BUSINESS RULES III Pt. 2

Cost Allocation and Determination of the Reference Price

1. Main cost allocation methodologies

1.1 [One and the same primary cost allocation methodology shall apply to all entry and exit points on an entry-exit system. This rule shall equally apply to entry-exit-zones including several TSO networks.]

1.2 [Nothing in the Network Code on Tariffs shall prevent NRAs from establishing and/or approving for each entry-exit zone comprising several TSOs networks an inter-TSO compensation mechanism, as this may be required to reconcile collected revenues with allowed revenues.]

2. Postage stamp

2.1 The outputs from the postage stamp methodology are the same reference price at all entries and the same reference price at all exits.

2.2 The inputs for the methodology are the allowed revenue, the assumptions on capacity bookings and the split between entry and exit revenues where this is used as an input.

2.3 The reference price for each category of points is calculated by taking the target revenue for entry/exit and dividing it by the total booked capacity (or a relevant proxy) assumed for entry/exit points.

3. Capacity-Weighted Distance approach

3.1 The inputs for the capacity weighted distance approach are the technical capacities, forecasted booked capacities, the split of revenue for all the entry and exit points on the system, a (simplified) representation of the network with the distances between entry points and exit points

3.2 Where the calculation is based on only the relevant combinations of entries and exits, an additional input is needed: the supply/demand scenarios for identification of the combinations of entries and exits.

3.3 The first step of the methodology is to calculate the weighted average distance of each entry (respectively exit) point through following steps:

3.3.1 Step A: Identify the distance from the entry (respectively exit) point to each exit (respectively entry) points. In case not all combinations of entry and exit points are relevant, limit this step 1 calculations to all relevant combinations.

3.3.2 Step B: Calculate the weighted average of the identified distances, the weight used is the capacity (booked or technical) of the exit (respectively entry) points.

$$Weighted\ Average\ distance\ of\ Entry_i = \frac{\sum_j \left((Distance\ between\ Entry_i and Exit_j).(Capacity\ of\ Exit_j) \right)}{\sum_j (Capacity\ of\ Exit_j)}$$

Where "j" stands for all relevant Exit points

3.4 The second step is to calculate the cost weight of each entry (respectively exit) point: the cost weight of each entry (respectively exit) point is determined as the ratio between the product of its forecasted booked capacity with its average distance and the sums of such products for all entry (respectively exit) points.

3.5 The third step is to allocate the entry cost (respectively exit) by multiplying the total share of revenue cap to be collected from entry points (respectively exit points) by the cost weight of each entry point (respectively exit point).

3.6 Finally, determine the tariffs by dividing the share of the revenue cap to be collected from a point by its forecasted booked capacity.

4. Virtual point based approach

4.1 The principle of the virtual point based approach is to determine entry and exit tariffs for each point to which the tariff applies by weighting capacity at these points according to their distance to a virtual point.

4.2 The virtual point is a theoretical location which can be determined mathematically for Variant A or determined geographically for Variant B.

Variant A

4.3 A number of inputs are needed for the virtual point based approach (Variant A) such as an accurate representation of the physical network, an appropriate peak day gas flow scenario, a network cost expansion factor (€/GWh/km), an annuitisation factor and where necessary to meet allowed revenues, an additive constant.

4.4 The flow distance values for the pipeline segments on the network must be calculated. The value for each segment is the product of the distance and network flows at peak between each point and its nearest node.

4.5 The flow distance values between each point and a selected single node on the network (known as the reference node) are summed and allocated to each entry and exit point. Where more than one path is available between entry and exit points, the path which minimises the flow distance is selected.

4.6 Flow Distance values are recorded as positive for a given pipeline segment when transporting gas between the reference node and the given entry or exit point (or between nodes) would be consistent with the direction of flows at peak. In an unmeshed network, this path is unique; in a meshed network, it is obtained from computer modelling.

4.7 Flow Distance values are recorded as negative for a given pipeline segment when transporting gas between the reference node and the given entry or exit point (or between nodes) would be contrary to the direction of gas flows at peak.

4.8 The flow distance values for each entry and exit point are adjusted to derive a constant consistent with a given entry/exit split. Having established the constant, it is then added to the flow distance values for all entry points, and subtracted from the flow distance values for all exit points.

4.9 To determine the reference prices for each entry and exit point, the adjusted flow distance values are multiplied by the expansion constant, and then the annuitisation factor

Variant B

4.10 A number of inputs are needed for the virtual point based approach (Variant B) such as the technical capacities and forecasted booked capacities for all the entry and exit points on the system.

4.11 The geographical location of the virtual trading point must be identified and this can be determined by selecting a dominant node in the network where most flows occur. It can be also determined geographically based on the capacity weighted average of the geographical location of all entry and exit points.

4.12 The proportion of entry (or exit) capacity at each point is calculated relative to the total entry and exit capacity. The geographical location (longitude and latitude) of each entry (and exit) point is multiplied by its proportion factor. The location of the virtual point is determined by summing the capacity weighted geographic locations.

4.13 The distance between each entry point and the virtual point is calculated as well as the distance between each exit point and the virtual point.

4.14 The revenue to be collected from all entry points and all exit points is calculated from the capacity-weighted distance to the virtual point.

4.15 The capacity-weighted distance to the virtual point for entry and exit points is calculated separately. The sum of capacity-weighted distances for entry points and the sum of capacity-weighted distances for exit points is used to determine the entry-exit split.

4.16 The revenue collected from all entry points (and revenue collected from all exit points) is calculated by multiplying the total revenue by the entry share (and exit share for revenue collected from all exit points).

4.17 The tariffs are determined by minimising the difference between the calculated revenue from entries and exits, and the revenue to be obtained by multiplying tariffs by booked capacities.

5. Matrix approach

5.1 The following inputs are needed for the matrix approach: A unitary transmission cost index, e.g. depending on pipe diameter and its theoretical physical capacity, and a description of the physical network where each portion of the grid (segment), has an associated length, diameter and prevailing flow direction. A representation of all entry/exit paths (and the segments they are composed of) is also needed.

5.2 The unit cost of each segment, determined for prevailing flow and backhaul, is calculated using the unitary transmission cost index multiplied by its length. Backhaul valorisation is determined by the NRA or TSO in the range between zero (no cost associated) and one (cost associated equal to prevailing flow).

5.3 To calculate the unit cost for each possible path, the unit costs of all the segments included in the path are summed up.

5.4 In case of meshed networks, where multiple paths are possible to link the same couple of entry-exit points, the cost associated to the path can be derived as the minimum or, alternatively, as the average of all paths costs.

5.5 Once the costs of all paths have been determined and a matrix composed by all unit cost combinations between entry and exit points has been created, entry and exit charges

shall be calculated by an optimisation algorithm: for every path, the difference between the unit cost and the sum of the corresponding entry and exit charges is calculated and squared. The sum of the squared differences for the entire matrix is then minimised.

5.6 A constraint shall be put in place, to avoid negative entry or exit tariffs.

5.7 In case of multiple solutions, their number can be reduced by introducing additional restrictions, such as fixing the split between entry and exit or applying a further derivation to arrive at a unique solution such as fixing one tariff which acts as a constraint on the optimisation.

6. Secondary adjustments

6.1 NRAs may decide to adjust a primary cost allocation methodology and the associated initial tariffs at a national level by applying secondary adjustments.

6.2 Where secondary adjustments are used, only Rescaling, Equalisation and Benchmarking shall be allowed.

6.3 The secondary adjustments shall be applied in a fully transparent manner and shall not undermine the initial decision to use a given primary methodology.

6.4 Secondary adjustments can be applied at the end of the application of a primary methodology. For rescaling and equalisation, it is possible for the secondary adjustment to be embedded in the primary methodology by creating one or more homogenous sets of points at the beginning of the calculation.

7. Rescaling

7.1 The application of the rescaling consists of increasing or decreasing the initial tariffs for entry and/or exit points.

7.2 Rescaling shall be applied either to adjust the allocated initial tariffs that result from the primary cost allocation methodology to recover the allowed revenue and/or to avoid negative capacity charges.

7.3 Rescaling shall be performed either by topping up the calculated charge with a constant or by multiplying it by a constant. The corresponding multiplier or additive constant for

entry and for exit points shall uniformly apply to all entry points the system and/or all exit points in the system respectively.

7.4 Where rescaling is used to close the gap between initial tariffs and the revenue to be recovered, the assessment shall cover the consistency of this rescaling with the economic signals and locational signals expected from the chosen primary cost allocation methodology.

7.5 An assessment of the effect of rescaling on the entry/exit split which was achieved from the application of the primary methodology should be produced.

8. Equalisation

8.1 Equalisation results in the same tariff for each homogenous set of points in the system.

8.2 Each homogenous set of points subject to equalisation can only include either domestic points, or cross-border points, in order to avoid cross - subsidisation between cross-border and domestic customers.

8.3 An exhaustive list of the points that could be considered in an homogenous set of points are as follows: Entry interconnection points, Exit interconnection points, Domestic entries, Domestic Exits, Entries from Storage, Exits to Storage, Entries from LNG terminals, Exits to LNG terminals, Entries from production points, taking 19.2 into account.

8.4 Equalisation can only be applied for reasons of security of supply or price stability or fostering competition in the retail market and/ or in the renewable energy sector.

8.5 If an NRA decides to equalise the tariffs for each homogenous set of points then justification for this decision shall be provided at a national level, taking account of trade-off between locational signals and tariff stability enabled by equalisation.

9. Benchmarking

9.1 Benchmarking implies reducing the tariff at one point in order to attract greater gas flows. Higher capacity sales at this point would be expected to offset the need for increased tariffs at other points in order to collect allowed revenues.

9.2 Benchmarking shall be limited to the point, where the TSO faces effective competition from other TSOs' point or route. The tariff reduction shall be limited to what is strictly necessary to adjust to the competitive tariff level.

9.3 The application of benchmarking shall be decided by NRAs on a case by case basis.

9.4 Benchmarking may be applied where there is proof that effective pipeline-to-pipeline competition exists and the effect of the benchmarking on the entry/exit split obtained from the strict application of the main methodology is minimised.

9.5 Benchmarking may be applied where it is possible to demonstrate that the outcome of any methodology would not allow to meet the competitive tariff level and that the outcome of benchmarking leads to better meeting the objectives of the Gas Regulation.

9.6 In the application of benchmarking, neighbouring NRAs shall cooperate with each other in order to ensure a consistent and compatible approach across the Member States concerned.

9.7 The proposal for reducing a tariff based on benchmarking, as well as the corresponding tariff increases and the NRA's reasoning, shall be publicly consulted before the tariffs are set.

10. Storage

10.1 In setting or approving tariffs for entry and exit points from and to gas storage facilities, NRAs shall consider the benefits which storage facilities may provide to the transmission system and the need to promote efficient investments in networks.

10.2 NRAs shall also minimise any adverse effect on cross-border flows.