More solar means more investment: SP

More infrastructure needed to handle two-way flow when supply rises in future

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SINGAPORE Power (SP), which handles electricity and gas transmission and distribution here, will need to make a "significant investment" in additional infrastructure to handle a two-way power flow in the electricity grid when supply from intermittent generation sources, including solar energy, ramps up in future, said its CEO Wong Kim Yin.

Speaking to BT on the sidelines of the Electricity Roundtable yesterday, Mr Wong said that while SP's existing infrastructure can handle the just-announced increase this week in the current cap on intermittent generation sources from 350 megawatts to 600 MW, SP will have to boost its infrastructure if this is further upped beyond 1,000 MW later.

The new 600 MW cap announced by the government represents around 10 per cent of current peak electricity demand in Singapore of 6,000 MW. The cap is to ensure there is sufficient electricity reserve (from the gencos) to back up the intermittent energy sources and ensure power system stability.

Mr Wong: *Power market liberalisation has brought capital inflows of over $78 billion in last five years*

Mr Wong explained that presently power is transmitted via copper cables, which are stronger or thicker nearer the power source, like a power station, with this "stepped down" as it progresses down the chain from sub-stations to industries or homes.

"The existing transmission system is already two-way in that homes with solar panels already sell back some of their generated electricity to the grid," Mr Wong said. But when supplies from such intermittent sources, like solar energy, increase significantly, SP will need to make "a significant investment" to build up system capability to handle this.

But he declined to give specifics, like the investment dollars needed, at this stage.

Already, the Housing Development Board is stepping up its use of solar energy in flats here, while other new projects like the Singapore Sports Hub are also adopting solar panel use to meet some of its electricity needs.

This is why government this week said it is preparing the power system here to "effectively incorporate solar energy as it becomes commercially viable". Apart from raising the current cap on intermittent generation sources here, regulator Energy Market Authority has also launched a public consultation on a regulatory framework for such power sources.

In his presentation, Mr Wong – who as senior managing director of Temasek Holdings previously had handled its divestment of the three biggest gencos here – said that liberalisation of the power market here has proven successful.

"Market liberalisation here has attracted capital inflows of over $78 billion into the power sector over the last five years. And SP alone has spent capex of $5.4 billion to improve pipelines and the power grid, with this raised from capital markets," he said.

On this, David Wong, director and chairman of Energy Market Company's audit committee, noted that while gencos have invested in more efficient gas-firing plants to generate electricity competitively, surging fuel prices have led to a steady increase in the spot or wholesale electricity price over the last decade.

"Compared to 2003, the wholesale electricity price has almost doubled to $179 per megawatt hour in the first three quarters of 2013," he said, adding that economic growth has fuelled electricity demand, putting upward pressure on prices.

This in turn has attracted investment in new plants, and "an outcome of this is that the wholesale electricity price has in actual fact softened, and is currently 19 per cent lower than last year".