



Case Study of ZeroGen Project

Energy Transformed Flagship

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Front cover photograph sourced from Howard Morrison, ZeroGen.

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Executive summary

ZeroGen Proprietary Limited (ZeroGen) is a Queensland Government initiative to develop, construct and operate an Integrated Gasification Combined Cycle (IGCC) and carbon dioxide capture and storage (CCS) power plant and storage facility in Central Queensland, Australia. With a budget of AU\$4.3 billion, the project's goal is to sequester 60 million tonnes of CO₂ waste gases over the lifetime of the project to assist in reducing Australia's greenhouse gas emissions. Carbon dioxide will be sourced from the yet to be constructed 400 MW power generation facility.

This case study report seeks to provide insights into stakeholder perceptions of past and present communication and engagement practices conducted by ZeroGen in relation to its IGCC with CCS project in Central Queensland. Desktop reviews, a media analysis and stakeholder interviews were conducted to inform the case study. Feedback was sought to establish an understanding of ZeroGen's communication strategies and public engagement practices including what information was provided, how and when it was delivered, and to whom. Stakeholder perceptions of the different components of these communication and engagement processes were also assessed.

Due to the ZeroGen project being in its early stages, no significant or potentially divisive incident was identified by stakeholders as sufficient to cause major discontent or concern. However, from a local perspective, some operational aspects of ZeroGen's engagement in communities targeted in the pre-feasibility study were identified as requiring attention. All issues were addressed by ZeroGen during engagement and were perceived to have been well managed. Issues identified related mainly to property access and associated safety and risk issues surrounding stock movement as a result of poor access management. Timing of engagement events was also identified as an issue with engagement schedules not sensitive to landowners' non-specific hours of work. Corrective measures undertaken by ZeroGen to address these issues appear to have met the needs of affected stakeholders.

Stakeholders identified five critical factors as contributing to the success of the project to date. These are:

1. The development of a clearly defined stakeholder plan
2. The execution and evaluation of a stakeholder management plan
3. An understanding of current political climates across all levels of stakeholders
4. An awareness of extraneous issues that might impact upon communication and engagement processes
5. Positively addressing all stakeholder requests and including them in project decisions where appropriate.

Specific successes revealed in the case study included overcoming communication barriers with a landholder. This was done by acknowledging the landowner's rights to manage access to his land, using respectful engagement practices such as ensuring permission for all entry onto the landowner's property, providing compensation as relevant, and where possible engaging the landowner in activities that might otherwise have been carried out by contractors. For example, building a road and platform on the landowner's property.

Another success story identified was a speedy and professional response to complaints received from landowners and residents after an incident where a contractor damaged a local road after accessing the property. The road had only recently been graded. ZeroGen was noted to react swiftly to the local council's request to repair the damage to the road; a response that was perceived by some stakeholders as a positive measure of the developer's good intentions towards the local community.

I Introduction

Climate change and its causes are major concerns from a global and national perspective. The Australian Federal Government has provided its support for the development and deployment of low emission energy technologies to mitigate climate change. This is best evidenced through the various funding programs that have been implemented for advancing low emission energy technologies over the past decade. One such technology, carbon dioxide capture and storage (CCS), has received substantial support from all levels of government within Australia. The Queensland State Government has provided substantial financial support towards the development of CCS through the establishment of its wholly owned company, ZeroGen Proprietary Limited (ZeroGen).

In 2003, after extensive research and analysis, Stanwell Corporation Limited (Stanwell), concluded the best technology for coal-based, low-emission electricity generation was IGCC with CCS. As a result, Stanwell initiated the ZeroGen Project. In March 2006, ZeroGen Proprietary Limited was incorporated as a subsidiary of Stanwell. Ownership of ZeroGen and the project was transferred to the Queensland Government in March 2007. ZeroGen's mission is to enable the accelerated development and rapid deployment of low emission coal technology at a cost that will preserve Queensland's competitive advantage as a power generator and ensure the continued mining, export and use of Australian black coal. The Queensland Government committed to funding up to a total of AU\$102 million to cover costs for the feasibility study of the project and operational expenses of the company.

In December 2007, ZeroGen was advised of a strong sentiment within the Clean Coal Council to 'steepen the risk curve' of the project to accelerate the development of a commercial-scale IGCC with CCS plant by 2020. In response to this request, the project was reconfigured in March 2008 into a two-staged approach. This involved the deployment of a 120 MW gross capacity IGCC with CCS plant (Stage 1) in 2012, and a 450 MW gross capacity IGCC with CCS plant in 2017 (Stage 2). A pre-feasibility study including an Environmental Impact Statement (EIS) on Stage 1 was commenced.

During development of Stage 1, discussions and funding exploration initiatives in Japan presented ZeroGen with a new opportunity from which an accelerated pathway for the development of a commercial-scale IGCC with CCS plant might be achieved, while addressing the principal technical integration risk. Mitsubishi Corporation (MC) and Mitsubishi Heavy Industries (MHI) proposed the construction of an IGCC plant with a gross capacity of 550 MW with CO₂ capture and without the need to construct the smaller Stage 1 plant.

ZeroGen consequently issued Requests for Proposals to other IGCC technology providers to allow those providers the opportunity to submit a proposal to develop a commercial scale demonstration project which might be competitive with the MC/MHI proposal. Formal proposals were received from General Electric (GE) and Shell.

On 16 October 2008, the ZeroGen Board resolved to further investigate this opportunity through a scoping study. The Board requested that this scoping study report, together with supporting documentation, be submitted to the Queensland Government, Australian Coal Association Low Emission Technologies Limited (ACALET), and the Clean Coal Council in early December 2008.

At a meeting of the Queensland Clean Coal Council in June 2009 the new project configuration – being a single commercial scale 530 MW was ratified and a pre-feasibility study on that configuration commenced. The pre-feasibility study is to be finalised on 30 July 2010. ZeroGen has also made application for national Flagship project status and funding. This application was submitted on 30 June 2010, and is under consideration by the Federal Government.

ZeroGen aims to progress the technology's development and commercial deployment, work with policy makers to develop the appropriate regulations and build stakeholder knowledge and understanding of the technology.

The purpose of this report is to present findings from the case study that reviewed stakeholder perspectives and beliefs surrounding the various communication and engagement practices ZeroGen has employed throughout the project's development to date. This report highlights the communication and outreach activities of the ZeroGen project from its inception to the time of writing. Desktop reviews and stakeholder interviews were conducted with a number of stakeholders to inform the case study. A full list of the questions used for the interviewing process can be found in Appendix A.

2 Location

In March 2008, the Bauhinia, Duaringa, Emerald and Peak Downs shires, and a small portion of the Jericho shire, merged to form one large regional shire known as the Central Highlands region in Queensland. The independent Woorabinda Aboriginal shire is also located within the Central Highlands regional boundaries. The Central Highlands region is 100 km west of Rockhampton, the closest major regional city with an estimated population of 114,105 as at 30 June 2009 (Australian Bureau of Statistics [ABS], 2007).

Various locations have been investigated as potential sites for the 400 MW power generation plant, slag storage sites, and underground geological storage fields required for the project. To date, no location has been announced, however the final site is likely to be near coal supply and established rail infrastructure, have access to water while still being close to geological storage fields.

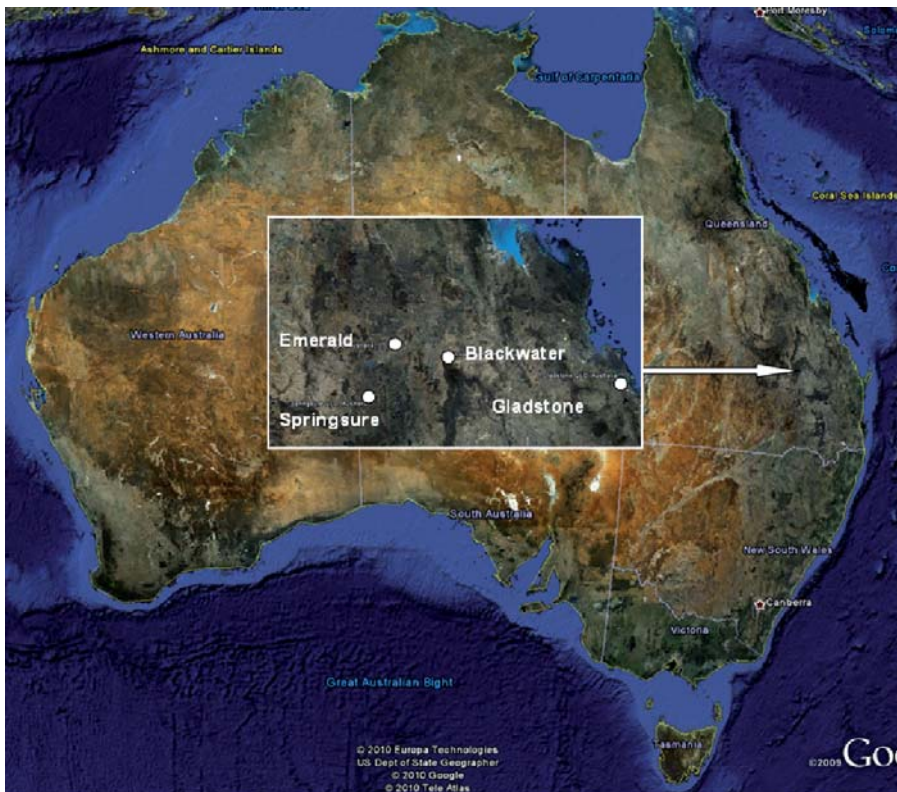


Figure 1 Map showing surrounds of ZeroGen project (Source: Google Earth)

3 National context

3.1 Political context

Energy is big business in Australia, with energy-related sectors including electricity, mining and transport, accounting for some 11 per cent of Australia's gross domestic product (GDP) and about half of the total AU\$190 billion in Australian exports each year (Department of Resources, Energy and Tourism [DRET], 2008a). The sector has installed much of the nation's capital infrastructure such as electricity plants, transmission links, refineries and production facilities and pipelines. About 120,000 Australians are directly employed in 'energy', primarily through the production and supply of stationary energy (such as electricity and gas), transport energy (mainly petroleum-based fuels) and energy for export. However, being such an intense carbon dioxide-emitting industry, and in view of the current issues surrounding anthropogenic climate change, a solution needs to be found towards reducing Australia's greenhouse gas emissions (Ashworth, Littleboy, Graham & Niemeyer, 2010).

3.2 CCS agenda

Australia is deeply involved with the international movement to progress the deployment of CCS as a key mitigation strategy for fossil fuel-based industries. Considered internationally as one of the world's leaders, Australia is known for its multi-level governmental approaches to progressing the technology's deployment. However, like many new and emerging technologies, CCS remains relatively unknown across the larger Australian society with some perceived risks.

Global CCS Institute

The commitment of Australia to progress a CCS agenda is probably best represented by the establishment of the Global CCS Institute (GCCSI). The GCCSI was announced by the Australian Government in September 2008 and formally launched in April 2009. Its objective is "to accelerate the commercial deployment of CCS projects to ensure their valuable contribution in reducing carbon dioxide emissions". The Australian Government has committed AU\$100 million annual funding for five years. The aim is for the Institute to work collaboratively with a range of government, non-government and industry organisations to achieve their deployment goals.

Department of Resources, Energy and Tourism

DRET has responsibility for CCS within its portfolio. Its work has been instrumental in formulating Australia's position on CCS while developing Australia's reputation as one of the leading countries to advance the technology. This is mainly seen through its advanced regulatory policies and other initiatives such as the GCCSI and the Carbon Storage Taskforce (CST). More recently, DRET is also helping to develop the Energy White Paper which will set the strategic planning for the range of technologies to be developed for Australia over the coming years.

Representatives from DRET are also actively involved in the Carbon Sequestration Leadership Forum (CSLF). Australian representatives are well respected within the CSLF as they are considered critical advisers to countries that have delayed addressing regulatory and communication issues.

State governments

Several state governments are active in supporting the deployment of CCS. Those most active have a heavy dependence on the coal industry for coal production, export and power generation. Each state government department has various responsibilities ranging from ensuring appropriate regulations for CCS projects are developed, to ensuring local community concerns are heard by project proponents to minimise any negative perceptions arising in relation to the projects.

State governments are also responsible for Environmental Impact Assessment (EIA) activities in relation to projects that will be operating in their state. Until now, nominations for CCS Flagship projects needed their state government backing and it is expected that if selected, state governments will also be responsible for working with industry partners of the projects to ensure a high standard of communication and outreach is delivered.

Australian Coal Association

The Australian Coal Association (ACA) is the peak industry body of the Australian black coal producers. Its members are predominantly based in Queensland and New South Wales, but some can also be found in Western Australia and Tasmania. The ACA has been integral in progressing CCS by establishing the Coal 21 Program in 2003. This was an early partnership between power generators, coal producers, unions, government and research bodies. This collaboration initiated the Coal 21 Fund, which was established to raise more than AU\$1 billion over 10 years from 2006, to support the development of CCS and other low emission technologies. Funds are being raised through a world first voluntary levy self-imposed by black coal producers in Australia.

National Low Emissions Coal Council

The National Low Emissions Coal Council (NLECC), established in July 2008, brings together key stakeholders to develop and implement a national low emissions coal strategy. This includes research and development, accelerating the deployment and commercial development of low emission coal technologies including CCS. More recently it made recommendations to the Minister based on early experiences working with members of the Carbon Storage Taskforce, a Federal Government initiative involving a range of government, industry and research representatives.

3.3 National deployment plans

A number of Australian CCS projects have been considered for future deployment at different times over the past few years. Possibly the most significant commercial example is the Gorgon project. The AU\$43 billion project, in which Chevron, ExxonMobil and Shell are the main participants, is located at Barrow Island in Western Australia (Chevron, 2010). It is the largest geological sequestration project of its type worldwide. Construction of the Liquid Natural Gas (LNG) facility commenced in 2009 and will take about five years to complete. To date, a data well has been drilled and a major study of the subsurface has begun. The project involves the storage of CO₂ in a low permeability saline aquifer beneath Barrow Island. With a potential life of 40 years, the project anticipates the secure sequestration of 3.3 million tonnes of CO₂ per year, or 125 million tonnes over the life of the project.

More recently the CST, chaired by Keith Spence (a former executive of Woodside Petroleum in Western Australia), and incorporating representatives from the coal, power generation, petroleum and pipeline sectors, was convened on behalf of the Minister for Resources and Energy, Martin Ferguson. The main objective of the CST was to develop a National Carbon Mapping and Infrastructure Plan in Australia. The CST summary report was recently released and the complete report is soon to be finalised. It sets out the priorities required to accelerate CCS deployment in Australia and is working closely with the NLECC to develop communications and outreach activities for CCS.

In addition, the Australian National Low Emission Coal Research and Development (ANLEC R&D) was announced in June 2009 as the research and development arm of the NLECC. Its goal is to implement a national program for low emission coal research and development to address research priorities identified in the NLECC strategy. It aims to address the critical research issues for CCS deployment in an Australian context, particularly in relation to the advancement of the 2015 to 2020 demonstration projects. As such, public awareness and related communication activities around CCS projects is likely to form part of the research projects they undertake.

3.4 Government funding

As part of the Budget announcements in May 2009, the Australian Government pledged AU\$2.425 billion over nine years for the CCS Flagships program. This included \$2 billion in new funding for development of low emission coal technologies and to support two to four industrial-scale CCS projects. As a result of a competitive process, on 8 December 2009, Minister Ferguson announced a shortlist of four CCS projects (DRET, 2010a). The proposed projects (in no particular order) were:

1. **CarbonNet Project** – An integrated multi-user capture, transport and storage infrastructure project with CO₂ from electricity generation, located in Victoria's Latrobe Valley, which aims to store between 3 and 5 mega tonnes of CO₂ per annum, captured from coal-fired power plants in the region
2. **Collie South West Hub** – An integrated multi-user capture, transport and storage infrastructure project, located south-west of Perth, which aims to store up to 3.3 mega tonnes of CO₂ per annum, captured from surrounding industry including coal-fired power plants
3. **Wandoan Power Plant** – An IGCC with CCS, located north-west of Brisbane, generating 334 MW and aiming to store up to 2.5 mega tonnes of CO₂ per annum
4. **ZeroGen Power Project** – A CCS pilot project, located west of Gladstone in Queensland, generating 400 MW and aiming to store up to 2 mega tonnes of CO₂ per annum.

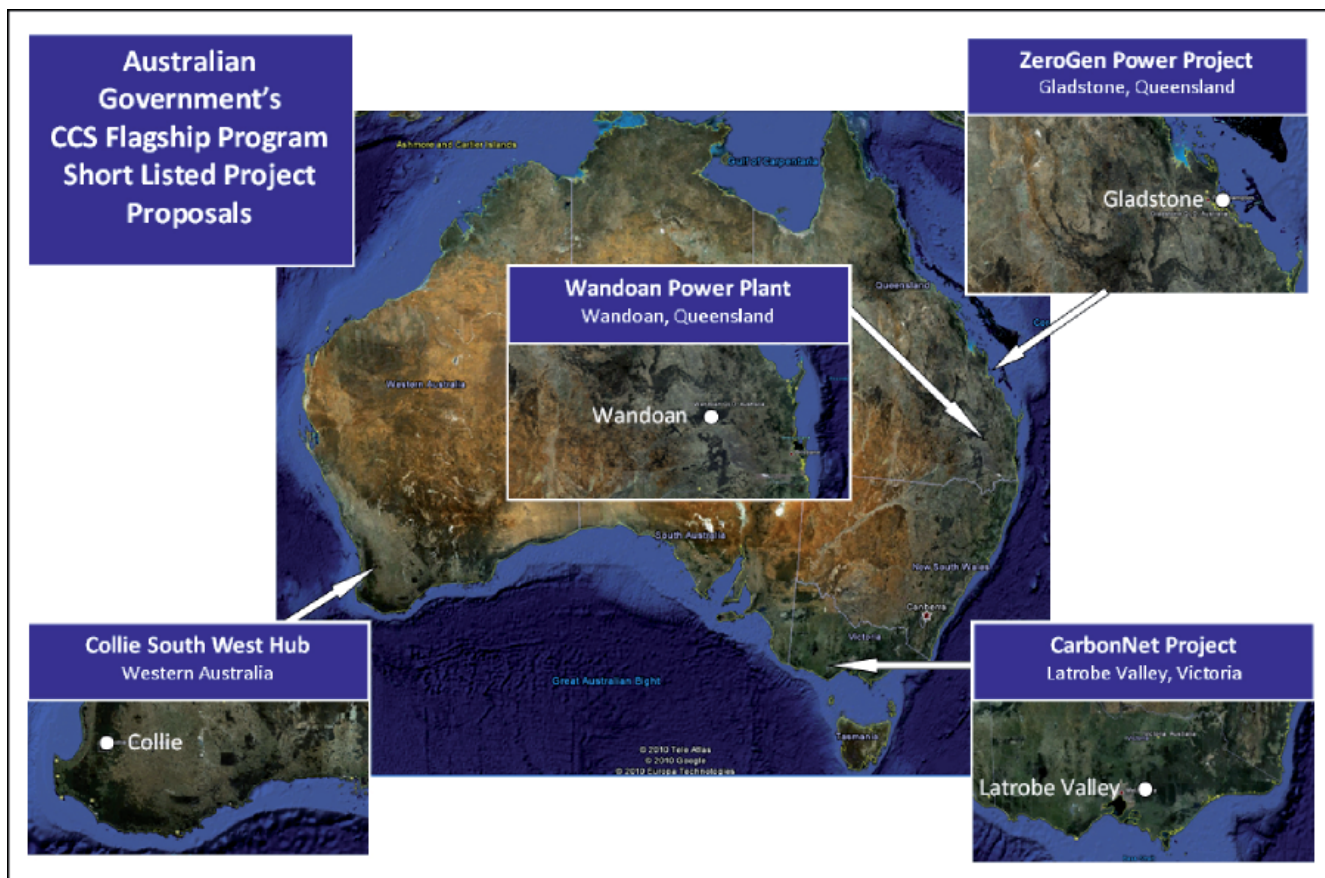


Figure 2 CCS Flagship Program short listed projects (Source: Google Earth)

3.5 Regional/national emissions targets

On 27 April 2010, then Prime Minister Kevin Rudd announced that the Australian Government had made a decision to delay the implementation of the Carbon Pollution Reduction Scheme (CPRS) until the end of the current commitment period of the Kyoto Protocol, which is the end of 2012. He cited delayed global action and the absence of bipartisan support for the CPRS as the main drivers for postponing the scheme. However, the Australian Government remains committed to action on climate change and national emissions reductions targets, with mitigation being considered the cheapest option for action on climate change. In support of this, the Government announced that it will boost the existing investments in clean and renewable energy as well as provide greater support for energy efficiency measures.

4 Characteristics of the project

Table I below summarises the main characteristics of the ZeroGen Project.

| | |
|---------------------------------|--|
| Nature | ZeroGen's objective is to develop a commercial scale, IGCC with CCS project in Queensland to operate by 2015-17. The current project consists of three phases: the pre-feasibility study, feasibility study and plant operation. Upon construction, the plant will generate 400 MW of low emission base-load electricity for the Australian energy market |
| Scale/size | An IGCC 400 MW (530 MW gross) power generation plant and CCS facility (ZeroGen, 2008a). To be located on about 300 ha and infrastructure to support gas (natural and captured CO ₂) and water pipelines, rail, transport, conveyor and power lines (DRET, 2010b). |
| Cost | AU\$4.3 billion |
| CO₂ amounts | 60 million tonnes potential total sequestration |
| Source of CO₂ | A yet to be constructed 400 MW (530 MW gross) power generation facility integrating a coal gasification power plant (ZeroGen, 2008a). |
| Project duration | Scoping for the current project format commenced in December 2008. Before then, work revolved around plant scale and configuration. In 2009, the Queensland Clean Coal Council approved the project proceeding to a pre-feasibility study on an industrial scale IGCC with CCS project. Anticipated commissioning of the plant is between 2005-17 |
| Technology type | Integrated Gasification Combined Cycle with Carbon Capture and Storage (IGCC-CCS) |
| Pipeline | Pipeline studies have been performed as part of the pre-feasibility study |
| Site selection | The site selection for the final plant and storage facility is yet to be announced. The pre-feasibility study has considered a number of options, and will recommend a preferred configuration. |
| Location choice | The Emerald area is considered to be ideal for the location of the power plant in meeting stakeholders' requirements that the plant be operational by 2015. The Northern Denison Trough, which has been the focal point for the storage investigations, has been assessed as not being able to sustain the required injection rates required for the project. The storage location is nominally the Surat Basin. |
| Regulations | Declared by the Queensland Coordinator-General as a significant project requiring an EIS under section 26(1) (a) of the <i>State Development and Public Works Organisation Act 1971</i> (SDPWO Act). The Federal Government has determined that the project constitutes a controlled action pursuant to the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). Accordingly, the project will be assessed under joint agreement by the Australian and Queensland governments (Queensland Department of Infrastructure and Planning [DIP], 2010) |
| Current status | Feasibility study |

4.1 Project activity timeline

The ZeroGen project has concluded its pre-feasibility study after which a site is expected to be announced for the location of a 400 MW coal-powered electricity generation plant. At this point the next phase of the demonstration project will commence. ZeroGen has begun various stages of the study including the community consultation and public engagement program in early 2006 and, later that year, the cultural heritage management program. Both programs are scheduled to continue into 2011 (ZeroGen, 2008b). At the same time as the cultural heritage management program began, ZeroGen commenced drilling investigations in the Northern Denison Trough. ZeroGen to date has drilled 12 wells, taken more than 7,000 m of core for analysis, and conducted CO₂ injection and water injection tests as part of its assessment program in the Northern Denison Trough. A pipeline study began shortly after drilling investigations started and is scheduled to continue into 2011.

After a merger of local councils in the third quarter of 2008, the Central Queensland community consultation program commenced. This consultation program followed activities that had been undertaken with each council individually before the amalgamation. This consultation process is scheduled to continue into 2011 (ZeroGen, 2008b). In late 2009, the Australian Government Department of Environment, Water, Heritage and the Arts determined the project was “controlled action under the Environmental Protection and Biodiversity Conversation Act 1999 (Cwth) (EPBC Act),” (DIP, 2010) and issued controlling provisions under several sections relating to threatened species and communities and migratory species. In December 2009, the Queensland Coordinator-General declared ZeroGen to be a project of significance for which an EIS was required. Draft terms of reference for the EIS were issued and following three months of public consultation, final terms of reference were issued in March 2010 when ZeroGen began its Environmental Impact Statement (EIS). Public consultation will continue throughout the EIS process. For a visual representation of the project’s milestones to date, see Figure 3 below.

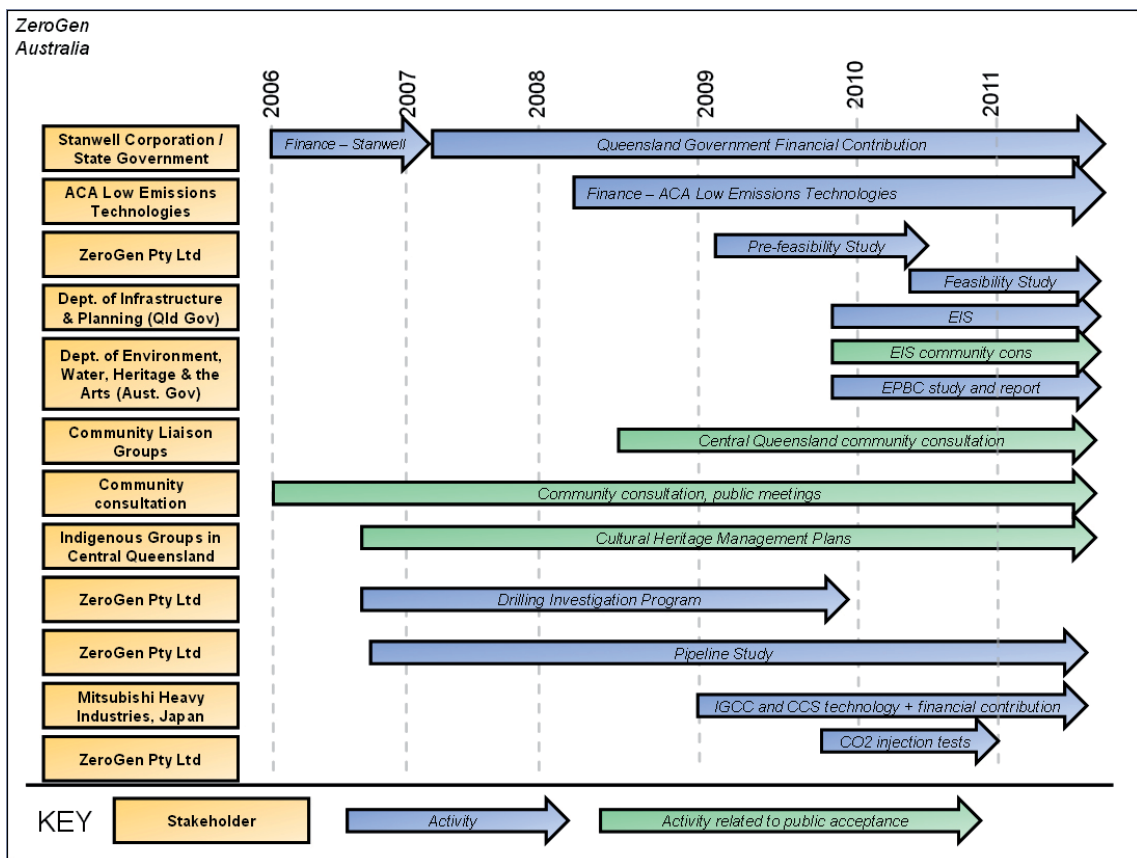


Figure 3 ZeroGen timeline of activities

5 Stakeholder mapping

Stakeholders of the ZeroGen demonstration project include representatives from various government departments (federal, state and local), industry, investors, partners, service providers, the scientific community, community groups and organisations, environmental and conservation non-government organisations, landholders, the media and any other national and international organisation interested in the technology.

5.1 Project developers

A Queensland Government-owned company, ZeroGen, was established in 2006 as a subsidiary of Stanwell Corporation, an electricity generator also belonging to the Queensland Government. ZeroGen now operates independently of Stanwell Corporation. ZeroGen's project partners include the Queensland Government, the ACA Low Emission Technologies Ltd (ACALET), Mitsubishi Corporation and Mitsubishi Heavy Industries.

5.2 Government institutions

5.2.1 National

Department of Resources, Energy and Tourism

The Department of Resources, Energy and Tourism (DRET) is responsible for providing policy and other advice to the Minister for Resources and Energy. It is also responsible for administering relevant resource sector legislation and running various resource-specific programs including coal, minerals and petroleum. DRET has responsibility for advancing the Australian Government's broader CCS agenda, its low emissions coal agenda and to provide input into the broader policy framework around CCS (DRET, 2009).

DRET administers about 21 pieces of legislation relevant to the resources sector, including the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Amended 2010), which provides an overarching regulatory framework for CCS within Australia and Australian waters.

In 2005, the Australian Ministerial Council on Mineral and Petroleum Resources (MCMPR) endorsed the Carbon Dioxide Capture and Geological Storage: Australian Regulatory Guiding Principles to establish a nationally consistent approach for the application of CCS. The Guiding Principles cover assessment and approval processes, access and property rights, transportation issues, monitoring and verification, liability and post-closure responsibility and financial issues surrounding the application of CCS in Australia (DRET, 2008b).

5.2.2 State Government

The Queensland Department of Mines and Energy develops and manages the policy and regulatory frameworks that support the energy industry in Queensland. This includes the April 2007 agreement to reduce greenhouse gas emission by 60 per cent of national emissions by 2050 (against 2000 greenhouse gas emissions levels). The Queensland Government's Climate Smart 2050 strategy incorporates Smart Energy Policy initiatives especially developed to assist in meeting this target. Included in these initiatives are a \$10 million Geosequestration Site Identification program, a \$900 million investment to demonstrate clean coal technology, the Queensland Gas Scheme (which seeks the diversification of the state's energy mix towards a greater use of gas), and new electricity generation. Through funds provided under the clean coal technology investment initiative, ZeroGen IGCC is one of two projects seeking to demonstrate IGCC and storage as an effective greenhouse gas emissions mitigation process for the state's energy sector (Queensland Department of Mines and Energy, 2010).

In December 2009, the ZeroGen Project was declared to be a "significant" project by the Queensland Coordinator-General, requiring an EIS under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). This process is managed by the Environmental Protection Agency.

5.2.3 Local council

The Central Highlands Regional Council (CHRC) has an aim to "enable sustainable regional growth" for the local region (CHRC, 2010). To achieve this goal, the CHRC identifies its priorities as marketing and promotion of the region, building the regional skill base, and stimulating business and infrastructure development. With a population that is expected to grow 2.1 per cent per annum from its 2008 level of 29,244 to 46,872 in 2031, the Central

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Highland region is under pressure to expand. The 2006 Census indicates a large proportion of the region's employable people (68 per cent) who are 15 years or older have a qualification of some form. Some 18 per cent have a degree, 4 per cent have an advanced diploma or diploma and almost 47 per cent of individuals have a certificate qualification, statistics that are likely to increase consistent with population growth (CHRC, 2010).

Such regional expansion is considered to be strongly influenced by the area's largest employer, the mining industry, primarily coal and gas. The mining industry, which represented 26 per cent of the area's 17,186-strong labour force in 2008, continues to grow in the region. Contributing \$2.4 billion to the Central Highlands' 2008 Gross Regional Product, mining activity – such as studies and construction programs – represents a further \$2.24 billion of investment planned for the region to 2013. In addition, community and transport infrastructure combined add another \$99 million of investment to the region for the same period. Energy infrastructure investment of \$28 million for the Blackwater/Emerald line study is due to conclude in 2011 (CHRC, 2010). Investments substantially support and continue to sustain the local Central Highlands' community.

Coal-fired electricity generation provides base-load electricity to local communities in the region; electricity generation that is sustained through local coal mining activity. With climate change mitigation high on the national agenda, there is incentive for CHRC to support projects that seek to demonstrate mitigation technology that has the capacity to reduce greenhouse gas emissions and to prolong coal-driven electricity generation into the future (CHRC, 2010).

5.3 Local community

5.3.1 Description

A rural district, the Central Highlands Region comprises many small towns and covers 54,000 square kilometres. It has a population of 29,244, with Emerald and Blackwater the two main town centres (CHRC, 2010). The local community is described in local government, media and by interviewees as vibrant, close knit and diverse, with industries including mining and coal, citrus, cotton, grapes, cattle and sheep. The region is perceived to be in a growth phase, with mining considered the strongest influence on this growth, and is the largest employer in the area. However, the diversity of industry is also perceived to positively impact this growth. When asked to describe the local community, one stakeholder associated with the project noted:

So it's a diversified region and that's its great strength. As I said, we don't just rely on one particular industry. If there's a downturn in industry, you know the communities will generally survive.



Figure 4 Geographic location of Central Highland Area. Source: Morrison, H. 2009

Similarly, a local community stakeholder indicated that the region was experiencing substantial growth, stating the following:

Yeah, I think you're right, it's very much in a growth phase. There's an enormous lot of housing going in and rentals are going up on property.

Emerald is considered a regional hub in the Central Highlands. With a population of about 12,000, it is considered the largest rural residential settlement in the region (CHRC Profile). Emerald is perceived to be a thriving community with strong coal, mining and resources industry representation. It is also considered to be a mining town in a state of growth.

It's a thriving community, it's probably majority coal mining but it's also a hub so there's a lot of government departments here so there's a fairly good infrastructure for supporting the agricultural economy as well.

It's thriving, it's increasing in size all the time, like when I first came here there was only a population of about 4,000 in the town itself, now we're out to about 16,000 in town and they're predicting that we could go 30 to 50,000 depending on what happens with the Galilee Basin.

Blackwater is a smaller community, with a population of about 6,000, and is the second largest residential settlement in the region. Also considered a mining town, it is described as being predominantly rural. With the influx of miners into the local community, one interviewee indicated that the township appeared to be in a state of transition from a 'community' to a collection of 'individuals'.

I found Blackwater...I wouldn't say depressed but I would say, because over time different things have happened, the mining there went right off the boil...about the time of our last meeting and things weren't looking very positive in the community...the community seemed to be less of a, by their own admission, becoming less of a community and more of individuals if you like. So seeing sporting clubs and all those other things start to fail as more workers become fly in fly out.

Springsure on the other hand is a very small rural community with a population of only 1,150 individuals.

"Not large by any stretch of the imagination, it's only a very small town..."

5.3.2 Knowledge of CCS

Stakeholder perceptions and attitudes are often influenced by the level of individual knowledge surrounding a given topic. In terms of ZeroGen, knowledge of CCS varied across stakeholders. For local community members, prior knowledge was noted as limited or non-existent before exposure to the project. Working knowledge of the concept was also limited in this group.

Well, very simply, I suppose it's you know capturing CO₂ and using it. Well, you store it. Capture the CO₂ and then store it and then produce energy, I suppose. That's as simple as I can understand it. I'm a mere mortal.

That it's a step we're moving towards, for reducing our footprint. Capturing rather than spewing, you know, carbon dioxide out into the atmosphere, putting it, sequestering it underground where it hopefully will stay.

An overall understanding that CCS was a process for capturing CO₂ was apparent, however understanding of the technology itself was limited; for one interviewee, knowledge of CCS was associated with carbon capture through agricultural activities.

No, I've got a basic knowledge. And I'm probably familiar also more so with carbon capture through cropping practices, you know stubble retention that sort of thing through agriculture rather than through CO₂ emission from power stations.

Where knowledge was limited before awareness of the project, sourcing of information became of interest to several interviewees.

Okay, didn't know too much about it until we started with your (CSIRO) meetings about four years ago. Have been keeping tabs on it through things like New Scientist and there's been a little bit of stuff in the newspaper over the past few years.

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We subscribe to a handful of different magazines of that style and they all mention it at some point or other. New Scientist, COSMOS, what are a couple of the other ones? You got ... the Australian Geographic, that type of stuff.

For those more closely involved in the project, knowledge of CCS was felt to be above average to high, having been exposed to the concept through the project. Some indicated prior knowledge due to earlier experience or professional interest, while at least two noted that they had no knowledge of CCS before involvement with ZeroGen.

But I would say that I generally understand the process, how it has to work, how it has to be adapted to different types of, you know, sort of at the front end, whether it be a power station, or LNG or whatever they want to put it with. So I'd say it is probably higher than the average person but I'm certainly no expert.

... I was probably two steps up on a layman because of my association with the project, but I'd say I probably know quite a lot. I know enough to have educated discussions with geologists on the topic now.

One interviewee highlighted how becoming involved in the project resulted in a desire to research and gain knowledge of the process to increase her ability to converse on the subject in general discussion.

Day to day interactions, conversations with technical folk, asking lots of questions and lots of reading articles. So I had to become educated in order to manage that area and that involved me primarily asking lots of questions, but also doing a fair bit of background reading.

5.3.3 Local benefits

From a local community perspective, minimal local benefits were perceived to have been generated from the project to date. This belief is mainly due to an understanding that the project's nature, as outlined in the recently completed pre-feasibility study, permitted little benefit to be derived apart from some small economic gains generated from contractual and visitor activity directly associated with the study.

... the benefits can depend on where they put it. In terms of direct economic benefits I mean... to get this sort of thing up and running and prove that it works or show that its cost efficient will be beneficial to everybody in the long run. But short-term benefits, I think that'll hinge on where they actually put it.

Longer-term benefits are anticipated should an IGCC/CCS plant become operational in the region. Such potential benefits are perceived to include population increases and corresponding housing industry growth; job creation, both direct and indirect; infrastructure improvements to roads and transport options and improved health services through the provision of dedicated doctors in local regions.

In addition, social impact benefits were considered important for the local government authority, including construction and earthworks, base-load electricity supply, increased local investment, sustainability of the local coal industry and corresponding improvements to the local economy emanating from these benefits.

So there's jobs, investment, the sustaining of the coal industry and also the fact that we, they had a project in their own backyard which could be world leading in terms of developing this technology.

But the benefit was really about supporting and sustain[ing] of the coal industry ... Blackwater primarily is a coal town.

The benefits were about base-load electricity, supporting their way of life, supporting their agricultural businesses, giving jobs and opportunities for their kids.

Recent feedback received by ZeroGen indicates local support because of the perceived regional development and any increased skill development that may result from a project such as ZeroGen being located in the Central Highlands.

Environmental development was also perceived as a potential longer-term benefit for the region, and the corresponding international kudos resulting from the region being seen to lead the world in CCS technology. As well, the potential for the region to become a global technology hub, and the reputational benefits this might bring, were considered important.

For the local MPs it was about job investments and the sustaining of the local economy, but at the same time developing a world's best technology that would demonstrate CCS and make Rockhampton, Central Queensland area, a global hub.

But when you actually point out the interests and the benefits from their way of life, not so much climate change, they're a little bit sceptical about climate change, but mainly their way of life and the economic development, that was a benefit. The other thing was just as an Australian organisation, having a go; they saw that as a key benefit.

From an indigenous perspective, limited benefits were perceived in relation to the project itself as "native title is extinguished on the proposed site", however cultural heritage remains. Any benefits that might be perceived were tempered by the need for respect: respect of land, of indigenous rights and of the environment. Tangible benefits were perceived as secondary, though still important, such as investment and jobs.

But in terms of the benefits to the indigenous people, it was about the environment more importantly and probably, and similar to that was the opportunity to secure some form of employment should the project be successful.

The fundamental interest of the project per se was that we had to respect that they were the traditional owners of that country.

There was no association with any spiritual aspects of CO₂ being injected in the ground, but more the spiritual aspects of building infrastructure and more importantly just the respect of indigenous people.

5.3.4 Grievances

From a local community perspective, grievances appear to be mainly in relation to access to property, lack of respect of landowners' rights, damage to property (land and livestock), damage to local infrastructure (roads and thoroughfares), property acquisition, lack of compensation, uncertainty of project outcome, and security and safety concerns both immediate, relating directly to the pre-feasibility study, and in the future, relating to operational aspects of any IGCC/CCS plant that might eventuate in the region. The following comment by one local community stakeholder supports this concern regarding damage to council roads caused by ZeroGen contractors after accessing private properties:

But we had some rain up in the area and some of the contractors or whoever they were doing work for ZeroGen drove out of a property and onto a council road that had, really, it had just been fixed up, graded, this is a gravel road and drove it when it was pretty wet and ruined it.

Housing availability and increased prices appear to be another issue of concern for the local community; past and present mining activity being negatively attributed to the region's current housing shortage. Concern was raised about the possibility of the situation being exacerbated through additional population increases resulting from an IGCC/CCS plant being operational in the region.

So there was big issues socially about people leaving the community to work on the mine site and those people coming into, say, Emerald, they will, driving the prices of rentals up through the roof.

Another concern identified was the practice of mining companies in the region establishing independent communities separate from the local community. Mines and other operations apparently set up portable camp sites on company property rather than integrating workers into the local community.

That's a lot of people moving in and out of the area and it's been a difficult thing ... I'm not on committees any longer, but I feel strongly that some of these mines are building camps onsite and I'm very much against that. That should be part of the community. I think you should expand the town and be part of the community.

Timing of meetings appears to have been an issue that was not particularly well managed in the early stages of engagement, with attendance very low due to the long working days experienced in rural districts. Upon realising that calling meetings were being scheduled too early, meetings were scheduled later in the evening to enable community members, landowners in particular, to attend.

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The first meetings we had I think we were making at 6 o'clock. And with the types of community you have up there, you've got the farmers, or whatever, they were saying with their work day is not a good time for them. They wanted to have them that little bit later.

Other concerns related to external issues, which negatively impacted on engagement activity or inexplicitly influenced community and stakeholder fears. For example, natural and man-made disasters or incidents that occurred overseas pricked community members' fears about the possibility of similar incidents happening in relation to CCS. These issues are pondered in the quotes below. Note, 'mudflow in Indonesia' refers to the 28 May 2006, PT Lapindo Brantas' (Lapindo) mud volcano eruption in East Java, Indonesia. Lapindo, a gas drilling company, was held liable by the Indonesian government for causing the mudflow eruption while drilling a natural gas well. The mudflow continues today and it is unknown when this might cease (Fointuna, 2010).

Yeah we had a night where we had a community session and the circus was actually next door to us ... and we didn't have many people turn up because obviously the circus was in town. And of those people that did turn up, there was a recent incident that had nothing to do with us as a project, but it was the mudflow in Indonesia. There was an incident where some drilling had taken place in Indonesia and there was a catastrophic failure, and then basically all this mud was flowing out of the ground uncontrollably.

And it also coincided with a movie that Bruce Willis was in about asteroids coming to the earth and all this sort of stuff, the catastrophic type of movies. And these external events sort of coalesced into a group of people who had real concerns about what would happen to the CO₂ in the ground, if an asteroid landed and smashed into the ground, and would the CO₂ come leaking out?

Concern regarding the security of any underground storage of CO₂ was another issue that became apparent through the interviewing process.

... there was a bit of concern about piping the gas to a nearby field here near Emerald, the escaping of it, because people know about the natural escapes in, say, Western Victoria and some parts of South Australia where the gas escapes naturally. Some people were aware of that sort of thing.

5.3.5 Local perceptions of the project

Local community perceptions appear to be mixed, with stakeholders indicating positive and negative feelings resulting from their experience of the project so far. One particular stakeholder's feedback could even be considered ambivalent.

... I couldn't really say what the community's impression is of ZeroGen at this time ... but this incident last week got sorted straight away, so that was a positive.

One community stakeholder noted that there had been no significant incidents that he had been aware of surrounding the project.

There's no reports of it not working or there being a blowout or an explosion or anything happening out there because something has gone astray.

A sentiment that was supported by another stakeholder directly associated with the project who indicated that over the three years that ZeroGen had been progressing the project, there had been "no great ups and downs" instead indicating that it had been a steady process that had been quite cordial, "neighbourly almost".

... they're out doing the community engagement and it would be, at least, pleasing for the community that people were at least out talking to them and telling them what's going on. So I would think that that would be a positive ...

Another stakeholder indicated that the developer had shown interest in the local community such that it had sponsored several local activities and were seen at local events, something that was perceived to be positive because it showed commitment to being visible and present within the community.

That's right, they had a presence up there. Whether it was through sponsorship, and not doing some big corporate sponsorship, just a few hundred dollars here and there, just helping out local organisations where they could, and actually going and attending things in their own time.

Future perspectives should the project progress appeared positive, however past experience of disappointment in being overlooked for substantial projects have resulted in strong scepticism within the local communities. This was particularly so for the Stanwell district according to one stakeholder who noted that community members showed concern about the prospect of allowing their hopes to be built only to have them dashed.

I think it was generally, it was positive. It was positive at the outset, but with a bit of suspicion. And the reason for that is that Stanwell had been involved in a very large infrastructure project that was a proposal previously, only two years previously that collapsed.

Well, when it was Stanwell, and I think you know it still sort of has this association, that's where the scepticism came from, because of those other few projects that had been proposed but not gone ahead where Stanwell proposed projects. They've got a big energy park up there. So I think they were a little bit sceptical but they knew the State Government was involved since day dot. So I think that gave it a bit more credibility as well.

Another positive identified by a stakeholder highlighted the potential for support of the local coal industry should the project progress beyond a study to an operational plant.

I think there was a sense of excitement that the coal industry was looking like it's a very positive move for the coal industry. I don't recall any serious ... I think there was questions asked about this safety and release locally, but apart from that I don't think there was any at all.

5.4 Non-government organisations

Several national non-government organisations were involved in the national consultation when the Ministerial Council of Minerals and Petroleum Resources was developing regulatory guidelines for CCS. This assisted with several of the leading environmental NGO organisations becoming more accepting of the need for trials of CCS at a more commercial scale. In fact, at several instances, Greg Bourne, the CEO of WWF, proactively discussed the role for CCS in an energy portfolio. Bourne formally endorsed the ZeroGen project via written correspondence in June 2010.

When the ZeroGen project was announced, there was some opposition to the proposal, in particular some local conservation groups expressed concerns and doubts about the feasibility of CCS as well as the potential for damage to local ecosystems. It has been interesting to see that over time some of those NGOs have become more positive about the need to trial CCS at scale to see if it can be considered part of the mitigation options for Australia and the world. However, this would not have been achieved without proactive engagement directly from the project proponent or other engagement work examining climate and energy technology solutions with other NGO representatives at the table.

6 Communication – public engagement

ZeroGen reinforced its desire to demonstrate leadership through goals that seek to achieve honest and transparent dialogue with project stakeholders within relationships based on mutual respect (ZeroGen, 2008b). This position was reiterated in an interview with a stakeholder associated with the project who indicated that effective two-way communication was an acknowledged priority of ZeroGen's stakeholder communication and engagement plan and that rather than be lost in the quintessential technical and engineering aspect of the project, it was essential that "public acceptance was recognised as a fundamental issue that transcended all of our [ZeroGen's] activities".

6.1 Communication strategy

Taking into account ZeroGen's philosophy above, it is interesting to note that feedback from some community members indicates that awareness of CCS is still low.

I could probably walk out of this door here now and talk to some of the guys here and talk about CC, you know, carbon capture, and they wouldn't know what I was talking about or they would say they know but they weren't aware of anything happening in the Highlands.

Comments from other stakeholders indicated that a very specific and deliberate communication strategy was undertaken by the developer with direct emphasis on engagement processes that permit information dissemination

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back to the community, and encourage dialogue between the developer and stakeholders. Emphasis was noted on the need to build strong relationships between the developer and the community.

So if you were genuine about building that relationship and genuine about, especially with that type of community, then you've got to be honest, you've got to be genuine and you've got to be legitimate.

The level of communication and engagement undertaken to inform and consult with stakeholders was described in detail by one stakeholder associated with the project. From the developer's perspective the following list of communication and engagement processes were imperative for effective stakeholder engagement:

- Develop a comprehensive stakeholder plan
- Approach stakeholders from a staged perspective (involved determining different level stakeholders from a national, state and local perspective, and grouping according to specific interest e.g. economic, infrastructure, financial, commercial, sustainability, lifestyle, etc)
- Ensure all stakeholders, particularly landowners (whose properties were crucial to the project's pre-feasibility study objectives) were treated with respect at all times
- Ensure respect of property privacy issues
- Ensure respect of rights, keeping distance until invited, seeking permission
- Engage directly with stakeholders
- Engage with all levels of stakeholders, including high end stakeholders through to local mum and dad stakeholders
- Engage local bureaucracy – keep them 'in the loop'
- Provide work for stakeholders when able (landowners)
- Compensate for access when possible, damage to and use of property
- Seek stakeholder input regarding site selection on properties (drill pads)
- Provide tangible assets for private use after project completion
- Go above and beyond engagement, ensure don't settle for the easy option
- Engage the local indigenous community, and ensure respect of land and culture at all times
- Articulate the local benefits
- Articulate the wider benefits – state, national, global and economic
- Investigate and became familiar with local culture.

So we really made sure, first and foremost we had a stakeholder plan, secondly that stakeholder plan was executed by the entire team and elements, key elements of that stakeholder plan involved understanding the interests of the respective segments of the stakeholder communities in the respective communities that were dealt with.

6.1.1 Who

The Stanwell Corporation initially, then ZeroGen, have maintained control of all community engagement activity specific to the project. To facilitate its communication plan, ZeroGen recruited the services of a stakeholder manager with a professional and personal background in community engagement who moved from Stanwell when ZeroGen began operation separate to the electricity generator.

Early in the project, to assist with the initial Environmental Impact Statement (EIS) community relations, ZeroGen engaged a public relations communication firm to undertake research with a focus on determining the most relevant stakeholders, local opinion leaders, influential community groups, formal and informal local networks, and relevant local businesses. In addition, the consultant assisted with ongoing communication on behalf of the developer, acting as a liaison between ZeroGen and its stakeholders. Following the change in direction from a pilot and demonstration project to a straight demonstration project, ZeroGen has developed and introduced a new Stakeholder Engagement Plan and appointed a dedicated Stakeholder and External Relations Manager to manage the plan in-house.

Identified stakeholders included landowners and regional and town residents (Emerald, Blackwater and Springsure), local government organisations (local shire councils, now amalgamated into the Central Highlands Regional Council) and state departments such as the then Department of Primary Industries (now a division of the Department of Employment, Economic Development and Innovation), and the Department of Environment, Resource and Energy's Water Division. Other stakeholders include indigenous groups, NGOs (primarily AgForce: a lobbying organisation representing rural producers) and environment and conservation organisations were also identified as key stakeholders for the pre-feasibility study. In addition, ZeroGen, along with the University of Queensland and CSIRO, has lodged an Education Investment Fund (EIF) application with the Federal Government with a view to ensuring ongoing knowledge and skill development surrounding IGCC and CCS technology. Locally, ZeroGen engages with schools and teachers as part of its education and communication program.

6.1.2 What

The stakeholder being engaged and the process being used strongly influenced what was presented and discussed in the various communication and engagement processes. This is best reflected in the strategic thinking done by the project proponents before any discussions with stakeholders. The following stakeholder comment relates to initial engagement strategies used when the project was investigating pilot options, prior to its current demonstration only focus.

And at the time what we tried to do, I believe successfully, was to align the interests of the stakeholders within Blackwater who are primarily dependent on the coal industry, with the interests of the project which was all about developing a technology without which the coal industry or a thermal power generation would not have a future.

Information relating to ZeroGen's pre-feasibility study was presented to stakeholders through a variety of communication and engagement processes. In the initial stages communication involved high-end discussions with key decision-makers with information presented via a PowerPoint presentation and a project proposal. Information included in the presentation and proposal related to the concept, the technology behind it, what CCS was and how it worked, its necessity for mitigating climate change, and detailed information relating to the project scope. This information was delivered via fact sheets, website, face-to-face meetings, public conferences, industry groups and national and international conferences, and included as part of ZeroGen's education and communications program.

At a community engagement workshop conducted by CSIRO, factual information was provided on the science of climate change and the broad portfolio of alternatives for low emission energy generation, including CCS. Information was delivered via an independent expert engaged in low emissions technology research. The information was developed as part of a collaborative project with the Queensland Government, the Centre for Low Emission Technology, CSIRO's Energy Transformed Flagship, the Australian Coal Association Research Program, the University of Queensland, Stanwell Corporation and Tarong Power. A participatory action research approach was used so that participants could set the agenda of the second workshop which was scheduled six months after the initial session. Those that attended both sessions showed a shift in the sophistication of their questioning of CCS and also their attitudes to it.

We walked home with a bag full of paperwork and all that sort of stuff so we sat down and read all that ...

Communication and engagement processes at the local stakeholder level were undertaken via individual meetings or public forums such as community liaison meetings and community meetings. These meetings took the form of informational sessions at which an overview of the project was made available, providing details about ZeroGen, its partners in the project, fast facts, the project aims, and the anticipated benefits the project would bring to stakeholders.

Obviously we would try to provide as much information as we could about the technical side of things without making it too technical. But we would always have supporting materials as well, like fact sheets and posters that people could take home with them. And we would try to provide it in a simple, not dumbing it down by any means, but clearly very simple ways that we could get the message across without overloading it from the technical side of things.

In addition, information was made available about CCS, how it worked, the reasons for its use and application, why it is necessary, and its proposed contribution towards climate change mitigation. Other information included details relating to potential test well drill sites and seismic testing required for best site selection, and an overview

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of how IGCC works in combination with CCS. Drill samples and other physical examples of the technology and its processes were set up on tables at meetings as a form of education interaction. The ZeroGen website also hosts a Frequently Asked Questions page which addresses more commonly posed questions surrounding the project and the technology that supports it.

In addition, local issues such as social and environmental impacts, and cultural and indigenous implications were significant in the communication and engagement processes with respective stakeholders. As well as information specific to CCS, information communicated included scheduling and timeline details, project updates and survey findings. Property access was a major communication issue requiring constant attention.

6.1.3 How

Various engagement and communication methods were used throughout the pre-feasibility study. Methods included meetings with key stakeholders in the study's early stages, either with individuals or small groups, at which PowerPoint presentations were given and the concept proposal provided. Ongoing engagement included meetings that were a mix of face-to-face encounters or group forums such as those used for the Community Liaison Group meetings and open public meetings.

We'd stand up in front of a PowerPoint presentation. We had posters on the walls. We sometimes had tables with drilling rock samples. A bit like an educative seminar as well as an information transmission. Always tried to make it a bit touch and feel, and with a number of speakers. So I would normally speak more particularly on the drilling program. Someone else would speak to the environmental areas, because we were going through an EIS process, explain how that worked and that sort of thing.

In the early stages of engagement with key stakeholders, the Stanwell Corporation was requested by the Queensland Government to engage an independent expert to hold a series of workshops in the Emerald, Blackwater and Springsure regions to provide information to local community members about CCS and to gain an understanding of local perceptions and attitudes towards the technology. CSIRO and the Centre for Low Emission Technology were engaged for this process. They did this using a participatory action research approach and the feedback was extremely positive.

We also made a point of having them go up and give a presentation to people as part of their research. To inform them about CCS as part of a broader portfolio, and informing them from an expert's position, I guess you'd say. And then they obviously followed that up with another meeting six months later or something like that, the same people ... and there was no representatives there from the project per se, but that was independent information session that we found very, very effective.

There were guys from DPI, Department of Primary Industries. Some school teachers, some other people of like interest...

ZeroGen also use a Community Liaison Group comprised of community nominated representatives of local leaders, a group of technical and scientific experts, and ZeroGen representatives. The object of the Community Liaison Group was to provide the community with a forum at which its representatives could raise questions or issues relating to the study that were then directly managed by a developer representative at the meeting. Information provided and questions answered could then be disseminated to the community through word of mouth. In addition, FAQs could be reviewed online via the ZeroGen website.

We set up a Community Liaison Group where we actually encouraged the community to nominate amongst themselves a body of leaders to facilitate and be the interaction between us, the project developer and the community.

And then the approach was really as I said, that grass root community meetings, getting people up there to have a chat, have a cup of tea. Meeting with people one on one.

Public meetings were convened at a time to suit local landowners who were contacted via open invitation through the post and via public notices in the local newspaper. These meetings took place in multiple locations (Emerald, Blackwater and Springsure) at which presentations were given and open question and answer sessions conducted. Different media were used to present information including posters, brochures and fact sheets.

Well, I understand there were public open meetings they had in some of the communities that people were invited to attend, and I guess it was advertised locally.

And some of those communities are reasonably small, so it wouldn't be hard to get word out that the meeting was on...

We'd have a short presentation; we'd have all the senior people from the team there as well to help with our credibility and to show our commitment to it.

Project milestones and other newsworthy issues were sent to local newspapers and relevant publications and, where appropriate, via government announcement. For example, information relating to the EIS and other project notices of interest to local community stakeholders.

... the item that's in today's paper is about; it's an open call to the public to submit comments with regard to environment, the EIS, the environmental impact statement.

In 2008, ZeroGen launched a project website and a toll free number to enable ease of access to project information. Individual letters and emails (in later stages of engagement) were also used to communicate with stakeholders.

We didn't really use emails at all as a way of engaging, it was all done by letters predominantly. Over the past few years this has been changing. More and more people are happy for us to contact them by email. I guess the way you would say was the grassroots approach.

6.1.4 When

Table 2 Communication frequency

| COMMUNICATION TYPE | AUDIENCE | FREQUENCY |
|-----------------------------|--|--|
| Newsletter | All stakeholders | As significant milestones were met. More frequently at the beginning |
| Community Liaison Group | Identified stakeholders only | Although a few meetings were held quite close together at the beginning, now they are held more on an ad hoc basis until the project moves to the next level |
| Community meetings (public) | All local communities | Held early in the life of the project |
| Flyers, posters, brochures | Community meetings, formal and informal meetings, progress updates, special events | As-needs basis |
| PowerPoint presentations | Formal and informal meetings, public meetings | As-needs basis |
| Media coverage | Local, state and national journalists | Regular updates, special event announcements |
| Door to door | Local landowners | As required, more frequent in initial engagement process |
| Letters | All local residences | Initial informational notice of demonstration trial, then on an as-needs basis |
| Email | Select stakeholders | By request |
| Website | All stakeholders | Launched in 2008, stakeholder initiated access |

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6.1.5 Stakeholder reactions

When stakeholders were questioned about whether community engagement was a priority for the developers, responses were varied. There was some indication from local community members that little community engagement occurred during the period of the pre-feasibility study undertaken for the initial pilot project, and that what engagement was undertaken was not adequately signposted. One local community stakeholder noted:

I would be surprised if anybody knew who ZeroGen was. We only know Stanwell because of their power station down near ... Stanwell. So they probably haven't pushed themselves too hard in the community at this stage.

We know things are happening but you know you hear about it once every three or four months and it's usually a paragraph or two and that's about it.

There was no sort of ongoing discussions or anything in the paper that I could recall which is basically the centre of communication for the township so ... you guys were there and there was a handful of people turning up to the meetings but other than that I don't think there was anything much else going on.

This perception however was not universal, with other comments implying that community engagement did occur on a regular basis, both individually and communally, and that the process appeared to be crucial to the success of the study. This may relate to the position of the individual who was interviewed. Those more critical and influential to the project obviously were more targeted than the wider community.

I came into it a few months after the whole process had happened. It [community engagement] was really driven by the ZeroGen team in partnership with the Phillip Group team.

So [name removed] started coming up and talking to us about the project and you know just giving us background information, whatever, about what ZeroGen was doing and Stanwell and all that sort of stuff. I don't remember the exact dates we met, but it would be going back a few years.

6.1.6 Common questions

Questions identified by stakeholders were extensive and varied. Some focused specifically on CCS and the technology that supported it, while others related to local physical, social and economic impacts. In particular, questions covered issues surrounding feasibility, viability, technology relevance, economic opportunity, infrastructure creation and maintenance, property access, financial compensation, safety and security, and responsibility and liability.

So there was a multitude of questions at the first phase when they didn't have much of an understanding of the technology or the project. And then there were other questions more related to the process later on as we got into the EIS process.

Examples of questions identified through the interview process are noted, in no particular order, in the table following.

Table 3 Common questions arising from the engagement processes

Common Questions

1. What is CCS?
2. What is the technology behind it?
3. What can you do with CO₂? What other uses?
4. Is it safe? What are the safety issues associated with the technology?
5. How do you safely store CO₂?
6. How deep does the CO₂ need to be stored?
7. How do you safely transport CO₂?
8. What if there is an accident?
9. Can the CO₂ come back up?
10. Does the project have support of environmental groups?
11. Is the project a 'done deal'?
12. Is it going to proceed?
13. How much will it cost?
14. How will it be funded, where are you going to get the money from?
15. Will they [stakeholders] have a say in the ownership of the project?
16. What will be the impact on the community?
17. How will indigenous land rights/land use agreements/cultural issues be dealt with?
18. What compensation will be offered? What form will this take?
19. How often will the community be engaged?
20. Who is driving the project?
21. Who are the decision makers?
22. Who will manage the project?
23. Will decision makers and management be accessible?
24. What is the timeframe for the project?
25. What are the steps towards approval?
26. How wide will the easements for the pipeline be?
27. What are the steps in terms of approvals?
28. How big was the footprint of the proposed site?
29. Will compulsory acquisition be used to acquire land?
30. From where will materials be sourced for construction?
31. Will locals be employed? If so, when?
32. How many will it employ? When can we plan for it?
33. Will outside labour be brought in?
34. What will be done about housing?
35. Will the developer be paying for accommodation to be built?
36. How will access to properties be managed?
37. What will be the impact to their land?
38. How will traffic be managed?
39. Will rigs be used on their land?
40. How many rigs will be used?
41. What HSE plans will be used in relation to rigs?
42. Will facilities taken on to properties be washed down?
43. Could we use the rigs to drill for water?
44. What is the profile of the project going to be in relation to the region?
45. Will it impact carbon emissions significantly if at all?

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Due to the nature of the project, some questions were not possible to answer because they related to the operational management of an IGCC/CCS plant and its corresponding issues.

Yes, you're talking about jobs, okay when? When can I plan for? So they're keen to see something happen and they want timelines and things like that, which is difficult for us because we're doing a pre-feasibility study which says we're exploring the potential to do something.

However, interview feedback indicates that where possible, questions were answered at the time of asking, or taken on board and responded to directly, or at the next Community Liaison Group or public meeting. It was noted that wherever possible, analogies were used to assist in the answering of questions that were difficult or complex in nature such as an explanation of CCS itself.

The process was to draw the analogy with other gases or fluids that have been successfully stored within the earth for millions of years, these being natural gas, oil and to draw the parallel between what we were exploring for, which is the geology similar to that, and you've got an analogy of iron gas that's been there for millions of years and what we're looking for is a similar receptacle, if you like. And that is very much the case, particularly near where we are, because we're on the edges of the Santos gasfield.

Another factor highlighted as important relating to managing stakeholders' questions was ensuring an avenue for questioning that permitted the silent majority to express their concerns. This was facilitated through the use of question cards that could be completed and sent to the team for response permitting the anonymity of the originator of the question.

... they were able to write in the cards questions and those questions would be collated at the end of a session and anonymously...read out to the public and they would be responded to.

When asked of the difficulties in responding to community questions in relation to the ZeroGen project, one stakeholder indicated the most difficult questions to respond to were those relating to the certainty of the project, associated costs, and working evidence of the technology:

I think it is really the questions that you just can't answer that some people do struggle with like: How much it is going to cost? Is it definitely going to go ahead? When will it go ahead? Those types of things.

One thing that I think we didn't do was really show other projects where CCS has been used or where integrated gasification has been used as well.

6.2 Further communication/public engagement approach

6.2.1 Corrective measures

Due to the project being at the earliest, pre-feasibility study phase, there are few corrective measures to speak of other than addressing communication and access issues which arose due to a lack of understanding of local culture. Specifically, meeting times were moved from 6 pm to 7.30 pm to allow landowners to be able to finish their work day and have dinner before attending. The way contractors access and leave properties, as well as manage damage to private and public property, is the other issue.

6.2.2 Media analysis

Information was sourced from various media for this analysis including print, radio, television and the internet, with a total of 37 items reviewed. Because this is a retrospective examination of the media, some earlier articles have not been located despite various searches and requests to the project developers, however a range of topics that were covered from 2006 until now have been included. Articles were searched according to a set of terms identified in Table 4 following. Google's search engine and the ANZ Proquest Newsstand online database were used to obtain the articles. The 2006 excerpt from the Queensland Parliament reporting demonstrates how the project was first announced. See Appendix C for a full list of media reports sourced for this media analysis.

Table 4 Media analysis - search terms

| Search Terms | |
|------------------------------------|--|
| CCS | Emerald |
| Carbon capture and storage | Springsure |
| Carbon dioxide capture and storage | Rockhampton |
| Carbon storage | Queensland |
| Carbon capture | IGCC |
| ZeroGen | Integrated Gasification Combined Cycle |
| Stanwell | Stanwell Corporation |

2006

Early media reports discussed the project as being linked to the Stanwell Corporation, Queensland coal-fired electricity generator, located in Stanwell in the outer regions of Rockhampton from where it was originally anticipated CO₂ gases from coal burning would be transferred to the injection site yet to be announced. Various components of the project were covered in different media, including the two technologies to be combined in the final project operational phase, IGCC and CCS. Information about how the technology worked, why it was being considered as a mitigation option and the type of geological structure necessary for storage were also discussed. Various locations were considered in the media as being options for the plant, with the Springsure region being the most commonly considered.

In October 2006, the Federal Government announced \$125 million funding for two CCS-related demonstration projects: the Fairview Power project designed to extract methane from coal, and the Callide Power Station retrofitting of CS Energy's oxy-fuel demonstration project. Shell announced its participation in the development of ZeroGen's IGCC/CCS power plant to be built by Stanwell Corporation, and located near Rockhampton in central Queensland with CO₂ to be stored in aquifers deep underground near Emerald.

Project Announcement

*Ministerial Statement
Great Barrier Reef Clean Coal Trial*

Hon. PD BEATTIE (Brisbane Central—ALP) (Premier) (9.51 am): The Great Barrier Reef is Queensland's jewel in the crown—an extraordinary natural wonder that brings visitors and researchers from all over the world. This summer, the Great Barrier Reef Marine Park Authority has already reported serious bleaching of reefs around the Keppel Islands and bleaching around Heron Island, Lady Elliot Island and offshore from the Whitsundays. The reef has suffered two major coral bleaching events, the first in 1998 and a second more serious event in 2002. In that year between 60 per cent to 95 per cent of the reef was affected and around five per cent was severely damaged or lost.

The Marine Park Authority continues to monitor the condition of the reef but it serves as a warning to all governments that we must take action. Yet the federal Minister for Industry, Tourism and Resources, Mr Ian Macfarlane, has dismissed climate change. Fortunately, his colleague the federal Minister for the Environment and Heritage, Senator Ian Campbell, has publicly stated on many occasions that climate change is a massive threat to the reef—and the senator is right. The Prime Minister, I and other state and territory leaders have agreed that greater action must be taken on addressing climate change. It was one of the many issues on last Friday's COAG agenda. If the Prime Minister and his environment minister are serious about the issue they need to ensure Mr Macfarlane understands the facts about climate change and the serious nature of its consequences.

The Queensland government is moving to help alleviate this threat which could jeopardise the jobs of 63,000 people and the \$5.8 billion that the reef generates for our nation's economy. We are supporting the development of new clean coal technologies. I am pleased to announce today that in a first for Australia the Queensland government owned Stanwell Corporation Limited is about to begin a feasibility study and test drilling in the Springsure-Emerald area. Stanwell is taking the lead in the research and development of clean coal technologies. That means long-term job security for Queensland's strong coal industry and for the thousands of families who depend upon it. Test drilling will begin in May in the Denison Trough to evaluate the area.

During the test water will be injected deep underground into sandstone reservoirs to determine their quality. As part of the testing around 60 tonnes of carbon dioxide—about three tanker loads—will be injected into the well. This is the clean coal technology process. The test will allow the company to determine the long-term feasibility of two cutting-edge technologies: firstly, a process to covert coal into gas, removing carbon dioxide to produce a high-hydrogen fuel used to generate power; and a second technology that captures and compresses carbon dioxide to allow it to be stored underground. If the tests prove successful Stanwell will build a demonstration facility that will combine carbon capture and safe storage of carbon dioxide, which will be a world first.

Stanwell is seeking funding from the federal government's Low Emissions Technology Demonstration Fund and I look forward to working with the Prime Minister to make the internationally significant project a reality. This research could guarantee the future of Queensland's coal industry. There is no point in having 300 years supply of coal if we cannot sell it to the world. We all understand the pressures that are created through climate change. This science and research project will give us an opportunity to protect that industry and also protect the environment.

Queensland Parliament, 2006

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2007

In 2007, media coverage was mixed. Discussion around pipeline lengths from capture points to storage points caused concern with the coal industry, sceptical in regards to the distance the CO₂ had to travel from the ZeroGen power plant to the geological storage site some 250 km away. This in turn resulted in discussion of a national common user pipeline plan for CCS to support CO₂ capture via all technologies.

Also in 2007, ZeroGen featured negatively in a public dispute between then Queensland Premier Peter Beattie and then Federal Resources Minister Ian Macfarlane. In a report headed: "Clean Coal Project Fails" covered by The Australian on 30 May, Minister Macfarlane claimed that ZeroGen had collapsed due to failing to show investors that it had a commercial future, and this was why the Federal Government would not support it.

More positively, Chris Wheeler, ZeroGen's Project Manager, announced that a community meeting would take place in Gladstone organised by the Gladstone Institute of Engineers. This meeting aimed to outline the successes to date of the first round of drilling near Springsure, reinforcing that ZeroGen was making progress in the capture and storage of carbon dioxide.

At the same time there was a change in government at the federal level, and a new Prime Minister with a focus on climate change was elected.

2008

In 2008, media reports focused on potential difficulties in raising funds to support the development of the technology, which was considered to be required to avoid dangerous climate change. It was reported that ZeroGen had undergone a reconfiguration process so that it would be able to produce more power in a short timeframe so as to be more attractive to industry and government. Media reports looked at the capability of the technology to effectively remove up to 90 per cent of CO₂ from gas waste from the plant. Discussion also focused on the viability of the technology from a cost perspective, an issue that was debated by the Australian Greens political party, which considered that public funds should not be devoted to clean coal technology.

Announcement of community briefings were also the subject of media coverage in 2008, commencing in Stanwell, moving to Blackwater, Springsure and Emerald. The ZeroGen Stakeholder Manager, Chai McConnell, indicated that the demonstration power station could be operating by 2012 with lessons learned from stage one incorporated into stage two processes. McConnell was also noted as indicating 2017 as the year the plant would become operational.

Concerns raised by Rockhampton Regional Councillor Sandra O'Brien regarding transporting of waste gas via trucks from Stanwell to outlying areas in the Emerald region instead of the initially indicated pipelines were prominent in local media at the time. Other concerns included information that the project would not be able to deliver 90 per cent reductions of CO₂ from waste gas as indicated rather 70 per cent reductions were cited by the media.

Environmentalist Dr Tim Flannery expressed his doubts over efforts being extended by the Queensland Resources Council towards developing low emissions technologies for electricity generation in Queensland. This was rebutted by Michael Roche of the Queensland Resources Council who indicated that the coal industry had committed about \$600 million over 10 years in support of the low emissions technology including two demonstration projects, ZeroGen and Callide.

The stalled nature of the United States Department of Energy's FutureGen Project caused substantial concern and was well represented in media reports in 2008, with anticipated setbacks to the technology's development cited to be three to five years. This concern was reiterated in the media over the closure of the Western Australian joint CCS trial by BP and Rio Tinto due to geological formations at the Kwinana trial site being inappropriate for long-term CO₂ sequestration. These events were considered bad omens for ZeroGen, which was yet to break ground on its plant construction, whereas it was noted that other large scale low emissions technology, such as solar, wind and geothermal, were available and ready to go.

Minister Ferguson's comments regarding the importance of CCS for the long term sustainability of coal-fired power generation was reported on as an indication of the government's support of the coal industry as opposed to climate protection. The government announced that clean coal power plants would be possible and several would be in operation by 2020. Per tonne costs for carbon and capture were also topics of discussion with \$40 to \$45 per tonne being considered.

Media coverage in this period also included the release of Professor Ross Garnaut's report on climate change. The report was commissioned in 2007 by the Australian federal, state and territory governments, and endorsed acceleration of research, development and commercialisation programs for low emissions energy-generation technologies. Both Callide and ZeroGen were seen as central to this process.

2009

In 2009, media coverage was again mixed but predominantly positive. Concerns were raised by the Federal Opposition's Greg Hunt regarding the need for demonstration plants such as ZeroGen to be required to purchase paid carbon permits under the proposed Carbon Pollution Reduction Scheme. It was indicated that there was potential for projects such as ZeroGen to fail as a result of carbon permit costs being too high to justify operation. Hunt accused the Government of not supporting clean coal in Australia. Job losses were cited with other concerns including the company being wound down at the time. Assurance was provided by Minister Ferguson that projects such as ZeroGen would be exempt from this program. The Government was noted as having provided \$100 million towards the formation of the Global Carbon Capture and Storage Institute in 2008.

The media actively covered the Weller Review conducted on behalf of the Queensland Government to assist in determining more productive ways in which the government should manage its various funding and grant programs. The review noted that an independent study should be conducted to determine if the coal industry should take over the ZeroGen project. The media noted that the Queensland Natural Resources Minister, Stephen Robertson, indicated that the government was considering winding up the project. Tony Maher, of the Construction, Forestry, Mining and Energy Union, was reported as implying that a move to wind up the project would be detrimental and that he would condemn such a move. The State Government indicated that the project required additional funding from the Federal Government for it to continue. These concerns were reiterated in several media articles with the main focus on the substantial cost of a project such as ZeroGen and the potential loss of taxpayers' money already spent on the project.

In this same period, Carbon Energy announced it would be storing waste gas emissions from its Surat Basin operations in Southern Queensland within 18 months, with ZeroGen's Central Queensland site identified as the potential recipient of transported waste gases.

Media announced that the Federal Government would spend \$120 million on low emissions power plants, with funding being allocated to four projects including ZeroGen. This funding was considered essential to assist the projects due to the level of competition traditional power plants imposed. The Queensland Government, having already invested \$102.5 million into ZeroGen and other demonstration projects, was noted to welcome the Federal Government support. Mining unions were also reported to be in favour of the Federal Government's investment, Tony Maher indicating that it was a boost for Queensland regional areas. He said that time was a factor, with a need for the technology to be proven before 2015.

Media coverage towards the end of 2009 indicated that the region west of Gladstone would be the site for ZeroGen's new IGCC/CCS power plant, noting that the area had been earmarked to play a role in Australia's low carbon future. Queensland was once more being considered as being placed to become a world leader in clean coal technology. After the Queensland Government Coordinator-General declared ZeroGen a significant project, an EIS was announced to be undertaken, with construction indicated to possibly commence in 2012 with the plant operational by 2020.

2010

Media coverage in 2010 was primarily positive. Coverage focused on the EIS being undertaken in Central Queensland for the ZeroGen project, and various options for siting the plant in the Emerald/Blackwater region. Japan's Mitsubishi Heavy Industries move for involvement in the project was well covered, as was a pre-feasibility study being undertaken by ZeroGen. In February, the Queensland Government announced that a draft terms of reference on environmental investigations surrounding ZeroGen, had been released for comment and, if approved, would result in some 2000 construction jobs for regional Queensland. Gladstone's Regional Council was reported in March to endorse the terms of reference. As part of the EIS process, ZeroGen conducted public consultation on the draft terms of reference involving government agencies, environmental NGOs, local government and individual community members from the region under study. This included areas from Biloela to the east of the state to

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Emerald in the west. Meetings and briefings were held in multiple locations including Biloela, Blackwater, Emerald, Comet, Brisbane, Rockhampton and Mackay and these were covered in various local media.

About the same time as the draft terms of reference release, concern was raised in the media by the Banana Shire Council regarding ZeroGen's failure to comply with a State Government discussion paper on sustainable development and land resources, citing competing land uses and the need to ensure balanced outcomes was not taken into consideration. The council was noted as implying that the government had allowed policy to be impacted by the developers and the mining industry. Concern was emphasised due to the timing of a meeting to discuss the submission with the council.

The Australian Greens were reported to consider clean coal technology as a 'scam' that pandered to the mining industry and unions, and that the process would not stand up to scrutiny and extensive testing. In early 2010, media comment included the December 2009 Copenhagen UNFCCC's summit refusal to include clean coal in its CDM funding mechanism. In April, the media covered John Cotter, AgForce president's firm objections to the technology, noting his uncertainty about its safety and potential negative impacts on underground water resources. Around this time, media also covered findings released by Houston and the College of London universities which indicated that it was impossible for one small coal-fired power plant to effectively reduce CO₂ emissions sufficient enough to make any impact on climate change, saying that CCS technology would take up time but result in little and was a potentially dangerous diversion.

The high cost associated with the development and deployment of CCS was once more in the media towards the end of the first half of 2010 with comparisons drawn between current financial support of low emissions technologies such as clean-coal plants as opposed to solar plants. The media reported that eight solar plant projects would receive \$15 million for studies (five with sites), with two winners to receive one-third funding from the Queensland Government. NSW however, had committed \$120 million for a state solar bidding program, while Victoria had committed more than \$100 million to the technology's development, and a further \$50 million for Silex Systems to build a solar plant near Mildura. It was reported however, that no large scale solar plants were planned for Queensland but that the state had committed \$300 million to develop clean-coal power stations.

Local activity in the Emerald and Springsure regions attracted media coverage when students and teachers attended two events that provided educational opportunities for gaining knowledge around sustainable practices and climate change mitigation, with representatives from industry, research and other organisations, including ZeroGen, in attendance.

7 Analysis of communication and public engagement approach

7.1 Five critical factors that affected the outcome

The following five critical factors have been identified as contributing to the success of the project to date.

1. **Develop clearly defined stakeholder plan** – great importance was placed on identifying all of the stakeholders that may have an influence on their project and prioritising them accordingly. Once the stakeholders had been identified, the next priority was to identify their interests and define the best way to manage and engage them, particularly considering what had preceded the project specific to that local community.
2. **Execute and evaluate the stakeholder management plan** – once the appropriate levels of engagement had been identified, it was critical to execute the plan and continually monitor and evaluate its effectiveness. Ongoing monitoring allowed potential significant events to be avoided and the stakeholder management plan was kept on track.

So we really made sure, first and foremost we had a stakeholder plan, secondly that stakeholder plan was executed by the entire team and elements, key elements of that stakeholder plan involved understanding the interests of the respective segments of the stakeholder communities in the respective communities that were dealt with.

3. **Understand the current political climate at all levels** – ZeroGen found it essential to understand more than the overarching national perspective. Specifically, the state and local context was very important as any unforeseen or unplanned issues can be quite destabilising – particularly when local agendas tend to override national objectives. In the case of ZeroGen, the Queensland state shire amalgamations created substantial angst within the shire councils earmarked for demise and any association with the state government, particularly to the

Premier, had strong negative connotations. Being aware of these issues, ZeroGen took an independent stance when communicating with the local councils and communities.

4. **Be aware of extraneous issues** – some issues can have a negative impact and deflect the positive nature of the engagement process. For example, being unfamiliar with local community event scheduling caused a community engagement meeting to be poorly attended when the circus came to town. Similarly, an initial lack of knowledge of the working commitments of the local community, specifically landowners, made early evening meetings non-events. Fear-inducing incidents whether real, related or unrelated to the technology, or a celluloid creation or re-enactment, need to be taken into consideration particularly when media coverage of these events coincides with community engagement processes. Indeed, issues that can have strong destabilising effects can be as far removed as a newly released natural disaster movie, which in the case of ZeroGen, caused local community members to become unduly concerned and to question responsibility/liability issues in the event of an accident or disaster.
5. **Positively address all stakeholder requests and include them in project decisions if appropriate** – highlighted as an important tool for ensuring open and effective communication with stakeholders and local community members and a great mechanism for keeping open all communication channels. Through consultation, ZeroGen was able to involve one of the landholders in decisions about where to locate some required infrastructure, which turned a more negative stakeholder into a supporter of the project.

7.1.1 Pitfalls

There would appear to be disparity across stakeholders' perceptions regarding the level and visibility of engagement and communication undertaken by the project developer. Some interview participants indicated a definite lack of awareness of any community or public engagement, knowledge of meeting schedules and no knowledge of any advertisements or invitations to meetings. Although this may be negatively interpreted and suggest that community engagement was not a project priority, it may also be that it was not seen as a need or priority within the community.

The lack of planning for competing local events was also a pitfall that could be avoided and worthwhile for other projects to consider. Some of this may be overcome by having a local person on the project team so that they can contribute their knowledge of local events.

7.1.2 Successes

Issues surrounding access to a particularly important key landholder's property were approached in such a way that enable the developer to successfully engage and achieve the desired outcome of gaining access to his property to conduct relevant tests. The engagement process, though not public, was observed and discussed within the community from a distance. The approach used by the developer was seen to demonstrate respect for the landowner and his property. By not attempting to enter the property and meeting the landowner at his property gate, the developer gained the respect and trust of the landowner and his peers.

And so what we did was to make sure that our engagement strategy was in line with my values and their values, and so things like not setting foot on their property without informing them and certainly, we actually got them to pick us up, 'cause he said, "I don't want you on my property, I'll sit down with you and I'll meet you at the gate," and so we met at the gate. And through doing that, we built this really positive relationship with him.

So he came out and walked the country with us and that was really instrumental, because if people knew that given that this is one of the premier properties in the region, they were watching that as a barometer.

As a result, the developer was able to obtain permission to access the property to carry out works related to the project. In addition, the developer negotiated compensation for access to water and for the landowner's services in constructing a road on his property for the project's benefit. The developer also sought input from the landowner regarding the location of a drill pad and pipeline required on the site. The landowner was able to build the drill pad himself and negotiated to retain the pad for his own use once the drill was demolished.

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... We negotiated a deal where we got the landholder who had a bit of a down period to use his machinery and to get his guys involved in building roads, and building the pad.

Why bring in a whole bunch of external contractors when if you've got a D6 lying there and you've got time, you pay that landholder appropriate rates and whatever, and they do it for you, they do a great job and they control their land you see.

Managing the relationships with key stakeholders was also a success. This is best evidenced by the positive and effective response to a council request for repairs to damage to public roads. Following access to a property over a particularly wet period, a contractor substantially damaged a recently graded public road and so ZeroGen was quick to respond and fix the problem.

I can tell you about an incident last week where...and it was to do with ZeroGen. But we had some rain up in the area and some of the contractors or whoever they were doing work for ZeroGen drove out of a property and onto a council road that had, really, it had just been fixed up, graded, this is a gravel road and drove it when it was pretty wet and ruined it. So the people, the ratepayers, rang up us complaining and so we got onto ZeroGen and they've organised for the council to get it fixed and they'll pay the bill.

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Appendix A – Interview guide

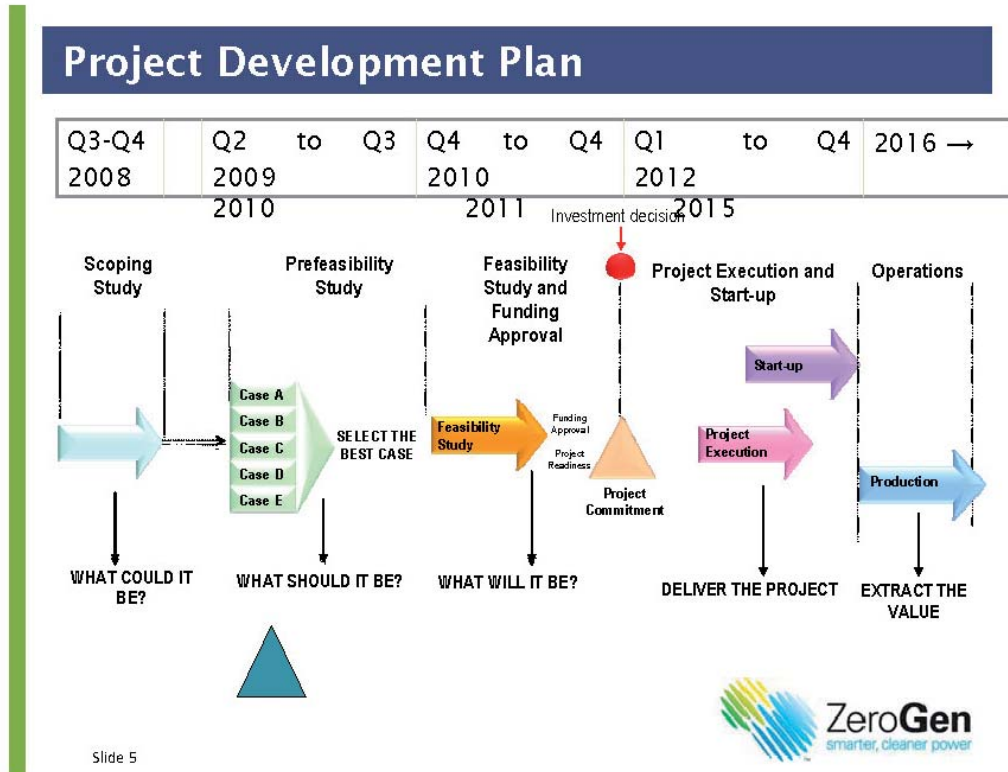
Project: International comparison of public outreach practices associated with large-scale CCS Projects

1. Tell me a little about you, your prior experience and what brought you to the project?
2. [For those related to project INDUSTRY, GOVERNMENT, RESEARCHERS, ETC]
What was your specific role in relation to the project XX? Why did you get involved in that role?

OR

[For others in the community: LOCAL COMMUNITY NGOs, OTHERS, ETC]
How and when did you first hear about the project?
3. How would you describe your relationship to the local community?
 - a. If multi-generational, going how far back?
 - b. Do you own/rent/work in the subject community?
 - c. How long have you been in the community?
4. How would you describe/(characterise) the/your local community?
 - a. Close knit, rural, urban, in decay, vibrant, etc. Can you provide some examples that demonstrate this?
5. What do you know about sequestration/carbon capture and storage? What is your level of expertise, experience with CCS (country specific)?
6. Did you know about sequestration/carbon capture and storage before or after learning about the project in your community?
7. What were the benefits that the developers communicated about the project?
 - a. How were they presented?
8. What do you think were the benefits of the project to the/your community?
9. How did the community perceive the benefits?
10. What do you believe were the main questions/issues raised by stakeholders in the community?
11. What is the community perception of the project developer?
12. Was community engagement a project priority? How was the community engaged? What information was presented about the project?
13. Can you think of an event or circumstance when things related to the project and how the public viewed it went very well?
14. Can you think of an event or circumstance when things related to the project and how the public viewed it went poorly?
15. Was there a particular event that marked a change in the level of public acceptance towards the project?
 - a. What happened?
 - b. [IF INTERVIEWEE IS RELATED TO PROJECT]
How did you respond?
16. What other information would stakeholders have liked to have heard or seen?
 - a. Were there any unanswered questions?
17. Would you be willing to provide educational background information for the purposes of this research?
18. How long have you lived in the community?
19. Is there any other information you believe might be important to understanding your role in the community?

Appendix B – Project development plans



Source: Morrison, 2009

Appendix C – ZeroGen Media Analysis

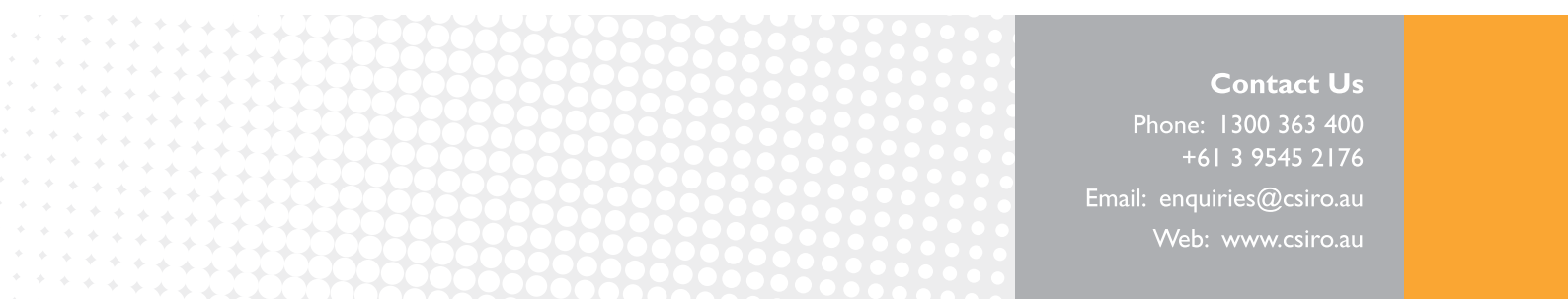
| MM/YY | Author | Title | Publication /Source | Media | Company | Focal Topic | Evidence/Expert cited |
|--------|------------------|---|--|--|---------|---|--|
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| | Sep-06 | Unknown | Shell joins QLD clean coal project | Australian Journal of Mining (ABIX abstracts) Reed International Books Australia Pty Ltd | Web | ZeroGen | Shell to be involved in power plant implementing CCS with ZeroGen to be located near Emerald n/a |
| 2007 | May-07 | Nigel Wilson, Energy writer | Clean coal project fails | The Australian | Web | ZeroGen | Claims by Fed Govt Resources Minister that ZeroGen had failed; disputed by Peter Beattie; ZeroGen failed requirement for Low Emissions Technology Development fund as unable to show commercial viability. Ian Macfarlane, Resources Minister (Industry, Tourism and Resources Department); Peter Beattie, Queensland Premier |
| | May-07 | Andrew Trounson, Infrastructure | Coal sector in big pipeline push | The Australian Nationwide News Pty Ltd. | Web | ZeroGen | Aust Coal Assoc pushing for a national common-user pipeline plan for CCS to support CO ₂ capture via all technologies; some concern over potential length of pipelines Mark O'Neil, CEO, Australian Coal Association; Peter Cook, CO2CRC |
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| MM/YY | Author | Title | Publication /Source | Media | Company | Focal Topic | Evidence/Expert cited |
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| 2008 May-08 | Christine Milne | Stuck in the coal age, when the solar century has already begun | ABC News Online | Web | ZeroGen | Clean coal technology prioritised by Govt for funding over other low emissions technology; Clean coal prioritised over solar energy storage research, means tests on solar installs cause industry to fail; where is urgency, more funds to defence then low emissions technology | Wayne Swan; Martin Ferguson |
| 2008 May-08 | Orchison Keith | ZeroGen aims to be first with clean coal power | Weekend Australian | Print | ZeroGen | ZeroGen project in Qld | Kelly Thambimuthu (CEO, cLET), Preston Chiaro (CEO, Rio Tinto Energy and Minerals Div) |
| 2008 Aug-08 | Peter Rosier, Civil Engineer | Calculations | ABC News Online | Web | ZeroGen | Provides calculations for CO ₂ emissions; sequestration capacity and solar energy | Bureau of meteorology |
| 2008 Aug-08 | Hammer Chris | Earlier start for clean coal power | The Age | Print | ZeroGen | ZeroGen moving commercial clean coal date forward | Heather Bridie (ZeroGen), Paul Breslin (ACIL Tasman) |
| 2008 Sep-08 | Jessica Darnbrough | Flannery wrong on coal climate response | Australian Mining Reed Business Information | Web | ZeroGen | Michael Roche (Qld Resources Council CEO) flawed by Dr Tim Flannery's ascertains that the Qld Coal Industry has done nothing to address support low emissions technology, citing Callide and ZeroGen and approx \$1B of support going forward. | Michael Roche, CEO Qld Resources Council; Dr Tim Flannery, Palaeontologist |
| 2009 Jan-09 | Unknown | Clean coal project 'will fail' under emissions trading scheme | ABC News Online | Web | ZeroGen | Carbon Pollution Reduction Plan ZeroGen failing due to Rudd Government seeking to impose carbon permits; Qld Govt committed \$100M; Kevin Rudd supports; Greg Hunt accuses Commonwealth Government of turning back clean energy on technology | Greg Hunt, Opposition Environment Spokesperson; Professor Ross Garnaut; Martin Ferguson, Resources and Energy Minister |
| 2009 Jan-09 | Unknown | Qld mulls wrapping up clean coal project | ABC News Online | Web | ZeroGen | An independent Weller review recommends a study be conducted into whether the ZeroGen project should be handed to the Coal Industry or wound up altogether. Supported by Natural Resources Dept and condemned by Unions | Natural Resources Minister Stephen Robertson; Tony Marr from the Construction, Forestry, Mining and Energy Union |

| MM/YY | Author | Title | Publication /Source | Media | Company | Focal Topic | Evidence/Expert cited |
|----------------|--------------------|---|---|-------|---------|--|--|
| 2009 Apr-09 | Johnstone Craig | State to bail out of clean coal project | The Courier - Mail | Print | ZeroGen | ZeroGen | Weller Review, Stephen Robertson (Energy Minister), Anna Bligh (Qld Premier) |
| Apr-09 | Johnstone Craig | Clean coal idea needs federal cash | The Courier - Mail | Print | ZeroGen | Future of Qld Gov's ZeroGen project | none |
| Jul-09 | Fidelis Rego | Study considers Surat carbon capture scheme | ABC News Online | Web | ZeroGen | Commencing scoping and front-end engineering in Central Queensland | Andrew Dash, Chief Executive |
| Dec-09 | Unknown | Clean coal on way in Queensland | The Northern Star APN Newspapers Pty Ltd | Web | ZeroGen | Qld on track to be clean coal technology world leader; environment assessment initiated, Qld Govt plans to build \$4.2M ZeroGen plant near Gladstone. Construction planned to begin in 2012. | Stephen Robertson, Minister for Mines and Energy |
| Dec-09 | Unknown | Govt funding for a carbon capture plant | The Observer (Gladstone) APN Newspapers Pty Ltd | Web | ZeroGen | ZeroGen short listed for Govt Flagship Funding to be sited close to Gladstone proposing to build IGCC/CCS low emissions coal power plant in central Qld by late 2015. ZeroGen well placed to be first commercial-scale IGCC/CCS plant in the world. | Tony Tarr; CEO, ZeroGen |
| Dec-09 | Mitch Grayson | Funding allows clean coal viability study | ABC News Online | Web | ZeroGen | Federal Government funding \$120m towards viability studies for CCS. With traditional competitors, project needs additional support to be viable. | Tony Tarr; CEO, ZeroGen |
| Dec-09 | Unknown | Pilot plants to test carbon capture viability | ABC News Online | Web | ZeroGen | Funding from Federal Government for testing viability of CCS technology | Martin Ferguson, Energy and Resources Minister |
| Dec-09 | Maria Hatzakis | Union backs clean coal investment | ABC News Online | Web | ZeroGen | Union welcomes Federal Governments decision to invest in clean coal, jobs! Union supports move. | Tony Maher, President, Construction, Forestry, Mining and Energy Union, |
| Dec-09 | Shelley Old | Clean coal project gets 'significant' status | ABC News Online | Web | ZeroGen | Project declared a "Significant Project" requiring EIA. Hinchliffe notes Qld on track to be world leader in technology. | Stirling Hinchliffe, Minister for Infrastructure and Planning |
| 2010 Apr-10 | Sam Burgess | Search on for greenhouse gas storage sites | ABC News Online | Web | ZeroGen | Qld Govt asking for tenders to explore potential underground storage sites for GHG from coal-fired power stations. A mapping exercise only, plenty of issues to address including environmental impacts and existing property rights for surface use of land. 20 years before tech operable. AgForce president unsure if tech is safe for underground water resources, John Cotter stated his objections firmly. | Stephen Robertson, Mines and Energy Minister; John Cotter, AgForce President |

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|--------|----------------|---|--|-------|---------|--|--|
| Jan-10 | Unknown | Power station on cards for CQ | Central Queensland News APN Newspapers Pty Ltd | Web | ZeroGen | EIA starts Feb 2010, poss construction of power plant either Dingo, Blackwater or Comet (poss options); possible jobs creation to result; Mitsubishi joins project, has proven tech no longer need to demonstrate, Stanwell 2012 now shelved, econ blow to Rocky, should benefit however with new siting; pre-feasibility study findings will determine final site. | n/a |
| Apr-10 | Unknown | Natural resources expo | Central Queensland News APN Newspapers Pty Ltd | Web | ZeroGen | NRM Expo at Emerald Showgrounds draws students to learn about natural resources and their uses. Representatives from industry, research and other organisations, including ZeroGen would be present with interactive displays on show. | Sue Sands, NRM Expo Spokesperson |
| Jan-10 | Unknown | Australia construction report: detailed analysis of the Australia infrastructure sector | M2 Presswire Normans Media Ltd | Web | ZeroGen | Mitsubishi joins ZeroGen, signed a \$3.4B agreement under which Mitsubishi will conduct a feasibility study for 530MW (gross) power plant for commercial operation by Sept 2015. Contract signed 22 June 2009. | n/a |
| Jan-10 | Keith Orchison | ZeroGen busy pursuing carbon sequestration --- PUBLIC SECTOR | The Australian Nationwide News Pty Ltd. | Web | ZeroGen | ZeroGen received support from fed govt announced grant short-list. Being a Fed election year, CCS projects support highly controversial in Qld, Greens are striving to win a Senate seat, call process a "scam" pandering to mining industry and unions, will not stand up to rigorous testing; Copenhagen refused clean coal in green energy projects funding scheme. | Michael Roche, CEO Qld Resources Council; Stephen Robertson, Qld Energy Minister; Tony Tarr, CEO, ZeroGen; Martin Ferguson, Resources Minister |
| Jan-10 | Adrian Taylor | Clean coal a maybe for CQ | The Morning Bulletin (Local Rockhampton News) | Web | ZeroGen | Environmental impact study for Central Qld. Project joined by Mitsubishi Heavy Industries (Japan), no long require demonstration as Mitsubishi already proved the technology in Japan. New site towards Springsure no longer Stanwell, economic blow to Rockhampton. | Federal Minister for Resources, Martin Ferguson, Queensland Resources Council |
| Feb-10 | Unknown | Govt wants to hear about cleaner coal | The Morning Bulletin APN Newspapers Pty Ltd | Web | ZeroGen | State Govt seeks feedback on draft terms of reference on environmental investigations on ZeroGen proposal. If approved generate 2000 construction jobs and Qld become world clean coal technology leader. ZeroGen first in world to build commercial scale power plant with CCS if technology proved. Construction due commence 2012 for operation in 2015. | Stirling Hinchcliff, Minister for Infrastructure and Planning |

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| Feb-10 | Unknown | BRIEFS | The Morning Bulletin APN Newspapers Pty Ltd | | ZeroGen | State govt seeking feedback on terms of reference. | n/a |
| Mar-10 | Unknown | EIS terms endorsed | The Observer (Gladstone) APN Newspapers Pty Ltd | Web | ZeroGen | ZeroGen terms of reference on environmental investigation endorsed by Gladstone Regional Council during the week. | Craig Butler, Gladstone Regional Council spokesperson (development) |
| Mar-10 | Unknown | Banana council slams influence of big developers | Central Telegraph APN Newspapers Pty Ltd | Web | ZeroGen | Banana Shire Council raise issue regarding ZeroGen project not adhering to State Govt discussion paper on sustainable development of land resources, including competing land uses, to ensure balanced outcomes. Considers developers had too much influence at state policy level that had created conflict with agricultural use of land, particularly acquisition of land. Concerned over meeting held only the day before submissions due. | Cr Vaughn Becker, Banana Shire Council; Matthew Glover, Development and Environmental Services Director |
| May-10 | Kerrie Sinclair | Left in the dark on solar | The Courier-Mail Nationwide News Pty Ltd. | Web | ZeroGen | Compares current financial support low emissions technologies such as clean-coal plants as opposed to solar plants. \$15M committed to solar plant projects (8 in total with 2 plants to win a third funding from state); whilst NSW has committed \$120M, Victoria \$100M plus a further \$50M for Silex Systems to build near Mildura. No large scale solar plant plans for Qld but \$300M committed to develop clean-coal power stations. | Anna Bligh, Queensland Premier; Stephen Robertson, Queensland Energy Minister |
| Apr-10 | Kerrie Sinclair | Carbon plan just hot air - US study says Australia is headed in wrong direction | The Courier-Mail Nationwide News Pty Ltd. | Web | ZeroGen | Cites Houston Universities findings that one small coal-fired power plant would require a small USA state sized reservoir to store carbon produced by it. CCS not practical. UCL called for Australia to rethink CCS. "(CCS) is potentially a dangerous diversion, soaking up time, resources and funding that could be better and more readily applied to achieving a low carbon future." Cites Fed and Qld State govt investment into technology. | Michael Economides, Professor of Chemical and Biomolecular Engineering, Houston University; Stefaan Simons, Professor of Chemical Engineering and Director of UCL's Centre for CO2 Technology, University College London |



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