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REGIONAL ENERGY COOPERATION – SOUTH ASIA AND OTHER REGIONS

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U. S. ENERGY ASSOCIATION

Cross Border Energy Trade is A Common Practice Around the World

BENEFITS

- **Increases available power**
- **Reduces energy costs**
- **Increases system reliability and efficiency**
- **Provides new revenue source**
- **Encourages investment**

SOUTH ASIA REGIONAL INITIATIVE FOR ENERGY (SARIE)

SARIE countries:

- **Afghanistan**
- **Bangladesh**
- **Bhutan**
- **India**
- **Maldives**
- **Nepal**
- **Pakistan**
- **Sri Lanka**



SARIE PURPOSE

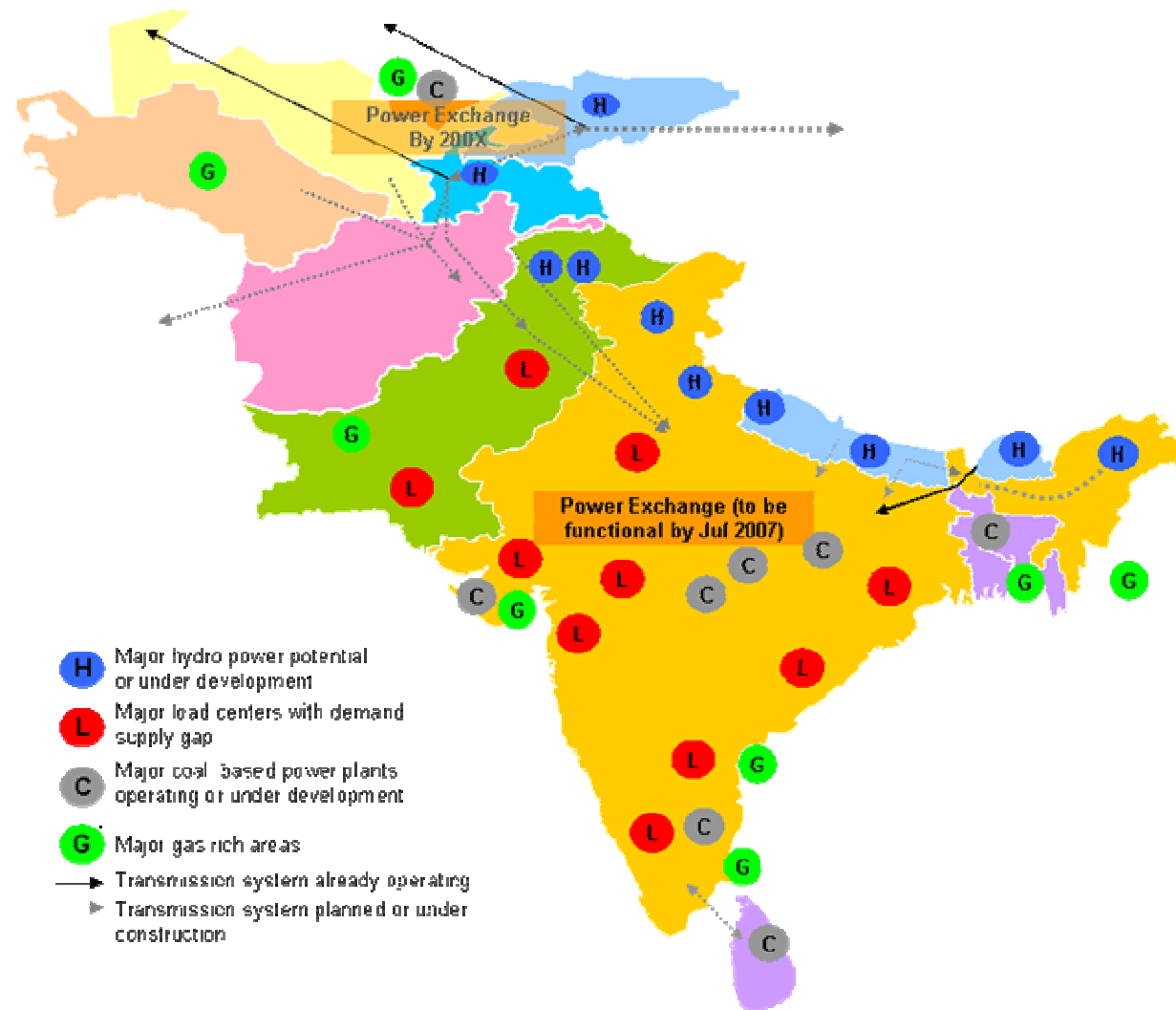
To promote energy security and increase access to energy in South Asia through:

- **Cross border energy trade**
- **Energy market development**
- **Clean energy development**

SARIE ACTIVITIES

- **Technical Assistance** – studies on energy security, cross-border energy trade, clean energy/renewables, and increasing the role of the private sector.
- **Training/Workshops** – in the areas of energy markets, cross-border trade, and clean energy
- **Regional Partnerships** – in transmission, energy markets, energy policy, and renewable energy

South Asia Energy Cooperation



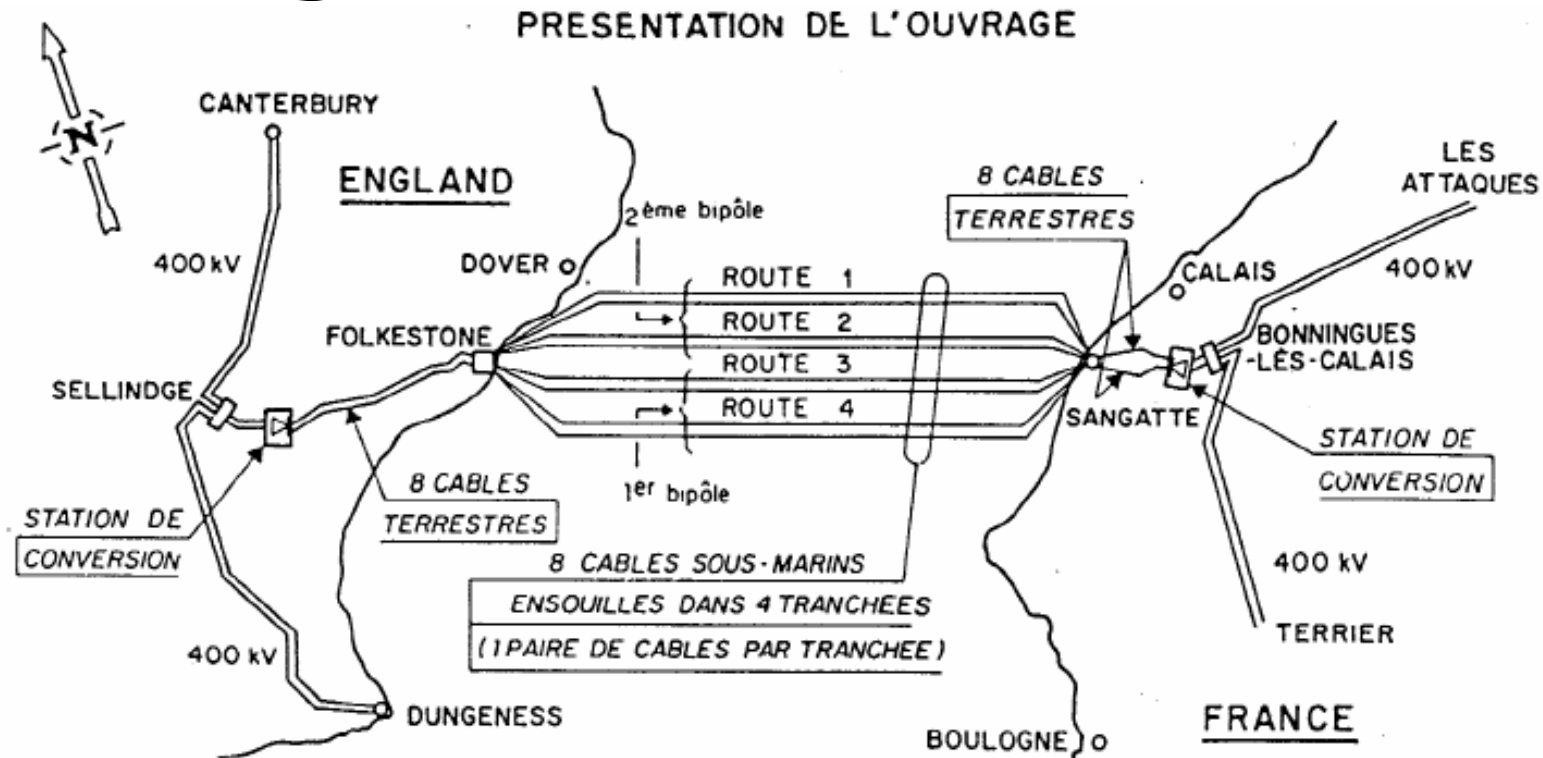
RECENT SARIE ACTIVITIES

- **Wind and solar maps for Afghanistan, Bhutan, Pakistan, & Sri Lanka**
- **Guidelines for a Nepal Hydro Equity Fund**
- **Establishment of a Regional Centre for Excellence in Energy Efficient Lighting in Sri Lanka**
- **Indian Energy Market Workshops**
- **Executive exchanges on renewables, policies, Bhutan-India trade and Sri Lanka-India interconnection**

SRI LANKA – INDIA SUBMARINE INTERCONNECTION & ENERGY TRADING



Overview of the France to England Interconnection



BIPOLE N°	ROUTE N°	LONGUEUR DES ROUTES (km)			
		Câbles terrestres Anglais	Câbles sous marins	Câbles terrestres Français	Total
2	1	18,5	46	6,7	71,2
	2	18,5	45,1	6,7	70,3
1	3	18,5	43,9	6,3	68,7
	4	18,5	43,6	6,3	68,4

Southern Africa Power Pool



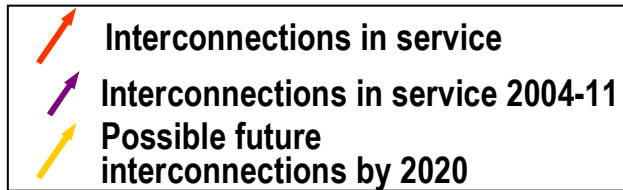
Primarily 220 kV, some 330, and one 400Kv (Matraco; SA, Swaziland, Mozambique)

SOUTHERN AFRICA POWER POOL

KEY ISSUES

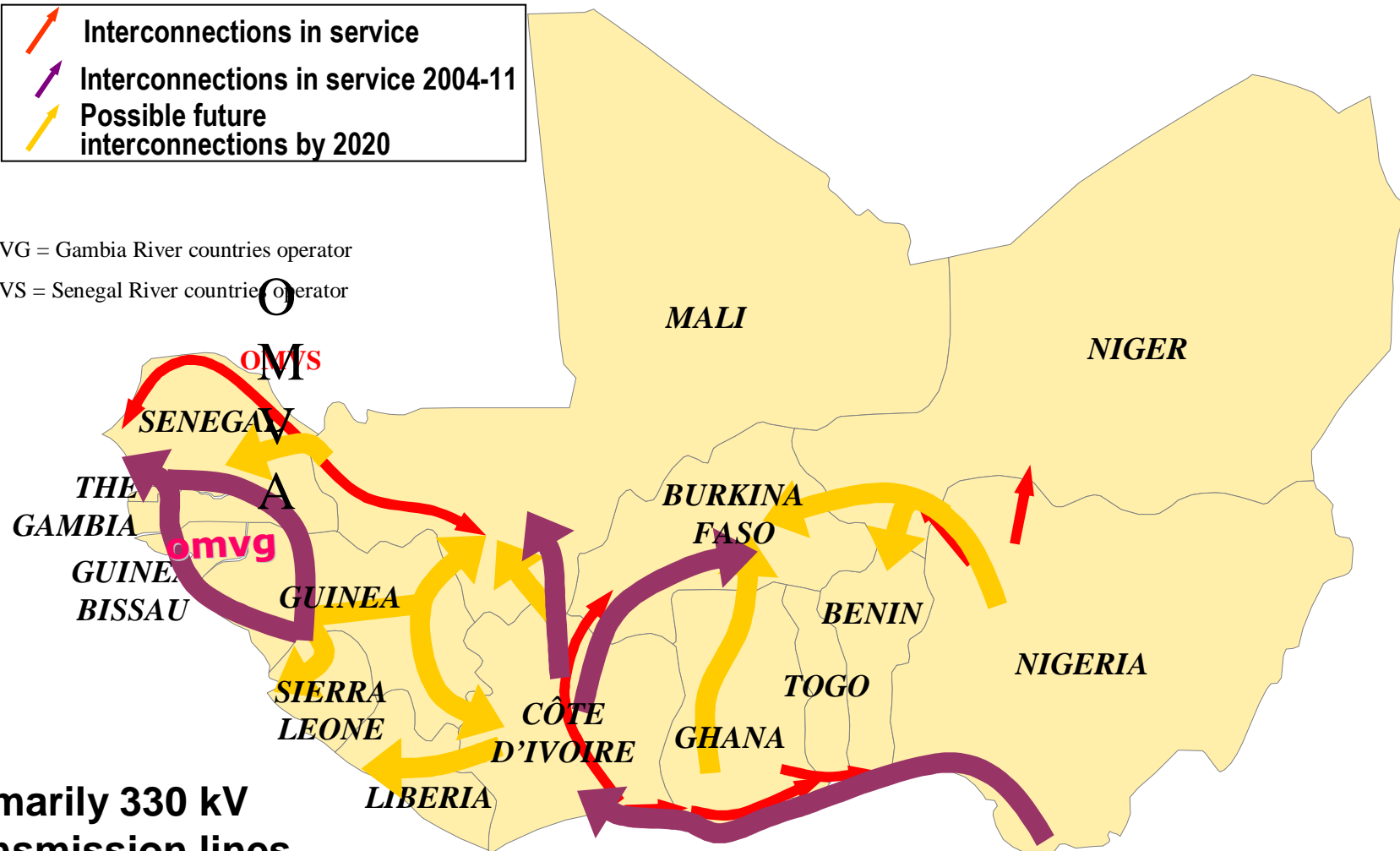
- **Operating sophisticated control systems**
- **Utility regulation**
- **Power pool membership rules**
- **Wheeling charges**

West Africa Power Pool



OMVG = Gambia River countries operator

OMVS = Senegal River countries operator



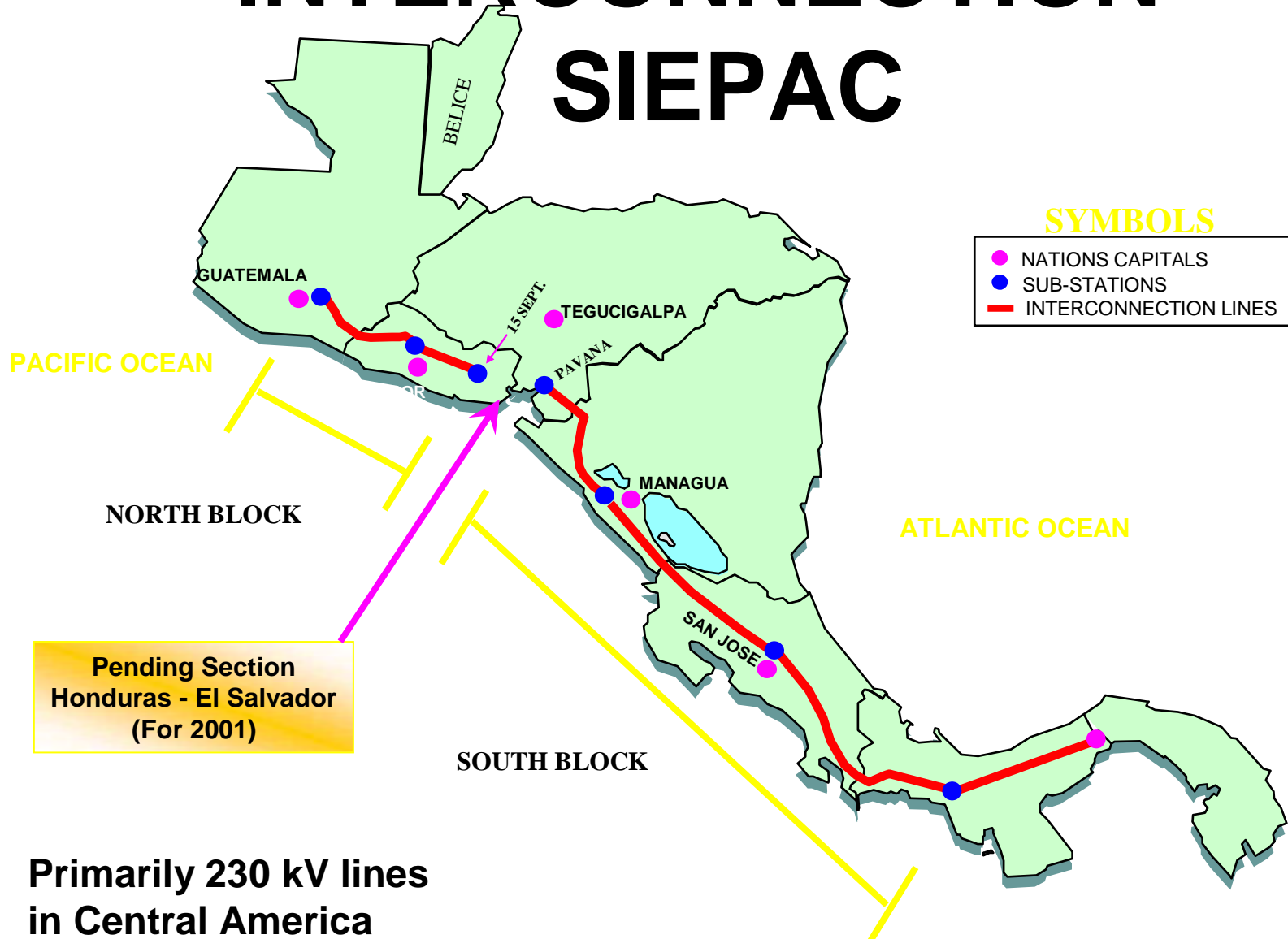
Primarily 330 kV transmission lines

West Africa Power Pool

KEY ISSUES

- **Financial structure & membership fees**
- **Legal framework for an international pool**
- **Rules of operation**
- **Regional regulation**
- **Membership rules of participation**

ENERGY INTERCONNECTION - SIEPAC



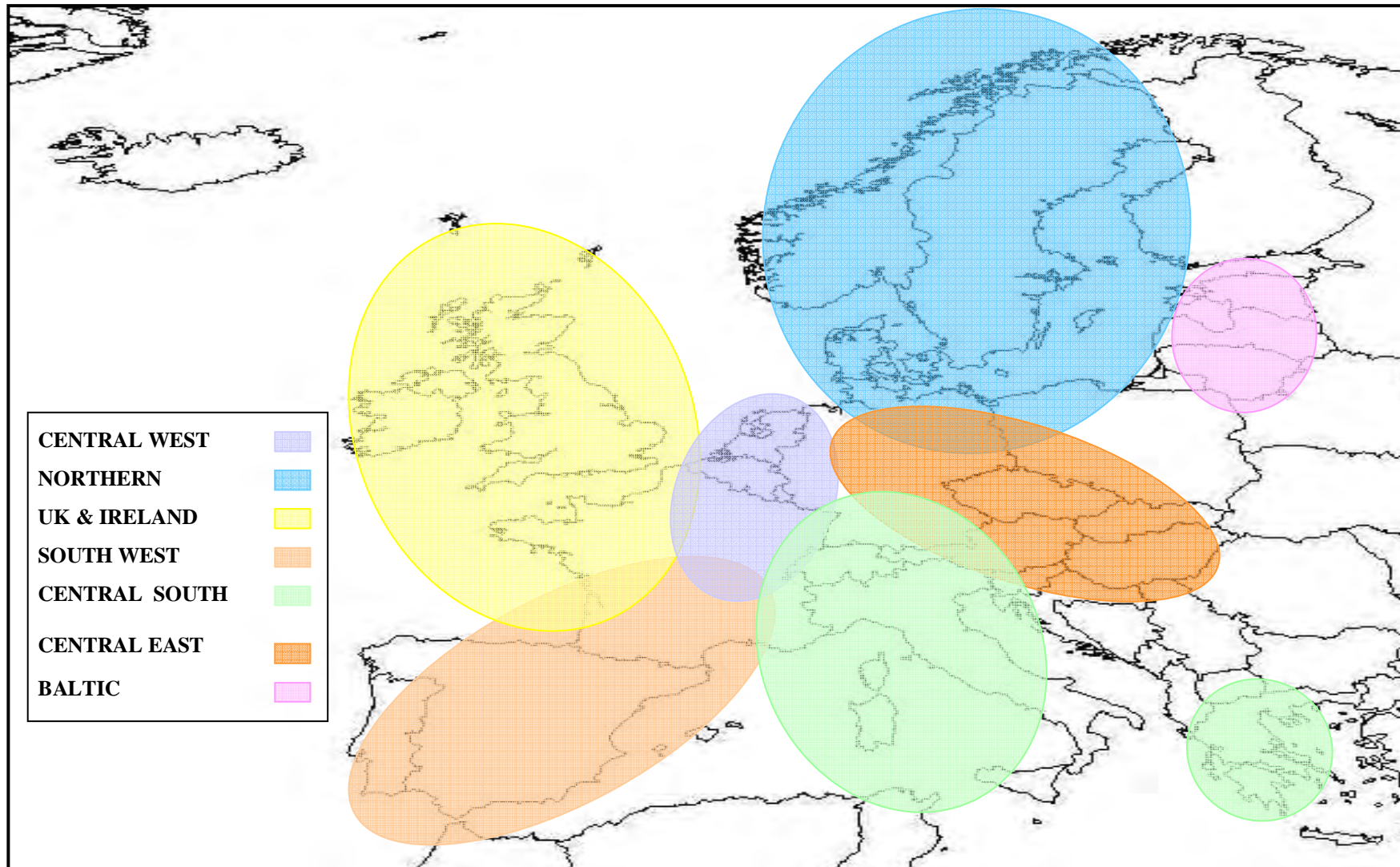
CENTRAL AMERICA SIEPAC

KEY ISSUES

- **Increased efficiency in supplying regional energy**
- **Increase competence and safety of electrical energy supplies**
- **Standardized operational quality and safety criteria**

European Electricity Market

7 Electricity Regional Energy Markets

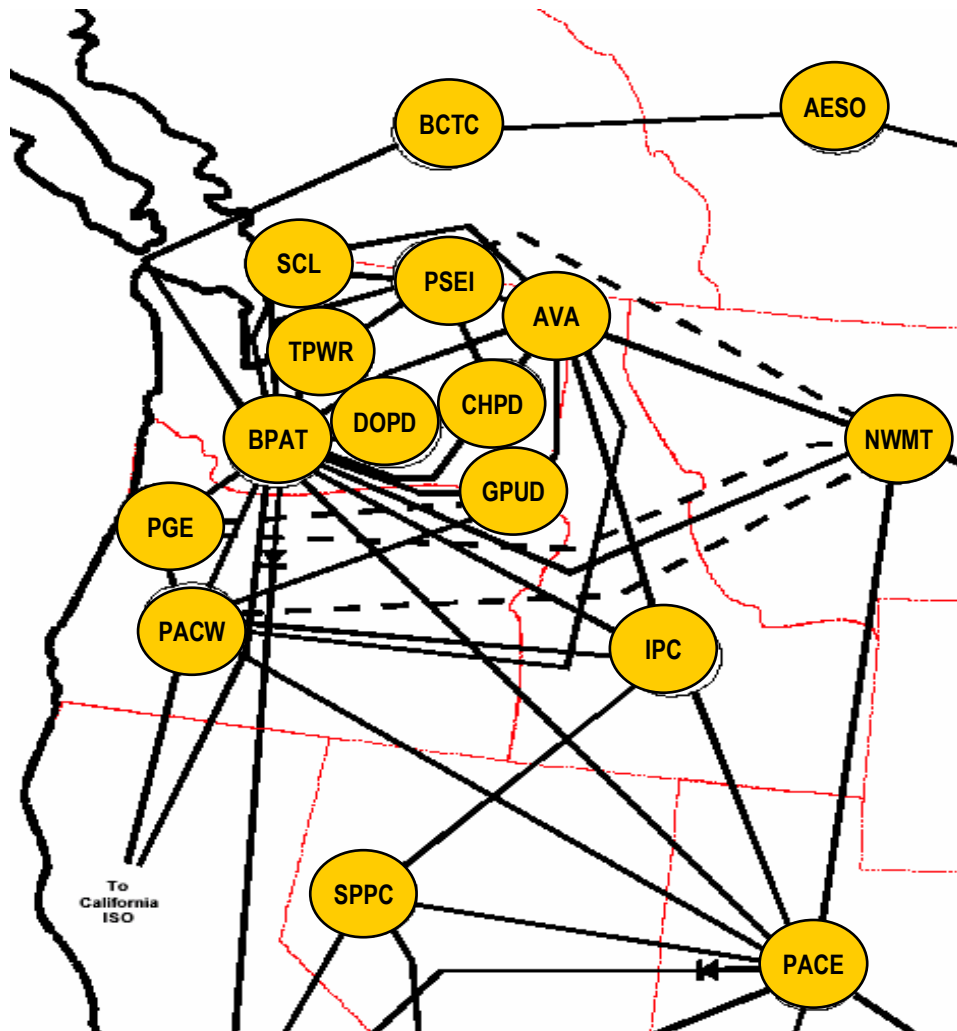


European Grid

KEY ISSUES

- **Creation of a single European grid and market for electricity and gas based on common rules and standards**
- **Removing remaining barriers to cross-border trade**
- **Legally defining obligations and duties of various countries, generators, transmission operators, distribution companies and**

NORTHWEST US – CANADA INTERCONNECTED GRID



NW US – CANADA GRID

KEY ISSUES

- **Coordinating planning & system improvement**
- **Determining adequate level of reserved power capacity**
- **Accommodating short term and long term power trading**
- **Balancing hydro and thermal production**

REGIONAL ENERGY COOPERATION





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Thank you!

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