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Modernization of Singapore's energy infrastructure for the smart nation of the future

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or cities and nations that have energy distribution infrastructure, which are the arteries of its life-beat, current smart F capabilities and technologies may not be easily adaptable to meet the future and ever-evolving demands of the smart grid. With the advent proliferation of info-communication technologies, the energy grid has been transformed within a short duration to become a more intelligent and responsive entity than its predecessors. However, such smart technologies usually come under heavy scrutiny before it can be adapted. Energy, being a source of life, requires the utmost precise and delicate care when it comes to any new technology implementation. A small indecision or mistake may send repercussions downstream that may bring daily activities to a standstill. Despite all these fears, Singapore has been timely modernizing its aged energy infrastructure into an intelligent grid capable to meet its own future demands. And this is through various smart and green technologies that provide benefits to the grid. Singapore, a nation without any natural energy resources, has been tapping on renewables to provide alternative energy to supplement its own energy needs. However, due to intermittent generation of the renewables in Singapore, intelligent energy storage solutions are employed to mitigate their corresponding disturbances to the energy distribution infrastructure. These energy storage solutions are augmented with grid information for its optimized durability and performance. In addition, Singapore has revolutionized energy storages that it is able to tap into an order to increase its energy resiliency. There is exploratory research going on in this space to create and optimize the use of hybrid energy storages. Through info-communication technologies, demand-side management has been a key in helping Singapore to manage its energy usage and load pressure on the energy distribution infrastructure. Singapore is rapidly transforming itself to be an energy-resilience nation of the future.

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