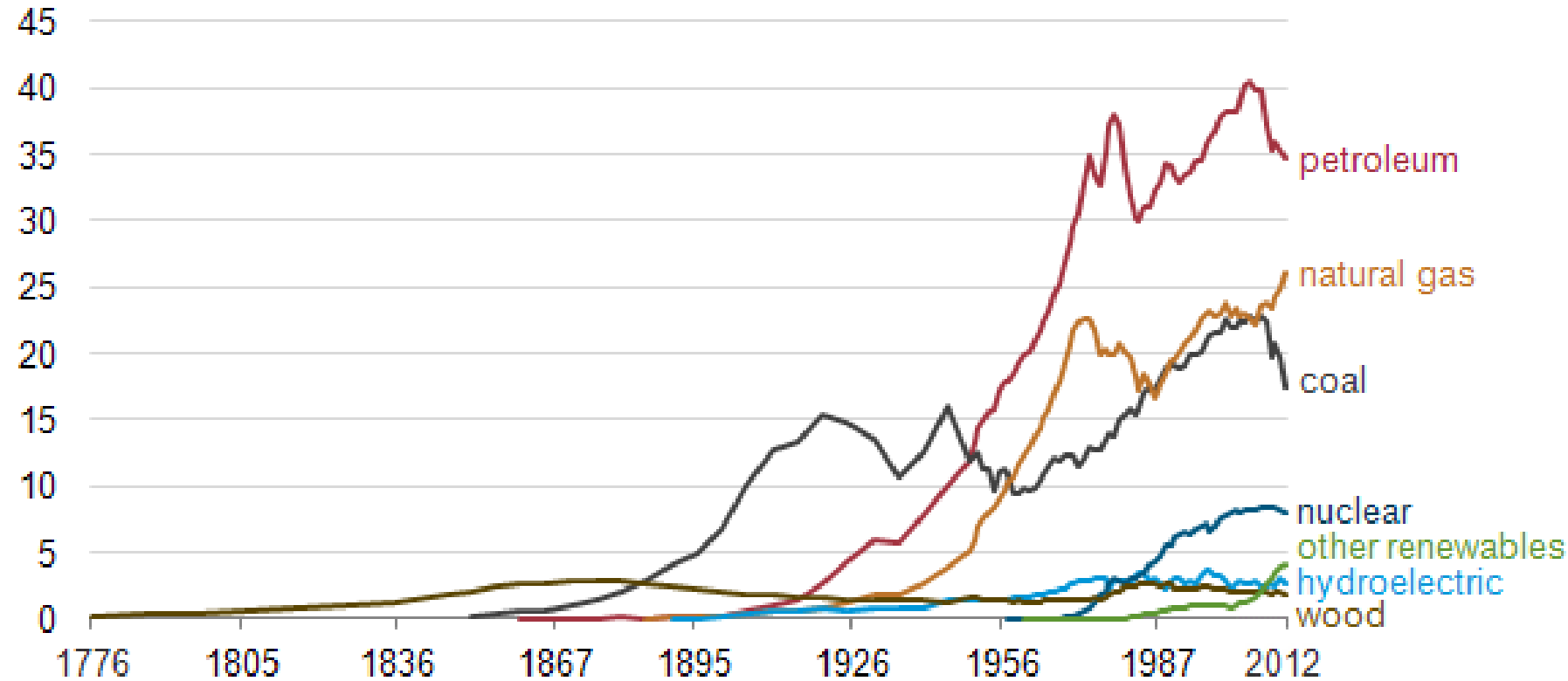




AUSTRALIAN  
**ENERGY**  
COUNCIL

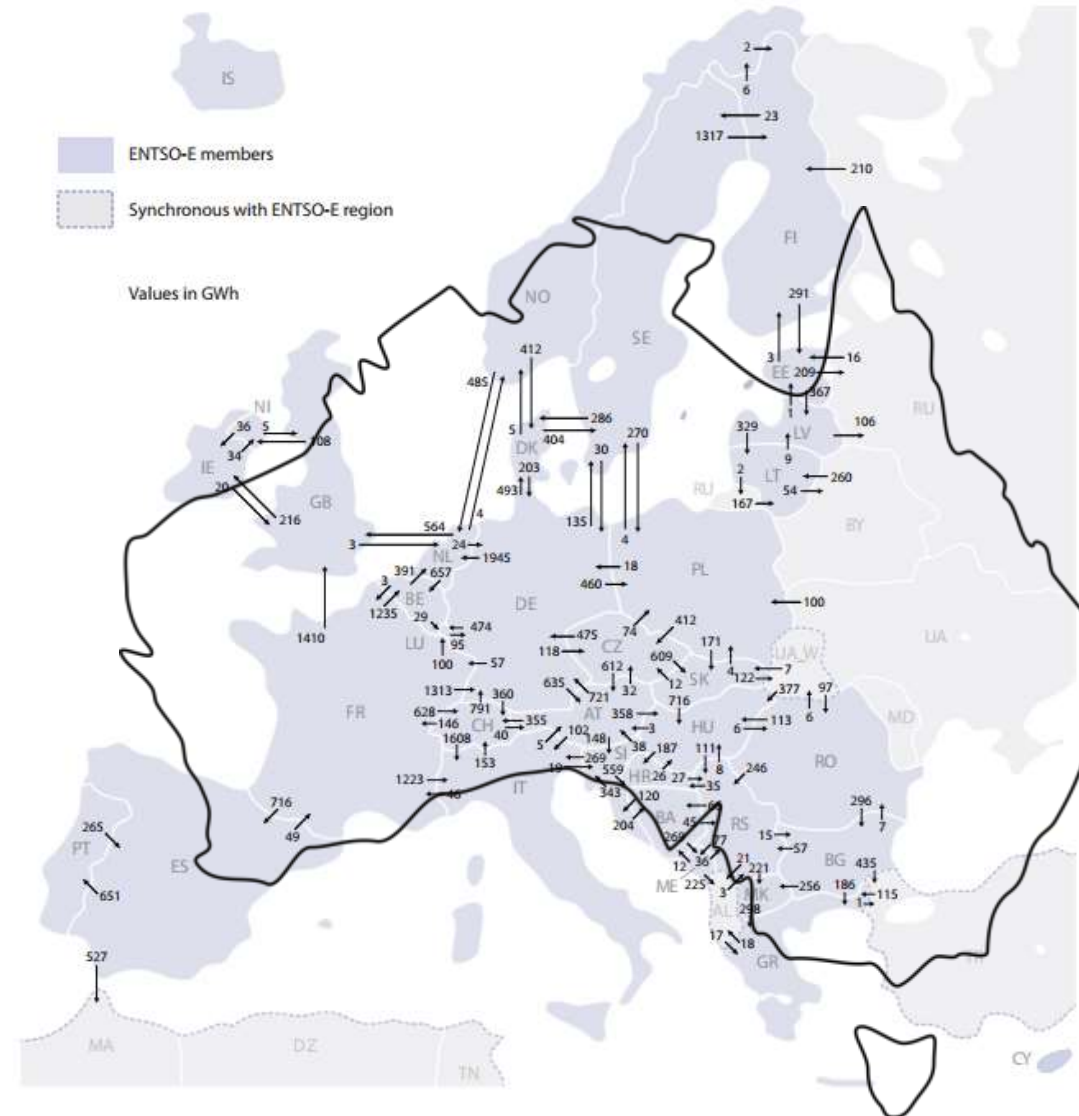
# US energy since independence

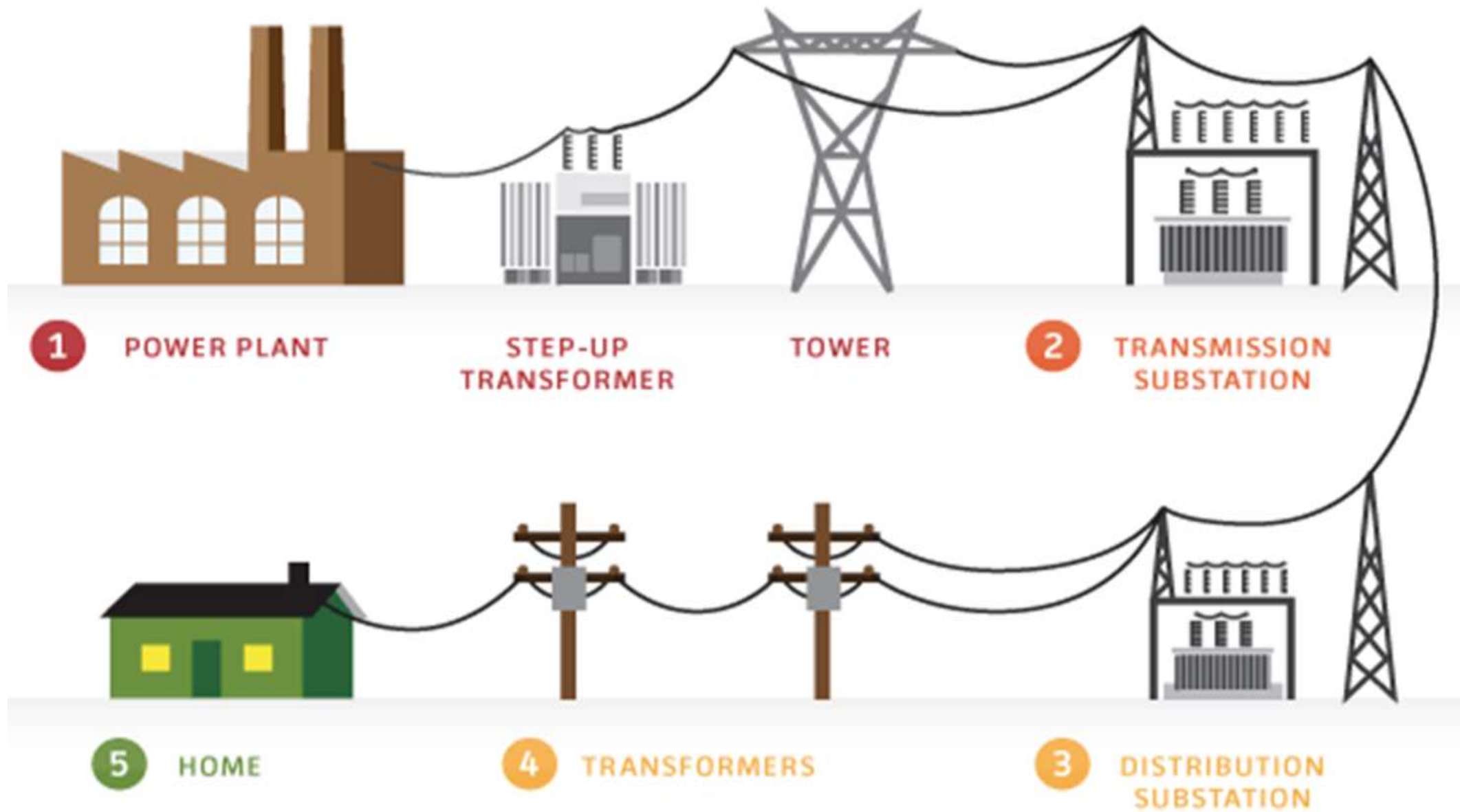
History of energy consumption in the United States (1776-2012)  
quadrillion Btu

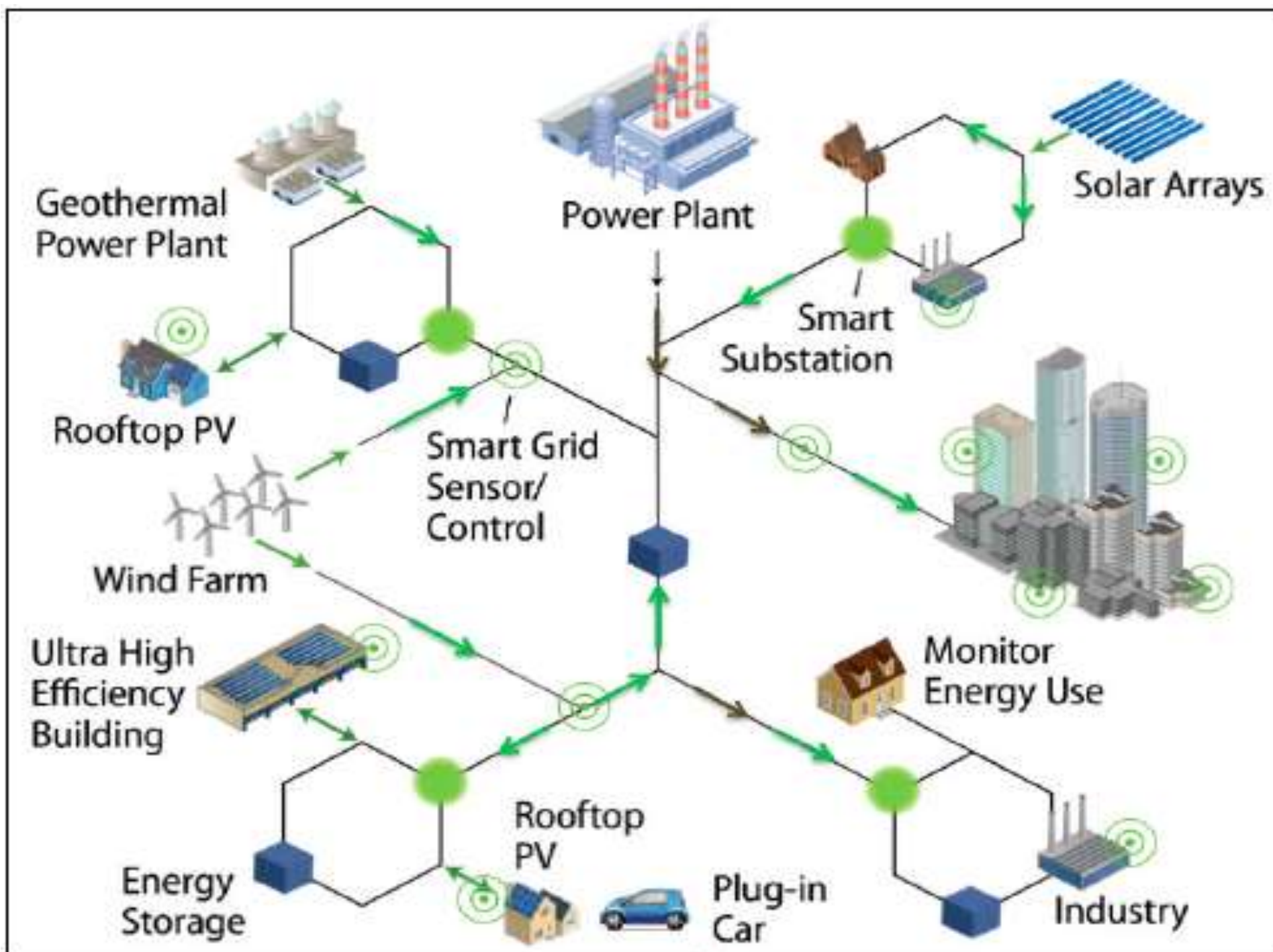




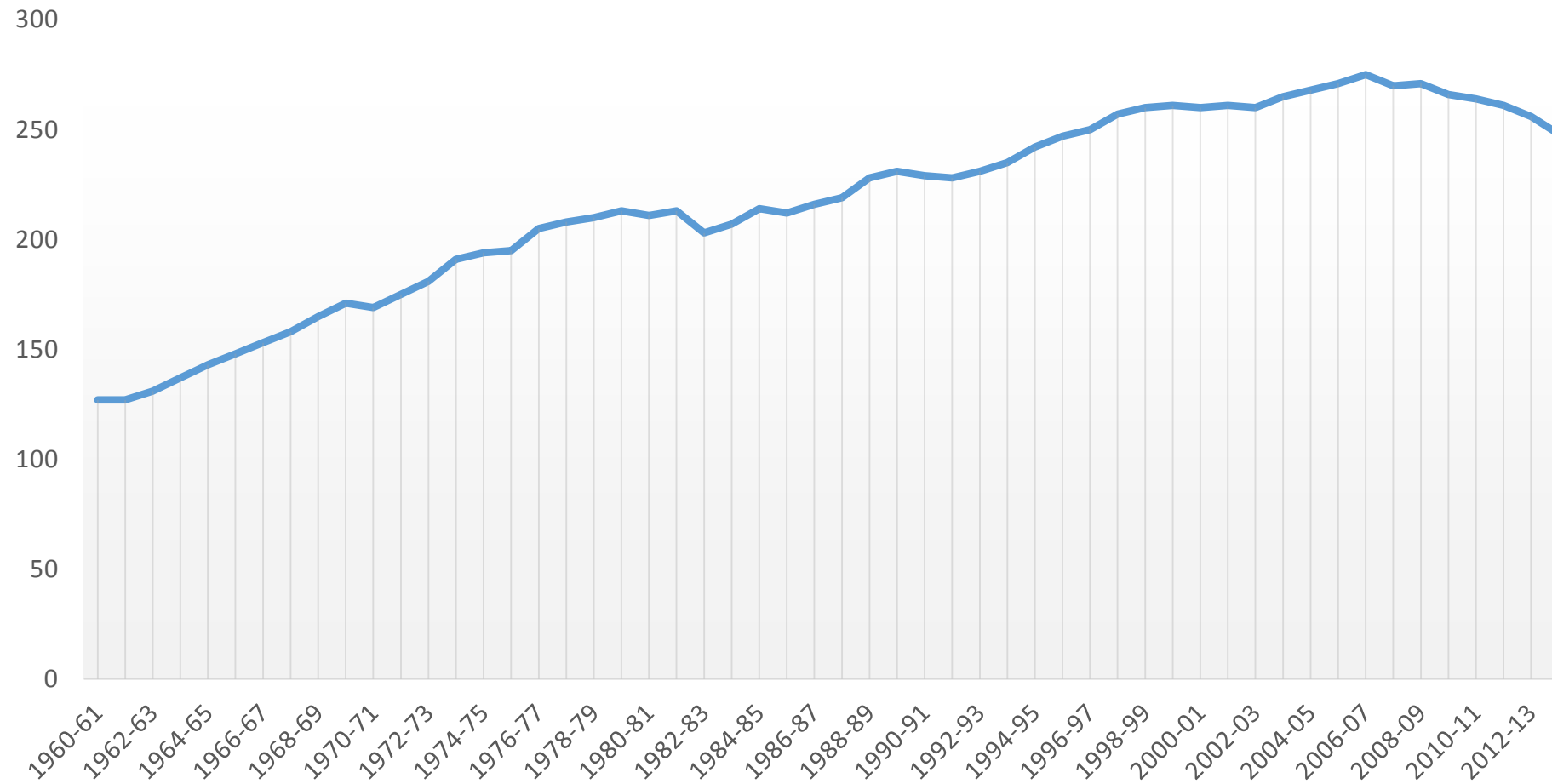
# Australia's geographic challenge



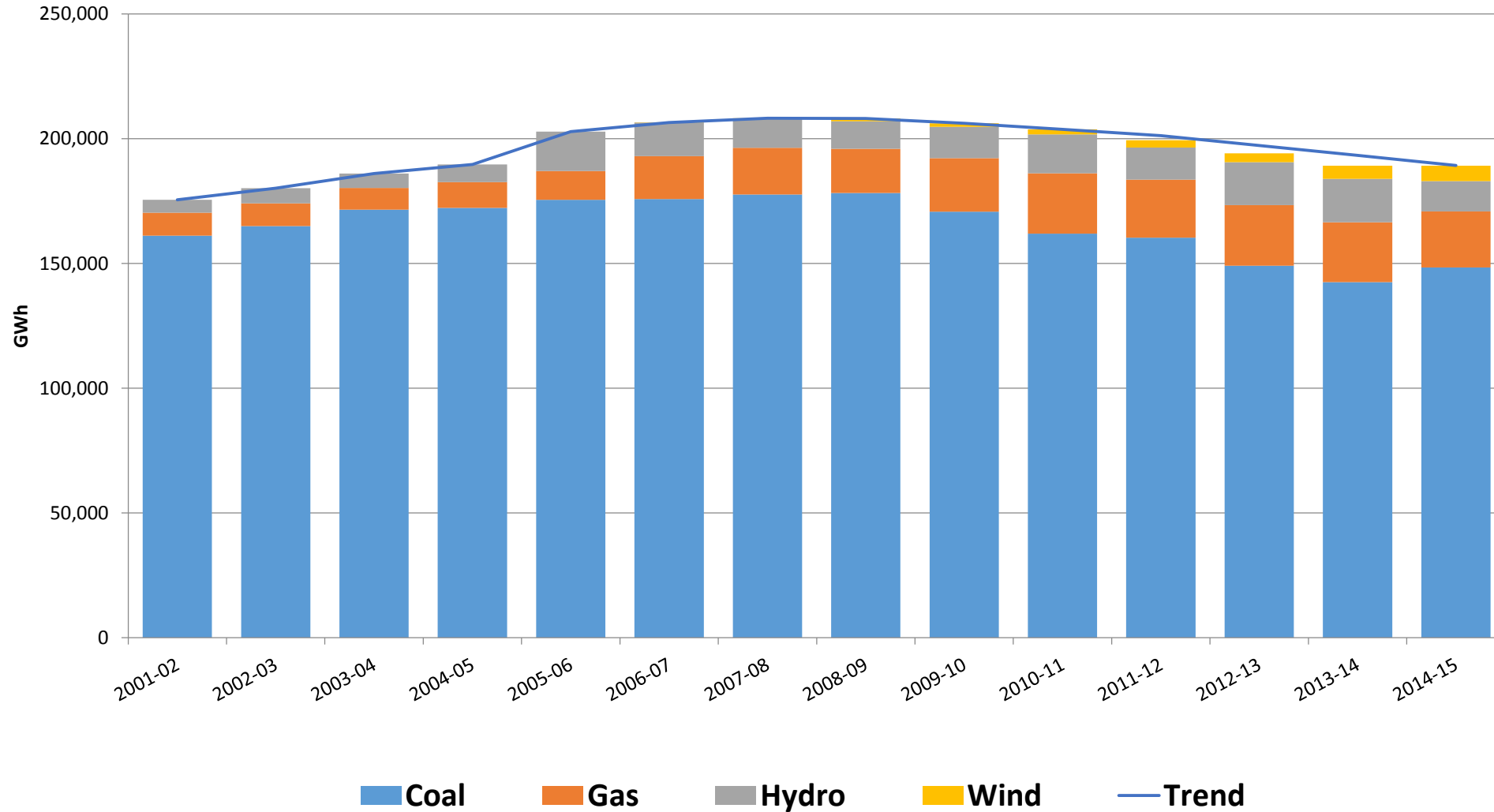




# Energy demand per capita GJ/person/annum 1960-2014

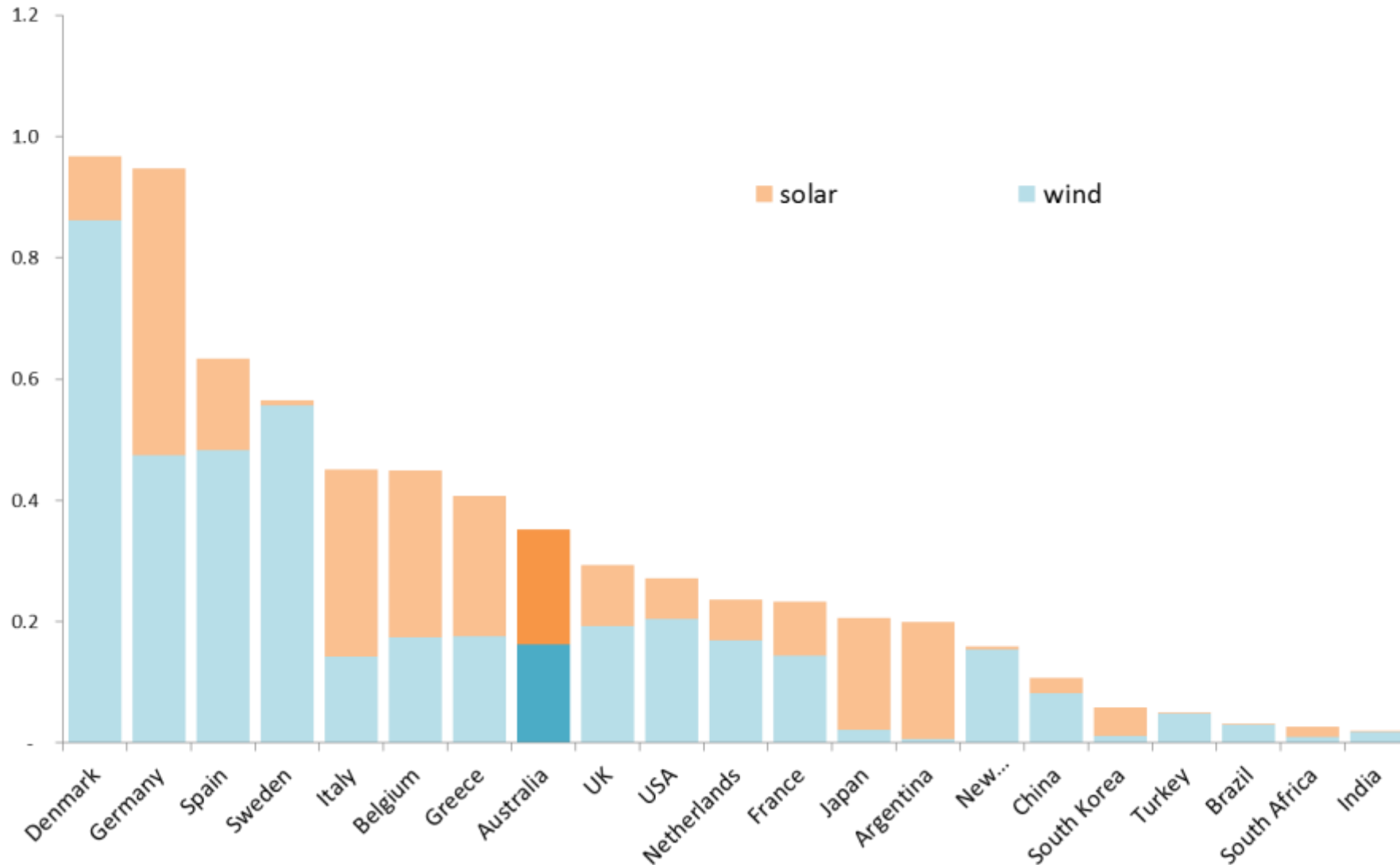


# Electricity generation 2001-15

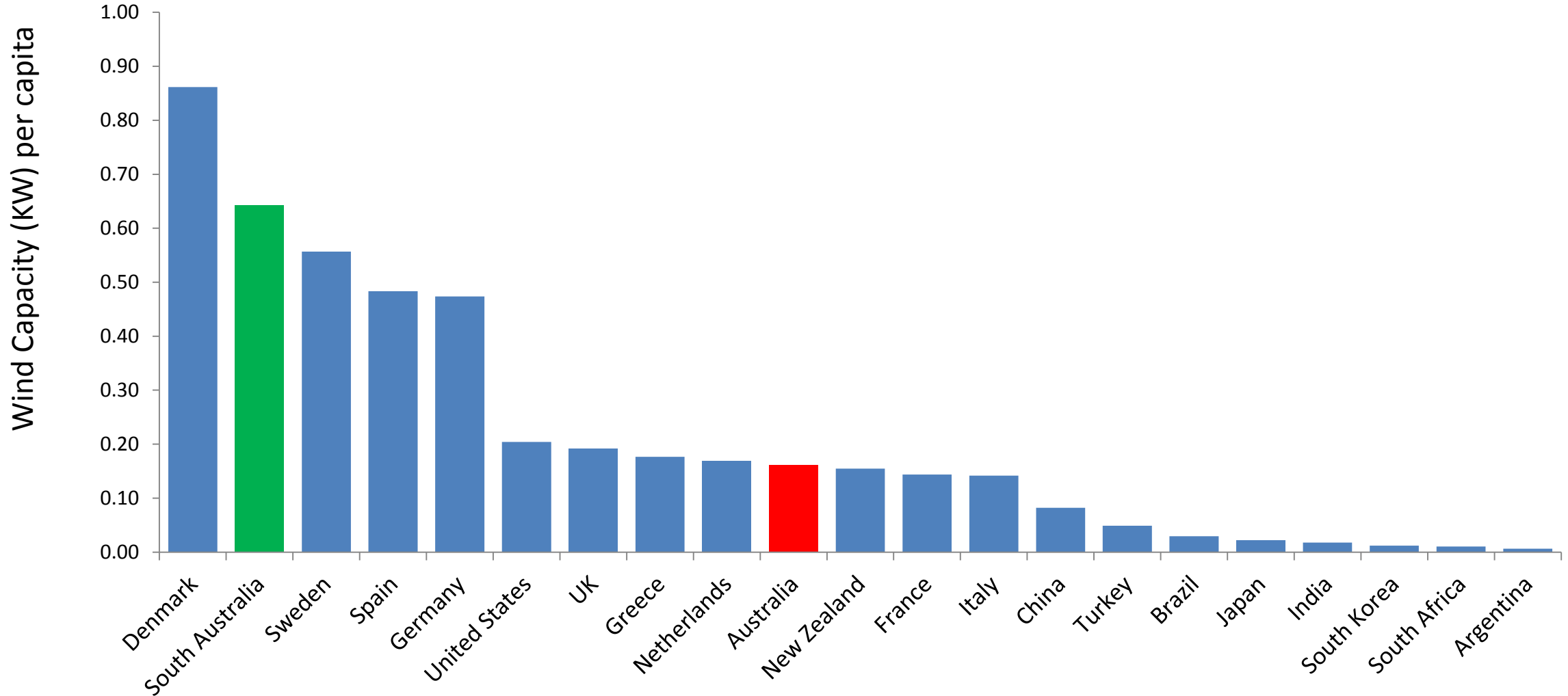




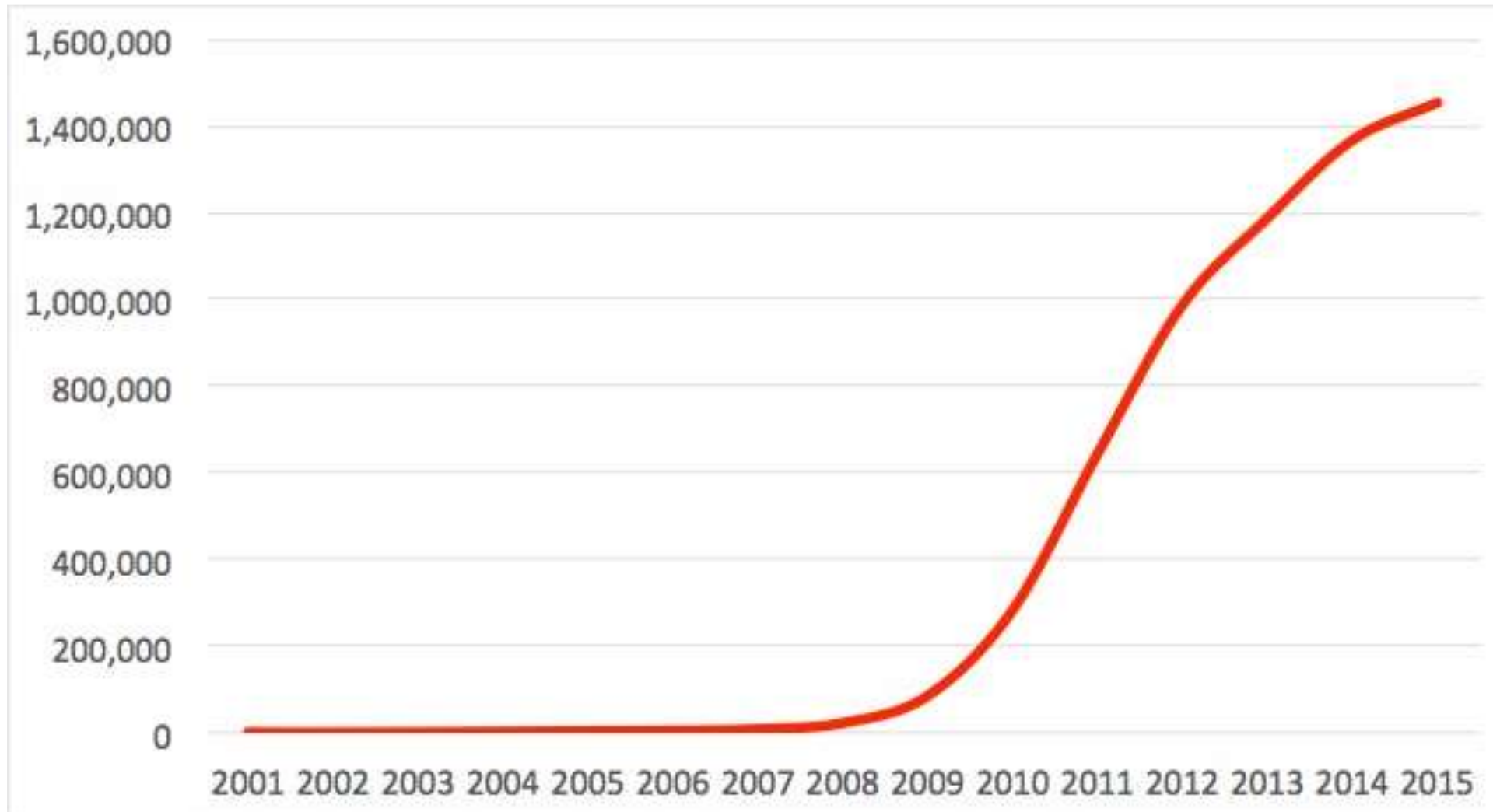
# Solar and wind per capita by country



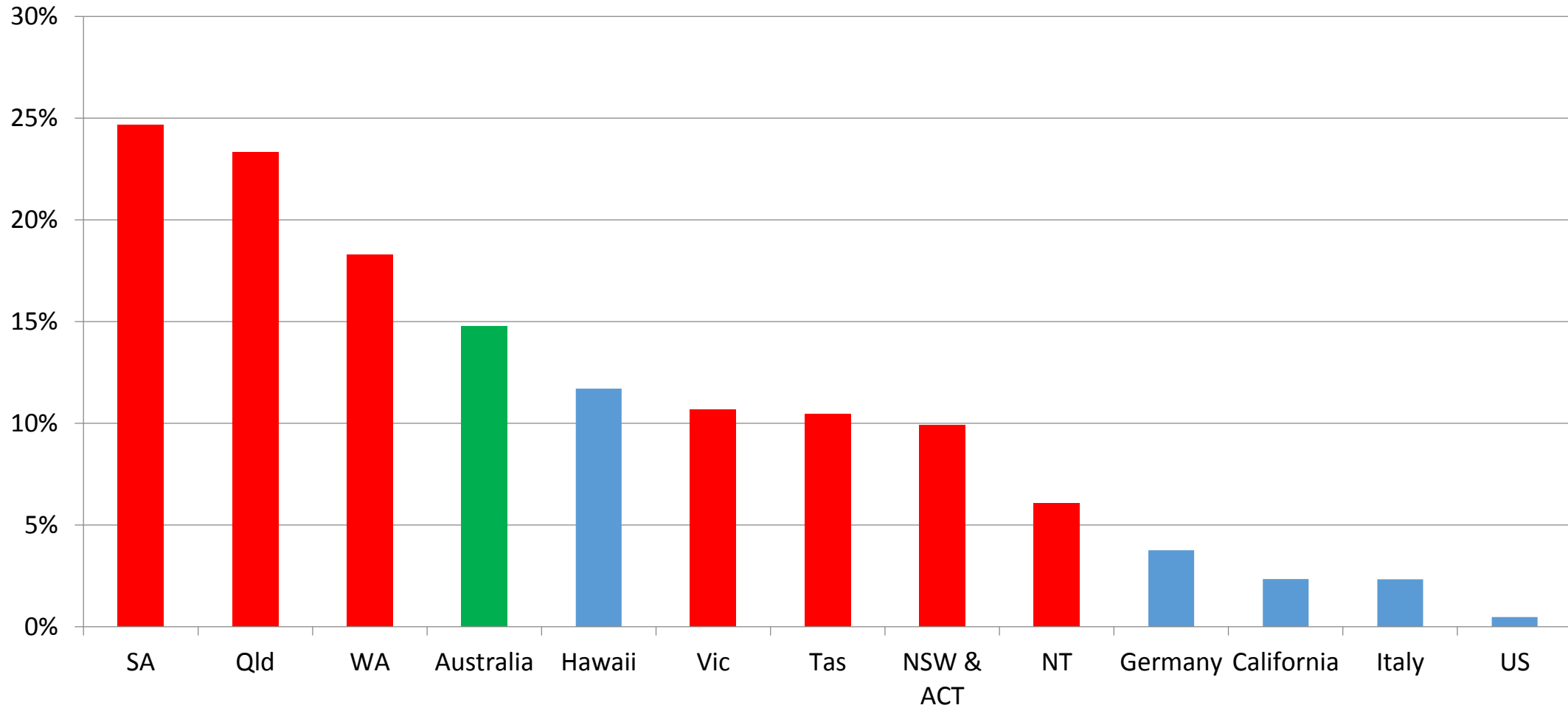
# Wind capacity per capita



# Solar PV number of systems

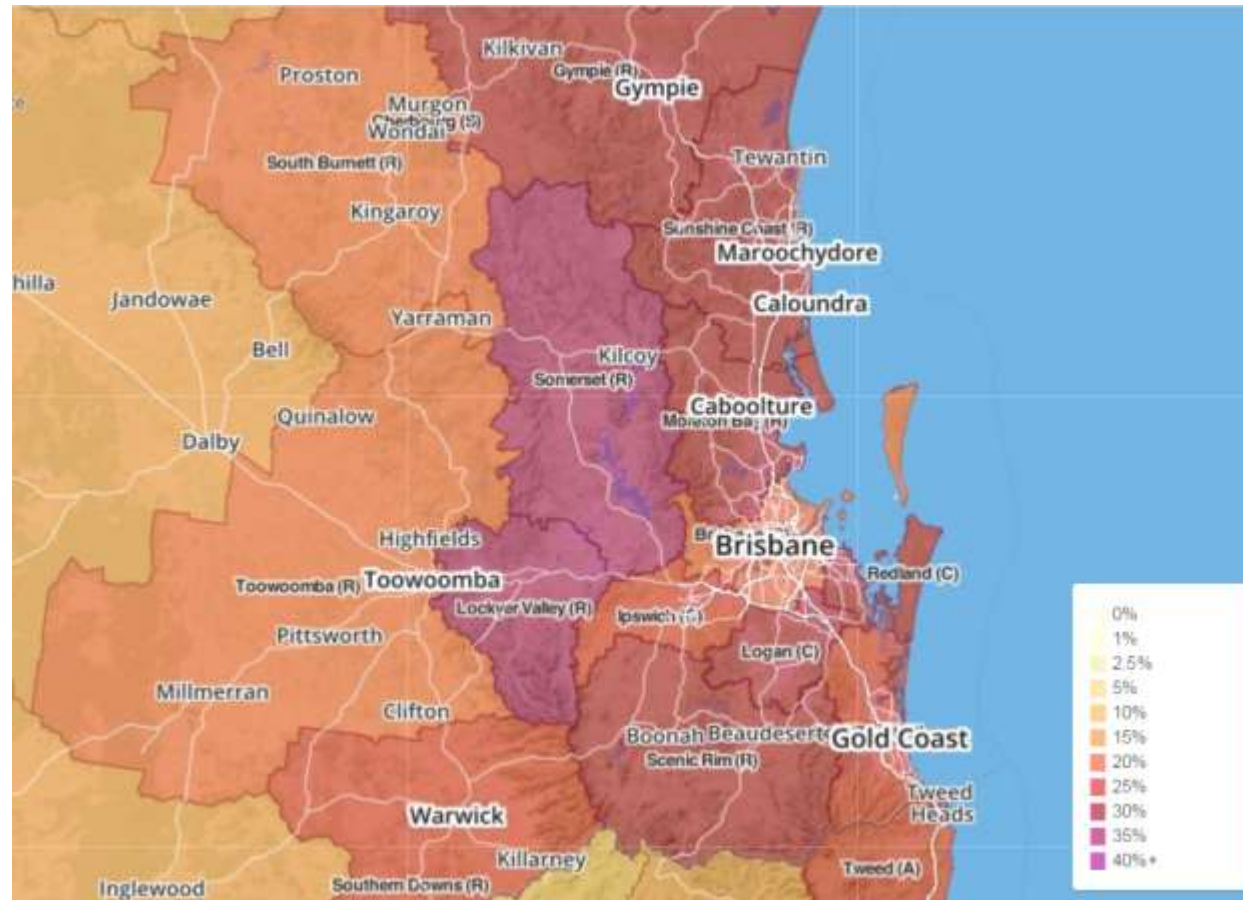


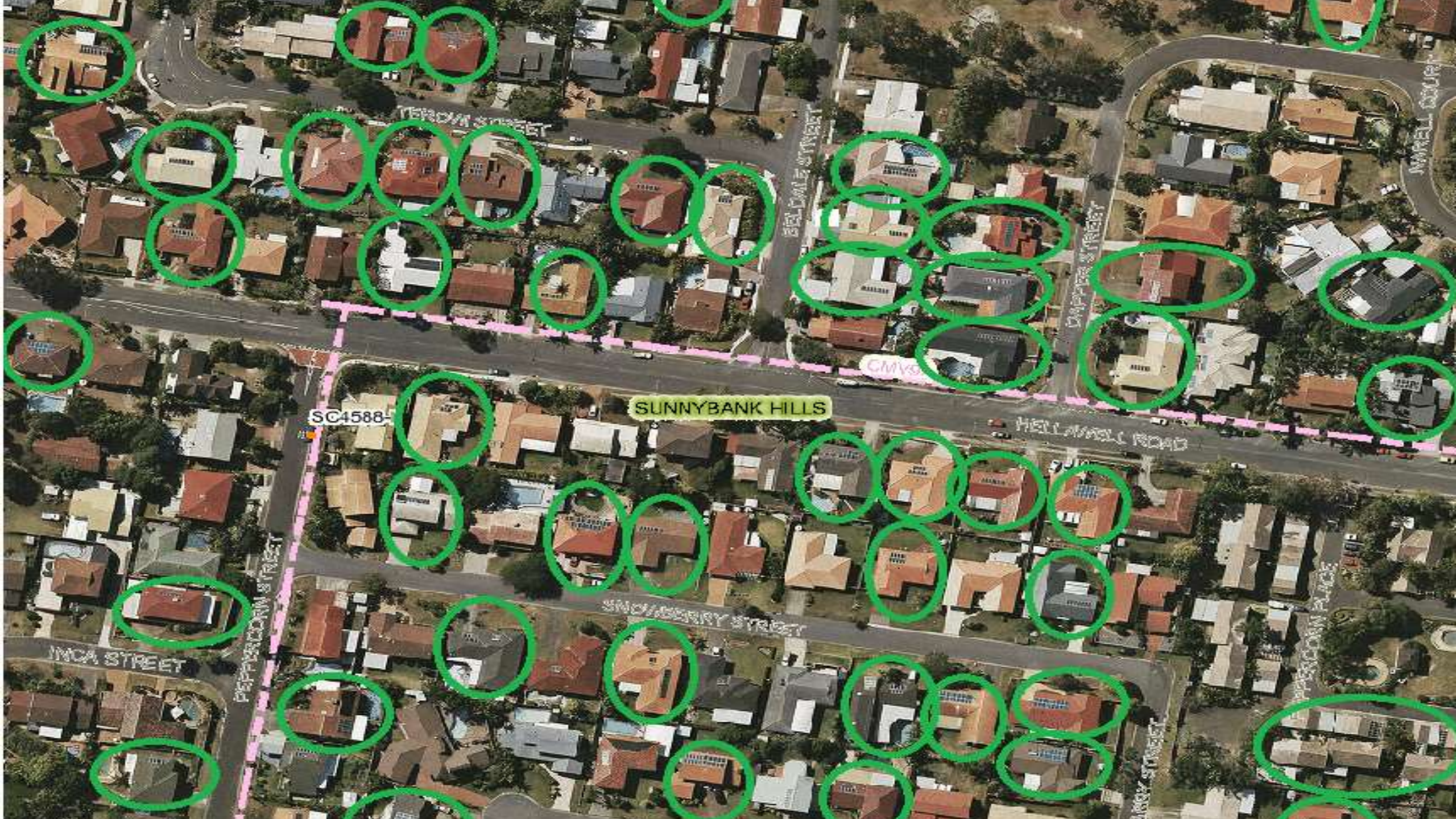
# Rooftop PV penetration rates



# Brisbane solar penetration rate

Source: Australian PV Institute (APVI) Solar Map





SUNNYBANK HILLS

SC4588

HELLAWELL ROAD

SNOWBERRY STREET

INCA STREET

TERESSA STREET

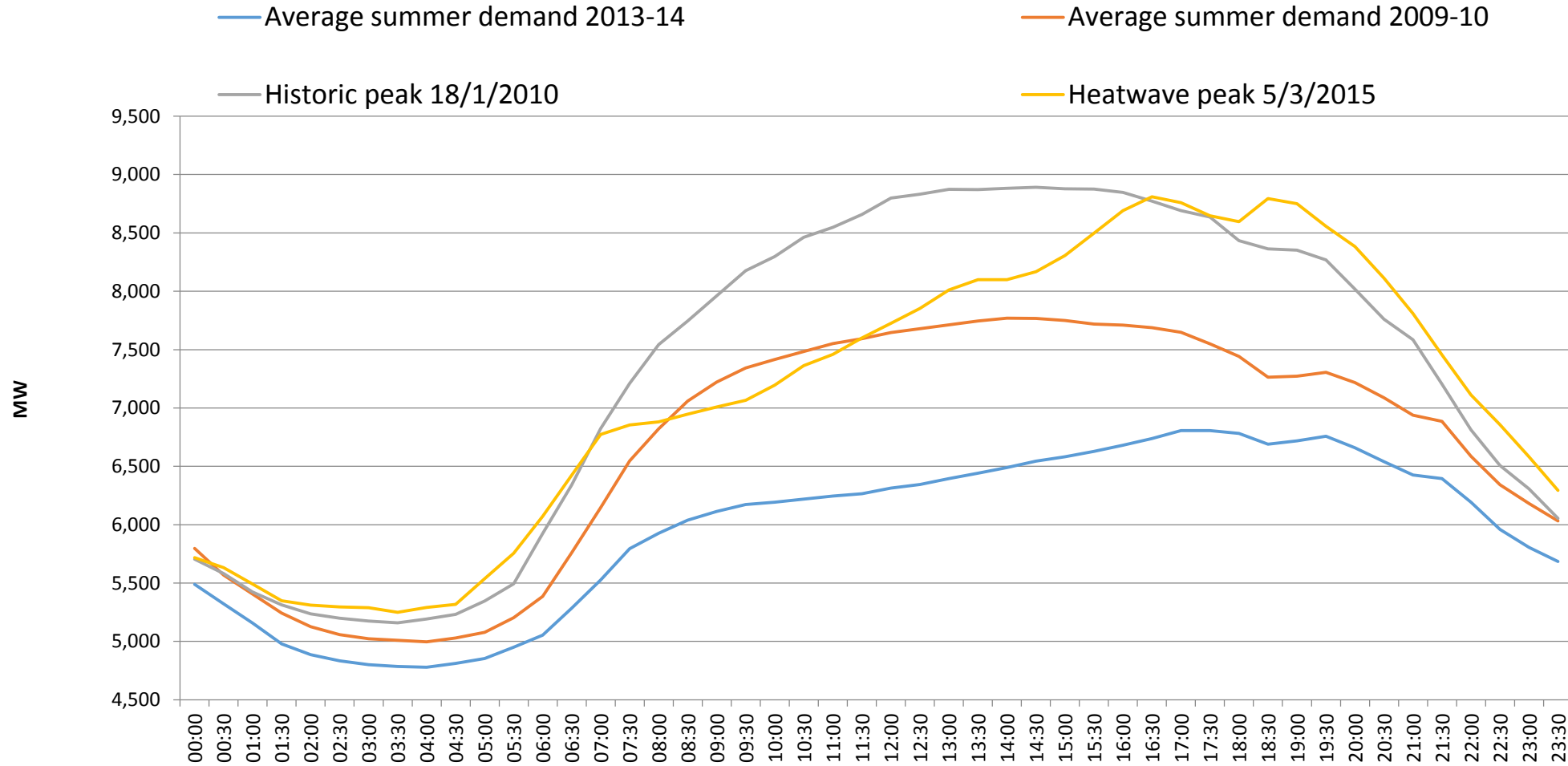
BELVALE STREET

DUPONT STREET

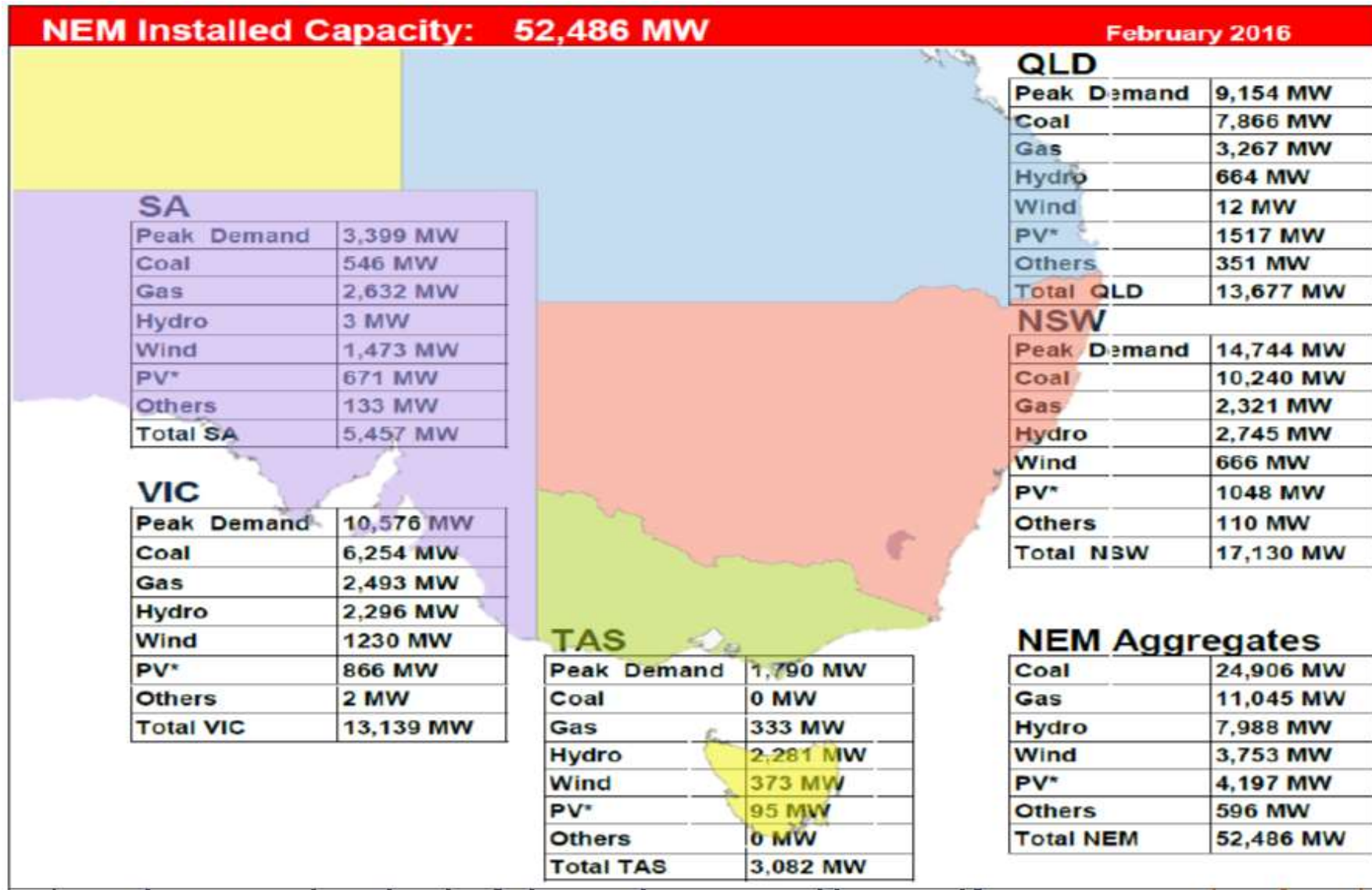
INCA WAY

CMVS

# Shifting demand - Queensland

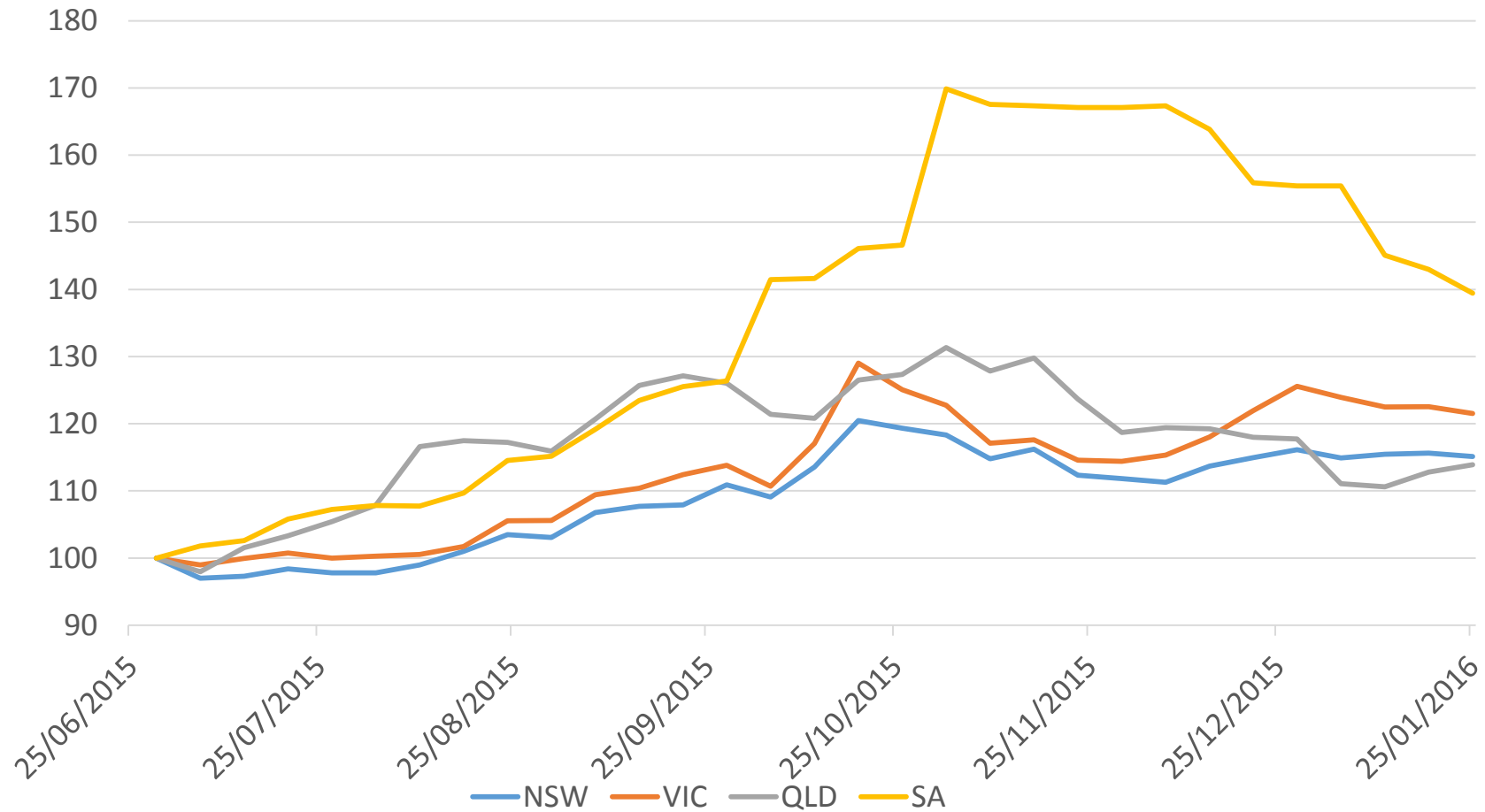


# SA at 41 per cent renewable generation

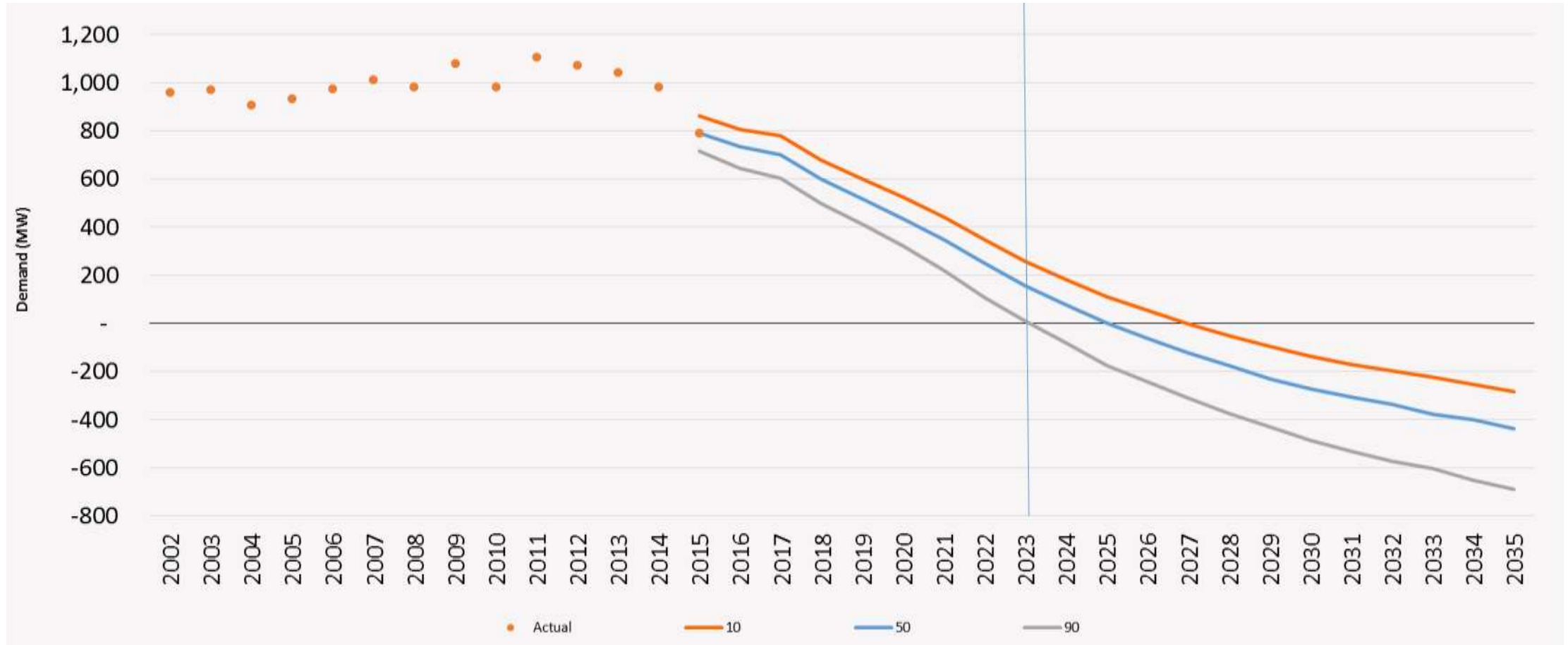




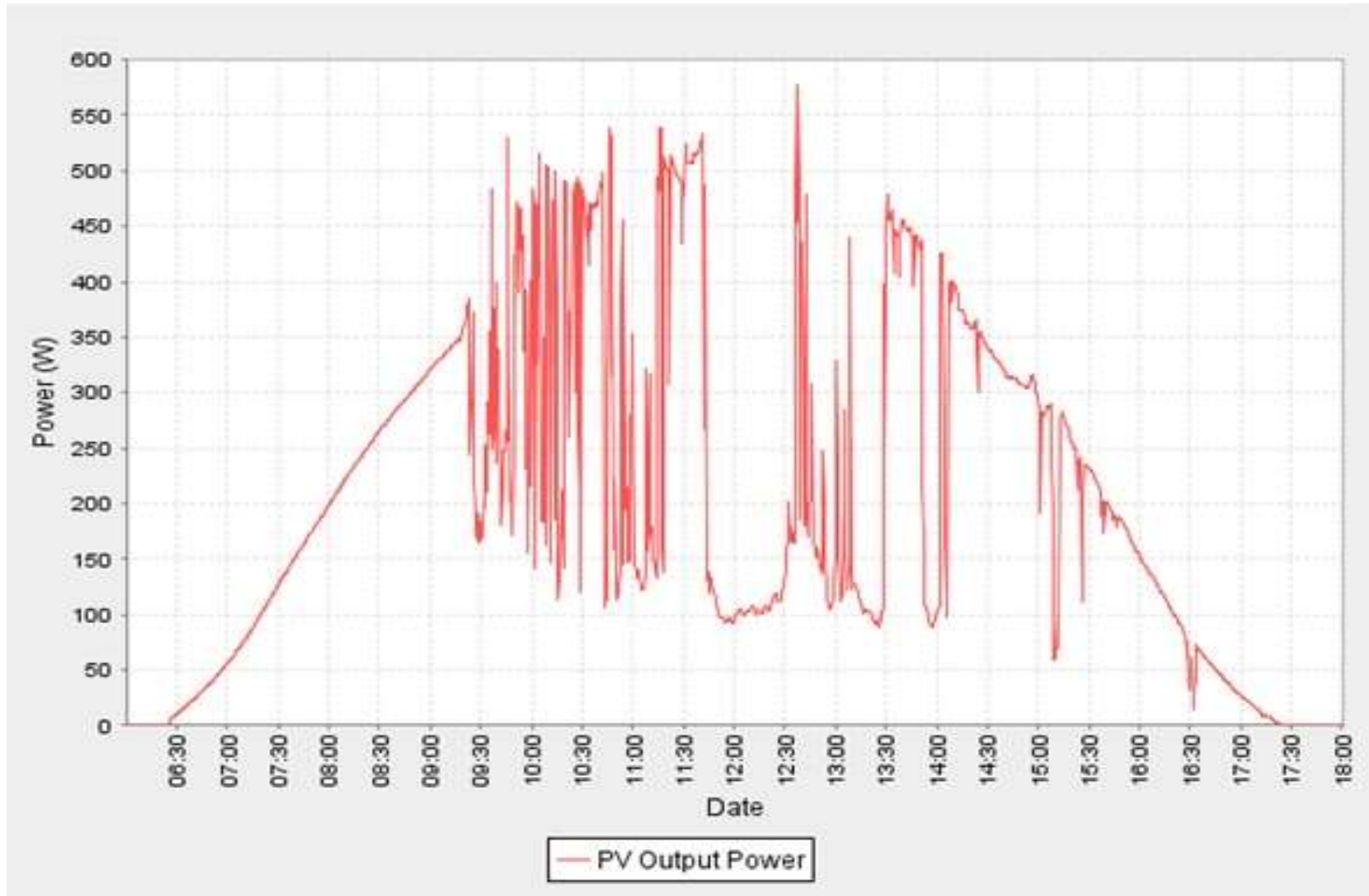
# Forward baseload prices



# Minimum demand South Australia 2023



# Solar PV on a cloudy day

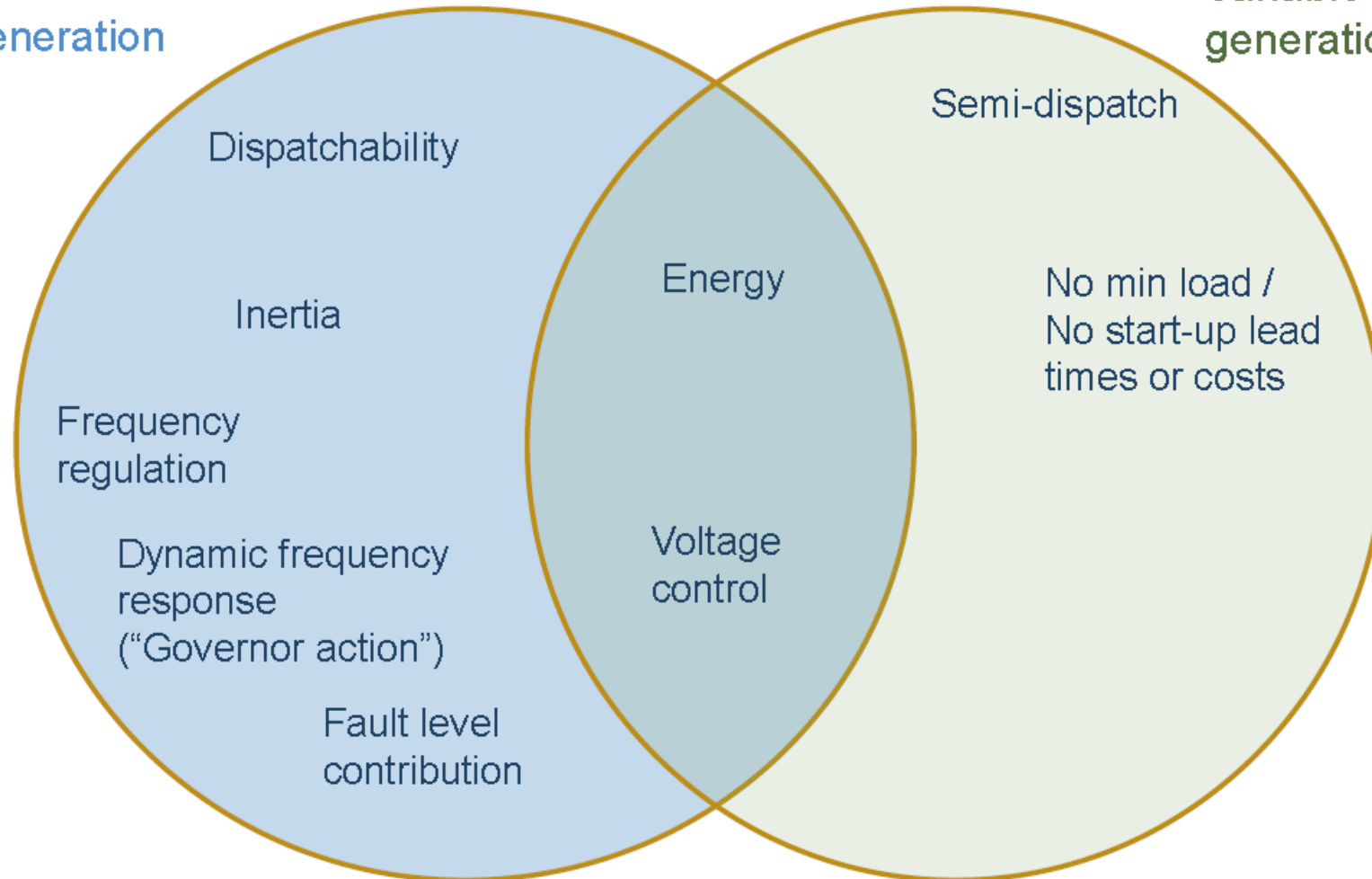


# Ancillary services

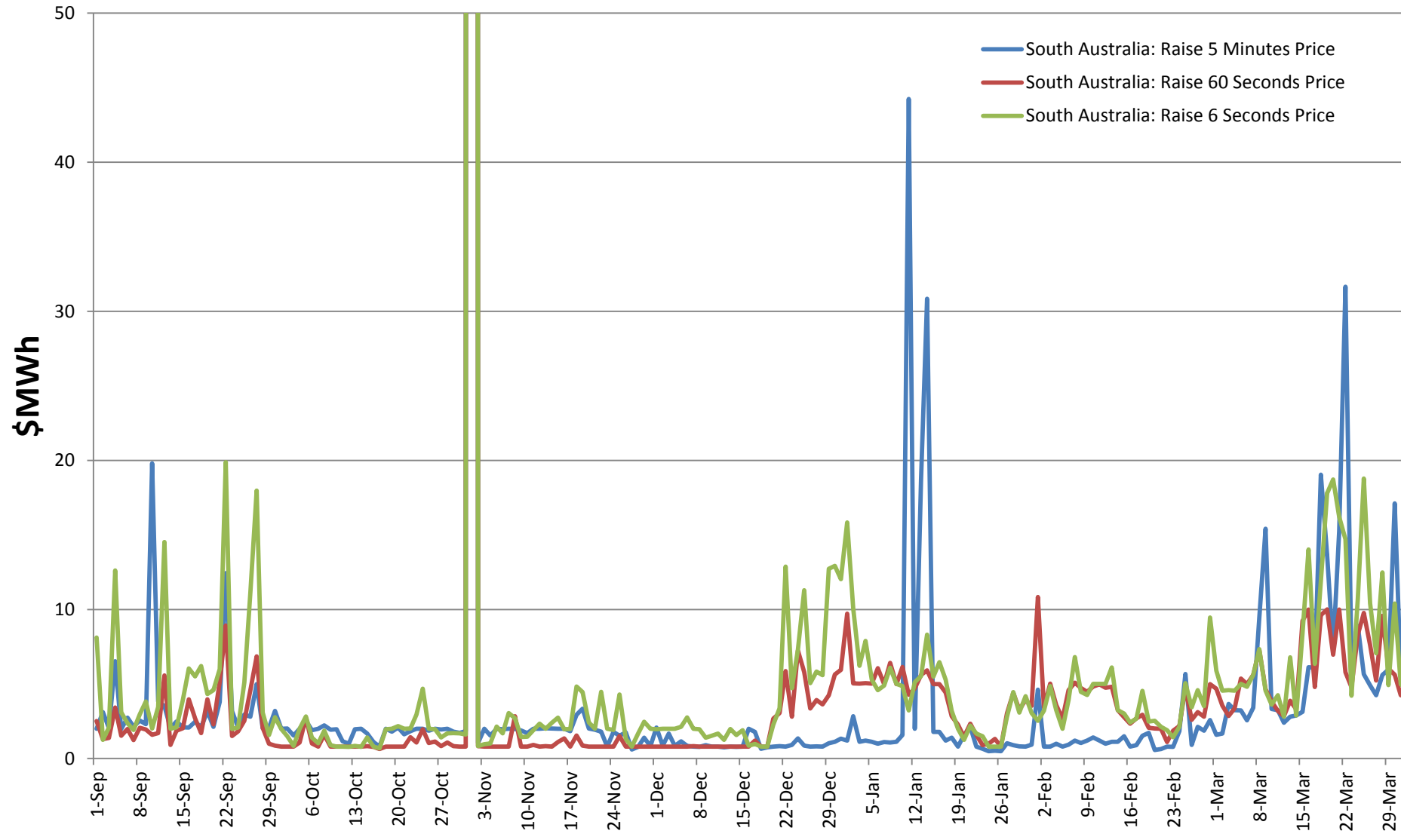


Non-synchronous  
Variable  
generation

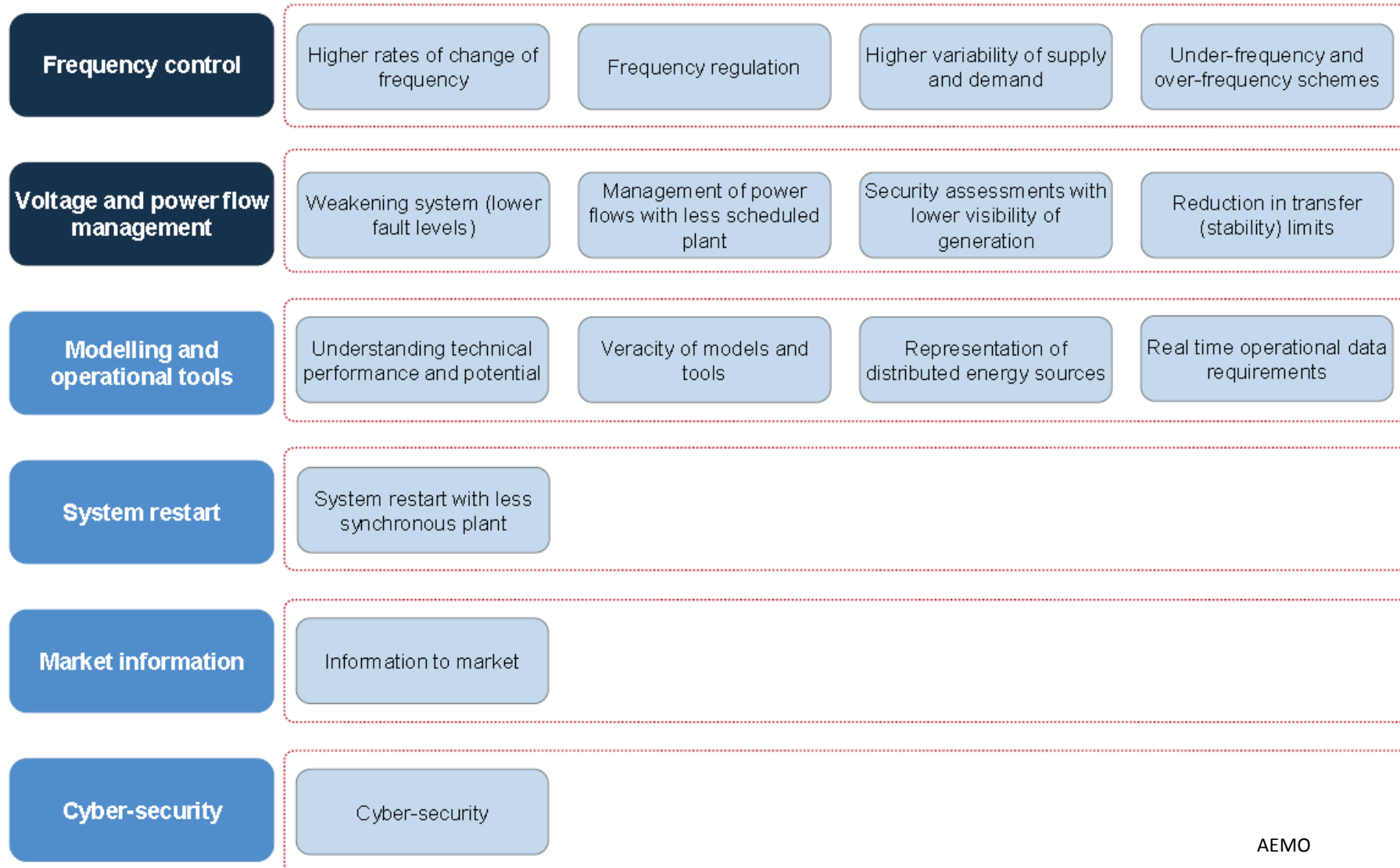
Synchronous  
Generation



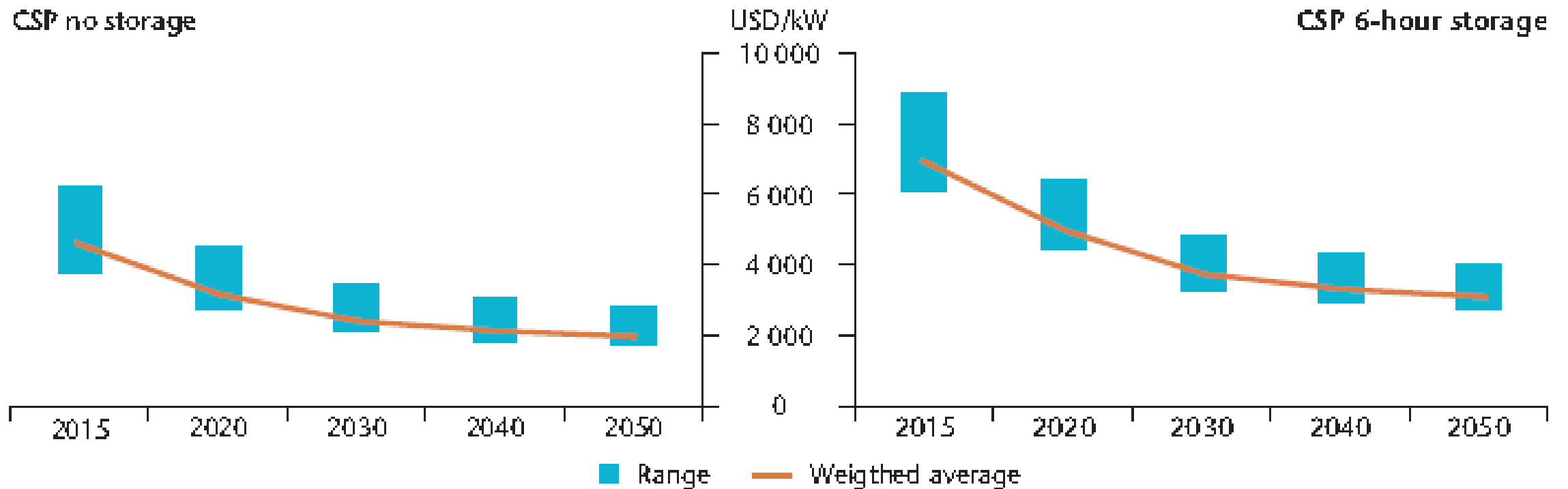
# FCAS market since September



# Technical challenges in SA



# CSP investment cost expected to halve by 2030 as technologies mature (IEA)



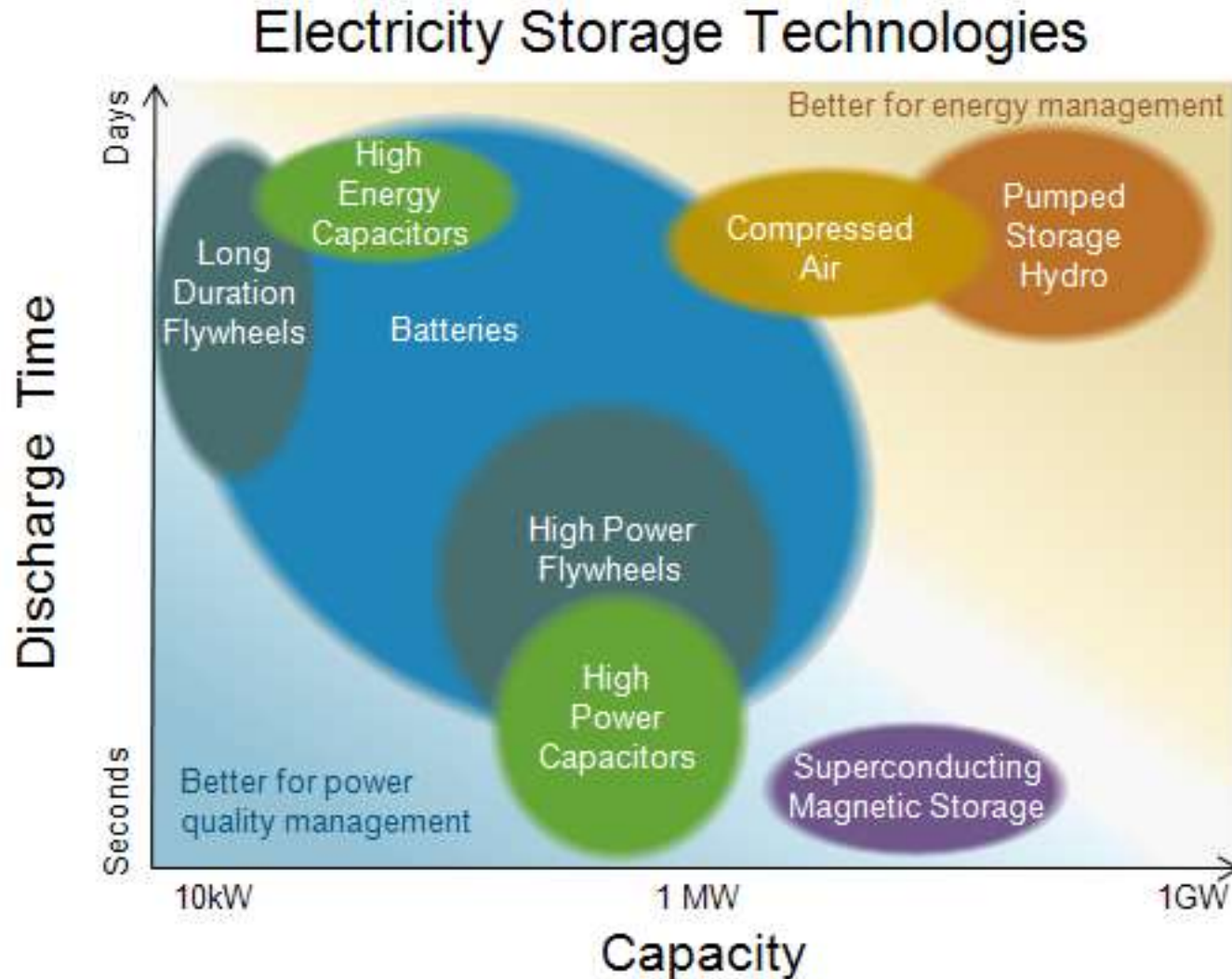
# The competition



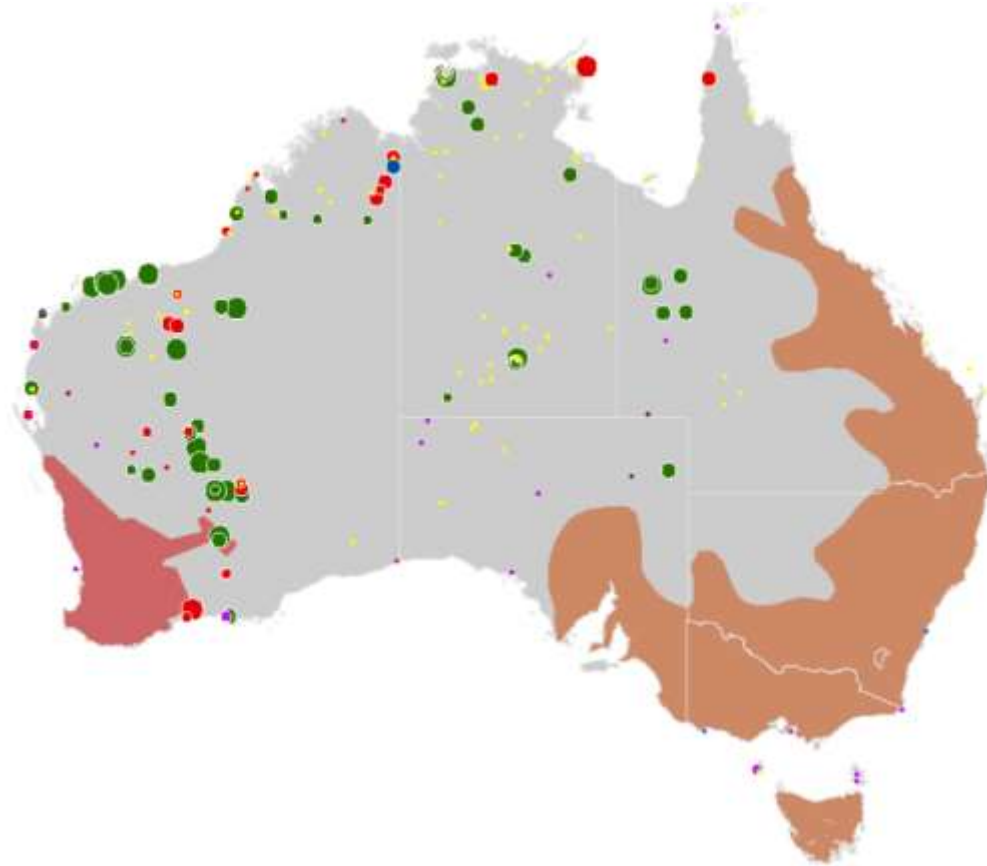
- Gas
- Storage
- Bioenergy
- AC transmission



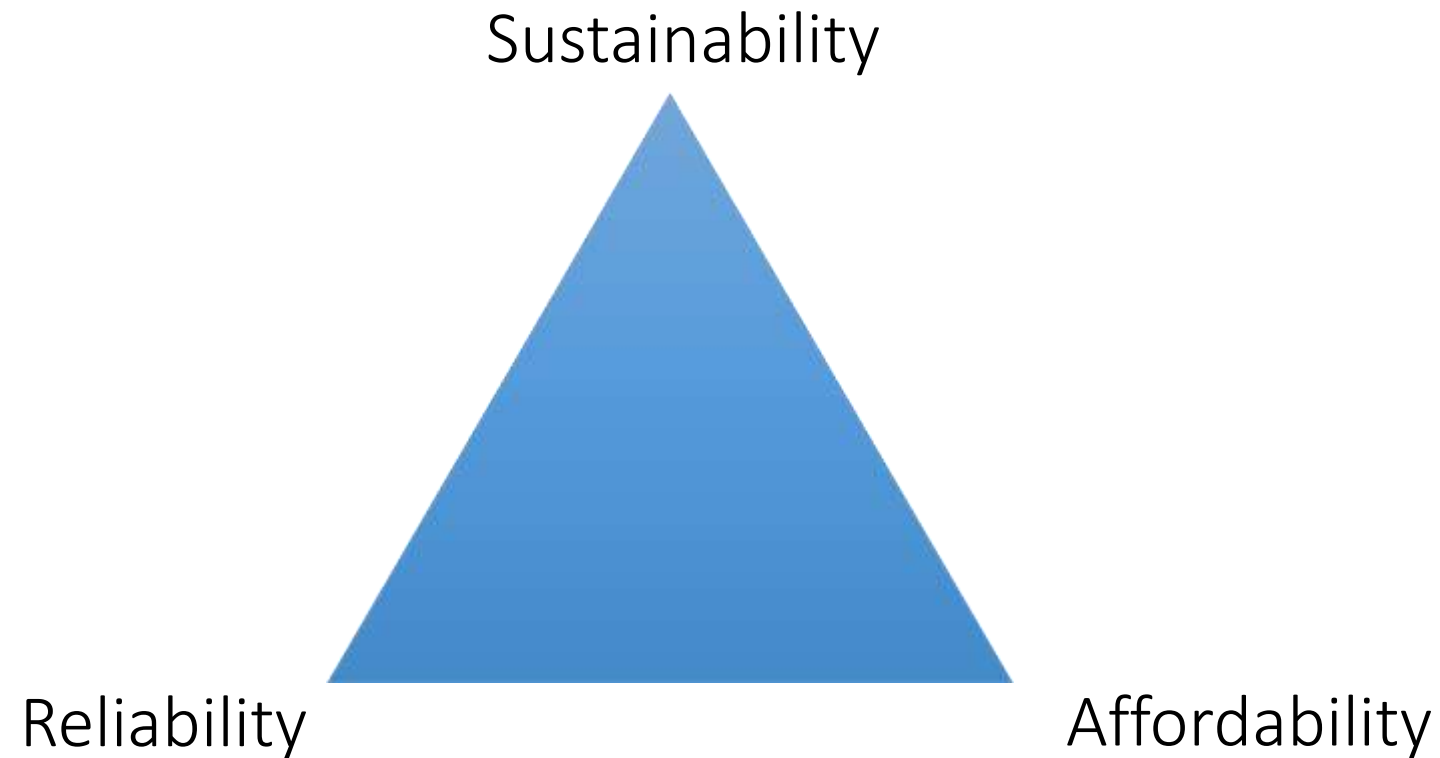
# Storage – Which competition?



# Australia's electricity archipelago



# The energy triangle of pain





AUSTRALIAN  
**ENERGY**  
COUNCIL