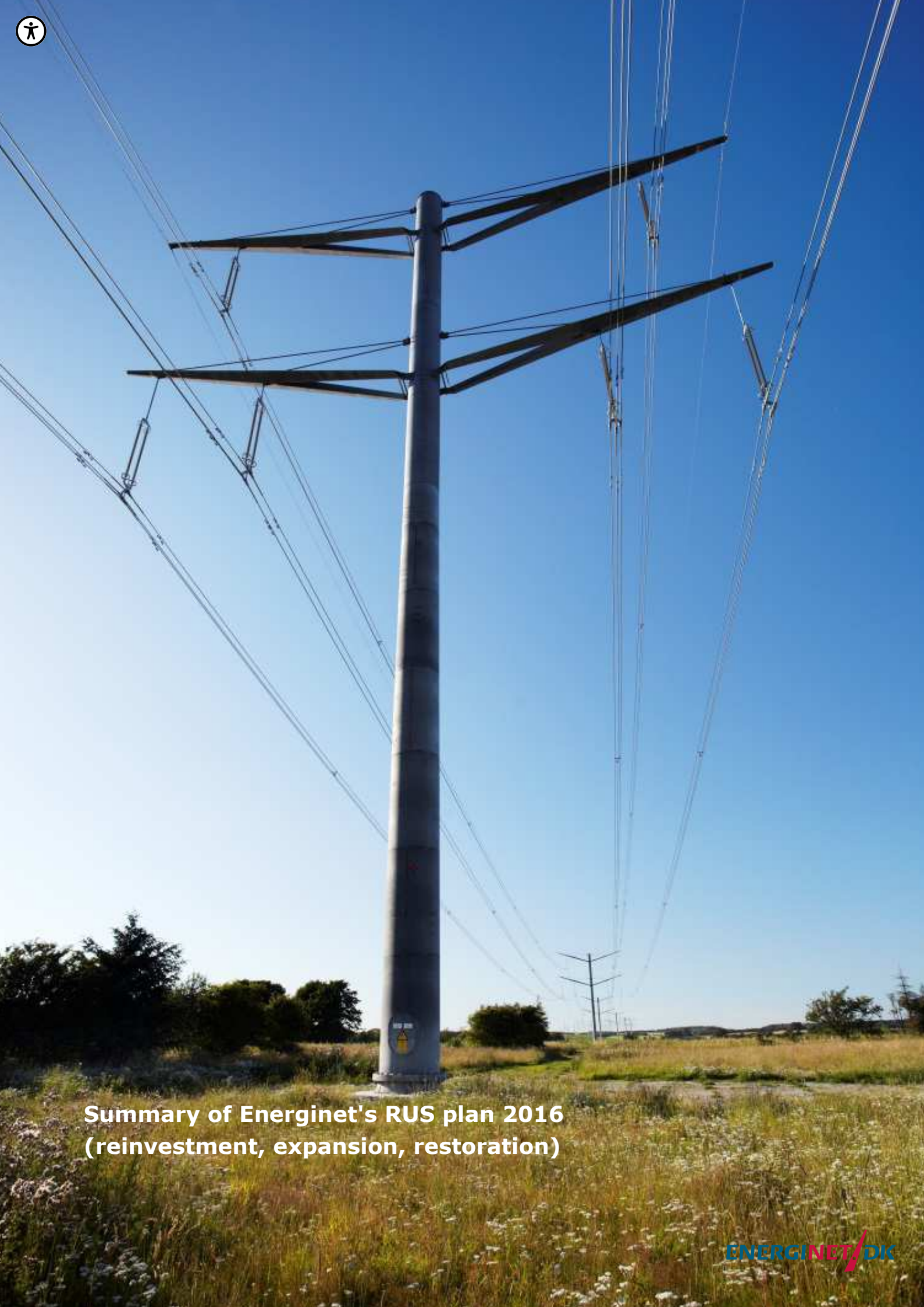

Summary of Energinet's RUS plan 2016 (reinvestment, expansion, restoration)

1. Summary

Energinet's RUS (reinvestment, expansion, restoration) plan is the first overall plan for the electricity transmission grid, where the need for both reinvestment, expansion, restoration and re-engineering is mutually compared and coordinated. The plan covers the medium term for the next 10 years.

The plan provides a coherent planning that helps to ensure a timely start-up of the detailed planning and establishment of future specific projects in the transmission grid. The plan is also an important input to Energinet's compliance with the legislation on preparation of plans and forms an important basis for cooperation with the grid companies on planning.

The RUS plan shows an overall status for Energinet's projects in the construction phase, the planning phase and the screening phase as from 1 December 2016. Unless otherwise specified, all prices in the RUS plan will be stated in fixed 2016 prices.

Electricity transmission grid 2016

The overall AC grid consists of approximately 4,200 track km overhead lines and cables. Since on some routes there are more than one system on the same row of towers, this corresponds to approximately 6,000 system kilometres. The distribution between the different voltage levels is shown below.

Track km	Overhead lines	Cables	Total
132 kV	753	476	1,228
150 kV	1,216	605	1,822
220 kV	40	84	124
400 kV	946	114	1,061
Total	2,956	1,279	4,235

In addition to the AC network, there are DC interconnectors to Germany, Sweden and Norway as well as between Funen and Zealand.

There are a total of approximately 250 transformers distributed on 184 substations as shown below.

Number	Substations	Transformers
132 kV	75	112
150 kV	78	107
220 kV	5	5
400 kV	26	30
Total	**184**	254

The above statement includes only independent power transformers, which are part of the transmission grid. Additionally, Energinet owns a

1.1 Frameworks of the plan

Energinet's RUS plan 2016 has been prepared in accordance with the political guidelines for cable laying and expansion of the transmission grid in Denmark, which was last revised in connection with the political agreement on abolition of the PSO tariffs from 17 November 2016.

The new principles mean that new 400 kV connections are established with overhead lines with the possibility of compensatory cable laying on selected sections as well as cable laying of the 132-150 kV grid in the vicinity of 400 kV overhead lines.

Furthermore, the new principles imply that the 2009 cable action plan is cancelled and replaced by the possibility of cabling selected 132-150 kV sections through areas of natural beauty and urban areas. The specific framework for the realisation of this is being clarified, and as such, cabling of selected sections in the 132-150 kV grid is not dealt with in detail in connection with RUS plan 2016. In future editions of the RUS plan, this is expected to be included with status and indication of potential projects.

Status of the 2009 cable action plan and visual enhancement plans
Energinet's 2009 report on visual enhancement presented six visual enhancement projects in the 400 kV high-voltage grid with a view to making the landscape more harmonious.

At present, the Little Belt and Aggersund visual enhancement projects were completed in 2014 and 2015 respectively. The visual enhancement around Vejle Aadal is expected to be completed in 2017. The three other projects at the national park Kongernes Nordsjælland (the North Zealand of the Kings), Roskilde Fjord and Årslev Engsø are resumed and planned for implementation after 2020. The final date has not yet been set.

The last cable action plan projects were initiated according to Network Development Plan 2013 which is the latest follow-up on the 2009 cable action plan. The projects covered by the cable action plan are closed at a time when approximately 25 per cent of the total overhead line network has been dismantled. Of the total budget for implementation of the cable action plan, approximately 20 per cent will be realised. The last projects related to the cable action plan will be completed in 2019, as these were commenced before the PSO agreement was adopted.

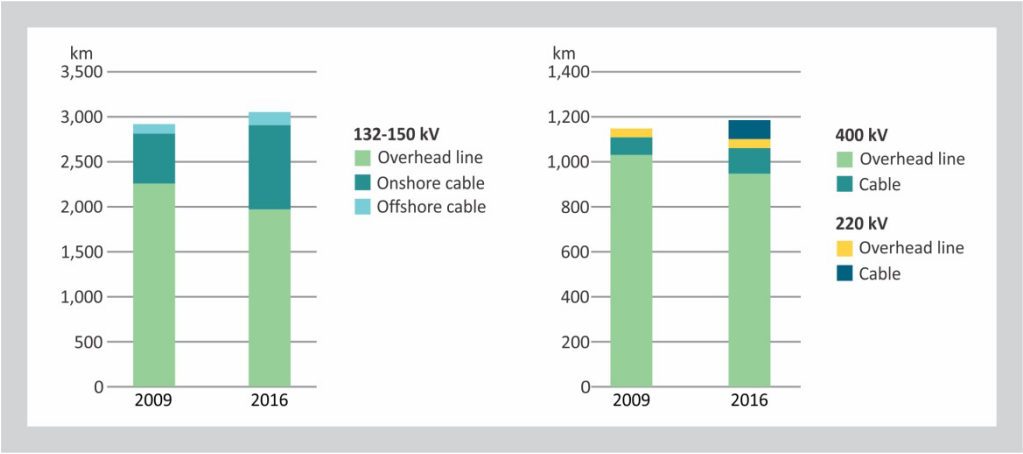

Figure 1 Extent of cables and overhead lines in track km before the initiation of the cable action and visual enhancement plans in 2009 and early 2016.

1.2 Medium-term grid structure

Grid development for the coming 10 years is characterised by expansions, which are primarily activated to ensure the exploitation of new interconnectors to Germany, the Netherlands and the UK as well as the incorporation of specific offshore and onshore wind power projects.

In addition, the intended general development in consumption and renewable energy triggers a need for reinforcement. This is due to especially the fact that production will be diverted from central and local CHP plants to renewable energy. As production from renewable energy is often located geographically far from the large consumption areas, this may result in a need for grid reinforcements to be able to transport the effect from the production units and to the consumers.

The existing transmission grid and the possible 2026 grid structure appear from Figure 2. The 2026 network is based on solutions through grid expansion. The final solutions are laid down in connection with detailed planning, where also operational and market-based solutions may be included in the assessment as they become available.

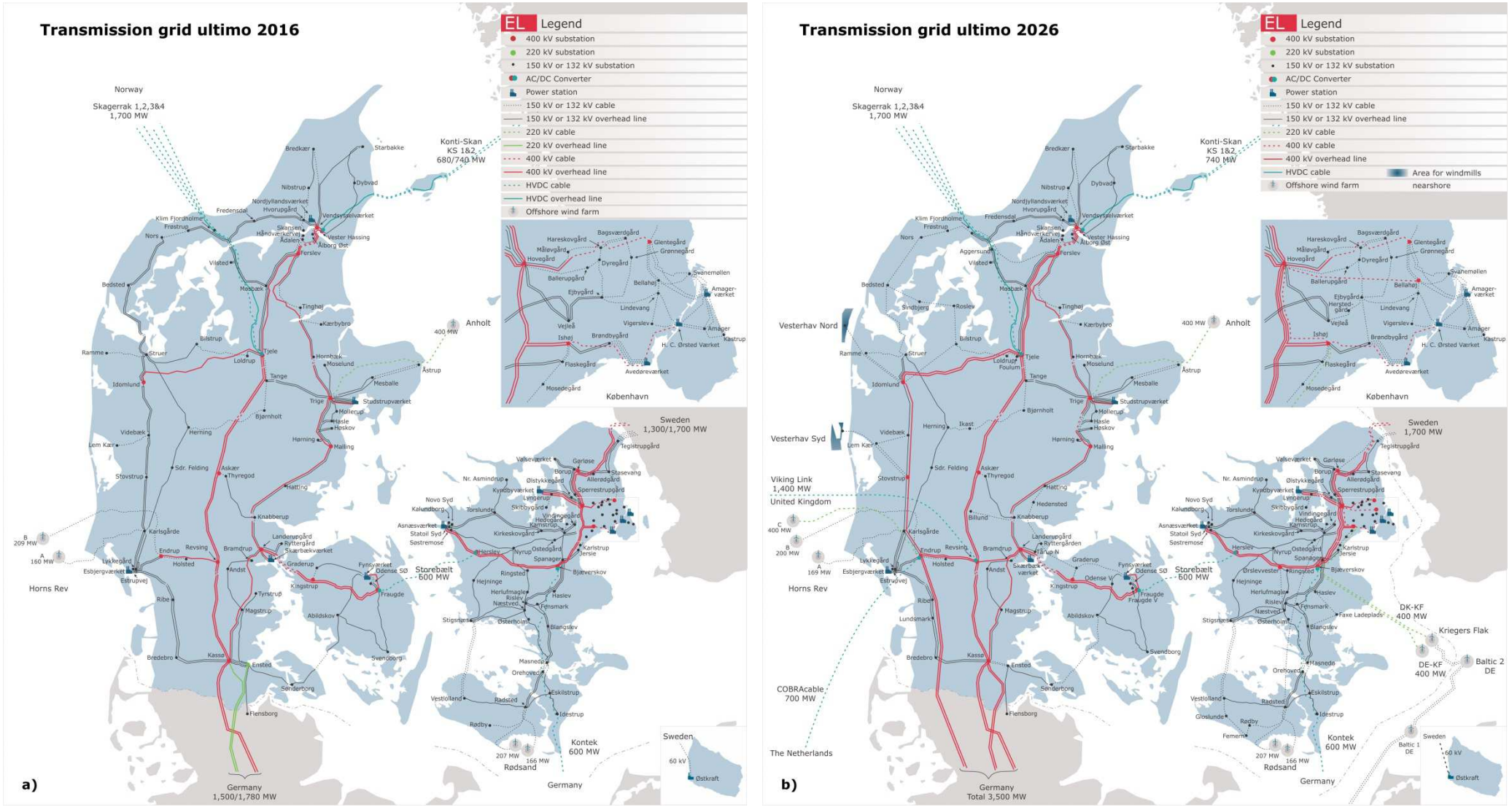

Figure 2 a) The existing transmission grid in Denmark and b) Medium-term transmission grid structure in Denmark.

400 kV grid development

There are approximately 300 km new 400 kV connections in the planning phase, which are basically established with overhead lines. These connections are necessary to be able to integrate new interconnectors to Germany, the Netherlands and the UK as well as the large volumes of future wind power.

In addition to the projects in the planning phase, particularly incorporation of large volumes of renewable energy involves the need for additional reinforcement of the 400 kV grid toward 2026. There is among other things a need for establishment of an approximately 70 km long 400 kV connection between Ferslev and Tjele to facilitate the incorporation of wind power in Northern Jutland. In addition, there is a need for expansion of existing substations by a total of 15 new bays, 5 transformers and 1 shunt reactor.

Totally, an increased scope of 370 km 400 kV connections is expected in the period until 2026 as a result of the new principles for expansion of the electricity infrastructure; the connections are basically expected to be established with overhead lines. In connection with detailed planning, possible compensatory cabling of the 400 kV connections and the 132-150 kV connections in the vicinity is determined. The final need for all 400 kV connections is also determined in the detailed planning. Therefore, the total net addition of overhead lines over 100 kV is expected to be lower than the gross addition of 370 km.

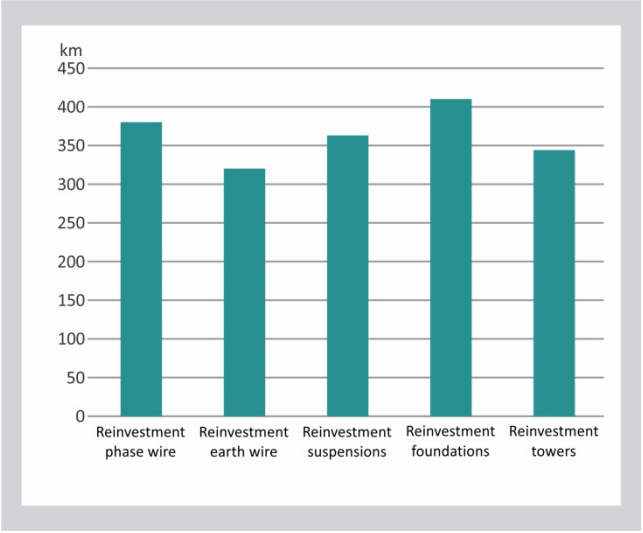

Figure 3 The level of reinvestment in 400 kV transmission lines for potential projects.

In addition to the new connection, several parts of the 400 kV grid need reinvestment within the next 10 years; this applies to both transmissions lines and substations.

The transmission lines need reinvestment of both foundations, suspensions, earth wire, phase wire and towers, Figure 3. The level of reinvestment corresponds to reinvestment work to be carried out on approximately one third of the existing 400 kV overhead line network within the next 10 years.

The 400 kV substations need limited reinvestment of seven bays, distributed on two substations.

132-150 kV grid development

At the 132-150 kV level, a number of projects in the construction phase will be implemented as part of the former cable action plan.

In addition to the projects in the planning phase, particularly incorporation of large volumes of renewable energy involves the need for additional reinforcement of the 132-150 kV grid toward 2026. Overall, there is a need to establish around 700 kilometres of new 132-150 kV cable connections. In addition, there is a need for expansion of existing substations by a total of approximately 100 new bays, 25 new transformers and 30 shunt reactors.

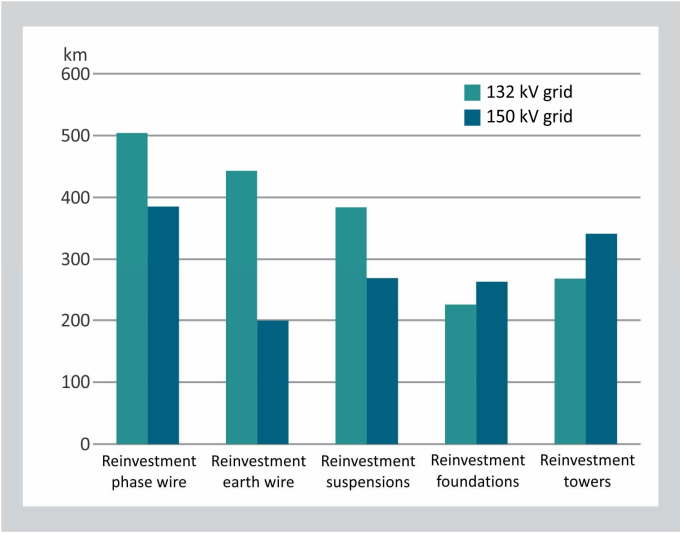

Figure 4 Level of reinvestment in 132-150 kV transmission lines for potential projects.

Large parts of the 132-150 kV grid need reinvestment within the next 10 years; this applies to both transmissions lines and substations.

The transmission lines need reinvestment of both foundations, suspensions, earth wire, phase wire and towers. The level of reinvestment appears from Figure 4and corresponds to reinvestment work to be carried out on approximately half of the existing 132-150 kV overhead line network within the next 10 years.

The 132-150 kV substations need reinvestment in approximately 300 bays, distributed on approximately 70 substations. The level of reinvestment corresponds to reinvestment work to be carried out in approximately half of the existing 132-150 kV substations.

Level of investment

In Energinet's previous network development plans, main focus has been on the need for network expansion. RUS plan 2016 presents the first overall plan for the electricity transmission grid, where both reinvestment, expansion, restoration and re-engineering are compared and coordinated. The total CAPEX for projects with expected commissioning in the period 2016-2026 is approximately DKK 42 billion, of which approximately DKK 14 billion constitutes costs for interconnectors as shown in Figure 5. The projects are divided into ongoing, planned and potential projects on their status as from 1 December 2016.

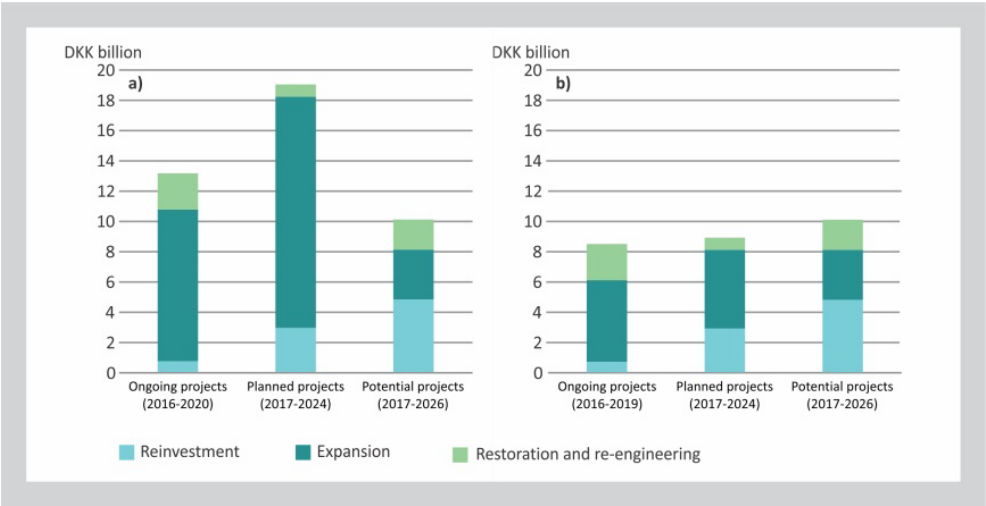

Figure 5 CAPEX for ongoing, planned and potential projects with expected commissioning in the period 2016-2026 a) inclusive of costs of interconnectors and (b) exclusive of costs of interconnectors. CAPEX for a project is stated in the expected year of commissioning and represents the CAPEX to be amortized and financed via the grid tariff.

1.3 Projects in the construction phase

It appears from Figure 5 that Energinet projects in the construction phase amount to a total CAPEX of approximately DKK 13 billion; these projects have been finally decided and obtained relevant regulatory approvals.

1.4 Projects in the planning phase to be decided on

During the planning phase, a number of projects have not yet been finally adopted. When the detailed planning has been completed, these projects must be approved by the appropriate bodies in Energinet and by the authorities. Whether a project must be approved by the authorities depends on the nature of the project in relation to the size of the costs and its electrical engineering significance.

In an annual basis, Energinet and Danish Energy Agency review the projects' need for approval in accordance with guidelines provided by the authorities. These guidelines include an assessment on an indicative financial limit of DKK 30-40 million for expansions and DKK 80-100 million for reinvestment. If the projects are convened for approval by the authorities, Energinet will submit applications as the business cases are completed.
The projects in the planning phase are briefly summarised below.

Reinvestment

The reinvestment projects in the planning phase are expected to be commissioned during the period 2017-2024. Projects with costs less than DKK 80 million per project comprise:

- 132-150 kV transmission connections between Mesballe-Trige, Ensted-Sønderborg, Borup-Valseværket and Mosbæk-Klim Fjordholme.

- Substation Herning, Amager Power Station, Avedøre Power Station and Kastrup switching substation.

Projects with costs larger than DKK 80 million per project comprise:

- 132 kV cable network in Copenhagen and the 400 kV connection Landerupgård-Odense.

- Asnæs Power Station and the transformer project comprising reinvestment of transformers in the Danish transmission grid.

Expansion
The expansion projects in the planning phase are expected to be commissioned during the period 2018-2022. The following expansion projects have costs larger than approximately DKK 30 million per project and comprise:

- Initiatives which can contribute to ensuring the long-term power balance on Zealand. The final solution is determined in the planning project and may include a new connection to Zealand, for instance from Jutland/Funen, Poland or Germany.

- Measures to ensure supply of Copenhagen. The final solution is determined in the planning project and may among other things include the establishment of a new 400 kV connection to Copenhagen.

- Establishment of a sufficient grid structure for incorporation of wind power and/or interconnectors. The final solutions are laid down in planning projects and may among other things include the establishment of a new 400 kV interconnection in Jutland, possibly between substations Revsing and Landerupgård, a new 400 kV connection in Jutland between substations Idomlund and Tjele as well as a new 400 kV connection on Zealand between substations Bjæverskov and Hovegård.

- Connection of production from renewable energy on Western Lolland and at Aggersund.

In addition, three projects, all below DKK 15 million, relate to the connection of the consumption from Banedanmark in H.C. Ørstedsværket Power Station and in Ringsted as well as connection of a new biomass-fired unit at Amager Power Station.

Restoration and re-engineering
The three visual enhancement projects at Årslev Engsø, Roskilde Fjord and the national park Kongernes Nordsjælland (the North Zealand of the Kings) are resumed, and an expected commissioning date will be set.

In view of third party, there are three major re-engineering projects with costs between approximately DKK 2 and 50 million:

- Re-engineering of the Kontek interconnector between Zealand and Germany owing to the Fehmarnbelt project
- Re-engineering in Copenhagen owing to the light rail system
- Re-engineering on Funen out of consideration for the railroad.

Other projects
In addition, two other projects will primarily affect operational reliability. Project costs less than approximately DKK 30 million:

- Protection of the Bornholm cables
- Securing of the reactive power balance in Tjele.

1.5 Projects in the screening phase for start-up in the planning phase

A number of potential projects are identified in the RUS plan. These are established on needs assessments in relation to state analyses and analyses of limitations in the transmission grid as a result of changes in consumption, production and exchange capacity.

Depending on the expected commissioning date and size, the projects must be transferred to the planning phase, where detailed planning will be carried out, and final approvals will be obtained.

Therefore, planning projects for a number of reinvestment, expansion and restoration projects are expected to be launched for commissioning in the period up until 2021. The projects are described in detail in the appendix report on project descriptions in which the project concerned can be identified by the ID number. The RUS plan further includes descriptions of a number of projects which are expected to be established in the period after 2021. However, so far, these projects are not expected to start up as planning projects.

In addition to the listed projects, further project may occur, for instance as a result of third-party inquiries or new needs.

Reinvestment projects
The following reinvestment projects have been launched in mid-December 2016:

- Reinvestment of the 150 kV overhead line between Aastrup and Trige (southern line routing) (ID330)
- Reinvestment of 150 kV substations Enstedværket and Sønderborg (ID135, ID 136).

The following specific reinvestment projects are expected to be launched in the detailed planning:

- Reinvestment programme for 132 kV and 150 kV stations 2017-2021 (ID470)
- The reinvestment programme also includes relay and switchboard renovation (ID81, ID82, ID254)
- Reinvestment of the 400-150 kV overhead line from Kassø to Malling (ID331, ID332, ID348)
- Reinvestment of a number of 400 kV overhead lines (ID432, ID474, ID333, ID334, ID347)
- Reinvestment of a number of 150 kV overhead lines (ID335, ID336, ID 339, ID340, ID390, ID342 ID343, ID345, ID394, ID430)
- Reinvestment of a number of 132 kV overhead lines (ID386, ID433, ID434, ID392, ID393, ID467)
- Reinvestment of 400 kV substations Idomlund, Vester Hassing and Hovegaard (ID480, ID157).

Specific expansion projects
The following specific projects will be launched in the detailed planning:

- Voltage variations on 60 kV connection to Bornholm (ID84)
- Ensure adequate transmission capacity in the 132 kV grid to Sweden (ID383)

- Ensure adequate reactive resources in the 400 kV grid in northern Jutland (ID458)
- Ensure acceptable voltage control in the 150 kV substations Bredkær and Mesballe (ID459, ID460)
- System integration of Dynamic Line Rating (ID473)
- Connection of compressor station near Faxe Ladeplads (ID384)
- Integration of wind power in western Jutland until commissioning of the 400/150 kV overhead line between substations Endrup and Idomlund (ID429)
- Connection of specific wind turbine projects at Lundsmark/Haved between Ribe and Bredebro (ID83)
- Connection of electric boiler at substation Grønnegård (ID468).

Integration of production from renewable energy into the transmission grid
Detailed planning of connection of near-shore wind turbines at Vesterhav South and Vesterhav North (ID425, ID426).

General projection of consumption and wind power
Due to the general projection of consumption and wind power, there is a need for load shedding in the interface between the 400 kV and 132-150 kV grid in Tjele and on central Zealand (ID119, ID17, ID385).

General integration of production from renewable energy into the distribution grid
In the period up until 2021, a number of expansion projects relating to integration of production from renewable energy will be connected to the distribution grid. The projects typically comprise a reinforcement of the transformer capacity between transmission and distribution. The development projects are a result of the general expected short-term influx of renewable energy and are therefore not necessarily based on specific projects for connection of renewable energy.

The need for reinforcement must be analysed in detail, and the possible solutions must be viewed in relation to the ongoing planning project on the need for transformer reinvestment in Denmark (ID456, ID27, ID85, ID89, ID116, ID118, ID26, ID96, ID148).

There are also a number of 132-150 kV connections for which solutions for load shedding must be determined:

- 150 kV fjord crossing at Aggersund (ID117)
- 150 kV grid between Klim Fjordholme and substations Mosbæk/Ferslev (ID120)
- 132 kV cable connection between substation Vestlolland and Stigsnæs Power Station (ID 149).

Restoration and re-engineering
Owing to the Fehmarnbelt project, a detailed planning of re-engineering will be initiated by increasing the tower height on the sections Ringsted-Rødby Harbour and Næstved-Køge (D103, ID104).

Planning of cabling of the 132-150 kV grid in urban areas and areas of natural beauty must be commenced according to political guidelines (ID228).

Compensatory 132-150 kV cable laying in connection with the establishment of new 400 kV overhead lines must be determined in accordance with political guidelines (ID229, ID230, ID231, ID483).