



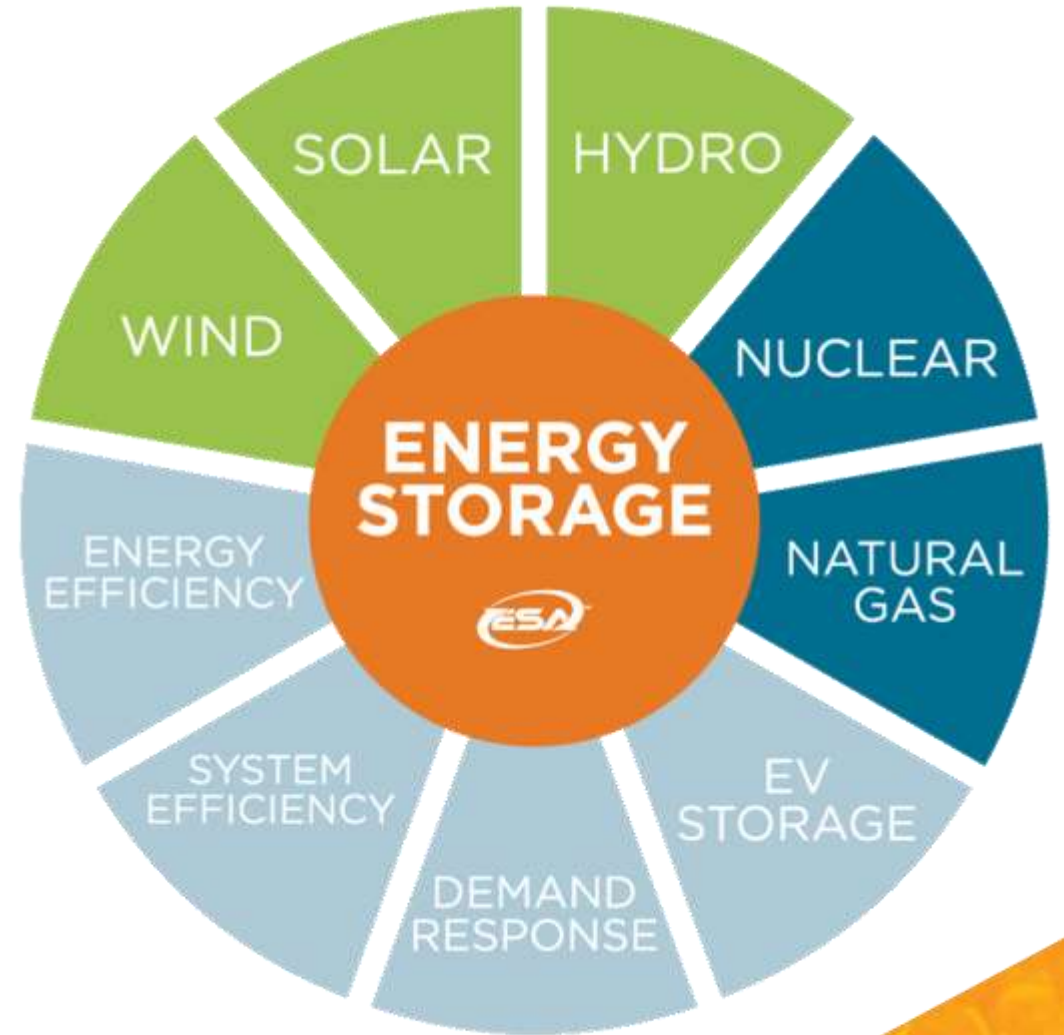
Energy  
Storage  
Association

# **Energy Storage, Solar, and Efficiency:** **A Sustainable and Resilient Combination**

**Kelly Speakes-Backman**  
**NASEO Energy Policy Outlook Conference**  
**February 7, 2019**

[www.energystorage.org](http://www.energystorage.org)

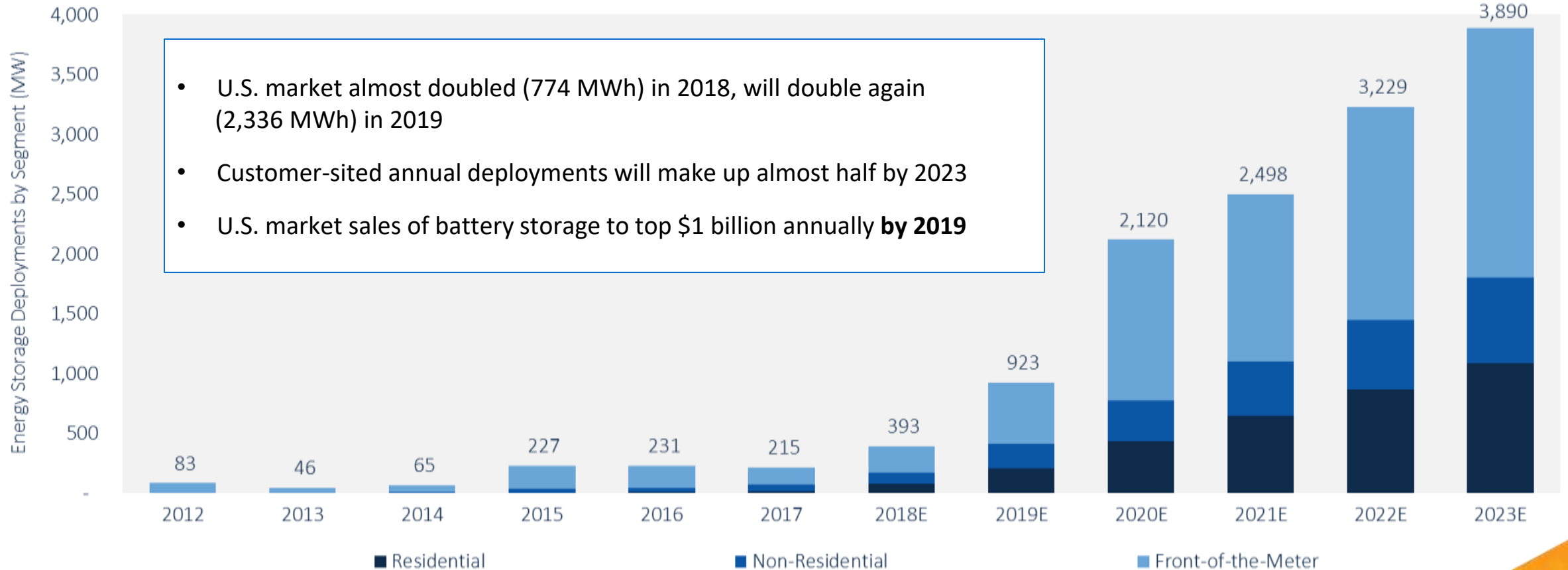
# The Energy Storage Association



Energy Storage Association

# Battery installations are growing

U.S. Annual Energy Storage Deployment Forecast, 2012-2023E (MW)



Source: Wood Mackenzie Research/ESA



Energy Storage Association

# Value of storage for consumers

## Operational savings

- Peak reduction
- Power quality (Volt VAR)
- DER firming

## Reliability & Resilience

- Backup power
- Microgrid islanding

## Ancillary services revenues

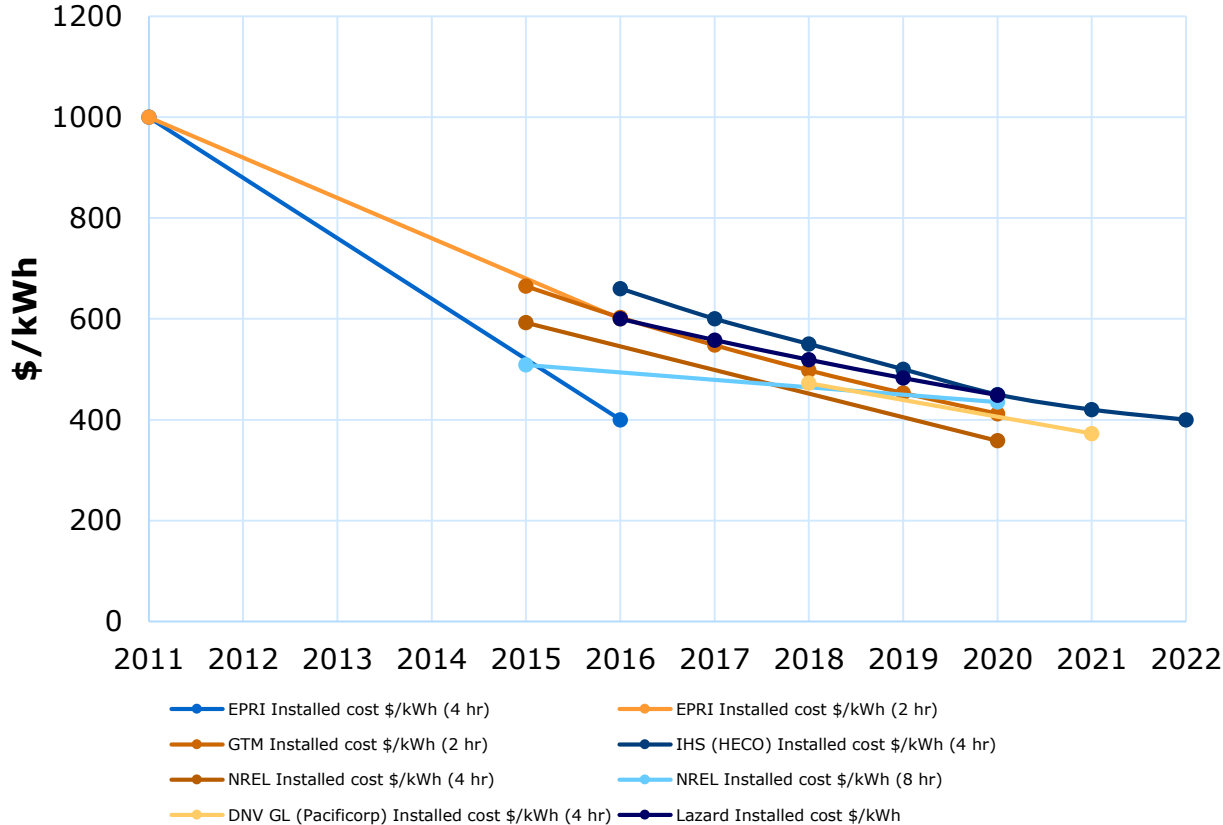
- Frequency regulation/response
- Load following
- Ramping
- Curtailment
- Congestion mitigation
- Black start

**Stacking the full value  
of multiple services**



# Steep cost declines

Li-ion battery grid storage Installed costs estimates



**TEP (AZ)**  
 30 MW, 4-hr storage  
+100 MW solar  
**\$0.045/kWh**

**KIUC (HI)**  
 20 MW, 5-hr storage  
+ 28 MW solar  
**\$0.11/kWh**

**Xcel (CO)**  
 solar+storage **\$0.036/kWh**  
 wind+storage **\$0.021/kWh**

# Solar + Storage

## Convergence All Along the Grid

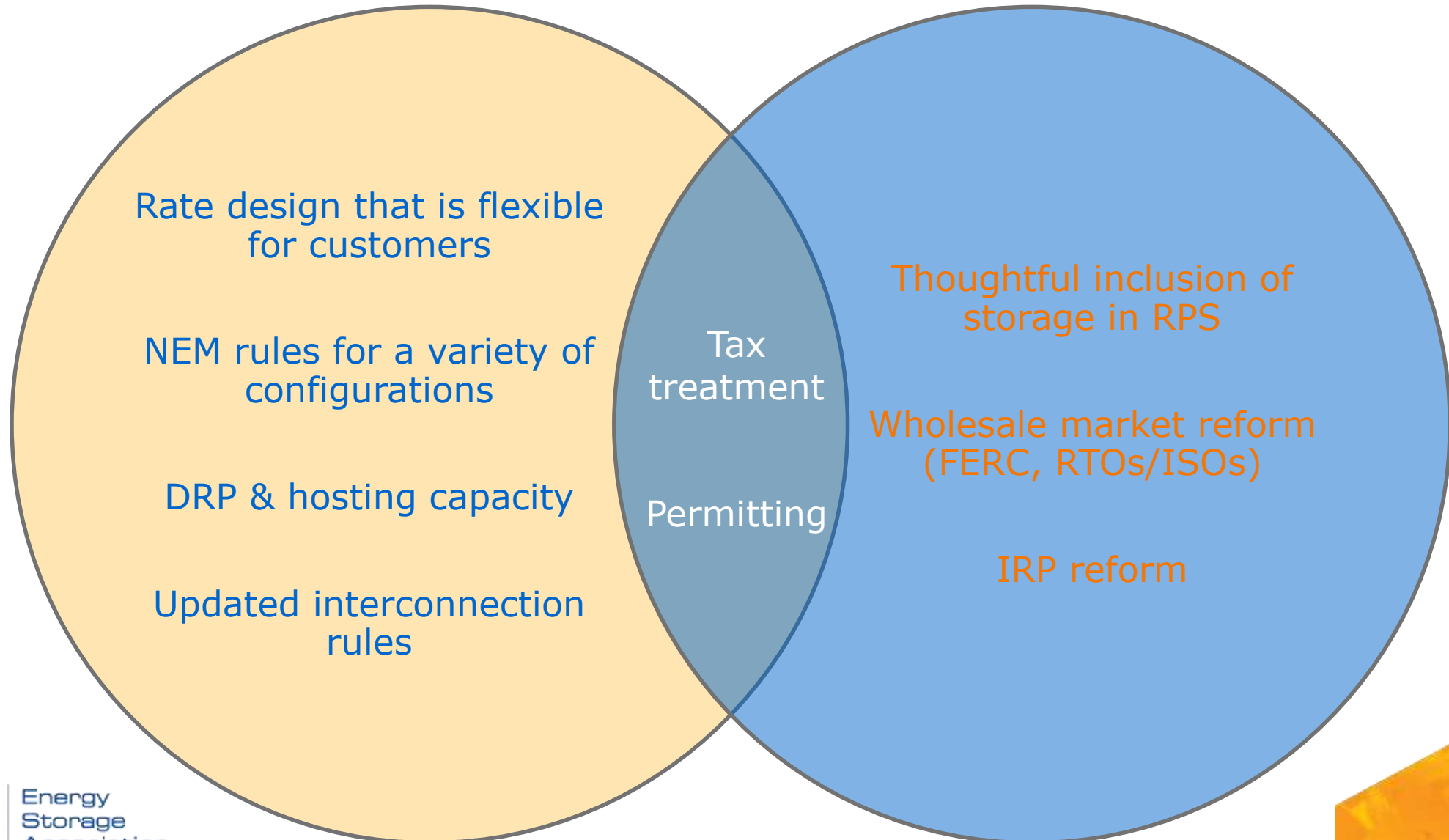
- Increasing residential requests for paired systems
- Enhanced DSM for C&I customers with storage
- More corporate PPA RFPs requesting paired solar+storage



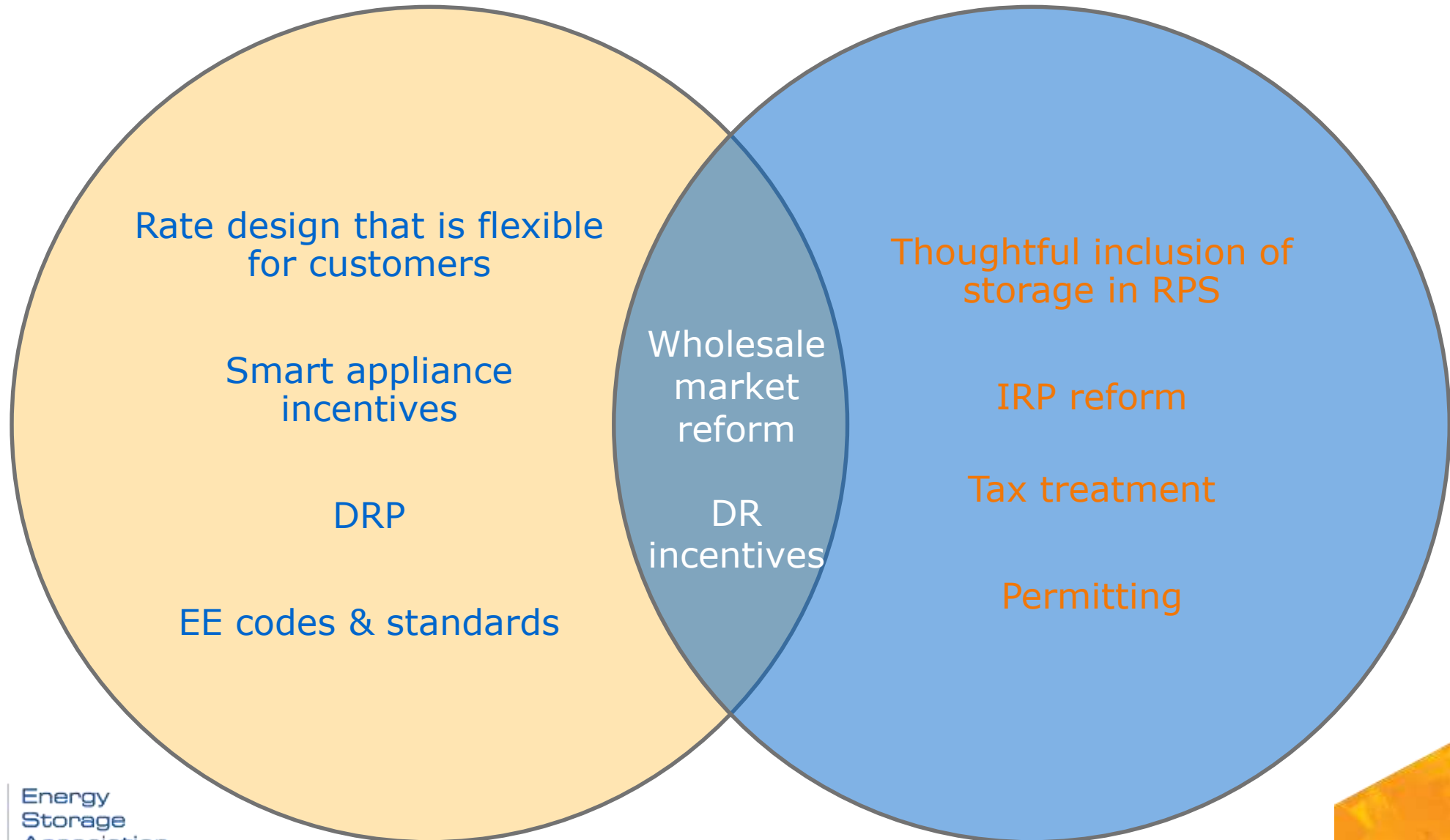
- Complementary alternative to natural gas peaking capacity in IRPs
- Clean Peak Standard policies providing additional revenue for systems that can deliver on peak



# Solar + Storage Policy Alignment

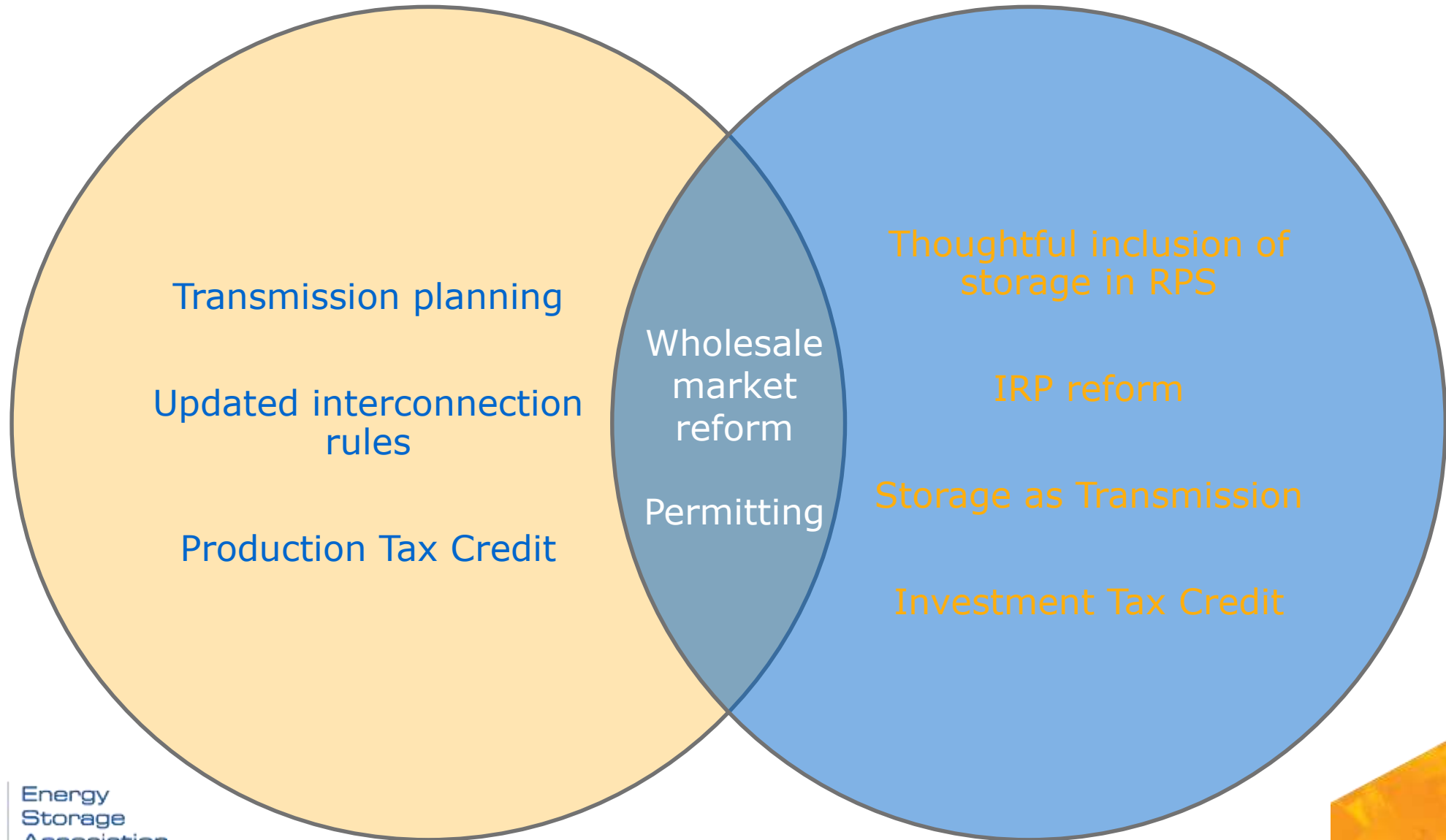


# EE + Storage Policy Alignment





# Wind + Storage Policy Alignment





Energy  
Storage  
Association

**Thank you!**

[k.speakes-backman@energystorage.org](mailto:k.speakes-backman@energystorage.org)

[www.energystorage.org](http://www.energystorage.org)