

# PCR Status Update

European Stakeholder Committee  
January 2016

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*PCR Euphemia Forum, 11th of January 2016 in Brussels*

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# I. PCR Communication

# PCR Euphemia Forum

11th of January 2016 in Brussels

- PCR organised its first Stakeholder Forum to ESC stakeholders (Associations, NRAs, TSOs, Market Participants)
  - 60 physically attended
  - 59 joined the live online event webcasting
- Primary focus: Euphemia Algorithm

## Scope of the presentation:

### CHALLENGES

- Increasing size of the problem
- Increasing number of orders
- Difficult and increasing number of “non-convex” requirements

### LIMITATIONS

Current Euphemia limitations:

- The optimality gap indicator has limited value due to the non-convex nature of the problem

### IMPROVEMENTS

- Anticipated Euphemia performance: local search + multi-threading
- Transparency:
  - Developing offline computation for improved optimality gap indicator
  - Opening dialogue with stakeholders to develop required transparency indicators
  - New products (Thermal Units Orders) to replace Orders currently in production

# Forum Materials

- Public Documentation on Euphemia is available for downloaded [here](#)
- The PCR Euphemia Forum Materials including:
  - The main PCR Stakeholder Forum Presentation
  - The additional presentation: Non-uniform pricing and thermal orders for the day-ahead and
  - The link to PCR Euphemia Forum recording valid until February 10th

**have been published on the websites of Power Exchanges hosting the Forum:**

[APX Group](#)

[GME](#)

[OPCOM](#)

[Belpex](#)

[NordPool](#)

[OTE](#)

[EPEXSPOT](#)

[OMIE](#)

[TGE](#)

## II. Euphemia Performance

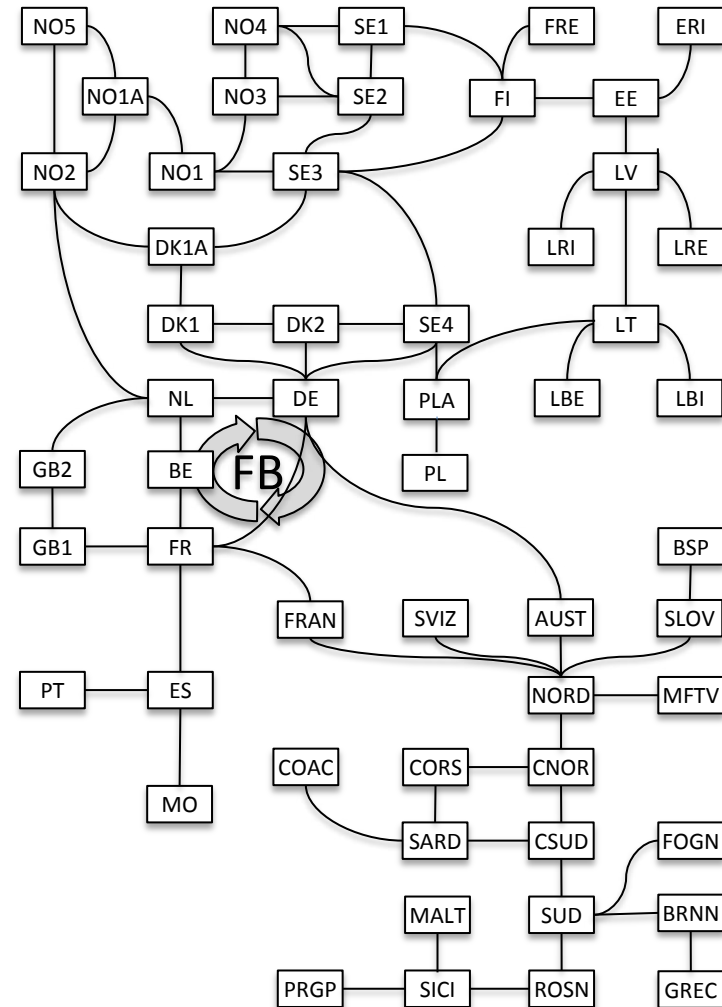
# MRC

- 54 Bidding Areas
- 68 Lines

## Functionalities

- Hourly step and interpolated orders
- regular block orders
- Profile block orders
- Linked block orders
- Exclusive block orders
- Flexible block orders
- Curtailable block orders
- MIC orders
- Load gradients
- Scheduled stops
- PUN orders
- Merit orders
- Flow based intuitive

# 2015



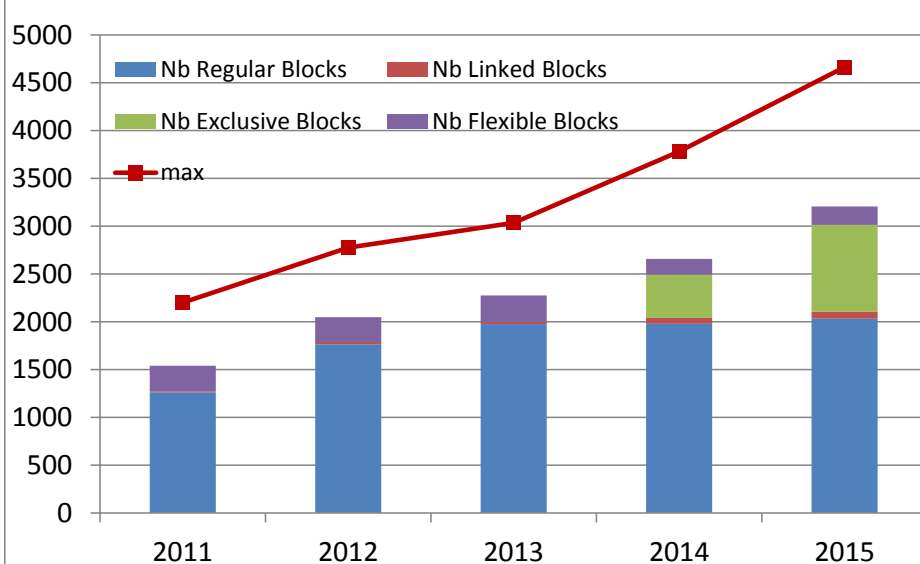
The problem is solved globally :

For all bidding areas, prices are calculated during the same computation

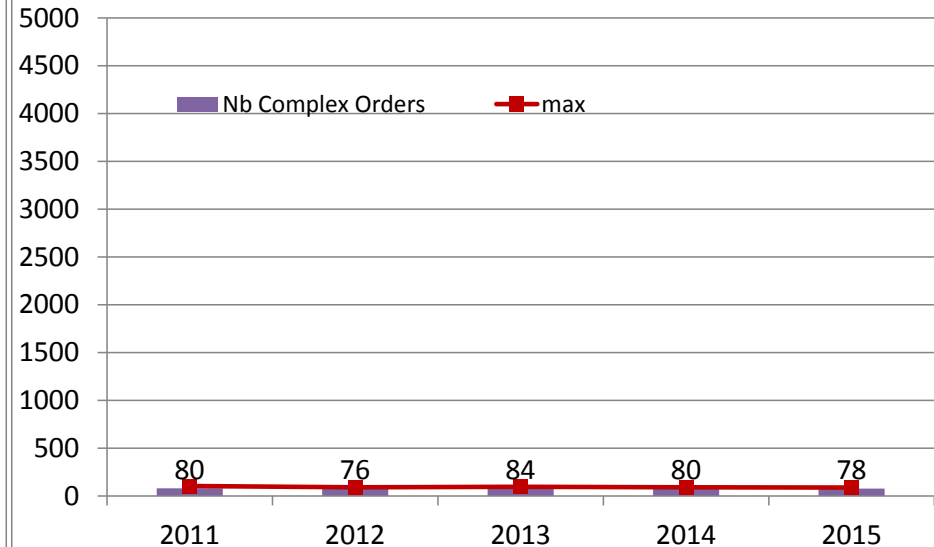
# MRC Order Book Growth

## Block and Complex Orders

MRC - Daily Number of Block Orders



MRC - Daily Number of Complex Orders



In MRC, between 2011 and 2015 the number of block orders has doubled



#daily MRC Blocks : **x 2.08** (+1664 block orders)

Max (#daily MRC Blocks) : **x 2.12** (+2462 block orders).

#Complex orders stable

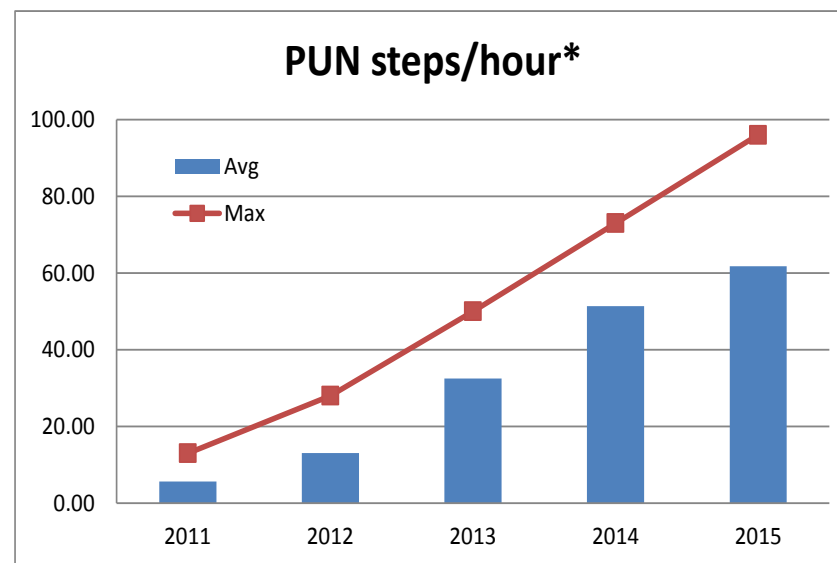
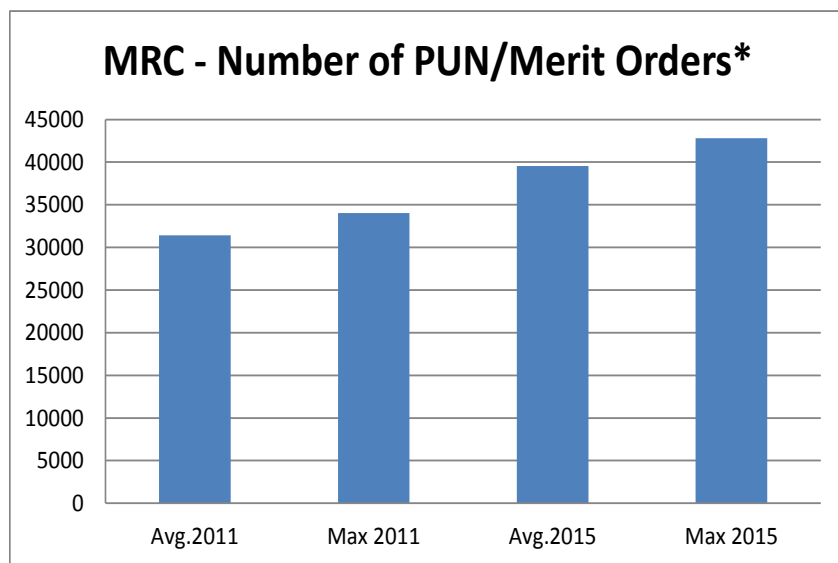


# MRC Order Book Growth

## Merit/PUN orders

In the period of 2011 – 2015:

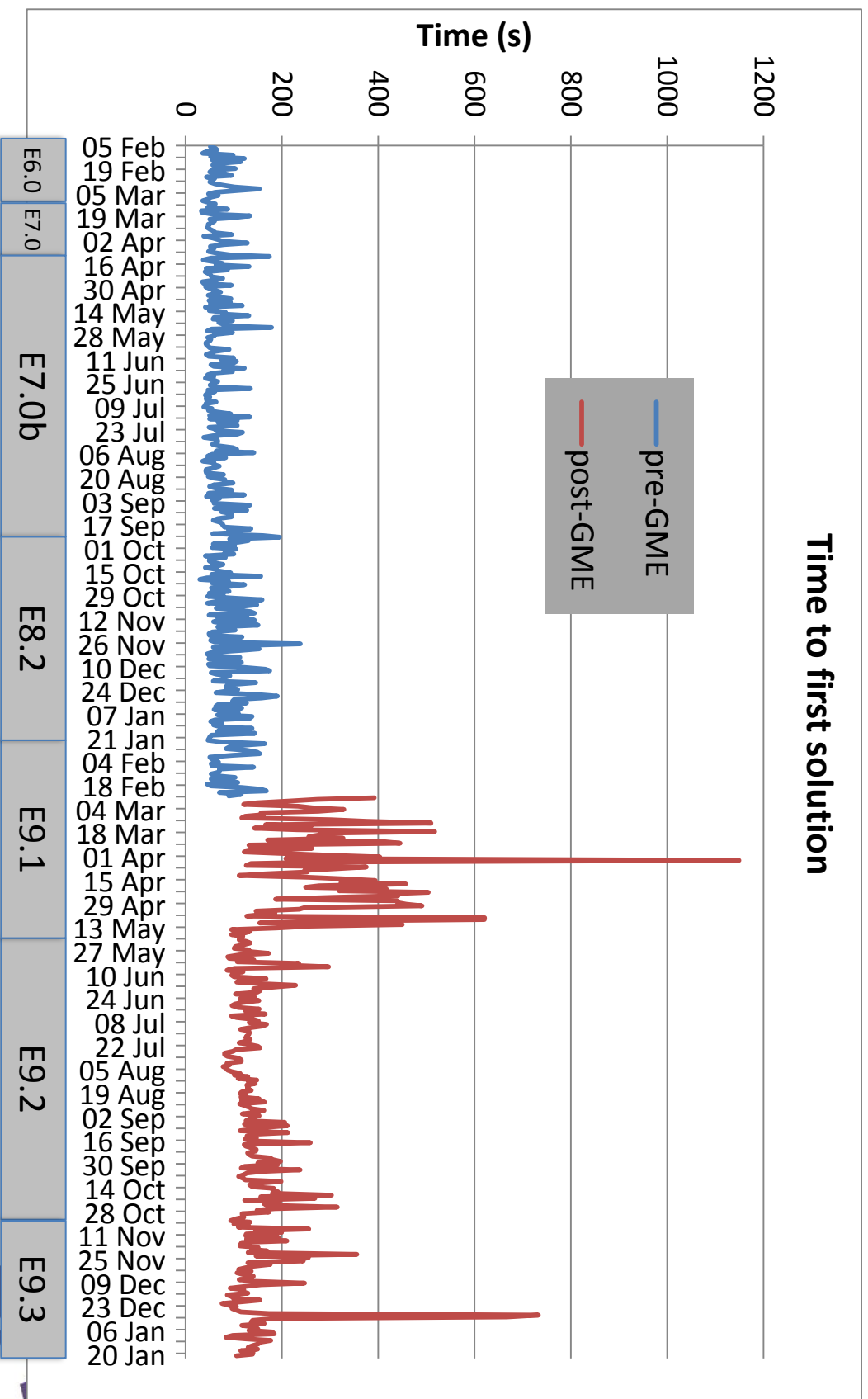
- #Merit orders : x 1.4
- #PUN steps cagr: 81%



\* Period 25/02/201X – 09/07/201X

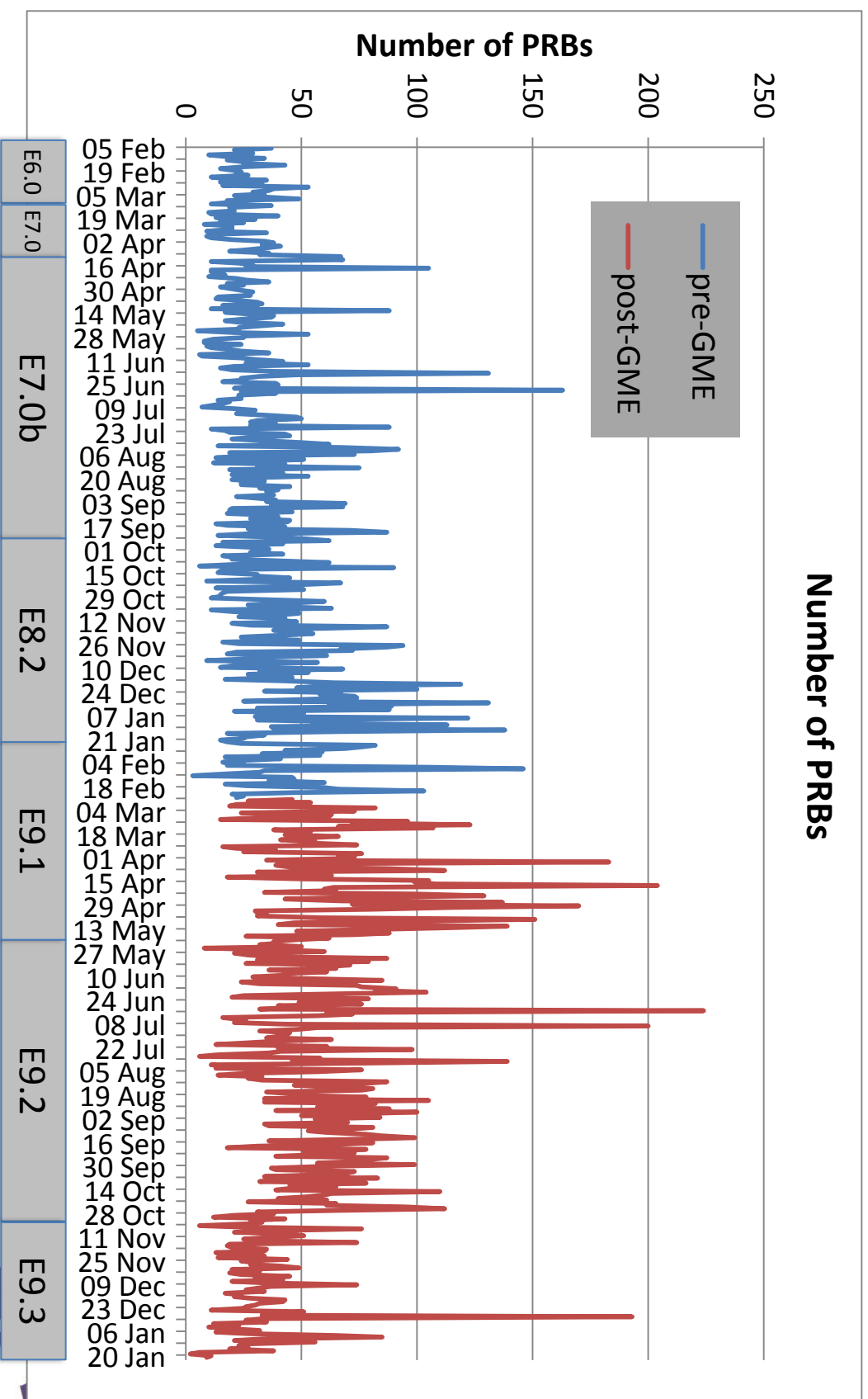
# Statistics - PCR Algorithmic Performance

PCR algorithm performance update – Time to first solution (on MRC scope)



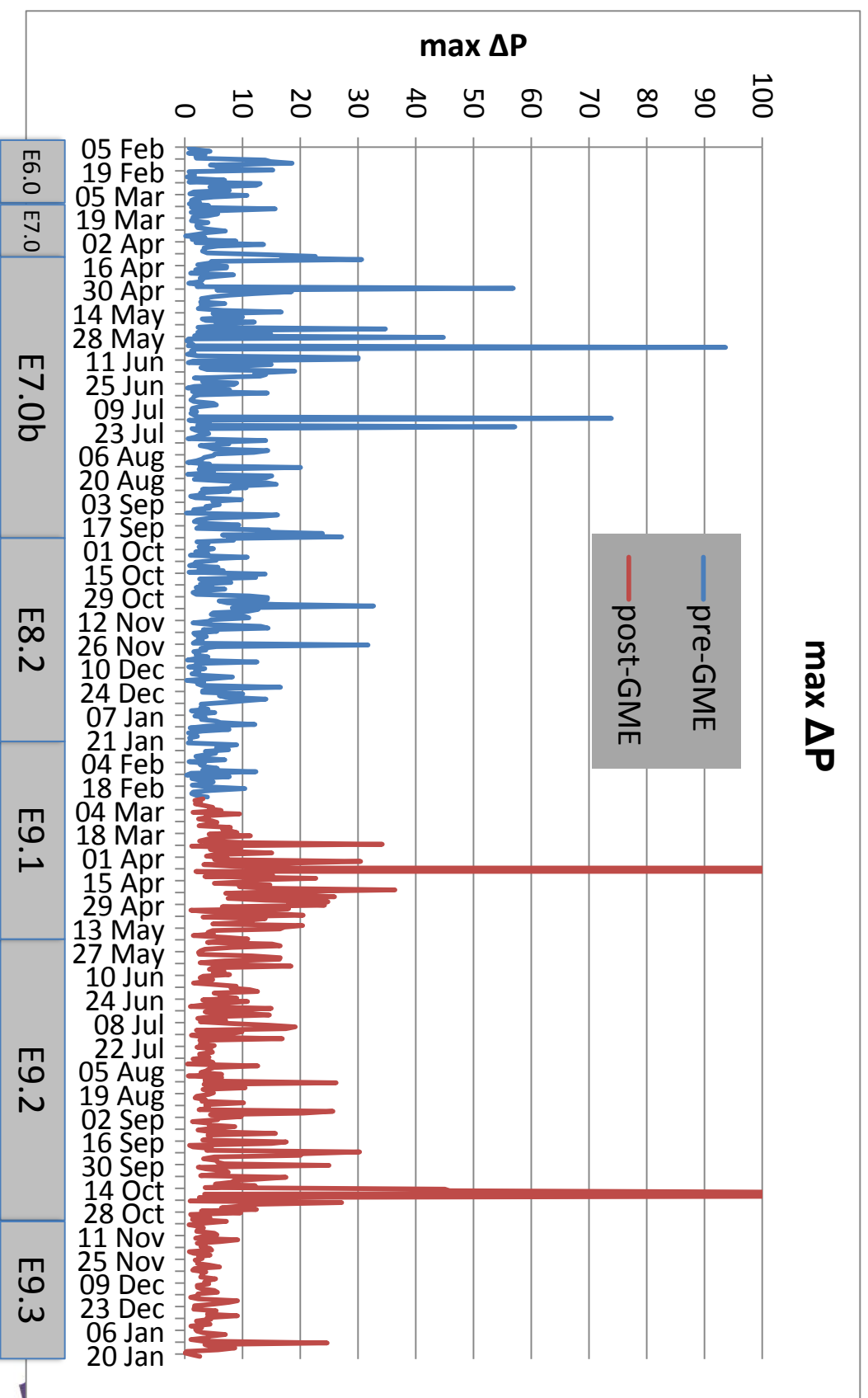
# Statistics - PCR Algorithmic Performance

PCR algorithm performance update – Number of PRBs (on MRC scope)



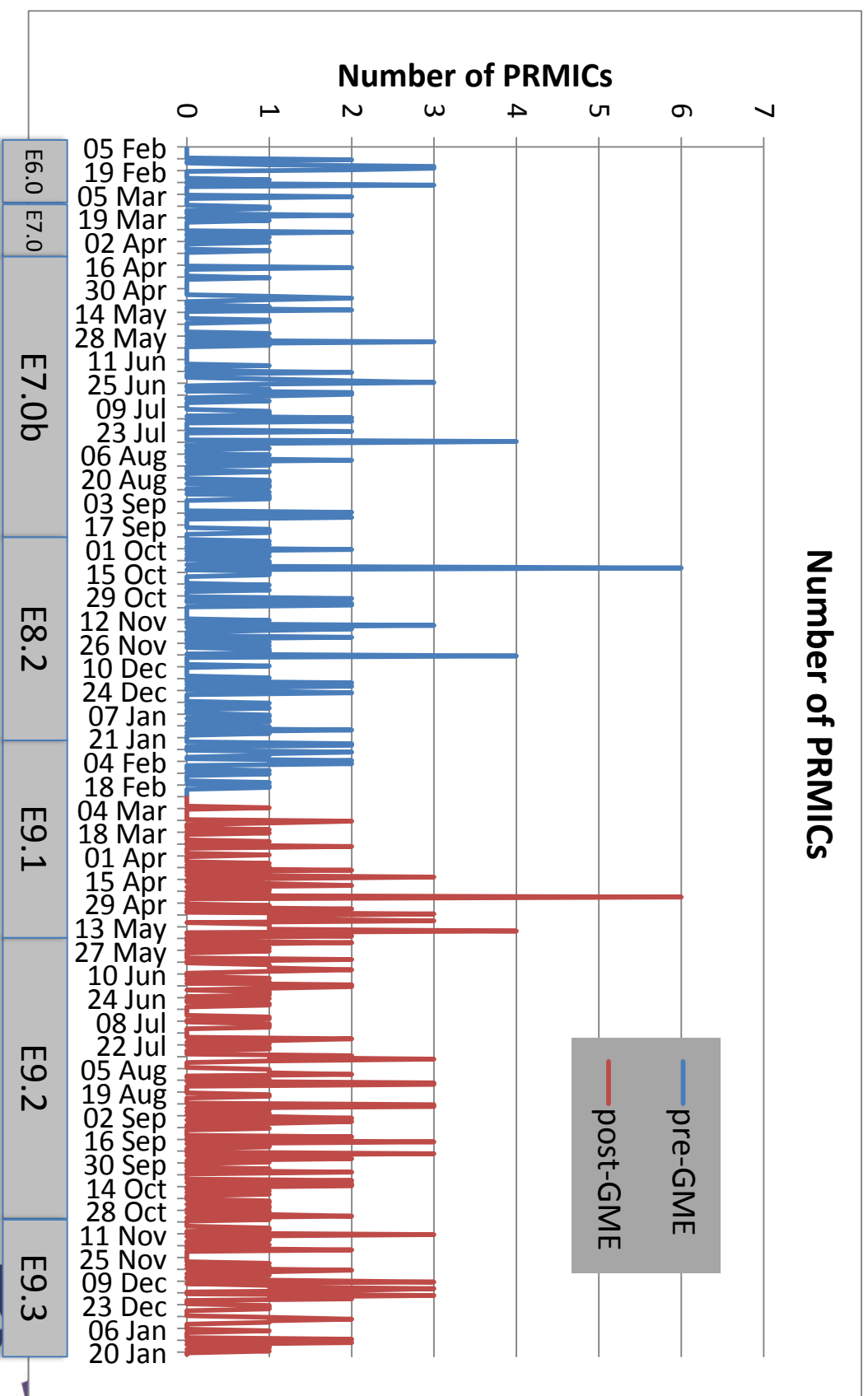
# Statistics - PCR Algorithmic Performance

PCR algorithm performance update – Max  $\Delta P$  (on MRC scope)



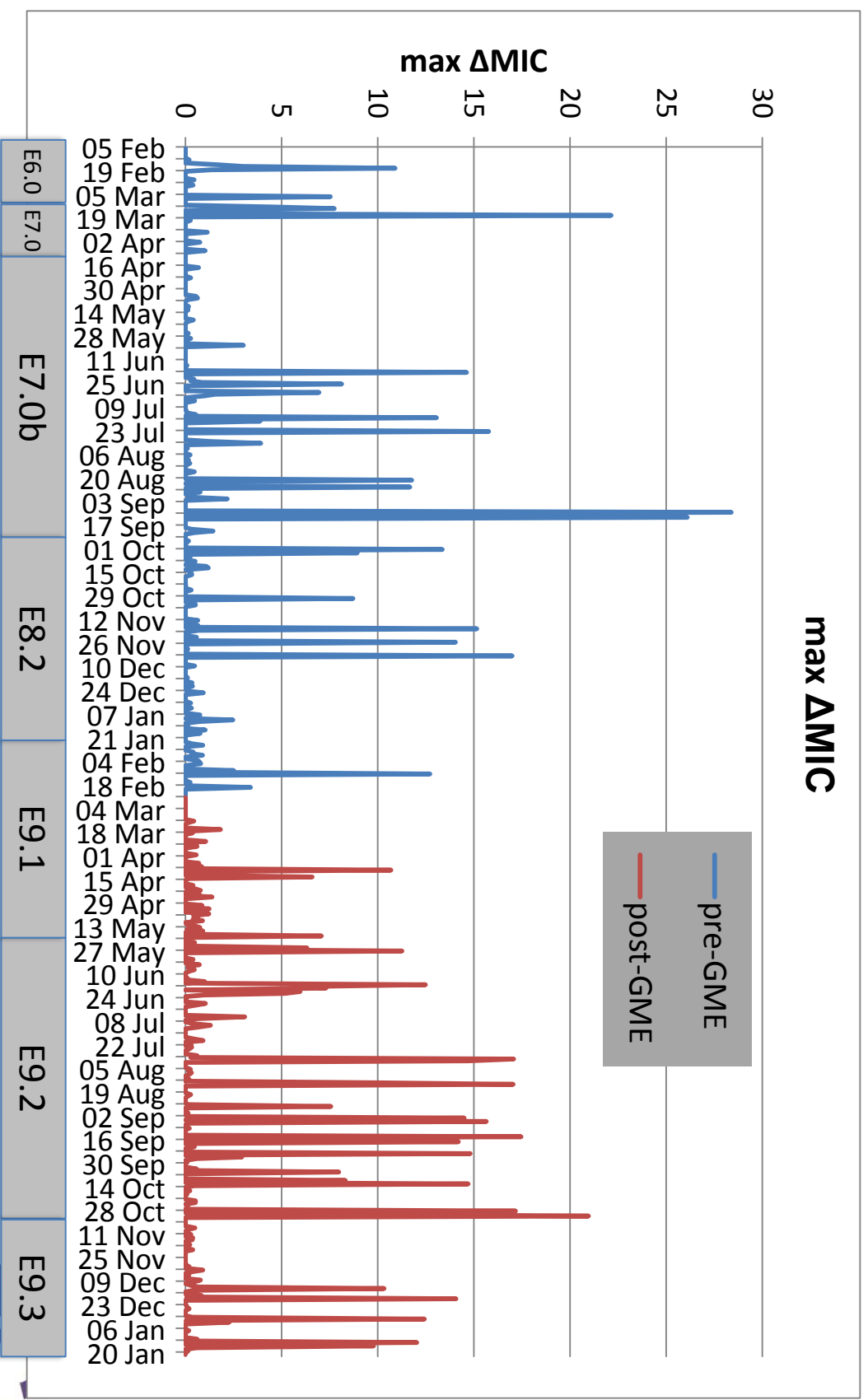
# Statistics - PCR Algorithmic Performance

PCR algorithm performance update – PRMICS (on MRC scope)



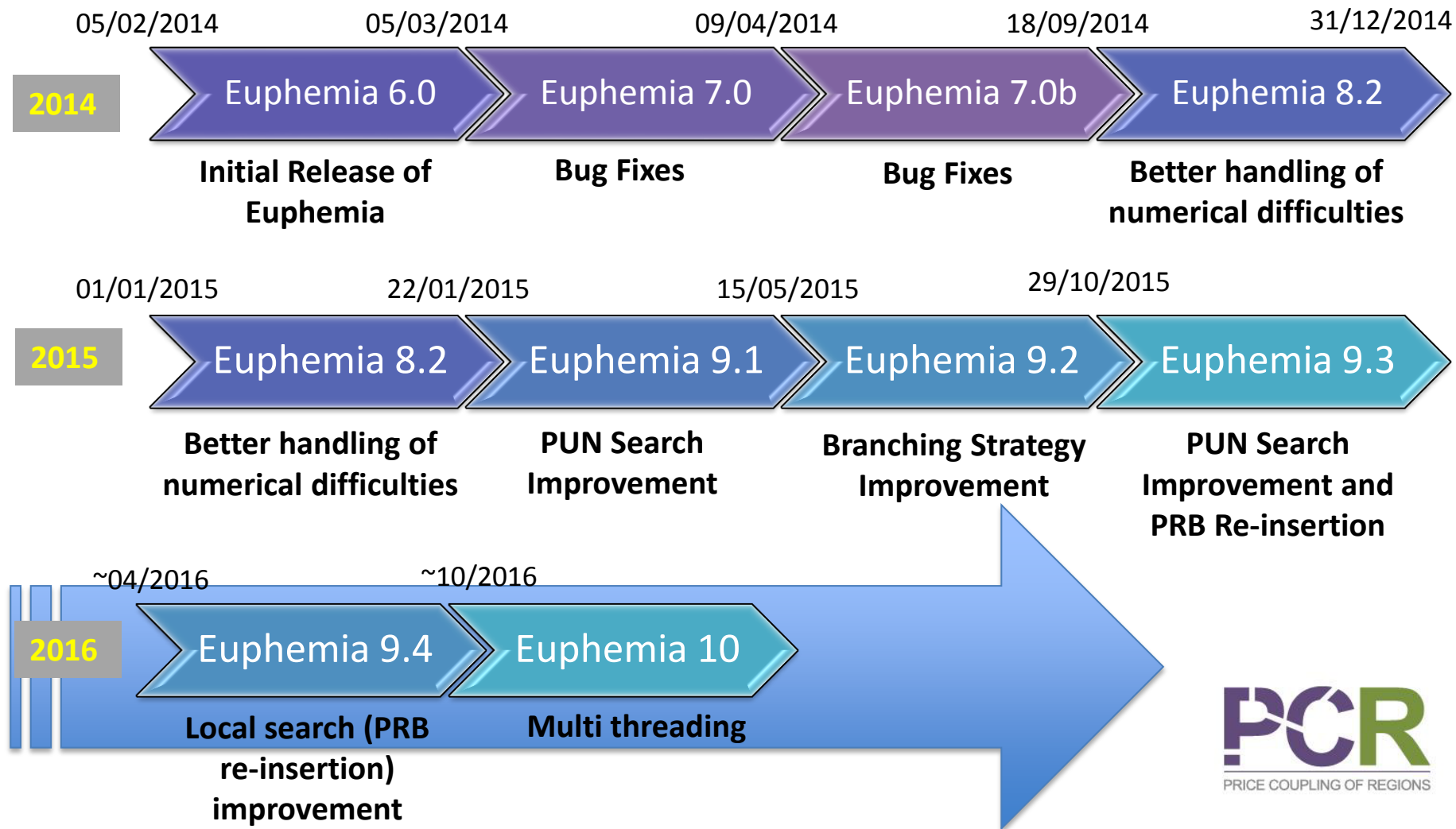
# Statistics - PCR Algorithmic Performance

PCR algorithm performance update – Max  $\Delta$ MIC (on MRC scope)



# Euphemia – Main Releases

In order to cope with the expanding perimeter and the increasing number and complexities of the products that are used, significant performance improvements have been and are continued to be implemented within Euphemia.



# III. System Upgrades



# General PCR status linked to system upgrades

## Upgrade of Oracle 11.2 to Oracle 12.1

- Aiming for better stability of DB due to ending support of Oracle 11.2
- To be implemented in Q1 2016

## New PMB release version 9 – no major changes

- Fixing several minor bugs
- Higher stability and better data handling
- Improvements in messages/logs/errors
- Introduction of interface changes needed for implementation of several functionalities requested by PXs and TSOs
- Improving already implemented functionalities
- Expected go-live in Q3 2016

## Further development expected in 2016

- Upgrade to Windows 2012 servers
- Introduction of new supported browsers
- Improvement of the overall support of PCR processes

# **III. Extensions of Members / Geographic Use of PCR Assets**

## New PCR Full Members

(i.e. Adherences to PCR Agreements)

- 26.10.2015 Polish PX TGE
- 30.10.2015 Romanian PX OPCOM
- Total PCR Full Members: 7 contributing (paying and voting) Parties from 1<sup>st</sup> of February 2016

## New PCR Associate Members

(i.e. «Viewers» -> required signature individual NDA-Confidentiality Declaration)

- 26.07.2015 Croatian PX CROPEX, with market launch on the 10.02.2016\*
- 12.10.2015 Bulgarian PX IBEX, go live – inclusion in PCR on the 19.01.2016\*
- The Serbian PX SEEPX is presently completing its associate membership

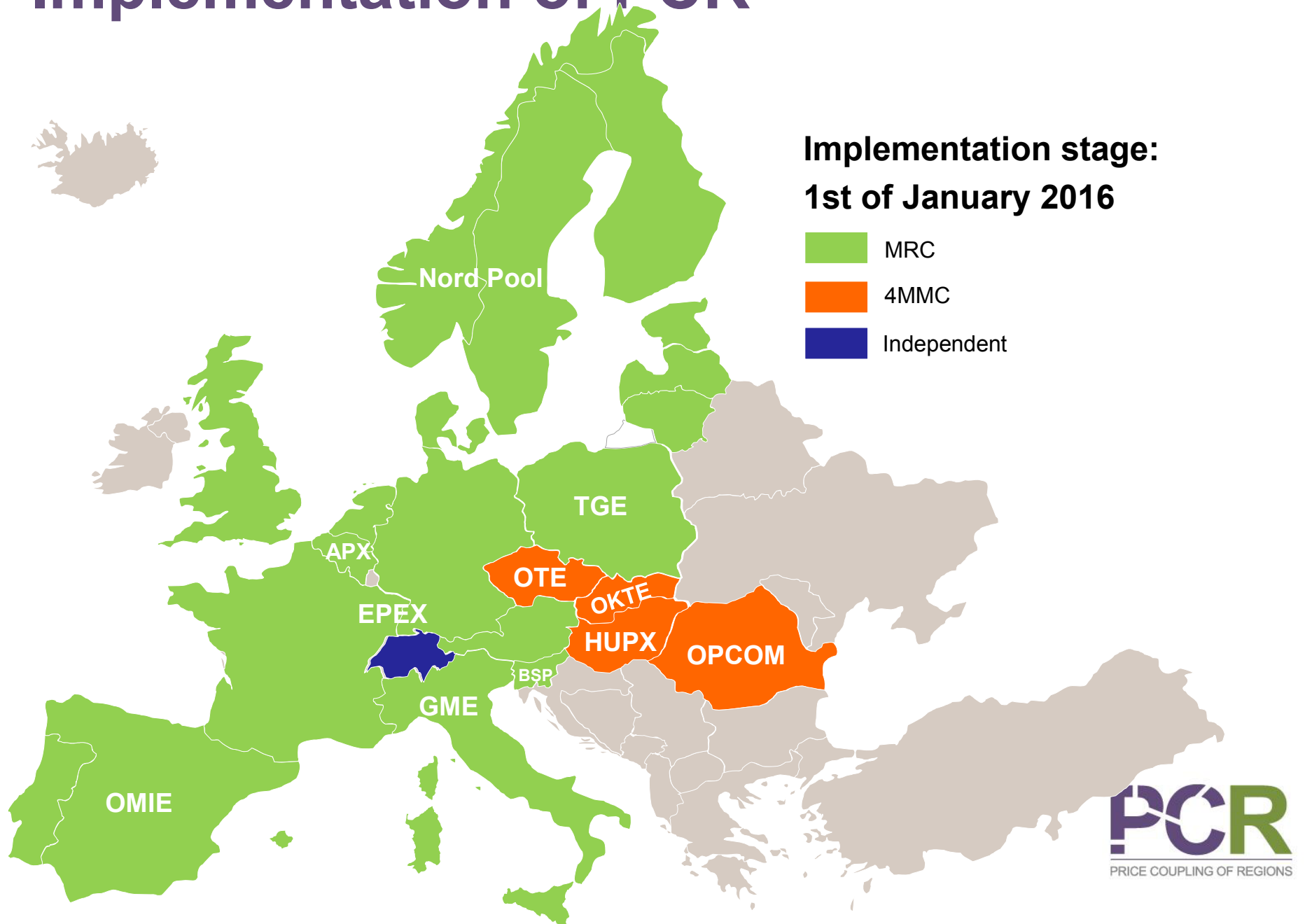
\*Both IBEX and CROPEX join the MRC process as PCR Serviced PXs by Nord Pool

## Recent extensions of the geographic use of PCR assets

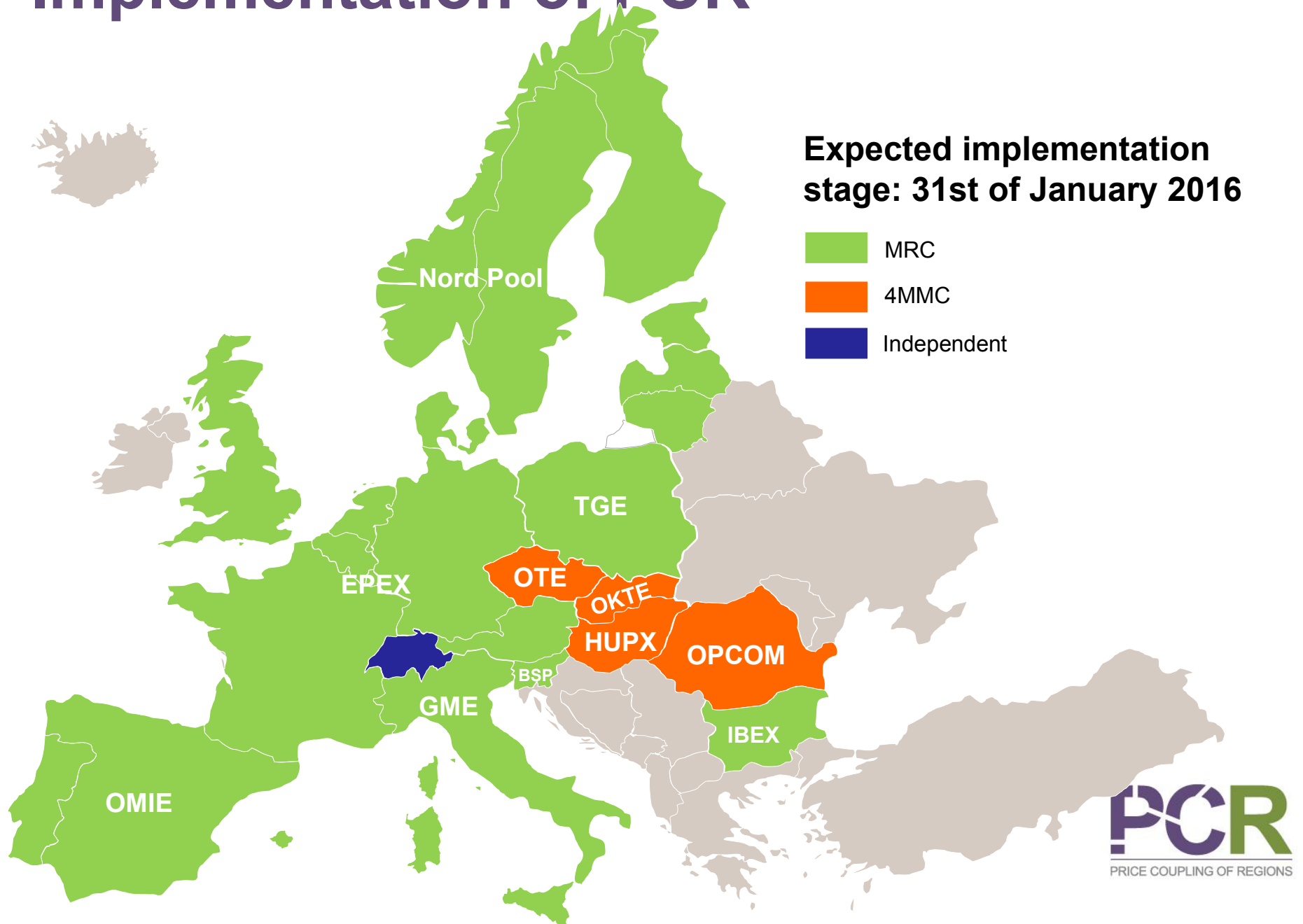
(i.e. New «serviced PX» -> required signature of the Multilateral Liability Agreement-MLA)

- 02.12.2015 Croatian PX CROPEX
- 03.12.2015 Bulgarian PX IBEX
- The Serbian PX SEEPX (only EUPHEMIA to be used) is presently completing the adherence to the MLA

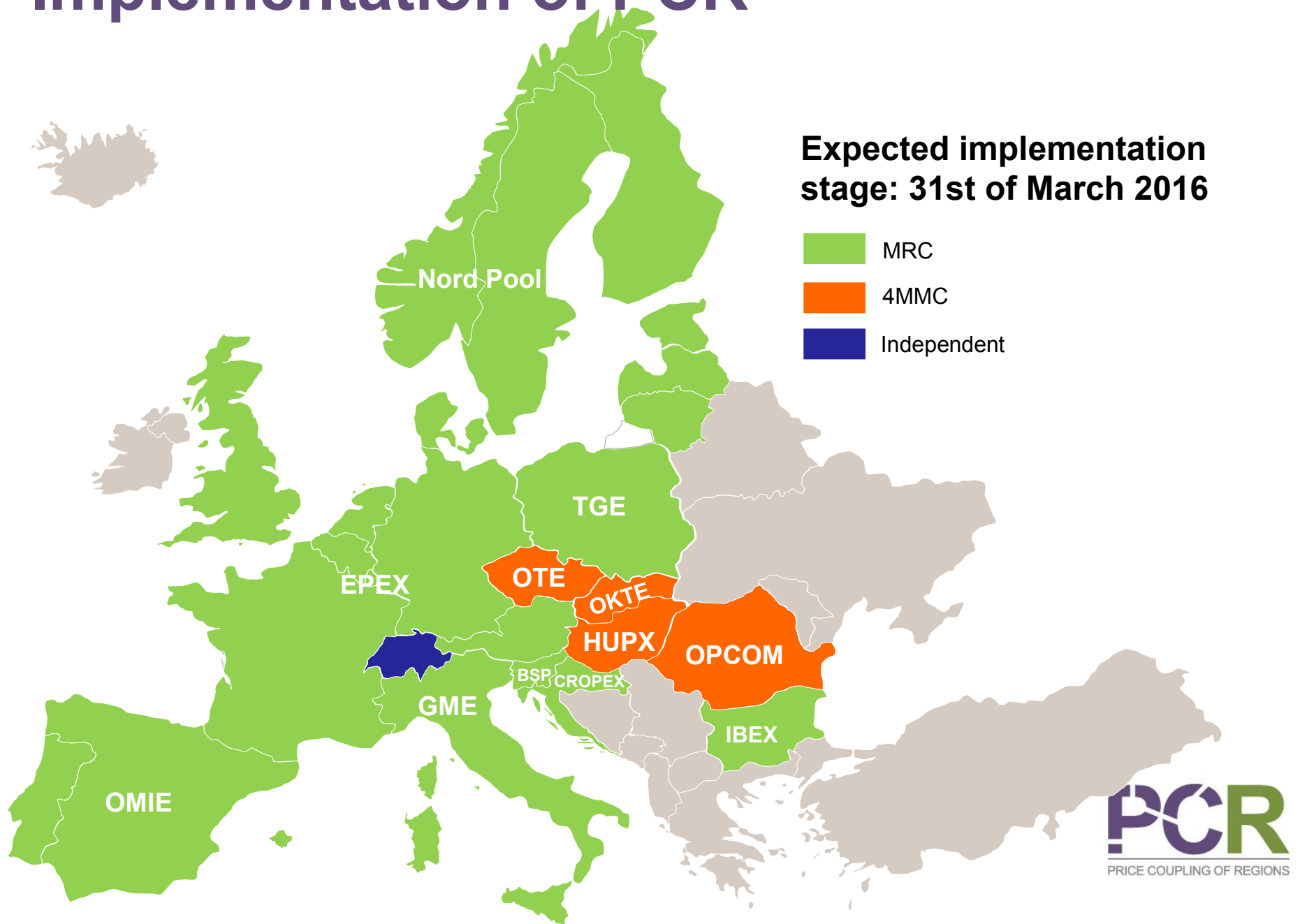
# Implementation of PCR



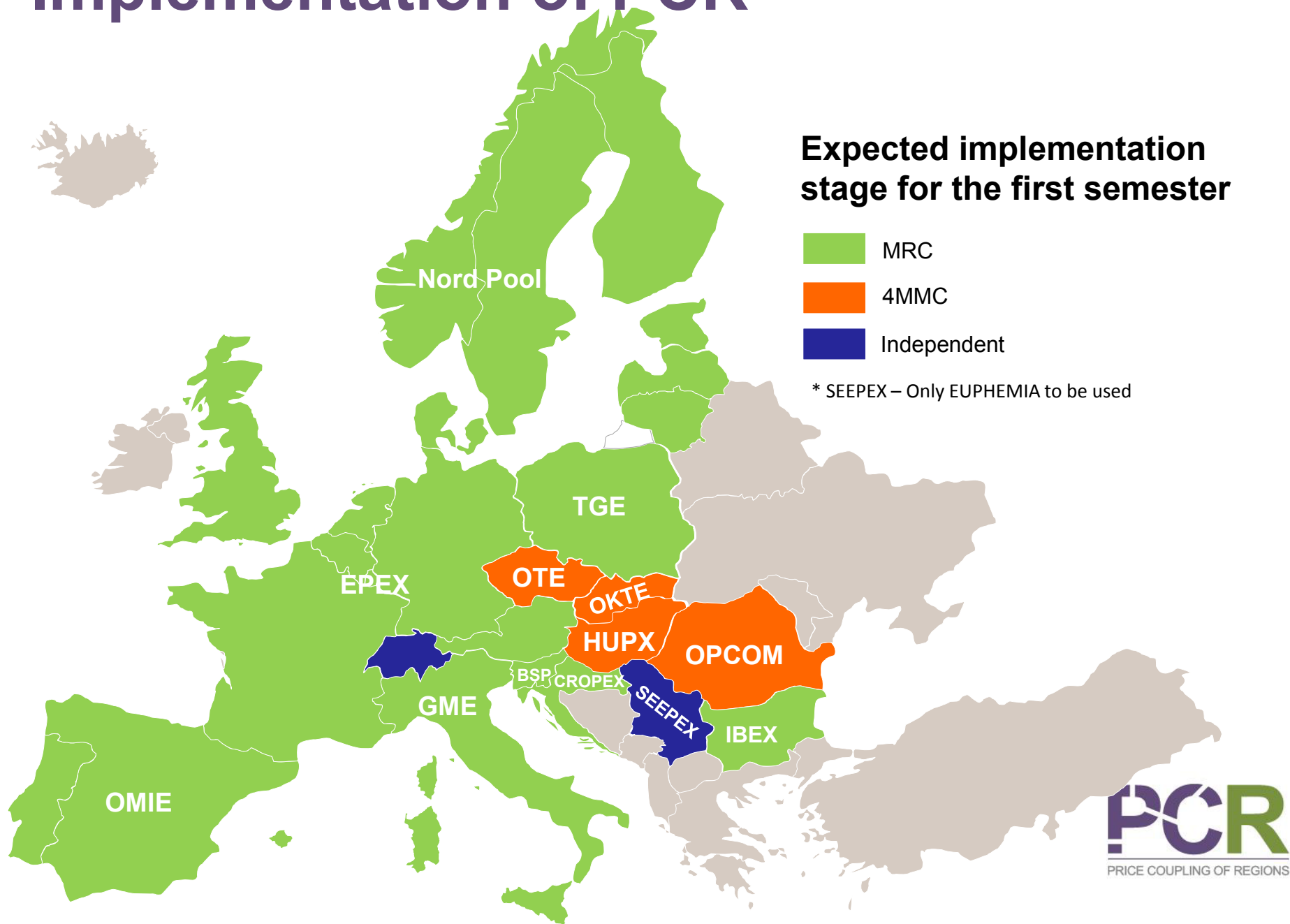
# Implementation of PCR



# Implementation of PCR



# Implementation of PCR



# III. CACM implementation stage



# CACM implementation status

## CACM Task Force meetings – scope of discussions:

### Early implementation stage

- Definition of timing and resources
- Identification of key deliverables

### Range of discussed topics

- High level architecture and organisation
- Contractual structure
- Revisions to existing agreements
- MCO plan content

**Thank you**