Baltic regional gas market study

Final Report – Summary of Conclusions and Recommendations

July 2016

- Executive summary
- Summary and recommendations
- Roadmap and harmonisation issues

Summary of conclusions

With regard to **zone design**, we conclude that on the basis of overall welfare for the region, a single zone is likely to bring benefits that exceed those related to separate zones.

- Significant physical congestion in the region is unlikely, and as such the benefits can be summarised as follows:
  - The principal benefit from merging zones relates to an efficiency gain related to the removal of IP tariffs and the harmonisation of rules and regulations. This leads to an improvement in the efficiency with which interconnectors are used, enhances liquidity, and reduces the overall cost of meeting demand in the region.
  - In addition there are benefits associated with the reduction in the number of transactions for shippers, and potentially small improvements in security of supply due to improved coordination between TSOs and market liquidity. Changes in administration costs associated with the setting up and operation of the single zone are likely to be important but not significantly different between separate and single zones.
- As a result of low congestion, the costs from a single zone are likely to be small:
  - Reduced static efficiency (because the TSO has to redespatch gas) and increased TSO administration costs from running the redespatch market, are unlikely to be important given the small size of the redespatch market.
  - Reduced dynamic efficiency (diminished locational signals) is unlikely to be significant since it is less important where new sources of supply or load locate.
- If physical congestion were to materialise then consideration of potentially larger liquidity benefits from removing 'contractual congestion', and offsetting inefficiencies need to be considered. For the Baltics, we conclude the benefits are still more likely to outweigh the costs.

Summary of conclusions

- There are important **distributional impacts** to consider from a single zone:
  - In a single zone, a single wholesale price will lead to increases in wholesale price in some countries and reductions in others, although, given the low likelihood of congestion, prices are also likely converge (except for the IP tariffs) on most days with separate zones.
  - While our tariff numbers are indicative, a fully harmonised approach to entry and exit tariffs appears likely to create unacceptable distributional concerns.
- There are **alternative tariff regimes** which can be used to mitigate these distributional impacts.
  - By harmonising entry tariffs across the region but allowing exit charges to vary nationally, allowed revenues can be recovered for each country, but efficiency benefits from a single entry tariff retained.
  - This would also reduce the need for significant harmonisation of allowed revenue calculations.
  - However, the need for **inter-TSO transfers** cannot be eliminated entirely. For example, if a single zone changed the pattern of flows over Russian entry points because it no longer matters where in the region they enter, then an inter-TSO scheme can be used to mitigate these impacts.
- However, the final methodology and approach will need to be considered and **set by NRAs once the Tariff Network Code is finalised**.

Summary of conclusions

- In relation to **other market design issues**, we:
  - We recommend a full market merger with a single balancing zone and complete harmonisation of balancing rules. A new market area manager will need to be established – either as a jointly owned company by the TSOs or an existing TSO - to manage all of the zone's balancing and settlement. This is similar to models in Germany and the Belgium-Luxembourg zone.
  - We provide further recommendations on other building blocks e.g. developing a transitional balancing model and hub design.
  - We suggest the costs of (new and existing) infrastructure can be more efficiently collected from all countries across the region (not just the country in which the infrastructure is operating) by taking into account the distribution of benefits rather than directly from users.
- In relation to the **roadmap**, we have set out the steps that need to be taken towards the development of a single zone.
  - We recommend that moving straight to a single zone for is the least costly route for Estonia and Latvia. Given the uncertainty over the construction of the Balticconnector Finland should complete the development of its own zone.
  - The single zone will begin to function once the market rules are in place i.e. the network code. And it is the market rules where the highest degree of harmonisation is required. To implement the rules, we set out the implications for legislators, NRAs and TSOs, and present a high-level sequencing of the important steps that need to be taken.
- **Harmonisation issues** are likely to be limited and concentrated on the development of a market area manager and the creation of a single network code. The creation of a market area manager will require new IT systems to be established.

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Recommendations for building a GTM in the East Baltic Region (1)

Here we return the "building blocks" of the GTM which we set out at the start of the report and summarise our main recommendations for developing the regional market.

1 Size of entry-exit zone

With regard to **zone design**, we conclude that on the basis of overall welfare for the region, a **single zone** including all four countries is likely to bring benefits.

- Significant congestion in the region is unlikely, and as such, the principal benefit from merging zones relates to an efficiency gain related to the removal of IP tariffs. Removing IP tariffs allow spare capacity on interconnectors to be used more efficiently, supporting liquidity and reducing the cost of meeting the region's overall demand.
- If congestion were to materialise, then consideration of potentially larger liquidity benefits and offsetting inefficiencies need to be considered. For the Baltics, we conclude these benefits are still more likely to outweigh the costs.

There are important **distributional impacts** to consider from a single zone, particularly in relation to TSO revenues that will need to be managed in developing the single zone.

2 Access to entry-exit capacity

- For **access tariffs** we have recommended **postage stamp** pricing, and high short-term multipliers. And through this tariff regime there are ways to mitigate the distributional impacts on TSO revenues. We recommend **harmonised entry tariffs with nationally determined exit charges** to mitigate distributional impacts on TSOs while maintaining efficient entry signals.
- Adjusting the entry:exit split could also be a useful lever in mitigating small distributional impacts.
- However, the final methodology and approach will need to be considered and **set by NRAs once the Tariff Network Code is finalised**.

3 Cross-border access

- There is a clear design of **capacity allocation** via auctions and **congestion management procedures** set out which will need to be implemented. Given our recommended approach of a single zone, these will only need to be applied over GIPL.

Recommendations for building a GTM for East Baltic Region (2)

4 Market liquidity

- Given the existence of two trading platforms within the region, these could form the market places for the virtual hub in the single zone.
- We identify a range of outcomes for how the **hub structure** could develop, but recognise that the most likely outcome will be the existence of a single trading platform.
- A single trading platform will hold a monopoly position, so some form of **regulation** will be required to mitigate against market power.

5 Balancing and settlement

- To pursue a full market merger a **'market area manager'** will need to be established as a to manage balancing and settlement. This could be a new company jointly owned by the TSOs, or an existing TSO could assume this role for the region.
- A **balancing regime** requires TSO trades on a transparent platform, with imbalance prices reflective of marginal costs faced by the TSO.
- We recommend a **transitional model**, e.g. administered prices or tolerances for imbalances within a certain band, to allow the market to get used to the new rules and develop liquidity.

6 Interoperability

- Countries will need to **develop common rules**, and these will need to be coordinated with Baltic states as well as with Poland.

7 Access to LNG and storage

- We have set out 'hybrid' models for regulating storage and LNG, and recommend **socialising the cost** of these investments (new and existing) over the wider region depending on the benefits they provide.

8 Long-term contracts

- Existing long-term contracts could face losses in a scenario with cheap LNG. These losses could either be borne by importers of placed on consumers via retail levy. There is precedent in the EU for compensation and leaving importers to renegotiate.

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Next steps towards forming a single market zone in the Baltics

In this final section of the report we consider the following:

1. **Roadmap**
   - We set out the steps that need to be taken to implement the single zone, including roles and responsibilities for those roles, and highlighting any key decisions regarding sequencing.
2. **Harmonisation issues**
   - Through the discussion of the Roadmap harmonisation issues are identified. We summarise the key aspects of harmonisation related to the building blocks e.g. regulatory/legal/institutional.
3. **Infrastructure recommendations**
   - On the basis of our flow simulations we consider the implications for infrastructure investment in the region.

An overarching legal and regulatory framework for a market zone…

The typical overarching legal framework for an energy market comprises three main components: legislation, regulatory regime, and the market rules for trading. By considering each of these we can identify the steps that need to be taken in relation to each to move towards the recommended market model.

Legislation

- It provides the legal framework for the market, in particular sets out the roles and responsibilities of the key market participants and institutions – a key one being the NRA.
- There is a question as to the degree of harmonisation required in legislation across each of the countries merging zones. This will likely depend on the level of harmonisation in activities by the NRAs. National specifics can remain, as long as the institutions which are required to support the operation of the single zone have their roles and responsibilities set out.

Regulatory system (based on licenses)

- The licensable parties and their activities will need to be defined by legislation, and may need to be updated when moving to a single zone. These licenses tell the parties what they can and can't do, which can have broader aspects to them (e.g. accounting and network regulation) which are not harmonised.

Market rules (network code)

- The *network codes* are the main basis for setting out the market rules which market participants have to follow, including access to the network, balancing and trading. **The rules are the most important part to harmonise across the countries in the zone.**
- The codes comprise a legal and contractual framework to supply and transport of gas. They are a common set of rules for all industry participants.
- The authority of the code is provided for by legislation, and enforced by the regulator.
- All licensees, including shippers, network owners must sign up to the code.

…with market rules in place zone can begin to function

We consider the main market rules with respect to the roadmap towards a single zone

In the main part of the report we have set out high-level recommendations for the key building blocks of a new market design which are largely guided by network codes. Here we return to some of the main issues covered by network codes and set out the issues/questions that need to be considered on the path to implementing a single zone.

Zone design	Transition to a single zone	Should countries move straight to a single zone, or set up national e-e zones first?
Balancing	Define institutional arrangements for TSO cooperation	How should TSOs cooperate across borders to balance the system? The network code needs to establish design of transitional and enduring balancing regime and formation of *virtual trading point*.
	Define balancing and settlement regime	
Tariff design	Tariff regime and socialisation of infrastructure	The design of a tariff regime needs to be agreed, taking into consideration the socialisation of infrastructure costs. Coordination required between NRAs in setting tariffs consistent with agreed model, and development of inter-TSO scheme.
	Setting of allowed revenues and calculation of tariffs	
Capacity allocation	Design of GIPL capacity auction/UIOLI arrangements	Auctions and UIOLI arrangements over GIPL will need to be coordinated with Polish NRA.

We consider each in more detail in the following slides, in particular what needs to be implemented, and what are, if any, the regulatory and legislative requirements.

The exact nature of changes will depend on whether the region moves straight to a single zone…

The countries in the region have a choice whether to complete the formation of national e-e zones i.e. in Latvia, Estonia and Finland, or move straight to a single zone. Here we set out the pros and cons for consideration

Benefits of completing the switch to national e-e zones first

- This could be achieved more quickly than developing a single zone, bringing the benefits of trading and competition more quickly to the region.
- Finland has already begun the process of creating an e-e zone, and, it is still unknown whether the Balticconnector will be built. The case for completing the national e-e zone first in Finland is therefore stronger than in the other countries. They could join the single zone later if the Balticconnector is built.

Costs of completing the switch to national e-e zones first

- There is a greater period of instability, as movement to a single zone will be delayed by the need to implement national e-e zones first, with an evaluation of their performance.
- There is an increase in administration costs due to converting to national zones then on to a single zone e.g. CAM auctions must be designed for all IPs, and then removed for all except GIPL.
- There are a greater number of winners and losers – those first from conversion to national e-e zones, and then a new set of winners and losers when a single zone is formed.

- The choice ultimately comes down to how firm the decision to move to a single zone is in the region. If it is widely agreed this is the end destination, then costs can be minimised by bypassing the conversion of Latvia and Estonia to national entry exit zones.
- This decision is less clear for Finland given the uncertainty around the construction of the Balticconnector. Given this uncertainty, it is sensible to complete the creation of the national entry-exit zone.

…if wide agreement on a single zone, least cost path is to move straight there

The network code forms the basis on which the single zone can operate…

Prior to implementation of network code legislators will need to establish in law the ability of the TSOs to establish a 'market area manager', as part of fulfilling their balancing obligations. In setting up the market area manager, the TSOs will need to either create a joint-owned company, or nominate an existing TSO to take the role.

Balancing code triggers trading within the zone…

- The network code creates a system of daily balancing across the whole zone, where all shippers nominate their entry and exit flows on a daily basis.
- Establishment of the 'virtual trading point' (VTP) does not set up the platforms or the contracts on which trades take place, however, it defines the area over which participants will face imbalance charges, and hence the basis on which trades are made.
- The network code creates system of daily balancing and therefore the need for a short-term traded market. And, from this market liquidity can develop for contracts traded at the VTP.

…it is likely to require a single balancing network code to be adopted across all countries in zone

- A single network code is important to create a fully merged trading and balancing zone. This will need to be consistent with the EU network codes.
- Alongside, a governance process would need to be established for updating the code i.e. an inter-NRA coordination process.
- An approach could be to implement an *amended* Lithuanian network code. This code already exists and could be updated to suit the needs of the whole zone. This approach was adopted in the UK when Scotland adopted amended English and Welsh codes when their electricity markets formed a single zone in 2005.
- It would in theory be possible for each country to have their own version of the code for the single region, as long as there was a high degree of consistency, which would need to be maintained overtime via a regional governance process. This is likely to raise administration costs and risks for market participants.
- If separate network codes were kept in each country, and large differences remained, then this is likely to lead to a situation of a "trading region" where there are separate balancing zones within the single zones as opposed to a single harmonised balancing zone.

A consistent approach to entry and exit tariffs needs to be adopted in each country zone

Regulators will need to adopt the agreed tariff policy for the region, ideally introduced alongside the balancing code. In this report we have set out high-level recommendations for tariff policy, however, final methodology and approach will need to be considered and set by NRAs once Tariff Code is finalised.

Timing

- Entry and exit charges must be approved by regulators in each country. So once the network code is in place, and the zone begins to operate, it is the responsibility of each NRA to implement the charging methodology into the country's tariff code[1].
- In theory, single zone could operate using existing tariff methodologies for a transitional period, with only the removal of IP tariffs.
- However, in practice the calculation of tariffs based on old methodologies may be difficult because necessary flow information for their estimation may not be readily available in a single zone i.e. specific flow path information is no longer needed once the zone is formed.
- Therefore, there are good practical reasons for simultaneous introduction of the balancing code and new tariff methodologies.

Process

- Introduction requires an agreement to be made between NRAs on a consistent approach. This could be on a voluntary basis, or set in legislation to bind NRAs e.g. each country amends legislation so that NRAs are required to set entry charges in line with the agreed zonal tariff model.
- Each country TSO needs to set reference prices based on the agreed approach to tariffs, followed by the product terms, estimates of capacity bookings, and tariffs set.
- Given the recommended approach to tariffs, a high degree of harmonisation of network regulation is not required. However, there may still be a need for some inter-TSO transfers to address impacts on the charging base for different TSOs as a result of changes in flows in the single zone.

[1]The tariff code could be a separate document or it could be incorporated into the network code.

Lithuania will need to lead the development of allocation processes over GIPL with Poland

The regulators in Lithuania and Poland will need to cooperate to establish auctions consistent with CAM and CMP processes over GIPL

IP tariffs

- Auctions and UIOLI arrangements that are consistent with CAM/CMP will need to be designed for the only IP with another EU country (GIPL).
- Entry/exit revenues will be received in Lithuania so a bilateral agreement between Lithuania and Poland needs to be secured e.g. with regard to revenue sharing from the auction of bundled products.
- Need to define bi-directional capacity quantities, develop standard bundled products to be offered on annual, quarterly, monthly, daily and within-day auctions.

Roles and responsibilities

Legislators

Finland should continue with the implementation of the entry-exit zone if uncertainty remains over BC.

In other Baltic States, legislation will need to be amended so that:

- NRAs are obligated to coordinate in management of the zone and develop balancing and tariff policy.
- There is an option to implement a 'market area manager' that is obligated to balance and settle the zone.
- TSOs will be obligated to implement the codes.
- Market participants are obligated to adhere to the codes.

NRAs

Establishment of NRA coordination group for single zone development.

- Rules governing operation of 'market area manager', any necessary amendments to existing TSO licenses, as well as providing on-going oversight of regional balancing.
- They must approve the network codes, and provide overall governance for any updates to codes.
- Establishment of rules for inter-TSO compensation in relation to any requirement to redistribute tariff revenue.

Each NRA will need to define allowed revenue (though given revenue model, not changed particularly from now)

Lithuanian engagement with Poland to establish CAM/CMP mechanisms over GIPL.

Once the zone has commenced operation, NRAs will need to monitor the market and coordinate with financial regulators. This includes both potential regulation of market trading platforms, and market participants e.g. through REMIT.

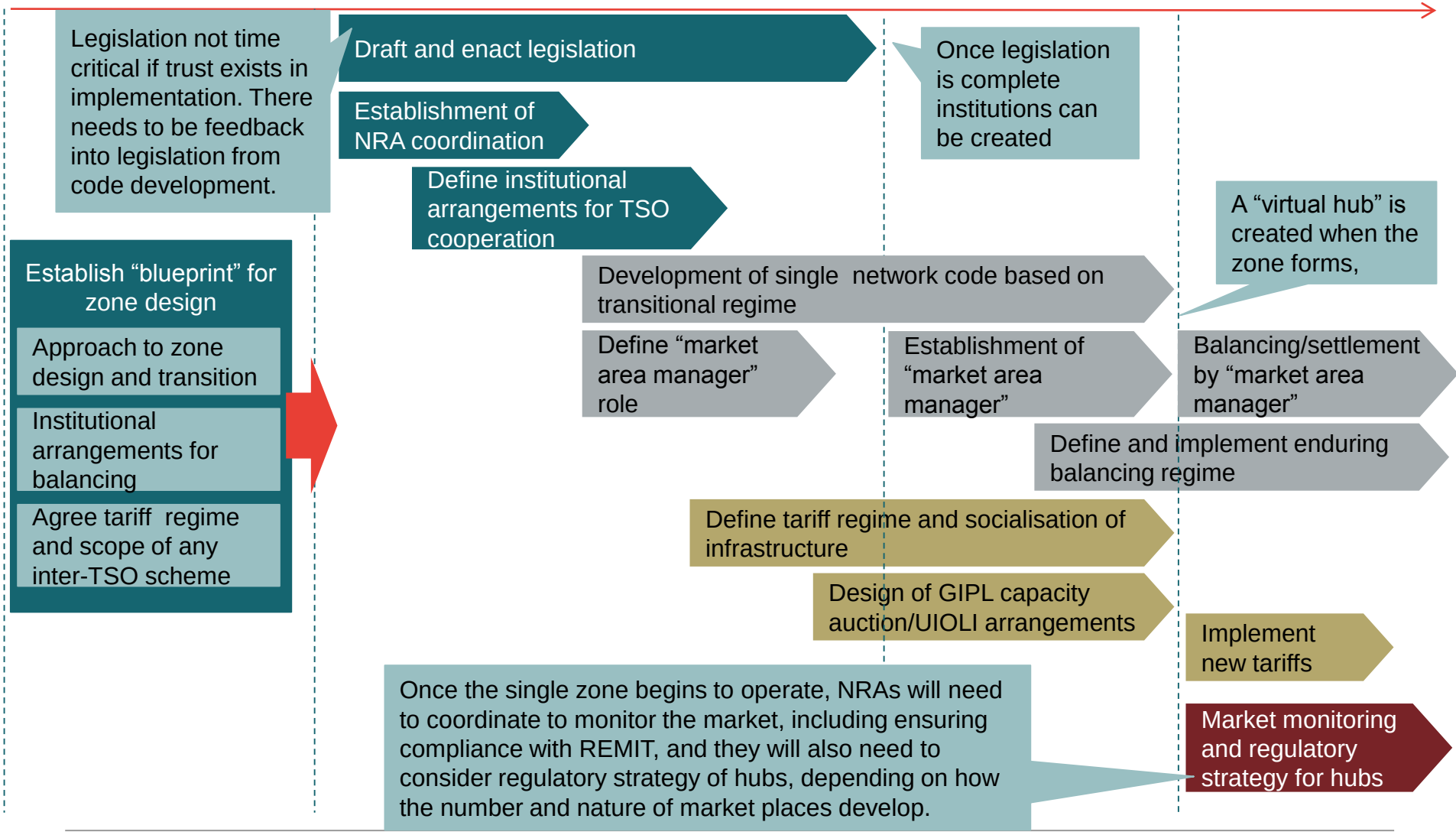
TSOs

- Work with NRAs to establish if creation of the 'market area manager' is the most effective way of meeting obligations to balance the zone.
- If required, create 'market area manager' as a joint owned company, or nominate existing TSO.
- Drafting of network codes.
- Implementation of network code.
  - New process and systems to implement e.g. settlement systems
  - Shipper engagement on design of the code.
- Implementation of tariff policy as directed by the NRAs.
- Implement auction on GIPL.

On the next slide we consider the timeline for key activities, though we can only lay out the process and likely ordering. A more detailed timeline will depend on how countries decide to cooperate and who needs to be consulted at each stage. These slides can start to facilitate the discussion of designing that process.

Indicative timeline for creation of a single zone

Here we have set out an indicative sequencing of things that need to take place before a single zone begins operating and key points afterwards. This is based on the roles identified in the previous slide. This would change if countries all chose to set up national e-e zones first, and then merged zones.



Harmonisation issues from recommended model are likely to be limited

Gas market legal frameworks

- Significant harmonisation of legislation is not required. Overall legal framework constrained by requirements of EU Third Package.
- We have identified through the discussion of the Roadmap the key areas of legislation that require harmonisation. Principally it is about the creation of potential new institutions (e.g. a market area manager) and consistent definition of market roles for NRAs and TSOs.

Regulatory frameworks

- Harmonisation of regulatory frameworks would be desirable (necessary), if fully harmonised entry and exit tariffs were chosen e.g. in relation to existing and new infrastructure or cost approvals.
- However, since a tariff model based on collecting revenues nationally is recommended for a single zone this is less critical.
- Though some harmonisation will be required given some shared costs (e.g. congestion management) and some need for inter-TSO transfers, which need to be allocated.

Market and access rules

- Within a single zone, with fully harmonised balancing, harmonisation of market rules (market timelines, nomination, balancing and settlement rules) will be difficult to avoid.
- These will be defined by the establishment of a single balancing code.
- Harmonisation of access rules is a function of the choice of tariff model. NRAs will need to apply consistent tariff policy.

Institutions and IT platforms

- Key institutions (TSO, NRA) likely to remain national, though a harmonised approach to balancing may require a system of greater cooperation e.g. an overarching TSO body. The most significant need for new IT systems will be for the market area manager to handle balancing and settlement e.g. (e.g. nominations, settlement).
- TSOs will also need to collect data and calculate tariffs which will require new systems and processes for establishing these.

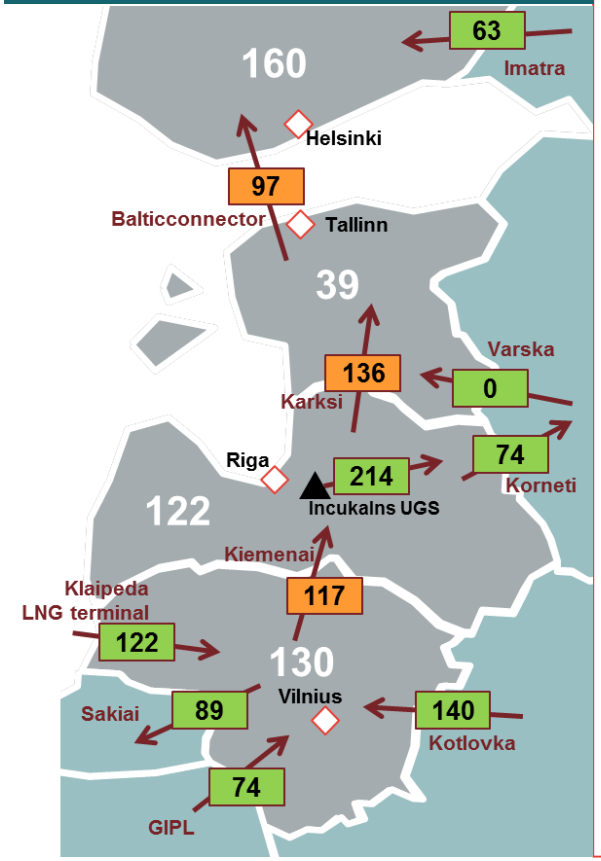
Given nationally based tariffs remove the need for significant regulatory harmonisation, the most important issue is likely to relate to the degree of harmonisation required for balancing...

Infrastructure recommendations – Balticconnector/Karksi

There is a limited amount that can be said from the simplified modelling of the region included in this report. From a pure market perspective the case for new infrastructure is reasonably weak given low levels of congestion expected, however this does not take into account other considerations such as security of supply.

Unconstrained scenario E (winter):

LNG cheap, inflows from GIPL, Base case + Balticconnector



- The Balticconnector (BC), if built, would connect two markets between which there is currently no flow, and on the basis of modelling we have undertaken, it could be used to displace Russian flows into Finland over Imatra when LNG is cheap. The proposed expansion at Karksi would also facilitate these flows. This was particularly evident in scenario E from the flow simulations. In addition, the enhancement of capacity on Latvia – Lithuania border would further alleviate congestion.
- However, as described earlier in the report, these scenarios where LNG is cheap are most likely to be transient in nature, suggesting market revenues for BC will also be transient as well.
- **So while the pure market case is not likely to be strong, there are other potential benefits which could form the key drivers of an investment case.**
- *First*, security of supply could be enhanced since it provides the option of an alternative source of gas to Russia in Finland, and similarly provides an additional source of gas to Estonia from Finland.
- *Second*, if the terms of the Russian supplies to Finland and Estonia were significantly different, it would allow competition between different contracts for Russian gas. This could include optimisation of:
  - geographical differences in prices (to the extent they remain);
  - or take or pay levels across the region e.g. without the Balticconnector, take or pay levels in the Finnish import contract would need to be met by use in Finland. With the Balticconnector, these could be met through demand across the Baltic.

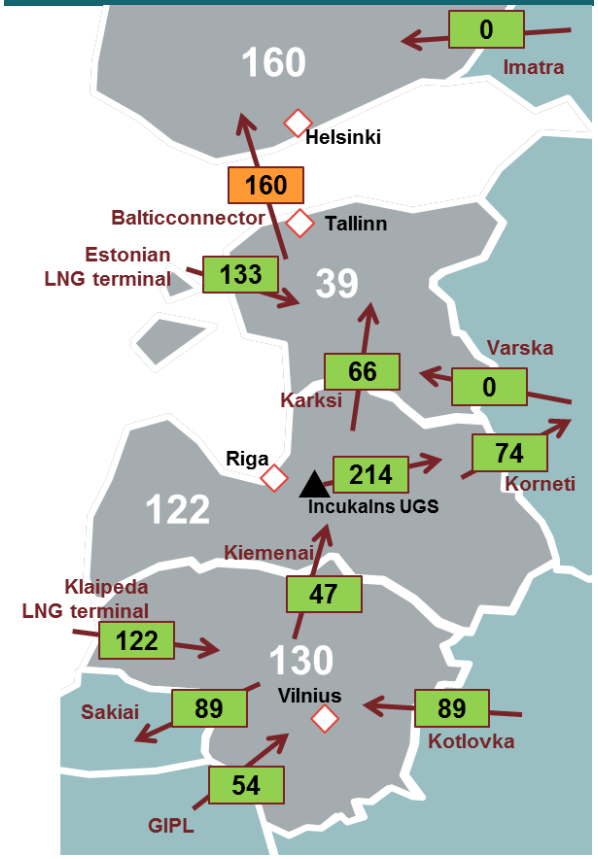
Note – there could also be a case for further investment in Incukalns, however, our flow simulations assume fixed flows in our and out of storage. We therefore cannot comment on future potential upgrades.

Infrastructure recommendations – Estonian LNG

Again, the pure market case for building a new LNG terminal in Estonia is likely to be weak. However, it could enhance security of supply since it creates the potential to supply the whole region without Russian gas, and reduce flows (and hence congestion) from Lithuania to Finland when LNG is cheap. It should be compared to alternative network reinforcements which could be more economic.

Unconstrained scenario H:

LNG cheap, inflows from GIPL, Base case + Balticconnector + Estonian LNG



- In our flow simulations we have considered scenarios where Estonian LNG is built in addition to the Balticconnector (BC). This creates the potential to supply the whole region using LNG, GIPL inflows and storage outflows. This reduces to need for any Russian gas to supply the region, with the only inflows on a transit basis to Kaliningrad.
- The inflow of LNG into Estonia also reduces flows from Lithuania to Estonia when LNG is cheap (as is the case in scenario E), and hence reduces congestion.
- As noted on the previous slide, these scenarios where LNG is cheap are likely to be transient in nature, and Russia is unlikely to tolerate a situation with very low gas flows to the region, so in the same way as for BC, the pure market case for a new LNG terminal is likely to be low.
- Regional security of supply could be enhanced by a new terminal by providing an additional source of LNG to the region, which enables to region to continue without Russian gas.
- However, this investment should be compared against alternative investments in network reinforcements further south in the region between Estonia and Latvia, and between Latvia and Lithuania. Also, if capacities of interconnections are enhanced because of other reasons (e.g. security of supply), it should be taken into account. This will allow more LNG and GIPL flows to move north in the region, and would avoid the risk of significant spare LNG capacity in the region.