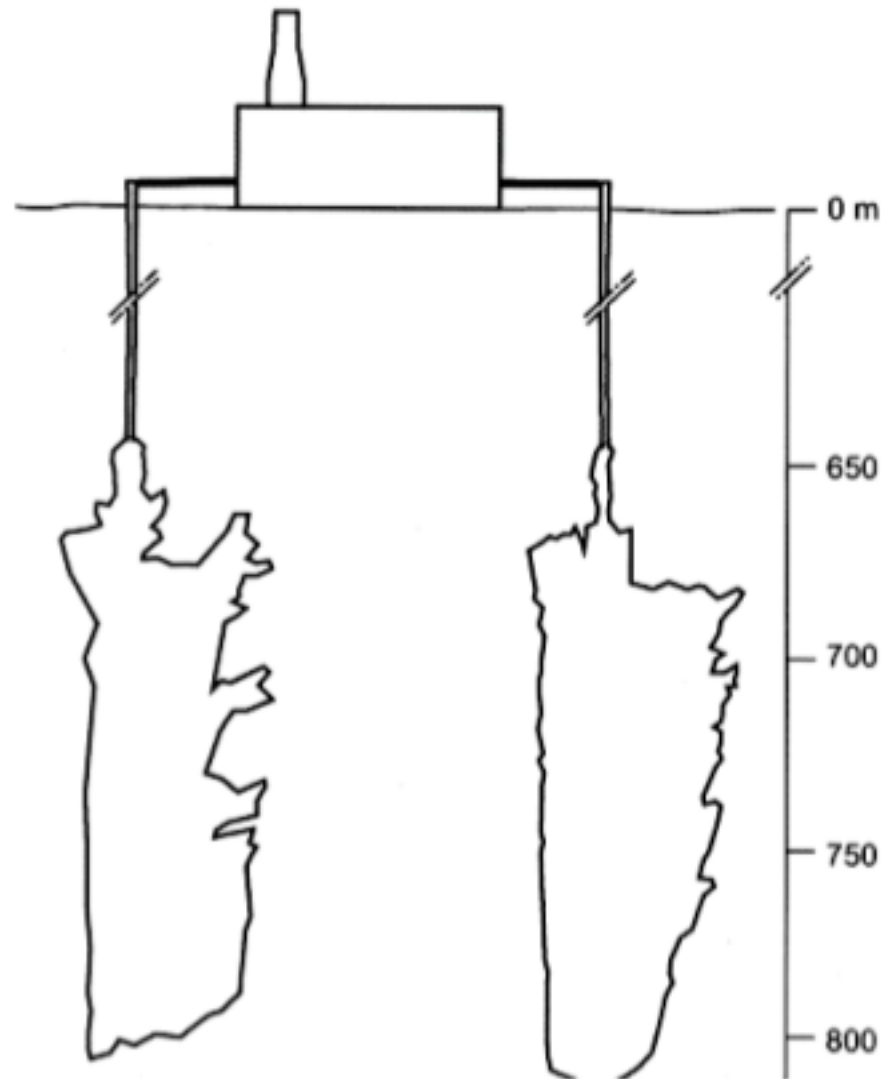




# COMPRESSED AIR ENERGY STORAGE (CAES)

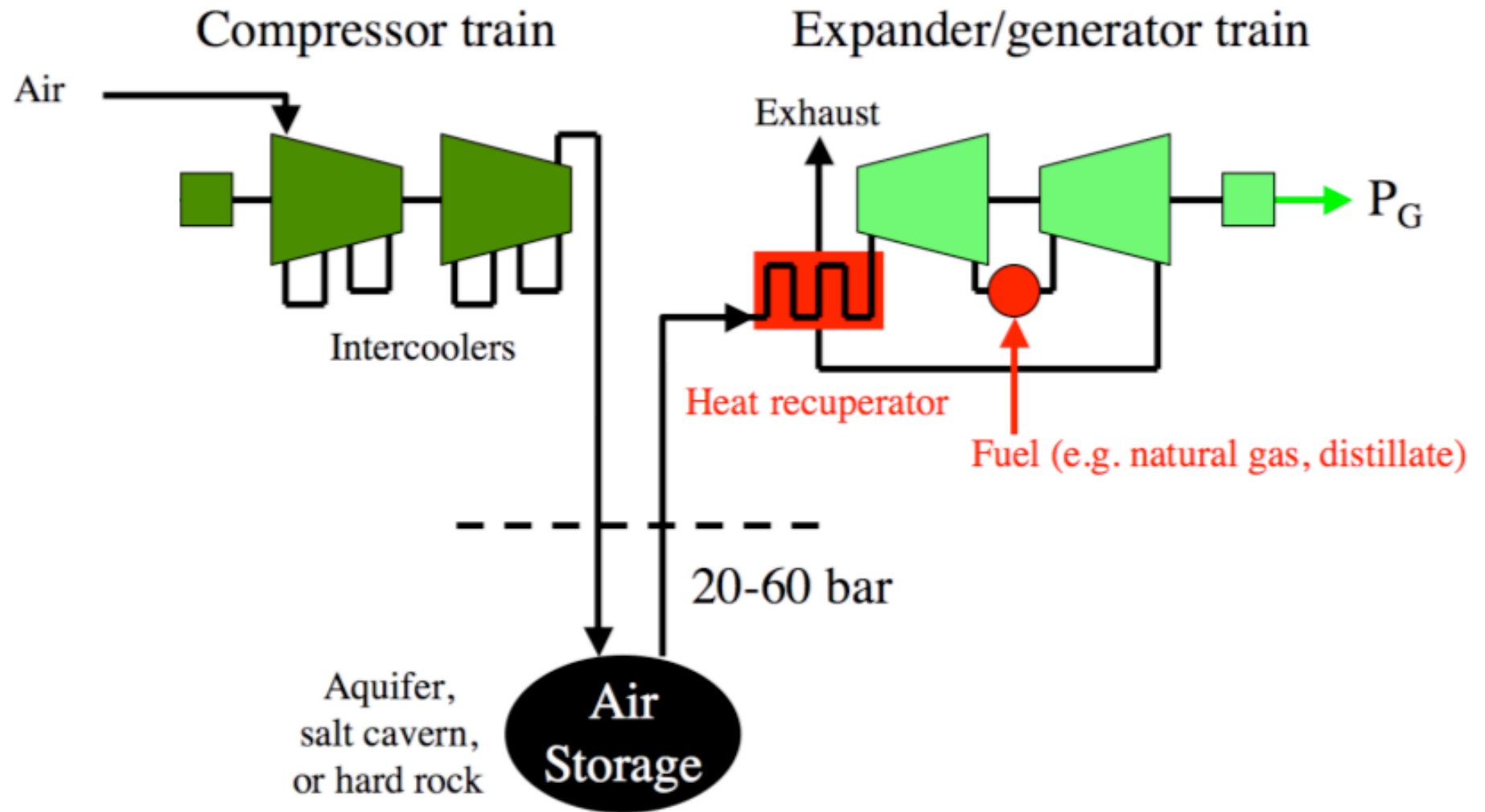
... and Opportunities for “Baseload Wind”

## Part 1. What is CAES?



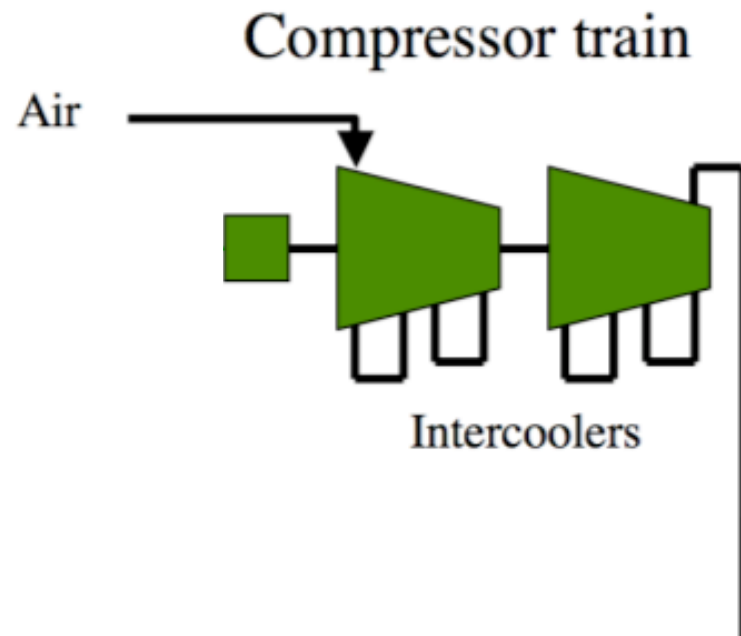
*From Succar 2008*

# CAES Concepts



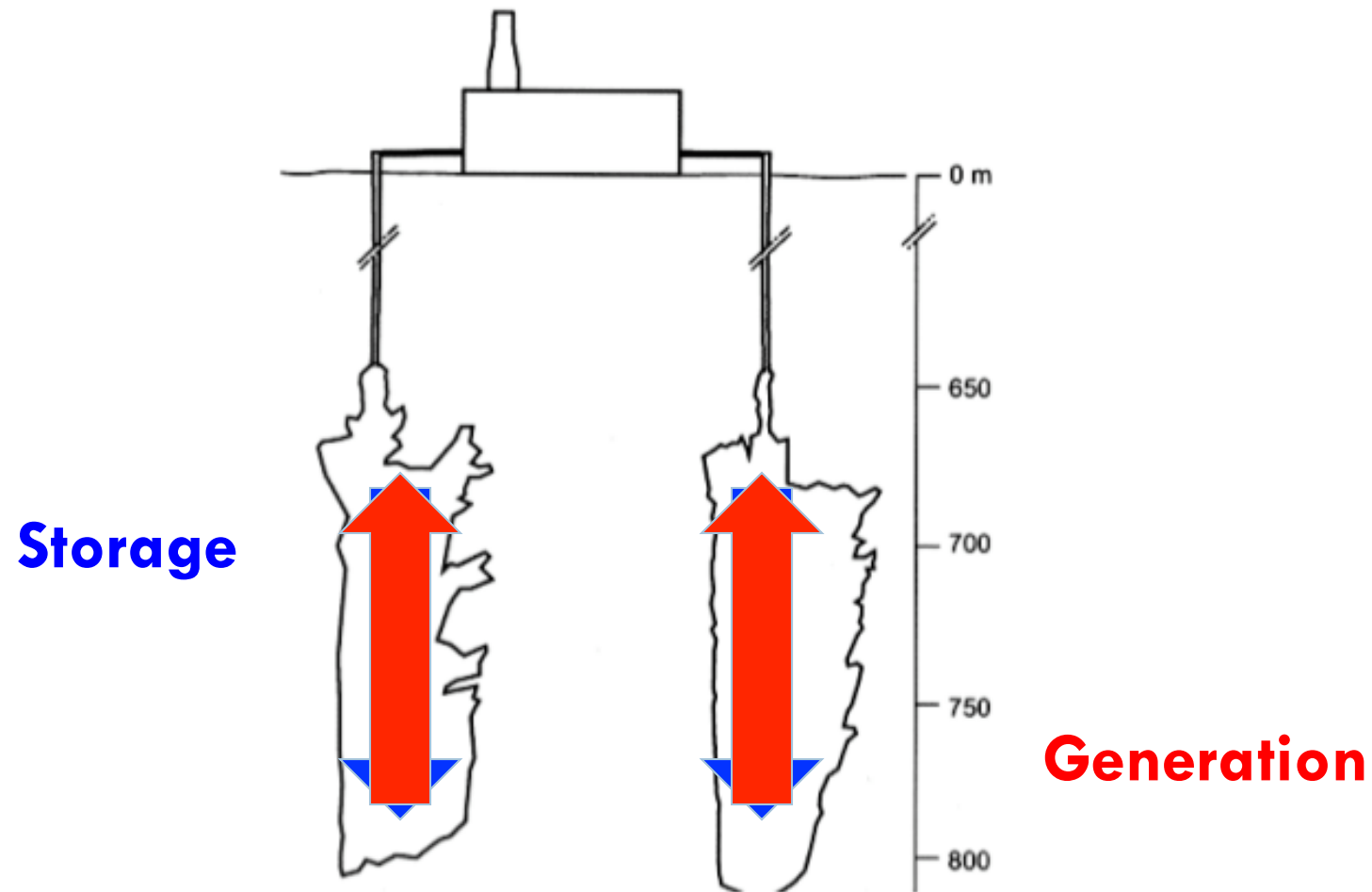
From Succar 2008

# CAES Concepts, cont.



**Storage Phase**

# CAES Concepts, cont.



*From Succar 2008*

# CAES Advantages



Hundreds to thousands of MW of energy storage

Lowest cost storage solution (10-20x cheaper than batteries)

Efficient—80% to 90% of stored energy can be re-generated

Can provide tens of hours of operation

Low water use

Low fuel use—about 1/3<sup>rd</sup> conventional combustion turbine

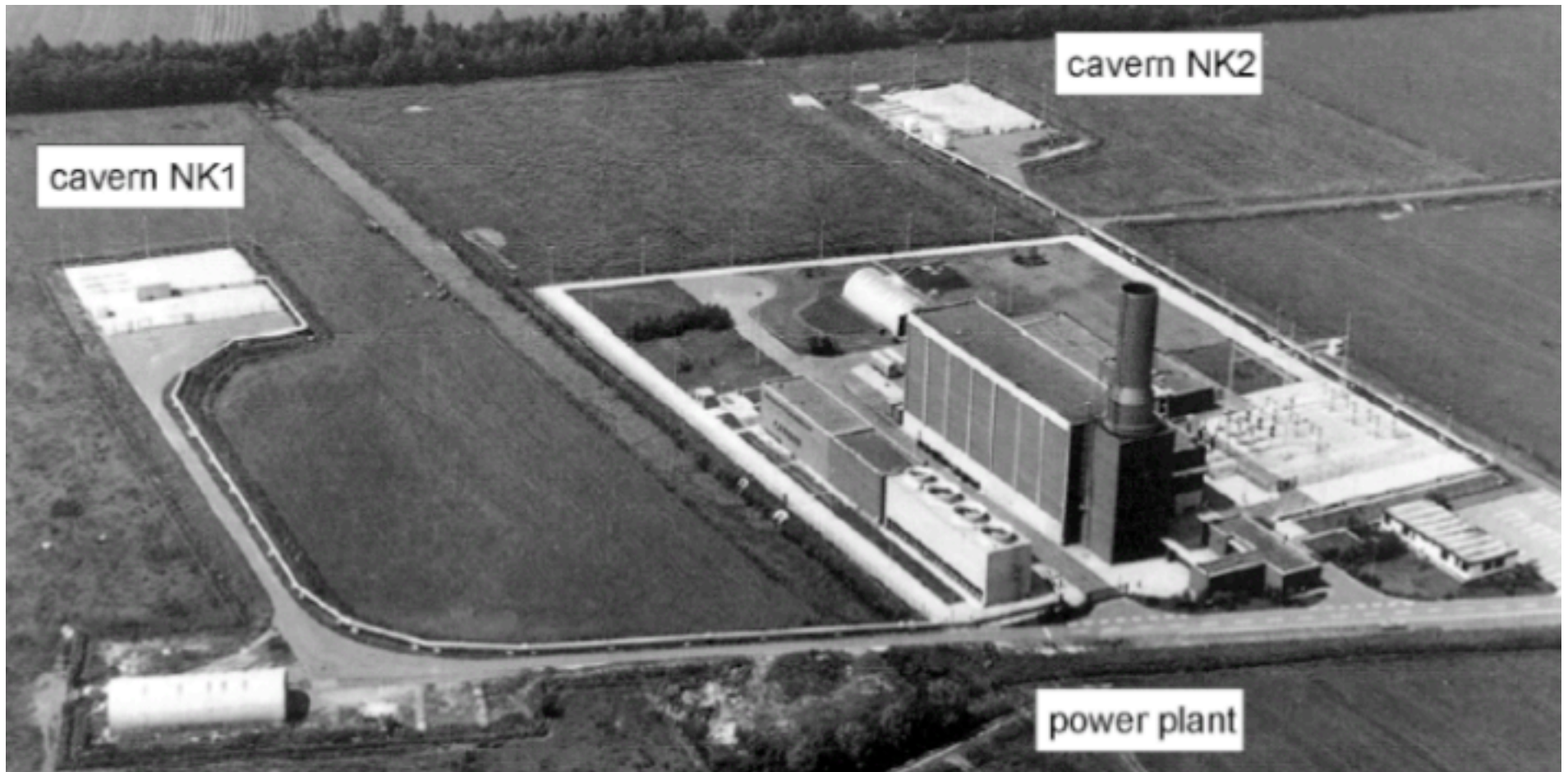
Low emissions



## Part 2. Examples



# Huntorf Plant, Germany, 1978



*From Succar 2008*



# McIntosh Plant, Alabama, 1991



*From Energy Storage and Power 2008*

# New CAES Plants



*From IAMU 2006*

Electric Power Research Institute (EPRI): 300 MW plant, 10 hours  
Iowa Stored Energy Park

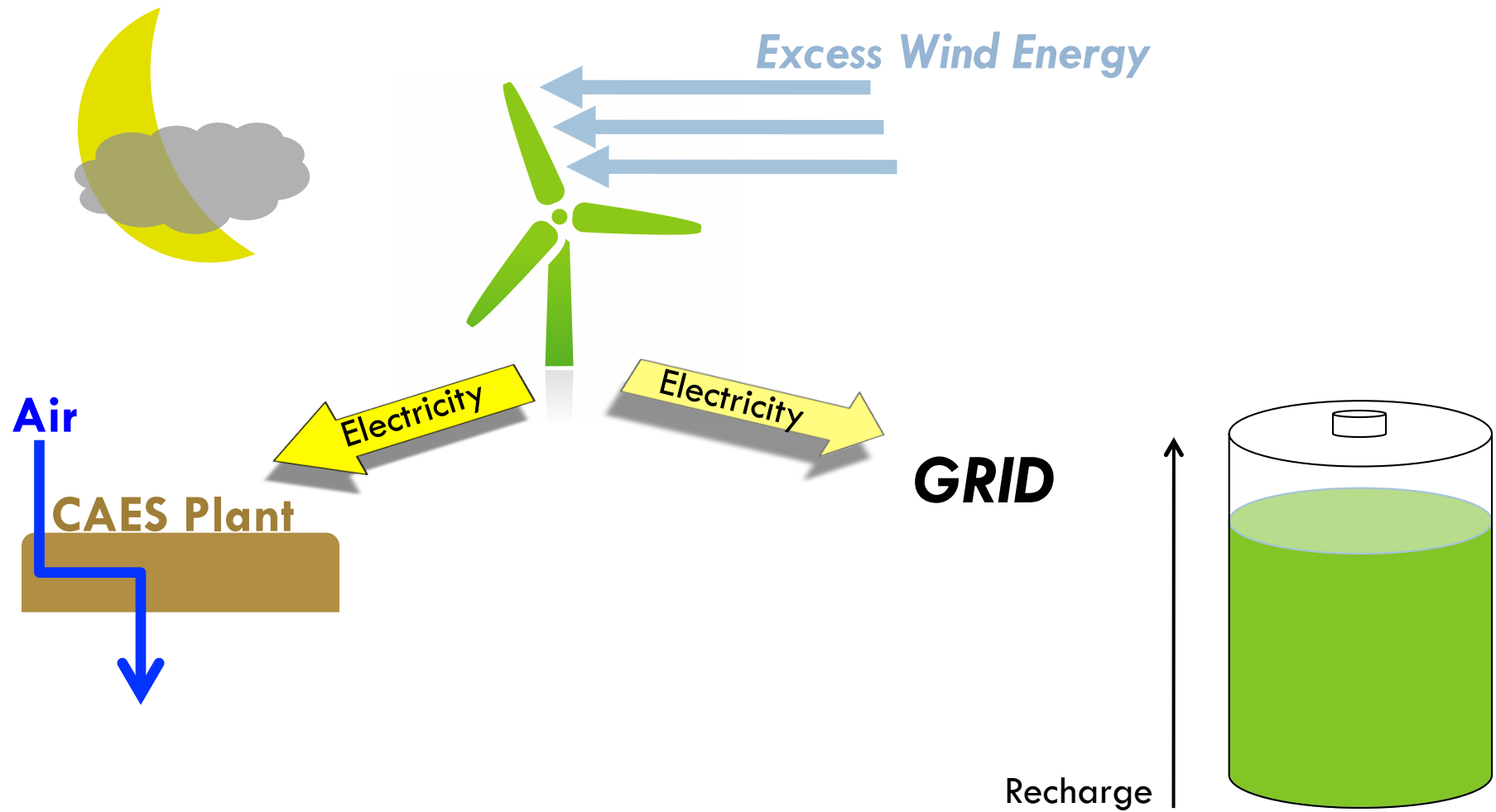
Pacific Gas and Electric (PGE): 300 MW plant



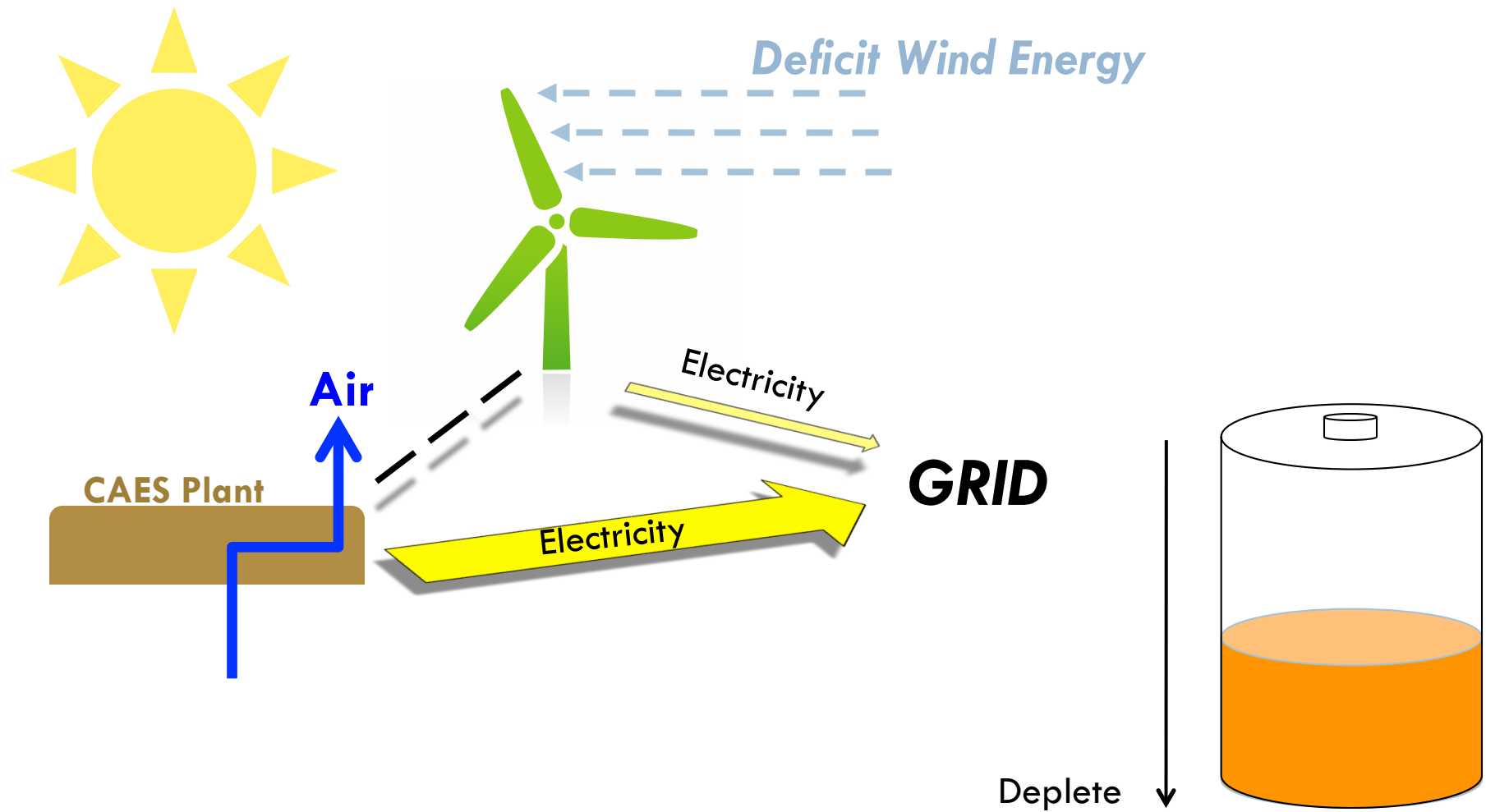
## Part 3. Baseload Wind



# The Wind Blows at Night, cont.



# The Wind Blows at Night, cont.





# The Wind Blows at Night, cont.

