

 JSC "Augstsprieguma tīkls" Company Reg. No. 40003575567 Dārziema iela 86, Rīga, LV-1073, Latvia Tel.: (+371) 67728353, fax: (+371) 67728858	Regulations Tehniskās un datu apmaiņas prasības rezervju nodrošināšanas vienībām for Reserve Units		Page 1 (11) Approved: 30.08.2019.
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Technical and Data Exchange Requirements for Reserve Units

I Objective of the document

1. The objective of the document is to determine the technical and data exchange requirements for reserve units in accordance with Clause 2.3 of Annex 8 to decision No. 1/4 of the Public Utilities Commission "[Electricity Sector Network Code](#)" (hereinafter – Network Code) adopted on 26 June 2013.
2. The document defines technical and data exchange requirements for ReU, requirements for ensuring control metering and commercial metering as well as the procedure for evaluating the technical compliance of JSC "Augstsprieguma tīkls" (hereinafter – AST).

II Glossary of terms

3. In the document, terms and abbreviations are used in the sense in which they are used in the Rules for Providing the Balancing Service under the System Ancillary Service Agreement (hereinafter – the Rules) and the Network Code.

III Data exchange requirements

4. The BSP shall submit a balancing product bid, receive an activation order, and send an acknowledgment of receipt in accordance with Chapter IV of the Technical and Data Exchange Requirements.
5. A BSP, which uses a ReU other than dispatched generating unit (DGU) in the provision of the service, shall submit a generation schedule and consumption schedule (baseline) to AST in accordance with the specifications laid out in Chapter V of the Technical and Data Exchange Requirements.
6. A ReU, which is a DGU, shall provide a real-time aggregated measurement (readings) of the active power in compliance with the technical requirements for the submission of real-time measurements set by AST.
7. A BSP, whose ReU is a demand unit or an aggregation of demand units, shall ensure the submission of control metering data in accordance with the requirements specified in Chapter VI of the Technical and Data Exchange Requirements, using control meters to obtain control data that meet the requirements specified in Chapter VII of the Technical and Data Exchange Requirements.
8. A BSP whose ReU is an aggregate of power generating modules or a power generating module that does not meet the definition of the DGU shall provide control metering data in one of the following ways:
 - 8.1 the submission of control metering data in accordance with the requirements specified in Chapter VI of the Technical and Data Exchange Requirements, using control metering devices to obtain control metering data that meet the

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requirements specified in Chapter VII of the Technical and Data Exchange Requirements;

- 8.2 submission of aggregated real-time active power measurements (readings) to AST, in accordance with the technical requirements for the submission of real-time measurements set by AST.
9. For the exchange of BSP's messages, mentioned in Chapter IV of the Technical and Data Exchange Requirements, either Web service or e-mail must be used, according to the forms specified for each type of message exchange. Parallel or shared use of both types of data exchange in relation to the mentioned messages is not allowed.
10. The chosen type of message exchange shall be indicated in the BSP's ReU Application form. ReUs that are demand units or an aggregate thereof, an aggregate of power generating modules or a power generating module submitting data in accordance with Clause 8.1 of the Technical and Data Exchange Requirements are only allowed to use the web service message exchange method.
11. Simple Object Access Protocol (SOAP) with Basic authorisation is used for data exchange using the web service.
12. If the BSP is met with technical obstacles for the implementation of a certain data exchange, the BSP and AST can agree on the use of another message exchange type or format.
13. The ENTSO-E XML (Extensible Markup Language) message exchange standards shall be applied to data exchange via the web service, the corresponding XSD (*XML Schema Definition*) files are available on the ENTSO-E electronic data exchange library website.
14. In the exchange of data through the web service, for each message received, the recipient sends an acknowledgement in accordance with the form specified in Annex 8 to the Technical and Data exchange requirements.

IV Requirements for the exchange of messages between balancing service providers and AST

15. If the BSP submits a balancing product bid and its amendments through the web service, it should be done in accordance with the form specified in Annex 1 to the Technical and Data Exchange Requirements.
16. If the BSP submits a balancing product bid and its amendments via e-mail, they shall be in accordance with the form specified in Annex 2 to the Technical and Data Exchange Requirements and should be sent to the e-mail address: meter@ast.lv.
17. In the case of unavailability of a bid, the BSP shall inform AST by sending a message using the web service, it shall be completed in accordance with the form specified in Annex 3 to the Technical and Data Exchange Requirements, using e-mail, it shall be completed in accordance with the form specified in Annex 4 to the Technical and Data Exchange Requirements.
18. In cases where the bid does not meet the requirements of the System Ancillary Service Agreement, the Rules or the Technical and Data Exchange Requirements, AST sends a

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rejection of the bid using the appropriate message exchange method for the one used by the BSP in submitting the bid.

19. The BSP must be able to receive and respond accordingly to the activation order given by the AST dispatcher, which is designed according to the form for exchanging messages via the web service specified in Annex 5 to the Technical and Data Exchange Requirements, according to the form for exchanging messages via e-mail specified in the form in Annex 6. The balancing product activation order specifies the ReU used in the corresponding balancing product bid.
20. For each electronically received AST dispatcher activation order or its update, the BSP sends confirmation in accordance with the form specified in Annex 7 to the Technical and Data Exchange Requirements, if the web service is used, and with the form specified in Annex 6 to the Technical and Data Exchange Requirements 6, if e-mail is used.

V Submission of generation schedule and consumption schedule (baseline)

21. For the BSP whose ReU is not a DGU, ReU submits the consumption and generation schedule of each delivery point according to the form specified in Annex 9 to the Technical and Data Exchange requirements by sending it as an XML file using the web service.

VI Requirements for submission of energy control metering data

22. The BSP shall submit the data of demand units and/or power generating modules included in a ReU that submit data in accordance with Clause 7 or 8.1 of the Technical and Data Exchange Requirements, energy control metering data electronically using the web service in accordance with the form specified in Annex 10 to the Technical and Data Exchange Requirements.

VII Requirements for the provision of control metering

23. For a BSP submitting data in accordance with Clause 7 or 8.1 of the Technical and Data Exchange Requirements, the installed electricity control meters shall meet one of the two criteria:
 - 23.1 Regulatory requirements for measuring instruments subject to state metrological control and supervision, in accordance with the Law “[On Uniformity of Measurements](#)”, including the conformity assessment procedure in accordance with the regulations for the measuring instruments or the type approval of measuring instrument and the initial verification or subsequent verification;
 - 23.2 The measuring device has been issued with a manufacturer's declaration on the compliance of the measuring device with a certain accuracy class and a CE conformity declaration. The measuring device has been calibrated in accordance with the procedure established in the legal acts governing the calibration of measuring instruments, which has been carried out by a calibration laboratory accredited by the National Accreditation Authority or accredited by other European Union Member States or European Economic

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Area countries. Subsequent calibration of the measuring devices shall be performed every 6 years.

24. For aBSP submitting data in accordance with Clause 7 or 8.1 of the Technical and Data Exchange Requirements, the installed electricity control meters must meet the following accuracy class criteria:
 - 24.1 The accuracy class for measurement transformers shall not be lower than 0.5;
 - 24.2 The accuracy class for electricity meters in direct connection shall not be lower than 1.0 (or type B according to Cabinet Regulation No. 666 “[Regulations on metrological requirements for active electricity meters](#)”), but in connection with measurement transformers shall not be lower than 0.5 (or type C according to Cabinet Regulation No. 666).
25. For BSPs submitting data under Clause 7 or 8.1 of the Technical and Data Exchange Requirements, the installed electricity control meters shall have the ability to register load profiles for each one-minute interval.
26. BSP control meters shall be installed:
 - 26.1 at the electrical installations side of the electricity meter for the power commercial accounting, in the case that the power generating module, demand unit or aggregation of power generating modules and/or demand units meets the definition of a technical unit. In such cases, the entire amount of electricity transferred/consumed from the network of power generating modules and demand units in the network, which is recorded with a electricity meter for the power commercial accounting, shall be recorded in the control metering process;
 - 26.2 at the demand unit or power generating module, in cases where this unit is a DGU or meets the definition of a reserve providing unit. In such cases, only the amount of power produced/consumed by the power generating modules and demand units that are used in the provision of the balancing service should be recorded in the control metering process.

VIII Requirements for the provision of commercial metering

27. At the connection point to the system operator's grid, the reserve providing unit should have meters installed for the commercial metering of the energy transmitted to the system operator's network/consumed from the network (depending on the type of connection).
28. Metering devices for commercial energy metering shall comply with the regulatory requirements of measuring instruments subject to the State metrological inspection, including certification and verification, in accordance with the Law “[On Uniformity of Measurements](#)”.
29. The accuracy of electricity meter for the power commercial accounting shall not be lower than specified in the Network Code.

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30. Electricity meter for the power commercial accounting shall have the ability to record load profiles for at least each trading interval (currently 60 minutes, in the future 15 minutes) and shall be connected to the system operator's Automatic energy meter reading (HES/MDM system).

IX General technical requirements for ReUs

31. ReU shall be able to remain connected to the system operator's network and operate in the frequency ranges specified in Clause 2 of Annex 11 to the Network Code, respecting the periods of operation specified there.
32. For power generating modules included in a ReU and corresponding to type B, C or D (according to the criteria referred to in Clause 5 of Commission Regulation (EU) 2016/631) , shall ensure continuous operation in the voltage range corresponding to its type, defined in Annexes 7 and 11 of the Network Code.
33. The power generating modules included in a ReU that does not comply with any of the types of power generating modules and demand units listed in the Technical and Data Exchange Requirements Clause 32 of the Technical and Data Exchange Requirements shall ensure continuous operation in the voltage range determined for them by the system operator to whose network the relevant power generating module or demand unit is connected.
34. Power generating modules included in a ReU and corresponding to type B, C or D (according to the criteria referred to in Clause 5 of Commission Regulation (EU) 2016/631), shall ensure continuous operation in the voltage range corresponding to its type, defined in Annex 7 to the Network Code.
35. The power generating modules included in a ReU that do not comply with any of the types of power generating modules and demand units listed in the Technical and Data Exchange Requirements Clause 34 of the Technical and Data Exchange Requirements shall ensure continuous operation in the voltage range determined for them by the system operator to whose network the relevant power generating module or demand unit is connected.
36. The ReU shall withstand frequency transients at a rate not exceeding 2.5 Hz/s (500 ms in a sliding time window).

X Composition and use of ReUs

37. A reserve providing unit or a reserve providing group that fulfils all technical and data exchange requirements and is capable of providing the product(s) described in Annex 1 and/or Annex 2 to the Rules may be used as a ReU.
38. A reserve providing unit or a reserve providing group becomes a ReU valid for the provision of balancing services after the issuance of a declaration of prequalification, but it may be used after the ReU is included in Annex 1 to the Agreement.
39. A technical unit that is unable to independently fulfil all technical and data exchange requirements and/or is unable to provide the product(s) described in Annex 1 and/or

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Annex 2 to the Rules cannot be used as a ReU independantly, but may be included in a reserve providing unit or reserve providing group.

40. Changes to ReU with a valid **declaration** of prequalification can be made without a repeated technical evaluation in the following cases:
 - 40.1 if the ReU's maximum balancing product bid capacity is reduced;
 - 40.2 if a power generating module is added to the ReU on the condition that the maximum capacity of the balancing product bid is not increased;
 - 40.3 if a demand unit is added or removed from the ReU, provided that the maximum capacity of the balancing product bid is not increased;
 - 40.4 if a ReU is added to another ReU, which is a reserve providing unit and has a valid **declaration** of prequalification. In this case, the maximum power of the balancing product bid is increased to the sum of both ReUs capacity (the sum of the maximum power of the balancing product bid of the original ReU composition and the maximum power of the balancing product bid of the added ReU).
41. When excluding a power generating module from a ReU, the evaluation of technical compliance must be repeated.
42. A ReU formed as a reserve providing group may not be combined with another ReU also formed as a reserve providing group.
43. Changes to a ReU, which are included in Annex 1 to the Agreement, shall be made in accordance with the procedure provided for in the Agreement, changes to a ReU, which are not included in Annex 1 to the Agreement, shall be made by preparing and submitting a new Application in accordance with Clause 46 of the Technical and Data Exchange Requirements.
44. Upon receiving a change request, submitted in accordance with the procedure established in Clause 43 of the Technical and Data Exchange Requirements, due to changes in the ReU's information, AST evaluates and provides an answer within 10 working days.
45. Evaluating the demand received in Clause 43 of the Technical and Data Exchange Requirements AST can determine the need for BSP to perform a repeated technical conformity assessment process of ReU.

XI ReU technical conformity assessment process

46. In order for the TSO to evaluate the technical compliance of the ReU for the provision of the balancing service, the BSP shall prepare and submit an application for the use of the ReU for the provision of the balancing service by filling in the application form attached in Annex 11 (hereinafter – Application) and sending it to AST to the e-mail address: ast@ast.lv.
47. After receiving the BSP's Application, AST evaluates the compliance of the Application in accordance with the procedures and deadlines set by the Network Code and informs the BSP about the result of the Application evaluation.

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48. If AST has deemed the Application as adequate or has requested a re-evaluation of ReU compliance, AST informs the BSP of the AST contact person with whom the BSP shall coordinate the ReU inspection plan (hereinafter, the Inspection Plan), as well as about the minimum requirements of the activation inspection plan.
49. The ReU compliance assessment shall be carried out within 12 weeks after receiving information about the Application's compliance with the requirements, or if AST has requested a repeated ReU compliance assessment. The ReU compliance assessment includes the following steps:
 - 49.1 Preparation and coordination of the inspection plan;
 - 49.2 Carrying out inspections according to the inspection plan;
 - 49.3 Preparation and submission of inspection results;
 - 49.4 Analysis of inspection results and provision of information.
50. Within 30 calendar days after receiving information about the Application's compliance with the requirements or AST's request to re-evaluate ReU compliance, the BSP draws up and coordinates a detailed Inspection Plan with AST. The inspection plan shall specify at least: ReU inspection time, prerequisites for starting inspection, data exchange inspection plan (according to the requirements of Chapter XIII of the Technical and Data Exchange Requirements), the activation inspection plan (according to the requirements of Chapter XIV of the Technical and Data Exchange Requirements) and the BSP's contact person responsible for the ReU inspection.
51. If the BSP, after receiving information about the compliance of the application with the requirements, does not coordinate the Inspection Plan within the term specified in Clause 50 of the Technical and Data Exchange Requirements, AST has the right to stop the conformity assessment process and send information to the BSP about the non-conformity of the Application.
52. If the BSP does not coordinate the Inspection Plan after the request of AST to re-evaluate the conformity of the ReU within the term specified in Clause 50 of the Technical and Data Exchange Requirements, AST has the right to void the ReU's declaration of prequalification.
53. Upon agreement between the BSP and AST, the Inspection Plan may be changed.
54. The inspection can only be started after the approval of the Inspection Plan by AST.
55. AST has the right to participate in inspections in person, or to install additional measuring devices.
56. During the inspection, the BSP demonstrates and checks the compliance of the ReU operation with the Rules and Technical and Data Exchange Requirements, including:
 - 56.1 the ability to successfully fulfil data exchange requirements according to the data exchange inspection plan, observing the data submission deadlines specified in the Rules;

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- 56.2 the ability to activate and manage the reserve units up to the maximum amount of the bid specified in the Application according to the activation inspection plan, in compliance with:
- 56.2.1. the specifications of the relevant balancing product/s in the Annex(es) to the Rules;
 - 56.2.2. maximum permissible deviation $\pm 10\%$ of the activated balancing capacity after reaching the activated balancing capacity or 0.1 MW (whichever value is greater);
 - 56.2.3. the permissible 20% error for the difference between the amount of energy supplied in the actual activation, and the product of the amount of activated capacity specified in the dispatcher's command and the difference between the time of termination and start of activation;
- 56.3 compliance of the consumption schedule (baseline) with the actual consumption during the 7-day test period, within the limits of the permissible error specified in the Rules, for those BSPs that use demand response for the provision of the balancing service.
57. After the execution of the inspection plan, the BSP submits the inspection results to AST within 5 working days by sending the report to the e-mail address: rps@ast.lv. The report shall include at least: Meter readings taken by the BSP, data exchange plan execution results, activation plan execution results.
58. After receiving the Inspection plan report, AST performs an analysis of the results and informs the BSP of the inspection results within the period specified by the Network Code.
59. For ReUs that do not have a valid declaration of prequalification, if, after analysing the results of the tests, AST finds that ReU is adequate for the provision of balancing services, AST provides information about the declaration of prequalification, indicating the date and number of its issuance. If the ReU is deemed not adequate for the provision of the balancing service, AST informs the BSP about it, indicating the reason for not granting a declaration of prequalification.

XII ReU technical conformity re-assessment process

60. Re-evaluation of a ReU's compliance is carried out at least once every 5 years.
61. In order to re-evaluate the technical compliance of a ReU, the BSP submits an Application in accordance with the procedure specified in Clause 46 of the Technical and Data Exchange Requirements and repeated evaluation of the technical compliance of a ReU is carried out in accordance with Clause 47–58 of the Technical and Data Exchange Requirements.
62. In cases where a re-evaluation of technical compliance of a ReU is initiated to fulfil the requirements of Clause 60 of the Technical and Data Exchange Requirements, AST may grant a derogation from the points of the ReU Technical Conformity Evaluation Procedure set out in Clause 48–57 of the Technical and Data Exchange Requirements instead; the assessment of a ReU compliance should be based on the ReU's activations

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carried out during the last calendar year and the data available to AST about them, if such activations have been carried out and are sufficient for the evaluation of the ReU's compliance.

63. If a derogation from the ReU Technical Compliance Evaluation Procedure is granted in accordance with Clause 62 of the Technical and Data Exchange Requirements, AST:
- 63.1 after evaluating the BSP application, shall notify the BSP of the granting of such a derogation;
- 63.2 within 30 days after the evaluation of the application, the results of the ReU conformity assessment analysis are announced.
64. If AST has requested a re-evaluation of conformity for a ReU, which has a valid declaration of prequalification in accordance with the cases and procedures specified in the Rules BSP and AST carry out a ReU conformity assessment in accordance with Clause 48 – 58 of the Technical and Data Exchange Requirements.

XIII ReU data exchange inspection procedure

65. The data exchange inspection plan prepared by the BSP shall comply with the requirements described in this chapter.
66. In the prepared data exchange inspection plan, the BSP should indicate the type of data exchange, the sequential message exchange plan, the data exchange inspection period, and the expected results of the data exchange inspection.
67. The data exchange inspection plan should include data exchange to the extent that it is possible to make sure of the ability to carry out all the necessary data exchange specified in the ReU Technical and Data Exchange Requirements, within the terms provided for in the Rules.

XIV ReU compliance activation verification procedure

68. The activation inspection plan prepared by the BSP shall comply with the requirements described in this chapter.
69. In the description of the prepared activation inspection plan, the BSP shall indicate the description of the inspection, the measurement equipment, the steps to be performed during the inspection activation, the time period for performing the activation, and the expected results.
70. In the event that the maximum capacity of the balancing product bid specified in the ReU Application is asymmetric, the compliance inspection plan shall include activations that ensure the appropriate evaluation of the activations in each direction.
71. During the test, ReUs with limited energy reservoir (LER) are allowed to use energy reservoir management methods.
72. The initial state ReU active capacity shall be adequate to enable activation and verification of the maximum power bid of the balancing product for activations directed in each direction during the activation inspection.

73. The voltage and reactive capacity setting should be any value that does not limit the ReU's ability to activate the maximum power bid for the balancing product in each direction.
74. The activation inspection starts when the activation order is received from AST and ends when the complete activation inspection plan has been executed.
75. The execution of the inspection plan may be interrupted before the full activation plan has been executed, at the request of the BSP or AST due to technical or other limitations. In such cases, the BSP and AST shall agree on resumption of activation inspection or initiation of repeated activation inspection.
76. As a result of the inspection, the following parameters are analysed:
- 76.1 Preparation time. The time from receiving the activation order to the start of the ramping. No longer than specified in the relevant product specification;
- 76.2 Full activation time. The time from receiving the activation order to reaching the activated power. No longer than specified in the relevant product specification;
- 76.3 Deactivation time. The time from the end of delivery of full activated power until the ReU returns to the pre-planned power level. No longer than specified in the relevant product specification;
- 76.4 Amount of energy supplied in activation:
- 76.4.1. In each activation direction, the amount of energy supplied in the activation period specified in the activation command must be equal to or greater than 80% of the energy equal to the product of the amount of power specified in the activation order and the duration of the activation period (from the activation start time to the activation termination time);
- 76.4.2. In each activation direction, the amount of energy supplied in each direction of activation during the period from the receipt of the activation order to the actual end of the deactivation period shall be less than or equal to 120% of the energy equal to the product of the amount of power specified in the activation order and the duration of the activation period (from the time of initiation of activation to the time of termination of activation);
- 76.5 Activation accuracy. After reaching the full power indicated in the activation command, the value of the actual activated power shall not differ by more than 10% from the amount of power indicated in the activation order in each direction.

XV Final Provisions

77. AST can make amendments to this procedure in accordance with the procedures specified in the System Ancillary Service Agreement.

XVI Annexes

1. Annex – Form for balancing product bid, submission via web service;

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2. Annex – Form for balancing product bid, submission via e-mail service;
3. Annex – Form for updating the balancing product bid after the end of the bid submission period, submission via web service;
4. Annex – Form for updating the balancing product bid after the end of the bid submission period, for sending by e-mail;
5. Annex – The form of the balancing product bid activation order and activation order update given by the AST dispatcher, for communication through the web service;
6. Annex – BSP and AST message exchange form for balancing product bid activation order, activation order update and confirmation of activation order, communication via e-mail;
7. Annex – Forms for confirmation of received balancing product bid activation order via web service;
8. Annex – Form for acknowledgement message, communication via web service;
9. Annex – Form for the submission of generation schedule and consumption schedule (baseline);
10. Annex – BSP control metering data submission form;
11. Annex – Application regarding the use of a reserve unit – manual frequency restoration reserve providing unit, reserve providing group or storage unit – for the provision of balancing service;
12. Annex – Schematic of the message exchange process for exchanging messages via web service.