Explanation GTS Tariff Decision 2020

15 May 2019

Reference prices 2020

Reference prices	Value (€/kWh/h/y)
Non-storage entry	1,620
Non-storage exit	2,268
Storage entry	0,648
Storage exit	0,907

The average tariff increases by 9% compared to 2019

1. This increase is mainly the result of methodological changes: 9%

   - Changed method decision 2017-2021: increase of allowed revenue for the years 2017-2020 by EUR 46 million. This difference must be fully settled in the 2020 tariffs
   - Application of the NC TAR decision

2. The effect of declining capacity sales is expected to be limited to a tariff increase of 1%

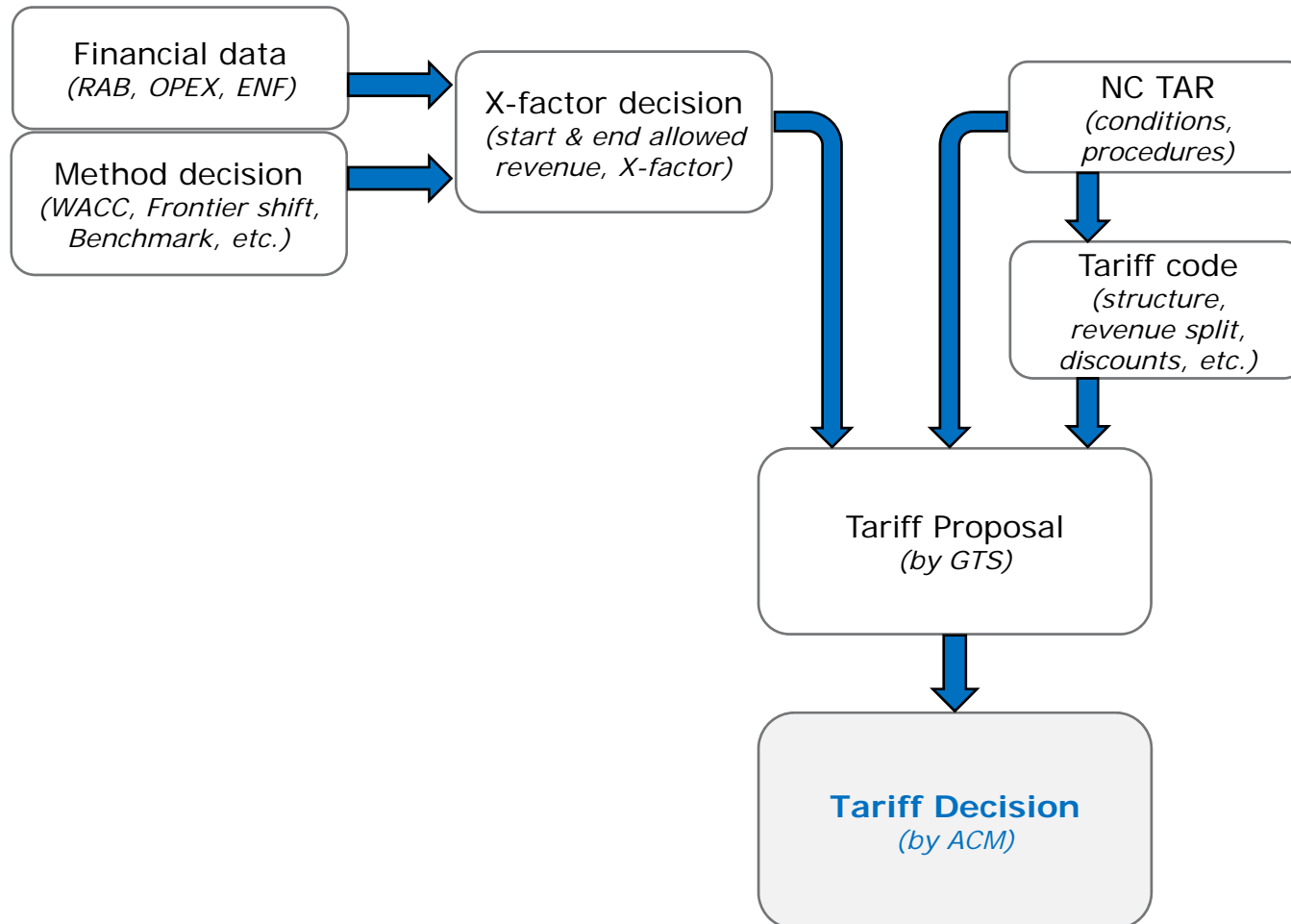3. The effect of applying x-factor, inflation and other corrections is -1%

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- Context of the tariff decision

- Reference Price Methodology (RPM): How to determine reference prices

- Input for RPM: Forecasted Contracted Capacity 2020

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Context of the Tariff decision

Financial data
(RAB, OPEX, ENF)

Method decision
(WACC, Frontier shift, Benchmark, etc.)

X-factor decision
(start & end allowed revenue, X-factor)

NC TAR
(conditions, procedures)

Tariff code
(structure, revenue split, discounts, etc.)

Tariff Proposal
(by GTS)

Tariff Decision
(by ACM)

Key elements of NC TAR agreement

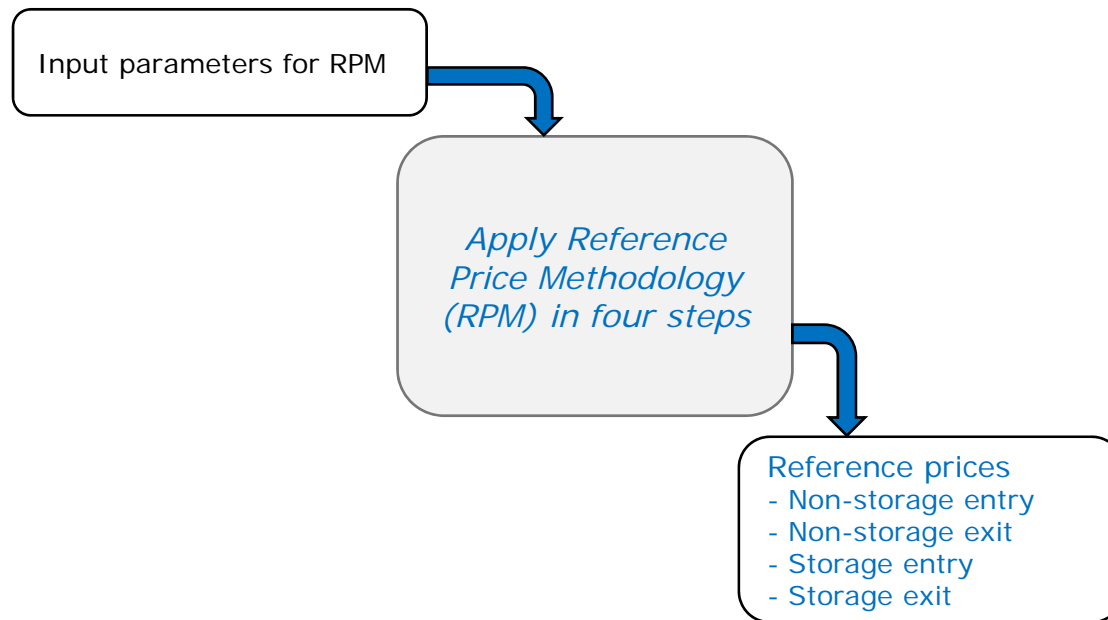| Key elements	NC TAR decision
Services	All-in Transmission service (no different tariffs anymore for transport, quality conversion, balancing and connection)
Reference Price Methodology (RPM)	Postage stamp
Share of allowed revenue received from entry points	40%
Share of allowed revenue received from exit points	60%
Storage discount	60%
LNG discount	0%
Multiplier for daily and within-day product	1,75
Multiplier for monthly product	1,50
Multiplier for quarterly product	1,25
Seasonal factors for non yearly products	Yes
Interruptible capacity discount	Ex ante; discount is 0,01%
Wheeling capacity discount	94%
Shift of capacity on FCFS exit points	Only under strict conditions
Shorthaul	No longer possible
Backhaul	Replaced by regular firm or interruptible & entry or exit capacity
Diversion, ToC, ToU	Services still available, but no administrative fee anymore

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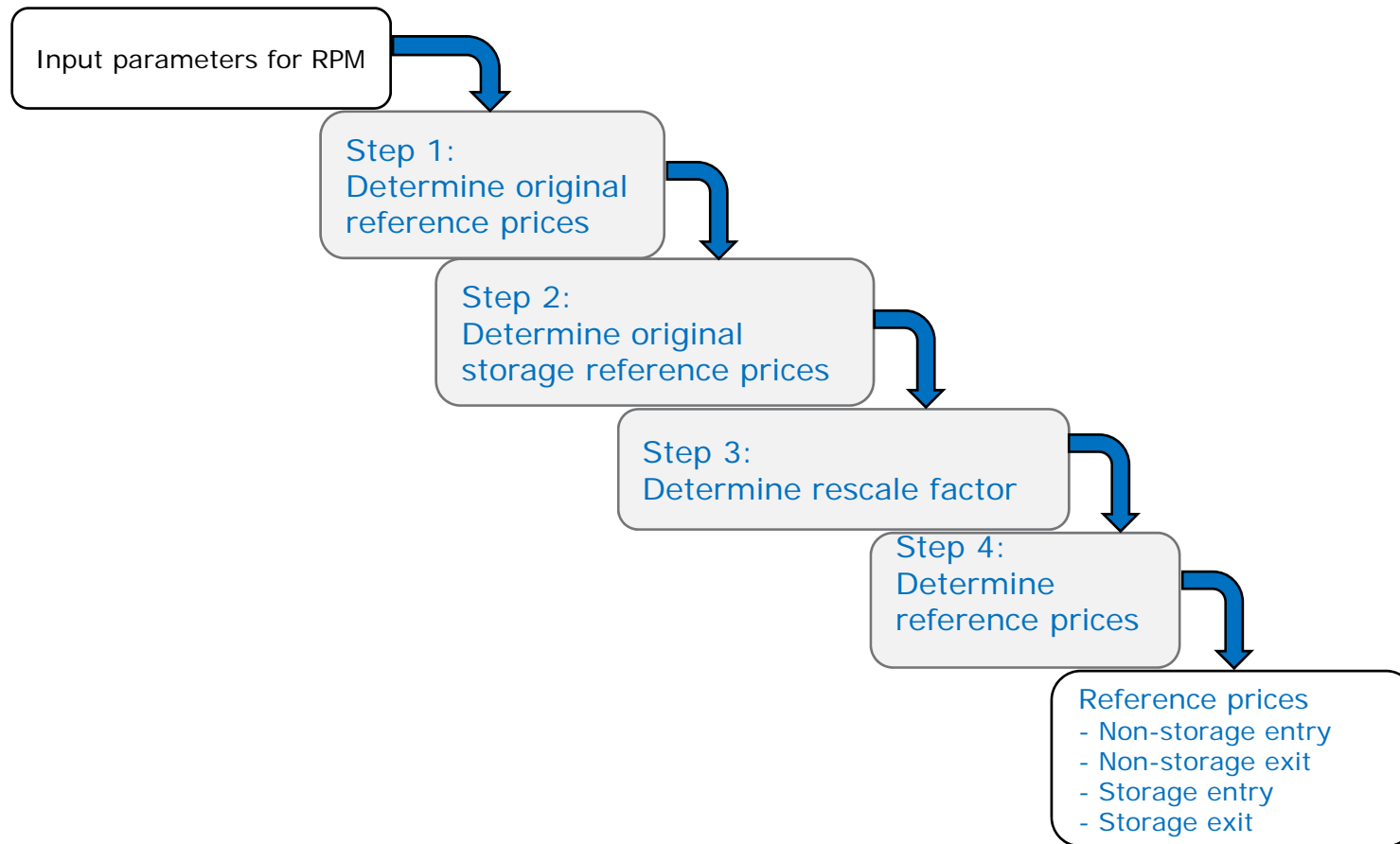- Appendix

How to determine reference prices

'reference price' means the price for the yearly firm standard capacity product

Input parameters for RPM

Apply Reference Price Methodology (RPM) in four steps

Reference prices
- Non-storage entry
- Non-storage exit
- Storage entry
- Storage exit

Input parameters for RPM

Parameter	Value	Remark
Share of allowed revenue received from entry points	40%	
Share of allowed revenue received from exit points	60%	NC TAR decision
Storage discount	60%	
Allowed revenue		
Forecasted contracted entry capacity		
Forecasted contracted exit capacity		tariff decision by ACM, yearly
Forecasted contracted entry Storage capacity		
Forecasted contracted exit Storage capacity		

Reference price methodology (RPM) in four steps

Input parameters for RPM

Step 1:
Determine original reference prices

Step 2:
Determine original storage reference prices

Step 3:
Determine rescale factor

Step 4:
Determine reference prices

Reference prices
- Non-storage entry
- Non-storage exit
- Storage entry
- Storage exit

Step 1: Determine Original Reference prices

Allowed revenue,
Share of allowed revenue received from entry points,
Share of allowed revenue received from exit points,
Forecasted contracted entry capacity,
Forecasted contracted exit capacity

Step 1: Determine Original Reference prices

RPM is postage stamp methodology
- All entry points have the same original reference price
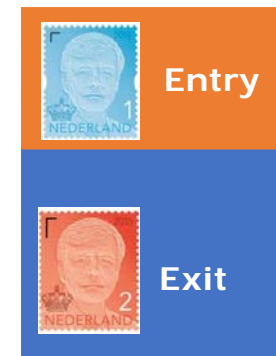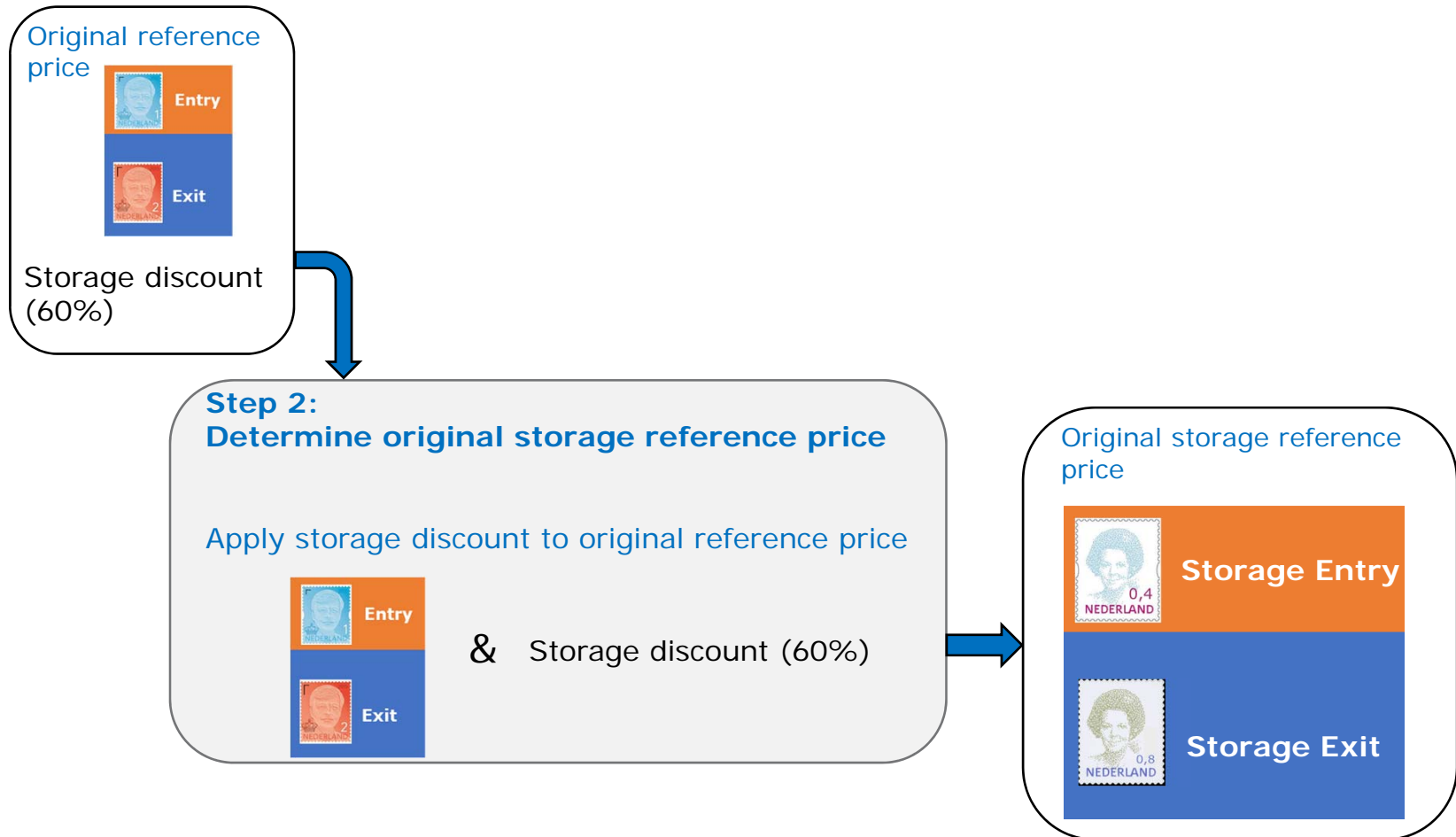- All exit points have the same original reference price

Allowed revenue (€)
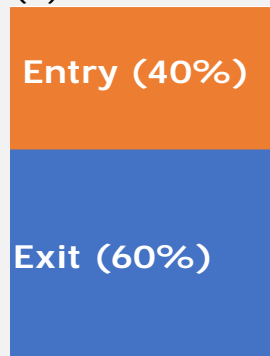
Forecasted contracted Capacity (kWh/h)

Divided by

Entry (40%)

Exit (60%)

Exit   Entry

Original reference price

Entry

Exit

Step 2: Determine original storage reference price

Original reference price

Entry

Exit

Storage discount (60%)

Step 2:
Determine original storage reference price

Apply storage discount to original reference price

Entry

Exit

&   Storage discount (60%)

Original storage reference price

0,4 NEDERLAND

Storage Entry

0,8 NEDERLAND

Storage Exit

Step 3: Determine rescale factor

Original reference prices
Original storage reference prices
Forecasted contracted entry storage capacity
Forecasted contracted exit storage capacity
Allowed revenue

Step 3: Determine rescale factor

Expected revenue
After step 1
(original)

Expected revenue
After step 2
(storage discount)

After rescaling,
expected revenue
equal to allowed
revenue

Allowed revenue (€)

Storage

Non-storage

Storage

Non-storage

Rescale factor

Storage

Non-storage
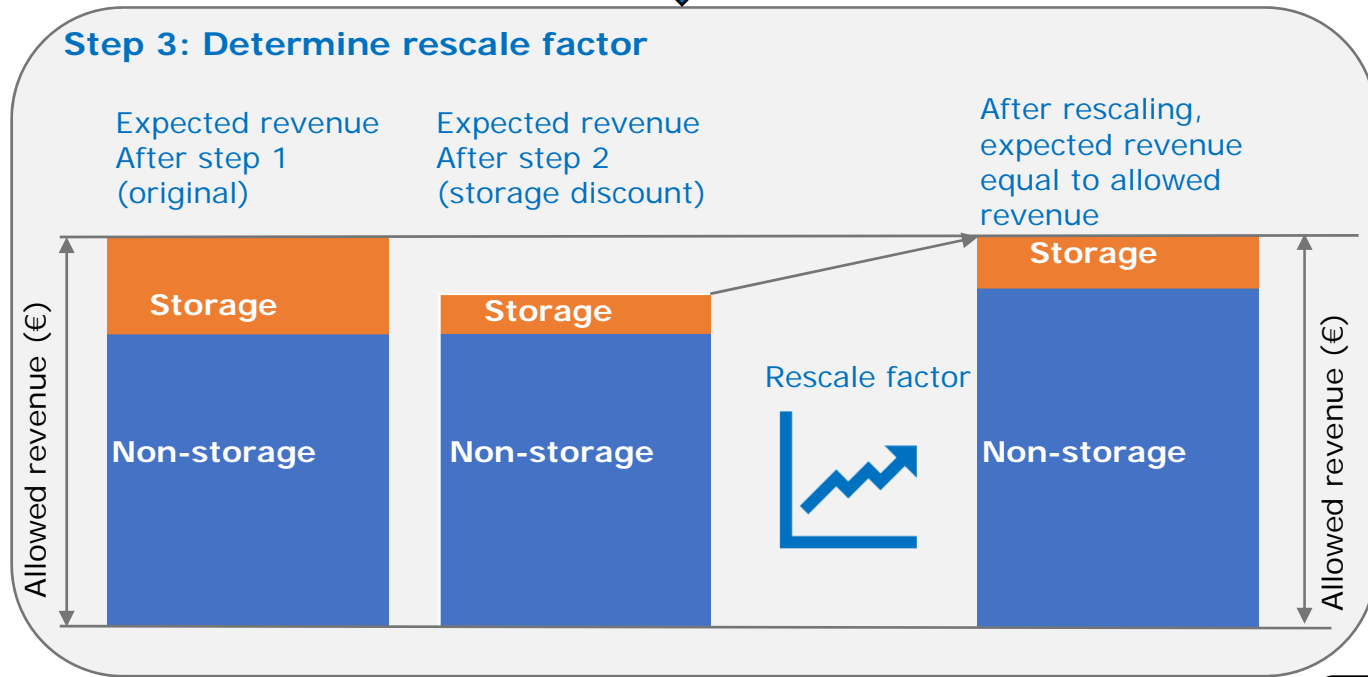
Allowed revenue (€)

Rescale factor

Step 4: Determine reference prices
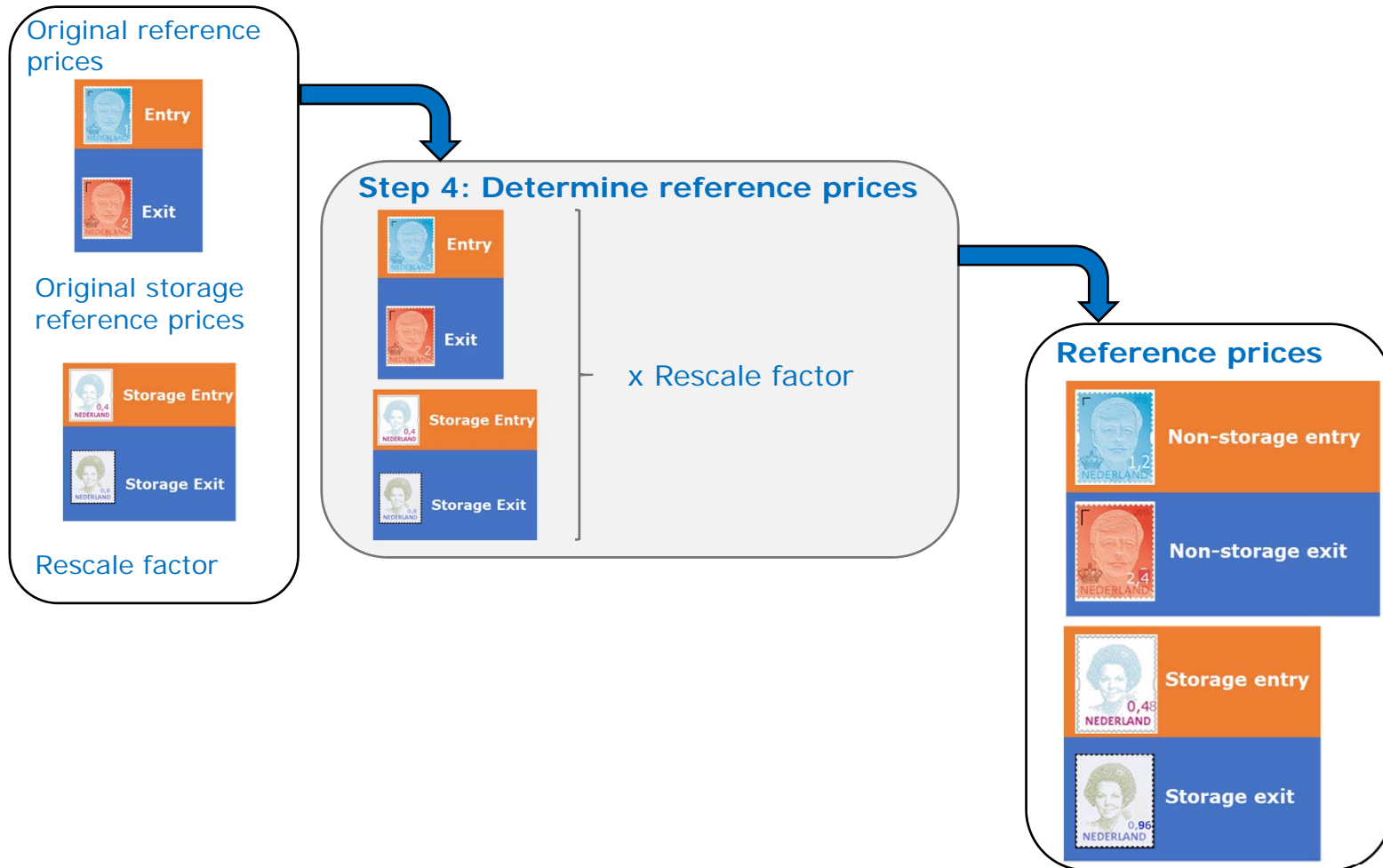
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Forecasted Contracted Capacity 2020

What is forecasted contracted capacity (FCC)?

- We forecast the sale of our 5 standard capacity products: within-day, day, month, quarter, year
- We translate each forecasted capacity of a non-yearly product to a capacity value of the yearly product
  - using the multiplier, the seasonal factor and the year fraction for each non-yearly product (M * Sf * Yf)
- The sum of all these "yearly" capacities is the 'forecasted contracted capacity'

How do we forecast the FCC?

- We forecast the FCC per segment: Storage, Border points, Production points, LNG, Local distribution points, Industry
- Two types per segment: already contracted capacity + expected capacity sales
- Expected capacity sales are based on historical analysis and expectation from shippers, operators etc.

What if the realised capacity sales differ from the FCC?

- With an accurate forecast, shippers will pay the right tariff for the capacity products
- Realised revenue > Allowed revenue: Shippers paid too much
- Realised revenue < Allowed revenue: Shippers paid too little
- Because of revenue cap regulation differences will be reconciliated two years later
- With an accurate forecast, reconciliation T+2 will be minimised

Forecasted Contracted Capacity 2019 versus 2020
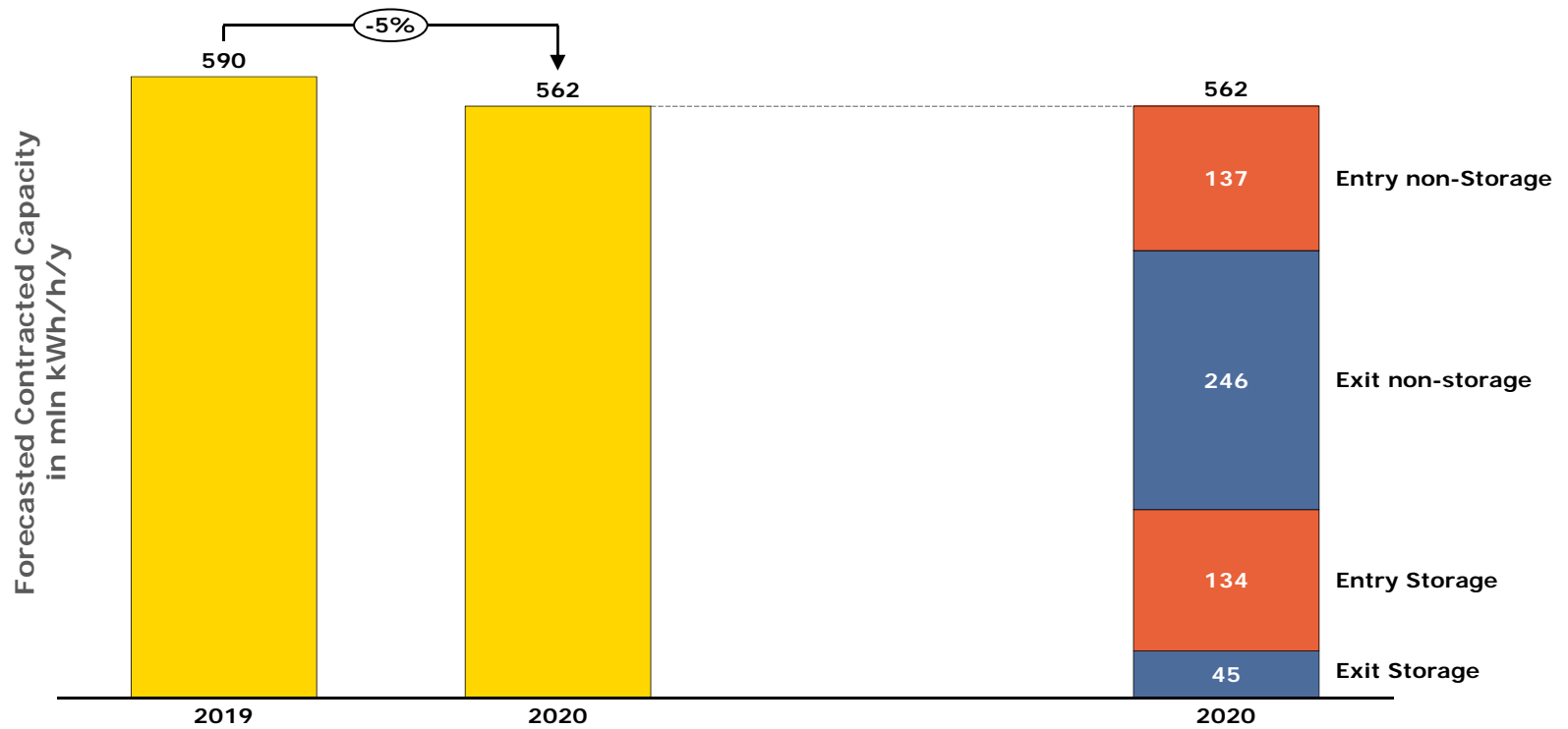
Explanation differences between 2019 and 2020

- **Methodology change**
  - NC TAR decision imposes other multipliers and seasonal factors:
    - Profiled capacities generate less FCC
    - Short term winter products generate less FCC
  - Decrease: 4%

- **Expiring long-term contracts**
  - We expect shippers will switch to short-term bookings
    - Shippers can predict their short-term capacity needs better
    - We expect shippers to contract a lower level of capacity
  - Decrease: 1%

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Determination of allowed revenue 2020 (1/2)

Allowed revenue 2019
(excluding corrections)

*Applying efficiency factor
(CPI – X)*

*Applying reconciliation T-2
and corrections*

*Applying correction
changed Method Decision
(incidental)*

Allowed Revenue 2020
(including corrections)

Determination of allowed revenue 2020 (2/2)

mln. EUR

883 — allowed revenue tariff decision 2019 excluding corrections

-18 — applying CPI-X

-4 — applying reconciliation T-2 & corrections

46 — applying correction changed method decision

907 — allowed revenue tariff decision 2020 including corrections

Details of reconciliation T-2 and corrections

Reconciliation and corrections	Total € mln.	Remark	Link to Method Decision
Purchase costs energy (only QC)	10	Total reconciliation is 20, but this will be distributed over 2020 and 2021	Chapter 9.2.1
Revenue-cap regulation	-17		Chapter 9.3
Administrative imbalance	6	Total reconciliation is 12, but this will be distributed over 2020 and 2021	Chapter 9.2.4
Over subscription and buy back	-3		Chapter 9.4.3
Auction premium	-1		Chapter 9.4.2
Other corrections	0		
TOTAL (rounded)	**-4**		

Details of correction changed method decision

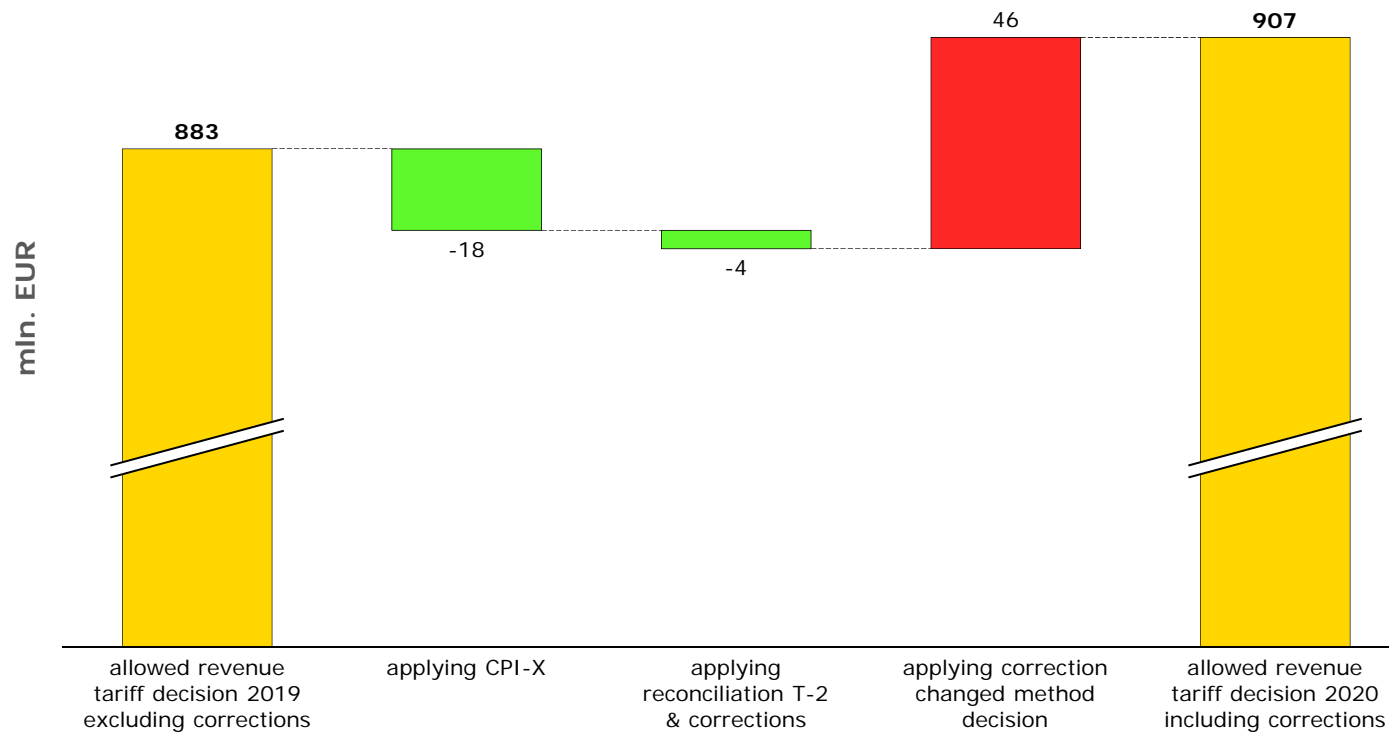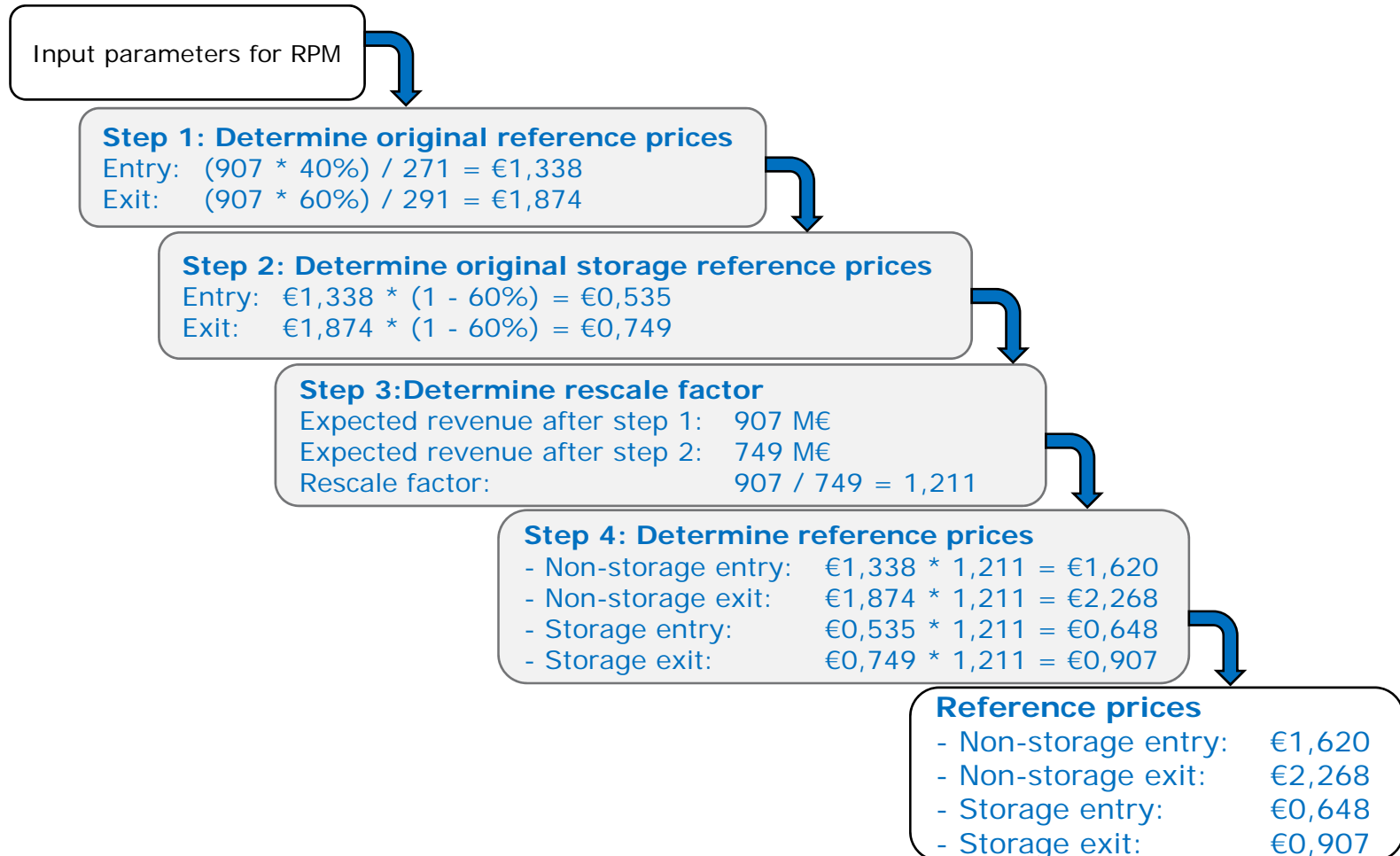| Correction changed method decision	Total € mln. (including interest)
Correction allowed revenue 2017	14
Correction allowed revenue 2018	12
Correction allowed revenue 2019	10
Correction allowed revenue 2020	9
TOTAL (rounded)	**46**

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Input parameters for RPM

Parameter	Value	Remark
Share of allowed revenue received from entry points	40%	
Share of allowed revenue received from exit points	60%	NC TAR decision
Storage discount	60%	
Allowed revenue	907M €	
Forecasted contracted entry capacity	271M kwh/h/y	
Forecasted contracted exit capacity	291M kwh/h/y	tariff decision by ACM, yearly
Forecasted contracted entry Storage capacity	134M kwh/h/y	
Forecasted contracted exit Storage capacity	45M kwh/h/y	

Reference price calculation in four steps

Input parameters for RPM

Step 1: Determine original reference prices
Entry: (907 * 40%) / 271 = €1,338
Exit: (907 * 60%) / 291 = €1,874

Step 2: Determine original storage reference prices
Entry: €1,338 * (1 - 60%) = €0,535
Exit: €1,874 * (1 - 60%) = €0,749

Step 3: Determine rescale factor
Expected revenue after step 1:   907 M€
Expected revenue after step 2:   749 M€
Rescale factor: 907 / 749 = 1,211

Step 4: Determine reference prices
- Non-storage entry: €1,338 * 1,211 = €1,620
- Non-storage exit: €1,874 * 1,211 = €2,268
- Storage entry: €0,535 * 1,211 = €0,648
- Storage exit: €0,749 * 1,211 = €0,907

Reference prices
- Non-storage entry: €1,620
- Non-storage exit: €2,268
- Storage entry: €0,648
- Storage exit: €0,907

Reference prices 2020 versus 2019

Reference prices	2020 Decision ACM (€/kWh/h/y)	2019 Decision ACM (€/kWh/h/y)	
		Min*	Max*
Non-storage entry	1,620	0,998	2,109
Non-storage exit	2,268	0,525	3,893**
Storage entry	0,648	0,959	1,317
Storage exit	0,907	0,460	1,136

Average tariff	2020 (€/kWh/h/y)	2019 (€/kWh/h/y)	Delta
	1,615	1,487	9%

* In current situation individual tariffs per network point and different components: transport, quality conversion, balancing, connection. Storage discount increased from 25% to 60%

** Some small local distribution points have a higher all-in tariff due to the uniform yearly system connection fee, but these are outliers, highest is 8,373

Explanation average tariff increase
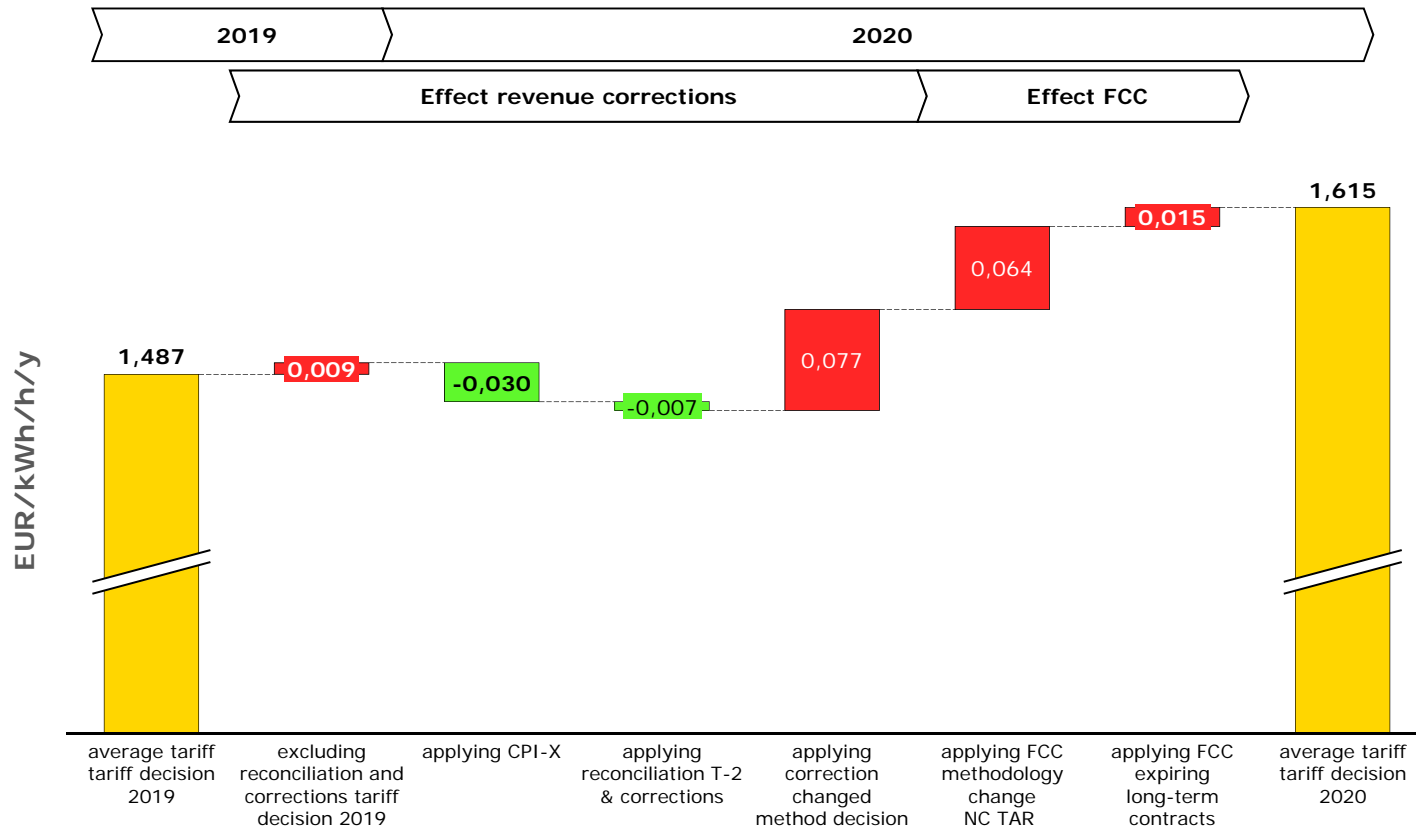
Revenue distribution per segment in 2020

| Segment	Forecasted contracted capacity (Million kWh/h/y)	Expected revenue (M€)
Entry border points	70	114
Entry LNG	17	27
Entry production points	50	82
Entry storage	134	87
Exit storage	45	41
Exit industrial points	46	104
Exit local distribution points	97	220
Exit border points	103	233
Total (all numbers rounded)	**562**	**907**
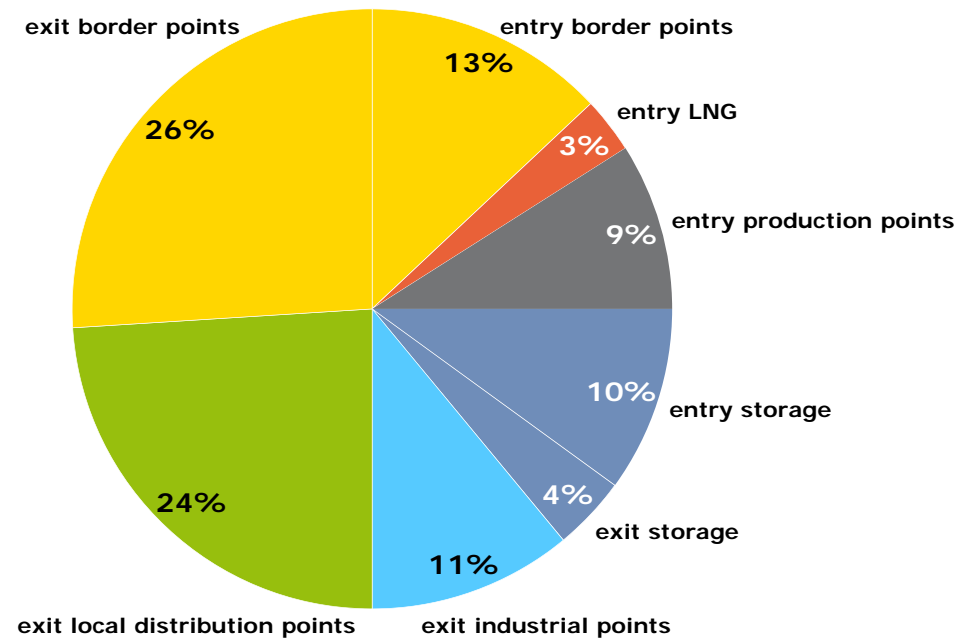
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Indication average tariff 2021

Assumptions

- Forecasted contracted capacity: 533 mln. kWh/h/y

- Current forecast allowed revenue 2021: € 868 mln.
  - Expectation CPI: 2%
  - Expectation reconciliation and corrections: € 17 mln.
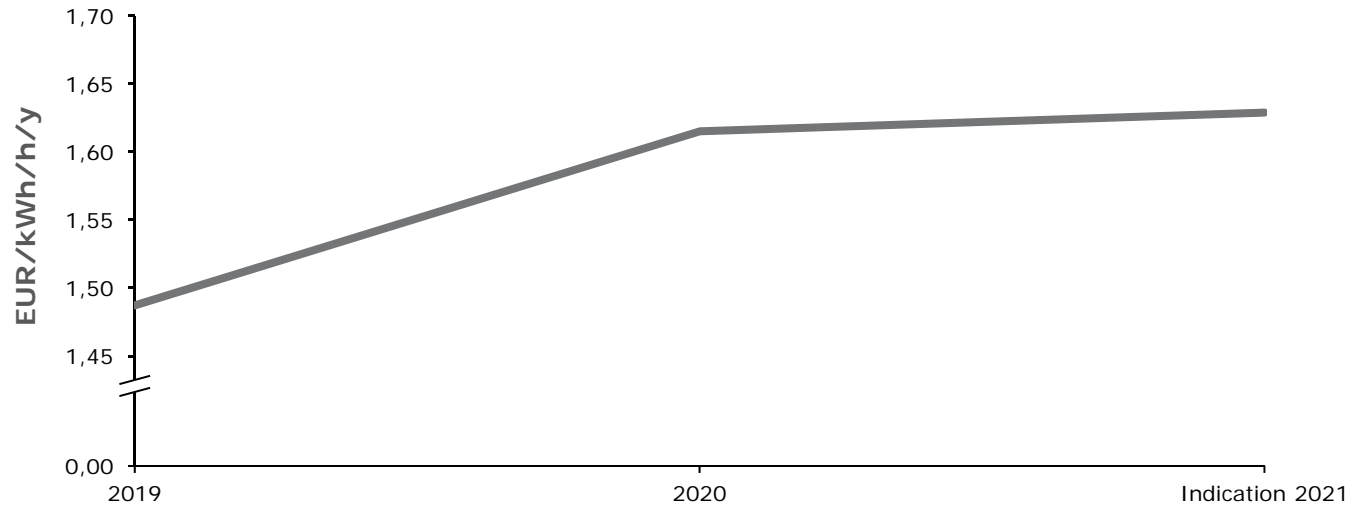
Reference price development 2021 and beyond

- Current regulation period ends in 2021

- No indication of allowed revenue from 2022 onwards

- Reference price is based on allowed revenue, therefore no reference price indication from 2022 onwards

- Indication of forecasted contracted capacity is possible

Indication Forecasted Contracted Capacity
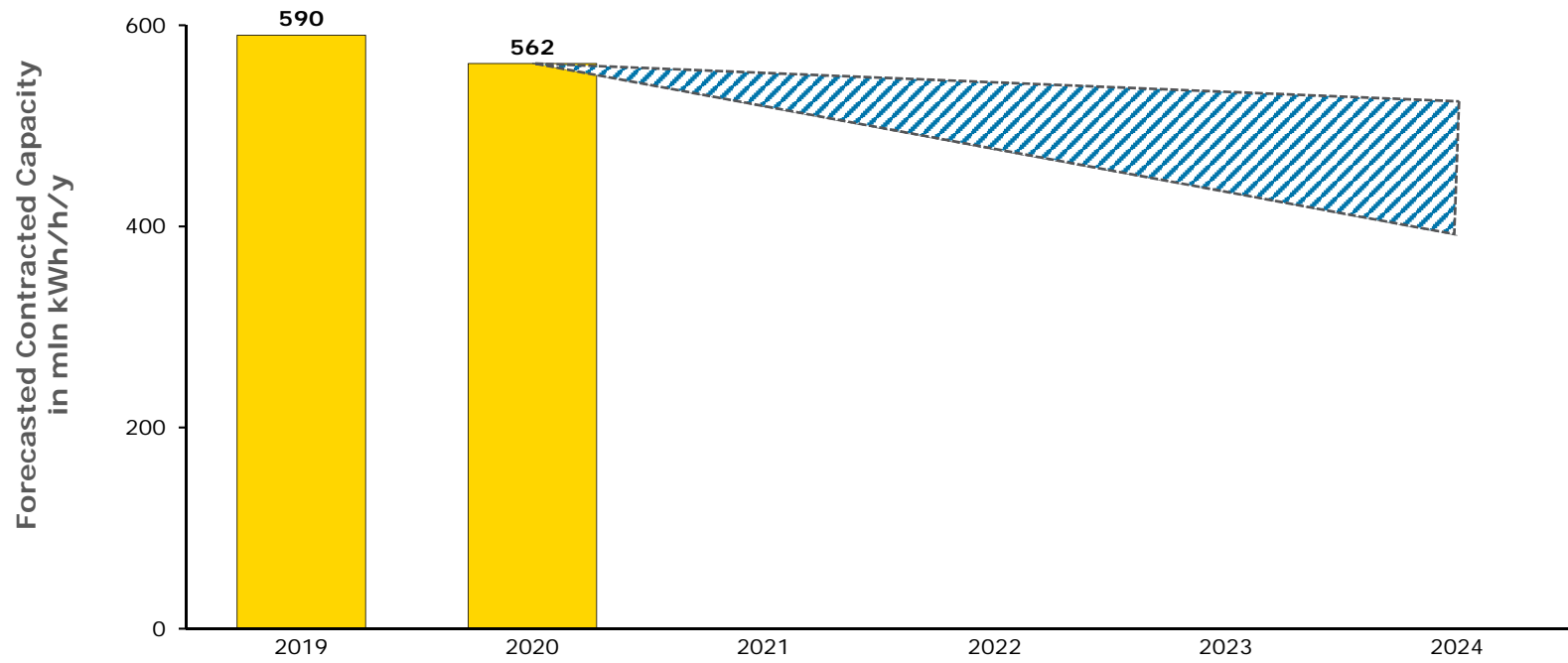
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Appendix

1. How to determine reserve prices

2. Overview of reserve prices

3. Delta tariff decision ACM and tariff proposal GTS

How to determine reserve prices

'reserve price' means the price for a **non**-yearly firm standard capacity product

Reference prices

Non-storage entry

Non-storage exit

Storage entry

Storage exit

Multiplier
Seasonal Factors
Year fraction

Determine reserve prices for non-yearly firm standard products

*Reserve price = Multiplier * Seasonal Factor * Year fraction * Reference Price*

For each product (Within-day, Day, Month, Quarter) there is a specific multiplier and a set of seasonal factors

Reserve prices for non-yearly firm standard products

Overview of reserve prices (1/4)

Non-storage Entry

Product ->	Year EUR/kWh/h/y	Quarter EUR/kWh/h/q	Month EUR/kWh/h/m	Day EUR/kWh/h/d	Within-day EUR/kWh/h/h
January			0,36741811	0,01454024	0,00060585
February		0,78197388	0,32099202	0,01357967	0,00056582
March			0,24844463	0,00983035	0,00040960
April			0,17110987	0,00699512	0,00029147
May		0,35850959	0,13914546	0,00550779	0,00022950
June	1,62013226		0,11951795	0,00488806	0,00020367
July			0,11423924	0,00451623	0,00018818
August		0,28099999	0,10868166	0,00429933	0,00017914
September			0,11433884	0,00467891	0,00019496
October			0,15334817	0,00607328	0,00025306
November		0,60221556	0,24043028	0,00983035	0,00040960
December			0,32830918	0,01299094	0,00054129

Overview of reserve prices (2/4)

Non-storage Exit

Product ->	Year EUR/kWh/h/y	Quarter EUR/kWh/h/q	Month EUR/kWh/h/m	Day EUR/kWh/h/d	Within-day EUR/kWh/h/h
January			0,51441294	0,02035743	0,00084823
February		1,09482213	0,44941293	0,01901256	0,00079220
March			0,34784113	0,01376323	0,00057347
April			0,23956666	0,00979369	0,00040808
May		0,50194035	0,19481409	0,00771131	0,00032131
June	2,26830679		0,16733411	0,00684366	0,00028516
July			0,15994352	0,00632306	0,00026347
August		0,39342108	0,15216248	0,00601938	0,00025081
September			0,16008296	0,00655082	0,00027296
October			0,21469896	0,00850305	0,00035430
November		0,84314699	0,33662045	0,01376323	0,00057347
December			0,45965750	0,01818829	0,00075785

Overview of reserve prices (3/4)

Storage Entry

Product ->	Year EUR/kWh/h/y	Quarter EUR/kWh/h/q	Month EUR/kWh/h/m	Day EUR/kWh/h/d	Within-day EUR/kWh/h/h
January			0,14696724	0,00581610	0,00024234
February		0,31278955	0,12839681	0,00543187	0,00022633
March			0,09937785	0,00393214	0,00016384
April			0,06844395	0,00279805	0,00011659
May		0,14340384	0,05565818	0,00220311	0,00009180
June	0,64805290		0,04780718	0,00195523	0,00008147
July			0,04569570	0,00180649	0,00007528
August		0,11240000	0,04347266	0,00171973	0,00007166
September			0,04573554	0,00187156	0,00007799
October			0,06133927	0,00242931	0,00010123
November		0,24088622	0,09617211	0,00393214	0,00016384
December			0,13132367	0,00519638	0,00021652

Overview of reserve prices (4/4)

Storage Exit

Product ->	Year EUR/kWh/h/y	Quarter EUR/kWh/h/q	Month EUR/kWh/h/m	Day EUR/kWh/h/d	Within-day EUR/kWh/h/h
January			0,20576517	0,00814297	0,00033930
February		0,43792885	0,17976517	0,00760503	0,00031688
March			0,13913645	0,00550529	0,00022939
April			0,09582667	0,00391748	0,00016323
May		0,20077614	0,07792563	0,00308453	0,00012853
June	0,90732272		0,06693364	0,00273746	0,00011407
July			0,06397741	0,00252922	0,00010539
August		0,15736843	0,06086499	0,00240775	0,00010033
September			0,06403319	0,00262033	0,00010919
October			0,08587958	0,00340122	0,00014172
November		0,33725879	0,13464818	0,00550529	0,00022939
December			0,18386300	0,00727532	0,00030314

Delta tariff proposal GTS and tariff decision ACM

mln. EUR

918

5

-16

907

allowed revenue
tariff proposal 2020
including corrections

actualisation
cpi

Distribution
of correction to 2021

allowed revenue
tariff decision 2020
including corrections