by NSWIC and Cotton Australia)

Whilst electricity use in irrigation does not follow a homogenous pattern, the timing of electricity use for an individual irrigator is often highly inflexible.

An electricity trial conducted by NSWIC and Cotton Australia has found that the electricity use profile of an irrigator has not changed significantly between 2008/09 and 2012/13. About 15% of electricity use occurs during retail 'peak times' (generally 7am - 9am and 5pm - 8pm) while around 29% occurs during retail 'Shoulder' times (generally 9am - 5pm and 8pm - 10pm). 56% occurs during retail 'Off-Peak' times (generally 10pm - 7am).



(Graph 2: Based on electricity data gathered through electricity trial conducted by NSWIC and Cotton Australia)

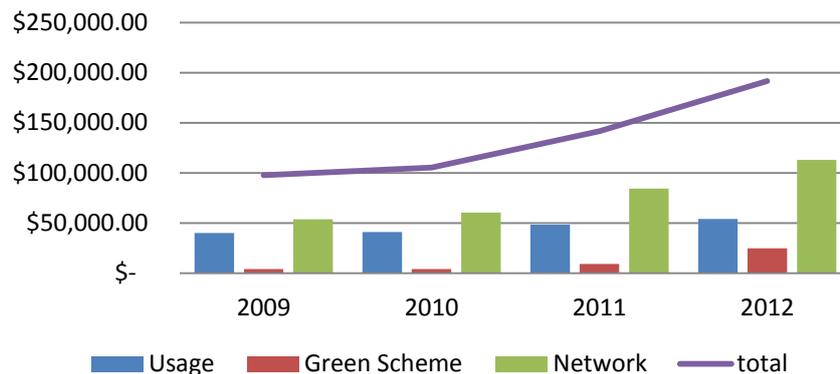
In addition to inflexible electricity use, irrigators have also faced significantly higher electricity costs/rates. These costs increases are a direct result of;

- Higher electricity rates for electricity consumption, market participation and distribution networks.
- An expansion of market participation charges, especially Federal and State 'Green Scheme' costs like the carbon charge and the RET charges.
- Move towards demand driven network tariffs.

Overall Electricity Costs

The NSWIC and Cotton Australia electricity trial has shown that overall electricity costs for selective irrigators have increased by up to 300 per cent over the last five years. One trial participant whose electricity use remained constant over the period 2008/09 - 2012/13 experienced a 35.3% increase in the electricity usage cost component and a 110.6% increase in the network cost component. In addition, the same trial participant also experienced a significant increase in the market participation costs, which was mainly a result of the carbon charge.

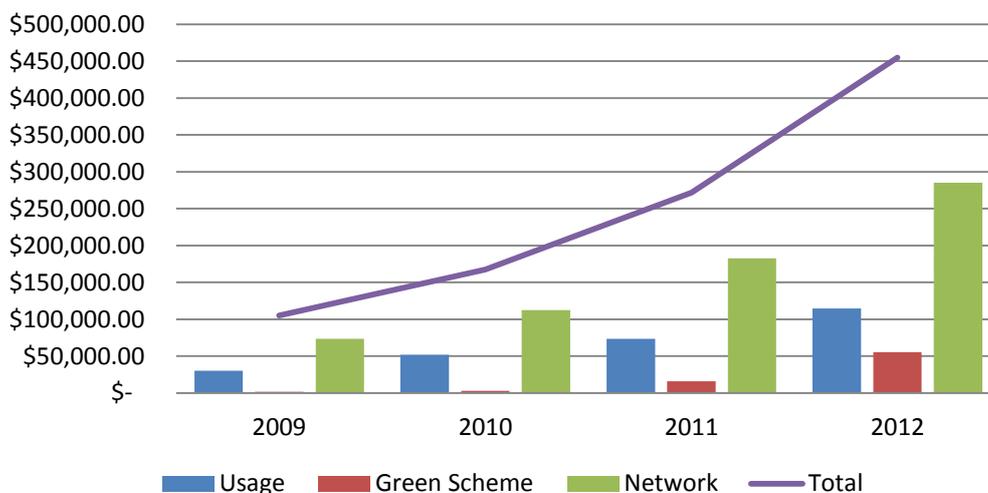
Constant Electricity Use - Example



(Graph 2: Based on electricity data gathered through electricity trial conducted by NSWIC and Cotton Australia)

In comparison, another trial participant with an increasing electricity use over the same time period, experienced an increase of 281% in its electricity usage cost component and a 289.2% in its network cost component. His total electricity cost increased by 334.0% between 2008/09 and 2012/13.

Increased Electricity Use - Example



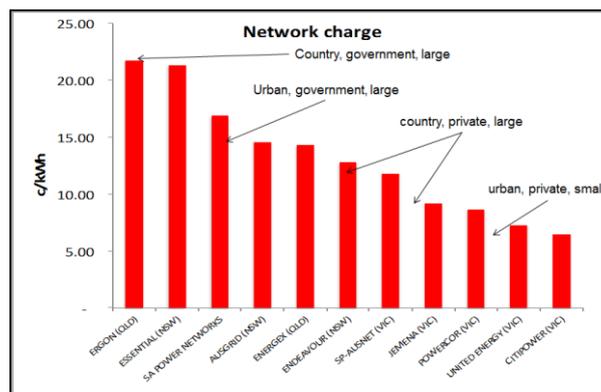
(Graph 3: Based on electricity data gathered through electricity trial conducted by NSWIC and Cotton Australia)

Network Costs:

Network charges have been the most important drivers of electricity cost increases for irrigators. Overall, the NSWIC and Cotton Australia electricity trial found that between 55% and 65% of an irrigator's total electricity costs can be attributed to network charges. The biggest network cost increase was \$263,575 for one trial participant (between 2008/09 - 2012/13).

In addition, the modeling undertaken by *Carbon and Energy Markets* has shown a clear imbalance in network charges between regional and urban Australia. The network costs for regional Queensland and NSW were found to be around 30% higher than the urban network charges in other states.

Network Charges by State and Region



(Graph 3: Based on report by Carbon and Energy Market, 2013)

Green Scheme Costs:

While agriculture was supposed to be exempt from the carbon charge, the NSWIC and Cotton Australia electricity trial found that the total dollar impact of the carbon charge was above \$200,000 for six trial participants (July 2012 to June 2013). As a proportion of total electricity costs, the carbon charge made up between 5.1% and 11.8% of an individual irrigator's electricity bill in 2012 and between 4.6% and 11.1% in 2013.

In addition, other green scheme costs also increased, including the any RET related charges.

Global Context

A recent study by the Energy Users Association of Australia (EUAA) has shown that Australian electricity prices are now considered to be some of the highest in the world, with average Australian household's electricity prices now higher than those in Japan, the European Union, the United States and Canada. Furthermore, the EUAA study showed that household's electricity prices in Australia have risen by more than 40 per cent since 2007 and are expected to increase by a further 30 per cent by 2013/14⁴. While those price

⁴ Carbon + Energy Markets 2012, *Electricity Prices in Australia: An International Comparison*, A report to the Energy Users Association of Australia, March 2012

increases have been significant, the impact on large scale electricity users (like irrigators) have been even more severe. A lack of competition together with non-transparent electricity contracts and an unsuitable tariff structure, has considerably hindered irrigators to address recent cost pressures.

Problems:

1. Structural Adjustments:

As a consequence of the previous Government's policy objective to conserve more water for the environment, irrigators have adjusted their own farm practices to become more water efficient. The result has been the installation of highly electricity intensive on-farm irrigation equipment. Greater electricity use and higher electricity rates have caused significant financial hardship for irrigators.

2. Rates and Charges:

Electricity rates for all three components (electricity use, 'green schemes' and network) have increased significantly since 2008. The electricity trial conducted by NSWIC and Cotton Australia has shown that irrigator's electricity costs increased by up to 300% between 2008/09 and 2012/13. In particular, the rates associated with the network component have increased most rapidly.

3. Usage Pattern:

Irrigators often have little ability to adjust their electricity use. An increase in electricity rates have often caused a one for one increase in overall electricity costs as irrigators can generally not switch to different time periods for their electricity use.

4. Three Part Tariffs:

For those irrigators who are able to adjust their electricity use, the current tariff structure provides no incentives to modify their usage pattern. As charges for "Peak" and "Shoulder" time periods are identical, there is only a small window that irrigators can use (10pm to 7 pm) to decrease their electricity usage costs.

5. Network Tariffs:

The current network tariffs do not suit the needs and requirements of irrigators. As irrigators are often using electricity sporadically, the daily access charge does not reflect the usage pattern of irrigators.

In addition, the rates associated with energy consumption at "Peak" and "Shoulder" time periods are identical which provides irrigators with little incentives to adjust their electricity usage. The difference between "Peak/Shoulder" and "Off-Peak" are also significant, especially in the demand component where the difference in costs is over \$11/kVA.

Finally, a Low Voltage Rebate⁵ is available to eligible customers but the eligibility criteria makes it often impossible for irrigators to apply for. In particular, the 35 cents per kWh hurdle has increased by 15 cents since 2010. This has made a large number of irrigators ineligible to obtain the rebate. In addition, many irrigators achieve a low power factor. A study undertaken by NSWIC has found that irrigators often have a power factor of between 0.6 and 0.85.

6. Carbon Charge

As a proportion of overall electricity costs, the carbon charge has made up between 5 and 11 per cent of an irrigator's electricity bill. Even though agriculture was not supposed to be subject to the carbon tax, the impact through overall electricity costs has been immense.

7. Transparency

Since little consultation takes place between the network service providers/retailers and customers, many irrigators in NSW are unaware of their current tariff structure or the level of the associated rates. In many cases, the only interaction individual irrigators have with network service providers is through the monthly electricity bills that show the dollar value of their network costs.

In addition, many irrigators have recently been moved to a demand driven network tariff without any consultation and explanation as to why such a change was necessary. The changes have often been detected after the receipt of an electricity bill. The lack of consultation together with the complexity of the current electricity pricing structure, has made it nearly impossible for irrigators to choose a suitable tariff.

⁵ Please refer to NSWIC Briefing Paper "Power Factor and Efficiencies"

What Irrigators Want:

Farm Business Tariffs that are tailored for the needs and requirements of irrigators.

In order to alleviate current electricity cost pressures and allow food and fibre producers to remain competitive, farm business tariffs must be introduced. These farm business tariffs must fulfill the following requirements;

Requirements for Farm Business Tariffs

- The tariffs and the associated charges must be positively correlated to the usage pattern of an individual irrigator. If there is a decrease in use or a modification in the usage pattern towards 'Shoulder' and 'Off-Peak' time period, then this must trigger a decrease in overall prices for electricity.
- The tariff and the associated charges must be at levels that do not discourage irrigators from participating in national and state water efficiency and land care programs and/or from utilising technologies and infrastructure that contribute to the national goal of increased food and fibre production.
- The tariffs must allow for an efficient use of energy related equipment. This includes wires, poles and metres.
- The tariff must allow for optimal water application that best assists plant growth.
- The tariffs must avoid perverse pricing outcomes, especially in the context of demand charges. Such demand charges must be tailored to the specific farm operation and the equipment used on farm.

In order to fulfill these criteria, NSWIC proposes the following amendment to current electricity tariffs;

1. The rates associated with "Peak" and "Shoulder" times (both consumption and network) must differ to the degree that it provides an incentive to irrigators to adjust their electricity use.
2. Flexible "Peak", "Shoulder" and "Off-Peak" times that provide irrigators with options to choose time periods that best suit their operation.
3. The demand/capacity charges must be lowered as it is prohibitively expensive for individuals to utilise their on-farm irrigation equipment.
4. The Low Voltage Rebate criteria must be lowered to a 20 cents per kWh cap.
5. The carbon charge must be abolished.

In addition, two further classes of irrigation tariffs must be introduced;

- Volume Based Tariff
- Weekend Tariff

Volume Based Tariffs

A range of volume based irrigation tariffs must be introduced that reflect the electricity usage patterns of irrigators. These tariffs would not include a network charge component but appropriate time-of-use charges for the electricity usage component.

These irrigation tariffs should also include worthwhile time-of-use incentives, i.e. different rates between 'Peak', 'Shoulder' and 'Off-Peak' time periods to encourage irrigators to switch to 'Shoulder' and 'Off-Peak' time periods.

Weekend Tariffs

A range of volume based weekend tariffs must be introduced that do not include an demand component for irrigators. These tariffs would include appropriate time-of-use components which are limited to 'Shoulder' and 'Off-Peak' time periods, where the 'Shoulder' and 'Off-Peak' time period rates differ and the 'Shoulder' rate is equivalent to the volume based tariffs (i.e. lower than 'Peak' rates)

Access to on-farm energy efficiency measures

To increase the productivity and energy efficiency in irrigated agriculture, NSWIC submits that funding for an energy efficiency education campaign and energy efficiency audits is made available to irrigators who use electricity. Encouraging active demand side participation by irrigators would have the dual benefit of increasing farm profitability and competitiveness by offsetting rising electricity costs and reducing emissions.

In addition, we submit that all irrigators are offered funding to run energy audits to identify energy improvements, such as upgrades to pumps or the installation of power factor correction equipment like capacitors that have the potential to lead to significant savings for irrigators.

However, we are concerned that irrigators will be squeezed out of participating in the Emissions Reduction Fund, as the lowest cost abatement opportunities exist in the industrial and energy intensive sectors. As such, we are particularly keen to see the Federal Government encourage irrigators to take direct action to reduce their on farm emissions through energy efficiency audits and upgrades to farming equipment.

Mining & CSG

It needs to be acknowledged that mining and coal seam gas (CSG) activities have had an impact on irrigated agricultural production and this impact will continue to broaden with the continuous growth of mining and CSG exploration and development activities.

Mining and CSG activities have added to the competitive pressure for productive land and labour resources and increased the demand for water resources that underpin irrigated agricultural production. This increased demand for resources is only one impact that mining and CSG activities have had on food and fibre producers.

Furthermore, the potential threat that mining and CSG activities pose to water sources - i.e. structural damage to existing water sources, contamination and changes in water pressure and quality - is an additional source of concern for NSWIC. While data and information in mining and CSG deposits are extensive, insufficient work has been done on the impact mining and CSG activities have had on water resources and therefore irrigated agriculture.

Irrigators in NSW rely on water as their primary input factor and have to comply with two main regulation - the *Water Management Act 2000* (NSW) (WMA 2000) and the *Water Act 2007* (Water Act). These two Acts outline the appropriate management of water resources in the state. The objective of the WMA 2000 is;

(...) to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations and in particular;

(a) ...

(b) to protect, enhance and restore water sources, their associated ecosystems, ecological processes and biological diversity and their water quality , (and)

(c) to recognise and foster the significant social and economic benefits to the State that result from the sustainable and efficient use of water,

i. benefits to the environment, and

ii. benefits to urban communities, agriculture, fisheries, industry and recreation, and (...)⁶

(emphasis added)

Given the rapid expansion of mining and CSG activities throughout NSW and the insufficient and often conflicting regulatory framework governing these activities, NSWIC is greatly concerned that the objectives of the WMA 2000 are not adequately fulfilled. The results will be that the long term future of NSW's water resources - both ground and surface water - and the productive capacity of those industries reliant on them are severely threatened.

NSWIC has outlined in its policy - *Mining and Coal Seam Gas Approval; Protecting Water Resources*⁷ - that it is not opposed to the mining industry or to its future development as long as the individual and cumulative impact of mining and CSG does not harm water resources, or impede on industries that rely on them. NSWIC recognises that mining and CSG have the potential to provide social and economic benefits for businesses and

⁶ Water Management Act 2000 (NSW), Section 3(b)

⁷ Appendix B

communities in NSW but only if the activities are carefully managed. As such a sensible strategy must be implemented that allows both industries to co-exist and thrive.

NSWIC remains absolute in its opinion that the preservation of a sustainable resource for agriculture - water - must be absolute and unconditional.

Current regulations relating to mining and CSG activities are not only limited but are absolutely insufficient in addressing the impact of mining and energy resource exploration activities on water resources. Furthermore, it is evident that current legislation significantly favours mining and CSG exploration and are set to ensure that the extraction of resources can occur as quickly as possible.

What Irrigators Want:

The Commonwealth to retain environmental approval of CSG projects under the Environmental Protection and Biodiversity Conservation Act 1999 (Cth)

To comprehensively protect water resources and ensure a sensible co-existence between mining/CSG and irrigated agriculture, NSWIC submits the following;

- ***The Commonwealth to retain environmental approval of CSG projects under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) water trigger so that the impacts of CSG and large mining proposals are systematically assessed at the national level.***

There needs to be a solid understanding of the impact mining and CSG operations have on the quality and quantity of ground and surface water sources. To gain this understanding, NSWIC submits that a national repository of environmental monitoring data for mining and gas projects be established and administered by the Independent Expert Scientific Committee.

- ***A national and publicly available environmental monitoring system of mining operations should be established to build a comprehensive understanding of the impact of CSG and mining projects on existing farms and farming areas.***

In addition, we would like to see the consistent application of the guiding principles of the Standing Council's Multiple Land Use Framework Land (agreed in December 2013). The principles are designed to resolve apparent or real conflicts of land use.

- ***Consistent application of the Standing Council of Energy and Resource's Multiple Land Use Framework.***

Irrigators must have access to voluntary access agreements.

Finally, irrigators should have the right to voluntary access agreements. This position is supported by Santos who operate near the cotton community in the New England/North Western Region of New South Wales⁸. This position is also supported by both the Prime

⁸ <http://www.theaustralian.com.au/news/nation/santos-rules-out-use-of-legal-force-to-gain-access-to-land/story-e6frg6nf-1226118445158>

Minister and Minister for Industry, Ian Macfarlane who have stated that CSG operations should not occur where landowners do not want it⁹.

- ***Farmers should have the right to voluntary access agreements.***

Conclusion

Energy is of significant importance to irrigated agriculture, be it as an input factor into production or as an industry that competes with irrigated agriculture for land, labour and water resources. Given the depth and complexity of energy, it is important that the Federal Government's Energy Policy aligns various competing policies and reaches a sensible conclusion that will allow the energy sector and irrigated agriculture to co-exist and thrive.

For that purpose, the Federal Government must ensure that there is ongoing access to cost effective energy for Australia's food and fibre producers. Without this vital input factor, many of the achieved water efficiencies will not be viable and many of the productivity gains will have to be reversed. In addition, Australia's competitiveness in international markets will be significantly threatened which will have ramifications for both Australia's food security and its position as a major pillar of the Australian economy.

In addition, the Australian government must broaden its consideration of energy efficiency measures that can be implemented in industries aside from the energy sector. Agriculture provides countless opportunities to increase productivity and energy efficiencies. With an adequate program that assist in the identification of energy efficiency on farm, food and fibre producers will not only be able to increase their own productivity but also assist the energy sector in addressing several sector specific challenges (i.e. peak demand periods).

Finally, the expansion of mining and CSG activities must be managed effectively and with consideration of Australia's water and land resources. The protection of these vital resources must remain absolute and unconditional to ensure that both industries (mining/CSG and irrigated agriculture) are able to co-exist and thrive.

⁹ <http://www.whitsundaytimes.com.au/news/abbott-supports-fight-farmers-right-say-no-csg/1854236/>

Appendix A



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Energy Policy

Electricity Tariffs and Charges

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Introduction

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This document represents the views of the Members of NSWIC. However each Member reserves the right to an independent view on issues that directly relate to their areas of operation, or expertise, or any other issues that they may deem relevant.

Executive Summary

This document sets out the policy of NSWIC in respect to the setting of electricity tariffs and charges in NSW, including the regulatory framework and the level of competition we envision to exist in the NSW electricity market. We believe that the criteria outlined below will initiate a movement to more cost-reflective and efficient electricity prices in the state.

While providing a background on the development of electricity prices, and the impact they had on irrigated agricultural production, this document is designed to address the principles that must be considered when designing and implementing a suitable framework for electricity price setting in NSW.

This policy document was prepared in response to a motion that was accepted by Council in March 2012;

The NSWIC undertake a scoping study of:

- 1. The impact of energy pricing on water efficiency programs;**
- 2. The avenues to influence energy prices and the structure of charges.**

Then report to Council to enable a decision on whether NSWIC should put resources into attempting to influence energy charges.

While NSWIC has dedicated extensive resources in the pursuit of answering the two aspects of the scoping study, this policy document will inform Council on the last component of the motion.

We have analysed the regulatory framework guiding electricity prices and have assessed the resulting impact on irrigated agricultural producers. With the obtained information, we have prepared a submission to the Senate Select Committee on Electricity Prices and provided two Briefing Papers to Members which are appended to this policy.

We have identified that the regulatory framework for setting electricity tariffs and charges in NSW is highly complex, multi-layered and not transparent. Additionally, NSWIC is aware that the regulatory framework guiding electricity prices is currently in flux as a result of recently initiated state and federal policy reviews and inquiries aimed at determining the causes and potential solution to the recently escalating electricity prices.

In this context, this policy document sets out NSWIC main objectives and criteria for an adequate electricity tariffs and charges framework in NSW that is both efficient and cost-reflective.

NSWIC's main policy objective is to establish efficient and cost-effective tariff rates and charges that reflect current usage pattern, allow irrigators to use their on-farm infrastructure equipment optimally and give irrigators an incentive to expand their water use efficiency works where possible.

To achieve this objective, NSWIC will pursue the following:

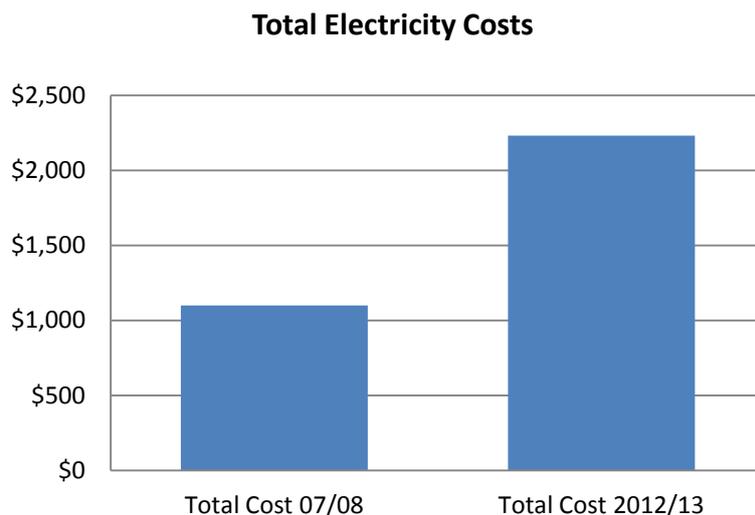
1. Lobby for a simpler and more transparent rules and regulations governing the setting of electricity tariffs and charges in NSW. Future regulation must have a clear defined objective, address all aspects of the current electricity costs and allow the NSW regulator to assess the efficiency and effectiveness of any proposed charges and tariffs.
2. Advocate for increased competition in the NSW electricity market to ensure a that price increases are mitigated and customers are offered better information, products and services.
3. The introduction of farm business *tariffs that address the specific needs and requirements of irrigators in NSW;*
 - I. *The tariffs and the associated charges must be positively correlated to the usage pattern of an individual irrigators. If there is a decrease in use or a modification in the use time pattern towards shoulder or off-peak time periods then this must trigger a decrease in overall prices for electricity.*
 - II. *The tariffs and the associated charges must allow an individual irrigator to use their on-farm infrastructure optimally. Furthermore, the tariffs and the associated charges must not act as a disincentive for further on-farm infrastructure investment.*
 - III. *The tariffs must allow for an efficient use of energy related equipment on-farm. This includes wires, poles and meters.*
 - IV. *The tariffs must allow for optimal water application that best assists plant growth.*
 - V. *The tariffs must avoid perverse pricing outcomes, especially in the context of demand charges. Such demand charges must be tailored to the specific farm operation and the equipment used on farm.*

Background

Increased competitive pressure for water resources and a highly variable climate have led to significant structural changes in irrigated agriculture over recent years. Many irrigators have converted existing on-farm irrigation equipment to reduce their water use dependency. While initial studies indicate that the water savings achieved through these on-farm infrastructure investments have surpassed prior expectations, side effects have materialised in terms of higher energy usage. The costs associated with this higher energy usage has been the subject of ongoing debate and questions have been raised about the trade-off between water efficiency and energy intensity.

Retail Electricity Prices

The Independent Pricing and Regulatory Tribunal (IPART) is responsible for the regulation of one segment of the NSW retail electricity market¹⁰. As part of its regulatory obligation, IPART has monitored the development of retail electricity prices and has shown that over the past five years alone, regulated retail electricity prices in NSW have more than doubled in nominal terms and by around 79% in real terms. These price developments were caused by increases in network costs and 'green' schemes costs.



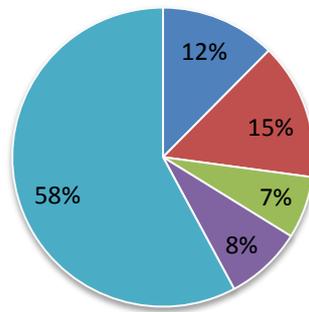
Data: Independent Pricing & Regulatory Tribunal

According to IPART, the rise in network costs, including the charges that electricity retailers must incur through using transmission and distribution networks to transport electricity to their customer's premises, have risen by around 58%. Furthermore, the compliance costs associated with state and federal 'green' schemes have increased retail electricity prices by around 15%. It must be highlighted that these two cost drivers are outside IPART's regulatory framework and had to be passed through by IPART in the last price determination.

¹⁰ While IPART is only responsible for the determination of regulated retail electricity prices in NSW, the development of prices in the unregulated electricity market segment is positively correlated with the development in the regulated segment and hence IPART's result can be seen as a proxy measure for both market segments.

Electricity Cost Increase 2007/08 - 2012/13

■ Energy ■ Carbon ■ Other Green ■ Retail ■ Network



Data: Independent Pricing & Regulatory Tribunal

Electricity Prices and Irrigation

Studies on the impact of electricity prices on irrigated agricultural production are scarce, however an initial assessment by NSWIC has indicated a range of inefficiencies and input cost problems as a result of the recent price increases.

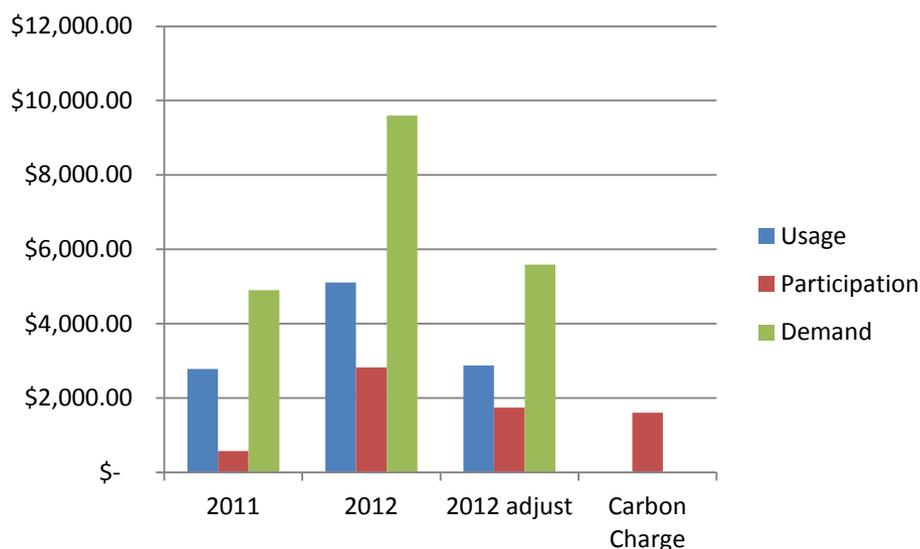
Whilst NSWIC analysis confirmed the results obtained by IPART in that network costs and charges associated with federal and state 'green' schemes are the main drivers of overall electricity price increases, the magnitude of the impacts are not necessarily comparable with IPART's results.

Data obtained from the Riverina region of NSW have shown that market participation charges have increased by around 203% in nominal terms over the period 2011 to 2012 alone (including the carbon charge). When excluding the carbon charge, electricity price have risen more moderately by 31% in nominal terms. Furthermore, network charges have contributed around 22% to overall electricity costs in the period 2011 to 2012. The rise in network charges are mainly driven by demand charges (both peak, shoulder and off-peak) that contribute around 50% of overall network costs. In comparison, the data showed that the usage component of the electricity bill only increased around 3.5% in the period 2011 to 2012¹¹.

Some irrigation equipment has become prohibitively expensive to use as a result of the steep electricity cost increases. This has caused an underutilisation of the water saving irrigation equipment and has prevented the optimised application of water to crops.

Furthermore, irrigators in some areas of NSW have also observed perverse pricing outcomes as a result of consolidating their electricity distribution and metering equipment.

¹¹ NSWIC acknowledges the difficulty of generalising the changes to irrigator's electricity costs given the diversity of each individual irrigation operation in NSW.



*2012 adjust assumes equivalent electricity usage as 2011

Inefficiencies

- *Regulatory environment*

The current regulatory framework is highly complex, multi-layered and not transparent for customers.

Complexity arises due to the various regulators that are responsible for assessing and determining different components of electricity charges and tariffs. While charges associated with network costs and 'green' schemes are set at a federal level and then passed through to customers, the NSW regulator IPART is unable to fully assess the efficiency and cost-effectiveness of these tariffs and charges. Such a multi-layered regulatory approach causes a disconnect in the overall electricity price setting and hence makes the entire system prone to inefficiencies.

Furthermore, this multi-layered regulatory approach causes information to be widely dispersed and not easily accessible for customers who aim to gain an understanding of how prices are derived and reasons behind the recent price increases. Customers do not even have the opportunity to approach the NSW regulator IPART to query the reasons behind the overall electricity prices increases as not all charges and tariffs have been assessed and determined by IPART.

- *Competition*

NSWIC is concerned that the level of competition between energy retailers in urban and regional NSW is uneven. While competition in urban NSW is high, this same level of competition does not exist in rural NSW due to installed infrastructure and pre-existing contracts. The lack of competition in regional NSW needs to be monitored carefully before further consideration is given to the deregulation of the NSW electricity market.

NSWIC is aware that the Australian Energy Market Commission (AEMC) will make a recommendation to the NSW Government in September 2013 about the degree of

competitiveness in the NSW electricity market and the possibility of future deregulation. However, NSWIC believes there is yet sufficient evidence that would prove that deregulation would benefit all customers in regional NSW.

Due to a lack of competition, customers in regional NSW have limited choice about products, services and tariff rates provided by energy retailers.

- Tariff

Despite the existence of a large range of tariff rates in NSW, NSWIC does not believe there exist tariff rates that are specifically tailored to irrigated agricultural producers.

Irrigators have the ability to be flexible in their electricity usage and would prefer to minimise their input costs if possible, however this is currently not possible under the existing tariff structure. As market participation charges and 'green' scheme costs make up the majority of overall electricity costs for irrigators in NSW, usage patterns seem to play a minor role in overall costs. Not only does current electricity usage contribute an insignificant amount to overall electricity costs, but the two are not necessarily positively correlated; i.e. a decrease in usage or a change in use pattern does not necessarily trigger a decrease in electricity prices.

Furthermore, the use of certain irrigation equipment triggers large increases in demand charges, even if the duration of use for this equipment is relatively short. This does not allow irrigators to fully utilise their irrigation infrastructure on farm which is clearly an inefficient outcome.

Additionally, the design of the current electricity tariffs do not allow for an efficient consolidation of necessary electricity delivery and metering equipment. Examples show that the consolidation of electricity meters between several farms has caused irrigators to switch from a franchise tariff to a contestable tariff with significantly higher charges.

Finally, some irrigators in NSW have suffered from agronomic and water use disadvantages as peak electricity rates during the day prevent an optimal application of water to plants at a time when the plant is most active.

Necessary improvements

NSWIC recognises that in the context of electricity price setting there are three separate components that could be improved upon. Each of these aspects should be given equal consideration in further discussions about future electricity price setting.

Objective:

The overarching objective should be to establish efficient and cost-effective tariff rates and charges that reflect usage pattern, allow irrigators to use their on-farm infrastructure equipment optimally and give irrigators an incentive to expand their water use efficiency efforts where possible.

Regulatory environment

The overall regulatory framework has to become more transparent, less complex and avoid an overlap between state and federal legislation. Transparency and simplification of legislation will allow individual customers, including irrigators, to obtain access to all necessary information and allow them to make informed decisions about their electricity usage. To avoid overlapping regulation also decreases the need of excessive compliance procedures and makes the whole process simpler and more transparent. NSWIC believes that the currently initiated state and federal reviews and inquiries provide an ideal platform to make further progress in this respect.

It must furthermore be possible for the state regulator to assess all components of electricity charges and tariffs. The efficiency and cost-effectiveness of those charges can simply not be guaranteed if several aspects of the overall electricity costs have to be simply passed through to consumers without regulatory scrutiny.

An optimal regulatory framework has to ensure that the existing regulation have a clear defined objective which has to be reflected in the setting of charges and tariffs. As such, the tariffs and charges have to ensure that the usage patterns are positively correlated to the electricity costs.

Competition

As competition generally drives efficiency and cost reductions, NSWIC strongly encourages further developments in this respect within the NSW electricity market. We also believe that further competition will foster the provision of more detailed information, better products and services and hence more cost-reflective and better targeted tariff rates for customers.

Farm Business Tariffs

NSWIC strongly supports the introduction of farm business tariffs that are designed for the specific needs and requirements of irrigators throughout NSW.

In principle, these farm business tariffs must fulfil the following three criteria;

- I. The tariffs and the associated charges must be positively correlated to the usage pattern of an individual irrigators. If there is a decrease in use or a modification in the use time pattern towards shoulder or off-peak time periods this must trigger a decrease in overall prices for electricity.
- II. The tariffs and the associated charges must allow an individual irrigator to use their on-farm infrastructure optimally. Furthermore, the tariffs and the associated charges must also not act as a disincentive for further on-farm infrastructure investment.
- III. The tariffs must allow for an efficient use of energy related equipment on-farm. This includes wires, poles and meters.
- IV. The tariffs must allow for optimal water application that best assists plant growth.
- V. The tariffs must avoid perverse pricing outcomes, especially in the context of demand charges. Such demand charges must be tailored to the specific farm operation and the equipment used on farm.

Other Matters

NSWIC strongly urges state and federal policy makers to expand the range of available options that would allow irrigators to decrease their electricity costs. One example could be the extension of the solar grant scheme to irrigators. While domestic peak consumption is at night and on weekends, irrigator's demand for electricity is often during the day which might therefore be a perfect fit for solar generators. An extension of the scheme would be a logical expansion of current policies that will see irrigation demand and power supply system constraints coincide.

Furthermore, in light of the continuous water recovery strategies by the Federal government, emphasis must be placed on the continuous need and benefits of further water saving infrastructure investment, together with a reminder that already implemented equipment must be used most efficiently.

The progress achieved in terms of water use efficiency measures must be recognised and rewarded by both policy makers and the electricity industry and further implementation of water saving infrastructure equipment must be fostered to increase the resilience and the productive capacity of irrigated agriculture in Australia.

Appendix B



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Mining and Coal Seam Gas Approvals; Protecting Water Resources

Policy

110829

Andrew Gregson
Chief Executive Officer

Introduction

NSW Irrigators' Council (NSWIC) represents more than 12,000 irrigation farmers across NSW. These irrigators are on regulated, unregulated and groundwater systems. Our members include valley water user associations, food and fibre groups, irrigation corporations and commodity groups from the rice, cotton, dairy and horticultural industries.

This document represents the views of the members of NSWIC. However each member reserves the right to an independent view on issues that directly relate to their areas of operation, or expertise, or any other issues that they may deem relevant.

Executive Summary

This document sets out the policy of NSWIC in respect of the issuing of permits for mining, including for coal seam gas, across this state, for both exploration and operations.

The preservation of sustainable resources for agriculture – including water – must be absolute in addressing mining exploration or operational licence applications.

NSWIC advocates a strict “no regrets” approach to the licencing of both exploration and operations in mining in respect of water sources.

NSWIC believes that a strong aquifer interference policy must be developed, extended to all water sources, be of regulatory strength (not simply policy) and rigorously implemented and enforced.

Background

Our constituency and expertise is linked to water, both surface and ground. It is on that basis that this policy was drafted and accepted. NSWIC claims significant expertise in water resource management, but not in respect of mining, gas extraction or processing.

This policy is limited to the potential impacts of mining, including coal seam gas extraction, on water resources. This does not preclude NSWIC – or any of its Member organisations – from holding additional or separate policy positions on other issues with the mining industry that affect our stakeholders.

NSWIC is not opposed to the mining industry nor to its further development. We recognise that there may be significant social and economic benefits which in many instances can be delivered with limited negative impact to communities, to businesses and to the environment. We recognise that benefits may accrue at an individual level, a community level, a regional level and a state-wide level. In light of a sustained attack on productive water use, any additional economic activity generated by mining may be much needed by many communities.

NSWIC believes that the local and regional social and economic costs of mining activity may, in many instances, outweigh the benefits. A full analysis of both costs and benefits across the long term must be undertaken by independent experts and fully published.

By its nature, resource extraction is a short to medium term activity. Once the resource has been extracted, the business ceases to operate. Agriculture, on the other hand, is a sustainable long term activity. Sensibly managed, its use of renewable resources allows for food and fibre production indefinitely. We believe that this fact must underpin a basic policy proposition; the preservation of sustainable resources for agriculture – including water – must be absolute in addressing mining exploration or operational licence applications.

Potential Impacts

NSWIC has considered the potential impacts that mining activity may have on water resources. We have considered both ground and surface water sources, as we believe that both stand to be impacted by mining operations.

Irrigators are subject to significant obligations in respect of access, reliability, quality and impacts. These are largely contained with the *Water Management Act* and subordinate legislation. That is, irrigators face a legislative regime to manage, preserve and protect the water resource. We believe that mining and coal seam gas operations must be subject to a process that is *at least* as prescriptive and enforced.

Whilst it would seem a simple process to regulate and monitor individual operations to avoid impacts, NSWIC is concerned at the likelihood of cumulative impacts of multiple operations in and around individual water sources.

The Water Resource – Access

Physical access to the water resource – and its integrity – is a non-negotiable threshold requirement for NSWIC. There must be no circumstances under which the watercourse or aquifer is damaged or altered either permanently or temporarily.

Examples of such damage might be cracking an underground aquifer such that water is able to escape or become depressurised. In surface water, the diversion of a watercourse or escape to, say, an open cut that would not otherwise have occurred is a similar example, as is land and watercourse subsidence from long-wall operations.

Examples of temporary damage might include transfer of drilling fluids in the period prior to permanent casing.

The Water Resource – Reliability

The value of a water resource and an associated extraction licence to an irrigator is not only access to it, but the reliability of it. Irrigation necessarily involved the precise application of water resources at precise times. Impact on the reliability at both short and long term temporal intervals will have a material negative impact on irrigators.

Examples of reliability impacts might include temporary loss of availability.

The Water Resource – Quality

NSWIC is concerned at diminution of water quality from mining operations including salinity impacts and the addition of chemicals to water sources. It is our policy that contaminated water – be it through mining process or an adjunct to operations – is utterly unacceptable and must be vigorously guarded against. Any returned water must be of a quality *at least* equal to or higher in quality to independently assessed benchmark data obtained prior to operations commencing. NSWIC will not accept averaging of water quality testing, but requires that all returns meet this standard.

Examples of such impacts may include incursion of saline water and other contaminants to either surface or ground water as part of extraction operations. The injection of chemical-laden liquids to achieve hydraulic fracturing clearly has the potential to significantly diminish water quality, aside from the potential damage to the physical structure of an aquifer.

The Water Resource – Availability and Use

NSWIC is aware that mining operations and exploration are often significant users of water. We absolutely oppose the granting of water use exemptions in either case. Mining, by its nature, is a commercial activity. Commercial options to obtain water for use exist in the form of tradeable water entitlements. NSWIC insists that all mining use of water must be on the basis of licensed extraction to avoid third party impacts associated with further allocation in fully allocated systems.

Measures to Avoid Impacts

NSWIC recognises that there are essentially three separate phases of mining activity where water resources must be protected; exploration, operation and post-operation.

We believe that a risk management approach needs to be adopted to avoid impacts.

NSWIC believes that each phase must be adequately regulated. We are content for this to be achieved by a Regulation based on an aquifer interference policy in conjunction with Water Sharing Plans. We require that in areas where Water Sharing Plans are not yet finalised, any mining activity – including exploration – must be deferred until such time as the Plan is finalised and active. We further require that the aquifer interference policy and regulation be extended to all water sources, not simply underground aquifers. We may be content with alluvial aquifers being included which essentially protect surface watercourses.

Council is concerned that there may be instances where no alluvial aquifers are situated adjacent to surface water courses, such as where a surface water course passes through a hard rock zone. In these instances, Council requires a methodology where a deemed alluvial aquifer exists or another legislative measure is used to enforce the conditions of the aquifer interference regulation.

Council is further concerned at impacts occasioned by interaction between deep and shallow aquifers. We understand that a stacked aquifer policy may address this, but reserve comment until such policy is understood.

An approved suite of tests – including isotope testing – must be undertaken (at least quarterly) and reported against by a suitably qualified independent entity at the expense of the proponent at each of the phases listed below.

Exploration

NSWIC acknowledges that the exploration phase of mining operations may pose a comparatively lower risk to water sources than full operations in some cases. At the same time, we believe that potential damage at this phase remains significant and hence protection mechanisms must be strongly made and rigorously enforced.

In the first instance, we believe that a “no negative impacts to third parties” approach must be adopted, save and except to levels that would be permitted pursuant to a Water Sharing Plan. Where an exploration permit is sought, the applicant must be able to prove that operations under the permit will not negatively impact third parties in respect of water resources. Such proof must be independently verified.

Where an applicant is required to provide proof of any matter, NSWIC believes that the burden must be that of “beyond reasonable doubt”.

We believe that an assessment of potential damage must be undertaken by a suitably qualified independent third party. This assessment must take into account potential cumulative impacts. Such an assessment may utilise a risk management matrix that allows

variance for high value or strategically important areas to ensure that the response meets the potential threat. Based on such assessment, a security bond mechanism must be determined and enforced such that the state holds a financial instrument capable of fully compensating for any damage occasioned.

The risk management approach and possible resultant matrix must also take into account the environmental and water resource history of the applicant. Where an applicant has a poor history – breaches of entitlements by it or an associated entity – or said applicant has no history in managing environmental and water resource impacts, their potential threat level must be increased.

Any take of water – either deliberate or inadvertent – as an adjunct to exploration must be fully accounted. Where threat levels are assessed on a higher scale according to the proposed matrix, this accounting must be required up front. That is, an operator must hold an entitlement (temporary or permanent) equivalent to the potential take from exploratory operations at the commencement of such operation.

Regular oversight and reporting against conditions on permits must be required and full transparency of the results must be guaranteed.

Operation

NSWIC believes that the operation phase has the greatest potential to cause significant damage to water sources and, as such, advocates that the strictest conditions and requirements be imposed at this phase. It is our position that all of the requirements for exploration permits must be continued and built upon, together with additional requirements being imposed.

As the potential for damage is significantly more considerable, the security bond mechanism and risk matrix analysis must again be used but must result in significantly higher values of bond held. The risk matrix analysis must include consideration of performance against requirements at the exploration phase both on the current proposal and on any previous operations by the proponent or any associated entity.

A full benchmarking process of the immediate and surrounding areas of the proposed operations must be conducted prior to the commencement of any activity. This must be completed by an independent entity and the results must be fully transparent and available publicly. It is against this benchmark data that all compliance must be measured over the course of operations.

As a minimum, quarterly testing of water quality, water quantity, pressure and availability must be undertaken and reported against the benchmark data. Again, this testing must be undertaken by an independent entity and be made publicly available. Where the risk matrix indicates a higher risk operation, testing at a greater frequency must be considered.

Any negative impact reported against a benchmark must be treated as a strict liability offence. That is, unless the operator can prove (on the balance of probabilities) that the damage was occasioned by an event or events *other than* those for which they are responsible, they must be held liable for the damage occasioned.

Produced Water

NSWIC recognises that operation of both mining and coal seam gas extraction routinely results in water being extracted, either subsequent to injection or as a tangent to operations.

As a basic premise, NSWIC notes that all extractions (other than recovery of injected water) must be pursuant to a Water Access License.

Where extracted water is of lower quality than the surrounding source and needs to be either stored or disposed of, a strict management regime must be required and rigorously enforced. Storage must be effected by a “closed system” that allows no opportunity for leakage or evaporation. Treatment of contaminated water (be it saline extracted water or recovered water from operations that contains chemicals) must include filtration to remove heavy metals. Independently verified testing of both input and output to treatment must be undertaken and made publicly available.

Any water to be reinjected or released in any fashion must be to *at least* the quality of the surrounding sources based on independently tested and publicly reported benchmark data.

Post Operation

By their nature, mining operations have a limited lifespan. The impacts on water resources, however, may not be restricted to that same lifespan.

It is the position of NSWIC that applications for operations permits must include an identifiable and third party verified withdrawal strategy with respect to water sources. That is, before a permit is issued and operations allowed to commence, an exit strategy that deals with how water management issues will be dealt with on withdrawal must be provided and independently verified.

At the conclusion of operations, independent verification of potential damage that may still be occasioned (taking into account the withdrawal strategy) must guide the quantum of security bond to be kept and the period over which it must be kept. The same verification must address the potential water requirements (leeching, inadvertent take and the like) that the site is likely to demand. Those demands must then be fully accounted (by acquisition of entitlement) and held until proof is presented that such requirements are not longer present.

Other Matters

At the time of writing, NSWIC is concerned at the capacity of Government regulatory bodies to deal with the anticipated scope of mining and coal seam gas exploration, operations and post-operation requirements pursuant to this policy. Without adequate resourcing – and efficient use of those resources – Council believes that the most rigorous of policy will be meaningless.

We specifically believe that industry self-regulation and self-reporting is meaningless and must be abandoned as a protocol or measure of protection, specific or implied.

Breaches of conditions at any phase must be considered a “reportable incident”. The State authorities must, at the expense of the operator, provide a publicly accessible report of the breach and must notify stakeholders directly of the breach, what measures were taken to avoid the breach and what additional conditions will be imposed as a result of the breach.

ENDS