

	<b>GRID CODE</b>	<b>PO-KO-005</b>
	<b>OPERATIONAL PLANNING CODE</b>	
	<i>ver. 2.4</i>	<i>page 1 from 35</i>

## GRID CODE – OPERATIONAL PLANNING CODE

October 2018

## TABLE OF CONTENTS

<b>1</b>	<b>Introduction .....</b>	<b>5</b>
<b>2</b>	<b>Outage Planning Code .....</b>	<b>6</b>
2.1	Introduction.....	6
2.2	Objective .....	6
2.3	Scope .....	6
2.4	Objective .....	7
2.5	Transmission System Maintenance Standards .....	7
2.6	Procedure for Outages Affecting to the Transmission System .....	8
2.6.1	General Description.....	8
2.6.2	Timescales .....	8
2.6.3	Initial Proposals .....	10
2.6.4	Preliminary Outage Schedule .....	11
2.6.5	Final Outage Schedule.....	12
2.7	Transmission and User System Outages.....	12
2.7.1	Planned Outages .....	12
2.7.2	Unplanned Outages.....	13
2.7.3	Changes Requested by TSO .....	14
2.7.4	Changes Requested by Users .....	14
2.7.5	Emergency Situations.....	15
2.7.6	Notification of Forced and Fault User and TSO Outages .....	15
<b>3</b>	<b>System Assessment Code .....</b>	<b>17</b>
3.1	Introduction.....	17
3.2	Objective .....	17
3.3	Scope .....	17
3.4	TSO Forecasts .....	17
3.4.1	Demand and constraint forecasts .....	17
3.4.2	Demand Forecasts.....	18
3.4.3	Transmission System Constraints .....	18
3.4.4	Publication of Forecasts .....	<b>Error! Bookmark not defined.</b>
3.5	Information to be provided to the TSO .....	19
3.5.1	General Information.....	19
3.5.2	Monthly Information .....	19

3.5.3	Weekly Information.....	20
3.5.4	Every Day Information.....	<b>Error! Bookmark not defined.</b>
3.6	Generation Forecasts .....	20
3.6.1	General Forecasts.....	20
3.6.2	Monthly Forecasts.....	20
3.6.3	Weekly Forecasts.....	21
3.6.4	Every Day Forecasts.....	21
3.7	Day-ahead Demand Forecast .....	21
3.7.2	Contents of Day-ahead Demand Forecast.....	22
3.7.3	Demand Forecast Updates .....	<b>Error! Bookmark not defined.</b>
3.7.4	System Operator Reporting.....	<b>Error! Bookmark not defined.</b>
3.8	Reserve Requirements.....	22
3.9	Interconnector Capacity .....	22
3.10	Ad-hoc – Update forecast.....	<b>Error! Bookmark not defined.</b>
3.11	Security Assessment .....	23
3.11.1	General.....	23
3.11.2	Process .....	23
3.11.3	Information Collection.....	24
3.11.4	Information Analysis.....	24
3.11.5	Confidentiality .....	24
3.11.6	Publication.....	24
3.12	Power System Security Assessments (PSSA-s).....	25
3.12.1	Monthly PSSA .....	25
3.12.2	Seasonal PSSA.....	26
3.12.3	Weekly PSSA.....	26
3.12.4	General.....	27
<b>4</b>	<b>Scheduling Code.....</b>	<b>28</b>
4.1	Introduction.....	28
4.2	Objective .....	28
4.3	Scope .....	29
4.4	Submissions by Trading Parties .....	29
4.4.1	Physical Notifications (PN).....	29
4.4.2	Dynamic Data Parameters.....	29
4.4.3	Checking and Approving Submissions .....	30

4.4.4	Treatment of Invalid Submissions .....	30
4.4.5	Bids and Offers .....	31
4.4.6	Suspension of Electricity Market .....	31
4.4.7	Ancillary Services .....	31
4.4.8	Communications .....	32
4.4.9	Schedule Format .....	<b>Error! Bookmark not defined.</b>
4.4.10	Non-Working Days.....	32
4.4.11	Emergency Amendments of Approved Schedules.....	<b>Error! Bookmark not defined.</b>
<b>5</b>	<b>Appendix 1 – Dynamic Data Parameters.....</b>	<b>33</b>
5.1	Availability Data .....	33
5.2	Ramp Rate Data.....	33
5.3	Operational Limits .....	33
5.4	Notice Requirements.....	34
5.5	Other Generating Unit Information.....	34
5.6	Demand-Side Scheduling and Dispatch Parameters (DSP) .....	35

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 5 from 35</i>

## Operational Planning Code

### 1 Introduction

- 1.1 The **operational planning code** covers the period from one year ahead up to the real time balancing stage. It covers **outage** planning, system assessment and day ahead scheduling.
- 1.2 This **operational planning code** is not a single entity but is made up of the following sub-codes (hereafter referred to as code):
- a) **Outage planning code**
  - b) **System assessment code**
  - c) **Scheduling code**
- 1.3 To carry out its responsibilities under this **operational planning code**, the TSO requires information from **users** within Kosovo. These **users** are legally bound to provide this information fully in the required format and to meet the required timescales. The TSO also requires information from **interconnected parties**. These **interconnected parties** are not bound by the requirements of this **grid code** but by other bi-lateral or multi-lateral agreements.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 6 from 35</i>

## 2 Outage Planning Code

### 2.1 Introduction

This code sets out the procedures for the following:

- a) The co-ordination and approval of planned **outages** of **generating units**;
- b) The co-ordination of planned **outages** on the **transmission system** and of **plant and apparatus** directly connected to the **transmission system**;
- c) The necessary exchange of information between the **TSO** and **users** for drawing up the **outage** schedules for the **transmission system**;
- d) Information exchange with other TSO-s with regard to **outages** that affect interstate interconnections<sup>1</sup>;
- e) The steps to be followed by the **TSO** in dealing with unplanned **outages**:

### 2.2 Objective

2.2.1 The objective of this **outage planning code** is to seek to ensure that planned **outages** of all **generating units**, **users** directly connected to the **transmission system** and **outages** on the **transmission system** are approved and co-ordinated. Co-ordination is required to ensure that the security and quality of supply standards on the **transmission system** are met and as far as is possible the number and effect of constraints on the **transmission system** are kept to a minimum.

2.2.2 This **outage planning code** should seek to ensure that the appropriate procedures are in place to allow coordination between the **TSO** and neighbouring TSO-s with regard to **outages** that affect interconnector power flows.

### 2.3 Scope

The **outage planning code** applies to the following:

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<sup>1</sup>This information is available under the terms of the **interconnection agreements**.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 7 from 35</i>

- a) TSO;
- b) **Producers** who own **generating units** connected to the **transmission system** and **producers** with **generating units** greater than 5 MW connected to the **distribution system** including power park modul (**wind** and **solar powered generating stations** of installed capacity  $\geq 10$  MW);
- c) DSO;
- d) other **users** directly connected to the **transmission system**:

## 2.4 Objective

2.4.1 The aim of this **outage planning code** is to ensure that **users** provide the information that is needed for the following:

- a) The safe and secure operation of the **transmission system**;
- b) To allow the **TSO** to complete assessments on the effect **outages** that have to power flows in the **interconnections**.

2.4.2 The extent of this information is dependent upon the size, location and nature of the user's installation and whether or not the information provided at any stage confirms previously supplied data.

## 2.5 Transmission System Maintenance Standards

2.5.1 The **TSO** shall maintain the **transmission system** according to the current standards for maintenance, inspections, repair and replacement of transmission facilities. These standards will provide for high quality, safe and reliable service and shall take into account cost, local geography and weather, the applicable standards for security and quality of supply, national electric industry practice and, sound engineering judgement and experience.

2.5.2 The maintenance and repair system shall provide for work to be carried out at certain periods and under a definite procedure. Both of these are aimed at keeping the **transmission system** equipment operating efficiently with the optimum labour and material input.

2.5.3 The work to be carried out shall include:

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 8 from 35</i>

- a) Equipment maintenance;
- b) Scheduled and preventive equipment repairs

2.5.4 A system of maintenance and scheduled preventive repairs of the **transmission system** equipment shall be arranged by the **TSO** and **users** in accordance with the prevailing requirements and this grid code and taking into account specific local conditions.

2.5.5 The responsibility for maintenance and repairs and the updating and refurbishing of **transmission system** facilities shall be borne by the **TSO**.

## 2.6 Procedure for Outages Affecting to the Transmission System

### 2.6.1 General Description

The **TSO** shall be responsible for the co-ordination of the planned **transmission outages** with the planned **outages** of **generating units** and other **users** directly connected to the **transmission system**. It is essential that all individual annual **outage** schedules are co-ordinated in order to ensure the security and stability of operation of the entire **power system**. In order to achieve this overall aim the **TSO** shall do the following:

- a) Review and co-ordinate the tentative dates for planned **outages** for **transmission, generation, distribution** and other **users**;
- b) Communicate with interconnecting **parties** to assist in attempting to minimise anticipated constrained operations;
- c) Recommend adjustments to the planned **outages** throughout the year in order to improve the co-ordination in the planned **outage** schedule

### 2.6.2 Timescales

2.6.2.1 The annual **outage** programme consists of the individual annual **outage** schedules of the respective **user's plant and apparatus**. It also contains **transmission system** and **distribution system outages**. The dates by which the various actions must be carried out are summarised in the following table:



Action	Date	By Whom
Outage schedule for <b>transmission</b> lines and transmission equipment	July	TSO
Outage schedule for distribution equipment that affects <b>transmission</b>	July	DSO
Application for <b>generating units</b> and <b>outage</b> schedule	September	Generators
Harmonisation of <b>transmission</b> and distribution <b>outage</b> plans with <b>generation outage</b> plan – development of the <b>Outage</b> plan proposal	October	TSO/DSO/ Generators
Negotiation of <b>Outage</b> plan proposal with Dispatch Centres of Neighbouring States	October	TSO
Approve Final Schedule	November	TSO
Issue Final Agreed Schedule	November	TSO
Commencement of <b>outage</b> schedule	January ( Year+1)	All

2.6.2.2 The planned annual **outage** schedule will be prepared using a two-stage process following the **submission** of information to the **TSO**. First the **TSO** will consider the proposed **transmission system outages** and **outages** of **interconnectors** and **distribution equipment** that could impact on the **transmission system**. The information to permit this exercise to be carried out must be available by July.

2.6.2.3 The **TSO** in preparing this first draft schedule will act in a non-discriminatory way giving priority to **users** on a rolling basis. The **TSO** will discuss any contentions with the **parties** involved. The second stage will be undertaken after all the information on **outages** of **generating units** becomes available in beginning of September. If there are any conflicts the **TSO** will discuss them with the **parties** involved. If no solution can be achieved by agreement then the **TSO** will take the final decision and issue **outage** plan proposal (end of September), which shall be communicated to the **regulator** through the document Annual Electricity Balance.

2.6.2.4 The final stage in the process is to harmonise the **outage** plan proposal with regard to the **outage** schedules for the interconnectors with the neighbouring states. After

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 10 from 35</i>

this has been agreed by middle of October the **TSO** will apply any necessary corrections and issue the final approved **outage** plan by the middle of November.

2.6.2.5 In preparing this schedule, the **TSO** will seek, as far as is reasonably possible, to satisfy the requirements of all **parties** plus the requirements of the **transmission development plan (TDP)**. However the **TSO** has an absolute responsibility for the maintenance of the security and quality of supply standards and this will be the first priority in establishing the **outage** positioning within the schedule. Where the **TSO** determines, in its reasonable judgement, that proposed **outages** would lead to the standards of security and/or quality of supply being infringed, the **TSO** will make the necessary changes to **outage** proposals to rectify the situation. In making this judgement the **TSMO** will consider all factors and will act in a non-discriminatory way.

2.6.2.6 Second to the security and quality criteria, the **TSO** shall seek to minimise **transmission** constraint costs incurred in **outage** situations. However **producers** or other **users** shall not be obliged to agree to changes to their **outage** proposals solely for this reason. They will, however, in the interests of the overall economic management of the Kosovan **Power System** be required to consider proposals made by the **TSO** for this reason. At all stages of the process, the **TSO** shall act with prudence.

### 2.6.3 Initial Proposals

2.6.3.1 When submitting proposals for **outages** the **user** should base their request on the following information:

- a) The repair and maintenance requirements of the **transmission system plant and apparatus**;
- b) The repair and maintenance requirements of the **user plant and apparatus** and equipment used for the connection to the **transmission system**;
- c) Analysis of the actual technical conditions of **plant and apparatus** and associated equipment and defect checking from previous repairs:

2.6.3.2 The request will as a minimum contain the following information:

- a) Name of the transmission **plant and apparatus** concerned;

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 11 from 35</i>

- b) Name of the **generating unit** and/or the **power plant** equipment concerned;
- c) Name of the distribution **plant and apparatus** concerned;
- d) Name of the directly connected power consumer **plant and apparatus** concerned;
- e) MW or capacity concerned;
- f) Required duration of the **outage**;
- g) Minimum return to service time (this can be different at different stages of the **outage**);
- h) Preferred start date and start time or range of start dates and start times:

#### 2.6.4 Preliminary Outage Schedule

The TSO will prepare the initial annual **outage** schedule by end of July to include only **transmission system outages**. Once preliminary agreement has been reached the TSO will further refine it after incorporating **outages** of **generating units** and **interconnectors** for the next calendar year to produce the preliminary **outage** schedule. The TSO will issue to all the **transmission system users** the relevant part of the preliminary annual **outage** schedule not later than middle of October of the current calendar year. The preliminary annual **outage** schedule is based on the following:

- a) Annual **outage** schedules of the **users** and the TSO;
- b) Annual **outage** schedule for interconnectors upon agreement with neighbouring TSO-s;
- c) Annual **demand forecast** as per this **grid code**;
- d) Maintaining the security and quality standards for the Kosovan **Power System**;
- e) Minimising constraints;

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 12 from 35</i>

### 2.6.5 Final Outage Schedule

The TSO will issue to all **transmission network users** and the **regulator** the relevant part of the final annual **outage** schedule for the next calendar year not later than middle of November of the current calendar year. As of this date the **outage** dates as specified in the final annual **outage plan** are binding on all **users** and may only be changed in the following exceptional circumstances:

- a) In case of dangerous operational conditions or the security and stability of a **power plant**;
- b) Where there would otherwise be insufficient generating capacity to meet forecast demand and maintain the security and quality standards for the Kosovan **Power System**;
- c) In case of serious constraints in the regional interconnected **transmission system**;
- d) In the event of mutual agreement between the **TSO** and the other **party**;
- e) In case of **force majeure**:

## 2.7 Transmission and User System Outages

### 2.7.1 Planned Outages

2.7.1.1 In order to maintain the continuity and viability of the annual planned **outage** schedule, all **users** shall submit to the **TSO**, no later than the 15<sup>th</sup> of the month an application in respect of any **outage** planned to start at any time during the following month.

2.7.1.2 The application will contain the following information:

- a) Details of the works and/or tests to be carried out;
- b) Any necessary pre-work;
- c) Confirmation that all contracts etc are in place;
- d) Project plan for the work and any risks;

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 13 from 35</i>

- e) Emergency restoration time and relevant restoration plan, if applicable<sup>2</sup>;
- f) Confirmation that all quality control and safety procedures have been or will be carried out:
- g) List and contacts of responsible personnel:

2.7.1.3 Subsequently all **users** will confirm **outage** requirements at least seven days in advance of the **planned outage** start date.

## 2.7.2 Unplanned Outages

2.7.2.1 In the event of an unplanned **outage** the **TSO** will use the following priority ranking:

- a) Forced and fault (emergency) **outages**, these include overruns of planned **outages** where it is not possible to restore the plant to service;
- b) Overruns of planned **outages** where it is possible but economically unacceptable to restore the plant to service;
- c) Under an emergency or an unplanned situation the above types of **outages** take priority over planned **outages**;
- d) **Outages** not included in the planned annual **outage** schedule but fulfilling the notice periods in paragraph 2.7.1;
- e) **Outages** not included in the planned annual **outage** schedule and not fulfilling the notice periods in paragraph 2.7.1 - these **outages** will only be granted in exceptional circumstances:

2.7.2.2 In certain circumstances the **TSO** may agree **outages** with **users** that could give rise to overloads, as a consequence of a fault on the system. Accordingly to enable the **TSO** to manage the system it will be necessary for the **user** to agree post fault actions to secure the system. In the absence of such provisions the **TSO** may not allow the **outage** to take place.

2.7.2.3 The **TSO** must take all reasonable steps to allow **planned outages** to take place, bearing in mind possibly significant costs to the **parties** of the cancellation of an **outage**. In making decisions to cancel or postpone an **outage**, and where there are

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<sup>2</sup> There are maintenance outages where restoration is not possible or takes so much time to be impracticable.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 14 from 35</i>

options, the **TSO** will discuss priorities with the **users** concerned and any other relevant **parties** and will come to the best solution in the circumstances. In all cases the final decision rests with the **TSO**.

### 2.7.3 Changes Requested by TSO

When actual or anticipated system conditions change such that the **TSO** considers that the rescheduling of a **planned outage** for economic reasons is advisable, the **TSO** shall inform the other **party** of the situation. They shall consider the impact of proceeding with the **outage** and may either proceed or postpone the **outage**.

### 2.7.4 Changes Requested by Users

2.7.4.1 Following the issue of the final annual **outage** schedule **users** may request changes. These changes will be considered by the **TSO** (where time permits) but will not be permitted if agreement will not be allowed if security and/or quality of supply standards being infringed or additional costs being incurred.

2.7.4.2 In considering such requests, the **TSO** will attempt to make **outages** possible by system re-configuration or by the re-negotiation of other **outages** with the **parties** involved. Consistent with the foregoing, the **TSO** shall permit or deny transmission **outages** based on the following:

- a) The **TSO** shall co-ordinate and make every effort to approve all **outage** requests consistent with secure, reliable and economic system operation, and shall co-ordinate the actions necessary to maintain the security and quality of supply standards;
- b) The **TSO** may deny any unplanned **outage** or **outage** change even if it does not impact on security and quality of supply standards and/or constraint costs but if its anticipated duration is greater than one working day;
- c) The **TSO** may deny any unplanned **outage** or **outage** change if the **TSO** determines, at its sole discretion, that agreement to the outage would lead to constraint costs:

2.7.4.3 It must be fully understood that the development of an integrated **outage** schedule over a period of several months is a complex iterative process and that subsequent changes will generally be difficult to achieve, especially taking into account the need

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 15 from 35</i>

to co-ordinate **outages** of interconnectors on a regional level as per **ENTSO-E OH P4**. This will be particularly true in the peak **outage** period. All parties should, whenever possible, avoid requests to change **outage** schedules following the issue of the final planned annual **outage** schedule.

## 2.7.5 Emergency Situations

2.7.5.1 The electricity system is always subject to fault and **force majeure outages** of transmission and distribution equipment and **generating units**. In these cases it may be necessary for the **TSO** to cancel or postpone planned **outages** at short notice, where security and/or quality of supply standards might otherwise be compromised.

2.7.5.2 In the following emergency situations the **TSO** may take the following action:

- a) Postpone or cancel any **transmission outage** when, in the judgement of the **TSO**, the operation of the Kosovan **power system**, to the required security and/or quality of supply standards may be jeopardised. The **TSO** must immediately notify all the **parties** involved in the **outage** and must use reasonable endeavours to re-schedule the **outage** at the earliest possible time suitable to all the **parties**;
- b) Order the cessation of work and the return to service of an item, or items, of plant where the **TSO** judges that the continuation of the **outage**, or **outages**, may lead to the infringement of the security and/or quality of supply standards. Where time permits, the **TSO** will discuss the implications of any such decisions, and possible alternatives, with the **parties** involved:

2.7.5.3 Upon the request of the **party** and/or the **regulator**, the **TSO** shall submit a written report justifying the reasons for cancellation or postponement of a planned **outage**.

## 2.7.6 Notification of Forced and Fault User and TSO Outages

2.7.6.1 All **users** shall notify the **TSO** of any requirement for a forced **outage** of any item of **transmission system** equipment or **transmission system** related equipment as soon as the **user** becomes aware of the requirement.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 16 from 35</i>

2.7.6.2 The **TSO** will upon receipt of a notification of the requirement for a forced **outage** under paragraph 2.7.6.1 immediately inform all **users** that may be affected by the **outage**, and apply all necessary measures to minimise the impact of that **outage** on the operational security of the Kosovan **power system**, neighbouring power systems and the agreed **outage** plan.



	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 17 from 35</i>

### 3 System Assessment Code

#### 3.1 Introduction

This **system assessment code** sets out procedures for the assessment of system security in the operational timescale and the necessary exchange of information to enable the **TSO** to carry this out.

#### 3.2 Objective

The objectives of this **system assessment code** are as follows:

- a) To have in place procedures for the exchange of operational data including **demand** forecasting;
- b) The assessment of the security of the Kosovan **power system** in the medium and long term operational timescales;

#### 3.3 Scope

This **system assessment code** applies to the following:

- a) the **TSO**;
- b) **Producers** including **producers** with **generating units** greater than 5MW connected to the **distribution system** and **power generating modul (wind powered generating stations** and solar of installed capacity  $\geq 10$  MW);
- c) **DSO**;
- d) **Demand users** directly connected to the **transmission system**:

#### 3.4 TSO Forecasts

##### 3.4.1 Demand and constraint forecasts

The **demand** and constraint forecasts produced under this paragraph are required by the **TSO** for operational purposes. They are required so that the **TSO** can confirm that in the operational timescale – up to one year ahead – there will be sufficient **production** to meet the **demand** and **transmission system** capacity available to enable

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 18 from 35</i>

it to be transported while meeting the security standards. The **demand** forecasting applies to both **real power** and **reactive power** requirements.

### 3.4.2 Demand Forecasts

The **TSO** will be responsible for the production and publication of the following ongoing **demand forecasts**<sup>3</sup> for the Kosovan **power system** or for any part of it as appropriate as part of the security assessment information. The **demand** shall be the potential system **demand**:

- a) Every year a forecast of peak **demand** for the next year by months;
- b) Every month a forecast of peak **demand** for the next month by day;
- c) Every week a forecast of **demand** for the next week for each day;
- d) Every day a forecast for each hour of the following day:

### 3.4.3 Transmission System Constraints

The **TSO** will be responsible for the production and publication on the TSMO website of the following ongoing **transmission system constraints** forecasts– including inter-state interconnections – or for any part of it as appropriate as part of the security assessment information:

- a) Every year a forecast of the **constraints** on the **transmission system** for the next year by months;
- b) Every month a forecast of the **constraints** on the **transmission system** for the next month by day;
- c) Every week a forecast of the **constraints** on the **transmission system** for the next week 21 days for each day.

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<sup>3</sup> The requirements for **daily demand** forecasts of the **day-ahead demand** are covered by the system assessment code (within the **operational planning code**).

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 19 from 35</i>

- d) Every day a day ahead congestion forecast (DACF<sup>4</sup>) will be produced. This DACF will be produced by the **TSO** together with other TSO-s within the **ENTSO-E** to meet the requirements of the DACF agreements of **ENTSO-E**:

### 3.5 Information to be provided to the TSO

#### 3.5.1 General Information

All the information that is required to be supplied to the **TSO** under the following paragraphs shall be provided net of the output of any **generating plant** connected to the **distribution system**.

#### 3.5.2 Monthly Information

3.5.2.1 Every month – by the 14<sup>th</sup> day – all **DSOs**, **users** directly connected to the **transmission system** and **producers** in respect of each of their **power plants** with **generating units** having an output greater than 5MW shall provide the **TSO** with the following information:

- a) **Demand forecasts** of both **active power** and **reactive power** on a **connection point** basis for each of the following three calendar months on a daily basis;
- b) Hourly active and reactive **demand** profiles for the forecast day of maximum **connection point active power demand** and the specified day of the **transmission system peak demand**;
- c) Hourly active and reactive **demand** profiles for the forecast day of minimum **connection point active power demand** and the specified day of the **transmission system minimum demand**;
- d) Typical hourly load profiles for working day, weekend day and separately for holiday days.

3.5.2.2 The date and time of the forecast minimum and maximum **connection point active power demand** shall be provided together with the **demand forecasts**. The **TSO** will

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<sup>4</sup> DACF – Day Ahead Congestion Forecast

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 20 from 35</i>

provide all **parties** with the dates of the forecast **transmission system** maximum and minimum **active power** demands for each month and will publish this information on its website.

### 3.5.3 Weekly Information

Every week – by Friday – all **DSOs**, **demand users** directly connected to the **transmission system** and **generators** in respect of each of their **power plants** with **generating units** having an output greater than 5MW shall provide the **TSO** with the following information:

- a) **Demand forecasts** of both **active power** and **reactive power** on a **connection point** basis for each of the following three weeks – commencing on Sunday – on an hourly basis;
- b) If there is any change, the **demand forecast** must be **refreshed** at least two days before the day D.

## 3.6 Production Forecasts

### 3.6.1 General Forecasts

The **production** forecasts are required by the **TSO** in order to carry out its assessment of **power system** security. The information supplied under this paragraph is in addition to any information that is required under the **outage co-ordination code**. The requirements are detailed in the following paragraphs.

### 3.6.2 Monthly Forecasts

Every month – by the 14<sup>th</sup> day – all **producers** in respect of each of their **power plants** with **generating units** having an output greater than 5 MW shall provide the **TSO** with the following information for the following three years on a weekly basis:

- a) Intended plant availabilities – taking into account any proposed **outages** notified under the **outage** co-ordination code;
- b) Constraints in production of energy;
- c) Other plant conditions that could materially affect **power system** security:

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 21 from 35</i>

### 3.6.3 Weekly Forecasts

By Friday every week all **producers** in respect of each of their **power plants** with **generating units** having an output greater than 5 MW shall provide the **TSO** with the following information for the following eight weeks on a daily basis:

- a) Intended plant availabilities – taking into account any proposed **outages** notified under the **outage co-ordination code**;
- b) Constraints in production of energy;
- c) Other plant conditions that could materially affect **power system** security:

### 3.6.4 Every Day Forecasts

Every day all **producers** in respect of each of their **power plants** with **generating units** having an output greater than 5 MW shall provide the **TSO** with the following information for the seven day period beginning with D + 2:

- a) Intended plant availabilities;
- b) Intended **generating unit** synchronisation/de-synchronisation times for slow start **generating units**;
- c) anticipated self-dispatch levels;
- d) other conditions that could materially affect **power system** security:

### 3.7 Day-ahead Demand Forecast

**System operator** forecasts its national **demand**. This forecast will include an estimate of **transmission losses** and will be based on the following factors:

- a) historical demand;
- b) the weather forecast;
- c) the time of the year;
- d) the day of the week;
- e) any exceptional events:

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 22 from 35</i>

The forecast will cover only the demand in Kosovo and will not include interconnector transfers.

### 3.7.2 Contents of Day-ahead Demand Forecast

3.7.2.1 The day-ahead demand forecast will contain the following information:

- a) hourly expected demand (in MW);
- b) expected unserved load (in MW);
- c) the **TSMO's** hourly required reserve margin;

3.7.2.2 This day-ahead demand forecast will be published on website by 10.00 on the day before the **day of physical dispatch**.

### 3.8 Reserve Requirements

3.8.1 The **system operator** will determine on daily basis based on the long-term reserve forecasts and will adjust these where necessary.

3.8.2 The **system operator** will procure the reserve that is considered necessary to maintain the appropriate levels of system security while incurring least costs from the ancillary services contracts or **balancing mechanism**.

### 3.9 Interconnector Capacity

3.9.1 The **system operator** in conjunction with other operators in interconnection will determine capacity of each interconnector circuit on yearly, monthly and daily basis. This information will be notified to the **market operator** in accordance with Auction Rules.

3.9.2 TSO defines: Net transmission capacity (NTC) and Transmission reliability margin (TRM) taking into account the foreseen conditions to the regional transmission systems.

3.9.3 Estimated transmission capacity shall be allocated to the parties in accordance with CAO Auction Rules.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 23 from 35</i>

### 3.10 Security Assessment

#### 3.10.1 General

3.10.1.1 The **TSO** shall use its best endeavors to maintain **power system** security in accordance with the operating security standards while allowing the market to operate effectively with a minimum amount of intervention.

3.10.1.2 The **TSO** has the responsibility for the assessment of, maintenance of and restoration of supply security and continuity in the operational timescales. These requirements cover the following timescales:

- a) Long term – one year ahead – this is covered by the monthly PSSA as per section 3.11.1;
- b) Seasonal – for the winter and summer season according **ENTSO-E** – mainly for the purpose of coordinated preliminary **NTC** values at all tie-lines within interconnection as per section 3.11.2;
- c) Medium term – eight weeks ahead – this is covered by the weekly PSSA as per section 3.11.3;
- d) Short term – for the next day – this is covered by the provisions of the system assessment code (within the **operational planning code**);

3.10.1.3 For the assessment of system security the **TSO** must take into account the information provided under the requirements of this system assessment code and any other relevant information available from time to time.

#### 3.10.2 Process

In its assessment of **power system** security the **TSO** shall follow a thorough, comprehensive process comprising the following key stages:

- a) information collection;
- b) information analysis;
- c) publication of long and medium term **power system** security assessments:

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 24 from 35</i>

### 3.10.3 Information Collection

The information that will be collected by the **TSO** that it will use in its assessment of system security is detailed in this system assessment code. All parties bound by the terms of this **grid code** shall provide the information detailed in this system assessment code and any other data reasonably requested by the **TSO**. The data must be delivered by the time specified and every care must be taken to ensure that the data is both accurate and reliable.

### 3.10.4 Information Analysis

3.10.4.1 The information analysis process will be carried out by the **TSO** in order to produce security assessments that will be provided to all parties as per paragraph 3.10.6.

3.10.4.2 This security assessment analysis will use the information collected as per paragraph 3.10.3 above and will use all the tools that are available to the **TSO**. These can include both online and offline tools and the methods used are at the sole discretion of the **TSO**. The **TSO** must document these methods and must make these available to all **parties** and the **regulator**.

### 3.10.5 Confidentiality

The **TSO** is responsible for preserving the confidentiality of data collected for system assessment and operational planning purposes and will take care of data confidentiality while exchanging data for operational purposes with other TSO-s. This data may be commercially sensitive and confidentiality will be respected as per any bilateral agreement and the provisions of the **grid code**.

### 3.10.6 Publication

The **TSMO** must use its reasonable endeavours to ensure that it provides to all **parties** a sufficiency of information. It will publish on its website **power system security assessments** (PSSA) giving present and future assessments of system security with sufficient detail and at intervals agreed with the **regulator** in order to ensure that all **parties** are properly informed to enable them to make decisions about the efficient and economical operation of their assets. The PSSAs will specifically do the following:

- a) Assist **users** in the planning of scheduled work on plant and/or apparatus;



	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 25 from 35</i>

- b) Inform all **parties** of possible potential **power system** security issues:

### 3.11 Power System Security Assessments (PSSA-s)

#### 3.11.1 Monthly PSSA

3.11.1.1 The **TSO** will produce and publish a monthly PSSA every month by the 20<sup>th</sup> day of the month. It will cover the one year period commencing with the month immediately following publication. The information contained in the monthly PSSA will be produced to a resolution of one week.

3.11.1.2 The monthly PSSA should cover the year ahead and will contain the following information:

- a) **demand forecasts** – these will cover the next year to a weekly resolution and the days of forecast maximum and minimum demand on an hourly resolution;
- b) For each calendar month the average hourly **demand** for an average for **business days** in that month and the equivalent data in respect of the average day which is not a **business day** in each month;
- c) Forecast reserve requirements in order to meet the **security standards** for the Kosovan **power system**;
- d) Available **generation** – the expected total available **generation** capacity making allowances for any **generating units** or **power plants** that are energy constrained or constrained for other reasons on a weekly basis;
- e) maximum expected demand and the average hourly demand (each in MW) in respect of each month in the calendar year ahead.
- f) Estimates of the transmission losses in GWh on a weekly basis;
- g) Estimates of the system constraints in GWh to a weekly resolution;
- h) Details of any projected situations where the **security standards** for the Kosovan **power system** will be violated:

3.11.1.3 The **TSO** will make the monthly PSSA available electronically to all **parties** and the **regulator**.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 26 from 35</i>

### 3.11.2 Seasonal PSSA

3.11.2.1 The **TSO** will produce and publish a seasonal PSSA twice a year in March and September. It will cover the year ahead for the winter and summer seasons mainly for interconnector capacity. It will contain the following information:

- a) **Demand forecasts** – a forecast of maximum and minimum **demand** in winter and summer;
- b) Estimates of the **interconnector** maximum and minimum transfer capacity by season;
- c) Details of any projected situations where the security standards for the Kosovan **power system** will be violated:

3.11.2.2 The **TSO** will make the seasonal PSSA available electronically to all **parties** and the **regulator**.

### 3.11.3 Weekly PSSA

3.11.3.1 The **TSO** will produce and publish a weekly PSSA every week by Friday. It will cover the following eight week period commencing on the following Sunday. The weekly PSSA will be produced to a daily resolution.

3.11.3.2 The weekly PSSA should contain the following information:

- a) **Demand forecasts** – these will cover the next eight weeks to a daily resolution and the days of forecast maximum and minimum **demand** to an hourly resolution:
- b) Forecast reserve requirements in order to meet the **security standards** for the Kosovan **power system**;
- c) Available **production** – the expected total available **production** capacity making allowances for any **generating units** or **power plants** that are energy constrained or constrained for other reasons on a daily basis:
- d) Estimates of the transmission losses in GWh on a daily basis;
- e) Estimates of the **system** constraints in GWh to a daily resolution;

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 27 from 35</i>

- f) Details of any projected situations where the **security standards** for the Kosovan **power system** will be violated:

3.11.3.3 The **TSO** will make the weekly PSSA available electronically to all **parties** and the **regulator**.

#### 3.11.4 General

3.11.4.1 The **TSO** may produce and publish additional updated versions of the monthly, seasonal or weekly PSSA in the event of significant changes or other reasons that the **TSO** deems necessary.

3.11.4.2 The **TSO** must document the procedure used for the preparation of the monthly, seasonal and weekly PSSAs and make this information available to any **party** or the **regulator** if required.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 28 from 35</i>

## 4 Scheduling Code

### 4.1 Introduction

- 4.1.1 This **scheduling code** sets out the procedure for scheduling in the day ahead timescale. During this process, the **TSO** produces the daily schedule taking into account system and operational limitations.
- 4.1.2 The **scheduling code** defines the procedures to be applied by the **TSO**, in its role as **system operator**, and the market participants during operational scheduling. It details the process whereby the **TSO** produces a draft schedule from daily daily nominations provided by the **market participants** to enable a system security assessment. This process will take into account system congestion and any other operational factors.
- 4.1.3 The scheduling procedures are closely related to the organisation and functioning of the **electricity market**. In general daily contractual nominations for the purchase of electricity under bilateral transactions and their total energy requirements. Based on the initial **nominations** submitted by the **market participants**, the **TSO** shall take the necessary measures to maintain the system balance and to achieve, as far as it is possible, reliable **transmission** of power flows according to scheduled programs.
- 4.1.4 The detailed functioning of the **electricity market** and the arrangements for its operation are contained in the document **market rules**.

### 4.2 Objective

The overall objectives of this **scheduling code** are twofold. Firstly to ensure that at all times in control area of the Republic of Kosovo, the production and import electricity should be equal to the load and electricity export and secondly to maintain the appropriate margin of reserve to ensure as far as possible, the integrity of the **electricity system** and the security and quality of supply of the Kosovan **power system** in accordance with the **grid code** by:

- a) Checking the daily **nominations** of **market participants**;
- b) Taking account of network constraints and **system constraints**;
- c) Determine with other neighboring TSO the net transfer capacity of each interconnector.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 29 from 35</i>

- d) Approved the **scheduling program** based on the above information;

### 4.3 Scope

This section is mandatory for:

- a) TSMO in its role as System Operator and the Market Operator;
- b) **DSO**;
- c) Producers with generating units connected to the Transmission System and generating units larger than 5 MW connected to the Distribution System including the Power Generating Module (solar and wind power generating stations with installed capacity  $\geq 5$  MW);
- d) All **trading parties**:

### 4.4 Submissions by Trading Parties

In order to maintain the security and stability for the Kosovan **power system** the **system operator** must have information on the planned and available **generation** and planned consumption in order to plan for shortfalls and surpluses. The **system operator** will need this information for the purpose of balancing the system and dealing with voltage problems and system constraints.

#### 4.4.1 Physical Notifications (PN)

4.4.1.1 Each **trading party** should make their nominations in accordance with the time limits set out in the Market Rules for the **day of physical dispatch**.

4.4.1.2 The daily physical **nominations** will contain, in addition to physical capacity, the dynamic data parameters. The content and format of the information including the tolerances shall be submitted as set out in the **market rules**.

#### 4.4.2 Dynamic Data Parameters

The **trading party** must provide its dynamic data parameters as detailed in Appendix 1 of this **operational planning code**. If the dynamic data parameters have not changed from the previous notification then this fact should be noted and no new notifications will be required for them.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 30 from 35</i>

#### 4.4.3 Checking and Approving NominationsSubmissions

4.4.3.1 After the submission of **nominations**, the **TSO** shall for each **trading party** check the validity of the **nominations** of **Physical Nominations** and Dynamic Data Parameters that has been received by the **Market Operator** for each **trading party**.

4.4.3.2 A **nomination** will be declared invalid by the **TSO** in any of the following cases:

- a) No **nominations** has been submitted within the deadline for submission time;
- b) The **nomination** does not comply with the format and content of nominations as set out in the Market Rules;
- c) The **TSO** has received a nomination that does not match the nomination of the other contractual party;
- d) The **nomination** contains injections from a **generating unit** that exceed the registered capacity of that **generating unit**;

4.4.3.3 The **system operator** shall approve each **nomination** that has not been declared invalid. This becomes the approved **nomination** of the corresponding **trading party**. This approved **nomination** shall apply for the corresponding day of physical dispatch and shall be binding for the **trading party**. The **TSO** shall send a notification of the approved nomination to each **trading party** within the time limit set out in Market Rules.

#### 4.4.4 Treatment of Invalid Submissions

4.4.4.1 If the **system operator** declares a **nomination** invalid, then the **system operator** will inform the relevant **trading party** that the **nomination** has been declared invalid and the reason for its **nomination** invalidity. The **trading party** shall then submit a corrected **nomination** according to the time limit set out in the Market Rules.

4.4.4.2 Following receipt of a corrected **nomination**, the **TSO** will check the validity of the corrected **nomination** in accordance with the requirements of section 4.4.3.

4.4.4.3 The **TSO** should agree in advance with each **trading party** what action should be taken in the event of no valid **nomination** being received. If there is no previous agreement, then the **TSO** will use the **nomination** with lower value.

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 31 from 35</i>

#### 4.4.5 Bids and Offers

4.4.5.1 A **trading party** can submit **bids** and **offers** in respect of their **balancing units** as per the **market rules**. Their **bids** and **offers** can be made one day before the time limit set out in the Market Rules.

4.4.5.2 The **system operator** can accept **bids** and **offers** from 14.00 on the day ahead until 24.00 on the **day of physical dispatch**. The **bids** and **offers** can be for reserve or for other balancing requirements as per the **market rules**.

4.4.5.3 The **system operator** will activate **bids** and **offers** in order to balance the system. The **system operator** will also activate **bids** and **offers** to overcome system **constraints** or for additional reserve. Any accepted **bid** or **offer** must be consistent with the **DDPs** and in particular with its ramp rates. At the end of the activation time of bids and offers, the **balancing unit** must be returned to its declared **PN** position.

#### 4.4.6 Suspension of Electricity Market

4.4.6.1 The **system operator** may, under conditions of force majeure such as a major **power system** disturbance, the **System Operator** may suspend the **electricity market**. Under these conditions the **system operator** will inform the **market operator**, the **regulator** all **trading parties** and the TSO-s of the **interconnected parties** accordingly.

4.4.6.2 Under the conditions in paragraph 4.4.6.1 the **system operator** may refuse to accept or provide any forecasts or **nomination**.

4.4.6.3 As soon as possible the **system operator** will inform the **market operator**, the **regulator**, all **trading parties** and the TSO-s of the **interconnected parties** that the **electricity market** will be or has been restored and the time at which this has or will occur.

#### 4.4.7 Ancillary Services

For each **balancing unit** that is available as an ancillary services provider the trading party shall submit an availability notice by no later than 13.00 on D-1 indicating its availability for the **day of physical dispatch**. The availability notice shall, at a minimum, contain the following information:

- a) The availability for each **balancing unit** for the day concerned;

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 32 from 35</i>

- b) **Outage** programming of inflexible/flexible **outages**, advanced notice of flexible **outage**, short term planned maintenance, return to service times etc;
- c) Revised MW figures for different periods of that schedule day where these change across that day:

#### 4.4.8 Communications

All communications between the **system operator** and the **market operator** and between the **system operator** and **trading parties** shall be carried out electronically.

#### 4.4.9 Non-Working Days

All daily activities associated with this **operational planning code** forecasts, **nominations**, etc. will be provided for all the forthcoming including non-working days **Trading parties** may submit their nominations for one non-working day in working day before non-working day.



	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 33 from 35</i>

## 5 Appendix 1 – Dynamic Data Parameters

As a minimum, the **dynamic data parameters** (DDPs) shall contain, for each **generating unit** with an installed capacity of at least 10 MW the information in the following paragraphs.

### 5.1 Availability Data

Availability data, each expressed in the form of time available/unavailable from (as dd/mm/yyyy hhmm) or else as a duration (hhmm) as follows:

- a) Planned **Outage**;
- b) Short-notice **outage**;
- c) Minimum Shutdown Time;
- d) Minimum On Time;

### 5.2 Ramp Rate Data

Ramp rate data expressed in the form of MW/minute changes in output including:

- a) Run-up Rate Unconstrained
- b) Run-up Rate Constrained Above MSG;
- c) Run-up Rate Below MSG;
- d) Run-down Rate Unconstrained;
- e) Run-down Rate Constrained Above MSG;
- f) Run-down Rate Below MSG;

### 5.3 Operational Limits

Operational limits expressed in MW (or in MWh and hhmm in the case of the delivery limits associated with hydro plant)

- a) MEL (Maximum Export Limit of a generating plant);
- b) MIL (Maximum Import Limit of a demand-side unit);

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 34 from 35</i>

- c) Maximum Delivery Volume;
- d) Maximum Delivery Period;
- e) MSG (Minimum Stable **Generation**);
- f) MSG Unconstrained;

#### 5.4 Notice Requirements

Notice requirements expressed in hhmm that are needed by **generators** to respond to an instruction from the **system operator** that include:

- a) Notice to Deviate from Zero;
- b) Notice to Deliver Offer;
- c) Notice to Deliver Bid:

#### 5.5 Other Generating Unit Information

This includes the following data:

- a) Governor droop (%);
- b) In the case of steam turbines, the synchronising times for the various levels of warmth and in addition the time from synchronisation to dispatch load;
- c) in the case of hydro sets and also gas turbines, the time from initiation of a start to achieving dispatch load;
- d) Limitations on the number of start-ups per schedule day;
- e) Block load in MW following synchronisation;
- f) Maximum loading rates for the various levels of warmth;
- g) Maximum de-load rates;
- h) The MW and MVar capability limits within which the **generating unit** is able to operate as shown in the relevant generating unit capability chart;

	<b>GRID CODE</b> <b>OPERATIONAL PLANNING CODE</b>	<b>PO-KO-005</b>
	<i>ver.2.4</i>	<i>pages 35 from 35</i>

- i) Maximum number of on-load cycles per 24 hour period, together with the maximum load increases involved:

#### 5.6 Demand-Side Scheduling and Dispatch Parameters (DSP)

As a minimum, the DSP shall provide, for all demand side dispatch services:

- a) Location;
- b) Amount;
- c) Automatic settings;
- d) Time to implement:

(End of the document)