temopuno

Exceeding your expectations

A CASE FOR CAPE PUMPED STORAGE 2016

IRP MOTIVATION

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WHAT DO WE KNOW ABOUT THE CAPE ELECTRICITY SUPPLY

LEGACY

- Base load is met by long Transmission lines from the North of the country.
- Loss of I unit Koeberg leads to high risk of brown outs.
- VARS shortages leading to grid instability.
- Grid vulnerability environmental induced trips

CURRENT MITIGATIONS

- Palmiet pumped storage
- OCGT
  - ✓ Very Costly (maintenance and primary energy)
  - ✓ Carbon Emission
  - ✓ Low Efficiency
  - ✓ Limited running time
- Renewables
  - ✓ Intermittent and Unpredictable
  - ✓ Lack of controllability
  - ✓ Low Efficiency
  - ✓ Storage challenge – Costs, scalability

EMERGING PROBLEM FROM CURRENT MITIGATION

PREDICTABILITY

- OCGT: Limited by operating design and running costs
- Renewables : Not predictable and dependent on source availability.

BALANCE OF SUPPLY

- Renewable generate at non peak time.
- Non dispatchability generation
- Poor controllability

STORAGE

- CSP: limited capability
- Solar PV and Wind: costs are prohibitive to the deployment of large scale storage
- No dynamic storage

MITIGATION OPTIONS?

BATTERY STORAGE

- Grid Scale Storage in infancy
- Distributed storage – not easily controllable

FOSSIL GENERATORS /NUCLEAR

- fossil power or nuclear ramp-up takes hours to days
- Efficiencies of from 20% t0 60%

PUMP STORAGES

- Dynamic generation and storage capacity.
- Efficiencies of greater 80%
- Provide Network dynamic support and stability

POTENTIAL FOR PUMP STORAGE IN CAPE

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Exceeding your expectations

Our Argument is not whether Solar PV ,CSP or Wind are better Technology to solve our current problem

We want to create an enabling environment whereby this technologies can be deployed to provide Grid flexibility and adaptability that also empower and increase the confidence of the System Operator

THANKS