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NGA Investment in Germany – The regulatory environment

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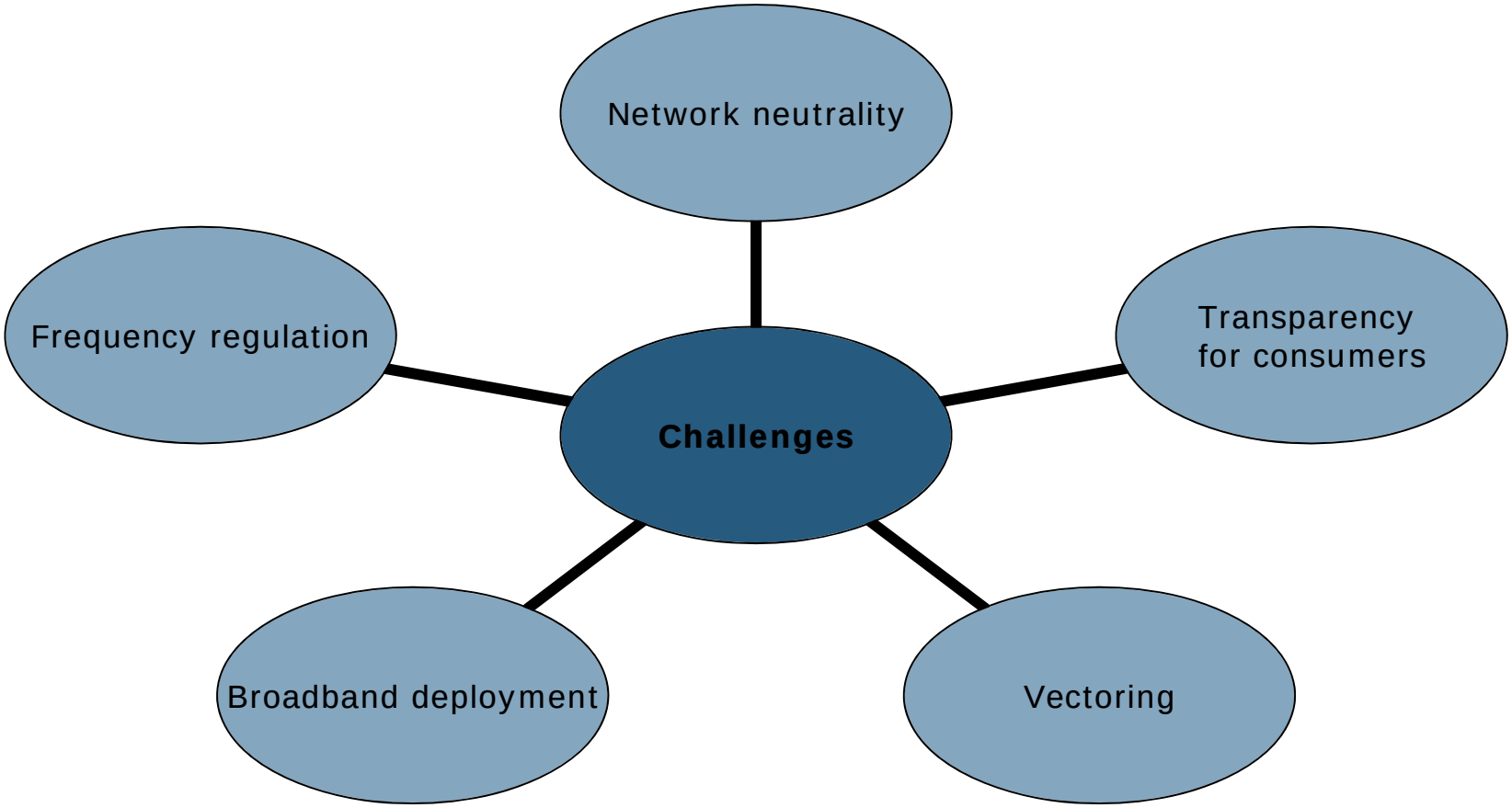
Overview

1) Outline of regulatory issues
2) EDA and national BB targets
3) German Telecoms Act 2012
4) Market 4 Decisions (ULL price and Vectoring)
5) Reactions
6) Conclusions

Current challenges for the regulator



Outline of topics and questions

- **What is the role of the State?**
  - National Broadband Plans/European Digital Agenda
  - State Aid/Public funding
  - Maximize broadband connections?
  - Provide framework for competitive market
- **What is the role of the NRA?**
  - Promote sustainable competition
  - Promote efficient investment
  - Safeguard consumers/European citizens benefits
- **Other public bodies – NCAs, other regulators?**
  - Co-Investment approval?
  - Infrastructure sharing with other utilities

Economics of NGA

Determinants of NGA roll-out – Supply side

- Roll-out cost (geographic factors, labour cost)
- Population density/demographic factors
- Roll-out strategy of operators, in particular incumbents
- Presence of alternative infrastructures (cable)
- Availability of passive wholesale products

Determinants of NGA take-up – Demand side

- Willingness to pay
- Killer applications necessitating NGA
- “Culture” (technological affinity etc.)

Roll-out, uptake & national broadband initiatives/plans: “Dilemmas”

- Ambitious bandwidths/coverage goals
- Possibility for a higher ARPU important factor impacting on the profitability of broadband roll-out
- **Actual take-up** of NGA high-speed broadband services in almost all MS significantly **falls short of the coverage achieved** already
- Possible reasons:
  - Limited **willingness to pay** a premium for very high-speed services
  - Lacking **killer application** requiring speeds of 50/100Mbit/s
  - Exogenous factors (financial crisis)?
- Considerable investment needed for nationwide NGA **roll-out**, but taking place, albeit at different speeds in EU Member States
- Agreement on long term need of highspeed NGAs conflicts with predominantly short term oriented consumer behaviour
- **Demand side problem**, not a supply side problem:
  take-up generally considerably lower than roll-out

Regulatory Framework

Regulation has always been anxious to create a stable, transparent and reliable environment in order to encourage investment.

Regulation seeks to ...

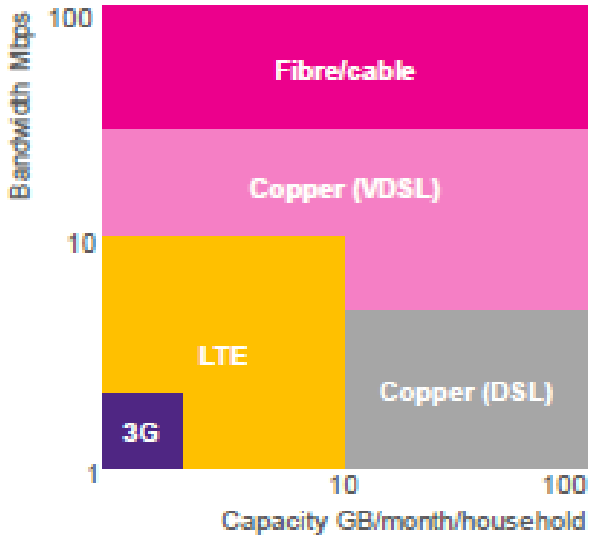
- focus on the promotion of competition,
- safeguard the interests of consumers of services,
- provide regulatory predictability to all market players,
- maintain a level-playing field between SMP operators and alternative operators ,
- follow the principle to technological neutrality and avoid to pick winners or cut off technological options,
- be transparent, consistent and proportionate,
- lower the degree of regulation in line with the achieved level of competition.

NGA Regulatory Principles

- NGA: Next Generation Access Networks
- NGA: access networks capable of delivering 30 MBit/s transmission rates (generally these are fibre networks, but cable networks are also capable of delivering this speed)

Underlying regulatory principles

- Infrastructure competition works
- Competition drives investment
- Pro-competitive SMP regulation
- State Aid only if market fails
- Symmetric regulation



Solutions/Approches

- **Pro-competitive SMP regulation of wholesale access markets (regulation of dominant operators)**
- Investment incentives via price regulation and also cost allocation (new Rec. on non-discrimination and costing methodologies)
- **Symmetric regulation (irrespective of SMP), push infrastructure sharing to share roll-out costs (proposal of a Regulation – March 13)**
- Cooperations (co-investment and risk sharing models), risk of reducing competition requires approval of arrangements by **national competition authorities (NCAs)**
- Open access and industry groups (voluntary solutions?)
- Role of local authorities, utilities
- State Aid (but risk of crowding out and distortion of competition), subject of approval by the Commission (Broadband State Aid Guidelines 2012)
- Universal Service obligations
- Combinations / Others?
- Certainly a combination of different tools makes sense as long as they are consistently applied and do not “block” each other

Regulatory tools with regard to NGA roll-out (1)

- Regulators tools: SMP regulation (Art 12/13 AD)
  - Wholesale access products such as
    - Duct access
    - Unbundled local loop (copper, fibre)
    - Subloop unbundling? (vectoring)
    - VULA/Bitstream
  - Regulators tools: Symmetric regulation (Art. 12 FD)
    - Access to “Vertical infrastructure” (Inhouse cabling)
    - Network sharing/Co-Investment
    - Potentially new Regulation on reducing cost of deployment

Regulatory tools with regard to NGA roll-out (2)

- State Aid (BB State Aid Guidelines)
  - NRAs get increasingly involved to ensure consistent wholesale access
  - Legal basis required for cooperation also with State Aid Granting Authority
- "Voluntary" Open Access

- Interplay of SMP/Symmetric/State Aid regulation must be born in mind.

Broadband Targets

Digital Agenda of the European Commission (May 2010)

- 100% coverage of broadband access of EU citizens by 2013
- Provision of **all** EU citizens with broadband access with at least **30 MBit/s** (fast BB) and 50% of European households with at least **100 MBit/s** (superfast BB) by 2020

The Federal Government's Broadband Strategy of February 2009

- Broadband access shall be available nationwide by the end of 2010
- A total of **75%** of households shall be provided with access with transmission rates of **50 MBit/s** by 2014 and nationwide as soon as possible

National Broadband Strategy (Febr. 2009)

Goals:

- Nationwide broadband access by the end of 2010 if possible.
- A total of 75 percent of households should have high speed broadband access with transmission rates of at least 50 MB/sec by 2014; nationwide access with this high-speed broadband as soon as possible.

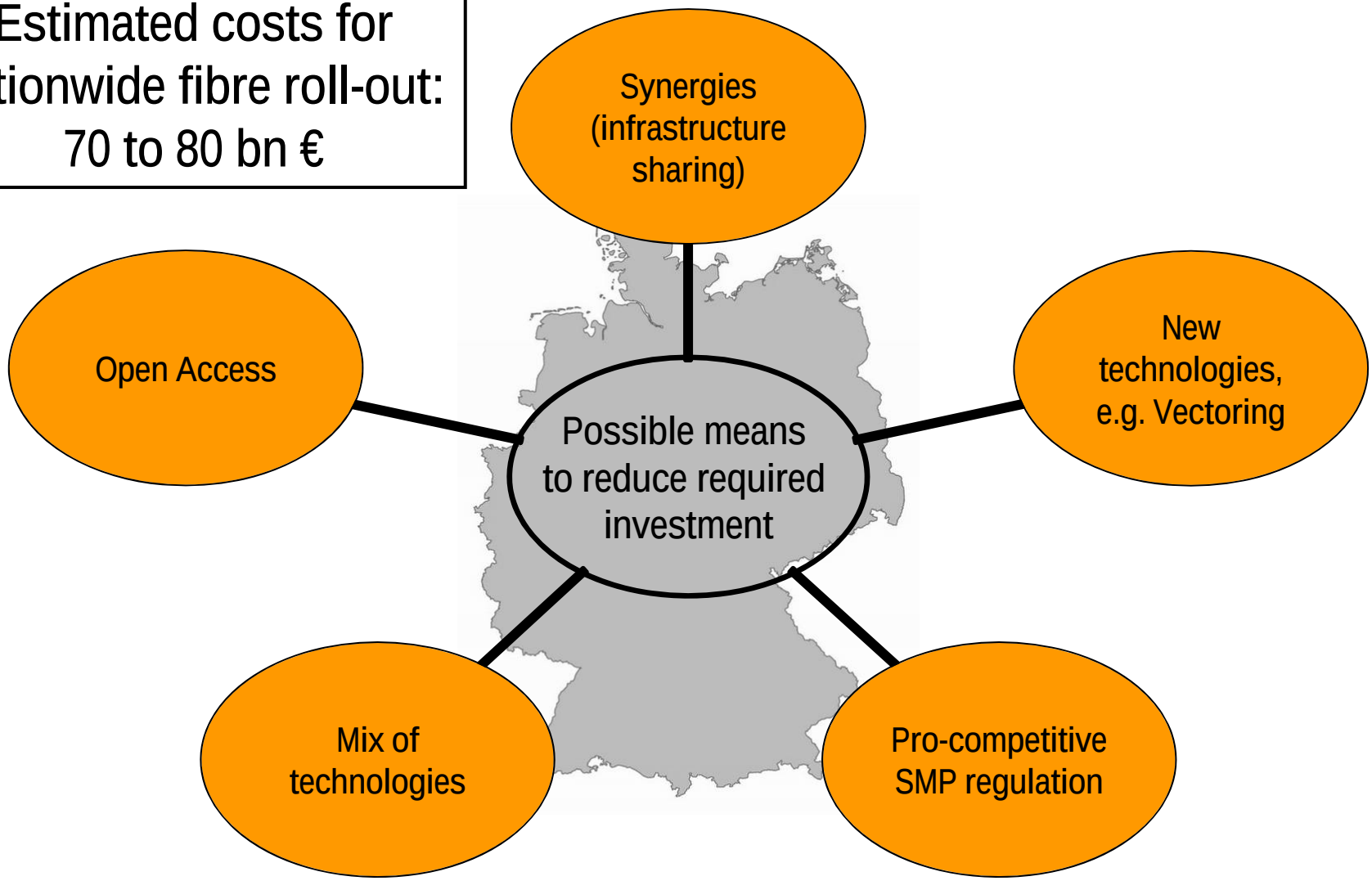
By means of:

(as far as the competences of the Federal Network Agency are concerned)

- Regulation geared towards growth and innovation
- Infrastructure mapping
- Supportive frequency policy/regulation:
  ➔ make digital dividend spectrum (800 MHz) available to the market

How to reach broadband targets?

Estimated costs for nationwide fibre roll-out: 70 to 80 bn €



Karte: GinkGoMaps

New Telecoms Act 2012 (1)

The revised German Telecommunications Act transposes the 2009 EU regulatory framework and emphasises the need to encourage investment and to set the right incentives, e.g.

- Improvement of planning certainty for market players
- New/additional provisions for tariff regulation (concerning investment risks, risk sharing models etc.) while following the same principles of a pro-competitive regulatation
- New provisions to better use synergies
- Facilitate switching of operators

New Telecoms Act 2012 (2)

Legal Basis of the New Telecommunications Act enables synergies and transposes the goal of promoting in particular NGA infrastructure investment into German law

- Infrastructure mapping
- Possibility to oblige an operator with SMP to give access to its non-active network components
- Possibility to order the joint usage of inhouse cabling or up to the first concentration point (even for non-SMP operators)
- Obligation of companies and public law bodies to open their infrastructures for public network operators
- Permission of joint usage of Federal highways, Federal waterways and railway infrastructure

Infrastructure mapping

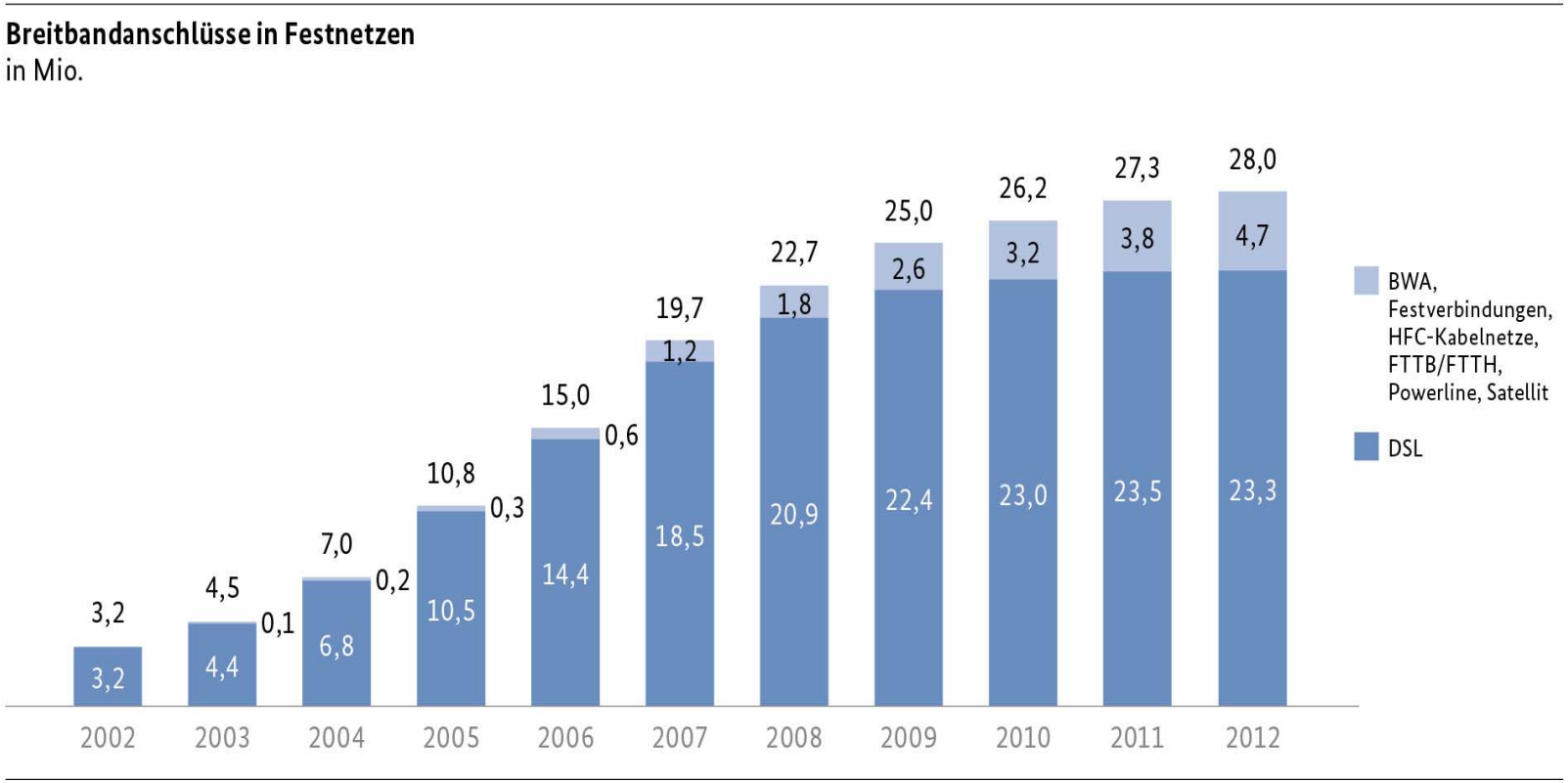
- **Capitalising on synergies of other infrastructure projects:**
  - Up to 70 percent of the costs of deploying broadband infrastructure in the fixed network are excavation costs.
  - Significant cost reduction by co-operation between providers and third party access of different infrastructures
  - Cost reduction makes a faster roll-out also in rural or remoter areas possible
  - Mapping of all passive infrastructure as a prerequisite for facilitating infrastructure sharing can now be made obligatory for all owners of infrastructure

Infrastructure sharing provision

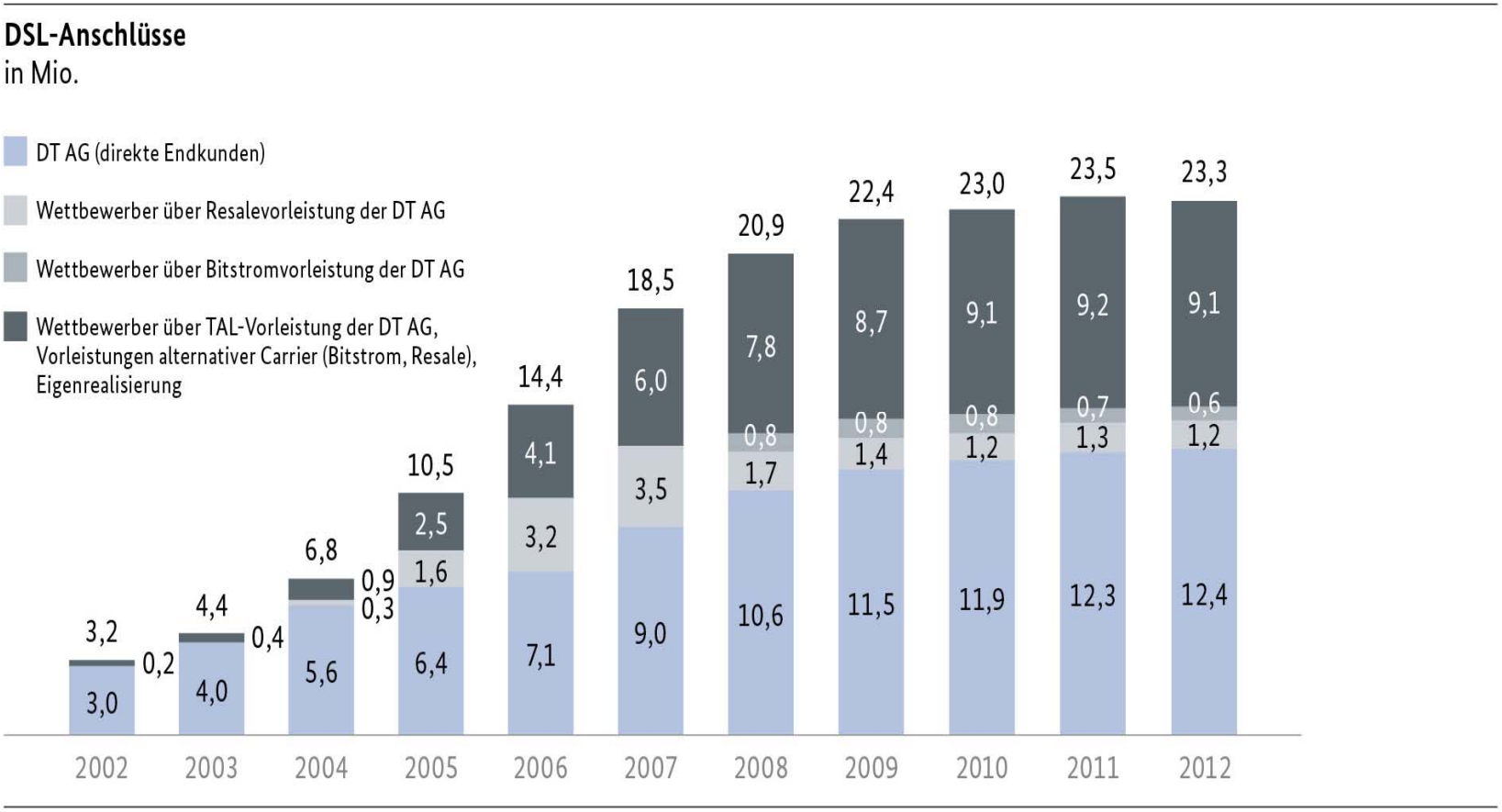
- Section 77 of Telecoms Act 2012 provides for infrastructure sharing also with other utilities
- BNetzA can impose infrastructure sharing for „Inhouse-cabling“ or
- For cabling up to the 1st concentration point (section 77a para 1 and 2 TKG).
- Symmetrical obligation irrespective of SMP vis-à-vis
- All telco operators as well as all owners of cabling or ducts possible
- Infrastructuring sharing can be extended to ducts.
- At a reasonable price (incl. risk adjustment possible)

Development of broadband deployment

Total number of broadband connections 2002-2012

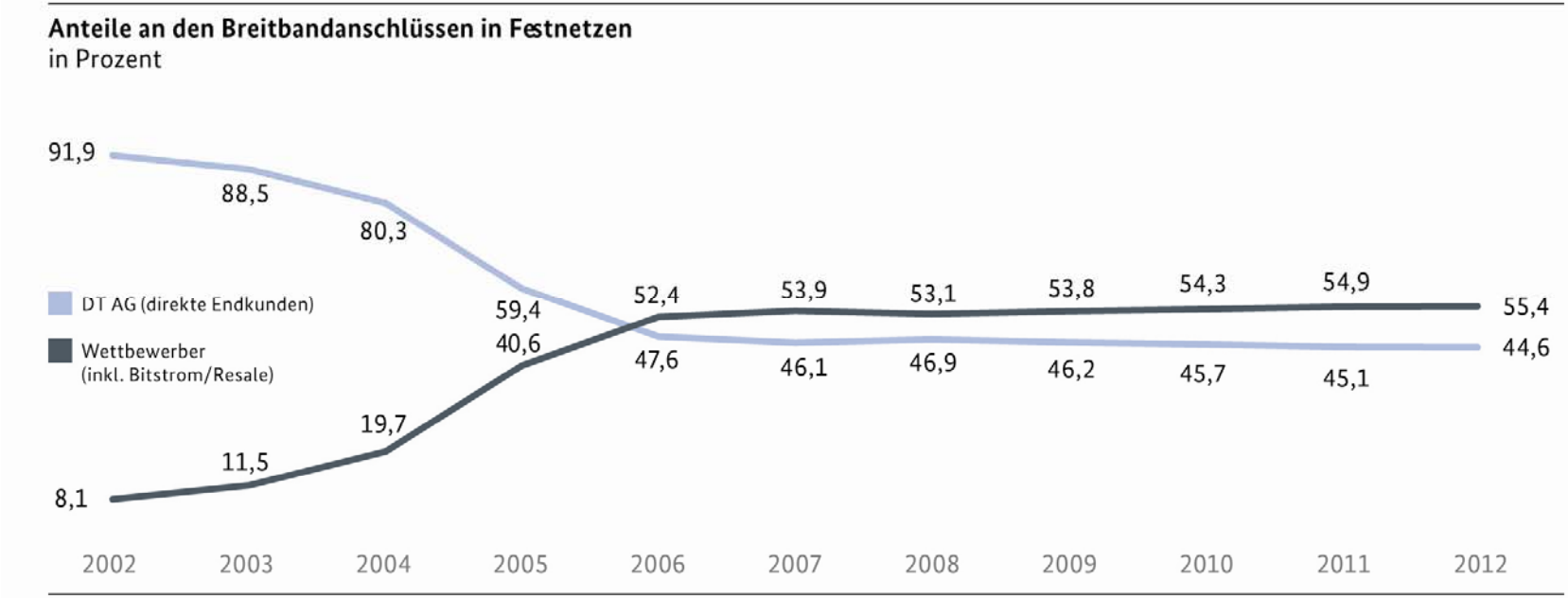


DSL lines in Germany



Market shares broadband retail market

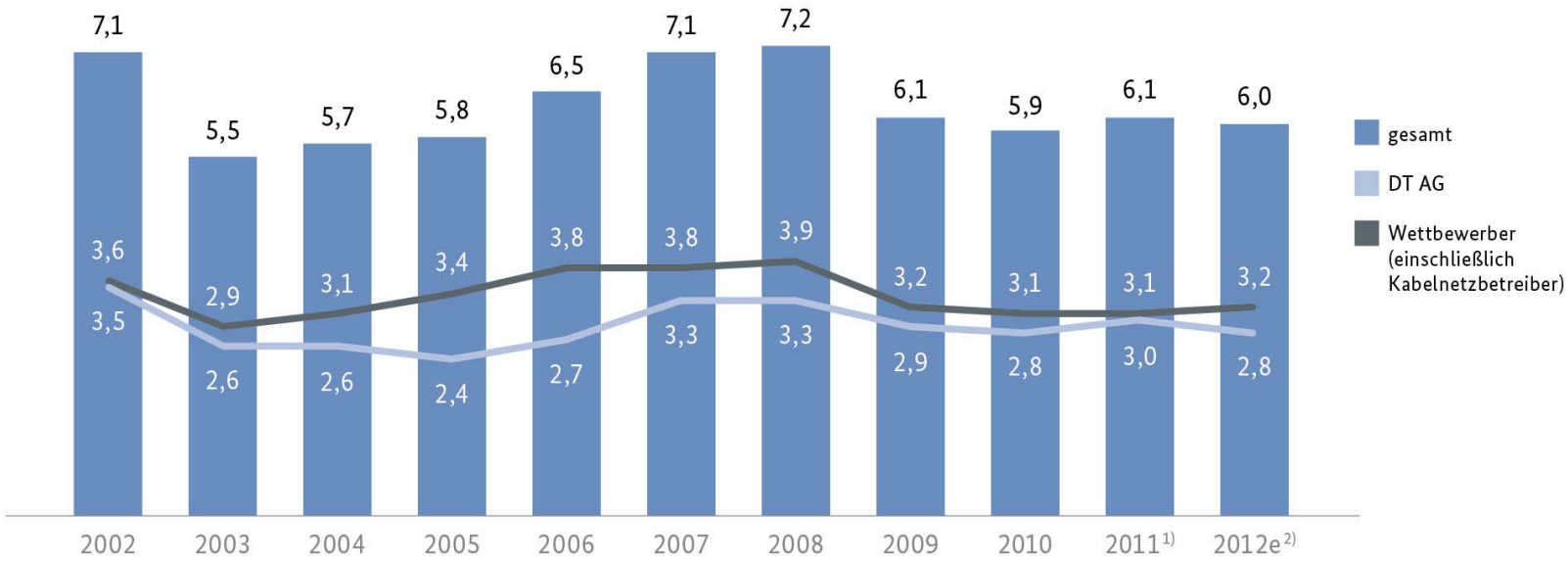
Share of broadband connections sold 2002-2012



Investments

Investments in fixed assets on the German telecommunications market 2002-2012

Investitionen in Sachanlagen auf dem Telekommunikationsmarkt
in Mrd. €



1) aktualisierte Werte
2) erwartet

Chances of LTE roll-out

- Deployment takes place on a commercial basis. Universal service obligations remain unnecessary.
- Broadband deployment of rural areas via mobile infrastructures is much more cost-effective than fixed-line solutions.
- Deployment of rural areas takes place as part of central and nationwide infrastructures.
- Innovation is brought to rural areas first. Users in rural areas benefit.

- <u>But:</u> Political support is inevitable due to potential conflicts between broadband and tv/radio-broadcast, also in international coordination.

Beyond the “regulatory whip”

Besides its regulatory decisions and the application of regulatory instruments BNetzA has more and more adopted a new role as **moderator** and **enabler** in order to foster investment on the basis of voluntary solutions and the activation of synergies.

Examples ...

- Compilation of **key elements on general regulatory conditions** with regard to the deployment of NGA networks.
- Establishment of the **NGA Forum** which gathers **key stakeholders** representing all relevant groups of market actors.
- Setting up a **infrastructure map** collecting data of infrastructures which might be used for broadband deployment in order to create synergies.

NGA key elements (1)

- Draft **NGA Key elements** published for consultation on 13th May 09, consultation period ended on 1 July, comments were evaluated
- Final version published on 17th March 2010
- Principles for a growth and innovation oriented regulation
- 14 key elements outlining the fundamental principles of NGA regulation confirming applicability of regulatory framework and underlining the importance of pursuing both objectives: promoting sustainable competition fostering at the same time efficient investment in highspeed broadband network infrastructure
- Fit in regulation in existing framework providing consistency, and make a considered choice of ex-ante/ex-post regulation to achieve these objectives

NGA key elements (2)

- **NGA Key elements** for the the development of modern telecommunications networks and the creation of high speed broadband infrastructures
- Published 17 Mach 2010
- Main topics
  - Open Access
  - Co-operations and Co-investment
  - Planning certainty
  - Access products for NGA-networks
  - Migration
  - New pricing structures for wholesale products
  - Risk adequate equity rate of return (study)
  - Setting up of a NGA-Forum
  - Importance of the infrastructure mapping

4) Market 4 Decisions 2013

Proceedings_1_Regulatory Order

- 21 March 2011
  - last Regulatory Order covering Market 4, *inter alia* mandating access to the ULL and SLU
  - Copper lines regulated ex-ante
  - Fibre lines are regulated ex post

  - ULL decision in 2011 fixed the price at 10.08 €
  - Draft ULL decision published in April 2013
  - ULL monthly rate slightly increased for copper access to **10.19 €** and slightly decreased for SLU to **6.79 €** (from 7.17 €)
  - Prices will enter into force on 1 July 2013 and be valid for 3 years
  - Consultation period ended on 24 April 2013
  - Notification to the Commission on 22 May 2013
  - Comments received on 24 June 2013
  - Final decision published on 26 June 2013 confirming the preliminary rates

ULL Decision of 2013 cont.

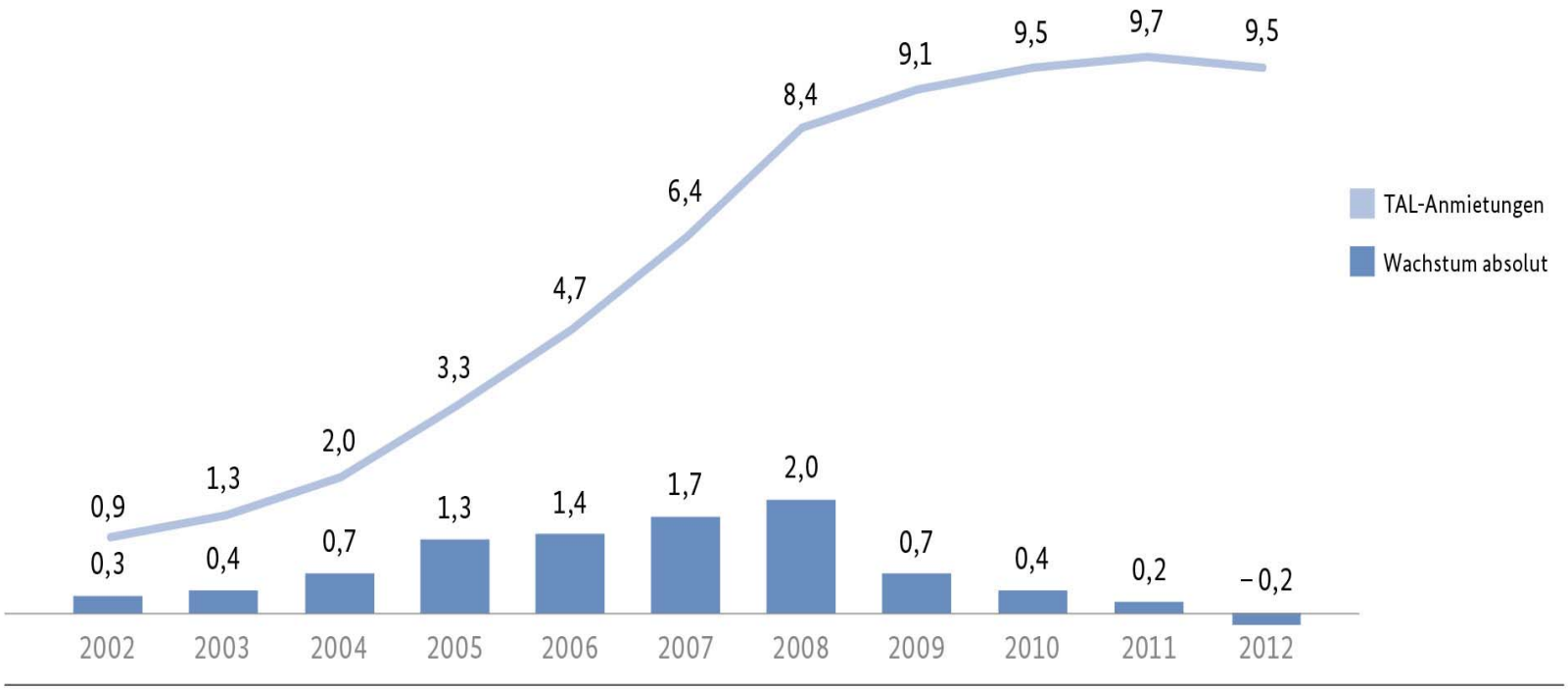
- All assets valued at current replacement costs as the best make-or-buy-signal for investment as in all previous decisions
- BU-LRIC+ analytical cost model of WIK used to calculate the efficient costs of rebuilding a modern access network
- Depriciation period for the feeder cable (and buried cable) shortened from 20 to 15 years and prolonged for the distribution cable incl. buried cables from 20 to 25 years as technology is being moved down to the street cabinet
- Civil engineering: 40 years (before 35 years)
- Rate of return: **6.77%** (lower than in 2011: 7.11%)
- Investment per local loop: 1,115.71 € (2011: 1051.77)
- Investment per subloop: 793.35 €
- Further prices fixed for e.g. multifunctional cabinet and duct access (0.09 € per meter per month)
- Investment signals and encouraging competition at the street cabinet level

ULL prices in Germany

Year	ULL price (€uro)	SLU price (€uro)	Investment sum (€uro)
1998	10.56		
1999	12.99		884.00
2001	12.48		835.50
2003	11.80		868.66
2005	10.65	7.55	875.00
2007	10.50	7.55	868.87
2009	10.20	7.21	928.26
2011	10.08	7.17	1051.77
2013	10.19	6.79	1115.71 / 793.35

ULL – Development over time

Anmietung von Teilnehmeranschlussleitungen (TAL)
in Mio.

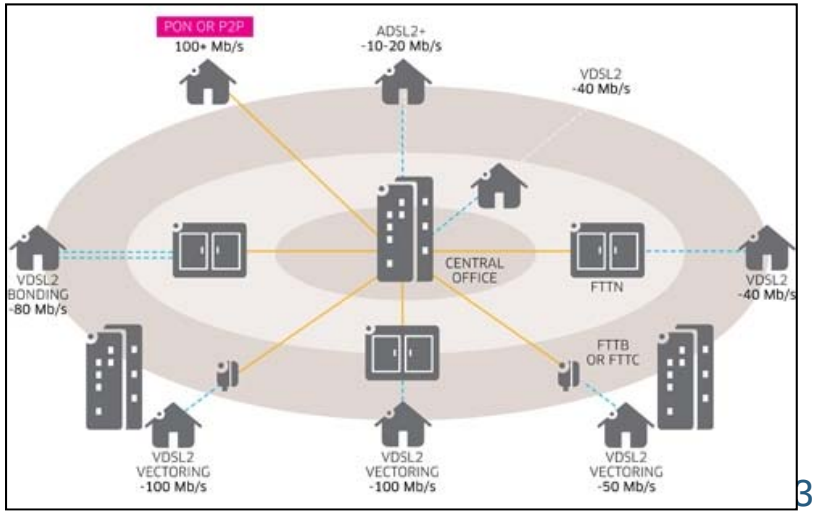


Proceedings_2_Application

- 19 December 2012 – Application for Vectoring
  - Telekom applied for an amendment of the Regulatory Order:
    - No SLU for VDSL2/VDSL2-Vectoring at a specific street cabinet, if
      - Telekom plans Vectoring at this cabinet and offers IP-BSA; existing co-locations are proteced as long as the competitor offers IP-BSA for vectored lines (main request);
      - additionally, Telekom must have developed more cabinets than a competitor with Vectoring in the region concerned, the later being defined by a common area code (subsidiary request).

Vectoring

- Announcement of Deutsche Telekom at the end of last year
  - to invest **6 bn €** in FTTC (VDSL) + **Vectoring** (planned coverage: 65% of German households)
  - to further deploy LTE (planned coverage: 85% of German population).
- BNetzA generally considers Vectoring to be an important contribution to reach broadband targets.
- Competitors also generally welcome the introduction of Vectoring.
  But: Different opinion about how to tackle effects on the regulatory regime.
- Deutsche Telekom applied to (partly) withdraw the regulatory obligation to provide LLU at the curb.
- Vectoring is a technique that blocks cross talk and increases bandwidth



Source: Alcatel-Lucent

Proceedings_3_Consultation

- 9 April 2013
  - Publication of a Draft Regulatory Order amending the Regulatory Order from 21 March 2011 = Launch of the Consultation Proceedings
- 24 April 2013
  - Oral Hearings
- 10 May 2013
  - End of the Consultation prodeedings
- 9 July 2013
  - Launch of the Consolidation proceedings
- 9 August 2013
  - Commission comments received
- Adoption of the final Regulatory Order soon to be published

Proceedings_4_Reference Offers

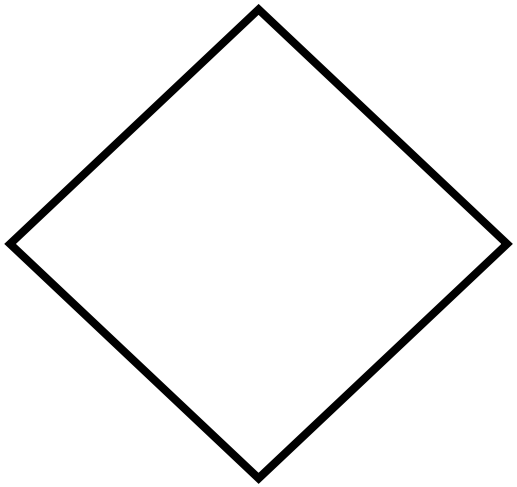
- Parallel to/after amending the Regulatory Order, other amendments have to be done:
  - Reference Offer Market 4
  - Reference Offer Market 5
  - Individual Contracts

4) Vectoring Decision

Draft decision_1_Regulatory Quadrangle

Boost investments!

No stranded investments!



Ownership of infrastructure makes a difference!

Choice for consumers!

Draft decision_2_Boost Investments

- Near-Symmetric First-Mover-Protection
  - In case Telekom has installed or wants to install within one year VDSL2-Vectoring-technique at a specific street cabinet, third parties are barred from getting SLU for the first time at this street cabinet if they want to use the loop with spectrum above 2.2 MHz and the conditions explained on the both slides following the next slide are met.
  - The same applies in case an ANO has installed or wants to install within one year VDSL2-Vectoring-technique at a specific street cabinet (grandfathering). Except for cases explained on the next slide, ANOs are also protected against Telekom using a sub-loop with spectrum above 2.2 MHz.

Draft decision_3_Ownership rights

- Asymmetric Second-Mover-Protection
  - Telekom may terminate SLU and refuse the provision of new SLU at a specific street cabinet for use with spectrum above 2.2 MHz, if Telekom has installed there VDSL2-Vectoring-technique, the conditions explained on the following slides are met and
    - Telekom has developed more cabinets with Vectoring than a competitor with VDSL2 or Vectoring in the region concerned, the later being defined by a common area code, and
    - at least 75% of the buildings connected to the street cabinet in question are connected to a second fixed telecommunications infrastructure.

Draft decision_4_Choice for consumers

- Bitstream-Access
  - In case first-time-SLU shall be refused for the benefit of Telekom, Telekom has to provide L2-BSA according to its Reference Offer at a POP as near located to the street cabinet as possible.
  - In the same case benefitting an ANO, the ANO has to provide L2-BSA at a POP as near located to the street cabinet as possible to conditions basically corresponding to those of Telekom.
  - The termination of SLU is only possible with – if demanded by the ANO – the migration of the lines to a L2-BSA corresponding to the above mentioned conditions plus some extra conditions (cf. infra).

- First-Mover-Case: Protection for other parties
  - Refusal is only possible for first-time-SLU.
  - Before submitting the co-location-offer Telekom has to inform the access seeker about the existing resp. within one year planned installation of Vectoring by itself or a third party.
  - The Party benefitting from the First-Mover-Protection has to submit a L2-BSA-offer (cf. supra).

- Second-Mover-Case: Protection for ANOs
  - In case the street cabinet was developed by both Telekom and the ANO before 10 April 2013, no SLU-termination is permitted.
  - In case the street cabinet was developed by the ANO before the publication of the Regulatory Order (July/August 2013), a SLU-termination is only permitted after 31/12/2016 (to the conditions explained on the next slide) and can be averted by the ANO by offering – after being asked by Telekom with at least one year‘s notice – vectored L2-BSA-Lines to third parties.

Draft decision_7_No stranded investments_3

- For the rest the following applies:
  - The possibility of a SLU-termination has to be announced with at least one year‘s notice.
  - The termination costs incurred by Telekom have to be borne by Telekom itself.
  - Telekom has to submit a L2-BSA-offer with the following special conditions:
    - The PoP is at a street cabinet choosen by the ANO.
    - Telekom is entitled to ask for the SLU-Rates plus a premium covering the energy and operational costs of the BSA.

5) Reactions

Reactions

- Telekom welcomes the Draft Regulatory Order in general but criticizes the L2- (instead of a L3-)BSA-obligation.
- VATM (ANO-association) appreciates the efforts of BNetzA to find a balanced decision. VATM detects a need for rules sanctioning misbehaviour on the part of Telekom. For the rest it emphazises the need to study the complex draft carefully.
- BUGLAS and Breko (ANO-associations) both dismiss the draft as shattering fundamental pillars of the regulatory regime. Nevertheless BUGLAS lauds BNetzA for having striven for a balanced decision.
- Consultation period until 10 May 2013
- Evaluation of comments received and grandfathering rights improved further
- Notification to the Commission on 9 July 2013
- Comments received on 9 August 2013
- Final Decision published on 29 August 2013

Conclusions (1)

- BNetzA has created a predictable regulatory environment facilitating both competition and investment in high speed broadband networks with a number of measures, in particular
- Continuing its ULL pricing decisions on the same cost calculation methods as before thus ensuring regulatory **predictability** over time
- With allowing vectoring pushing investment at the street cabinet of both Telekom and competitors supporting the National Broadband Strategy to fulfill the NGA targets
- BNetzA is in favour of providing the necessary flexibility, but also sees a necessity to continue pro-competitive regulation of SMP operators according to the European framework and NRAs need flexibility to take account of national market situations when deciding on the most appropriate remedies

Conclusions (2)

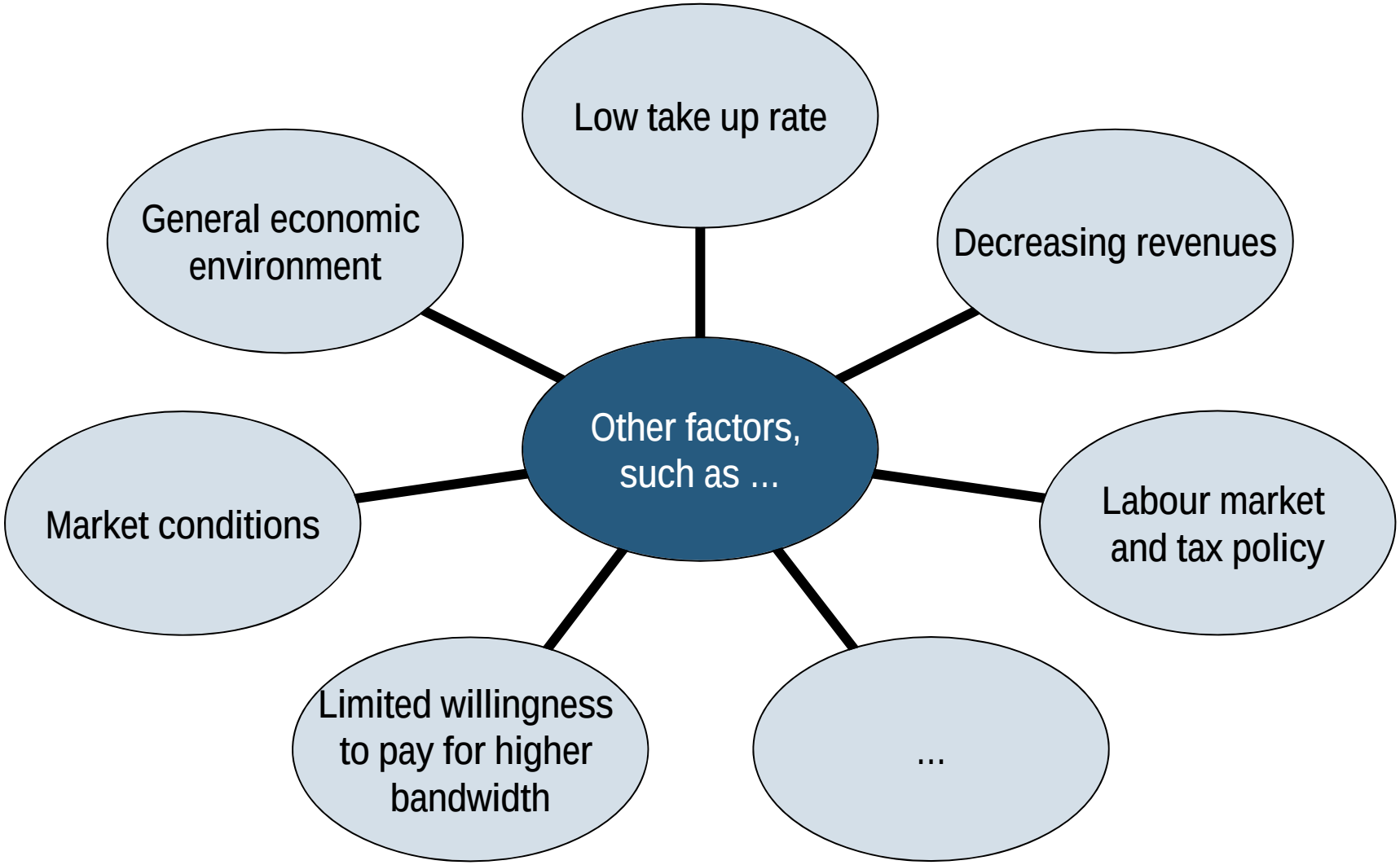
But:

- It must be paid attention to the growing complexity of the regulatory framework and the interplay of various regulatory tools.
- A “one size fits all approach” all over Europe does not seem to be the right way.
- National regulatory authorities need sufficient discretion and flexibility to respond to national market conditions and characteristics.
- The best way to develop the internal market further is bottom-up with BEREC CP summarizing regulatory best practices consistent with Commission’s recommendation

And:

Other factors rather than regulation are likely to be much more important for investment decisions!

Other factors



Chances

Seize the chances!

- Variety of technological solutions and business models offer many different possibilities for potential investors.
- Telecommunications sector has proven to be robust in times of economic crisis.
- Scientific studies show the relatively small risk of network operators.
- Demand for high-speed broadband access will significantly grow in the mediate term.

- "Excessive regulation" cannot serve as an argument to hold back investment.
- On the contrary, regulation has created a stable, transparent and reliable environment in order to encourage investment.
- Ensure that variety of measures reinforce each other!

Thank you for your attention