



Regulatory Market Monitoring

Wholesale Market Transparency

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- Energy Community Regulatory Board (ECRB) operates based on the Energy Community Treaty as:
 - **Institution** of the Energy Community, **advises** Energy Community Ministerial Council and Permanent High Level Group on details of statutory, technical and regulatory rules and makes **recommendations** in the case of cross-border disputes between regulators
 - **Independent regional voice** of energy regulators in the Energy Community
- **Mission** built on three pillars:
 - Providing **coordinated** regulatory **positions** to energy policy debates,
 - **Harmonizing** regulatory **rules** across borders,
 - **Sharing** regulatory **knowledge** and **experience**

- ECRB **promotes** Transparency in the South-East Europe Electricity Markets via **various tools** such as:
 - Automated Market Monitoring System (SEEAMMS),
 - ECRB Market Monitoring Reports,
 - Specific assessment of the compliance with Commission Regulation (EU) 543/2013 on submission and publication of Data in Electricity Markets
- ECRB's **Recommendation on the adoption of the Transparency Regulation in the Energy Community** was one of the latest achievement of the group's dedicated work in that regard and led to the factual adoption of said Regulation in 2015
- **Transposition Deadline** for Regulation (EU) 543/2013 was set as **24 December 2015**, while the **Deadline for implementation** was set for **24 December 2016**
- **ENTSO-E supported CPs** entities to submit, collect and publish their Electricity Market Data at the **central** Electricity Market Fundamental Information Platform (**EMFIP**) operated by ENTSO-E and specified by the Regulation 543/2013
- **CPs** that for technical reasons are **not able** to submit Data to ENTSO-E, should publish Data on the website of the national TSO until relevant technical issues are resolved and Data transfer is possible to ENTSO-E

Specific assessment of the compliance with Commission Regulation (EU) 543/2013 on submission and publication of Data in Electricity Markets



Concept of Transparency Regulation (EU) 543/2013

- Transparency was an **element of every legislative package** adopted on EU level since the beginning of Market Liberalisation, as necessary **precondition** for market functioning
- Commission **Regulation (EU) 543/2013** represents an **update** of the **legal basis** for the submission and publication of Data aiming to have harmonised and comprehensive set of definitions and rules, precisising:
 - ✓ **Data and timing requirements were not detailed and precise** enough (previously there were different interpretations which led to different applications; bindingness of regulators` interpretations of these provisions was questioned)
 - ✓ **Relation between TSOs and other Market Participants** (primary owners of Data)
 - ✓ Establish **Information Flows** with **clear roles** and responsibilities
 - ✓ Provide **Centralised publication** of Data
 - ✓ **Avoid potential inconsistency** with **REMIT**
 - ✓ Realise benefits from implementation of Central Publication Platform
 - ✓ Facilitate EnC CPs TSOs to get involved in EMFIP project



Further activities on Transparency in Energy Community

- Transparency is a **precondition** for market functioning
- EU **strengthened** Transparency Requirements even further with **REMIT** by considering an inside information any information that is required to be published by Regulation (EU) 543/2013
- **Implementation** of **REMIT** is also considered by **Energy Community** stakeholders
- ECRB **believes** that a **harmonised Market Integrity** and **Transparency regime** needs to be realized in all SEE, aiming to **create a level-playing field** and preparing the region to **integrate into the pan-European Electricity Market**, via:
 - **Efficient price discovery** by market participation
 - **Empower NRAs to Monitor** Market Abuse, Manipulation and Compliance



ECRB Report on Transparency: Goals and Methodology

- Analyzing **level of Implementation** of CPs in **fulfilling** their **obligations** under Regulation (EU) 543/2013
- **Help** NRAs to **enforce implementation** of the Regulation
- Analyse **possible reasons** for **lack of data** publication and provide **envisaged time schedule** for its fulfilling
- Present **improvement trends** by **comparing** the current publication level with results of previous years
- Evaluates **level of compliance** with Data publication requirements of Transparency Regulation in CP
- Results are presented within the following chapters:
 - Overall scoring in terms of publication of Data Regulation 543/2013;
 - Overall scoring in terms of publication of Data on ENTSO-E EMFIP;
 - Comparative performance of publication items by groups:
 - Load; Transmission; Generation; Balancing

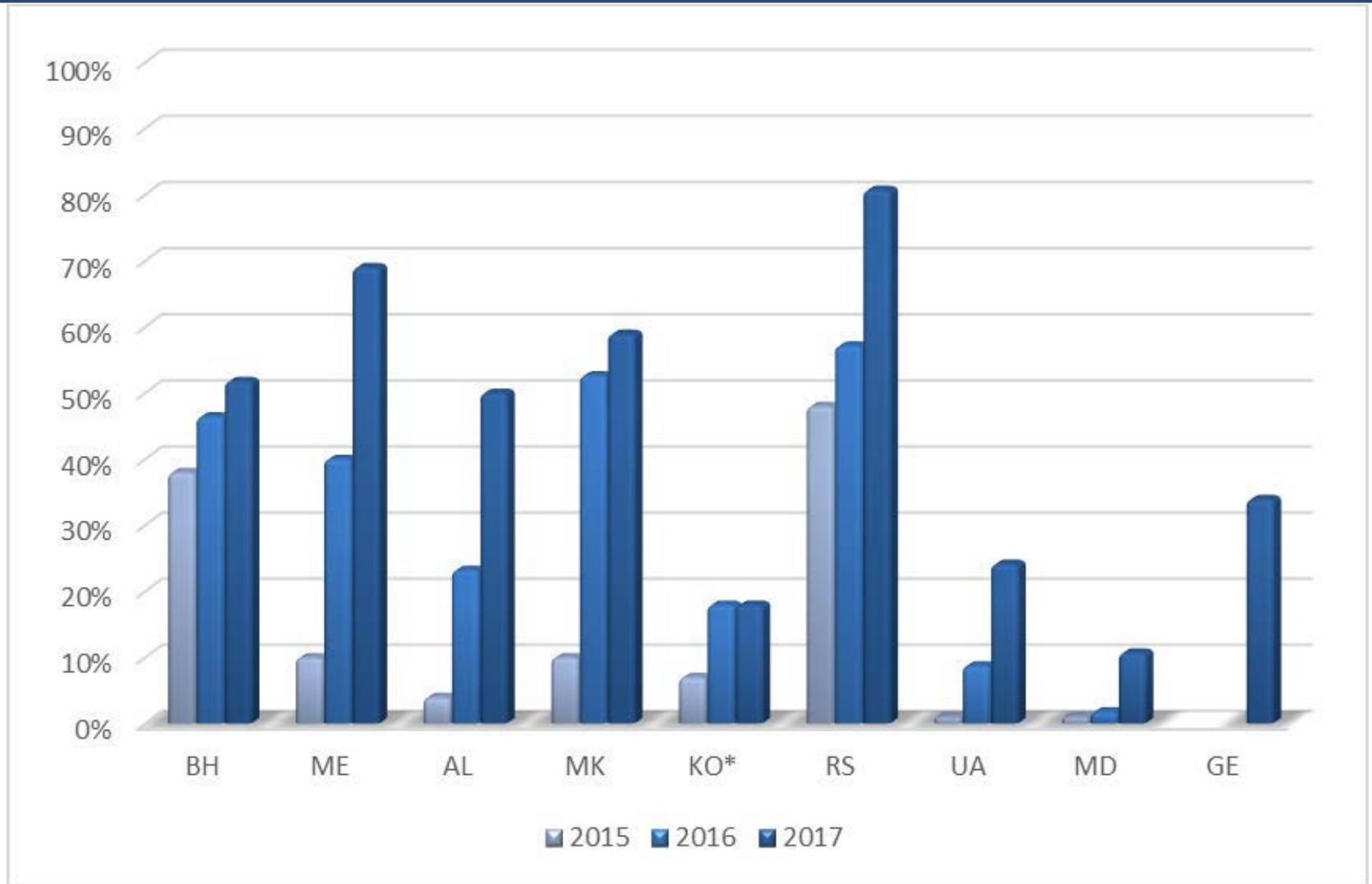
- **Certain progress** has been achieved on **Transposition** of the Transparency Regulation
- However, **implementation**, i.e. publication of complete set of information as required, is **lagging behind**...
- **Level of Implementation** is very **heterogeneous** within **CPs** whose TSOs are members of ENTSO-E, being the front-runners, and all others appearing as laggards, caused by:
 - Transparency Regulation's **concept** to **centrally publish** Data through platform operated by ENTSO-E
 - Transparency has been **part of previous legislative packages**; old CPs leading in implementation comparing to new CPs

- Information to which extent individual CPs transposed Regulation (EU) 543/2013 into their national legislative framework (lack of Legal Basis requiring Data Publication is reason triggering lack of *de facto* compliance and an argument for inability of regulators to enforce implementation):
 - **Albania and Montenegro:** national legislation defines the obligation for data publication, however, without transposing Regulation (EU) 543/2013 completely. In both jurisdictions secondary acts on data publication are required and drafted but not yet adopted.
 - **Bosnia and Herzegovina:** legislation on state level imposes an obligation on ISO to publish Data on transmission capacity and ancillary services, including the right to request relevant data from market participants. On entity level the various market rules include obligations to report on demand forecast, the use of distribution networks and contracted supply. Obligations to publish specific data exist in the applied rules for allocation of cross-border capacity, market rules and balancing rules. However, Regulation (EU) 543/2013 as such is formally neither transposed into national legislation nor regulatory rules.

- **Georgia:** Regulation (EU) 543/2013 is not transposed yet.
- **Kosovo***, **fYR of Macedonia** and **Ukraine:** national legislation only includes general obligations for Data keeping, reporting and provision is defined by Law. However, the specific requirements of Regulation (EU) 543/2013 are not transposed yet.
- **Moldova:** transposition of Transparency Regulation requires a secondary act by the national regulator that is under preparation but not adopted yet.
- **Serbia:** Regulation (EU) 543/2013 was transposed via the TSO's Rules for Publication of Key Market Data. To reach full compliance, changes in national legislation are required, among which Energy Law, to allow for publication of data on generation units, which existing legislation considers as commercially sensitive information.

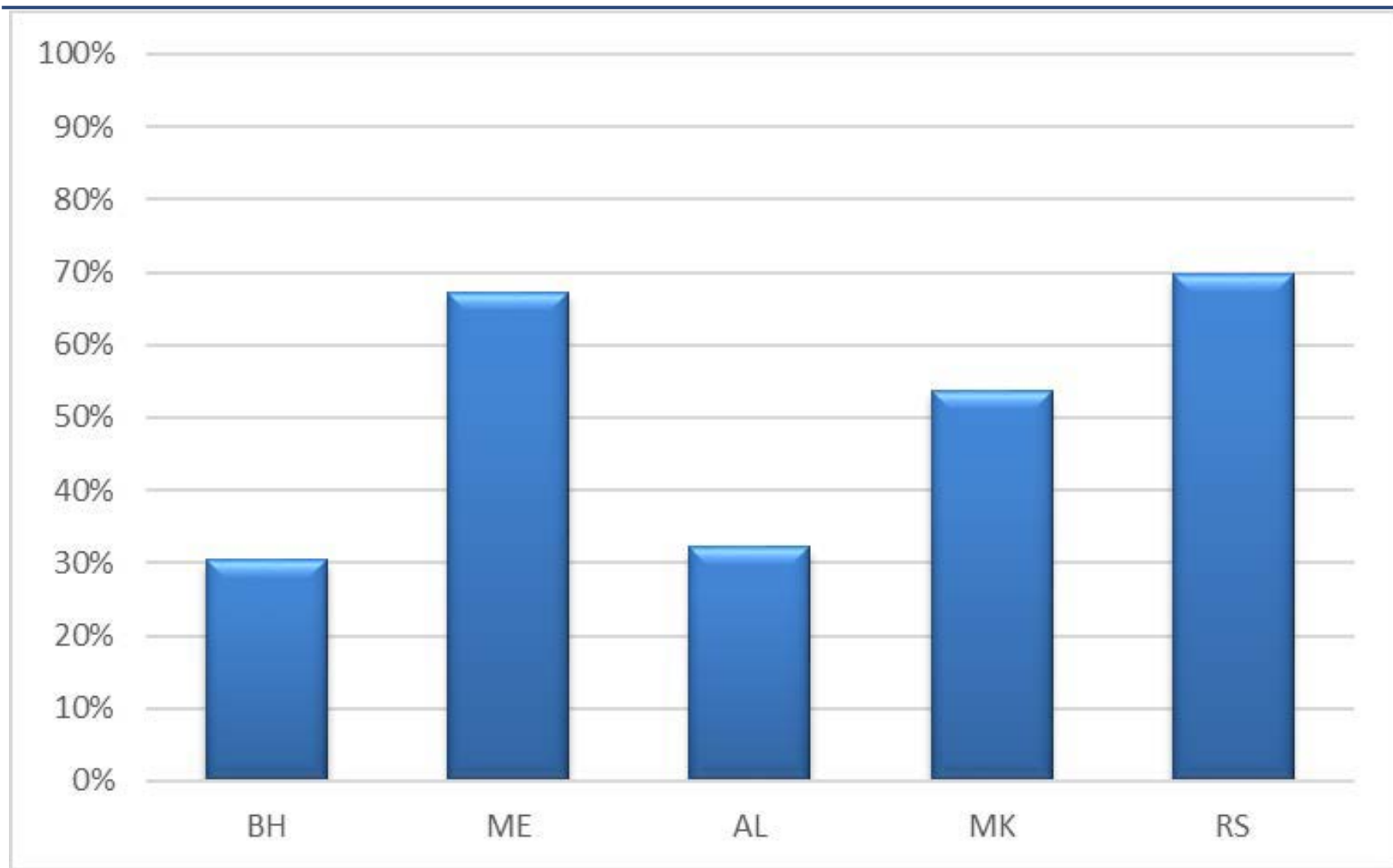
Implementation and *de facto* compliance:

Overall scoring in terms of publication of data pursuant to Regulation 543/2013
(incl. Local and ENTSO-E EMFIP publication)

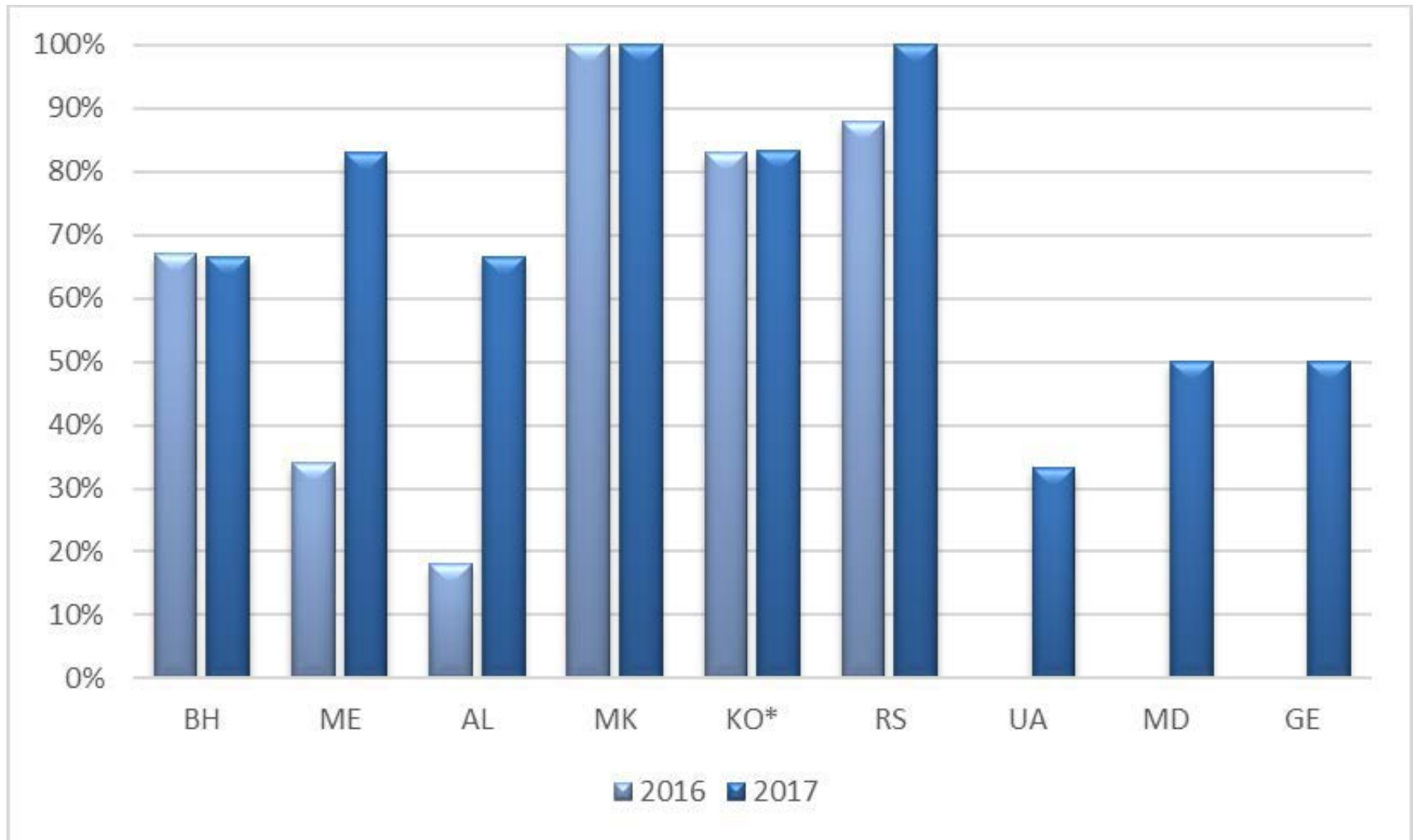


Implementation and *de facto* compliance:

Overall scoring in terms of publication of data on ENTSO-E Transparency Platform (2017)

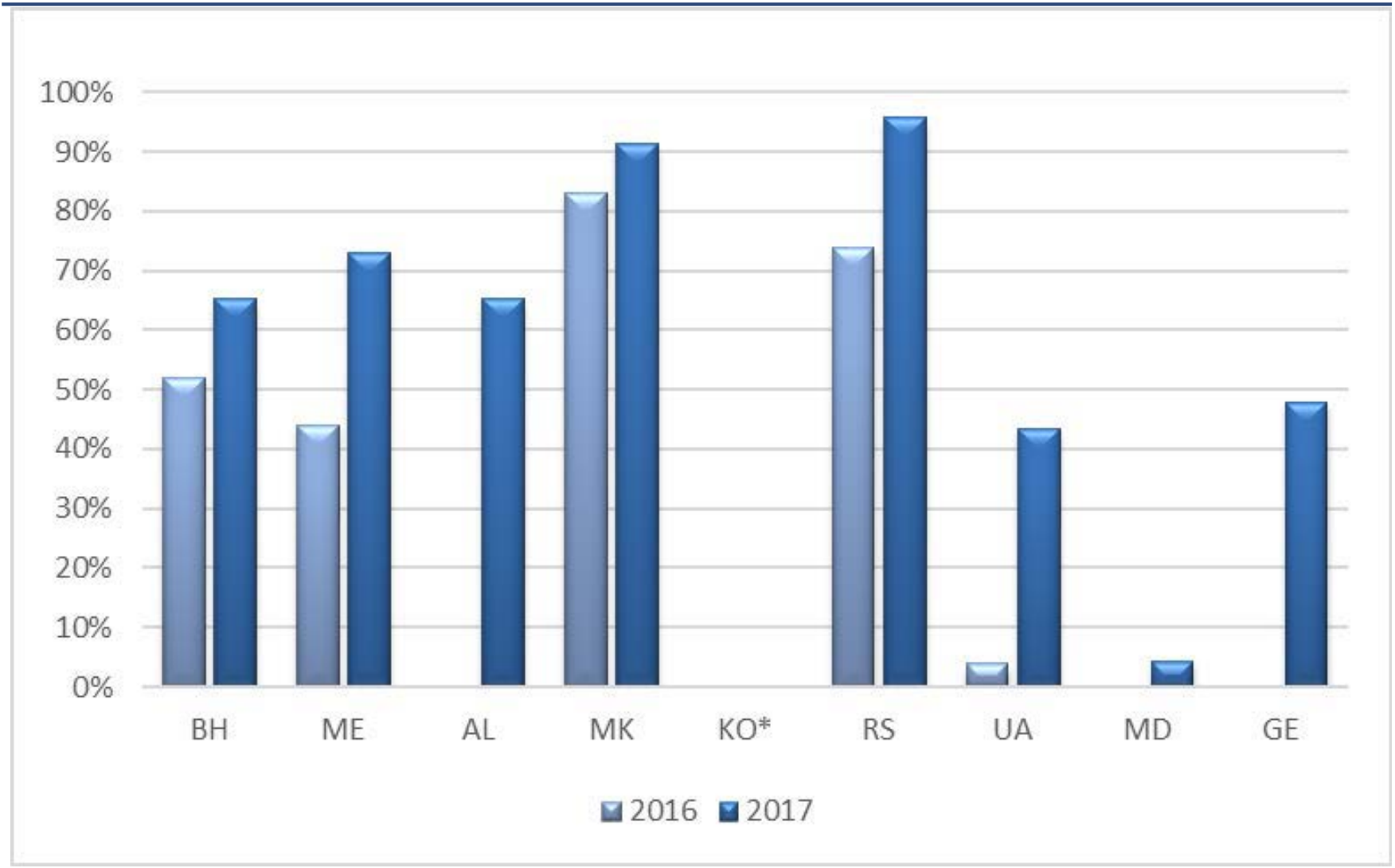


Implementation and *de facto* compliance: Publication of items related to Load

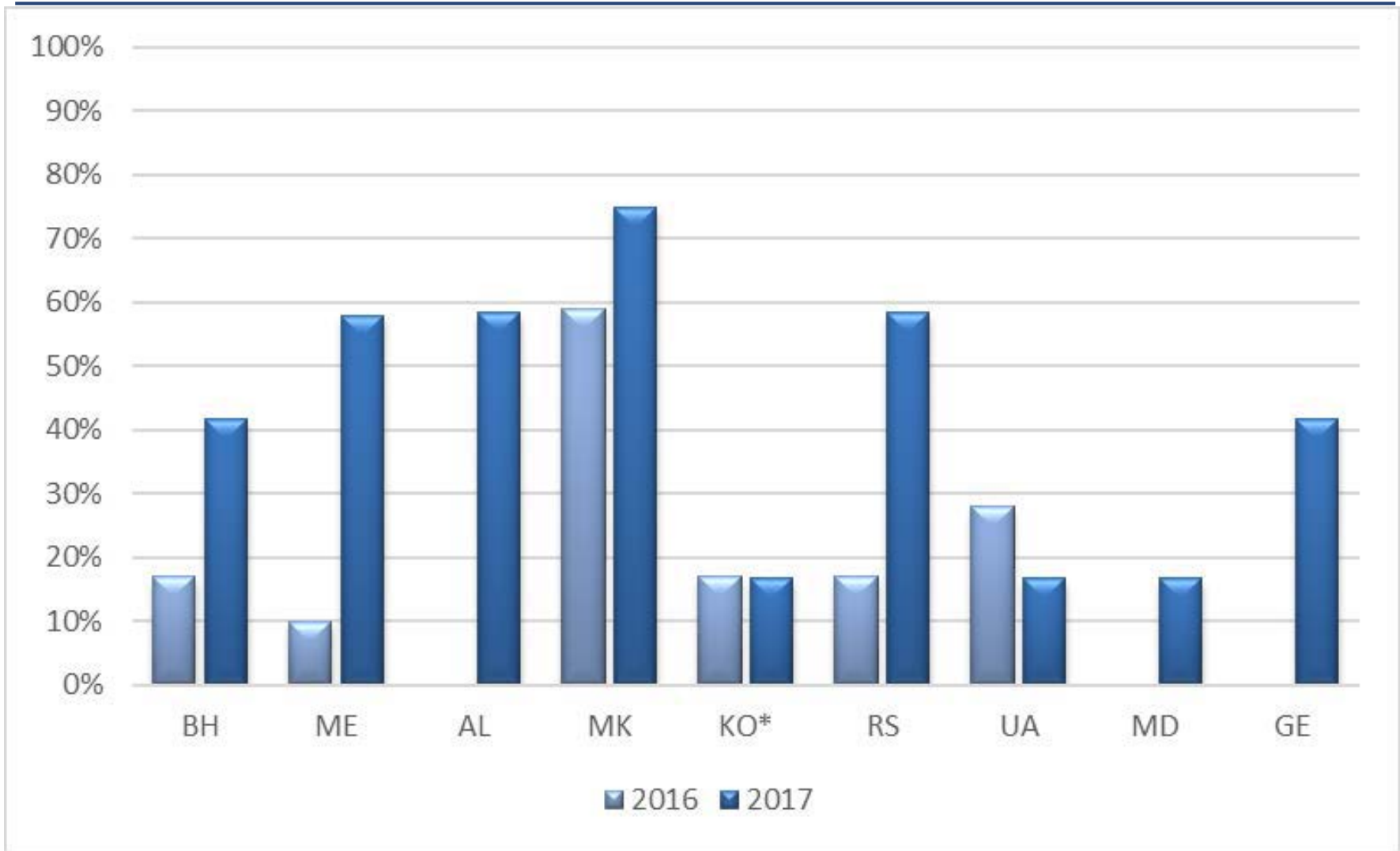


Implementation and *de facto* compliance:

Publication of items related to Transmission

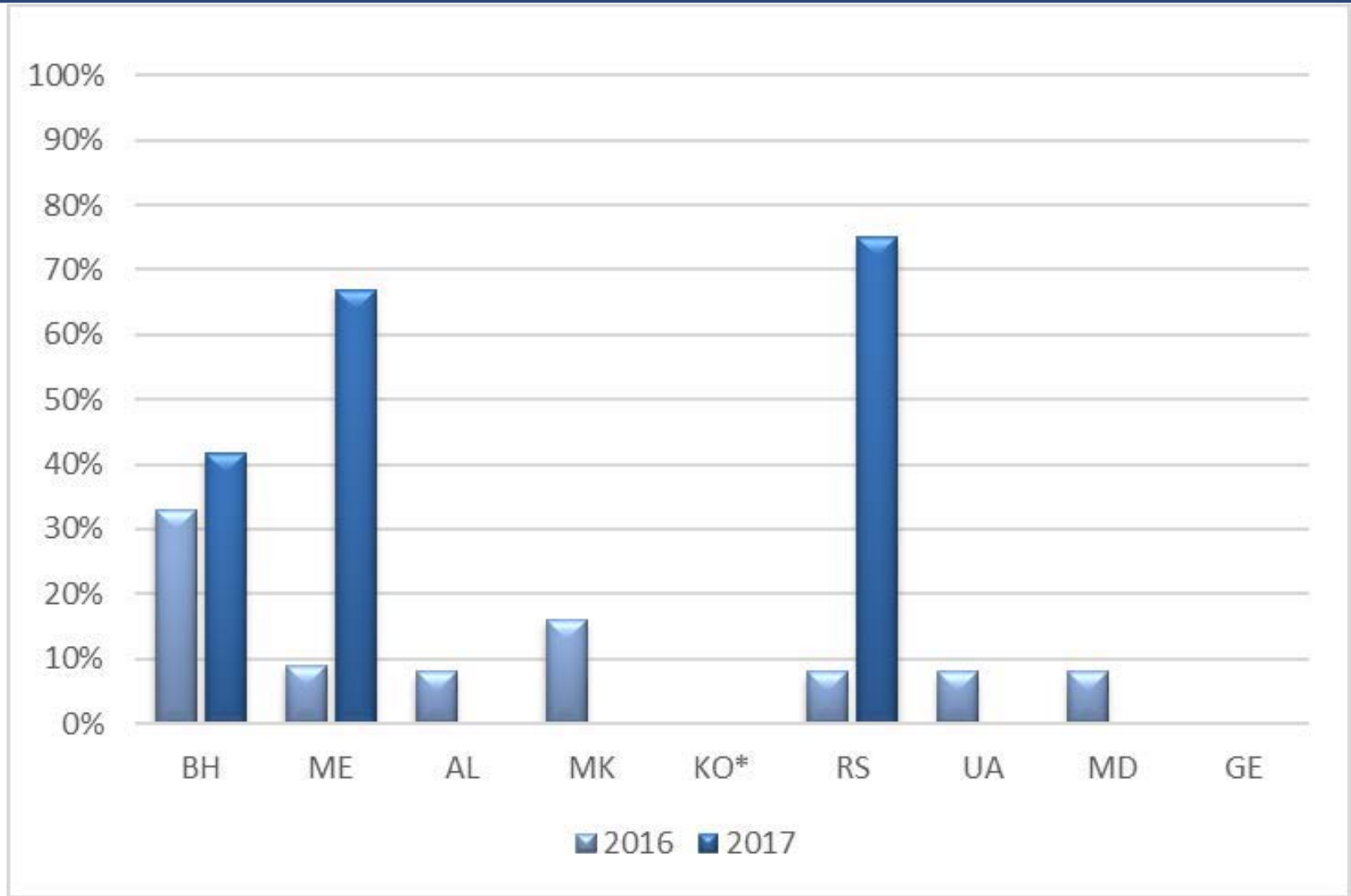


Implementation and *de facto* compliance: Publication of items related to Generation



Implementation and *de facto* compliance:

Publication of items related to Balancing





Conclusions and Recommendations: Review on CPs progress

- Report shows **different progress** made by **CPs** in **implementing Regulation (EU) 543/2013**
 - Serbia is the front-runner among CPs;
 - Montenegro, Albania, Bosnia and Herzegovina and fYR Macedonia are progressing;
 - Ukraine, Moldova, Kosovo* and Georgia are significantly lagging behind
- Network and Market Data **Availability** and **Transparency** by tendency **increases** along with the **3rd Internal Energy Market Package** Transposition and Electricity Market development
- **ECRB emphasises the importance of Transparency for Electricity Market development and, thus, encourages regulators to ensure enhanced compliance of their National Market Participants with Data publication Requirements of Regulation (EU) 543/2013**

Conclusions and Recommendations:

Different level of CPs cooperation with ENTSO-E Platform of Availability of Data

- **Not all data**, that is locally published, is at the same time **available** on EMFIP – **reasons** are:
 - Lack of secondary legislation and/or
 - Set-up of IT platform for communicating data to ENTSO-E Transparency Platform
 - **Next Step: Reasons** behind non-publication of certain Data and lack of cooperation with EMFIP per each CP, aiming to identify barriers for full compliance and prospects will be conducted in the **next report**
 - **Lack of ENTSO-E membership** *per se* does **not create** a barrier for delivering data to EMFIP → ENTSO-E declared **openness** to receive and publish data for non-member markets, with requirement that TSO transferring data meets the operational requirements set by ENTSO-E
 - **ECRB urges the need for CPs TSOs to increase level of Data submission to ENTSO-E Transparency Platform and calls upon regulators to actively promote related progress**
 - **ECRB encourages Georgia, Kosovo*, Moldova, Ukraine to start and/or increase the level of Data items submission to EMFIP**
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Market Monitoring of Cross-Border Capacities

ECRB Market Monitoring Guidelines

Automated Market Monitoring System (SEEAMMS)



Market Monitoring Project for South East Europe

- Originated from the 2006 EnC Athens Forum that invited USAID to support EnC NRAs in developing common standards for Monitoring the activities of TSOs
- **Result:** Development of **SEE Market Monitoring Guidelines** prepared by USAID-supported consultant *Potomac Economics* under the umbrella of ECRB EWG → approved by ECRB in April 2014 → important step in supporting cooperation among NRAs on MM in accordance with Regulation (EC) 714/2009 and Directive 2009/72/EC
- **Purpose: Harmonize** and **coordinate** activities of NRAs in Monitoring Electricity Transmission Grid activities to ensure that network users are granted **access** to the **maximum amount** of transmission transfer capacity on a non-discriminatory basis, including
- Monitoring the control of transmission transfer capacity by individual participants in order to **identify potential market power**
- SEE MM Guidelines **define Data** required to implement Market Monitoring, specific **Monitoring Indicators, Thresholds** to establish reasonable **range for Indicator values** and **actions for regulators** when the indicator is outside the threshold ranges

- **Indicator 1 - Base Case Exchange (BCE):** compares Base Case Exchange assumptions in the Network Model to Cross-Border schedules
- **Indicator 2 - Already Allocated Capacity (AAC):** Compares AAC to peak commercial schedules
- **Indicator 3 - Critical Facilities:** Compares estimated flows on critical facilities in the Network Model to actual flows on the facilities
- **Indicator 4 - Load Forecast:** Compares forecast load in the Network Model to actual load
- **Indicator 5 – Generation Forecast:** Compares forecast generation in the Network Model to actual generation
- **Indicator 6 – Transmission Reliability Margin (TRM):** Compares actual TRM values to proxy TRM values calculated using control area balance data and net exchanges
- **Indicator 7 – Market Share:** Calculates market shares using auction data on cross-border interconnections

- Necessary Data are **provided by TSOs**
- **NRAs** direct **TSOs** to **provide Data** required by Guidelines, **complete Indicators** on regular basis and **intervene** in cases of sustained variance from the predefined thresholds
- **Guidelines** focus on **Methods** and **Data** used by TSOs in calculating NTC on Cross-Border interconnections
- **Monitoring access to the grid** means to **verify** that Methods and Data being used in estimating transfer capability are **consistent** with **EU Regulations** and **Directives**
- It should **not necessarily** be interpreted to signal **doubt** about the **conduct of TSOs**
- Guidelines seek to identify circumstances that are consistent with a hypothesis of market power

- Along with Guidelines, **USAID supported** development of South East Europe Automated Market Monitoring System (SEEAMMS) after the **instructions of ECRB EWG**
- **SEEAMMS** allows TSOs (or NRAs) to **upload Data to web-based interface** where Data are stored, processed, and reported to NRAs
- **Dry run** of SEEAMMS started in **2010**; **Regular Run** from **2014**
- SEEAMMS operates on **regional basis** with NRAs acting as the **Regional Monitor Centre** on a **rotating basis**
- **Regular Bi-Annual Reporting** is prepared by ECRB to **summarize** periodic regional SEEAMMS **results** and **explain the consequences** of various MM Indicators → It is based on six predefined MM Indicators plus Indicator of Cross-Border transmission capacity Auction Data

- **Reporting period:** July to December 2017
- **Participation:** Jurisdictions for which national TSOs submitted data to SEEAMMS
- **Geographical Scope:** Albania, Bosnia and Herzegovina, FYR of Macedonia, Georgia, Italy, Kosovo*, Montenegro, Romania and Serbia
- TSOs of Croatia, Bulgaria, Greece, Hungary, Moldova, Slovenia, Turkey, and Ukraine **did not participate** in SEEAMMS


Contacts

Below is a list of contacts for IIR Region Market Monitoring. These contacts were provided by the SEEAMMS participants through the data collection template.

[Download](#)

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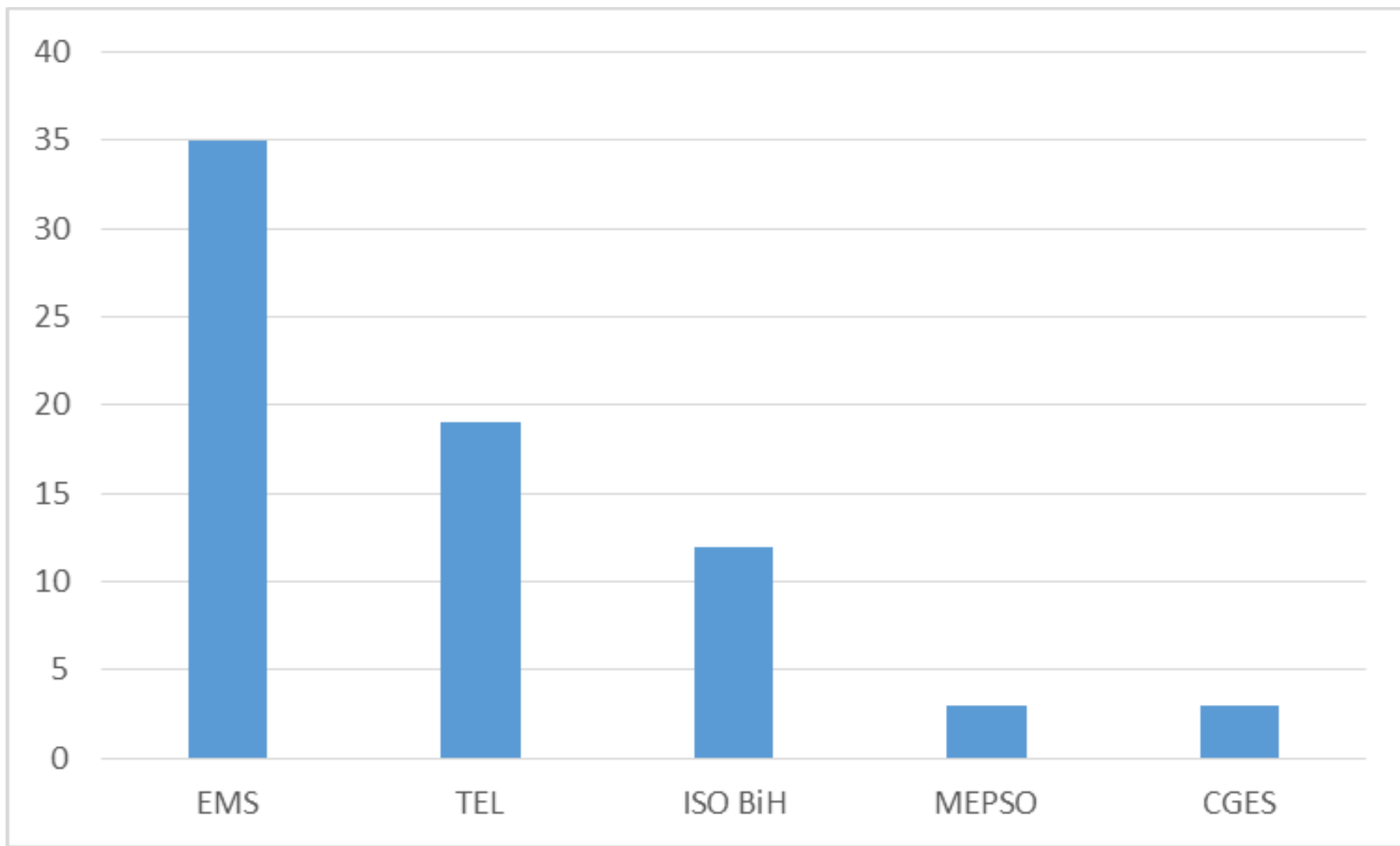
- In April **2017**, ECRB **approved Recommendations** regarding the **Harmonisation of Cross-Border transmission capacity calculations** in electricity, including **two measures** concerning Base Case Exchange (BCE) Indicator and the Transmission Reliability Margin (TRM) Indicator
- In order to prepare these Recommendations, NRAs issued a **number of inquiries to TSOs** regarding **variances in MM Indicators** which made apparent that there exist **certain inconsistencies in TSOs' understanding** and harmonization of BCE and TRM Indicators
- Analyses of the results of Indicator values and the interpretation of these results makes a basis for the Recommendations of this Report

- **Main metric** for Cross-Border Trading Capacity is **Net Transfer Capacity (NTC)**, **calculated** and **defined by TSOs** using **Network Model**
- **BCE** Indicator monitors **BCE assumptions** in Network Model
- BCE assumptions are **forecasts of commercial schedules** in Network Model
- **Purpose** of BCE Indicator is to **monitor the accuracy of BCE assumptions** in order to help **ensuring an accurate Network Model** and, consequently, **accurate NTC values**
- It is important that BCE value represents an **accurate forecast of expected Cross-Border exchanges** → **otherwise**, NTC value will be **inaccurate** and may **underestimate** Cross-Border transmission capacity, and thereby **reduce** opportunities for market activity

- BCE Indicator calculates a percentage **forecast error** between BCE values (**forecast**) and **actual Cross-Border commercial schedules**
- **There is a lack of consistency throughout the region for the interpretation of BCE value**
- **TSOs disagree** on whether BCE assumption **represents a forecast of Cross-Border schedules** or not
- **Conclusions** of this Report are **based** on **review** of ENTSO-E documents as well as **discussions** between NRAs and TSOs of analyzed markets
- It is recommended that **BCE value** should reflect the **best forecast** of **net commercial exchanges** between two TSOs
- According to SEEAMMS records there are **72 BCE violations within the last six month of 2017** on various interconnectors



Distribution of BCE indicator violations among TSOs for the period July-December 2017



- The highest number of violations is recorded for the Serbian TSO-EMS
 - **Explanations on the violations** were provided by EMS and CGES as follows:
 - **EMS:** The forecasted values of exchanges are harmonized in the month M-2 for the month M for which the NTC is calculated. In the South East European region there is the practice that for each month, another TSO has role of the coordinator, whose obligation is BCE harmonization and producing of the regional model which is further used for calculations. Each TSO creates its forecasted exchanges, based on totals which were received from its BRPs, in Serbian case it is PE EPS, and these calculations are communicated to that month's coordinator, who is coordinating them afterwards. EMS proposes BCE values based on historical exchanges. Coordinator harmonizes BCE values, produces the regional model which is further used for calculations and sends TSO table with proposed BCE values for confirmation;
 - **CGES:** BCE indicator for the interconnection CGES-EMS, was in variance due to increased imports of the electricity in the system (October). The price of electricity and the need for it can affect actual exchanges, depending on weather conditions, leading to an increase and decrease in imports or exports in the electricity system, so that it can happen that the actual values can be very different from the forecast values. BCE reference values were agreed two months ahead and not always possible to envisage
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Base Case Exchange Indicator: Results

- As BCE is a **forecast of cross-border exchange**, as a result, BCE indicator is formulated as a **Forecast Error**
 - Specifically **high violations** have been monitored for **EMS** in this respect → mainly the **result** of the fact that EMS has a **large number of interconnections** that are monitored, compared to other systems
 - In October 2016 **ENTSO-E** proposed using “**Net-Positions**” **approach** for creating a common grid model → slightly different from BCE as it calculates the net position considering all interconnections
 - NRAs would **benefit** if TSOs could make a **presentation** or report for ECRB EWG explaining
 - It may be necessary to **replace BCE Indicator with Net Positions Indicator** that would measure Forecast Error in Net Positions in the entire Control Area rather than the current approach in measuring the forecast error on each interconnection individually → ECRB should **further investigate** that
 - **Recommendation:** Given NRAs’ responsibilities to monitor TSOs activities related to Cross-Border NTC values, NRAs shall require BCE values based on a forecast of Net Commercial Schedules, using recent historical data, unless good cause exists to use other methods → ECRB should **further evaluate need** to use Net Positions Indicator in line with Recommendations of ENTSO-E.
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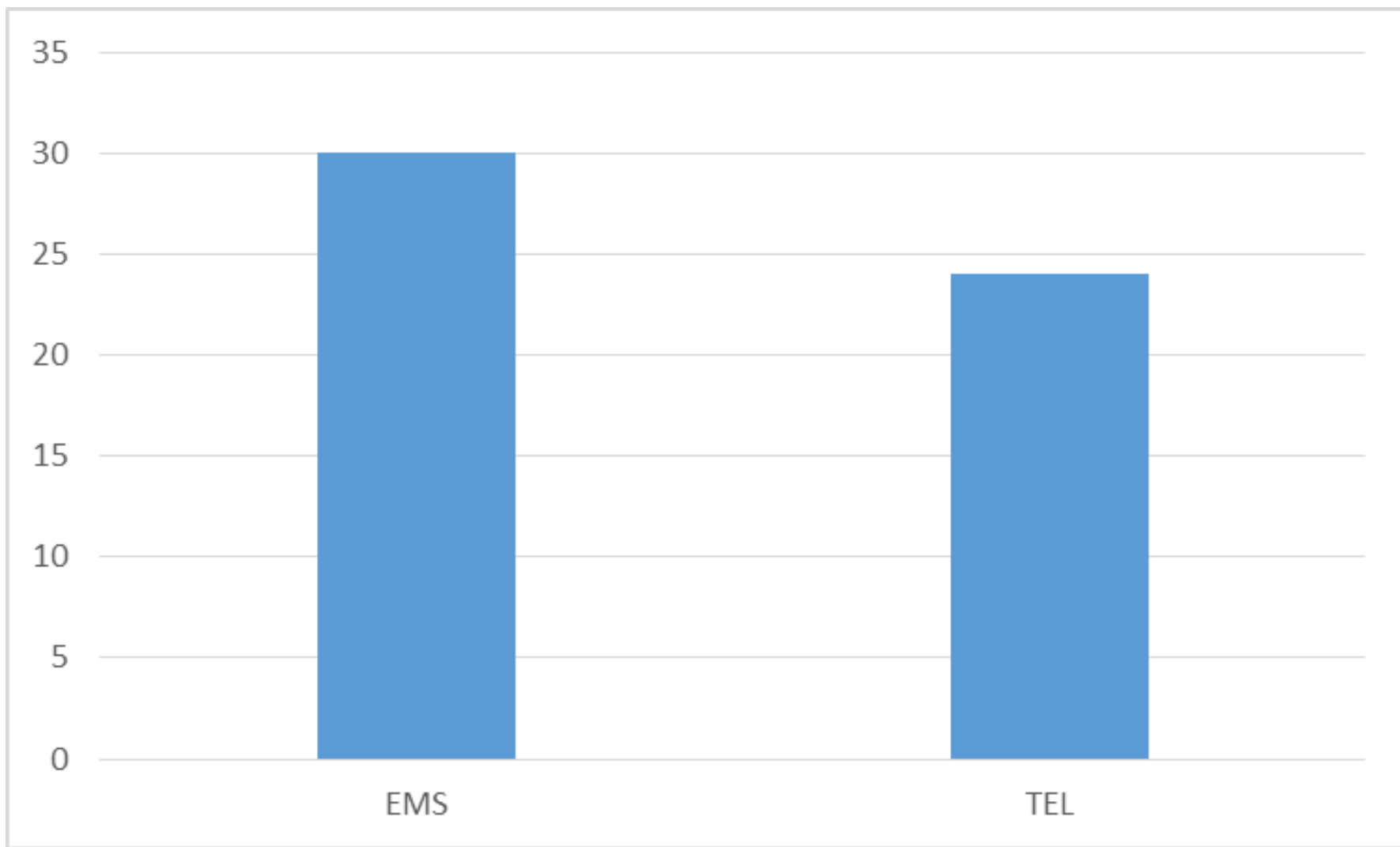
Transmission Reliability Margin Indicator

- TRM is an amount of Cross-Border capacity set aside for TSOs to **respond to frequency deviations** and emergencies exchanges and other uncertainties
- The **higher** the **TRM** value, the **lower** the **NTC** value and thus the possibilities for Cross-Border trade
- Purpose of the indicator is to **monitor** the **accuracy** of **TRM**
- TRM Indicator calculates a metric that is intended to **track ENTSO-E TRM formula**, which is also approved in MM Guidelines
- ENTSO-E metric is compared to the actual TRM used by TSOs and any significant variance is identified
- TRM indicator has **often** found to be **in variance** among jurisdictions
- In many instances TRM values is **not calculated** in accordance with the **recommended** ENTSO-E approach



Transmission Reliability Margin Indicator

- In some instances the TRM is **agreed between TSOs** as a **fixed value** that does **not depend** on the key operating statics
- According to SEEAMMS records there are **56 TRM violations caused only by two TSOs**, namely EMS (30 times) and Transelectrica (24 times)
- According to the explanations given by EMS there is practice in SEE that TRM values are **defined by TSOs bilaterally** on Yearly basis
- This explanation reveals that current practice of calculation of TRM is **not done in line with ENTSO-E guidelines** and instead the values are fixed regardless of the anticipated margin needed for reliability under changing conditions → it requires **further discussions**
- No response was given by TEL despite several approaches for explanation
- **Recommendation:** NRAs should start working with their TSOs to **adopt ENTSO-E TRM formula** based on **ECRB Recommendation** → In many instances, this would **improve access to interconnectors**



Already Allocated Capacity Indicator

- Already Allocated Capacity (AAC) is Cross-Border Capacity **reserved by Market Participants**
- AAC Indicator **compares reserved values** to the values actually **scheduled** in the operating period
- Purpose of the Indicator is to **detect** whether participants are **withholding capacity** from Market by buying the capacity and not using it
- Monitoring capacity usage will **deter participants from withholding capacity** from Market and will tend to open Market to wider competition
- The approach for this Indicator involves identifying the hour with the greatest volume of commercial schedules (monthly peak schedules)
- This hour should be matched and compared to the corresponding reservations, i.e. the AAC, for that day
- The indicator confirms that **withholding cross-border capacity is generally not a problem in the region**

Critical Facilities Indicator

- Critical facilities are electrical facilities, usually transmission facilities, that **create a security issue** when transferring power between TSOs
- Critical Facilities (CF) Indicator monitors **simulated power flows** on key transmission elements in Network Model to **determine** if these **key elements** are the **limiting elements** in actual system operations
- **Purpose** of the Indicator is to **detect** whether **transmission constraints** in Network Model, that limit NTC values, are constraints that actually **occur in real-time operations**
- Monitoring is intended to **ensure accurate Network Model** and, consequently, **accurate NTC values**
- In the reporting period Critical Facilities Indicator has produced results that support a hypothesis that **internal congestion may be overestimated in many cases**
- Over the last 6 months of 2017, **TSOs tended** to introduce **lower values** in Network Model while **actual flows were higher**

- TSOs are **not fully utilizing full transfer capacities** of Critical Facilities in Network Model that is **resulting in the lower NTCs** as it could be in case of real capacities of CFs
- Out of 103 cases, TSOs had 59 cases where the error had a negative direction
- 94% of values have a 10% and greater error value while 38% of CF values have more than 100% errors in variance
- In a significant number of cases, TSOs' **actual flows are four times higher** than the estimated flows
- In these extreme cases, the model assumptions will likely lead to over **estimating internal congestion and underestimating NTC values**
- **Recommendation:** NRAs engage directly with TSOs to **better understand the source of these errors** and consider potential follow-up activities at ECRB EWG

- Generator Forecast Indicator measures **Accuracy of Generation Forecast** used in Network Models
- Accuracy of these forecasts helps **ensure accuracy in Network Model** and, consequently, **accuracy in NTC values**
- These Indicators calculate a percentage **forecast error** between **forecasted load** and the **actual load**
- **Results** show that Generation Forecast Indicator violations have **increased** compared to 2017 year first Bi-Annual period
- 90 cases of violation have been registered at SEEAMMS that is 5 times bigger than the last reporting period
- Average violation equals -30% indicating that **TSOs tend to forecast peak generation with lower values** compared to actual peak output



Generator Forecast Indicator

- TSOs showing Variances are EMS, ISO BiH and OST
- EMS' general **explanation** on Generation Forecast Variances is that they occurred because the forecasted Generation Values were taken from PE EPS Scheduling (Generation) Plan, which is sent to EMS two months before the actual month
- In this particular case, variances were caused by a wrong forecast by Generation company
- Other TSOs did not provide explanations
- **Recommendation:** TSO should **ensure** that **Generation Data**, which are necessary to create Network Model, are **checked and validated by TSO** before injecting them in Network Model and to the extent possibly **make corrections to potential errors**, including Data provided by Power Producers
- In case **deviation** tends to **continue** several months in the row, TSOs must **investigate the reason** along with Data owner (Generation Companies)

- Load Forecast Indicator measures **Accuracy of Load Forecast** used in Network Models
- Accuracy of these forecasts helps **ensure accuracy** in Network Model and, consequently, **accuracy in NTC values**
- These indicators calculate a percentage **forecast error** between Forecast Load and Actual Load
- Results show that **Load Forecasts used in Network Model are relatively accurate**, with only small variation from the actual values

- Market Share Indicator monitors **Share of Cross-Border Capacity** controlled by Market Participants
- Calculation indicates Share of Import Capacity controlled by individual transmission buyers combined for all interconnections
- **Purpose** of Indicator is to **measure Market Shares of Import Capacity** and **Generation ownership**
- Market Shares indicate **potential Market Power**
- This statistic is important for purpose of monitoring
- However, SEEAMMS **software is not currently configured to combine** values with **Generation ownership**
- **Recommendation: Improvements** of SEEAMMS tool in order to **address important issues**

- **NRAs** should **seek for responses** from national **TSOs** concerning Recommendations flagged in the present report
- Monitoring TSO activities on Cross-Border Capacity revealed that **Cross-Border Capacity Calculation Methodologies** are **not harmonized** among TSOs of the region, mostly concerning calculation of **BCE** indicator
- **TRM calculation** is **not done** according to **ENTSO-E Rules** and **ECRB Recommendations** and the old practice remains that imply agreement between TSOs in certain level of TRM in advance
- **Critical Facilities Indicator** has shown a very **high degree of forecast errors** in the **estimates of Internal Congestion** → This is one of the most **difficult problems** to Monitor as NRAs and Market Participants have very **little insight** into **how Internal Congestion affects Cross-Border capacity** → **NRAs** should aim to **understand** this **Indicator** as a **potential area affecting** Cross-Border Capacity Calculations

Conclusions and next steps

- Bi-Annual Reporting period, covering last 6 month of 2017, shows **increased Variances in Generation Forecast** compared to the first half of 2017 that deserves increased TSOs and NRAs attention
- Present Market Monitoring activity **continued to rely on advice** and guidance from **Consultants** previously assigned by USAID to this project
- ECRB believes that such continued advice and guidance will be useful also in the future
- As there is **no possibilities to find funds** necessary for **further improvement** of MM SEEAMMS tool, **ECRB recommended continuation** of the project **based on the existing tool** and achieved experience



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