



ELLEVIO



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Introduction to this document

Reader's guide

- The aim of this document is to support the FSP to participate in sthlmflex
- A general time plan is presented following this introduction
- Each activity in the general time plan is accompanied with one slide with details
- You will find contact information in the footer if you have further questions
- There are three appendices to provide some additional information
- This presentation does not elaborate the construction of business models or flex products

[Wordlist](#) is found in appendix

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 SVENSKA
KRAFTNÄT

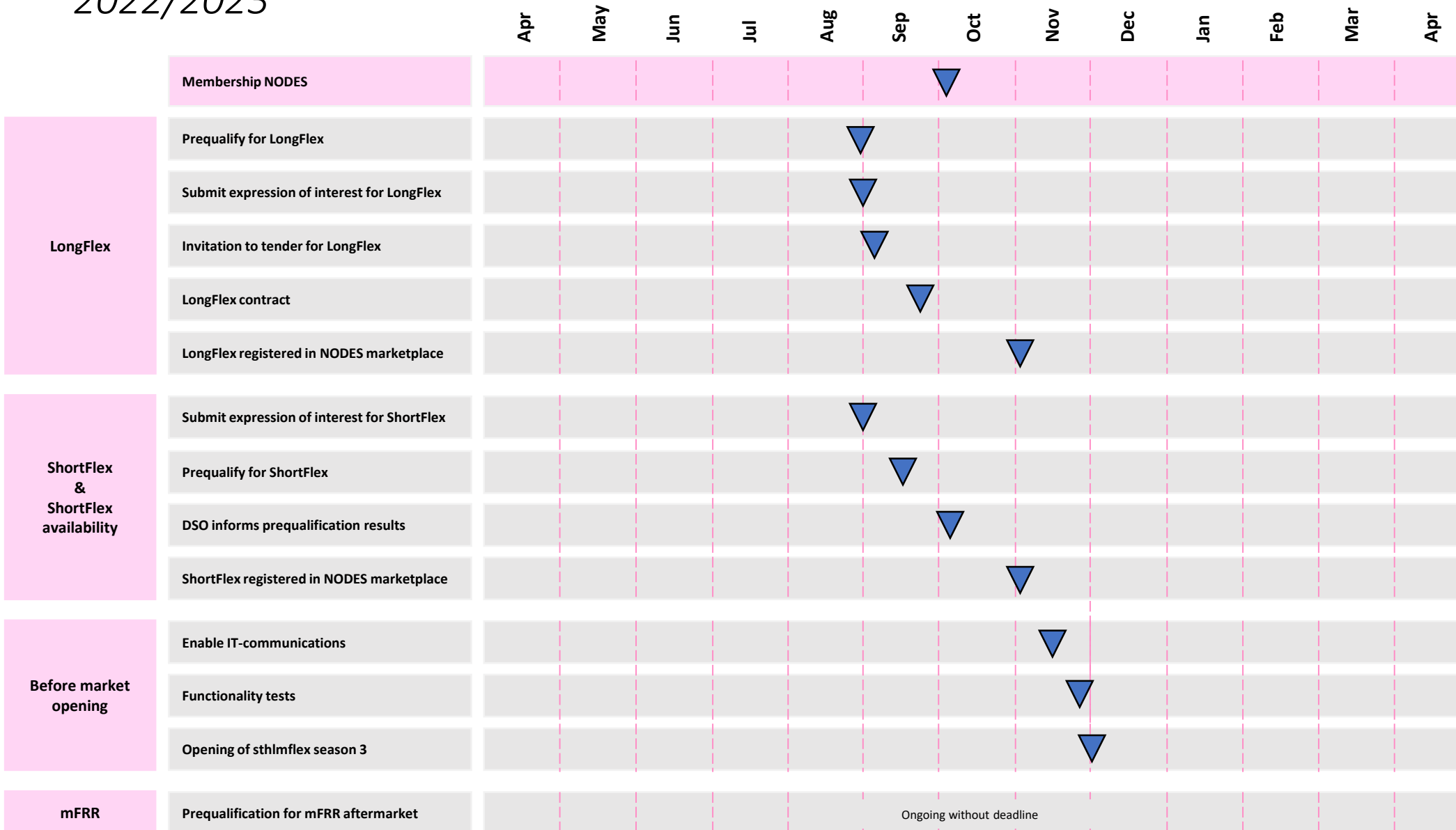
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New and previous participants in sthlmflex

- **New participants** in sthlmflex must complete all steps in this guide, but not necessarily for ShortFlex and LongFlex. One may participate with only one of the two products.
- **Previous participants** that already have Membership with NODES from previous participation in sthlmflex does not have to sign new memberships
- **Previous participants** that have prequalified flex resources does not have to requalify their assets. DSO will inform their earlier prequalification results and FSP only must confirm their information to NODES.
- **Previous participants** that want to add new flex resources must complete the ShortFlex or LongFlex steps only for their new assets
- **Previous participants** that already have enabled IT-communication does not have to address that step in the post registration activities
- **All participants** must participate in functionality tests before market opening

Overview of activities to participate in sthlmflex

2022/2023



▼ Deadline

Become a member of NODES

Membership with NODES marketplace is mandatory for participation in sthlmflex.

By becoming a member FSP will accept NODES Rulebook. The rulebook, together with eventual terms of a LongFlex contract, set out the terms and conditions for market participation.

The membership will also give FSP access to NODES environments necessary to place bids and receive call off signals.

Summary of this chapter

Step 1: Membership with NODES marketplace

Steps in the Membership process



Flex product coverage

ShortFlex

LongFlex

Membership agreement with NODES marketplace



Steps in the process to participate



What is this?

FSP are to sign Membership agreement with NODES and accept the Rulebook. FSP submit information for Membership on [NODES website](#).

The NODES Membership Agreement and Rulebook are published on NODES website (in the MyNODES) section and sent by email to FSP who submit the expression of interest.

Please submit expression of interest to ensure that your contact person receives information on time.

Why is this relevant?

The Rulebook sets out the terms and conditions for the market. Each FSP must abide the same set of rulebook to ensure a non-discriminating marketplace.

FSPs get access to NODES production environment upon signing the Membership Agreement. The access to NODES is necessary for FSP to place bids and to register flex resources prior market opening.

Anticipations from sthlmflex

- A bilateral agreement for NODES marketplace and rulebook is signed by FSP

Deadline

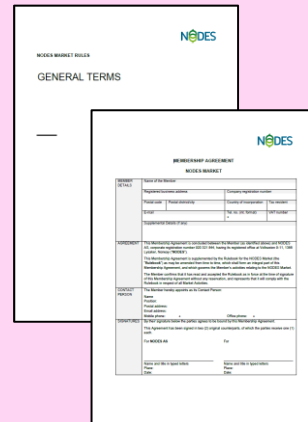
- FSP are recommended to arrange the Membership agreement as early as possible if they are to participate in sthlmflex
- The deadline to become a member correlates to registration of flex resources deadline 2022-10-02

What is the next step?

- The next step is to register flex resources on NODES with pseudonyms that are provided by DSO upon approved prequalification

Flex product coverage

- ShortFlex
- LongFlex



Please contact member.services@nodesmarket.com for support with the Membership agreement and/or the rulebook.



Participate in sthlmflex with LongFlex

To participate with LongFlex the FSP must prequalify its flex resources.

The buying DSO performs a procurement process and LongFlex contract is signed with winning FSP(s).

FSP must register qualified flex resources on NODES marketplace as a last step.

Flex product coverage

ShortFlex (Free bids)

ShortFlex (Availability)

LongFlex (Season)

Summary of this chapter

Step 1: FSP submits expression of interest as an online form

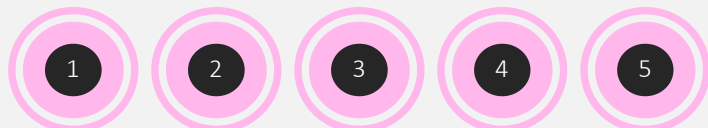
Step 2: Prequalification for LongFlex

Step 3: FSP provides its tender for LongFlex

Step 4: Buying DSO provides FSP a LongFlex contract

Step 5: FSP registers LongFlex contract and flex resources in NODES marketplace

Steps in the LongFlex process to participate



Submit LongFlex expression of interest



Steps in the process to participate



What is this?

FSPs who wish to tender for a LongFlex contract need to submit a non-binding expression of interest.

The expression of interest means to submit an [online form for LongFlex](#) participation and to [attach a file](#) with flex resource details.

As a part of the expression of interest the FSP must specify whether they intend to use own metering or DSO metering. Also if FSP intend to use NODES baseline or provide their own baseline. See Appendix IV.

Why is this relevant?

The details submitted in the expression of interest are used to prequalify assets for LongFlex participation.

Deadline

The deadline for submission of the LongFlex expression of interest is 2022-08-31.

It's a strong recommendation to submit this expression of interest as soon as possible.

Possible consequences if deadline is not met

FSP can't prequalify any flex resources for LongFlex without submitting the expression of interest.

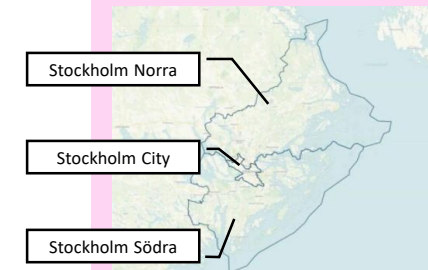
What is the next step?

DSO qualifies assets for LongFlex together with FSP.

Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

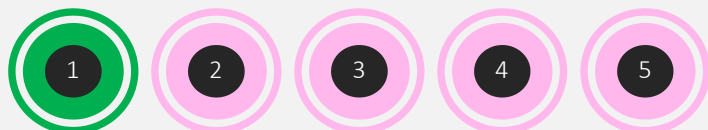
Sthlmflex market areas



Please contact member.services@nodesmarket.com for support with LongFlex product.

Prequalify for LongFlex

Steps in the Longflex process to participate



What is this?

DSO is responsible to prequalify flex resources together with FSP.

Why is this relevant?

DSO receives expression of interest for LongFlex and are to confirm that requirements for LongFlex are fulfilled. Se Appendix I and II.

Deadline

FSPs receives a confirmation that assets from buying DSO have been pre-qualified by 2022-08-31.

Possible consequences if deadline is not met

Only FSP with prequalified assets can submit tenders for LongFlex.

What is the next step?

FSP will invited to submit tenders for qualified flex resources.

Flex product coverage

ShortFlex (Free bids)

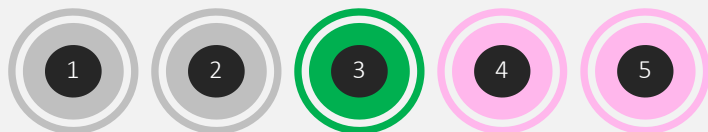
ShortFlex (Availability)

LongFlex (Season)

Please contact member.services@nodesmarket.com for support with LongFlex product.

Publication of LongFlex invitation to tender

Steps in the process to participate



What is this?

FSP will receive an invitation to tender (ITT) that is published on NODES website. The invitation to tender (ITT) is expected to be published by 2022-09-09.

FSPs respond to the invitation to tender (ITT) by submitting a tender form.

Submission of the tender form is binding.

Why is this relevant?

The invitation to tender (ITT) contains details of the LongFlex product that the DSO wishes to buy, including the relevant hours and conditions that govern the contract.

It is the invitation to tender (ITT), together with NODES Rulebook, that set out the terms and conditions for the LongFlex contract.

Deadline

Deadline for submission of the LongFlex tender form is 2022-09-23

Possible consequences if deadline is not met

The tender must be submitted for FSP to get a LongFlex contract.

What is the next step?

FSPs are informed of whether or not they have been allocated a LongFlex contract.

Flex product coverage

ShortFlex (Free bids)

ShortFlex (Availability)

LongFlex (Season)

Please contact member.services@nodesmarket.com for support with LongFlex product.

Buying DSO provides FSP a LongFlex contract

Steps in the process to participate



What is this?

FSP with winning tender forms will be allocated a LongFlex contract.

FSP not winning will be informed.

FSP that is allocated a LongFlex contract will be given pseudonyms (anonymous names) to be used for registration of flex resources in NODES marketplace.

Deadline

FSPs are informed of whether or not they have been allocated a LongFlex contract by the 2022-09-30.

What is the next step?

Membership agreement is necessary to be able to complete the next step. See slide 6.

FSPs already having Membership agreement will continue registering flex resources in NODES marketplace.

Flex product coverage

ShortFlex (Free bids)

ShortFlex (Availability)

LongFlex (Season)

Please contact member.services@nodesmarket.com for support with LongFlex product.

Register flex resources in NODES marketplace

Steps in the process to participate



What is this?

Each flex resource or portfolio of flex resources must be registered in NODES marketplace. By completing the registration in NODES marketplace the asset will become connected to a bid list and a market area in sthImflex. Each market area corresponds with restraints in the power grid.

For LongFlex contracts possible terms and conditions may be defined in NODES marketplace.

FSP are to use pseudonyms, provided by DSO with results of prequalification for ShortFlex when registering flex resources in NODES marketplace.

Why is this relevant?

Flex resources must be registered in NODES marketplace to enable automatic management of baseline validation and transactions within each market area.

The NODES marketplace have integrations to other IT-systems in sthImflex where flex resource information must be aligned to ensure correct functionality, why the DSO must approve flex resource registration.

Anticipations from sthImflex

- FSP will use the pseudonyms given by DSO from prequalification to register its flex resources in NODES marketplace
- The DSO will then approve the registration made by FSP to assure it is within the correct market areas

Deadline

- FSP must have its flex resources registered in NODES marketplace at latest 2022-11-07
- DSO must approve registered flex resources prior functionality tests before 2022-11-11

Possible consequences if deadline is not met

- DSO cannot accept registration of flex resources in NODES marketplace. Thus, the FSP is at risk not be able to participate at market opening with intended flex resources.

What is the next step?

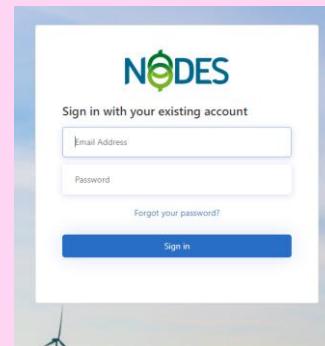
- The next step is to ensure IT-communication for the flex resources to NODES marketplace



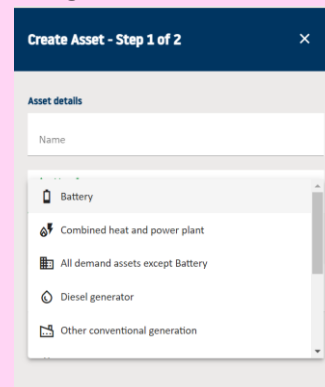
Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

Sign in



Register flex resource



Please contact member.services@nodesmarket.com for support with the registration of flex resources in NODES marketplace.

Participate in sthlmflex with ShortFlex

The chapter describes how to participate with ShortFlex and ShortFlex Availability. The two flex products differs in pricing mechanism, but the prequalification process is the same.

It's mandatory for FSP to prequalify flex resource in order to participate in sthlmflex.

FSP must register qualified flex resources on NODES marketplace as a last step.

Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

Summary of this chapter

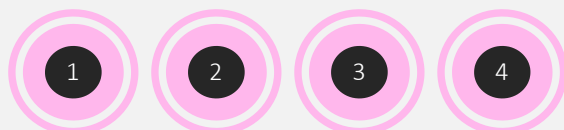
Step 1: FSP submits expression of interest as an online form

Step 2: The FSP submits a prequalification request for participation in sthlmflex

Step 3: The DSO's informs prequalification results to FSP

Step 4: FSP registers flex resources in NODES marketplace

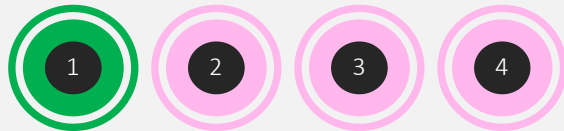
Steps in the ShortFlex process to participate



Non-binding expression of interest



Steps in the process to participate



What is this?

The expression of interest submission is non-binding.

FSP may submit the expression of interest based on partial or expected information, given that FSPs might not have a full picture of the flexibility resources they can make available at the time of submission.

The online form to [submit expression of interest](#) is published at end of May where the FSP can inform its interest to participate in sthlmflex.

The form requires the FSP to submit information general information about:

- ✓ company and contact information
- ✓ flex products to use
- ✓ if FSP plan to use own metering or DSO metering, see Appendix IV
- ✓ if FSP plan to use own baselines or NODES default baseline, see Appendix IV
- ✓ if FSP is participating in other markets with the flex resources

The form requires the FSP to submit information per market area about:

- ✓ number of flex resources
- ✓ deliverable aggregated flexibility volume (MW)

Why is this relevant?

The contact information provided ensures that sthlmflex can reach your contact person with information on time.

The information provided by FSP's of their participation allows sthlmflex to estimate necessary work efforts accordingly to ensure that DSO's can meet deadlines.

The same information give the project an estimation of where flex volumes are located to make sure utility needs are met or not for the upcoming winter.

Deadline

- The submission of expression of interest is 2022-08-31

Possible consequences if deadline is not met

- Even though the flex provider can register to the market at a later stage, its participation may be delayed due to longer processing time

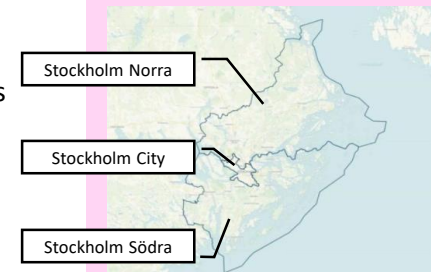
What is the next step?

- The next step is for the FSP to submit which resources they want to qualify

Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

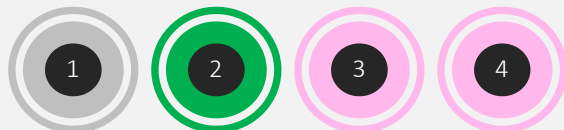
Sthlmflex market areas



Please contact member.services@nodesmarket.com for support with the expression of interest form

Prequalification request for ShortFlex

Steps in the process to participate



What is this?

The prequalification request is binding and is required for participation. FSP are to [submit NODES registration online form](#) and to attach a flex resource file according to actual (not intended) participation in sthlmflex.

The flex resource file (Excel) to use will be [published on the project website](#) and on NODES website. See Appendix II to recognize the mandatory information.

FSP's is responsible to provide a power of attorney for each resource that will use DSO metering data, see Appendix IV.

FSP has to accept NODES baseline or provide their own baseline method that has to be approved by DSOs, see Appendix IV.

Why is this relevant?

The final registration will initiate a prequalification process within the project sthlmflex.

NODES requires settlement information to operate the market.

The submission will not grant FSP access to the NODES marketplace. Access is given only after submitting the registration form and signing the Membership agreement.

Anticipations from sthlmflex

- The DSO expects that all mandatory information is complete and correct for the prequalification process

Deadline

- The final submission to sthlmflex is 2022-09-18 for ShortFlex

Possible consequences if deadline is not met

- Missed deadline will exclude the FSP from sthlmflex participation the upcoming season

What is the next step?

- The FSP are to expect prequalification results by 2022-10-09 or earlier for ShortFlex
- FSP are encouraged to proceed with arranging NODES Membership if it has not yet been

Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

Please contact staffan1.andersson@vattenfall.com or magnus.w.larsson@ellevio.se for support with the ShortFlex products.

Prequalification results for ShortFlex

Steps in the process to participate



What is this?

The DSO are responsible for this activity.

The DSO will inform each FSP of the prequalification result.

This prequalification process is required to ensure that FSP and its flex resources fulfills the prerequisites for participating in sthlmflex, see Appendix I and II.

Why is this relevant?

It's important that sthlmflex all FSP s are treated equally on common principles for participation.

The DSO needs to ensure that registered flexibility in sthlmflex is correct to guarantee that data management and validation processes can be functional.

The DSO needs to individually perform the qualification and to create pseudonyms to protect the integrity of each individual power utility customer.

Anticipations from sthlmflex

- DSOs expect FSP to provide additional information on short notice if required

Deadline

- The FSP are to expect prequalification results by and by 2022-10-09 or earlier for ShortFlex

Possible consequences if deadline is not met

- If the project can not meet deadline, it may jeopardize FSP and NODES ability to activate flex resources and to test IT-functionality properly before the market opens
- A NODES membership is necessary to be able to complete the next step. See slide 6.

What is the next step?

- FSP are to sign Membership agreement with NODES to get access to NODES marketplace and further to register its prequalified flex resources

Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

Please contact staffan1.andersson@vattenfall.com or magnus.w.larsson@ellevio.se if there are questions regarding the prequalification process for ShortFlex.

Register flex resources in NODES marketplace

Steps in the process to participate



What is this?

Each flex resource or portfolio of flex resources must be registered in NODES marketplace. By completing the registration in NODES marketplace the asset will become connected to a bid list and a market area in sthlmflex. Each market area corresponds with restraints in the power grid.

FSP are to use pseudonyms provided by DSO with results of prequalification for ShortFlex when registering flex resources in NODES marketplace.

Why is this relevant?

Flex resources must be registered in NODES marketplace to enable automatic management of baseline validation and transactions within each market area.

The NODES marketplace have integrations to other IT-systems in sthlmflex where flex resource information must be aligned to ensure correct functionality, why the DSO must approve flex resource registration.

Registered access has to be confirmed by DSO.

Anticipations from sthlmflex

- FSP will use the pseudonyms given by DSO from prequalification to register its flex resources in NODES marketplace
- The DSO will then approve the registration made by FSP to assure it is within the correct market areas

Deadline

- FSP must have its flex resources registered in NODES marketplace at latest 2022-11-07
- DSO will and must approve flex resources prior functionality tests post registration by 2022-11-11

Possible consequences if deadline is not met

- DSO cannot accept registration of flex resources in NODES marketplace. Thus, the FSP is at risk not be able to participate at market opening with intended flex resources.

What is the next step?

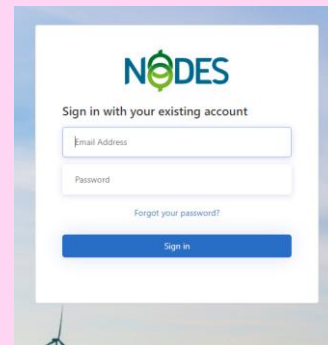
- The next step is to ensure IT-communication for the flex resources to NODES marketplace



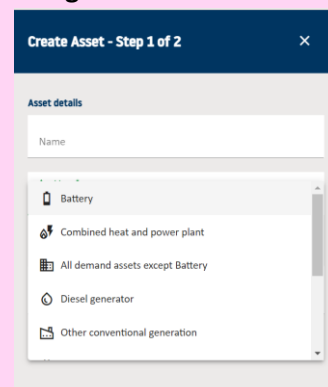
Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

Sign in



Register flex resource



Please contact member.services@nodesmarket.com for support with the registration of flex resources in NODES marketplace.

Common activities before market opening

Prior the opening of sthlmflex, IT-communication for metering data and baseline must be enabled. This step is only valid if FSP choses their own metering data and/or baseline, else sthlmflex will ensure working IT-communication.

The tests preopening of sthlmflex will be small call offs to ensure end-to-end functionality for all participating FSP.

The market opens for the season 2022-12-01 but bids are accepted from the 2022-11-31.

Flex product coverage

ShortFlex (Free bids)

ShortFlex (Availability)

LongFlex (Season)

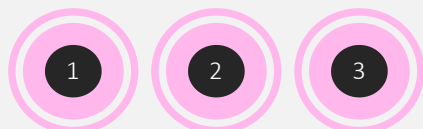
Summary of this chapter

Step 1: Enable IT-communication if using own baseline or own metering data

Step 2: Functionality test preopening of sthlmflex for all participating FSP

Step 3: NODES marketplace opens for bids and call offs

Steps in the ShortFlex process to participate



Enable IT-communications to NODES marketplace

Steps in the process to participate



What is this?

FSP must have decided to which metering data and which baseline to use as a part in the binding submission to participate, see Appendix IV.

This slide references only to FSPs who either use their own metering data or who have chosen to use their own baseline.

[NODES marketplace API documentation is found here.](#)

Why is this relevant?

Baselines and metering data for each flex resource or portfolio of flex resources must be communicated to NODES marketplace to manage validation of calls. This data is vital for validation, and thus also the transaction processes.

Note that the FSP are free to choose between usage of own metering technology or to use DSO metering.

Anticipations from sthlmflex

FSP must arrange with power of attorney from the third part DSO if flex resource(s) are not located in Ellevio's nor Vattenfall Eldistribution's power grids.

Deadline

Deadline to enable IT-communication for registered flex resources 2022-11-14.

NODES and sthlmflex strongly suggest that FSPs who intend to use the API start testing meter or baseline submission as soon as access to the test environment is granted.

Possible consequences if deadline is not met

If IT-communications are not working properly sthlmflex may not be able to perform end-to-end test calls prior sthlmflex opening.

More vital errors or incidents from testing may require sthlmflex to deactivate flex resources intended for market participation.

What is the next step?

The next step is to perform test calls prior sthlmflex opening.

Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

Please contact member.services@nodesmarket.com for support with NODES API
Please contact staffan1.andersson@vattenfall.com or magnus.w.larsson@ellevio.se to arrange a meeting regarding baseline.

Functionality test in sthlmflex



Steps in the process to participate



What is this?

Sthlmflex will perform test calls to FSPs to ensure technical functionality end-to-end. Participants will receive further information later of exactly how and when these test calls will be executed.

Prerequisites for the FSP is that metering data communication must be active, flex resources must have been registered in the NODES marketplace.

Prerequisites for the DSOs is that registered flex resources must have been accepted in NODES marketplace according to the results of the prequalification. The DSO systems for call offs must have been configured to the market set-up.

Why is this relevant?

To ensure that the end-to-end market set-up works correctly for involved parties post market opening 2022-12-01.

Anticipations from sthlmflex

FSPs have held previous deadlines and will now provide test bids to test the trading process end-to-end. Will provide support to the project if deviances are detected.

Deadline

Latest the day before market opening 2022-11-22.

Possible consequences if deadline is not met

The project or involved IT-suppliers cannot ensure end-to-end functionality for all FSPs.

What is the next step?

The next step are to arrange bids on the first trading day, which is followed by market opening.

Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

Please contact member.services@nodesmarket.com for NODES support regarding IT-communication if own metering are to be used.

sthlmflex opens for season 3

Steps in the process to participate



What is this?

The sthlmflex goes live the business day before the first delivery date which is 2022-11-30. Selling bids from FSP can be submitted to NODES marketplace from this date and forward.

The first delivery date where flexibility can be called off is 2022-12-01.

Why is this relevant?

Sthlmflex is officially open for the season, which means that NODES marketplace continuously tries to match seller and buyer bids.

Buyer bids are called off strictly on lowest price where the DSO can not see from whom they buy flexibility.

Note that FSPs need to have switched on market notifications on NODES to make sure they receive all relevant notifications.

What is the next step?

Continuous trading activities in sthlmflex during business days from market opening 2022-12-01 until market closing 2023-03-31

Flex product coverage

- ShortFlex (Free bids)
- ShortFlex (Availability)
- LongFlex (Season)

Please contact staffan1.andersson@vattenfall.com or magnus.w.larsson@ellevio.se if there are questions regarding sthlmflex markets opening or closing season 3.

Information about prequalification for mFRR

More information about mFRR in Appendix V

Tests within prequalification:

- Activation time
- Response endurance
- Capacity (volyme)
- Requirements on measurement and logging
- More information on test program on Svenska kraftnät's website ([LINK](#))

Form for application

- General information of activation process, aggregation, technical data and Allmän information om aktiveringsprocess, aggregering, automatic control system
- Test results
- Description of measurements and data
- Application form found on Svenska kraftnät's website ([LINK](#))

Deadline

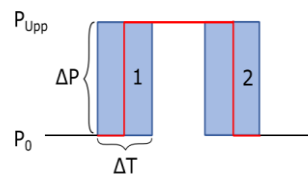
There is no deadline to prequalify for mFRR market. FSP are however recommended to complete application process well before market opening to ensure their participation. Decision is estimated to take at most 3 months from submission of a complete application form to Svenska kraftnät. More information on the website ([LINK](#) (in swedish)).

Prequalification process

- 1 FSP informs Svenska kraftnät planned date for tests making sure both parties can attend
- 2 Svenska kraftnät may ask for another date for tests if necessary
- 3 Test are performed according to "Test Program Template"
- 4 Formal application form is submitted to Svenska kraftnät.
- 5 Svenska kraftnät evaluates application and may ask for complementary information if necessary
- 6 Application is approved or rejected

Information about prequalification on [Svenska kraftnät's website](#)

Activation sequence for mFRR (regulated up)



Application form



The screenshot shows the application form for manual frequency reserve (mFRR) from Svenska Kraftnät. The form title is "Ansökan om tillhandahållande av manuell frekvensåterställningsreserv (mFRR)". It includes fields for the applicant's name and unit/group. The form number is "Svenska Kraftnät (ÅLLA-MH-02)" and it is dated "Utgåva: 2.1 Gäller fr.o.m.: 2020-11-03".

English wordlist



Term	Description
Aggregator	Is an FSP that manages flex resources for underlying customers.
Activation price	Price to call off and activate a flexibility resource. Price and flexibility volume is decided by FSP in the selling bid.
Call off	A call off is executed when a selling bid (FSP) is matched to a buying bid from the buyer (DSO).
Availability price	Availability price is the monetary compensation to FSP to have flexibility on standby intraday. This compensation is paid regardless of activation or not.
DSO	Distribution system operator (DSO) entrusted to distribute electrical power from the transmission level to individual customers. In sthlmflex the DSO is also the buyer of flexibility.
Market Metering Service	Market Metering Service (MMS) is a hub used to collect meter values for the purpose of validating that flexibility sold has been delivered
Flex resource	an asset that can provide a flexibility service in the power grid
Flexibility service	asset provides flexibility by shifting consumption or production from one or several flex resources. In sthlmflex it does not matter in which market areas net flexibility is provided. Flexibility in sthlmflex is traded as the average power during the hour (MWh/h).
FSP	Flexibility service provider (FSP) provides flex resources to the marketplace. The FSP can own its own flex resources or take on the role as an aggregator (see Aggregator). In sthlmflex the FSP is the seller of flexibility.
NODES marketplace	The platform where the FSPs place its sell orders. A trade takes place if a sell and buy order is matched, followed by automatic management of validation with Market Metering Service and settlement.
LongFlex season	Flex product procured post market opening for at least one season. Compensation mechanisms consists of Availability price and Activation price.
Sthlmflex	R&D-project founded and operated by Svenska Kraftnät, Vattenfall Eldistribution and Ellevio to create a flexibility market in the regional area of Stockholm. Products on the market are hourly bids or seasonal availability agreement
ShortFlex Availability	Flex product procured one to three days ahead of delivery hour. Compensation mechanisms consists of Availability price and Activation price.
ShortFlex	Flex product with Free bids in the market. Compensation consists of Activation price.
TSO	Transmission system operator (TSO) entrusted to transport electrical power on a national level.

Appendix I: Prequalification criteria

General criteria for all flex products

- FSP must provide all mandatory information per flex resource for participation in sthlmflex, see Appendix II.

Criteria specific for each flex resource for all flex products

- Provided delivery site-id must be valid and within one of the market areas in sthlmflex.
- If FSP uses DSO metering the power attorney is signed by authorized signatory.
- FSP guarantees a response endurance for submitted flexibility potential for at least one hour (average power one hour MWh/h).
- Each flex resource larger than 1,5 MW must be able to provide real time metering data if requested by DSO.

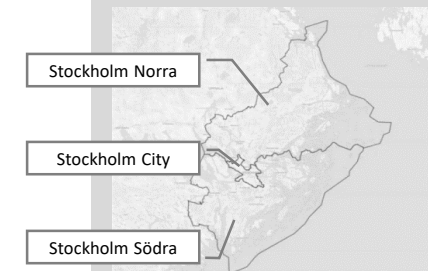
Only regards ShortFlex and ShortFlex Availability

- FSP must have at least 0,1 MW prequalified flexibility combined in the market areas to qualify for ShortFlex and ShortFlex Availability.

Only regards LongFlex

- FSP must have at least 0,1 MW prequalified flexibility aggregated in either market area Stockholm Norra or Stockholm Södra.

Sthlmflex market areas



Appendix II: Mandatory information in binding application to participate in sthlmflex

The following information is to be submitted in the [template](#) found on sthlmflex website

General information on an aggregated level

- Company and contact information
- Description of flex categories in FSP portfolio (i.e. EV-charging, heat pump, reserve power, etc.)

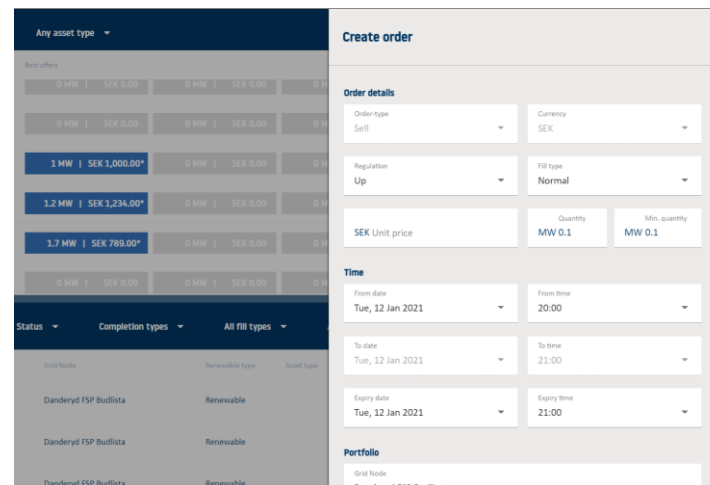
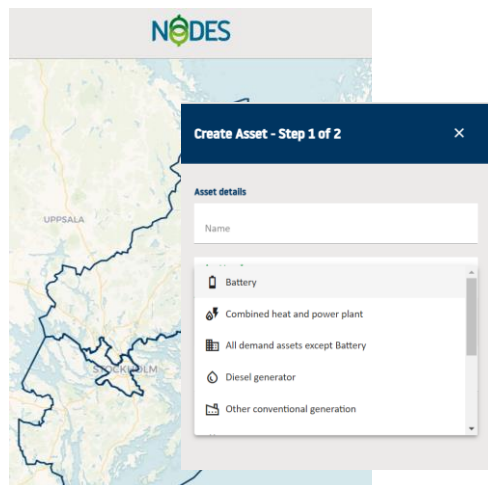
Mandatory information per flex resource:

- Market area in sthlmflex
- [Power utility's name of the local grid](#)
- Delivery site id
- Flex resource address
- Deliverable flexibility volume
- Response endurance
- Usage of own metering or DSO metering, see Appendix IV for details
- If you plan to use own baselines or NODES default baseline, see Appendix IV for details



Appendix III: NODES marketplace

NODES will provide onboarding for how to use NODES marketplace during autumn 2023. More information to be provided by NODES later on. FSP can act manually on NODES marketplace or by using [NODES API](#).



Set-up

- Register flex resources
- Create trading portfolios.
- Enable dispatch signal (text message, email or webhook)
- Provide own baselines or use NODES default
- Create LongFlex product on NODES marketplace if FSP is participating with this flex product

Trading

- Trading daily if DSO has a need
- Hourly selling bids has a deadline 09:00 the day ahead delivery
- Call off deadline at 10:00 the day ahead of delivery, although call off may be intraday if needed by DSO
- All flex products competes on price, where LongFlex products are called off on the same market as ShortFlex products

Validation, invoicing and payment

- Validation by comparing measurement data with baselines
- Payment reduces step by step if deficient delivery
 - Full payment if delivery is 80% or more in relation to called off volume
 - Linear reduction of payment if delivery is less than 80%
 - No payment if delivery is 40% or less in relation to called off volume
- Monthly payment to FSP where NODES manages invoicing and payment

Please contact member.services@nodesmarket.com for support with NODES marketplace, NODES agreement or the rulebook.

Appendix IV: Baseline and metering data

Metering data

FSP are free to choose between using its own metering data or to use the metering data provided by the DSO. Aggregators can either send metering data for individual flex resources or create a portfolio on NODES marketplace and send the aggregated metering series for these flex resources. Own metering data can be submitted manually or via [NODES API](#).

Requirements to use FSP provided metering data

- At least hourly metering data for full day each flex resource have selling bids on NODES marketplace
 - Note extended requirement if NODES default baseline is used
- Datetime format of the metering data according to ISO 8601 or strictly UTC+1

Requirements to use DSO metering data

- DSO will abide above requirements on FSP metering data
- FSP are also required to provide a power of attorney for every flex resource in sthlmflex that are to use this metering data service. [Power of attorney template are provided by sthlmflex DSO's](#). Attach the template with the submission described on slide 6.
- Observe that if a third-party DSO outside of sthlmflex (not Ellevio or Vattenfall Eldistribution) will most likely ask for a power of attorney to provide metering data too

Baselines

FSP are free to choose between using its own baseline or to use NODES default baseline automatically provided by the platform. Own baseline data can be submitted manually or via [NODES API](#).

NODES default baseline is calculated as five (5) latest business day average value for given hour of the day, i.e the average at noon previous five business days.

Requirements NODES default baseline

- Extended requirement to continuously provide metering data for business days only if NODES default baseline are to be used
- Datetime format of the baseline data according to ISO 8601 or strictly UTC+1

Requirements usage of own baseline

- DSO must approve the baseline method used by the FSP

Appendix V: Product sheet mFRR



FSP can choose to forward the bids that are not activated on sthlmflex to the mFRR market.

In order for the bids to be forwarded, the flex suppliers need to undergo a pre-qualification and meet the technical requirements. The flex supplier's balance manager also needs to be involved in the process.

Financial compensation goes to the BRP (Balance Responsibility Party) in the event of a call-off.

Market conditions

- Pricing: Pay-as-cleared when activated for grid balance. Pay-as-bid for special regulation (network reasons)
- Permitted aggregation: Yes, but only from the same electricity area and BRP, or according to agreement*
- Closing time for bidding: 45 minutes before the operating hour
- Bidding step: mFRR bidding increases in steps of at least 1 MW
- Verification of delivery: based on measured values

Technical requirements

- Minimum bid size: 1 MW *
- Activation: electronic calls, via the flex platform *
- Activation time: within 15 minutes (any time during the hour)
- Endurance: at least 1 h

1

Provided that FSP has pre-qualified at Svenska kraftnät, FSP can choose to have the bids placed forwarded to the mFRR market

2

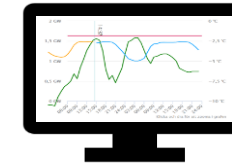
Svenska kraftnät (TSO) makes an assessment of the need in the network and activates bids in price order

3

If the FSP's bid is called, a signal first goes to NODES, which in turn sends an activation message to the FSP via the selected method

4

Financial compensation is paid to the balance responsible party, which the FSP needs to have an agreement with regarding the payment



* Applies only to the local flexibility markets and not the ordinary mFRR market