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India SMART UTILITY Week 2024

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समन्वय जयते
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CENTRAL ELECTRICITY AUTHORITY

Session : Super Grids For Energy Transition And Energy Security - Cross Border Electricity Trade In South Asia And Interconnection Of Regional Grids In Asia

GCC Interconnection experiences and Future perspectives

Presented By

Talal Alshaikh, Operation and Control dept., GCCIA



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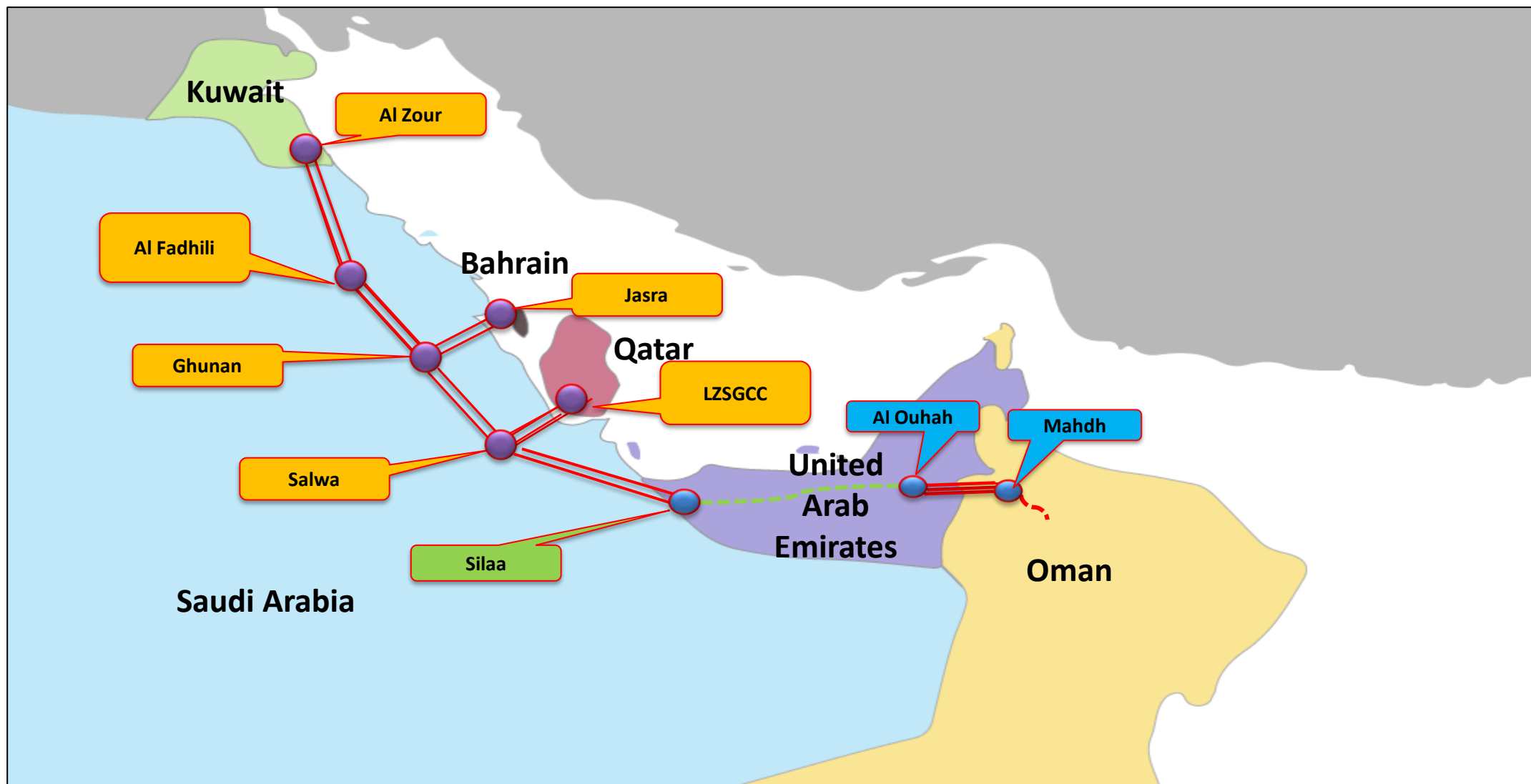


- **Mission**

A resilient interconnection grid ensuring power security and economic benefits.

- **Vision**

To become a global hub in grid interconnections emphasizing on innovation, resiliency, and sustainability; and creating dynamic electricity market for the region and beyond

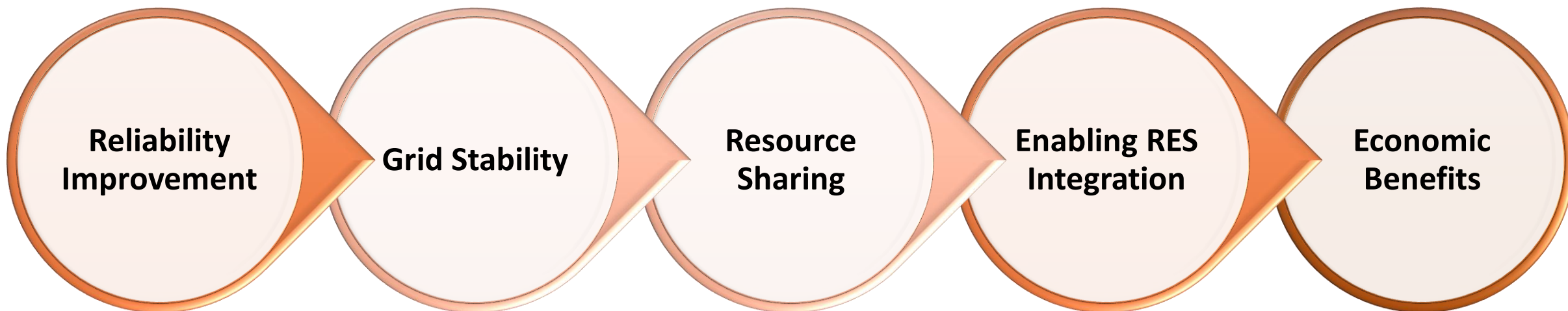


Advantages of Interconnections



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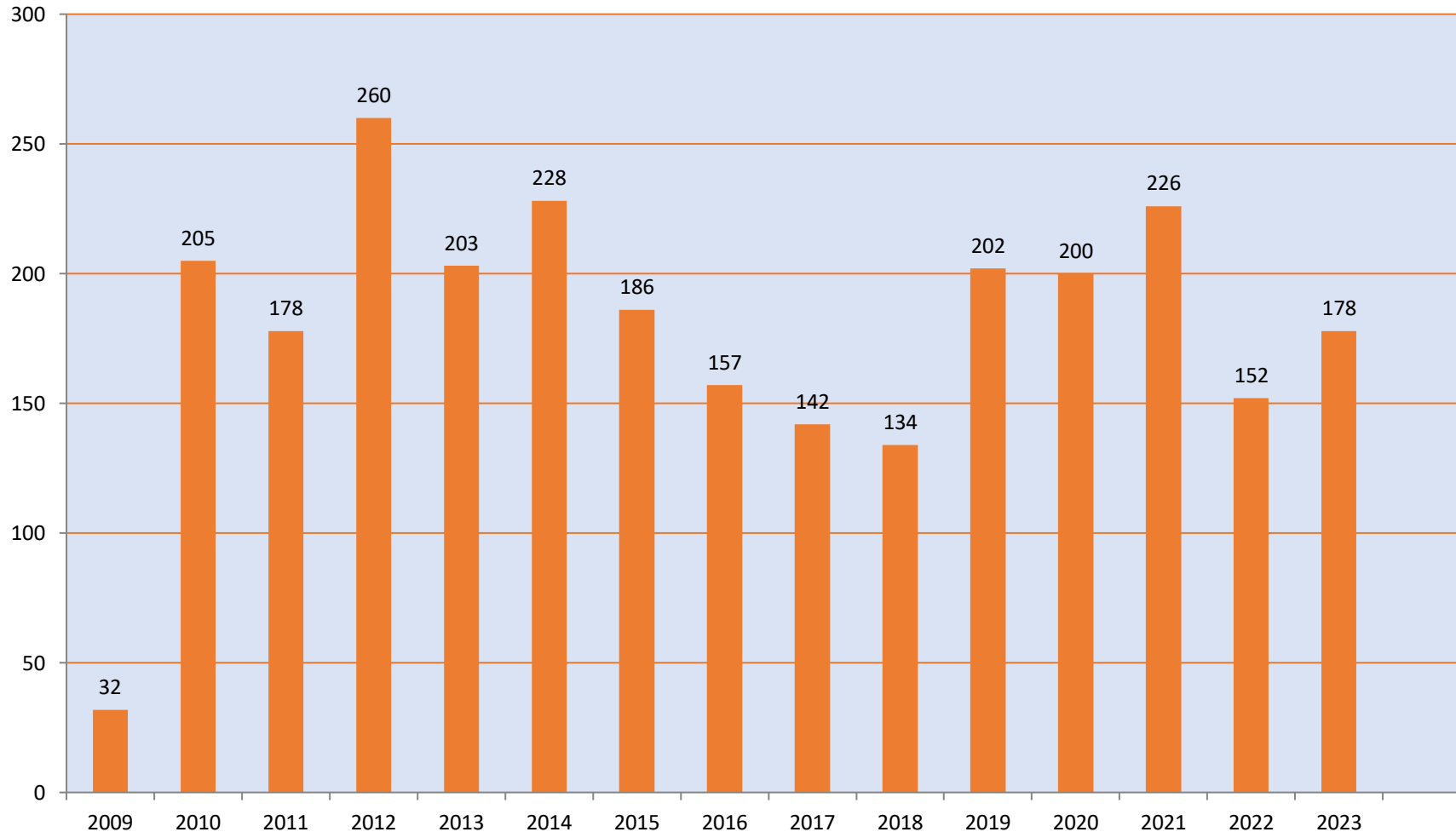
Improving System Reliability & Stability



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Total Number of supported events for all MS's Yearly

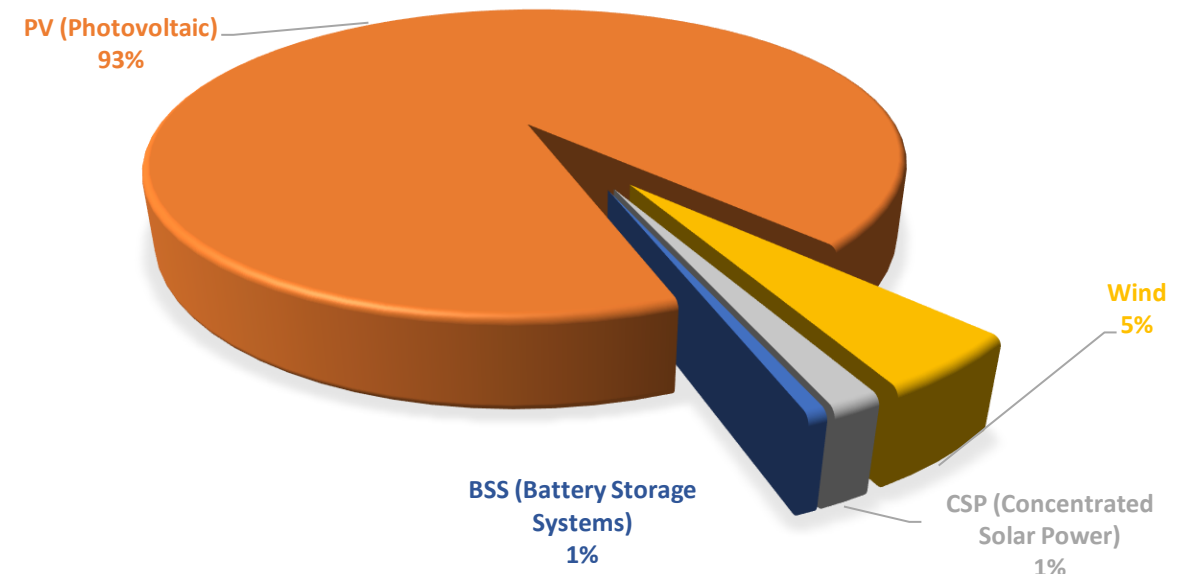


Total Number of supported events for all MS's Yearly

2009	32
2010	205
2011	178
2012	260
2013	203
2014	228
2015	186
2016	157
2017	142
2018	134
2019	202
2020	200
2021	226
2022	152
2023	178
Total /MS	2684

- As the Gulf States rely almost exclusively on generating electricity from fossil fuels with total online generation during peak of 2023 is almost **140,725 MW**.
- Gulf States currently produce just **9,484 MW** of renewable energy.
- Currently, RES capacity is around **7%** of total electricity install capacity in the GCC region.
- By 2030 [*IRENA*] expected more than **72,000 MW** will be integrated in GCC grids

RES Install Capacity for 2023 (MW)	
PV (Photovoltaic)	8815
Wind	460
CSP (Concentrated Solar Power)	150
BSS (Battery Storage Systems)	59
Total	9,484



Operational Challenges Due to High Penetration of RES



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I. Power System
Inertia

II. Frequency
Response

III. Uncertainty of
RES

Interconnections play very important roles to mitigate the operational challenges due to high penetration of RES

GCCIA financial Benefits and Saving for MSs (in Million \$)



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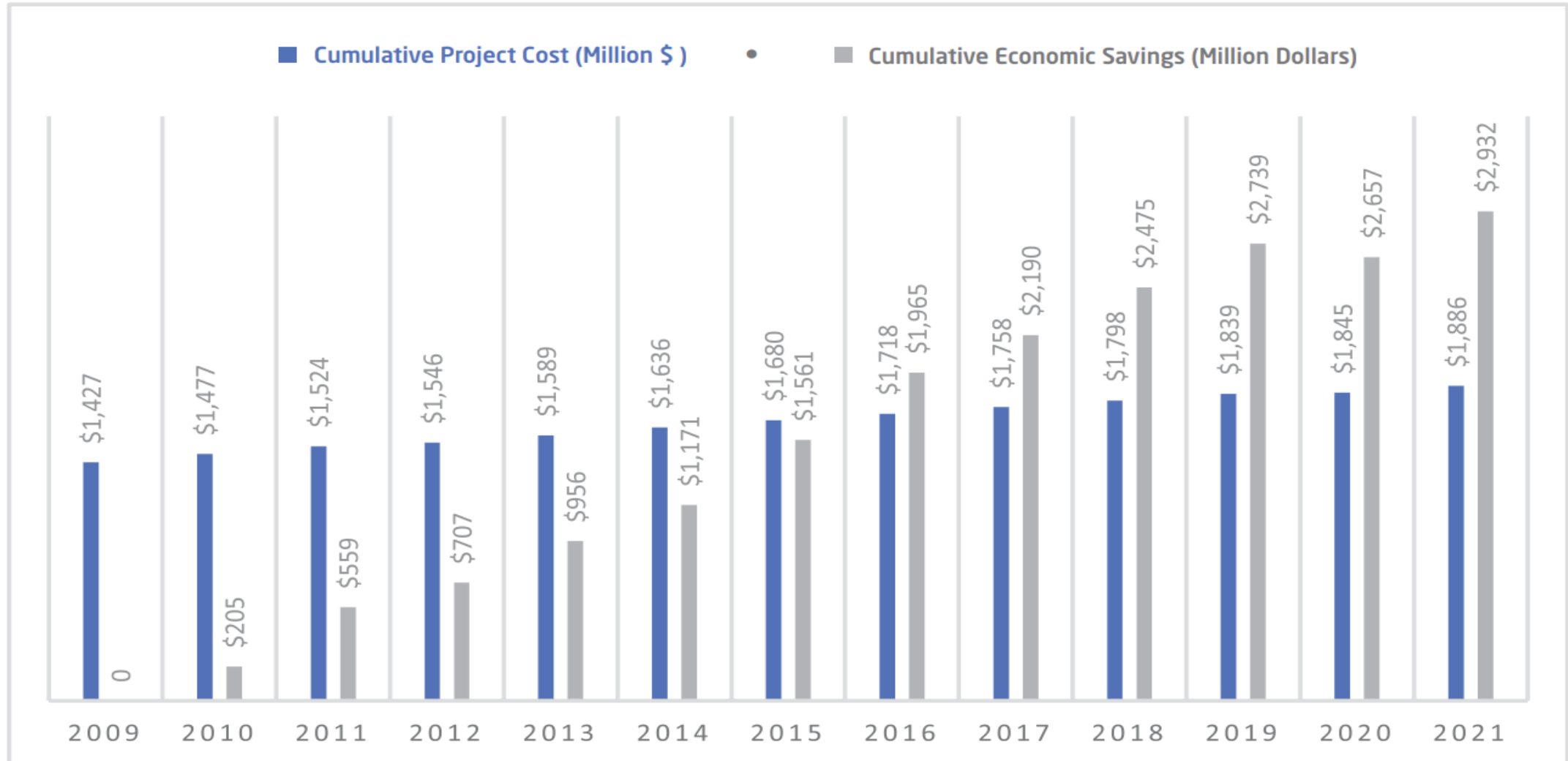
Year	2020		2021	
Saving in Million USD	Potential	Achieved	Potential	Achieved
Installed Capacity Saving	288	97.60	350	96
Fuel and O&M Saving	14.71	14.71	18.35	18.35
Spinning Reserves Saving	360.85	6.63	329	1.97
Saving from VoLL	11.87	11.87	11.63	11.63
Saving from Trade	-	30.91	-	32.36
Co2 Saving	-	15.70	-	32.4
Fibre infrastructure Saving	-	4.6	-	4.79
Total	660.72	182.01	690.63	192.71

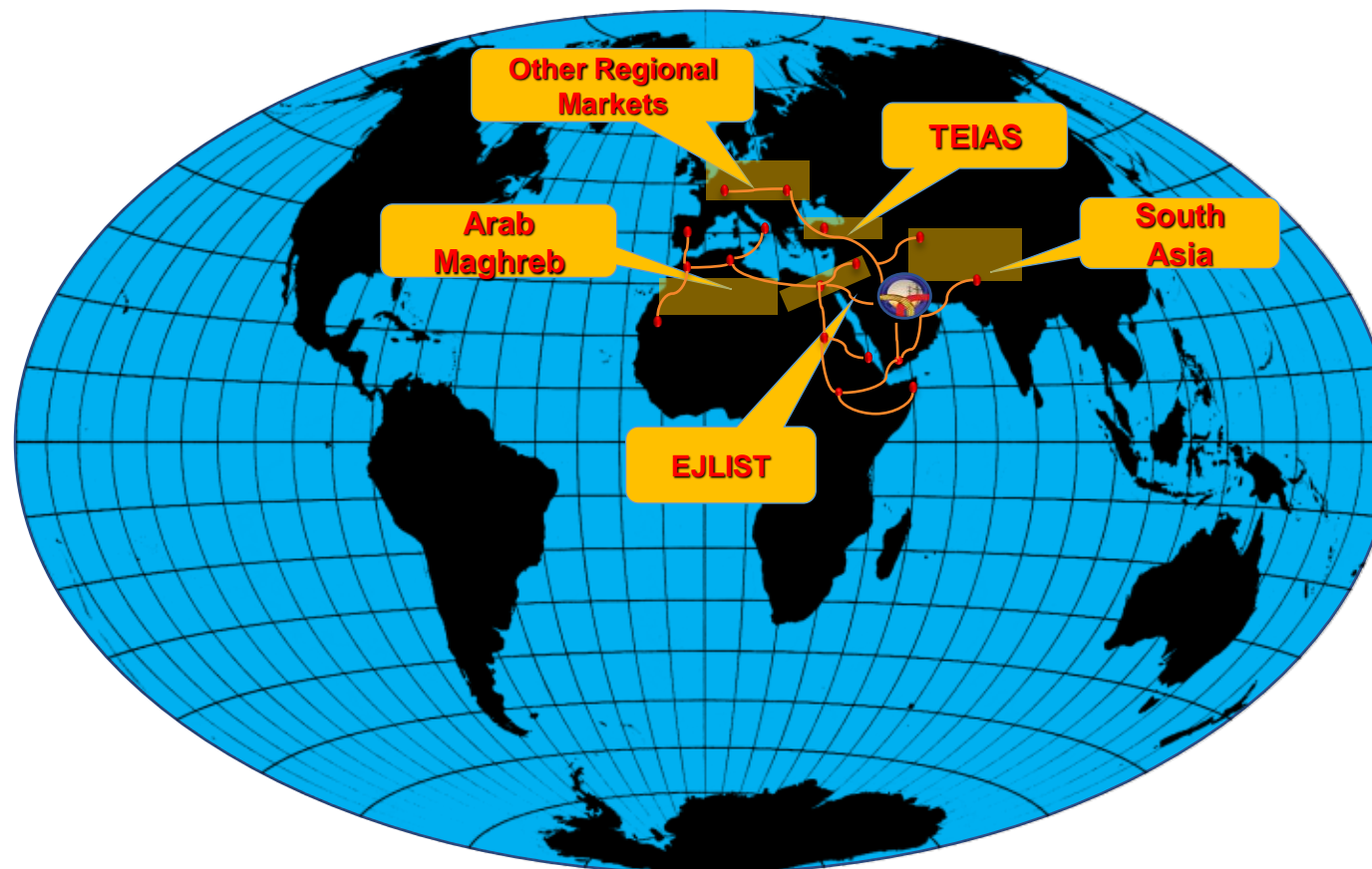
Cost Benefit Analysis for GCC Interconnection



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THANK YOU

*For discussions/suggestions/queries email: **isuw@isuw.in***

visit: www.isuw.in

Links/References (If any)