



## Products & Services

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## Storage bundles and additional capacities

Our products are based on bundled storage capacities, or so-called storage bundles. A storage bundle is a combination of working gas capacity with injection and withdrawal rates with all three components in a fixed ratio.

In addition to each storage bundle, customers may book non-bundled storage capacity as additional capacity. This allows our customers to use storage capacities flexibly. Customers can adapt the capacities available by combining storage bundles and additional capacity in line with their specific wishes.

Storage capacities can also be further optimized. We offer capacities both on a firm and on an interruptible basis with an appropriate price reduction.

**Firm capacities** have the advantage that they are available to the customer continuously under the conditions agreed in the contract. These capacities can always be made available by the storage facility.

However, storage facilities can do much more. You achieve the best possible utilization of our storage facilities by combining firm and interruptible capacities.

**Interruptible capacities** are available subject to certain restrictions. The capacity is technically available as a rule, but it is not always fully available in practice because of varying temperature and pressure conditions. Therefore, interruptible capacities are more favorably priced than firm capacities.





## Storage bundle types

We offer various storage bundles at our different storage sites in Germany. In total there are five storage bundle types (A, B, C, D and E). Depending on the individual bundles, our customers have a choice of storage products ranging from fast-churn storage (type A) to seasonal storage (type E).

The different bundle types reflect the technical capabilities of the individual storage facilities. Each storage facility usually offers one particular bundle type.

"Fast" storage facilities (type A) have high injection/withdrawal rates relative to their working gas capacity, which allows the gas volume to be turned over several times. "Seasonal" types (type E) have a relatively high working gas capacity in comparison to their injection/withdrawal rates and are particularly suited for seasonal use.

You are free to book several bundle types by booking capacity at different storage facilities. Combining different bundle types gives you greater flexibility in your storage portfolio.

### Storage bundles offered and regional distribution

Storage bundle	A	B	C	D	E
Withdrawal rate per bundle (MWh/h)	10	10	10	10	10
Working gas per bundle (GWh)	5.00	7.50	10.00	15.00	20.00
Injection rate per bundle (MWh/h)	2.50	3.00	3.33	4.55	5.56
Ratio of working gas to withdrawal rate per bundle (days*)	29	44	59	89	118
Ratio of working gas to injection rate per bundle (days*)	95	119	143	157	171
Churn rate (p.a.)*	2.94	2.24	1.81	1.48	1.26

\* based on standard characteristic curve



## Characteristic curve

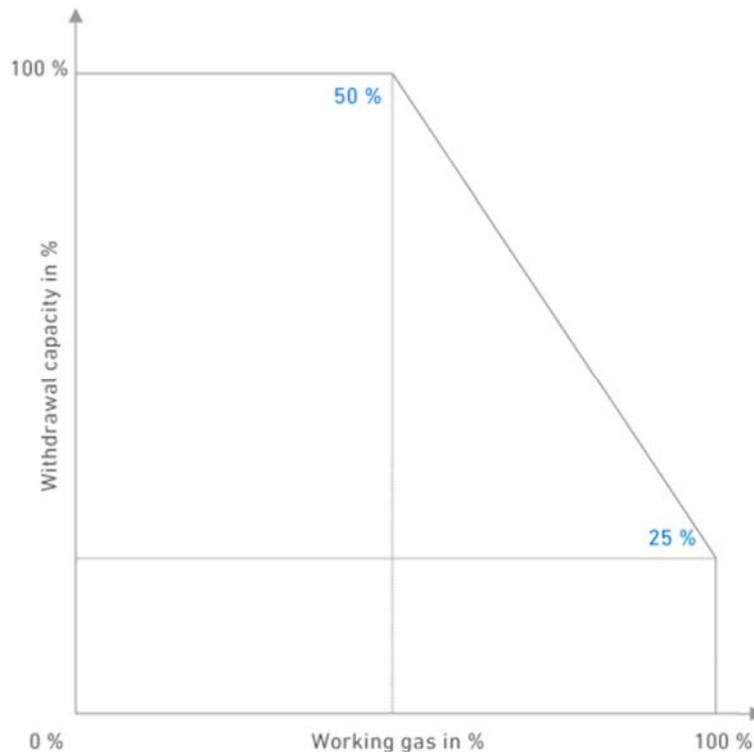
Storage facilities are physical assets that are governed by certain physical laws. Accordingly, availability of both firm and interruptible standard products is dependent on the injection and withdrawal rates, which are a function of the storage level and are subject to specific characteristic curves.

Simplified: The more working gas is withdrawn, the lower the storage pressure. A lower storage pressure leads to a lower withdrawal rate. This applies in reverse as well. The more working gas is injected, the higher the storage pressure. This makes it more difficult to press gas into the storage. Therefore, a higher storage pressure leads to a lower injection rate.

Each storage facility has an injection curve and a withdrawal curve. Below you will find our standard storage curves. Please note that our storage facility 7Fields has different curves which can be found in the GTCS.

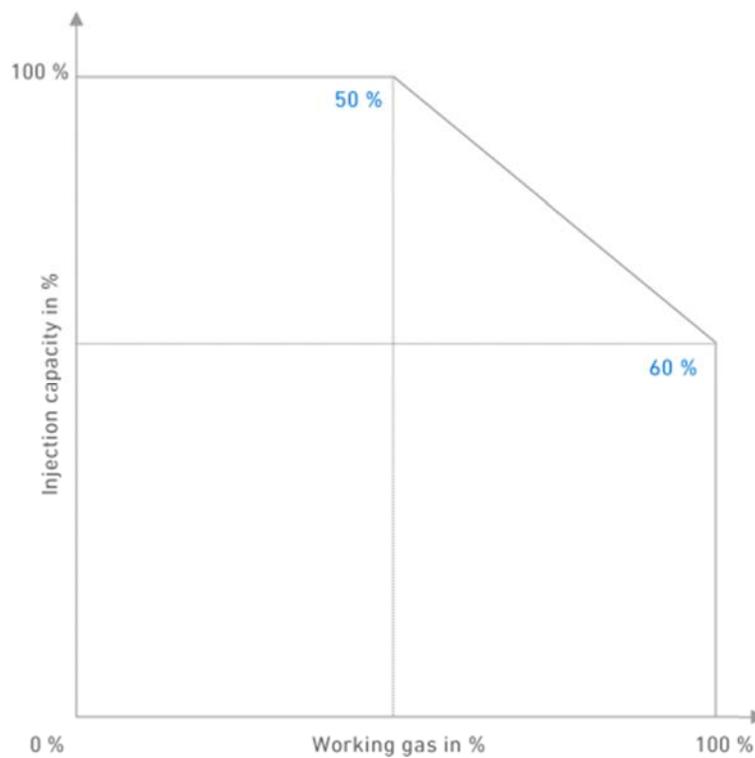
## Withdrawal curve

For the withdrawal curve the maximum firm withdrawal rate given by the sum of the firm storage bundles and the firm unbundled withdrawal rate is guaranteed for a working gas offtake of up to 50 per cent. For working gas withdrawals of between 50 per cent and 100 per cent, the firm withdrawal rate drops linearly for technical reasons down to 25 per cent of the maximum firm withdrawal rate.



### Injection curve

For the injection curve the maximum firm injection rate given by the sum of the firm storage bundles and the firm unbundled injection rate is guaranteed for a working gas volume of 0 per cent to 50 per cent. For working gas volumes between 50 per cent and 100 per cent, the firm injection rate drops linearly for technical reasons from 100 per cent down to 60 per cent of the maximum firm injection rate.



### Interruptible storage rates

Interruptible storage rates are defined by the difference between the maximum withdrawal or injection curve and the firm withdrawal or injection curve of a storage facility. The withdrawal and injection curves are calculated for each storage customer pro rata its contracted storage capacity.



## Market access

We offer roughly 8,2 billion cubic meters of working gas capacity in our underground gas storage facilities which are spread from the North German plains to the foothills of the Alps and UK. This capacity gives you access to virtual trading points in Germany (NCG and Gaspool), the Netherlands (TTF), Austria (CEGH) and United Kingdom (NBP).

Each of our storage facilities has direct access to at least one virtual trading point. The 7Fields and Etzel ESE facilities offer access to several trading points. 7Fields is connected to NCG and CEGH while Etzel ESE allows trading at NCG, Gaspool and TTF.

In our storage portal you can find the bundle types available at each storage facility and the trading points accessible from the different locations. In addition to that a detailed overview of available capacities can be found.

## Transport

In principle, we offer our products directly at the storage connection point (flange). The hand-over and/or return point is, therefore, not the virtual trading point but always the storage facility itself. Transport capacities to and from the virtual trading point are not automatically included in our services. They must be booked separately with the relevant transmission network operator, which allows you to only book the transport capacities you actually need. If requested, we will assist you in setting you up for the transport capacity booking process. The advantage for you is that you can select the product best-suited for your needs from the storage capacities and transport rights on offer.

## Fixed-price products

We offer both firm and interruptible storage bundles and additional capacities at fixed prices. Fixed-price products give you a decisive advantage because you know the exact price in advance and can hedge your position accordingly.

## Indexed products

Apart from our established fixed-price products there is another product type which we developed in close cooperation with our customers. The pricing of these products, which are known as indexed products, depends on market developments.

Unlike our fixed-price products, the indexed products have variable prices. The specific fee per unit of storage capacity is not fixed at the time the capacity is booked. Instead, the product price is determined directly by the market using a price formula

based on the summer/winter spread (SW spread). The SW spread is the difference between gas prices quoted on trading markets for the summer and winter seasons. In the current market environment, this spread is a key value driver for storage services and is, therefore, well-suited for ensuring that the prices of indexed products reflect market price levels.

The setup of a price formula is:

$$P (\text{€/MWh}) = M \times \text{Spread} \pm A$$

Variables M and/or A and the respective spread are selected individually depending on the product type.

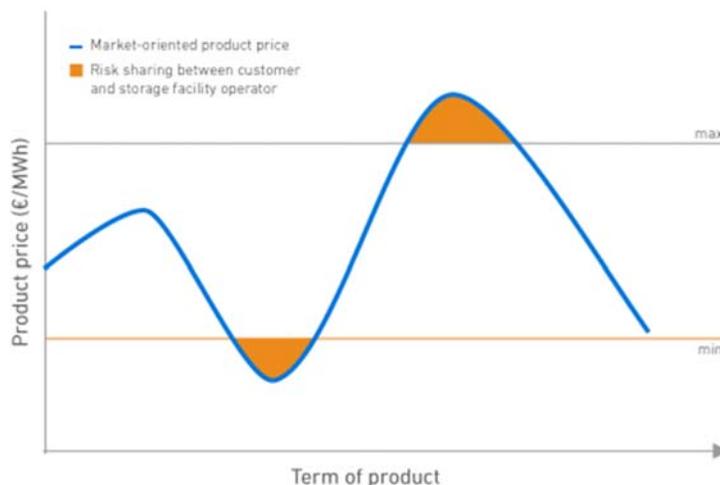
### Pricing mechanism

The price is determined annually for the next storage year on the basis of market developments using the agreed price formula which applies for the duration of the contract. The average spread is determined during the index period before the beginning of the relevant storage year. This spread is then used in the price formula. The calculated price applies for the duration of the storage year.

Indexed products can have maximum and minimum prices which apply regardless of the development of the spread. This ensures a balanced distribution of market risks between the customer and the storage operator.

Indexed products are offered with different underlying formulas depending on market developments and contract durations.

Customers are free to diversify their portfolio by combining fixed-price and indexed products.





## Supplementary products and services

We also offer a number of supplementary products. Among others, we support you in monetizing your working gas or take over the REMIT-reporting for you. Furthermore we facilitate short-term trading in injection and withdrawal capacities via our Day Ahead platform and flat products. Our supplementary products are, of course, available to all new and existing customers. The respective Supplemental Agreements can be found on our website (Press and Media → Marketing documents).

### Inventory Financing Service

Optimizing physical storage might go along with high financing costs, since, subject to the storage customers' individual storage optimization strategy, injected gas will only be monetized months later during the withdrawal season. Our Inventory Financing Service offers the possibility to temporarily sell stored gas to a financing institution in order to free up capital. Since such deal is asset-back and the bank holds the title of the gas, it may also be able to offer more favorable financing rates.

We have been successfully facilitating such inventory financing concepts with several banks since 2014 and will be happy to help our storage customers to find a customized financing solution, for example on the basis of the "Trilateral Agreement" which can be found in the Download Area on our website.

### REMIT Reporting Service

Since 7 April 2016, market participants are obliged to report to ACER the amount of gas the market participant has stored at the end of each gas day. Such reporting may also be performed by the storage system operator on behalf of the market participant. We gladly like to offer this service to our storage customers on payment of a yearly service fee.

### Balancing Group Service

At our storage facility 7Fields we offer the so called Balancing Group Service (BGV-Service). This service enables a better use of available transport capacity towards the Austrian Market Area East. In principle, the storage customer nominates transport capacities at the storage connection points "Zagling" or "Überackern". In case of congestion situations in the grid which affect one of the storage connection points, we will try to bridge this interruption via potentially unused transport capacity at the respective other storage connection point. Thus, the risk of transport interruptions will be decreased for the storage customer. Take over respectively return of the gas therefore already takes place at the Virtual Trading Point (CEGH). For the BGV-Service, we only charge the regulated transport tariffs (System Utilization Charge and System Provision Charge), no further service fee applies.



### **Short-term storage optimization – Day ahead trading**

To be able to also use short-term capacities efficiently, our storage customers can book available additional injection or withdrawal capacities on our trading platform in the storage portal on a daily to monthly basis. Furthermore, storage customers themselves can offer injection or withdrawal capacity, which they are currently not using, to other storage customers. Also, it is possible to publish a search request. We ensure easy posting of offers and requests with free choice of price.

### **Gas In Store Transfer**

Of course, we facilitate the trading of injected working gas volumes between our storage customers in the same storage facility. By using our standard form, our storage customers can request the gas in store transfer between the respective working gas accounts, and state volume, point of time and storage facility. We will be happy to put you in contact with other potentially interested storage customers. For the transfer we will charge a small service fee.

### **Bespoke storage solutions**

Do you have any questions about our products? Do you find it difficult to choose between different storage solutions and need an offer tailored to your specific needs? Contact us. Our team will be happy to help you make the right choice.