

Information meeting in English, sthlmflex 2021-04-27



ELLEVIO



VATTENFALL 

Welcome



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Linda Schumacher
Linda Thell



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Agenda

1. **What is sthlmflex?**
2. What has happened during the first winter's demonstration
3. For the upcoming winter – Time plan
4. For the upcoming winter – Purchasing needs – Business models
5. For the upcoming winter – Requirements for the flexibility provider
6. mFRR
7. How to report interest
8. Questions and feedback

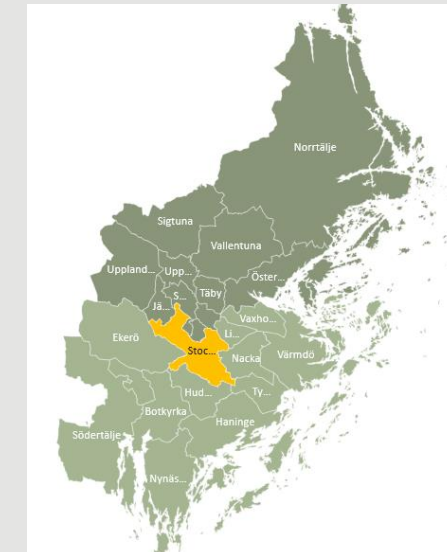
What is sthlmflex?

Svenska Kraftnät, Ellevio and Vattenfall Eldistribution have chosen to jointly find solutions to the **congestion problem** and the **operating situation** in the Stockholm region.

sthlmflex is a research project aimed to create and test a **flexibility market** in "Storstockholm" (all 26 municipalities).

Even though the EU-financed Horizon 2020-project [CoordiNet](#) demonstrates **flexibility markets** in Sweden, the sthlmflex-project is unique since it both tests an increased DSO-TSO coordination as well as coordination and cooperation between DSO and DSO.

The project guarantees the security of delivery for utility customers in the Stockholm region and enables connection of new customers, both by buying flexibility services, but also by increasing capacity with a total regional subscription thanks to increased coordination.



R&D Project: sthlmflex
Project Owner: Svenska Kraftnät in cooperation with Vattenfall Eldistribution and Ellevio
Market Operator: NODES
Supplier of flexibility tools: EON Energidistribution

Roles and market areas

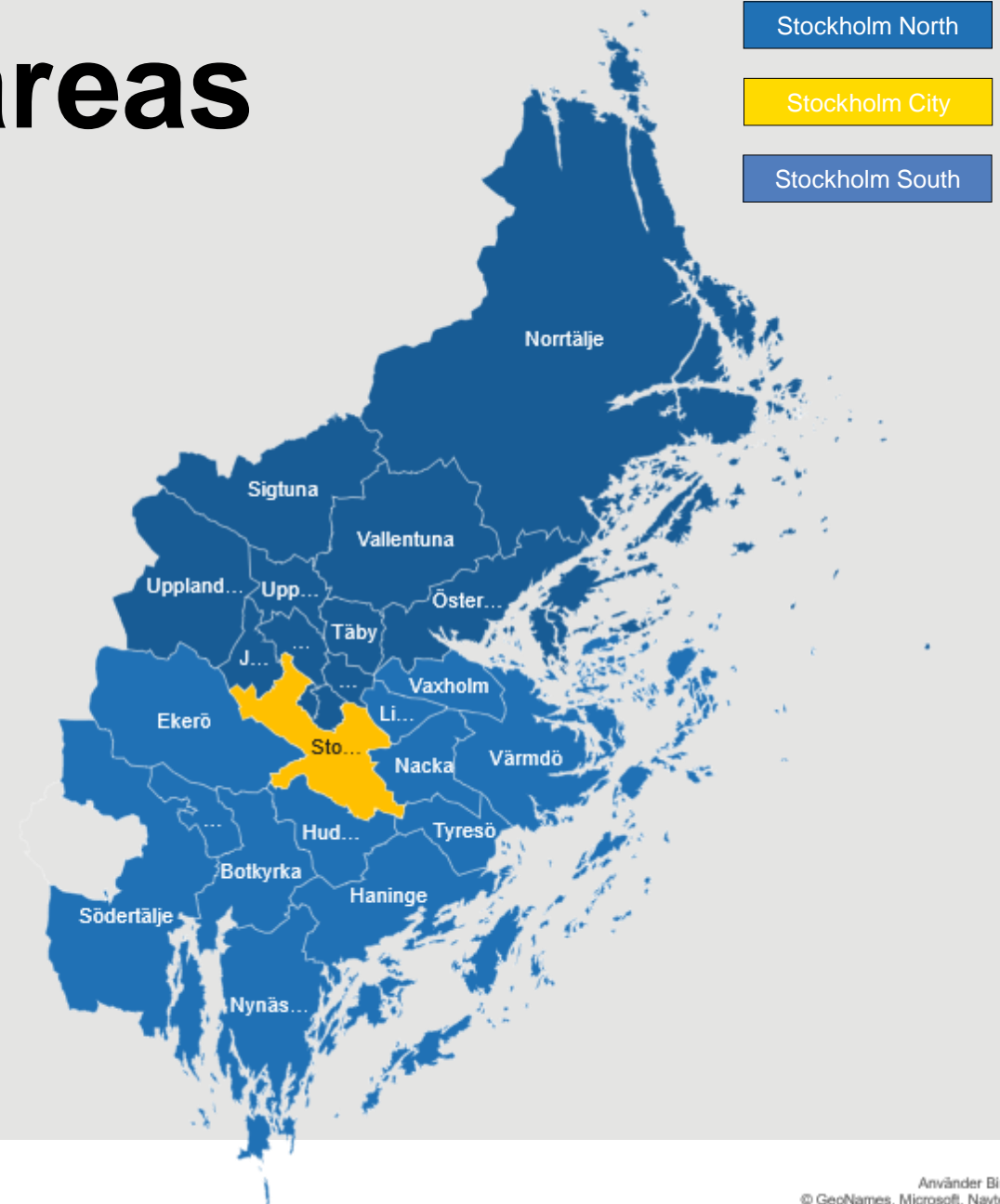
Svenska Kraftnät is the TSO and project owner

Ellevio owns and operates the regional distribution grid in Stockholm City and is a buyer of flexibility, financier, and part of the project lead in sthlmflex.

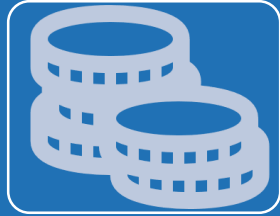
Vattenfall Eldistribution owns and operates the regional distribution grid in 25 municipalities within the Stockholm region and is a buyer of flexibility, financier, and part of the project lead in sthlmflex.

NODES is the market operator in the project and has a marketplace where the bids from the flexibility providers are matched with the purchase orders from the buyers.

E.ON Energidistribution is the supplier of the tool used by the DSOs for visualizing forecasting, available capacity in the transmission grid and flexibility resources, as well as placing calls in the marketplace.

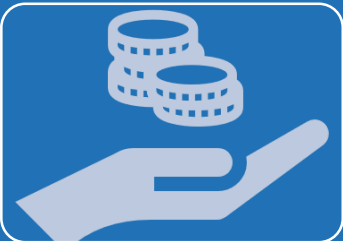


The products on the market



Free bids

- Activation-compensation [MWh]



Availability agreement

- Perennial, seasonal, weekly
- Availability-compensation [MW]
- Activation-compensation [MWh]



Temporary subscription (the cost for the DSOs to exceed the subscription to the transmission grid is used as a bid on the flexmarket to show that the TSO has given a "Temporary subscription")

- Availability-compensation [MW]
- Actual "activation-compensation" [MWh]

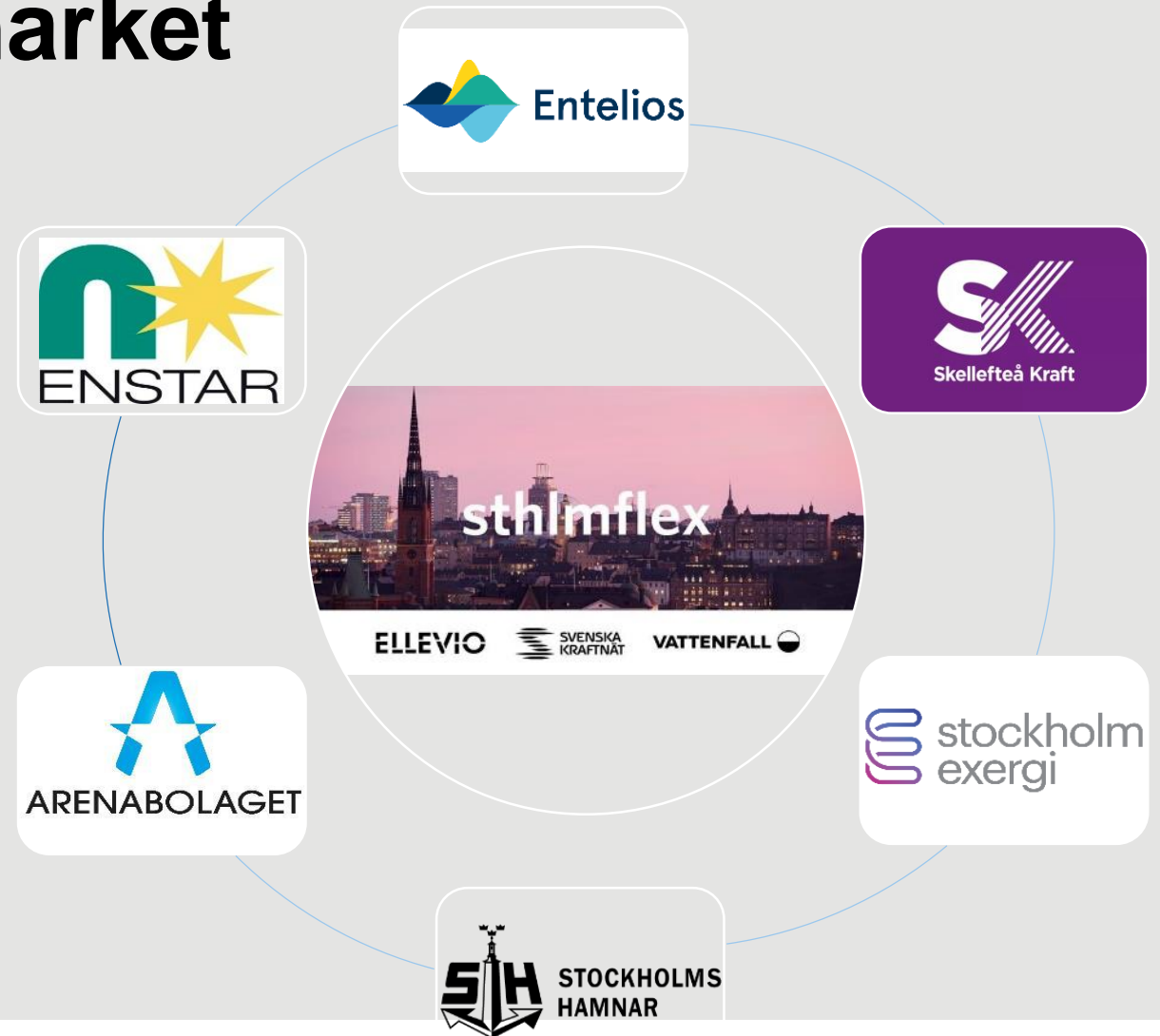
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The flexibility resources that have participated in the market

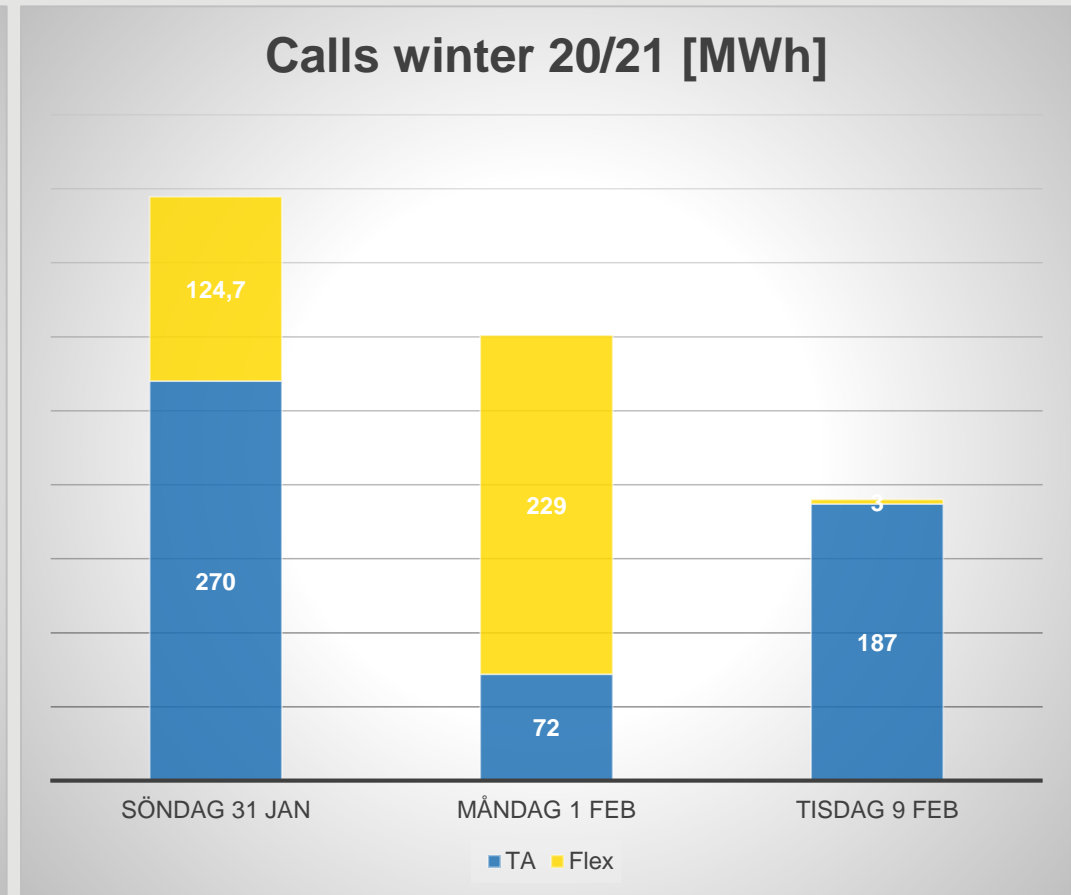
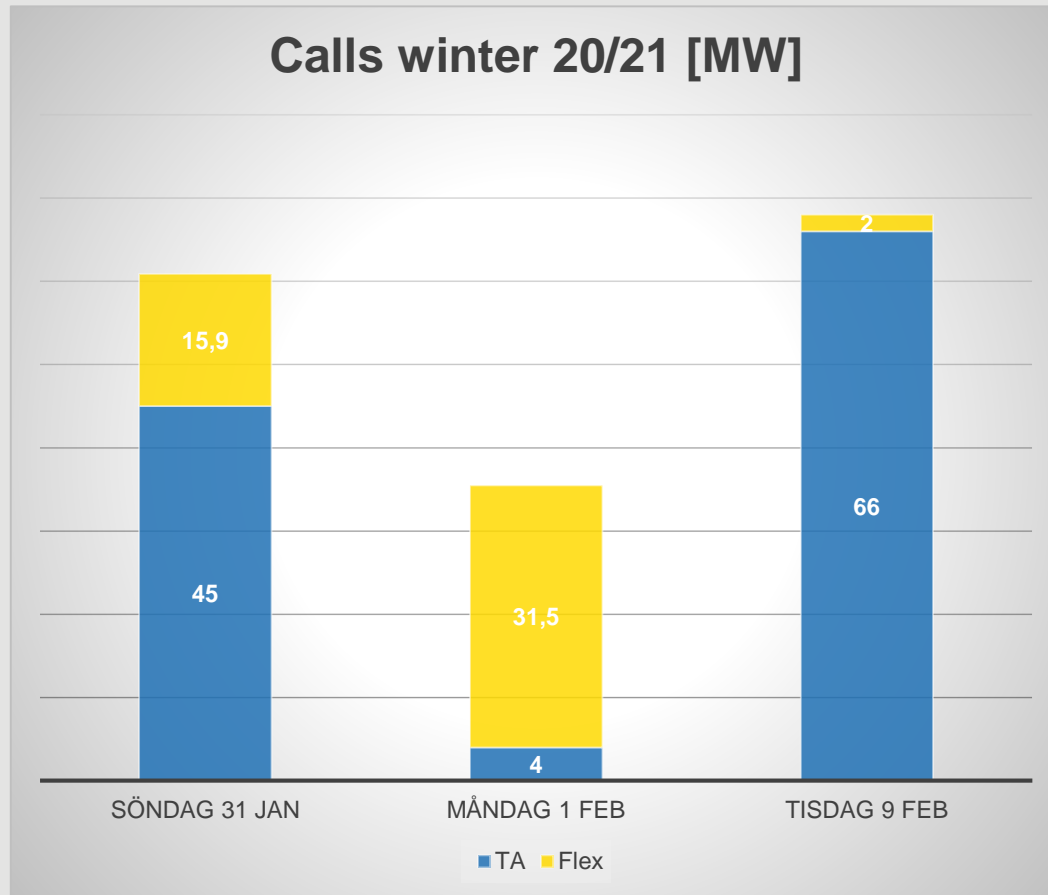
Participating resources

Heat pumps
- CHP-plants
- Office property
Reserve power
Charging infrastructure
Green houses
Ships
Aggregators



Calls – Winter 2020/2021

Avropad Volym [MWh/h]	Snittpris [kr/MWh]
2276,4	484,78
KPI 18	KPI 6



We are learning together!

Activity	Date
Information meeting for flexibility providers	2020-06-08
Information meeting for local DSOs	2020-06-08
Information meeting for municipalities	2020-08-21
Dialogue meeting with aggregators	2020-08-25
Follow up meeting for flexibility providers	2020-08-26
Follow up meeting for local DSOs	2020-08-28
Extra meeting for flexibility providers in English	2020-09-04
Dialogue meeting with flexibility providers	2021-03-11

Experiences from sthlmflex

1. To broaden the variation of participating stakeholders and to facilitate flexibility calls, a more clearly defined **business model** is needed → we want to test new business models next winter in dialogue with you
2. **Validation, grouping of flexibility** and **power of attorney** are three important questions that need standardization → we continuously want to jointly evaluate and develop these questions for the future
3. **Agreements for availability** should be complemented with a temperature dependence, e.g. flexibility should be delivered upon a weather forecast of $-5\text{ }^{\circ}\text{C}$.

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Time plan **new** flexibility providers

2021-04-20	Form for registration of interest is published
2021-05-12	sthlmflex-dialogue for the upcoming winter
2021-06-07	Registration of interest for participating – both <i>availability agreements</i> and <i>free bids</i> (non-binding)
2021-07-30	<i>Request for availability agreements is opened</i>
2021-08-23	Registration form, agreement/rulebook and username for each flexibility resources is sent out
2021-08-30	sthlmflex-dialogue for the upcoming winter
2021-09-07	<i>Deadline request for availability agreements</i>
2021-10-15	Deadline for registration on the NODES marketplace Flexibility providers receives access to the NODES marketplace
2021-10-29	Deadline agreement with the NODES marketplace
2021-11-30 - 2022-03-31	The sthlmflex flexibility market is open

Time plan **existing** flexibility providers

2021-05-12	sthlmflex-dialogue for the upcoming winter
2021-06-07	Registration of interest for participating/confirm continued participation via e-mail to <u>NODES</u> – including information of eventual new flexibility resources
2021-07-30	<i>Request for availability agreements is opened</i>
2021-08-23	Username for each flexibility resources is sent out
2021-08-30	sthlmflex-dialogue for the upcoming winter
2021-09-07	<i>Deadline request for availability agreements</i>
2021-11-30 - 2022-03-31	The sthlmflex flexibility market is open

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Flexibility need

The buyers will guarantee that weekly purchases will be realized at least two times during the 21/22 season. We already have some availability agreements signed before the establishment of sthlmflex. Beyond these, we have the following indicative flexibility need:

Free bids and weekly purchasing:	At least 26 MW
Procurement of seasonal availability week-days 7 – 11 AM and 5 – 9 PM:	20 MW
Procurement of seasonal availability 8 hours per day:	7 MW

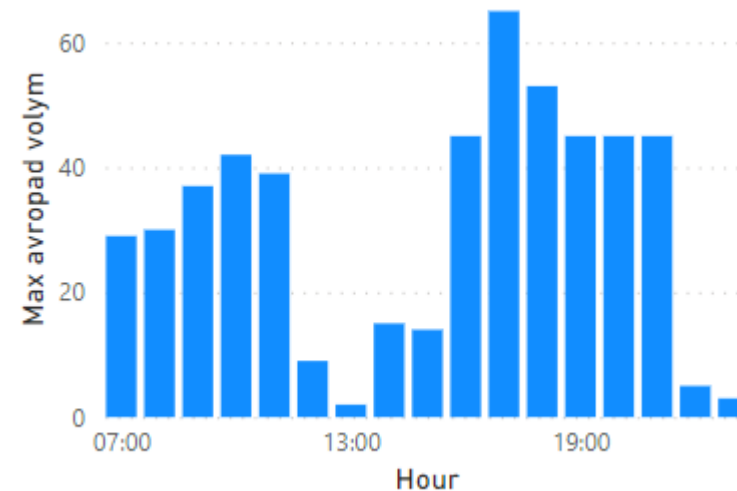
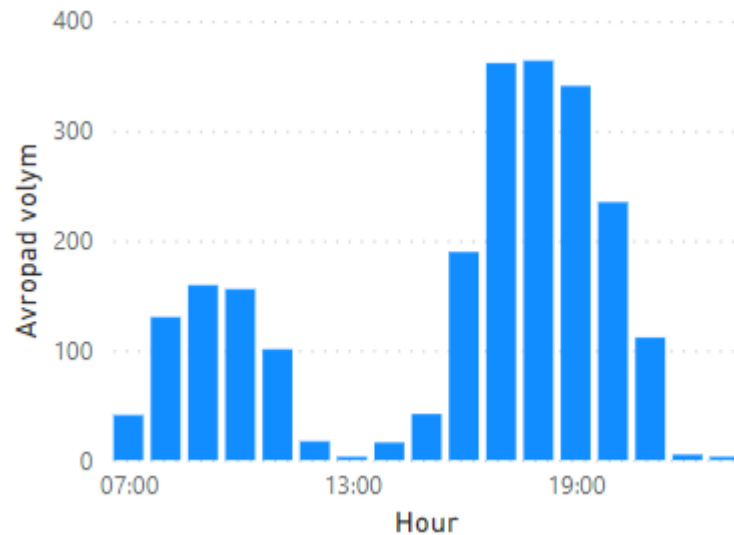
Call for activation will always be done in regard to the lowest activation price per hour.

During the winter of 2021/22, the sthlmflex market is open between the 1st of November 2021 and the 31st of March 2022. Vattenfall Eldistribution and Ellevio anticipates the greatest flexibility need during weekdays between 7 – 11 AM and 3 – 9 PM.

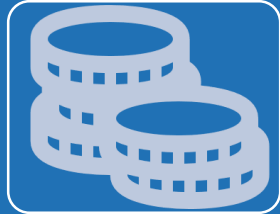
Prices, needs and calls 20/21

During Jan-Mar 2021, 2276,4 MWh was activated on both the total subscription and individual transmission network stations. The winter was cold, but not a "10-year-winter" and the calls were too scarce this first years and should have been doubled during mornings for instance.

The average call price was 485 SEK/MWh and the price varied between 200 SEK/MWh and 2500 SEK/MWh. The temporary subscription had a cost of 246 and 244 SEK/MWh, respectively (will increase during 2022).

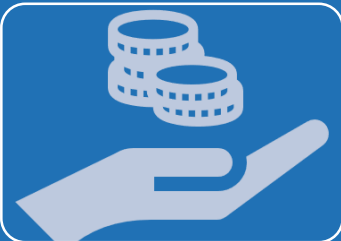


The products on the market



Free bids

- Activation-compensation [MWh]



Availability agreement

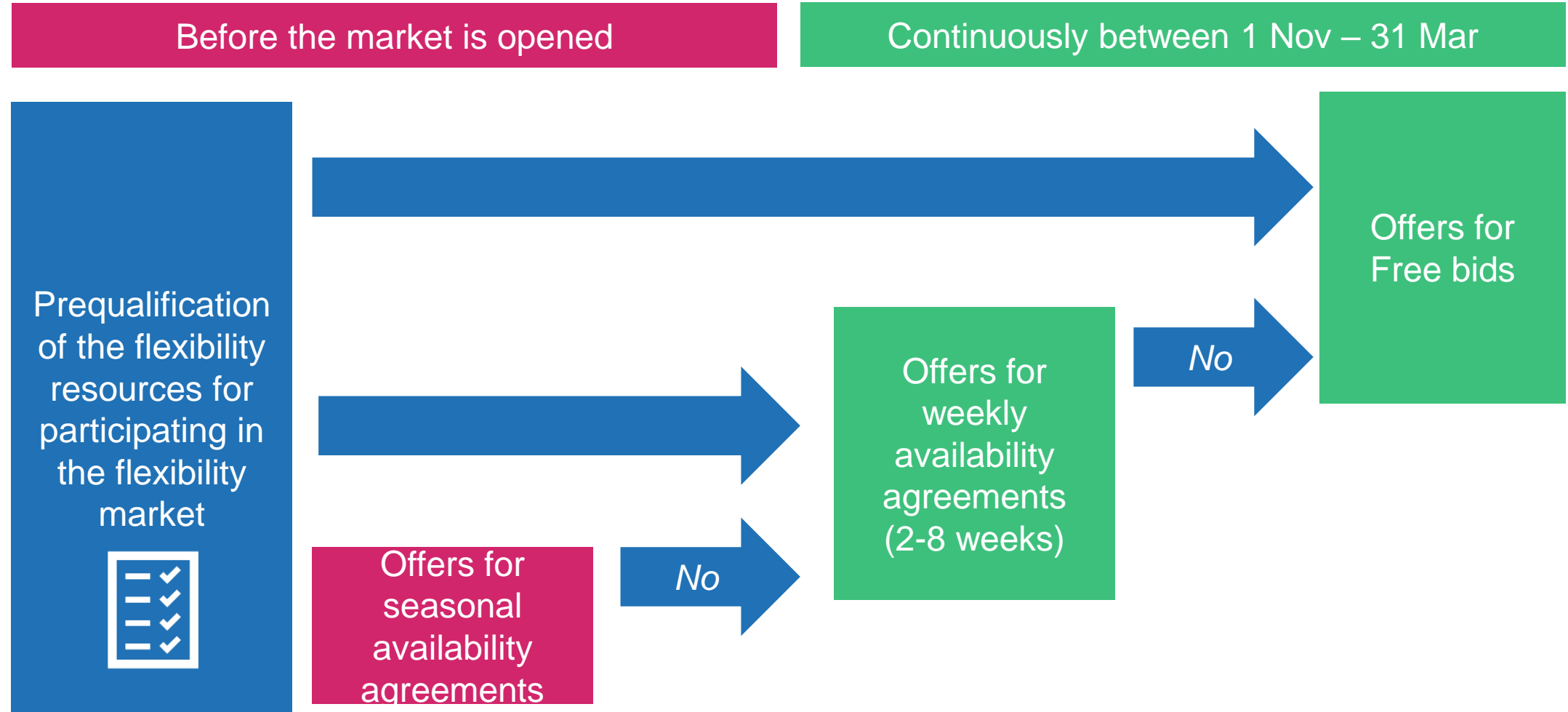
- Perennial, seasonal, weekly
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- Activation-compensation [MWh]



Temporary subscription (the cost for the DSOs to exceed the subscription to the transmission grid is used as a bid on the flexmarket to show that the TSO has given a "Temporary subscription")

- Availability-compensation [MW]
- Actual "activation-compensation" [MWh]

Various bussines models



Weekly availability agreements

- All prequalified to participate with free bids can participate with weekly availability agreements
- We aim to buy weekly availability during at least 2 weeks
- If the winter is mild, the process will primarily be tested, while a 10-year-winter will result in a need of 6-8 weeks.
- During the winter of 2021 there was a flexibility need for 4 weeks.

The weekly process:

sthlmflex gives market information about purchasing needs Thursday the week before agreed availability

Flexibility providers respond with selling bids no later than Friday

Buyers call for available flexibility if there is a need during certain hours

Example of weekly flexibility

- Availability of 10 MW is offered
- 2 hours per day for 5 days
- 100 MWh availability which is compensated per MWh

- Beyond this availability-compensation the flexibility provider is compensated per MWh when activated

We aim to present a proposal of the design for the weekly availability procurement the 11th of May. As input, we will send you a survey.

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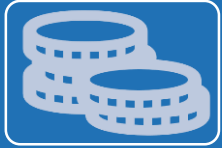
Common product requirements in the market



Average/hour



No rules regarding ramp-up/down



Activation price: Pay as bid
Availability-compensation: Yes, for those participating (weekly/seasonal)



Minimum bid step: 0.1 MW
Maximum bid step: No
Dividable bids if a min bid step is not defined



Notice: at least two hours before delivery



No rules regarding recovery (is probably needed)

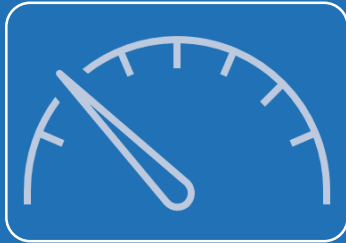


Activation: manually (is done by the flexibility provider)
Activation method: API, e-mail or SMS



Location: Stockholm South, Stockholm North or Stockholm City (except for aggregators that can be located in all three areas)

The market rules



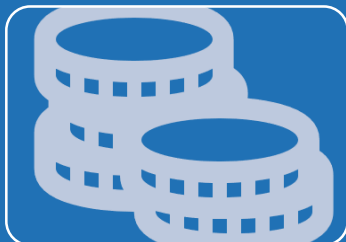
Right to use measurement data and baseline

- Validation of delivery
- R&D-evaluation of using different rules for validation in the project



Validation method

- Baseline is compared to measured data
- Baseline can be submitted by the flexibility provider or be calculated by NODES based on historical data
- Alternative validation method can be approved based on dialogue



Compensation principals

- 100 % compensation down to 80% of delivery
- 0 % compensation below 40% delivery
- In between, the compensation is relative linear to the delivery, e.g. 60% delivery gives 50% compensation

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mFRR and sthlmflex

Why?

Preparatory pilot for future bid sizes and types of FSPs for mFRR

Increased possibility of accepted bids and possible increased compensation. See historical prices for mFRR here: [Market data | Nord Pool \(nordpoolgroup.com\)](https://www.nordpoolgroup.com/en/market-data-and-statistics/price-data/mfrr)

How?

Pre-qualification is a requirement for participation.

Bid size has to be at least 1 MW (ie larger than for the capacity market)

The BRP needs to be involved in the process

When?

1 December 2021 – 31 March 2022

Product: mFRR R&D trial

Delivery time: 60 min

Gate closure: 45 minutes before hour of delivery

Activation time: 15 minutes for full activation

Required bid size for qualification: 1 MW in the R&D project

Maximum bid size: No limit

Step size (granularity): 1 MW (mFRR bids must be increase by one MW at a time)

Aggregation allowed : Yes, but only from the same price area and same BRP or according to agreement

Market: Nordic balancing market

Bid clearing method: Electronic ordering

Activation: By flexibility provider

Pricing: Pay-as-cleared if called for balancing. Pay-as-bid if called for network congestion (special regulation)

Availability: as agreed individually for each flexibility provider

Verification of delivery: based on measured values

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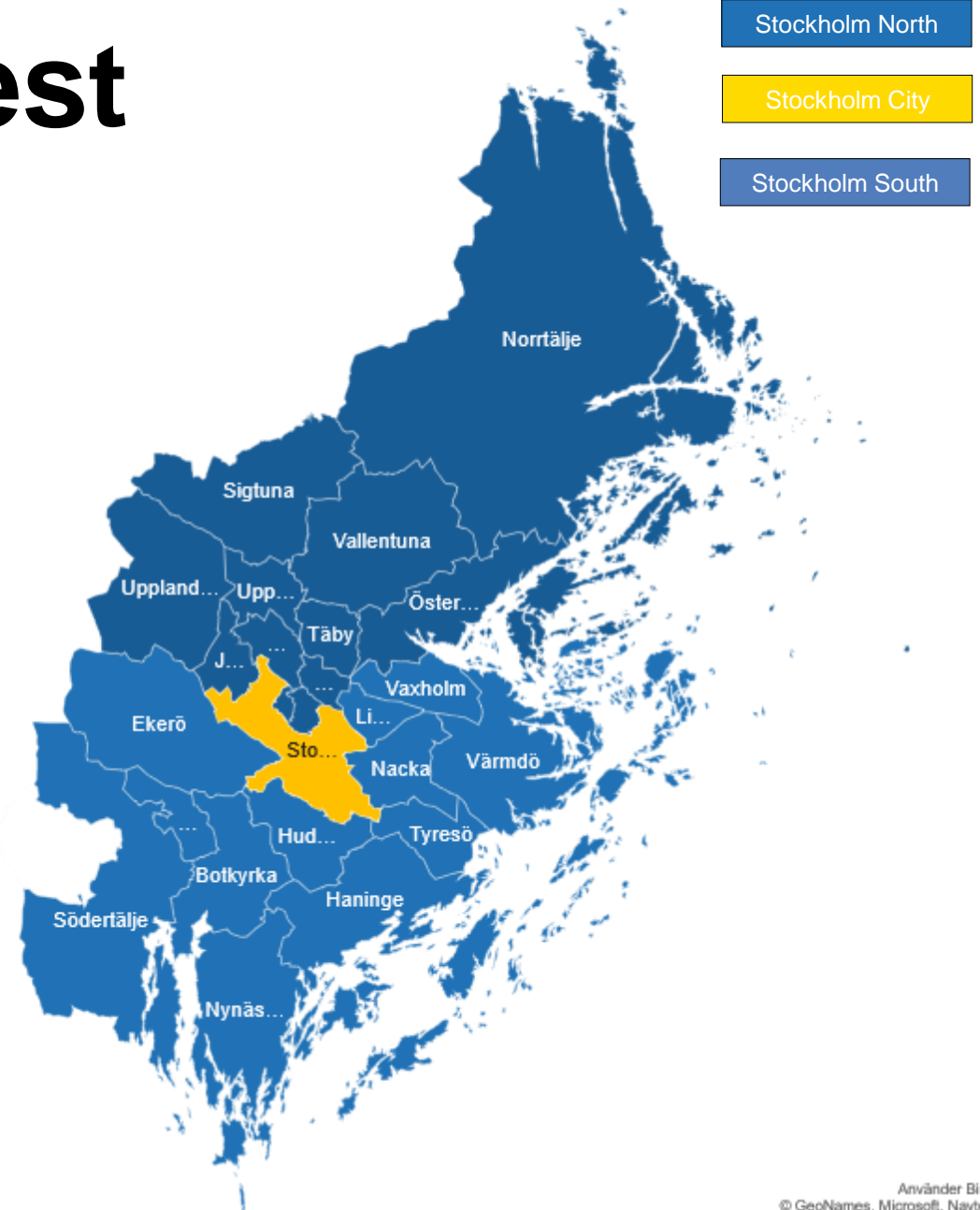
How to report interest

As a new flexibility provider in sthlmflex: fill in the [form for registering interest](#) no later than the 7th of June 2021 or contact [NODES](#) if you have any questions.

As existing flexibility provider in sthlmflex: confirm interest/continued participation as well as new flexibility resources via e-mail to [NODES](#) before the 7th of June 2021.

Participate in the next sthlmflex-dialogue 12/5 13.00-14:30. Register participation to [Svk](#).

Brief information about sthlmflex rulebook is sent out to all participants before the meeting.



Questions

If there will be requested a **Power of Attorney** to deliver asset data. Will it clearly state what you plan to do with the data? e.g. use for settlement.

Yes – we will come back before 12th Maj.

Are you going to request **grouping assets** in Nodes?

If bigger assets it should be grouped in Stockholm City, Stockholm North and Stockholm South.

This issue can be discussed.

Do you have clear guidelines on **baselines**? What do you expect? e.g. We can only predict EV capacity after DA spot clearing.

If bids are placed DA spot clearing that is no problem.

Regarding **AssetHub**, will be common for both DSOs or each will have a different one?

If bigger assets metering data will be required each hour. If this can be done with NODES Asset Hub has to be cleared. Otherwise yes.

mFRR information and contacts

More information

**Information meeting about mFRR (in Swedish),
11 Maj 13-14**

Register participation to linda.schumacher@svk.se

Information about supporting services:

[Information om stödtjänster | Svenska kraftnät
\(svk.se\)](#)

Guiding documents:

[vagledning-for-att-leverera-stodtjanster.pdf \(svk.se\)](#)

Or contact

Magnus Lindén, Project leader

magnus.linden@svk.se

+4670 994 13 58

Linda Schumacher, Assisting Project leader

linda.schumacher@svk.se

+4679 075 02 57

For general questions regarding mFRR and
prequalification:

mfrr@svk.se

More information

Project homepages

CoordiNet

[EU financed Horizon 2020 project CoordiNet](#)

sthlmflex

[FoU-projektet sthlmflex](#)

Contact Svenska kraftnät

Magnus Lindén magnus.linden@svk.se

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[CoordiNet – Svenska Kraftnät](#)

Contact Vattenfall Eldistribution

Yvonne Ruwaida (Workpackage leader The Swedish demo CoordiNet and project lead sthlmflex)

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Björn Godring (for FSP:s)

bjorn.godring@vattenfall.com

[CoordiNet – Vattenfall Eldistribution](#)

[sthlmflex - Vattenfall Eldistribution](#)

Contact DSO E:ON Energidistribution

Christoffer Isendahl (flextool and market platform CoordiNet)

Karin Hansson (flextool sthlmflex) karin.hansson@eon.se

[SWITCH | En lösning på kapacitetsbristen - E.ON](#)

Contact DSO Ellevio

Bengt Johansson (project lead sthlmflex)

bengt.i.johansson@ellevio.se

Stefan Lindbom (for FSP:s)

stefan.lindbom@ellevio.se

[Kapacitetsbrist elnät | Ellevio](#)

Contact NODES market

Market operator sthlmflex

Sofia Eng (projectleader)

sofia.eng@NODESmarket.com

[sthlmflex - NODES](#)

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