

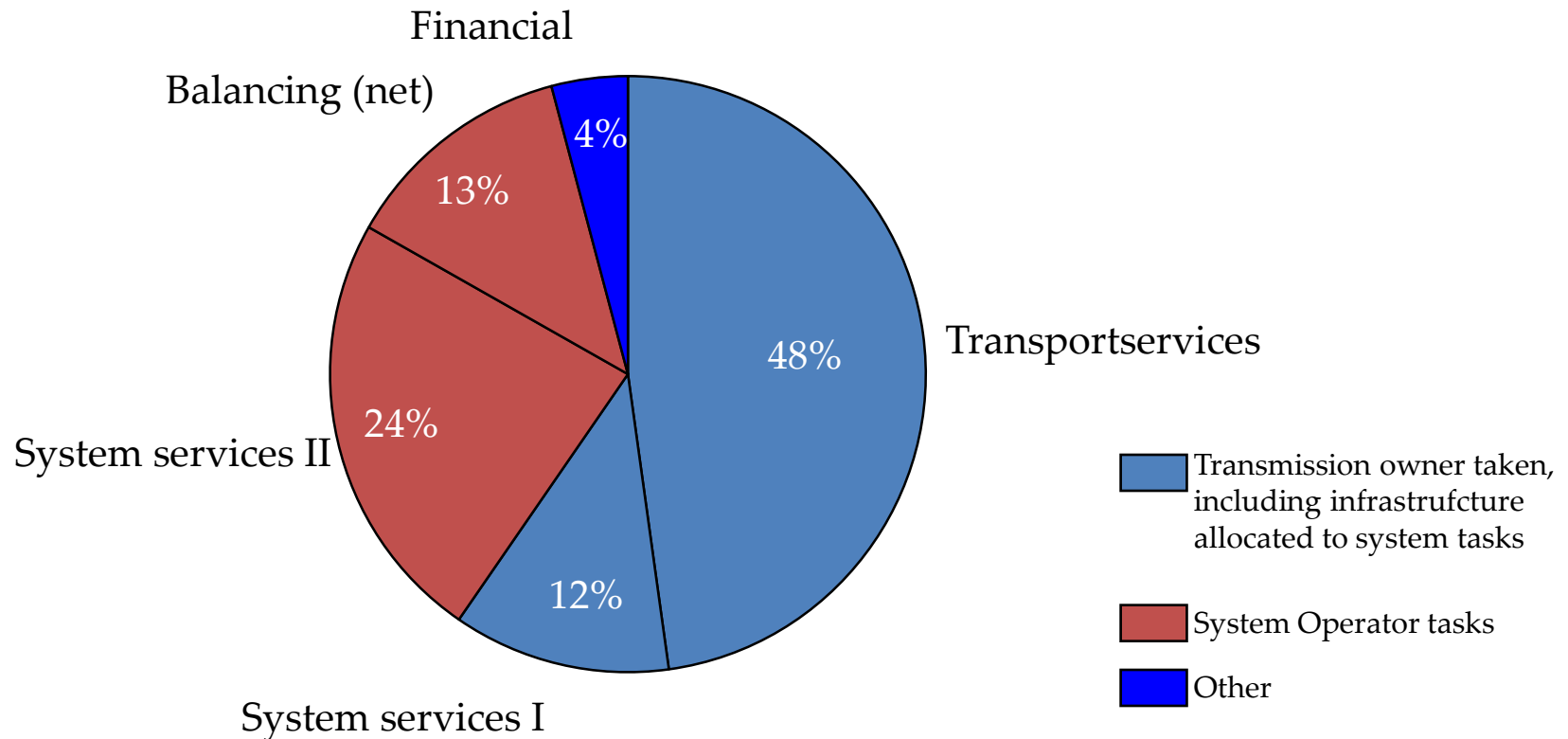
TSO regulation;
Transmission tariffs; efficiency
targets

Jan-Peter Heida

Bucharest, April 8, 2008

Approximately 60% of revenues of Dutch TSO is linked to asset owner task

Distribution of regulated income TenneT, 2005 [%]
[%]



Key tasks of TSO regulator

Access

Non-discrimination for access of

- producers
- suppliers
- consumers

Tariffstructure

Tariffs based on cost causation

Investments

Investments timely to

- Facilitate market growth
- Maintain high quality
- Enable investment in production
- Enable international flows

Networkcosts

Value for money

No monopoly profit

No cross subsidies with liberalized markets

In the Netherlands, the tariffs are set with the cpi-x method where an x-factor is set for 3 tot 5 years

$$\text{Tarriff}_t = \text{Tarrif}_{t-1} \times (1 + \text{cpi} - x)$$

For TSO x-factor is corrected because of revenue regulation

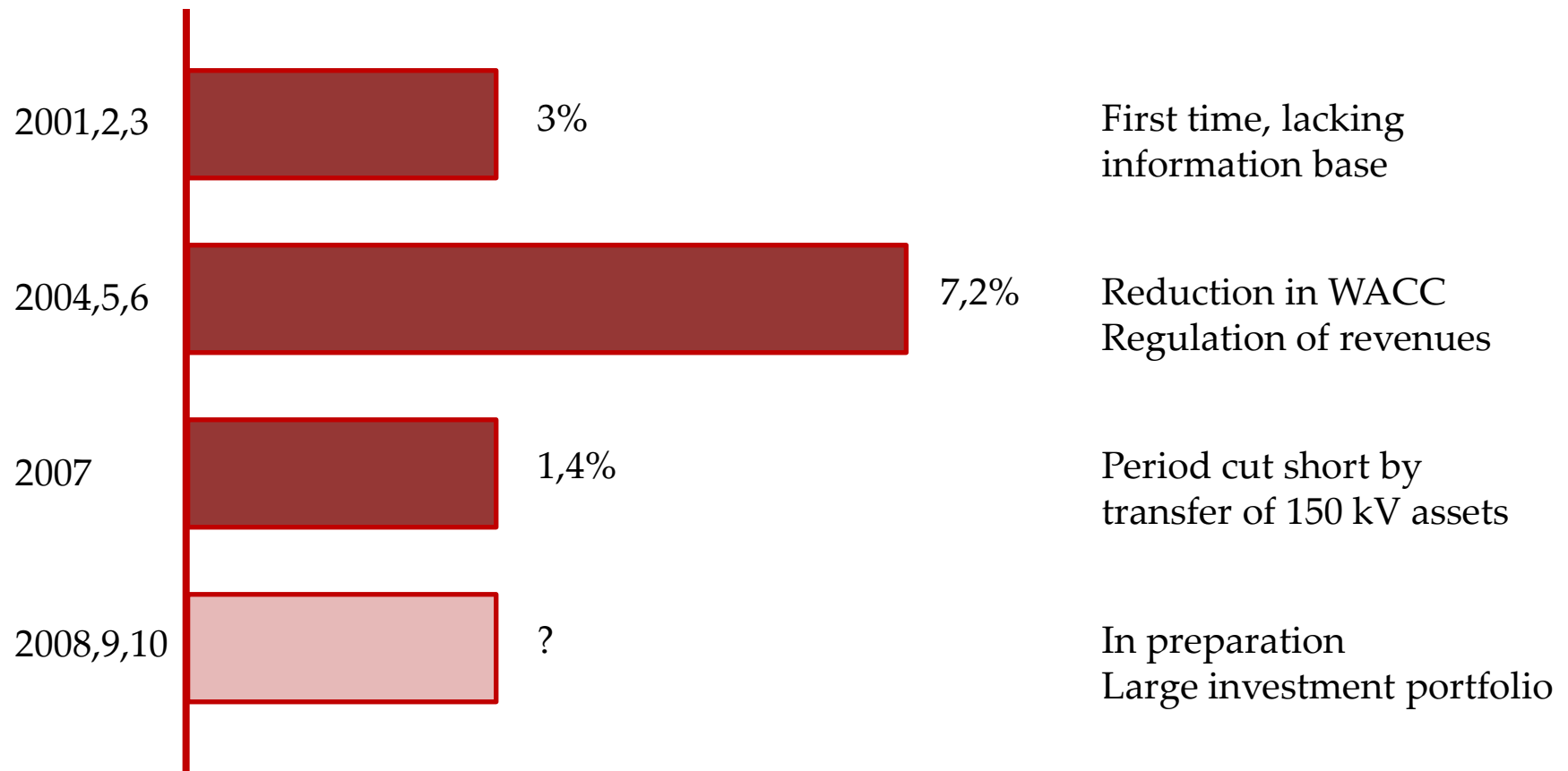
Due to revenue regulation, TSO revenues are insensitive to

- Dispatch decisions
- Decentral production (wind, electricity/heat)
- Import/export

Every period for which an x-factor had to be set, proved to be specific

X-factor for Dutch TSO

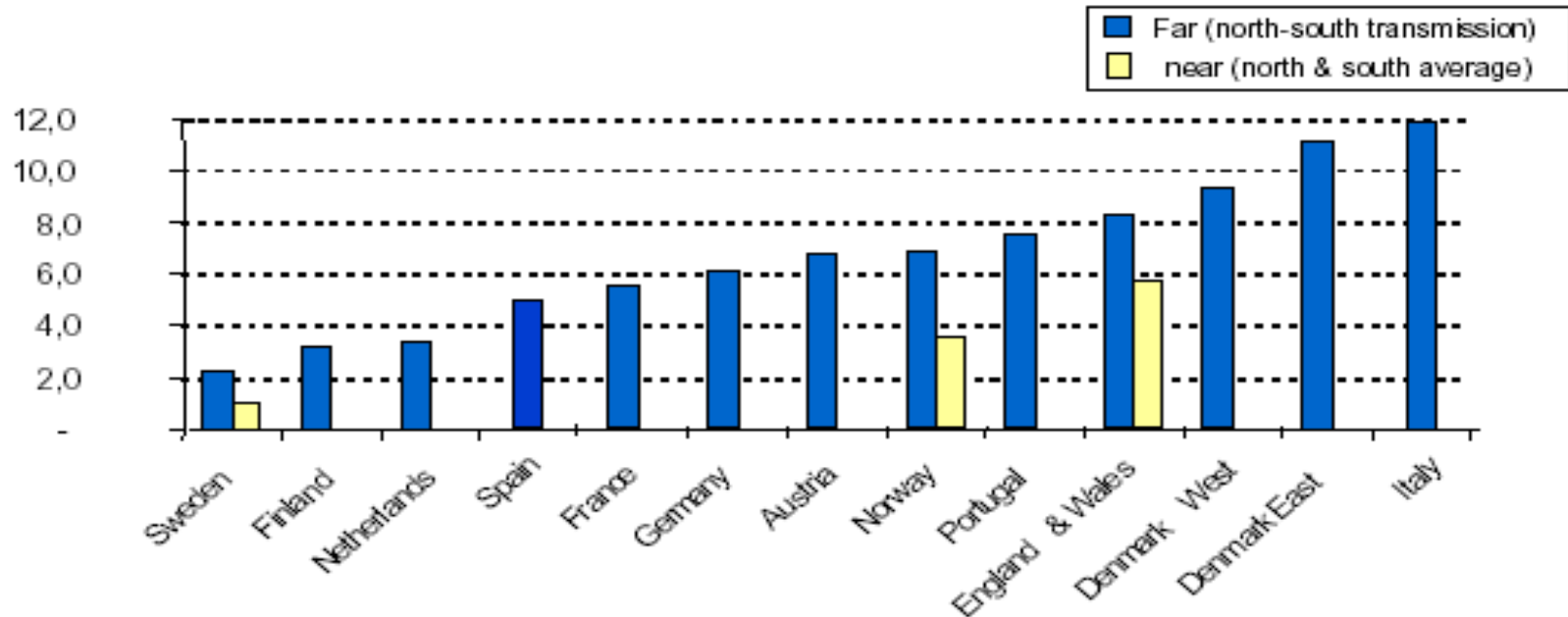
Key aspects of period



Dutch customer's transmission bill is relatively low

Comparison of transmission invoices : producer and consumer connected at EHV, for a utilisation time of 5,000 h

Application of transmission tariffs for producer + consumer both connected at EHV (220 kV - 400 kV), tariff scale in Euro per MWh



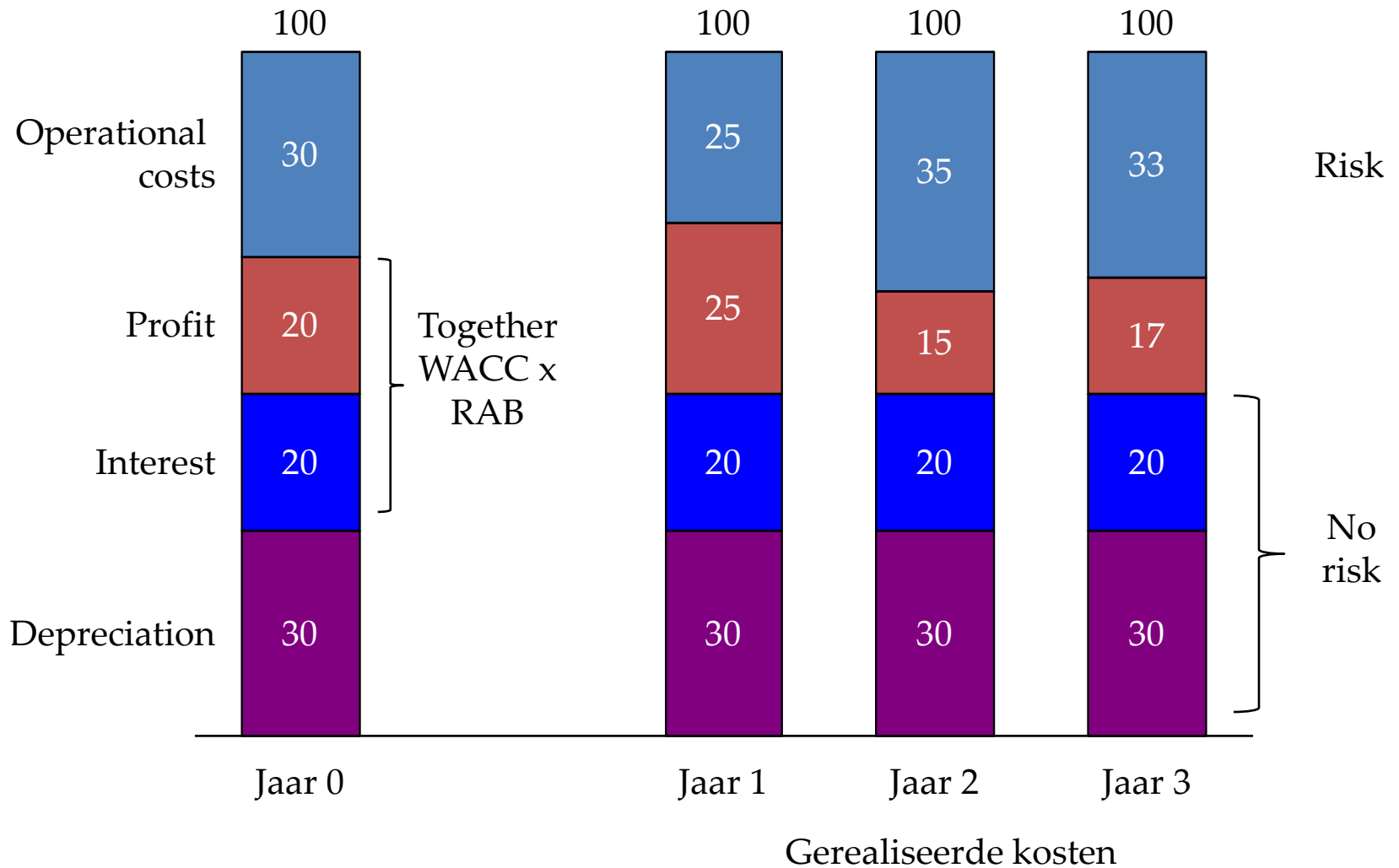
See appendix, for countries using a zonal tariff system : Norway, Sweden, England.

Finland : tariff includes also costs concerning 110 kV network, estimated price for a connection EHV is 1,6 Euro /MWh.

Germany : preliminary estimation due to major changes in the German power control market.

Denmark : tariffs include only costs concerning 400 kV network.

Setting the TSO's revenues



Elements of setting the TSO revenues

Element of calculation

RAB x

WACC

+

Depreciation

+

Operational costs

Key discussion items

Starting point proved tough due to lack of data

- Part of RAB declared efficient
- Part of RAB benchmarked

Based on CAPModel

- High (6,4% TSO) or
- Low (3,6% users) or
- In between (5,4% regulator)

Set depreciation times in RAR

Comparability of TSO's

Elements of setting the TSO revenues

Element of calculation

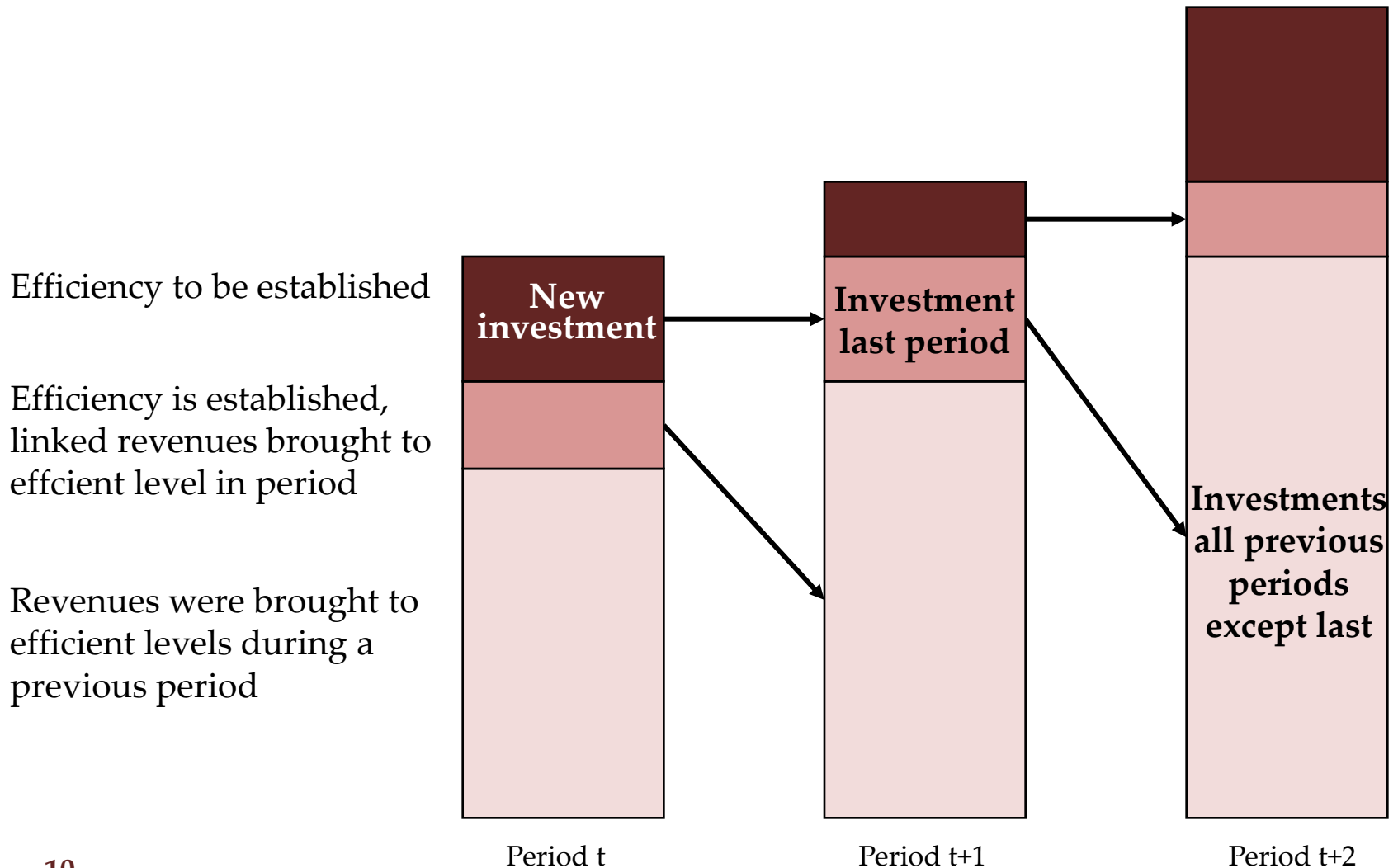
RAB x

Key discussion items

Starting point proved tough due to lack of data

- Part of RAB declared efficient
 - Part of RAB benchmarked
-
- TSO was formed in 2001, and could not be held accountable for assets it inherited; so all assets before 1-1-2001 were declared efficient, no future x-factor
 - X-factor will be set for investments after 2001
 - Key discussion is repetitive setting of x-factor

All assets of a TSO go through a regulatory cycle of three steps to avoid repetitive reduction of asset base



Elements of setting the TSO revenues

Element of calculation

RAB x

WACC

+

Depreciation

+

Operational costs

Key discussion items

Starting point proved tough due to lack of data

- Part of RAB declared efficient
- Part of RAB benchmarked

Based on CAPModel

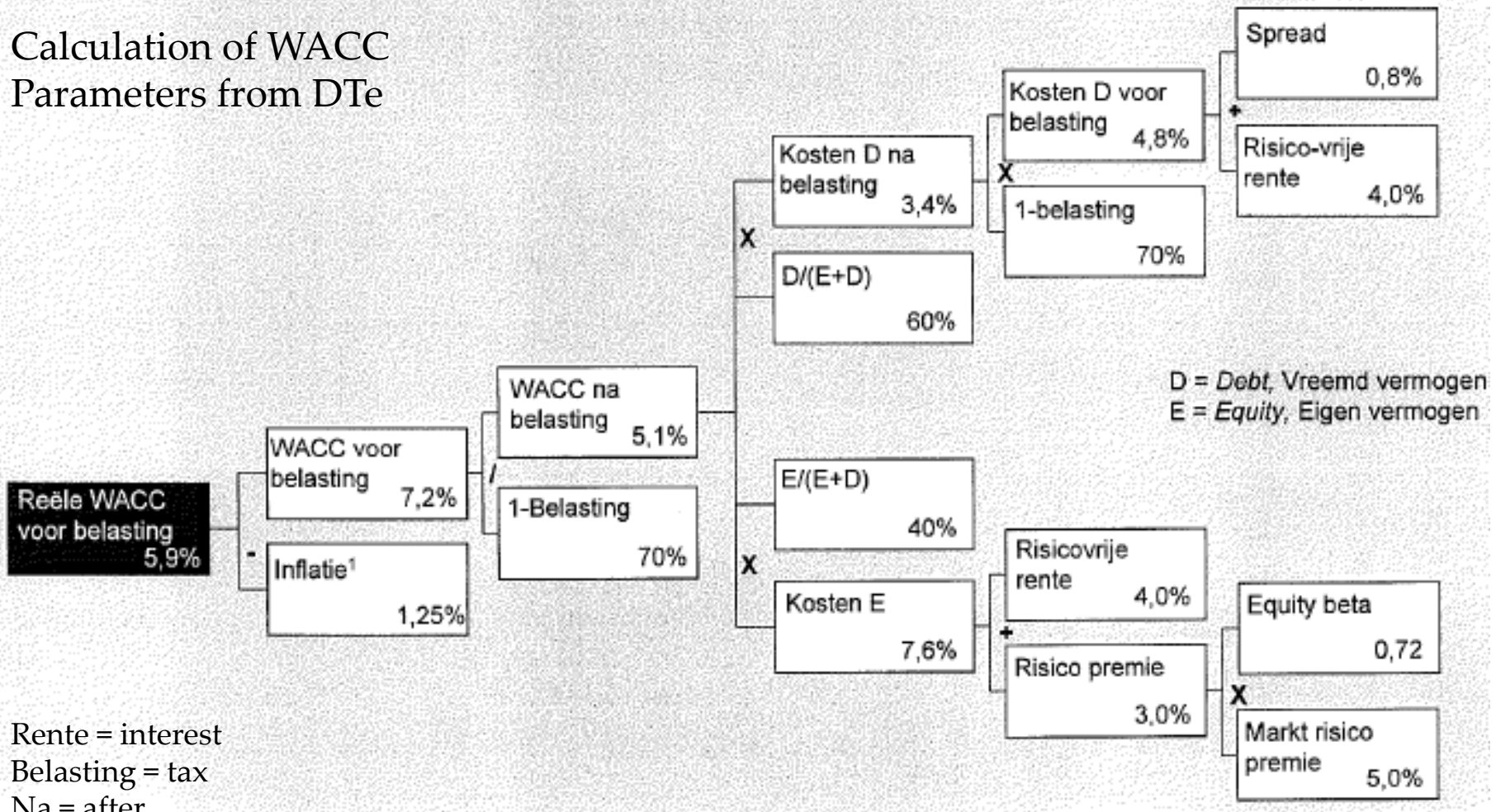
- High (6,4% TSO) or
- Low (3,6% users) or
- In between (5,4% regulator)

Set depreciation times in RAR

Comparability of TSO's

The CAPM Model is used to set the WACC used to determine the revenues for capital costs

Calculation of WACC Parameters from DTe



Rente = interest
Belasting = tax
Na = after
Voor = before

Elements of setting the TSO revenues

- RAR - Regulatory Accounting Rules - are part of crucial 'regulatory infrastructure' (Joskow, 2005)
- RAR include:
 - Allowed depreciation per asset class
 - Activation policies for investments
 - Rules for splitting of system and asset owner tasks

Depreciation

Set depreciation times in RAR

Elements of setting the TSO revenues

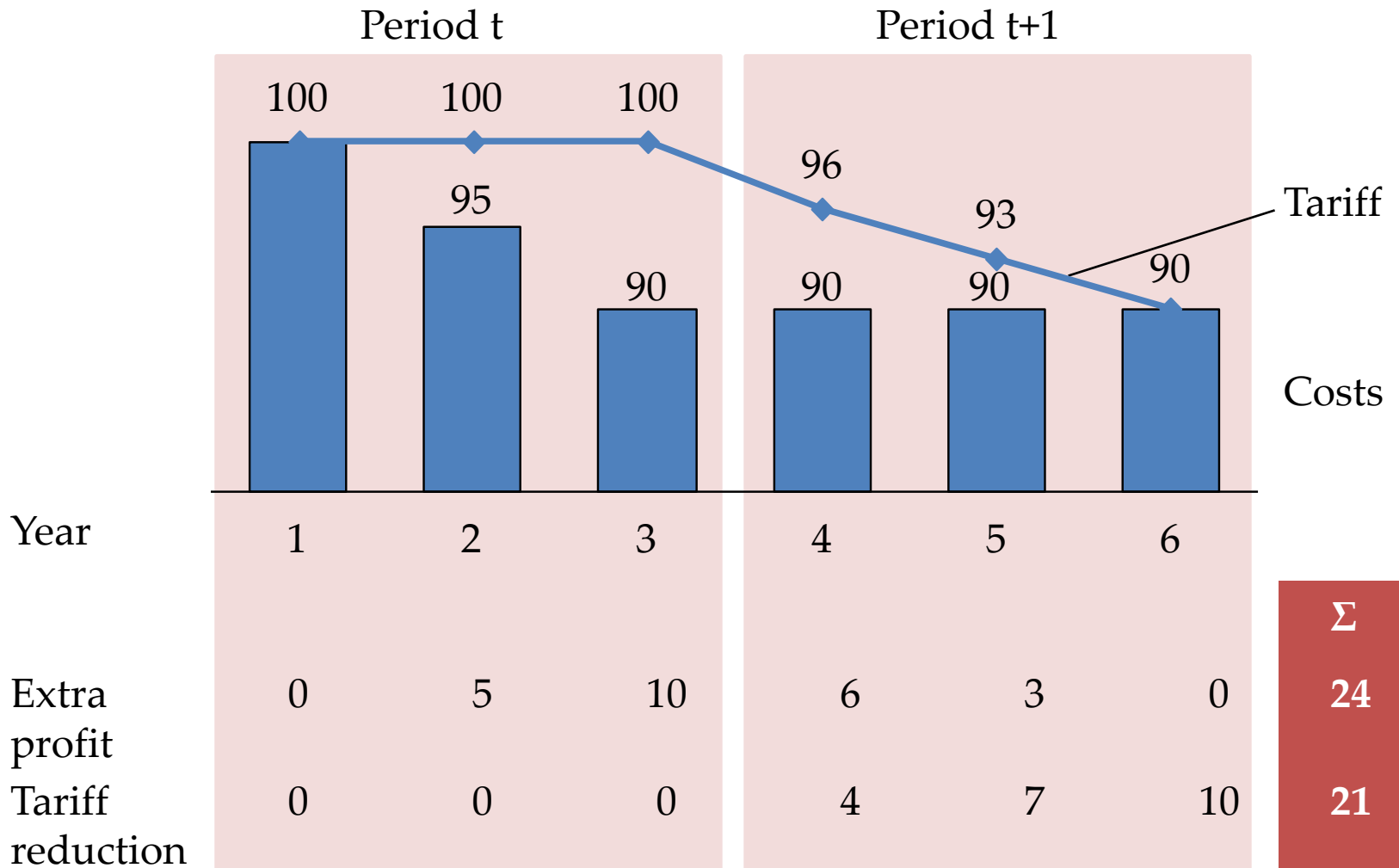
1. Asses efficiency
 - a. Use benchmark (but...how comparable are TSO's is a repeating discussion)
 - b. Use 'classic' cpi-x
2. Apply frontier shift for improvements in efficiency

Operational costs

Comparability of TSO's

'Classic' cpi-x regulation gives incentive for improvement of operational efficiency

Example (cpi set at 0%)



The end

- Thank you for your attention
- Feel free to ask questions; now or later

Dr. J.P (Jan-Peter) Heida

JP Heida Economisch Advies
Helmersstraat 79
3071 AD Rotterdam
The Netherlands

Tel: + 31 641362359

Mail: jp@jpheida.nl

www.jpheida.nl