

May 12, 2023

World Bank On-Boarding Program for PAEM Governing Committees

As part of its commitment to operationalize the Pan Arab Electricity Market (PAEM), the World Bank has offered to facilitate a series of onboarding sessions for power system executives from the various Pan-Arab countries who have been nominated by their countries for positions in the two PAEM oversight committees including the Pan-Arab Advisory and Regulatory Committee (Pan-Arab ARC) and the Arab Transmission System Operators Committee (Arab TSOs Committee)¹. The objective of the onboarding program is to elaborate on the roles and responsibilities of the nominated executives based on the PAEM General and Market Agreements and in line with the industry best standards. The sessions will be held over a 5-month period during the first half of 2023. The training will include both in-person and virtual sessions².

Following is the proposed onboarding program consisting of 15 sessions. The sessions are consistent with the two PAEM agreements. Each session is considered an “onboarding seminar” that ties directly to a responsibility of the PAEM Committees documented in the PAEM General Agreement. Note that Sessions 1 through 5 were already delivered to the PAEM Committees in person in Cairo during February/March 2023.

Session 1 – Benefits of Regional Trade (completed in Cairo during Feb 2023)

- Key barriers to trade
- Unexploited benefits of trade in the PAEM
- Priority transmission expansion programs to enhance trade
- Integration of trade beyond the PAEM

Session 2 – Energy Trade Economics (completed in Cairo during Feb 2023)

- Cost minimization via economic dispatch
- Proposed PAEM pricing mechanism

Session 3 – Role of Regulators in the PAEM (completed in Cairo during Feb 2023)

- Overview of the U.S. electricity market and the role of FERC
- Overview of the EU electricity market and the role of ACER
- Roles and responsibilities of the Pan-Arab ARC and the National Regulators in the PAEM
- Organization and priorities of the Pan-Arab ARC

Session 4 – Role of Transmission System Operators (TSOs) in the PAEM (completed in Cairo during Feb 2023)

- Overview of the U.S. electricity market and the role of NERC
- Overview of the EU electricity market and the role of ENTSO-E

¹ This offer was presented by the World Bank PAEM team to the Steering Committee (SC) and PAEM Secretariat during the SC 32nd meeting in Riyadh, KSA during Oct 9-11, 2022.

² A 2-day in person training session was conducted in Cairo in February 2023.

- Roles and responsibilities of the Arab TSOs Committee and the National TSOs in the PAEM
- Organization and priorities of the Arab TSOs Committee

Session 5 – Open Access and Transmission Pricing (completed in Cairo during Feb 2023)

- Open and non-discriminatory access
- Open access considerations
- The need for a regional transmission tariff
- Transmission pricing methodologies
- Transmission tariff design and implementation

Session 6 – Regulatory Accounting according to the General Agreement articles 3.3.1.7.4, 3.3.1.7.5 and 3.4.1.3.8

This session relates to Pan-Arab ARC responsibilities documented in Section 3.3.1.7.4 - Review and approve accounting principles for entities participating in the PAEM and ensure consistency with International Financial Reporting Standards issued by the International Accounting Standards Board and Section 3.3.1.7.5 - Review and approve transmission service charges for international transactions.

With respect to the Arab TSOs Committee, it relates to Section 3.4.1.3.8 - reviewing the methodologies to be applied for calculating tariffs, rates and charges in the PAEM.

Topics to be covered in this session include:

- Accounting methodologies and techniques
- Tracking/cost categories and the need for unbundling of services
- Example of regulatory accounting use in transmission tariff development
 - Costs to be recovered in a transmission tariff
 - The 5 steps to transmission tariff development

Session 7 –Regional Power System Planning, Reliability and Security of Supply according to the General Agreement articles 3.3.1.7, 3.3.1.3.19 and 3.4.1.3 and PAEM Agreement article 3.8

This session relates to Pan-Arab ARC responsibilities documented in Section 3.3.1.7 including review and approve the facilities that make up the grid and International Interconnections, and review and recommend proposals of the Arab TSOs Committee for construction of new International Interconnection facilities. It also relates to Section 3.3.1.3.19 - Review and approve proposals of the Arab TSOs Committee and the Regional Market Facilitator in respect of the targeted loss of load expectation, forecasting accuracy, Capacity Obligations and grace periods to achieve these target values.

With respect to the Arab TSOs Committee, it relates to Section 3.4.1.3 - In discharging the duties as mentioned in section 3.4.1.1, the Arab TSOs Committee shall coordinate with Member States with respect to operations which shall include: matters relating to operational aspects in the PAEM, matters relating to the security and stability of operations of the interconnected system including loss of load expectation, advice on the methodology for determining the quantity of reserves that Member States should maintain in order to meet their Capacity Obligation, the determination and allocation of losses for transactions in the PAEM, and investigating major faults related to the PAEM. It also relates to various sections of the PAEM Agreement including Section 3.8 – Transmission reliability margin.

Topics to be covered in this session include:

- Need for, and definition of, reliability and security of supply
- Generation reliability criteria and standards; loss of load probability, capacity obligations, etc.
- Transmission reliability and standards; i.e., n-1
- Grid Codes
- Development and need for a 10-Year Plan
- Decision making and overcoming objections to specific projects via incentive mechanisms

Session 8 –Available Transmission Capacity according to the General Agreement articles 3.3.1.3.11, 3.4.1.2.5 and PAEM Agreement articles 3.6 and 3.8

This session relates to Pan-Arab ARC responsibilities documented in Section 3.3.1.3.11- Review and approve the methodology for calculation of available transmission capacity (General Agreement), and Section 3.6 – Transmission congestion (PAEM Agreement).

With respect to the Arab TSOs Committee, it relates to General Agreement Section 3.4.1.2.5 - advising on the adequacy of the PAEM with respect to reliability and quality of supply, reserves, available transmission capacity, transmission congestion and power exchange flexibility, and PAEM Agreement Section 3.8 – Transmission reliability margin.

Topics to be covered in this session include:

- Determination of available transmission capacity and use
- Allocation when available capacity is exceeded
- Use of congestion rents
- Inadvertent flows

Session 9 –Market Power and Monitoring according to General Agreement article 3.3.1.7.6 and PAEM Agreement article 2.3

This session relates to Pan-Arab ARC responsibilities documented in Section 3.3.1.7.6 - In the discharge of its roles and responsibilities, the Pan-Arab ARC shall Investigate and analyze situations of potential market power abuse, and Section 2.3 of the PAEM Agreement

The Arab TSOs Committee is peripherally involved with investigations relating to market power abuse when its technical expertise is needed.

Topics to be covered in this session include:

- Definition of market power in the power sector
- Information requirements for monitoring market power
- Market power monitoring; i.e., market power monitoring group
- Identifying market power and abuse of a market power position
- Actions/penalties when a market participant has been deemed to have abused its market power position

Session 10 –Dispute Resolution according to General Agreement article 3.3.1.3.16 and PAEM Agreement article 5

This session relates to Pan-Arab ARC responsibilities documented in Section 3.3.1.3.16 - Perform its obligations in relation to the resolution of Disputes as set out in the General Agreement, and Section 5 of the PAEM Agreement.

The Arab TSOs Committee may be peripherally involved in a dispute when its technical expertise is needed.

Topics to be covered in this session include:

- Causes of disputes
- Who can file a dispute?
- Dispute resolution procedure
- Costs and penalties

Session 11 – Credit Obligations and Payment Default Procedure according to General Agreement article 3.3.1.3.15 and PAEM Agreement article 2.3.2

This session relates to Pan-Arab ARC responsibilities documented in Section 3.3.1.3.15 - Review and approve credit obligations and payment default procedures (General Agreement) and Section 2.3.2 – Credit support (PAEM Agreement)

Credit obligations and payment default is not a responsibility of the Arab TSOs Committee.

Topics to be covered in this session include:

- Credit obligations
- Types of credit guarantees
- Payment default procedure

Session 12 –Performance Standards according to General Agreement articles 3.3.1.3.22, 3.3.1.3.23 and 3.4.1.1.5

This session relates to Pan-Arab ARC responsibilities documented in Section 3.3.1.3.22 - Review and approve the Performance Standards proposed by the Arab TSOs Committee or a Regional Market Facilitator and the date on which such Performance Standards shall take effect, and Section 3.3.1.3.23 - Determine and apply appropriate actions to be taken as a result of a Regional Market Facilitator failing to meet the Performance Standards.

With respect to the Arab TSOs Committee, this session relates to Section 3.4.1.1.5 - prepare Performance Standards and procedures and submit for review and approval by the Pan-Arab ARC (including without limitation procedures submitted by the Regional Market Facilitator.

Topics to be covered in this session include:

- Performance standards for market service providers:
 - Regional Market Facilitator

- National TSOs
- National Regulators, etc.

Session 13 –Rules Enforcement according to General Agreement article 4.1.1 and PAEM Agreement article 1.4.7

This session relates to Pan-Arab ARC responsibilities documented in Section 4.1.1 of the General Agreement and Section 1.4.7 of the PAEM Agreement which set out the rules pursuant to which the Pan-Arab ARC, subject to approval by the Ministerial Council, shall monitor, assess and enforce compliance with the PAEM Agreement and the Arab Grid Code, including by means of the issuance of non-compliance letters, the imposition of financial penalties, the issuance of Suspension Orders and the issuance of Termination Orders, and the taking of such other enforcement actions as provided for in the PAEM Agreement and the Arab Grid Code

The Arab TSOs Committee may be peripherally involved in rules enforcement when its technical expertise is needed.

Topics to be covered in this session include:

- Purpose of rules enforcement
- Rules enforcement procedure
- Penalties and actions that can be taken

Session 14 Regional Power Market Integration – Experience of East and South African Power Pools

Both the Pan-Arab ARC and the Arab TSOs Committee have responsibilities relating to PAEM development. For example, Section 3.3.1.7.7 assigns responsibility to the Pan-Arab ARC for preparing periodic Regulation Reports evaluating the status of PAEM development in meeting its objectives. With respect to the Arab TSOs Committee, Section 3.4.1.1.7 requires that it prepare and submit for review by the Pan-Arab ARC proposals for the construction and expansion of International Interconnection Facilities. As both committees have responsibilities relating to market development, they will both benefit from experience in East and South Africa.

Topics to be covered in this session include:

- Overview
- Institutional Setup in EAPP
- Institutional setup in SAPP
- Approach to increased regional trade; e.g., institutions, market design, roadmap, etc.
- Success factors

Session 15 –Project Finance (based on General Agreement articles 3.3.1.3.8 and 3.4.1.1.7)

Project finance is a critical element of new international interconnection facilities. Section 3.3.1.3.8 indicates that the Pan-Arab ARC is responsible for reviewing and advising on proposals of the Arab TSOs Committee for expansion of International Interconnection facilities. As stated in Section 3.4.1.1.7,

the Arab TSOs Committee is responsible for preparing and submitting for review by the Pan-Arab ARC proposals for the construction and expansion of International Interconnection Facilities.

Topics to be covered in this session include:

- Identifying new projects
- Methods of project finance
- Determining project finance requirements
- Risk management
- Sources of project finance