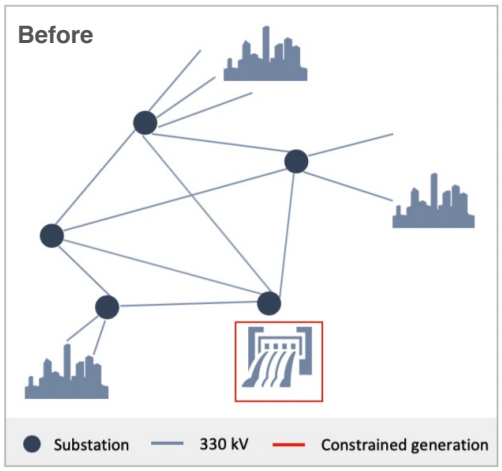
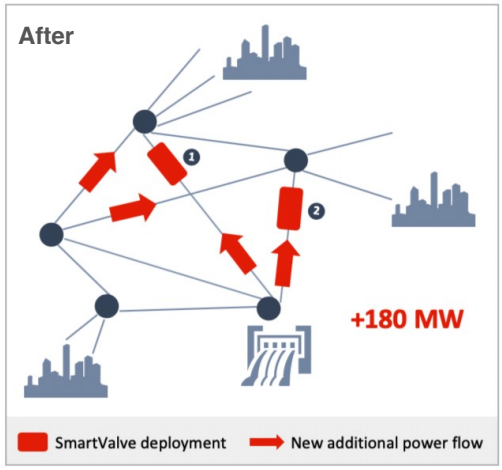
CASE STUDY

SMART WIRES
REIMAGINE THE GRID

INCREASE POWER TRANSFER CAPACITY

Network constraints develop for a variety of reasons and can be difficult to manage. To solve these problems, utilities typically turn to operational fixes like generation re-dispatch and complicated operating procedures or planning fixes such as new lines, line upgrades and expensive and permanent legacy power flow solutions. Smart Wires solutions, however, allow utilities to cost- effectively relieve constraints, increase transfer capacity and reduce grid congestion by re-directing power from overloaded lines to underutilized parallel paths.





CHALLENGE

- The output of a set of large hydropower plants in Australia is constrained by the capacity of the meshed 330 kV network.
- Reconductoring the lines is not economically justifiable due to their length and the associated construction and outage costs.

SOLUTION

- The utility is addressing this challenge with two deployments of SmartValve™ devices on parallel lines in the system.
- The two SmartValve deployments balance line impedances to optimize transfer capacity.
- The first SmartValve deployment works in pull mode, while the other one works in either pull or push depending on the system conditions, such as generation and outage patterns.

IMPACT

- The two SmartValve deployments initially unlock 80 MW of latent network capacity, but can easily be expanded to release up to 180 MW.
- The solutions help the region meet its renewable generation target by optimally leveraging the existing hydro generation and creating capacity for additional renewables.