

**A Tale of Two Cities:  
Western Australia's solar city project proposals.**

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**Abstract**

*Western Australia is the only state or territory in which Solar City project proposals were developed and submitted, but no projects were selected. Due to the competitive nature of the bidding and the commercial-in-confidence nature of the bids, as well as the in camera selection process, there will always be speculation over why some proposals were successful and others were not. Two cities, Perth and Kalgoorlie, were two competing solar city consortia in WA. A number of possible reasons can be put forward to explain why neither of the proposals submitted by these two city consortia was successful. Rather than being a case of sour grapes, there is value in asking what went wrong as the advancement of renewable energy, and photovoltaics in particular, in Western Australia will continue to be frustrated so long as a number of issues that are serving to inhibit the growth of the industry in Western Australia remain unquestioned and unchallenged. The failure of either Perth or Kalgoorlie to succeed in the quest to have a Solar City project should be used as an opportunity to identify and to understand these issues.*

**1. INTRODUCTION**

It was the best of times. In 2004 in Western Australia was enjoying an enduring resources boom which was creating wealth, rapid economic growth, low unemployment and unprecedented government revenues. On the economic front, everything was looking pretty rosy!

On some parts of the environmental front, things also appeared to be at least heading in the right direction. The State government was in the process of putting together the first state sustainability strategy prepared by any government in the world (WA government, 2004) and was also preparing a State Greenhouse Strategy (WA Government, 2003). One stimulus for these was the decline in the State's rainfall and water supplies, which were acknowledged to be, in part at least, a visible result of climate change. On other parts of the environmental front, however, things were not looking so good. The State's greenhouse gases emissions were rapidly increasing as a consequence of the expansion of the mining and the resource extraction sectors, which was underpinned by dramatic increases in energy use. The big question was whether the measures contained in either the State Sustainability Strategy or in the State Greenhouse Strategy would be effective in doing something about this rapid increase in greenhouse gas emissions.

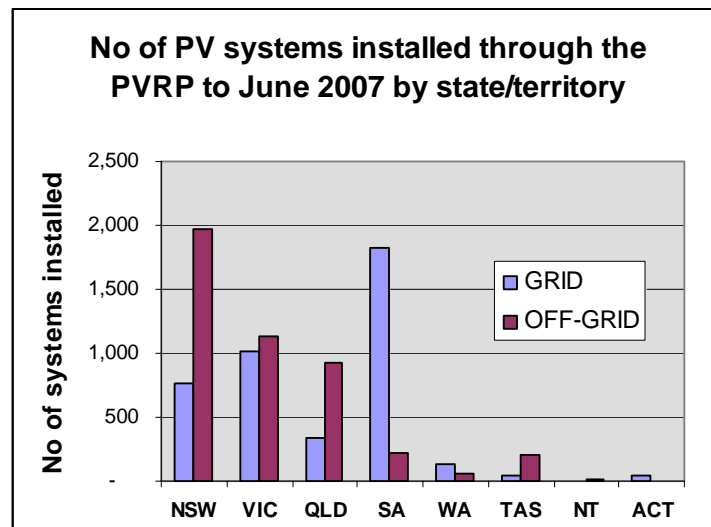
On the renewable energy front, things were not so rosy although some members of the government were given to waxing lyrical about the State's abundant renewable energy resources. The government had released its Sustainable Energy Policy in 2002 with the stated aim of supporting the development of the sustainable energy industry and reducing the State's energy-related greenhouse gas emissions. The Energy Innovations Division within the Office of Energy had been re-badged as the Sustainable Energy Development Office (SEDO) and given responsibility for delivery of the new policy. It was evident however, that something was not working. Not only were the State's energy-related greenhouse gas emissions soaring, but anything renewable was in the process of closing down. Western Power Corporation, once a national leader in renewable energy research, was abandoning its renewable energy research and demonstration program and its Sustainable Energy Branch was facing an uncertain future. The Perth based International Centre for the Application of Solar Energy (CASE) was being shut down. The Centre for Research on Applied Solar

Technologies (CRESTA) based at Curtin University was closing its doors. The only inverter manufacturer in the State, Australian Energy Systems (AES), was winding up its operations and the only small wind turbine manufacturer in Australia, Westwind, located in Perth, was soon to follow. The Australian CRC for Renewable Energy, headquartered at Murdoch University, was being closed.

As renewable energy businesses and organisations struggled and closed, investment in renewable energy in the State was stagnating. Although the State with the largest manufacturing of solar water heaters, the proportion of houses using solar water heaters in WA was declining. The primary stimulus for investment in renewables in Australia was the Commonwealth's Mandated Renewable Energy Target (MRET) scheme of 9,500 GWh of electricity from new renewable energy projects by 2010. The window for investment, however, was narrowing, as investors around the country built projects ahead of schedule to maximise the period over which income would be earned from the sale of renewable energy certificates. In WA, however, the electricity supply industry in WA was in the process of being reformed to introduce greater competition, and the uncertainty over the future regulatory framework that would be put into place was deterring potential investors in energy projects, including renewable energy projects.

But for the photovoltaic industry, it was the worst of times. The number of PV systems installed in the State through the Commonwealth's PVRP program was lower than the number installed in any other state, including Tasmania. Only the numbers installed in the NT and the ACT were lower (Fig. 1).

**Figure 1. Number of PV systems installed to June 2007 by state/territory**  
(Source: data from AGO website)



The State did have the largest slice of the Commonwealth's Renewable Remote Power Generation Program (RRPGP), with almost \$100 million available to WA while states such as NSW, Victoria, and South Australia had been provided with relatively little funding. . Photovoltaic systems were being installed in off-grid areas in WA using this funding, but those administering the program in WA were having trouble finding sufficient renewable energy projects to soak up the available funds.

The White Paper on Energy, *Securing Australia's Energy Future* (Australian government, 2004), however, provided that ray of hope that WA's PV industry was looking for. Released in June 2004 (Australian government, 2004), the paper announced a number of initiatives, one of which was a \$75 million Solar Cities Program. Here was an opportunity to be involved in a major PV project in the State.

Two Solar City proposals were subsequently developed and submitted from Western Australia. Neither of these two proposals, however, was to be successful. This paper describes the two Solar City proposals from WA and discusses some of the possible reasons behind their failure. The purpose of the paper is not one of complaint or to question the merits of those Solar Cities proposals that were selected. All of the successful projects were highly deserving and will undoubtedly provide valuable information on the capacity to integrate solar energy with demand side management, cost reflective time of use tariffs, community engagement and innovative financing. The purpose of this paper is to understand the reasons for the lack of success of the two bids from WA in order to tease out the lessons that can, and should, be learned from the exercise by those with an interest in advancing solar energy in Western Australia. It's simply a case of asking what went wrong and whether we can do better!

The attempt to explain the reasons for the failure of these two proposals confronts two major obstacles. Firstly, the process for preparing proposals was competitive and much of the detail was commercial-in-confidence in nature, making comparisons between proposals difficult. Secondly, the process for selecting proposals was undertaken by an expert panel working *in camera* to provide recommendations to two federal ministers. Although the proposals had to meet certain criteria, the basis upon which proposals were selected was not open to the public. The discussion in this paper on the WA proposals and the reasons for their failure therefore relies on the authors' knowledge together with the limited amount of information made public through media statements and other documents.

A third issue that renders any attempt at explaining the reasons for the failure of the WA proposals difficult is that among the possible explanations are some that are political in nature. Whether or not to include discussion of these political explanations presents a dilemma for academic commentators and researchers who are told that their moral duty is to speak the truth to power, but on the other that speaking the truth carries risks. That these risks are real has been highlighted by recent claims that public dialogue on policy issues, and academic input into policy debate in particular, is now actively discouraged (Jones, 2007).and that both government and the bureaucracy are increasingly demonstrating a preparedness to use their power to curtail criticism (Marr, 2007; Hamilton and Maddison, 2007). Recent first hand experience reinforced these arguments for the authors. A senior academic organising a public seminar on a renewable energy topic was contacted by a bureaucracy with a request that the public seminar be cancelled as the bureaucracy did not want the topic debated in public. The decline to do so was met with the high decibel wrath of a senior bureaucrat. It was clear that the bureaucracy presumed the right to control debate on all things renewable and did not take kindly to this view being challenged. In resolving this dilemma over whether to speak the truth to power or to take a more risk averse approach by omitting those explanations of a political nature, we have taken on board Emily Dickenson's poetic advice "to tell the truth but to tell it slant". We discuss some of the possible bureaucratic and political explanations, while omitting others.

## **2. BACKGROUND**

### **2.1 The Solar Cities Program**

We need to start by making it explicitly clear that the Solar Cities Program was both brilliant in concept and bold in scale. A large scale distributed generation and energy efficiency pilot project was what was required to break the tradition energy planning cycle dominated by the need to plan ahead large centralised plant to meet forecast demand but never being able to incorporate the ability to test alternatives. Borrowed directly from the USA, and California in particular, the idea was to bring together all parties with an interest in solar energy, demand management and energy efficiency to develop and implement integrated and coordinated pilot projects using innovative financing approaches. Somewhere along the way, time of use tariffs and "smart meters" were also added as essential requirements. The solar consortia used for this purpose in the USA were special purpose vehicles set up by electricity utilities, solar PV suppliers, research institutions and others, to undertake research on the capacity to package solar PV system deals and to monitor the results in terms of reduced peak load, reduced network investment and reduced household electricity use and bills. In the case of

Australia's Solar Cities Program, the goal was to achieve scales sufficient to achieve measurable impacts on these parameters.

Expressions of Interest from consortia were called on 15 April 2005 and consortia given until 22 July to submit. The information required for the EoI was highly unusual in both detail and volume, but twenty-one consortia managed to jump through this hoop and put in completed submissions. Proposals were submitted from all states and territories except Tasmania and the ACT (Table 1). Two proposals were submitted from Western Australia.

Eleven proposals were announced as having been short listed in early December 2005 and were invited to prepare Detailed Business Cases. Both of the two Western Australian proposals were among those short listed. Short listed consortia were given until April 2006 to submit their Detailed Business Cases and were provided with \$50,000 to assist in the preparation. The Australian Greenhouse Office also employed a consultant in each state to assist the consortia.

The first of the successful proposals, North Adelaide, was announced on 30 August 2006. The fifth and last successful bid, Central Victoria, was announced almost a year later on 20 July 2007. The process was exhaustive, the time from the announcement in the Energy White Paper to the announcement of the last successful proposal being over three years, and the time from the call for expressions of interest to the final announcement over two years.

## **2.2 The WA Solar City proposals**

### **2.2.1 The Perth Solar City proposal**

In early 2004, four individuals got together to develop and put to the WA government a proposal for a large, iconic PV project. The aim was to convince the government that such a large system on a commercial building within the Perth CBD would provide the government with a visible signal of its support for sustainable energy. The proposal was submitted to the Minister for Energy and to the publicly owned electricity utility, Western Power, but failed to generate any interest or a response. An opportunity then arose to present the proposal to the newly appointed Minister for Housing and Works, the Hon. Fran Logan, who was immediately interested. When the Energy White Paper, *Securing Australia's Energy Future*, and the Solar Cities Program were subsequently announced, the Minister instructed the Department of Housing and Works (DHW) to take the lead in developing a Perth Solar City proposal. The initial proposal in this way seeded and morphed into the Perth Solar City project lead by the Department of Housing and Works.

When expressions of interest were called, the Department quickly put together a project team and the four individuals that had prepared the original proposal were invited on board, along with various other groups. The project team was not so much a 'consortium' as a group of interested parties assisting the Department, the latter having full control of all decision making.

Perth's high solar radiation, the strong support at the political level from the Minister and the significant resources that a large Department was able to contribute provided the Perth proposal with considerable strength. The DHW allocated a number of its staff to the project, provided the necessary financial resources and engaged a consultant to manage the preparation of an Expression of Interest and, subsequently, a Detailed Business Case.

### **2.2.2 The City of Kalgoorlie-Boulder Solar City Proposal**

The City of Kalgoorlie-Boulder is the largest regional city in Australia, located 650 km east of Perth, is Australia's largest gold mining centre. The City's vision was to make the transition to a family-oriented city with a more diversified and sustainable economy. As well as gold, the city has good solar radiation resources and solar power was seen as a potential new business development opportunity for the City and a new possibility to market the City. This

interest, which pre-dated the announcement of the Solar Cities program, was acknowledged by the State government during the 2004 State election when the Premier declared that his government wanted the City to become the State's solar city. The City was seeking funding to use solar energy to operate its aquatic centre and was looking at a possible solar farm. When the Australian Greenhouse Office (AGO) called for expressions of interest in Solar City proposals, the City was quick to announce its interest and invited Perth-based and local PV companies, universities, electricity retailers, local banks and credit unions, major mining companies, local businesses and community organisations to a workshop that was used to put together a Kalgoorlie-Boulder Solar City project team lead by the City. State government agencies, including the Department of Education, the Department of Housing and Works and the state government land developer, Landcorp, were also invited.

The City's primary strengths were the large support of the local business and organisations, the City's own willingness to make a significant financial contribution to the project, and the fact that it was a natural island electricity supply area at the fringe of Western Australia's south west interconnected system (SWIS), which made it a perfect site for a trial and was already being used in trials in the areas of water saving and health. The existence of a nearby town, Kambalda, with very similar climate and demographics that could serve as a control group added to the City's suitability for a pilot project.

The City's biggest weakness was the lack of support from the State government. Not only was it located in electorates held by Liberal members at both the State and the federal levels, including the leader of the State Opposition, but the rival Solar City proposal in Western Australia was being lead by a State government agency. This was to have major ramifications.

### 3. A HIERARCHY OF EXPLANATIONS

There are many possible explanations for the failure of either of the two WA Solar City proposals to be selected can be advanced. The following discussions works through this hierarchy from the simpler and more straight forward to the more complex and contentious.

#### 3.1 Simple arithmetic

Competitive selection processes, such as that used by the Solar Cities Program, are akin to a game of musical chairs. The competitors outnumber the seats available and are asked to dance around a set of chairs to a tune and when the music stops they are required to madly scramble for a seat. Those that miss out exit the game and the process is repeated. The Solar Cities selection process was like an abridged version of musical chairs. The Australian Government encouraged "government and industry to develop detailed proposals to host the trials, so that the best locations can be chosen (Dept. Prime Minister and Cabinet, 2004). Twenty-two consortia declared their intention to play by submitting an expression of interest (Table 1), while the number of seats was said to be "at least four" in the initial announcement and even as late as January 2006, many still thought that only four would be selected (Williams, 2006).. Up to eighteen of the consortia, therefore, were going to miss out on a seat.

**Table 1. The number of consortia submitting an Expression of Interest, A Detailed Business Case and selected.**

<b>Sate/Territory</b>	<b>Number of consortia that submitted an Expression of Interest</b>	<b>Number of consortia short listed and invited to submit a Detailed Business Case</b>	<b>Number of consortia selected</b>
<b>NSW</b>	7	3	1
<b>SA</b>	5	2	1
<b>Victoria</b>	3	2	1

<b>Qld</b>	3	1	1
<b>NT</b>	1	1	1
<b>WA</b>	2	2	0

The process was more competitive for some than it was for others as one of the seats had been reserved. The Energy White Paper and subsequent summaries (Dept. Prime Minister and Cabinet, 2004) stated that “cities such as Adelaide would be prime locations for the trials. That Adelaide definitely would be selected followed in subsequent announcements. Adelaide’s pre-selection was attributed to Adelaide’s relatively high solar radiation and acute peak capacity shortages.

There was in fact some confusion over whether one or two seats had been reserved. Although statements were made that only Adelaide was guaranteed a seat, the initial announcement by the Prime Minister made it clear that not only Adelaide, but also Sydney would be selected (*The Sydney Morning Herald*, 15 June 2004).

The decision to pre-select Adelaide and Sydney lead to speculation as to the reasons. The reason stated in the Prime Minister’s announcement was their warm climates. The Energy White Paper, however, also included a statement that solar power was “a zero emissions energy source, in which Australia has developed leading edge technologies”. Solar PV manufacturing plant or planned plant was located in two cities, Sydney and Adelaide.

The simplest explanation for the failure of the two proposals from WA to be selected was that these were among the nineteen consortia competing for two or three seats. At least sixteen of these nineteen consortia would miss out.

The task of explaining why the two WA proposals missed out, however, became more difficult in December 2005 when it was announced that the eleven proposals had been short listed and that both of the two Western Australian proposals were among those short-listed.

### **3.2 A competitive process**

Because of the large number of consortia and the small number of guernseys that would be available, the Solar Cities Program was a highly competitive process. If it was assumed, as some speculated, that there would be a political imperative to select a Solar City project from each of the states, then any other proposals in your own state immediately became your main rivals. Rivalry therefore existed not only between, but also within four of the states. One of those was WA.

The City of Kalgoorlie-Boulder recognised that it lacked the large funding support that the State government was providing to the Perth proposal. The Perth consortium recognised that while it had large resources and the political support of the WA state government, the City of Kalgoorlie-Boulder had its own advantages: it was compact, was located in Liberal electorates, had good solar radiation resources, and was a natural electricity supply area to undertake a trial. Recognition of their own weaknesses and the strengths of their opponents led in the Expression of Interest phase to negotiations over a possible compromise – a merged proposal. These negotiations eventually broke down, however, over an inability to reach agreement over who would lead the merged bid.

No such rivalry existed in the two jurisdictions in which only one proposal had been short-listed. In the case of Queensland and the Northern Territory, the Solar City proposals enjoyed the undivided attention and support of their State governments.

### **3.3 The role of State governments**

Consortia were advised that Solar City consortia would need to involve the collaboration of both state and local governments. In most case, the State governments provided both

logistical and funding support for all consortia. Where a single consortium had been short listed in a state, the consortium received a greater level of support.

State government support for the Perth Solar City proposal was not an issue as the lead proponent was a State government department with access to significant state funding resources. The Department co-opted the support of other agencies, including the Department of Education, the Department of Planning and Infrastructure and the public land development agency, Landcorp.

The State government support for the Perth Solar City proposal went beyond appointing a state government agency to act as lead proponent and the co-option of other state agencies to assist. The Premier released the Expression of Interest and the Detailed Business Plan at staged media events and throughout the whole process Ministerial statements reported in the media repeatedly referred to the Perth Solar City proposal as Western Australia's Solar City proposal. It was not entirely clear whether government ministers had forgotten about the other Western Australian Solar City bid, or if their intent was for the public to forget about it.

The Kalgoorlie-Boulder consortium struggled to obtain support from the State government. Although Landcorp and some other agencies were highly supportive, other agencies were less so and some advised that they were unable to assist the Kalgoorlie-Boulder proposal as they were already assisting a rival proposal.

### **3.4 The role of the State government sustainable energy agency**

In each State, the agency with responsibility for energy and/or sustainable energy policy initiatives provided support in some form or another. In Victoria, for example, Sustainability Victoria used its expertise to assist consortia by working with them on their proposals in order to ensure that their submissions were well structured, polished and well presented.

In Western Australia, the Office of Energy played almost no role in the Solar Cities process and neither the Perth nor the Kalgoorlie-Boulder consortia received assistance of any significance. The AGO provided funding for a consultant to be engaged in each state to assist consortia with the preparation of their Expressions of Interest and Detailed Business Case and the Office of Energy insisted that the consultant be engaged through its own office. This in fact created friction between the two consortia which were reluctant to share a consultant. Furthermore, proposals by the consortia to strengthen their proposals by incorporating or working along side any state solar initiatives implemented or planned by the Office of Energy, such as solar schools program, were declined. Western Australia was in an odd situation, therefore, where a separate state government agency was the lead proponent of one of the proposals while the government agency with responsibility for promoting sustainable energy supported neither proposal.

### **3.5 Level of local government support**

The lead proponent for the Kalgoorlie-Boulder proposal was a local government body and was closely assisted by the regional development commission.

One of the key issues for the Perth project team was how to expand the project to include private households. Many of these issues were not resolved until the Detailed Business Case phase when the Eastern Metropolitan Regional Council was invited on board. Once this occurred, the Perth proposal had strong local government support.

### **3.6 Engagement of the Community**

One of the primary strengths of the Kalgoorlie-Boulder proposal was the high level of community support at the local level. Local TV, radio and newspapers were keen to offer support and many businesses offered in-kind service. The City was also in a strong position

to engage with the community through together with the Goldfields-Esperance Development Commission, through their websites, newsletters and public meetings. The proposal also included a substantial public awareness and participant recruitment strategy employed by a Perth-based company and to be delivered by a local government that had used the strategy for its own waste management and energy management programs.

The Perth consortium lacked any immediate connection to the communities that it was targeting. In fact, for some time it was not clear which communities were going to be targeted. The problem was resolved by recruiting a company into the consortium that offered sustainable energy and other services to businesses and households. Using this company, an ambitious strategy targeting a large number of households was developed.

### **3.7 Industry involvement**

Companies were keen to be involved and participated as either consortium members or third parties in both Kalgoorlie-Boulder and the Perth proposals. The critical companies, however, were the PV suppliers and the financial institutions.

The Perth consortium included two PV suppliers, one a local supplier and the other a national supplier. The competition between the two created issues, but also put pressure on both companies to put forward attractive offers. Both companies were allied to financial institutions and were able to put together financing packages, which when combined with the large scale and the financial support from the department resulted in packages for participants that were likely to be highly attractive compared to those offered by other consortia.

Being a regional centre, the PV industry has a lower presence in Kalgoorlie-Boulder than it does in Perth and the costs of labour are higher. A small PV supply business operated in the City, and a small local financial institution offered support. Neither of these local businesses, however, were able to provide the levels of support that could be provide by national companies. Larger PV suppliers approached the consortium and were invited on board, bring with them their allied financial institutions and packages for participants were developed through these and other companies. At a relatively late stage, however, the consortium became aware that the support being offered was far less attractive than what was understood to being offered by same PV suppliers and their allied financial institutions to other consortia. The consortium therefore was left with a need to find alternative PV suppliers and financial institutions at a late stage. The consortium was forced to make the balance between further reducing the scale of the project and reducing the attractiveness of the packages that it could offer to participants.

### **3.8 Participation of electricity utilities**

A major weakness of both of the Western Australian proposals was the difficulty of persuading electricity companies to participate. One reason for this was unfortunate timing. Just at the time that Expressions of Interest were called, the publicly owned electricity utility in Western Australia was being disaggregated as part of the competitive reform of the state's electricity supply industry. Not only did the utility have many other pressing issues at the fore of its mind, but one of the issues that would need to be confronted was how any existing contracts would be allocated. For Western Power Corporation, this therefore was not the time to be entering into any new agreements. Many within the organisation, however, wanted to participate and the utility did eventually come to the table with a generous offer, to both consortia, to provide substantial in-kind support, but only as a third party member. The two Western Australian proposals were the only proposals short listed that did not have an electricity company involved as a consortium member.

The lack of an electricity company as a consortium member had number of significant impacts, one of the major ones being the ad hoc nature of the two Western Australian bids. In terms of understanding where to best locate a trial to have an impact on peak loads, both consortia were blind. Both of the lead proponents had put up their hands to lead trials that

aimed to test the capacity of solar systems to reduce peak loads, but without an understanding of what the peak load problems were or where they were.

A further problem for both consortia was that most of those in the new electricity network business were highly sceptical of the benefits of the capacity of PV and other distributed generation or demand management measures to have any material impact on peak loads and on network upgrade investment decisions. Putting aside the questions of why consortia were required to include in their Detailed Business Cases their calculated estimates of the network investment savings when the purpose of the trials appeared to be to find the answer to that question, the scepticism of the network extremely made this an extremely difficult thing to try to do.

### **3.9 The WA electricity market**

The principal focus of the Solar Cities Program from the outset was the capacity to use solar PV systems to reduce peak load demand. Many overseas PV programs were based on an assumed high correlation between ambient air temperature, peak electricity demand and PV system output. That PV systems were a natural solution to peak load issues was an idea that had become well entrenched in some quarters and that those behind the development of the Solar Cities Program were among those holding such a view was clear from the Energy White paper, which included a figure in which the output of a PV system was superimposed over Adelaide's peak load. The central idea was that although PV systems represented a high cost means of generating electricity, meeting peak loads through centralised generation plant and networks was also high cost and these costs were reflected in peak load electricity prices. With a cap on peak load prices in the misnamed National Electricity Market (NEM) was \$10,000/MWh, it seemed that PV may be able to provide not only a cleaner but also a lower cost option.

The actual strength of the correlations between air temperature, and peak loads, and between air temperature and PV system output, particularly in humid climates such as Sydney, had been questioned by some independent, academic studies (Murphy, 2005), raising doubts about the capacity of PV systems did be used to defer network upgrades where these upgrades were driven by increasing peak loads. In the case of Perth and even more so Kalgoorlie, the problem was not so much the correlation between these parameters, due to their climates. Rather it was the fact that peak electricity prices in the WA electricity market were capped at a very low level of \$35/MWh.

The reason for the low peak price cap was the method used in the new WA electricity market to pay for generation. Those who had implemented electricity market reform in WA had adopted a model used in some Scandinavian countries whereby generators are paid separately for capacity and for electricity generated. Under this system, generators bid for reserve capacity credit payments two years ahead. This is designed to ensure that sufficient capacity will always be available to meet demand, thereby avoiding price volatility. It also removed the very signal used in the NEM for new investment in generation - high peak prices – and this made the task of designing tariffs for WA's Solar City projects a major challenge.

### **3.10 Scale and measurable impacts**

The two WA Solar City consortia adopted diametrically opposed strategies in terms of scale and as a result the two proposals came to represent the two extremes. For a number of reasons the Kalgoorlie-Boulder consortium reduced the size of its project, while the Perth consortium went for as large a scale as possible.

The reasons that the Kalgoorlie-Boulder consortium downsized were partially forced upon it by circumstances and in part a deliberate strategy. The CEO of the City of Kalgoorlie had moved on, leaving the new CEO with the difficult task of understanding and defending a high cost inherited project. The City was also struggling to obtain any a commitment of support from the WA government. At a late stage it also became aware that it needed to find more

attractive solar PV packages that were being offered. One of the strategies adopted was, therefore, to reduce the size of its proposed project. The rationale behind this decision was based on hunches as to which other proposals would be selected. It was assumed that both Adelaide and Sydney would be selected. Queensland was also seen as highly likely to be selected for several reasons. The Townsville proposal had a very high public profile and clear high levels of community support. The lead proponent was the local electricity utility. And one of the ministers that would be making the decision was from Queensland. Rightly or wrongly, the Kalgoorlie consortium put its faith in its hunch that these three proposals would all be selected and, furthermore, that if each of these was provided with \$15 million, this would leave \$30 million. But given that some of the original \$75 million funding would be required to cover the AGO's own administration of the program and its monitoring and other consultants, and that this was not likely to be an insignificant amount, the consortium assumed that the remaining amount would be significantly less than \$30 million. If this was the case, then it meant that there would be insufficient funds remaining for two large projects and that its own chances of being selected would therefore be maximised if it submitted a bid that asked for well below \$15 million. This fitted with the advice from the AGO that proposals did not need to be above a minimum size (Australian Greenhouse office, 2005, p.11).

The PV systems, being the highest cost component, were the target for the scale down. The other reasons for reducing the PV component was that it appeared unnecessary to install large numbers of PV systems to understand their impact on peak loads as this information could be obtained from a small number of PV systems and could even be accurately simulated. The consortium was having trouble finding a way of reducing the costs of its PV packages and after receiving advice from the AGO that there was no minimum number of PV systems required, this was the strategy adopted. The consortium's solar component was increased by including a small number of concentrating PV systems funded by the City itself.

The Perth consortium adopted the opposite strategy and significantly expanded the scale of its proposed project using a two-staged approach with a massive roll out of smart meters in the second stage. The ramp up in scale was made possible through the use of new, highly attractive financing mechanisms. The target area was also consolidated to a smaller number of local government areas and the Department's own contribution was significantly increased. The previous focus had been the installation of large scale photovoltaic and solar water heater systems on the Department's own houses and housing apartment blocks located around Perth. The Department's own buildings, however, were scattered throughout the Perth Metropolitan area and the problem for the Department was how the project could be concentrated into an area to achieve a measurable effect on particular feeder lines or substations. These issues were resolved by co-opting the Eastern Metropolitan Regional Council.

### **3.11 The long wait**

Detailed Business Plans were submitted in April 2006 and in November 2006 it was announced that the Blacktown Solar City proposal had been selected as the third successful proposal. There were strong rumours at the time that Alice Springs and Perth had been recommended and that these announcements would follow. In the intervening period to July 2007 when the last project was announced, however, a number of events occurred that may have impacted on the chances of the two WA proposals.

In September 2006, it was announced that the Townsville Solar City proposal had been successful. A month later, the federal government announced that it would be contributing \$75 million toward a 154 MW solar power station in Victoria. Both of the WA consortia viewed the announcement as increasing the likelihood that one bid from the State would be successful as this would reduce the political need to select a Solar City proposal from Victoria and make it possible to select one Solar City project from each of the remaining three jurisdictions. But they needed to wait for a several months to know if these assumptions were correct.

In March 2007, the tide started to turn the other way for the WA consortia when Senator Ian Campbell stepped down as the federal minister for the environment. No longer would one of the federal ministers making the decision on the remaining Solar City projects be from WA. The wait had also been long and at about this stage, the City of Kalgoorlie-Boulder assumed that its proposal would not be successful and began investigating the option proceeding with some components of its Solar City proposal separately, knowing that this would further reduce the chances of the Kalgoorlie-Boulder Solar City proposal being selected. The Perth consortium, however, remained supremely confident and ministerial press releases made it clear that the WA government was now waiting for the news that the Perth proposal had been selected.

Meanwhile, the WA Sustainable Energy Development Office decided that it would undertake its own analysis of the costs and benefits of connecting PV systems to the WA grid and commissioned the University of NSW to undertake a desk top study. The report concluded that investment in PV as a means of deferring or avoiding network upgrade investment could not be justified on economic grounds. Some saw that the commissioning of this study by the WA government at this stage as a risk as it had the potential to be interpreted as the State doing its own thing and indicating a lack of interest in a Commonwealth lead Solar City trial in the State. Whether this was actually the case or not will never be known. The two WA consortia were unaware that report had been commissioned and therefore of its potential ramifications. The announcement in July 2007 that Central Victorian proposal had been selected stunned the up until then increasingly confident Perth consortium and the WA government, while the Kalgoorlie consortium ignored the announcement continued to investigate their own projects.

#### **4. SUMMARY AND CONCLUSIONS**

Both of the two WA Solar City proposals had their merits, their strengths and their weaknesses. Both of the consortia were highly committed and both put in an enormous amount of resources and effort. That they were unsuccessful did not reflect on the members of either of the two consortia. Their proposals were eventually unsuccessful for many reasons other than their efforts. The fact that their competitors prepared very good proposals is perhaps reason enough. However, to ignore some of the other possible reasons would be a mistake as to do so would risk repeating some of the mistakes that were made.

It was clear that two factors in particular contributed toward the failure of the two WA bids to be selected. One was the lack of coordination by the State government with the aim of maximising the chances of one or the other of the two WA bids being successful. Instead, the process became highly politicised, with the WA government throwing its resources and political support behind one of the bids while largely ignoring the other. There was nothing untoward or wrong in doing so. That was a decision that the State government was free to make. Had there not been a second bid from WA, the end result is likely to have been different as the enthusiasm within the State and within the State government for a WA bid to be successful was never in question. The fact that there ended up being two competing bids from WA was a result of chance and the random process of lead proponents self selecting themselves to lead a bid.

It was also chance that the minister most enthusiastic about the idea of a WA Solar City project happened at the time to be the Minister for Housing and Works. And the Department of Housing and Works threw itself behind the project and the result was a grand scale and highly competitive proposal. But not all other State government agencies were as enthusiastic and some lacked interest in participating and this created an internal lack of coherence.

Chance also played a role in terms of timing. The Solar Cities Program was announced in the midst of electricity reform, limiting the capacity of the State's electricity utilities to be involved. This left the two consortia struggling not only with the vagaries of the Solar Cities process itself but also grappling with electricity network planning issues and technologies that they did not understand and with trying to identify logical locations and approaches for a trial without any such understanding.

We have been seduced by the economists into believing that competition necessarily produces the best outcomes and is therefore the only option. In the case of the Solar Cities, it was a highly competitive process, but the way in which consortia came together to develop proposals was also ad hoc and the outcomes were determined by chance: by whoever happened to put their hands up to lead a proposal; by the circumstances occurring within each individual state at the time that made it more or less conducive for a proposal to succeed; and by the ability of some of the major players to differentiate between consortia in terms of levels of support and in this way influence the outcomes. Would the outcome have been any better or worse if each state was invited to support a trial in that State and to organise the best trial possible? The resources committed by the 21 consortia that prepared expressions of interest and the further resources that were committed by the eleven consortia that went on to prepare Detailed Business Cases is not known, but is likely to have been considerable and was probably well over \$3 million in total. Could those resources have been better utilised?

Whether any lessons will be learned from the Solar City exercise in WA is not yet clear. The feedback that the Kalgoorlie consortium is understood to have been given was that its project was too small, which left the consortium more than a tad bewildered. The City, however, shrugged its shoulders and went about working on its own ambitious solar city project. The feedback that the Perth consortium is understood to have received was that its ambitious large-scale roll out of smart meters was unconvincing, leaving the Perth consortium confused. The press statements from WA ministers made it clear that they at least considered the reasons given in the feedback to be unconvincing. The two consortia had adopted diametrically opposed strategies. One had decided to minimise the size of its ask from the federal government, while the other developed a proposal that was grand in scale while keeping the ask from the federal government relatively low, but both were told that their strategies had failed.

The overall conclusion that can be drawn is that while there is high level support for the advancement of solar energy, this support is not driven by genuine altruism alone. It is also propelled by political, personal, bureaucratic and vested interests. Not all of those interested in Solar Cities were interested purely in advancing the cause of solar energy or the industry, or even in reducing greenhouse gas emissions. Alongside that enthusiasm was their interest in generating business, public relations, protecting their territories and political kudos. We need to recognise and accept that this is the nature of the world. Those of us that assume that logic and reason alone will dictate solar energy policy and outcomes will be disappointed. While these other interests help to generate momentum, they can also derail the process. In Western Australia, the risk of derailment is often particularly strong. Like France and its attitude toward Europe, Western Australia has a fierce sense of being different and of wanting to do its own thing. This and other factors suggest that solar energy in WA will progress, but that its trajectory is unlikely to be either smooth or straight. Lindholm's (1959) classic description of policy as a process of muddling through comes to mind.

While WA perhaps muddled its way through the Solar Cities process, good things nonetheless did come out of it. The Solar Cities Program triggered debate within WA over critical peak loads and how these could best be managed. As the immediate demands and distractions created by disaggregation and electricity reform were left behind, WA's electricity business set about focusing on issues such as climate change, renewable energy and innovative ways of tackling increasing peak loads. In a way, the Solar Cities Program is happening anyway. Western Power has initiated its own pilot project of automated remote switching of refrigerative air conditioners and reverse cycle air conditioners, while Synergy has supported the local renewable energy industry by preferentially purchasing renewable energy certificates from renewable energy generators connected to the Western Australian grid and supporting the development of renewable energy industry by paying premium prices for electricity generated by the local renewable energy industry.

Nor has the tale of these two cities yet ended. Western Australia may, in fact, still get a Solar City project. The Department of Housing and Works recently presented its proposal to the Leader of the Federal Opposition and the Shadow Minister for the Environment. Possibly

being totally unaware that there had actually been two solar City proposals from Western Australia, a commitment was made to provide \$13.7 million in funding for a Perth Solar City if elected to office. Understanding the nature of policy, the Perth consortium had done a far, far more strategic thing than it had ever done before.

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