

Regional Gas Market Development Workshop 30th of October 2020

Time	Topic	Contents	Presterter
9.00	1. Opening words	<ul style="list-style-type: none"> • Welcoming words <ul style="list-style-type: none"> • Introduction to agenda • TSO roundtable: expectations towards the market participants 	Mika Myötyri (moderator) Gasgrid Finland Amber Grid Conexus Elering Gasgrid Finland
9.15	2. Shippers' experiences from operating in three market areas	<ul style="list-style-type: none"> • Stakeholders' comment • Q&A 	Marko Allikson, Baltic Energy Partners Mika Myötyri (questionnaire)
9.35	2. Objectives and background	<ul style="list-style-type: none"> • Common Tariff Area and Common Balancing Area as concepts • Main questions to be answered 	Leena Sivill
9.45	3. TSOs' flow modelling results, part A	<ul style="list-style-type: none"> • Approach: flow modelling and its limitations • Assumptions and input for flow modelling 	Leena Sivill
10.00	Break		
10.10	4. TSOs' flow modelling results, part B	<ul style="list-style-type: none"> • Results • Questions and discussion 	Leena Sivill
10.50-11.00	5. Feedback and closing words	<ul style="list-style-type: none"> • Next steps • Feedback from the participants: contents, Q&A 	Mika Myötyri, Anni Sarvaranta





Regional gas market functioning from trader perspective

Presentation for RGMDW meeting
Marko Allikson, Baltic Energy Partners OÜ

October 30th, 2020

Natural gas wholesale markets function relatively well - practically no big daily issues

Nomination/ capacity platforms perform well

- Major improvements done during the year with systems becoming easy to understand and use
- Professional and quick support from TSOs

Market information is mostly easily available

- All data including Imatra now available at ENTSO-G
- Some issues have been with RSS feeds and with the fact that different UMM platforms are being used in the market simultaneously for relevant UMMs

Good attempt to communicate early 2021 restrictions

- Information is used for making sales and risk management decisions on 2021 sourcing – changes here are not really welcome

However, we expect better transparency and improved capacity management from TSOs

BC capacity communication

- Several times the information has come to the market that is misleading for traders and Finnish buyers for planning – too optimistic scenarios regarding capacity availability, latest example reduced sales possibility by ca 40% with 1 month notice...

Different treatment of Russian border capacities by TSOs

- Luhamaa & Värskä closure on October 25-29 was communicated differently by Conexus and Elering
- It would be fair to assume that TSO should not show available capacity knowing that it is not in fact possible to use it due to Russian side grid company actions

FCFS as best of bad choices in zone borders

- Communication in June was misleading regarding timing – was it favouring some market players?
- Still FCFS is better than pro-rata for capacity that is sold less frequently – do not change what's not broken

Inculkans injection capacities up&down

- During the injection period the reasons and logic of changes at Inculkans injection capacities was unclear
- More information is needed regarding reasons for changes as otherwise it seems random or maybe favouring some market players over others

Main observed issues in Finnish gas market

Reserve fuel handling is cumbersome

- Somehow the information regarding the reserve fuel handling is always separate from the rest of the market discussion. However, its a mandatory task in Finland differently from Baltics
- No possibility to use Inculkans for keeping reserves for Finland and obligation set on traders instead of TSO

Consumption data from distribution grids

- All supplies have to be nominated latest within-day, but DSOs have an obligation to give data to the market only on D+2 (plus they are late!) resulting in unfair penalization of balance providers and shippers who will not be able to make a good prognosis for balance/capacity

Unflexible collateral system restricts trades

- Collaterals have to be provided either in the unflexible form of bank guarantee or dedicated pledge account in Finland
- No possibility to cover quickly the needed collateral with cash that would enable to facilitate fast changes in market positions, e.g., to cover imbalance due to cold weather or capacity need for short term trades

Retail market is open in Estonia, others could follow the lead as there is nothing to fear

Latvia

- Household customers have regulated prices

Lithuania

- Household market has regulated prices
- Discount on LNG entry pushes away other sources
- Left out from the EE-LV/FI entry-exit area and Baltics balancing area – often a barrier for trades
- A lot of seemingly unnecessary bureaucracy and redundant reporting with REMIT

Finland

- Market not prepared for retail level competition, need to obtain metering device at customer cost, data exchange not favouring independent gas sellers, security stock obligation etc.

Inculkans new rules and tariffs will change the regional gas market dynamics next year

From „traders heaven“ where Summer-Winter spread minus 0,7 €/MWh is potential profit and evryone can get a share

...to „storage owners heaven“ where auction reaps the seasonal spread profits and only large traders compete at the cost of financing



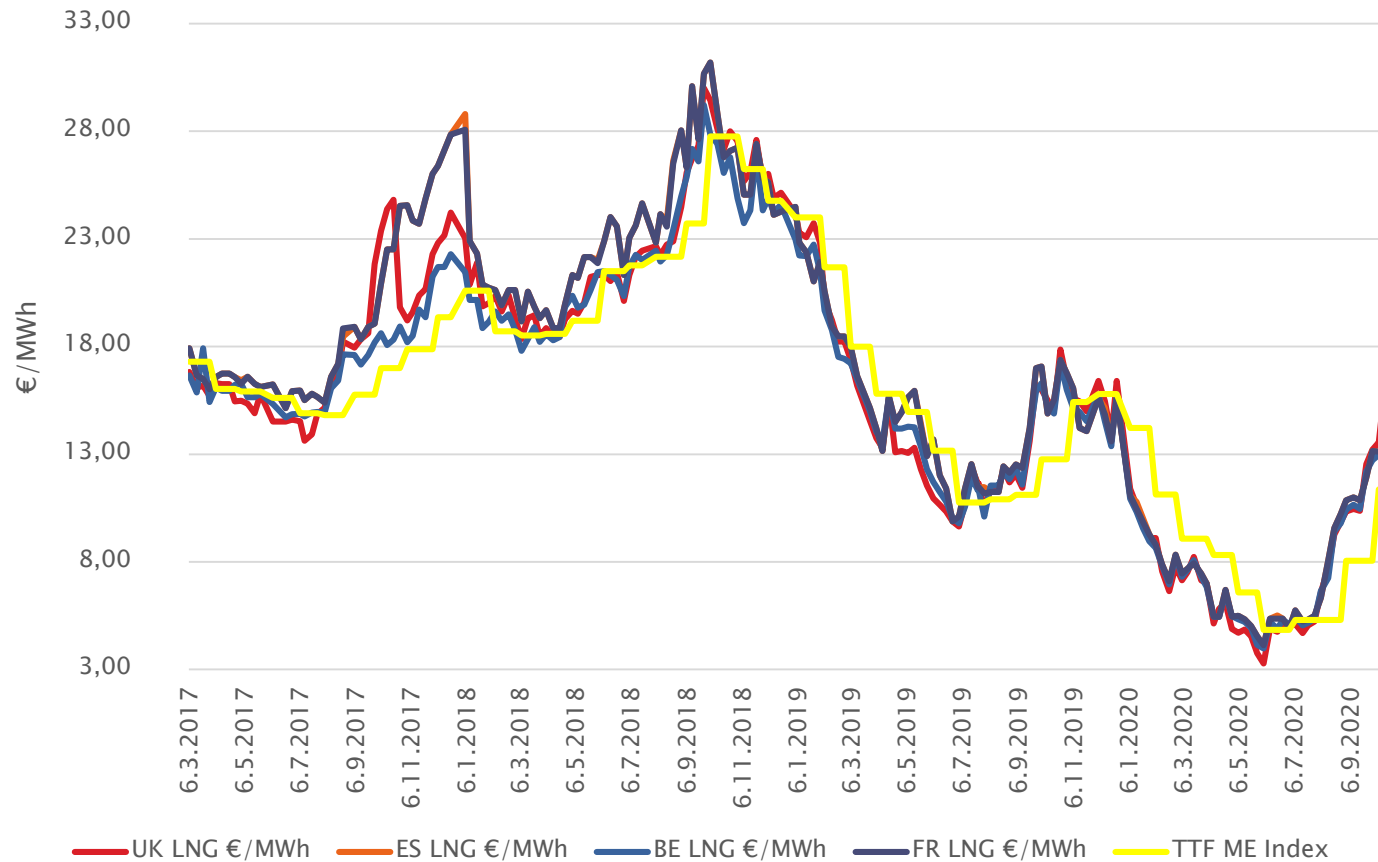
- **Hopefully, excess funds will be used rather to invest in removing the Inculkans capacity bottlenecks than reducing domestic tariffs in short term**

Other questions regarding the next year

- When will the BalticConnector start providing full capacity in stable manner?
- When will the green certificate market start functioning cross-border?
- Will the retail markets be more open to competition?

Longer term market design flow analysis is missing a scenario – „RU low, alternatives high“

LNG landing prices in Europe vs TTF ME index



Source: Reuters Eikon, EEX, Scener analysis

- Russian gas will remain cheaper from Eastern border than via GIPL due to transport costs
- LNG can be either higher or lower priced than European gas market indexes, so consequently LNG via Klaipeda/Hamina can be more or less competitive
- Hamina is standalone too small to affect the market



Alternative market models: implications on gas supply costs

Stakeholder workshop I

2020-10-30

Contents

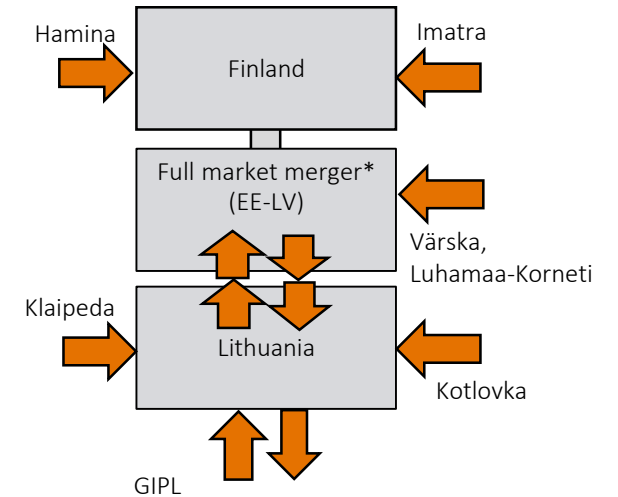
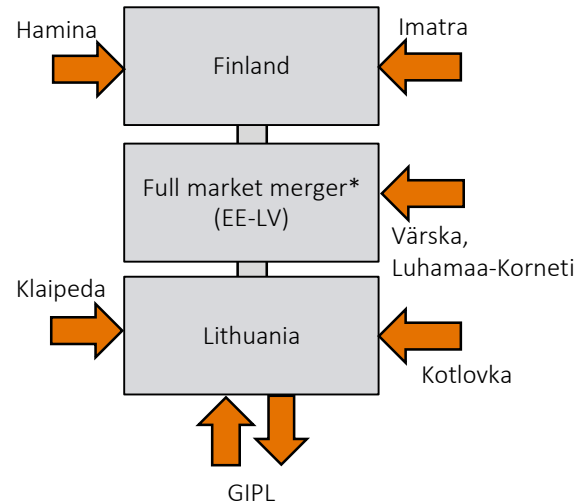
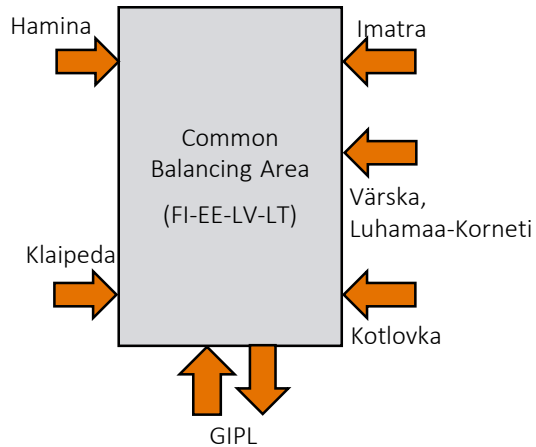
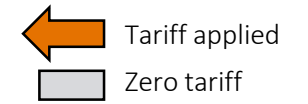
1. Why to study alternative desings?
2. Alternative market designs in brief
3. Approach to flow modelling
4. Results and conclusions

Full report available at: https://gasgrid.fi/wp-content/uploads/Alternative-market-designs-for-the-Baltic_Finnish-regional-gas-market.pdf

Why to study alternative market designs?

- Lack of prior studies on alternative designs that would entail:
 - Balticconnector,
 - Hamina LNG Terminal,
 - GIPL, and
 - Increases to transmission capacity in Karksi and Kiemenai points in 2024.

Alternative market models



Common Balancing Area (CBA)

- Shippers are allowed to transport any volumes of gas between the countries.
- Each transmission network is balanced by using locational balancing service contracts, if there is not enough flexibility (linepack, storage) in the system.
 - The cost of this is allocated to all shippers in relation to their physical use of the system regardless of who caused the physical imbalance.
- Inter-TSO compensation mechanism is applied between all the TSOs.

Common Tariff Area (CTA)

- FI, EE-LV and LT each balance their own commercial and physical systems.
- Capacity is being allocated to shippers at cross-border points with zero tariff. For this reason, commercial flows cannot exceed physical transportation capacities.
- Inter-TSO compensation mechanism is applied between all the TSOs.

Current Market Structure

- FI, EE-LV and LT each balance their own commercial and physical systems.
- FI and EE-LV form a common tariff area. Inter-TSO compensation mechanism is applied between the above countries.
- Lithuania remains outside, although participates in regional coordination and harmonisation.

* Full market merger in EE-LV = Common tariff area, common rules for transportation and two balancing TSOs

Main similarities and differences between market models (1/3)

Shippers and balance responsible parties	CBA	CTA
Number of balancing areas	1	3
Cross-border capacity booking	No	Implicitly or explicitly
Requires major changes to current market rules, contracts, IT and information exchange	Yes	No
Delivers gas price convergence for the region	Yes	Yes, if no cross-border congestion
Increase in the cost of system locational balancing to be socialised between all shippers	No, if no cross-border congestion	No

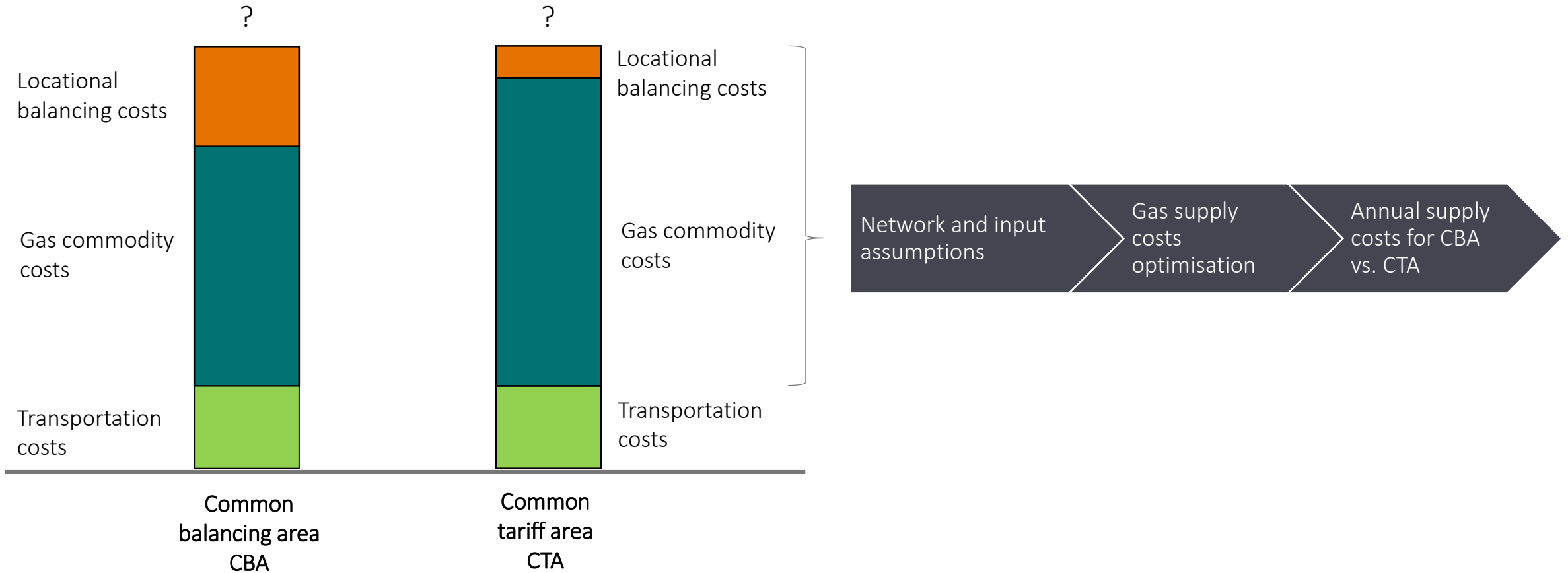
Main similarities and differences between market models (2/3)

End-users	CBA	CTA
Requires changes to current market rules, contracts, IT and information exchange	Minor	No
Delivers gas price convergence for the region	Yes	Yes, if no cross-border congestion
Impact on end-user prices in comparison to as-is (+/-)	Depends on country and cross-border congestion	Depends on country and cross-border congestion

Main similarities and differences between market models (3/3)

Transmission system operators and system	CBA	CTA
Number of commercial systems to balance	1	3
Number of transmission networks to balance	4	4
Establishment of joint market area management	Yes	No
Establishment of inter-TSO compensation mechanism	Yes	Yes
Requires major changes to current market rules, contracts, IT and information exchange	Yes	No

Congestion in cross-border points affects total gas supply costs to the region



Input assumptions and scenarios

1. Gas supply costs to the region were minimised as a function of:

- Three fixed price scenarios (these are NOT forecasts)
 - Import prices in Finland the highest and in Lithuania the lowest
 - Import prices in Lithuania the highest and in Finland the lowest
 - Import prices of Russian pipeline gas the highest and LNG the lowest.
- Shares of long-term agreements (LTAs) on Russian pipeline gas from 0% to 60% of national demand in each country
- Before and after investments in Karksi and Kiemenai 2024
- National demand in different seasons using data from 2019 and an extreme but realistic peak situation.

2. Price of locational balancing is assumed at +/-5 % in relation to the nearest entry of Russian gas.

Demand scenario	Day*	Demand in Finland	Demand in Estonia	Demand in Latvia	Demand in Lithuania	Inčukalns exit	Inčukalns entry
Peak		190	40	104	129	0	160
Winter (high)	30	112.0	23.4	67.2	88.9	0	81.3
Winter (normal)	110	78.6	17.2	47.3	74.3	0	42.3
Summer (normal)	280	48.2	6.5	21.4	50.3	55.2	0.0

* Number of day in duration curve

Transmission capacities	Max. capacity	Min. capacity
Border point	GWh/d	GWh/d
Imatra entry	249.0	23.6
Hamina entry	20.0	0.0
Balticconnector (2-way)	80.0	-80.0
Värskä entry	29.3	5.2
Karksi (2-way) before investments	73	-73
Karksi (2-way) after investments	105.0	-105.0
Luhamaa-Korneti	178.5	14.2
Kiemenai (2-way) before investments	67.6	-65.1
Kiemenai (2-way) after investments	130.5	-119.5
Kotlovka entry	211.2	22.3
GIPL entry	73.7	0.0
GIPL exit	58.3	0.0
Klaipeda entry	122.4	0.0

+ = to direction from south to north; - = to direction from north to south



Coffee break

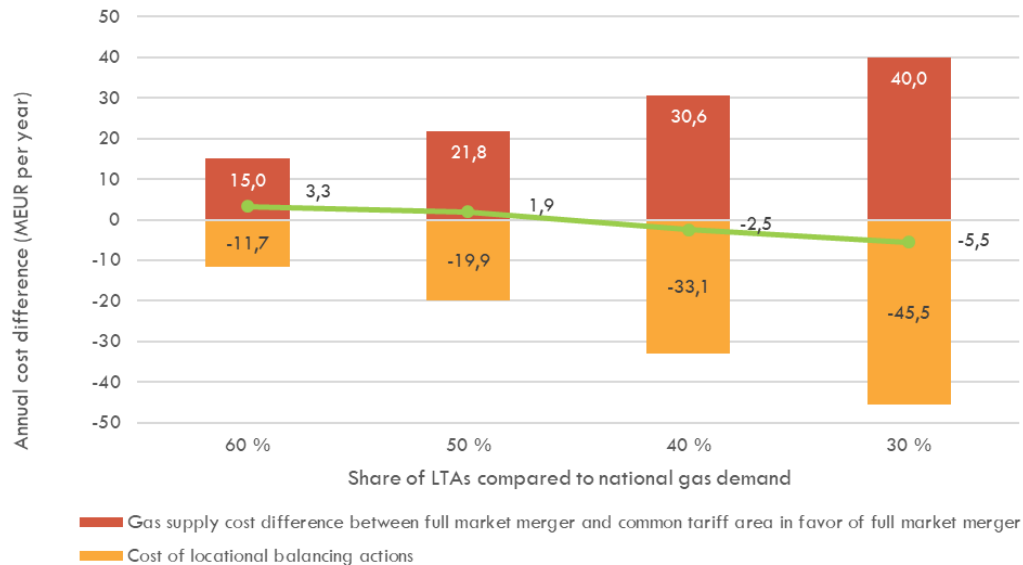


Results

CBA would not be more beneficial than CTA before 2024 due to congestion

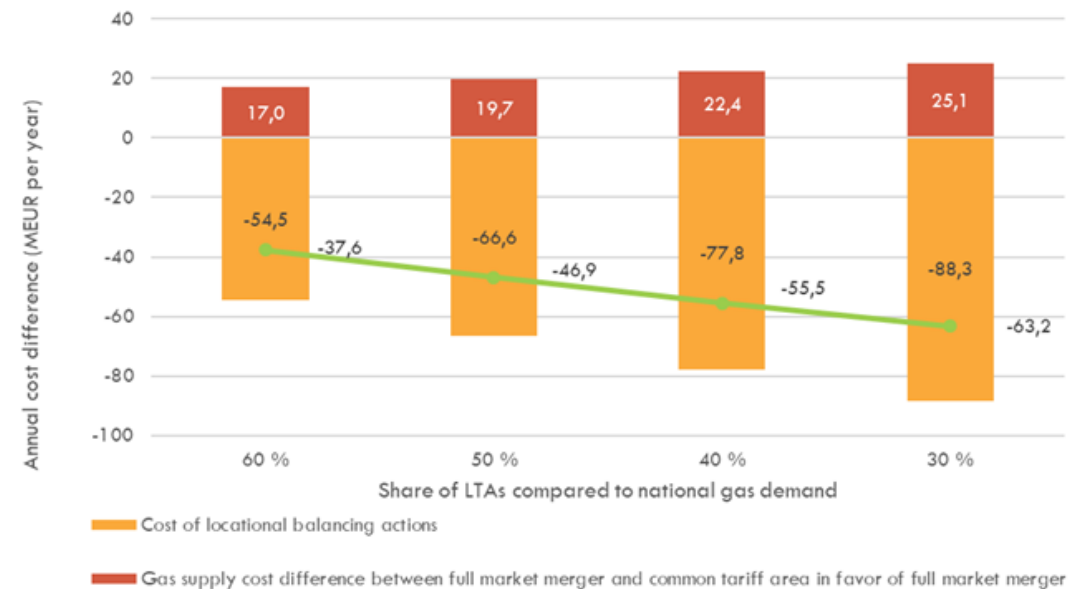
Kiemenai cross-border point would be heavily congested before the capacity investments in 2024 if Lithuania was the lowest cost import route. Balticconnector would be heavily congested if Finland was the lowest cost import route.

Scenario with the highest entry prices in Finland and the lowest entry prices in Lithuania before 2024



LOCATIONAL BALANCING COSTS OUTWEIGH THE BENEFIT FROM A COMMON BALANCING AREA

Scenario with the highest entry prices in Lithuania and the lowest entry prices in Finland before 2024

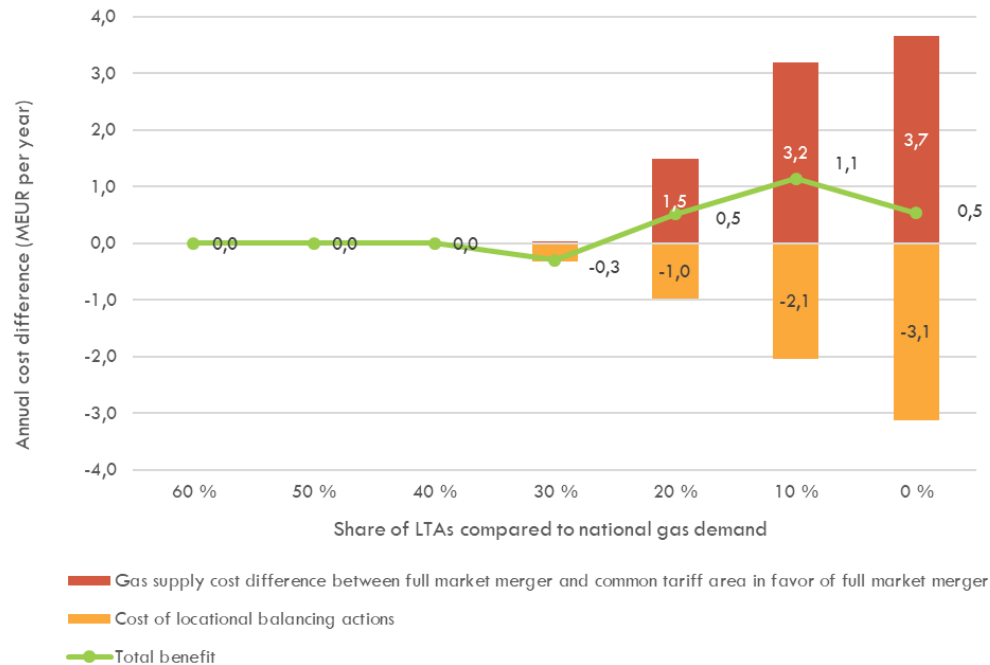


RISK SCENARIO FOR WHICH RISK MANAGEMENT MEASURES ARE NECESSARY IN THE CASE OF A COMMON BALANCING AREA

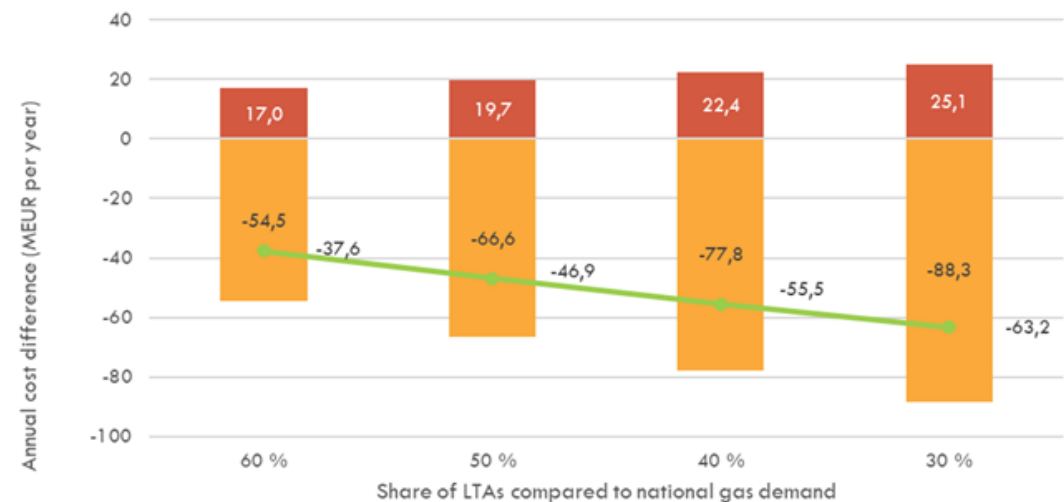
CBA and CTA result in the same gas supply costs after 2024*

After 2024, gas supply costs would be independent of the market design as Karksi and Kiemenai would not be congested nearly at all. In contrast, the risks related to Balticconnector would remain if Finland was the lowest cost import route.

Scenario with the highest entry prices in Finland and the lowest entry prices in Lithuania after 2024



Scenario with the highest entry prices in Lithuania and the lowest entry prices in Finland after 2024



RISK SCENARIO FOR WHICH RISK MANAGEMENT MEASURES ARE NECESSARY IN THE CASE OF A COMMON BALANCING AREA
 These may include one or several of the following:

- Capacity allocation in Balticconnector
- Restrictedly allocable capacity products in Imatra and/or Hamina
- Locational balancing actions

* If congestion in Balticconnector is managed using other methods than locational balancing.

Alternative next steps

No difference in gas supply costs after 2024

CBA is more effective than CTA after 2024 only if it delivers efficiency gains and synergies.

COMMON BALANCING AREA

- Delivers price convergence (but also significant locational balancing costs until 2024)
- Requires major changes to market rules, contracts, IT, information exchange and regulation
- Requires an inter-TSO compensation agreement
- Requires joint market area management
- Enables further harmonisation and joint platforms to be developed for transportation

COMMON TARIFF AREA

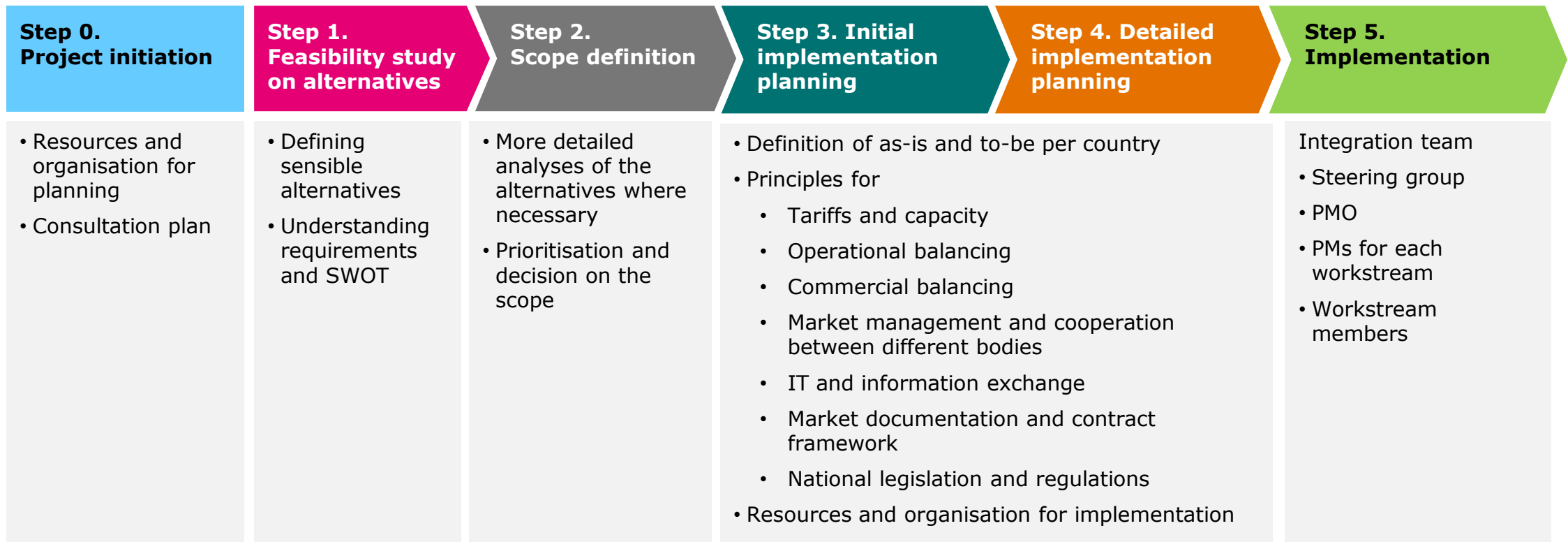
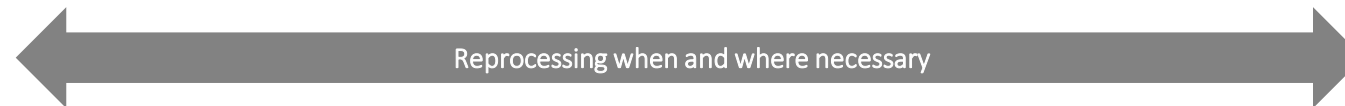
- Delivers price convergence as far as allowed by transportation constraints
- Requires only minor changes to market rules
- Requires an inter-TSO compensation agreement
- Could work as a transitional model to CBA as well as a permanent model
- Enables further harmonisation and joint platforms to be developed as far as sensible

HARMONISATION

- Works as a transitional plan towards CTA and/or CBA until an inter-TSO compensation agreement can be concluded
- Enables further harmonisation and joint platforms to be developed as far as sensible even if an ITC agreement is not concluded



Process for market integration





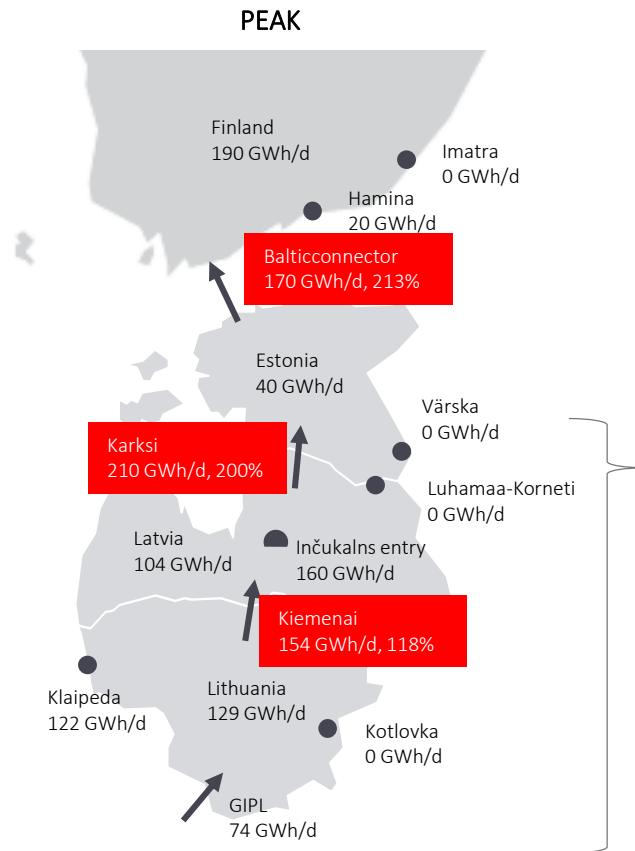
“The secret of getting ahead is getting started.”

- Mark Twain

Limitations of the approach

- The modelling assumes **ideal network operation**. In reality, full technical capacities cannot always be delivered.
- The modelling assumes **perfect knowledge** by market parties. In reality, the market parties cannot optimise their portfolios in full.
- The modelling does not consider the effects of quantity, season or market power on **gas pricing**.
- **Sensitivity of results** was not investigated to changes in absolute prices, i.e. each price scenario only had a single set of fixed prices.

About congestion management in the region



How much and from which entry points should the allocability be limited?



Not an easy question since this affects competition between alternative entry points.

For this reason, this measure might not be useful.

