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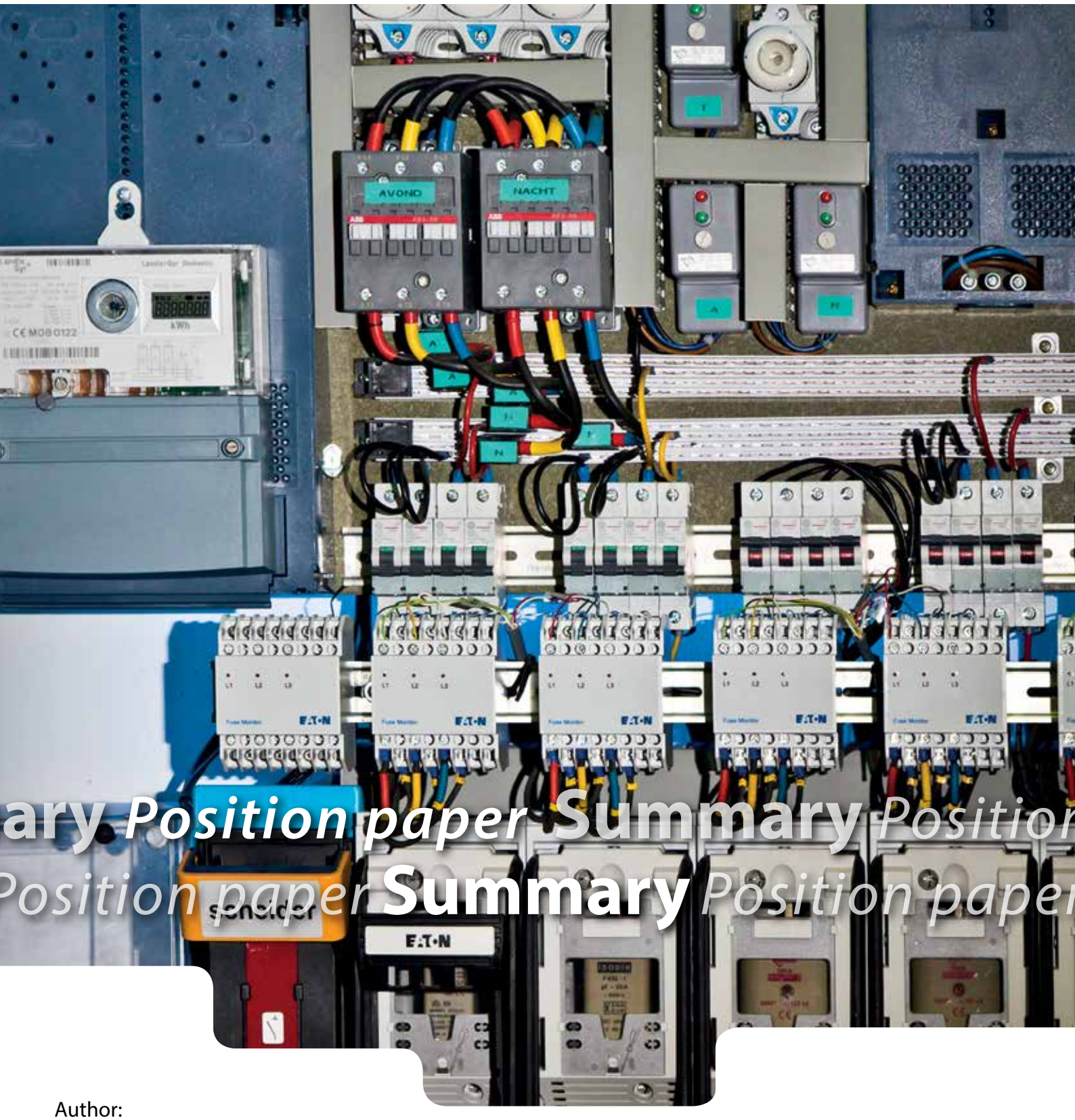

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Position paper **Summary** *Position paper*

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What should the communication infrastructure in the energy grids look like now and in the future, and how are the responsible parties going to organise that infrastructure?

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Position Paper

The purpose of the Data Communication Position Paper is to mark the shared starting point of a common strategy of Dutch network operators regarding the selection of a new data communication system for the electricity and gas grids. Choosing the correct technology is mission critical for the revolutionary changes that are required for improved operation of the energy market – which is increasingly based on sustainable sources - and for dimensioning it appropriately. The strategy is to arrive at a choice, supported by regulators, at acceptable price levels and with maximum roll-out possibilities and freedom, which allows the selected intelligent systems to be adapted to future requirements.

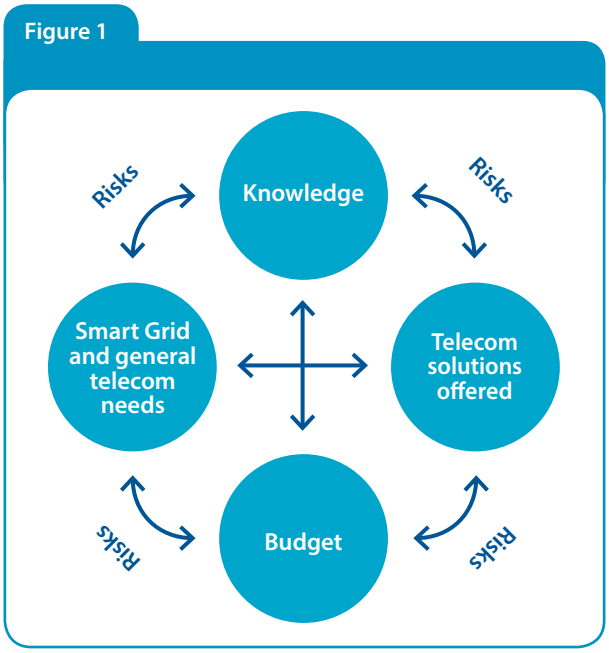
Over the coming decades the electricity and gas (E&G) grids will be undergoing major structural changes. Those changes are the result of the growing demand for energy, the exhaustion of fossil fuels and the increasing impact of climate targets.

The most important response from network operators to these developments is the implementation of intelligent operating systems in the E&G grids. All elements of the energy system will be able to communicate with each other and with the operating centres. Information about changes or problems in the energy flows will become visible to the network operator more quickly and more completely, giving the network operator the possibility to be able to react quicker and in a more focussed manner. This will result in more efficient use of the grid, less need for grid reinforcement and greater possibilities for feeding decentralised sustainable energy into the grid.

The new smart grids will only be possible if the information flows use suitable data communication and telecom systems. The question, therefore, is what technology and which suppliers meet the specific requirements of the energy sector. Examples of these requirements are the need for limited bandwidth (telemetry) with very good and sometimes extreme availability requirements. In addition, the data communication solutions for the smart grids have to be capable of faultless deployment for many years and they must comply with the societal requirements in the field of safety and security. To summarise, the question for the network operators is: What should the communication infrastructure in the energy grids look like now and in the future, and how are the responsible parties going to organise that infrastructure?

The requirements of the network operators call for special customised solutions from the suppliers of telecom and data communication facilities. However, these suppliers are used to completely different requirements from their market. At the same time, the network operators have to ensure that they remain very independent of a unique technology or a supplier (vendor and technology lock-in). Collaboration will prevent the network operators from being played off against each other and will strengthen the negotiating position.

Figure 1



Given the mission critical importance of data communication, the network operators wish to retain as much control as possible. For the backbone segment (the core network) the strategy is focussed on using wired solutions such as copper (VDSL) and fibre optics, both IP-based. For the peripheral network the preference is for various wireless solutions that can be obtained from the market. The initial candidates in this respect are GPRS (via an MVNO construction) and CDMA. Alternatives that may offer possibilities at a later point in time and which are currently studied, are: PLC (3rd generation) and Fibre to the Home (FttH).

Implementing the correct data communication and telecom technologies involves major investments.

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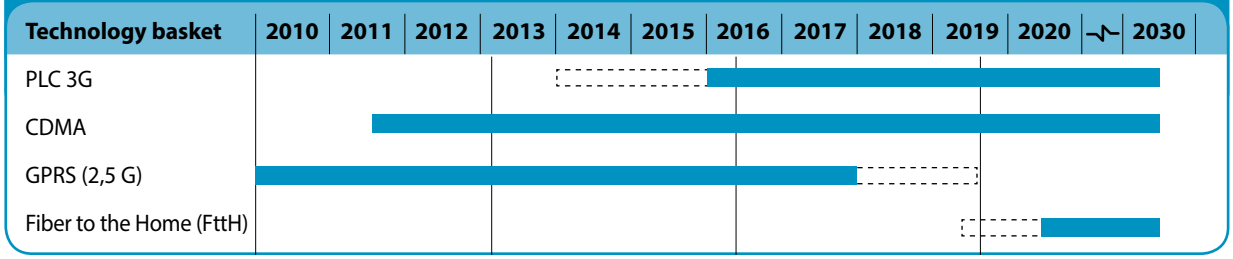
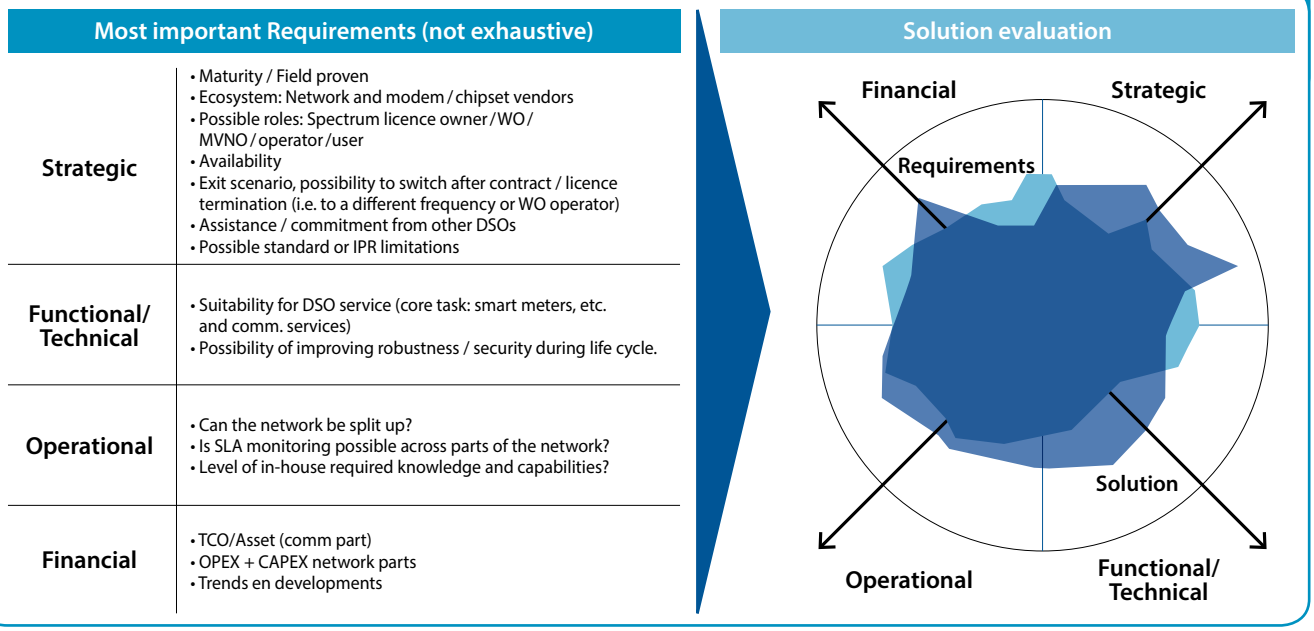
Figure 2

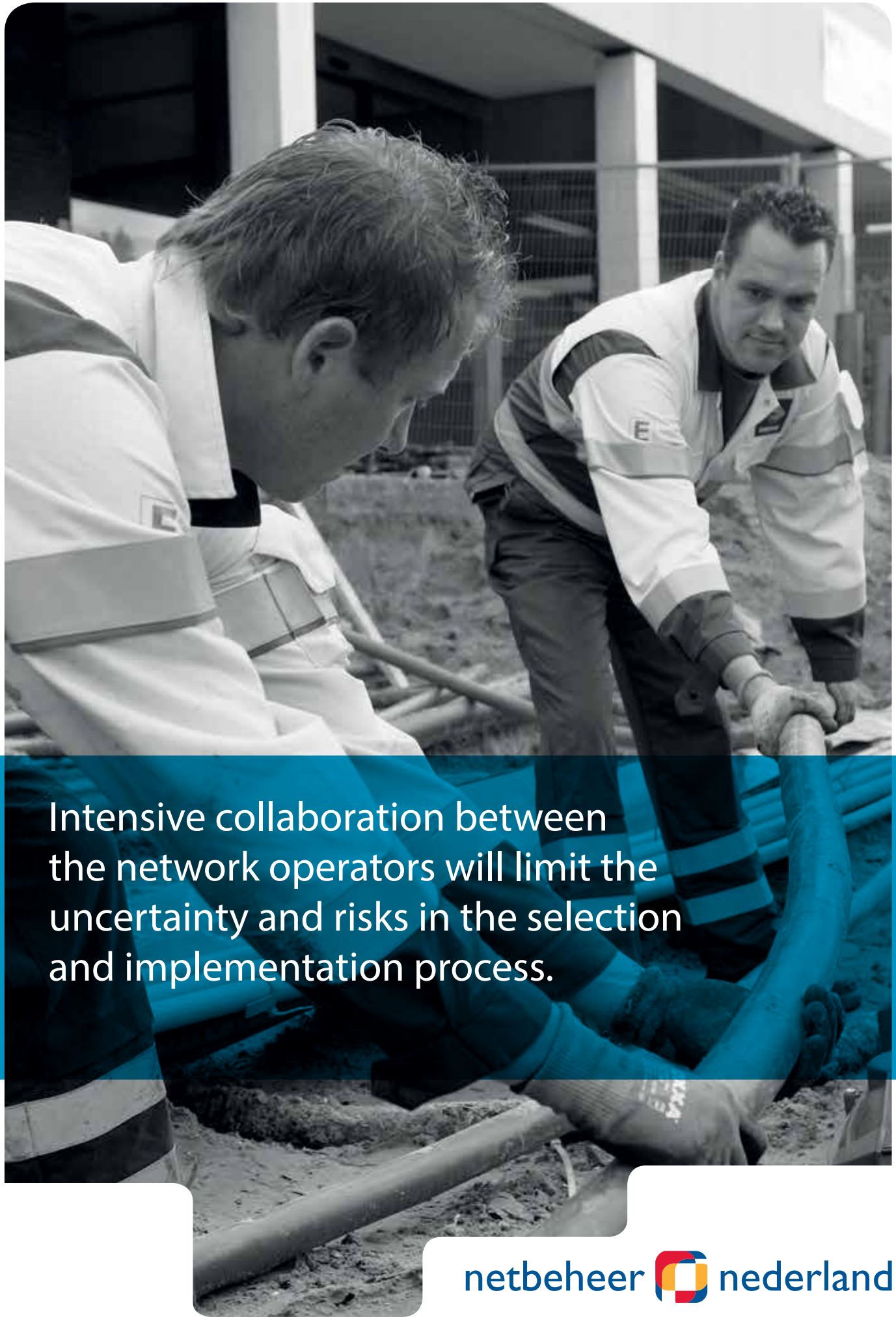


Implementing the correct data communication and telecom technologies involves major investments. Even the ability to only read out the Smart Meter will require between almost a half billion to more than one and a half billion euro in the coming years.
If the implementation of fibre optics in the network and the connection of all kinds of 'smart' assets is added, this will require an additional, estimated investment of a half to one billion euro.

Very careful decision-making is therefore necessary in which, in addition to the technical component, the financial component is of major importance.
At the same time, one must not lose sight of the fact that a well-considered choice of technology will result in savings or will avoid costs from being incurred, and it will also facilitate the socially required energy transition.
In brief, the selection process is complex, plays out in different dimensions and shall not result in a single solution.

Figure 3





Intensive collaboration between the network operators will limit the uncertainty and risks in the selection and implementation process.

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The Electricity Act imposes obligations on the management, the security and the safety of the grids and the efficient pursuit of these requirements.
The implementation of an improved communication technology, with adequate privacy and security aspects, is part of this. As long as the telecommunication activities are developed for own use they are not subject to supervision by the regulator OPTA. Collaboration between network operators can draw the attention of the Dutch competition authority (NMa) from the point of view of competition considerations. At European level there is a need for clarification about the relationship between energy and telecom as regards legislative frameworks. Because of the European Commission's focus on market models and market facilitation the broader communication need more so than the communication surrounding smart meters is threatening to become overlooked,. To summarise, significant risks are attached to the selection of a data/telecom solution. The large-scale offering of smart meters demands the timely implementation of an adequate data communication solution, while for the smart grids it is still not clear which solution will turn out to be the best solution. Retaining as much flexibility as possible and alleviating the risks associated with the choices made is therefore of major importance. Sharing knowledge and experience by the network operators is the key to this. Furthermore, it is also useful to look at the contract durations and the exit possibilities of the services.

Intensive collaboration between the network operators will limit the uncertainty and risks in the selection and implementation process. The collaboration will be shaped by the acquisition and sharing of knowledge, the expansion and maintenance of relationships for sharing that knowledge and vision and taking steps collectively in the form of establishing shared targets, programmes, projects and/or organisational entities.

Entering into effective governance agreements for managing the shared activities and for the actual combined effort for the implementation of these are cornerstones. Since the establishment of the Telecom Project Group in the context of Netbeheer Nederland in December 2011 and the activities undertaken since then within the Working Group considerable steps have already been taken in the collective shared knowledge acquisitions and knowledge sharing.

The next steps following this Data Communication Position Paper involve the members of the NBNL Telecom Project Group working on creating support and commitment amongst their individual Boards and with NBNL, with the content of this Position Paper acting as the point of departure. In addition, the NBNL Telecom Project Group will also focus on the further development of the collaboration plans for 2013 and beyond. The NBNL Telecom Project Group shall formulate actions towards the legislator that focus on greater awareness and on changes to the law that are necessary for network operators.

Formulating the aim of a common programme for the required configuration of data communication requires activities to be undertaken by the regional network operators (RNOs) which can be planned as follows:

- Short term:
  - Preparation of 'technology roadmap' by the individual RNOs and harmonising these with the 'Telecom Network Management Project Group';
  - Harmonising operating strategies at Board level;
- Medium term:
  - Preparation of shared solutions and approach within the project group;- Roll-out oplossingen;
  - Interpretation of the further collaboration in the field of Information Management (IM).

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