

# Staff and Student concerns regarding the Centre for Coal Seam Gas at the University of Queensland

May 2012

Research Integrity Coalition<sup>1</sup>

## Executive Summary of Recommendations

The Research Integrity Coalition (RIC) believes that serious issues must be addressed in relation to the Centre for Coal Seam Gas (CCSG) in the areas of transparency, governance and specific research issues. Transparency should be improved by separate annual reporting for the CCSG, full publication of all research into social and environmental effects of coal seam gas developments (accessible free of charge), and disclosure of the University's investment holdings in coal seam gas companies. Governance at the CCSG should be strengthened by clarifying the role and authority of the Development Board over the Strategic Advisory Board and by ensuring that the Development Board represents community stakeholders. Research on the environmental and social impacts of coal seam gas should be continued and expanded, with a clear commitment from the University that the funds it has committed to the centre will go into research for the public good. The University should withdraw its previous statements that coal seam gas is a 'significant and environmentally-friendly energy resource'<sup>2</sup> and a 'cleaner energy fuel'<sup>3</sup> until a broad and rigorous assessment of the greenhouse gas emissions of coal seam gas operations has been completed. Finally, as the University's key influence in all areas of our society is through its graduates, all coal seam gas-related undergraduate, post-graduate and professional courses must fully embody the University's commitments to education for sustainability.<sup>4</sup>

## Background

In November 2011, the University of Queensland announced the establishment of a new centre for research and education focused on coal seam gas. Situated within the Sustainable Minerals Institute (SMI), the CCSG aims to be 'the pre-eminent global authority on vital issues relating to CSG'<sup>5</sup>.

The CCSG operates on a 'membership model' whereby "members" provide funding in exchange for voting blocks on the Strategic Advisory Board (SAB) of the CCSG. 'Members' which are currently the, Queensland Gas Company (QGC), Santos, and Arrow Energy have contributed a total of at least \$15 million

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<sup>1</sup> The Research Integrity Coalition is a collective of students and staff who are eager to see the CCSG transparent, engaged, accountable and responsive to the concerns of all stakeholders. The member organisations of the Research Integrity Coalition are the UQ Environment Collective and UQ Climate for Change.

<sup>2</sup> UQ News, 'UQ & Santos sign coal seam gas agreement', 11 February 2010  
<http://www.uq.edu.au/news/?article=20578>

<sup>3</sup> UQ News, 'UQ enters \$20 million industry partnership to underpin CSG research'  
<http://www.uq.edu.au/news/index.html?article=24166>

<sup>4</sup> UQ News, 'UQ signs Talloires Declaration' 26 August 2009 <http://www.uq.edu.au/news/?article=19408>

<sup>5</sup> UQ News, 'New UQ research centre to focus on coal seam gas' 2 November 2011  
<http://www.uq.edu.au/news/?article=24008>

for the operation of the Centre over its first five years.<sup>6</sup> The University will also contribute at least \$5 million.<sup>7</sup> To date, the CCSG has received no government funding.<sup>8</sup>

Some members of the RIC raised concerns in relation to the CCSG at an early stage with Prof. Chris Moran, the then Interim Director of the CCSG and Director of the SMI, and Vice Chancellor Prof. Deborah Terry. Through email correspondence on 10 January 2012, Profs Moran and Terry were invited to specify how the Centre for Coal Seam Gas would address a range of concerns in relation to transparency, accountability, governance, stakeholder representation, and specific research topics at the CCSG.

Members of the RIC were advised by the SMI that an information session would be held by Prof. Moran early in the academic year to address these concerns.<sup>9</sup> RIC members met with Prof. Moran on two occasions in April before the session to discuss the issues raised. These meetings and the information session were somewhat informative but the RIC believes that serious issues remain outstanding, and these are detailed below.

The University of Queensland has built a reputation as a research leader in renewable energy technologies.<sup>10</sup> As a recent signatory of the Talloires Declaration,<sup>11</sup> The University has committed to integrating sustainability into its research, teaching and outreach activities and to creating an “institutional culture of sustainability”.<sup>12</sup> The SMI’s stated vision is to create the capacity for the minerals industry to “transition to sustainability”.<sup>13</sup> The immense public interest in coal seam gas, and the environmental and social issues at stake, make it crucial to see these commitments honoured and to maintain research integrity of the highest order.

The RIC welcomes the establishment of the CCSG, especially given the well-acknowledged shortage of rigorous academic research into coal seam gas. The RIC acknowledges that industry participation in research funding is a widespread practise. Industry funded research is acceptable as long as rigorous standards for transparency and governance are in place.

## **Specific concerns and recommendations**

### **i. *Transparency***

Transparency of funding sources and expenditure is of critical importance in ensuring and demonstrating the integrity and independence of research at the CCSG. The SMI is not required to disclose its funding sources,

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<sup>6</sup> CCSG FAQs ‘Who is funding the Centre and how much are they contributing?’  
<http://www.ccsq.uq.edu.au/AboutCCSG/FAQs.aspx?PageContentID=3>

<sup>7</sup> Prof. Moran, Information Session on CCSG 16 April 2012.

<sup>8</sup> CCSG FAQs ‘Is Government funding the Centre?’  
<http://www.ccsq.uq.edu.au/AboutCCSG/FAQs.aspx?PageContentID=3>

<sup>9</sup> Email correspondence between Anna Cooke, UQ Climate for Change, and Anna Bednarek, Communications Manager for the SMI on 13<sup>th</sup> January 2012.

<sup>10</sup> UQ News ‘Bright future for solar research at UQ’ 15 July 2011  
<http://www.uq.edu.au/news/index.html?article=23503>; *Contact Magazine* ‘UQ leads solar energy research’ 6 November 2011 <http://www.uq.edu.au/graduatecontact/cover/uq-leads-solar-energy-research/>

<sup>11</sup> UQ News, ‘UQ signs Talloires Declaration’ 26 August 2009 <http://www.uq.edu.au/news/?article=19408>

<sup>12</sup> The Talloires Declaration [http://www.ulsf.org/programs\\_talloires\\_td.html](http://www.ulsf.org/programs_talloires_td.html)

<sup>13</sup> Sustainable Minerals Institute *Strategic Plan 2010-2015*  
[http://www.smi.uq.edu.au/LinkClick.aspx?fileticket=Ivb\\_HmNZ\\_3I%3d&tabid=302](http://www.smi.uq.edu.au/LinkClick.aspx?fileticket=Ivb_HmNZ_3I%3d&tabid=302)

but intends to produce annual reports for 2010 onwards and to ‘give due consideration to the appropriate communication of its income sources’.<sup>14</sup> The RIC applauds this decision.

**Recommendation 1:** The CCSG should commit to public disclosure of all funding sources, income and expenditure, including how funds are distributed across the four research themes identified by the Centre.<sup>15</sup> This should be undertaken by the CCSG in a separate annual report in addition to SMI annual reporting.

The RIC believes that wide public dissemination of relevant research is vital in fulfilling the University’s role as a provider of rigorous research on ‘critical issues impacting on [its] local, national and international communities.’<sup>16</sup> Coal seam gas is the subject of considerable public controversy, and the CCSG has stated that its purpose includes making research-based analysis available to the broader community.<sup>17</sup> While publication of research results at the CCSG will be ‘encouraged’,<sup>18</sup> commercial-in-confidence considerations have been raised as a possible obstacle to publication.<sup>19</sup>

**Recommendation 2:** Freely available summaries of all research findings relevant to areas of community concern including environmental impacts and social impacts should be made widely available to the broader community. Complete versions of all research findings and publications should also be made freely available.

**Recommendation 3:** Publication of findings relating to the social and environmental effects of coal seam gas developments should take place to the fullest extent permitted by law. The Development Board should review all decisions not to publish such results on the basis of the public interest as defined by that Board. (Recommendations regarding this Board are in section ii. *Governance at the CCSG*, below)

The University does not disclose the makeup of its \$80 million investment portfolio,<sup>20</sup> so it is unknown whether it has investments in any of the three major coal seam gas companies that have contributed funding to the CCSG, namely QGC, Santos and Arrow Energy.

**Recommendation 4:** The University should commit to public disclosure of its investment portfolio, or should confirm that it does not hold any investment in the three coal seam gas companies contributing to the CCSG.

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<sup>14</sup> Cleary, P. ‘Institute shy about industry cash’. The Australian, 5<sup>th</sup> October 2011  
<http://www.theaustralian.com.au/higher-education/institute-shy-about-industry-cash/story-e6frgcjx-1226158446605>

<sup>15</sup> These themes are ‘treatment and utilisation of coal seam water’, ‘petroleum engineering’, ‘geosciences’ and ‘social performance and community and environmental impact’: CCSG FAQs ‘What is the research focus’

<http://www.ccsq.uq.edu.au/AboutCCSG/FAQs.aspx?PageContentID=4>

<sup>16</sup> UQ Mission Statment <http://www.uq.edu.au/about/mission-statement>

<sup>17</sup> CCSG FAQs ‘Who will benefit from the research?’ <http://www.ccsq.uq.edu.au/AboutCCSG/FAQs.aspx?PageContentID=2>

<sup>18</sup> CCSG FAQs ‘Will the results be publicly available?’  
<http://www.ccsq.uq.edu.au/AboutCCSG/FAQs.aspx?PageContentID=4>

<sup>19</sup> This issue was raised by Profs David Brereton and Moran at the Information Session on 16 April; 2012; CCSG FAQs ‘Will the results be publicly available?’ <http://www.ccsq.uq.edu.au/AboutCCSG/FAQs.aspx?PageContentID=4>

<sup>20</sup> UQ Annual Report 2010 <http://www.uq.edu.au/about/docs/annualreport/annual-report10/UQAnnualReport10.pdf>

## ii. *Governance of the CCSG*

Adequate governance structures, including independent oversight and stakeholder representation, is vital to both ensure in fact, and demonstrate to the broader community, the integrity of the research at the CCSG. The SMI and the CCSG are bound by the University's Responsible Conduct of Research guidelines, which stipulate that:

'7.5 Publications, including media releases, must include information on the sources of financial and in-kind support for the research, and reveal actual or potential conflicts of interest. ...

7.6 To protect the integrity of research, financial sponsors must not be permitted to influence the content or presentation of research results (other than for commercial-in-confidence and privacy considerations acknowledged and agreed in advance of accepting the funding).'<sup>21</sup>

The RIC has absolute confidence in the personal and professional integrity of all researchers at the CCSG. The RIC is, however, concerned about the organisational structure of the CCSG, and the capacity for 'members' to influence decisions about the direction, focus and dissemination of research.

The CCSG will be governed by a Strategic Advisory Board (SAB). The CCSG's website states that the SAB will be 'involved with' the 'identification and development of projects' and will provide 'advice on the Centre's strategic direction' to the Director of the CCSG.<sup>22</sup> However, the RIC understands that the SAB will have the authority to prioritise and decide on funding to each of the Centre's activities and research projects.<sup>23</sup> The SAB will be chaired by a nominee of the Vice-Chancellor and will be comprised of the Director of the CCSG, representatives from the 'member' companies, from the State and Federal Government, and from the Queensland Water Commission (QWC).<sup>24</sup>

The 'members' of the CCSG are QGC, Santos and Arrow Energy, and each member has obtained voting blocs through a buy-in policy of \$500,000 per block per year.<sup>25</sup> Arrow Energy and Santos have each purchased one bloc, QGC has purchased four blocs and the University holds two blocs. Decisions of the SAB will, if required, be made by a vote, wherein the University has the casting vote to be exercised in the event of a deadlock.<sup>26</sup> It is noted that industry representatives hold six blocks, while the University holds two, so its casting vote will be of little practical significance if industry representatives are in agreement.

A 'Development Board' (DB) has been proposed by the SMI, which would be responsible for the 'balance of the project portfolio.'<sup>27</sup> Prof. Moran has suggested that the DB will provide external oversight over the SAB, including the representation of stakeholder perspectives from the broader community.<sup>28</sup> The DB will be

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<sup>21</sup> Responsible Conduct of Research, Section 7: Publication and Dissemination of Research Findings 4.20.02  
<https://ppl.app.uq.edu.au/content/4.20.02-responsible-conduct-research>

<sup>22</sup> CCSG website, 'Centre Governance' <http://www.ccsq.uq.edu.au/AboutCCSG/CentreGovernance.aspx>

<sup>23</sup> Prof. Moran, Information Session on CCSG Presentation, 16 April 2012 (slide 29)  
<http://www.ccsq.uq.edu.au/Portals/0/docs/CCSG%20UQ%20Information%20Session.pdf>

<sup>24</sup> The inclusion of a QWC representative is only a possibility as of April 2012

<sup>25</sup> This funding is nominally untied: CCSG FAQs 'Have conditions been placed on the funding provided by industry?'  
<http://www.ccsq.uq.edu.au/AboutCCSG/FAQs.aspx?PageContentID=3>

<sup>26</sup> Prof. Moran CCSG Information Session Presentation 16 April 2012 (slide 30)  
<http://www.ccsq.uq.edu.au/Portals/0/docs/CCSG%20UQ%20Information%20Session.pdf>

<sup>27</sup> Chris Moran, Information Session on CCSG Presentation, 16 April 2012 (slide 29)  
<http://www.ccsq.uq.edu.au/Portals/0/docs/CCSG%20UQ%20Information%20Session.pdf>

<sup>28</sup> Prof. Moran, Information Session on CCSG 16 April 2012, Question and Answer Session.

chaired by the Deputy Vice-Chancellor (Research) and will be comprised of ‘senior UQ executives’<sup>29</sup> but further details are unknown and few references to the DB are present on the CCSG website.<sup>30</sup> The CCSG has expressed some openness towards stakeholder representation on the DB.

The proposed relationship between the DB and the SAB has been described as non-hierarchical,<sup>31</sup> but remains otherwise unclear. Prof. Moran has suggested that complaints in relation to undue influence at the CCSG will be handled in an ad hoc, informal manner.<sup>32</sup> It is not known whether the DB will have any formal authority over the SAB, including authority to address complaints in relation to any facet of the CCSG.

It is the RIC’s view that the DB is a vital tool to ensure and demonstrate that research at the CCSG will be directed towards sustainability, conducted in a balanced manner and with a view to the public interest. Prof. Moran has stated that ‘the University controls this centre.’<sup>33</sup> The RIC agrees that it is critical that the University retains control over research being conducted in its name, and the following recommendations speak to that objective.

**Recommendation 5:** The role of the DB should be clarified, such that its role is to provide strategic oversight of the CCSG independent of the SAB, and to bring perspectives from University and wider community stakeholders to the CCSG decision-making process to ensure the public interest is respected.

**Recommendation 6:** The DB should have authority over the SAB. The DB should be empowered to overrule a decision of the SAB where appropriate. The DB should be empowered by a formal structure to hear complaints in relation to any facet of the CCSG.

**Recommendation 7:** The DB should include representation of staff, students and community stakeholders. Two independent researchers with expertise in the social sciences, environmental management, agricultural science, or biodiversity, should be selected via a transparent and independent appointment or election process. Three student representatives (undergraduate, postgraduate coursework and postgraduate research) should be elected directly by the student body. At least two representatives drawn from agricultural and environmental organisations should be present.

### iii. *Research on key environmental and social issues*

The CCSG has outlined four research themes, ‘treatment and utilisation of coal seam water’, ‘petroleum engineering’, ‘geosciences’ and ‘social performance and community and environmental impact’.<sup>34</sup> The environmental and social impacts of coal seam gas mining have been the subject of considerable controversy among academics<sup>35</sup> and the broader Australian community. Several projects across these four themes have

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<sup>29</sup> Centre for Coal Seam Gas ‘An Invitation to Prospective Members’, page 3

[http://www.ccsq.uq.edu.au/Portals/0/CCSG\\_Member.pdf](http://www.ccsq.uq.edu.au/Portals/0/CCSG_Member.pdf)

<sup>30</sup> Prof. Moran, Information Session on CCSG Presentation, 16 April 2012 (slide 29)

<http://www.ccsq.uq.edu.au/Portals/0/docs/CCSG%20UQ%20Information%20Session.pdf>

<sup>31</sup> Prof. Moran, Information Session on CCSG, 16 April 2012 Question and Answer Session

<sup>32</sup> Prof. Moran, Information Session on CCSG, 16 April 2012 Question and Answer Session

<sup>33</sup> Prof. Moran, Information Session on CCSG, 16 April 2012 Question and Answer Session

<sup>34</sup> CCSG FAQs ‘What is the research focus?’ <http://www.ccsq.uq.edu.au/AboutCCSG/FAQs.aspx?PageContentID=4>

<sup>35</sup> The Conversation ‘Coal Seam Gas’ <http://theconversation.edu.au/pages/coal-seam-gas>



already been proposed, including a cumulative impact study<sup>36</sup> and projects in relation to agriculture<sup>37</sup> and groundwater.<sup>38</sup> The RIC welcomes the CCSG's commitments in this area and these research proposals.

**Recommendation 8:** The CCSG should continue its work in the areas of social and environmental impacts of coal seam gas and should, via the DB and the SAB, ensure that balance across all four research themes is maintained.

In addition to concerns over impacts on ground water,<sup>39</sup> terrestrial and marine environments<sup>40</sup> and agriculture,<sup>41</sup> it is still unclear whether coal seam gas produces significantly lower greenhouse gas emissions, than other fossil fuel sources,<sup>42</sup> as claimed by industry<sup>43</sup> and by State governments.<sup>44</sup> There are several issues at play, including downstream and end-use variables, but it is widely agreed that there is inadequate empirical data in relation to the greenhouse gas emissions profile of upstream coal seam gas operations in Australia.<sup>45</sup> Among other factors, there is a lack of empirical data quantifying emissions from 'venting' and 'fugitive emissions' from coal seam gas activities. Industry assessments have been carried out,<sup>46</sup> but have rarely involved any empirical data from Australian gas fields (instead relying on standard conversion factors,

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<sup>36</sup> Chris Moran CCSG Information Session Presentation 16 April 2102 (slide 36-37)

<http://www.ccsq.uq.edu.au/Portals/0/docs/CCSG%20UQ%20Information%20Session.pdf>

<sup>37</sup> Chris Moran CCSG Information Session Presentation 16 April 2012 (slide 36)

<http://www.ccsq.uq.edu.au/Portals/0/docs/CCSG%20UQ%20Information%20Session.pdf>

<sup>38</sup> Chris Moran CCSG Information Session Presentation 16 April 2012 (slide 36-37)

<http://www.ccsq.uq.edu.au/Portals/0/docs/CCSG%20UQ%20Information%20Session.pdf>

<sup>39</sup> Water Group, 'Water Group Advice of EPBC Act Referrals' 17 September 2010

[http://abc.net.au/4corners/special\\_ed/20110221/gas/docs/WG\\_advice.doc](http://abc.net.au/4corners/special_ed/20110221/gas/docs/WG_advice.doc)

<sup>40</sup> ABC, 'Great Barrier Grief' 8 November 2011 <http://www.abc.net.au/4corners/stories/2011/11/03/3355047.htm>

<sup>41</sup> ABC, 'Coal Seam Gas by the Numbers' <http://www.abc.net.au/news/specials/coal-seam-gas-by-the-numbers/promise/>

<sup>42</sup> Manning, P. 'Coal seam gas may not help climate fight' Sydney Morning Herald 19 November 2011

<http://www.smh.com.au/business/coal-seam-gas-may-not-help-climate-fight-20111118-1nn5f.html>

Hunt, C. 'Coal gas seams good ... until you measure the methane', The Conversation, 1 December 2011

<http://theconversation.edu.au/coal-gas-seams-good-until-you-measure-the-methane-4490>; McNicholl, R.

'Behind the Seams: The science behind CSG's clean credentials', Crikey FAQ Research, 20 March 2012

<http://www.crikey.com.au/2012/03/20/behind-the-seams-the-science-behind-csgs-clean-credentials/>

Merkel, R. 'Coal Seam Gas and Fugitive Emissions' Crikey FAQ Research, 19 March 2012

<http://blogs.crikey.com.au/the-wellhead/2012/03/19/coal-seam-gas-and-fugitive-emissions/>

<sup>43</sup> Australian Petroleum Production and Exploration Association, 'CSG - Cleaner Energy'

<http://www.appea.com.au/csg/key-issues/cleaner-energy.html>

<sup>44</sup> Readfearn, G. 'Cloud over CSG emissions', Brisbane Times, 19 August 2011

<http://www.brisbanetimes.com.au/environment/cloud-over-csg-emissions-20110818-1izx1.html>

<sup>45</sup> Manning, P. 'Coal seam gas may not help climate fight', Sydney Morning Herald, 19 November 2011

<http://www.smh.com.au/business/coal-seam-gas-may-not-help-climate-fight-20111118-1nn5f.html>

Hunt, C. 'Coal gas seams good ... until you measure the methane', The Conversation, 1 December 2011

<http://theconversation.edu.au/coal-gas-seams-good-until-you-measure-the-methane-4490>; McNicholl, R.

'Behind the Seams: The science behind CSG's clean credentials', Crikey FAQ Research, 20 March 2012

<http://www.crikey.com.au/2012/03/20/behind-the-seams-the-science-behind-csgs-clean-credentials/>

Merkel, R. 'Coal Seam Gas and Fugitive Emissions' Crikey FAQ Research, 19 March 2012

<http://blogs.crikey.com.au/the-wellhead/2012/03/19/coal-seam-gas-and-fugitive-emissions/>

<sup>46</sup> Hardisty, P., Clark, T and Hynes R. 'Life Cycle Greenhouse Gas Emissions from Electricity Generation: A

comparative Analysis of Australian Energy Sources' 5 *Energies*, 26 March 2012 [http://www.mdpi.com/1996-](http://www.mdpi.com/1996-1073/5/4/872/)

[1073/5/4/872/](http://www.mdpi.com/1996-1073/5/4/872/); 'Australia Pacific LNG: Environmental Impact Statement (EIS)' Approved 18 November 2010

<http://www.aplng.com.au/environment/our-environmental-impact-statement>; 'Gladstone LNG: Environmental

Impact Statement (EIS)' Approved 22 October 2010 <http://www.glng.com.au/Content.aspx?p=90>;

'Queensland Curtis LNG: Environmental Impact Statement (EIS)' Approved 28 May 2010

[http://www.qgc.com.au/01\\_cms/details.asp?ID=427](http://www.qgc.com.au/01_cms/details.asp?ID=427)

such as emissions per km of pipeline), and the assumptions underlying these assessments have been criticised as invalid.<sup>47</sup>

Despite this uncertainty the University has described coal seam gas as ‘a significant and environmentally-friendly energy resource’<sup>48</sup>, a ‘cleaner energy fuel’ and a ‘vital enabler of renewable energy technologies’<sup>49</sup> in news articles released by the University.

The RIC is of the opinion that in absence of credible, academic peer-reviewed scientific evidence which demonstrates that coal seam gas will reduce, rather than increase, greenhouse gas emissions, claims of this kind may be misleading or false and should be avoided.

**Recommendation 9:** The University should publicly retract its statements that coal seam gas is an ‘environmentally-friendly energy resource’, a ‘cleaner energy fuel’ and a ‘vital enabler of renewable energy technologies’. It should clarify its position and emphasise that there is uncertainty as to whether coal seam gas has a lower greenhouse gas emissions profile than other fossil fuels.

The CCSG initially dismissed as futile and unworkable suggestions by members of the RIC that the CCSG should conduct a broad and robust life cycle emissions assessment of upstream coal seam gas activities.<sup>50</sup> The current position of the CCSG is unclear, but some openness to the suggestion has been expressed<sup>51</sup> and industry partners are reportedly eager to participate in improving the quality of data available.<sup>52</sup> The RIC welcomes these developments and is eager to see this research progress.

The CCSG ‘aims to be a world leading centre of excellence that serves the research needs of industry, government and community stakeholders.’<sup>53</sup> The University has made a commitment under the Talloires Declaration to create an ‘institutional culture of sustainability’.<sup>54</sup> The University has already made a public statement that coal seam gas is an ‘environmentally-friendly energy resource’. Greenhouse gas emissions are fundamentally important in assessing the environmental impact of any technology. Given these facts, and given the University’s responsibility as a leading research institution to inform public discussion, the RIC believes that the University has a responsibility to facilitate the completion of a broad and robust assessment of greenhouse gas emissions from upstream coal seam gas operations.

**Recommendation 10:** The University should work with the CCSG and any other relevant research bodies to actively facilitate the completion of a broad and robust assessment of greenhouse gas emissions from upstream coal seam gas operations.

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<sup>47</sup> McNicholl, R. ‘Behind the Seams: The science behind CSG’s clean credentials’, Crikey FAQ Research, 20 March 2012 <http://www.crikey.com.au/2012/03/20/behind-the-seams-the-science-behind-csgs-clean-credentials/>

<sup>48</sup> UQ News, ‘UQ & Santos sign coal seam gas agreement’ 11 February 2010 <http://www.uq.edu.au/news/?article=20578>

<sup>49</sup> UQ News, ‘UQ enters \$20 million industry partnership to underpin CSG research’ 6 December 2011 <http://www.uq.edu.au/news/index.html?article=24166>

<sup>50</sup> Meeting between CCSG representatives and Samuel Robb, Louise Scarce, Suvine Gunasena, Jed Burns and Julia Hutton, 5 April 2012.

<sup>51</sup> Prof. Moran stated on 16 April 2012 “...whilst we entered this saying that emissions per se is probably not a research issue for us, I’m changing ground on that from the point of view of whether we do or don’t have a responsibility in the measurement space of that...” Woodward, S. ‘UQ defends coal seam gas centre’, Campus Review, 23 April 2012 <http://www.campusreview.com.au/blog/news/uq-defends-coal-gas-centre/>

<sup>52</sup> Prof. Moran, Information Session on the CCSG, 16 April 2012, Question and Answer session.

<sup>53</sup> Centre for Coal Seam Gas website <http://www.ccsq.uq.edu.au/>

<sup>54</sup> The Talloires Declaration [http://www.ulsf.org/programs\\_talloires\\_td.html](http://www.ulsf.org/programs_talloires_td.html)