

# 2022w49 ATC Extraction Results

Nordic RCC

February 15, 2023

# Notes

ATCE industrial tool: The ATC extraction in NorCap entered parallel run in November 2022. The execution is dependent on market simulation results. Due to the grace period on market simulations, ATCE is executed on historical EDDs.

ATCE Backup: The ATC extraction module contain a software defect causing the calculation to fail for some EDDs. This defect is related to the calculation on historical EDDs, where the calculation module loses an index to a previously published flow-based domain. Our vendor is working to resolve the issue. Meanwhile, ATCE backup will be triggered for the failed calculations. The ATCE backup process copies for each border and direction the minimum NTC among three candidates; [NTC of previous MTU, if valid; NTC of following MTU, if valid; NTC for same MTU on previous valid EDD].

# Bidding zone lock-in statistics

An area operates at maximum export when the sum of ATC on all exporting directions of that area is less than 1MW.

An area operates at maximum import when the sum of ATC on all importing directions of that area is less than 1MW.

An area operates in lock-in if during the same MTU it is operating at both maximum export and maximum import.

48 MTUs where ATCE failed have been excluded from the statistics.

Bidding zone	#MTUs at max Export	#MTUs at max Import	#MTUs at lock-in
DK1	0	0	0
DK2	0	0	0
SE1	0	0	0
SE2	5	0	0
SE3	0	0	0
SE4	0	0	0
NO1	0	0	0
NO2	0	0	0
NO3	0	0	0
NO4	100	0	0
NO5	0	0	0
FI	0	0	0

# Border lock-in statistics

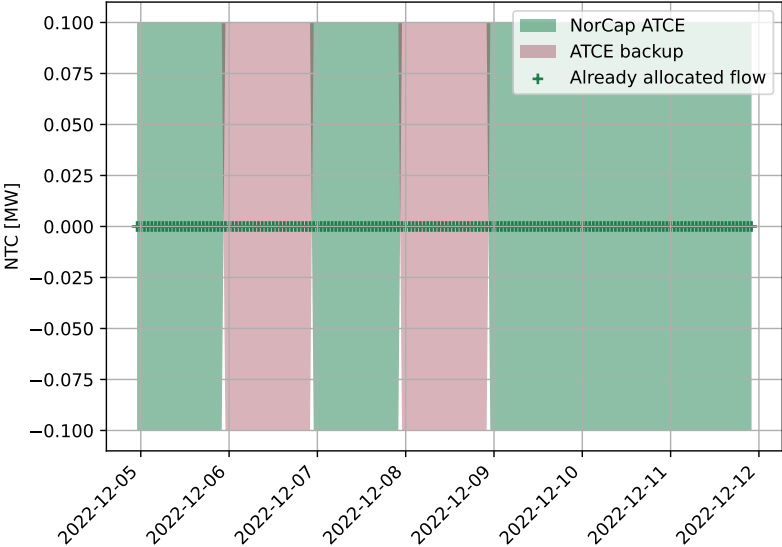
A bidding zone border is operating in a lock-in situation, if at a given MTU, the ATC of the bidding zone border is smaller than 1MW in both forward and reverse trading direction.

48 MTUs where ATCE failed have been excluded from the statistics.

Border	#MTUs at lock-in
NO3-SE2	5
SE2-NO3	5
NO4-SE1	9
SE1-NO4	9
NO4-SE2	8
SE2-NO4	8

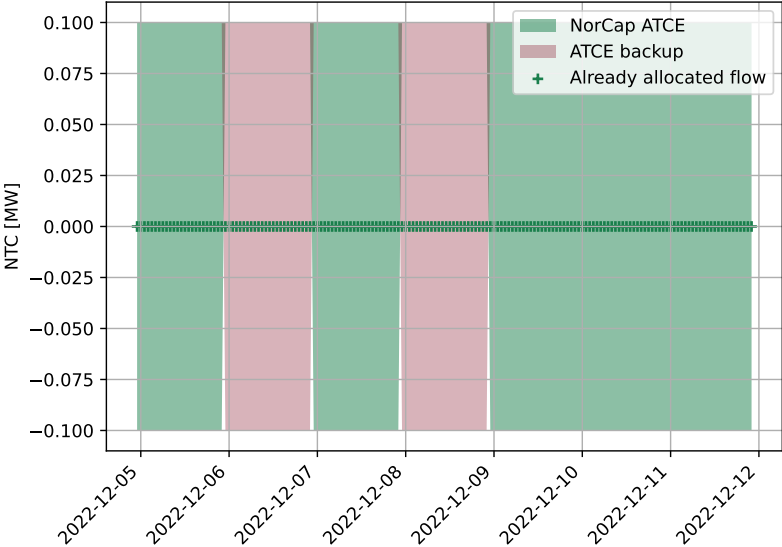
# DK1-DK1\_CO

NTC DK1-DK1\_CO



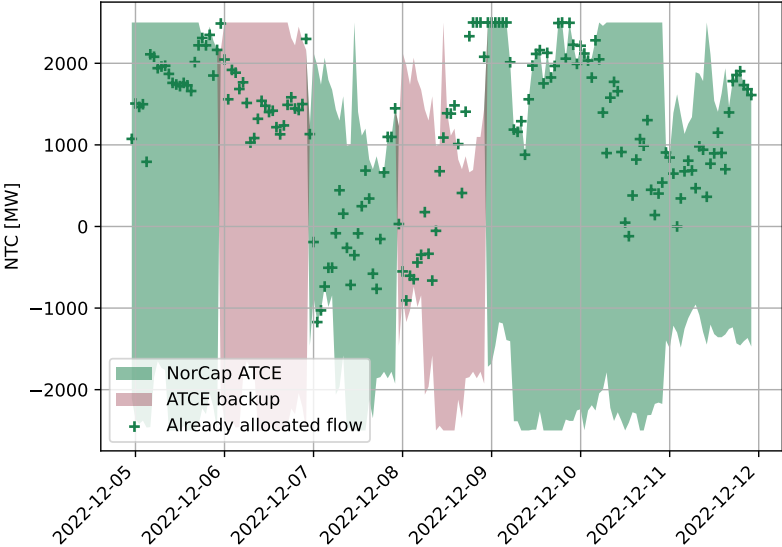
# DK1\_CO-DK1

NTC DK1\_CO-DK1



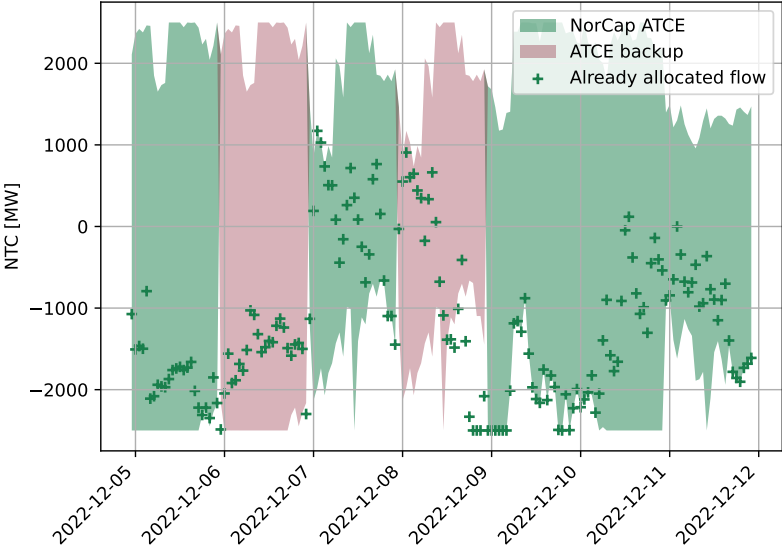
# DK1-DK1\_DE

NTC DK1-DK1\_DE



# DK1\_DE-DK1

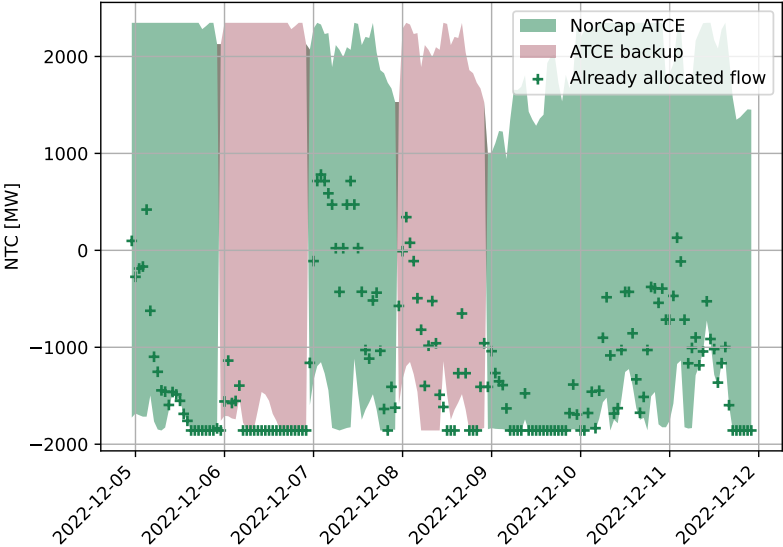
NTC DK1\_DE-DK1



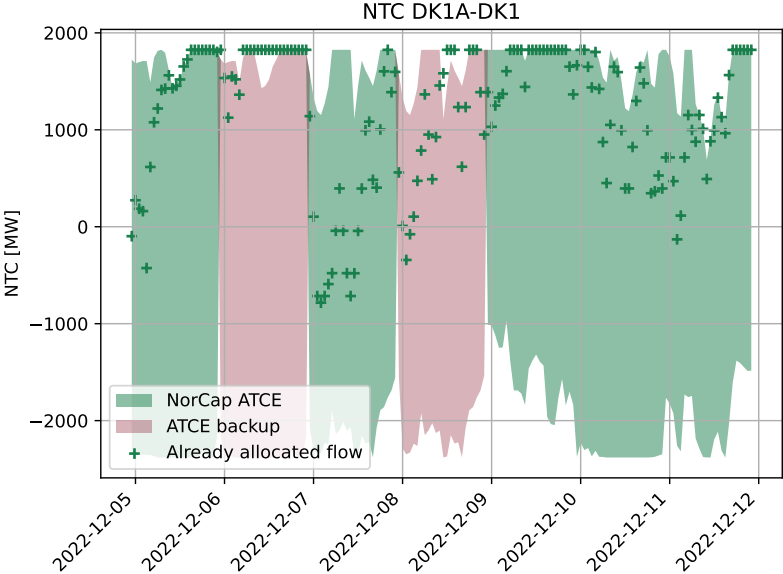


# DK1-DK1A

NTC DK1-DK1A

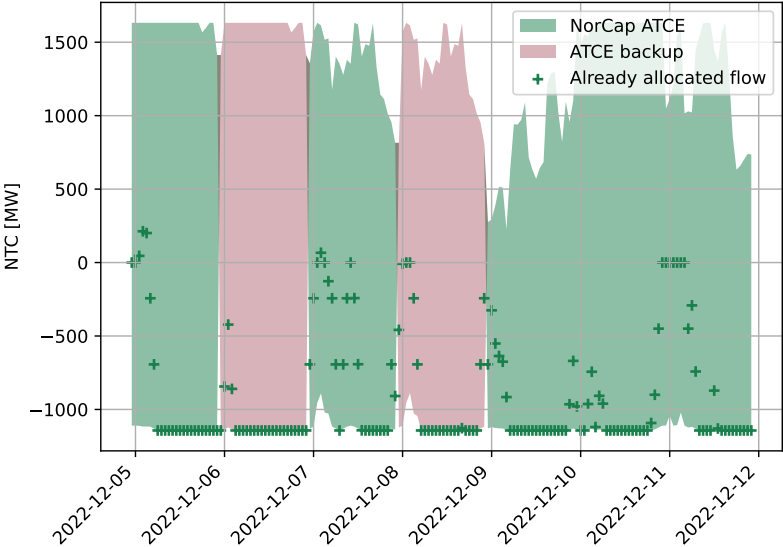


# DK1A-DK1



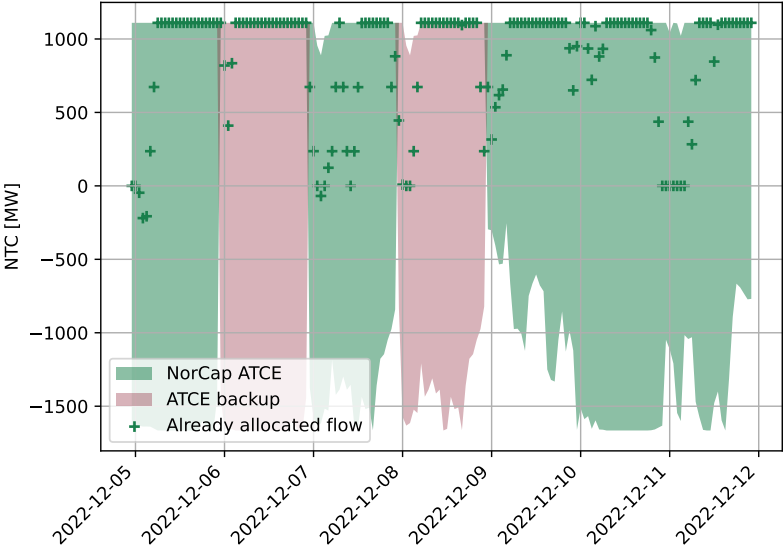
# DK1A-NO2

NTC DK1A-NO2



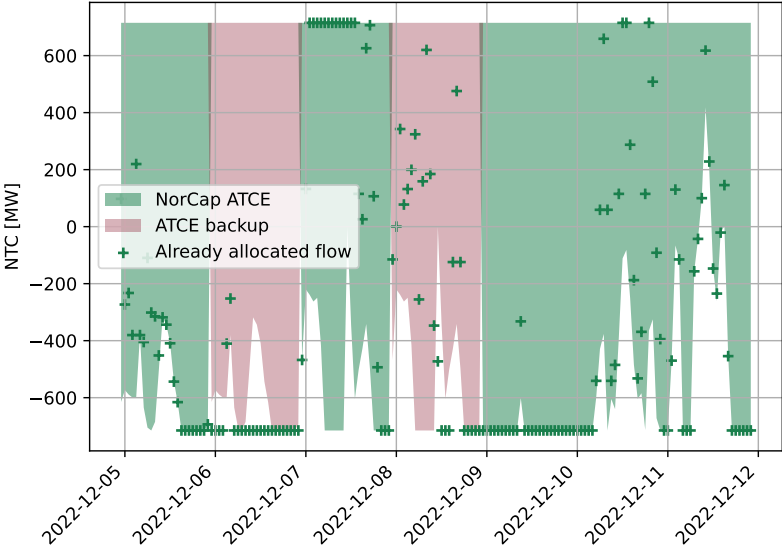
# NO2-DK1A

NTC NO2-DK1A



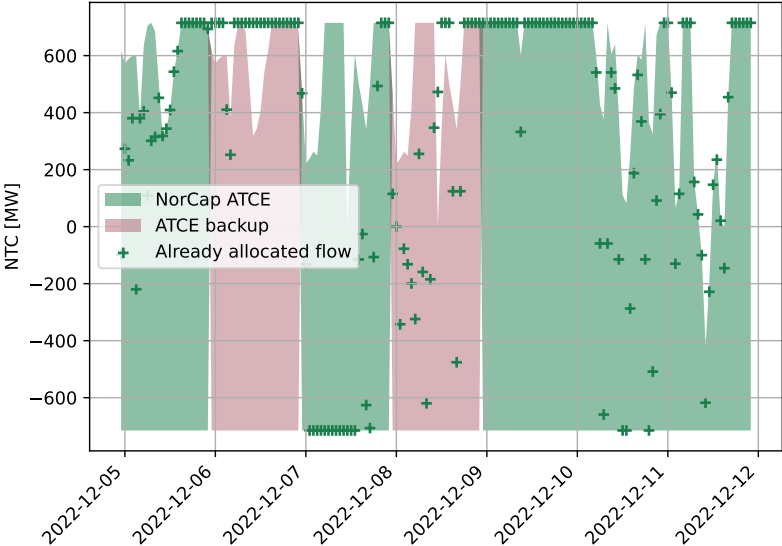
# DK1A-SE3

## NTC DK1A-SE3



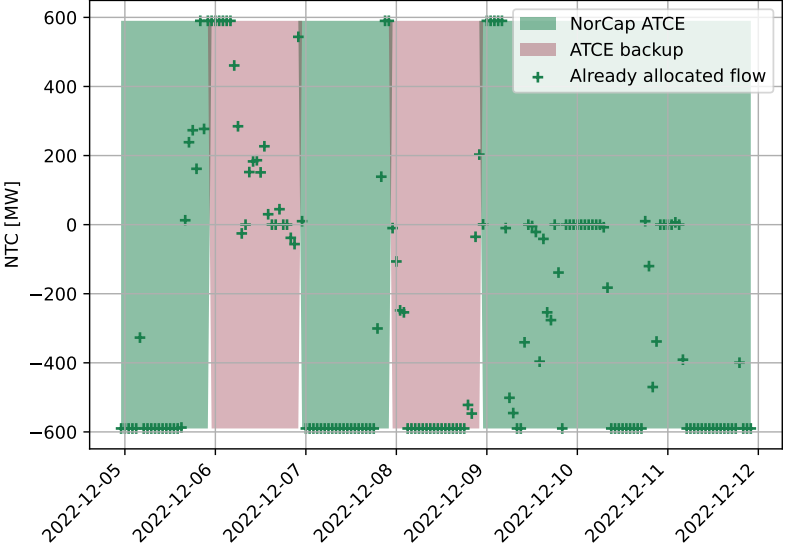
# SE3-DK1A

## NTC SE3-DK1A



# DK2-DK1

## NTC DK2-DK1

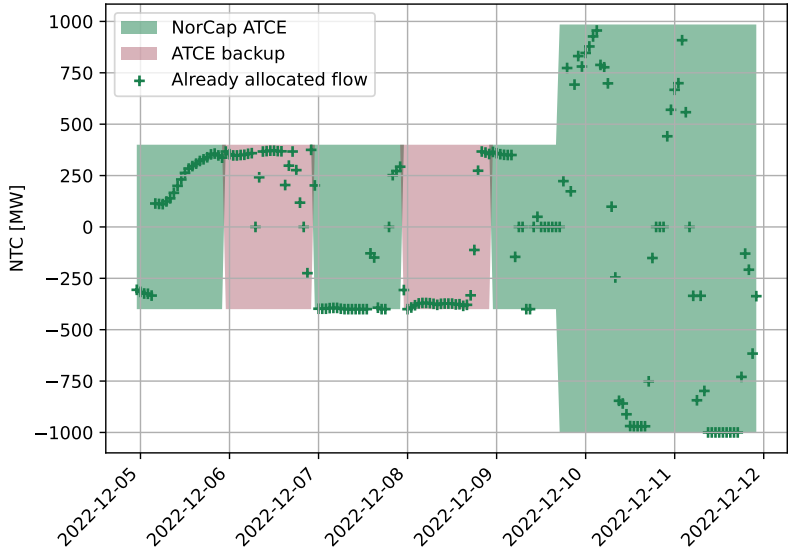






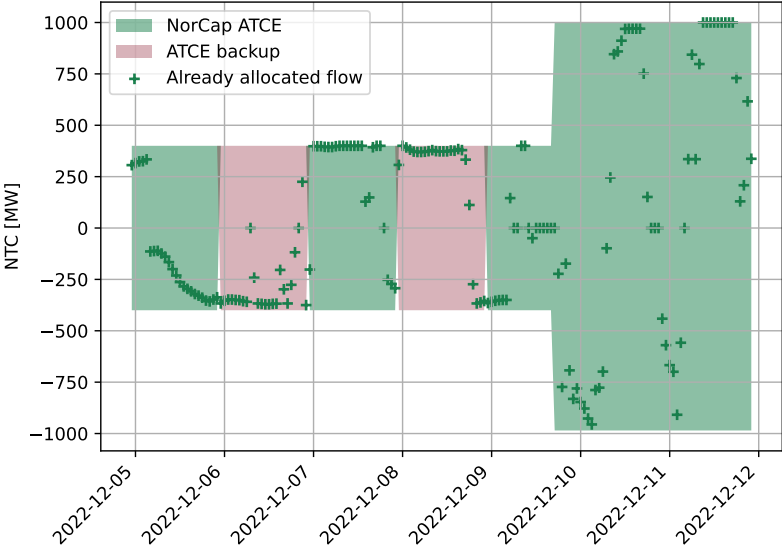
# DK2-DK2\_KO

NTC DK2-DK2\_KO



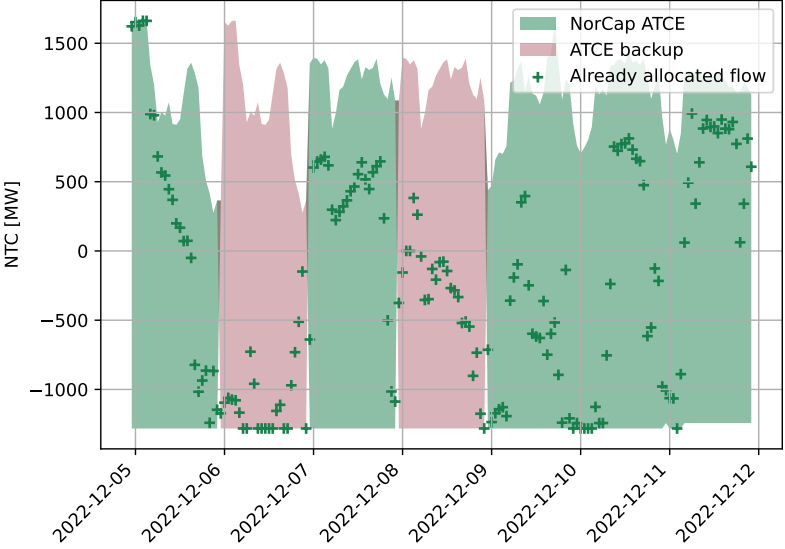
# DK2\_KO-DK2

NTC DK2\_KO-DK2



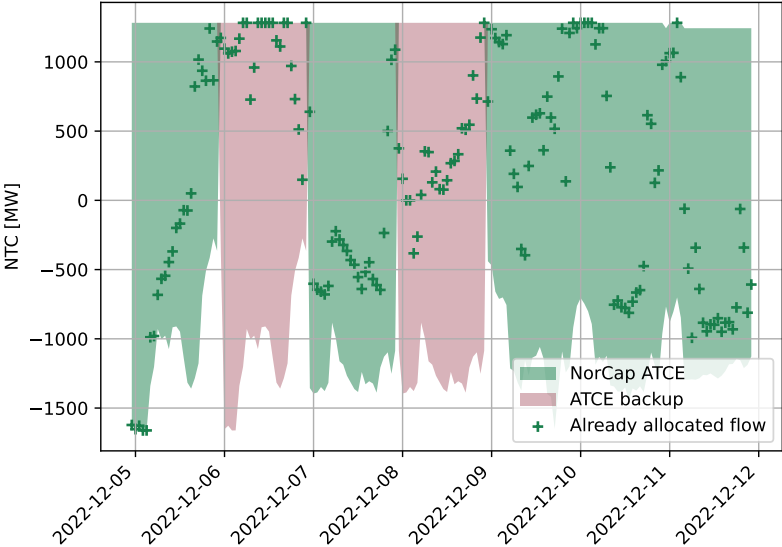
# DK2-SE4

NTC DK2-SE4

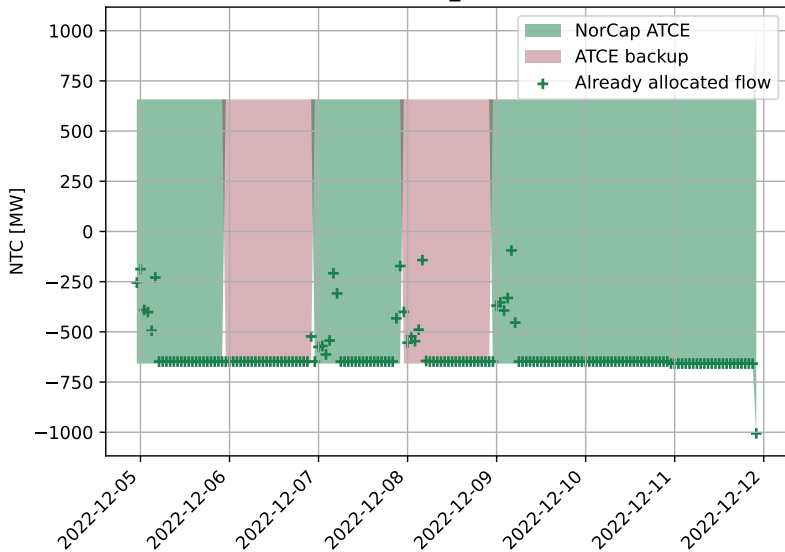


# SE4-DK2

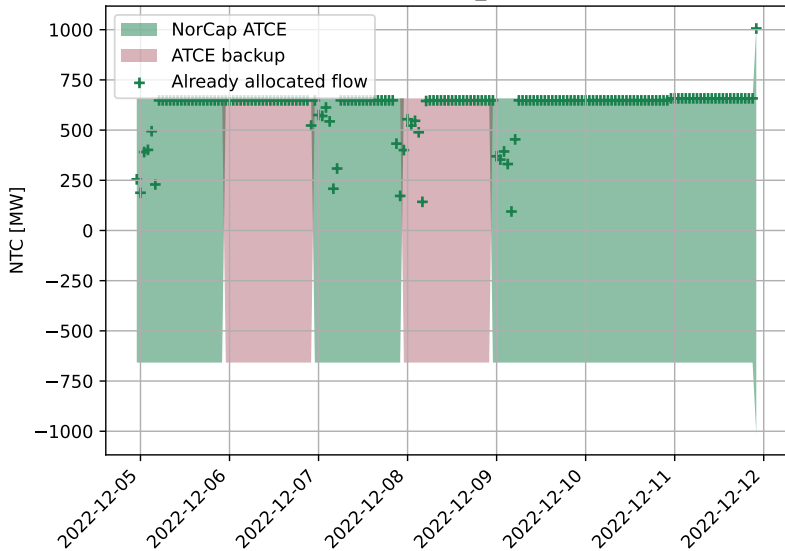
## NTC SE4-DK2



## NTC FI\_EL-FI

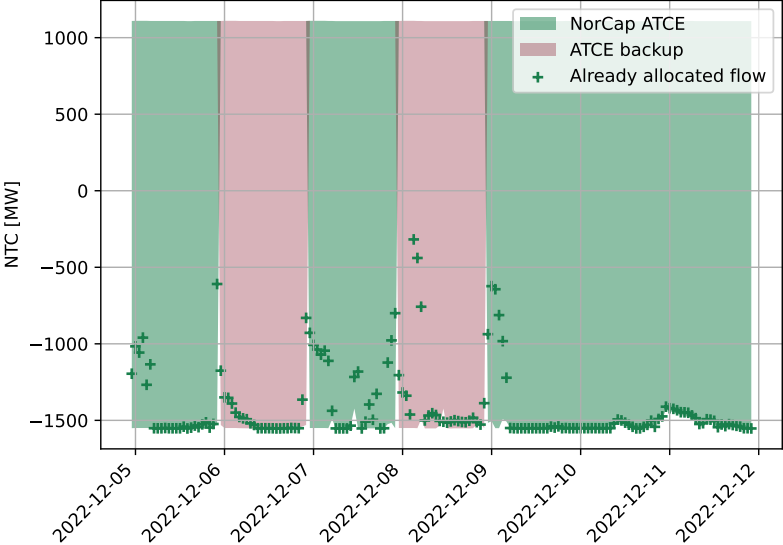


## NTC FI-FI\_EL

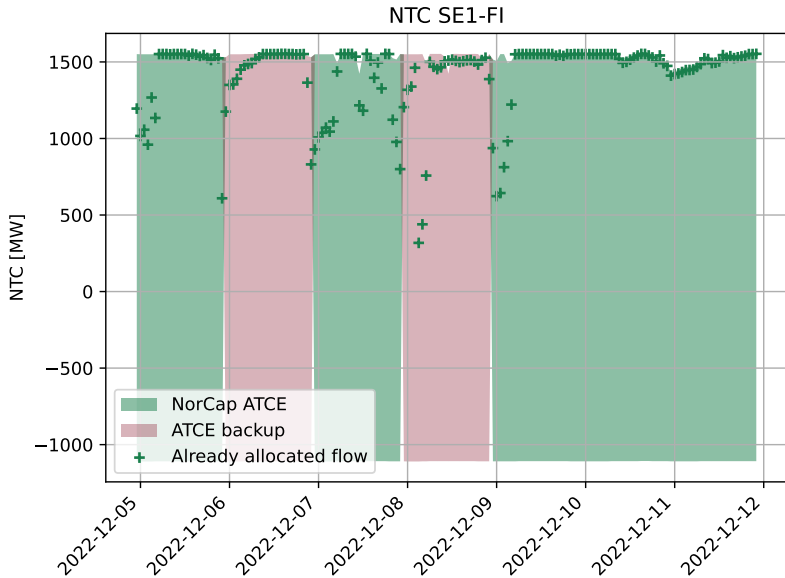


# FI-SE1

## NTC FI-SE1



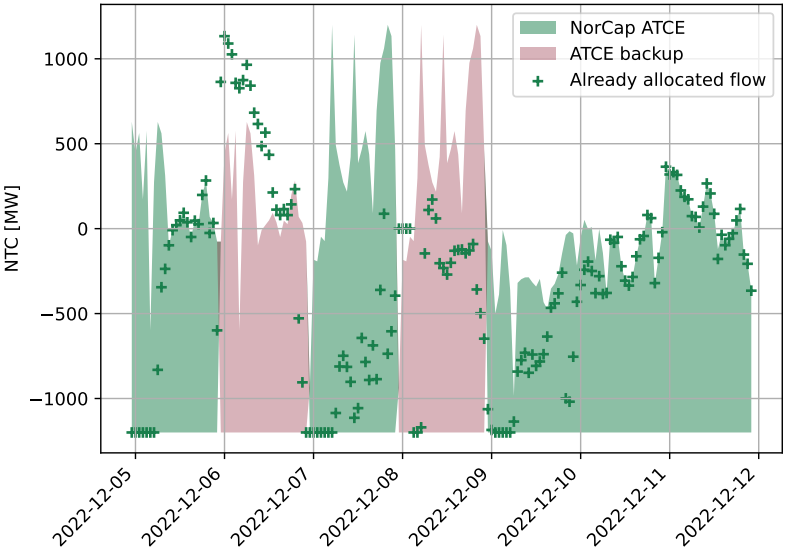
# SE1-FI





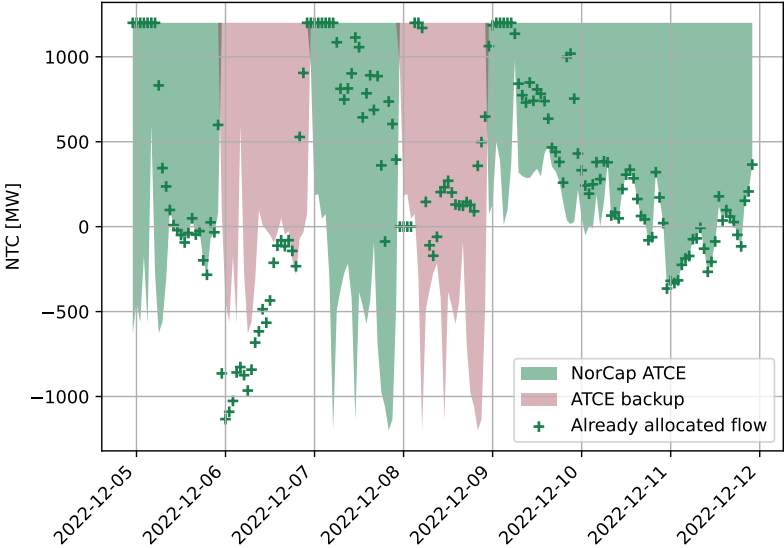
# FI-SE3

## NTC FI-SE3

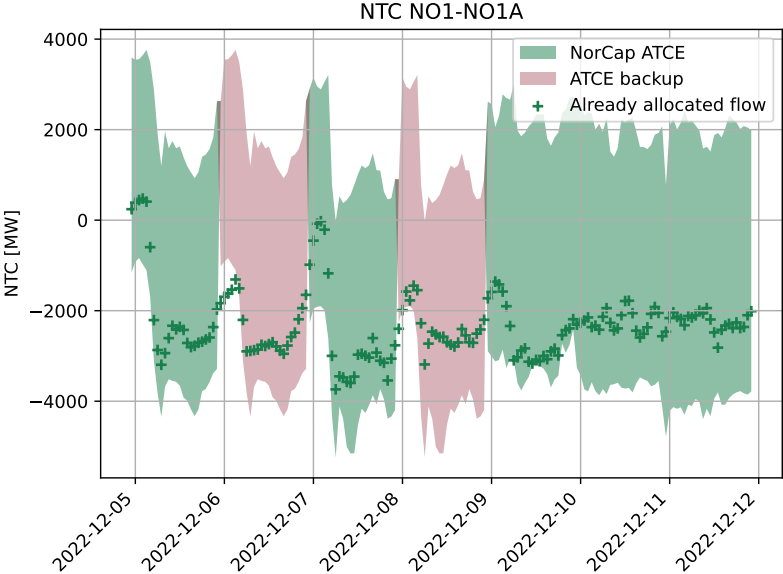


# SE3-FI

NTC SE3-FI

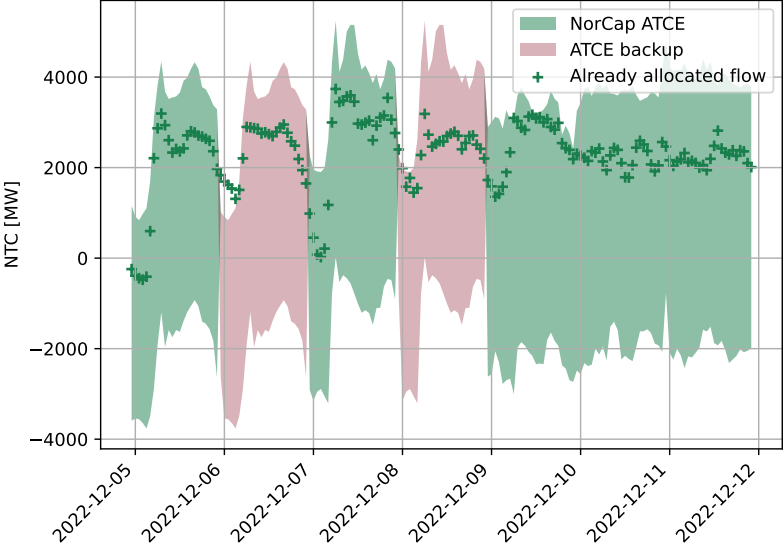


# NO1-NO1A



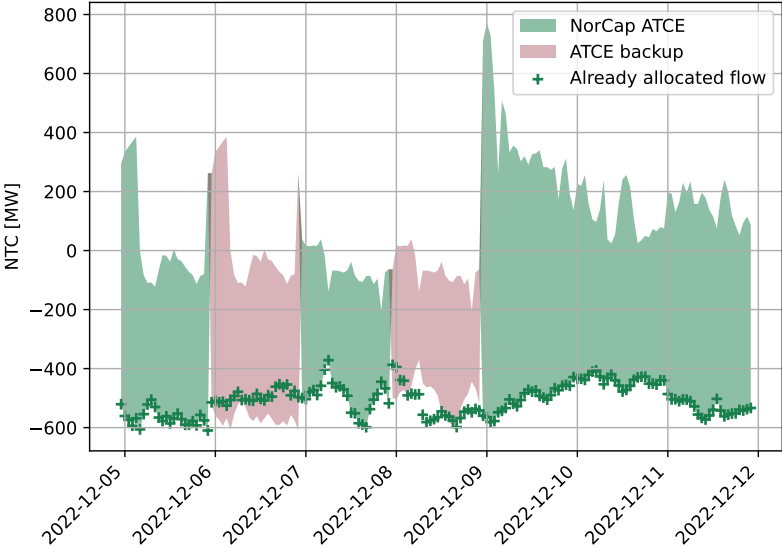
# NO1A-NO1

NTC NO1A-NO1

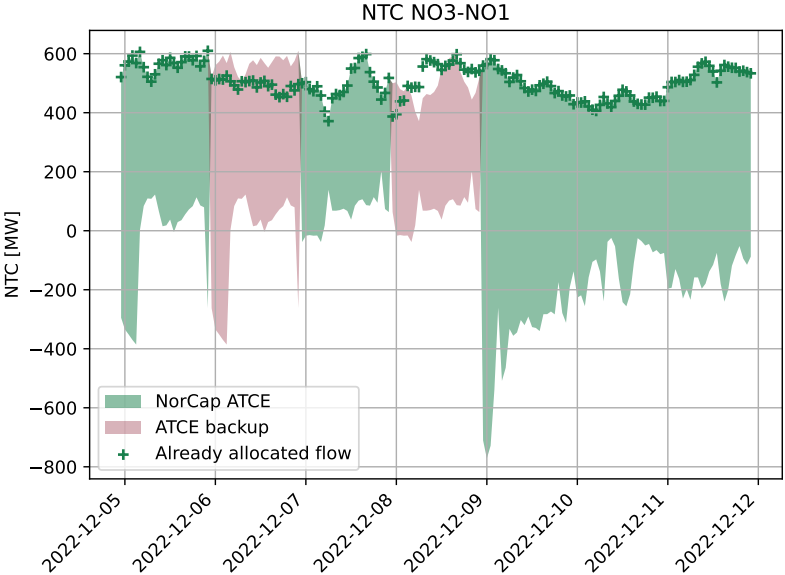


# NO1-NO3

## NTC NO1-NO3

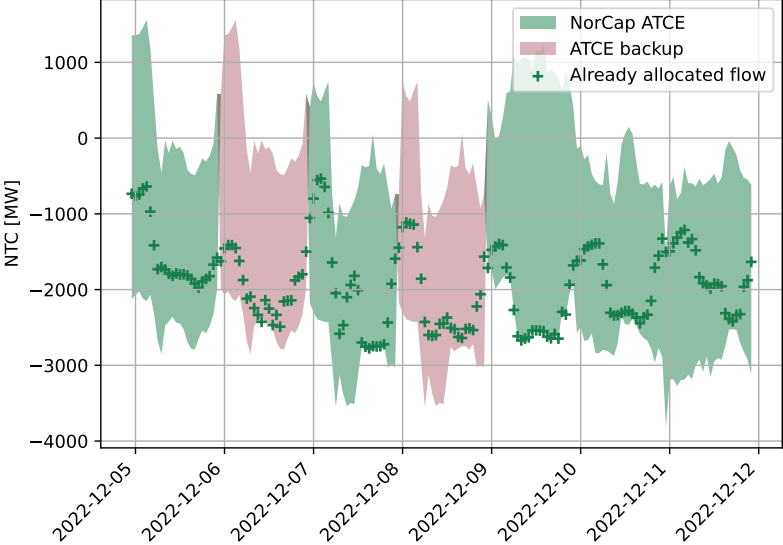


# NO3-NO1

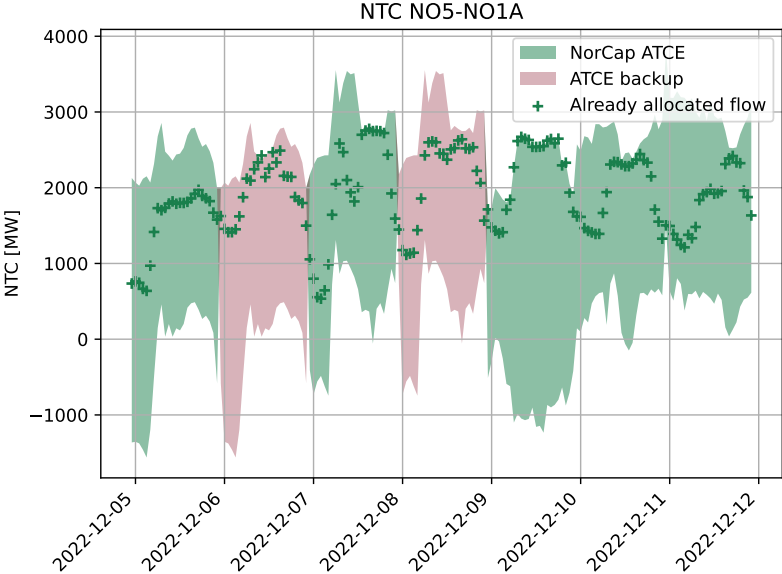


# NO1A-NO5

NTC NO1A-NO5



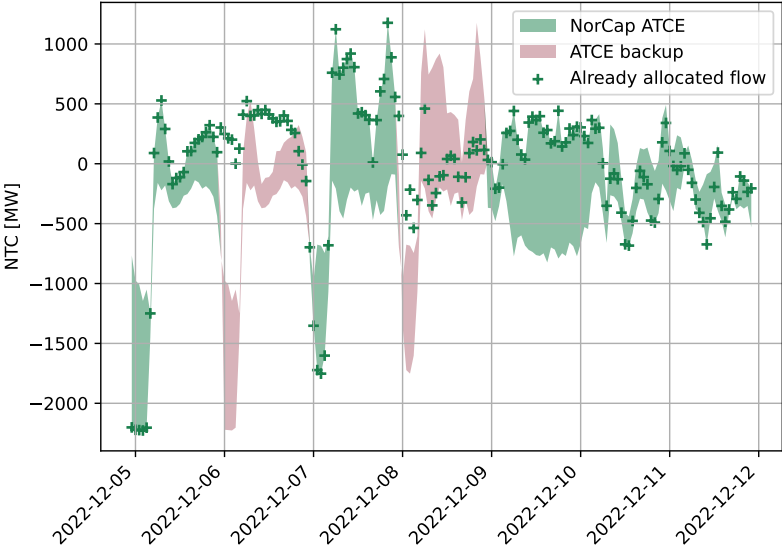
# NO5-NO1A





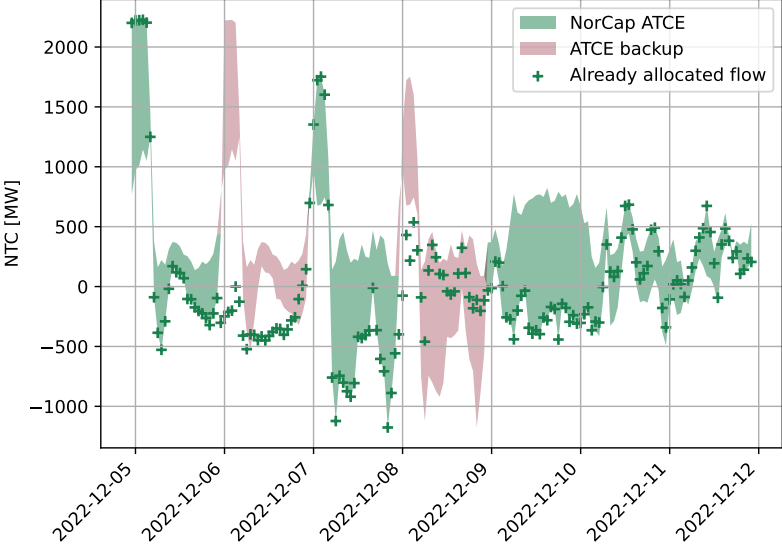
# NO1-SE3

### NTC NO1-SE3



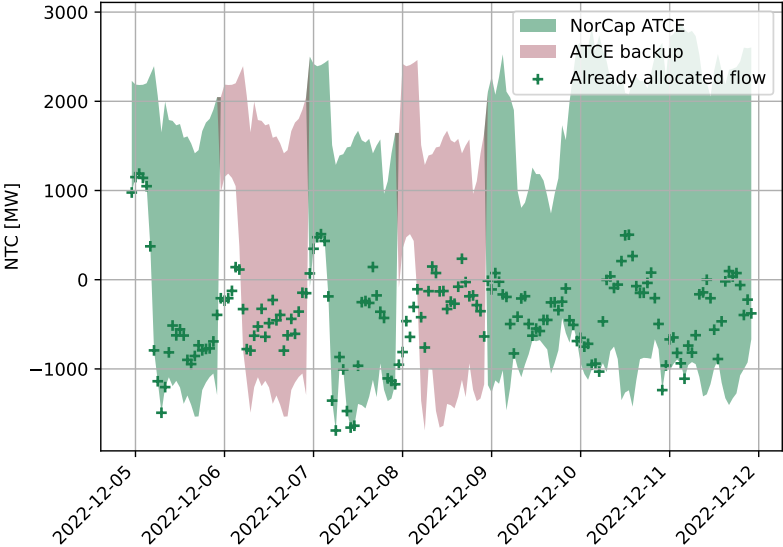
# SE3-NO1

## NTC SE3-NO1



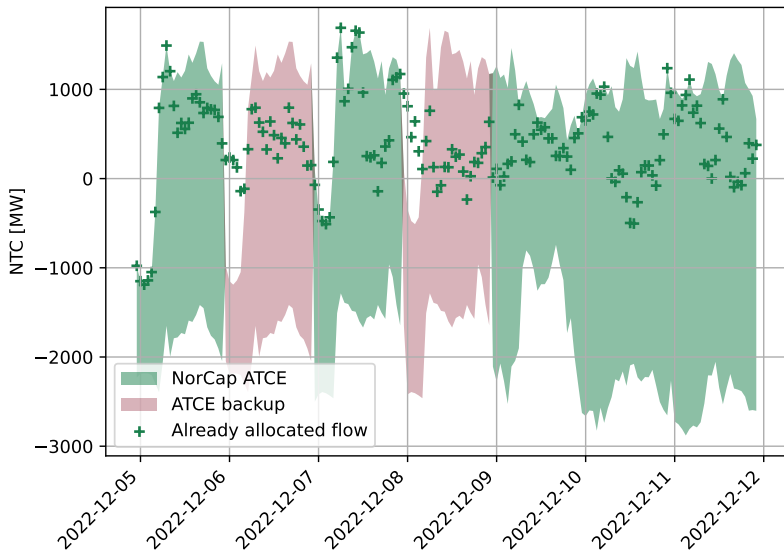
# NO1A-NO2

## NTC NO1A-NO2



# NO2-NO1A

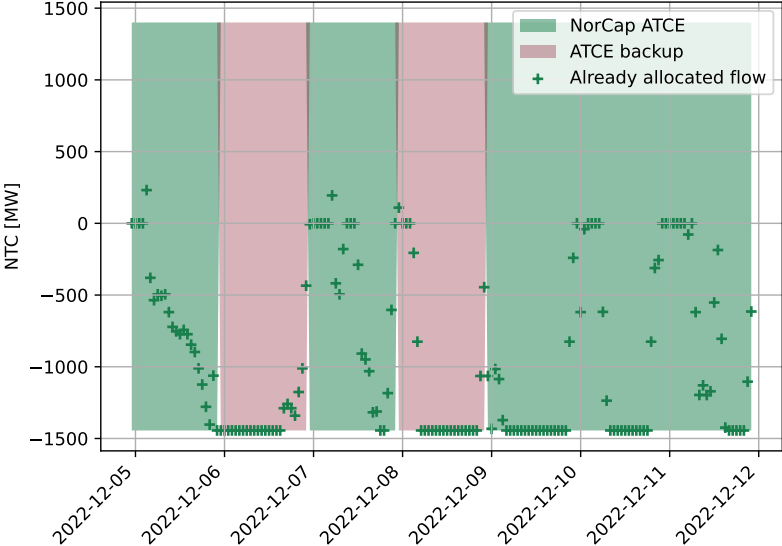
NTC NO2-NO1A





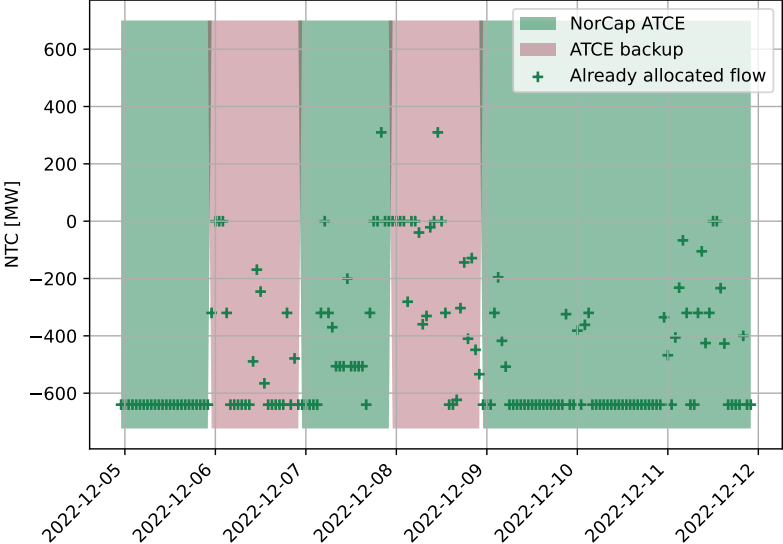
# NO2\_DE-NO2

NTC NO2\_DE-NO2



# NO2\_ND-NO2

NTC NO2\_ND-NO2

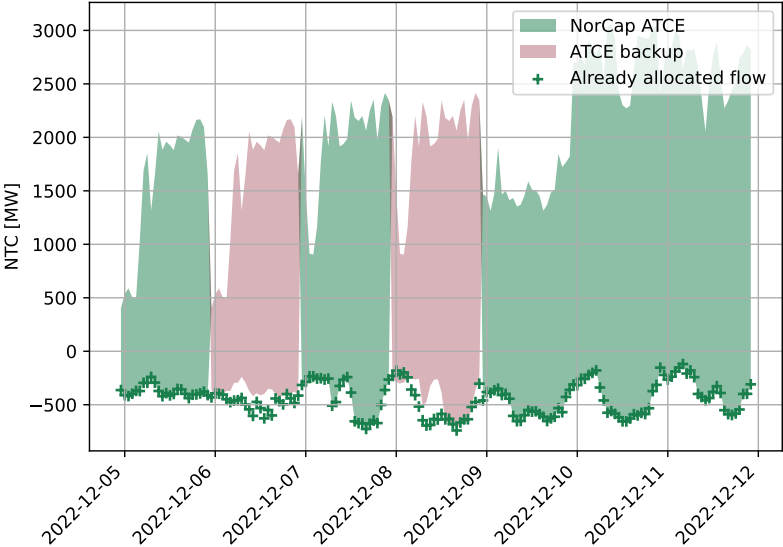






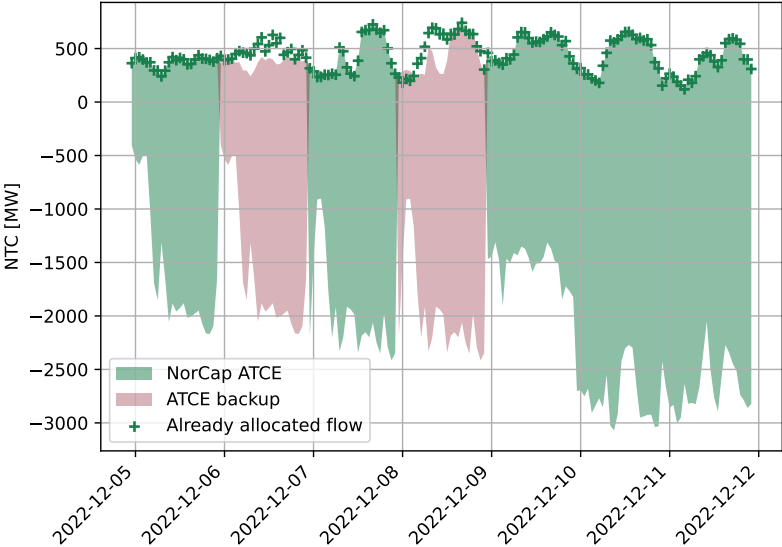
# NO2-NO5

## NTC NO2-NO5



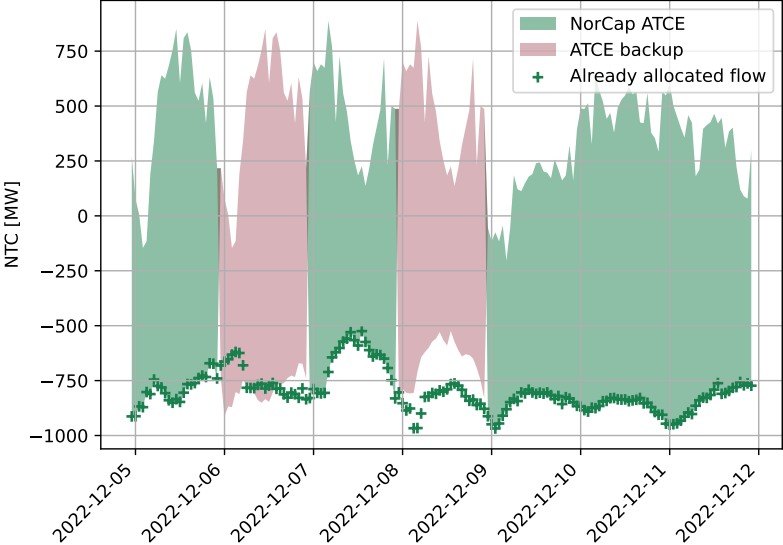
# NO5-NO2

NTC NO5-NO2

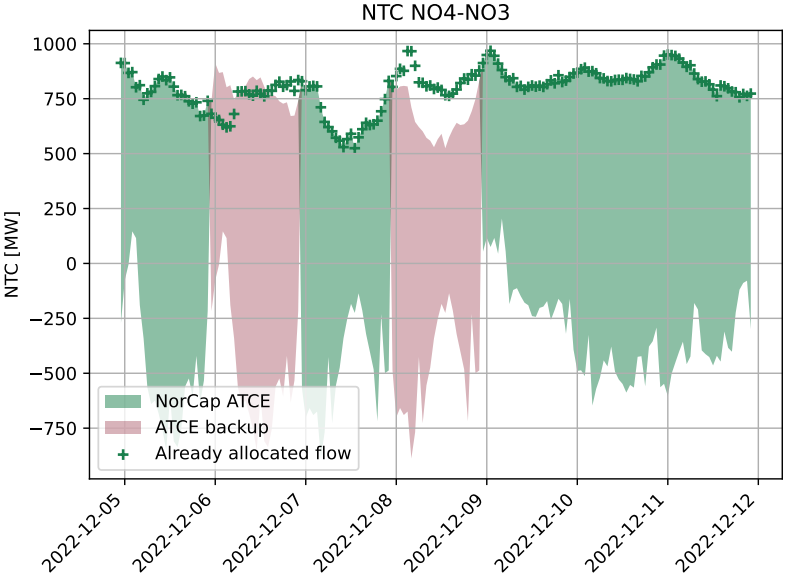


# NO3-NO4

### NTC NO3-NO4

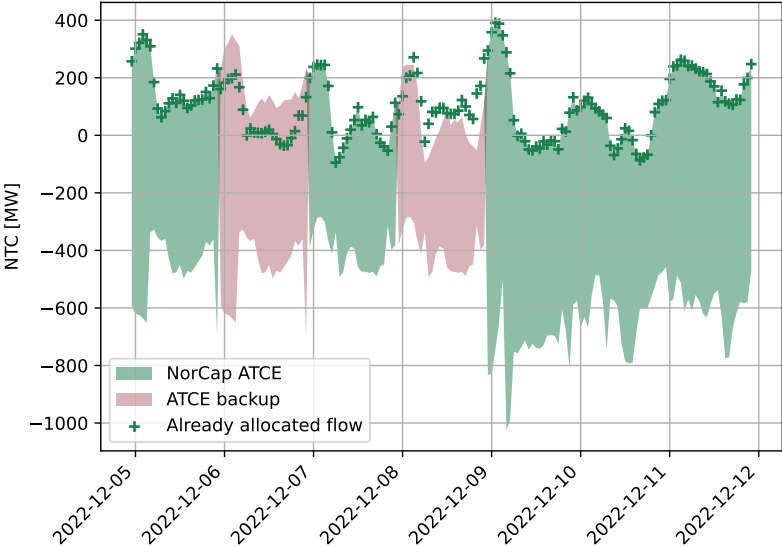


# NO4-NO3



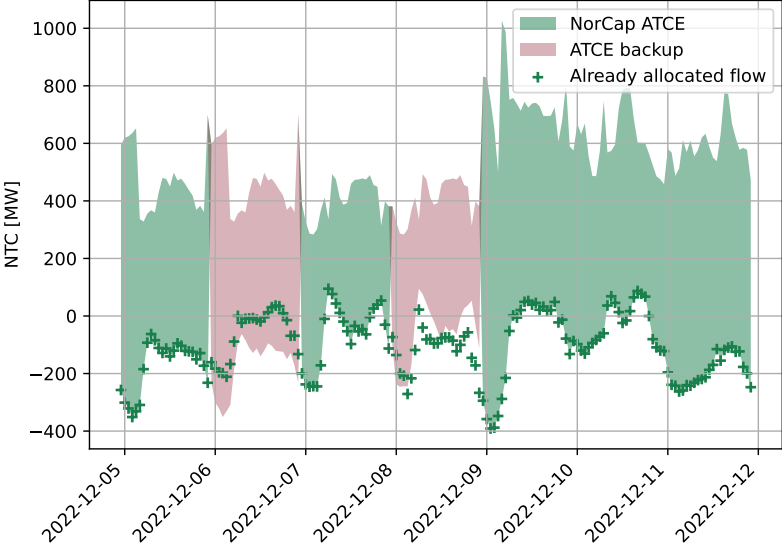
# NO3-NO5

NTC NO3-NO5



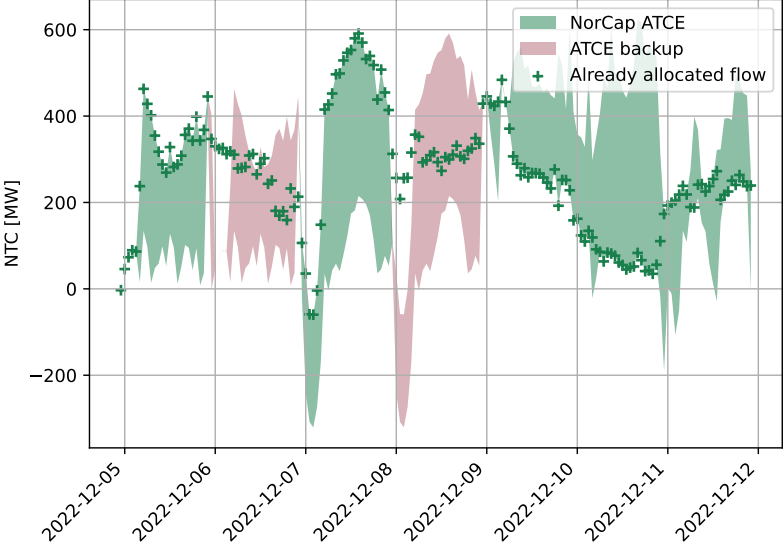
# NO5-NO3

## NTC NO5-NO3



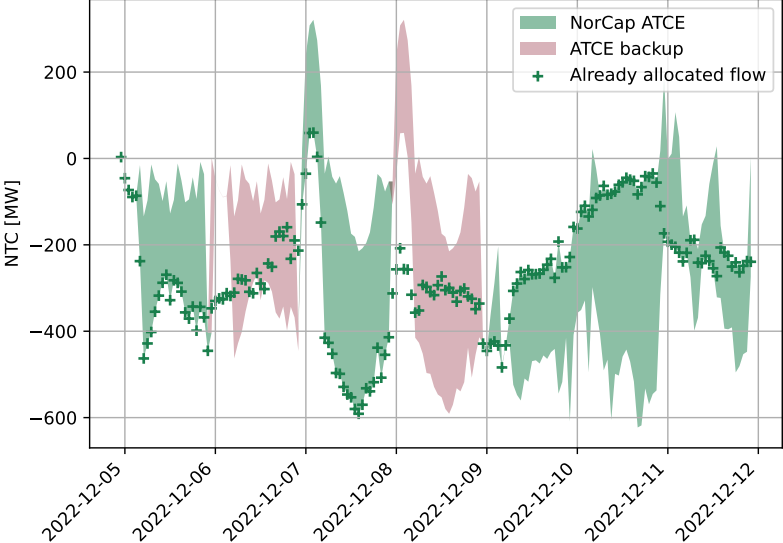
# NO3-SE2

## NTC NO3-SE2



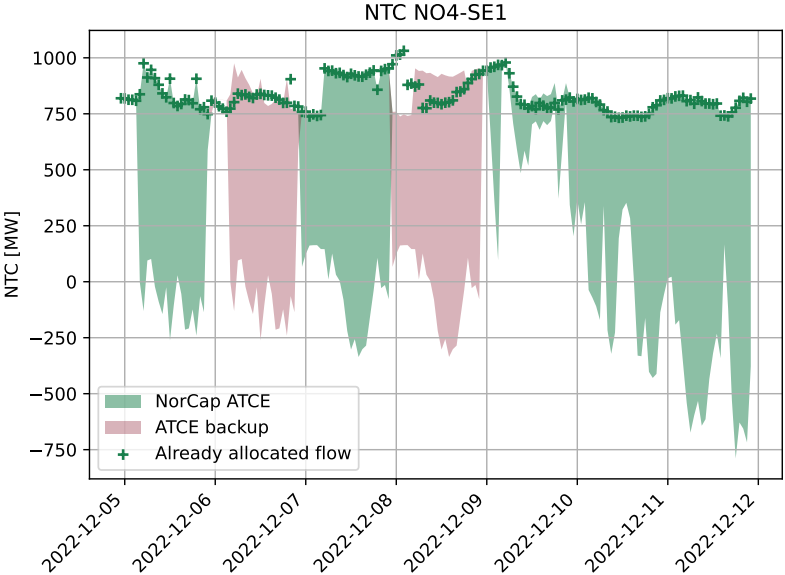
# SE2-NO3

## NTC SE2-NO3



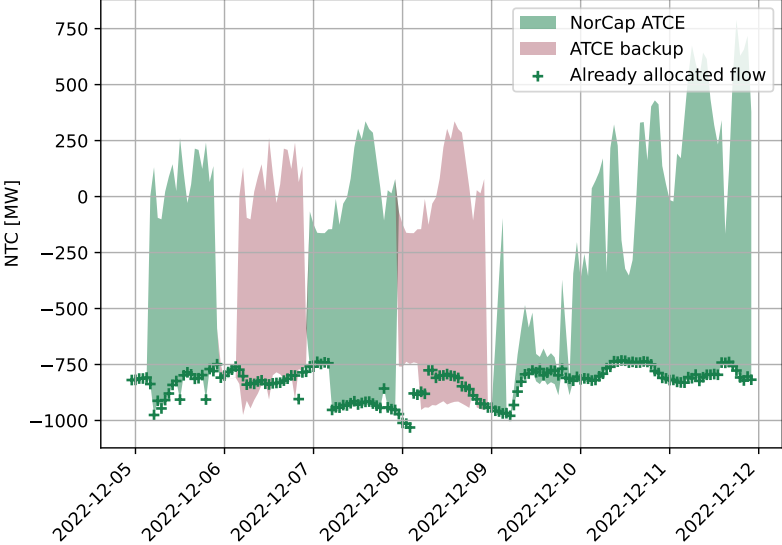


# NO4-SE1



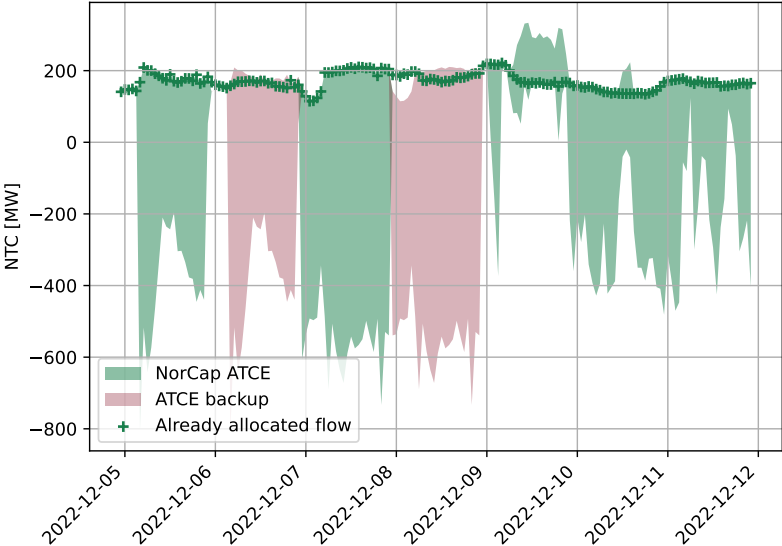
# SE1-NO4

## NTC SE1-NO4



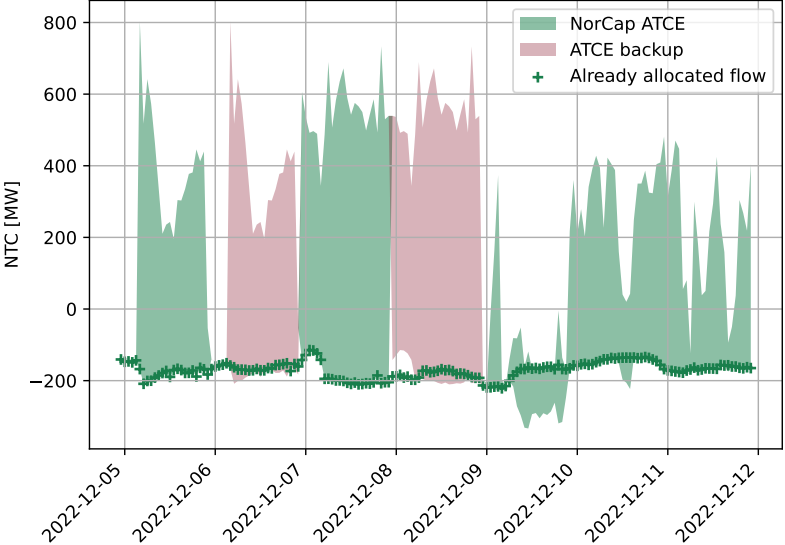
# NO4-SE2

## NTC NO4-SE2



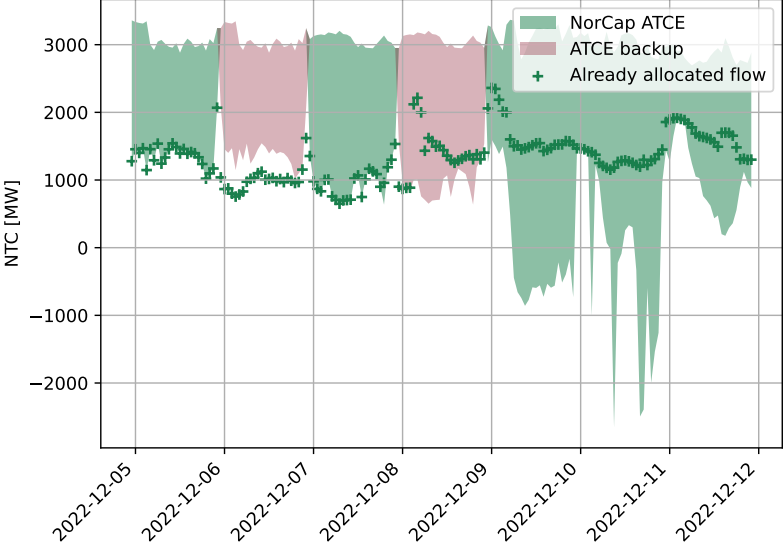
# SE2-NO4

## NTC SE2-NO4



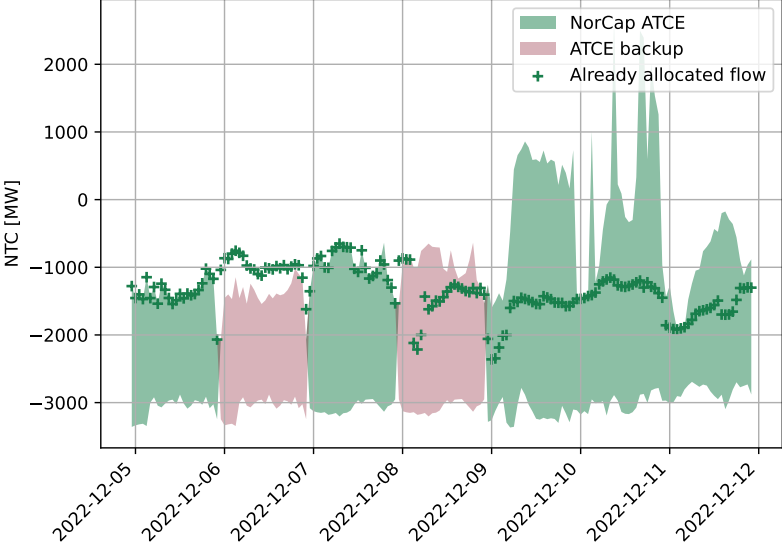
# SE1-SE2

## NTC SE1-SE2

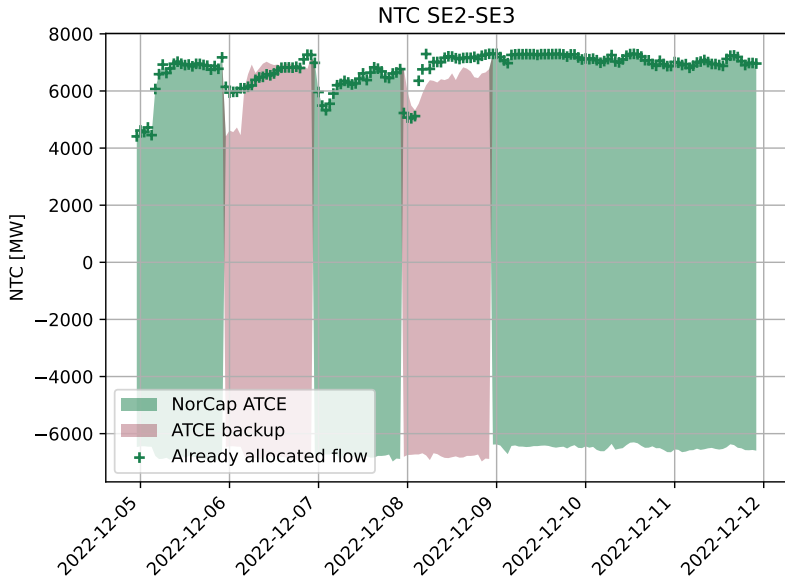


# SE2-SE1

## NTC SE2-SE1

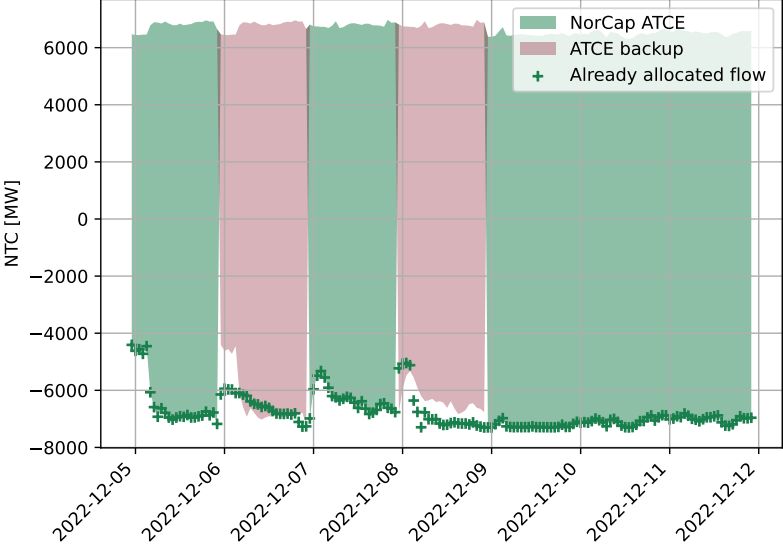


# SE2-SE3



# SE3-SE2

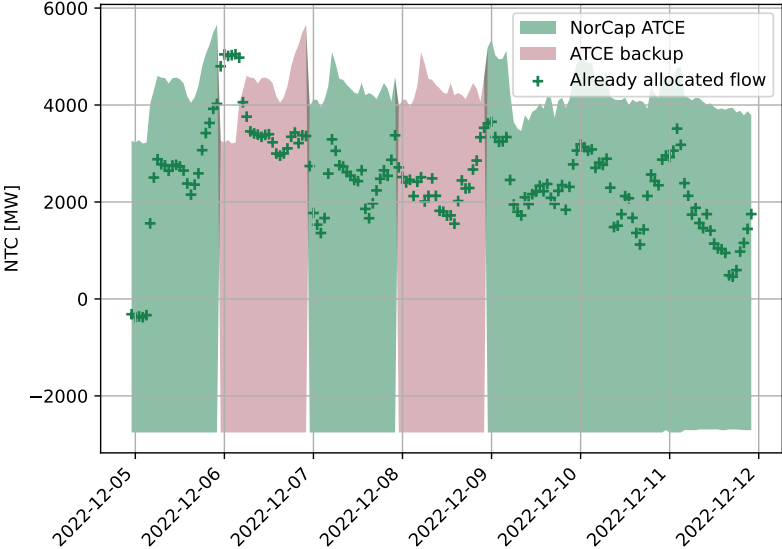
## NTC SE3-SE2





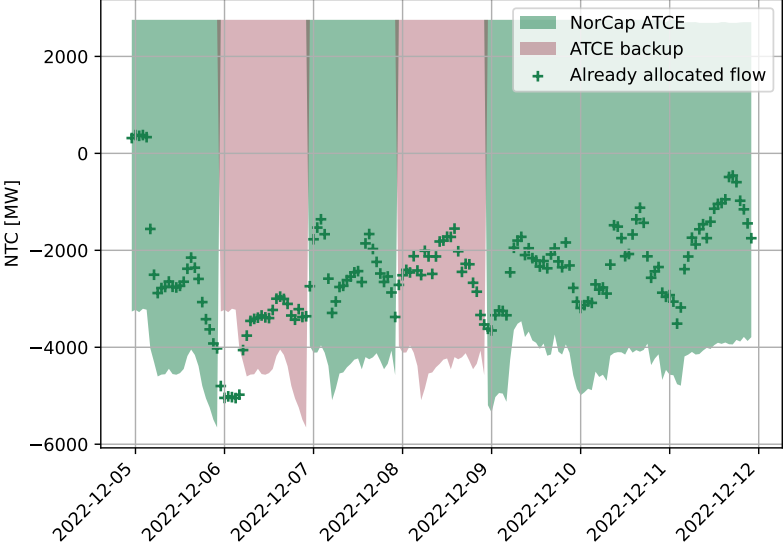
# SE3-SE4

## NTC SE3-SE4



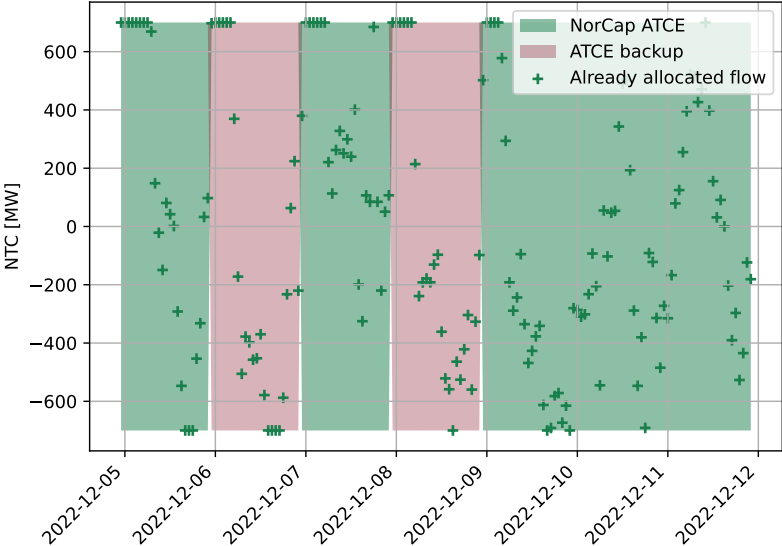
# SE4-SE3

## NTC SE4-SE3



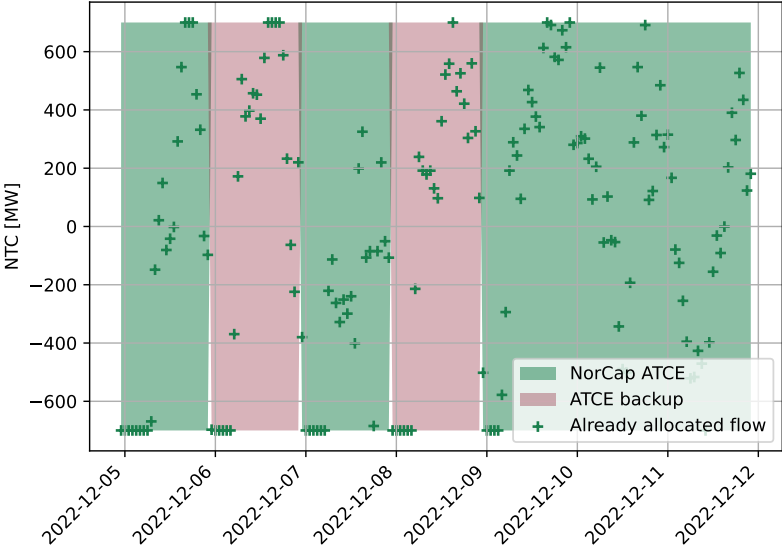
# SE4-SE4\_NB

NTC SE4-SE4\_NB



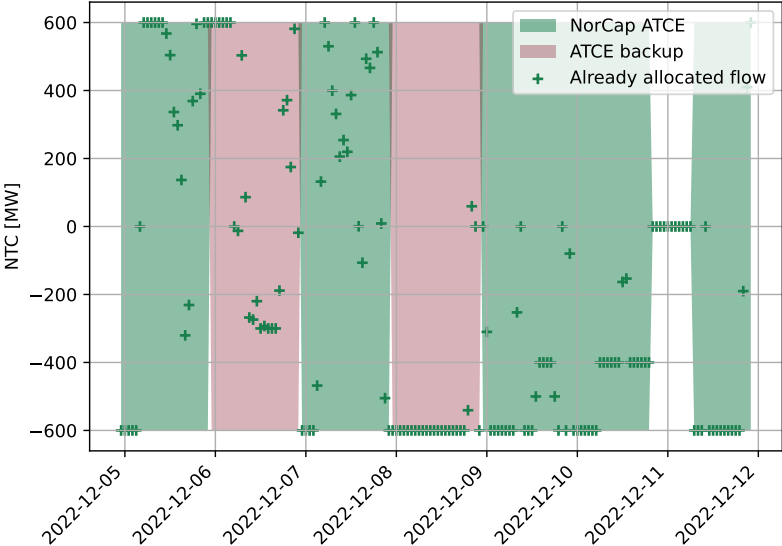
# SE4\_NB-SE4

NTC SE4\_NB-SE4



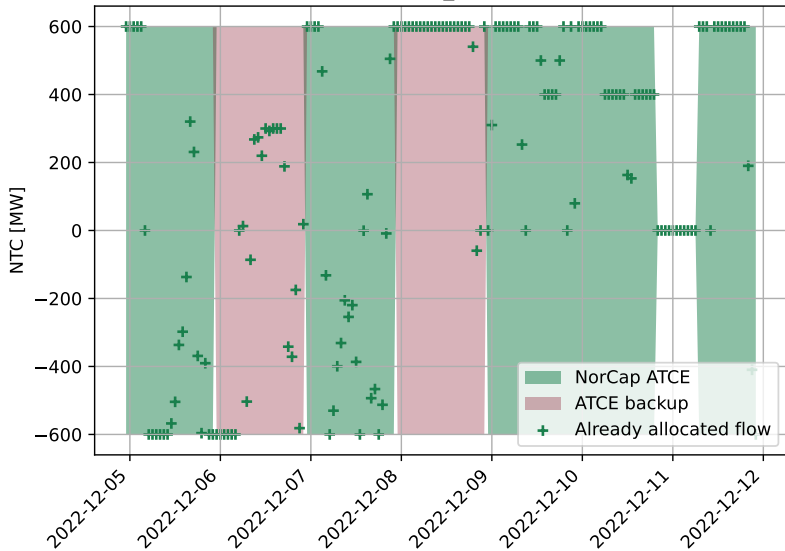
# SE4-SE4\_SP

## NTC SE4-SE4\_SP



# SE4\_SP-SE4

## NTC SE4\_SP-SE4

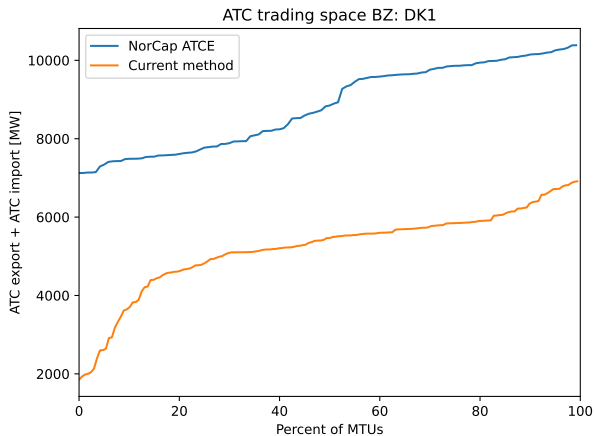


# Bidding zone trading space

The total trading space of a bidding zone for a given MTU is the sum of export capacity and import capacity on all borders of that bidding zone for that MTU. The directional trading space is the sum of ATC on all borders of a bidding zone in either exporting or importing direction.

Disclaimer: Trading space computed by the reference method (i.e. the current method used in production) are calculated from intra-day offered ATCs collected from ENTSO-e transparency platform. It must be noted that the capacities collected at transparency platform include ramping constraints for some HVDCs connecting the Nordic and external CCRs.

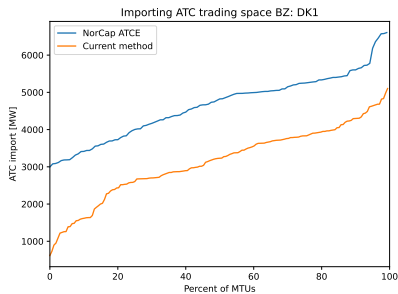
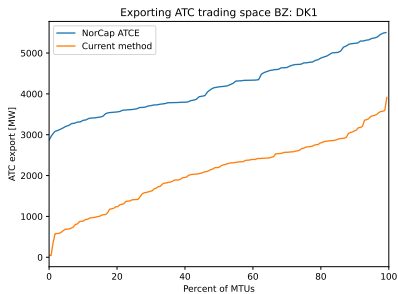
# DK1 - Total trading space



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

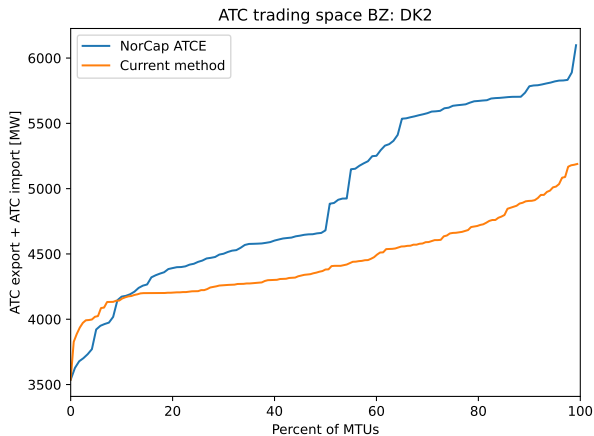


# DK1 - Directional trading space



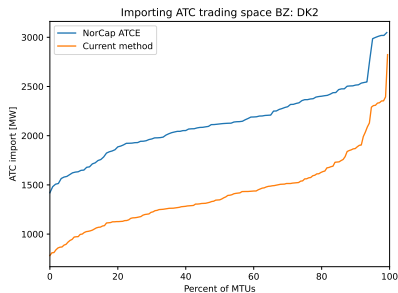
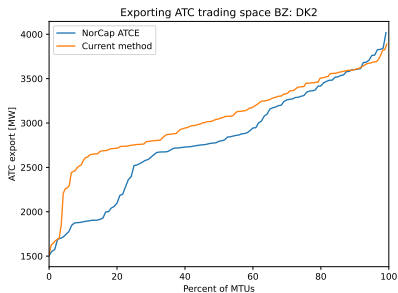
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# DK2 - Total trading space



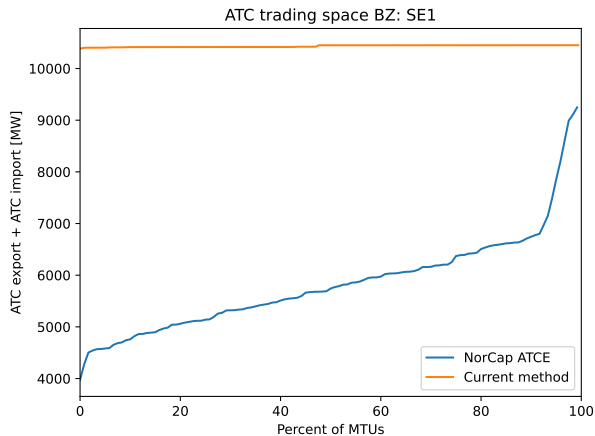
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# DK2 - Directional trading space



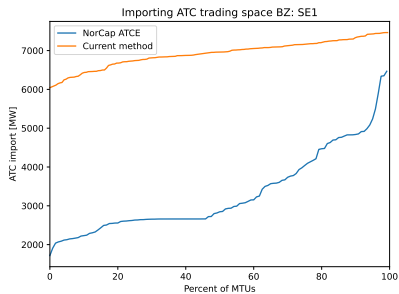
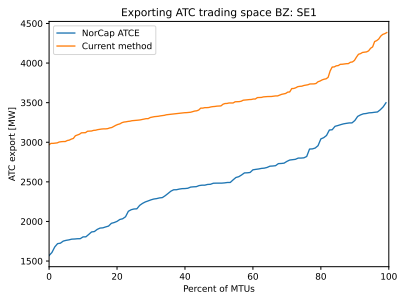
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# SE1 - Total trading space



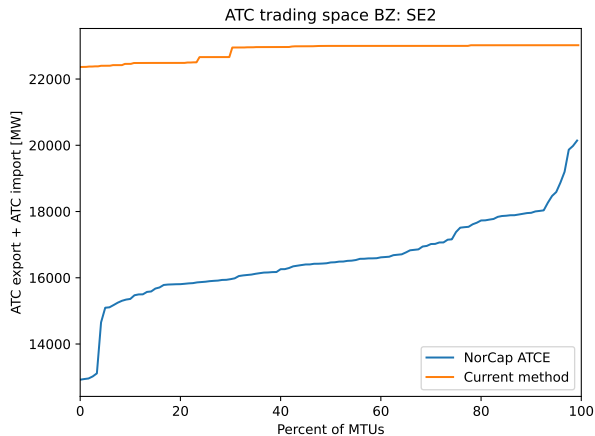
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# SE1 - Directional trading space



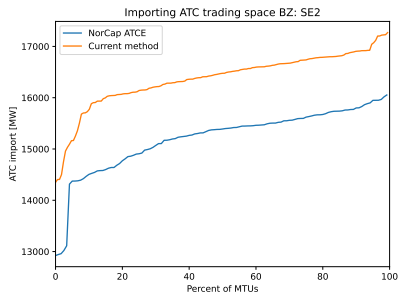
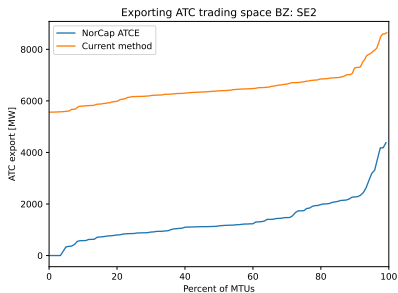
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# SE2 - Total trading space



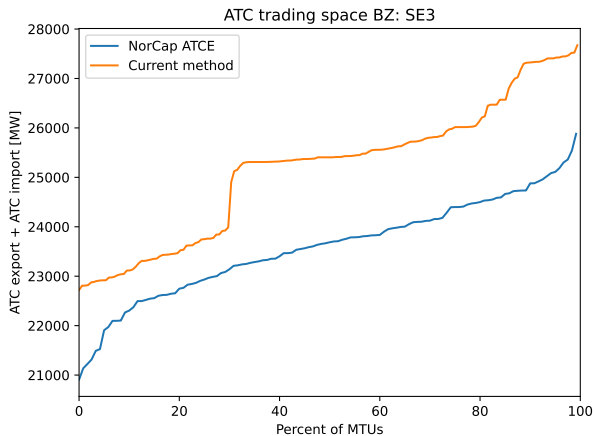
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# SE2 - Directional trading space



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

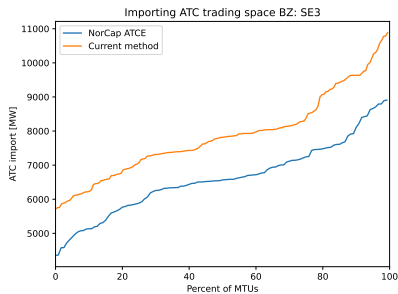
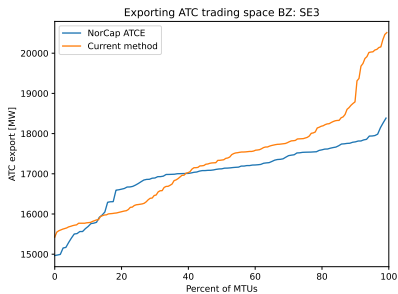
# SE3 - Total trading space



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

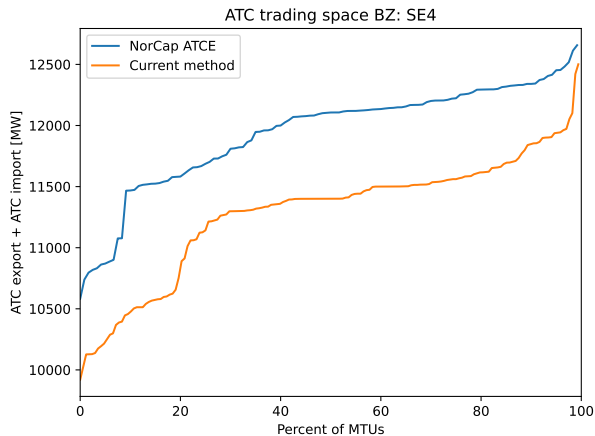


# SE3 - Directional trading space



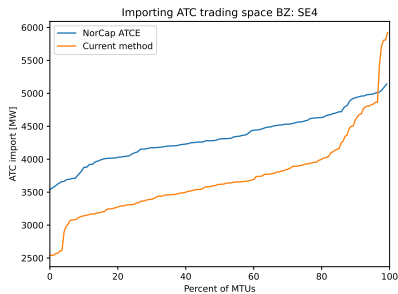
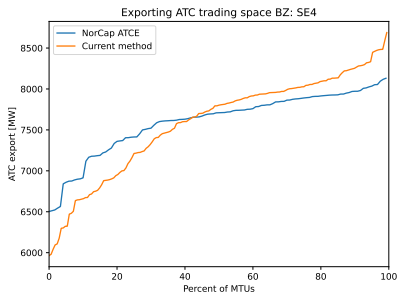
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# SE4 - Total trading space



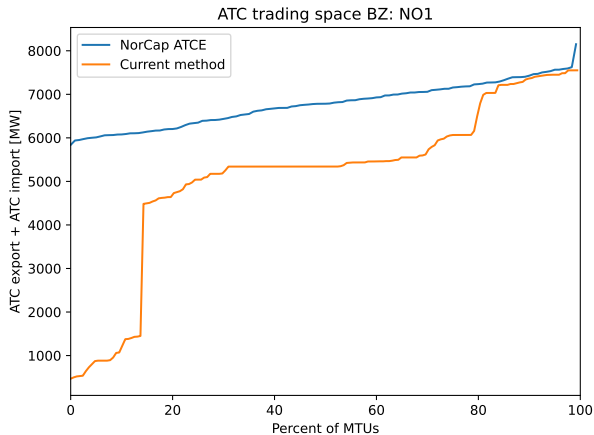
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# SE4 - Directional trading space



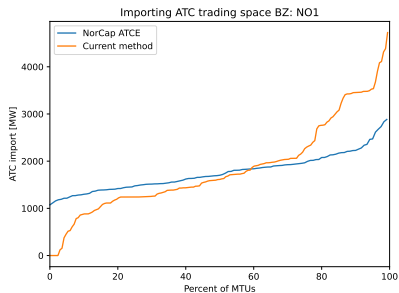
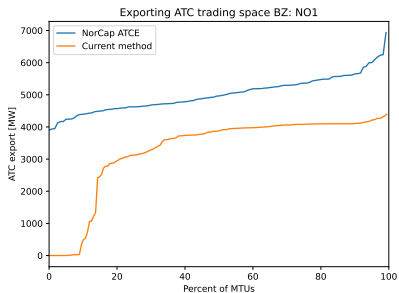
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# NO1 - Total trading space



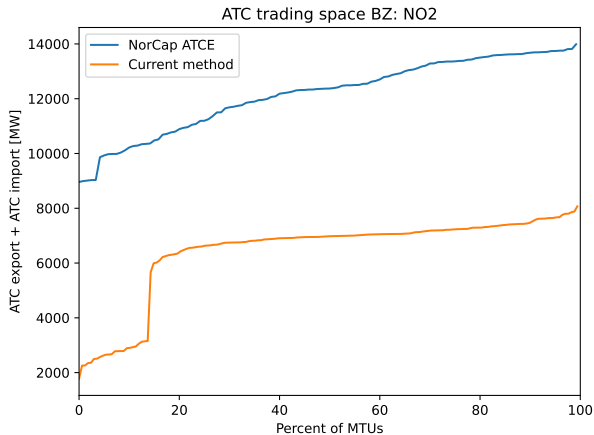
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# NO1 - Directional trading space



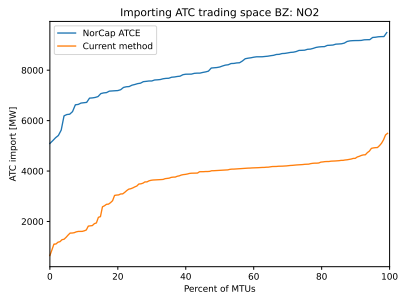
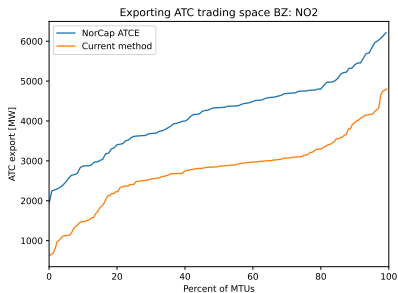
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# NO2 - Total trading space



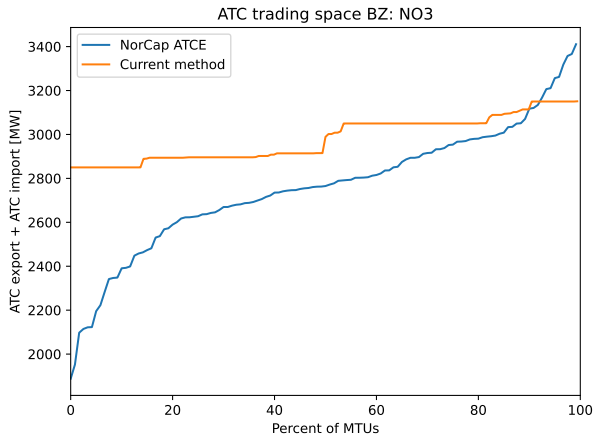
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# NO2 - Directional trading space



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

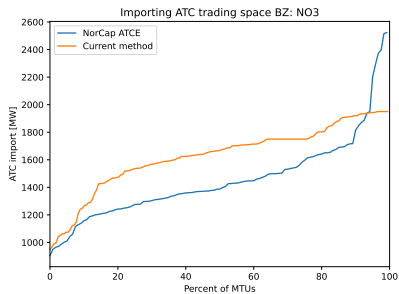
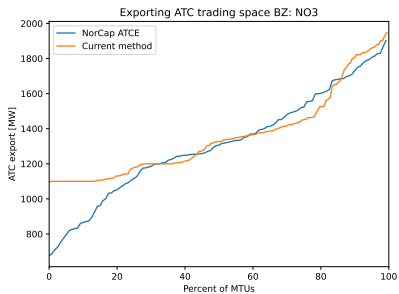
# NO3 - Total trading space



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

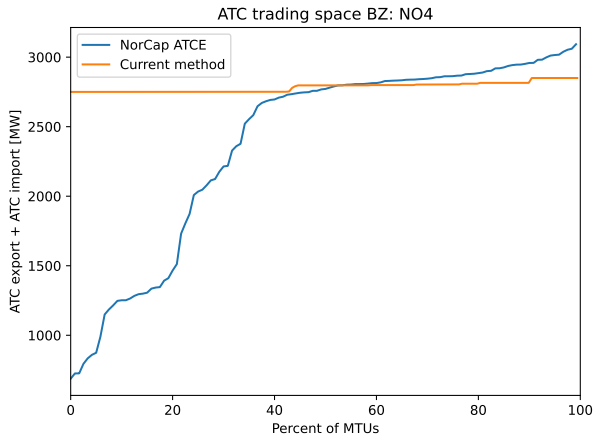


# NO3 - Directional trading space



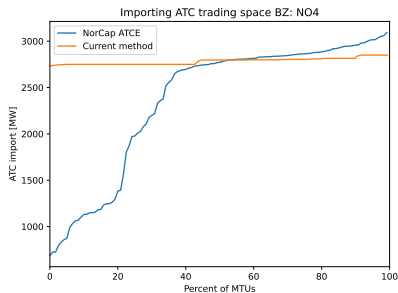
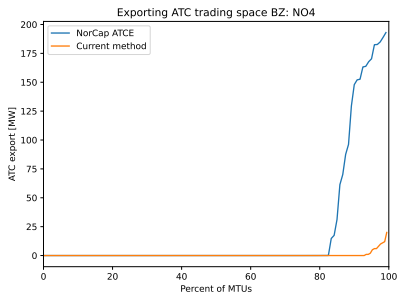
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# NO4 - Total trading space



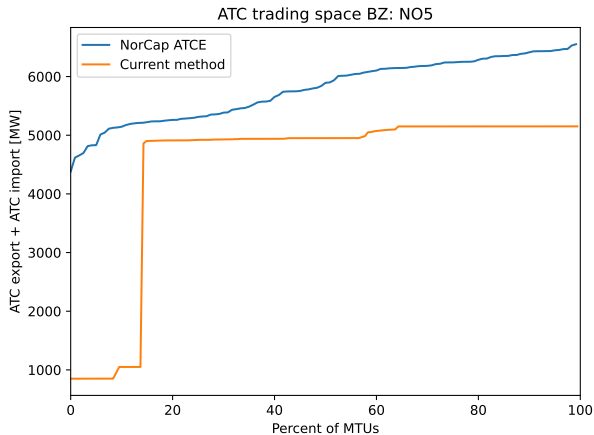
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# NO4 - Directional trading space



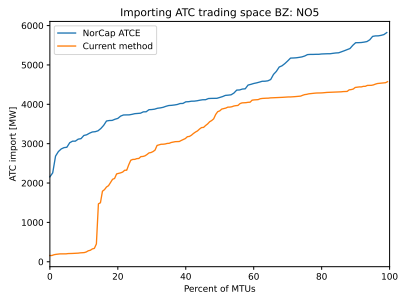
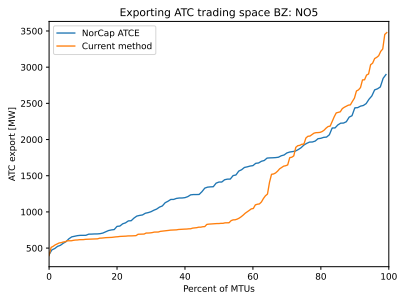
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# NO5 - Total trading space



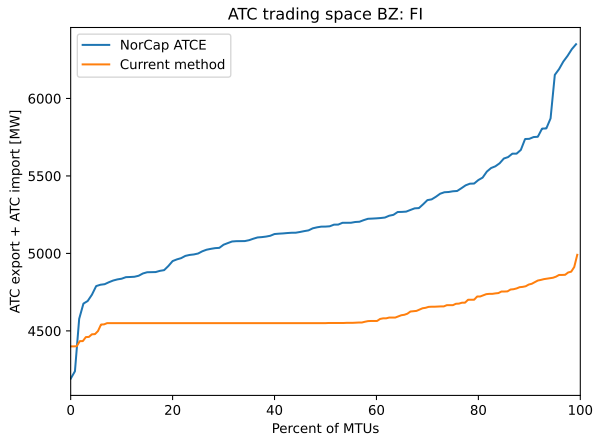
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# NO5 - Directional trading space



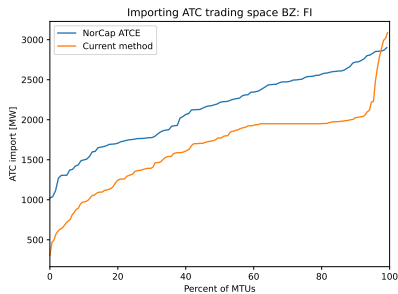
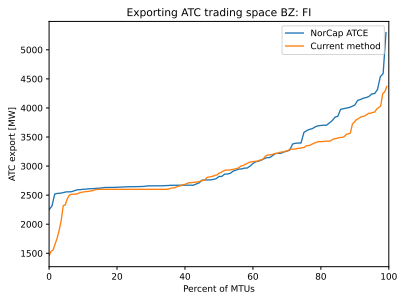
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# FI - Total trading space



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# FI - Directional trading space

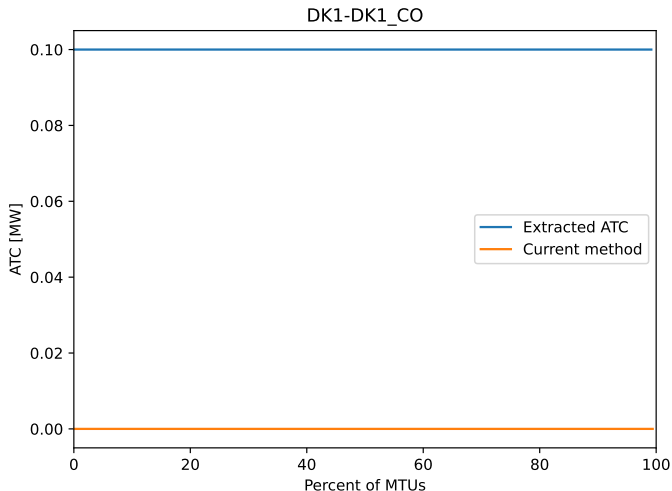


Note: MTUs where ATC extraction resulted in use of backup have been excluded from the trading space curves.

# Capacity duration curves

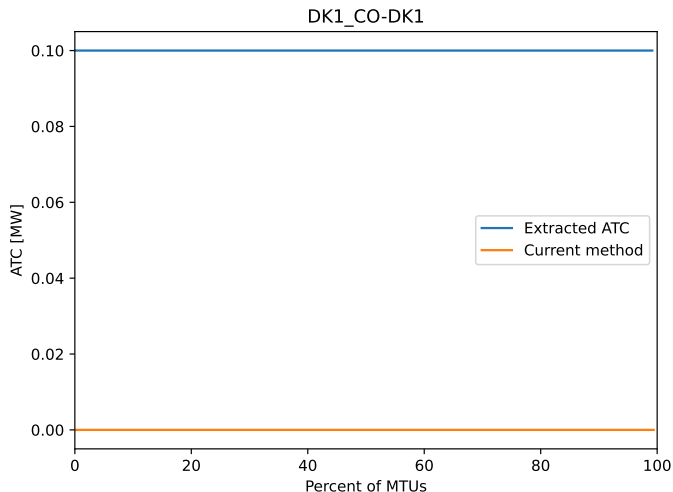


# DK1-DK1\_CO ATC duration curves



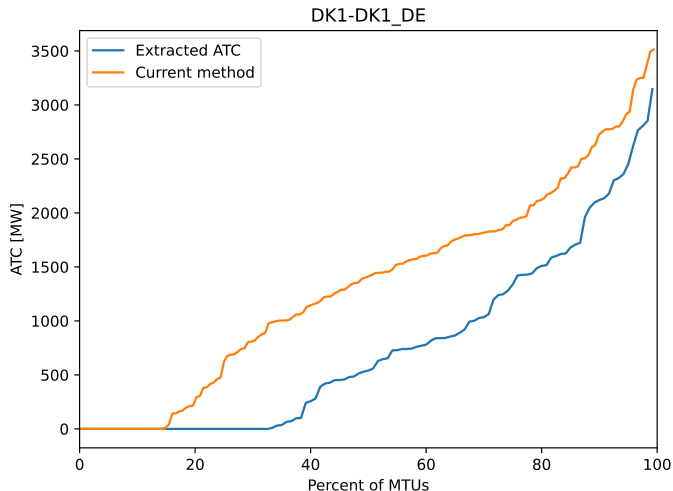
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK1\_CO-DK1 ATC duration curves



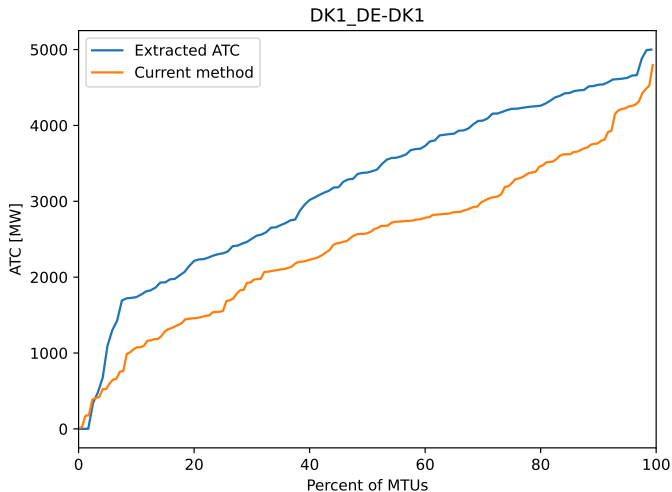
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK1-DK1\_DE ATC duration curves



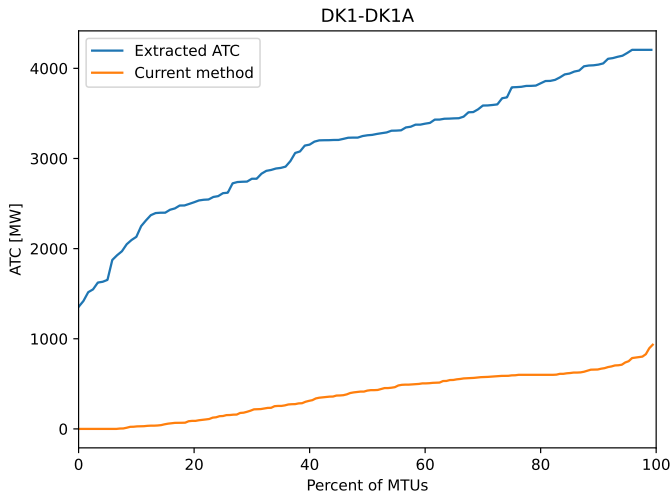
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK1\_DE-DK1 ATC duration curves



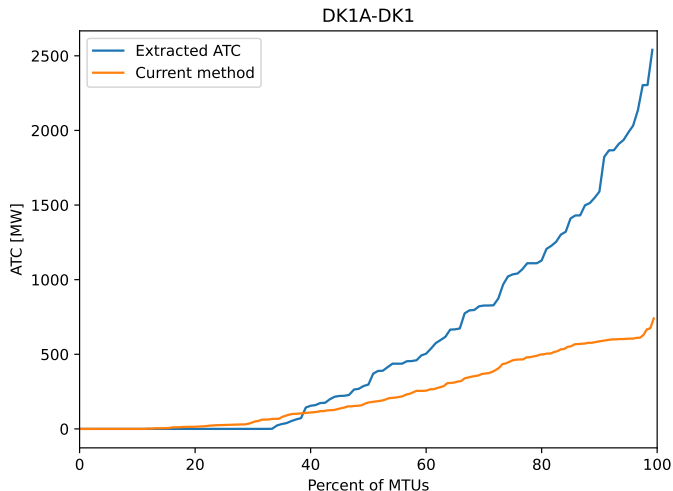
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK1-DK1A ATC duration curves



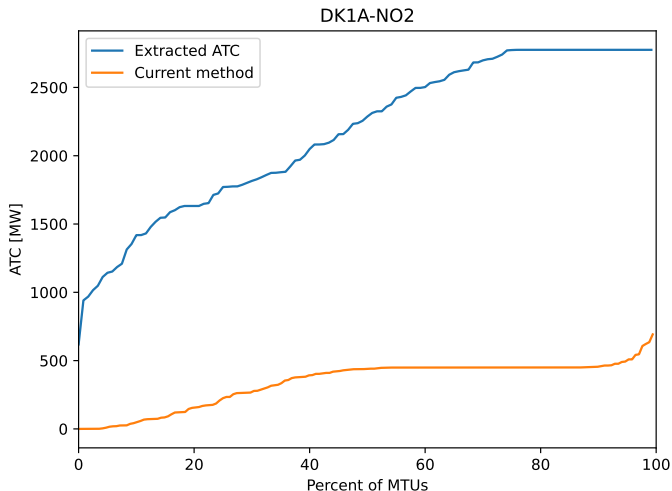
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK1A-DK1 ATC duration curves



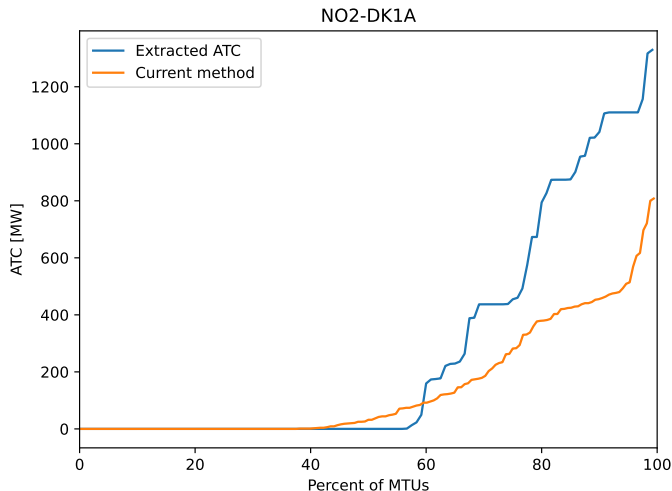
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK1A-NO2 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

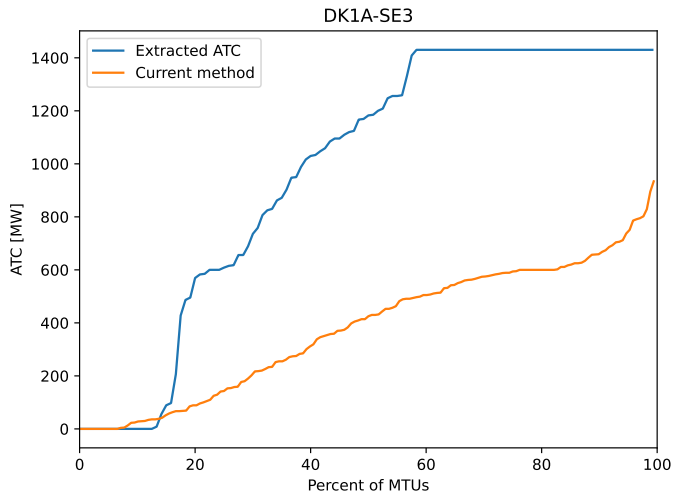
# NO2-DK1A ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

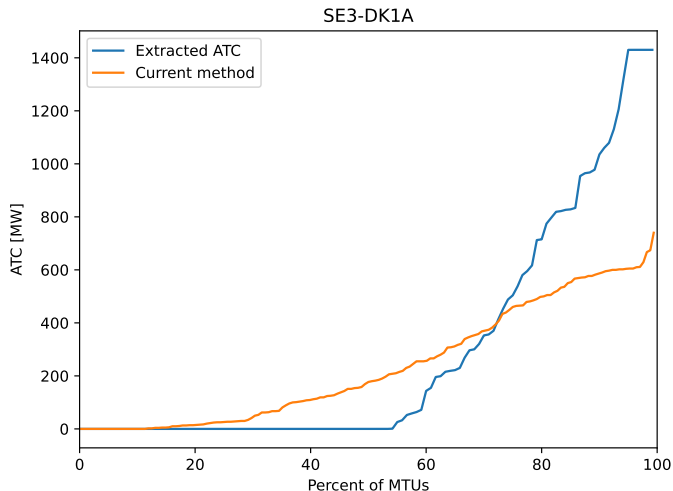


# DK1A-SE3 ATC duration curves



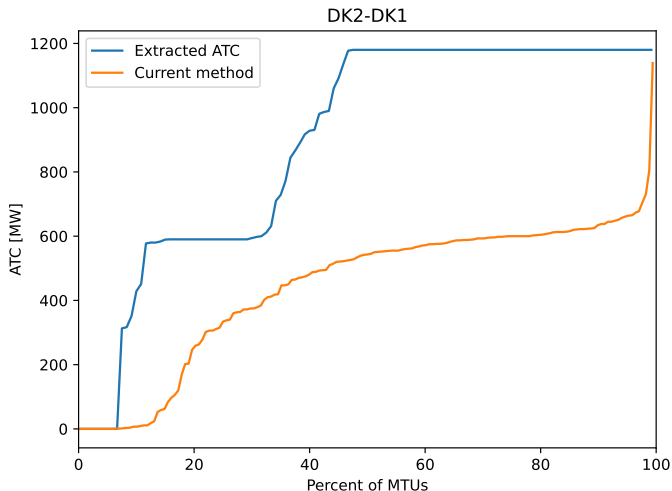
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE3-DK1A ATC duration curves



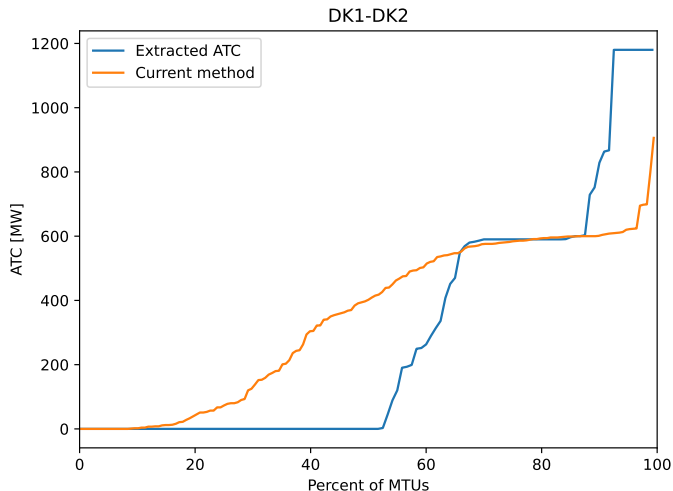
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK2-DK1 ATC duration curves



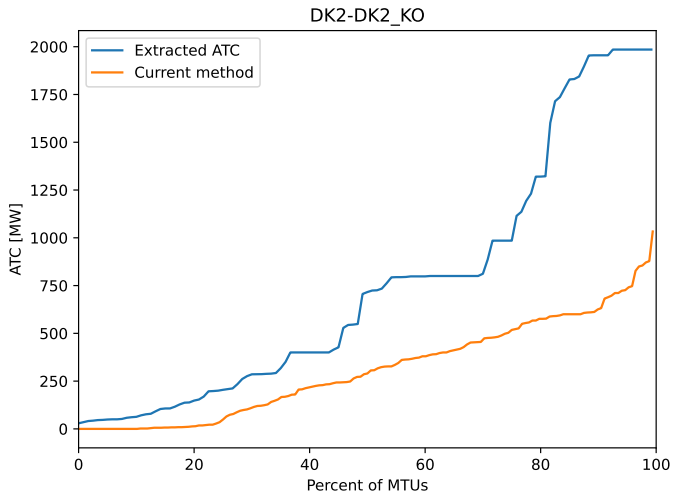
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK1-DK2 ATC duration curves



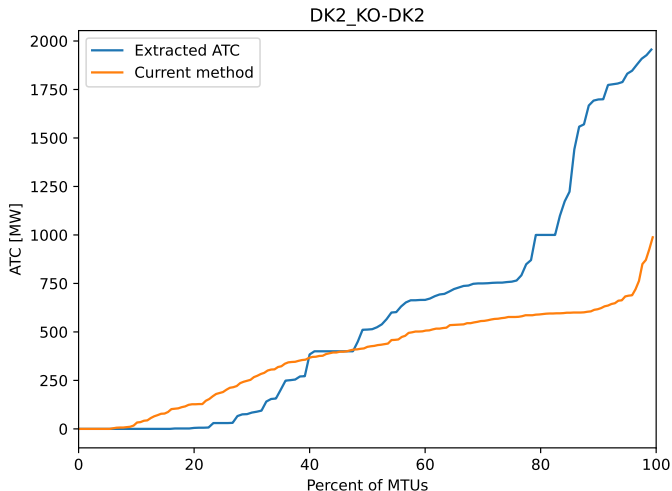
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK2-DK2\_KO ATC duration curves



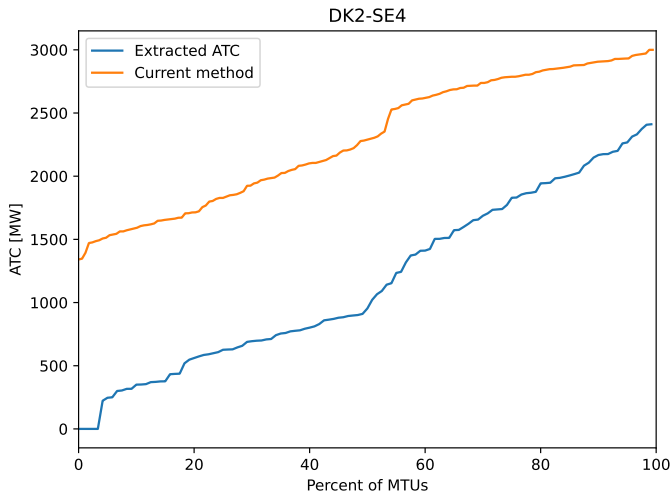
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK2\_KO-DK2 ATC duration curves



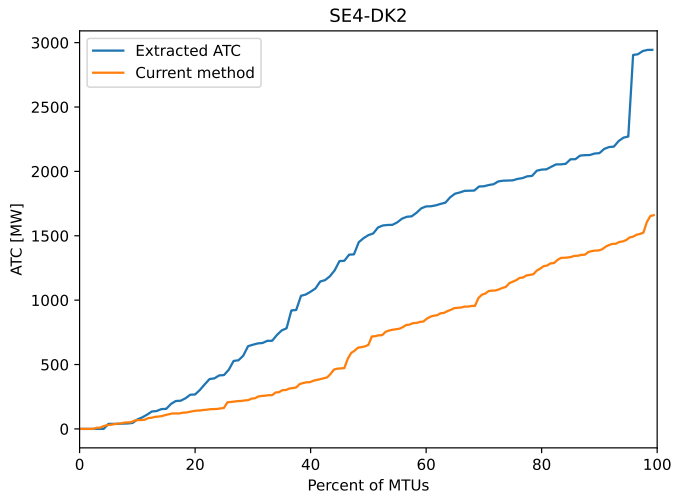
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# DK2-SE4 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

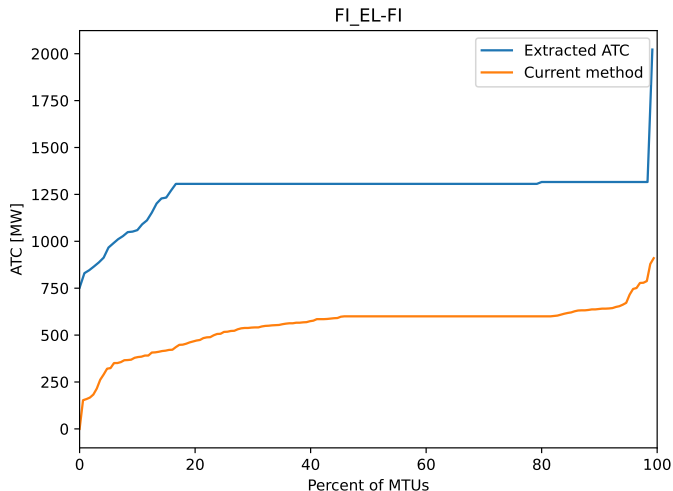
# SE4-DK2 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

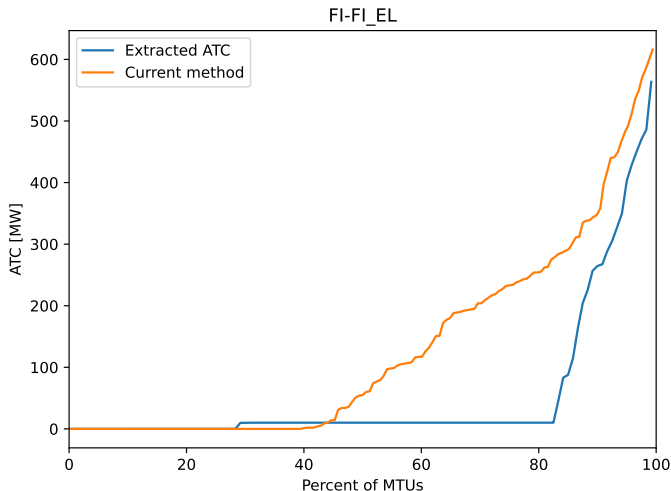


# FI\_EL-FI ATC duration curves



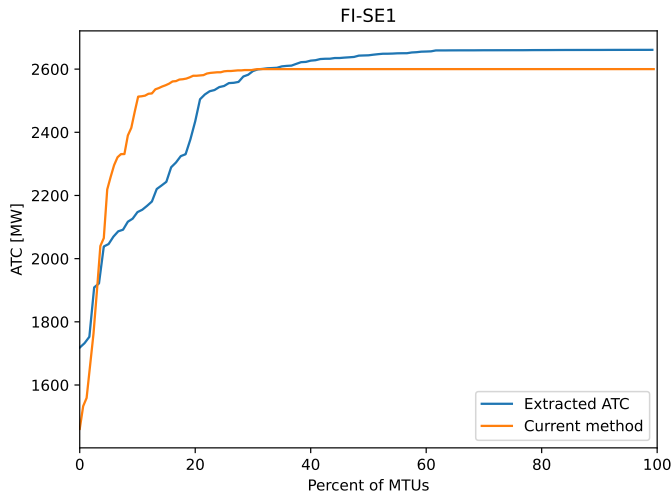
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# FI-FI\_EL ATC duration curves



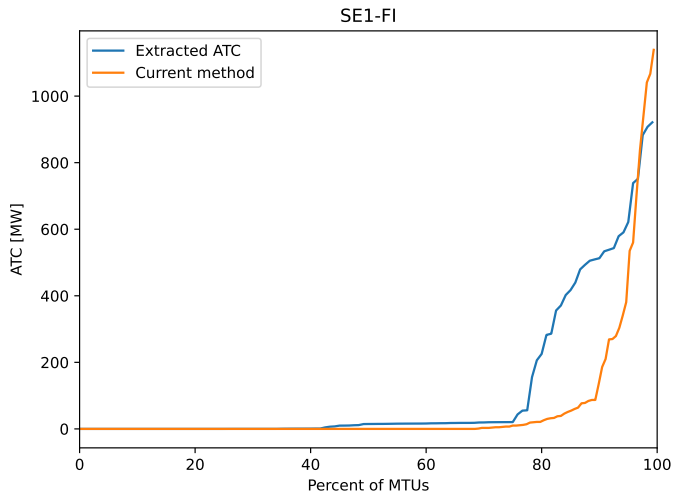
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# FI-SE1 ATC duration curves



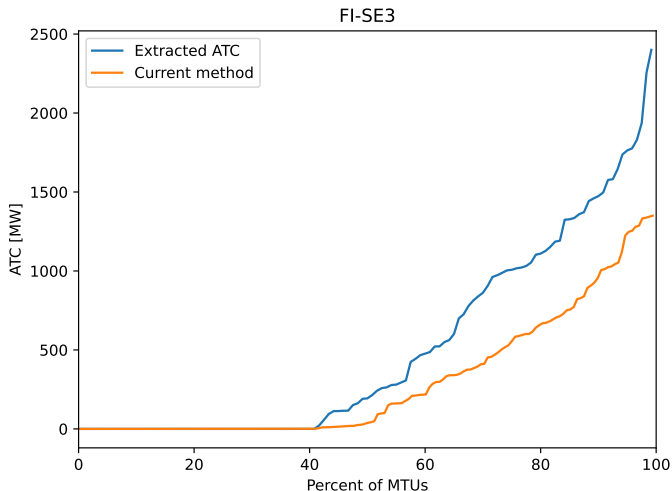
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE1-FI ATC duration curves



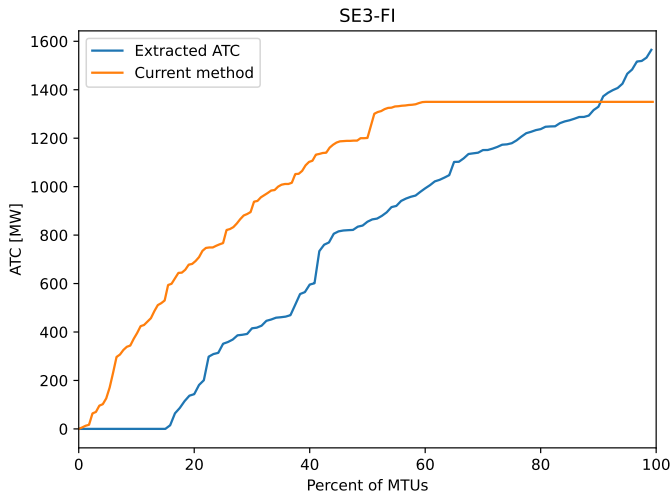
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# FI-SE3 ATC duration curves



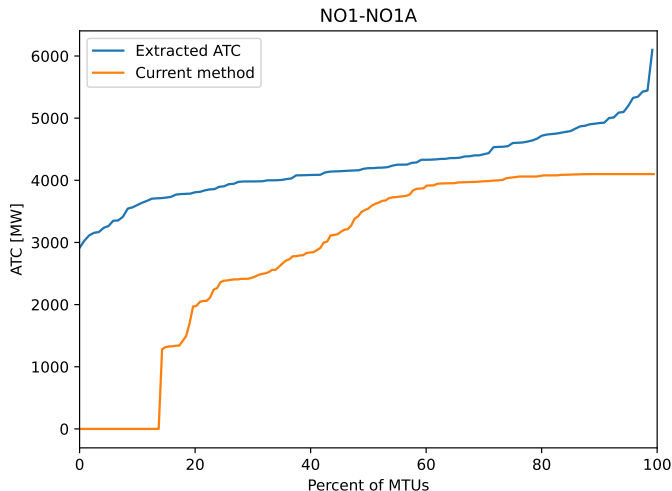
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE3-FI ATC duration curves



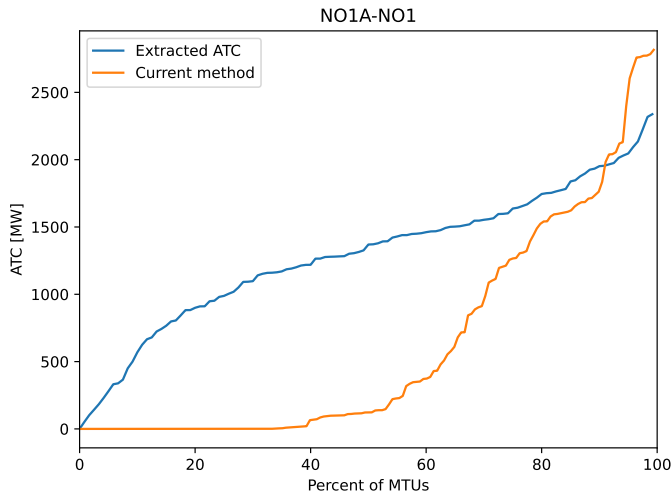
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO1-NO1A ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

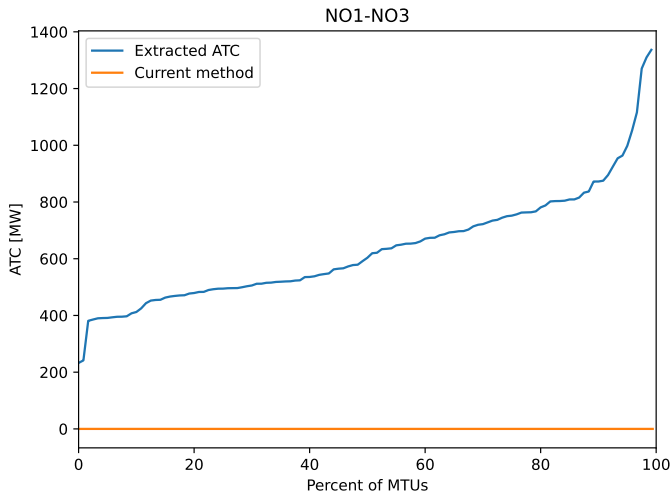
# NO1A-NO1 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

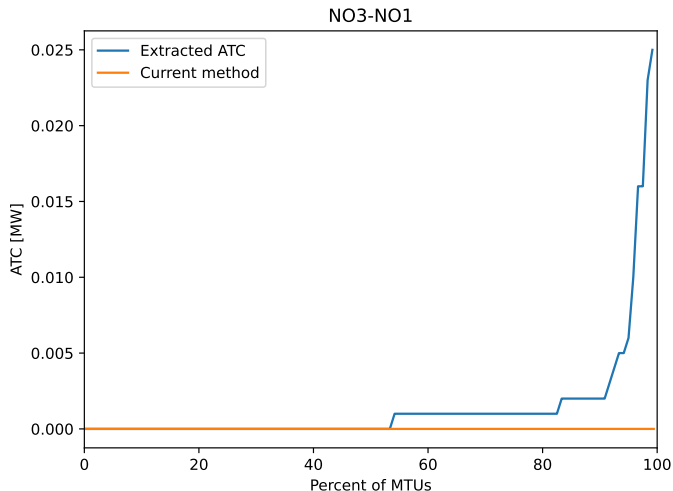


# NO1-NO3 ATC duration curves



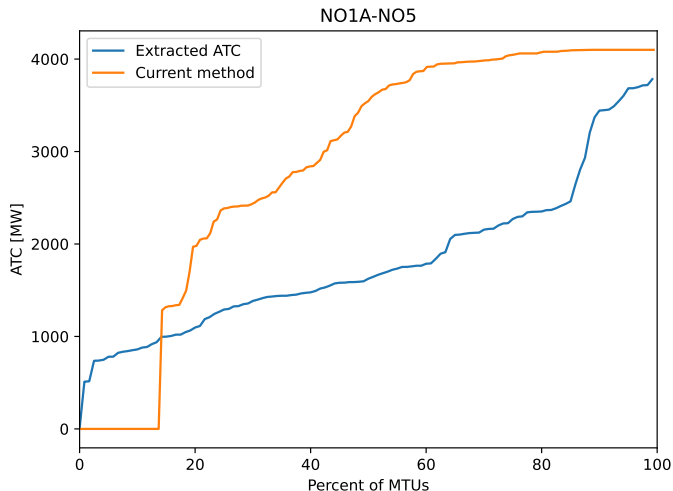
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO3-NO1 ATC duration curves



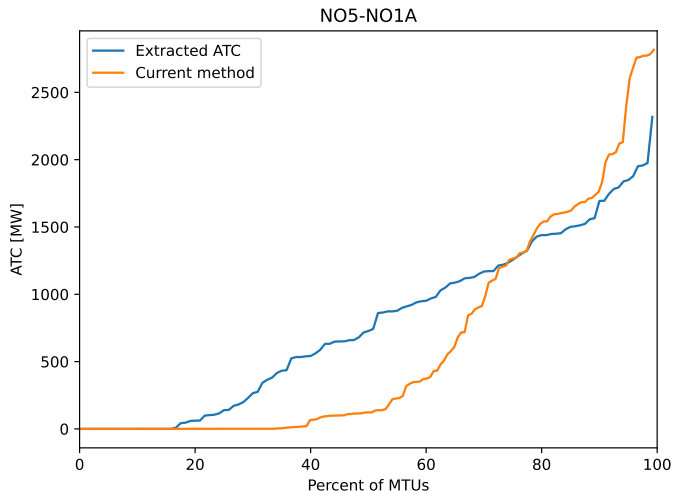
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO1A-NO5 ATC duration curves



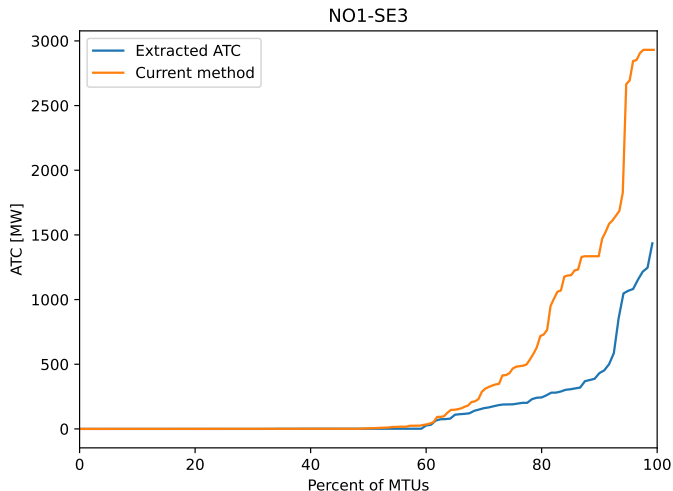
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO5-NO1A ATC duration curves



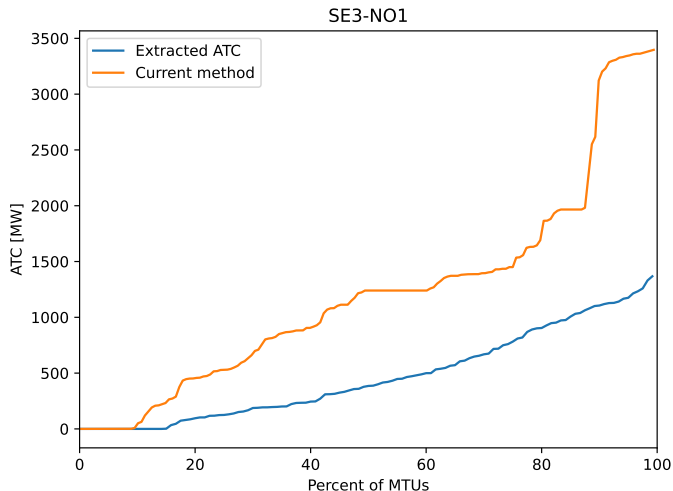
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO1-SE3 ATC duration curves



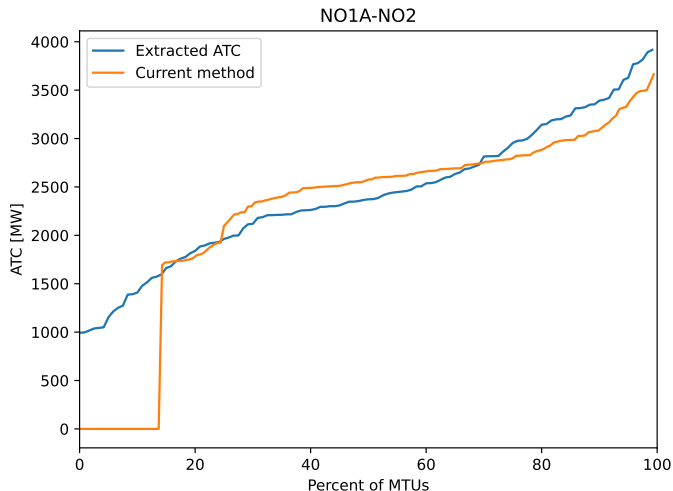
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE3-NO1 ATC duration curves



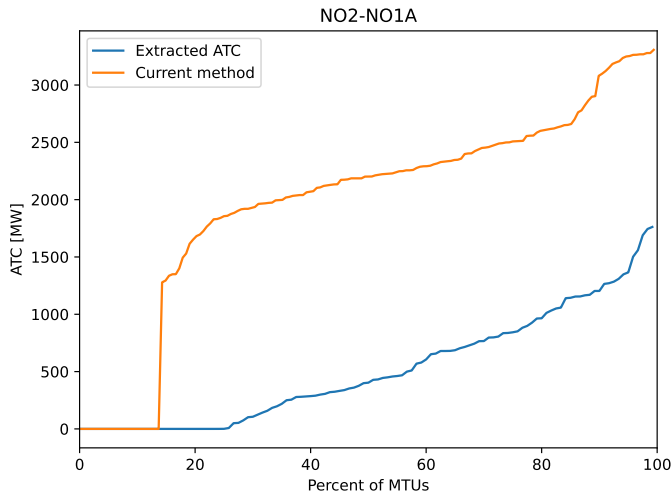
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO1A-NO2 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

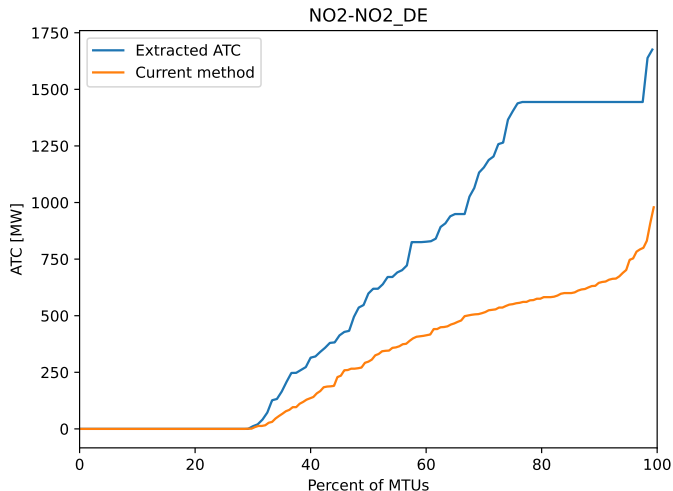
# NO2-NO1A ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

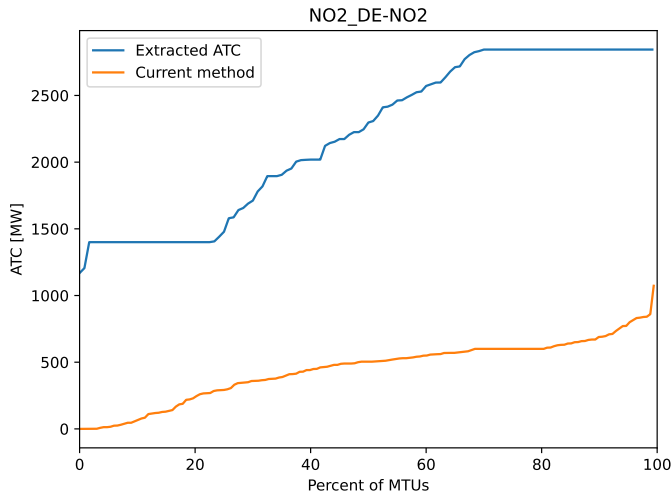


# NO2-NO2\_DE ATC duration curves



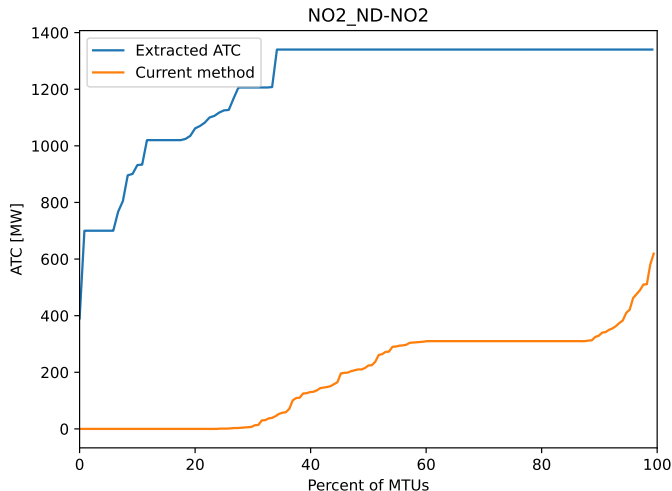
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO2\_DE-NO2 ATC duration curves



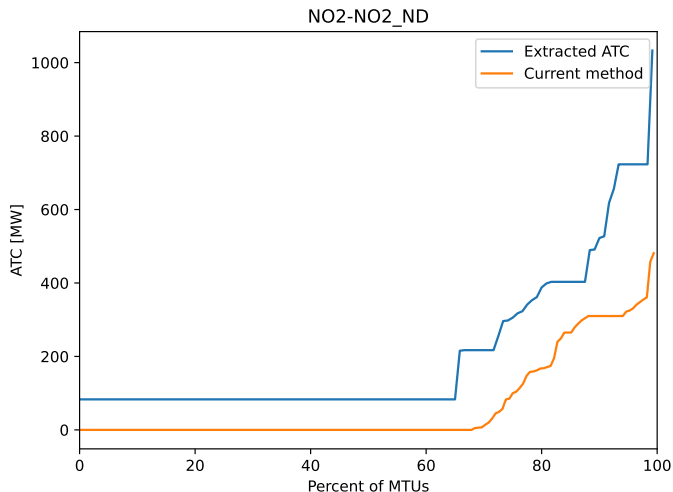
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO2\_ND-NO2 ATC duration curves



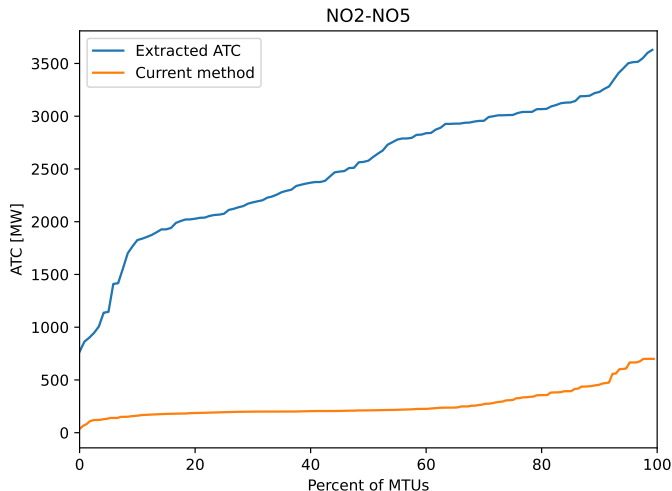
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO2-NO2\_ND ATC duration curves



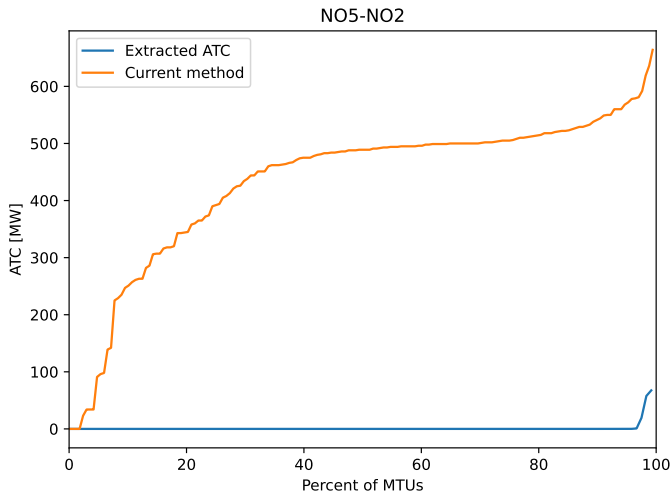
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO2-NO5 ATC duration curves



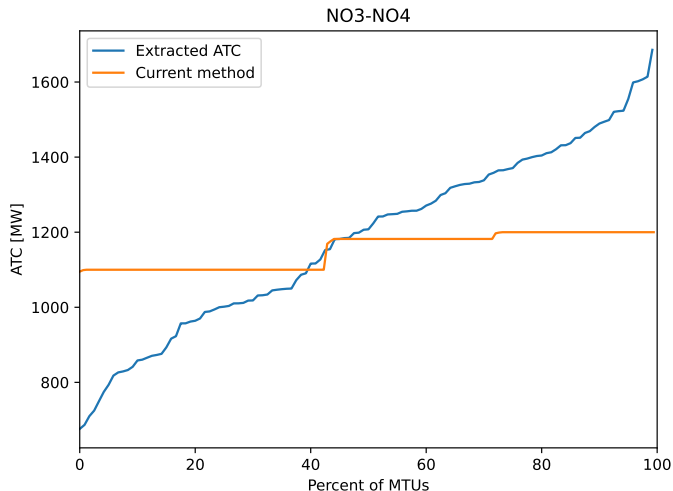
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO5-NO2 ATC duration curves



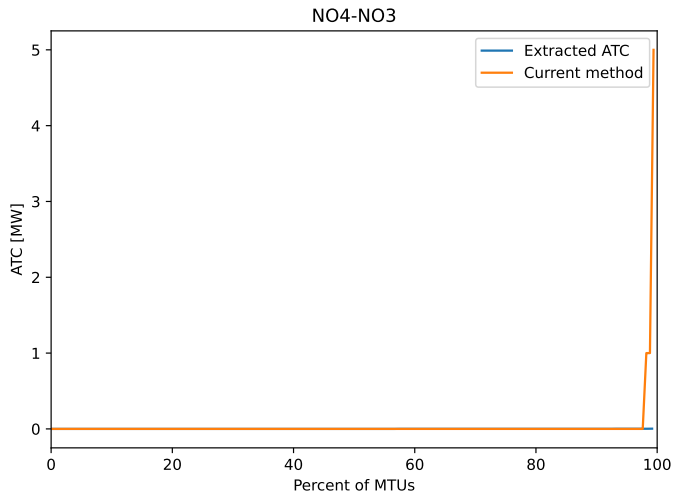
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO3-NO4 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

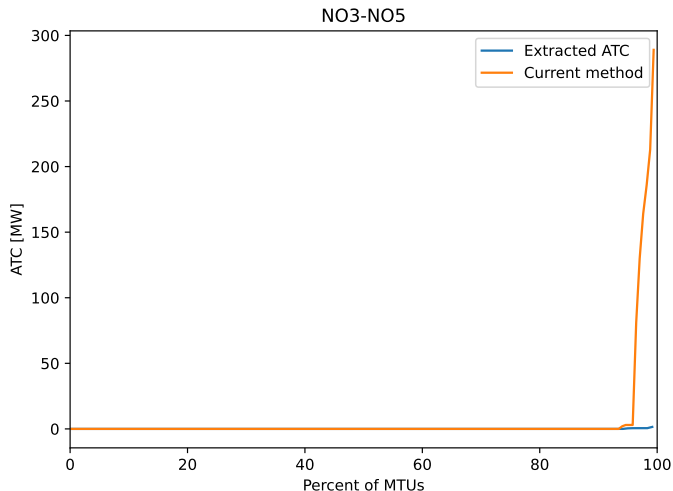
# NO4-NO3 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

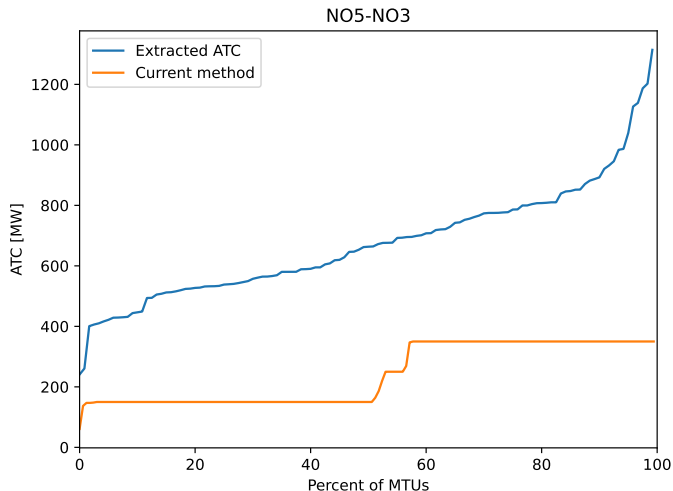


# NO3-NO5 ATC duration curves



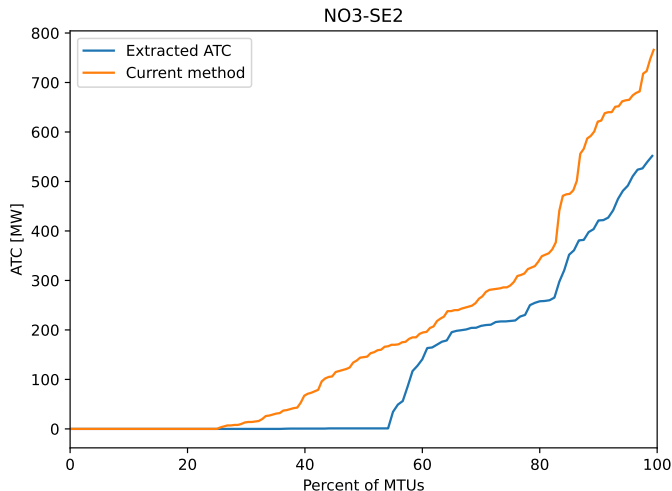
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO5-NO3 ATC duration curves



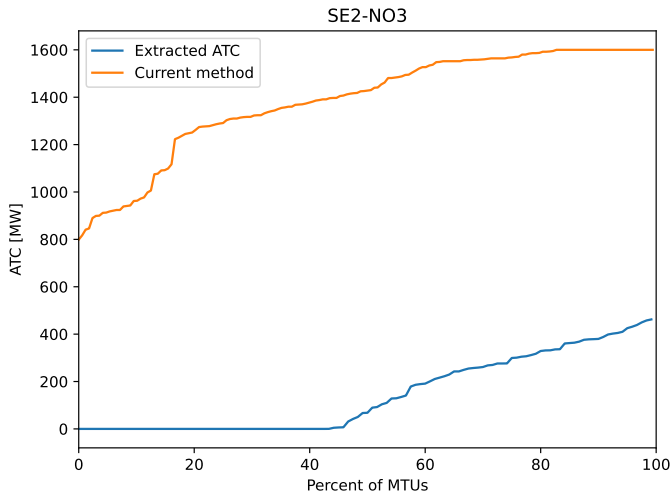
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO3-SE2 ATC duration curves



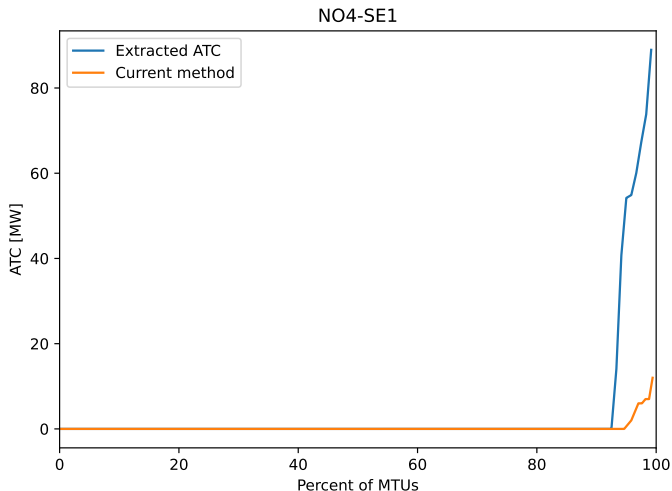
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE2-NO3 ATC duration curves



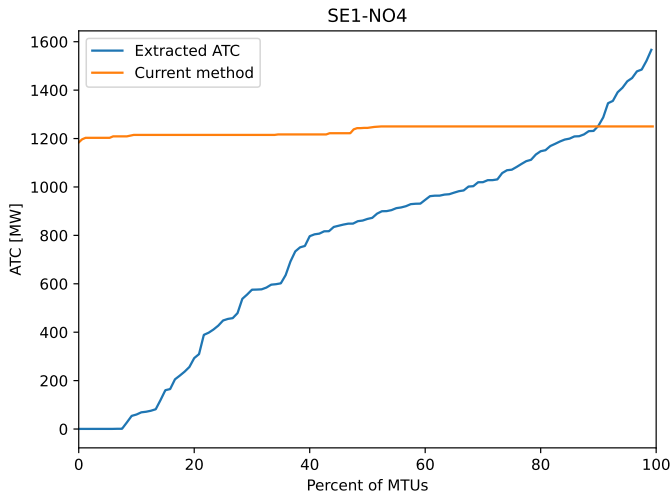
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO4-SE1 ATC duration curves



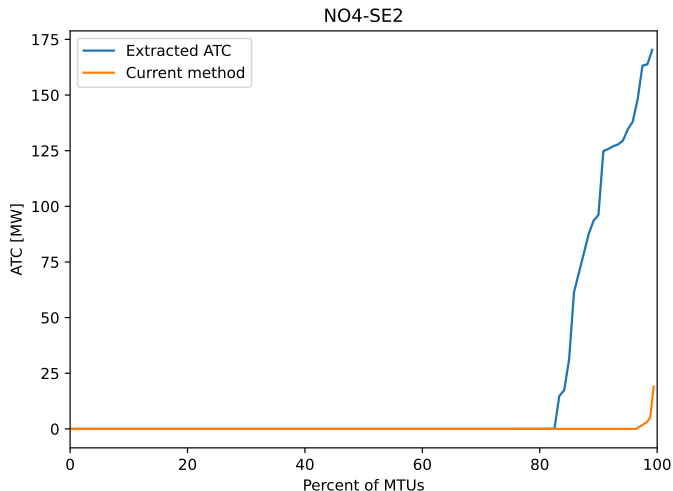
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE1-NO4 ATC duration curves



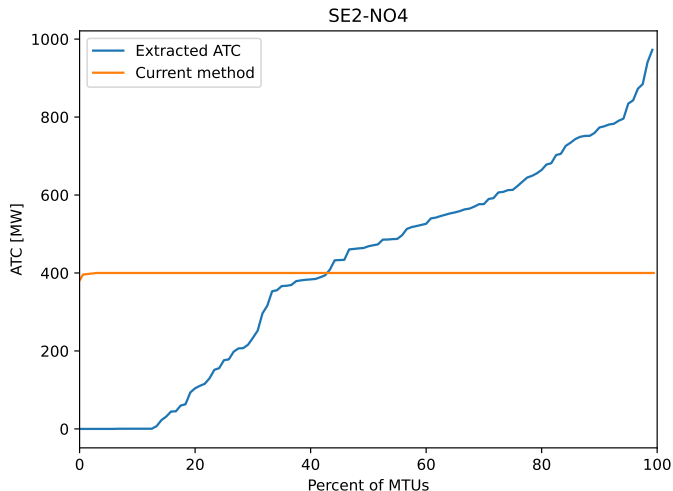
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# NO4-SE2 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

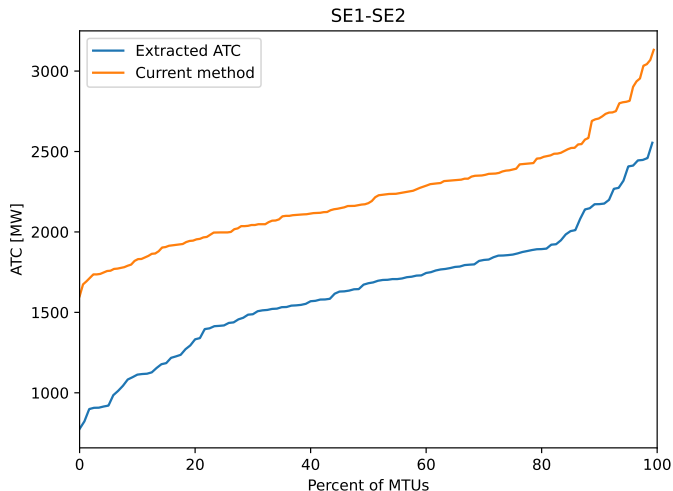
# SE2-NO4 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

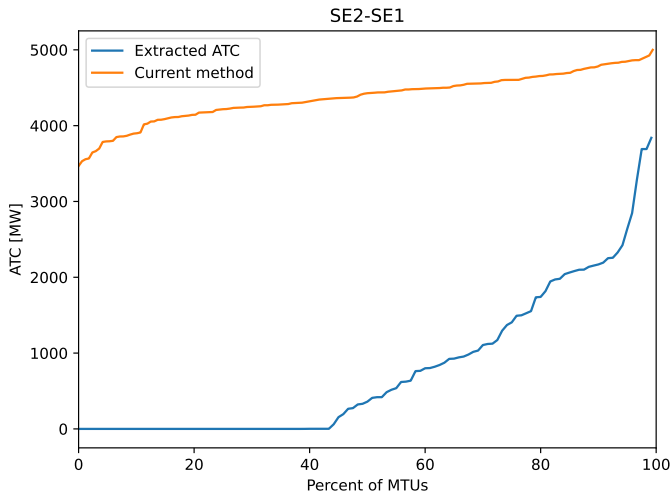


# SE1-SE2 ATC duration curves



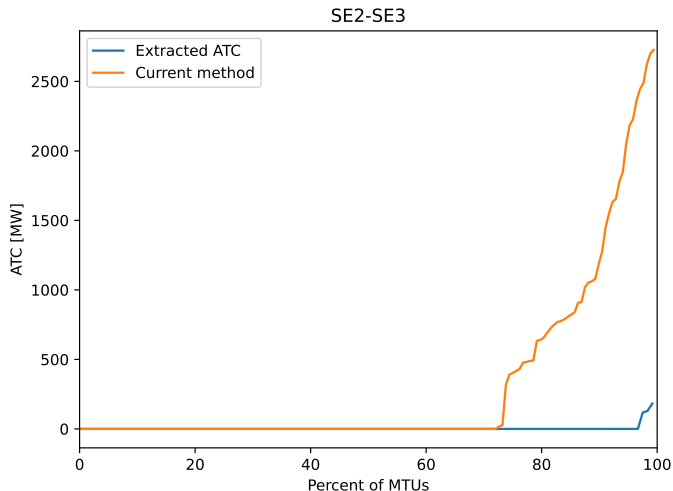
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE2-SE1 ATC duration curves



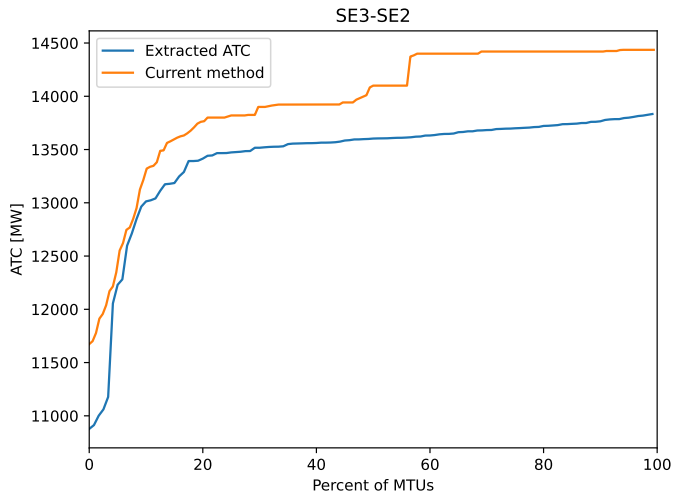
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE2-SE3 ATC duration curves



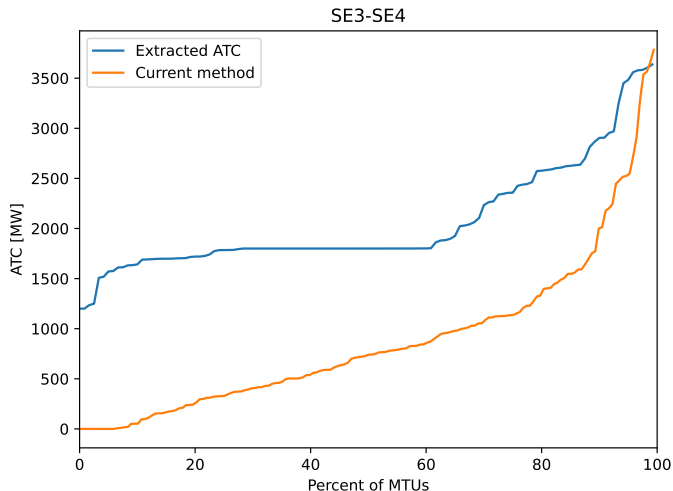
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE3-SE2 ATC duration curves



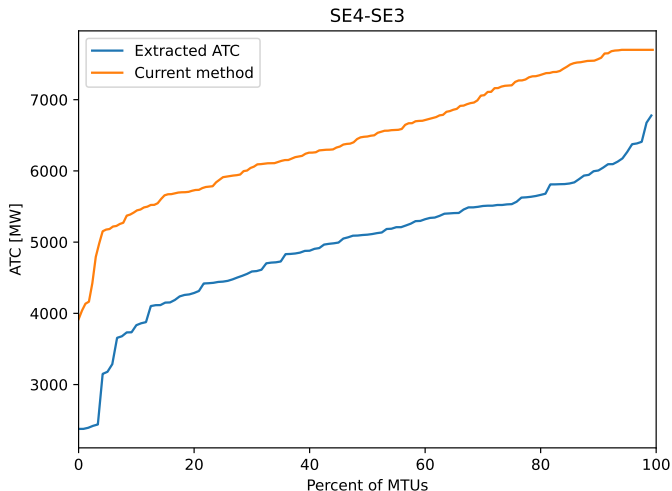
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE3-SE4 ATC duration curves



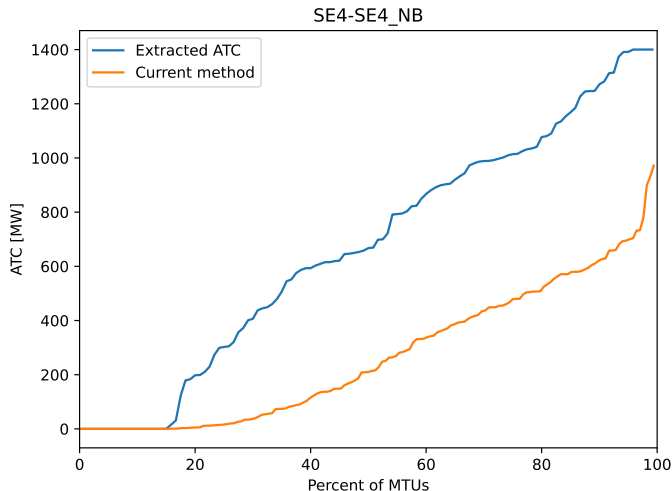
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE4-SE3 ATC duration curves



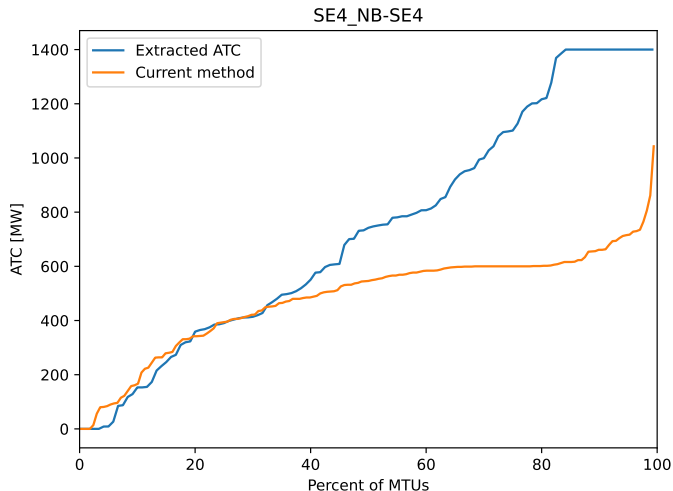
Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE4-SE4\_NB ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

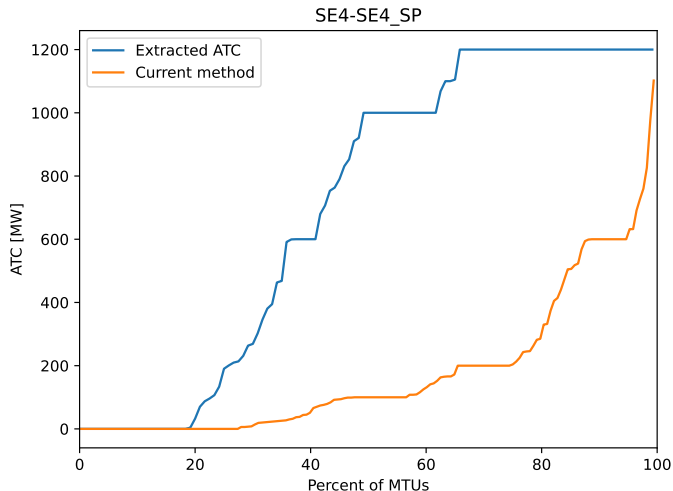
# SE4\_NB-SE4 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

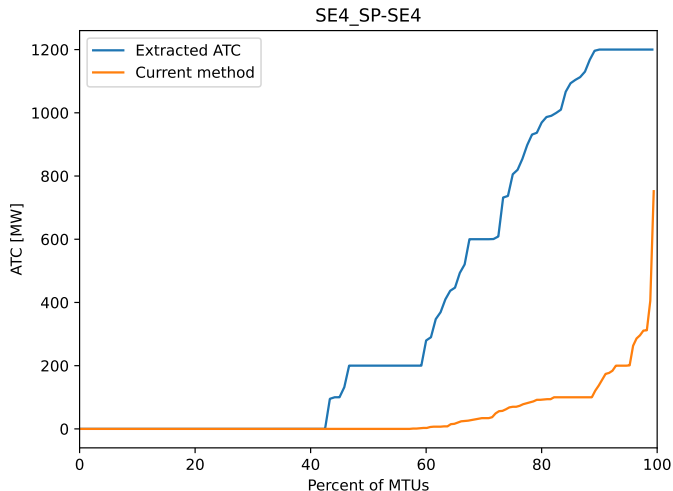


# SE4-SE4\_SP ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.

# SE4\_SP-SE4 ATC duration curves



Note: MTUs where ATC extraction resulted in use of backup have been excluded from the capacity duration curves.