



Shepparton Solar Farms: Agricultural Economic issues

A REPORT PREPARED BY DAVE APPELS FOR ALLENS

May 2018

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1	Introduction	1
2	Potential impacts from land use change	1
2.1	Changes in agricultural production	2
2.2	Changes in related industries	4
2.3	Changes in water use	5
2.4	Changes in water infrastructure	5
2.5	Changes in external impacts	6
2.6	Broader changes affecting the community	6
3	Concluding comments	10
	Annexure A: CV	11
	Annexure B: Scope of engagement	15
	Annexure C: Documents provided to Frontier	16

Shepparton Solar Farms: Agricultural Economic issues

Figures

Figure 1: Tallygaroopna and Congupna	7
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Tables

Table 1: Gross Value of Irrigated Agriculture, 2015-16, Goulburn Broken	3
Table 2: Industry of employment, Greater Shepparton LGA, 2016	8
Table 3: Sub-Industry of employment, Greater Shepparton LGA, 2016	9

1 Introduction

1 This report was prepared by Dave Appels of Frontier Economics Pty Ltd, 395
Collins St, Melbourne.

2 I am employed as an economic consultant working at Frontier Economics Pty Ltd.

3 I have an Honours degree in Economics (Resource Economics) (1st Class Honours
and University Medal) and Bachelor of Science (Chemistry) from the Australian
National University, and a Master of Environment (Economics) from the
University of Melbourne.

4 My work experience includes 12 years of employment with Frontier Economics
and, prior to this, 6 years in the environment and resource economics branch of
the Productivity Commission. During this time, I have undertaken numerous
projects on socio-economic analysis and the trade of irrigation water for clients
such as the Victorian Government, the Murray-Darling Basin Authority, the
National Water Commission and the Australian Competition and Consumer
Commission.

5 I have been Secretary and Treasurer of the Victorian Branch of the Australian
Agricultural and Resource Economics Society (AARES) for over 12 years.

6 A copy of my CV is Annexure A to this report.

7 I have been asked to provide a report on the agricultural economic issues related
to the change in a land use from cropping to proposed solar farms. The letter of
instructions is Annexure B to this report.

8 I confirm that all the opinions expressed in this report are my own.

9 I am familiar with the Guide to Expert Evidence provided by Planning Panels
Victoria. I have agreed to be bound by these requirements.

2 Potential impacts from land use change

10 In my experience changes in land use give rise to a range of potential impacts on
irrigated and dryland agriculture in regional Victoria. These include:

- a. Changes in production (the industry associated with the land use)
- b. Changes in the industries providing the factors of production (inputs to
production, including labour and machinery) and the industries using the
outputs of production (commodity markets, manufacturing/processing, feed,
etc.)
- c. Changes in water use (where irrigation water is applied)

- d. Changes in water infrastructure connections and fees (where irrigation water is applied)
- e. Changes in external impacts on neighbouring landholders (such as the risk of flood or weeds)
- f. Broader changes affecting the community.

11 I discuss each of these in turn.

2.1 Changes in agricultural production

12 I am instructed that the current land use of the two sites has been cropping (canola and ryegrass). If the sites were not converted to a 25-year lease for proposed solar farms, the landholder has indicated that the land use would continue in line with current practice.¹

13 The landholder reported that yields have been average.² The recent farm budget prepared by IK Caldwell Cobram puts the value of output across both farms at \$235,000 (under medium assumptions around yield and price).

14 To understand the potential significance of this change to proposed solar farms, I draw on data regarding the value of agricultural production in the relevant region.

15 The Australian Bureau of Statistics report on the value of agricultural commodities produced³ and on the gross value of irrigated agricultural production.⁴ The latest release is 2015-16 data. This reports data by Natural Resource Management Regions, of which Goulburn-Broken is the relevant region.⁵

¹ Telephone interview with George Moore (the landholder) on 30th April 2018.

² Telephone interview with George Moore (the landholder) on 30th April 2018.

³ 7503.0 - Value of Agricultural Commodities Produced, Australia.

⁴ 4610.0.55.008 - Gross Value of Irrigated Agricultural Production.

⁵ Natural Resource Management Regions (NRMRS) are an ABS approximation of Natural Resource Management regions (NRM). They are administrative regions primarily used to report on the Australian Government's Caring for our Country investments but are also used for environmental and agricultural reporting. They are based on catchments or bioregions. The boundaries of NRM regions are managed by the Australian Government Department of Sustainability, Environment, Water, Population and Communities.

Table 1: Gross Value of Irrigated Agriculture, 2015-16, Goulburn Broken

Commodity description	Gross Value of Irrigated Production (\$)	% of Total	Gross Value of Agricultural Production (\$)	% of Total
Total	1,106,117,196	100%	1,876,296,000	100%
Cereals for grain and seed	17,783,001	2%	99,187,975	5%
Nurseries, cut flowers and cultivated turf	23,914,500	2%	28,569,042	2%
Other broadacre crops	3,218,914	0%	43,865,060	2%
Hay	36,631,614	3%	104,852,868	6%
Vegetables	85,271,859	8%	88,651,807	5%
Fruit and nuts (excluding grapes)	339,559,033	31%	362,472,228	19%
Grapes	9,923,119	1%	10,418,146	1%
Dairy production	419,257,337	38%	459,861,931	25%
Production from meat cattle	134,750,188	12%	334,786,842	18%
Production from sheep and other livestock	35,807,632	3%	343,630,101	18%

Source: ABS 4610.0.55.008 - Gross Value of Irrigated Agricultural Production

16 This data indicates that the total annual value of agricultural production in the region is nearly \$2 billion, and the majority of this is from irrigated production.

17 The bulk of the value of regional production from irrigated land is reported as being from fruit and nuts (excluding grapes) (31%) and dairy production (38%).

18 In the past decade, since the Commonwealth Water Act and the recovery of water for the environment under the Basin Plan, there has been a substantial reduction in the water 'available' for irrigated production while the area of irrigable land has not declined to the same degree⁶. Information from the Murray–Darling Basin Authority (released 22nd February 2018) suggests that:

- the net reduction in water available for production in the Shepparton irrigation area community is 26.1GL (12.5% of available water).⁷

⁶ For example, TC&A and Frontier Economics 2017 *Social and economic impacts of the Basin Plan in Victoria* identified that “The number of GMID delivery shares created at the time of unbundling was directly related to the number of High Reliability Water Shares linked to land in the GMID at that time. While the number of those water shares has since dropped by more than 35%, for the combination of reasons outlined above, the number of Delivery Shares, against which GMID irrigators pay their fixed charges, has dropped by less than 5%.”

⁷ <https://www.mdba.gov.au/sites/default/files/pubs/community-profile-shepparton.pdf>

- In the nearby Kyabram-Tatura community the net reduction in water available for production is 71.7GL, which represents 18.2% of available water.⁸

19 I note that care is required when discussing water in this way, since water volumes can be readily traded throughout the connected southern Murray–Darling Basin (encompassing much of northern Victoria, southern New South Wales, and into South Australia).

20 However, my studies of the availability of water for irrigation in Victoria indicate that the ratio of irrigation water to irrigable land has decreased markedly over the last decade.

21 The total agricultural production of the two properties is a very small proportion of the agricultural production in the region. The change of land use to proposed solar farms does not preclude the land use for agricultural purposes in the future (at the end of the lease).

22 For these reasons, it is my view that the proposed land use change would not discernibly affect agricultural production in the region.

23 In order to estimate the overall effect on the region of the change in land use, the reduction in agricultural production (as land use changes to proposed solar farms) would need to be compared to the production and economic activity from the proposed solar farms (which is discussed in section 2.6).

2.2 Changes in related industries

24 In addition to changing the output of the land in question, the change in land use will alter the factors of production used by the farms and the availability of the farm output that may be used in related industries.

25 This affects the industries providing the factors of production (such as inputs to production, including labour and maintenance of machinery) and the industries using the outputs of production (such as manufacturing, processing, or purchasers of livestock feed).

26 The landholder stated that they do not employ any ongoing farm labour, and that they use contractors for sowing crops and for harvest.⁹ The change in land use would therefore be expected to have some impact on these contractors.

27 Given that the land is currently used for cropping, there are no direct links to manufacturing or processing industries.

⁸ <https://www.mdba.gov.au/sites/default/files/pubs/community-profiles-kyabram-tatura.pdf>

⁹ Telephone interview with George Moore (the landholder) on 30th April 2018.

28 There are, however, links to livestock industries that might use the ryegrass for feed. Because fodder is readily transportable, the impact on livestock industries would be expected to be minor.¹⁰

2.3 Changes in water use

29 My understanding is that the landholder currently holds 110ML of Goulburn high reliability water shares in relation to the Tallygaroopna property. In recent years the landholder has sold water allocations and purchased water allocations.¹¹

30 The land use change would not reduce the total water available for irrigated production since the water allocations would be expected to be traded in order to make a return on the water asset.

2.4 Changes in water infrastructure

31 My understanding is that the Tallygaroopna property is connected to the Goulburn Murray Water irrigation network, Shepparton District. The landholder confirmed that a Delivery Share of 1.75ML/day is associated with the property.¹²

32 If the land use changed from agriculture to proposed solar farms, the irrigation infrastructure fees would still need to be paid by the landholder. The 2017-18 fee was \$4288/ML/day.¹³ These fixed fees for irrigation network access are an element of Goulburn Murray Water's largely fixed tariff structure, which provides greater revenue certainty to match Goulburn Murray Water's largely fixed costs.¹⁴

33 If the annual fee was not paid and connection to the network was terminated, a termination fee of \$42,880/ML/day would be payable.¹⁵

34 My understanding is that the fees for connection points and drainage would also remain payable to Goulburn Murray Water by the landholder (as well as bulk water and entitlement storage fees relating to water shares).

¹⁰ Dairy Australia, Buying fodder – it's a domestic market, <https://www.dairyaustralia.com.au/-/media/dairyaustralia/documents/farm/pasture-management/feed-management/feed-markets/buying-fodder-its-a-domestic-market.ashx>

¹¹ Telephone interview with George Moore (the landholder) on 30th April 2018.

¹² Telephone interview with George Moore (the landholder) on 30th April 2018.

¹³ www.g-mwater.com.au/downloads/gmw/1_Current/Price_list/20170622_2017-18_Prices_with_interest.pdf

¹⁴ GMW Water Plan 2016-2020, www.g-mwater.com.au/downloads/gmw/Water_Plans/7_September_2015_-_TATDOC-_3865995-v15-WATER_PLAN_4_PRICING_SUBMISSION_2016-2020_CP_updated_TOC.pdf

¹⁵ www.g-mwater.com.au/downloads/gmw/1_Current/Price_list/20170622_2017-18_Prices_with_interest.pdf

35 In summary, the change in land use would not change the obligations of the landholder to contribute to the irrigation network in the region and would not be expected to lead to changed water tariffs for other irrigators on the network.

36 My understanding is that the Congupna property is not connected to the Goulburn Murray Water irrigation water delivery infrastructure.

2.5 Changes in external impacts

37 Changes in land use can affect neighbouring landholders, such as the risk of flood or weeds.

38 Regarding the risk of flood, the Spiire reports¹⁶ found that the 0.5m clearance of the proposed solar panels above the ground and the 0.2m clearance of the security fence above the ground will not impede the natural flow of floodwater across the land. Further, the Spiire reports find no basis to anticipate that the development will result in an adverse change to the run-off generated from the site, and that existing farm drainage infrastructure will be utilised. Therefore, the land use change is not expected to increase the flood risk to neighbouring properties.

39 Regarding the risk of weeds, my understanding is that the contracts for leasing the land to the proposed solar farms contain provisions that the lessee must, at its own cost, control, manage and eradicate noxious, invasive, foreign or other like species within the site, throughout the duration of the lease. Therefore, the land use change is not expected to increase the weed risk to neighbouring properties.

40 I note that the ongoing management of the land would still need to be compliant with *Catchment and Land Protection Act 1994* and council requirements.

2.6 Broader changes affecting the community

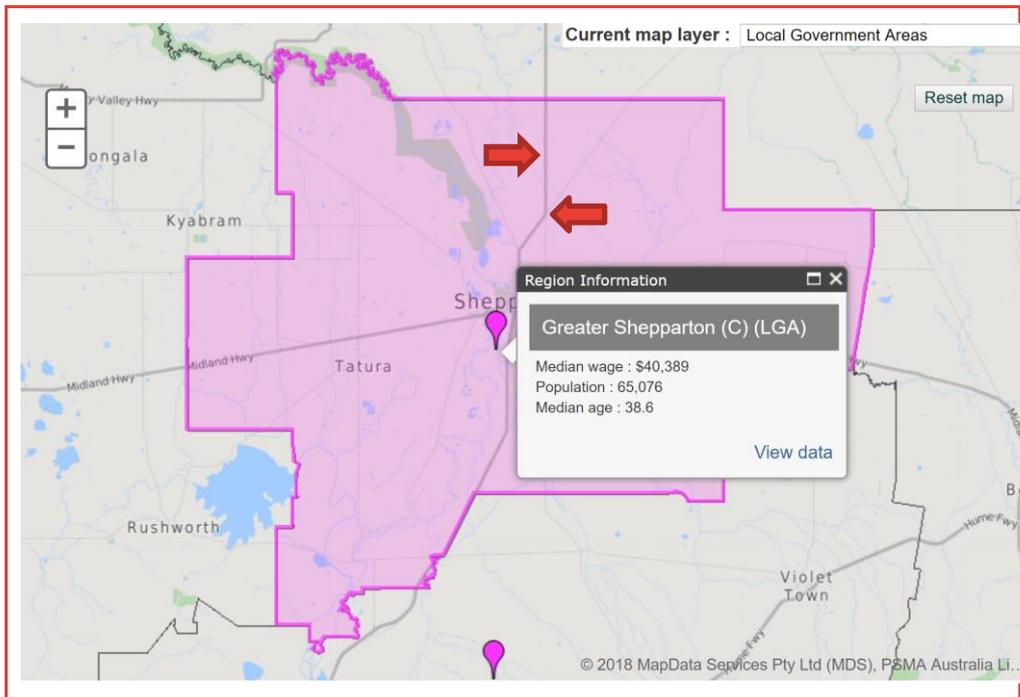
41 In recent years, a significant amount of research has been undertaken to understand the economic and social changes associated with changes to irrigated agricultural production to inform the implementation of the Murray–Darling Basin Plan. A relevant report is EBC et al 2011¹⁷, which provides an in-depth understanding of the impacts at the local community level, including consequences for the value chain, supply chain, and social and cultural effects including in relation to mental health and community well-being.

42 Both locations are within the Greater Shepparton (C) LGA used for Australian Bureau of Statistics census reporting.

¹⁶ Spiire Town Planning reports for Tallygaroopna and Congupna properties.

¹⁷ EBC, RMCG, Marsden Jacob Associates, EconSearch, Geoff McLeod, Tim Cummins, Guy Roth and David Cornish 2011, Community impacts of the Guide to the proposed Basin Plan.

Figure 1: Tallygaroopna and Congupna



Source: ABS (<http://stat.abs.gov.au/itt/r.jsp?databyregion>)

- 43 EBC et al 2011 found Shepparton to be a Category 4¹⁸ large regional centre that will be buffered to some degree from reductions in irrigated agricultural output as it has a critical mass and alternative industries (health, education, retail) that draw from an estimated catchment population base of 160,000. Irrigated agriculture has been the foundation for development providing the infrastructure and the population density that has attracted investment in the past. Agricultural supply industries and food processing still remain very important to the community and therefore still exposed to irrigated agriculture.¹⁹
- 44 It further notes that ‘the majority of the permanent horticulture enterprises and associated food processing facilities that make a significant economic contribution to the region are located within the catchment’.²⁰
- 45 The change in land use from cropping to proposed solar farms would not be expected to impact this aspect of irrigated agriculture.
- 46 The detailed employment from the most recent census, in 2016, demonstrates the diversity of industries other than agriculture in the Greater Shepparton region. The

¹⁸ Category4: Large, diverse growing regional centres that have a breadth of activity and employment. These are generally relatively insulated from changes in irrigated agriculture in the region.

¹⁹ P.60

²⁰ P.62

proportion of employment that is in agricultural industries has been declining over the past 25 years.²¹

Table 2: Industry of employment, Greater Shepparton LGA, 2016

Industry of employment (ANZSIC 1 Digit)	No. of people	% of employed (Total-na)
Agriculture, Forestry and Fishing	2224	8.2%
Mining	54	0.2%
Manufacturing	2696	10.0%
Electricity, Gas, Water and Waste Services	697	2.6%
Construction	2173	8.1%
Wholesale Trade	619	2.3%
Retail Trade	2997	11.1%
Accommodation and Food Services	1486	5.5%
Transport, Postal and Warehousing	1092	4.0%
Information Media and Telecommunications	270	1.0%
Financial and Insurance Services	420	1.6%
Rental, Hiring and Real Estate Services	283	1.0%
Professional, Scientific and Technical Services	1073	4.0%
Administrative and Support Services	828	3.1%
Public Administration and Safety	1165	4.3%
Education and Training	2177	8.1%
Health Care and Social Assistance	4108	15.2%
Arts and Recreation Services	250	0.9%
Other Services	1154	4.3%
Inadequately described	776	2.9%
Not stated	429	1.6%
Not applicable	36859	
Total	63839	

Source: ABS *tablebuilder*.

47 Of the proportion employed in agricultural industries, most are employed in fruit and tree nut growing (35.3%) and dairy cattle farming (29.8%).

²¹ TC&A and Frontier Economics 2017 *Social and economic impacts of the Basin Plan in Victoria*, pp. 135–7.

Table 3: Sub-Industry of employment, Greater Shepparton LGA, 2016

Industry of employment (ANZSIC 3 Digit)	No. of people	% of employed (Total-na)
Nursery and Floriculture Production	36	1.7%
Mushroom and Vegetable Growing	74	3.6%
Fruit and Tree Nut Growing	735	35.3%
Sheep, Beef Cattle and Grain Farming	354	17.0%
Other Crop Growing	30	1.4%
Dairy Cattle Farming	619	29.8%
Poultry Farming	21	1.0%
Deer Farming	0	0.0%
Other Livestock Farming	54	2.6%
Agriculture, not further defined	158	7.6%
Total	2080	

Source: ABS tablebuilder.

48 Any employment changes from the proposed change in land use are not occurring in the industries that might be considered the ‘mainstays’ of agricultural employment. And any change will occur in a community that is not (a) dependent on irrigated agriculture, and (b) not vulnerable to change. The farm budget prepared for the properties estimated the total cost of a winter crop is about \$130,000 for all inputs (generally sourced from the regional economy).

49 The proposed solar farms will have employment and related impacts on the regional economy. X-Elio has submitted that the proposed solar farms will²²:

- Involve up to 250 jobs during construction.
- 10–15 ongoing jobs for the ongoing maintenance of the facility.

50 I am advised by my instructors that:

- approximately \$15 million of the establishment costs will arise from sourcing equipment, workers and materials in the Shepparton area.²³

²² Spiire Town Planning reports for Tallygaroopna and Congupna properties.

²³ I am advised by my instructors that the total investment for the proposed solar farms project is estimated to be a \$130 million. Approximately \$40 million is the cost of solar modules that are procured overseas. The remaining \$90 million is infrastructure, civil works and work force that is all sourced within Australia. Of this, it is estimated that about 15 to 20% will have a direct impact in the local business/economy in the Shepparton area in sourcing equipment, workers and materials.

- approximately \$495,000 of the annual ongoing operating expenses will be for goods and services sources in the Shepparton area.

51 Based on the above, in my view, the land use change away from cropping would not result in discernible adverse impacts on the community or regional economy and this will be offset by the significant economic activity and employment from the proposed solar farms.

3 Concluding comments

52 My findings are this:

- Given the relatively small value of the crops produced (as compared to regional agricultural production), and the context of recent water recovery activity for the Basin Plan, the proposed land use change would not discernibly affect agricultural production in region.
- The land use change would be expected to have some impact on the contractors generally engaged for sowing and harvest.
- The only flow on impact to industries that use the crop may be to livestock industries, however this would be expected to be minor since fodder is readily transportable.
- The land use change would not reduce the water available for irrigated production since the water shares would be expected to be traded in order to make a return on the water asset.
- The land use change would not change the obligations of the landholder to contribute to the irrigation network in the region and would not be expected to lead to changed water tariffs for other irrigators on the network.
- The land use change away from cropping would not result in discernible adverse impacts on the community or regional economy.
- The land use change to the proposed solar farms could provide significant economic activity and employment.

53 At the level of the regional economy, I expect that the relatively small impacts on crop production and related contractor employment (that occur in a context of the resilient community of Shepparton) would be outweighed by the expected significant economic activity associated with the proposed solar farms.

54 I have made all the enquiries that I believe are desirable and appropriate and confirm that no matters of significance which I regard as relevant have, to my knowledge, been withheld from the Panel.

Annexure A: CV

NAME:	DAVE APPELS
Profession:	Economist



David is an economist specialising in agricultural and resource economics and policy program evaluation, especially in environmental markets. He has specialist expertise in water-related topics — including impacts of water trading, water market design, and broader water management and policy. A feature of many projects is that they integrate economic analysis and the relevant hydrological circumstances.

Prior to joining Frontier Economics in July 2006, David worked at the Productivity Commission for 6 years in the environment and resource economics branch, during which time he undertook a secondment work with New Zealand's Parliamentary Commissioner for the Environment.

David is the Treasurer and Secretary of the Victorian Branch of the Australian Agricultural and Resource Economics Society.

David has a Bachelor of Science (Chemistry) and an Honours degree in Economics (Resource Economics) from ANU and a Master of Environment (Economics) from the University of Melbourne.

Key experience

Socio-economic analysis

- ***Measuring Social and Economic Impacts of the Basin Plan in Victoria:*** Frontier Economics were commissioned with Tim Cummins and Associates to assist the Victorian Government in undertaking a socio-economic analysis of the impacts in Victoria of water recovery through the Basin Plan. The findings of the project will inform discussions with the Commonwealth Government and help to make sure that all future water recovery from Victoria is based on robust evidence that it will result in neutral or positive social and economic impacts. The report sets out a systematic, methodical and repeatable way to analyse the impacts of the Basin Plan in Victoria. The report found that water use in the southern-connected Basin has changed significantly as a result of the Basin Plan. The consumptive pool has decreased significantly and the mix of industries has changed; horticulture, with its relatively fixed water demands now accounts for a larger proportion of the consumptive pool. Irrigators have been adapting, but the recent relative abundance of water since buyback was completed (with the notable exception of 2015/16), has enabled many irrigators to maintain water use through water allocation purchases.

Consequently many of the socio-economic impacts of the Basin Plan may not be observed until the next drought (2016).

- ***Economic, Social and Environmental Impacts of water trading in the southern Murray–Darling Basin between 2006–07 and 2010–11:*** Frontier prepared this report for release by the National Water Commission. Frontier led the consortium engaged by the Commission to assess and report on the economic, social and environmental impacts of water trading in the sMDB. This study demonstrated the benefits of water trading particularly in providing irrigators with flexibility to manage drought and maintain stock through drought conditions, and to provide a basis for recovery post-drought. This assessment built on our previous assessments of the impacts of trade in 2010 and 2007 (2012).
- ***Socio-Economic Profiles of the Northern Murray Darling Basin:*** Frontier assisted in the development of socio-economic profiles of 12 catchments in the northern Murray Darling Basin examining the importance of water resources in each of the catchments. This project was designed to help inform policy-makers and the broader community about the variability of water resources and communities in the Northern Murray Darling Basin (2007).

Irrigation water trade

- ***Review of Water Trade Rules and Adjustments:*** Frontier Economics led a consortium to review water trade rules and the reconciliation adjustments associated with water trade. The project required an intimate knowledge of current trading arrangements. The first part focused on documenting current trade rules, zones, adjustments and inter-valley transfer (IVT) accounting processes. This brought together the justification for these arrangements into a principle-based framework – centered around the protection of property rights (on all water users, including the environment.) The second part of the project focused on exploring alternative options for trade rules, zones, adjustments and IVT accounting processes to ensure they remain appropriate as the market evolves. The analysis of these options built on the discussion and findings of Part 1 of the report and considered 5 case studies in detail (2017).
- ***Expert Evidence in Federal Court Challenge to Victorian Water Trading Rules:*** Frontier Economics provided an independent expert's report on the operation and effect of Victoria's Water Trading Rules 25 and 25A as part of South Australia and SA Water's Federal Court claim asserting the constitutional invalidity of Trading Rule 25. This report was commissioned by the South Australian Government and considered the effects of the Victorian restrictions on water entitlement trade. The expert views were based on a deep understanding of water markets in the southern Murray-Darling Basin and included first-principle arguments, statistical analysis of price data, and assessments on whether certain Victorian water policies were reasonably adapted and appropriate to a legitimate outcome. Frontier also provided

feedback on other expert reports. The case was settled between the parties (2011).

Irrigation infrastructure

- ***Irrigation Infrastructure Water Charge Rules/Water Market Rules:*** Frontier assisted the Australian Competition and Consumer Commission (ACCC) in the preparation of their position paper on water charge rules, particularly in relation to termination fees by irrigation infrastructure operators. This work is required as part of the ACCC's obligations and new role under the Commonwealth Government Water Act 2007 (2008).
- ***Targeting and Coordination Strategies for Irrigation Renewal and Buyback:*** Frontier undertook an economic evaluation of various options to facilitate efficient investment in irrigation system renewal given future buyback of entitlements by the Commonwealth government and other adjustment pressures (Victorian Department of Primary Industries) (2009).
- ***Irrigation Infrastructure Contracts:*** Frontier advised the ACCC on essential terms of an irrigation water delivery contract between an irrigation infrastructure operator and an irrigator within its network (2009).

Other

- ***Evaluation of Investment in Crop Research:*** Frontier Economics was engaged by the Victorian Department of Primary Industries to evaluate the economic outcomes from investment in the cereal (wheat and barley) pathology research, development and extension (R D&E) program. We undertook consultation with agronomists, farm advisers, plant breeders and research organisations and constructed a model of how information of disease management translates to on-farm improved outcomes. We found that that Victorian Government and GRDC funding of DPI cereal pathology programs has had a high rate of return on the investment, with estimated benefits significantly outweighing the costs (2012).
- ***Structural Adjustment in the Murray-Darling Basin Authority:*** Frontier helped the Murray-Darling Basin Authority (MDBA) better understand the range of structural adjustment pressures affecting, or likely to affect, irrigated agriculture in the Murray-Darling Basin and in particular future water availability, security and policy. Our report on 'Structural Adjustment Pressures in the Irrigated Agriculture Sector in the Murray–Darling Basin' was provided to the Authority's Board and is to be released publicly.

Frontier's report assisted in identifying the likely socioeconomic implications of the proposed Basin Plan and helped guide the development of the Plan (2010).

EMPLOYMENT

2006 – present	Frontier Economics, Australia
2001 – 2006	Productivity Commission, Australia

EDUCATION

2002 – 2003	MEnv (Economics), University of Melbourne, Australia
1996 – 2000	BEC(Hons) (1 ST class and University Medal), Australian National University, Australia
1996 – 1998	BSc in Inorganic and Organic Chemistry, Australian National University, Australia

Annexure B: Scope of engagement

- (a) Undertake a site visit of the properties on which our client's solar farms are proposed to be located;
- (b) Consult with our client and the owner of the properties about the current agricultural use of the land, and the management of water entitlements connected to the land;
- (c) Attend a meeting with Allens and Counsel;
- (d) Prepare a written report which assesses:
 - (i) the economic value of agriculture within a defined catchment;
 - (ii) how the loss of agricultural land resulting from the Applications would impact the catchment's economy;
 - (iii) whether any net community benefit resulting from the Applications would outweigh any impact on agriculture, with supporting reasons and considering:
 - (A) the size and agricultural value and significance of the properties on which our client's solar farms are proposed to be located;
 - (B) the estimated 25 – 30 year operational life of the solar farms;
 - (C) the intention that the parcels of land on which the solar farms will be established will be returned to their current state (i.e. agricultural land) after the solar farms are decommissioned;
 - (D) the benefits of the proposed solar farms, including the generation of renewable energy, investment into the local economy, and job creation (during both the construction and operational phases of the solar farms); and
 - (E) any other matter within your expertise which you consider relevant to an assessment of our client's proposed solar farms from an agricultural economics perspective;
- (e) If required:
 - (i) Attend an expert conclave with other agriculture / agricultural economics experts prior to the Panel hearing and contribute to an expert meeting statement which, among other things, outlines the matters on which you agree and disagree with the other experts;
 - (ii) Attend and give evidence at the Panel hearing on 16 May 2018; and
 - (iii) Provide expert witness and consultancy services as Allens may reasonably request from time to time on issues arising in relation to the Panel hearing.

Annexure C: Documents provided to Frontier

Tab	Document	Date
A	Planning Panels Victoria (<i>PPV</i>) Documents	
1.	PPV correspondence regarding the appointment of the Panel	16 March 2018
2.	Panel Directions	12 April 2018
3.	PPV Guide to Expert Evidence	Undated
B	Tallygaroopna Application documents	
4.	Permit application form	12 September 2017
5.	Town planning report prepared by Spiire	September 2017
6.	Biodiversity assessment report for the removal of trees	5 September 2017
7.	Layout plan	March 2017
8.	Technical drawings	March 2017
9.	Concept drainage plan	6 September 2017
C	Congupna Application documents	
10.	Permit application form	Undated
11.	Town planning report prepared by Spiire	November 2017
12.	Biodiversity assessment report for the removal of trees	25 October 2017
13.	Layout plan	March 2017
14.	Technical drawings	March 2017
15.	Concept drainage plan	6 September 2017
16.	Approved CHMP for Congupna Application	10 January 2018
D	Objections	
17.	Objections to the Tallygaroopna Application (5)	8 October 2017
18.	Objections to the Congupna Application (3)	12 October 2017
E	Council documents	
19.	Extract from minutes of Council meeting (request to the Minister to call-in the Applications)	21 November 2017
20.	Correspondence from Council regarding the request to the Minister to call-in the Applications	23 November 2017
21.	Extract from minutes of Council meeting (Council officers' reports)	20 February 2018
F	Other reference documents	
22.	Memo setting out 'Site Specifics in relation to Tallygaroopna and Congupna sites'	23 April 2018

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