PÖYRY

REVIEW OF TRANSMISSION FEES IN ICELAND: PUBLIC SUMMARY OF PHASE 1

April 2018

REVIEW OF TRANSMISSION FEES

REASON FOR REVIEW OF TRANSMISSION FEE ARRANGEMENTS

The transmission fee arrangements in Iceland have been in place for ten years, and have not been updated in response to changes in the Icelandic electricity sector

All countries face the question of how arrangements for transmission fees can best help the electricity sector meet policy goals

How minimise the total costs of the electricity system, whilst meeting wider goals for the

Higher electricity system costs

Transmission costs (infrastructure and system operation)

Other electricity system costs (generation, distribution etc)

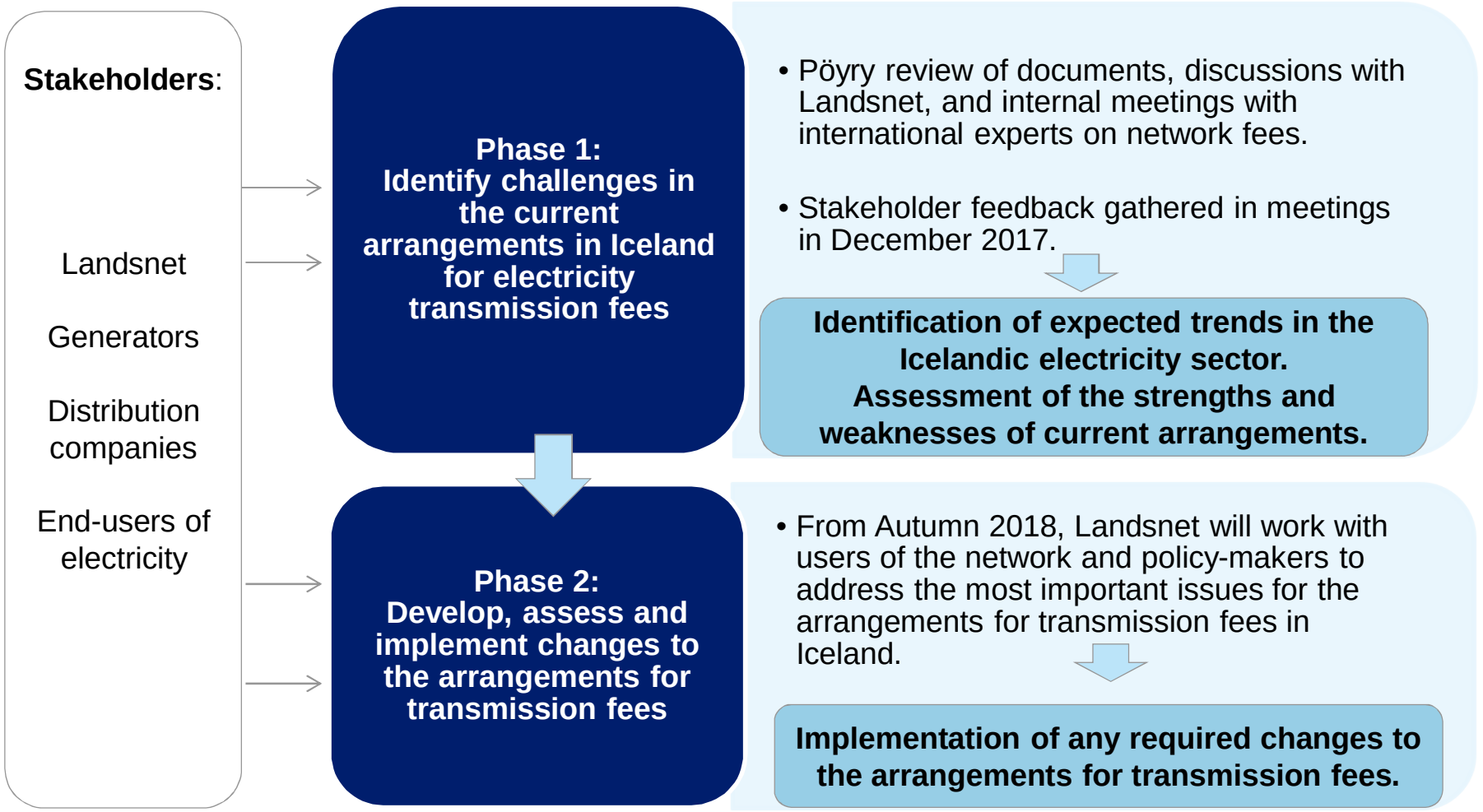
environment?

economy?

society?

OVERALL PROGRAMME FOR REVIEW OF TRANSMISSION FEES

Landsnet hired Pöyry Management Consulting, international experts in network fees, to assess the strengths and weaknesses of the current arrangements



NEXT STEPS IN PROGRAMME TO REVIEW TRANSMISSION FEES

In Phase 2, a working group involving Landsnet and network users will allow all views and experiences to be considered in the development of detailed proposals for reform

- This slidepack includes some suggestions on the priority areas for Landsnet, users of the network, and policy-makers to work together to develop transmission fee arrangements that are most suitable for the future goals and challenges of the Icelandic electricity sector.

- The first step in Phase 2 will be for Landsnet to meet with the users of the transmission network in Autumn 2018 to review and discuss:
  - the priority areas suggested for Phase 2 of the programme;
  - the collaborative approach proposed for Phase 2; and
  - the high-level timescales indicated for Phase 2.

- This will help to build consensus and understanding around the priority areas for reform, and how Landsnet willl work with the network users in a collaborative approach.

- The discussions in Autumn 2018 will be the starting point for a journey towards having transmission fee arrangements that are fit for purpose for the Icelandic electricity sector of the future.

SUMMARY OF PHASE 1

CONTENTS

SECTION 1: SUMMARY OF STAKEHOLDER COMMENTS

Stakeholders raised a range of different issues and challenges in the meetings we and Landsnet had with them

- **Section 1: Summary of stakeholder comments (Slides 8 – 18)**
  We met with 17 stakeholder organisations. The most common topics raised in these meetings were the design of price signals, the ability of network users to respond to price signals, and the sharing of transmission costs between different groups of customers.

- Section 2: Findings of Pöyry review of current transmission fee arrangements (Slides 20-30)
  Current arrangements have the advantage of being relatively simple. There are however some major weaknesses in terms of efficiency, equity and robustness.

- Section 3: Next steps (Slides 32-35)
  The immediate next step will be for Landsnet to meet with network users in Autumn 2018 to review and discuss the proposed priority areas and approach for Phase 2.

CONTEXT FOR SUMMARY OF STAKEHOLDER COMMENTS

The open, engaged attitude of stakeholders in the meetings was very helpful in getting a better understanding their priorities for review

- This section summarise the comments made by 17 stakeholder organisations that we and Landsnet met with.
- The comments have not been attributed to any individual organisation or group of stakeholders.
- The comments capture the points made by stakeholders, and do not represent the views of either Landsnet or Pöyry.
- The summary of comments highlights where different stakeholders expressed conflicting opinions on a particular issue. This reflects the complexity of the issues to be addressed in the review of transmission fees.

STAKEHOLDER COMMENTS: PRICE SIGNALS IN FEES

We have summarised the comments expressed by stakeholders in the meetings. These comments do not represent the views of either Landsnet or Pöyry.

- Stakeholders commented that the current transmission fee arrangements provide weak signals for customers to change their behaviour to reduce the costs for Landsnet of investing in and operating the transmission system. For example, there are not strong incentive for customers to avoid connecting in congested areas.

- Customers do not receive any reduction in tariff rates if they provide guarantees of a minimum level of network usage or sign a longer contract with Landsnet.

- There should be clearer and stronger signals in the provision of system services, including losses.

- Stakeholders expressed mixed views on how investment costs should be recovered by Landsnet.
  - Some stakeholders stated that costs of transmission investments should be recovered from customers who most benefit from the investment.
  - Other stakeholders stated that the upgrading of old lines should not lead to a spike in transmission fees for customers connected to the network in that area.

STAKEHOLDER COMMENTS: RESPONDING TO PRICE SIGNALS

We have summarised the comments expressed by stakeholders in the meetings. These comments do not represent the views of either Landsnet or Pöyry.

- Stakeholders expressed mixed views on the ability of new network users to connect to a different area of the transmission network in order to respond to locational variations in transmission fees.
- Some PIUs will be able to vary short-term output in response to price signals provided by Landsnet.
- If stronger signals are introduced into transmission fees, these will not be passed through to the energy bills of some customers. For example:
  - some PIUs are still on contracts under which the producer pays the transmission fees; and
  - households pay network charges (to distribution companies) based on MWh of consumption only
- All network users should have the opportunity to be able to provide system services. This will require the removal of restrictions on the resale of electricity.

STAKEHOLDER COMMENTS: ACTIVITIES OF LANDSNET

We have summarised the comments expressed by stakeholders in the meetings. These comments do not represent the views of either Landsnet or Pöyry.

- Some stakeholders commented that the transmission fee arrangements should help to increase the transparency of the costs of running the transmission system.

- The transmission fee arrangements should help to justify the need for major investments in the transmission system – e.g. to strengthen the network in areas where it is currently weak and where there are bottlenecks. It is hard for Landsnet to make these investments at present.

STAKEHOLDER COMMENTS: CALCULATION OF CHARGES

We have summarised the comments expressed by stakeholders in the meetings. These comments do not represent the views of either Landsnet or Pöyry.

- Stakeholders discussed the balance between power –based (MW) and energy-based (MWh) elements of transmission fees,
  - The ratio between ‘power’ and ‘energy’ in the fee structure should reflect the split between ‘power’ and ‘energy’ in transmission system costs.
  - Stakeholders expressed mixed views on the suitability of the current split between energy and power charges.

- The use of 4 highest monthly peaks to calculate PIU fee can lead to high charges when customers have unusual load patterns – e.g. starting or restarting production.

STAKEHOLDER COMMENTS: ALLOCATION OF COSTS

We have summarised the comments expressed by stakeholders in the meetings. These comments do not represent the views of either Landsnet or Pöyry.

- A number of stakeholders discussed how transmission costs are split between producers and demand customers. There was a range of views on the most appropriate split, ranging from no increase in generator fees to an equal split of costs between producers and demand customers.

- Stakeholders provided a mixture of views on the share of costs paid by different demand customers.
  - Some stakeholders said that they thought there was a lack of transparency of the reasons for the historical split of costs between different categories of demand customer.
  - Some stakeholders stated that transmission fees for PIUs in Iceland are higher than in other countries where industrial competitors are located, particularly Norway and Sweden. Some stakeholders noted that any difference in transmission fees for PIUs reflects political decisions in other countries to recover a greater share of costs from smaller users.
  - Some stakeholders expressed concerns about any increase in the share of costs paid by small users, including households.

- Definition of different categories of demand customer
  - There should be more customer categories, that better reflect different user characteristics rather than one simple consumption threshold between small and large users. This creates a big step-change in tariffs for customers either side of the current threshold.
  - There are lower thresholds for direct access to transmission tariffs in Sweden and Norway.

STAKEHOLDER COMMENTS: SIMPLICITY AND TRANSPARENCY

We have summarised the comments expressed by stakeholders in the meetings. These comments do not represent the views of either Landsnet or Pöyry.

- Stakeholders commented that the current fee structure is relatively simple, which is important.
- Some stakeholders asked for more clarity in some areas to help them better understand the transmission fee arrangements. The examples given were connection fees, allocation of costs and fees between different customer groups, and calculation of PIU charges.
- Some stakeholders stated that the current fee arrangements can have negative cash-flow implications for customers. Monthly bills are based on forecasts of peak demand, with no reconciliation of annual payments until the end of the year.
- Stakeholder asked for greater visibility in the future level of fees.

STAKEHOLDER COMMENTS: TRENDS IN ICELAND

We have summarised the comments expressed by stakeholders in the meetings. These comments do not represent the views of either Landsnet or Pöyry.

- Demand
  - The current transmission fee arrangements were developed for a system where electricity demand growth was driven by large PIUs with baseload demand rather than the types of customers now connecting to the system. New customers nowadays are generally smaller, with some having variable demand profiles.
  - The financial guarantees required for transmission connections are a major barrier for smaller PIUs.
  - Mixed views on the prospects for electricity demand growth within Iceland, and the impact on generation margins.

- Generation
  - Transmission fee arrangements are not appropriate for smaller generation, particularly wind, which is expected to represent most of the generation that will connect in the future.

- Development of links to other electricity systems
  - Stakeholders comments that any link would mean that the Icelandic transmission system was being used to transport electricity to foreign customers. This would raise questions for transmission fee arrangements..

STAKEHOLDER COMMENTS: REVIEW PROGRAMME

We have summarised the comments expressed by stakeholders in the meetings. These comments do not represent the views of either Landsnet or Pöyry.

- Stakeholders said that it is important to engage effectively with the Government as part of the review of transmission fees.
  - The industry association can play an important role in engaging with the Ministry.
  - Some stakeholders expressed their view that the Ministry prioritises the needs of tourism over the needs of the energy sector.

- Stakeholders discussed the role of Landsnet in the review of transmission fees.
  - Stakeholders commented that the Landsnet team is accessible, and trusted by stakeholders.
  - Some stakeholders said that they would like to have greater confidence that Landsnet can act independently of Landsvirkjun in any review of transmission fees,

STAKEHOLDER COMMENTS: OTHER ISSUES RAISED

Stakeholders raised some interesting issues that fall outside the scope of a review of transmission fee arrangements. These topics are listed below so that the feedback can be considered as part of other areas of policy work being carried out within the sector.

- Some stakeholders commented that smaller PIUs prefer to physically connect to distribution networks as it is much quicker than directly connecting to the transmission network. Speed of deployment/connection is an area of competition with other countries that are trying to attract new developments, such as data centres.
- Development of spot wholesale market in Iceland.
- Price control incentives on Landsnet.
- The level and transparency of WACC used to determine Landsnet allowed revenue.
- Landsnet's approach to the procurement of losses.

SECTION 2: FINDINGS OF PÖYRY REVIEW

These findings are based on analysis of relevant documents, discussions with Landsnet, and internal workshops involving international experts on network fees.

- Section 1: Summary of stakeholder comments (Slides 8 – 18)
  We met with 17 stakeholder organisations. The most common topics raised in these meetings were the design of price signals, the ability of network users to respond to price signals, and the sharing of transmission costs between different groups of customers.

- **Section 2: Findings of Pöyry review of current transmission fee arrangements (Slides 20-30)**
  Current arrangements have the advantage of being relatively simple. There are however some major weaknesses in terms of efficiency, equity and robustness.

- Section 3: Next steps (Slides 32-35)
  The immediate next step will be for Landsnet to meet with network users in Autumn 2018 to review and discuss the proposed priority areas and approach for Phase 2.

OBJECTIVES FOR TRANSMISSION FEES

We assessed the current arrangements for transmission fees against four objectives

Desirable outcomes

Efficiency

Transmission fees should support development and operation of economic and efficient electricity system

Equity

Transmission fees should ensure full recovery of allowed transmission revenue in fair and equitable way

Desirable features

Practicality

Transmission fees should be simple, with low costs of operation

Robustness

Transmission fees should operate effectively under a range of possible future developments in the electricity system

PÖYRY ASSESSMENT: EFFICIENCY

We analysed how the current arrangements facilitate efficient behaviour by network users and by Landsnet.

	Headline findings
Strengths	✓ Current arrangements allow 70% of revenue from infrastructure fees to be recovered in $ terms, which is themain currency of borrowing by Landsnet.
Weaknesses	✗ Weak signals for efficient behaviour by network users – especially in location decisions, but also for time of use. ✗ No signals for efficient behaviour by generators because they only pay a small delivery charge. ✗ There are weak mechanisms for network users to provide Landsnet with good-quality information that would help it to make efficient decisions. ✗ Existing signals are poorly targeted and so can encourage inefficient behaviour – e.g. high level of interest in development of direct connections between generation and demand. ✗ Low transparency of costs of delivering security of supply.

PÖYRY ASSESSMENT: EQUITY

We considered the (perceived) fairness of the recovery of the annual allowed transmission revenue from different customer groups

	Headline findings
Strengths	✓ Top-down approach to calculation of fees provides Landsnet with reasonable confidence that it will fully recover allowed revenue in a particular year.
Weaknesses	✗ Different network users are charged different fees by Landsnet for the same service based on historical definitions of customer groups. ✗ Fees provide incentives for inefficient behaviour by customers to avoid paying 'fair share' – e.g. large gap between PIU and DSO tariffs makes it attractive for customers to exceed 80GWh threshold. ✗ Different network users do not receive the same fee from Landsnet when they provide it with the same service. ✗ Fee structure disadvantages particular types of customers as a result of their patterns of demand.

PÖYRY ASSESSMENT: PRACTICALITY

There is little point in having economically brilliant transmission fee arrangements if operational costs are too high and the charges cannot be understood by users

	Headline findings
Strengths	✓ Simple set of fees for ongoing use of the system, even if the source of some input assumptions is not always transparent. ✓ Low centralised administration costs because of simple, well-established allocation of allowed revenue into different charging pots. ✓ Very little required from users in terms of the annual process for the calculation and setting of fees. ✓ No risks identified in current scheme for compliance with national legislation or expected European requirements.
Weaknesses	✗ Users have to manage cashflow implications of monthly payments based on forecast peak demand, with no reconciliation before year-end.

PÖYRY ASSESSMENT: ROBUSTNESS

We assessed how the transmission fees would be expected to perform in the event of major changes to the electricity system in Iceland

	Headline findings
Strengths	✓ Robust to large scale roll-out of EVs (i.e. many new small demand customers connected directly to the distribution networks).
Weaknesses	× An interconnector directly connected to Icelandic transmission network would challenge current fee arrangements, particularly as a result of very small share of costs recovered from generators. × Rigid allocation of costs between customer categories would exaggerate increase in PIU tariff rates from closure of large PIU. × Rigid allocation of costs between categories would prevent distribution customers sharing in tariff reduction after opening of large new PIU. × Fixed delivery charge is barrier to smaller generation. × Current fees do not incentivise flexibility needed to help system accommodate increased wind.

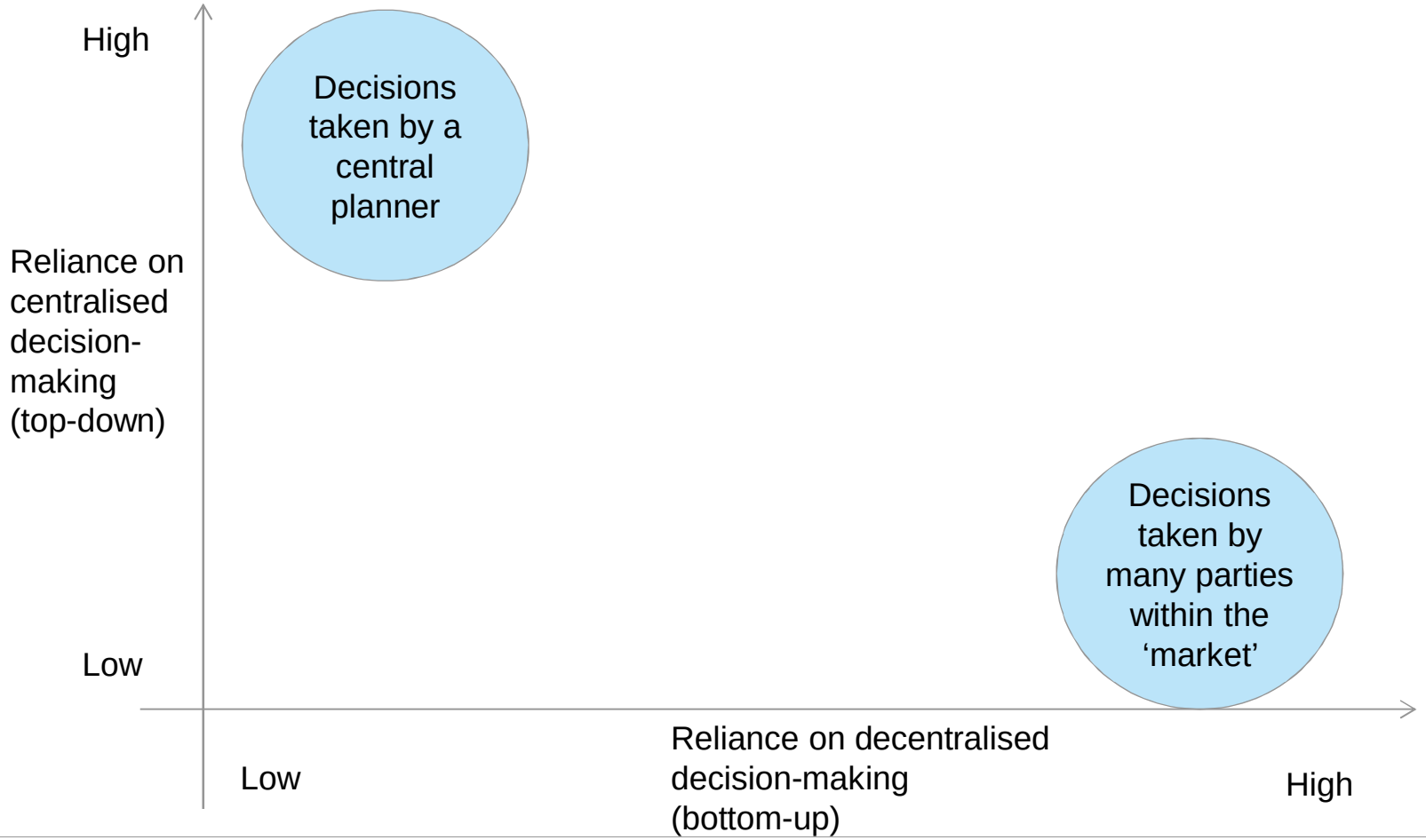
PÖYRY ASSESSMENT: SUMMARY

We identified some major deficiencies in the current arrangements for transmission fees that need to be addressed

Desirable outcomes	**Efficiency** ✘ Poor signals to help efficient use and development of transmission system.	**Equity** ✘ Distribution of costs between customers is no longer fit for purpose.
Desirable features	**Practicality** ✓ Current arrangements are relatively simple and low-cost.	**Robustness** ✘ Current arrangements will not cope well with potential changes in the sector.

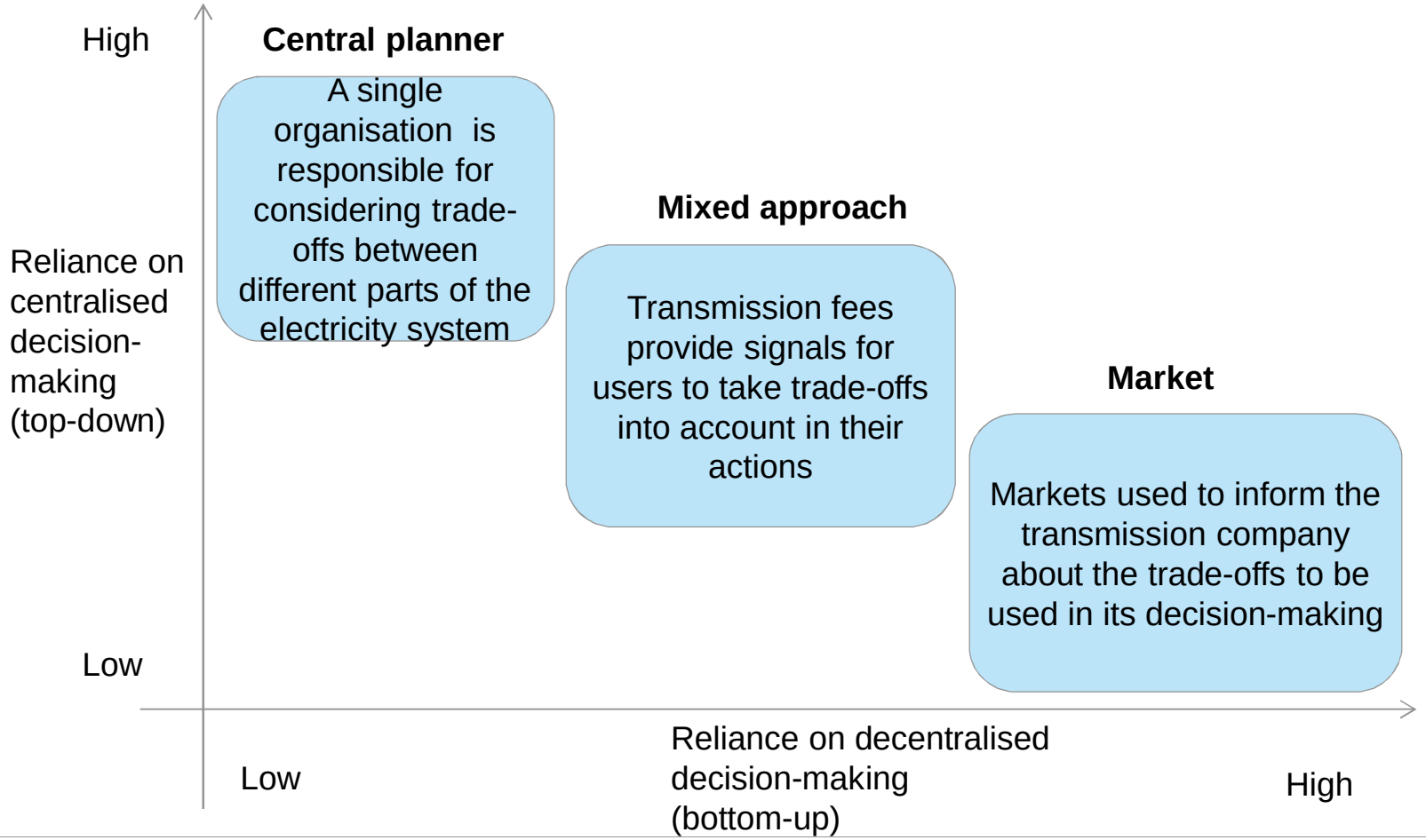
COORDINATING ACTIONS ACROSS THE ELECTRICITY SYSTEM (I)

All electricity systems face a trade-off between centralised and decentralised decision-making in trying to minimise the total costs of the electricity system



COORDINATING ACTIONS ACROSS THE ELECTRICITY SYSTEM (II)

There are a number of different approaches to coordinating actions taken in different parts of the electricity to try to minimise overall system costs



HISTORICAL APPROACH TO COORDINATION IN ICELAND

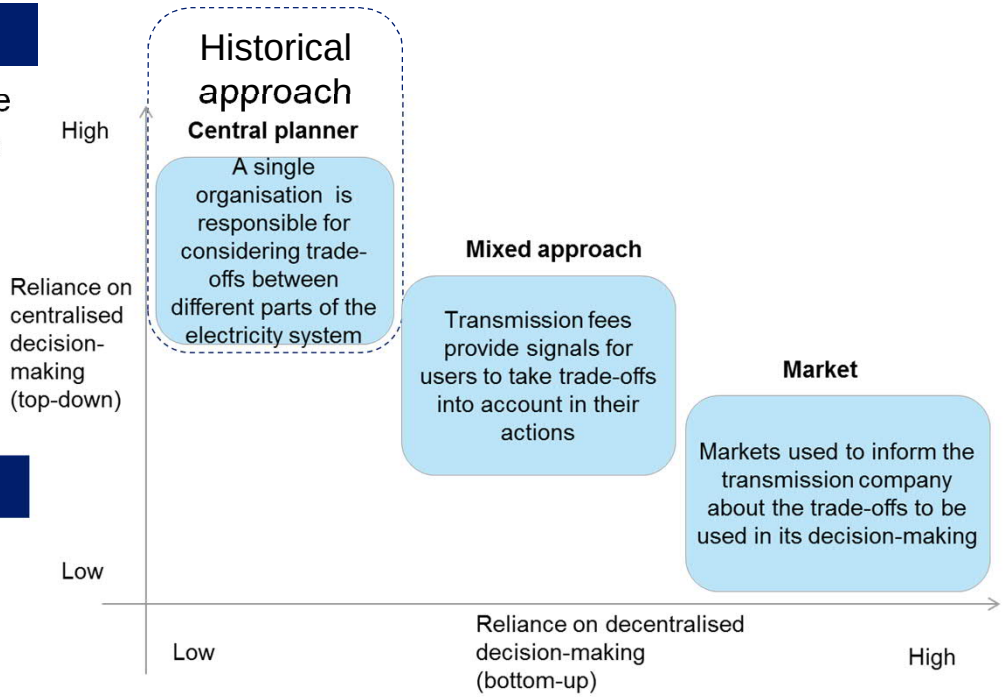
Before 2005, Iceland relied on a very centralised approach to try to minimise overall system costs

Wider context

- Political desire to encourage large power-intensive users to connect to help Iceland to get most value from cheap, low-carbon generation resources.
- Large generation projects were developed alongside new large demand customers.
- New demand customers typically had a long lead time for connection, baseload operation, and made long-term commitments for usage.

Institutional arrangements

- Single, integrated generation and transmission company internalised trade-off between different parts of the electricity system.
- Demand paid single fee that covered generation **and** transmission.



Result: System with 'adequate' capacity based around large, long-term, predictable customers (generation and demand)

CHANGES IN ICELAND

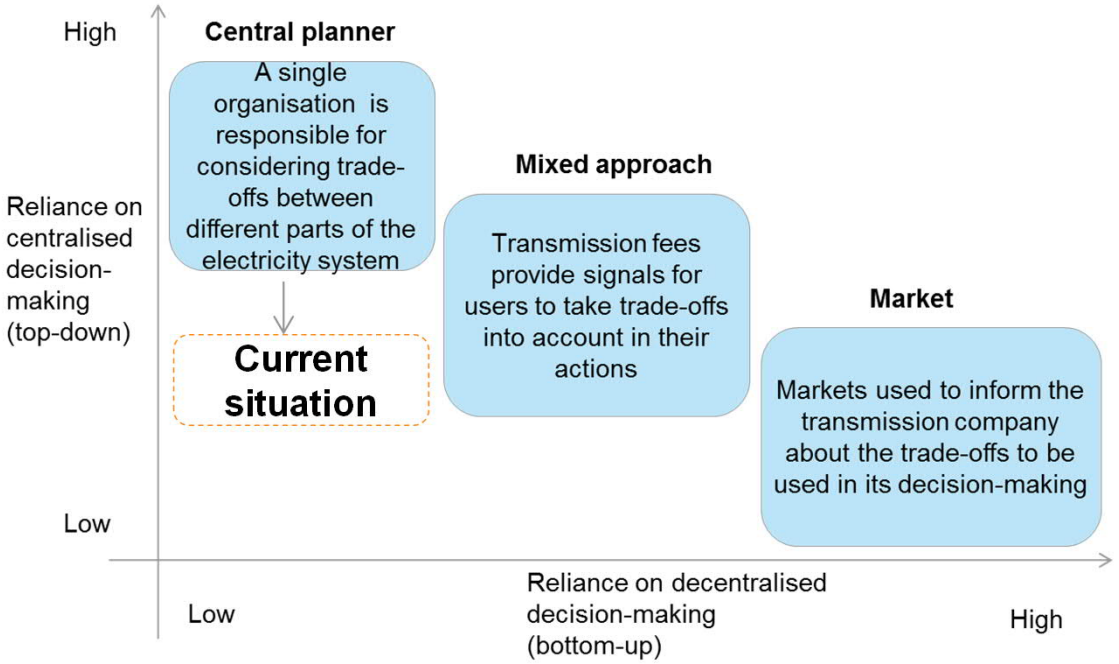
Developments in Iceland have weakened the role and advantages of a centralised top-down approach to coordination

Wider context (before 2005)	Wider context (current)
• Political desire to encourage large power-intensive users to connect to help Iceland to get most value from cheap, low-carbon generation resources.	• **Strong opposition to delivering major transmission investment programme** • **No new large power-intensive users, either in past 10 years or expected in near future.**
• Large generation projects were developed alongside new large demand customers.	• **New generation is smaller and more diverse**
• New demand customers typically had a long lead time for connection, baseload operation, and made long-term commitments for usage.	• **Demand growth driven by smaller customers, with shorter lead times for connection, more variable demand and shorter commitment periods.**

Institutional arrangements (before 2005)	Institutional arrangements (current)
• Single, integrated generation and transmission company internalised trade-off between different parts of the electricity system.	• **Unbundling separated responsibilities for transmission and generation**
• Demand paid single fee that covered generation and transmission.	• **Demand pays separate fee for transmission (in post-2005 contracts), based on average costs by customer category.**

COORDINATION GAP IN CURRENT ARRANGEMENTS

Centralised coordination mechanisms have been weakened, without replacement by mechanisms for more decentralised coordination.



Results:

- Landsnet has poor visibility of planned customer developments.
- Increasing delays in connection of new customers.
- Existing customers are strongly opposed to paying for planned major transmission reinforcements.
- There are multiple bottlenecks on the transmission system.

SECTION 3: NEXT STEPS

Landsnet will use a collaborative approach in Phase 2 to ensure that all viewpoints and experiences are taken into consideration

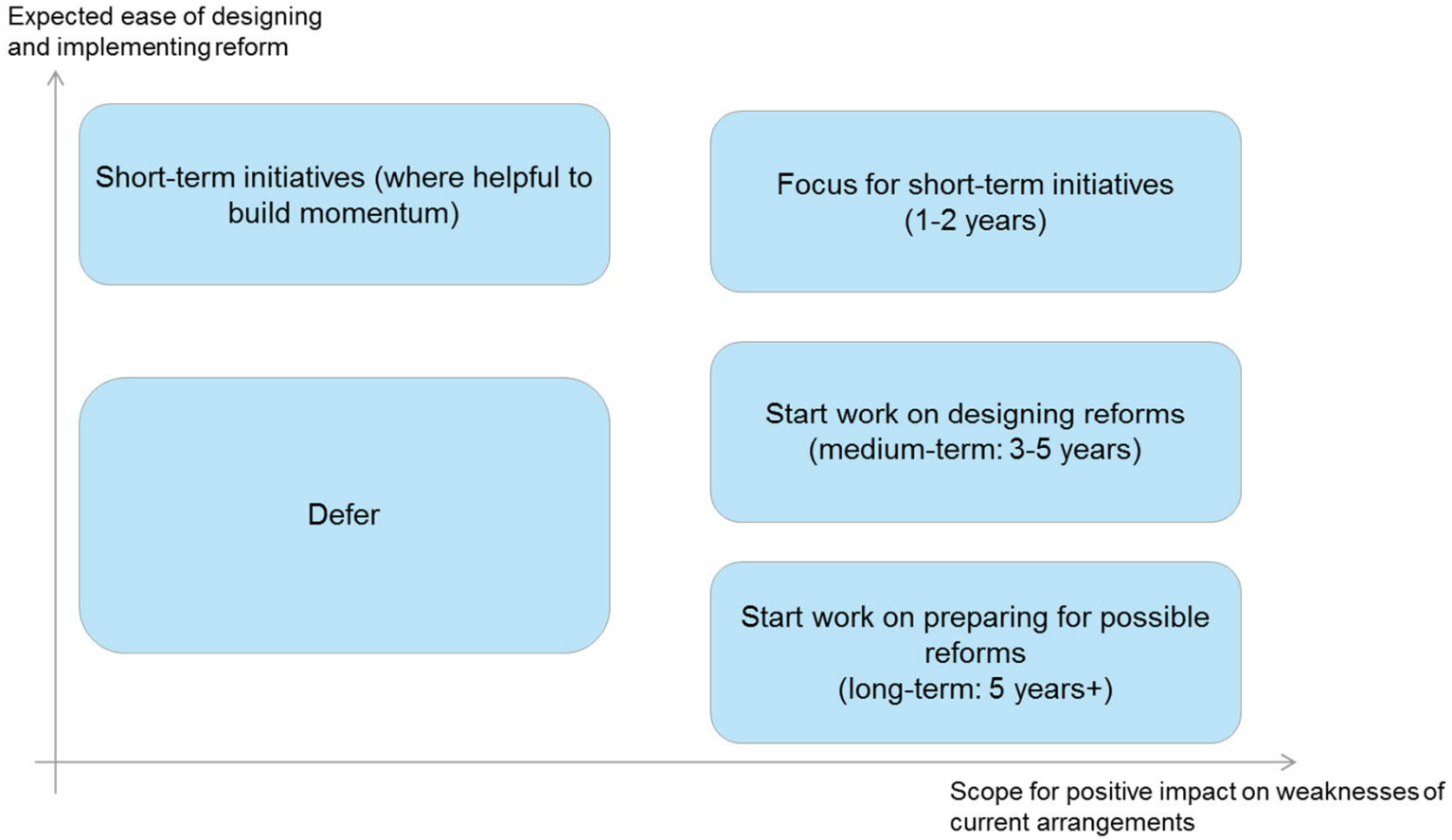
- Section 1: Summary of stakeholder comments (Slides 8 – 18)
  We met with 17 stakeholder organisations. The most common topics raised in these meetings were the design of price signals, the ability of network users to respond to price signals, and the sharing of transmission costs between different groups of customers.

- Section 2: Findings of Pöyry review of current transmission fee arrangements (Slides 20-30)
  Current arrangements have the advantage of being relatively simple. There are however some major weaknesses in terms of efficiency, equity and robustness.

- **Section 3: Next steps (Slides 32-35)**
  The immediate next step will be for Landsnet to meet with network users in Autumn 2018 to review and discuss the proposed priority areas and approach for Phase 2.

FRAMEWORK FOR IDENTIFYING REFORM PRIORITIES

We have suggested some criteria for prioritising areas for reform, as shown in the simple example below.



PHASE 2 OF REVIEW PROGRAMME

Landsnet will use a collaborative approach in Phase 2 to ensure that all viewpoints and experiences are taken into consideration

- The transmission fee arrangements in Iceland have been in place for ten years. They have not been updated in response to changes in the Icelandic electricity sector.

- A working group involving Landsnet and network users will be at the heart of the work to be carried out in Phase 2 of the review of transmission fees.
  - This group will cooperate to develop a set of transmission fee arrangements that are appropriate for the future goals and challenges of the Icelandic electricity sector.

- In parallel with its review of transmission fees, Landsnet will explore the desirability of a spot wholesale market in Iceland. This would be a long-term reform.

EXAMPLES OF HIGH-LEVEL QUESTIONS FOR PHASE 2

The stakeholder discussions have already highlighted some of the headline questions to be addressed in the review programme in Phase 2

Desirable outcomes

Efficiency

How best influence decision-making by different parties to support optimisation of the whole electricity system?

Equity

How best obtain sufficient acceptance of the allocation of costs between different groups of users?

Desirable features

Practicality

How best retain strengths of simplicity and legal compliance?

Robustness

How best ensure that any new arrangements work well for Iceland in the future, as well as today?

NEXT MEETING WITH USERS OF THE TRANSMISSION NETWORK

Discussions in Autumn 2018 will be the starting point for a journey towards having transmission fee arrangements that are fit for purpose for the Icelandic electricity sector of the future

- The immediate next step will be for Landsnet to meet with the users of the transmission network in Autumn 2018 to review and discuss the plans for Phase 2, particularly:
  - the suggested priority areas;
  - the proposed collaborative approach; and
  - indicative high-level timescales.

PÖYRY

The connected company

The leading advisor to the world's energy, forest and bio-based industries. Clients choose us for the sharpness of our insight, deep industry expertise and proven track record – because results count.

Pöyry Management Consulting