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Solar Flagships – Welcome and Sensible Extension of Time for the Solar Dawn project

The news that the two successful Solar Flagships Round 1 projects have been unable to date to secure power purchase agreements to underwrite sufficient revenue streams to meet their financiers' needs is neither news nor a surprise to those involved in renewable energy development in Australia.

The market for power purchase agreements, which for a variety of market and regulatory reasons is quite different in Australia than in overseas markets, is extremely difficult, not just for renewable energy projects but for any new generation project. The harsh reality is that Australia currently has very low average wholesale market prices for electricity because we are still running our coal-fired generation capacity flat out, and there is little commercial incentive for energy retailers to sign long-term agreements for supply – they can do much better simply trading (buying and selling) in the National Electricity Market.

This is particularly so for the three major utilities, which have both retail and generation businesses – they can manage their own power production facilities and their involvement in the wholesale market to optimise their buying costs and the margins they make on sales of electricity. There are no grounds to criticise the utilities for this; it is the structure of the market, their obligations to shareholders – and the National Electricity Law – that commands them to focus on reliability, security and price of electricity supply. Beyond complying with their Renewable Energy Certificate obligations (which they have well covered) they do not have obligations either commercially or under the law to promote renewable energy generation.

This hurdle (securing power purchase agreements at a viable price level) was always going to be the big one for the Solar Flagships developers to overcome; in this the Government must take some responsibility, because the Government was advised – consistently and by a large chorus of the solar industry – that simply providing grant funds would not lead to viable projects, and that the lack of an effective PPA market was a gap that would need to be filled. Without predictable revenue, projects will not be financed.

The Government was also advised that its aspirations to seed up to 1,000MW of large-scale solar projects were not consistent with the amount of funds allocated in the Solar Flagships program, and that structuring a program to build one or two big projects, rather than a number of mid-sized but still significant projects with a variety of technologies and proponents, exacerbated risks.

But credit must be given where it is due; the Government correctly identified that in order for Australia to benefit from the cost reductions being achieved around the world in solar power generation, Australia would need to invest in some projects of significant scale on our own soil. There is no question that this judgement was correct and remains so.

This is particularly so of solar thermal power projects. Solar thermal power offers major value-added benefits such as the steady output of steam turbine generation technology, the ability to use thermal energy storage to despatch electricity when it is most needed, the ability to meet high-cost peak demand, and the ability to co-fire with gas or other fuels for security of supply.

Australia's electricity market does not provide a way for solar thermal projects to realise the value of these attributes, so this higher value is currently not recognised in power purchase agreement negotiations.

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While over 6GW of solar thermal capacity is in operation or planned globally, Australia has no large-scale solar thermal generation facilities. International experience shows the economic value of solar thermal power generation and a compelling cost reduction path, but Australia has had no experience of this itself.

Now that the predicted revenue challenges have crystallised for the Solar Flagships projects, there are predictable knowing grumblings from various quarters that it is a sign that solar will simply never be commercial. This ignores both the history of technology innovation and the point of the Solar Flagships program – its purpose was (and is) that energy industry participants, regulators and financiers in Australia will learn from the challenges of developing large solar projects, and in that learning become more familiar with and better equipped to finance and use solar technologies at large scale. As familiarity grows, risk premiums on financing costs fall; as scale grows, manufacturing and deployment costs fall. This is the story of technology evolution.

Solar Flagships is a first step in helping Australia's energy industry catch up with the rest of the world in understanding the value of solar thermal power generation, and learn how to develop large-scale solar thermal power as a key element of the future energy mix.

As painful as the current financing challenges are, they are part of that learning process – and one of the key learnings is that our electricity market is not adjusting quickly enough to deliver Australia best value in the low-carbon economy of the future. Understanding – and developing the mechanisms to realise – the value of power output, and not just raw cost, is a key learning that our electricity markets and regulators must apply if they are to deliver best value in a carbon-constrained future.

The current challenges facing the Solar Flagships projects are not unique to solar power projects, nor are they unexpected; they are a function of the structure of our electricity market and its focus on cost of power rather than value, and the lack of awareness in Australia of large-scale solar power generation technologies and project financing techniques.

It is welcome news that the Solar Dawn project has been allowed more time to overcome the market impediments it is grappling with and to achieve financial close. We must hope the market failures can be overcome and that this important project proceeds, because it is in Australia's national interests that we begin demonstrating the value of solar thermal power in our own market as soon as possible.

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Andrew Want is the Chair of the Australian Solar Thermal Energy Association, AUSTELA. AUSTELA is the industry association solely focused on solar thermal power development in Australia. AREVA Solar, a member of the Solar Dawn consortium, is a member of AUSTELA.

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