

**Request For Information (“RFI”) from Israel Independent System Operator (“NOGA-ISO”)**  
**regarding Oil-Immersed Shunt Reactors for 161 kV System, 50, 75 and 150 MVar**

**1. General**

- 1.1. NOGA-ISO - Israel Independent System Operator Ltd. (“**NOGA-ISO**”) is an Israeli government company and the holder of a system management license granted pursuant to the Electricity Sector Law, 5756-1996 (the “Electricity Sector Law”). Under its system management license, NOGA-ISO is responsible for the management, planning and development of the electricity system in the generation and transmission segments, in accordance with the activities and responsibilities set forth in the license.
- 1.2. Under its system management license, NOGA-ISO prepares System Technical Requirements for primary equipment in the transmission system. Within this framework, NOGA-ISO is examining the future use of three-phase oil-immersed shunt reactors for reactive power compensation and voltage regulation in the 161 kV transmission system.
- 1.3. NOGA-ISO wishes to obtain preliminary market information regarding the expected acoustic performance of three-phase oil-immersed shunt reactors for the 161 kV system, at rated reactive powers of 50, 75 and 150 MVar. The reactors are intended to provide variable reactive power absorption over a range from 30% to 100% of rated reactive power by means of an on-load tap changer (OLTC). For the purpose of this RFI, acoustic data are requested at full rated reactive power. The objective is to establish representative noise levels for early-stage planning and assessment.

## 2. Time Schedule

2.1. The RFI shall be conducted on the following dates:

|                                                                                                  |                                   |
|--------------------------------------------------------------------------------------------------|-----------------------------------|
| RFI release date                                                                                 | 07.10.2026                        |
| Last date for submitting a Clarification Request<br>( <b>“Last Date for Submitting CR”</b> )     | 14.10.2026<br>23:59 (Israel time) |
| Last date for submitting a response to the RFI<br>( <b>“Last Date for Submitting Response”</b> ) | 28.10.2026<br>23:59 (Israel time) |

2.2. NOGA-ISO may, at its sole discretion, postpone any of the deadlines listed above, but shall not be obliged to do so at the request of any of the participants.

## 3. Required Information

3.1. NOGA-ISO wishes to identify available three-phase oil-immersed shunt reactors for the 161 kV system with rated reactive powers of 50, 75 and 150 MVar.

3.2. NOGA-ISO is interested in reactor designs capable of varying reactive power absorption from 30% to 100% of rated reactive power by means of an on-load tap changer (OLTC). Participants are requested to confirm this capability and, where available, indicate the number of tap positions. Acoustic data are requested at full rated reactive power (provided that this represents the maximum sound power level), including overall LWA and a typical 1/1 octave-band spectrum, with the cooling system operating in the applicable mode. Please indicate the cooling mode and whether the data are measured, calculated or estimated.

3.3. The overall dimensions of the fully assembled shunt reactor should not exceed the limitations specified in Annex 1.

3.4. More detailed information is provided in Annex 1.

## 4. Clarification Requests

4.1. The participants may direct questions or seek additional information (**“Clarification Request”**).

4.2. Any Clarification Request or questions should be submitted in writing to the e-mail address mentioned in Section 5.2.

4.3. A Clarification Request should be submitted no later than the Last Date for Submitting CR as specified in Section 2.1.

4.4. NOGA-ISO may address a Clarification Request but is not obligated to do so. At NOGA-ISO's discretion, any response to a Clarification Request may be issued in writing and published or

otherwise made available to all participants, provided that the identity of the participant submitting the Clarification Request will not be disclosed.

**5. NOGA-ISO's POC; Submission Place**

- 5.1. NOGA-ISO has appointed the following person as its POC for the purpose of this RFI: Linor Ben-MICHAEL Adelstain (“**NOGA-ISO's POC**”).
- 5.2. All communications relating to this RFI should be addressed to NOGA-ISO's POC through the following e-mail address: [Linor.BenMichael@noga-iso.co.il](mailto:Linor.BenMichael@noga-iso.co.il)
- 5.3. All documents submitted pursuant to this RFI should be submitted to the e-mail address mentioned in Section 5.2.

**6. General Prerogative**

- 6.1. At any time prior to the Last Date for Submitting Response, NOGA-ISO may refine, change, amend, add, eliminate from or modify this RFI, for any reason, whether on its own initiative, or in response to a Clarification Request received pursuant to Section 4.
- 6.2. NOGA-ISO may communicate with and hold discussions or meetings with respondents during any stage of this RFI, including after the Last Date for Submitting Response, subject to applicable law and the requirement to maintain equality among respondents.

**7. General Terms**

- 7.1. The purpose of this RFI is to gather preliminary market information on the acoustic characteristics of three-phase oil-immersed shunt reactors for the 161 kV transmission system and to support early-stage planning and assessment. It is not intended to act as a tender or competition process.
- 7.2. This RFI does not constitute a tender or an invitation to submit proposals, but an early request for information pursuant to Regulation 14A of the Mandatory Tenders Regulations, 5753-1993 (the “**Regulations**”). The RFI is published publicly on NOGA-ISO's website and is open to any interested party. Receipt of information and any discussions with respondents shall be conducted while maintaining equality among respondents. NOGA-ISO may, in addition, bring the public RFI to the attention of specific entities it considers relevant; such notification shall not limit the public nature of the RFI or confer any preference or advantage.
  - 7.2.1. NOGA-ISO's Tenders Committee shall document all information received and all discussions are held with respondents to this RFI.

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- 7.2.2. A response to this RFI shall not constitute a condition for participation in any tender conducted following it, shall not confer an advantage in such tender solely by reason of having responded to this RFI, and shall not obligate NOGA-ISO to include the respondent in such tender or to enter into any engagement with it in any other manner.
- 7.2.3. Information documented pursuant to this RFI, where a tender is subsequently conducted in reliance on such information and the provider of the information is awarded the contract under that tender, shall be subject to the provisions of Regulation 21(e), with the necessary modifications.
- 7.3. NOGA-ISO shall have full discretion in determining the terms of any future tender or other engagement process under the Israeli law and regulations, if and to the extent published in the future, including without limitation the terms of the contract, pricing and any other matter relating to the engagement.
- 7.4. Without derogating from the generality of the aforesaid, it is hereby clarified that any detail described or indicated in this RFI may be changed at the sole discretion of NOGA-ISO and is not meant to bind NOGA-ISO in any way.
- 7.5. The participants shall bear all costs associated with preparing and submitting a response and shall not be entitled to reimbursement and/or compensation and/or indemnity for any expenses and/or damages incurred in connection with this RFI and/or with submitting a response.
- 7.6. This RFI shall be governed by and construed in accordance with the laws and regulations of the State of Israel. The applicable courts in Haifa shall have exclusive jurisdiction with respect to all matters and all disputes arising in connection with this RFI.

**Annex 1**

**Detailed requests**

**Subject:** **Three-phase oil-immersed shunt reactors for 161 kV system, 50, 75 and 150 MVar**

**1. Background :**

1.1. NOGA-ISO wishes to review the acoustic characteristics of available three-phase oil-immersed shunt reactor technologies for the 161 kV transmission system.

1.2. The objective of this RFI is to gather preliminary acoustic information for reactor ratings of 50, 75 and 150 MVar. Each reactor is intended to provide variable reactive power absorption from 30% to 100% of rated reactive power by means of an on-load tap changer (OLTC). For planning purposes, the requested acoustic data shall refer to operation at full rated reactive power.

**2. Technical data:**

**2.1. General ratings:**

|        |                                                              |                                                                                                  |
|--------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 2.1.1. | Frequency (Hz)                                               | 50                                                                                               |
| 2.1.2. | No. of phases                                                | 3                                                                                                |
| 2.1.3. | System nominal voltage (kV r.m.s)                            | 161                                                                                              |
| 2.1.4. | Maximal system operation voltage (kV r.m.s)                  | 170                                                                                              |
| 2.1.5. | Rated reactive power / regulation / acoustic operating point | 50 / 75 / 150<br>MVar<br>30%-100% by<br>OLTC<br>Acoustic data at<br>100% rated<br>reactive power |

**2.2. Dimensions:**

2.2.1. Due to site space limitations, compact shunt reactor designs are of particular interest.

2.2.2. The overall dimensions of the fully assembled shunt reactor, including tank, cooling equipment, conservator, bushings, OLTC drive and permanently installed accessories, should not exceed L\*W\*H (mm/mm/mm) - 9000\*6700\*7200.

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**3. Required Information:**

3.1. Please complete the table below. Where available, please attach a technical data sheet and/or a general arrangement drawing. The requested information is intended for preliminary market assessment.

| Reactor Rated Power<br>[MVar] | Availability / Regulation Capability |                            | Manufacturer Technical Data                                                  |
|-------------------------------|--------------------------------------|----------------------------|------------------------------------------------------------------------------|
| 50                            | Available / Not available            | OLTC 30%-100%:<br>Yes / No | No. of tap positions (if available); cooling mode; L*W*H; model / reference. |
| 75                            | Available / Not available            | OLTC 30%-100%:<br>Yes / No | No. of tap positions (if available); cooling mode; L*W*H; model / reference. |
| 150                           | Available / Not available            | OLTC 30%-100%:<br>Yes / No | No. of tap positions (if available); cooling mode; L*W*H; model / reference. |

3.2. Please provide the following acoustic data at full rated reactive power (100%), including the cooling system operating in the mode applicable to full rated reactive power. No acoustic data at intermediate OLTC positions are required, provided that full rated reactive power represents the maximum sound power level. Otherwise, please provide the maximum sound power level and the corresponding operating condition. For each reactor rating, please indicate whether the data are measured, calculated or estimated and identify the reference reactor/model on which the data are based, where applicable:

| Reactor<br>Rated Power<br>[MVar] | Available Sound Power Level at Full Rated Reactive Power, Including Typical Spectrum |     |     |     |      |      |      |      |                | Lowest Achievable<br>LWA at Full Rated<br>Reactive Power<br>[dB(A)] |
|----------------------------------|--------------------------------------------------------------------------------------|-----|-----|-----|------|------|------|------|----------------|---------------------------------------------------------------------|
|                                  | Lw [dB] - 1/1 Octave Band Spectrum                                                   |     |     |     |      |      |      |      | LWA<br>[dB(A)] |                                                                     |
|                                  | 63                                                                                   | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | Overall        | Overall                                                             |
| 50                               |                                                                                      |     |     |     |      |      |      |      |                |                                                                     |
| 75                               |                                                                                      |     |     |     |      |      |      |      |                |                                                                     |
| 150                              |                                                                                      |     |     |     |      |      |      |      |                |                                                                     |

**Supporting information for the acoustic data:**

| <b>Reactor<br/>Rated Power<br/>[MVar]</b> | <b>Data Basis<br/>Measured / Calculated /<br/>Estimated</b> | <b>Cooling Mode</b> | <b>Reference Reactor / Model<br/>(if applicable)</b> |
|-------------------------------------------|-------------------------------------------------------------|---------------------|------------------------------------------------------|
| 50                                        |                                                             |                     |                                                      |
| 75                                        |                                                             |                     |                                                      |
| 150                                       |                                                             |                     |                                                      |