The blade was manufactured at I-WEC’s Table Bay harbour workshop. Each rotor blade weighs about 12 t, and the whole turbine is expected to weigh about 200 t. The design for the blade was obtained from German licensor Aerodyn Energiesysteme, which also sent experts to South Africa to help train I-WEC’s staff to manufacture turbine blades to international standards. The blades are made from balsa wood, fibreglass, PVC and epoxy resin. The first blade will now undergo static load testing, as well as a resin frequency test. Once the tests are done, they will make the three blades for the first turbine. Nigel Gwynne-Evans, director of industrial development and marketing (Economic sector development) in economic development in MEC Alan Winde’s office, and the German Consul General Hans Bussmann were at the launch on 8 March. I-WEC was founded by two Germans, Thomas Schaal and Dr. Michael Kast, who have both been living in South Africa for a long time, and employs 30 South Africans and will be employing hundreds more in the next four years. I-WEC is the first company in Africa to build multi-megawatt on-shore wind turbines and is also building the biggest turbines the continent has ever seen, with its partner, heavy engineering group DCD. These turbines are 2.5 MW in size and will measure about 130 m from top (tip of top blade) to bottom, double the size of the ones now in use on the West Coast, which powered the World Cup Stadium. I-WEC’s turbines take three of these 50 m blades. The first completed turbine should be unveiled in about June in Saldanha at the ArcelorMittal steel plant. Their turbines mean that South African wind farm developers who are bidding in the IPP procurement process this year will be able to fulfil government’s strict “local content” and “job creation” bidding requirements instead of having to use imported turbines. The blades and turbines are also manufactured to international standards so they are fit for export, which is good news for African wind farm developers. Dr. Michael Kast, Managing Director of
Fig. 4: At 50 m from the tapered tip to the round, hollow end, I-WEC's first multi megawatt wind turbine blade is longer than an Airbus wing. Each wind turbine will be fitted with three of these blades. The turbine will measure 130 m high from bottom to top, with the length of the blade included.

Fig. 5: The 50 m long blade is suspended on slings as it is lifted out of its mould, to make space for the next blade to be manufactured.

Fig. 6: Nigel Gwynne-Evans of the Western Cape Government looks up at the completed blade as it hangs above its mould.

Isivunguvungu Wind Energy Converter (I-WEC), on the realisation of the blade, from concept to reality: ‘We have proven that in South Africa we can create a hi-tech product that previously had to be manufactured in and imported from developed countries, keeping jobs and currency overseas. We can now see that South Africa has enough skills and infrastructure to do this on our own – this is what I-WEC set out to prove.’

Thomas Schaal, spokesman and Financial Manager of Isivunguvungu Wind Energy Converter (I-WEC): “Seeing our first completed blade today made us feel proud, amazed and relieved. It is our first blade and therefore took longer to make than it would when we go on to do series production, because its manufacture was a process of extensive training for our operators and engineers. We are now well prepared for series production.”

Nigel Gwynne-Evans, director of industrial development and marketing (Economic sector development) in economic development MEC Alan Winde’s office: “This is an exciting development for South Africa’s renewable energy sector. This is at the heart of what we want to achieve in South Africa to create our own renewable energy manufacturing sector.” I-WEC is manufacturing blades for Africa’s first multi-megawatt wind turbines and will work with its partner DCD (previously DCD-Dorbyl) to produce Africa’s first home made multimegawatt wind turbines. The first completed 2.5 MW turbine will be unveiled in about June or July, in Saldanha.

There are companies in Africa who make blades for very small turbines, but not for “multi-megawatt” turbines with large scale electricity generation capacity. This is where I-WEC is doing pioneering work.

Their wind turbines will enable wind farm developers in South Africa to set up wind farms with major power generation capacity that also fulfil government’s requirements for bidders in the IPP bidding process. Government is looking for local job creation, local content (with special emphasis on local manufacturing), local skills development and education, local enterprise development, and the upliftment of historically disadvantaged individuals. The operators I-WEC has trained to make this mould from Vredenburg on the West Coast and were taught new skills.

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