

# Asian Energy Highway - Energy Connectivity for Enhanced Energy Security

Sergey Tulinov, Energy Division

United Nations Economic and Social Commission for Asia and the Pacific



**Enhancing regional integration of landlocked developing countries  
in North and Central Asia through infrastructure connectivity**

**6 – 7 September 2017, Issyk-Kul, Kyrgyzstan**

# Challenges

**Asia-Pacific energy demand is projected to grow by 2.4% a year for the next 20 years - highest growth in East Asia at 4.8% and South Asia at 3.5%**

## **Consumption Intensity**

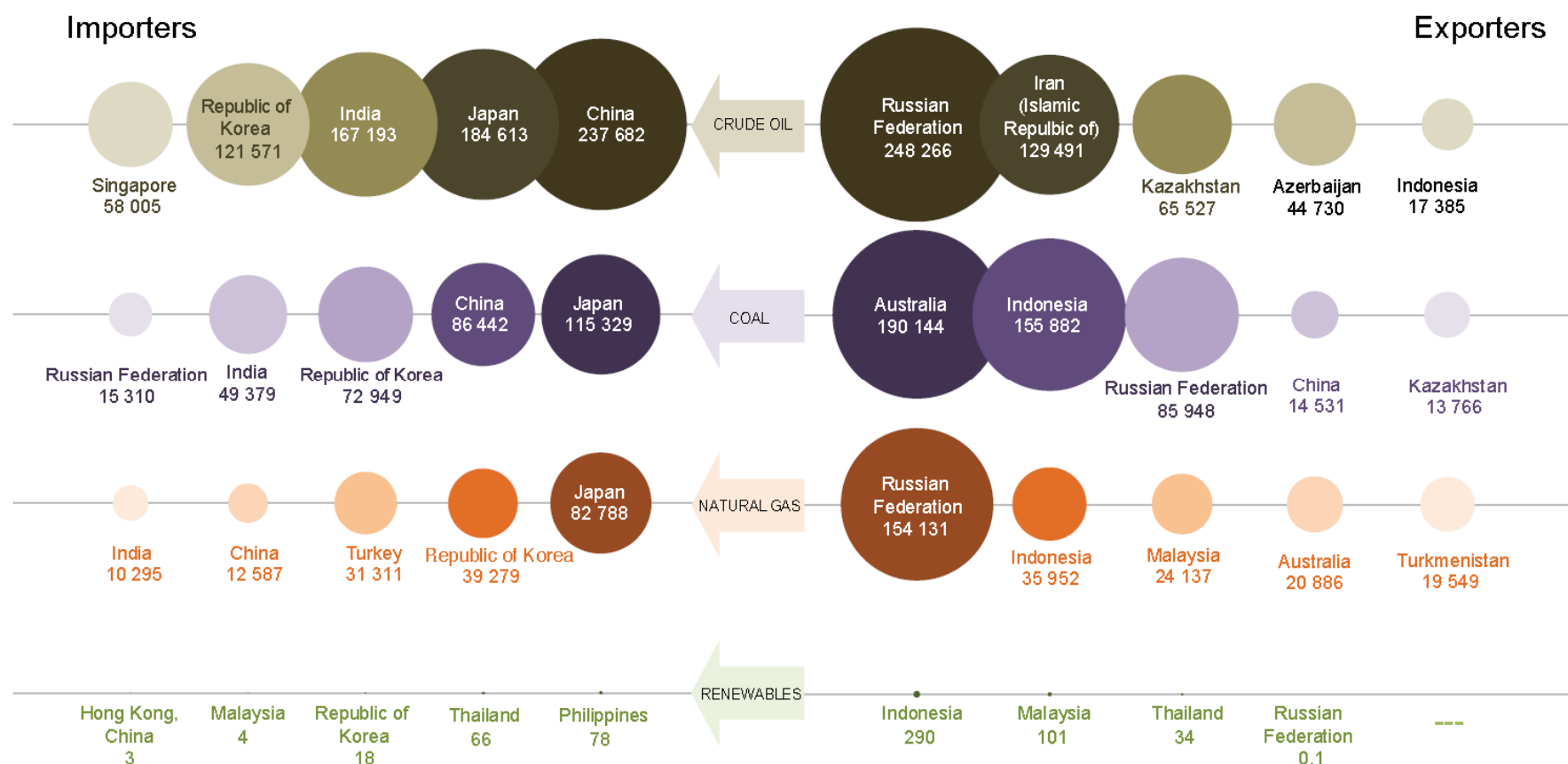
**Between now and 2050, Asia will be transformed as its urban population nearly doubles from 1.6 billion to 3.1 billion**

**Asia is projected to surpass the OECD before 2030 to become the world's largest energy consuming block**

## **Resource Distribution**

**The uneven distribution of energy resources within the Asia-Pacific is presents a variety of challenges at the national level in terms of supply security**

# Top five importers & exporters by energy resources in Asia and the Pacific (ktoe)



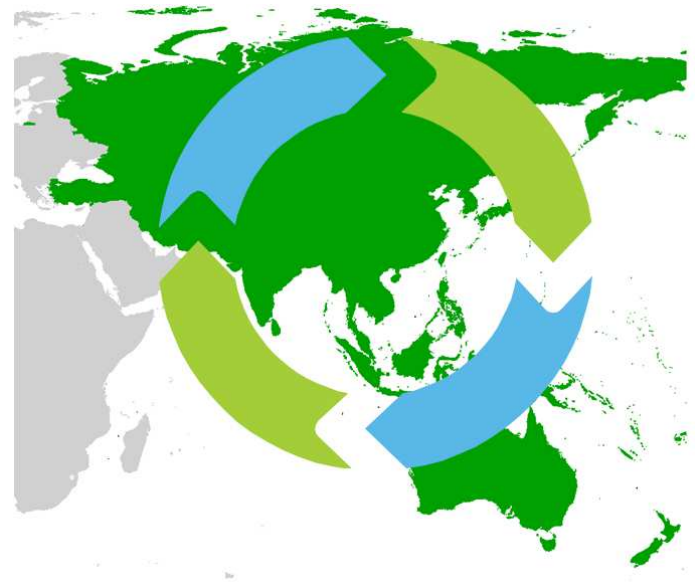
Source: ESCAP Asia-Pacific Energy Portal, [www.asiapacificenergy.org](http://www.asiapacificenergy.org)

# Opportunity

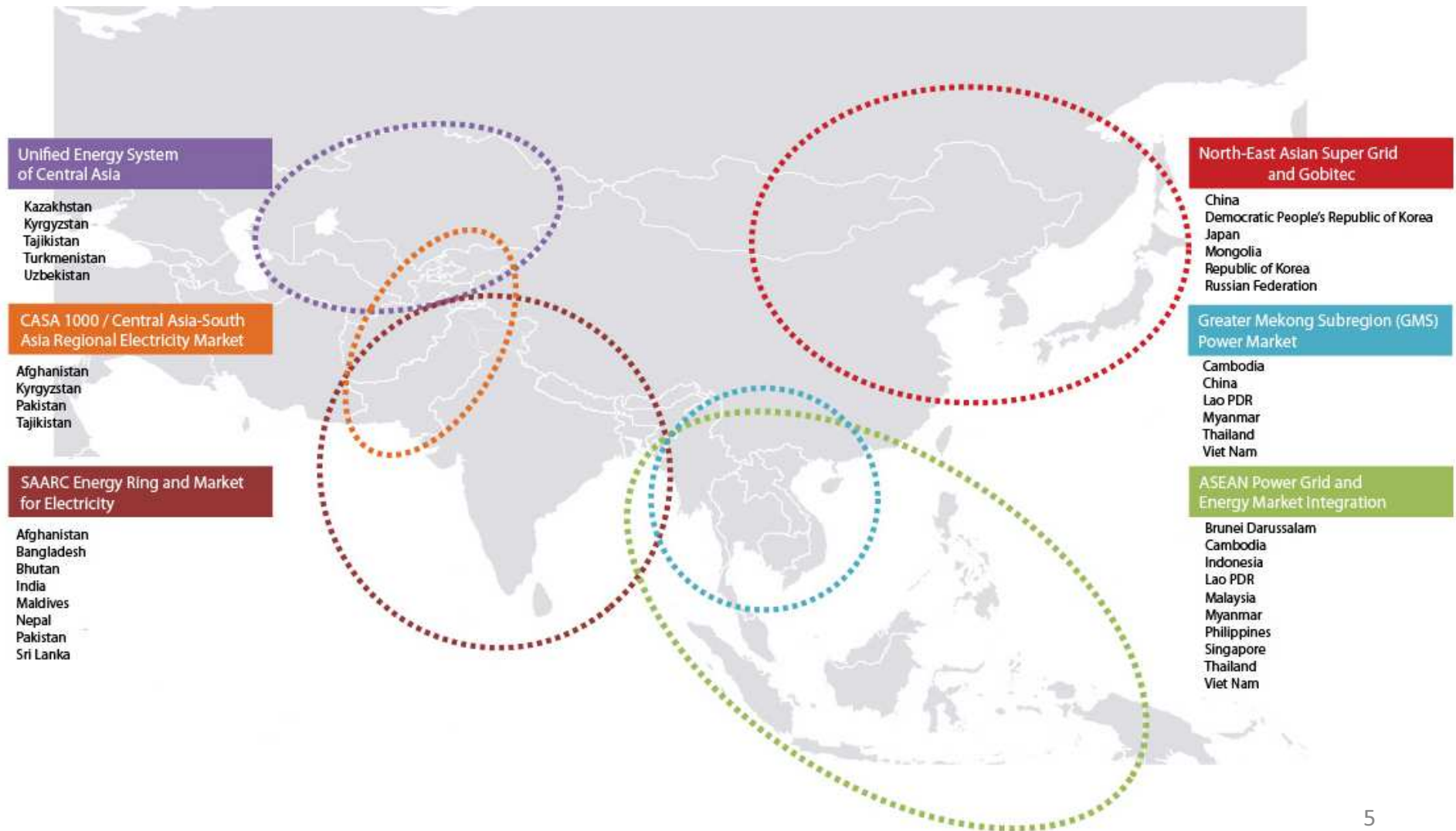
- Energy trading is currently occurring within the Asia-Pacific region however it is primarily limited to bilateral agreements between neighboring states
- **Regional Integration.** The economically sound allocation of energy resources is likely to be more efficiently accessed and distributed using regionally integrated energy planning and trading

## Some sub-regional recognition of need for greater cooperation:

1. ASEAN Power Grid and Energy Market Integration
2. SAARC Energy Ring and Market for Electricity
3. CASA 1000 and Central Asia-South Asia Regional Electricity Market
4. Greater Mekong Subregion Power Market
5. North-East Asian Super Grid and Gobitec
6. Unified Energy System of Central Asia

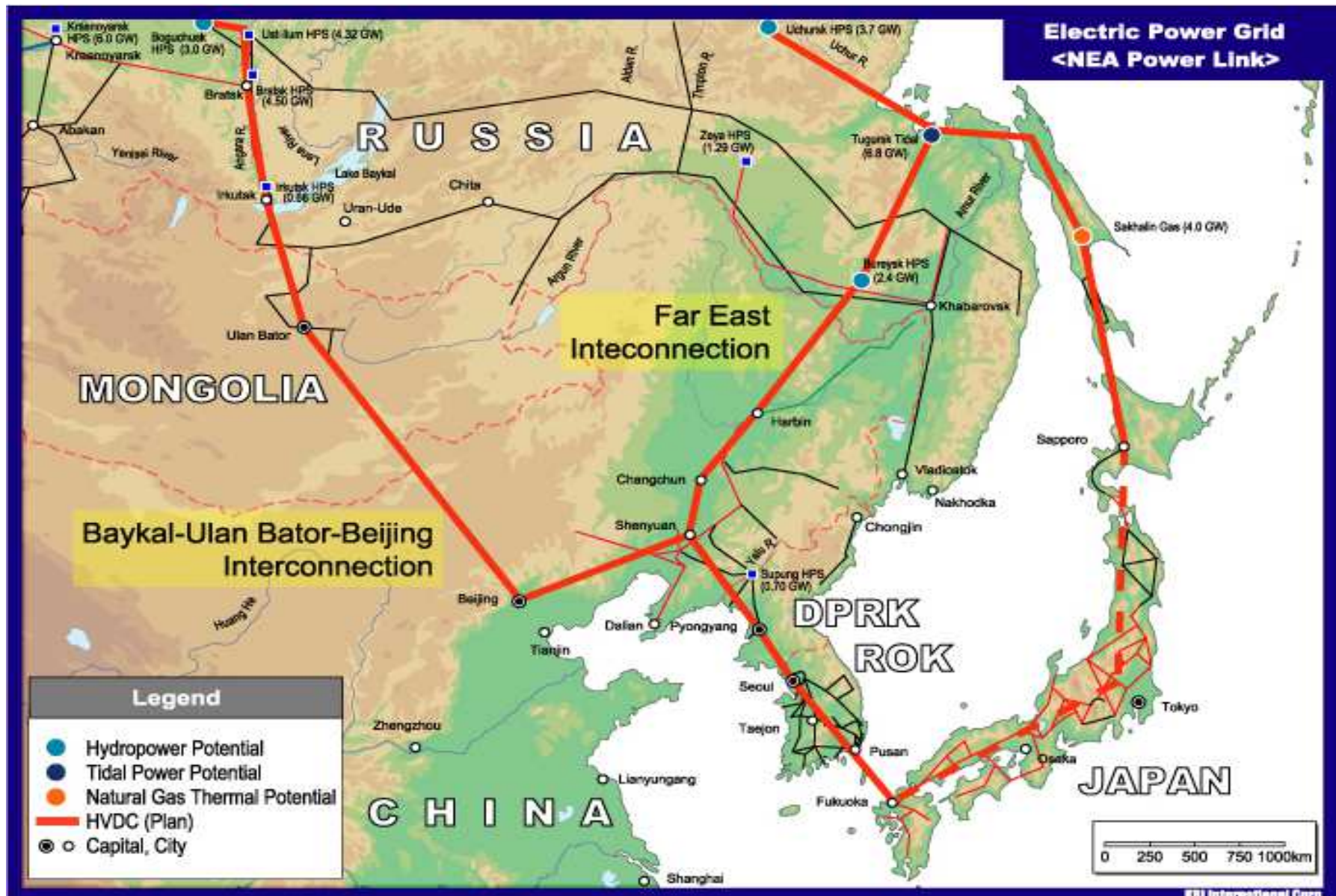


# Subregional Initiatives on Power Grids and Electricity Markets



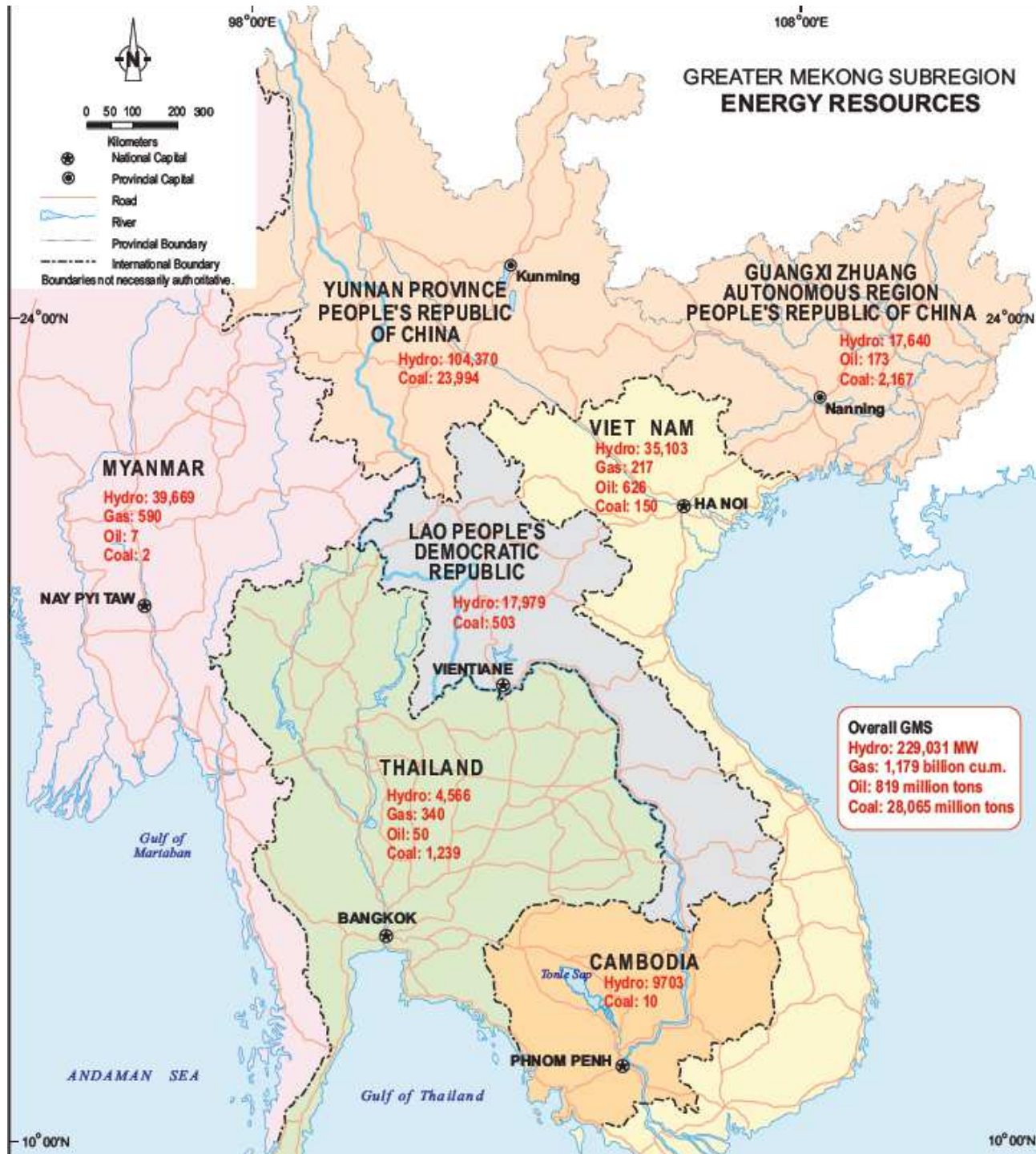


# Potential interconnection in North-East Asian countries



Souce: ADB

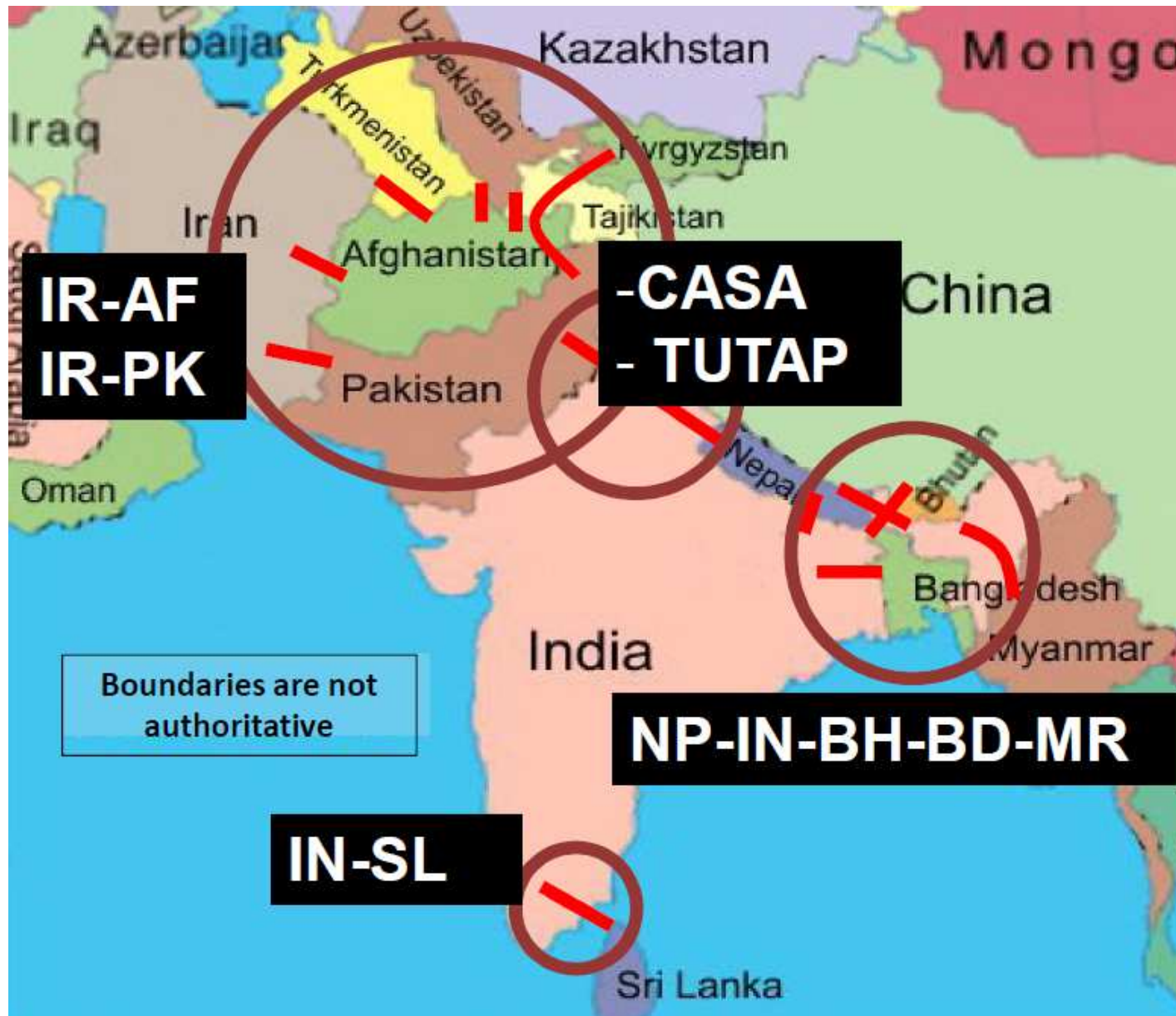
## GREATER MEKONG SUBREGION ENERGY RESOURCES



# Greater Mekong Subregion Power Market

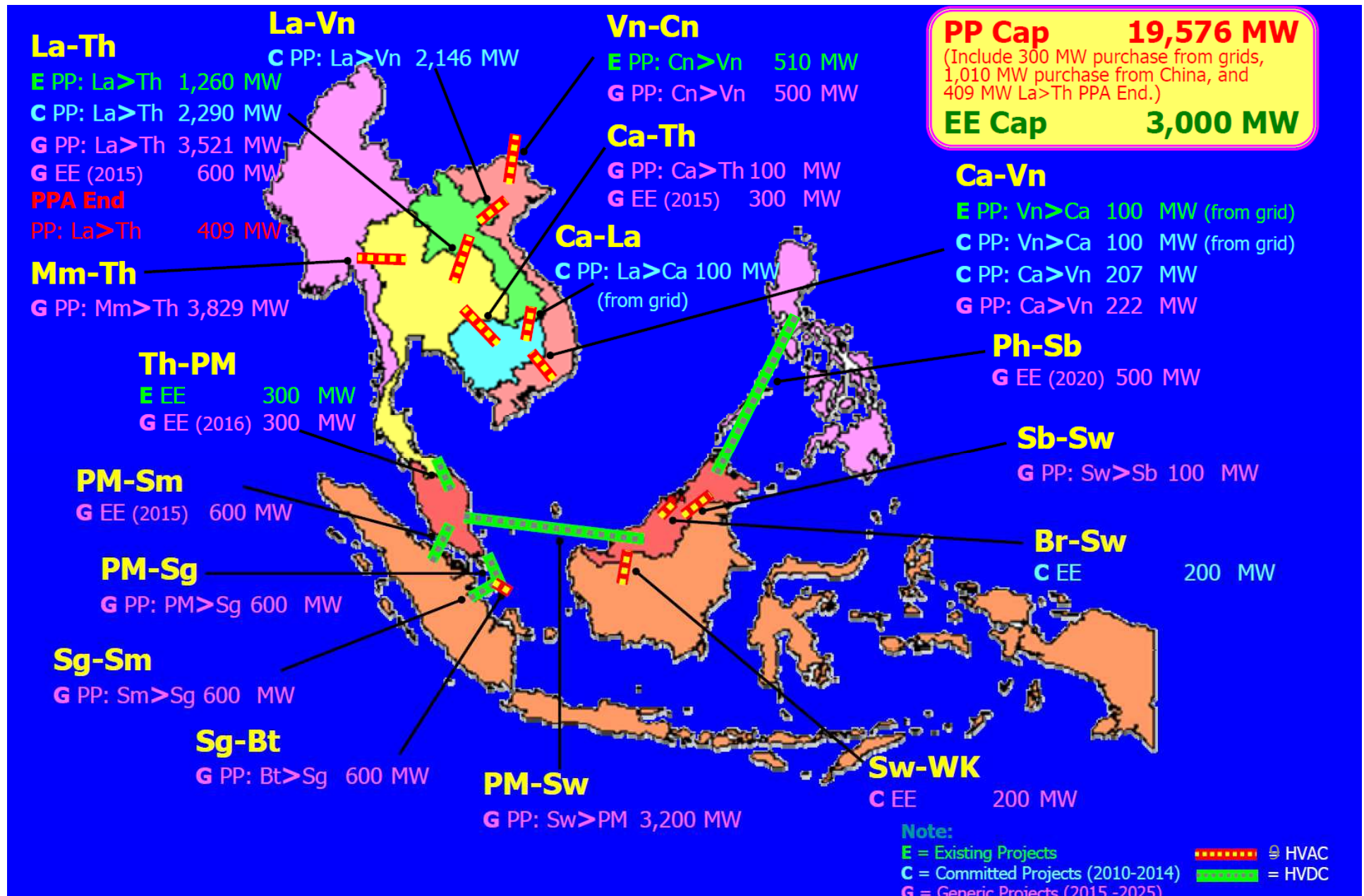


# SAARC Energy Ring's power grid





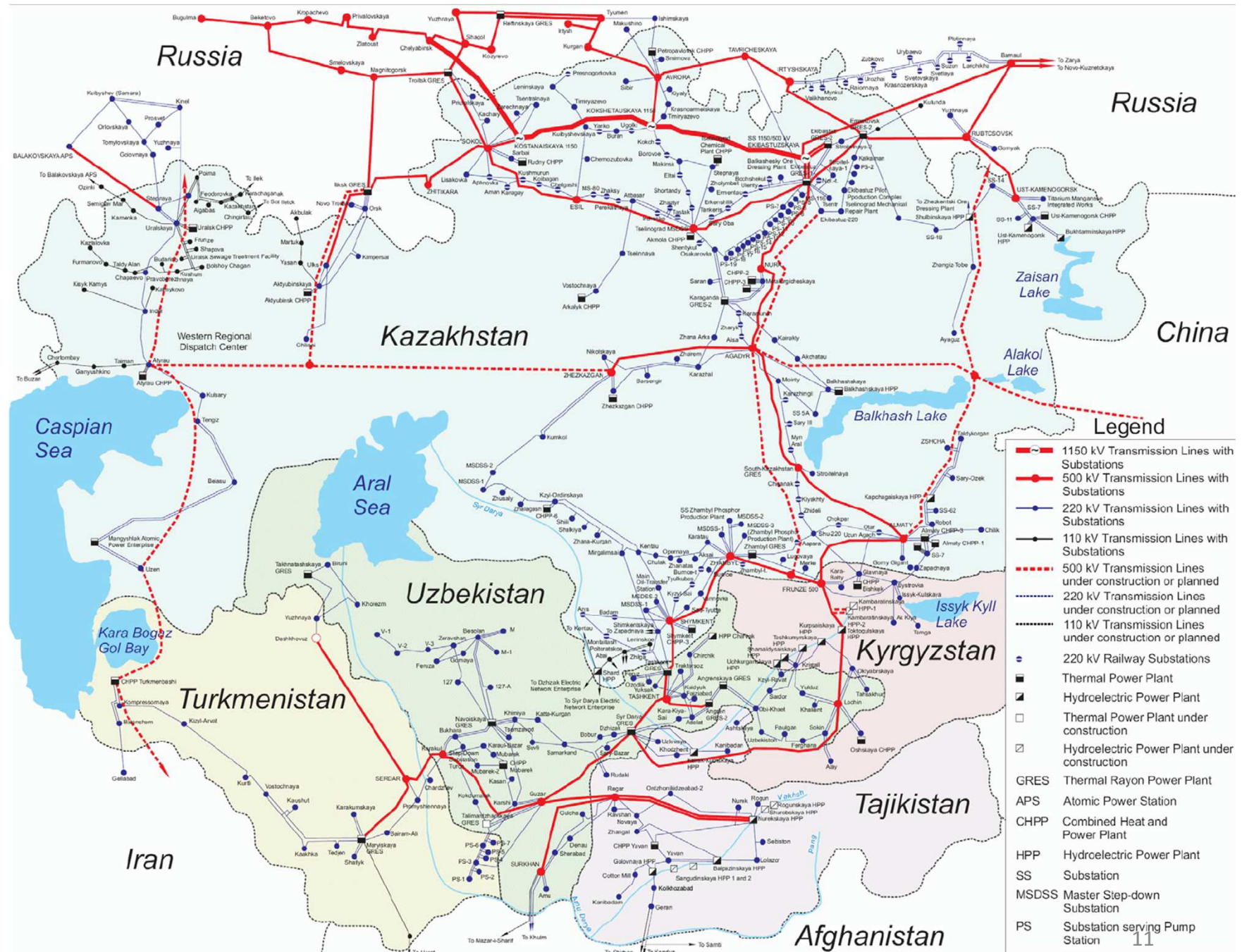
# ASEAN Power Grid







# Unified Energy System



## Connectivity for energy security and sustainable development

- ESCAP Promotes Regional Cooperation for Energy Security and Sustainable Development
- In its 68th Commission Session in May 2012, member States adopted a Resolution (68/11) to enhance regional energy security through by improving efficiency, connectivity, and promoting a greater share of renewable and clean energy for a more sustainable future

### Main activities

- **“Identify options, in consultation with member States, that member States may choose on regional energy connectivity, including an intergovernmental framework that could be developed for an integrated regional power grid, which could be termed as the “Asian Energy Highway (AEH)”**
- **Analyze the socioeconomic and environmental benefits of each option as well as the challenges and opportunities towards the realization of each option**



# Connectivity for energy security and sustainable development

- ESCAP Committee on Energy at its first session in January 2017, recognized the importance of energy connectivity in achieving sustainable development and recognized the potential benefits of transboundary power trade as a tool for increasing the sustainability of the power sector. The Committee recognized the need to provide further clarity for the development of strategies and a road map identifying concrete steps to promote regional energy connectivity through expert-level discussion, due consideration by experts, and intergovernmental processes;
- 73rd Commission session in May 2017 adopted Resolution 73/8 Strengthening regional cooperation for sustainable energy development in Asia and the Pacific. In the Resolution ESCAP members agreed to further promote regional energy connectivity in the region and decided to create two expert working groups on energy connectivity and on universal access to modern energy services, renewable energy, energy efficiency and cleaner use of fossil fuels.

## Concept

- Promote regional integration of electricity infrastructure and harmonization between institutions
- Enhance resource security through diversity of supply
- Enable a capacity for regional load planning and balancing, thereby increasing efficiencies in resource consumption
- Progress towards a regionally integrated and competitive electricity marketplace

# Asian Energy Highway benefits

## Economic

- Improved energy efficiencies in power production and trade through enhanced levels of regional integration
- Optimisation of resource allocation between supply and demand centres, opening up trading opportunities and resource security alternatives

## Social

- Improved energy access through broader coverage and trading
- Enhanced security through diversification of sourcing

## Environmental

- Integrated energy planning improves the capacity to reduce generation excesses and losses by supporting through enhanced regional load management capabilities
- Improved prospects for injection of renewable energy technologies

## Progress so far

- Concept integrated in Asia-Pacific regional cooperation framework for energy
- **Analytical work started**
- **Expert Group Meetings on Conceptualizing the AEH**
- **Further identify and quantify the socio-economic and environmental benefits of an AEH**
- **Expanding partnerships and collaboration with various international and regional organizations and in order to establish a shared vision for energy connectivity**
- **Developing a master plan for energy connectivity in Asia and the Pacific with a focus on power grid connectivity to address the missing links of ongoing subregional initiatives and projects**

## ESCAP's Role & Plan

ESCAP can play a valuable role in promoting the exchange of knowledge and wider application on good practices, which, importantly, will:

- **Improve performance of each subregional initiative**
- **Build trust among countries, subregions and organizations**
- **Platform for intergovernmental process**
- **Establish a better foundation (relationships, standards, institutions, etc.) for future integration**



# Roadmap for an Asian Energy Highway

## Dialogue and analysis *Short-term goal*

- Undertake detailed cost-benefit analyses into both regional energy market gains and integrated development
- Undertake planning studies into the opportunities for maximizing renewable energy resource development under a regionally integrated scenario
- Initiate ongoing dialogue between subregional initiatives in order to identify opportunities for development synergies

## Implementation *Medium-term goal*

- Multilateral management framework established to oversee regional energy integration and development monitoring
- Implementation of identified avenues for harmonization within regional power industries – in areas such as regulatory environment, operation, design standards and pricing
- Identified regional renewable energy projects developed

## Operation *Long-term goal*

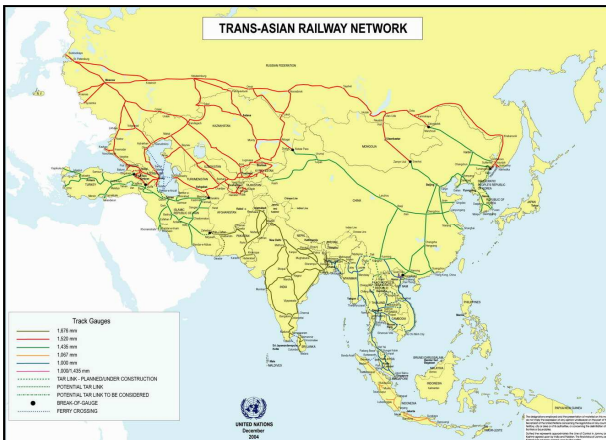
- Regional energy market operator(s) implemented to coordinate and monitor power transactions
- Intergovernmental regional energy body installed to facilitate ongoing management of integrated regional network

# Asian Energy Highway

Precedence for regional connectivity exists:

## Asian Highway Network

Extends through 32 member states and comprises 142,000km of highways



## Trans-Asian Railway Network

Inter-Governmental Agreement on the Trans-Asian Railway Network entered into force in 2009

**THANK YOU!**