

Cross-Border Planning & Projects

14 May 2024

GCCIA HQ - Dammam, KSA



Important Challenges to Address in Cross Border Interconnections

Challenges					
Agreeing on benefits of investments	Agreeing on cost allocation	Obtaining ROW & crossing international borders	Regulatory & Technical Harmonization	Financing	Geo-political

Managing the Challenges



Adopting optimal legal & organization structure



Collaboration between stakeholders



Early Engagement at different levels

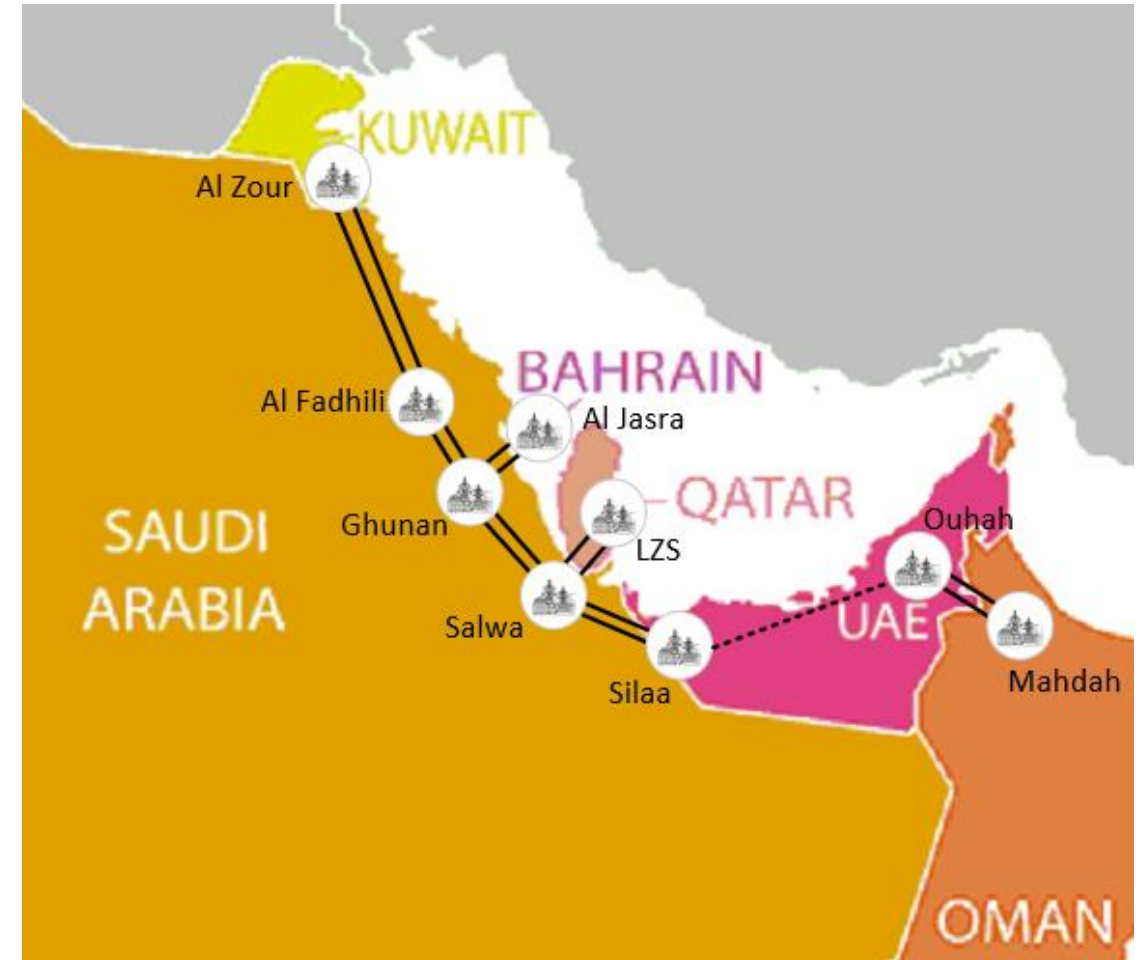


Fairness and transparency

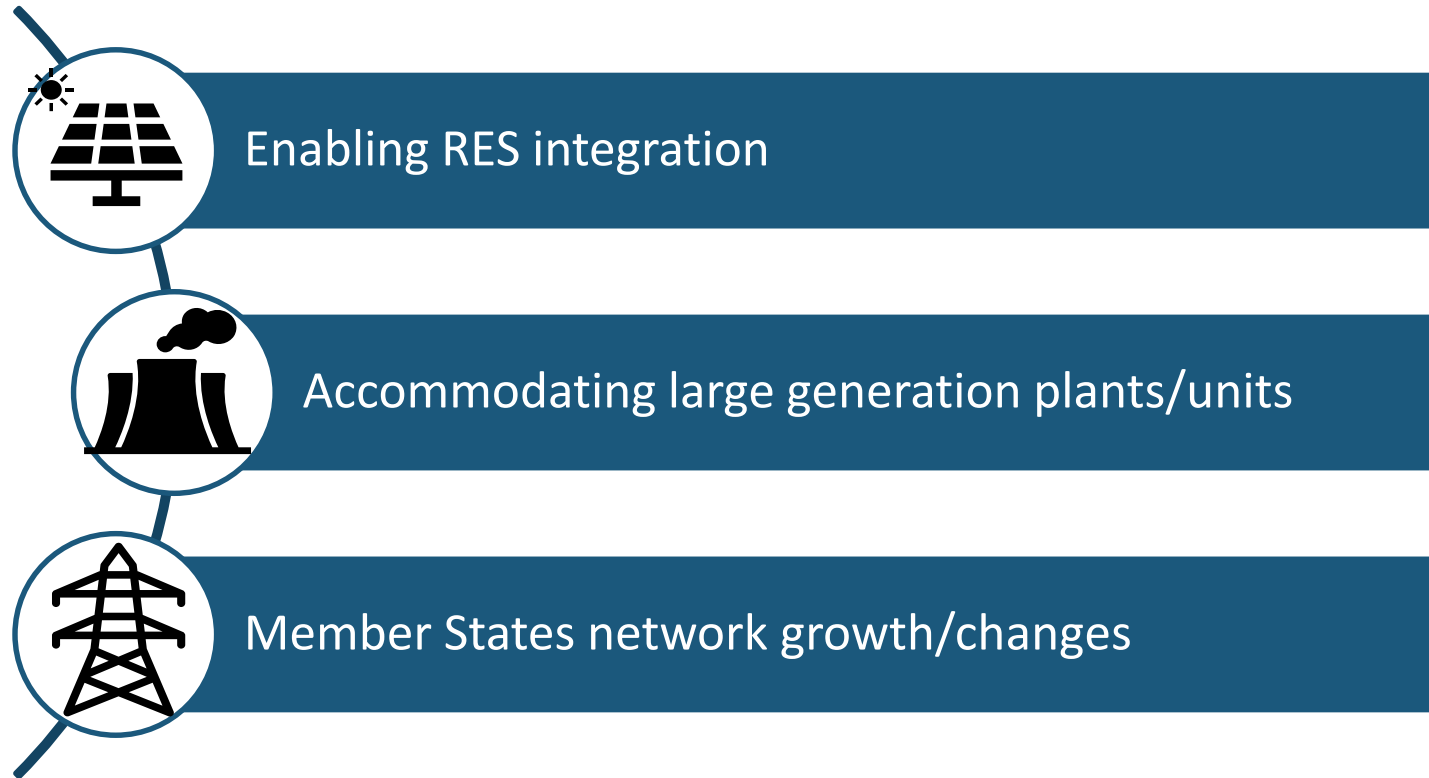


GCC Interconnection Key Principals - TEAR 2004

- **Agreements & Code**
- **Planning Criteria**
- **Sizing the Interconnection:**
 - 50% of the largest plant
 - N-1
- **Benefits Agreed**
 - Generation capacity saving
 - Spinning reserve saving
 - Emergency support
 - Economy of scales
- **Cost Allocation Agreement**
 - Based on generation capacity saving benefit



GCCIA Expansions: Main Drivers



Updated Techno-Economic Methodologies for Expansions

New planning criteria

- Resilience: high impact low frequency incidents
- Credible loss of generation (probabilistic approach)

Quantified Benefits

- Cost avoidance as a result of Installed generation savings.
- Reduction in RES curtailment
- Reduction in CO2

New Cost Allocation methodology

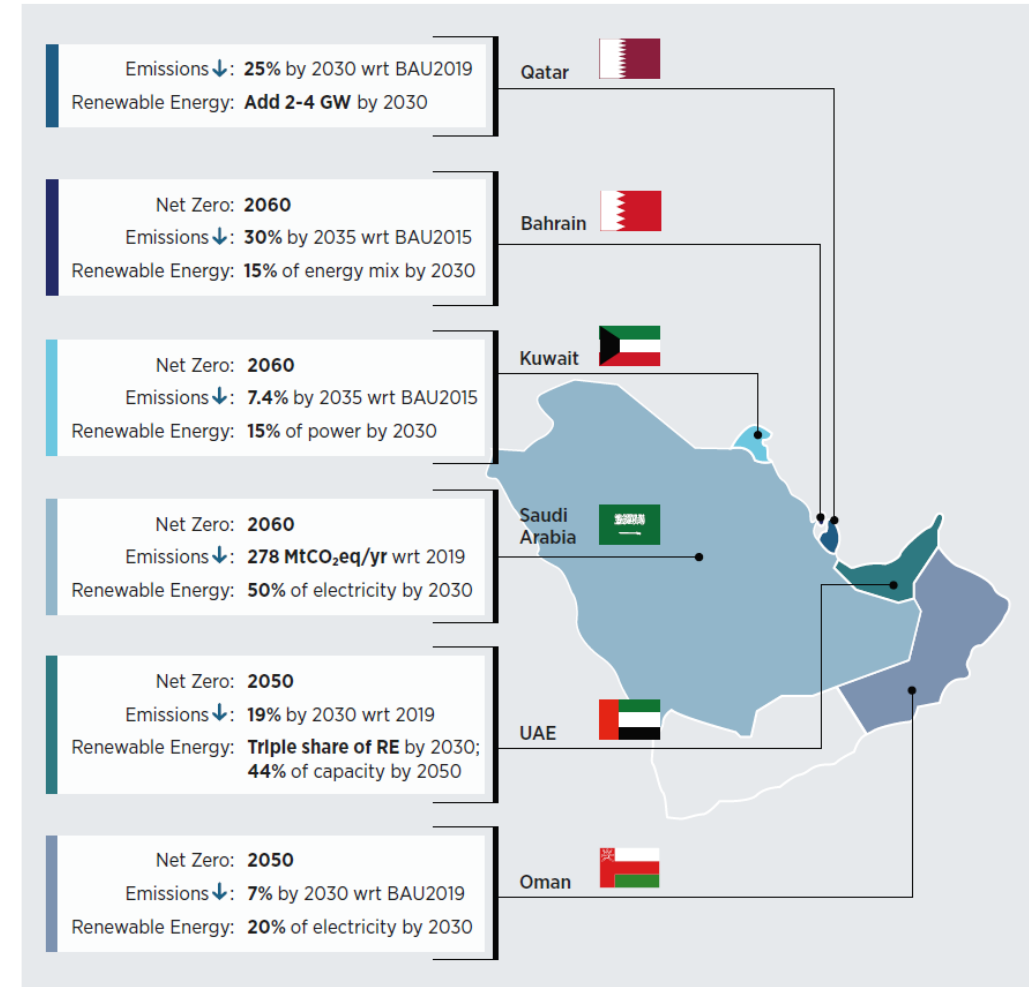
- Beneficiary principle



Preparing GCC Interconnection for High Scenario RES integration

GCCIA RES Planning Studies

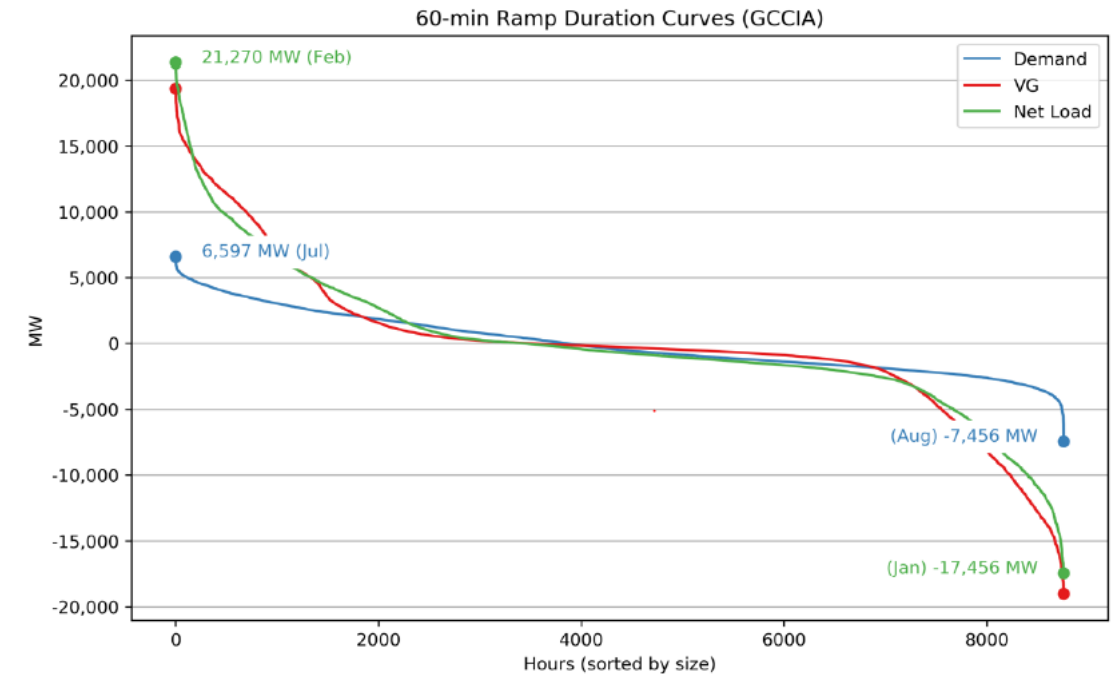
- Decreased system inertia → risk of load shedding
- Increase of ramping needs → additional reserve requirements
- Curtailment → under-utilization
- Updating the interconnector code



Source: IRENA Renewable Energy Markets GCC 2023

Utilization of Energy Storage at Interconnection Level

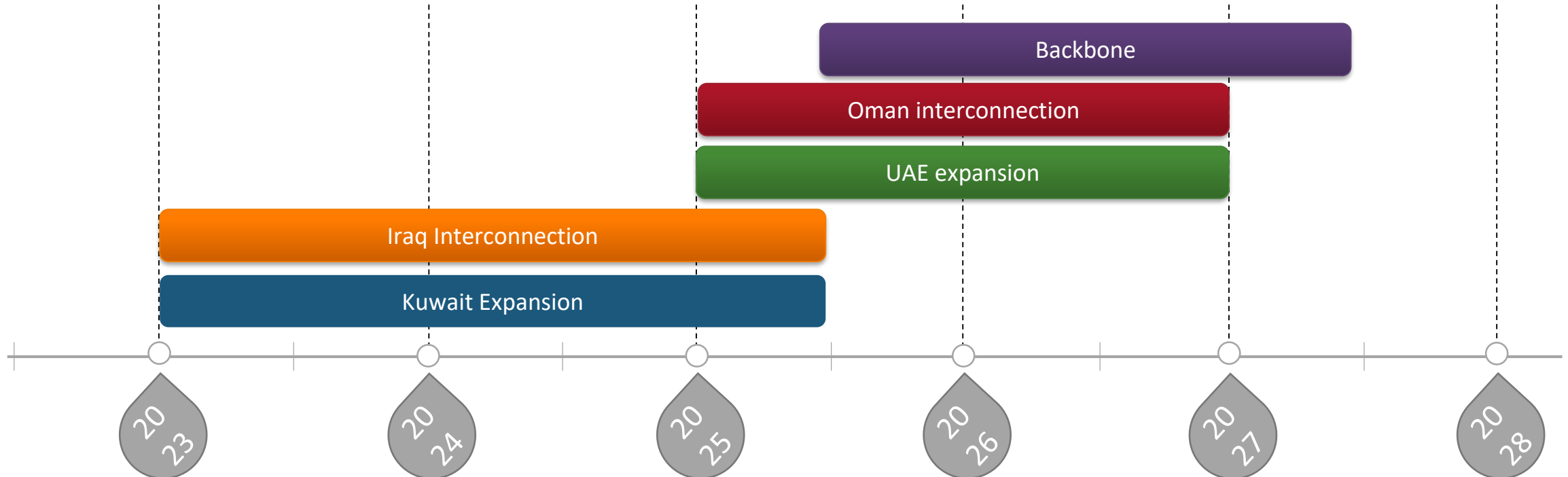
- GCCIA is carrying out a study to determine the techno-economic benefits of installing a pooled energy storage system such that Member States reduce investment and operation costs.
- The target is to identify potential applications of energy storage at the interconnection level related to provision of planning and operational reserves, particularly in the presence of increased RES and reduced inertia.



Impact of RES variability

Investments Outlook

- Estimated investment of \$1.6 billion over the next five years
- Three new 400kV substations
- Additional lines of about 1200km
- Additional STATCOMs



GCCIA Interconnection

