Tyra – User Group

Market measures and principles
30 March 2017

Tyra - update

Denne meddelelse blev sendt med vigtigheden Høj.

Fra: Anmodning (Naturgas) Sendt: to 23-03-2017 12
Til: Anmodning (Naturgas)
Cc:
Emne: Tyra - update

Dear shipper

Maersk has Wednesday 22 March 2017, on behalf of DUC, in a press release announced that they have reached an agreement with the Government of Denmark which provides terms to enable partners to progress a full redevelopment plan for the offshore Tyra gas complex.

In the REMIT message Maersk informs that following parliamentary approval and a final investment decision by all partners before the end of 2017, production from Tyra is now expected to cease from **1 December 2019** (the start time of the capacity change) and recommence from the new facility from **1 March 2022** (the ending time of the capacity change). This time schedule is based on the assumption that a parliamentary approval is granted and a final investment decision is taken by all partners before end of 2017.

You can read Maersk´s press release and REMIT message here:
http://www.maerskoil.com/Media/Newsroom/Pages/MaerskOilwelcomesagreementencouragingafullredevelopmentoftheTyrafield.aspx

REMIT message:
https://gasmarketmessage.dk/Pages/ViewREMITmessage.aspx

You can read the Danish authorities press release here (in Danish):
http://www.efkm.dk/aktuelt/nyheder/nyheder-2017/marts-2017/ny-aftale-om-udvikling-af-nordsoeen/

Kind regards

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Todays agenda

- Introduction to the subject (30 min)
- Work in groups (30 min)
- Break (10 min)
- Presentation and discussion of work (40 min)
- Wrap up (10 min)

Purpose of today

Main purposes:

1. To discuss the overall principles for Energinet.dk's role, when Tyra is shut down
   - E.g. how loose or tight should the market design be

2. To list an overall catalogue of possible measures/ideas/communication tools

3. To be more clear of the role of the shippers and the role of Energinet.dk in different scenarios

Supply situation without Tyra 2018-2021

Memorandum August 2016

The main conclusion from the analysis is that Danish and Swedish consumers will continue to experience a robust supply situation if Tyra shuts down. If, at the same time, the majority of the Danish production in the North Sea is closed down for a number of [illegible] the system becomes less flexible and more vulnerable to incidents occ[illegible]pared to today's supply situation.

Energinet.dk intends to take various [illegible]both in relation to the market and to infrastructure in order to [illegible]imum infrastructure capacity. The situation requires preparation and [illegible]s on the part of Energinet.dk, the adjacent systems and the mar[illegible] the gas supply is to be secured.

Same messages today. However, supply situation is even more tight than anticipated

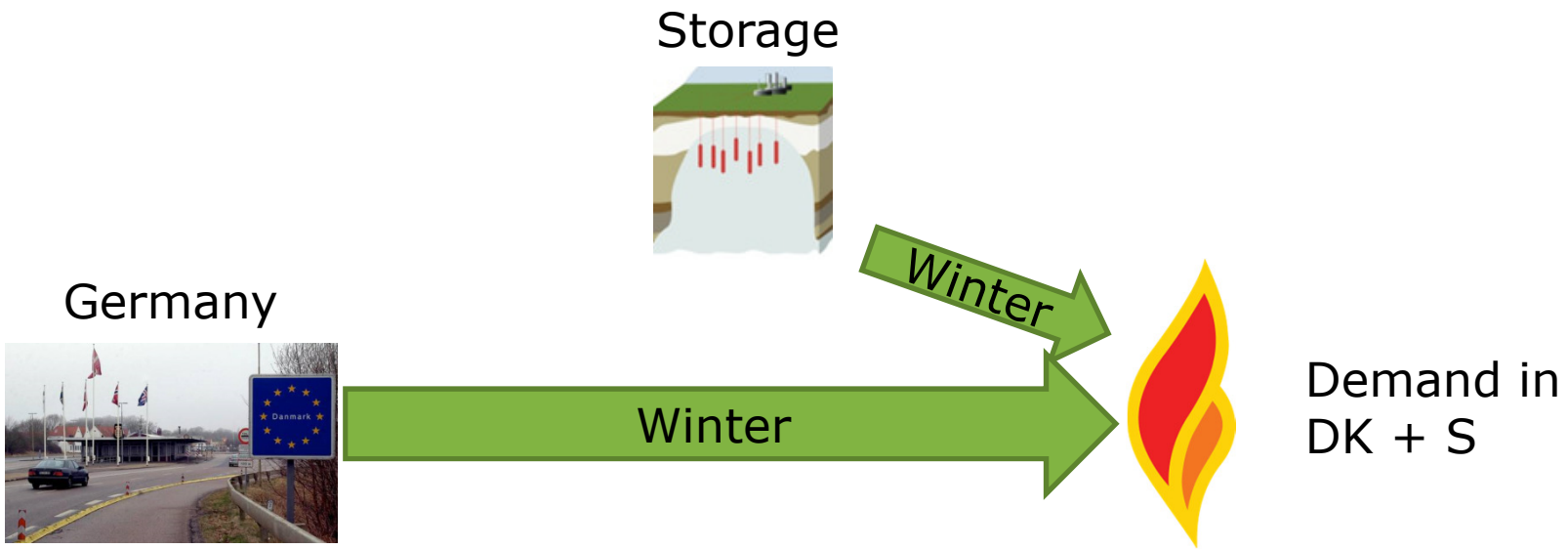
An extremely long and hard winter with disruption of the supply sources will be challenging. However, careful planning and focusing on the optimal use of the capacity in the system will mitigate the risk of supply failure.

Altered supply conditions

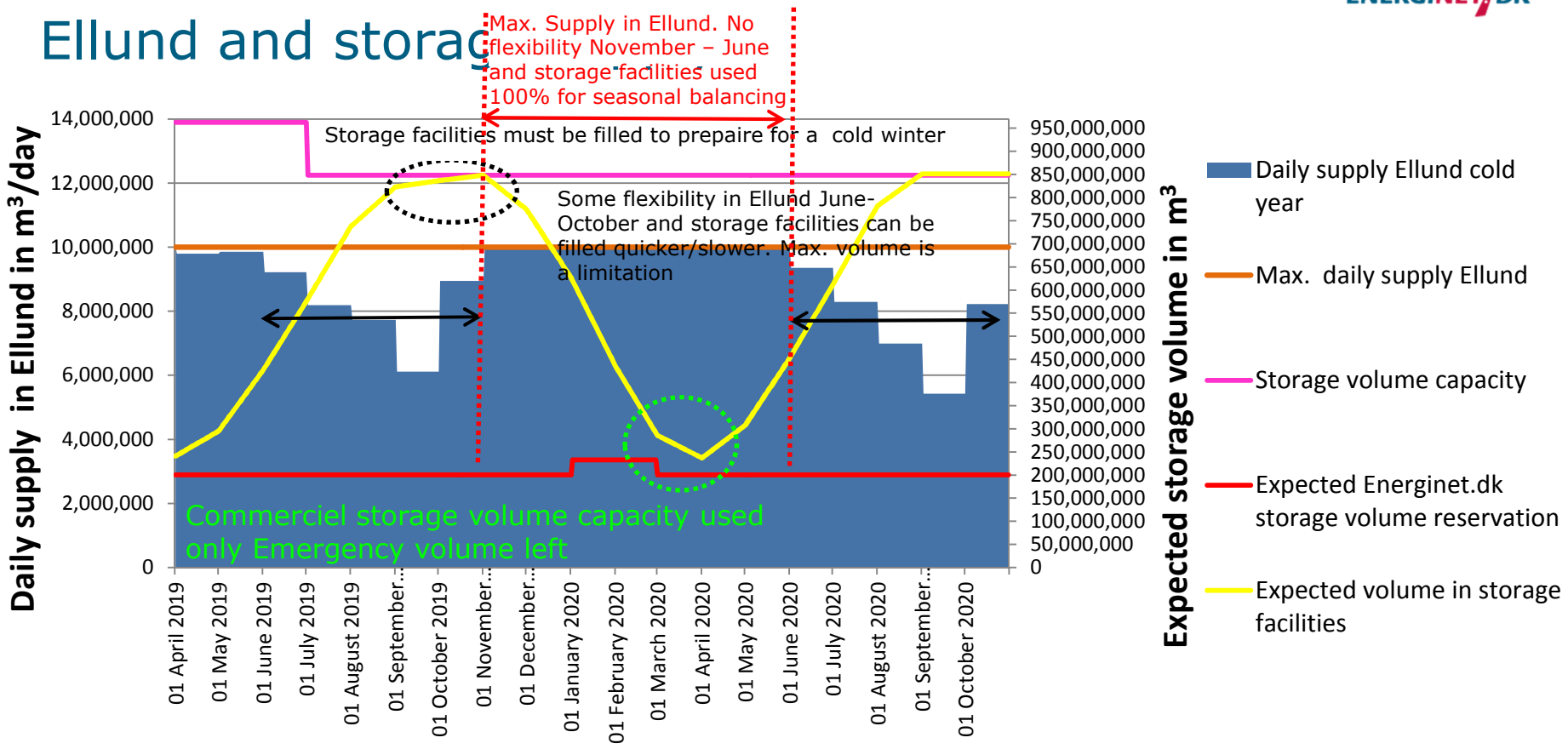
1. Less commercial storage volume available in 2019:
   - 1 missing cavern in Lille Torup
   - Gas from Germany has a lower gross calorific value and compressibility
   - Energinet.dk must reserve further Emergency storage to fullfill the EU N-1 regulation
2. No surplus capacity in the transmission system in Northern Germany

Supply and Demand situation

- Swedish and Danish demand can be supplied with effective use of import from Germany and use of Storage



Supply situation without Tyra 2018-2021



Conclusion

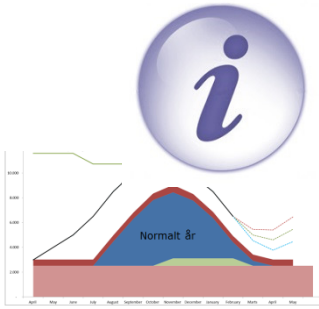
When Tyra closes the system changes from a situation with the highest historical flexibility to a situation with the lowest possible flexibility:

- Capacity in Germany must be used whenever capacity (firm and interruptible) is available
- Storage facilities must be filled 100% before winter to be prepared for cold winter (20 year incident)

Information

Information to the Market

Information to the Market about seasonal supply/demand situation

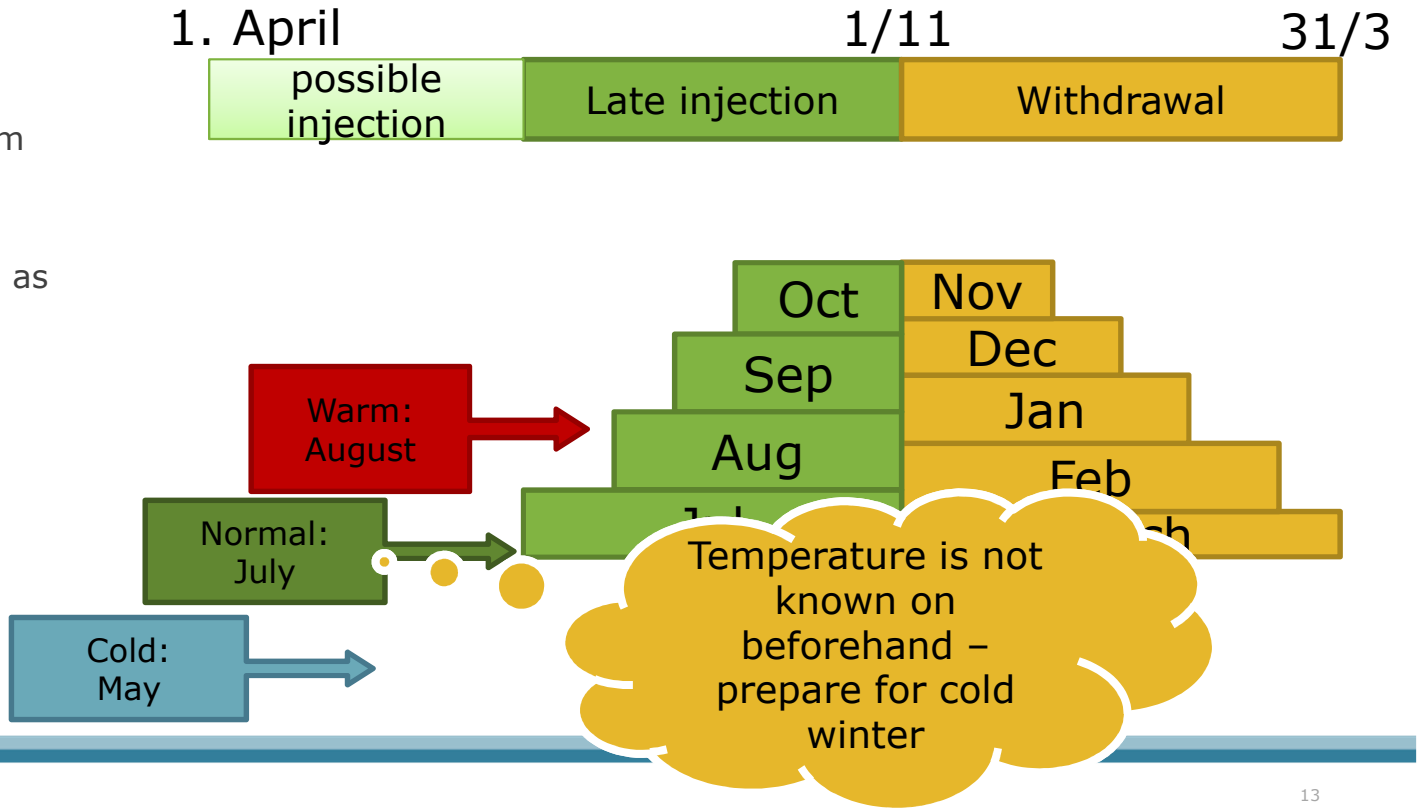


Market is continuously informed about the situation for the coming season and can use it for own risk assessment

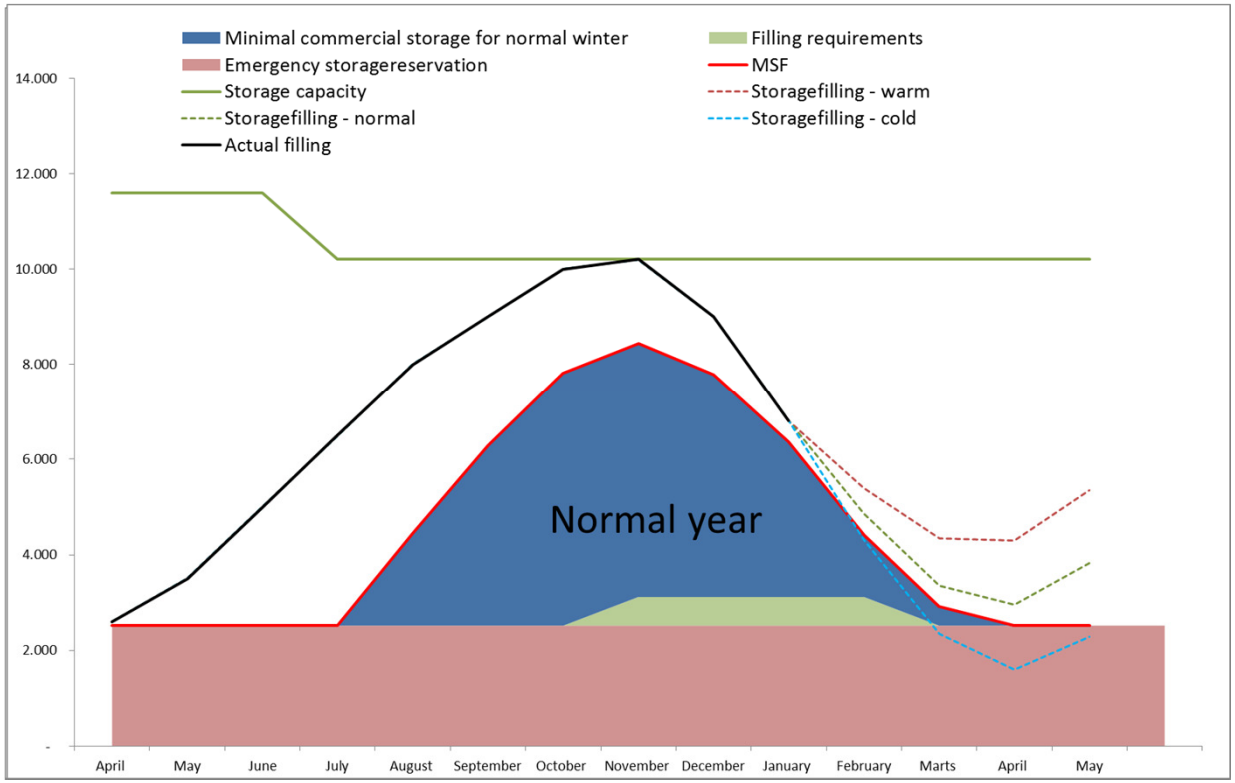
The marked can react in due time avoiding Energinet.dk intervention

Minimal Storage Filling (MSF)

- MSF calculation
  - 100% use of import from Germany
  - Storage empty 1. April
  - Filling of storage as late as possible (Late injection)



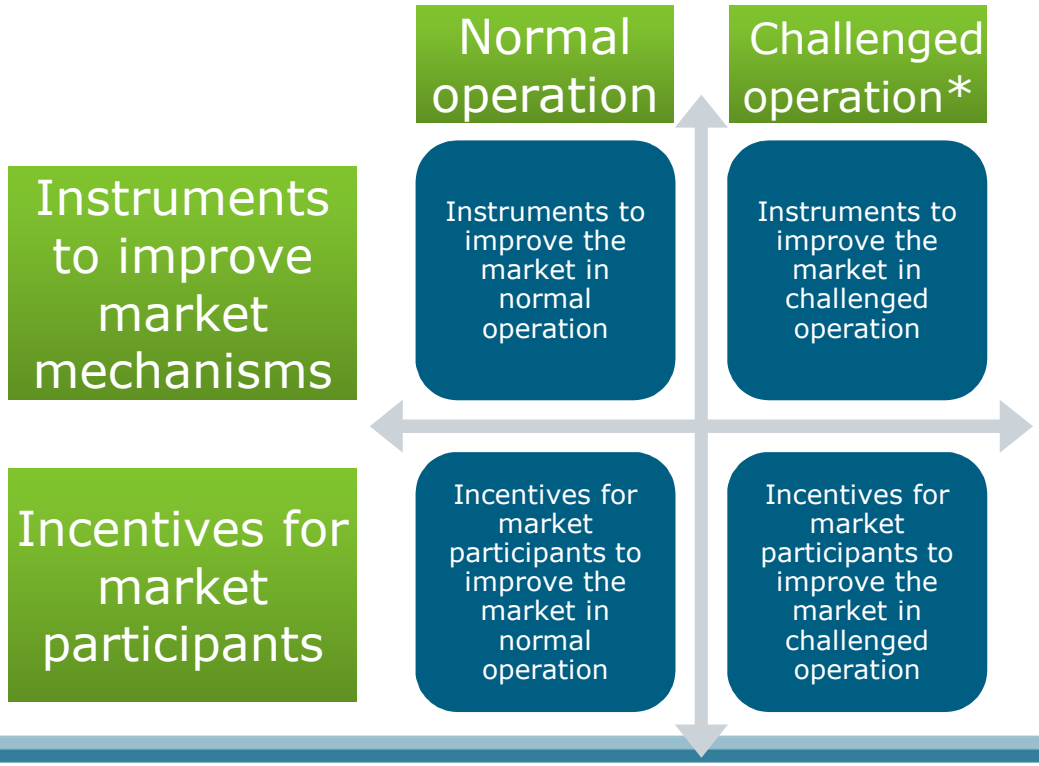
Minimal Storage Filling – information to the Market



- Actual filling updated daily
- Expected filling rest of year
  - warm, normal and cold temperature
  - 100% utilization of firm import from Germany

Introduction to work in groups

Grouping of potential solutions



* Early Warning, Alert, Emergency

List of topics

- Capacity products
- Balancing rules
- PRISMA auctions
- Gas exchange
- Market pricing
- Secondary market
- Ellund capacity
- Security of supply
- Storage utilisation
- Incentive charges and fees
- Possible new products
- Implicit auctions
- Ellund utilisation
- Positive incentives
- Communication
- Role of Energinet in a normal and in a tight situation
- Role of shippers in a normal and in a tight situation
- …..

Next – work in groups (30 + 10 minutes)

3 groups:

1. Security of supply (Søren Balle Rasmussen) – stay in here
2. Rules and incentives (Christian Rutherford) - canteen
3. Trading and market prices (Poul Johannes Jacobsen) - canteen

Be creative (but there might be limits based on legal framework)

Next steps the coming months

- Gather information from today
- Analyse internally
- Invite for bilateral meetings
- New user group, to discuss analysis results so far