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Session 4

**Challenges and approach chosen by the CRC in setting termination
rates for fixed and mobile network**

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Presentation highlights – basic steps in the development of BU-LRIC model

1. Deriving estimates for the WACC
2. Purpose of the models
3. Regulatory Treatment of Fixed and Mobile Termination Rates in the EU
4. Pure LRIC vs. LRIC+
5. Model development – approach
6. Demand: General Considerations
7. Collecting data challenge



1. Deriving estimates for the WACC

WACC formula

The WACC is calculated according to the following formula

$$WACC_{pre-tax} = \left[\frac{D}{D + E} \times R_d \right] + \left[\frac{E}{D + E} \times R_e \times \frac{1}{1 - t} \right] - i$$

Where:

D: market value of the debt

E: market value of equity

R: marginal cost of debt

Re: marginal cost of equity

t: marginal tax rate

i: inflation rate

Source: RTR

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2. Purpose of the models

The aim of the cost modelling assignment was to deliver a cost model for an efficient network operator providing services in Bulgaria which could be used by CRC as an input in its determination of mobile and fixed termination charges.



3. Regulatory Treatment of Fixed and Mobile Termination Rates in the EU

2009/396/EC - Commission Recommendation, 7 May 2009

The current guidelines to national regulatory authorities from the European Commission propose that mobile and fixed termination rates be set on the basis of incremental costs (sometimes referred to as “pure LRIC”) rather than LRIC+. The EC defines the relevant incremental costs as:

“The difference between the total long-run costs of an operator providing its full range of services and the total long-run costs of an operator not providing a wholesale call termination service to third parties.”



4. Pure LRIC vs. LRIC+

The Bulgarian LRIC Models allows for the estimation of “Pure LRIC” as well as LRIC+ costs. The Pure LRIC functionality is there primarily to calculate service costs for call termination services. Pure LRIC differs from LRIC+ in the following ways:

- Mark-ups are excluded;
- Licence fees are excluded;
- The difference between total economic costs with and without the termination service is computed;
- The avoidable costs of the call termination service are divided by the number of termination minutes to determine the pure LRIC of termination on a per minute basis.



5. Model development – approach

Stage 1: Capacity Planning

Stage 2: Network Planning

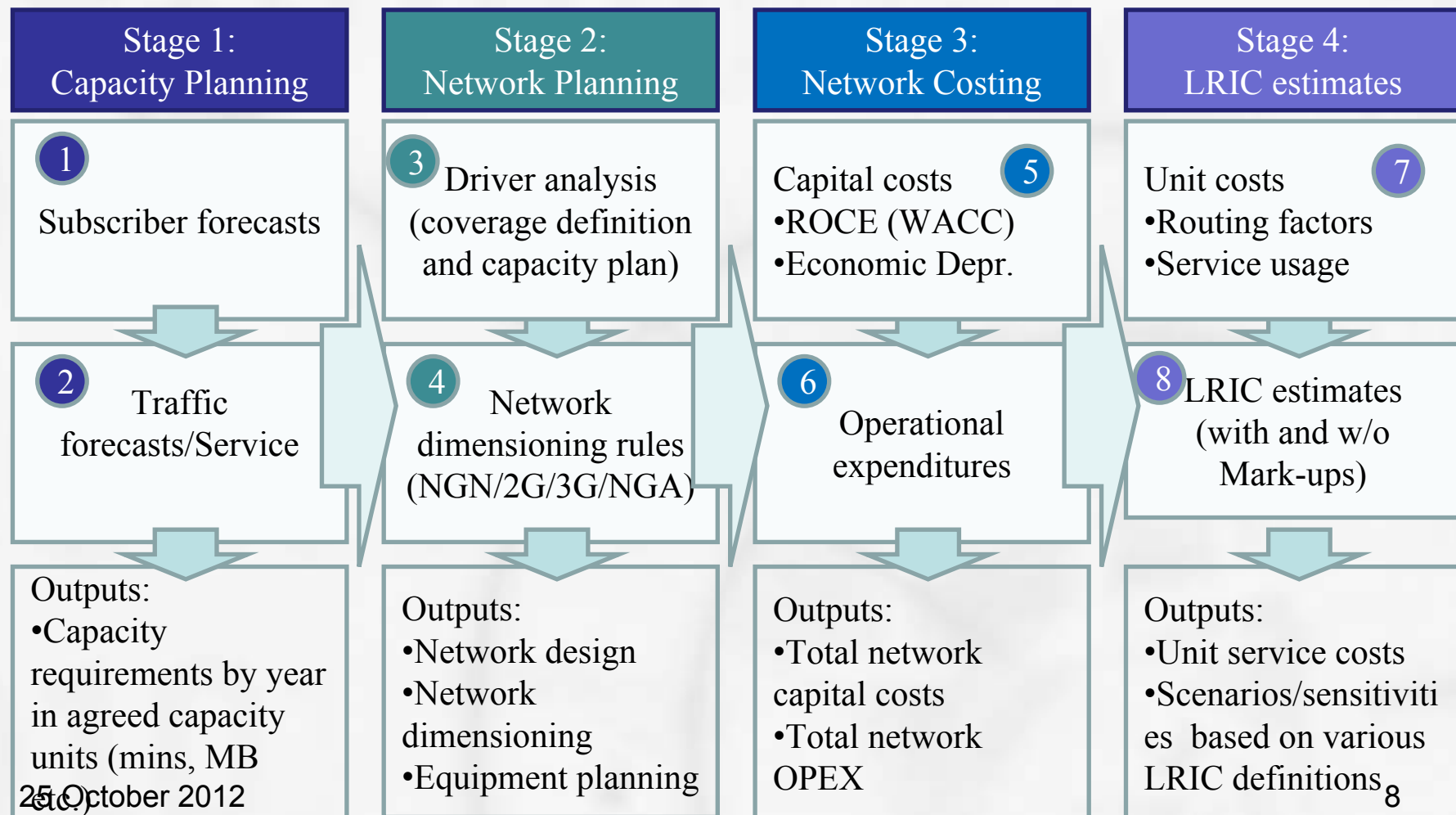
Stage 3: Network Costing

Stage 4: LRIC estimates



5. Model development – approach

The steps to develop BU - LRIC models for fixed and mobile networks are presented in the below graphic.





6. Demand: General Considerations

- Construction of cost model requires a complete list of all services provided by the operators to be able to correctly allocate costs to the services.
 - Definitions of services
 - Completeness

- Mobile and fixed operators have a distinct set of services, which use the fixed and/or mobile network

- Services, not using the network can be lumped together in “other services”, since their costs can be easily separated from network services.



Service volume forecasts

- The purpose of cost models is to calculate costs of different services by allocating costs to these services
- A complete list of services could contain:
 - On-net calls
 - Outgoing calls (to fixed, mobile, international)
 - Incoming calls (from fixed, other mobile, international)
 - Roamed calls
 - Narrowband data
 - Broadband data
 - Voice mail,....
- The relevant cost driver for voice telephony is minutes, for data it is MB or any other unit of measurement.
- For the efficient operator mobile model, it will be assumed that the operator has a market share of $1/n$, where n stands for the number of active mobile operators in the market.



7. Collecting data challenge

- Detailed data requests were prepared for this purpose;
- Ample time was given for the operators to provide data, and deadlines were extended at their request to give them more time to participate in the process.
- Eventually, we didn't data received from some of the operators or we received partial from others.



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Thank you for your attention!