Incentive Regulation in the German Energy sector – from concept to implementation

Christian Growitsch

EPRG Spring Research Seminar

Cambridge, 18 May 2007

wik Wissenschaftliches Institut für Infrastruktur und Kommunikationsdienste

Agenda

- The German incentive regulation's schedule
- Calculating allowed revenues – the formula
- Central implementation issues
  - Number and duration of regulation periods
  - Initial value
  - General X-Factor
  - Benchmarking / individual X-Factor
  - Exemption rule for small utilities
- Conclusions

Schedule

BNetzA (Federal Network Agency)

- 30 June 2006 report handover — Public comments

BMWi (Federal Ministry for Economics and Technology)

- September/October 2006: Consultation, 1st round Framework
- November 2006: Proposal for the central elements
- December 2006 - today: Consultation, 2nd round
- April 2007: Submission of memorandum to the Cabinet
- May/June 2007: Approval of the bill **(?)** — Bundesländer

BNetzA

- 2007, 2nd half of the year: Regulatory cost audit
- 2008: Cost-plus regulation, Benchmarking
- 1 January 2009: Beginning of incentive regulation in Germany

Allowed revenues - the formula

Individual X-Factor
(Benchmarking)

General X-Factor

$$EO_t = KA_{dnb,t} + (KA_{vnb,0} + (1 - EV_{ind,t}) \cdot KA_{b,0}) \cdot \left(\frac{VPI_t}{VPI_0} - PF_t \right) \cdot EF_t + Q_t$$

Persistently
not influenceable cost
(given by regulation)

Temporarily not influenceable
cost (structurally determined)

Influenceable
cost

Initial value

Central issues

Number and duration of regulation periods I

- Draft ordinance
  - 2008: Adjustment year with cost-plus
  - 2 periods, 4 years each
- Industry (incumbents) complaints:
  - Adjustment time very short: Problems due to long amortisation periods of network assets
  - Referrence to § 21a 5 EnWG: Requirements have to be **achievable** and **surpassable** at **reasonable** effort
  - Industry request: 3 periods, 5 years each

Central issues

Number and duration of regulation periods II

The economics behind:

- High uncertainty due to weak database
- Incentive regulation is meant to imitate competition
- Given workable competition, (significant) inefficiencies should not exist or be cut back within short time. Suppliers bear the cost of inefficiencies and the risk of default.
- Persistent inefficiencies cause extra economic costs.
  (widely neglected in the current discussion)
- Game of rent distribution: Who bears extra costs?
  - Network operators
  - Customers

Central issues

Number and duration of regulation periods III

The economics behind, cont.:

- The legal terms in § 21a 5 EnWG concerning incentive regulation – achievable, surpassable and reasonable – are neither sufficiently specified nor is it possible to operationalize them appropriately. This
  - induces legal uncertainty and
  - complicates effective incentive regulation

  Conclusion: To maximize social welfare in the long run, regulatory pressure should neither be:
  - to weak in order to incentivise cost reduction (productive efficiency)
  - to strong in order to allow new investments (dynamic efficiency)

Central issues
initial values I

- Draft ordinance
  - Initial values for incentive regulation are based on cost-plus results
  - Limited on ‚cost of efficient production‘
  - Network operators may apply for an extra investment budget on top of the allowed revenue
    - Due to different cost standards (replacement vs. historical costing) and partly very old networks, especially in the western part
    - Max. 1% of overall CAPEX
    - Ex post monitoring of capital actually invested
- Industry complaints:
  - Incentive regulation prevents investment
  - and claims: abandonment of additional cost monitoring in favour of a simple adjustment of capital base and the persistently not influenceable cost

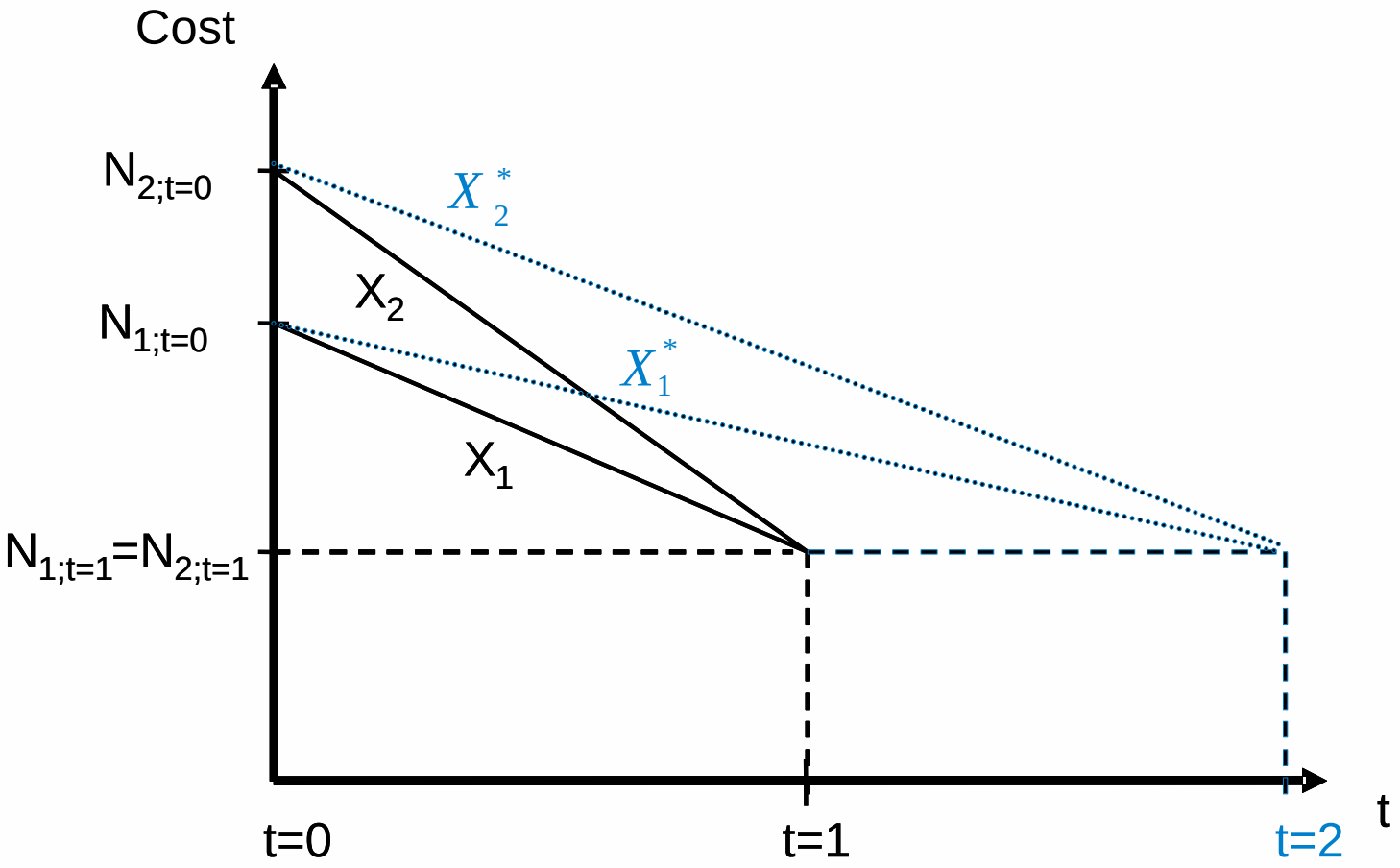
Central issues
initial values II

The economics behind:

- (Obviously,) initial values are of crucial importance for incentive regulation – and not just for the beginning
- Current cost plus regulation is an unappropriate cost base -> comparability ?
  - Differences in depreciation strategies
  - Differences in capitalisation strategies
  - Two different cost standards for old and new investments)
- ⇨ Cost monitoring – before the beginning of incentive regulation – becomes necessary
  - Including comparisons to identify ‚excessive cost'
  - However: time-critical process

Central Issues

Initial value, duration and efficiency target



Central issues
General X-Factor I

- Draft ordinance
  - Proposal (BNetzA): initial 2.54% (Törnquist-Index)
    - Productivity differential: 2.23%
    - Inputprice differential: 0.31%
    - Period 1977 to 1997, 2 sub-periods (1977 – 1991 and 1993 – 1997), weigthed in equal proportions
    - Data provided by Statistisches Bundesamt (Federal Statistical Office)
  - Political decision: 1.5
  - Perspective: Calculation of the general X-Factor by Malmquist-DEA

Central issues
General X-Factor II

- Industry complaints:
  - Incomplete data base
  - Weigthing in equal proportions inappropriate
  - Indeces applied inappropriate
  - Network sectors cannot achieve higher productivity advances than the economy as a whole – due to long asset amortisation periods
  - claims: X_{gen} = 0%

Central issues
General X-Factor III

The economics behind:

- X-Factor is a relative value: relationship to economy as a whole
- Aim: ‚competitive' price-level
- Calculating the General X: allocative vs. dynamic efficiency. High X-Factors
  - reduce prices (in the short run) and increase allocative efficiency but might
  - prevent investments (inappropriate returns) and decrease dynamic efficiency
- Data base currently incomplete
- Calculating the inputprice differential
  - capital: necessity of applying private-sector data: objectivity?
  - labour: not yet discussed; data supports positive wage differential

Central issues
Benchmarking I

- Draft ordinance
  - Best of performance from DEA/SFA
  - DEA with increasing returns to scale
    - Aim: Protection of small network operators
    - Economic outcome might be right the opposite
  - Cap on individual X-factor: max 50% inefficiency over 8 years
  - Standardization of CAPEX
    - 1st period: historical costing and application standard economic lifetime
    - 2nd period: special registry for assets (Technisch-wirtschaftliches Anlagenregister) to avoid potential biases due to differences in depreciation and capitalisation strategies

Central issues
Benchmarking II

- Industry complaints:
  - Schedule for registry too ambitious (although the industry claimed for it)
  - claims: additional discounts to best of performance from DEA/SFA
  - claims: benchmark to the average: OLS instead of SFA and DEA
  - claims: capping the individual X-factors due to low data quality – max. 2% p.a., i.e. max. 30% over 15 years

Central issues
Benchmarking III

The economics behind:

- Benchmarking might prevent investment: since former depreciation and capitalisation strategies distort benchmarking ranking
- Cost base to be standardized – to the beginning of 2nd regulation period latest
- Registry could serve as interim solution
- Prefereable: change to annuity based valuation and standardized cost
- Capping the individual X-factors:
  - seems unnecessary in a best of performance setting but
  - might be acceptable in the 1st period due to low quality of data
  - in order to arrive at the efficient cost level at the end of the two periods

Central issues

Exemption rule for small utilities I

- Draft ordinance
  - Definition ‚small network operator‘:
    - Gas and electricity together less than 20,000 connected customers and
    - Gas only less than 10,000 connected customers
    - Otherwise too few utilities left over for the gas benchmarking
  - Option menue:
    - Full participation
    - Simplified approach: Individual X-factor equal to the average
- Industry complaints:
  - Regulatory burden too high for small utilities (e.g. data collection); efficiency decrease due to regulatory requirements (additional staff)
  - Diseconomies of scale
  - Referrence to § 21a 5 EnWG: Requirements **achievable** and **surpassable**

⇨ Claim for special treatment of small companies

Central issues

Exemption rule for small utilities II

The economics behind:

- Avoid setting wrong incentives ⇨ simplified approach better than originally discussed cost-plus alternative
- Self-selection (option rule): order is important to avoid cherry picking:
  1. Choice, then
  2. Benchmarking
- Reasons for exemption rule questionable: No indication for scale economies in explorative benchmarking
- 10,000 connected customers:
  approx. 480 electricity and approx. 410 gas utilities
  - ⇨ Reduces the number of benchmarking entities
  - ⇨ Possibly affects results for remaining companies
  - Associated companies should be analysed jointly with their parent utility (as in unbundling de-minimis-rule)

Conclusions

- Postponement of transition period should be used to increase data quality
- Current regulation inappropriate base for calculating initial values
- Instead: Use annuities based on standardized quantifications
- General X-Factor > 0 is justifiable but should be determined with caution
- Exemptions for small companies should not undermine regulatory regime
- Open issues
  - Definition of internal rate of return
  - What comes after 2016 (yardstick competition?)

Wissenschaftliches Institut für
Infrastruktur und Kommunikationsdienste

wik GmbH
Wissenschaftliches Institut für
Infrastruktur und Kommunikationsdienste
Postfach 2000
53588 Bad Honnef
Tel 02224-9225-0
Fax 02224-9225-68
eMail info@wik.org
www. wik. org