

# UNITED NATIONS Economic and Social Commission for Asia and the Pacific 53 member States 9 associate members

## South and South-West Asia

Afghanistan  
Bangladesh  
Bhutan  
India  
Iran  
Maldives  
Nepal  
Pakistan  
Sri Lanka  
Turkey

## North and Central Asia

Armenia  
Azerbaijan  
Georgia  
Kazakhstan  
Kyrgyzstan  
Tajikistan  
Turkmenistan  
Uzbekistan

## South-East Asia

Brunei Darussalam  
Cambodia  
Indonesia  
Lao PDR  
Malaysia  
Myanmar  
Philippines  
Singapore  
Thailand  
Timor-Leste  
Viet Nam

## East and North-East Asia

China  
Japan  
DPRK  
Republic of Korea  
Mongolia  
Russian Federation

## Pacific

Australia  
Fiji  
Kiribati  
Marshall Islands  
Micronesia  
Nauru  
New Zealand  
Palau  
Papua New Guinea  
Samoa  
Solomon Island  
Tonga  
Tuvalu  
Vanuatu



UNITED NATIONS  
**ESCAP**

Economic and Social Commission for Asia and the Pacific

# ESCAP energy activities in the CAREC region

- UN Sustainable Energy For All initiative
- UNECE/UNESCAP/UNEP: International Forum: Energy for Sustainable Development
- The UN Special Programme for the Economies of Central Asia (SPECA): Project Working Group on Water and Energy
- Asian and Pacific Energy Forum 2013: Ministerial Declaration and Plan of Action 2014-2018
- Asian Energy Highway Concept
- Online Database on Energy Sector Legal Frameworks in Central Asia ([www.asiapacificenergy.org](http://www.asiapacificenergy.org))
- Water-Food-Energy Nexus

# The UN Special Programme for the Economies of Central Asia (SPECA)

## Project Working Group on Water and Energy Resources

**Afghanistan**

SPECA was established in 1998 by the presidents of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Azerbaijan joined it in 2002 and Afghanistan in 2005. It is supported jointly by the UNECE and UNESCAP.

**Azerbaijan**

**Kazakhstan**

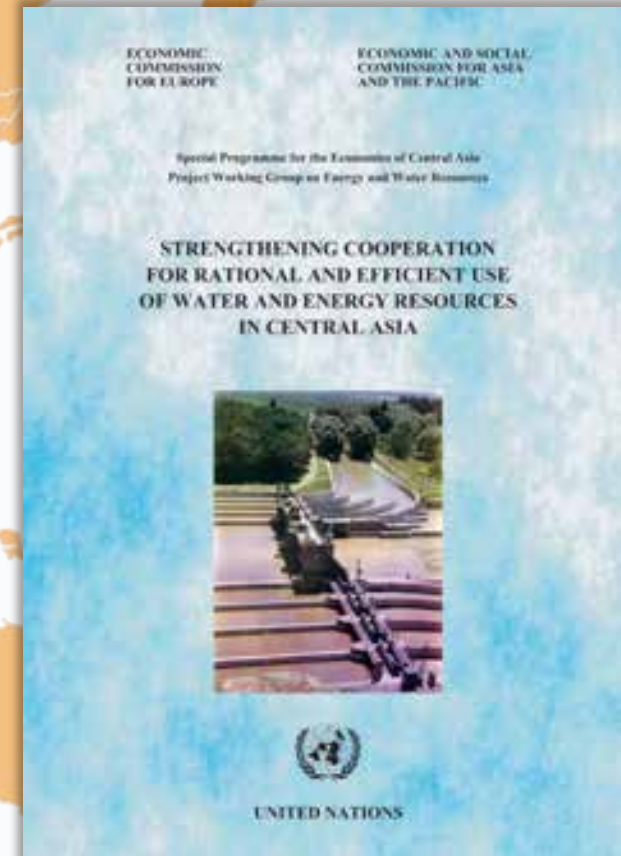
**Kyrgyzstan**

**Tajikistan**

**Turkmenistan**

**Uzbekistan**

The PWG on Water and Energy, among others, worked out the Cooperation Strategy for the Rational and Efficient use of Energy and Water Resources of Central Asia and prepared diagnostic reports on the energy and water resources of Central Asia. Presently it works on a number of project on energy and water cooperation incl. one on dam safety for Central Asia.



# APEF: The first Asia-Pacific ministerial-level energy forum convened under the auspices of the United Nations

Ministerial Segment 29-30 May 2013, Vladivostok, Russian Federation



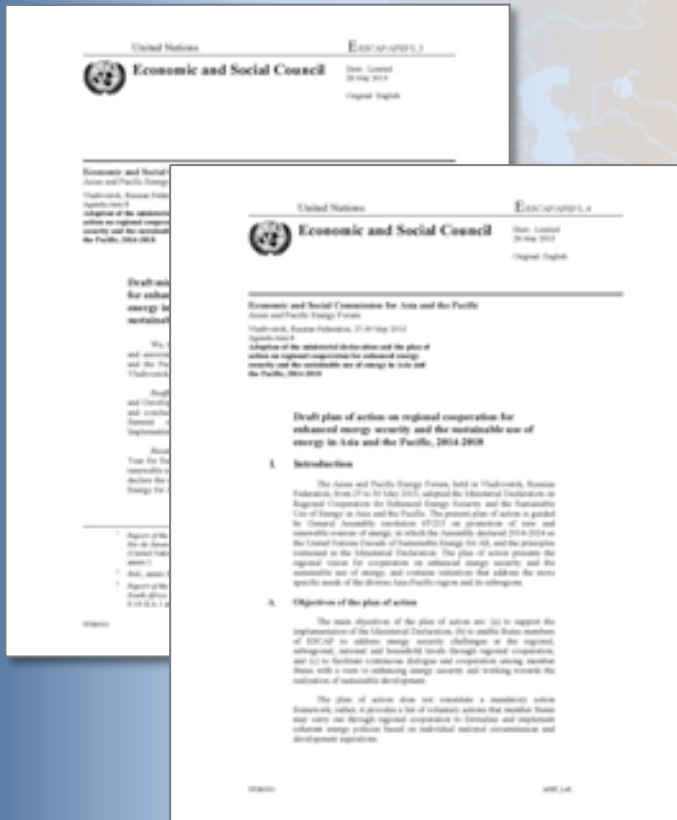
MINISTRY OF ENERGY  
OF THE RUSSIAN FEDERATION





## **APEF Ministerial Declaration and Plan of Action 2014-2018**

**“Establishment of a platform for facilitating continuous dialogue and cooperation among ESCAP member and associate member States on enhanced energy security and the sustainable use of energy”**

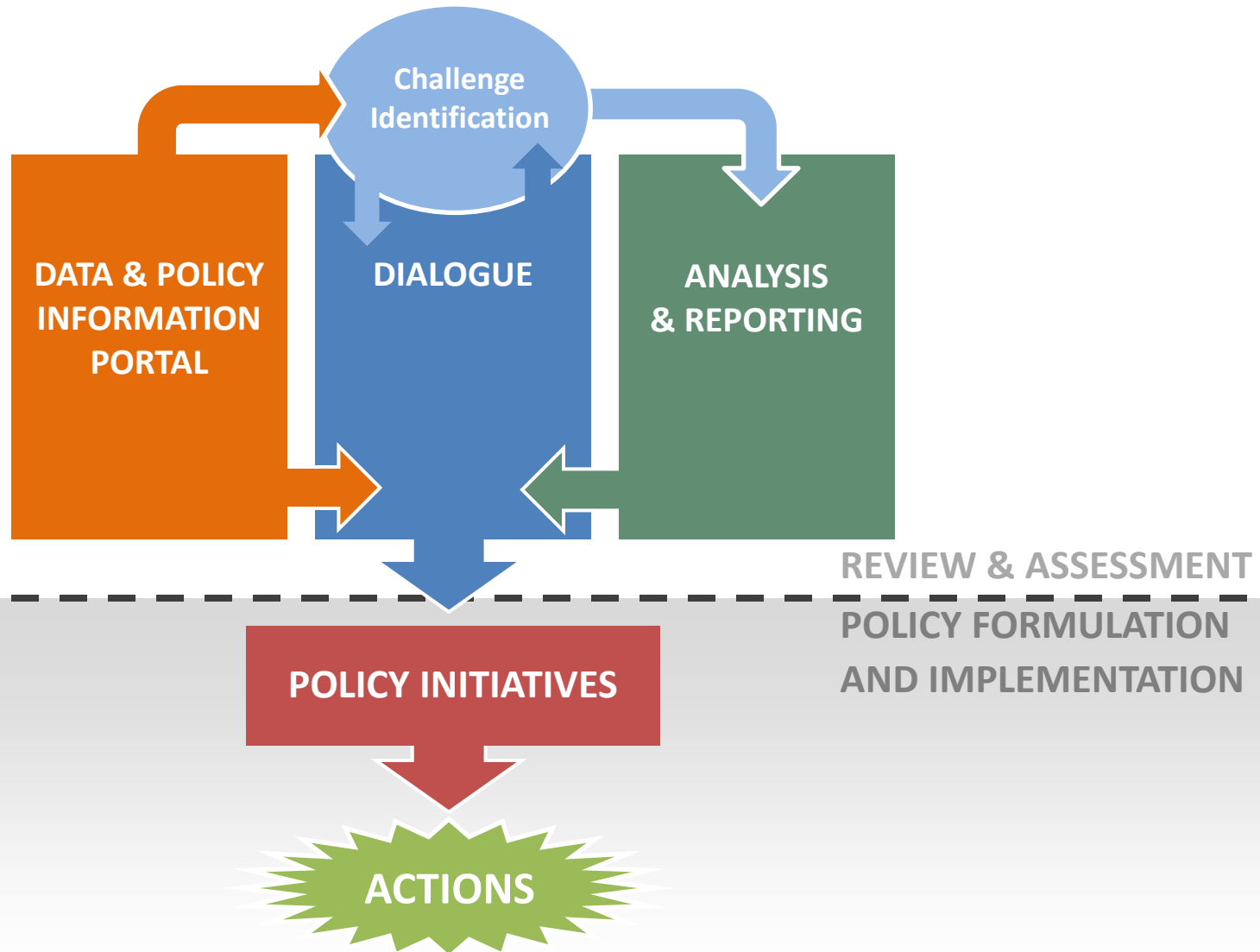


## The Plan of Action 2014 – 2018 comprises areas of collaboration for member countries in Asia and the Pacific, as well as more specific priorities for North and Central Asia:

- Creation of joint information resources and knowledge sharing systems in the field of energy sector development.
- Strengthening existing cooperation mechanisms on energy among member States in North and Central Asia in order to better coordinate national energy policies and realize the full potential of subregional cooperation in the area of energy security and sustainable use of energy for the benefit of all participating member States.
- Encouraging the development and implementation of joint hydropower projects for electricity generation to facilitate grid connectivity and trade in energy.
- Strengthening subregional and inter-regional cooperation towards developing harmonized cross-border energy infrastructure, and supporting the continuation of bilateral and regional consultations on this matter.



**APEF IMPLEMENTATION SUPPORT  
MECHANISM**



# Asian Energy Highway (AEH)

## Integrated Asian Power Grids and Electricity Markets

### Game Changer – Power Transmission

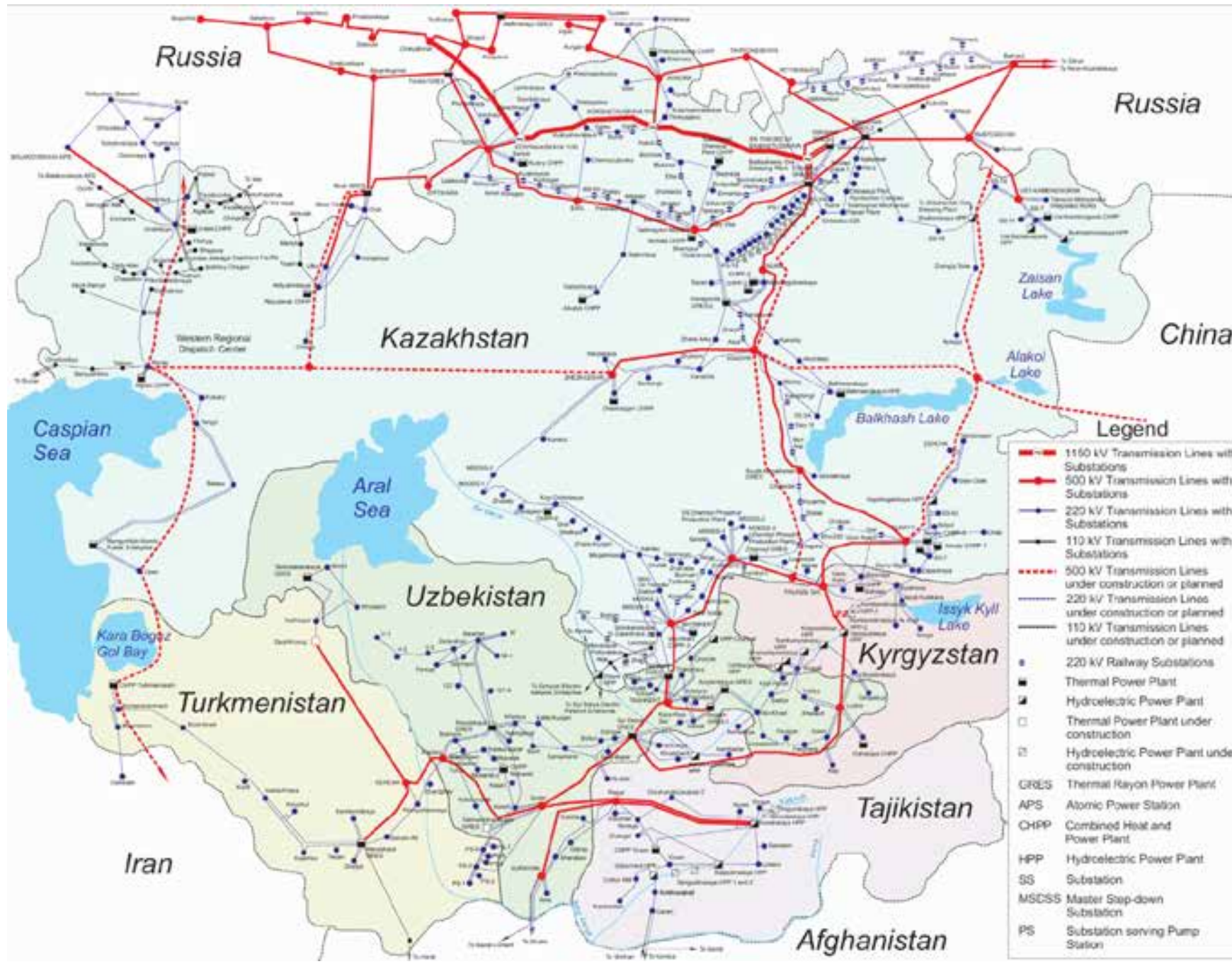
Advancements in electricity transmission technology are increasing the capacity for long-distance transportation of power, improving both access to energy resources and opportunities for trade

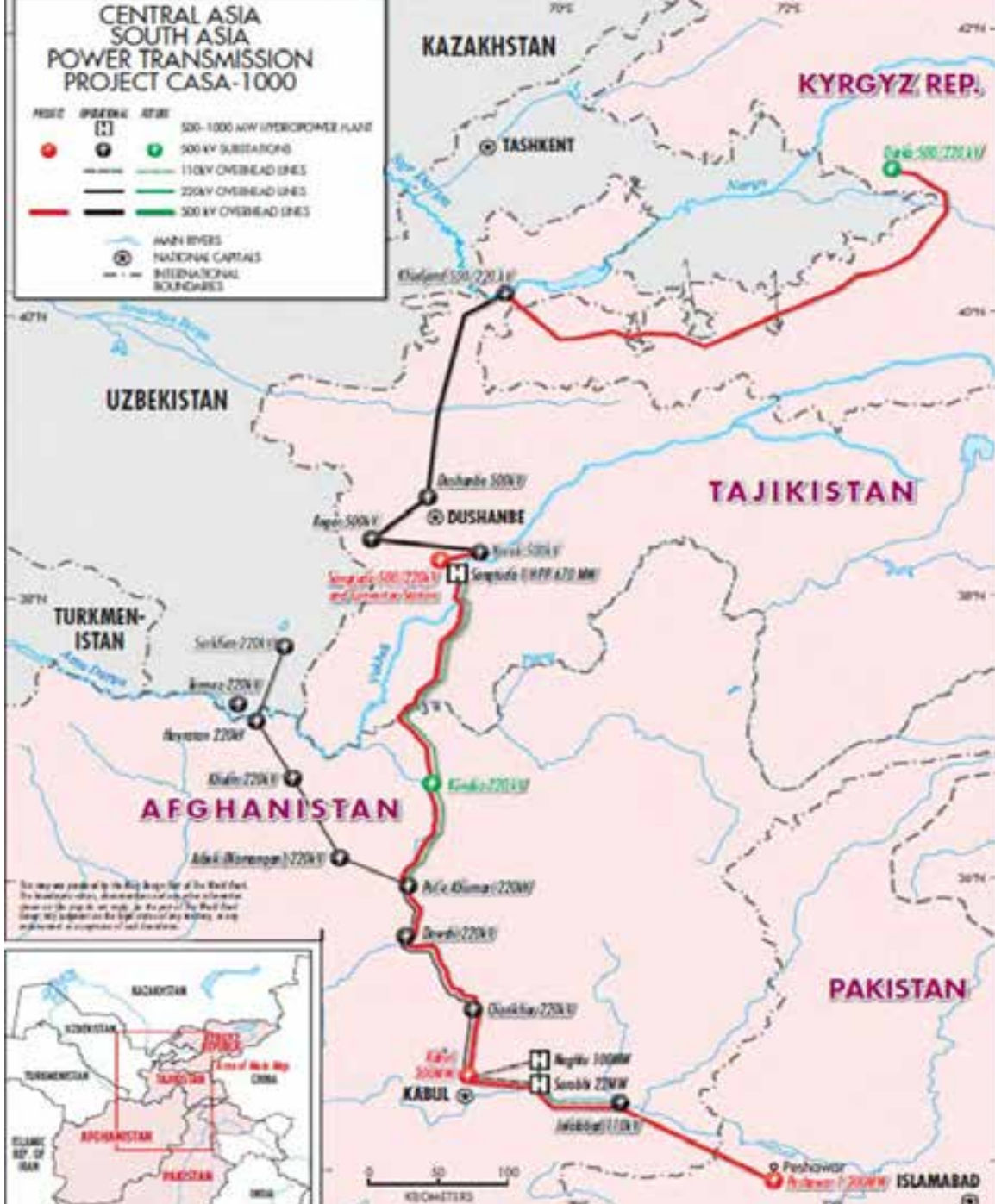
### Concept

- Promote regional power planning to enable efficient allocation of resources
  - Promote interconnections of electricity infrastructure and harmonization between institutions to enhance trading opportunities
  - Enhance resource security through diversification of power supply and a dynamic capacity to adjust to developments in generation sourcing
  - Enable a capacity for regional load balancing and smart metering, thereby increasing efficiencies in resource consumption
  - Promote competitive trading power trading and pooling policies
- regional electricity marketplace



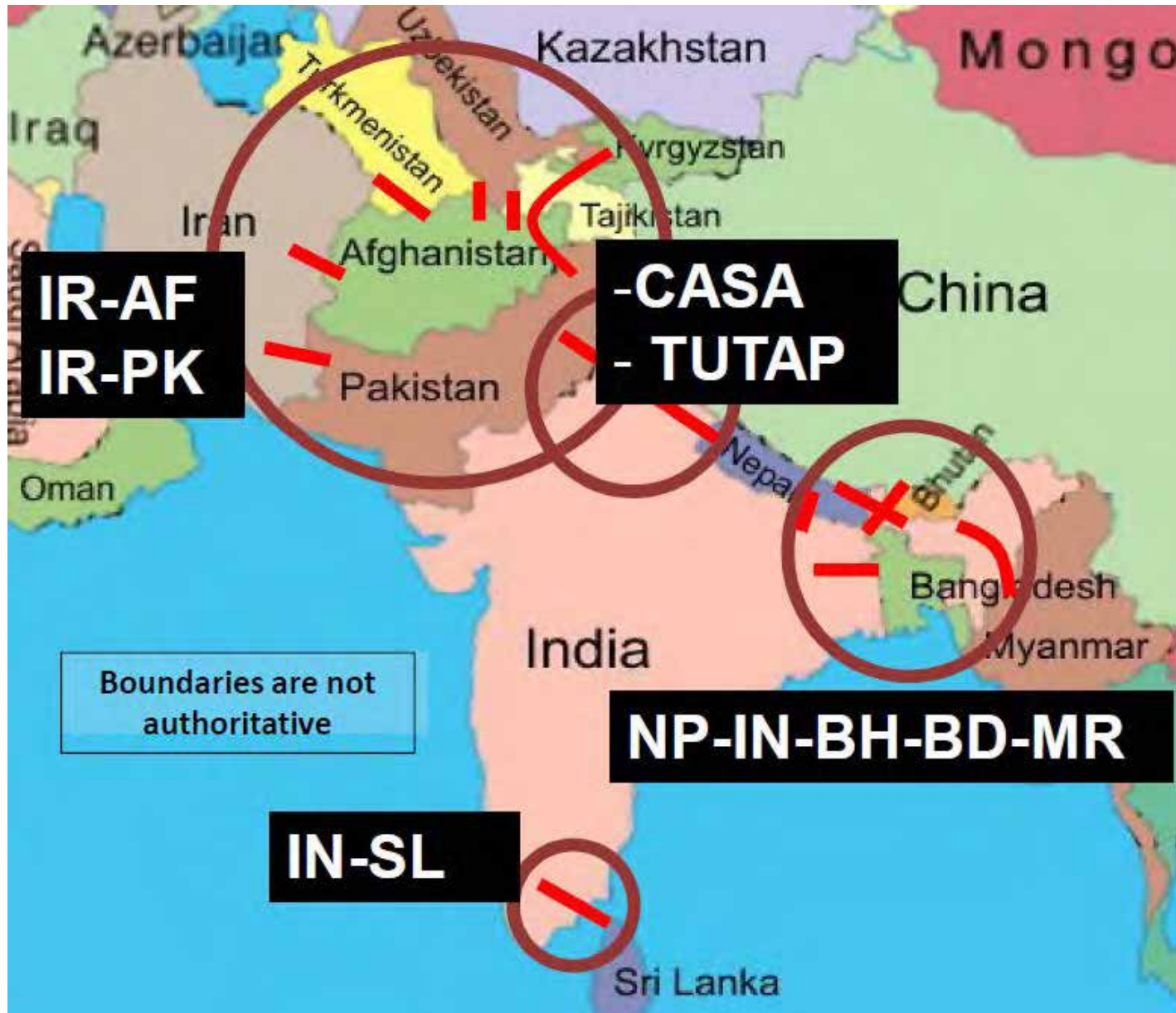
# Unified Energy System



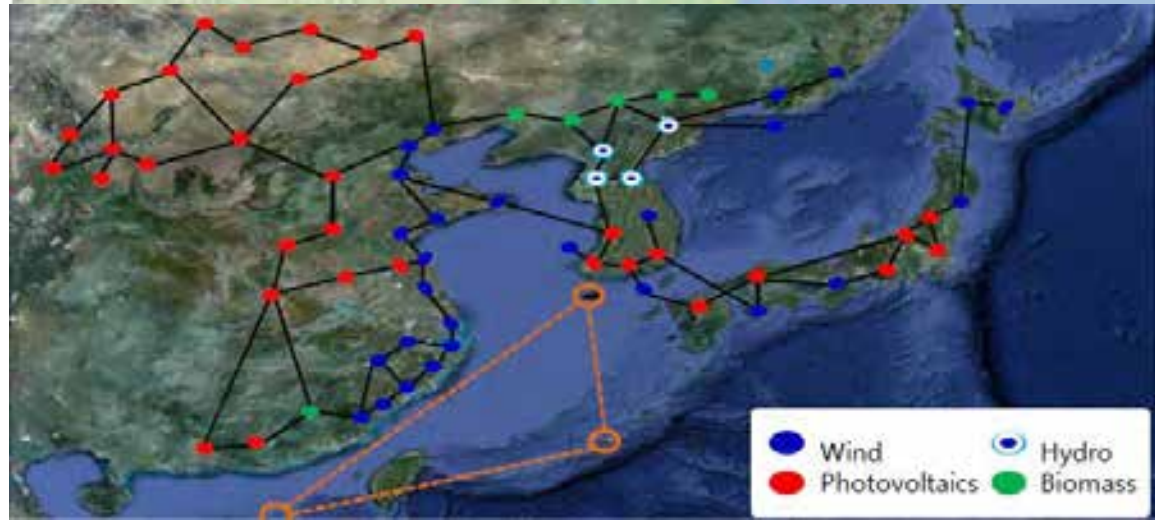


**CASA 1000:  
Flagship  
Project of  
Central Asia-  
South Asia  
Regional  
Electricity  
Market  
(CASAREM)**

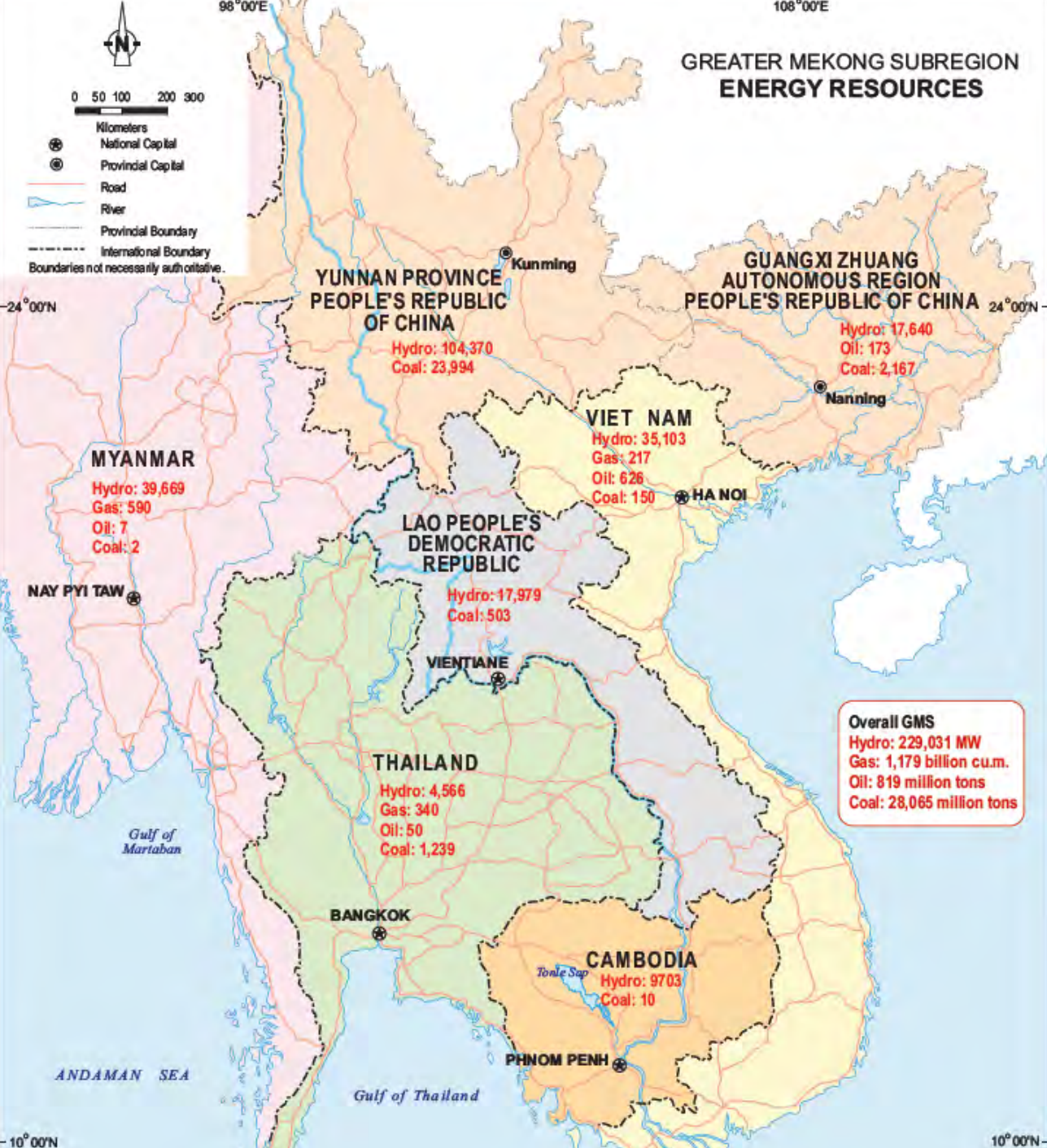
# SAARC Energy Ring's power grid



# Northeast Asian Super Grid & Gobitec

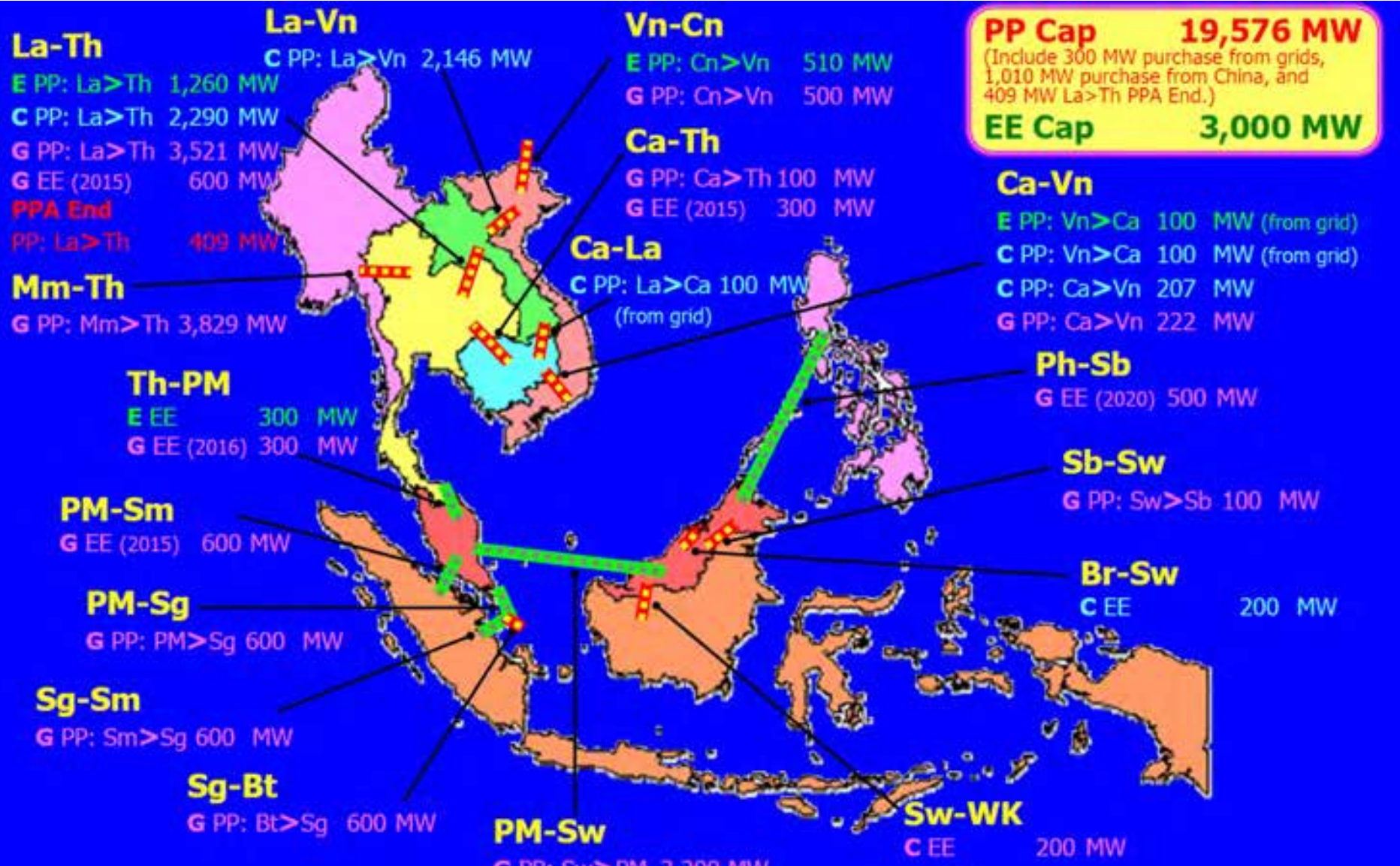


# GREATER MEKONG SUBREGION ENERGY RESOURCES



# Greater Mekong Subregion Power Market

# ASEAN Power Grid



**PP Cap 19,576 MW**  
 (Include 300 MW purchase from grids, 1,010 MW purchase from China, and 409 MW La>Th PPA End.)

**EE Cap 3,000 MW**

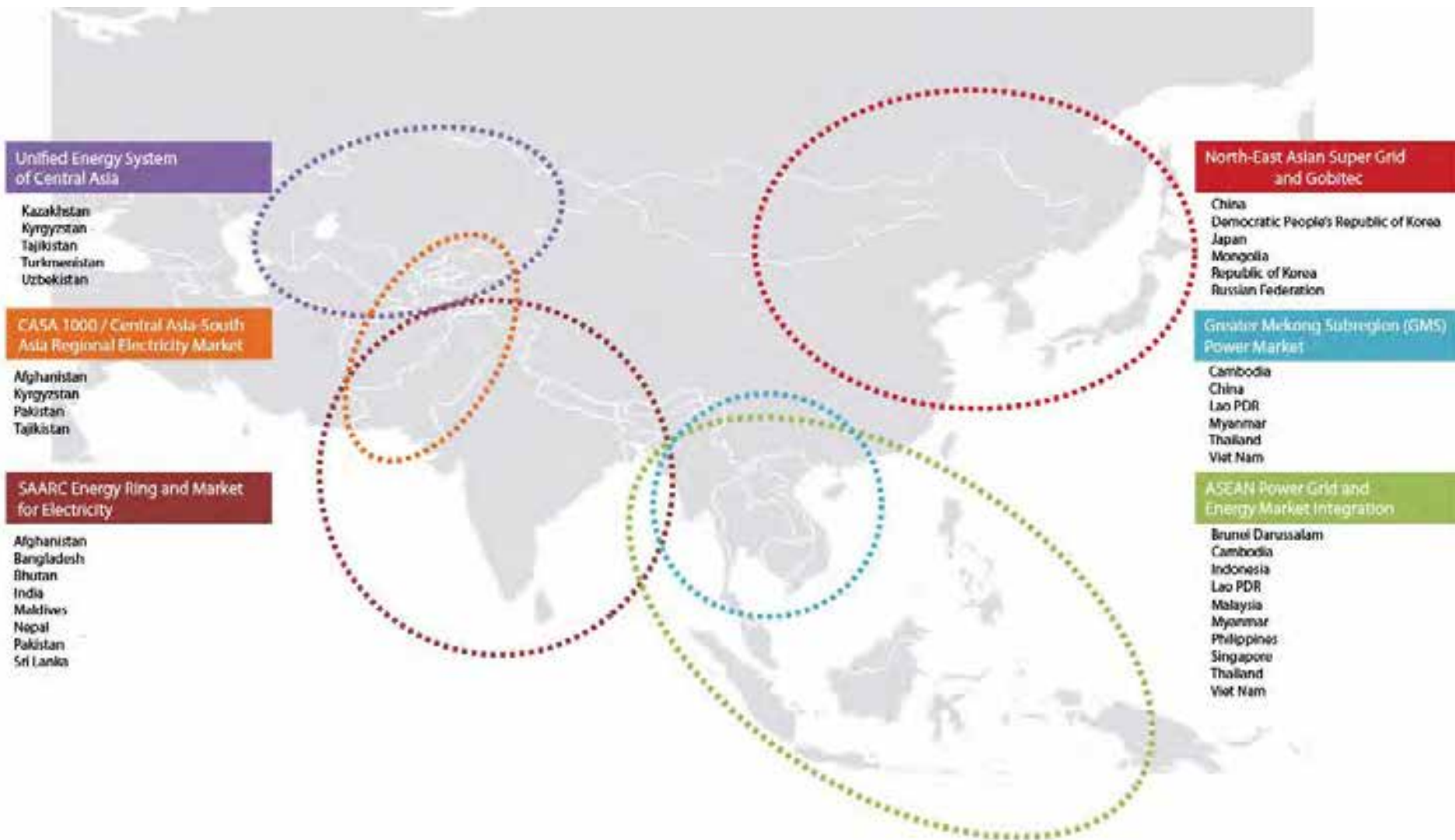
**Ca-Vn**  
 E PP: Vn>Ca 100 MW (from grid)  
 C PP: Vn>Ca 100 MW (from grid)  
 C PP: Ca>Vn 207 MW  
 G PP: Ca>Vn 222 MW

Note:  
 E = Existing Projects  
 C = Committed Projects (2010-2014)  
 G = Generic Projects (2015 -2025)

----- = HVAC  
 ————— = HVDC

# Asian Energy Highway

## Integrated Asian Power Grids and Electricity Markets



# AEH 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.



# AEH - Moving Forward

- **Promote intergovernmental energy cooperation and planning as a means to holistically deliver both near and long-term regional energy security objectives.**
- **Develop forums for greater harmonization between regional electricity industry operators (both institutional and technical) in order to enhance integration opportunities.**
- **Encourage and foster the development of a regional energy power pooling market in order to enhance competitive trading opportunities within the region, to deliver both affordable and efficient energy resource consumption.**
- **Develop studies that identifies the socio-economic and environmental benefits of the concept with a specific focus on quantifying the economic benefits to strengthen the incentives for political commitment.**

# WATER - ENERGY – FOOD Nexus

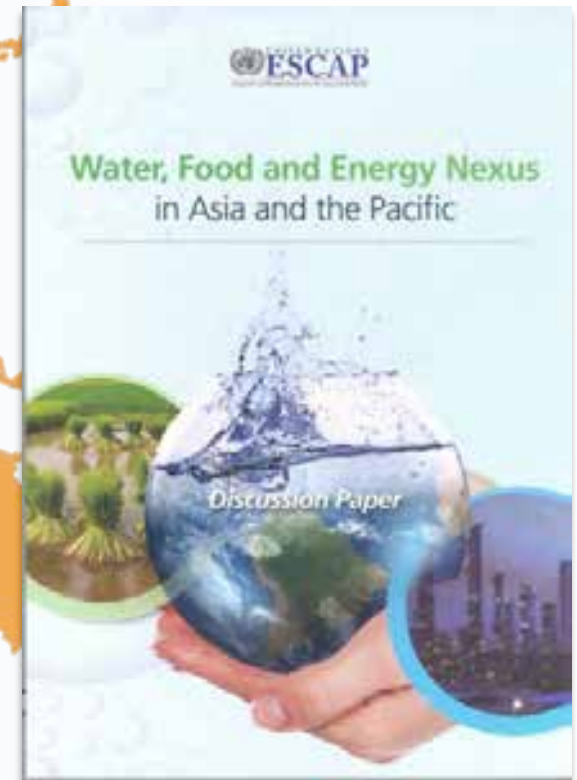
The NEXUS approach recognizes **interconnectedness** of water, energy, and food across space and time. Its objectives are:

- Improve energy, water, and food security
- Address externality across sectors, and decision-making at the nexus
- Support transition to sustainability

## Projections for 2050 with 9.2 billion people:

- 70% increase in agricultural demand for food by 2050
- 40% energy demand increase by 2050
- **But by 2030:** confronting water supply shortage of ~ 40%

- **Asia Nexus Dialogue Workshop, 17-19 March 2014**  
Bangkok, Thailand
- **Workshop on Water - Food - Energy interconnections in**  
Central Asia, November 2014, Almaty



# Online Database on Energy Sector Legal Frameworks in Central Asia

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

The screenshot shows a web browser window displaying the website [www.asiapacificenergy.org](http://www.asiapacificenergy.org). The page features a header with the ESCAP logo and a banner in Russian: "Рациональное использование энергоресурсов и возобновляемые источники энергии. База данных нормативно-правовых документов стран Северной и Центральной Азии" (Rational use of energy resources and renewable energy sources. Database of legal documents of North and Central Asian countries). Below the banner are three main filter sections:

- Страны (Countries):** Includes checkboxes for Казахстан (Kazakhstan), Кыргызстан (Kyrgyzstan), Республику Таджикистан (Republic of Tajikistan), Узбекистан (Uzbekistan), and Азербайджан (Azerbaijan).
- Сфера интересов: сектор экономики (Area of interest: economic sector):** Includes checkboxes for: Общие социально-экономические вопросы (General socio-economic issues), Разработка, добыча, хранение и транспортировка ТЭР (Development, extraction, storage and transport of energy resources), Вопросы энергоснабжения и спроса ТЭР (Energy supply and demand issues), ЖИЭС: строительство и модернизация зданий, строений и объектов инфраструктуры (Energy efficiency: construction and modernization of buildings, structures and infrastructure objects), Пригодность (Suitability), Транспорт (Transport), Углерод (не ТЭР) (Carbon (not energy resources)), Защита окружающей среды и изменение климата (Environmental protection and climate change), and Другое (Other).
- Сфера интересов: законодательство (Area of interest: legislation):** Includes checkboxes for: Энергообеспечение и энергоэффективность (Energy supply and energy efficiency), Производство энергии (Energy production), Программы, планы действий, стратегии (Programs, action plans, strategies), Системобразующие элементы и законы, определяющие экономические и социальные правоотношения (System-forming elements and laws determining economic and social relations), Базис законодательства по вопросам экономики (Legal basis for economic issues), Нормативное регулирование и методологическое обеспечение по вопросам экономики (Regulatory and methodological support for economic issues), **Нормирование и техническое регулирование** (Norming and technical regulation), Мониторинг использования и учет ТЭР (Monitoring of energy resources use and accounting), **Энергетический надзор и экспорт** (Energy supervision and export), **Статистическое наблюдение и сбор информации** (Statistical monitoring and information collection), Наполнение и тарифное регулирование в энергетике (Energy supply and tariff regulation in the energy sector), **Финансирование и инвестиционная стимулирование деятельности в сфере энергоэффективности** (Financing and investment stimulation of activities in the energy efficiency sector), Научно-исследовательская и опытно-конструкторская деятельность (НИОКР) (Research and development activities), Информирование общественности (Public awareness), **Государственное регулирование** (State regulation), Договорные и многосторонние соглашения (Contractual and multilateral agreements), and Техническое регулирование (Technical regulation).

Below the filters are sections for "Статус документа" (Document status) with options for "Утративший силу" (Expired), "Действующий" (Valid), and "Проект" (Draft); "Тип документа" (Document type) with options like "Кодикс" (Codebook), "Закон" (Law), "Указ" (Decree), "Постановление" (Resolution), "Положение" (Regulation), "Распоряжение" (Order), "Приказ" (Directive), "Инструкция" (Instruction), "Указание" (Order), "Правила" (Rules), "Международный договор" (International agreement), "Руководство" (Manual), "Наставление" (Guideline), "Программа" (Program), and "Другое" (Other); and "Год принятия" (Year of adoption) with a range of years from 1967 to 2013.



# THANK YOU