Microbiogen Pty Ltd

Submission to the Clean Energy Finance Corporation (CEFC)
By
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Chief Executive Officer
Microbiogen Pty Ltd

Dear Sir/madam,

My background
I have been CEO, Chairman and a director of Microbiogen for over 5 years. Prior to my current role, I had worked in the financial services industry for approximately 20 years in roles including mining analyst, Head of Australian Research and Head of Research for the Asia Pacific Region for a large European Bank. My role was closely linked to funds management, international financial transactions and capital raising programs. The transition from institutional analysis and investment banking to the other side of the equation of small technology developer in the field of renewable, clean and sustainable energy gives me a unique insight into the issues surrounding financing emerging technologies and projects in the field of renewable energy.

Please find below our submission to the CEFC.

SCOPE OF THE CFC

How do you expect the CEFC to facilitate investment?
The market gap in financing low emissions technologies
How this financing could be overcome

A fund size of A$10B is large by international standards when considering that it is to be focused on clean energy and with a focus on just one country. There is little doubt that if managed well this level of investment could make a huge difference to the Australian Clean Technology Industry. However, this level investment capital is not so large if the fund is to consider funding that may be required for companies that are considering large scale renewable projects which could cost into the A$ billions.

To facilitate investment our experience suggests that best way is primarily through direct equity investment. The CEFC would not need to be the only investor as once a major investor commits to a company/project, other investors typically follow. A whole range of other financing options are available, but generally my experience is that the simpler the investment the better.

It is important to distinguish between companies that are looking to develop and commercialise technology and those looking to develop projects based on clean technology. They are not the same.

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Technology development is arguably the most risky sector with long lead times, often many competitors and no guarantee of success. It is these companies that have the greatest difficulty in raising the relatively small quantities of capital to run their particular projects.

My company Microbiogen is a good example. I helped fund the company in 2001 and for the next 5 years the company carried out pure research to generate the breakthroughs required to show "proof of principle" using very little capital. Once the company had achieved its proof of concept in 2006, I helped raise US$5M from US and UK institutional investors. This was only possible due to my being in an institutional advisory role at that time. It is this initial capital to bring proof of concept to the next step that is required in Australia. With the capital raised, Microbiogen spent the next 5 years doing the development work for commercialisation. It is only today that commercial agreements are being signed. Without the offshore US$5M, we could not have reached where we are today. This is what I see as a critical role of the CEFC. Investments of the order of A$5M to A$10M for R+D could be spread over many companies and even though many would fail a significant number would likely succeed thus making the investment program a success.

Once technology is commercialised and proven (often offshore), then that technology can still be utilised in Australia to actually generate low emission energy. Once proven, the risk declines and major corporations will start to consider implementation.

Other area where the CEFC will be critical is to bring forward projects that will commercialise new technologies developed that have been proven at some sort of scale. These companies require seed investment in the ten of millions to bring projects forward and attract large scale commercial investors.

Microbiogen is working with a small company that has secured large areas of land in Queensland for the development of a large scale sugar cane to ethanol project. The technology is not particularly new (1st generation biofuel), but the returns are only modest and they are having significant difficulty raising the initial A$10M to get the project off the ground. While I can't say this is necessarily a great project, it is this sort of project that can result in the application of low emissions technology and bring it to the market.

Backing of low risk proven low emissions technology has a second advantage and this is that it can be used as a spring board to next generation technologies. We are working with the Queensland group and they are planning to utilise the MBG 2nd generation waste to fuel and feed technology into their project once the first stage is completed. I am sure there would be a large number of projects where low emission technologies can be brought to market and use these as springboards for new, perhaps more riskier technologies at a later date.

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In summary, the CEFC could be used to back both the technology development as well as groups that are looking at actually developing projects themselves. The two types of investment are likely to be synergistic.

How the CEFC could work with other government and market organizations

One of the biggest challenges in the CEFC investing money into companies and/or projects that have a genuine chance of success over the medium or even longer term.

One way to overcome this is to work with other Government agencies. There is a range of Grant projects run by the Federal Government whereby companies like ours are granted money for particular projects with reports generated to measure the success or not of the project.

The reports generated give a good indication about the performance of the company and its ability to deliver on targets. This could be used as a partial filter to determine suitability. There is one problem with this approach and that is to get the Government grant typically requires dollar for dollar funding and this would preclude many of those companies in the difficult position of searching for their first institutional or VC type investor.

One area that would potentially be more useful is State Governments. The NSW Government has a Technology Showcase program which helps small companies towards commercialisation. This would also be a good source of information and likely to identify smaller companies at earlier stages of development – which are the ones that need the help the most.

Market organizations would also be useful, but like using the grants as a filter, many of the companies with excellent technologies have low to non-existent profiles with market organizations. The other issue I have personally in using market organizations is that companies with the loudest voices are usually heard the most. My experience is that companies with the loudest voices in the market actually have the worst technology and focus way too much on the message and too little on solving a problem.

Are there principles beyond financial viability that could be used to prioritise investments, such as emissions impact or demonstration affect.

The earlier the stage of investment, the less one can utilise financial benchmarks to prioritise investment. It is the earlier stage investments that are the one that require the attention of this fund if it is to be successful in its role of developing new, low emissions technologies.

The investment field needs to be divided into several sectors such as:
Solar: PV and thermo

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Geothermal
Wind, tidal and wave
Biofuels

There may be more divisions, but these are so different from each other that the fund will likely require an expert in each field to actually be able to make sensible decisions on either technology or project viability. Without high levels of expertise it is almost certain that investment decisions will do little better than a "dart board" approach.

Our experience in biofuels is that even the experts have huge difficulty in deciding what is real and what is illusionary in terms of potential. Too much money has been attracted too quickly into the renewable energy field (I am speaking of biofuels here specifically as this is our area of expertise). Large quantities of money have been invested with (despite the hype) little to show. Just one example is Range Fuels where over US$150M was spent on a facility in the US and it simply did not work. Major claims and promises have been made, but the reality is that many technologies have little chance of success and this can be determined before money is invested.

The problem with using any benchmark such as financial viability and emissions impact is that these totally rely on the technology achieving what is presented. Experience tells us that this is rarely achieved in the field of biofuels. The key way to prioritise investment in this area needs to be through experienced people and thorough due diligence. Anything less and the investment decision will be based on which company sells the best "story".

What are the opportunities for the CEFC to partner with other organizations to deliver its objectives?

This is an area if significant opportunity for the CEFC.

Microbiogen is working closely with the US Department of Energy through the NREL laboratories in Colorado. While these collaborations are typically carried out under NDA agreements, it may be possible for the CEFC to enquire as to the performance of the collaboration and gain an insight into the technology or project that it is considering.

Government organizations are a particularly attractive group to partner with as they do not typically have any incentive to promote a particular project of technology compared to companies or organizations.

THE MARKET CAP AND OVERCOMING IT

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How could the CEFC catalyse the flow of funds from financial institutions?

As noted earlier, if the CEFC makes its intention clear that it is willing to invest in a particular project of company under certain terms and conditions, then this in itself will be a catalyst for other investors to consider investing.

The CEFC would not consider investing unless it has completed its own due diligence. Since the CEFC is a specialist in the area of clean energy and will likely have greater resources (due diligence resources) than most Australian investors, this should also add to the investment comfort.

Not only can the CEFC be the catalyst, but by broadly agreeing some key terms, the negotiation process can also be shortened.

What experiences have firms in the clean energy sector had with trying to obtain finance: have term, cost and availability of funds been an inhibitor?

As noted earlier, MBG raised institutional funds relatively easily in mid 2006. However, this was during a time a strong economic growth and at the early stage of the "clean technology" wave of investment. At this time, terms and cost of capital were available on attractive terms.

While there is still a strong interest in clean energy from investors the general investor environment has changed significantly. In the area of biofuels some issues include:

- Higher cost of capital
- Economic uncertainty
- Too much over promotion
- Too many failures
- Too much hype

In 2006, the real "promoters" were yet to really hit the markets. Today, there are a vast number of companies with a large number of claims, all chasing investor dollars. Over the last 12 to 24 months it has become clear to investors that in the biofuels space, the development of alternative energy supplies that are suitable as a fuel is a lot more difficult than envisaged a few years ago. This may be unique to biofuels as it appears that solar and wind technology continue to result in lower production and operating costs. The net result in biofuels is that investors do not have the appetite that they once had.

Investors are now looking for either new and more exotic fields to invest (in the case of biofuels) such as algae and 3rd generation biofuels. What is interesting here is that these have less chance of viability than the out of favour second generation biofuel of ethanol. They are also looking for near term commercial opportunities. This makes it

difficult for smaller Australian companies as there is still development work to be completed before this will happen.

What non-financial factors inhibit clean energy projects?

In the Australian context in biofuels there are non-financial inhibitors.

- Lack of off-take agreements. Without mandates there is little or no incentive for oil companies to look and include biofuels in their product mix. Publicly, all companies suggest they support biofuels, but their actions do not necessarily support this.
- Lack of Govt support. In the past there has been significant Govt support for industries to expand. In Australia this applied to high prices for renewable electricity especially solar. In the field of biofuels, the support is somewhat less.
- Biofuels using current technology is one of the few renewables that can actually compete with non-renewable mineral hydrocarbons with no Government support. Clearly something is inhibiting its development in Australia as other countries are expanding biofuels at a greater rate.

Are there special factors that inhibit energy efficiency projects?

In the field of biofuels other issues that negatively impact on projects is the argument of "food vs fuel". In the context of what Microbiogen does, this is not an issue as our technology directly addresses this issue.

How do you see the CEFC fitting with other government initiatives on clean energy?

Given the size and the scope available to the CEFC, we see the CEFC as potentially a unifying fund in that it has the potential to help in the development and implementation of a range of technologies and projects from very early stage to late stage. It could work with state and federal grant programs as one measure to help filter potential opportunities.

Australia has a range of high quality technology and project developers. However, the gap between concept and commercialisation is more difficult in this country. The CEFC can help fill this gap and be the catalyst for bringing more investors into this area.

The primary difficulty will be picking "winners". This is not something that Governments are good at, and unless the CEFC is run professionally and at arms length from the Government then it will also not pick winners. Significant resources will need to be spent to make sure that it has the best due diligence team in the country to determining investment decisions. Once the CEFC generates a reputation

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for quality support to quality companies other investors will come and support its decisions and it will become a real catalyst for renewable energy development.

In the field of renewable energy there is no getting away from the fact that at some stage any company that has money to invest must be able to pick winners.

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