

SMART WIRES

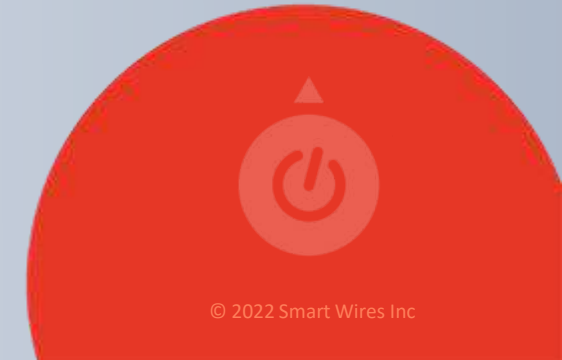
REIMAGINE THE GRID



Future Grid:

Grid flexibility and intelligence as key enablers of the energy transition

May 18th | MSc. Mario Patino, Solutions Manager LATAM



The grid, the greatest invention of the 20th century, was built for a world that it's no longer true



Generation... fast renewable energy adoption far from load, carbon plants retirements



Demand... increasing with electrification, e-mobility, electricity prices tied to GDP

New state-of-the-art technologies that provide flexibility and intelligence to the grid in the near term



The grid rigidity is the bottleneck and it's slowing down the energy transition

1,000s of GW of Renewables
projects waiting for grid connection

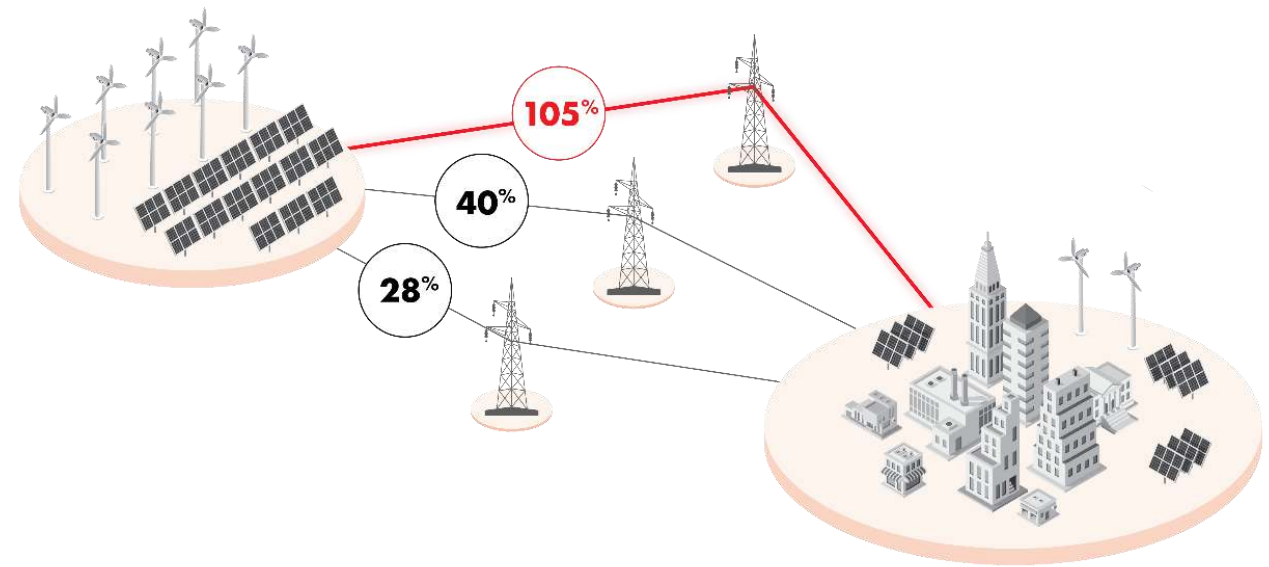
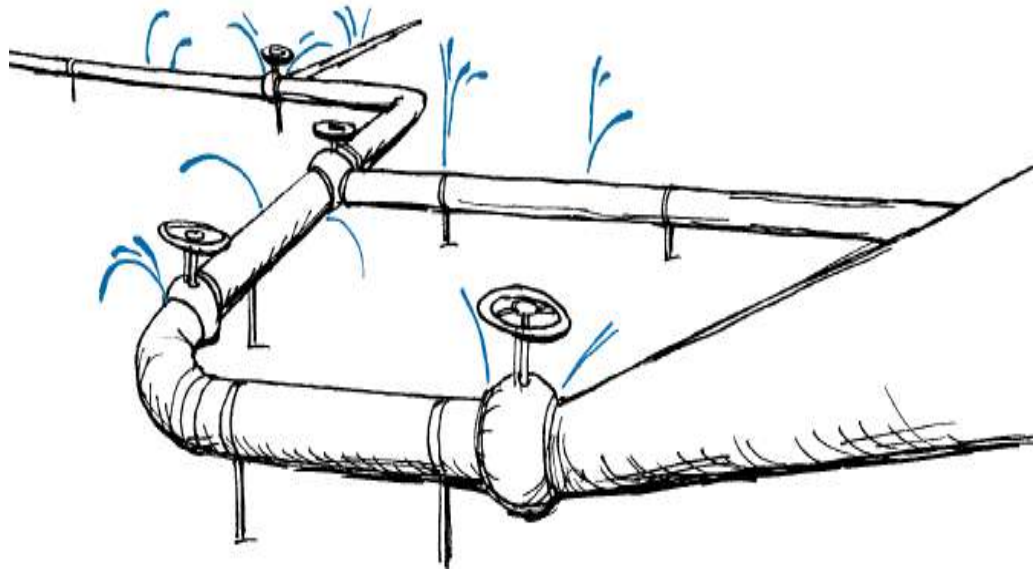
\$ Billions of Congestion Costs
for the consumers every year



Source: IEA, Bloomberg NEF



What does a water pumping system has that power systems usually don't have?

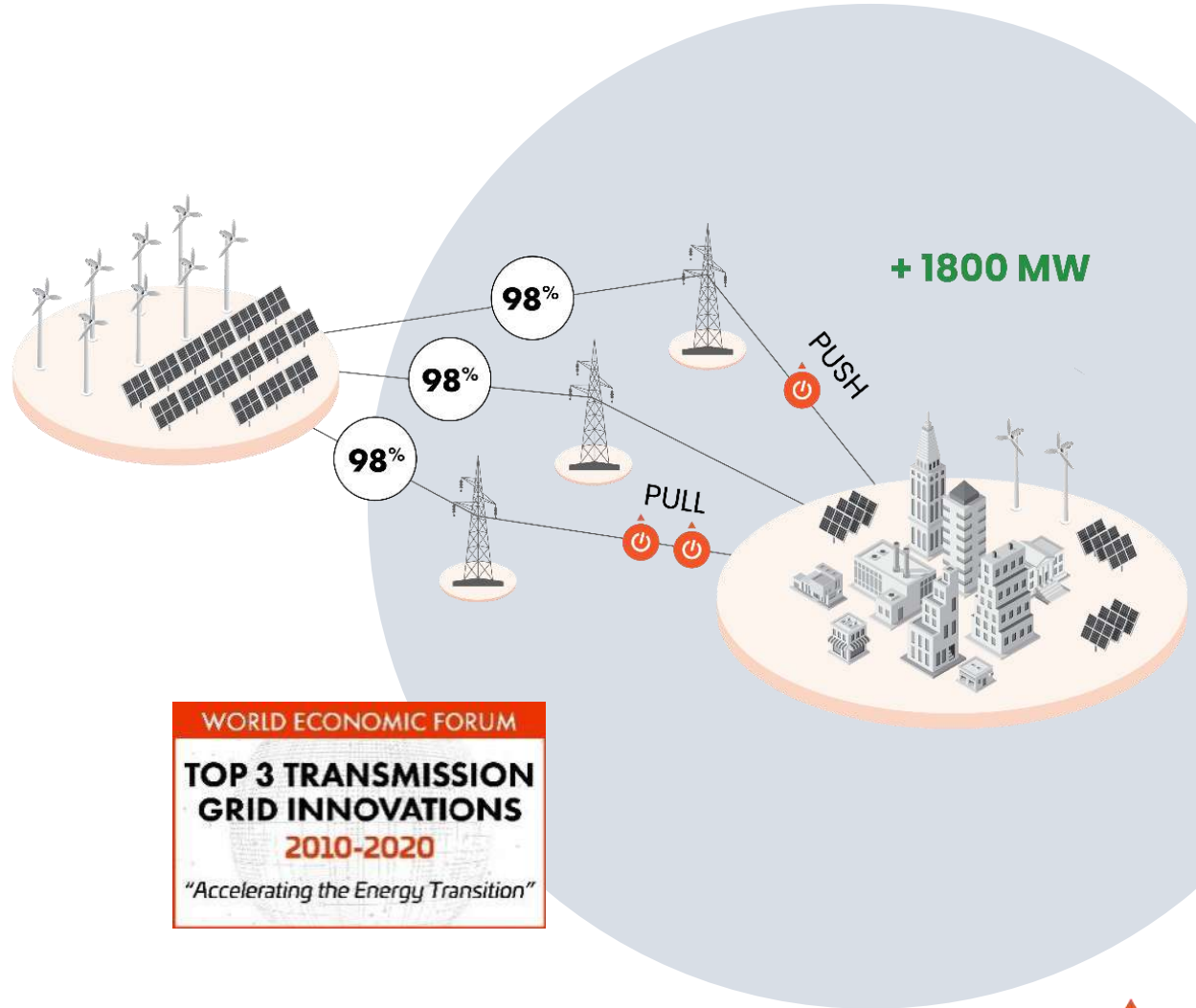


There's still spare capacity on the power system but it's unbalanced...



Power Flow Control acts like “Valves” for the power system

- ✓ **Unlock capacity** on the existing grid
- ✓ **Fast & standardized** digital FACTS
- ✓ **Adaptable** solutions



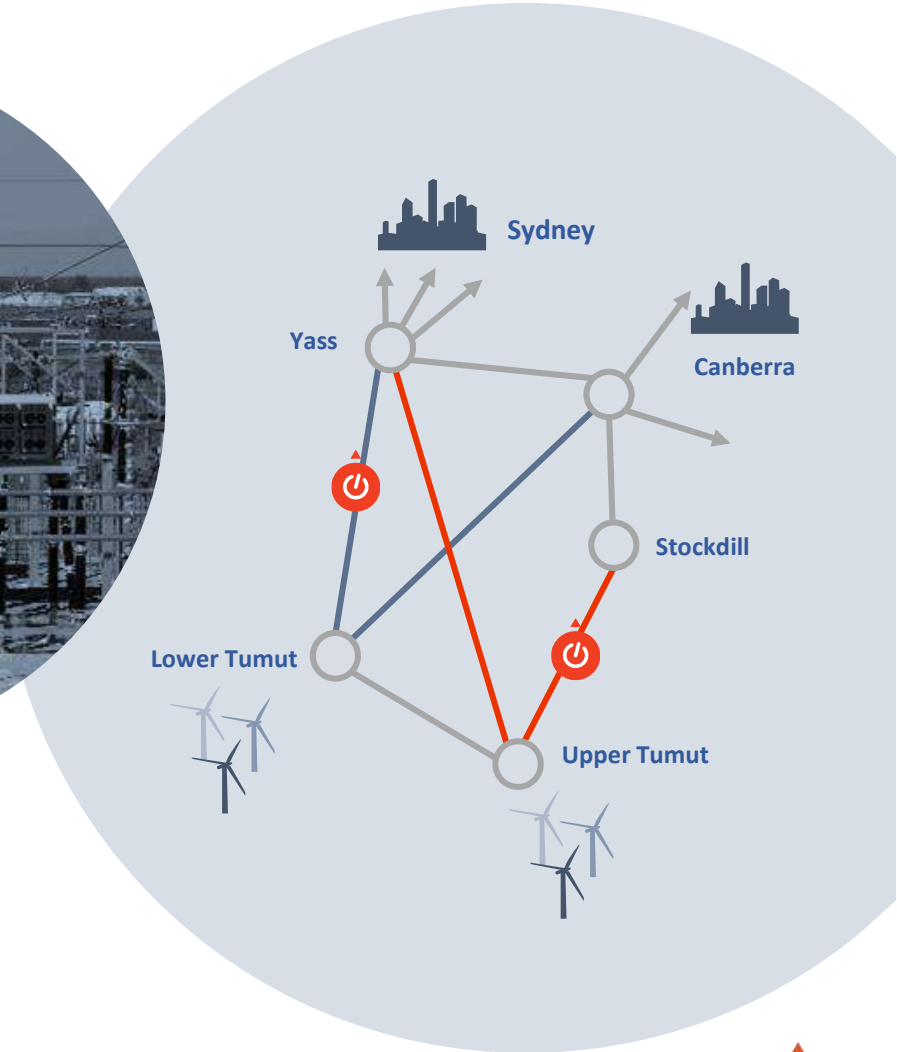
From a Passive to an **Active Grid**



Allowing thermal plants shutdown without risking Sydney's supply



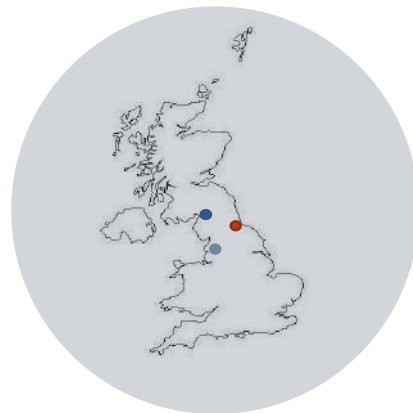
- ✓ **270 MW** capacity released at 330 kV in **12 months**
- ✓ **\$20 M saved** for Australian consumers and avoids work on **National Park**
- ✓ **Real-time grid optimization** based on wind speed



Enabling Scottish wind to reach large London load

nationalgrid

- ✓ **1.5 GW** extra capacity in **15 months** across **5 circuits** at 400-275 kV
- ✓ **£387 M saved** for UK customers
- ✓ **Scaling up 2** existing projects and **adding 16 more** approved in expansion plan



A glimpse at the future digital and controllable grid in LatAm



Power Flow Control approved and in execution in 12 transmission circuits¹ in Colombia

- ✓ **Reliability** increase in Medellin and Cartagena in **10 months**
- ✓ **1 GW** of new renewable integration in La Guajira **5 years before** new lines and redeployable
- ✓ **300 MW** in Atlántico in **12 months**



¹ [UPME expansion plan](#)



The future digital grid will be the greatest invention of the 21st century



Quickly integrate renewables and new loads

Rapidly deployable solutions accelerate integration of large volumes of renewables and new loads in a more cost-effective way.



Improve grid flexibility, reliability and resilience today

Intelligent, controllable and optimized grid to manage shifting load flow patterns. Near-term solutions synergistic to long-term bets.



Impact NOW

Action to enable a Green Economy, innovation and new jobs, reducing consumer bills

“Optimize while we build and optimize what we build”

