

Ian Sutton's submission in response to Santos' Narrabri Gas Project's Environmental Impact Statement (EIS)

6th May 2017

I reject the EIS on the following grounds;

Narrabri Gas Project

Environmental Impact Statement (EIS)- Foreword

“The EIS concludes the project can be developed safely with minimal and manageable risk to the environment”.

The above statement taken from the Foreword of the Narrabri Gas Project's EIS is a lie. Since the body of the EIS simply manipulates and fabricates scientific data to support and justify this statement, I have concluded that the entire document is a lie. This submission covers my reasons for arriving at the following conclusion.

The approval process being used for the Narrabri Gas Project's development application is a breach of section 100 and section 109 of the Australian Constitution.

Australian Constitution

Chapter 4 - Finance and Trade

Section 100 - Nor abridge right to use water

The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation.

Chapter 5 – The States

Section 109 - Inconsistency of laws

When a law of a State is inconsistent with a law of the Commonwealth, the latter shall prevail, and the former shall, to the extent of the inconsistency, be invalid.

The reason Australia has such criminal land development policies and approval processes are two fold. Although corruption in its many forms is the driving force, reductionist science is what facilitates the lie. Four examples of this flawed scientific approach to water management are revealed in the way development applications are assessed for their impacts on our water systems.

1) There is a complete disregard for a national approach to water management. This means there is little consideration given to the massive cumulative impacts from regional or national development, whenever assessing the local impacts of an individual development application.

2) There is an incorrect assumption that aquifers are isolated from each other due to layers of rock, such as clay stone, that form impermeable aquitards. This means little consideration is given to the interconnectedness of underground water systems, and the ease at which contaminants and water can move from one aquifer to another through cracks, fissures, and seams of more porous rock, as part of the continuous water cycle.

3) There is little understanding or consideration for the wholistic management of the water cycle. This means they do not consider how depleting the ground water systems and/or de-forestation, will cause dryer conditions, less fertile landscapes, reduced surface water flows and increased land cover changes, expanding arid and semi arid landscapes. Nor do they consider how this reduction in evapo-transpiration, resulting in less humidity above the landscape, will only exacerbate the catastrophic fire conditions, severe erosion, expanding desertification and climate extremes.

4) There is zero foresight for the transitioning to Ecologically Sustainable Development. This means there is no action plan for rehydrating and regenerating the landscape, nor is there a plan for the transition to renewable energy technologies. Inaction in these two important fields, has resulted in worst case scenarios for increasing desertification and climate change, undermining the food and water security, as well as the economic prosperity of our future generations.

As a direct result of the Narrabri Gas Project approval, the following impacts will threaten 'the reasonable use of the waters of rivers for conservation or irrigation'.

- The over extraction of ground water resources due to cumulative impacts, causing de-pressurisation of critical recharge zones for the Great Artesian Basin and the Murray Darling Basin, resulting in reduced bore, spring, stream and river flows for much of inland and South Eastern Australia.
- Excessive ground water draw down within the gas field, causing de-pressurisation of surrounding surface aquifers, resulting in further reductions in bore, spring, stream and river flows for much of the local region.
- The de-pressurisation of the coal seams, and the resulting mobilisation of toxic salt water that will plume out, entering and contaminating surrounding aquifers, as well as the Great Artesian Basin and the Murray Darling Basin.
- The contamination of local ground water, streams and rivers due to spills, leaks and inappropriate storage and disposal methods, used for managing the huge volumes of produced water and brine.
- The negative impacts on farmland fertility and productivity, resulting from diminished water quality and quantities available for irrigation, as well as the reuse of produced water for irrigation.
- The gross mismanagement of Australia's land and water resources, resulting in the drying of the landscape and the disruption to the water cycle, exacerbating desertification and climate change, while creating huge long term social, environmental and economic costs for current and future Australians.

This is why a wholistic and national approach to the management and protection of our water systems and cycles, is fundamental for Australia's long term prosperity. The Australian Constitution is the legal framework that can facilitate this necessary change.

Commonwealth of Australia Constitution Act 1900

Part 5 - Operation of the Constitution and laws

This Act, and all laws made by the Parliament of the Commonwealth under the Constitution, shall be binding on the courts, judges, and people of every State and of every part of the Commonwealth, notwithstanding anything in the laws of any State;

The long term sustainability of any society can only be achieved through protecting and promoting inter-generational equity. This is something Australian Governments have long been disregarding due to their crazy addictions to short term economic gains. With no long term vision, and no government policies that seriously consider the 'precautionary principal' or the 'triple bottom line', the natural resources of Australia have been greatly depleted, and in the process, our very life support systems have been undermined.

Water security and food security must always be primary considerations when determining a nations ability to sustain future generations. The continued government support and approval for the fossil fuel industries, at the expense of our ground water, biodiversity, productive farmlands and the renewable energy sector, shows complete contempt for the future welfare of the Australian people. As well, the inability to move forward with innovative and sustainable land management practices also threatens our long term social and economic viability, and shows a complete disregards for the urgent need for us as a society to confront desertification and climate change.

.....Supporting Evidence 1.....

Background paper on produced water and solids in relation to coal seam gas production

Report prepared for the NSW office of Chief Scientist and Engineer

Associate Professor Damian Gore
Dr Peter Davies

Department of Environment and Geography
Faculty of Science
Macquarie University

October 2013

Inserts from Background Paper:

Environmental risks

a. Surface water pollution *Spills from pipes and containment structures are a key risk for the CSG industry. Depending on its location and magnitude, a produced water spill has the potential to sterilise soil and affect vegetation (such as occurred in the Pilliga incidents, as reported by Golder Associates 2012 – refer to Chapter 6); if the spilled produced water enters a watercourse it may have ecological impacts on downstream aquatic systems. The high salt and metal concentrations of produced water may result in ecotoxic responses.....*

For CSG projects that rely on the surface disposal (e.g. through irrigation) of their produced water, the resultant increase in salinity and impacts caused by other contaminants may lead to the impairment or complete breakdown of ecosystem function. From an agricultural perspective, such an impairment or breakdown could affect the long-term capacity of the soil to sustain productivity.

b. Groundwater contamination *The contamination of aquifers from produced water is one of the greatest long-term concerns associated with CSG and shale gas projects. The risk is real for shale gas, as shown by the contamination of groundwater, including drinking-water supplies, in Dimock, Pennsylvania, and Pavillion, Wyoming. The shallower depths between the coal seams and aquifers used for drinking and agriculture in NSW may mean there is greater potential for the vertical migration of produced water through cracks, faults and wells.....*

As reported in Chapter 6, naturally occurring BTEX chemicals were found in groundwater aquifers at the Moranbah and Dalby CSG operations in Qld, highlighting the need to consider ‘natural’ pollution and the possible contamination that may occur if such groundwater is released. Change in near-surface aquifer water chemistry as a consequence of contamination by gases and produced water derived from deeper strata can also affect groundwater systems.

Groundwater security *Uncertainties about groundwater plumes dynamics (Chadwick et al. 2005) and their contribution to the contamination of aquifers is an important consideration in CSG projects, particularly where the injection of produced water is proposed as a disposal option. Environmentally, long-term changes may affect the quality and quantity of groundwater aquifers, springs, hanging swamps and surfacewater systems.*

For regions and activities that rely on groundwater as their principal water source or as a back-up

during drought, the additional impacts of water extraction and injection due to CSG may have broader and longer-term consequences. Such consequences can affect the security and reliability of water supply for drinking water, agriculture and other energy and mining projects

Groundwater hydrology Aquifers, and wells within aquifers, generate varying volumes of groundwater. Over the life of a CSG well, the quantity of Produced Water will also vary, typically being greater at the beginning and tailing off as the well approaches the end of its productive life. These changes also influence the risks to groundwater hydrology. The extraction of large volumes of groundwater can result in depressurisation, leading to changes in the connectivity between surface and groundwater systems. This depressurisation can occur over short and long time intervals. Many CSG reserves in NSW are located below drinking and agricultural groundwater sources, and changes in pressure have the potential to cause a drawdown of higher-quality near-surface supplies to lower groundwater systems and reduce surface water flows in connected streams and may result in subsidence that affects surface water systems, ecosystems (such as upland swamps), irrigation and grazing lands (Williams et al. 2012, p. 42).

The total volume of Produced Water generated by CSG projects, particularly from wetter coals, can be large enough to affect local and regional hydrology (for example, Queensland Water Commission 2012). This may require a re-examination of groundwater licensing approvals to determine which use (for example, CSG, agriculture or drinking water) should get priority for groundwater withdrawals. Regional-scale estimates of the withdrawal of groundwater in the Murray Darling Basin from CSG 5

www.netl.doe.gov/technologies/pwmis/regs/state/ndakota/index.html. 48 projects are in the range of 468–914 GL/year (Williams et al. 2012). Even the lower end of this range is large compared with current recharge, estimated at 323 GL/year (Kellett et al. 2003). Current groundwater use is estimated at 549 GL/year (Williams et al. 2012, p. 47), indicating that groundwater in the Basin is already over-allocated. .

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Cumulative impacts There are few studies on the cumulative impacts of CSG activities on environmental and human health. Such studies are particularly important where extraction will or is occurring within regionalscale linked coal (and hydrological) basins by one or more operators and where current extractions of groundwater occur for domestic, stock or irrigation purposes. The need for studies on cumulative effects links with the need for greater understanding of the connectivity of groundwater systems, particularly where the volume of produced water is high and may (in combination with other extractions) approach the rate of natural recharge. Investigations into the cumulative effects of the use of produced water for irrigation are also needed. They should consider the accumulation of chemicals in the soil, surface and near-surface movement, and the implications for stream water quality, ecology and function.

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There appear to be few independently reviewed studies of CSG and produced water in NSW. Public access to industry and government agency monitoring and models is limited, and investigations of pollution events made by mining and environmental agencies are not as transparent and accessible as they should be. Scientific evidence to support government policy, improve industry practice and inform the community should be a priority, both for the CSG industry, which is mostly still in its infancy in NSW, and the regulatory authorities, who have been reforming regulations reactively and rapidly in the last two years.

To read the full report click on the link below

http://www.chiefscientist.nsw.gov.au/_data/assets/pdf_file/0003/34779/Produced-water-Gore_Davies_MQU.pdf

.....Supporting Evidence 2.....

GREAT ARTESIAN BASIN RECHARGE SYSTEMS AND EXTENT OF PETROLEUM AND GAS LEASES SECOND EDITION

Prepared for THE ARTESIAN BORE WATER USERS ASSOCIATION

Acknowledgements

- Technical Editing and layout: Dr Vera Banks
- Pre Publication Technical and peer review 1st Edition: Andrea Broughton-Maloney. MSc. Hydrogeologist (Groundwater Solutions International Pty Ltd, NZ).
- Post Publication technical and peer review for Revised Edition: Professor Ian Acworth. Hydrogeologist (University of NSW, Water Research Laboratories);
- Dr Brian Smerdon. Senior Hydrogeologist. (Alberta Energy Regulator, Canada);
- Dr Beke Gredner Manager Groundwater Protection Zones, Verden (Bremen), Germany.
- Thanks and acknowledgement is also given to the many senior technical and scientific staff of both state and federal agencies who provided encouraging and constructive comment on the 1st and Revised Edition, but cannot be named for political reasons.

SoilFutures Consulting Pty Ltd

March 2015

Inserts from Report:

Using a simple spatial overlay, the main recharge zones (> 1mm/yr) of the GAB [Great Artesian Basin] which provide pressure to the remainder of the GAB are 69% covered with gas, coal seam gas (CSG) leases. Typically CSG production involves dewatering (pumping) of coal seams to allow methane gas to be extracted (the water is a waste product of production called produced water). There is proven downwards connection between sub basins of the GAB and many of its underlying petrochemical rich basins (Surat has 10% connection; Eromanga has up to 50% connection). It follows that dewatering of aquifers under the GAB where proven connectivity exists can ultimately reduce pressure heads in the critical recharge areas of the GAB and reduce or halt water flow at its numerous bores and springs.

The significance of the recharge zones to the GAB is not so much as an immediate water supply to central parts of the basin and natural discharge areas, but that they provide the pressure head (or weight of water) required to drive the water to the surface. Removal of this pressure through water abstraction associated particularly with Coal Seam Gas (where local drawdown of in excess of 1000 m can be experienced around gas fields) risks removing the driving force of many of the free flowing artesian bores and springs in the GAB.

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Discussion of results

- Recharge along the Eastern Jurassic to Cretaceous margins of the GAB is crucial to providing hydraulic head which drives the whole system.
- Significant recharge to the bulk of the GAB is much more limited in area than previously thought with only 6% of its area providing more than 1 mm /yr.
- Although approximately 30% of the GAB is mapped as recharge, only 6% of the GAB is effective recharge which maintains the pressure head on the bulk of the GAB (excluding the Carpentaria basin).

- Only 2.3% of the GAB has effective recharge of greater than 5 mm/yr.
- Only 0.2% of the GAB has effective recharge of 30 – 79 mm/yr.
- In NSW, the main occurrence of recharge >30 mm is in the east Pilliga between Coonabarabran and Narrabri.
- Draw down of many hundreds of metres is reported in Ransley and Smerdon (2012) for the northern Surat basin coal seam gas fields where coal seams are being dewatered to release gas.
- Draw down of in excess of 1000 m is proposed in the Pilliga in the south eastern Surat Basin (ICSG Forum, 2014).
- Both of the Pilliga and the northern Surat gas fields or license areas occur in the very limited critical recharge (>30 mm) areas of the GAB.
- Excessive draw down of pressure heads in the recharge zone of the GAB associated with gas extraction, has the potential to reduced pressure heads on artesian waters across much of the GAB, and potentially stopping the free flow of waters to the surface at springs and bores.
- Gas and petroleum exploration and production licenses cover 80% of the entire GAB.
- Gas and petroleum exploration and production licenses cover 69% of the critical highest and most critical recharge areas of the GAB.

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This report establishes that the landscape function of critical recharge is an important consideration community and national land value that is generally not taken into account with regard to mining and CSG activities across the whole GAB. The landscape function of critical recharge to the GAB should be taken into account with regard to these activities. Prolonged deep draw down of aquifers under the GAB (associated with CSG) may eventually lead to a permanent loss of head to large areas of the GAB and as such this needs to be considered a very high risk activity extending far beyond the bounds of an individual gas field or mining activity.

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Clearly an approach such as the German/European one, which controls all land use with regard to important recharge zones and other areas within the GAB, may be useful in avoiding potential catastrophic pressure losses. A nationwide management stratagem which includes critical recharge protection and regulates these industries within the GAB may prevent potential degradation of this essential groundwater resource which provides water to 22% of Australia.

To read the full report click on the link below

http://www.abwua.com.au/Portals/37/Documents/GAB-Report-Second-Edition_Final10032015.pdf

.....Supporting evidence 3.....

A continent under stress: interactions, feedbacks and risks associated with impact of modified land cover on Australia's climate

Paper Published in Global change Biology

Authors-

- Professor Clive McAlpine's, The University of Queensland
- Associate Professor Jozef Syktus, Department of Environment and Resource Management, Queensland Climate Change Centre of Excellence
- Justin Ryan PhD, The University of Queensland
- Dr Ravinesh Deo, The University of Queensland
- Dr Greg McKeon, Department of Environment and Resource Management, Queensland Climate Change Centre of Excellence

- Professor Hamish McGowan, The University of Queensland
- Professor Stuart Phinn, The University of Queensland

April 2009

Inserts from Paper:

We argue there is a critical need to reassess national climate change and natural resource management policies to include the interactions and feedbacks between the land surface and regional climate, particularly the role native vegetation plays in ameliorating climate extremes and the severity of droughts.

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In recent decades, the deforestation of the Australian landscape has been compounded by increased and sustained land use pressures arising from a steadily growing human population, rapid economic growth and rising global demand for Australian commodities, especially mineral and energy exports (Fig. 4). Dryland and irrigated agriculture that was traditionally concentrated in the intensive land use zone, has expanded into marginal semiarid regions of eastern Australia, with irrigated cotton farming causing intense water resource allocation debates.

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Two hundred years of European settlement has transformed the Australian continent (Hobbs & Hopkins, 1990). Within the intensive land use zone of south-east and south-west Australia, approximately 50% of native forests and 65% of native woodlands have been cleared or severely modified (Barson et al., 2000). South-east Australia was progressively cleared during the 19th century and first half of the 20th century, with many landscapes now retaining < 10% native vegetation cover.

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Australia's natural resources and agricultural sector are particularly vulnerable to climate change, especially from an increased frequency of severe droughts (Hennessy et al., 2008). The risks of ignoring the role of land surface feedbacks in current and future droughts are potentially catastrophic for Australia's environment, economy and communities. Climate changes due to increased anthropogenic greenhouse gases coupled with land surface feedbacks appears to be amplifying the natural climate variability and has the potential to tip Australia's climate, especially in south-east Australia, into a new regime of more extensive, frequent and severe droughts.

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To date, Australia's policy response to climate change has focused on mitigation and adaptation of the impact of climate change due to elevated greenhouse gas concentrations (Garnaut, 2008). The overview of interactions, feedbacks and risks of LUCC [Land Use/Cover Change] presented here highlights the need to include the management of the Australian land surface as an additional mitigation and adaptation strategy to climate change (Stafford-Smith et al., 2007). Policy makers frequently are failing to see that climate change is a multidimensional issue where multiple effects and their interactions need to be considered simultaneously. Carbon offsets (e.g. carbon credits, tree plantations, green fleet schemes) are used to justify business as usual, while the biophysical and ecohydrological functions of whole landscapes are being ignored.

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A number of lessons can be drawn from this paper that have wider implications beyond Australia:

1 The current global climate change agenda needs to recognize that climate change is a multidimensional issue, and that LUCC [Land Use/Cover Change] must be included in global and

regional strategies to effectively mitigate climate change (sensu [Feddema et al., 2005](#); [Pielke, 2005](#)).

•2 A coordinated research effort is required to address the multidimensionality of climate change, including the role of LUCC and its dynamic interaction with increased concentrations of anthropogenic greenhouse gases. This requires evaluating:

- (i) the capacity of reforestation to ameliorate the impact of climate change at a regional scale; and
- (ii) if so, how much vegetation is required and where it should be located?

•3 Reducing deforestation in the tropics and subtropics needs to be a global priority. This requires a strong and coordinated global and regional effort through a combination of regulatory frameworks and well-constructed carbon markets to halt deforestation and actively facilitate reforestation. This would have additional benefits for a wide array of ecosystem services that underpin environmental sustainability.

To read the full paper click on the link below -

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2486.2009.01939.x/full>

.....Supporting evidence 4.....

The Biotic Pump Theory

Biotic Regulation Web Site

researched by

Professor . Victor G. Gorshkov

Dr. Anastassia M. Makarieva

Theoretical Physics Division - Petersburg Nuclear Physics Institute

March 2006

Inserts from web site:

The biotic pump is a mechanism in which natural forests create and control ocean-to-land winds, bringing moisture to all terrestrial life. Winds tend to blow from areas of high air pressure to low. But how is a low pressure system created over land? Air pressure depends on the number of gas molecules. When water vapor condenses, it disappears from the gas phase; the number of gas molecules diminishes, and the air pressure falls. Therefore, if we manage to maintain the process of condensation over land, the latter becomes a persistent low pressure zone.

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The green foliage and branches of trees have a much greater cumulative area than that of a tree projection on the ground. Hence, forest evaporation enriches the atmosphere with water vapor more efficiently than evaporation from an open water surface of the same area. Consequently, condensation occurs more readily over forests than over the ocean. Forests, rather than the ocean, become the low pressure zone where the moist winds converge to. Completing the cycle, moisture precipitates over the land and returns to the ocean in the form of river runoff.

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The word "biotic" (not "biological") emphasizes that the biotic moisture pump can be stably driven by all living organisms of the natural biota only, not by some particular species (e.g., some trees) or sets of species artificially selected by humans. The theory of biotic pump is one part of the concept

of biotic regulation of the environment. According to this concept, the suitable for life environment is maintained in this state by living organisms of the intact natural biota (i.e., the totality of biological organisms) of the Earth. Information required for biotic regulation is written in the genetic programs of the biological species of the Earth's biota. For the stable operation of the biotic pump the entire complex ecosystem is necessary that includes trees, herbs and brushes, bacteria, fungi and animals all interacting with each other.

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As the landmasses are elevated above the ocean, due to gravity the continents are continuously losing water to the ocean via the river runoff. River runoff can totally deplete the global continental water stores in only a few years. Therefore, to keep the water cycle on land running, one needs a transport mechanism that would continuously deliver moisture back to the continent from the ocean.

Condensation of water vapor above the forest canopy reduces the amount of gas in the air column. In the result, air pressure at the surface is diminished. Moist air flows from the ocean towards the continental area of low pressure. Atmospheric moisture delivered from the ocean precipitates over land and compensates for the gravitational loss of liquid water via runoff.

The biotic pump forest should function in a complex manner to regulate the incoming moisture flux in order to balance between the Scylla and Charybdis of droughts (too low moisture supply) and floods (too high moisture supply). This can be achieved by various means, mainly by the biotic effects on aerodynamic roughness that ensures absence of drastic air acceleration as it moves inward from the ocean, by attenuating the biogenic release of condensation nuclei and other means.

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*Apart from demonstrating the decisive role of vegetation cover in water cycle sustainability, the developed physical approach promises new insights into such problems as **hurricane formation and global atmospheric circulation**. Not the horizontal temperature gradient, but the horizontal gradient of the flux of evaporation appears to be the main driving force of the observed dynamic air flows. We continue our work and are open for collaboration.*

To better understand the biotic pump theory, click on the link below to see two interactive flash models.

<http://www.bioticregulation.ru/pump/pump4-4.php>

To read the main findings of the biotic pump research click on the link below

<http://www.bioticregulation.ru/pump/pump3.php>

.....Supporting Evidence 5.....

UN recognises unique Australian farm built around Natural Sequence Farming as sustainable

ABC News

by Sarina Locke - National Rural Reporter

September 2016

Inserts from article:

A radical environmental approach to holding water in leaky weirs on a farm — one of only five in the world — has been recognised by the United Nations as sustainable.

Mulloon Creek, near Braidwood in New South Wales, uses the Peter Andrews method of Natural Sequence Farming — growing weeds and slowing the movement of water in the landscape.

The farm has proved itself in the past seven years, increasing pasture growth through the drought and feeding more cattle.

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"The water is distributed into the landscape, it raises the water table, and increases vegetation.

"We've increased the carrying capacity in the adjoining landscape by 60 per cent.

"It's easier to farm, with fewer inputs, and there's no need to irrigate.

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Mr Nairn hoped the recognition by the United Nations under its Sustainable Development Goals would help change the State Government's legislation.

Mr Nairn said the NSW Government was considering changing the legislation, after neighbours doing the same work were taken to court by the Office of Water with a threat of a \$1 million fine for breaching the Water Act

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The United Nations' Sustainable Development Goals are an agreement struck in 2015 to end poverty and hunger, protect the planet from pollution and climate change, and ensure prosperity for everyone by 2030.

Mr Nairn said the Mulloon Catchment project ticked most of the boxes — sustainable farming, the environment, clean water and climate change.

To read the full article click on the link below

<http://www.abc.net.au/news/rural/2016-09-16/un-recognises-mulloon-creek-natural-farms-as-sustainable/7852798?pfmredir=ms>

.....**Supporting evidence 6**.....

Energy Australia boss says national plan for renewable energy is solution to high power prices

ABC News

Exclusive by business reporter Elysse Morgan

14 Feb 2017

Inserts from article:

One of the country's largest operators of coal-fired power stations has joined the chorus of big business, unions, welfare and environmental groups calling for an end to Canberra's blame game over renewables.

Energy Australia took the unprecedented move of taking out a full-page advertisement in a national broadsheet declaring its support for a non-partisan push for clean energy.

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The solution to high prices, she said, was a national plan to transition to the future of energy into renewables.

While renewables are more expensive now, Ms Tanna told The Business they were the better option in the long-term.

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Her comments echo the sentiments voiced in a joint statement issued from an unlikely alliance of 18 groups — including the Business Council of Australia, the Australian Aluminium Council and World Wildlife Fund — demanding a non-partisan approach to energy policy.

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"Let's understand what the problem is, get the facts on the table and then altogether we have to work on solutions," Ms Tanna said.

"We need urgently a national plan to transition to a lower-emission economy."

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"The single-biggest barrier to investment is uncertainty around policy settings," she said.

"So when there is a lot of rhetoric about policy settings changing, no matter who it comes from, or a lot of flip-flopping about the fiscal assumptions it makes it very, very difficult for anyone to make a commitment to new projects."

To read the full article click on the link below

<http://www.abc.net.au/news/2017-02-14/energy-australia-boss-worried-about-power-bills/8267070>

Written and compiled by

Ian Sutton