

# Work on ultra-deep power tunnels to start next year

**The \$2b project to carry high-voltage power cables is on schedule, says SP**

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[SINGAPORE] Work on Singapore's \$2 billion next-generation power network is "on track and on schedule", says Singapore Power (SP), nine months after starting on the mega project.

Two cross-island, ultra-deep tunnels, each to house extra-high voltage power transmission cables, are to be built. Work on them will start in the first quarter of next year, an SP spokesman told BT.

But first, work on their

upper and lower shafts must be completed. In response to BT queries, the spokesman said work on most of the 18 upper shafts will be done by the end of next month; this will be followed by drilling and blasting of the hard rock to build the lower shafts.

The tunnels will not encroach on any private properties.

An Integrated Data Monitoring System (IDMS) will track the effects of the excavation and tunnelling on the surrounding ground. This is the first time an IDMS of this scale is being used in a construction project here, said the spokesman.

Tunnel boring machines, the main components of which are from Ja-

pan and Germany, are expected to arrive here from December, in time for the actual tunnelling work from early next year.

SP simultaneously started work on the 16.5 km east-west tunnel and the 18.6 km north-south tunnel last December.

It carved out the work into six contracts and handed these out only to contractors experienced in tunnel-boring because of the expected complications in building the tunnels.

The contractors are Obayashi Corporation, Nishimatsu Construction-KTC Civil Engineering and Construction, Hyundai Engineering & Construction, Samsung C&T Corporation and SK Engineering & Construction.

Apart from the depth at

which the work will take place, the space down there will offer a tight turning radius of only 75 metres at some points – narrower than the 200 metres in MRT tunnels.

Another challenge will come from the varying types of rock below ground.

The IDMS will integrate all instrumentation and monitoring data from various sources into a single web-based platform and enable easy access and review of data as construction progresses.

The SP spokesman said: "This will ensure that ground settlements, movements and vibrations caused by various underground tunnelling construction activities are monitored to ensure minimal impact on existing adjacent

buildings, structures and utilities.

It is a proactive approach that will detect problems before they escalate into bigger issues, she added.

Measuring 6 metres wide and up to 60 metres deep, the tunnels will accommodate 400 kV power circuits, which can carry the volume of electricity being generated and transmitted today. Singapore had started out with 66 kV high-voltage power circuits, and subsequently upgraded to the current 230 kV ones.

The east-west tunnel, running from Ayer Rajah to Paya Lebar, is expected to be completed by 2017; the north-south tunnel, stretching from Gambas to May Road, will be done the following year.