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Autorità di Regolazione per Energia Reti e Ambiente

Scenarios and cross-border cost allocation

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ACER workshop on cross border cost allocation

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Assessing scenarios for the purpose of cross border cost allocation 1

- A benefit-based cross-border cost allocation decision require robust and NRA-agreed scenarios as a key prerequisite

- A general objective is to promote "good" EU scenarios
- But:
  - Available scenarios (and their assumptions) may not always be plausible
  - The possibility to rectify assumptions, unless other carried out at national level for NDP purposes, may be limited by the tight timing of CBCA process. Even when nationally-corrected scenarios are available, they would have to be agreed among NRAs

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Assessing scenarios for the purpose of cross border cost allocation 2

- As a consequence of unplausible assumptions, the FILTERING OUT of some scenarios may be the only practical approach

- E.g. ACER decision on LitPol link, especially:
  - 3.4.4. Main concerns on each scenario (according to ENTSO-E)
  - 3.4.5. Assessed discrepancies on scenario data
  - 3.4.6. Views of NRAs on scenarios
  - 3.4.7. ACER conclusion: filtering out of 3 scenarios out of 4, for justified reasons

https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Individual%20decisions/ACER%20Decision%2002-2015%20on%20LitPol.pdf : Section 3.4, pp. 18-24

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Assessing scenarios for the purpose of cross border cost allocation 3

- E.g. ARERA decision on Italy Tunisia HVDC, stating that "*the Sustainable Transition scenario features a low plausibility due to the assumption on CO2 price, which was already criticised in the ACER Opinion 10/2018 on TYNDP 2018 scenarios*"
- FILTERING OUT ST SCENARIO

	Fuel & CO_2 prices								
	Year	2020	2025	2025	2030	2030	2030	2040	2040	2040
	Scenario	Expected Progress	Coal Before Gas	Gas Before Coal	Sustainable Transition	EUCO	Distributed Generation	Sustainable Transition	Global Climate Action	Distributed Generation
€/ net GJ	Nuclear	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
	Lignite	1.1	1.1	1.1	1.1	2.3	1.1	1.1	1.1	1.1
	Hard coal	2.3	2.5	2.1	2.7	4.3	2.7	2.5	1.8	2.8
	Gas	6.1	7.4	7.0	8.8	6.9	8.8	5.5	8.4	9.8
	Light oil	15.5	18.7	15.5	21.8	20.5	21.8	17.1	15.3	24.4
	Heavy oil	12.7	15.3	12.7	17.9	14.6	17.9	14.0	12.6	20.0
	Oil shale	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
€/ ton	CO_2 price	18.0	25.7	54.0	84.3	27.0	50.0	45.0	126.0	80.0

https://www.arera.it/allegati/docs/20/176-20all.pdf Section 4.2, pp. 9-10

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Assessing scenarios for the purpose of cross border cost allocation 4

- But low-plausibility assumptions may also affect all scenarios and may not be rectifiable
- *"However, significant uncertainties affect the expected socio-economic performance of the Italy-Tunisia interconnection, in particular regarding the development of the electricity market in Tunisia;* ***the development of generation in Tunisia and in northern African countries, which could be significantly influenced by the presence of a new interconnector; the assumptions on the demand growth in Tunisia and about a significant export from Tunisia to the neighbouring northern African countries****; the developments regarding carbon pricing in Tunisia"*

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Assessing scenarios for the purpose of cross border cost allocation 5

- Conclusions:
  - Overarching need to improve EU TYNDP scenarios
  - Need for a thorough scrutiny of the proposed scenarios by NRAs (or by ACER when it becomes competent to decide)
  - Need for deep discussions among NRAs, pursuing a mutual agreement as requested by TEN-E (and as also applied by ACER in 2015, when drawing the same conclusions of LT and PL NRAs)

- Possible discussion:
  - What could be done for the next CBCA decisions, given the severe shortcomings of TYNDP 2022 scenarios?

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Cross-border cost allocation and cost benefit analysis

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Cost benefit analysis for the purpose of cross border cost allocation 1

- A benefit-based cross-border cost allocation decision require robust and NRA-agreed benefit assessment as a key prerequisite

- A general objective is to promote "good" EU cost benefit analysis (and its methodology), while being aware that, due to the EU-wide and plan-wide nature of the EU TYNDP, **the TYNDP CBAs will never be a true project-specific cost benefit analysis**

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Cost benefit analysis for the purpose of cross border cost allocation 2

- Benefits in Italy - Tunisia CBCA (as proposed by promoters):

Scenario	ST	DG	EUCO
Costs	- 0.51	- 0.51	- 0.51
Congestion revenues	0.87	1.16	0.29
SEW externalities	0.32	0.05	0.43
Losses variation	- 0.24	- 0.15	- 0.22
SoS externalities in Europe	0.02	0.05	0.00
Avoided generation costs in Tunisia	0.21	0.21	0.21
Net present value (billion euro, 2019)	**0.67**	**0.80**	**0.20**
Benefit-to-cost ratio	**2.31**	**2.58**	**1.40**

Table 3: main CBA results, as calculated by the Project Promoters

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Cost benefit analysis for the purpose of cross border cost allocation 3

- From ARERA decision on Italy-Tunisia: "*The CBA review also identified the need for some adjustments, out of which the more significant ones are the monetisation of the security of supply benefit in Italy and the accounting of a positive monetary flow corresponding to the World Bank grant for project studies (about 12 million euro)*"

Scenario	ST	DG	EUCO
SoS externalities in Europe (by ARERA)	0.05	0.13	0.00

Table 4: CBA results regarding security of supply, as reviewed by ARERA

Scenario	DG	EUCO
Total costs (billion euro, 2020 prices)	- 0.52	- 0.52
Total benefits (billion euro, 2020 prices)	1.46	0.75
Net present value (billion euro, 2020 prices)	**0.94**	**0.23**
Benefit-to-cost ratio	**2.80**	**1.44**

Table 5: main CBA results, as reviewed by ARERA (note: ST scenario is deemed to have low plausibility and therefore is not reported)

https://www.arera.it/allegati/docs/20/176-20all.pdf Section 4.2, pp. 9-10

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Cost benefit analysis for the purpose of cross border cost allocation 4

- Special attention is needed to the use of cost benefit analysis results (broken down at national level) for the purpose of identifying national balances of costs and benefits, cfr. Section 1.6 "calculation of net national impacts" and Annex II in the ACER recommendation on CBCA
- Other complexities arise for attributing specific benefit categories, namely the externalities on greenhouse gases GHG emissions and non-GHG emissions, as their results are affected by generation pattern changes and because GHG are a global impact. In ARERA's decision on Italy - Tunisia: "*externalities related to the social cost of CO2 (benefit B2 in the ENTSO-E CBA methodology) and to the variation of other emissions (benefit B4 in the ENTSO-E CBA methodology) have not been taken into account in the analysis*"

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Cost benefit analysis for the purpose of cross border cost allocation 5

- In its latest update of the Italian cost benefit analysis methodology in January 2023, ARERA decided that, while all other benefits are calculated for the perimeter "Italy-only", the benefits due to the variation of GHG emissions must be counted on a system-wide basis

- Possible discussion: Which concrete consequences when CBA is carried out for the purpose of CBCA? Leaving the GHG (CO2) benefit out of the calculation of national net impacts?

ARERA's update of requirements for national plan and CBA methodology (January 2023): https://www.arera.it/it/docs/23/015-23.htm (in Italian)

First version, November 2016: https://www.arera.it/allegati/docs/16/627-16eng.pdf (in English, unofficial translation)