



# | Danish broadband regulation

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Frederik Rygaard  
Danish Business Authority (DBA)

# Frederik Rygaard

Head of Division, Telecompetition



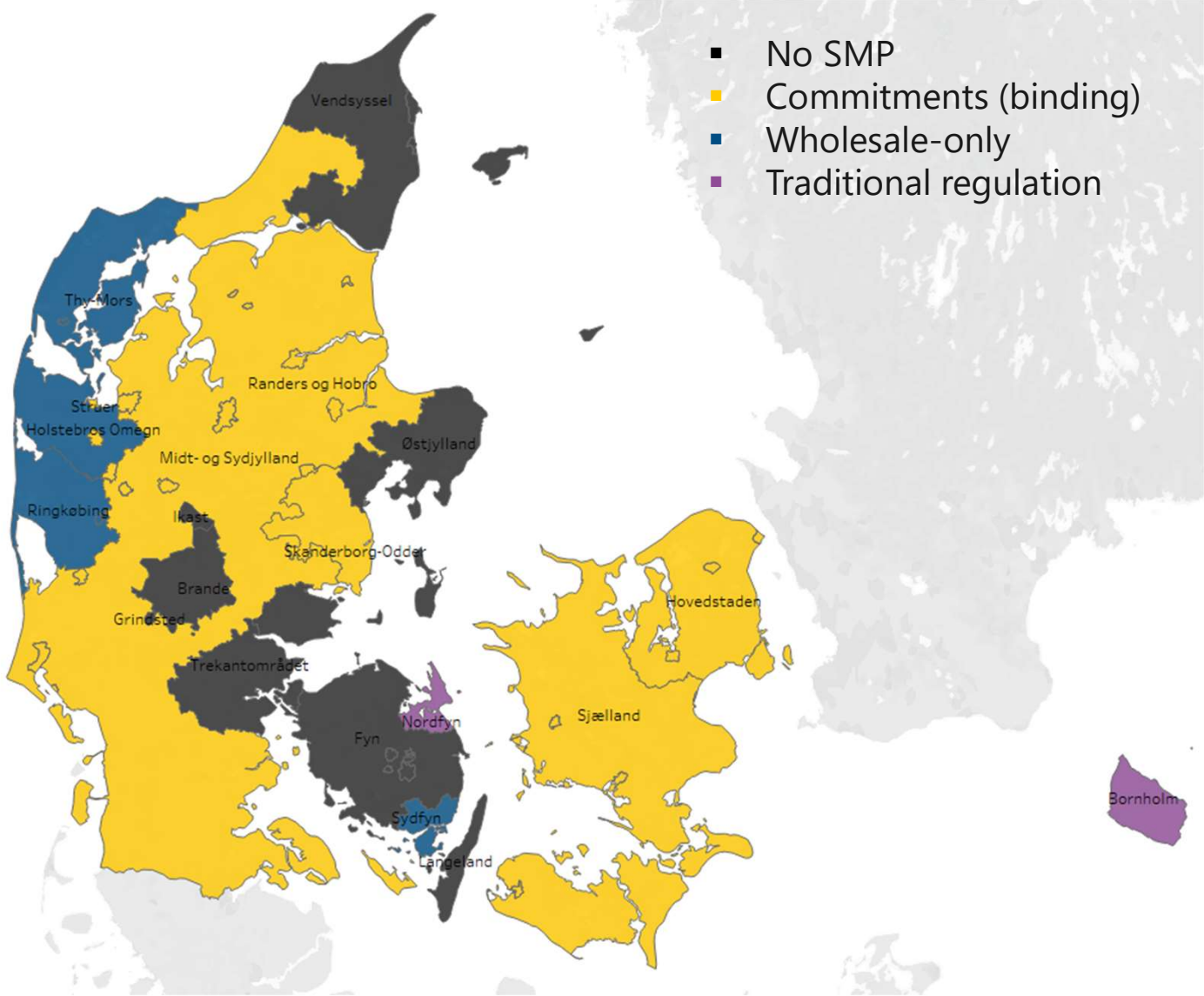
Master in Economics (industrial organisation and teleeconomics)

Experience from industry, regulator and consultancy projects on:

- International products (incl. EU roaming)
- Termination
- **Cost modelling**
- **Access regulation**
- (mobile auctions)

DBA's BEREC alternate

# High Capacity (HC) regulation is local/regional...



# Differentiation in remedies...

## Summary of obligations in the market decisions

Operators that are the subject of regulatory obligations on market 3HC	Submarket	Wholesale Access		Regulatory method for wholesale pricing	Non-discrimination	Transparency	Entry into force	
		Virtual/central access	Local access (Co-location included)	Fair pricing			12 months after final decision	Conditional
<b>Vertically integrated operators</b>								
Bornfiber	Bornholm	X		X	X	X	X*	
Nef Fiber	Nordfyn		X	X	X	X		X*
<b>Wholesale-only operators</b>								
Jysk Energi	Holstebros Omegn		X		X		X	
RAH Fiberbredbånd	Ringkøbing	X			X		X	
SEF Fiber	Sydfyn	X			X		X	
Thy-Mors Energi	Thy-Mors	X			X		X	

Note: For any discrepancy between this summary and the market decisions, it is the market decisions that are applicable.

Note: \*Obligation concerning standard offers is applicable 9 months after final decision

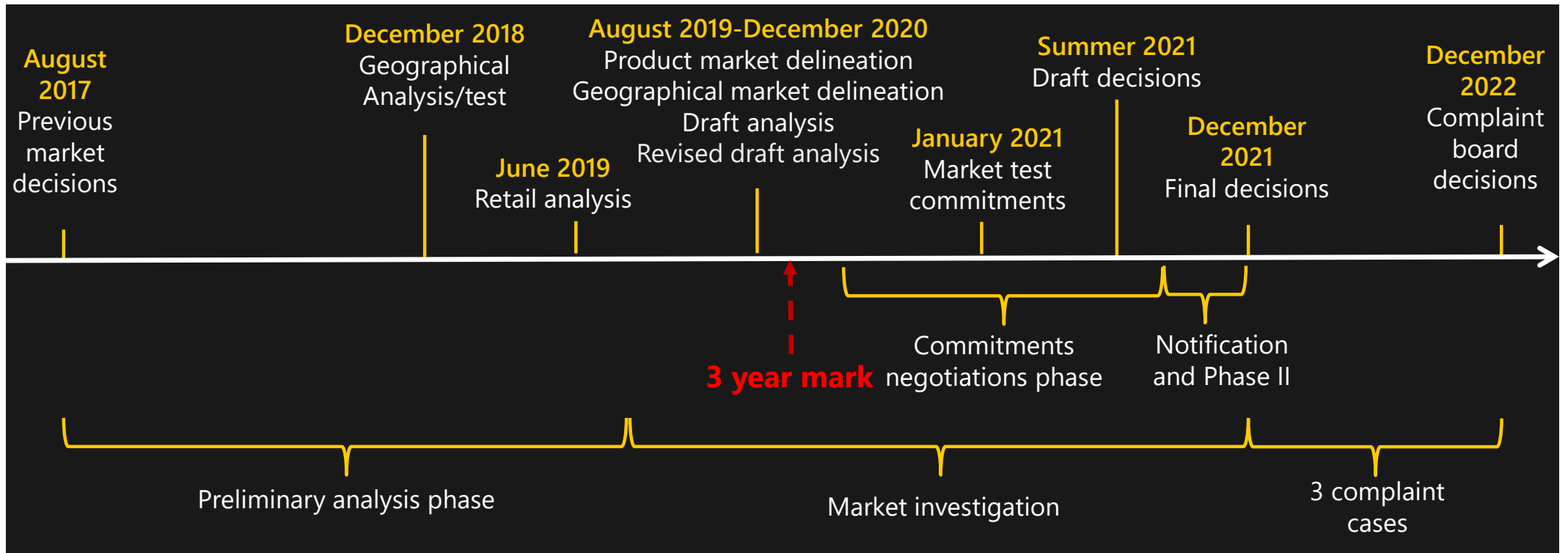
## General overview of the commitments provided by SMP-operators (made binding by commitment decisions)

SMP-operator	Market(s)/submarket(s)	Wholesale access	Regulatory basis for establishing wholesale pricing	Margin-squeeze test	Non-discrimination	Transparency
Fibia	Sjælland	Fiber BSA	LRAIC	Operator is responsible for conducting margin-squeeze tests	Yes	Yes
Aura	Skanderborg-Odder	Fiber BSA	LRAIC	Operator is responsible for conducting margin-squeeze tests	Yes	Yes
Norlys	Midt- og Syddjylland	Fiber BSA	LRAIC	Operator is responsible for conducting margin-squeeze tests	Yes	Yes
TDC	Holstebro, Hovedstaden, Randers-Hobro, Struer, M3LC	Fiber BSA, Coaxial BSA, Copper central, virtual access*	LRAIC	Operator is responsible for conducting margin-squeeze tests	Yes	Yes

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Note: \*TDC provides central, virtual access to copper which corresponds to the existing access to a VULA contended product and to the existing access to ethernet BSA.

# It took 2½ years...plus preliminary work



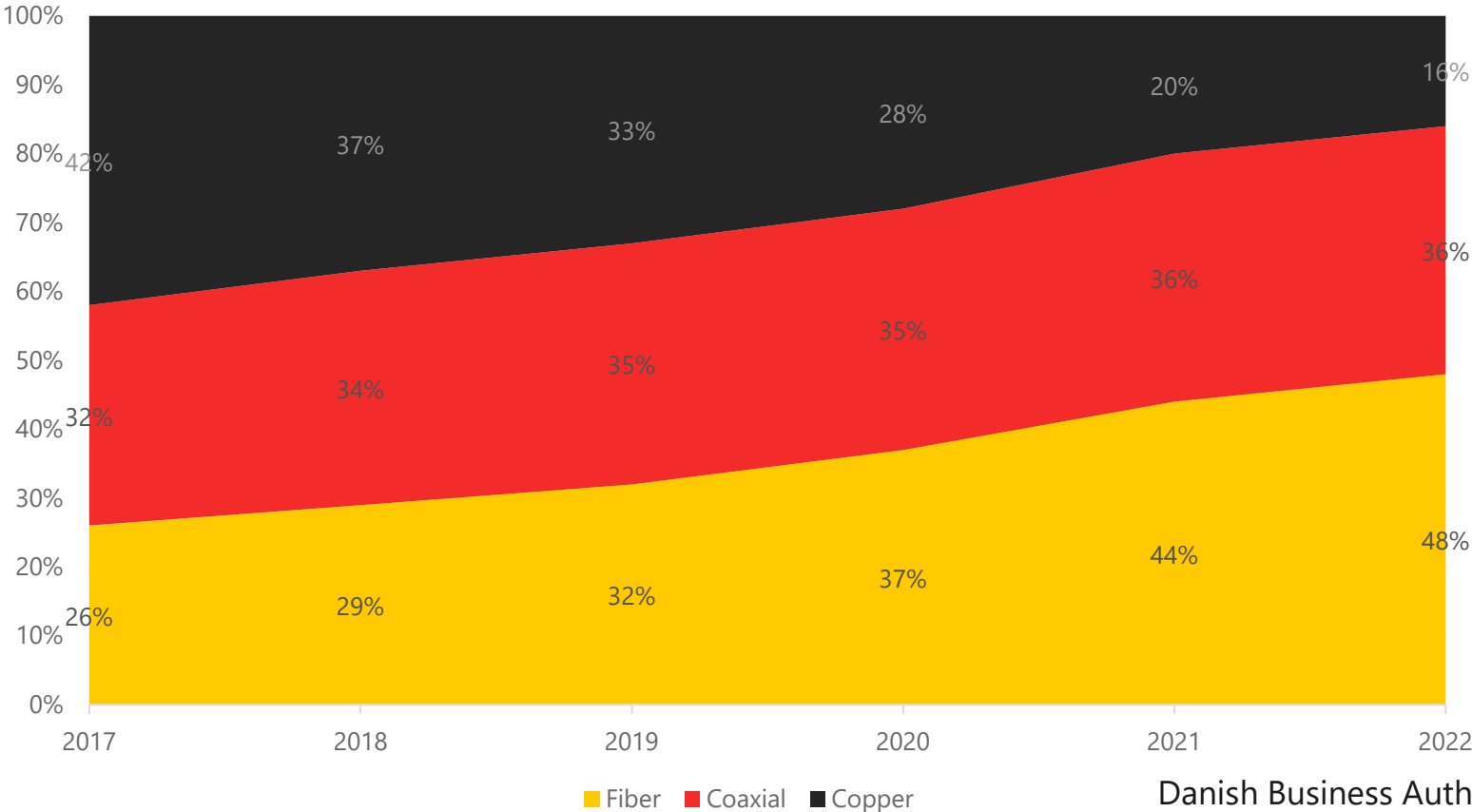
# High fibre coverage – and increasing fibre take up

+90 percent coverage with fibre or coax

Fibre operators are regional

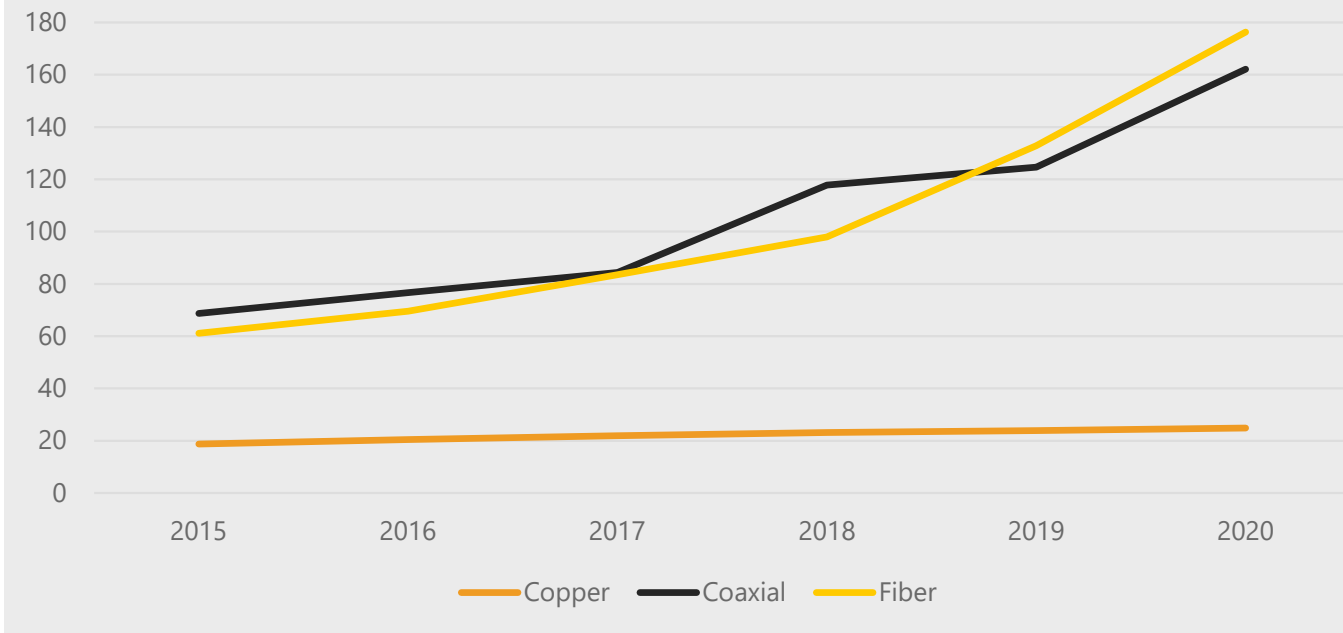
Fibre past early adoption

Technology, percentage of total sale



# From one to two product markets

Uptake - Median download speed by technology



## 2017

*One product market*

- Copper
- Coaxial
- Fibre

## 2021

*Low capacity*

- Copper
- FWA

*High capacity*

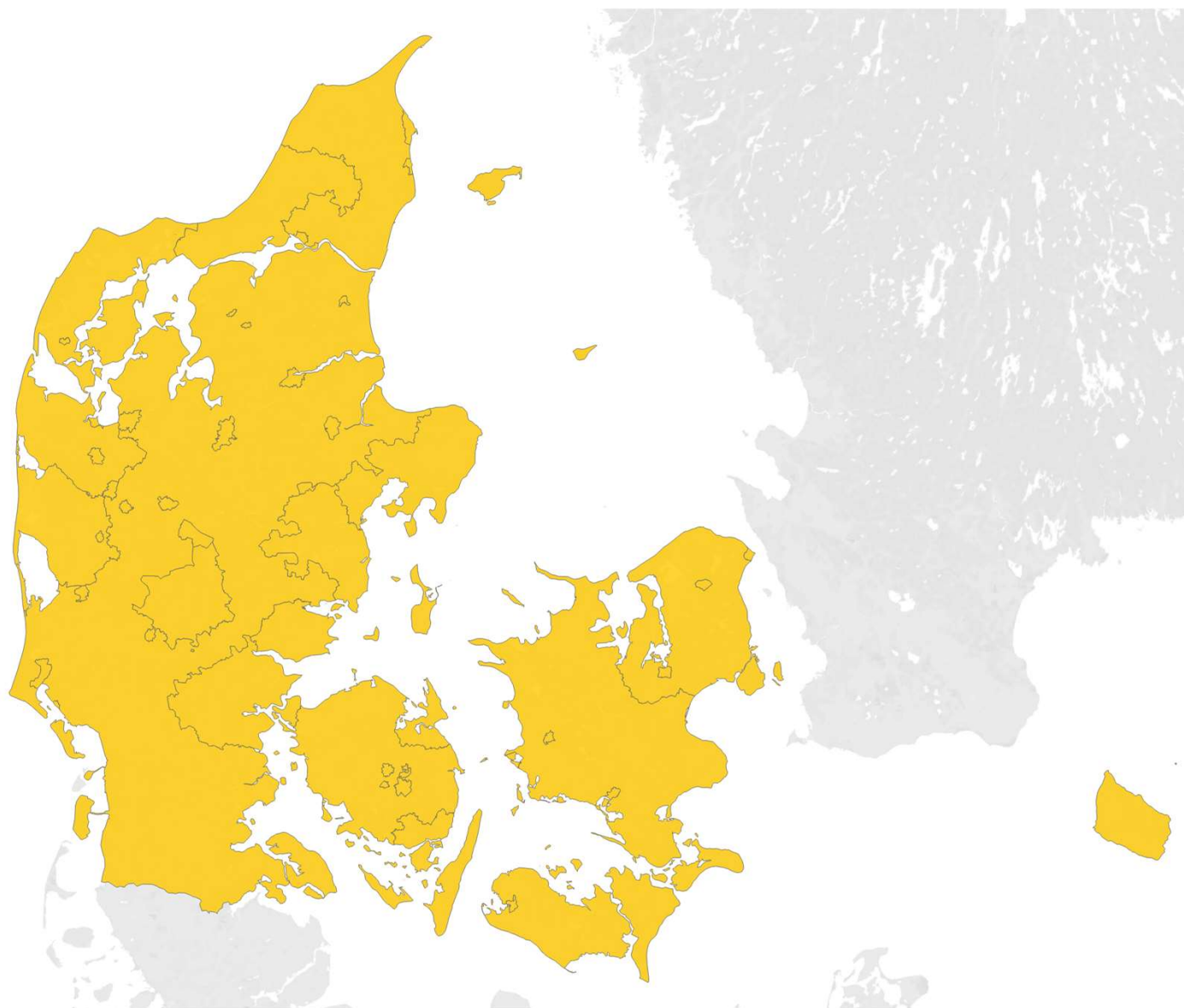
- Coax
- Fibre

Copper cannot supply high quality

Coax and fibre are substitutes

Copper still has a customer base

# Defining the geographical market(s)



**2021**

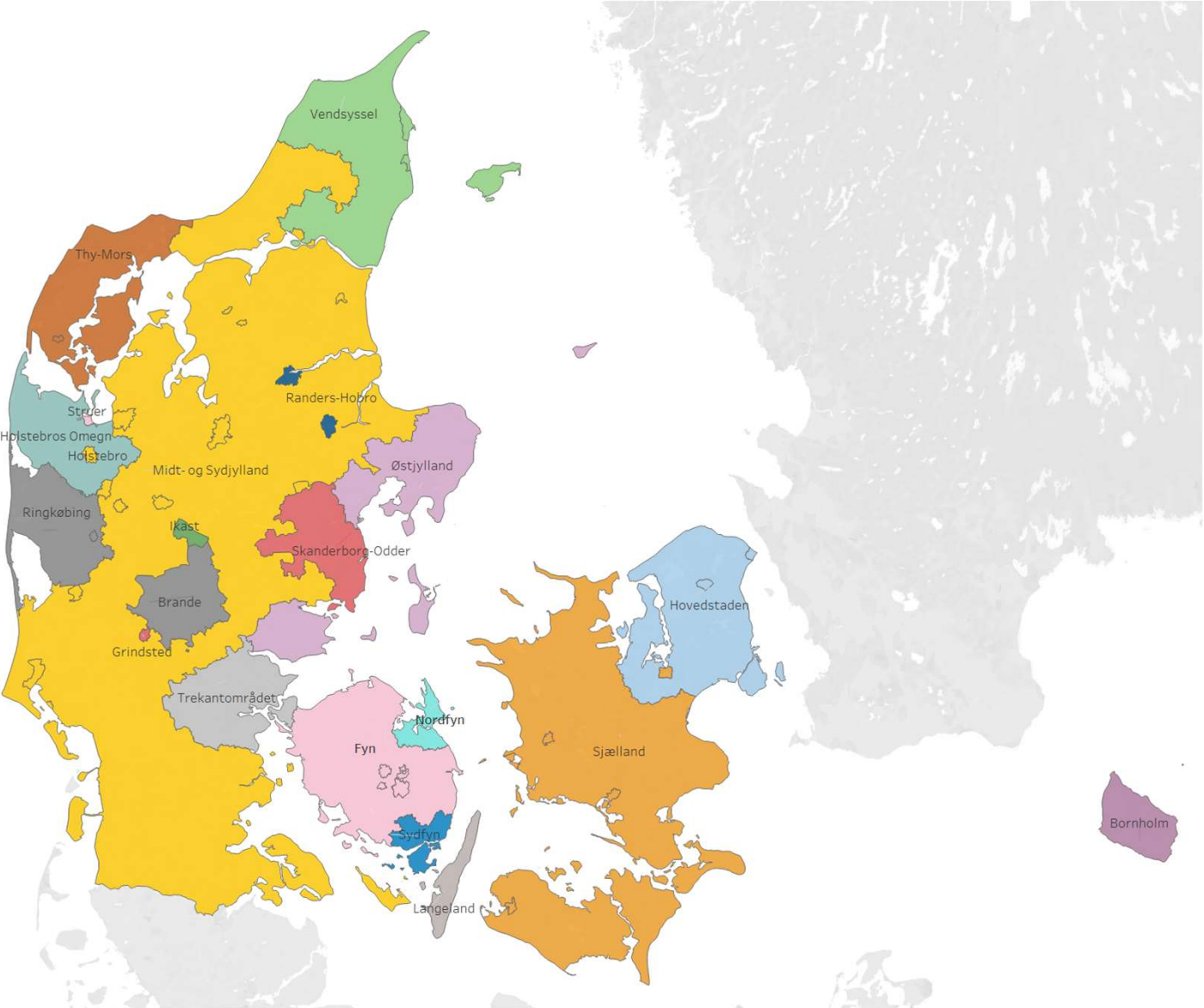
*Low capacity*

- Copper
- FWA

**One national market**



# Defining the geographical market(s)



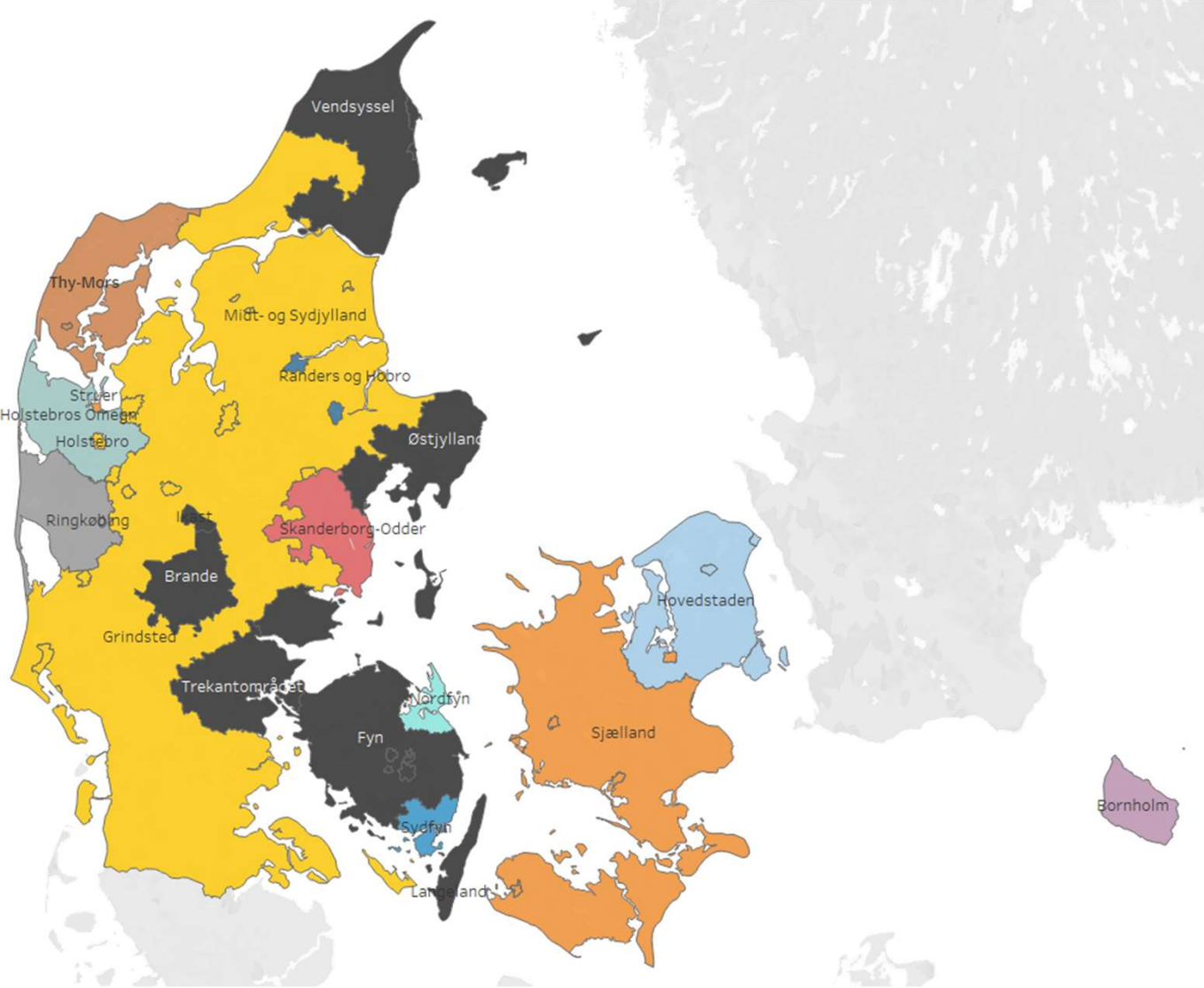
**2021**

*High capacity*

- Coax
- Fibre

**21 regional markets**

# Evaluating HC market conditions and assessing SMP

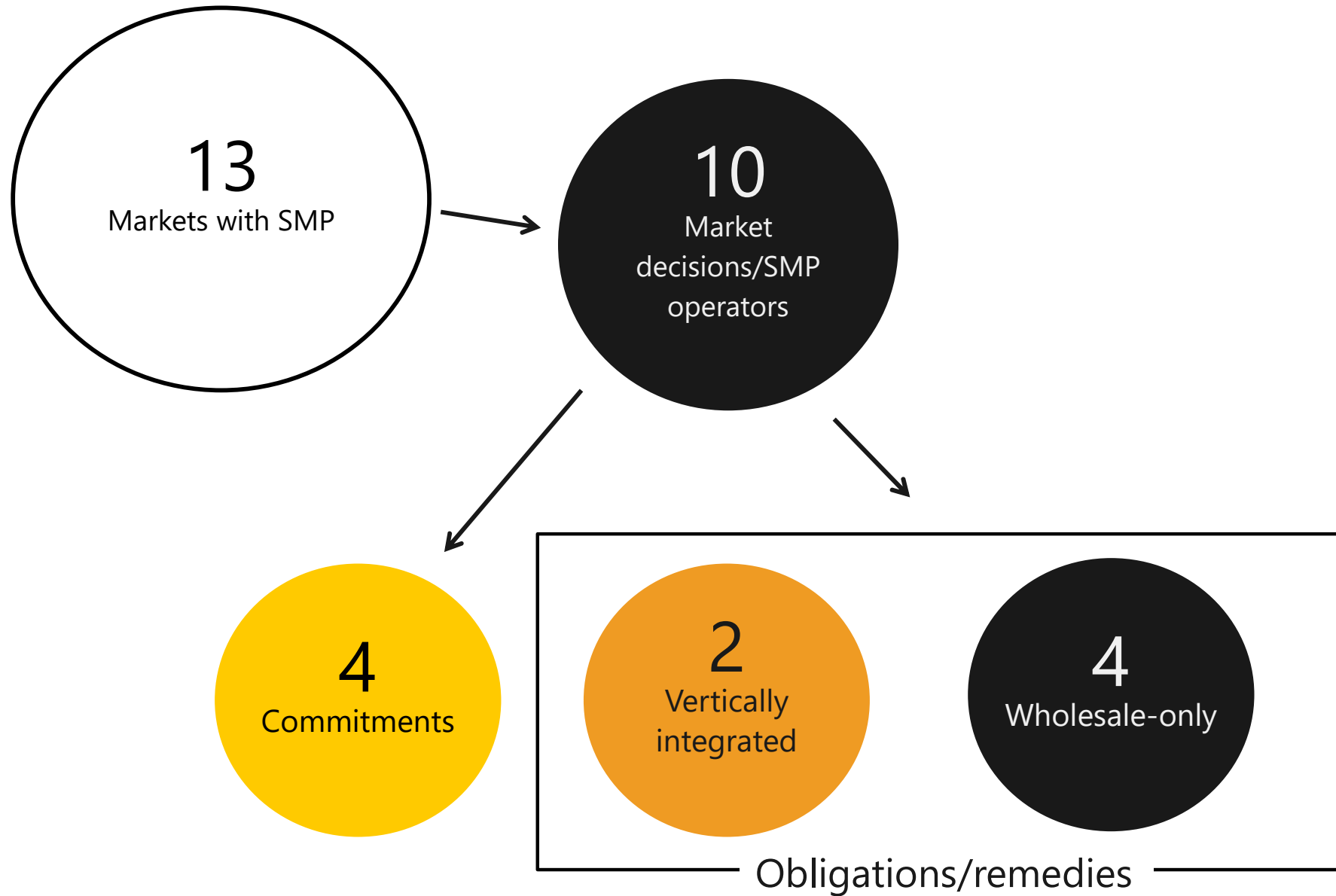


**21 HC markets**

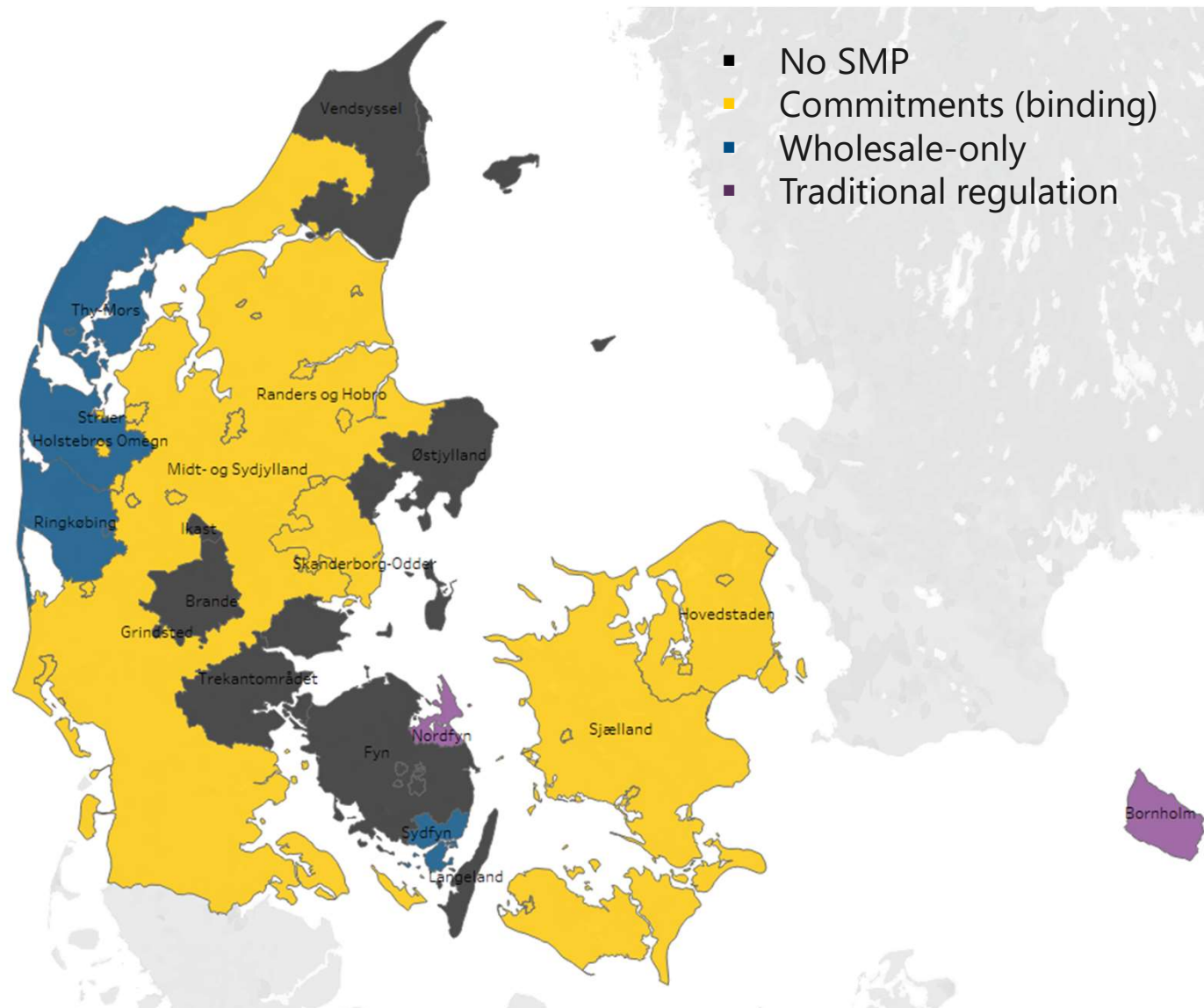
8 markets with no SMP

13 markets with limited competition

# 10 HC market decisions – three categories



# Again: High Capacity (HC) regulation is local/regional



# Again: Differentiation in remedies...

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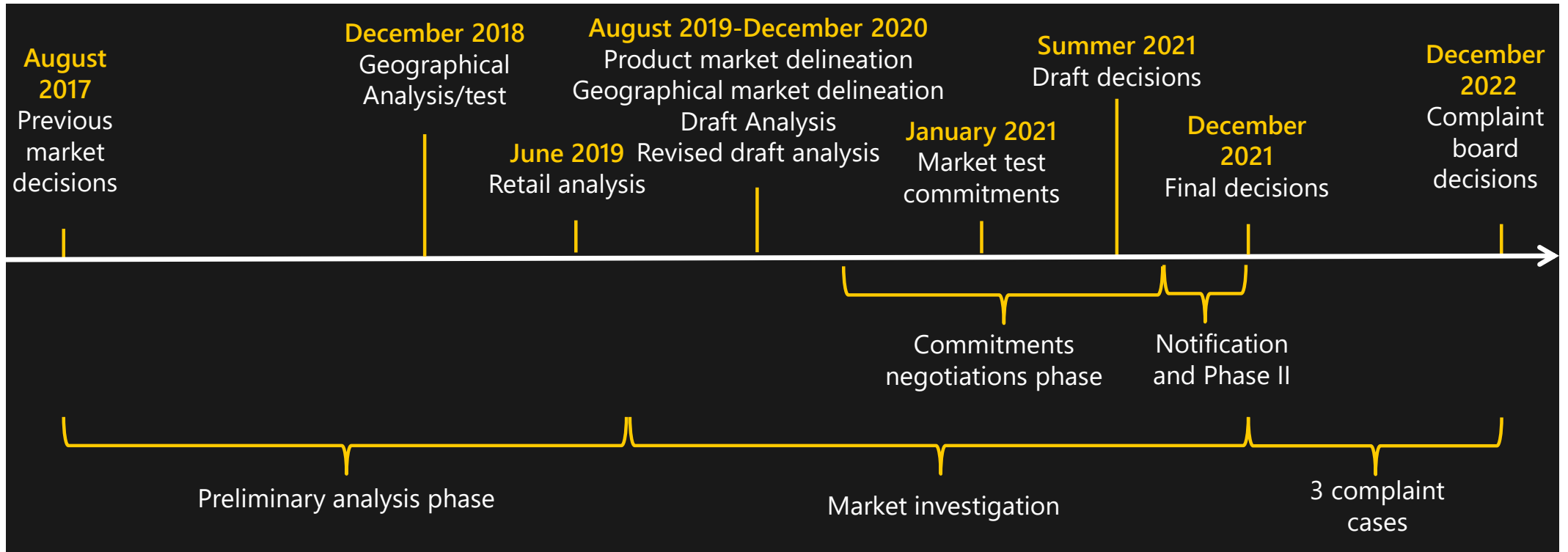
# Commitment – article 79 of the Code

*Alternative to obligations via a market decision...*

## **Overall framework and criteria for commitments:**

- Fair and reasonable character.
- Openness to all market participants.
- Timely availability under fair, reasonable and non-discriminatory conditions.
- Overall adequacy to enable sustainable competition in downstream markets, facilitate cooperative deployment and take-up of VHCN in the interest of end-users.

# Commitments phase



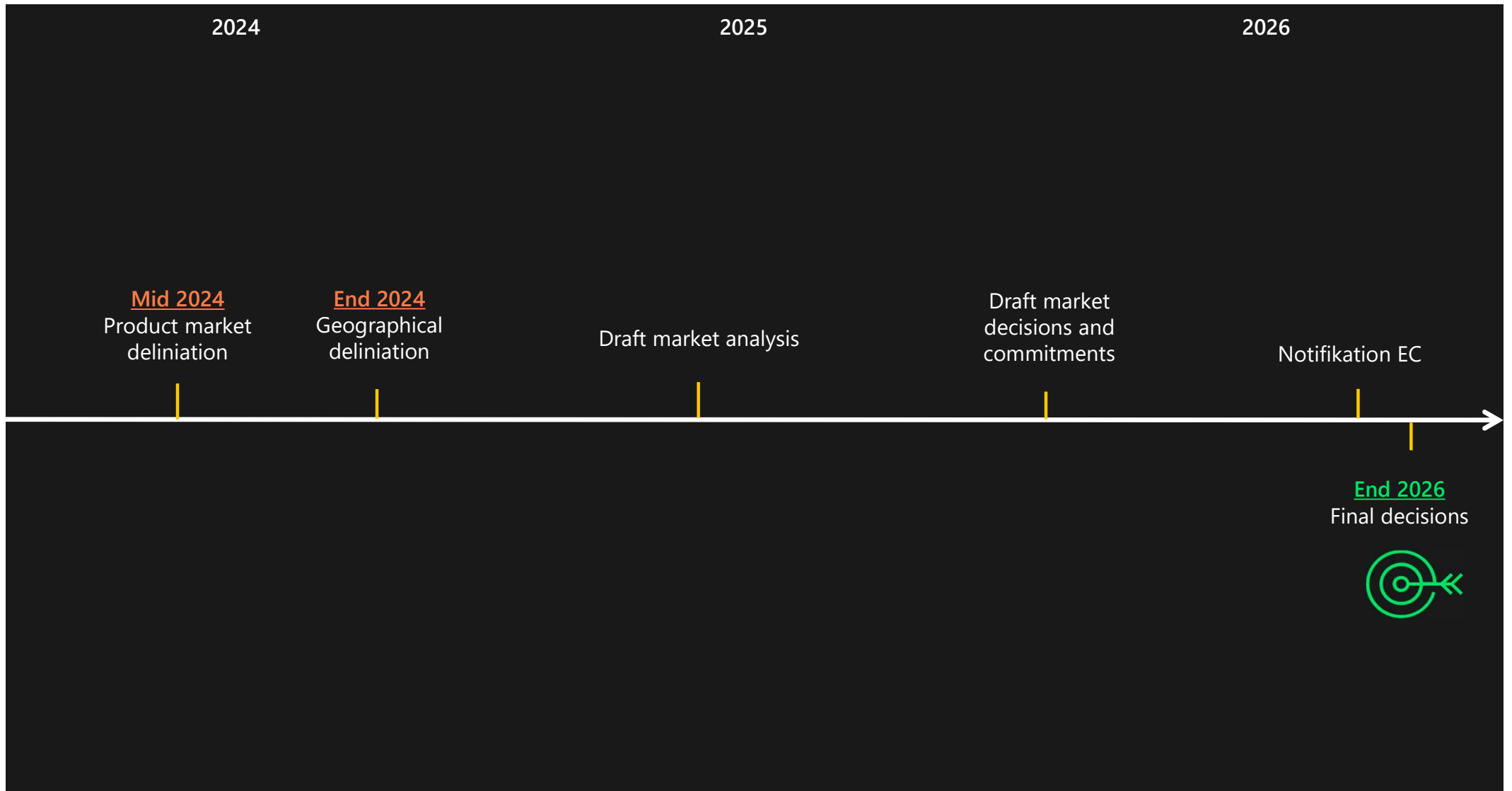
# Preparing for market decisions by end 2026

**SMP is not a problem in itself...it's the bad behaviour...**

- Monitoring
- Behavioural focus
- Dialogue
- Analysis - data, data, data



# Process for market investigation until end 2026



# ...but what will happen...?

- **Build out of 5G mobile networks**
- **Long term and sustainable commercial agreements?**
- **Regulatory shift?**
  - EC Whitebook
  - Letta report
  - Draghi report

**Requested topic:**

***Regulatory handling of copper network shutdown***

# TDC's commitment has notification procedures for shutdown...

- TDC NET can close new orders ("new sales") in an area or a set of addresses with 1 month's notice.
- TDC NET notifies the closure of an area with active copper lines with at least 6 months' notice. 12 months' notice, however, for closing the network in areas with more than 200 active lines.
- The coverage with VCHN is in general high in Denmark and for the time being there is no sign that TDC will switch off copper in areas where there are no alternatives.

# Communication and transparency is key...

- In March 2024 TDC announced that its copper network would be shut down by the end of 2029.
- Ongoing dialogue between TDC and stakeholders, including on a weekly basis with the wholesale customers to ensure a smooth transition to suitable alternative access products.
- TDC keeps DBA informed on the process, including possibilities for relevant alternative access products in the involved areas.
- DBA has not found reason to go further into the shutdown process so far.

# Shutdown is slowly starting up...

- TDC NET has so far notified two shutdowns in 2025 covering in total:
  - 38 centrals (out of 1183)
  - 250.000 lines
  - 36.000 active customers
- TDC informs the wholesale customers individually about alternative products for each of their connections.

# Questions

