



# **“Interconnectivity: Helping INOGATE PCs to adopt adequate regulatory frameworks, methodologies & tools”**

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Brussels, Belgium, 11 December 2015

BUILDING PARTNERSHIPS FOR ENERGY SECURITY

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# What is INOGATE?

An EU-funded programme for regional energy cooperation between the European Union and its Partner Countries in Eastern Europe, Caucasus and Central Asia



## 12 INOGATE Partner Countries:

Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkey (O), Turkmenistan, Ukraine and Uzbekistan.

Note: this map is with out prejudice to the status of sovereignty over any territory, to the delimitation of international frontiers and boundaries, and to the name of any territory, city or area

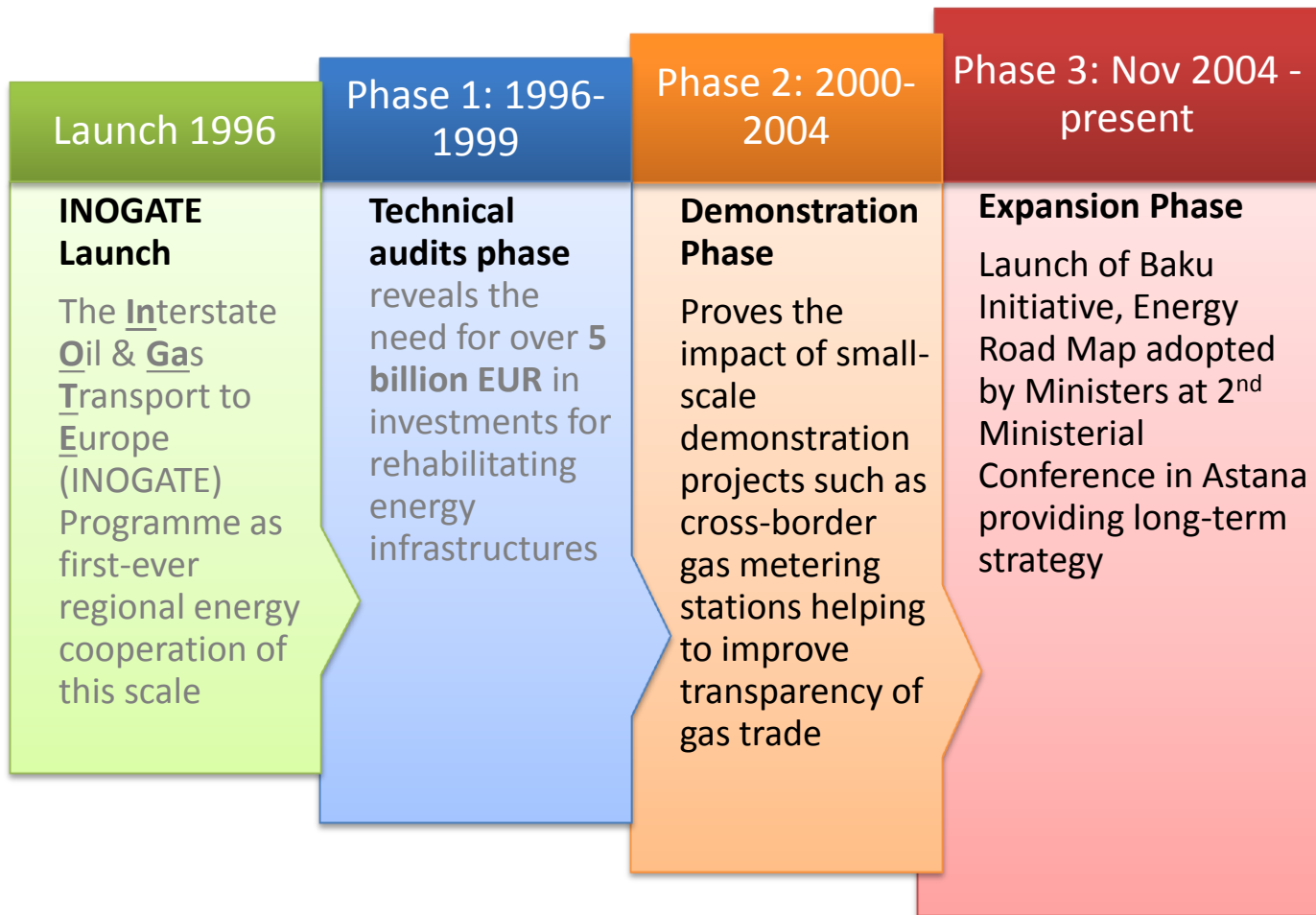


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PROGRAMME FUNDED BY THE EU

# INOGATE Development 1996-2016



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# New ITS - Fact Box



- Project title: INOGATE Technical Secretariat (ITS)
- Budget: € 16.5 + 3 = 19.5 million
- Duration: 36 months (02.2012 – 01.2015)
- **Extension: up to 30/4/2016**
- Partner Countries:
  - **Eastern Europe** - Belarus, Moldova, Ukraine,
  - **Caucasus** - Armenia, Azerbaijan, Georgia
  - **Central Asia** - Kyrgyzstan, Turkmenistan, Kazakhstan, Uzbekistan, Tajikistan
- Four Project Components: **Electricity & Gas, RES/EE, Statistics, Communication**

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# Overview of yesterday's workshop



## Security of Supply

- Projections, Legislation, Barriers, Regional/International cooperation

## Policy, Regulation and Financing

- Energy Charter, ITS, DG ENER, EnCS, DG NEAR

## Electricity Interconnectivity

- Case examples: Planning, development, barriers, stakeholders' engagement

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# Security of Supply Conclusions (1/2)



## Evolution of Long Term Supply/Demand Balance:

Electricity: Surplus (AM, AZ, GE:2016, UA) / Deficit (BY, MD)  
Natural gas: Surplus (AZ) / Deficit (AM, BY, GE, MD, UA)



## Policy and Legislation:

Legislation in place: All  
Legislation in progress: (EnC parties on EU Acquis requirements)



## Challenges:

Diversification: All except AZ (in surplus)  
Infrastructure: Electricity (All), Natural Gas (All except AZ, BY)

# Security of Supply Conclusions (2/2)



## Projects' Identification:

Transmission planning functions similar to EU: No (except GE)  
Decision making: Political/IFI led (not always properly consulted)



## Regional Coordination:

Formalised: Only MD, UA (EnC WG on SoS)  
Non-formalised: Mostly bilateral & occasional (int. forums)



## International Cooperation:

Participation: (Yes! – comparably less in AZ and BY)  
Coordination: Room for improvement (AM ECG a good example)

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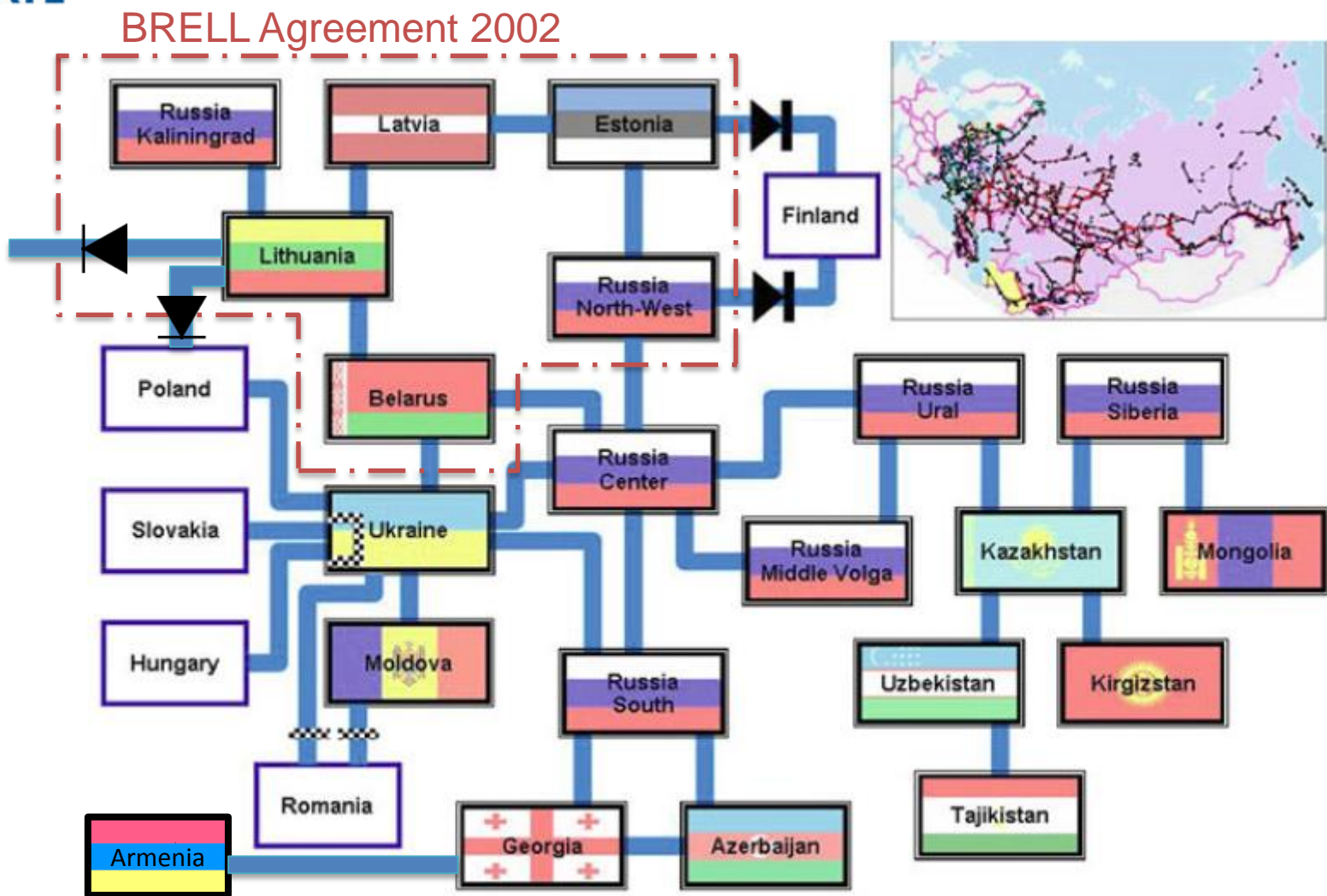
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# ENTSO-E to IPS/UPS Interface tie-lines



ENTSO-E CE Substation	Country	IPS/UPS Substation	Country	Voltage (kV)
Rzeszow	Poland	Khmelnitska NPP	Ukraine	750
Vel'ke Kapusany	Slovakia	Mukachevo	Ukraine	400
Sajoszeged	Hungary	Mukachevo	Ukraine	400
Albertirsa	Hungary	Zakhidnoukrainska	Ukraine	750
Kisvarda	Hungary	Mukachevo	Ukraine	220
Tiszalok	Hungary	Mukachevo	Ukraine	220
Rosiori	Romania	Mukachevo	Ukraine	400
Isaccea	Romania	Pivdennoukrainska NPP	Ukraine	750
Isaccea	Romania	Vulkaneshty	Moldova	400
Elk	Poland	Alytus	Lithuania	400
Bialystok	Poland	Ross	Belarus	220
Zamosc	Poland	Dobrotvirska	Ukraine	220
Dobrudja	Bulgaria	Vulkanesti	Moldova	400

# The structure of IPS/UPS and neighboring countries



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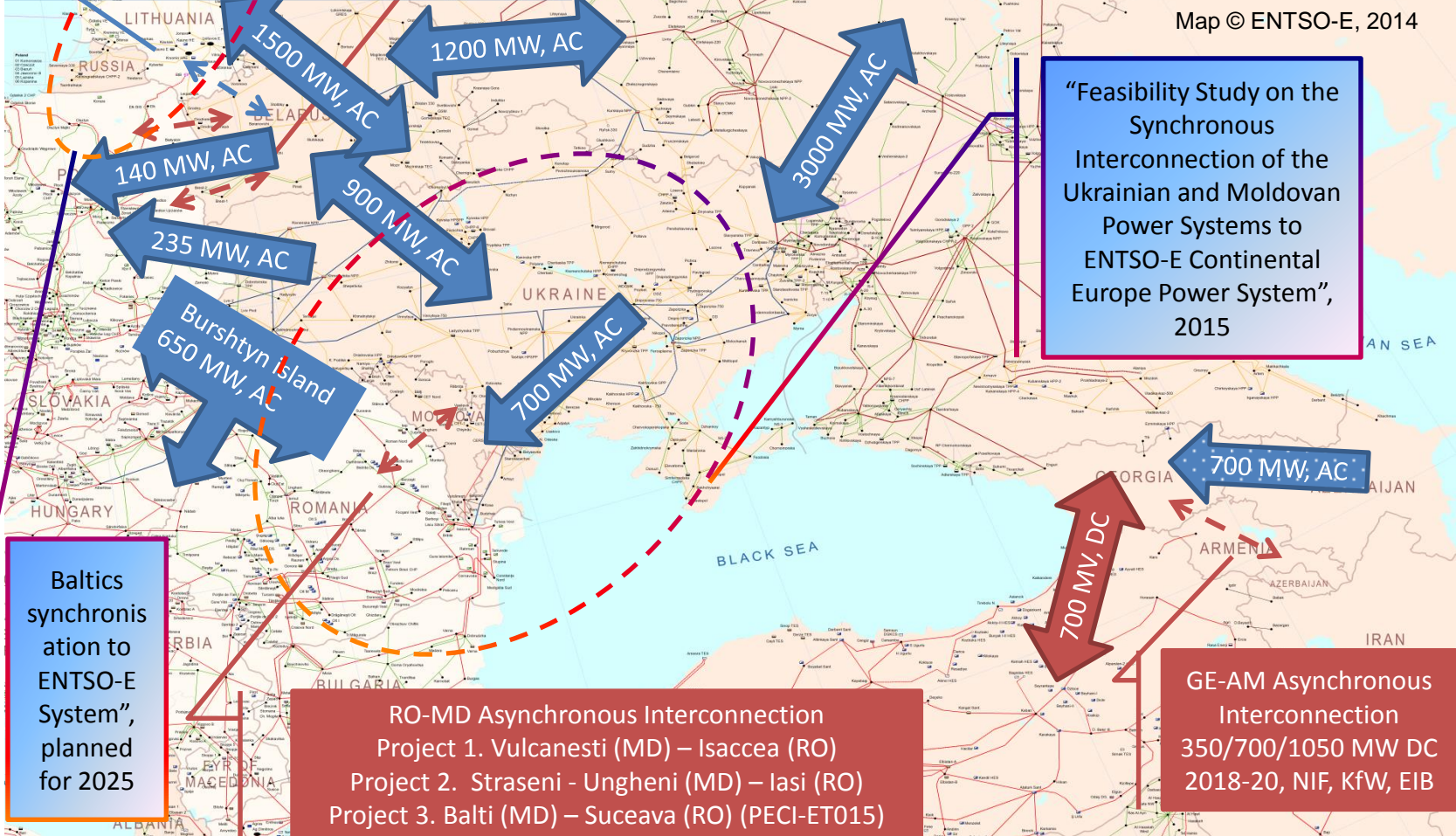
Source: C. Rehtanz et al. 2014 & own BRELL representation

# Interconnectivity: Transfer Capacities, New Infrastructure, Synchronisation



**BY-LT Synchronous Interconnection**  
 Project1. Grondo (BY) – Alytus (LT) Litpol Link  
 Project2. Maladzyechna (BY) – Vilnius (LT)  
 Project3. Pastavy (BY) – Ingalina (LT) – 3 lines

**BY-PL Asynchronous Interconnection**  
 Project1. Ros (BY) – Narew/Bialystok (PL) – 300 MW  
 Project2. Brest (BY) – Wolka Dobrynska (PL) – 140 to 250 MW



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# E - Interconnectivity Conclusions (1/2)



## Planning at transmission level:

Formalized TYNDP: GE, MD (in progress), UA (in progress)

Integrated power system planning: AM, AZ, BY



## Project identification and appraisal:

Standardised: GE (via TYNDP incl. CBA & consultation)

Ad-hoc: AM, AZ, BY, MD, UA



## Financing & regulatory treatment of new interconnection:

Financing: Mostly on state budget & grant and loan

Regulation: No experience with risks & incentives, no use of congestion rent

# E - Interconnectivity Conclusions (2/2)



## Main barriers for investment:

Commonly recognised: lack of capital and legal/regulatory framework, transaction cost

Other: Stranded assets (usage), market rules (MD-UA coupling)



## Consultation & Cost sharing:

Consultation: No sufficient evidence (NRA powers and coordination of TSOs are generally limited)

Cost sharing: Mostly territorial based on bilateral agreement



## The big picture: Divergence with the EU practices

Regulations 714/2009 and 347/2013 are in the verge to be adopted only by Energy Community Contracting Parties





**Спасибо!**  
**Thank you!**

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**INOGATE Technical Secretariat and Integrated Programme in support of the Baku Initiative and the Eastern Partnership energy objectives**

