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# Bolander

Lifestyle and Property

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CAPE COMMUNITY NEWSPAPERS

## L'Ormarins goes green

NORMAN MCFARLANE

If you stand on the helipad on top of the mountain above L'Ormarins in the Franschhoek Valley, you can see the whole farm laid out below, but if you look straight down, you'll see the cunningly camouflaged turbine building, which houses the two massive Ossberger 1MW turbine generator sets, waiting patiently for the winter rains to come.

The helipad is no dilettante luxury, rather it is there for entirely practical reasons: the construction of the artificial weir and its associated equipment that channels water down the precipitous mountainside – the ascent is 300 metres in just over 1.2km – to the waiting turbines, 300 metres below.

The pipeline – which constitutes a 300 metre head for the turbines – is a sight to behold, as it careers down the mountainside.

If you make the arduous trek up to the weir high above, it is difficult to not be in awe of the construction team that built it.

Its track is punctuated by massive concrete plinths through which the pipe passes, to stabilise it when the water is rushing towards the turbines at breakneck speed.

How on earth did all of this get built, and how long did it take?

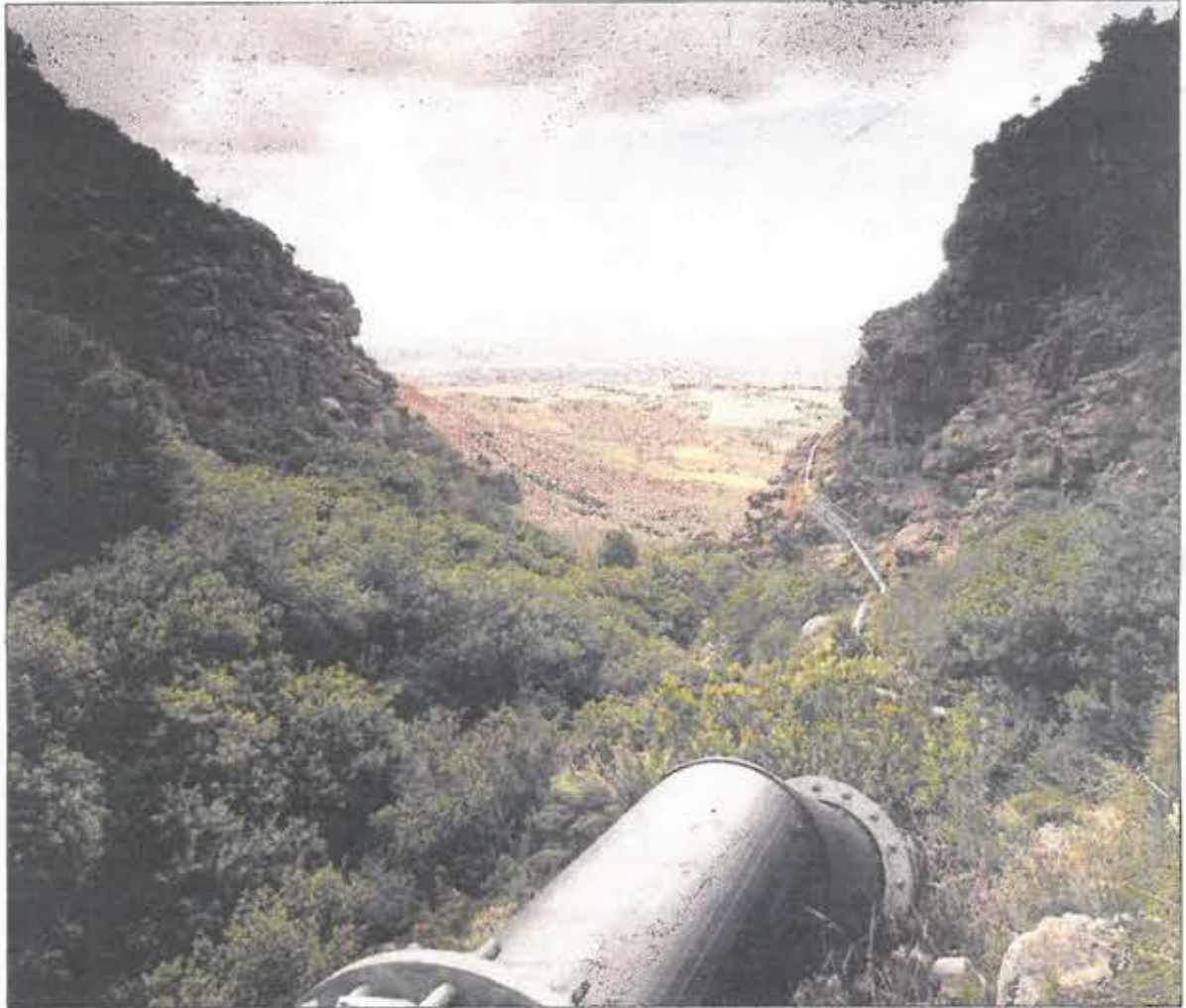
"The whole project took 48 months, and the pipeline construction took seven months on and off, through the winter," says farm manager Bob Hobson.

We're standing outside the turbine house in the late afternoon sun, and I've just returned from a photo-shoot of the weir far above.

"We contracted Working (WoF) on Fire choppers, after Gary Baumgarten (L'Ormarins MD) saw them fighting a fire on the Franschhoek Pass. He was so impressed with their skill, flying in difficult conditions, so close to a mountainside, that he knew they were the right people for the job."

The task entailed over 1650 sorties, and the WoF pilots delivered.

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PICTURE: DANIE NEL

■ The pipeline careers down the mountainside from the weir in the mountains far above L'Ormarins Wine Estate in Franschhoek, delivering a 300 metre head which feeds the Ossberger turbine generator sets in the turbine house far below, waiting to start generating green energy.

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# 'It took us 48 months from start to finish, to put in this plant'

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"We'd budgeted 10 minutes per sortie for the round trip," explains Mr Hobson.

"When they flew the first sortie, it came in at about 15 minutes and we were a bit worried, but they quickly got it down to an average of eight minutes, with the quickest sortie taking only five minutes."

A sortie involved hooking up a load, flying to the right place on the mountainside, lowering it into place, hovering while it was untethered, then returning for the next load.

Standing in the clinically clean turbine house, the silence is broken by a faint hum from a cabinet against the wall, the control equipment which makes this entirely automated system function virtually without human intervention.

When the rainy season comes, L'Ormarins will enjoy about eight months of green energy, which it banks for the dry season by feeding it back into the Eskom grid.

When it rains and the flow of water down the pipeline from the weir above hits 35 litres per second the first turbine will automatically start to spin up. After a minute or two, the generator will synchronise and connect to the grid and electricity will begin to flow.

Once the flow increases such that the first turbine reaches 90% of capacity, the second turbine will start up, and once synchronised,

will begin to generate electricity as well and feed it into the grid. And all of this happens automatically, with no human intervention.

The power supply for the control equipment is backed up by a bank of deep-cycle batteries, and on the roof of the turbine house sits a series of solar PV panels for charging the back-up batteries in case Eskom power fails. The system is truly self-sufficient.

"It took us 48 months from start to finish to put in this plant," says Mr Hobson.

"Aside from the two main turbines, we have a smaller one, 0.3MW in size, just down-river," he says, pointing at a mini-replica of the main turbine house, "which is started remotely by cellphone when the flow rate through the pipe exceeds 40 litres per second."

The installation was designed and project managed by Ian de Jager, of I&F Engineering, a Cape-based company that specialises in hydropower systems.

"Eskom allows farmers to 'bank' excess generated power. In the winter rainfall Cape, it happens during the high-demand period from June to August, when energy is double the cost it is in the summer months," says Mr De Jager.

"They can then draw power from that 'bank' during the summer months."

During the June 2016 commissioning cycle of the plant, output peaked at 2.1M which means

that L'Ormarins will bank enough power during the winter months to cover its entire energy requirement for the year, plus a surplus which it will sell to Eskom or 'wheel' to other users. Wheeling is the term used to denote selling electricity to other users via the national grid.

"There is no way Johann Rupert would have put in this plant if the business case wasn't solid," says Gary Baumgarten.

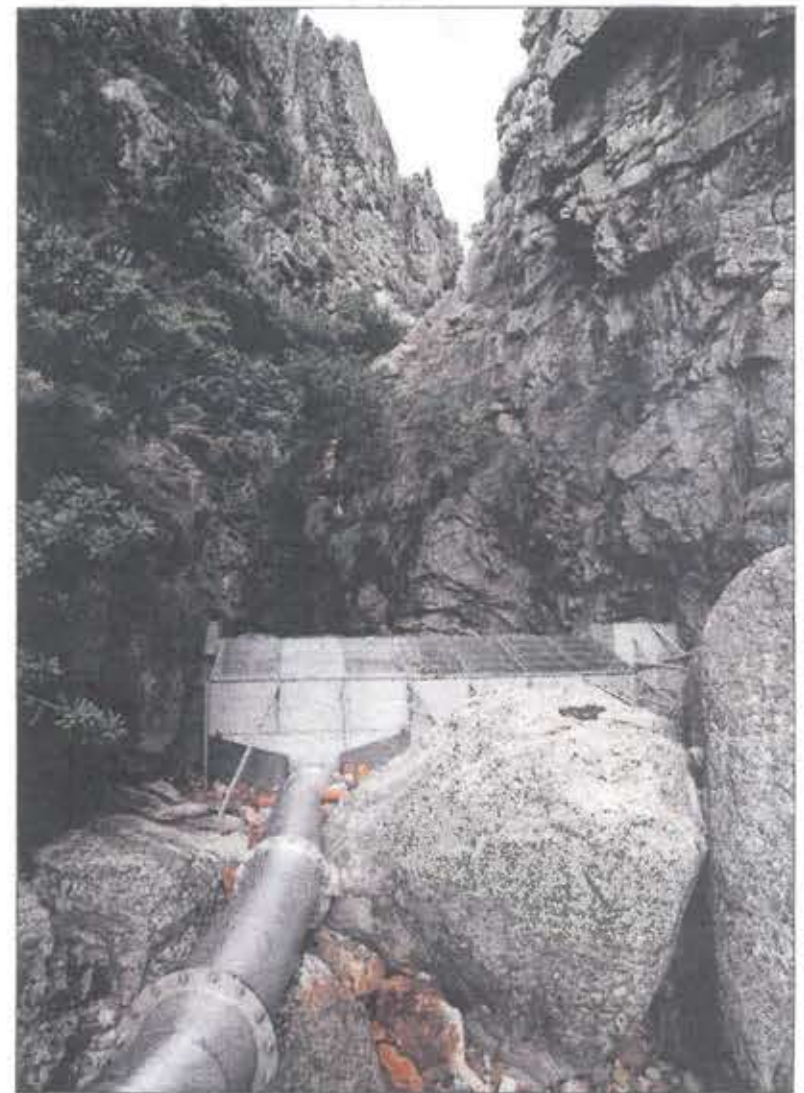
"One of the toughest tasks was getting NERSA (National Energy Regulator of South Africa) approval and negotiating a feed-in tariff," he adds.

"But we succeeded and were granted a 15-year operating licence by NERSA. We've run interference for anybody who wants to follow our lead."

The Western Cape is blessed with high rainfall in certain of its mountain ranges during winter, and all of this water must flow down towards rivers and dams.

Elevations range from 200 to 600 metres, which makes it ideal for the development of hydropower for energy generation, according to Mr De Jager.

With hydropower set to play an important role in the renewable energy mix – as spelled out in a 2106 draft sustainable hydropower generation policy – the stage is set for farmers who have access to a head of water on or close to their farms, to go green with hydro-power.



■ The man-made weir, above, in the mountains above L'Ormarins Wine Estate, which supplies the minimum 35 litres of water per second needed to spin up the massive Ossberger turbine generator sets in the turbine house.

■ Snaking down the mountainside, the pipeline, below, that delivers the 300 metre head of water from the weir in the mountains far above L'Ormarins Wine Estate.



■ The massive Ossberger turbine generator sets, left, crouch like athletes at the start line, waiting for the pipeline from the weir in the mountains far above L'Ormarins Wine Estate, to deliver the at least 35 litre per second they need, to come to life and start to generate green energy.

PICTURES: DANIE NEL



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