



european network  
of transmission system operators  
for gas

# 1<sup>st</sup> SJWS for Incremental Proposal

**Economic Test**

January 2014

# Agenda

1. **Economic Test formula**
2. Setting of f-factor
3. Coverage of 1-f
4. Publication requirements
5. Single Economic Test

# Economic Test formula

$$\text{PVUC} \geq f * \text{PVAR}$$



**Present Value of User Commitment**

$$= \sum_{y=x}^{y=z} \frac{(Tariff_y + Premium_y) * UC_y}{(1 + d)^y}$$

Tariff(y)	Tariff per year
Premium(y)	Premium per year, if any*
UC(y)	Level of User Commitment
d	Discount rate for future cash flows
x	First year of incremental capacity on offer
z	Last year of booking horizon

**Present Value of Allowed Revenues\***

$$= \sum_{y=0}^{y=l} \frac{RAB_y * RoR_y + Dep_y + OPEX_y}{(1 + d)^y}$$

RAB(y)	Increase in regulated asset base
RoR(y)	Regulated rate of return on investment
Dep(y)	Depreciation of investment
OPEX(y)	Operational expenditures induced by investment
d	Discount rate for future cash flows
l	Economic lifetime of investment

\*The offer scenarios for incremental/new capacity should be designed in a way to avoid scarcity and thus premiums in the auctions.



\*PV of allowed revenues could be replaced by PV of regulated revenues

# From DIC to PVAR



**Deemed investment costs**

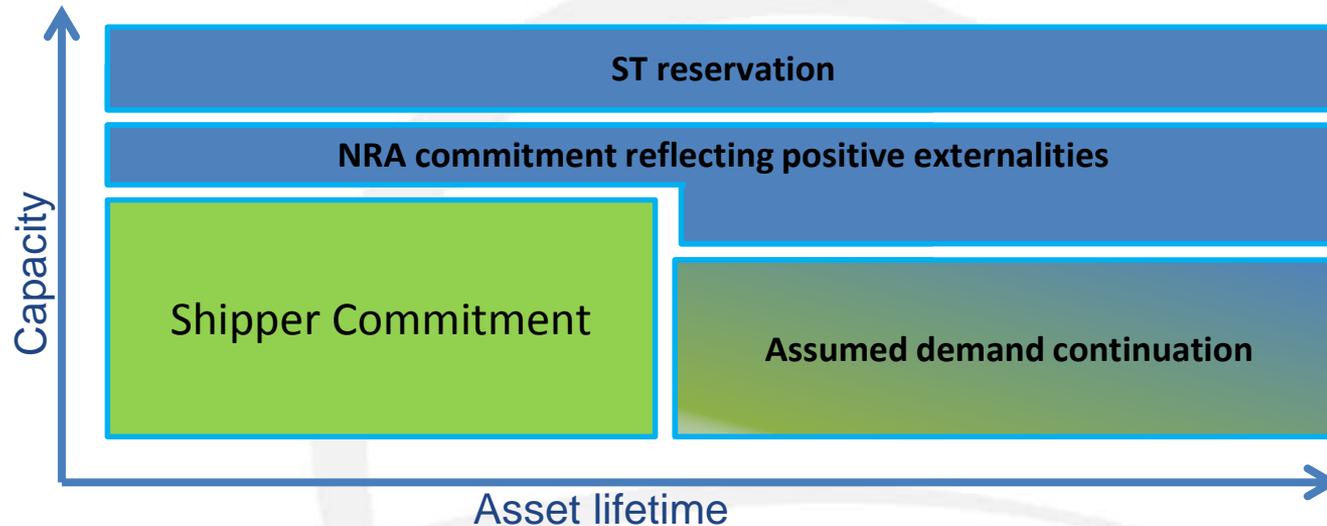
**Increase in RAB value and associated OPEX**

**Increase in allowed revenues discounted to present value**

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# Factors influencing level of f-factor 1/2



**Market underwritten part of investment for which investment recovery is guaranteed by market**

**Regulatory underwritten part of investment for which investment recovery is guaranteed by NRA**

# Factors influencing level of f-factor 2/2

Factor	Description	Effect on Economic Test
<p><b>Short-term reservation quota</b></p>	<p>In case ST reservation quotas must be applied to incremental/new capacity as well, a lower amount of capacity on offer in long-term auction has to cover the defined share of PVAR.</p>	<p>Potentially an obstacle to passing the economic test, e.g. in transit countries or price cap regimes.</p>
<p><b>Positive externalities induced by investment</b></p>	<p>Comparison of current costs of network users and future costs of network users induced by an investment, aside of the incremental/new capacity itself. E.g. effects on wholesale prices due to a new or increased connection to an adjacent market.</p>	<p>Beneficiary of positive externalities (e.g. the market as such) is not necessarily the sponsor of an investment – flow of revenue therefore unclear.</p>
<p><b>Assumed demand continuation</b></p>	<p>Assessment of continuation of demand for incremental/new capacity based on long-term forecast of gas flows</p>	<p>Reliability of assessment influences share of PVAR that needs to be covered upfront.</p>

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# Present Value of Non-User Commitments

$$PVAR = f * PVAR + (1-f) * PVAR$$

Covered by User Commitments



Guaranteed by NRA

Share of PVAR, that is not covered by upfront User Commitments (PVNC)

The proportion of PVAR (including, subject to any regulatory efficiency assessment, any PVAR cost over runs) not covered by expected future payments from network users' commitments would be recovered, either by future bookings at the point, or from all network users via the revenue recovery mechanism.

Revenue-Cap Regulatory Regimes	Price-Cap Regulatory Regimes
As PVNC is included in the regulatory asset base of the TSO, revenues on investment are guaranteed through regulatory system. Costs of investments will therefore be covered by future user payments at all points of the system.	Revenues on an investment are not sufficiently guaranteed in price cap regimes as revenue recovery is depending on future bookings of incremental/new capacity. Other mechanisms have to be found.

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4. **Publication requirements**
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# Publication requirements

Economic test parameters to be published beforehand:

## 1. PVAR:

Present value of estimated increase in allowed revenues of a TSO during economic lifetime of new asset.

## 2. f-Factor (and calculation basis):

The share of PVAR that needs to be underwritten by network user commitments in order to pass the economic test.

## 3. Estimated tariffs (and calculation basis):

Estimation of projective tariff at respective IP(s) and information on the calculation model used to make the estimation.

ENTSOG proposes a lead-time for publication of **one month** before the capacity allocation procedure

# Agenda

1. Economic Test formula
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5. **Single Economic Test**

# General principle of single economic test

- Principally, investment projects should be designed in a way that each investment party is able to cover its costs individually;
- A single economic test thus needs to reflect the requirements of all involved parties;
- For a bundled product, the minimum level of user commitment to pass the single economic test is therefore the lowest minimum level of user commitment to pass the individual economic tests on both sides;
- The f-factor of the single economic test is only a mathematical calculation based on combined PVAR, bundled tariff split and the minimum level of user commitment. It has no meaning in itself;
- If all involved parties agree, a redistribution of revenues can be explored to decrease the minimum level of user commitment needed to pass the single economic test.

# Single Economic Test

Single Economic Test needs to reflect a **minimum level of user commitment** that allows all involved TSOs to cover the share of their PVAR associated with their investment.

Investment at TSO A	
Level of Increment	100 capacity units
PVAR	300 EUR
f Factor	0.5
Tariff	2.50 EUR
Required level of UC	60 capacity units

Investment at TSO B	
Level of Increment	100 capacity units
PVAR	375 EUR
f Factor	0.75
Tariff	4 EUR
Required level of UC	70 capacity units

**Minimum level of UC to pass Single Economic Test is therefore 70 capacity units**

Aggregated f-factor as a mathematical calculation based on combined PVAR, Tariffs and minimum level of UC

Single Economic Test for A and B	
Required level of UC	70 capacity units
Tariff	6.50 EUR
<b>f Factor</b>	<b>0.677</b>

f-Factor is only a mathematical calculation and can theoretically be higher than the two individual f-factors



# Minimum level of User Commitment

The Single Economic Test identifies three different sections of user commitment levels:

Economic Test Result	10	20	30	40	50	60	70	80	90	100
TSO A	Red	Red	Red	Red	Red	Light Green	Green	Green	Green	Green
TSO B	Red	Red	Red	Red	Red	Light Red	Green	Green	Green	Green
Single Economic Test	Red	Red	Red	Red	Red	Light Red	Green	Green	Green	Green

1. A section where the individual Economic Tests at both sides of the IP are not passed (level <60 in the example);
2. A section where the individual Economic Test is passed at one side of the IP but not on the other side of the IP (level 60-70 in the example);
3. A section where the individual Economic Tests are passed on both sides of the IP, and therefore also the Single Economic Test is passed (level >70).



Section 3 – the only section where the Single Economic Test is passed – can potentially be increased by a redistribution of revenues for the investment...

# Considerations for redistribution of revenues

A redistribution of revenues for an investment can potentially increase the chances of passing the economic test.

Two possible mechanisms to be considered are:

1. A cost-sharing agreement between the TSOs (or other sponsors) involved in the project to credit one of the parties;
2. A different split of the reserve price to be charged at the respective IP for bundled capacity products.

## **ENTSOG position:**

- The default procedure should be that investment projects are designed in a way that allows all involved parties to cover their costs individually, without the need for cost-sharing;
- The decision on when to consider a redistribution of revenues and which mechanism to use should be left to the respective TSOs and NRAs involved based on a case by case assessment.

# Considerations for redistribution of revenues

ENTSOG provides three different approaches for structuring the process of agreeing on a potential redistribution of revenues – for discussion with stakeholders:

Approach	Description	Advantage	Disadvantage
<b>Ex-ante approach</b>	Assessment of potential redistribution of revenues once the individual economic tests are defined but before parameters of single economic test are published	➤ More certainty for network users on parameters of the economic test	➤ Potentially unnecessary delays due to long-lasting revenue discussions
<b>Ex-post approach</b>	Assessment of potential redistribution of revenues only once a single economic test based on the highest minimum level of user commitment is negative	➤ Resources and time for assessment only used if really necessary	➤ Final outcome of economic test could be delayed due to assessment
<b>Integrated and iterative approach</b>	Assessment of potential redistribution of revenues integrated into the design and the binding phase of an open season, thus open season could be chosen in case redistribution of revenues is expected to be necessary	➤ Efficient combination in which recourses and time are used rationally	➤ Requires full immersion of network users throughout the whole process ➤ Transparent for insiders, but less for outsiders



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## Tariff Issues

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1. **Tariff calculation for incremental/new capacity**
2. Tariff adjustment

# Tariff for incremental/new capacity

**How to calculate the tariff at which network users can request incremental/new capacity?**

**Tariff FG:** “...when determining the minimum price at which network users can request incremental capacity, the reference price as determined by the cost allocation methodology shall apply.”

**Which tariff to use for the calculation of PVUC in the economic test?**

**Tariff FG:** “...An estimated projection of tariffs for the bundled yearly capacity products of the capacity expansion(s) considered...”



Due to floating tariffs, no tariff is specified in an auction or in the binding phase of an open season. The tariff used for the calculation of the economic test can be different from the tariff invoiced at the time of usage.

# How to determine tariff used to calculate PVUC?

- Due to floating tariffs, the tariff used for the initial allocation of incremental /new capacity will be different to the tariff used in future years, when incremental/new capacity will be commissioned.
- For the calculation of PVUC, two approaches are proposed for discussion by ENTSOG:

Approach for tariff to use for calculation of PVUC	Considerations of approaches
1. To define a standardised approach for tariff projection in a network code applicable to all incremental/new projects	<ul style="list-style-type: none"> <li>➤ Clear and predictable process</li> <li>➤ Potentially low quality of projection due to lack of flexibility for specific circumstances</li> <li>➤ Under-recovery in case of lower actual tariffs at time of usage (included in 1-f)</li> </ul>
2. Case by case process for the estimation of future tariffs to be applied by the individual TSOs subject to NRA approval	<ul style="list-style-type: none"> <li>➤ More flexibility but less defined process</li> <li>➤ NRA approval implicitly guarantees under-recovery in case of lower actual tariffs</li> </ul>

# Approaches for tariff determination in incremental/new capacity process

Possible approaches for determining a tariff for the calculation of PVUC are:

Approach	Description
<b>Assumption of stable reference price</b>	To apply the reference price for the respective IP at the time of the initial offer of incremental capacity for all years of the booking horizon assuming a stable tariff
<b>Assumption of “as-if” reference price</b>	To calculate a reference price for the respective IP based on the framework of the year of the initial offer of incremental capacity under the assumption that the investment (and associated increase in RAB and OPEX) is already in place for that year and assuming a stable tariff
<b>Estimation of reference price development</b>	To calculate reference prices for each year of the booking horizon based on the estimated cost and revenue structure, taking into account the cash flows associated with an investment in the respective years

**Which approach is most appropriate depends among others on size and complexity of a project! Therefore prescription of a harmonised approach might not be constructive**

# Considerations for alternatives

**Fixed tariffs for incremental/new capacity in order to avoid differences in tariff application and a potential under-recovery for an investment**

Consequences could be:

- Higher willingness of network users to commit for a long period of time thus increasing the chances of passing an economic test
- Cross-subsidisation with other points if investment costs increase and no other mechanism for revenue recovery is available
- Application of different tariffs for the same product at the same IP
- Way of allocating incremental/new capacity together with existing capacity at different tariffs needs further elaboration

**Stakeholder views?**

# Agenda

1. Tariff calculation for incremental/new capacity
- 2. Tariff adjustment**

# Precondition for tariff adjustment

**An adjustment of tariffs for incremental/new capacity should be considered when selling all incremental/new capacity would not generate sufficient revenue to pass the economic test**

- Each economic test scenario should be designed in a way that the test can be passed if all incremental/new capacity on offer is allocated
- Default option (as stated in TAR FG) should be the application of a premium in the first year incremental/new capacity is on offer
- Alternative approaches are to be developed by ENTSOG

## **ENTSOG position:**

A default option should not be defined at this point of the process but all approaches should be assessed on an equal basis!

# Tariff adjustment mechanisms

Next to applying a premium in the first year of offer, the following alternatives could be considered for adjusting tariffs to give the economic test a chance to be passed:

- Adjusting the reference price for all users at the respective IP
- Adjusting the reference price for all users at the respective IP, except for those that have booked capacity at the respective IP before the first offer of incremental capacity
- Introducing a minimum premium only for those network users that are participating in the incremental process
- Introducing a discount for those network users that are participating in the incremental process in order to incentivise them to increase their volume bids

**Additional approaches?**

# Considerations of alternatives

Approach	Advantage	Disadvantage
<p><b>Adjusting reference price for all users at the IP</b></p>	<ul style="list-style-type: none"> <li>➤ Clear and simple process (one reference price for all users)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Affects users that booked long-term capacity before investment was triggered</li> </ul>
<p><b>Adjusting reference price for all users at the IP, except for those that have booked before initial offer</b></p>	<ul style="list-style-type: none"> <li>➤ User that booked long-term capacity before investment was triggered are protected from tariff increases through investment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Complexity due to at least two different reference prices for the same product</li> </ul>
<p><b>Minimum premium for those participating to incremental process</b></p>	<ul style="list-style-type: none"> <li>➤ User that booked long-term capacity before investment was triggered are protected from tariff increases through investment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Reduces willingness for long-term commitment as future offers will be cheaper</li> </ul>
<p><b>Discount for those participating to the incremental process</b></p>	<ul style="list-style-type: none"> <li>➤ Rewarding for network users committing long-term and thus underpinning the investment</li> </ul>	<ul style="list-style-type: none"> <li>➤ Disadvantage for users holding existing capacity</li> </ul>