

## LISTING PROSPECTUS



### POHJOLAN VOIMA OYJ

#### EUR 150,000,000 Senior Fixed Rate Notes due 2025 (ISIN: FI4000410683)

On 18 November 2019 (the “**Issue Date**”), Pohjolan Voima Oyj (the “**Issuer**”) issued EUR 150,000,000 1.250 percent notes due 2025 (the “**Notes**”). The Notes will be redeemed at their nominal principal amount on 20 January 2025 (the “**Maturity Date**”), unless previously redeemed or purchased and cancelled as described in “*Terms and Conditions of the Notes*”.

Each Note bear interest from, and including, 18 November 2019 at the rate of 1.250 percent per annum to, but excluding, the Maturity Date or such earlier date on which the Note is redeemed or purchased and cancelled. Interest will be payable annually in arrears on 20 January commencing on 20 January 2021, as described in “*Terms and Conditions of the Notes—Interest*”.

The Notes constitute direct, unconditional, unsubordinated and unsecured obligations of the Issuer. The Notes were issued in the book-entry securities system of Euroclear Finland Oy (“**Euroclear Finland**”) in dematerialised form under the Finnish Act on Book-Entry System and Clearing Activities (348/2017, as amended). The Notes may be held by holders of the Notes (the “**Noteholders**”) directly through book-entry accounts with Euroclear Finland. The Notes are not evidenced by any physical note or document of title other than statements of account made by Euroclear Finland or its account operator and cannot be physically delivered. The Notes were issued in denominations of EUR 100,000.

The Issuer will apply for listing of the Notes on Nasdaq Helsinki Ltd (“**Nasdaq Helsinki**”) (the “**Listing**”) and the trading on the Notes is expected to commence on or about 20 November 2019. See “*Important Information*” for information on Issuer’s obligation to supplement this Listing Prospectus (as defined herein) prior to the Listing. The Notes are not currently rated by any rating agency.

Investment in the Notes involves certain risks. The summary of certain principal risk factors that may affect the ability of the Issuer to fulfil its obligations under the Notes is presented under “*Risk Factors*”. Each investor should carefully review this Listing Prospectus, including the risks involved, prior to making an investment decision.

The Notes have not been, and will not be, registered under the U.S. Securities Act 1933, as amended (the “**Securities Act**”), or the securities laws of any state of the United States, and the Notes may not be offered or sold within the United States or to, or for the account or benefit of, any U.S. person (as such terms are defined in Regulation S under the Securities Act (“**Regulation S**”)), except in certain transactions exempt from, or in a transaction not subject to the registration requirements of, the Securities Act and in accordance with applicable state securities laws. The Notes have been offered and sold in offshore transactions outside the United States in reliance on Regulation S.

#### *Lead Managers*

**DANSKE BANK**

**NORDEA**

**The date of this Listing Prospectus is 18 November 2019.**

## IMPORTANT INFORMATION

**PRIIPs Regulation / Prohibition of sales to EEA retail investors** – The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area (the “EEA”). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, “**MiFID II**”); (ii) a customer within the meaning of Directive 2002/92/EC (as amended or superseded), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in point (e) of Article 2 of Regulation (EU) 2017/1129. Consequently no key information document required by Regulation (EU) No 1286/2014 (the “**PRIIPs Regulation**”) for offering or selling the Notes or otherwise making them available to retail investors in the EEA has been prepared and therefore offering or selling the Notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

**MiFID II product governance / Professional investors and eligible counterparties only target market** – Solely for the purposes of each manufacturer’s product approval process, the target market assessment in respect of the Notes has led to the conclusion that: (i) the target market for the Notes is eligible counterparties and professional clients only, each as defined in MiFID II and (ii) all channels for distribution of the Notes to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Notes (a “**distributor**”) should take into consideration the manufacturers’ target market assessment; however, a distributor subject to MiFID II is responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the manufacturers’ target market assessment) and determining appropriate distribution channels.

In this Listing Prospectus, any reference to the “**Issuer**” means Pohjolan Voima Oyj, the “**PVO Group**” means the Issuer and its subsidiaries on a consolidated basis, and “**PVO**” means the PVO Group and the Issuer’s associated companies and joint ventures, except where the context may otherwise require or except where otherwise expressly stated. The associated companies and joint ventures of PVO have been accounted for using the equity method of accounting. For additional information, see Notes 1 and 19 to the Issuer’s audited consolidated financial statements as of and for the year ended 31 December 2018 incorporated by reference into this Listing Prospectus. In this Listing Prospectus, the Issuer has provided more detailed information on Teollisuuden Voima Oyj (“**TVO**”) inasmuch as the Issuer considers TVO to be a material joint venture. For additional information on TVO, see “*Risk Factors—Risks Related to Nuclear Operations of TVO*” and “*Information about TVO*”. Danske Bank A/S and Nordea Bank Abp are acting as lead managers (the “**Lead Managers**”) in relation to the offering and issue of the Notes.

This document (this listing prospectus and the documents incorporated by reference herein are jointly referred to as the “**Listing Prospectus**”) has been prepared in accordance with the Finnish Securities Markets Act (746/2012, as amended, the “**Finnish Securities Markets Act**”), Regulation (EU) 2017/1129 of the European Parliament and of the Council of 14 June 2017 (the “**Prospectus Regulation**”), Commission Delegated Regulation (EU) 2019/979 of 14 March 2019, supplementing Regulation (EU) 2017/1129 of the European Parliament and of the Council with regard to regulatory technical standards on key financial information in the summary of a prospectus, the publication and classification of prospectuses, advertisements for securities, supplements to a prospectus, and the notification portal, and repealing Commission Delegated Regulation (EU) No 382/2014 and Commission Delegated Regulation (EU) 2016/301, Commission Delegated Regulation (EU) 2019/980 of 14 March 2019 (Annexes 7 and 15) supplementing Regulation (EU) 2017/1129 of the European Parliament and of the Council as regards the format, content, scrutiny and approval of the prospectus to be published when securities are offered to the public or admitted to trading on a regulated market, and repealing Commission Regulation (EC) No 809/2004 (together, the “**Delegated Prospectus Regulation**”) and the regulations and guidelines issued by the Finnish Financial Supervisory Authority (the “**FIN-FSA**”). The FIN-FSA has approved this Listing Prospectus as the competent authority under the Prospectus Regulation. The FIN-FSA has only approved this Listing Prospectus as meeting the standards of completeness, comprehensibility and consistency imposed by the Prospectus Regulation. Approval by the FIN-FSA of this Listing Prospectus should not be considered as an endorsement of the issuer that is the subject of this Listing Prospectus. Investors should make their own assessment as to the suitability of investing in the Notes. The record number of the FIN-FSA’s approval is FIVA 46/02.05.04/2019. This Listing Prospectus has been prepared in English only. This Listing Prospectus is valid until the Listing.

This Listing Prospectus should be read together with all documents which are incorporated herein by reference. This Listing Prospectus shall be read and construed on the basis that such documents are incorporated and form part of this Listing Prospectus. See “*Documents Incorporated by Reference*”.

The Lead Managers are acting exclusively for the Issuer as the lead managers in connection with the listing of the Notes and will not be responsible to anyone other than the Issuer for providing the protections afforded to its clients nor giving investment or other advice in relation to the Notes. Neither the Issuer nor the Lead Managers have taken any action, nor will they take any action to make a public offer of the Notes in their possession, or the distribution of this Listing Prospectus or any other documents relating to the Notes admissible in any jurisdiction requiring special measures to be taken for the purpose of making a public offer. Any investor investing in the Notes becomes bound by the final terms and conditions for the Notes. The Notes have not been, and will not be, registered under the Securities Act or the securities laws of any state of the United States and the Notes may not be offered or sold within the United States or to, or for the account or benefit of, any U.S. person (as such terms are defined in Regulation S), except in certain transactions exempt from, or in a transaction not subject to the registration requirements of, the Securities Act and in accordance with applicable state securities laws.

The distribution of the Listing Prospectus and the offer and sale of the Notes in certain jurisdictions may be restricted by law. Persons into whose possession this Listing Prospectus comes are instructed by the Issuer and the Lead Managers to inform themselves about and to observe any such restrictions. This Listing Prospectus may not be distributed in the United States, Australia, Canada, Hong Kong, Japan or Singapore, or such other countries or otherwise in such circumstances in which the offering of the Notes would be unlawful or require measures other than those required under the laws of Finland. This Listing Prospectus does not constitute an offer of, or an invitation to purchase, the Notes in any jurisdiction. No offer will be made to persons whose participation in the offering requires any additional Listing Prospectus or registration. None of the Issuer, the Lead Managers or any of their respective affiliates or representatives accepts any legal responsibility for any such violations by any person or entity, whether or not a prospective purchaser of Notes, and whether or not the person or entity is aware of such restrictions.

Prospective investors should rely solely on the information contained in this Listing Prospectus. No person has been authorised to give any information or to make any representation not contained in or not consistent with this Listing Prospectus or any information supplied by the Issuer or such other information as is in the public domain and, if given or made, such information or representation should not be relied upon as having been authorised by the Issuer. In making an investment decision, each investor must rely on their examination, analysis and enquiry of the Issuer and the terms of the Notes, including the risks and merits involved. Neither the Issuer, nor the Lead Managers nor any of their respective affiliated parties or representatives, is making any representation to any offeree or subscriber of the Notes regarding the legality of the investment by such person. Investors are required to make their independent assessment of the legal, tax, business, financial and other consequences of an investment in the Notes. The contents of this Listing Prospectus are not to be construed as legal, business, tax, financial or other advice.

The Lead Managers assume no responsibility for the accuracy or completeness of the information herein and, accordingly, no representation or warranty, express or implied, is made by the Lead Managers as to the accuracy or completeness of the information contained in this Listing Prospectus, and nothing contained in this Listing Prospectus is, or shall be relied upon as a promise or representation by the Lead Managers in this respect, whether as to the past or the future. Apart from the responsibilities and liabilities, if any, which may be imposed on the Lead Managers by Finnish law or under the regulatory regime of any other jurisdiction where exclusion of liability under Finnish law or the relevant regulatory regime of the other jurisdiction would be illegal, void or unenforceable, the Lead Managers do not accept any responsibility whatsoever for the contents of this Listing Prospectus or for any statement made or purported to be made by them, or on their behalf, in connection with the Issuer or the Notes. The Lead Managers accordingly disclaim to the fullest extent permitted by applicable law any and all liability whether arising in tort, contract, or otherwise (save as referred to above) which they may otherwise have in respect of such document or any such statement.

The information contained herein is current as of the date of this Listing Prospectus. The delivery of this Listing Prospectus, and the offer, sale or delivery of the Notes shall not mean that no adverse changes or events have occurred after the date of this Listing Prospectus, which could result in a material adverse effect on PVO’s business, financial position, and future prospects and, thereby, on the Issuer’s ability to fulfil its obligations under the Notes as well as on the value of the Notes. Nothing contained in this Listing Prospectus is, or shall be relied upon as, a promise or representation by the Issuer or the Lead Managers as to the future. If a significant new factor, material mistake or material inaccuracy relating to the information included in the Listing Prospectus which may affect the assessment of the securities arises or is noted prior to the Listing, this Listing Prospectus will be supplemented in accordance with the Prospectus Regulation. The obligation to supplement the Listing Prospectus under the Prospectus Regulation will end when the Listing Prospectus expires.

The Notes are governed by and construed in accordance with the laws of Finland. Any dispute arising in relation to the Notes shall be settled exclusively by Finnish courts in accordance with Finnish law. The auditor of the Issuer has audited the Finnish language versions of the financial statements that shall prevail. English language versions of the financial statements are unofficial translations thereof.

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## RISK FACTORS

*An investment in the Notes involves a number of risks, many of which are inherent in the Issuer's business and could be significant. Investors considering an investment in the Issuer's non-equity securities should carefully review the information contained in this Listing Prospectus, and in particular, the risk factors described below. The following description of risk factors is based on information known and assessed on the date of this Listing Prospectus and, therefore, is not necessarily exhaustive. Some of these factors are potential events that may or may not materialize. Should one or more of the risk factors described in this Listing Prospectus materialize, it could have a material adverse effect on the PVO's business, financial condition and results of operations. The Issuer also faces additional risks not currently known or not currently deemed material, which could also have a material adverse effect on the Issuer's business, financial condition and results of operations and, therefore, on the Issuer's ability to fulfil its obligations under the Notes as well as on the market price of the Notes, and investors could lose part or all of their investment.*

*The risk factors presented herein have been divided into five categories based on their nature. These categories are:*

- *risks related to PVO's operating environment and operations;*
- *risks related to nuclear operations of TVO;*
- *risks related to PVO's financing;*
- *risks related to the Notes; and*
- *risks related to the status and form of the Notes.*

*Within each category, the risk factor estimated to be the most material on the basis of an overall evaluation of the criteria set out in the Prospectus Regulation is presented first. However, the order in which the risk factors are presented after the first risk factor in each category is not intended to reflect either the relative probability or the potential impact of their materialization. The order of the categories does not represent any evaluation of the materiality of the risk factors within that category, when compared to risk factors in another category.*

### **Risks Related to PVO's Operating Environment and Operations**

***The Issuer supplies energy to its shareholders at cost and any material disruptions in actual or scheduled deliveries of energy could have a material adverse effect on the viability of the operating principle of the Issuer or its financial position***

As discussed in "Information about PVO—Operating Model of the Issuer", the Issuer operates based on the cost-price principle (the "Mankala Principle") and, under its Articles of Association, the Issuer supplies energy to its shareholders at cost. Each of the shareholders of each series of the Issuer's shares bears their share of the variable and fixed costs related to the power plant unit or other units represented by such series of shares, as specified in the Articles of Association of the Issuer. In the event that there would be a material disruption in the actual or scheduled deliveries of energy to the Issuer's shareholders as a result of any major adverse event, such as those described in "—Major adverse events or circumstances may affect PVO's operations" below; a failure to start or significant delay in starting regular power production by any new power plant unit of the PVO Group or the Issuer's associated companies and joint ventures; a failure to operate any of existing or new power plant units of the PVO Group or the Issuer's associated companies and joint ventures in a commercially acceptable manner due to a substantially lower than anticipated power production capacity or higher energy prices or for any other reason, or PVO incurring material unexpected liabilities or costs in relation to any of the above or otherwise, it could result in the impairment of the relevant asset and could have a material adverse effect on the viability of the operating principle of the Issuer or on its business or financial position. Further, inasmuch as the shareholders of the Issuer are, in accordance with the Articles of Association of the Issuer, only responsible for the fixed and variable costs in respect of the energy procured by the Issuer, the Issuer may not invoice its shareholders for any costs incurred by the Issuer related to investments in any power plant unit before the start of power production in such a unit. The Issuer capitalises such costs and invoices the capitalised costs to its shareholders, beginning from the start of power production by the relevant unit, over the estimated useful life of the investment or at faster pace, in each case, as determined by the Board of Directors of the Issuer in accordance with the Articles of Association of the Issuer. To finance such investments, the Issuer obtains external financing from third parties and has also received equity capital injections from its shareholders in the past. Accordingly, a failure to start or a significant delay in starting power production in any new power plant unit subject to an investment by the Issuer could result in an impairment of relevant assets and the Issuer not being able to pass on to its shareholders investment and other costs related to such power plant unit, which could have a material adverse effect on the Issuer's business and financial position and could result in the insolvency of the Issuer. See "Information about PVO—Operating Model of the Issuer".

Should, in the event any such risk materialises or otherwise the Issuer's shareholders be requested to provide additional financing to the Issuer in order to cover any liabilities or costs that go beyond those allocated to the shareholders pursuant

to the Articles of Association of the Issuer, no assurance can be given that the shareholders would be prepared to provide such additional financing to the Issuer and a decision by the shareholders not to provide such additional financing, together with a failure of the Issuer to secure such additional financing from third parties, could result in the insolvency of the Issuer. See “—Risks Related to PVO’s Financing—PVO is exposed to financing, refinancing and liquidity risk” below.

***The energy production industry is subject to changes in the political environment and regulation affecting the industry***

The energy production industry is subject to changes in the political environment and the perception of the industry that may affect the treatment of various forms of energy. Such changes may result in adoption of legislation that favour certain forms of energy production through incentives, tighter permit requirements or otherwise, or even bans certain type of energy production. For example, tax rates may be increased, and new taxes may be introduced, in relation to certain forms of energy production, or in relation to the energy production industry. PVO is subject to various taxes, such as income, sales and real estate taxes. In January 2018, the Finnish Ministry of Finance published its proposal to implement the EU directive (2016/1164) laying down rules against tax avoidance practices that directly affect the functioning of the internal market. The first amendments in the legislation on taxation of business income entered into force on 1 January 2019. Among other things, the amendments impose limitations on deductibility of interest expenses. As a result of the amendments, PVO may have to pay corporate taxes in the future in spite of the operation of the Mankala Principle. This could increase PVO’s production costs and adversely affect its cost-competitiveness and, therefore, potentially have an adverse effect on PVO’s business and financial position. The Finnish Ministry of Finance continues to prepare so-called “infrastructure exception”, including an exemption applicable to non-profit nuclear companies, in accordance with a statement from the Finnish Parliament (“**Finnish Parliament**” or “**Parliament**”), but there can be no assurance that such exception would be implemented, or that it would be applicable to PVO, in the final law.

***The energy production industry is highly regulated and various laws and regulations affecting the industry are subject to change***

The energy production industry is highly regulated and the operations of PVO are subject to various laws and regulations and require various permits and licences. Inasmuch as these laws and regulations are periodically amended, permits and licences are modified, renewed or revoked or their application or enforcement is changed, significant costs in complying with new and more stringent regulations may be imposed on PVO. In particular, various operations of the Issuer, its subsidiaries, associated companies and joint ventures require environmental and other regulatory permits or licences that are subject to modification, renewal or, in certain circumstances, revocation by the issuing authorities. As a result, the Issuer’s subsidiaries, associated companies and joint ventures may be unable to obtain or maintain all required regulatory permits and licenses required to conduct their operations. Compliance with the requirements under various permits and licences may cause PVO to incur significant additional operating costs, and failure to comply with such requirements could result in the imposition of fines and/or other liability. In addition, the cost, for example, of installing the necessary equipment to comply with new or amended environmental laws, regulations and orders may render some of PVO’s power production facilities uneconomical, which may cause PVO to cease energy production operations in the respective facilities.

For example, hydropower procured by the Issuer is produced at cost-price principle by the Issuer’s wholly-owned subsidiary PVO-Vesivoima Oy. PVO-Vesivoima Oy owns and operates hydropower plants along the rivers Kemijoki, Iijoki, Kokemäenjoki and Tengeliönjoki in Finland. In 2017, the relevant authorities submitted applications concerning fish stocking and fish stock management obligations with regard to the Kemijoki and Iijoki rivers. In addition to new requirements, such as, for example, the requirement to extend the existing fish stocking obligations and to construct new fishways, these applications include additions to the current obligations. The application process is pending as of the date of this Listing Prospectus. The hydropower producers operating in the Iijoki and Kemijoki rivers, PVO-Vesivoima Oy and Kemijoki Oy, consider the proposed changes unfounded. If imposed on PVO-Vesivoima Oy, among others, such changes could require significant additional investments on the part of the PVO Group (see “*Information about PVO—Environment—Hydropower*”).

Thermal operations of PVO are subject to environmental laws and regulations adopted by the European Union (the “**EU**”) and Finnish authorities. Directive 2010/75/EU on industrial emissions (the “**IE Directive**”), which entered into force in January 2011, has been implemented through the Environmental Protection Act and some related decrees in Finland. The IE Directive establishes requirements on power plants’ emissions into air. These requirements have been applied to existing power plants since the beginning of 2016. Some of the power plants of PVO are included in the national IE Directive transition plan approved by the European Commission in spring 2014. The transition plan allows the committed power plants some flexibility in the adoption of the new emission limits, with the transition period ending in June 2020. In August 2017, the EU published the updated reference document for Best Available Techniques (“**BAT**”) for Large Combustion Plants (“**LCP-BREF**”). The document applies to thermal power plants of PVO. The IE Directive establishes that BAT conclusions made on the basis of the BAT reference documents are binding, and as a result, the emission limits are expected to become more stringent. Plant operations must comply with the related requirements within four years from the establishment of BAT conclusions. However, for majority of PVO’s combined heat and power (“**CHP**”) plants, whose main activity is the delivery of process steam for industrial operations, the transition period is expected to be longer depending on when the BAT conclusions of the relevant industry sector will be published. Such additional requirements,

if more extensive than currently anticipated, could require significant additional investments on the part of the PVO Group and, therefore, increase PVO's production costs.

Further, events at PVO's power plants, as well as those owned by others, may lead to changes in laws or regulations or the conditions of the applicable permits or licences, or the authorities' interpretation thereof, or may cause the authorities to increase oversight activity or initiate actions to modify, suspend or revoke permits or licences, shut down a power plant, or impose penalties. As a result, if a major incident were to occur at a power production unit, whether a PVO power plant or not, it could adversely affect PVO's business, results of operations and financial position through increased compliance costs, penalty payments or cessation of certain part of its operation, and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes. See also "*—Risks Related to Nuclear Operations of TVO—Disposal of nuclear waste includes risks*" and "*—Risks Related to Nuclear Operations of TVO—A failure by TVO to comply with applicable regulations could result in interruption of its operations and have a material adverse effect on its business and financial position*" below.

#### ***Dam failure could adversely affect PVO's hydro operations***

Operating hydro facilities includes operational risks that can lead to physical damages, technical disruptions, third-party liabilities, environmental issues and other damage or loss events. To manage such risks, PVO-Vesivoima Oy continuously monitors the condition of the dams and performs regular inspections and measurements to ensure their safety. There is a systematic long-term investment program to ensure that appropriate condition of the dams is maintained and PVO-Vesivoima Oy targets to carry out preventive overhauls at its hydropower plants every 15 to 20 years. In Finland, dams are categorised into three categories based on the size of the dam. Category 1 and category 2 dams are required to be inspected annually based on the surveillance program approved by the Centre for Economic Development, Transport and the Environment of Finland. In addition, Finnish authorities inspect all dams every five years. PVO-Vesivoima Oy has three (3) category 1 and eight (8) category 2 dams and is a shareholder in four (4) category 2 dams (see "*Information about PVO—Hydropower*"). To assess the possible consequences of a dam failure, third-party assessments have been conducted regarding the largest dams. Despite the measures taken, no assurance can be given that a dam failure will not occur in the future. Should such risk materialise, it could result in penalty payments, payment of damages and additional operating costs for PVO and adversely affect PVO's financial position and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

#### ***The Issuer has a liability in relation to TVO's nuclear waste management***

TVO has an obligation, prior to the commencement of the waste generating operation and, otherwise, in any case by the end of June each year, to supply the Finnish State with collateral securities to cover the uncovered portion of nuclear waste management liability, if any, as well as a liability for any unforeseen expenses of nuclear waste management. Pursuant to TVO's Articles of Association, the Issuer bears partial responsibility, proportionate to its holding of the share series concerned (B-series), for the costs of the management and disposal of nuclear waste produced by TVO's Olkiluoto nuclear power plant units in the same manner as for the other fixed annual costs of TVO under TVO's Articles of Association. Accordingly, as a shareholder of TVO, the Issuer has issued to the Finnish State a directly enforceable guarantee proportionate to its holding of the series of TVO shares concerned (B-series). As of 30 June 2019, the guarantee issued by the Issuer amounted to EUR 44 million. The commencement of electricity production of the third nuclear power plant unit of TVO, Olkiluoto 3 EPR ("**OL3 EPR**"), is expected to increase the required total amount of the guarantee by approximately EUR 243 million. Increases in the costs of the management and disposal of nuclear waste produced by TVO's Olkiluoto power plant units or in the amount of or other adverse changes to requirements related to the obligations of the Issuer as a shareholder of TVO could adversely affect the Issuer's financial position and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

#### ***Major adverse events or circumstances may affect PVO's operations***

The Issuer is subject to the risk that its power supplies to its shareholders could be disrupted due to major external adverse events outside of the control of PVO, such as (but not limited to) significant changes in, or cancellation of, operating or other necessary licenses (e.g., environment licenses) related to hydro, thermal and nuclear power plants operated by the PVO Group or the Issuer's associated companies and joint ventures; changes in laws or regulations governing the operation of hydro, thermal, and nuclear power plants in Finland generally or hydro, thermal or nuclear power plants operated by the PVO Group or the Issuer's associated companies or joint ventures specifically; issues related to the availability of hydro, thermal or nuclear power plant equipment, nuclear fuel and service providers in relation to hydro, thermal or nuclear power plants operated by the PVO Group and the Issuer's associated companies or joint ventures or disputes related to the equipment, nuclear fuel or services provided (including possible financial distress of such providers); or catastrophic events in relation to hydro, thermal or nuclear power plants, such as fires, explosions, floods, terrorist activities, pandemics, and other similar destructive or disruptive events, operated by the PVO Group or the Issuer's associated companies and joint ventures.

In the event that there would be a material disruption in power supplies to the Issuer's shareholders as a result of any major adverse event, such as those described above, it could result in the impairment of the relevant asset and, as a result, have a material adverse effect on the Issuer's business or financial position.

***Governmental, legal or arbitration proceedings or claims could have a material adverse effect on PVO***

The Issuer, its subsidiaries, associated companies and joint ventures may from time to time be involved in, or a subject of, governmental, legal and arbitration proceedings and claims relating to their respective operations. The outcome of any governmental, legal or arbitration proceedings or claim is not possible to predict, and it is also not possible to rule out an unfavourable outcome in ongoing proceedings, or any proceedings that may arise in the future, which could have a material adverse effect on the Issuer's or its subsidiaries', associated companies' and joint ventures' business and financial position and, thereby, on the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes. As of the date of this Listing Prospectus, the Issuer is not party to any material legal proceedings, but see “—*Risks Related to Nuclear Operations of TVO—There are several risks related to the Olkiluoto 3 EPR project*” below and “*Additional Information—Governmental, Legal and Arbitration Proceedings*” for information relating to risks related to the OL3 EPR.

**Risks Related to Nuclear Operations of TVO**

*The information below regarding risks associated with TVO's Nuclear Operations has been derived from information made public by TVO, including TVO's annual report for the year ended 31 December 2018, interim report for the six months ended 30 June 2019, interim report for the nine months ended 30 September 2019 and the Base Prospectus relating to TVO's Euro Medium Term Note programme, dated 27 June 2019 (as supplemented on 22 August 2019). See “General Information—Other Information Derived from Third Party Sources”.*

***There can be no assurance that safety and stability of TVO's nuclear operations will continue***

The nuclear power supplied by the Issuer to its shareholders is produced at cost-price principle by TVO, a 57.1 percent-owned joint venture of the Issuer (see “*Information about TVO*”). TVO has two nuclear power plant units, Olkiluoto 1 (“**OL1**”) and Olkiluoto 2 (“**OL2**”), located in Olkiluoto in Eurajoki, Finland.

Throughout their approximately 40 years of commercial operations, TVO's nuclear power plant units OL1 and OL2 have exhibited high load factors and low incident frequencies. However, no assurances can be given that such reliability and safety of operations, as well as financial stability, will continue in the future and any such discontinuity could not adversely affect TVO, and, as a result, also the Issuer. If materialised, any incidents that would undermine the safety and stability of TVO's operations could have a material adverse effect on TVO's, and, as a result, also the Issuer's business and financial position and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

***Disposal of nuclear waste includes risks***

In order to reduce the risk of nuclear irradiation, multi-layered containment systems and sophisticated safety protocols are used by TVO to effectively isolate radioactive materials from the surrounding environment during the process of interim storage, packaging, transport, relocation and encasement of nuclear waste in the final storage repositories. Nevertheless, the risk of radioactive leakage into the environment at various stages of this process, as well as from the final storage facilities themselves, cannot be excluded entirely and, should such risk materialise, it could have a material adverse effect on TVO's business and financial position and any such event could adversely affect TVO's and, as a result, also the Issuer's business and financial position and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

TVO bears full legal and financial responsibility for the management and disposal of nuclear waste produced by the Olkiluoto nuclear power plant units. The future cost of containing the nuclear waste and maintaining the storage facilities over time is to be paid for from the Fund to which the nuclear power producers in Finland, including TVO, make annual contributions. Contributions to the Fund are calculated on the basis of actual estimates of the future cost of the management of such nuclear waste. However, if the amounts provided by the Fund were ever to be insufficient to cover the actual costs of managing the nuclear waste, then TVO would be responsible for its *pro rata* share of any such excess costs, which could, in turn, affect the Issuer's liability in relation thereto. See “—*Risks Related to PVO's Operating Environment and Operations—The Issuer has a liability in relation to TVO's nuclear waste management*” above.

***A failure by TVO to comply with applicable regulations could result in interruption of its operations and have a material adverse effect on its business and financial position***

The operation of nuclear facilities depends on a number of regulations including, but not limited to, regulations concerning safety, technical specifications and the transport and storage of nuclear material. A failure by TVO to comply with applicable regulations could result in an interruption of its operations and could have a material adverse effect on its business and financial position. Such interruption could adversely affect TVO's and, as a result, also the Issuer's business

and financial position and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

On 20 September 2018, the Finnish Government ("**Finnish Government**" or "**Government**") granted TVO an operating licence under section 20 of the Finnish Nuclear Energy Act (990/1987, as amended; *Fi: ydinenergialaki*) (the "**Nuclear Energy Act**") for the nuclear power plant units OL1 and OL2. The operating licence for OL1 and OL2 units is valid until 31 December 2038. The new licence replaced TVO's previous operating licence for OL1 and OL2 units granted on 20 August 1998. Based on the licence decision, the licence is immediately enforceable regardless of appeals in accordance with section 31 of the Finnish Administrative Judicial Procedure Act (586/1996, as amended).

The Finnish Government made the decision in principle on the OL3 EPR on 17 January 2002, and granted the construction licence for the OL3 EPR on 17 February 2005. On 7 March 2019, the Finnish Government granted TVO an operating licence under section 20 of the Nuclear Energy Act also for the OL3 EPR. The operating licence for OL3 EPR unit is valid until 31 December 2038. Based on the licence decision, the licence is immediately enforceable regardless of appeals in accordance with section 31 of the Finnish Administrative Judicial Procedure Act (586/1996, as amended). Partners to the Olkiluoto and Orjasaari jointly-owned area, partners to the Munakari jointly-owned area, and partners to the Sorkka jointly-owned area have filed an appeal with the Supreme Administrative Court in relation to the Olkiluoto 3 operation license. TVO, the Ministry of Economic Affairs and Employment and STUK have given their statements about the appeal and consider it to be unfounded.

Due to the Fukushima Dai-ichi nuclear power plant accident in Japan in March 2011, a review of nuclear plant safety measures was initiated in Europe by the European Commission. The report by the European Commission released in April 2012 stated that the safety in the nuclear power plants in the EU is at a good level. According to the report, however, national measures are needed especially for preparing for the consequences of extreme conditions. In Finland, STUK started, at the request of the MEE, an assessment on how nuclear power plants in Finland have prepared for the impacts that floods and other extreme conditions may have on the functioning of the facilities. According to the final report given by STUK in 2012, the safety of Finnish nuclear power plants, including provisions for severe accidents, earthquakes and extreme weather conditions, has been improved systematically since the plants were commissioned. STUK, however, raised some new questions and suggestions for improvements. Such improvements have been implemented for OL1 and OL2 to include reducing the dependence of cooling needed in emergency situations on the electrical systems that are designed to reduce such dependence. In May 2013, TVO signed an agreement for the delivery of emergency diesel generators and associated auxiliary systems. According to public statements by TVO, the replacement project of the emergency diesel generators is the largest individual plant modification project ever undertaken in Olkiluoto. According to public statements by TVO, the total investment of the replacement project is estimated to be more than EUR 100 million. The project is estimated by TVO to continue until 2023. STUK updated its original 2012 Finnish National Action Plan in December 2014.

As a result of the safety assessments and nuclear stress tests undertaken as part of its review of safety measures in the nuclear industry, the European Commission amended the Nuclear Safety Directive (Council Directive 2009/71/EURATOM) with the Nuclear Safety Directive Amendment (Council Directive/2014/87/EURATOM), which came into force in August 2014. The amended directive aims to strengthen the powers and independence of national safety authorities and introduces EU wide safety objectives. It also establishes a European system of regular peer reviews. The amendments to the Nuclear Energy Act implementing the directive entered into force on 1 January 2018. According to public statements by TVO, the legislative amendments are not expected to result in significant changes for TVO or require significant investments by TVO.

According to public statements by TVO, TVO's management is currently not aware of any deficiencies in safety measures in the Olkiluoto nuclear power plant units. However, the operation of nuclear power units is complex and requires compliance with a number of regulations including, but not limited to, regulations concerning safety, technical specifications and the transport and storage of nuclear material. A failure by TVO to comply with applicable regulations or any new regulations that may be introduced could result in interruption of its operations and have a material adverse effect on its business and financial position. In addition, no assurance can be given that any new legislation would not adversely affect TVO's business and financial position due to significant new investments required or otherwise, and that any such changes could not adversely affect TVO's and, as a result, also the Issuer's business and financial position and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

#### ***There are political risks relating to TVO's business operations***

Construction of a new nuclear power plant requires a decision in principle which is made by the Finnish Government, and such a decision also requires ratification by the Finnish Parliament by a simple majority in accordance with sections 11 and 15 of the Nuclear Energy Act. Once such ratification has been obtained, a construction licence can be approved by the Finnish Government in accordance with section 18 of the Nuclear Energy Act. Furthermore, in order to operate a nuclear power plant, an operating licence granted by the Finnish Government is required in accordance with section 20 of the Nuclear Energy Act. If due to a political decision, the licence to construct or operate a nuclear facility is cancelled or the



licence to operate a nuclear facility is denied, the holder of the cancelled licence or the applicant whose licence to operate the nuclear facility has been denied, is entitled to a reasonable compensation from the State of Finland for the direct expenses incurred in the construction of the facility in accordance with section 27 of the Nuclear Energy Act.

According to public statement by TVO, TVO's management is not aware of any plans to change Finnish legislation concerning the licensing and compensation procedure. However, no assurance can be given that such changes will not occur in the future or that other laws or regulations, including tax laws, that could have a material effect on TVO's business and financial position, will not be passed and that any such change could not adversely affect TVO's and, as a result, also the Issuer's business and financial position and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

***No assurance can be given that developments in the demand and supply for nuclear fuel and related services will not result in procurement problems for TVO***

Procurement of nuclear fuel involves the following three main elements: the purchase of raw uranium; uranium enrichment services; and nuclear fuel manufacture. Throughout its history, TVO has followed a policy of maintaining relationships with a number of suppliers of the aforesaid elements. This policy, the aim of which has been to diversify supply sources and to ensure competitive pricing for each element has, in the TVO's management's opinion, resulted in reliable and cost efficient fuel procurement. According to public statements by TVO, TVO's management does not currently foresee any major difficulties in obtaining nuclear fuel. However, the cost at which uranium is available changes according to fluctuations in the world markets, and is influenced by fluctuations in the price of other fuels, such as oil. Most of these services are procured under long term contracts, however, no assurance can be given that developments in the demand and supply for nuclear fuel and related services will not result in procurement problems for TVO and, as a result, have a material adverse effect on TVO's business and financial position and that any such developments could not adversely affect TVO's and, as a result, PVO's business and financial position and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

***There are several risks related to the Olkiluoto 3 EPR project***

TVO is in the process of constructing a third nuclear power plant unit, OL3 EPR, at the Olkiluoto site (see "*Information about TVO—Business and Operations of TVO—Nuclear Power—Olkiluoto 3 EPR*"). OL3 EPR was commissioned as a turnkey project from a consortium formed by Areva GmbH, Areva NP SAS ("**Areva NP**") and Siemens AG (together, the "**Supplier**"). The members of the consortium are jointly and severally liable for the obligations under the contract for the construction of OL3 EPR between the Supplier and TVO (the "**Plant Contract**"). Under the Plant Contract, the Supplier guaranteed a completion date of 30 April 2009, however, several delays in the completion of OL3 EPR throughout the duration of the project were reported. Due to the delays in the construction of the OL3 EPR project, TVO was party to arbitration proceedings under the Rules of the International Chamber of Commerce (the "**ICC**") with respect to costs and losses incurred in relation thereto.

In March 2018, Areva NP, Areva GmbH, Areva group parent company Areva SA, Siemens AG and TVO signed a global settlement agreement and certain ancillary agreements (the "**GSA**"). In addition to settling all on-going legal actions related to the OL3 EPR project, the GSA is aimed at securing the provision of adequate and competent technical and human resources as well as funds for completion and start-up of the OL3 EPR until the end of the applicable guarantee periods. For more details on the GSA, see "*Information about TVO—Business and Operations of TVO—Nuclear Power—Olkiluoto 3 EPR*" and "*Additional Information—Governmental, Legal and Arbitration Proceedings—Joint Ventures*".

When entering into the GSA, the regular electricity production at the OL3 EPR was scheduled to start in May 2019. Based on information received from the Supplier in November 2018, the scheduled start of regular electricity production was delayed to January 2020. Furthermore, in April 2019, the Supplier informed that nuclear fuel loading will be delayed to August 2019 at the earliest from June 2019.

According to the schedule provided by the Supplier in July 2019, nuclear fuel was planned to be loaded into the reactor in January 2020, the first connection to the grid was planned to take place in April 2020, and the start of regular electricity production of the OL3 EPR nuclear power plant unit was planned to take place in July 2020. On 8 November 2019, TVO announced that based on information provided by the Supplier, the project is currently six weeks behind the schedule and the Supplier will perform a schedule review and provide TVO by an overall rebaseline schedule for the final phases of the project in December 2019.

The GSA includes an incentive and penalty payment mechanism under which incentives and penalties may be payable by TVO or the Supplier, respectively. However, as the estimated completion of the project is expected to extend beyond the end of 2019, the Supplier is not expected to be entitled to receive any incentive payment. In the event that the Supplier fails to complete the OL3 EPR project by the end of 2019, it has agreed to pay penalties to TVO from such delay. The amount of such penalties depends on the actual completion date of the project and, in any case, is limited to a maximum of EUR 400 million. In addition, the GSA sets up several funding mechanisms to secure the completion of the OL3 EPR covering all guarantee periods, including a trust funded by Areva NP, Areva GmbH and Areva SA to secure the financing

of the costs of completion and start-up of the OL3 EPR. In the event that the Supplier fails to complete the OL3 EPR project by 30 June 2021, TVO has a right to terminate the Plant Contract upon notice.

According to public statements by TVO, as the OL3 EPR project is still on-going, no assurance can be given that the parties will meet their respective obligations under the Plant Contract and the GSA. A failure by one or more of the Supplier consortium companies, or TVO, to meet their respective obligations could further delay the start of regular electricity production and result in additional costs for TVO and subject it to new legal proceedings. If materialised, such failure could have a material adverse effect on TVO's business and financial position. Consequently, any such arbitrations or proceedings could adversely affect TVO's and, as a result, PVO's business and financial position and adversely affect the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

## **Risks Related to PVO's Financing**

### ***PVO is exposed to financing, refinancing and liquidity risk***

Financing and liquidity management within the PVO Group is managed centrally by the PVO Group's Treasury. According to its financial policy, the PVO Group should maintain diversified funding sources and a diversified financing structure in terms of the PVO Group's debt maturity profile. The PVO Group's financial policy also prescribes that all debt should be maintained in euro and, where debt is not incurred in euro, it should be hedged with appropriate instruments to ensure that exchange rate risk is managed. All the PVO Group's excess cash positions are centralised to the Issuer either through internal cash-pools or otherwise. The Issuer also maintains liquidity lines available for its subsidiaries to cover short-term liquidity needs. The Issuer may also grant long-term loans to subsidiaries although, according to the PVO Group's financial policy, each company belonging to the PVO Group raises external long-term debt financing primarily in its own name. According to the PVO Group's financial policy, all subsidiaries should maintain an equity-to-assets ratio above 27 percent. Joint ventures and associated companies manage their own financing and liquidity needs independently according to their own respective financial policies.

In the past, the Issuer and its subsidiaries, associated companies and joint ventures have been able to obtain adequate financing and hedging arrangements and refinancing of maturing debt has not constituted a difficulty or significantly increased financing costs. However, no assurances can be given that the Issuer and its subsidiaries, associated companies and joint ventures will be able to successfully obtain additional financing for investments needs or to manage debt maturities and refinance or renegotiate existing debt as it matures, due to changes in market conditions affecting generally the availability of financing or due to developments specific to the Issuer, its subsidiaries, associated companies or joint ventures, which could adversely affect PVO's business and financial position as well as the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes.

The Issuer procures energy for its shareholders primarily from its subsidiaries, associated companies and joint ventures that also operate based on the Mankala Principle and therefore, as a shareholder of these companies, the Issuer is subject to payment obligations towards these companies for its proportionate share of costs in accordance with the articles of association of each such company, as discussed in more detail under "*Information about PVO—Operating Model of the Issuer*". The Issuer is also subject to the risk of major external adverse events or other circumstances discussed above under "*Risks Related to PVO's Operating Environment and Operations—Major adverse events or circumstances may affect PVO's operations*" and affecting its subsidiaries, associated companies and joint ventures. The Issuer may be requested to provide additional financing to such subsidiaries, associated companies and joint ventures should any such risk materialise, or otherwise, in order to cover any costs that go beyond those allocated to the shareholders pursuant to the articles of association of the relevant companies. In addition, a failure by any other shareholder or shareholders in any of the Mankala companies in which the Issuer owns shares to fulfil its or their respective obligations under the articles of association of the relevant Mankala company or companies could result in liquidity or payment problems for such Mankala company or companies. Although non-defaulting shareholders would have no obligation to fund the defaulting shareholder's or shareholders' portion, liquidity needs and potential insolvency of the relevant Mankala company or companies may require additional financing. Inasmuch as the Issuer has no obligation to inject additional capital or otherwise finance Mankala companies in which it owns shares other than as is set forth in the articles of associations of these companies, no assurance can be given that the Issuer would do so, or that additional financing would be available from other shareholders or from third parties in the future to finance operations of such subsidiaries, associated companies or joint ventures. Should such a risk materialise, it could result in the insolvency of such subsidiary, associated company or joint venture, and have a material adverse effect on PVO's business and financial position and, thereby, on the Issuer's ability to fulfil its obligations under the Notes issued and the value of the Notes, and could ultimately result in the insolvency of the Issuer.

The Issuer manages its liquidity by invoicing its shareholders on a monthly basis for its fixed and variable costs, as specified in its Articles of Association (see "*Information about PVO—Operating Model of the Issuer*"). In addition, the Issuer manages these risks through a combination of cash positions and committed credit facility agreements with banks. However, the Issuer's liquidity and financial position are materially dependent on its shareholders making timely payments and no assurance can be given that the failure of a shareholder to make such payments would not adversely affect the Issuer's liquidity and financial position. In addition to the monthly payments received from its shareholders and any

payments pursuant to any specific undertakings by the shareholders, the Issuer finances its operations, including investments, through various types of loan financing from third parties, and has also received equity capital injections from its shareholders in the past (see “*Information about PVO—Operating Model of the Issuer*”). Other than the existing EUR 90 million shareholder loan commitment expiring on 31 December 2020, the shareholders of the Issuer have no obligation to inject additional capital or otherwise finance the Issuer beyond payment for the Issuer’s fixed and variable costs, as set forth in the Articles of Association of the Issuer, and no assurance can be given that they would provide such additional capital or other financing or that additional financing would be available from third parties in the future to finance the Issuer’s operations, including investments, or to refinance the Issuer’s debt, if required, which could affect the Issuer’s ability to fulfil its obligations under the Notes and the value of the Notes, and could ultimately result in the insolvency of the Issuer.

#### ***PVO is exposed to interest rate risks***

Changes in rates of interest rates on interest-bearing receivables and liabilities create an interest rate risk. The interest rate risk in the loan portfolio of the PVO Group is managed by changing the interest rate period and the duration. The interest rate period of loan portfolios may be changed with fixed-rate loans, interest-rate swaps, forward-rate agreements and interest rate cap and floor agreements. Subsidiaries’ interest rate hedges are made so that the counterparty is always the Issuer, which then enters into a corresponding contract with a bank.

As of 30 June 2019, the PVO Group’s interest-bearing liabilities amounted to EUR 1,225 million and, although the Issuer manages interest rate risks within target levels, there can be no assurance that the Issuer will be able to manage such interest rate risk successfully in the future. A failure to manage interest rate risk may have an adverse effect on the PVO Group’s financial position and, thereby, on the Issuer’s ability to fulfil its obligations under the Notes issued as well as the value of the Notes, and could ultimately result in the insolvency of the Issuer.

#### ***PVO is exposed to counterparty and credit risk through its financing activities***

PVO’s financing activities lead to contractual arrangements with various financing institutions which expose PVO to counterparty risks. Credit risk exposures relating to financial derivative instruments are often volatile. According to the PVO Group’s policy, financial contracts are limited to those with high-credit-quality counterparties active on the financial markets. Credit risk exposures are spread across a wide range of financial institutions. The Issuer monitors credit and counterparty exposure to ensure that the risks are maintained at an acceptable level.

However, there can be no assurance that PVO will not sustain losses as a result of default, litigation or other actions by one or more of its counterparties in the future. The occurrence of loss may have an adverse effect on PVO’s financial position and, thereby, on the Issuer’s ability to fulfil its obligations under the Notes issued as well as the value of the Notes.

#### ***The Issuer’s financial position is materially dependent on its shareholders making timely payments to the Issuer***

The Issuer’s operating model is such that it receives regular monthly payments from its shareholders for the coverage of fixed and variable costs in accordance with its Articles of Association (see “*Information about PVO—Operating Model of the Issuer*”). A failure by a shareholder to meet its payment obligations would entitle the Issuer to cut off that shareholder’s supply of energy.

The Issuer has never experienced any material payment delays from its shareholders. However, as the Issuer’s financial position is materially dependent on its shareholders making timely payments to the Issuer, there can be no assurance that the inability of a shareholder to meet its payment obligations towards the Issuer would not adversely affect the Issuer’s liquidity and financial position. Consequently, if the financial position of one or more shareholders of the Issuer is adversely affected, the amounts payable to the Issuer by its shareholders increase due to an increase in operating costs or there is any change in the identity of the shareholders, this could adversely affect the business and financial position of the Issuer and adversely affect the Issuer’s ability to fulfil its obligations under the Notes issued and the value of the Notes.

#### **Risks Related to the Notes**

##### ***The Notes may not be a suitable investment for all investors***

Each prospective investor in the Notes must determine, based on its own independent review and such professional advice as it deems appropriate under the circumstances, that investment in the Notes is consistent with its financial needs, objectives and condition, complies and is consistent with the investment policies, guidelines and restrictions applicable to it and is a fit, proper and suitable investment for it, notwithstanding the material risks inherent in investing in or holding the Notes.

A prospective investor should:

- (i) have sufficient knowledge and experience to make a meaningful evaluation of the Notes, the merits and risks of investing in the Notes and the information contained or referred to in this Listing Prospectus;

- (ii) have access to, and knowledge of, appropriate analytical tools to evaluate, in the context of its particular financial situation, an investment in the Notes and the effect that the Notes can have on its overall investment portfolio;
- (iii) have sufficient financial resources and liquidity to bear all of the risks of an investment in the Notes;
- (iv) understand fully the terms of the Notes and be familiar with the behaviour of any relevant financial markets; and
- (v) be able to evaluate (either on its own or with the help of its financial adviser) possible scenarios for economic, interest rate, and other factors that may affect its investment and its ability to bear the applicable risks.

***Investors are exposed to credit risk in respect of the Issuer and investors may lose their investment in the Notes***

Investors in the Notes carry a credit risk relating to the Issuer. The investor's right to receive payment under the Terms and Conditions is, therefore, dependent on the Issuer's ability to meet its payment obligations. The Issuer's financial position is affected by several factors of which some have been discussed in "*Risks Related to PVO's Financing*" above. An investor is always solely responsible for the economic consequences of his/her/its investment decisions.

An increased credit risk may cause the market to charge the Notes a higher risk premium, which could affect the Notes' value negatively. Another aspect of the credit risk is that a deteriorating financial position of the Issuer may reduce the Issuer's possibility to receive debt financing at the time of the maturity of the Notes and such debt financing might be needed for the Issuer to be able to meet its payment obligations under the Notes. In addition, should the Issuer become insolvent during the term of the Notes, an investor may forfeit interest payable on, and the principal amount of, the Notes in whole or in part.

***Since the Notes bear a fixed interest rate, their price may fall as a result of changes in the interest rates***

The Notes bear interest on their outstanding principal at a fixed interest rate. A holder of a security with a fixed interest rate is exposed to the risk that the price of such security could fall as a result of changes in the market interest rate. Market interest rates follow the changes in general economic conditions, and are affected by, among many other things, demand and supply for money, liquidity, inflation rate, economic growth, central banks' benchmark rates, implied future rates, and changes and expectations related thereto.

While the nominal compensation rate of a security with a fixed interest rate is fixed during the term of such security or during a certain period of time, current interest rates on capital markets (market interest rates) typically change continuously. In case market interest rates increase, the market price of such a security typically falls. If market interest rates fall, the price of a security with a fixed interest rate typically increases. Consequently, the Noteholders should be aware that movements of market interest rates may result in a material decline in the market price of the Notes and can lead to losses for the Noteholders if they sell the Notes. Further, the past performance of the Notes is not an indication of their future performance.

***The Notes carry no voting rights at the Issuer's General Meetings of Shareholders***

The Notes carry no voting rights with respect to the general meetings of shareholders (the "**General Meeting of Shareholders**") of the Issuer. Consequently, in the Issuer's General Meetings of Shareholders the holders of Notes cannot influence any decisions by the Issuer to redeem the Notes or any decisions by the Issuer's shareholders concerning, for instance, the capital structure of the Issuer, which could affect the Issuer's ability to make payments under the Notes.

***The Issuer using its right or being obligated to redeem and purchase the Notes prior to maturity may have an adverse effect on the Issuer and on any Notes outstanding***

As specified in the Terms and Conditions, the Noteholders are entitled to demand premature repayment of the Notes in the situations specified in Condition 8 (*Change of Control*), Condition 10 (*Excess Secured Indebtedness*) and Condition 12 (*Events of Default*) of the Terms and Conditions. Such premature repayment may have an adverse effect on the Issuer's financial position and prospects and, thereby, on the Issuer's ability to fulfil its obligations under the Notes towards such Noteholders who elect not to exercise their right to have their Notes prematurely repaid as well as on the market price and value of such Notes.

In addition, as specified in the Terms and Conditions, the Issuer may at any time purchase the Notes in any manner and at any price prior to maturity. Only if such purchases are made by tender, such tender must be available to all Noteholders alike. The Issuer is entitled to cancel, dispose of or hold the purchased Notes at its discretion. Consequently, a Noteholder offering Notes to the Issuer in connection with such purchases may not receive the full invested amount. Furthermore, a Noteholder may not have the possibility to participate in such purchases. The purchases – whether by tender or otherwise – may have a material adverse effect on such Noteholders who do not participate in the purchases as well as on the market price and value of such Notes.

Furthermore, in case more than seventy-five (75) percent of the aggregate volume of the Notes has been repaid pursuant to a demand by the Noteholders based on a violation of the Excess Secured Indebtedness or a Change of Control of the Issuer, the Issuer is entitled to prepay also the remaining outstanding Notes by notifying the Noteholders of such prepayment. It should be noted, that such early prepayment may not be initiated by the Issuer in case of an Event of Default. Such early prepayment initiated by the Issuer may incur financial losses or damage, among other things, to such holders of the Notes who had prepared themselves to have the amount of the Notes invested until the contractual final maturity of the Notes.

In addition, as specified in the Condition 7.2 (*Voluntary Total Redemption (Call Option)*) of the Terms and Conditions, the Notes contain an optional redemption feature, which may limit their market value. During any period when the Issuer may elect to redeem the Notes, the market value of the Notes may not rise substantially above the price at which they can be redeemed. This may also be true prior to any redemption period.

The Issuer may be expected to redeem the Notes when its cost of borrowing is lower than the interest rate on the Notes. At those times, an investor generally would not be able to reinvest the redemption proceeds at an effective interest rate as high as the interest rate on the Notes being redeemed and may only be able to do so at a significantly lower rate. Potential investors should consider reinvestment risk in light of other investments available at that time.

***The Issuer is not obliged to compensate for withholding tax or similar on the Notes***

In the event any withholding tax, public levy or similar is being imposed in respect of payments to Noteholders on amounts due pursuant to the Notes, the Issuer is not obliged to gross-up or otherwise compensate the Noteholders for the lesser amounts the Noteholders will receive as a result of the impositions of withholding tax or similar. Furthermore, the Noteholders do not have any right to premature redemption of the Notes based on the same.

***The Notes do not, as a rule, contain covenants on the Issuer's financial standing or operations and do not limit its ability to merge, demerge, effect asset sales or otherwise effect significant transactions that may have a material adverse effect on the Notes and the Noteholders***

As a rule, the Notes do not contain provisions designed to protect Noteholders from a reduction in the creditworthiness of the Issuer. In particular, the Terms and Conditions do not, except as set forth in Condition 8 (*Change of Control*), Condition 10 (*Excess Secured Indebtedness*) and Condition 12 (*Events of Default*) of the Terms and Conditions, which grant the Noteholders the right of repayment of the Notes in certain limited circumstances, restrict the Issuer's or its subsidiaries', joint ventures' and associated companies' ability to enter into a merger, demerger or other significant transaction that could materially alter its existence, legal structure of organisation or regulatory regime and/or its composition and business. In the event the Issuer was to enter into any such transaction, the Issuer's ability to fulfil its obligations under the Notes as well as the market price and value of the Notes may be materially and adversely affected.

***The Issuer and its subsidiaries may issue additional debt and/or grant security***

Except for as set out in Condition 9 (*Negative Pledge*) and Condition 10 (*Excess Secured Indebtedness*) of the Terms and Condition, the Issuer and its subsidiaries are not prohibited from issuing further notes or incurring other debt ranking *pari passu* or senior to the Notes or restricted from granting any security on any existing or future debts. According to the Issuer's financial policy, the subsidiaries are financed with subsidiary level debt rather than intra-group loans from the parent. Issuance or incurrence of further debt or granting of security may reduce the amount recoverable by the Noteholders upon the winding-up or insolvency of the Issuer, which would affect adversely the Issuer's ability to fulfil its obligations under the Notes as well as the market price and value of the Notes may be materially and adversely affected.

***Legal investment considerations may restrict certain investments***

The investment activities of the Noteholders may be subject to legal investment laws and regulations, or review or regulation by certain authorities. Each potential Noteholder should consult its legal advisers to determine whether and to what extent (i) Notes are legal investments for it, (ii) Notes can be used as collateral for various types of borrowing and (iii) other restrictions apply to its purchase or pledge of any Notes. Financial institutions should consult their legal advisors or the appropriate regulators to determine the appropriate treatment of Notes under any applicable risk-based capital or similar rules. There is a risk that investors in certain jurisdictions may be subject to restrictions or limitations that may affect the value of their investment.

***There is currently no public market for the Notes and if an active trading market for the Notes does not develop or is not maintained, it could have a material adverse effect on the market price of the Notes***

The Notes constitute a new issue of securities by the Issuer. Prior to the contemplated listing of the Notes on Nasdaq Helsinki, there is no public market for the Notes. Although an application will be made to list the Notes on Nasdaq Helsinki, no assurance can be given that such application will be approved within on time or at all. In addition, the listing of the Notes will not guarantee that a liquid public market for the Notes will develop, and even if such a market were to develop, neither the Issuer nor the Lead Managers are under any obligation to maintain such market. The liquidity and the market

prices of the Notes can be expected to vary with changes in market and economic conditions, the financial position and prospects of the Issuer and many other factors that generally influence the market prices of securities. Such factors may significantly affect the liquidity and the market prices of the Notes, which may trade at a discount to the price at which the Noteholders purchased the Notes.

If an active trading market for the Notes does not develop or is not maintained, it could have a material adverse effect on the market price of the Notes. Further, Noteholders may not be able to sell their Notes at all or at prices that will provide them with a yield comparable to similar investments that have a developed secondary market. Moreover, if additional and competing products are introduced in the markets, it could have a material adverse effect on the market price of the Notes.

#### **Risks Related to the Status and Form of the Notes**

##### ***The Issuer's ability to make payments under the Notes is effectively subordinated to any liabilities of its subsidiaries, associates and joint ventures***

The Issuer is the ultimate parent of the PVO Group. The Issuer does not have any operating assets and it procures energy for its shareholders at cost-price principle from its subsidiaries, associated companies and joint ventures. Inasmuch as none of these subsidiaries, associated companies or joint ventures has guaranteed any liabilities of the Issuer (including the Notes), neither the Issuer nor holders of Notes will have any direct claim on the Issuer's subsidiaries' cash flows or assets. In the event of a bankruptcy, liquidation or reorganisation of any of the Issuer's subsidiaries, associated companies or joint ventures, their creditors will generally be entitled to payment of their claims from the cash flows and assets of those subsidiaries, associated companies or joint ventures before any cash flows or assets are made available for distribution to the Issuer as a shareholder. See "*Information about PVO—Financing Agreements and Liquidity Position*" for more information on the indebtedness of the Issuer's subsidiaries.

##### ***Neither the Issuer nor the Notes are rated***

The Issuer has no ratings solicited by it. Further, the Notes are currently not rated by any rating agency. Accordingly, investors are not able to refer to any independent credit rating when evaluating factors that may affect the value of the Notes. The absence of rating may reduce the liquidity of the Notes as investors often base part of their decision to buy debt securities on the credit rating. The absence of rating may also increase the borrowing costs of the Issuer.

##### ***The Notes constitute unsecured obligations of the Issuer***

The Notes constitute direct, unconditional, unsecured and unsubordinated obligations of the Issuer. The Notes are not guaranteed by any person or entity. No one other than the Issuer will accept any liability in respect of any failure by the Issuer to pay any amount due under the Notes.

This means that in the event of bankruptcy, re-organisation or winding-up of the Issuer, the Noteholders normally receive payment after any priority creditors have been fully paid. Accordingly, the prospects of the Issuer may adversely affect the liquidity and the market price of the Notes and may increase the risk that the Noteholders will not receive prompt and full payment, when due, for interest, principal and/or any other amounts payable to the Noteholders pursuant to the Notes from time to time.

##### ***The completion of transactions relating to the Notes is dependent on Euroclear Finland's operations and systems***

The Notes are issued in the book-entry securities system of Euroclear Finland. Pursuant to the Act on the Book-Entry System and Clearing and Settlement (348/2017, as amended; *Fi: laki arvo-osuusjärjestelmästä ja selvitystoiminnasta*), the Notes will not be evidenced by any physical note or document of title other than statements of account made by Euroclear Finland or its account operator. The Notes are dematerialised securities and title to the Notes is recorded and transfers of the Notes are perfected only through the relevant entries in the book-entry system and registers maintained by Euroclear Finland and its account operators. Therefore, timely and successful completion of transactions relating to the Notes, including but not limited to transfers of, and payments made under, the Notes, depend on the book-entry securities system being operational and that the relevant parties, including but not limited to the payment transfer bank and the account operators of the Noteholders, are functioning when transactions are executed. Any malfunction or delay in the book-entry securities system or any failure by any relevant party may result in the transaction involving the Notes not taking place as expected or being delayed, which may cause financial losses or damage to the Noteholders whose rights depended on the timely and successful completion of the transaction.

The Issuer or any other third party will not assume any responsibility for the timely and full functionality of the book-entry securities system. Payments under the Notes will be made in accordance with the laws governing the book-entry securities system, the rules of Euroclear Finland and the Terms and Conditions. For purposes of payments under the Notes, it is the responsibility of each Noteholder to maintain with its respective book-entry account operator up to date information on applicable bank accounts.

***Legislative amendments may take place during the term of the Notes***

The Notes are governed by the laws of Finland, as in force from time to time. Finnish laws and regulations, including, but not limited to, tax laws and regulations, governing the Notes may change during the term of the Notes and new judicial decisions can be given and new administrative practices can be implemented. The Issuer makes no representations as to the effect of any such changes of laws or regulations, or new judicial decisions or administrative practices after the date of this Listing Prospectus.

***Amendments to the Terms and Conditions bind all Noteholders***

The Terms and Conditions may be amended in certain circumstances with the required consent of a defined majority of the Noteholders. The Terms and Conditions contain provisions for the Noteholders to call and attend meetings and arrange procedures in writing to consider and vote upon matters affecting their interests generally. Resolutions passed at such meetings may bind all Noteholders, including those who did not attend and vote at the relevant meeting and those who voted in a manner contrary to the majority. This may incur financial losses, among other things, to all Noteholders, including those who did not attend and vote at the relevant meeting or participate in the procedure in writing and those who voted in a manner contrary to the majority.

***The right to receive payments under the Notes is subject to time limitations***

Under the Terms and Conditions, if any payment under the Notes has not been claimed by the respective Noteholder within three years from the relevant due date thereof, the right to such payment shall become permanently forfeited. Such forfeiture to receive payment may cause financial losses to such Noteholders who have not claimed payment under the Notes within the time limit of three years.

## GENERAL INFORMATION

### The Issuer and Certain Other Parties

#### *Issuer*

Pohjolan Voima Oyj  
Töölönkatu 4  
FI-00100 Helsinki  
Finland

#### *Lead Managers*

Danske Bank A/S  
Holmens Kanal 2-12  
DK-1092 Copenhagen K.  
Denmark

Nordea Bank Abp  
Satamaradankatu 5  
FI-00020 NORDEA  
Finland

#### *Legal Advisor to the Issuer*

White & Case LLP  
Aleksanterinkatu 44  
FI-00100 Helsinki  
Finland

#### *Auditor of the Issuer*

PricewaterhouseCoopers Oy  
Authorised Public Accountants  
Itämerentori 2  
FI-00180 Helsinki  
Finland

### Responsibility Statement

This Listing Prospectus has been prepared by the Issuer and the Issuer accepts responsibility regarding the information contained in this Listing Prospectus. To the best knowledge of the Issuer, the information contained in this Listing Prospectus is in accordance with the facts and this Listing Prospectus makes no omission likely to affect its import.

### Auditors of the Issuer

The Annual General Meeting of Shareholders of the Issuer held on 21 March 2019 elected as its auditor PricewaterhouseCoopers Oy. PricewaterhouseCoopers Oy designated Authorised Public Accountant Jouko Malinen as the auditor with principal responsibility. Jouko Malinen is a member of the Finnish Association of Auditors. The Issuer's consolidated financial statements as of and for the year ended 31 December 2018 and as of and for the year ended 31 December 2017 have been audited by PricewaterhouseCoopers Oy with Authorised Public Accountant Jouko Malinen as the auditor with principal responsibility.

### Financial Information

The Issuer's audited consolidated financial statements as of and for the years ended 31 December 2018 and 2017 and the Issuer's unaudited consolidated interim financial statements as of and for the six months ended 30 June 2019, including the comparative information as of and for the six months ended 30 June 2018 have been incorporated by reference into this Listing Prospectus. See "*Documents Incorporated by Reference*". The Issuer's audited consolidated financial statements have been prepared in accordance with the IFRS as adopted by the EU, and the unaudited consolidated interim financial statements have been prepared in accordance with "*IAS 34 – Interim Financial Reporting*". Effective as of 1 January 2018, the Issuer has adopted "*IFRS 9 – Financial instruments*" and "*IFRS 15 – Revenue from contracts with customers*" standards. The adoption of "*IFRS 9 – Financial instruments*" resulted in classification changes in financial instruments, but no restatements to the figures. The adoption of "*IFRS 15 – Revenue from contracts with customers*" had no impact on the Issuer's revenue recognition. Effective as of 1 January 2019, the Issuer has adopted the "*IFRS 16 – Leases*" standard.



As a result of the adoption, the Issuer recognised EUR 9.2 million of right of use assets and lease liabilities and the effect on profit after tax was EUR 0.1 million negative.

Financial information set forth in this Listing Prospectus has been rounded. Accordingly, in certain instances, the sum of the numbers in a column or row may not conform exactly to the total figure given for that column or row.

### **Alternative Performance Measures**

The Issuer presents in this Listing Prospectus an alternative performance measure of historical financial performance and financial position, which, in accordance with the “*Alternative Performance Measures*” guidance issued by the European Securities and Markets Authority (“ESMA”), is not accounting measure defined or specified in IFRS (the “**Alternative Performance Measure**”). Such Alternative Performance Measure is equity ratio, which is defined as total equity divided by total equity and liabilities.

The Issuer presents Alternative Performance Measure as additional information to measures presented in the consolidated statement of comprehensive income, consolidated statement of financial position and consolidated statement of cash flows prepared in accordance with IFRS. In Issuer’s view, equity ratio provides significant and useful information about the financial position of the Issuer for the management, investors, securities market analysts and other parties.

Alternative Performance Measures should not be viewed in isolation or as a substitute to the measures under IFRS. All companies do not calculate Alternative Performance Measures in a uniform way, and, therefore, the Alternative Performance Measure presented in this Listing Prospectus may not be comparable with similarly named measures presented by other companies.

The Alternative Performance Measure is unaudited.

### **Special Cautionary Notice Regarding Forward-looking Statements**

Certain statements in this Listing Prospectus, including but not limited to certain statements set forth under the captions “*Risk Factors*” and “*Information about PVO*”, are based on the beliefs of the Issuer’s management as well as assumptions made by and information currently available to it, and such statements may constitute forward-looking statements. The words “believe”, “expect”, “anticipate”, “intend” or “plan” and similar expressions identify such forward-looking statements.

Such forward-looking statements involve known and unknown risks, uncertainties and other important factors that could cause the actual results, performance or achievements of the Issuer, or industry results, to differ materially from any future results, performance or achievements expressed or implied by such forward-looking statements. Such risks, uncertainties and other important factors include, among other things, the risks described in “*Risk Factors*”. The forward-looking statements are not guarantees of the future operational or financial performance of the Issuer. In addition to factors that may be described elsewhere in this Listing Prospectus, the factors discussed under “*Risk Factors*” could cause the Issuer’s actual results of operations or its financial position to differ materially from those expressed in any forward-looking statement. Should one or more of these risks or uncertainties materialise, or should any underlying assumptions prove to be incorrect, the Issuer’s actual results of operations, its financial position or its ability to fulfil its obligations under the Notes could differ materially from those described herein as anticipated, believed, estimated or expected. The Issuer does not intend and does not assume any obligation to update any forward-looking statements contained herein unless required by applicable legislation. For additional information that could affect the results, performance, achievements or financial position of the Issuer, see “*Risk Factors*”.

### **Market and Industry Information**

This Listing Prospectus contains market and industry information from third parties. Information on electricity prices is derived from information made public by Nord Pool Spot AS, the Nordic electricity exchange (“**Nord Pool**”), information on electricity consumption, production and import is from the monthly electricity statistics provided by the Finnish Energy (*Fi: Energiateollisuus ry*) and information on emission allowance prices are from Intercontinental Exchange Inc. Information on Finnish electricity production capacity is derived from information made public by Finnish Energy Authority. Any other estimates with respect to market and industry information referred to in this Listing Prospectus are based upon the estimates of the management of the Issuer, unless otherwise indicated. The Issuer disclaims any responsibility for the accuracy or the completeness of these third-party market estimates. This information has been accurately reproduced in this Listing Prospectus and as far as the Issuer is aware and is able to ascertain from information published by these sources, no facts have been omitted which would render the reproduced information inaccurate or misleading.

## **Other Information Derived from Third Party Sources**

This Listing Prospectus contains information about a joint venture of the Issuer, TVO. The information on TVO has been derived from information made public by TVO, including TVO's annual report for the year ended 31 December 2018, interim report for the six months ended 30 June 2019, interim report for the nine months ended 30 September 2019 and the Base Prospectus relating to TVO's Euro Medium Term Note programme, dated 27 June 2019 (as supplemented on 22 August 2019).

While the Issuer has accurately reproduced such third party information, the Issuer has not verified the accuracy of such information, market data or other information on which third parties have based their studies and cannot give any assurances as to the appropriateness of such information. As far as the Issuer is aware, and is able to ascertain from information published by these third parties, no facts have been omitted which would render the reproduced information inaccurate or misleading.

## **No Incorporation of Website Information**

For the avoidance of doubt, other than the parts of the documents incorporated by reference and specified in "*Documents Incorporated by Reference*", this Listing Prospectus and any prospectus supplement published on the Issuer's website, the contents of the Issuer's website or any other website do not form a part of this Listing Prospectus, and prospective investors should not rely on such information in making their decision to invest in the Notes.

## **Notice to Investors**

Each Lead Manager has represented, warranted and undertaken, and each further Lead Manager appointed will be required to represent, warrant and undertake, that it has complied and will comply with all applicable laws and regulations in each country or jurisdiction in or from which it purchases, offers, sells or delivers Notes or possesses, distributes or publishes this Listing Prospectus or any related offering material, in all cases at its own expense. Other persons into whose hands this Listing Prospectus comes are required by the Issuer and the Lead Managers to comply with all applicable laws and regulations in each country or jurisdiction in or from which they purchase, offer, sell or deliver Notes or possess, distribute or publish this Listing Prospectus or any related offering material, in all cases at their own expense.

## **Prohibition of Sales to EEA Retail Investors**

Each Lead Manager has represented and agreed that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes to any retail investor in the European Economic Area. For the purposes of this provision, the expression "**retail investor**" means a person who is one (or more) of the following:

- (i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, "**MiFID II**"); or
- (ii) a customer within the meaning of Directive (EU) 2016/97 (the "**Insurance Distribution Directive**"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II.

## **Notice to Prospective Investors in the United Kingdom**

This Listing Prospectus does not constitute an offer to the public and no prospectus has been or will be approved in the United Kingdom in respect of the Notes. Therefore, in the United Kingdom, this Listing Prospectus may only be communicated to persons in circumstances where the provisions of section 21(1) of the Financial Services and Markets Act 2000, as amended, do not apply to the Issuer and is solely directed at persons in the United Kingdom who (a) have professional experience in matters relating to investments falling within Article 19(5) of the Order or (b) persons falling within Article 49(2)(a) to (d) of the Order, or other persons to whom it may be lawfully communicated (all such persons together being referred to as "relevant persons"). This Listing Prospectus is directed only at relevant persons and any person who is not a relevant person must not act or rely on this document or any of its contents.

## **Notice to Prospective Investors in the United States**

The Notes have not been, and will not be, registered under the Securities Act and the Notes may not be offered or sold within the United States or to, or for the account or benefit of, U.S. persons. Terms used in this paragraph and not otherwise defined herein the preceding sentence have the meanings given to them by Regulation S. In addition, until 40 days after the commencement of the offering of the Notes, an offer or sale of the Notes within the United States by a dealer (whether or not participating in the Offering) may violate the registration requirements of the Securities Act.

## INFORMATION ABOUT PVO

### General Information about the Issuer

The business name of the Issuer is Pohjolan Voima Oyj. The Issuer is a public limited liability company incorporated on 10 September 1943. It is organised under the laws of Finland and is registered in the trade register maintained by the Finnish Patent and Registration Office (the “**Finnish Trade Register**”) under the business identity code 0210161-4. The Issuer is domiciled in Helsinki and has its registered address at Töölönkatu 4, FI-00100 Helsinki, Finland; telephone number +358 10 478 5000 and its legal entity identifier is 743700X6KUJ0Z8GJIF03. The financial year of the Issuer is 1 January – 31 December.

The Issuer’s principal object, as set out in Article 2 of its Articles of Association, is procurement of energy at cost price to its shareholders who consist mainly of Finnish industrial as well as private and municipal energy companies. As of the date of this Listing Prospectus, the Issuer’s share capital amounted to EUR 55,320,958.66, consisting of 32,509,113 shares and of 14 share series. The shares of the Issuer have no par value.

### History and Development of the Issuer

The Issuer was established in 1943 as a result of the Issuer’s founders needing electricity for their operations. PVO started with hydropower and expanded into thermal power and, at the end of the 1970s, into nuclear power through TVO. The PVO Group has grown into an energy group of companies with diversified production structure.

According to its strategy, the Issuer aims to create decisive power to strengthen competitiveness and contribute to a better tomorrow by moving to carbon neutrality on market terms, creating competitive advantage through production regulation capability and by becoming a top expert in production asset management. The Issuer’s focus is on hydropower, thermal power and nuclear power. The Issuer is targeting to reach 95 percent carbon-neutral electricity procurement by 2020. The share of carbon-neutral energy sources in the Issuer’s electricity procurement amounted to 87 percent in 2018 (2017: 92 percent).

### Operating Model of the Issuer

The Issuer operates on the Mankala Principle, which is widely applied in the Finnish energy industry. The Mankala Principle is not defined in Finnish legislation or other regulations but is based on the Articles of Association of each company applying the Mankala Principle and, therefore, the detailed operating model under the Mankala Principle, including the provision for coverage of costs by the shareholders, may differ between companies applying the Mankala Principle. The cost-price principle applicable to the Issuer is described in Article 4 of the Articles of Association of the Issuer. Pursuant to the Articles of Association, amending Article 4 of the Articles of Association would require unanimous shareholders’ approval, except for decisions to establish a new series of shares or to remove an existing series of shares.

According to the Issuer’s Articles of Association, each of the shareholders of each series of the Issuer’s shares is entitled to receive energy available at each particular moment procured by the Issuer from energy acquisition resources (subsidiaries, associated companies, joint ventures, specific power plant units, specific energy generation methods or in replacement thereof), as specified in the Articles of Association of the Issuer, in proportion to its shareholding of each of the series of the Issuer’s shares, and each shareholder of each series of the Issuer’s shares is, other than in exceptional circumstances, such as those described in “*Risk Factors—Risks Related to PVO’s Operating Environment and Operations—Major adverse events or circumstances may affect PVO’s operations*”, responsible for the fixed costs of energy procured by the Issuer in this manner in proportion to its shareholding in each of the series of the Issuer’s shares, irrespective of whether or not the share of capacity and energy has been used, and for the variable costs in the proportion to the amount of energy taken, taking into account the variable costs of each power acquisition resource separately.

The Issuer is a public limited liability company and its shareholders have no personal liability for the obligations of the Issuer. Pursuant to an agreement entered into by the shareholders of the Issuer (the “**Shareholders’ Agreement**”), the Issuer has the sole right to call upon the responsibilities of the shareholders in accordance with Article 4 of the Issuer’s Articles of Association and the shareholders of the Issuer shall have no liability towards any other party in relation thereto. In accordance with the Issuer’s Articles of Association, each shareholder’s share of liability for the costs towards the Issuer will always be limited to the amount corresponding to the proportion of its shareholding to all shares belonging to the same series. Furthermore, the failure of any other shareholder to satisfy its responsibilities for costs in proportion to its shareholding shall not increase any non-defaulting shareholder’s liability based on its shareholding. The shareholders are not liable for any costs other than the costs defined in Article 4 of the Articles of Association, unless otherwise agreed in writing.

In practice, fixed and variable costs are collected monthly in arrears from the shareholders of the Issuer. Shareholders’ payment for electricity consists of normal operating costs (fixed and variable), financial expenses (interest and other financial costs, net of financial income) as well as depreciation and amortisation. Of such payments, the amount corresponding to the non-cash items, such as depreciation and amortisations (net of capital expenditures), is available to

amortise the Issuer's loan portfolio. A shareholder could buy less electricity than it is entitled to, provided, however, that such a shareholder would still be required to pay for the fixed costs related to such electricity in proportion to its shareholding and the variable costs related to that electricity produced, but not acquired by such shareholder, would not be charged to such shareholder.

In addition to invoicing its shareholders on a monthly basis for fixed and variable costs in accordance with its Articles of Association, the Issuer finances its operations, including investments, through various types of financing from third parties and has also received equity capital injections from its shareholders in the past in relation to commitments received by the Issuer from its shareholders prior to starting new investment projects or, in some cases, also during such investment projects.

Any investments in a power plant unit are, to the extent they meet the relevant criteria for depreciation, initially capitalised by the Issuer or the relevant subsidiary, associated company or joint venture and only invoiced to the shareholders beginning when energy production by such power plant unit commences. Such capitalised investment costs are invoiced to the shareholders of the Issuer over the estimated useful life of the investment project in question or at a faster pace, in each case, as determined by the Board of Directors of the Issuer. See also "*Risk Factors—Risks Related to PVO's Operating Environment and Operations—Major adverse events or circumstances may affect PVO's operations*".

A prerequisite for the shareholder's right to receive energy is, according to Articles of Association of the Issuer, that it has paid its share of the relevant costs on time. If a shareholder neglects to observe its payment obligation, the Issuer will have the right to immediately cut off the distribution of energy based on the ownership of any series of shares to the shareholder and to relinquish, in accordance with the principles of the Articles of Association, the shareholder's share of energy primarily to the other shareholders of the same series of shares, and secondarily to other shareholders of the Issuer. In accordance with an agreement between the shareholders, the electricity can also be sold to Nord Pool. To date, the Issuer has never experienced any material payment delays by its shareholders.

By applying the cost-price principle, the Issuer supplies energy only to its shareholders and at cost price. Consequently, PVO is not exposed to fluctuations in the market price of energy.

In April 2010, the European Commission received a complaint and a written question from two members of the European Parliament concerning the granting of alleged state aid to a significant number of electricity generators (re: CP344/2009 "Mankala" electricity supply scheme). In June 2010, the Finnish authorities provided the European Commission with their summary of the facts. The Commission requested some further clarification on the Mankala scheme from the Finnish authorities in April 2011. In August 2011, the Finnish authorities responded to this request and were of the opinion that the "Mankala" electricity supply scheme did not constitute alleged state aid under Article 107 paragraph 1 of the Treaty on the Functioning of the EU. In November 2012, the European Commission's Directorate-General for Competition concluded the handling of the complaint submitted to the Commission without any adverse findings for the Issuer or other Finnish energy companies operating pursuant to the Mankala Principle.

## **Organisational Structure**

The Issuer's ownership is divided into 14 different series of shares and each series of shares entitle their owner to the energy procured from a specific acquisition resource as detailed in the Articles of Association of the Issuer. Each shareholder is entitled to the proportionate share of energy in accordance with their proportionate ownership of the specific series of shares.

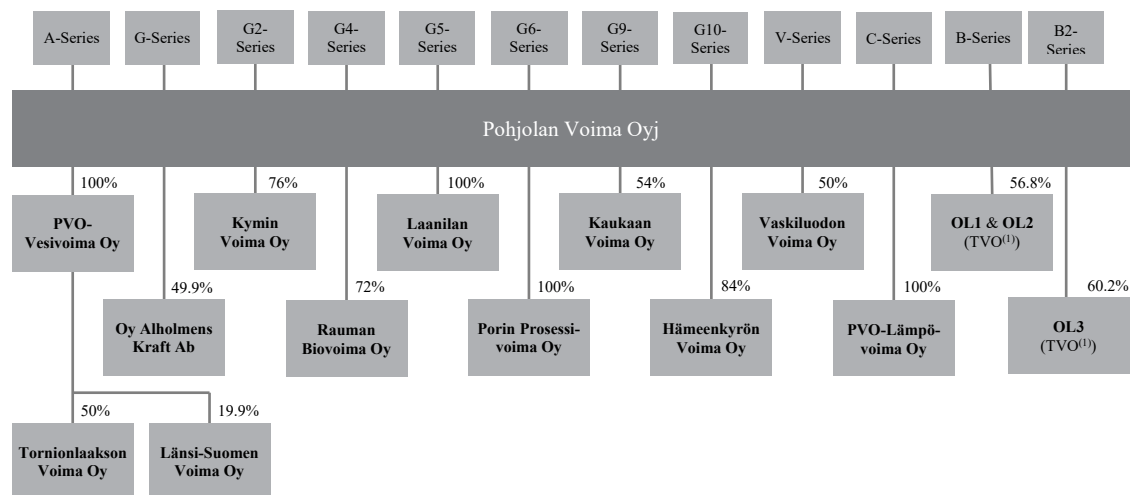
The Issuer is the ultimate parent company of the PVO Group. The Issuer's subsidiaries are those entities over which the Issuer has control. As of the date of this Listing Prospectus, there are 11 subsidiaries in the PVO Group of which seven are active power production companies operating on the Mankala Principle. In addition, the Issuer owns shares in associated companies and joint ventures. Associated companies are all entities over which the Issuer has influence, but not control, generally with a shareholding between 20 percent and 50 percent of the voting rights. As of the date of this Listing Prospectus, the Issuer has four associated companies of which two are power production companies operating on the Mankala Principle.

As of the date of this Listing Prospectus, the PVO Group has three joint ventures of which two are power production companies operating on the Mankala Principle. A joint venture is a contractual joint arrangement whereby the PVO Group together with one or more parties has undertaken an economic activity that is subject to joint control and whereby the PVO Group with other parties has rights to the net assets of the joint arrangement.

The Issuer participates in the management and supervision of its subsidiaries, associated companies and joint ventures through its representatives appointed to the governing bodies of these companies. The Issuer's General Meeting of Shareholders issues directives to the Board of Directors of the Issuer regarding the composition of the Boards of Directors of the subsidiaries and significant decisions taken by the subsidiaries.

As of the date of this Listing Prospectus, 12 of the Issuer's 14 share series relate to a specific power production unit or units. The shares in the B2-series relate to OL3 EPR that is under construction (see "*Information about TVO—Business and Operations of TVO—Nuclear Power*") and the shares in the C-series relate to PVO-Lämpövoima Oy, whose production operations ceased in 2015 and consequently, the demolition work of PVO-Lämpövoima Oy's power plant at Tahkoluoto site started during the first half of 2019. Additionally, the shares in the M-series relate to Mussalon Voima Oy, a 100 percent subsidiary of the Issuer that was liquidated in 2017 and the shares in the C2-series relate to Meri-Pori coal-fired power plant through the shares in the C-series of TVO. On 1 January 2019, PVO sold all C-shares of TVO.

The following chart sets forth the Issuer's share series and respective power production units as of the date of this Listing Prospectus:



(1) See "*Information about TVO—Business and Operations of TVO—Nuclear Power*".

The following table sets forth all of the Issuer's subsidiaries, associated companies and joint ventures together with respective share series as of the date of this Listing Prospectus:

	<b>Production</b>	<b>The Issuer's ownership (percent)</b>	<b>The Issuer's share series entitling to energy<sup>(1)</sup></b>
<b>Parent company and subsidiaries</b>			
Pohjolan Voima Oy .....	Parent		
PVO-Vesivoima Oy .....	Hydropower	100	A
Hämeenkyrön Voima Oy .....	Thermal Power (CHP)	84	G10
Kaukaan Voima Oy .....	Thermal Power (CHP)	54	G9
Kymin Voima Oy .....	Thermal Power (CHP)	76	G2
Laanilan Voima Oy .....	Thermal Power (CHP)	100	G5
Porin Prosessivoima Oy .....	Thermal Power (CHP)	100	G6
PVO-Lämpövoima Oy <sup>(2)</sup> .....	Thermal Power	100	C
Rauman Biovoima Oy .....	Thermal Power (CHP)	72	G4
PVO Power Management Oy .....	Services company	100	—
PVO Power Services Oy .....	Services company	100	—
Rouhialan Voimansiirto Oy .....	Dormant	100	—
<b>Associated companies</b>			
Oy Alholmens Kraft Ab .....	Thermal Power (CHP)	49.9	G
Länsi-Suomen Voima Oy .....	Hydropower	19.9 <sup>(3)</sup>	A
Tornionlaakson Voima Oy .....	Hydropower	50 <sup>(3)</sup>	A
Tahkoluodon Polttoöljy Oy .....	Dormant	32	—
<b>Joint Ventures</b>			
Teollisuuden Voima Oy <sup>(4)</sup> .....	Nuclear Power	57.1	B (OL1 & OL2), B2 (OL3)
Vaskiluodon Voima Oy <sup>(5)</sup> .....	Thermal Power (CHP)	50	V
Voimalohi Oy .....	Services company	50	—

(1) In addition to those listed below, the Issuer has M share series that related to Mussalon Voima Oy, 100 percent subsidiary of the Issuer that was liquidated in 2017 and C2 share series that related to Meri-Pori coal-fired power plant through the shares in the C-series of TVO. PVO sold all C-shares of TVO entitling to the power production of the Meri-Pori coal-fired power plant as of 1 January 2019.

(2) PVO-Lämpövoima Oy's production operations ceased in 2015 and consequently, the demolition work of PVO-Lämpövoima Oy's power plant at Tahkoluoto site started during the first half of 2019.

(3) Through PVO-Vesivoima Oy.

(4) Based on the Articles of Association and the shareholders' agreement of TVO, which form the basis for the decision-making and governance of TVO, as well as the Issuer's right to appoint board members of TVO, the Issuer has assessed that TVO is a joint venture.

(5) On 4 April 2019, the Issuer signed an agreement with EPV Energia Oy on an asset sale regarding Vaskiluodon Voima Oy's business. The transaction will take effect on 1 January 2023.

For more information on the nuclear operations of TVO, see "*Information about TVO—Business and Operations of TVO—Nuclear Power*".

## Market Information

Finland has the highest per capita electricity consumption in the EU (*source: International Energy Agency, Electricity Information 2018*) owing to its energy-intensive industries (such as steel, manufacturing, pulp and paper) as well as the additional energy expenditures required generally in a cold climate.

In 2018, electricity consumption in Finland was 87.4 terawatt hours ("TWh") (85.5 TWh in 2017). Industrial power consumption increased by 2 percent and the power consumption of other sectors increased by 3 percent from 2017. Finnish electricity production totalled 67.5 TWh (65.0 TWh in 2017). In 2018, net imports covered 22.8 percent (19.9 TWh) of the total electricity consumption (24 percent, or 20.4 TWh, in 2017). Most of the imported electricity was imported from Sweden. In 2018, renewable energy sources represented 47 percent and carbon-neutral energy sources 79 percent of the Finnish electricity production (*source: Finnish Energy*).

Between January and June 2019, Finland's power consumption was 45.8 TWh (45.3 TWh between January and June 2018). Finnish electricity production totalled 36.2 TWh (35.2 TWh between January and June 2018), while net imports into Finland amounted to 9.6 TWh (10.0 TWh between January and June 2018).

Finland, Sweden, Norway, Denmark and the Baltic states together comprise a single electricity market, with the price of electricity established by free trading on the electricity exchange, Nord Pool. Nord Pool quotes the day-ahead market price for each hour of a given day, which is calculated on the basis of purchase and sale bids. Due to the constraints in available transmission capacity, the Nord Pool markets are divided into several bidding areas and, thereby, different area prices are established. Finland constitutes one bidding area with individual area price. The system price is calculated based on the sale and purchase orders disregarding the available transmission capacity between the bidding areas in the Nordic market.

The annual average system price was EUR 43.99 in 2018 (EUR 29.41 in 2017) per megawatt hour (“MWh”), while the annual average of the Finnish area price was EUR 46.8 in 2018 (EUR 33.19 in 2017) per MWh. The increase in the price of electricity was mainly due to lower water levels in the Nordic countries, higher fuel prices and increased demand.

Between January and June 2019, the average system price was EUR 41.2 (EUR 38.8 between January and June 2018) per MWh, while the average Finnish area price was EUR 42.4 (EUR 42.0 between January and June 2018) per MWh. The low water levels in the Nordic countries early in the year and increased fuel prices resulted in higher prices of electricity.

The EU emission allowances (EUA) price on the Intercontinental Exchange Inc. increased substantially during 2018. As of 31 December 2018, the EUA price was approximately EUR 25 compared to approximately EUR 8 as of 31 December 2017. Between January and June 2019, the EUA price experienced strong fluctuation and the market price at the end of June 2019 was approximately EUR 26.

The Emissions Trading Directive (“ETS”) (2003/87/EC) and the Decision (2015/1814/EC) were revised with the Directive (2018/410/EC), which reforms the EU emissions trading system (ETS) for the period after 2020. The revised ETS directive aims to enable the EU to reach its target of cutting greenhouse gas emission by at least 40 percent by 2030 and to fulfil its commitments under the Paris Climate Agreement. In the next ETS period, the amount of emission allowances to be issued will decrease by 43 percent in the emissions trading sector by 2030 in comparison with 2005. The amount of emission allowances to be transferred to the market stability reserve will be doubled (24 percent) for five years as of 2019.

The Finnish Government aims to make Finland carbon neutral by 2035 and carbon negative shortly thereafter. The Government is also expected to promote tightening of EU’s climate policy. The amount of peat used as a source of energy is expected to be halved by 2030 and an act that prohibits the use of coal in energy production beyond 1 May 2029 has entered into force.

According to the current Government programme, the Government will amend the Water Act (587/2011, as amended; *Fi: vesilaki*) in a manner that will include “zero obligation” plants in the scope of fish stock management obligations. Also, the Government aims to introduce a national programme to revive migratory fish stocks. Based on the national fishway strategy, the programme continues the restoration of the natural cycle in built waterways and implement migratory fish projects.

In November 2016, the European Commission published a clean energy package. Processing of the different parts of the EU Clean Energy Package was nearly completed in 2018. The key issues were the target levels for renewable energy and energy efficiency, the sustainability criteria for biomass and the electricity market. The European Commission has started to reform of the Water Framework Directive with a stakeholder hearing and is expected to issue its proposal in 2020.

The Finnish electricity production subsidy mechanism was reformed in 2018. An auction on 1.4 TWh of renewable electricity, other than hydropower, was carried out in late 2018.

The production of weather-dependent wind and solar power continues to grow, which also increases the importance of flexible energy systems and adaptive production, and risk of shortage of power will not disappear in the near future. Discussion regarding the role of hydropower in the electricity production system has increased.

## **Business Overview**

### ***Capacity***

The PVO Group’s electricity production capacity, including the PVO Group’s share of the associated companies’ and joint ventures’ total capacity, was 2,704 megawatts (“MW”) at the end of 2018 (2017: 2,750 MW). This represented approximately 16 percent of Finland’s total electricity production capacity (17,368 MW). The PVO Group’s electricity production capacity includes the capacity of PVO-Lämpövoima Oy’s coal fired condensing power plants (477 MW), which are currently being demolished, as well as the Issuer’s share of the capacity of Meri-Pori coal-fired power plant (146 MW) that was sold as of 1 January 2019.

As of 31 December 2018, the combined total process steam and district heat production capacity of the Issuer's subsidiaries, associated companies and joint ventures was 1,472 MW (2016: 1,563 MW).

	As of 31 December	
	2018	2017
	(MW)	
<b>The PVO Group's energy production capacity<sup>(1)</sup></b>		
Hydro power .....	449	449
Combined heat and power .....	620	672
Condensing power <sup>(2)</sup> .....	623	623
Nuclear power .....	<u>1,011</u>	<u>1,005</u>
<b>Total electricity production capacity .....</b>	<b><u>2,704</u></b>	<b><u>2,750</u></b>
Process steam and district heat production capacity .....	1,262	1,303

(1) Includes the PVO Group companies and the PVO Group's share of associated companies' and joint ventures' total electricity production capacity.

(2) Consists of the capacity of PVO-Lämpövoima Oy's coal fired condensing power plants (477 MW), which are currently being demolished, as well as the Issuer's share of the capacity of Meri-Pori coal-fired power plant (146 MW) that was sold as of 1 January 2019.

## Production

In 2018, the PVO Group's total electricity supply was 12.5 TWh (11.9 TWh in 2017) of which the electricity produced by subsidiaries, associated companies and joint ventures accounted for 12.0 TWh (11.4 TWh in 2017) and purchases from the Nordic electricity markets 0.5 TWh (0.5 TWh in 2017). The Issuer supplied 11.6 TWh (10.9 TWh in 2017) to its shareholders and its subsidiaries supplied 0.4 TWh (0.5 TWh in 2017) to their other shareholders. The PVO Group's process steam and district heat deliveries were 4.4 TWh (4.5 TWh in 2017).

In 2018, hydropower accounted for 1.5 TWh (1.8 TWh in 2017) of the PVO Group's total electricity supply. A total of 2.1 TWh (1.9 TWh in 2017) of electricity was supplied by the PVO Group's CHP plants and 0.4 TWh (0.1 TWh in 2017) by condensing power plants. TVO's Olkiluoto nuclear power plants generated a total of 14.1 TWh (13.4 TWh in 2017) of electricity in 2018, of which the Issuer obtained, and supplied to its shareholders, 8.0 TWh (7.6 TWh in 2017) in accordance with its shareholding in TVO.

	For the six months ended 30 June		For the year ended 31 December	
	2019	2018	2018	2017
	(TWh)			
<b>Energy supply of the PVO Group</b>				
Nuclear power .....	3.9	3.7	8.0	7.6
Hydro power .....	0.9	0.9	1.5	1.8
Combined heat and power .....	0.7	1.1	2.1	1.9
Condensing power .....	0.0	0.2	0.4	0.1
Purchases .....	<u>0.2</u>	<u>0.3</u>	<u>0.5</u>	<u>0.5</u>
<b>Total .....</b>	<b><u>5.7</u></b>	<b><u>6.2</u></b>	<b><u>12.5</u></b>	<b><u>11.9</u></b>
Of which to the Issuer's shareholders .....	5.3	5.6	11.6	10.9
Process steam and district heat supply .....	1.8	2.6	4.4	4.5

## Hydropower

Hydropower is important as balancing power in meeting the difference between electricity consumption and production. Hydropower plants have a long operating life and they generate renewable and emission-free electricity. The Issuer procures hydropower from its wholly-owned subsidiary PVO-Vesivoima Oy.

PVO-Vesivoima Oy operates eight wholly-owned hydropower plants in Finland; five in the river Iijoki, two in the river Kemijoki and one in the river Kokemäenjoki. In addition, PVO-Vesivoima Oy is a shareholder in four other hydropower plants; three in the river Tengeliönjoki operated by Tornionlaakson Voima Oy (50 percent share) and one in the river Kokemäenjoki operated by Länsi-Suomen Voima Oy (19.9 percent share).

As of 31 December 2018, the total output capacity of these 12 hydropower plants was 541 MW, of which PVO-Vesivoima Oy's share was 449 MW representing approximately 14 percent of the total hydropower capacity in Finland (approximately 3,203 MW). In 2018, PVO-Vesivoima Oy produced a total of 1.5 TWh (2017: 1.8 TWh, 2016: 2.0 TWh) of electricity. The hydropower production decreased due to dry hydrological conditions. Between January and June, 2019, the production amounted to 0.9 TWh (0.9 TWh between January and June 2018). The long-term average annual production volume of PVO-Vesivoima Oy is approximately 1.7 TWh.



In accordance with PVO's systematic hydropower plant refurbishment programme, the renovation of automation systems of the Raasakka hydropower plant on the Iijoki river was completed during 2018. The investment aims to further enhance the efficiency and reliability of the power plant.

The following table sets forth PVO's hydropower plants as of 31 December 2018:

Plant and location	Energy source	Year of completion	Electricity Output (MW)	PVO Group's share <sup>(1)</sup> (MW)	Dam category	Production company
Isohaara, Kemijoki .....	Water	1949, 1993	113	113	1	PVO-Vesivoima Oy
Jumisko, Kemijoki .....	Water	1954	26	26	2	PVO-Vesivoima Oy
Raasakka, Iijoki .....	Water	1971, 1997	64	64	1	PVO-Vesivoima Oy
Maalismaa, Iijoki .....	Water	1967	39	39	2	PVO-Vesivoima Oy
Kierikki, Iijoki .....	Water	1965	38	38	2	PVO-Vesivoima Oy
Pahkakoski, Iijoki .....	Water	1961	42	42	1	PVO-Vesivoima Oy
Haapakoski, Iijoki .....	Water	1963	33	33	2	PVO-Vesivoima Oy
Melo, Kokemäenjoki .....	Water	1971	68	68	2	PVO-Vesivoima Oy
Harjavalta, Kokemäenjoki .....	Water	1939, 2016	105	21	2	Länsi-Suomen Voima Oy
Kaaranneskoski, Tengeliönjoki .....	Water	1954	3	2	2	Tornionlaakson Voima Oy
Jolmankoski, Tengeliönjoki .....	Water	1955	0.5	0	2	Tornionlaakson Voima Oy
Portimokoski, Tengeliönjoki .....	Water	1987	11	5	2	Tornionlaakson Voima Oy
<b>Total .....</b>			<b>541</b>	<b>449</b>		

(1) Includes the PVO Group companies and the PVO Group's share of associated companies' and joint ventures' total hydropower capacity.

## Thermal Power

### Combined heat and power

The CHP plants produce process steam and district heat for local industry and communities, and also electricity. As of 31 December 2018, the PVO Group had a total of 620 MW of CHP electricity production capacity at its disposal. The combined total process steam and district heat production capacity of the power plants was 1,472 MW.

In 2018, the process steam and district heat deliveries of the PVO Group amounted to 4.4 TWh (4.5 TWh and 5.5 TWh in 2017 and 2016 respectively). The PVO Group's electricity supplies from CHP plants amounted to 2.1 TWh in 2018 (1.9 TWh in 2017). Between January and June 2019, the process steam and district heat deliveries amounted to 1.8 TWh (2.6 TWh between January and June 2018). The PVO Group's electricity supplies from CHP plants amounted to 0.7 TWh (1.1 TWh between January and June 2018). The decrease was primarily due to mild winter in comparison to 2017 and the sale Seinäjoki CHP plant that took place during the first half of 2018.

The PVO Group's CHP plants consists of nine wholly- or partially-owned CHP plants. The CHP plants are located at industrial sites and integrated into industrial processes. Eight of these are bioenergy power plants, fuelled mainly by wood, peat and solid recovered fuel ("SRF"). Vaskiluoto 2 power plant is coal-fired with a biomass gasification plant to replace up to 40 percent of the use of coal with biomass. On 4 April 2019, the Issuer signed an agreement with EPV Energia Oy on an asset sale regarding Vaskiluodon Voima Oy's production facilities. The transaction will take effect on 1 January 2023. In 2018, PVO completed investments in number of CHP plants to improve energy efficiency and adjustability of the plants as well as to reduce and better manage emissions from the production.

The following table sets forth PVO's combined heat and power plants as of 31 December 2018:

Plant and location	Fuels	Completion year	Total electricity output (MW)	PVO Group's share <sup>(1)</sup> (MW)	Total heat output (MW)	PVO Group's share <sup>(1)</sup> (MW)	Production company
Vaskiluoto 2, Vaasa <sup>(2)</sup> .....	Coal	1981	230	115	175	88	Vaskiluodon Voima Oy
Alholmens Kraft 1, Pietarsaari .....	Wood	1991	25	12	85	42	Oy Alholmens Kraft Ab
Alholmens Kraft 2, Pietarsaari .....	Peat, wood, coal, SRF	2001	240	120	160	80	Oy Alholmens Kraft Ab
Kymin Voima, Kouvola .....	Wood, peat	2002	76	76	180	180	Kymin Voima Oy
Laanilan Voima, Oulu .....	Wood, peat	1982	30	30	145	145	Laanilan Voima Oy
Porin Prosessivoima, Pori .....	Wood, peat, coal, REF, oil	1987, 2008	65	65	212	212	Porin Prosessivoima Oy
Rauman Biovoima, Rauma .....	Wood, peat, SRF, coal	2006	65	65	190	190	Rauman Biovoima Oy
Kaukaan Voima, Lappeenranta .....	Wood, peat	2009	125	125	262	262	Kaukaan Voima Oy
Hämeenkyrön Voima, Hämeenkyrö .....	Wood, peat, SRF	2012	12	12	63	63	Hämeenkyrön Voima Oy
<b>Total .....</b>			<b>868</b>	<b>620</b>	<b>1,472</b>	<b>1,262</b>	

(1) Includes the PVO Group companies and the PVO Group's share of associated companies' and joint ventures' total CHP electricity and heat capacity.

(2) On 4 April 2019, the Issuer signed an agreement with EPV Energia Oy on an asset sale regarding Vaskiluodon Voima Oy's production facilities. The transaction will take effect on 1 January 2023.

## Condensing power

In 2018, the PVO Group produced 0.4 TWh of condensing power. Between January and June 2019, there was no production as all coal fired condensing power assets have been sold or ceased operations (0.2 TWh between January and June 2018).

As of 31 December 2018, the condensing power production, or stand-alone electricity production, capacity of PVO Group was 623 MW and consisted of the Issuer's share, through its 56.8 percent ownership in TVO's C-series shares, of the Meri-Pori coal-fired power plant (see "*Information about TVO—Business and Operations of TVO—Coal Power*") and electricity production capacity of PVO-Lämpövoima Oy's condensing power plants (477 MW).

In June 2018, the Issuer entered into agreement to sell all its shares in the C-series of TVO entitling to Meri-Pori's production capacity 146 MW as of 1 January 2019. Also, the production operations of the coal-fired condensing power plants owned by PVO-Lämpövoima Oy, a wholly-owned subsidiary of the Issuer, in Kristiinankaupunki (Kristiina 2) and Pori (Tahkoluoto) were ceased already in 2015. Since then, the business of PVO-Lämpövoima Oy has been reported as discontinued operation in the consolidated financial statements of the Issuer and consequently, the demolition work of PVO-Lämpövoima Oy's power plant at Tahkoluoto site started during the first half of 2019.

The following table sets forth PVO's condensing power plants as of 31 December 2018:

Plant and location	Fuel	Year of completion	Electricity output (MW)	The PVO Group's share <sup>(1)</sup> (MW)	Production company
Kristiina 2, Kristiinankaupunki .....	Coal	1983	242	242	PVO-Lämpövoima Oy
Tahkoluoto, Pori .....	Coal	1976	235	235	PVO-Lämpövoima Oy
Meri-Pori, Pori <sup>(2)</sup> .....	Coal	1994	565	146	Fortum Power and Heat Oy
<b>Total</b> .....			<b>1,042</b>	<b>623</b>	

(1) Includes the PVO Group companies and the PVO Group's share of associated companies' and joint ventures' total condensing power production capacity.

(2) PVO sold all C-shares of TVO entitling to the power production of the Meri-Pori coal-fired power plant as of 1 January 2019.

## Nuclear Power

The Issuer procures nuclear power from its 57.1 percent-owned joint venture TVO. The Issuer is the largest shareholder of TVO owning 56.8 percent of A-series and 60.2 percent of B-series of TVO shares. For more information on TVO, see "*Information about TVO*".

## Long-term Production Costs

On long-term basis, PVO aims to provide stable and cost efficient energy to its shareholders. During the last three years, the average production cost for electricity generated by PVO-Vesivoima Oy has been approximately EUR 12/MWh. The production costs for individual CHP plants vary depending on plant specific factors. During the last three years, the total production cost for heat, process steam and electricity generated by PVO Group's CHP plants has been approximately EUR 32/MWh on average.

According to information made public by TVO, TVO's long-term production cost target for OL1, OL2 and OL3 EPR is expected to be below EUR 30/MWh. Estimate is based on TVO's production targets and the current operating and capital cost expectations.

## Environment

The PVO Group's work to mitigate any environmental impacts is guided by the PVO Group's environmental and energy efficiency policy. The PVO Group's environmental and energy efficiency policy dictates the identification and investigation of the environmental impact and risks as well as the natural values related to the PVO Group's operations, and the opportunities for improving the efficiency of the production and utilisation of energy. When preparing impact assessments, the entire life cycle of the power plant, from project planning to decommissioning, is taken into account by the Issuer. The Issuer's associated companies and joint ventures are governed by their own respective environmental and energy efficiency policies.

The Issuer is targeting to reach 95 percent carbon-neutral electricity procurement by 2020. The share of carbon-neutral energy sources in the Issuer's electricity procurement amounted to 87 percent in 2018 (2017: 92 percent). The decrease was due to the lower hydropower production and increased production at the Meri-Pori coal-fired condensing power plant compared to 2017. PVO sold all C-shares of TVO entitling to the power production of the Meri-Pori coal-fired power plant as of 1 January 2019. Electricity procurement forms in the Issuer's portfolio that are considered to be carbon-neutral are the emission-free hydropower and nuclear power and the electricity generated with wood-based fuels in thermal power plants. In recent years, the proportion of carbon-neutral energy sources has reached a new higher level due to the decreased use of coal in electricity production, and the good production levels of hydropower.

Environmental management systems certified in accordance with ISO 14001 are in use in the majority of the Issuer's subsidiaries. Five of the PVO Group's power plants certified their environmental systems in accordance with the new ISO 14001:2015 standard in 2016. Most of the Issuer's portfolio companies are committed to the energy efficiency systems ETJ+ or ISO 50001.

### **Hydropower**

Hydropower production has regional and local impacts on waterways and fish stocks. Environmental management systems certified in accordance with ISO 14001 are in use in hydropower production, and an energy efficiency system was adopted in 2015 as a result of the Energy Efficiency Act (1429/2014, as amended; *Fi: energiatehokkuuslaki*) that entered into force at the beginning of 2015. In order to fulfil its obligation to sustain the fish stocks of the Kemijoki and Iijoki waterways and the sea area, PVO-Vesivoima Oy stocked in total approximately 2.5 million fry in 2018.

In March 2018, the Centre for Economic Development, Transport and the Environment of Lapland submitted an application to the Regional State Administrative Agency for Northern Finland concerning fish stocking and fish stock management obligations with regard to the Kemijoki river. In October 2017, similar application was submitted concerning the Iijoki river. In addition to new requirements, such as, for example, the requirement to extend the existing fish stocking obligations and to construct new fishways, these applications include additions to the current obligations. The Regional State Administrative Agency did not announce applications during 2017. If imposed on PVO-Vesivoima Oy, a subsidiary of the Issuer, among others, such changes could require significant investments on the part of the PVO Group. The hydropower producers operating in the Iijoki and Kemijoki rivers, PVO-Vesivoima Oy and Kemijoki Oy, consider the proposed changes unfounded. The application process is pending as of the date of this Listing Prospectus.

In 2019, inspections in compliance with the Dam Safety Act (494/2009, as amended; *Fi: patoturvallisuuslaki*), to be held every five years, took place at the dams of Maalismaa and Melo power plants. In addition to the obligatory aquatic environment management work, the PVO Group engages in voluntary environmental management within cooperation projects and participate in monitoring and research of the aquatic environment. PVO-Vesivoima Oy participates in Finland's largest migratory fish project that was started in 2017. The three-year project includes building a fishway at the Raasakka power plant, downward migration solutions for young salmon and trout, fish planting programme, fish transfers and old riverbed constructions of Raasakka and Maalismaa power plants.

A leak detected in the retaining earth dam of the Melo power plant in 2016 was repaired by grouting throughout the year. The repair work continues as of the date of this Listing Prospectus and is expected to be finalised during 2019. Repair and monitoring of the earth dam has been carried out in cooperation with fire safety authorities and dam specialists. The dam repairs have not affected the environment or the power generation operations at the power plant.

### **Thermal power**

The PVO Group's thermal power plants use wood fuel, peat, coal and SRF fuels as primary fuels and natural gas and oil as auxiliary fuels. The most significant environmental impact of thermal power production concerns the atmosphere. The power plants' emissions into the air vary according to the fuel and the production volumes of electricity and thermal power.

All the thermal power plants operated by the PVO Group fall within the application of the Emissions Trading Act (311/2011, as amended; *Fi: päästökauppalaki*).

All thermal power plants submitted applications for the review of their environmental permits in 2014, because the new Environmental Protection Act (527/2014, as amended; *Fi: ympäristönsuojelulaki*) required such submission from large combustion plants. All of the PVO Group's thermal power plants received new environmental permits in 2015.

The new limits for emissions into the air, set out in the IE Directive, entered into force in Finland at the beginning of 2016. For thermal power operations, the most difficult issue is the reduction of nitrogen oxide (NOx) emissions, and studies are being conducted on the available technical solutions (see “—Ongoing and Future Investments—Thermal power” below). Some facilities of the PVO Group are included in the national IE Directive transition plan approved by the European Commission on 10 March 2014. The transition plan provides some flexibility for the adoption of the new emission limits. The transition period is from 1 January 2016 to 30 June 2020. During this period, the total sulphur dioxide, nitrogen oxide and particle emissions in tonnes as well as percentages will be monitored.

## **Ongoing and Future Investments**

### **Hydropower**

A leak detected in the retaining earth dam of the Melo power plant in 2016 was repaired by grouting throughout the year. The repair work continues as of the date of this Listing Prospectus and is expected to be finalised during 2019. Repair and monitoring of the earth dam has been carried out in cooperation with fire safety authorities and dam specialists. The dam repairs have not affected the environment or the power generation operations at the power plant.

PVO-Vesivoima Oy has a systematic basic refurbishment program where each hydropower plant will be refurbished approximately every 20 years.

### **Thermal power**

The IE Directive, which entered into force in January 2011, establishes requirements on power plants' emissions into the air. These requirements have been applied to existing power plants since the beginning of 2016. Some of the thermal power plants of the PVO Group are included in the national IE Directive transition plan approved by the European Commission in spring 2014. The transition plan allows the committed power plants some flexibility in the adoption of the new emission limits, with the transition period ending in June 2020.

The EU published the updated LCP-BREF in August 2017. The document applies to thermal power plants of PVO. The IE Directive establishes that BAT conclusions made on the basis of the BAT reference documents are binding, and as a result, the emission limits are expected to become more stringent. Plant operations must comply with the related requirements within four years from the establishment of the BAT conclusions. However, for majority of PVO's CHP plants, whose main activity is the delivery of process steam for industrial operations, the transition period is expected to be longer depending on when the BAT conclusions of the relevant industry sector will be published.

The Issuer continues the assessment of investment needs in relevant thermal power plants and prepares for the necessary licensing processes.

### **Nuclear Operations**

The Issuer has committed to an investment into the nuclear power plant OL3 EPR under construction by TVO. The current total commitment of EUR 991 million consists of a EUR 432 million investment in equity and shareholder loans of a maximum of EUR 559 million. The investment is based on the financial plan of OL3 EPR, according to which capital is raised in accordance with the progress of the project.

As of 30 June 2019, the Issuer had fulfilled EUR 841 million of the current total commitment, consisting of EUR 432 million in equity and EUR 409 million in shareholder loans. The remaining shareholder loan commitment of EUR 150 million will be paid in accordance with the progress of the project, if needed. In March 2018, the Issuer received a total of EUR 90 million in shareholder loan commitments from its B2 share series shareholders. The shareholder loan commitments are available to the Issuer to fund the necessary investments to finalize the OL3 EPR project, if needed.

### **Financing Agreements and Liquidity Position**

Financing and liquidity management within the PVO Group is managed centrally by the PVO Group Treasury. All excess cash positions are centralised to the Issuer either through internal cash-pools or by internal deposits. The Issuer raises external debt financing it needs in its own name and each subsidiary's long-term debt financing needs are mainly obtained in the name of each subsidiary. According to its financial policy, the PVO Group seeks to have a balanced interest-bearing debt portfolio both in terms of funding sources and maturities. According to the PVO Group's financial policy, the Issuer may also lend to subsidiaries. The Issuer also maintains liquidity lines available for its subsidiaries. According to the PVO Group's financial policy, all subsidiaries should maintain equity to assets ratio above 27 percent.

As of 30 June 2019, the PVO Group's cash and cash equivalents amounted to EUR 63 million (30 June 2018: EUR 138 million; 31 December 2018: EUR 60 million). In addition, the Issuer had an undrawn EUR 300 million committed revolving credit facility available for liquidity purposes. The facility will be reduced to EUR 279 million as of June 2021 and it expires in June 2022. As of the date of this Listing Prospectus, revolving credit facility remains undrawn. Additionally, the Issuer has EUR 90 million of undrawn shareholder loan commitments. Shareholder loan commitments are available to the Issuer to fund investments necessary to finalise the OL3 EPR project, if needed. The financing arrangements of the PVO Group do not include any financial covenants.

For short-term funding, the Issuer has a domestic commercial paper program of EUR 300 million, of which EUR 100 million was used as of 30 June 2019.

As of 30 June 2019, the consolidated equity ratio of the PVO Group was 38 percent. The following table sets forth the consolidated equity ratio of the PVO Group as of the dates indicated:

	<b>As of 30 June</b>		<b>As of 31 December</b>	
	<b>2019</b>	<b>2018</b>	<b>2018</b>	<b>2017</b>
		<b>(unaudited)</b>		
		<b>(percent)</b>		
Equity to assets ratio (IFRS, Group) <sup>(1)</sup> .....	38	38	39	40

(1) Equity to assets ratio (percent) = 100 × Shareholders' equity / Balance sheet total.

As of 30 June 2019, the PVO Group's interest-bearing liabilities amounted to EUR 1,225 million, including EUR 9 million of lease liabilities recognised due to adoption of IFRS 16. EUR 195 million loan from the Nuclear Waste Management Fund, EUR 410 million of loans from financial institutions, EUR 124 million of senior fixed rate notes and EUR 100 million of commercial papers of the interest bearing liabilities (excluding IFRS 16 lease liabilities) were at the Issuer level. A total of EUR 386 million of interest-bearing liabilities (excluding IFRS 16 lease liabilities) were at subsidiary level including EUR 185 million of finance lease contracts relating to power plant equipment and EUR 201 million of loans from financial institutions. In addition to finance leases, there were no other interest bearing liabilities secured by collateral as of 30 June 2019.

The following table sets forth the PVO Group's maturity profile (excluding IFRS 16 lease liabilities) as of 30 June 2019:

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023-</u>	<u>Total</u>
			<b>(unaudited)</b>			
			<b>(EUR million)</b>			
Loans from financial institutions <sup>(1)</sup> .....	3	212	283	108	6	<b>611</b>
Bond .....	—	—	—	—	124	<b>124</b>
Loan from the Fund (TVO) <sup>(2)</sup> .....	—	—	—	—	195	<b>195</b>
Finance lease liabilities .....	6	90	7	35	46	<b>185</b>
Commercial papers .....	<u>40</u>	<u>60</u>	<u>—</u>	<u>—</u>	<u>—</u>	<b><u>100</u></b>
<b>Total</b> .....	<b><u>49</u></b>	<b><u>362</u></b>	<b><u>290</u></b>	<b><u>143</u></b>	<b><u>371</u></b>	<b><u>1,215</u></b>

(1) EUR 283 million maturing in 2021 include extension option for 62.5 million.

(2) The loan from the Fund is presented as a loan with a loan term of over five years although its size and price are set annually. TVO has borrowed the amount from the Fund and has granted a loan with the corresponding amount to the Issuer.

Under the Nuclear Energy Act, the licensee under a nuclear waste management obligation is entitled to receive a loan against full securities for a fixed period from the Fund. The amount borrowed from Fund may not exceed 75 percent of the Fund holding last confirmed for the said licensee under a nuclear waste management obligation. The shareholders of the licensee have the right to use the right of the licensee to the extent not used by the licensee itself. The amount to be lent from the Fund to the shareholders at any given time shall be lent to the shareholders requesting it in proportion to their shareholding, as specified by the Fund in greater detail, if necessary.

## Personnel

As of 30 June 2019, the number of employees working for the PVO Group was 89 (31 December 2018: 105).

## Material Contracts

Except as discussed in “—Ongoing and Future Investments—Nuclear Operations” and “—Financing Agreements and Liquidity Position” above, there are no material contracts that have not been entered into in the ordinary course of the Issuer's business, which could result in any member of the PVO Group being under an obligation or entitlement that is material to the Issuer's ability to meet its obligations to Noteholders in respect of the Notes.

## INFORMATION ABOUT TVO

*The information below has been derived from information made public by TVO, including TVO's annual report for the year ended 31 December 2018, interim report for the six months ended 30 June 2019, interim report for the nine months ended 30 September 2019 and the Base Prospectus relating to TVO's Euro Medium Term Note programme, dated 27 June 2019 (as supplemented on 22 August 2019). See "General Information—Other Information Derived from Third Party Sources".*

### TVO Group

TVO is the ultimate parent company of the TVO group (the "**TVO Group**"). Its largest shareholder is the Issuer, with a total shareholding of 58.5 percent. Subsidiaries in the TVO Group are TVO Nuclear Services Oy ("**TVONS**") and the joint venture Posiva Oy.

TVO's legal and commercial name is Teollisuuden Voima Oyj. TVO was incorporated as a limited liability company under the laws of the Republic of Finland and was registered with the Finnish Trade Register on 25 April 1969 (Trade Register number 196.448 and Business Identity Code 0196656-0). In 2007, TVO was registered as a public limited liability company, with no shares listed on a stock exchange. TVO's place of registered office is Helsinki, Finland and the principal place of business is at Olkiluoto, FI 27160 Eurajoki, Finland, and the telephone number of its principal place of business is +358 2 8381 1.

TVO's principal object, as set out in its Articles of Association, is the construction and procurement of power plants and power transmission equipment as well as, generation and supply of electricity at cost price to its shareholders. The shareholders consist mainly of electric utilities or their subsidiaries. TVO's objective is to produce electricity for the shareholders safely, economically and in an environmentally friendly manner.

### Operating Model of TVO

TVO operates on a Mankala Principle which is widely applied in the Finnish energy industry. The Mankala Principle is not defined in Finnish legislation or other regulation but is based on the Articles of Association of each company applying the Mankala Principle and, therefore, the detailed operating model, including the provision for coverage of costs by the shareholders, may differ between companies applying the Mankala Principle. The Mankala Principle applicable to TVO is described in Article 4 of the Articles of Association of TVO. Pursuant to the Articles of Association, amending Article 4 of the Articles of Association would require unanimous shareholder approval.

Under its Articles of Association, TVO supplies electricity to its shareholders at cost, which means that it delivers the electricity it has produced to its shareholders in proportion to their shareholdings in each series of TVO shares. Each of the shareholders of each series of TVO shares is liable for its proportionate share of the variable and fixed annual costs related to the nuclear power plant unit or other units of TVO represented by such series of shares, as specified in Article 4 of the Articles of Association of TVO, and other than in exceptional circumstances such as those described under "*Risk Factors—Risks Related to Nuclear Operations of TVO*" and "*Risk Factors—Risks Related to PVO's Financing*". In practice, TVO currently prepares an annual balance sheet divided into series of its shares. The balance sheet, which is presented each year to a meeting of TVO's shareholders, is prepared solely for management accounting purposes in order to allocate annual costs, incurred by TVO, to the different series of shares. As to day-to-day operations, TVO prepares, for each calendar year, a related cost budget, which consists of normal operating costs (variable and fixed), interest on TVO's entire loan portfolio (including hedging) and depreciation (based on TVO's total assets and expected lifetime of the assets) and is used as the basis for setting the amount of each shareholder's payment for electricity. Of such payments, the amount corresponding to the depreciation of assets (net of capital expenditures), which is a non-cash item, is used to amortise TVO's entire loan portfolio.

In addition to invoicing its shareholders on a monthly basis for fixed and variable costs in accordance with its Articles of Association, TVO finances its operations, including investments, through various types of financing from third parties, including loans under the Euro Medium Term Note programme, and has also received a number of equity capital injections and/or subordinated loans from its shareholders in the past. In accordance with shareholder loan commitments signed by the series B shareholders in June 2013 and in December 2017, in order for TVO to maintain a sufficient equity ratio in relation to OL3 EPR and to manage potential additional delays and costs in connection with the finalisation of the project (as anticipated at those times), as of the date of this Listing Prospectus, EUR 250 million of these commitments are still undrawn by TVO. In addition, pursuant to a Facilities Agreement executed on 2 February 2016, TVO also currently maintains a revolving credit facility of EUR 1,300 million consisting of two tranches: a EUR 1,000 million five-year tranche and a EUR 300 million three-year tranche. At the date of execution of the revolving credit facility, both tranches included two one-year extension options, which have since been exercised, following that the tranches will mature 2023 and 2021, respectively. In addition, in February 2019, the maturity of the EUR 300 million three-year tranche was further extended to 2022. At this time, the entire revolving credit facility remains undrawn according to public statements by TVO.

TVO is a limited liability company and its shareholders have no personal liability for the indebtedness or other obligations of TVO. Pursuant to its Articles of Association, TVO has the sole right to call upon the responsibilities of the shareholders in accordance with Article 4 of the Articles of Association.

In accordance with the Articles of Association of TVO, each shareholder's share of the liability for TVO's annual costs is always limited to the amount corresponding to the proportion of its shareholding in relation to all shares belonging in the same series, and another shareholder's failure will not increase the shareholder's liability based on its shareholding. The shareholders shall not be liable for costs other than costs of TVO specified in the Articles of Association, unless otherwise agreed in writing.

A prerequisite to the shareholder's right to receive electricity is, according to the Articles of Association of TVO, that it has paid its share of costs on time. If a shareholder neglects to observe its payment obligation, TVO will have the right to immediately cut off the distribution of electricity to the shareholder and to sell the shareholder's portion of electricity to a party submitting the best offer, primarily to another shareholder of TVO. To date, TVO has never experienced payment delays by its shareholders. By applying the Mankala Principle, TVO supplies electricity only to its shareholders and at cost price. Consequently, in principle the profit/loss for the financial year is usually zero or close to zero. As a result, TVO is not exposed to fluctuations in the market price for electricity. Furthermore, TVO is not subject to price regulation.

The costs of production, i.e. the price of the electricity, is charged in two or three stages: fixed costs are collected monthly in advance and variable costs are charged monthly in arrear and are determined according to the amount of electricity actually supplied. Any further operating costs incurred, if any, are funded on an annual basis. Currently, approximately 25 percent of any new large investments, such as the OL3 EPR construction project, come from equity capital injections or subordinated shareholder loans (hybrid equity under IFRS). A shareholder could buy less electricity than it is entitled to, however, such a shareholder would still be required to pay the fixed costs, although, the variable costs related to that electricity produced, would be reduced.

## TVO's Shareholders

TVO has six shareholders, and its share capital is divided into three share series, A, B and C. The A series entitles shareholders to electricity generated by OL1 and OL2 and gas-fired plants at Olkiluoto. The B series entitles shareholders to the electricity that will be generated by OL3 EPR. The C series entitles shareholders to the electricity generated by TVO's share in the Meri-Pori coal-fired power plant. Existing shareholders have a pre-emptive right to any shares to be issued in proportion to their current shareholdings in TVO. None of the shareholders have majority rights and important decisions such as investment plans and cost budgets require a three-quarters' majority vote of the Board of Directors of TVO. However, a change in the Mankala business model of TVO, would require unanimous shareholder approval. The shareholder structure has been stable since TVO's inception, with no significant shareholder changes over the last 20 years.

As of 31 May 2019, the share series were held as follows:

	A series	B series	C series	Total
	(percent)			
<b>TVO's shareholders</b>				
EPV Energia Oy .....	6.5	6.6	0.0	6.4
Fortum Power and Heat Oy <sup>(1)</sup> .....	26.6	25.0	100.0	27.6
Loiste Holding Oy .....	0.1	0.1	0.0	0.1
Kemira Oyj .....	1.9	–	0.0	0.9
Oy Mankala Ab <sup>(2)</sup> .....	8.1	8.1	0.0	7.9
Pohjolan Voima Oyj .....	<u>56.8</u>	<u>60.2</u>	<u>0.0</u>	<u>57.1</u>
<b>Total</b> .....	<b><u>100.0</u></b>	<b><u>100.0</u></b>	<b><u>100.0</u></b>	<b><u>100.0</u></b>

(1) Fortum Power and Heat Oy is a subsidiary of Fortum Oyj.

(2) Oy Mankala Ab is wholly-owned by Helen Oy, the parent company of the municipal energy group of the City of Helsinki.

## Business and Operations of TVO

### Nuclear Power

#### *Olkiluoto 1 and Olkiluoto 2*

TVO currently operates two nuclear power plant units, OL1 and OL2. The rated net output of the nuclear power plant units are 890 MW for OL1 and 890 MW for OL2. In 2018, the annual output of the OL1 and OL2 nuclear power plant units

combined was 13,414 GWh (14,383 GWh in 2016). The OL1 and OL2 nuclear power plant units combined produced 16 percent of the aggregate amount of electricity used in Finland during 2017 (as compared to 17 percent in 2016).

	2017		2018	
	Net production (GWh)	Capacity (percent)	Net production (GWh)	Capacity (percent)
Olkiluoto 1 .....	7,158	93,1	6,755	87,8
Olkiluoto 2 .....	<u>6,256</u>	81,3	<u>7,334</u>	94,3
<b>Total</b> .....	<b><u>13,414</u></b>		<b><u>14,089</u></b>	

OL1 and OL2 are in constant operation, aside from planned maintenance outages, for the supply of base-load electricity. In addition to regular annual outages, TVO also carries out extensive service outages approximately once every 10 years in order to implement major modifications. TVO maintains OL1 and OL2 according to best practices to ensure highest safety standards and efficient power generation until the end of the economic lifetimes of the units, which is estimated to be approximately 60 years.

The annual outages of 2019 reached completion on 11 June 2019 when the OL1 plant unit was re-connected to electricity production. This year OL1 underwent a refuelling outage while more extensive maintenance work was carried out at the OL2 unit. The total duration of the annual outages was about six weeks.

The start of the annual outage was brought forward by four days at the OL2 plant unit due to damaged fuel assemblies. The most significant activities conducted during the maintenance outage, in addition to refuelling, included for example a pressure test in the primary circuit, replacement of a heat exchanger in the reactor water purification system, and renewal of the 400 kV switchgear. The damaged fuel assemblies were removed from the reactor and replaced with new assemblies.

### *Olkiluoto 3 EPR*

In 2005, the Finnish Government granted a construction licence for OL3 EPR to be constructed at the Olkiluoto site. OL3 EPR is currently under construction by the Supplier. The companies constituting the Supplier are jointly and severally liable for the turnkey delivery of OL3 EPR, and Areva SA provided a parent company guarantee in respect of the contractual obligations of Areva NP and Areva GmbH until the end of 2012.

According to the Plant Contract, the Supplier is responsible for the design, engineering, equipment procurement, equipment manufacture, construction, erection, testing, commissioning, licensing, fuel supply and remedying of defects, as well as project management and schedule of OL3 EPR on a turnkey basis. Due to the Supplier's turnkey responsibility, TVO is only responsible for a limited scope of work under the Plant Contract. The Plant Contract includes contractual protection for TVO, including a contract performance bond, a guarantee period bond and liquidated damages for delays, plant performance and plant availability. Pursuant to the terms of the GSA, in the event that the Supplier fails to complete the OL3 EPR project by 30 June 2021, TVO has a right to terminate the Plant Contract upon notice.

Areva NP, Areva GmbH, Areva group parent company Areva SA, Siemens AG and TVO signed the GSA in March 2018 concerning the completion of the OL3 EPR project and the settlement of disputes relating the project. In addition to settling all on-going legal actions related to the OL3 EPR project (see "*Risk Factors—Risks Related to Nuclear Operations of TVO—There are several risks related to the Olkiluoto 3 EPR project*" and "*Additional Information—Governmental, Legal and Arbitration Proceedings—Joint Ventures*"), the GSA stipulates as follows according to public statements of TVO:

- The turnkey principle of the Plant Contract and the joint and several liability of the Supplier consortium companies remain in full force.
- In order to provide and maintain adequate and competent technical and human resources for the OL3 EPR project completion, Areva will source needed additional resources from Framatome, whose majority owner is EDF.
- The GSA sets up several funding mechanisms to secure the completion of the OL3 EPR covering all guarantee periods, including a trust funded by Areva NP, Areva GmbH and Areva SA to secure the financing of the costs of completion and start-up of the OL3 EPR.
- The ICC arbitration concerning the costs and losses caused by the delay of the OL3 EPR project is settled by a total financial compensation of EUR 450 million to be paid to TVO in two instalments by the Supplier consortium companies.
- The parties withdraw all on-going legal actions related to OL3 EPR, including the ICC arbitration.
- The Supplier is entitled to receive an incentive payment (the amount depends on the actual completion date of the project and, in any case, is limited to a maximum of EUR 150 million). However, as the estimated completion of



the project is expected to extend beyond the end of 2019, the Supplier is not expected to be entitled to receive any incentive payment. Should the completion be delayed further beyond 2019, the Supplier shall pay penalties to TVO (the amount depends on the actual completion date of the project and, in any case, is limited to a maximum of EUR 400 million).

Based on the current OL3 EPR project schedule provided by the Supplier, capital expenditure assumptions made by TVO and the effect of the GSA, the total investment in the OL3 EPR is estimated by TVO to be approximately EUR 5.5 billion.

In its interim financial statements for the three months ending 31 March 2018, TVO recorded the first payment of EUR 328 million of the settlement amount in cash and cash equivalents and it reduced the initial OL3 EPR project costs incurred by TVO. The second payment of EUR 122 million payable at the completion date or, in any event, at the latest on 31 December 2019, has been recorded in receivables and it also reduces the total project cost.

In July 2019, TVO received from the Supplier an updated schedule for the commissioning of the OL3 EPR plant unit. According to the received information, the regular electricity production at the OL3 EPR was expected to start in July 2020. According to the Supplier, fuel was planned to be loaded into the reactor in January 2020, the plant unit was planned to be connected to the national grid for the first time in April 2020, and regular electricity production was planned to start in July 2020. After receiving the updated project schedule from the Supplier in July 2019, TVO issued a market message required by law to the Nord Pool electricity market informing the market about the scheduled regular electricity production start date in July 2020. On 8 November 2019, TVO announced that based on information provided by the Supplier, the project is currently six weeks behind the schedule and the Supplier will perform a schedule review and provide TVO by an overall rebaseline schedule for the final phases of the project in December 2019.

Based on the incentive and penalty mechanism agreed in the GSA, TVO's total investment cost for the OL3 EPR unit is not expected to change due to the revised schedule.

The OL3 EPR nuclear power plant unit will comprise a European Pressurised Water Reactor which, when operational, will have an installed capacity of approximately 1,600 MW and will be more efficient than the existing nuclear power plant units at Olkiluoto as it will produce less radioactive waste per MWh of electricity produced, with the planned operating life being at least 60 years. However, no assurance can be given about the actual operating life of a nuclear power plant.

However, as the OL3 EPR project is still on-going, no assurance can be given that further delays, which could have a material adverse effect on TVO's business and financial position, will not occur prior to completion of the OL3 EPR project. See *"Risk Factors—Risks Related to Nuclear Operations of TVO—There are several risks related to the Olkiluoto 3 EPR project"* and *"Additional Information—Governmental, Legal and Arbitration Proceedings—Joint Ventures"* for further information.

According to public statements by TVO, most of the construction works for the OL3 EPR unit have been completed. The installation of the electrical systems, the instrumentation and control system ("**I&C**"), and mechanical systems is still in progress. Simulator training for the operating personnel commenced in February 2017. Hot functional tests were completed in May 2018. During the hot functional tests, it was noticed that the pressurizer surge line vibrates. Vibration will be eliminated by modifying the surge line's supporting structures. Training of the workforce at the site at 31 May 2019 was about 2,000 persons. Occupational safety at the site remained at a good level.

In addition to the normal monitoring of deliveries and manufacture, several quality audits have been conducted (including by TVO and STUK) in order to inspect the activities of the Supplier and the Supplier's subcontractors. TVO continues to provide support for the Supplier to ensure the completion of the project as soon as possible, without compromising safety and quality requirements at the site.

TVO submitted its application for the operating licence for the OL3 EPR nuclear power plant unit to the MEE on 14 April 2016. On 25 February 2019, STUK gave its statement on the operating licence application of OL3 EPR plant unit. In its statement, STUK did not see any obstacles to grant the licence as applied until the end of 2038. Following STUK's statement, the Finnish Government granted the operating licence for OL3 EPR nuclear power plant unit on 7 March 2019. TVO will still need a separate permission from STUK for the loading of the nuclear fuel.

As at 30 September 2019, the total amount of shareholder loans outstanding was EUR 679 million and the total undrawn shareholder loan commitment was EUR 250 million.

### *Operating Licences*

An operating licence for a nuclear power plant is granted for a fixed period in accordance with section 20 of the Nuclear Energy Act. On 20 September 2018, the Finnish Government granted TVO an operating licence under section 20 of the Nuclear Energy Act for the nuclear power plant units OL1 and OL2. The licence decision also allows TVO to use the current interim storage facilities for spent nuclear fuel located at TVO's Olkiluoto site for the interim storage of nuclear waste generated in the operation of the OL1 and OL2 units until 31 December 2038. The operating license for OL1 and

OL2 units is valid until 31 December 2038. The new licence replaced TVO's previous operating licence for OL1 and OL2 units granted on 20 August 1998. Based on the licence decision, the licence is immediately enforceable regardless of appeals in accordance with section 31 of the Finnish Administrative Judicial Procedure Act (586/1996, as amended).

The licence decisions for OL1 and OL2 as well as OL3 EPR were based particularly on the statement and safety assessment of the Finnish Radiation and Nuclear Safety Authority ("STUK"). In its safety assessment, STUK concluded that the operations at OL1 and OL2 as well as OL3 EPR are safe and meet the relevant legislative requirements. Both the operating licences for OL1 and OL2 as well as OL3 EPR include licence conditions relating to the possession, production, processing and storage of nuclear material, and nuclear waste management. The licence conditions also include an obligation for TVO to carry out a periodic safety assessment of the OL1 and OL2 units as well as OL3 EPR unit by 31 December 2028. The operating licences do not cover the operation of the final disposal facilities, but they are considered separate nuclear facilities and need their own licence.

#### *Fuel Procurement*

Procurement of nuclear fuel involves the following three main elements: the purchase of raw uranium, uranium enrichment services, and nuclear fuel manufacture. TVO itself is not involved in the uranium acquisition, enrichment or manufacture processes and only receives the final product which has been sufficiently enriched to be used as a fuel, but has not been enriched further. TVO maintains relationships with a number of suppliers in each field which results in reliable and cost efficient fuel sourcing, diversified supply sources and competitive pricing. Most of the above services are being procured under long-term contracts.

#### *Nuclear Waste Management – Disposal*

According to the Nuclear Energy Act, each nuclear operator is fully responsible for the costs of waste management and the final cost of decommissioning. Estimates of these future costs are assessed annually and reviewed by the MEE. TVO bears full legal and financial responsibility for the management and disposal of nuclear waste produced by the Olkiluoto nuclear power plant units.

After removal from the reactor, spent nuclear fuel is placed in pools within the reactor halls to cool for a few years. Thereafter the spent fuel is packed in a strong transfer container filled with water. This container is transported on a purpose-built vehicle to the on-site interim storage facility where the spent fuel will stay 40 years in storage pools before being transferred to the final repository. The expansion construction work of the interim storage facility to double the storage capacity which began in the summer of 2010 has now been completed.

TVO currently operates permanent final repositories for low-level and intermediate-level radioactive waste at the Olkiluoto site. Low-level waste is miscellaneous waste contaminated with radioactive material (including flame-retardant fabrics, plastics, protective clothing, tools and machine parts and pipes removed from the power plant). Intermediate-level waste consists of the ion-exchange resins used to purify the water used in the nuclear power production processes.

In order to reduce the risk of nuclear irradiation, multi-layered containment systems and sophisticated safety protocols are used to isolate radioactive materials from the surrounding environment during the process of interim storage, packaging, transport, relocation and encasement of nuclear waste in the final disposal repositories. The operating waste is packed into steel drums. Soft low-level waste is packed into 200 litre drums, which are then compacted to about half their original size and packed into concrete boxes. Low-level scrap metal waste is cut up or crushed and packed directly into the concrete boxes. The ion-exchange resins are dried and solidified with bitumen, and then cast into 200 litre drums. These drums are also packed into concrete boxes.

The repository for low and medium level waste "VLJ repository" is on the Olkiluoto site. Packed into concrete boxes, the waste is transported by a radiation-shielded vehicle into the repository, where it is transferred to low and medium level silos excavated into the bedrock at a depth of 60 to 100 metres. There is also a separate space in the VLJ repository for storing the small quantities of radioactive waste that are generated as a result of scientific research and health care in Finland. The VLJ repository will also house irradiated equipment and construction material when the respective nuclear facilities are decommissioned. In November 2012, the Government granted TVO a licence amendment for the final disposal of low and medium level nuclear waste from OL3 EPR in the VLJ repository. The expansion of the VLJ repository is estimated to take place in the 2030s, when there will be no more room left in the existing final disposal silos.

TVO and Fortum Power and Heat Oy own a company, Posiva Oy, which will dispose of high-level nuclear waste from the Olkiluoto nuclear power plants (OL1, OL2 and OL3 EPR) owned by TVO and the Loviisa nuclear power plants (Loviisa 1 and Loviisa 2) owned by Fortum Power and Heat Oy (the high-level waste will be stored for approximately 40 years in interim storage facilities on site at the respective nuclear power plants). Posiva Oy will dispose of the nuclear waste at a purpose-built nuclear waste repository. TVO's operations (OL1, OL2 and OL3 EPR) will account for approximately 74 percent of the waste deposited at the site, and TVO will contribute the same proportion of the costs. The spent nuclear fuel will be packed into copper/cast iron canisters and stored approximately 420 metres below ground.

Posiva Oy submitted an application to the Finnish Government regarding the construction licence for the final disposal repository for spent nuclear fuel in December 2012 (although the application has been supplemented by additional clarifications). In its statement submitted to the MEE in February 2015, the STUK noted that the encapsulation plant and final disposal facility designed by Posiva Oy could safely be constructed as a repository for spent nuclear fuel. STUK's safety assessment is required for the decision on the construction licence that MEE will propose to the Finnish Government. The Finnish Government granted a construction licence for Posiva Oy's final disposal repository and encapsulation plant in November 2015. After STUK issued a decision in November 2016 confirming that Posiva Oy was in a position to initiate the works under the construction licence, Posiva Oy began the construction of the final disposal facility for spent nuclear fuel.

Excavation of the vehicle access tunnels leading to the final disposal facility, technical rooms and excavation of the central tunnel for the integrated systems test were completed in 2018. The full-scale in-situ system test ("FISST") commenced in the final disposal repository at the end of June 2018 and the backfilling has been completed. The aim of the FISST is to demonstrate that the safe final disposal concept can be implemented as designed by Posiva Oy. The test will be monitored for several years.

#### *Nuclear Waste Management – Funding*

In Finland, the future costs of the final disposal of spent fuel, the management of low and intermediate-level radioactive waste and nuclear power plant decommissioning are provided for by the Fund to which nuclear power plant operators make annual contributions. MEE calculates annually TVO's total liability for nuclear waste management and the contribution TVO must make to the Fund based on the actual total cost of containing the nuclear waste over time.

As at 30 September 2019, TVO's legal liability for nuclear waste management according to the Nuclear Energy Act was EUR 1,505.8 million (compared with EUR 1,481.6 million as at 30 September 2018) and TVO's funding target obligation for 2019 to the Fund was EUR 1,505.8 million (compared with EUR 1,470.8 million for 2018). As at 30 September 2019, TVO's share in the Fund was EUR 1,505.8 million. The difference between TVO's legal liability calculated according to the Nuclear Energy Act and TVO's funding target obligation is covered by collateral securities. The liabilities in the consolidated financial statements show a provision related to nuclear waste management liability of EUR 994.8 million as at 30 September 2019 (compared with EUR 974.7 million as at 30 September 2018), calculated according to IFRS. A corresponding amount, under assets, represents TVO's share in the Fund. TVO utilises the right to borrow funds back from the Fund in accordance with the law. As at 30 September 2019, the amount of the loan was EUR 591.4 million. The loan has been relented to TVO's A series shareholders.

According to the Nuclear Energy Act, TVO shall, prior to the commencement of the waste generating OL3 EPR operation, supply the Finnish State with collateral securities/funds to cover its waste management obligation in relation to the OL3 EPR. It has been estimated by TVO that at commissioning, the OL3 EPR nuclear waste management liability will be approximately EUR 400 million. Collateral securities are expected to be provided by TVO's shareholders.

Although TVO's contributions to the Fund are calculated to cover estimated future costs of the final disposal of spent fuel; the management of low and medium level radioactive waste; and plant decommissioning (and includes a safety margin in respect of such estimated future costs), the possibility exists that actual costs could exceed the provisions of the Fund. If this were to occur, TVO would be responsible for its proportion of any such excess costs.

#### *Nuclear Liability – Current and Temporary Regime*

Under the Finnish Nuclear Liability Act (484/1972, as amended; *Fi: ydinvastuulaki*) and its temporary amendment (581/2011, as amended; *Fi: laki ydinvastuulain väliaikaisesta muuttamisesta*)<sup>(1)</sup> (the "FNLA"), TVO has strict third-party liability in relation to nuclear accidents. According to the temporary amendment, the liability of the plant operator is unlimited for nuclear damage suffered in Finland caused by a single nuclear incident but limited to a maximum amount of 600 million Special Drawing Rights (corresponding to approximately EUR 730 million<sup>(2)</sup>) for nuclear damage suffered outside of Finland. TVO is obliged under statute to have private insurance to cover up to this amount. TVO maintains insurance in compliance with its statutory obligations, in addition to which TVO maintains separate insurance to cover its operations. TVO's liability is insured up to 600 million Special Drawing Rights for each nuclear incident that may occur during each insurance period. In addition, TVO maintains insurance to cover any non-nuclear damage of up to EUR 420,500 under the corresponding legislation.

#### *Nuclear Liability – New Regime*

The provisions of the FNLA are mainly based on the international Paris and Brussels conventions. The parties to those conventions agreed to modify the conventions in February 2004. In Finland, the amendment of the FNLA to incorporate such modifications to the Paris and Brussels conventions was approved by Parliament in 2005; however, this has not yet

(1) The temporary amendment to the Finnish Nuclear Liability Act entered into force on 1 January 2012 and will remain in force until the date on which the Act amending the Finnish Nuclear Liability Act (493/2005) enters into force either in its entirety or with exceptions.

been implemented into domestic legislation in its entirety, as the revised Paris and Brussels conventions will only come into force when two thirds of the undersigned countries have ratified the amendments. In most of the countries, this procedure has not yet been completed and, therefore, it is difficult to forecast when the amendments will come into force. However, some of the approved modifications entered into force in Finland in 2012 by the temporary amendment, when the Finnish Parliament temporarily amended new provisions of the FNLA relating to: the plant operator's unlimited liability for nuclear damage suffered in Finland; its insurance obligation of up to 600 million Special Drawing Rights; and a new maximum limited amount of the liability of the plant operator for nuclear damage suffered outside of Finland.

The agreed modifications to the conventions will not increase the insurance obligation on TVO as it already exists under the temporary regime. Instead, the liability of the Finnish Government would increase and it would compensate for any damages exceeding EUR 700 million and up to a limit of EUR 1,200 million (*i.e.*, a maximum liability to the Finnish Government of EUR 500 million). Thereafter, the compensation community (composed of the countries which are party to the Paris and Brussels conventions) will be liable for further damages of up to EUR 300 million for any nuclear incident, so that the total maximum amount of compensation would be EUR 1,500 million.

Under the new regime, there will be no limit on the liability of a nuclear power operator for damage that has occurred within Finland. Therefore, TVO will be liable for the cost of any damage up to EUR 700 million (up to which amount it will be required by statute to be insured) for any damage occurring either inside or outside of Finland. For damage occurring outside of Finland, TVO's liability will be capped at this amount, however, as there is no limit on liability for damage occurring inside Finland, TVO will be liable for the cost of any such damage where the cost exceeds EUR 1,500 million (TVO will not be required by statute to be insured for such amounts).

### **Coal Power**

TVO has a 45 percent holding in the Meri-Pori coal-fired power plant operated by Fortum Power and Heat Oy (which also owns the remaining share of the power plant). TVO is entitled to a share of the plant's capacity corresponding to its holding and is responsible for providing the coal required to produce such share of the capacity. Operating the plant is the responsibility of Fortum Power and Heat Oy.

TVO's share of the amount of electricity produced at the Meri-Pori coal-fired power plant was 659.7 GWh in 2018 (compared to 130.7 GWh in 2017). In order to produce TVO's share, 242.2 thousand tonnes of coal was used in 2018 (compared to 46.7 thousand tonnes in 2017) and 524.3 thousand tonnes of carbon dioxide emissions rights were used in 2018 (compared to 120.7 thousand tonnes in 2017).

TVO buys the emission rights in the open market. In 2018, TVO acquired emission rights worth EUR 8.7 million (compared to EUR 0.7 million in 2017).

TVO and its shareholders have agreed on ownership arrangements of shares entitling to a share of Meri-Pori power plant's production capacity. TVO will relinquish its ownership in the Meri-Pori power plant in full.

According to the agreement signed in June 2018, Fortum will acquire TVO's share of the production capacity of the Meri-Pori power plant. Fortum will be entitled to use TVO's share of Meri-Pori capacity as from the beginning of 2019, and TVO will relinquish its share in Meri-Pori in full at the beginning of July 2020.

### **Gas Power**

TVO owns a 50 percent share of the gas turbine power unit at the Olkiluoto plant, which has an installed capacity of 100 MW. The gas unit is a reserve unit and is not currently in operation other than for the purpose of periodic testing.

### **Regulatory Environment**

The use of nuclear energy is subject to licensing. Applications are made to the Finnish Government for decisions in-principle, construction licences and operating licences. STUK is responsible for monitoring the safe use of nuclear energy and it is also responsible for monitoring safety and emergency arrangements and nuclear material in Finland. TVO's environmental system complies with the international ISO 14001:2004 standard. TVO has the licences relevant to its business, such as but not limited to operating licences for OL1 and OL2 as well as operating licence and construction licence for OL3 EPR as well as the necessary environmental and water permits. There is no reason to believe that any of these licences will be revoked.

A fundamental principle behind the Finnish legislation on nuclear energy is that its use must be for the overall good of the society as a whole. The main rules on the use of nuclear energy, monitoring of that use and nuclear safety, are contained in the Nuclear Energy Act and the Nuclear Energy Decree (161/1988, as amended; *Fi: ydinenergia-asetus*), as well as lower level statutes and regulations enacted pursuant to them such as the general safety regulations issued by STUK. The general safety regulations relating to the use of nuclear energy issued by STUK entered into force on 1 January 2016. The general safety regulations of STUK include Regulation on the Safety of a Nuclear Power Plant (*Fi: Säteilyturvakeskuksen*

*määräys ydinvoimalaitoksen turvallisuudesta*, STUK Y/1/2016), Regulation on the Emergency Arrangements of a Nuclear Power Plant (*Fi: Säteilyturvakeskuksen määräys ydinvoimalaitoksen valmiusjärjestelyistä*, STUK Y/2/2016), Regulation on the Security in the Use of Nuclear Energy (*Fi: Säteilyturvakeskuksen määräys ydinenergian käytön turvajärjestelyistä*, STUK Y/3/2016), Regulation on the Safety of Disposal of Nuclear Waste (*Fi: Säteilyturvakeskuksen määräys ydinjätteiden loppusijoituksen turvallisuudesta*, STUK Y/4/2016) and Regulation on the Safety of Mining and Milling Operations Aimed at Producing Uranium or Thorium (*Fi: Säteilyturvakeskuksen määräys uraanin tai toriumin tuottamiseksi harjoitettavan kaivostoiminnan ja malminrikastustoiminnan turvallisuudesta*, STUK Y/5/2016). In addition, the FNLA and its temporary amendment (581/2011)<sup>(2)</sup> regulate the liability of an operator in charge of a nuclear plant in the event of a nuclear accident. No such changes in the regulatory framework are foreseeable that would significantly affect the operation of TVO.

On 15 December 2018, amendments to the Nuclear Energy Act relating to radiation safety entered into force. The new provisions include an obligation for a licence holder to establish dose constraints for the employees at a nuclear power plant and provide the respective information to STUK, an exemption from administrative supervision for nuclear waste (other than nuclear fuel) if its radioactivity is below set threshold values and a prohibition on diluting nuclear waste for the purposes of avoiding the statutory obligations.

On 1 January 2018, a legislative amendment to the Nuclear Energy Act entered into force introducing, among others, a new requirement for a license for the decommissioning of nuclear facilities that is granted by the Finnish Government. The new legislation also transposed the amended Nuclear Safety Directive 2009/71/EURATOM into national law. Licensee's responsibility to ensure the compliance of products and services produced by suppliers and subcontractors that are significant from the viewpoint of nuclear safety of the facility was also included in the regulations. It is considered that the new legislation would not significantly affect the operation of TVO.

The previous amendments to the Nuclear Energy Act came into force on 16 May 2017 in respect of the handling of license applications in relation to nuclear installations. The amendments came into force due to the entry into force of the new Act on Environmental Impact Assessment Procedure (5252/2017, as amended; *Fi: laki ympäristövaikutusten arviointimenettelystä*), implementing the Environmental Impact Assessment Directive (2014/52/EU). It is considered that the legislation will not significantly affect the operation of TVO. The changes in the Nuclear Energy Act that took effect on 1 January 2016 increased the nuclear safety research fee collected from the operators of nuclear facilities and waste management fee collected from those liable for waste management with different fee levels for fixed periods of 2016–2020 and 2021–2025. For TVO this means an increase in fees by an additional EUR 4 million per year during the period of 2016–2020.

Additional regulations pertaining to the exploitation of nuclear energy are set out in the Finnish Radiation Act (859/2018, as amended; *Fi: säteilylaki*, 859/2018) which entered into force on 15 December 2018 as well as lower level statutes enacted pursuant to the Radiation Act. The new Radiation Act, among others, transposed the European Union Directive 2013/59/EURATOM of the European Council of 5 December 2013 into national law in Finland.

TVO maintains insurance for nuclear liability in accordance with requirements of Finnish laws and regulations that are based on the international conventions on nuclear liability to which Finland is a party.

As a result of the European Commission's review of safety measures in the nuclear industry, certain legislative amendments have been made which aim to strengthen the powers and independence of national safety authorities and introduce EU-wide safety objectives. See "*Risk Factors—Risks Related to Nuclear Operations of TVO*". Changes to the European legislative landscape have precipitated changes at a domestic level.

STUK has issued regulatory guides on nuclear safety ("**YVL Guides**") that came into force at 2013, and which are subject to on-going evaluation and revisions. The YVL Guides are applied as they stand to all new nuclear power plant units. The implementation of the YVL Guides and their revisions to existing nuclear power plant units, such as OL1 and OL2, and to nuclear power plant units under construction, such as OL3 EPR, is subject to a separate STUK decision.

In December 2013, the Finnish Parliament approved a tax related to carbon dioxide-free nuclear, hydro and wind power generation. The power plant tax was estimated to have the effect of approximately EUR 6 million on TVO's annual costs. The Finnish Government withdrew the introduction of the new power plant tax in June 2014. The final decision on repealing the tax was made in Parliament in October 2014.

## Governance of TVO

Under its Articles of Association, TVO operates on a Mankala Principle, which means delivering the electricity produced or procured to its shareholders in proportion to their shareholdings in each series of shares. Each of the shareholders of each series bears their share of the variable and fixed annual costs as specified in the Articles of Association. The

(2) The temporary amendment to the FNLA entered into force on 1 January 2012 and it shall remain in force until the date on which the Act amending the FNLA (493/2005) enters into force either in its entirety or with exceptions.

shareholders have concluded a mutual shareholders' agreement, which contains more detailed regulations on corporate governance.

TVO observes on a voluntary basis the Corporate Governance Code for listed companies, issued by the Finnish Securities Market Association in 2015, where applicable.<sup>(3)</sup> However, TVO is not obliged to observe the Corporate Governance Code nor, therefore, the Comply or Explain principle. According to the Securities Markets Act (*Arvopaperimarkkinalaki*, 746/2012), the issuer of a security subject to public trading must provide a corporate governance statement in its annual report or separately. TVO publishes a separate Responsibility report on its website ([www.tvof.fi](http://www.tvof.fi)), which is updated on a yearly basis.

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(3) The Corporate Governance Code has been prepared in accordance with the so-called 'Comply or Explain' principle, which means that a company must comply with all recommendations of the code unless it accounts for a deviation from an individual recommendation and provides an explanation for it. A listed company may depart from an individual recommendation, if it accounts for such a departure and provides an explanation for it. The code is available at [www.cgfinland.fi](http://www.cgfinland.fi).

## SHAREHOLDERS

The Issuer is owned by Finnish industrial companies as well as private and municipal energy companies. As of the date of this Listing Prospectus, the Issuer has 19 shareholders, and its share capital is divided into 14 share series, 12 of which relate to a specific energy acquisition resource. The following table sets forth the shareholders of the Issuer and their respective shareholdings in the Issuer as at the date of this Listing Prospectus:

	<b>Ownership percent calculated of all the shares in the Issuer</b>
<b>Shareholder</b>	
UPM Energy Ltd <sup>(1)</sup> .....	47.7
Stora Enso Oyj.....	15.6
Kymmenvoima Oy .....	5.9
EPV Energy Ltd.....	5.5
Kemira Oyj and Eläkesäätiö Neliapila .....	5.1
Metsä Group (Metsäliitto Cooperative, Metsä Fibre Oy, Metsä Board Corporation) .....	3.7
UPM Communication Papers Ltd <sup>(1)</sup> .....	3.5
Perhonen Ltd .....	2.2
Kokkolan Energia Oy .....	1.8
Ilmarinen Mutual Pension Insurance Company .....	1.8
Yara Suomi Oy and Yara Suomen Eläkesäätiö.....	1.8
Etelä-Suomen Voima Oy .....	1.5
Porin kaupunki.....	1.4
Oulun Energy Ltd .....	0.9
Myllykoski Corporation <sup>(1)</sup> .....	0.6
Helen Ltd .....	0.6
Vantaa Energy Ltd.....	0.2
Outokumpu Oyj .....	0.1
Rautaruukki Corporation .....	0.1
<b>Total</b> .....	<b><u>100.0</u></b>
<b>Shareholders by sector</b>	
Forest industry .....	71
Energy companies.....	19
Chemical industry .....	7
Other.....	3
<b>Total</b> .....	<b><u>100</u></b>

(1) Wholly-owned subsidiary of UPM-Kymmene Corporation.

The Shareholders' Agreement includes provisions on, among other things, the shareholders' rights and obligations. Taking into consideration both the Issuer's Articles of Association and the Shareholders' Agreement, which state the basis for the decision making and governance of the Issuer, none of the shareholders are deemed to have control over the Issuer. For more information, see "*Information about PVO—Operating Model of the Issuer*" and "*Shareholders' Agreement Relating to the Issuer*" below.

### Shareholders' Agreement Relating to the Issuer

Pursuant to the Shareholders' Agreement, its provisions prevail over the Issuer's Articles of Association in matters concerning the relationships between the parties to the Shareholders' Agreement. Pursuant to the Issuer's Articles of Association, the Board of Directors of the Issuer consists of no less than five and no more than 13 members. Pursuant to the Shareholders' Agreement, shareholders' right to appoint members is determined based on the amount of shares owned, with the largest shareholder having the right to appoint two ordinary members and two deputy members, the five next largest shareholders having the right to appoint one ordinary and one deputy member each and the rest of the shareholders together having the right to appoint two ordinary and two deputy members. In addition, each shareholder that owns at least 3 percent of the Issuer's shares that entitle their holder to receive nuclear power has the right to appoint one ordinary member. As the maximum number of members of the Board of Directors of the Issuer cannot be exceeded, the right to appoint a member is determined based on the amount of shares owned. Pursuant to the Shareholders' Agreement, the largest shareholder of the Issuer has the right to appoint the Chairman of the Board of Directors from the chosen members and the second largest shareholder of the Issuer has the right to appoint the Deputy Chairman of the Board of Directors.

According to the Issuer's Articles of Association and the Shareholders' Agreement, certain amendments to the Articles of Association of the Issuer require unanimous decision by the shareholders of the Issuer. Certain major decisions, such as major transactions, share issues and repurchase of own shares, require at least three-quarters of the votes cast at the relevant General Meeting of Shareholders and at least three-quarters of the votes cast in respect of the series of the Issuer's shares that the decision concerns, as the case may be. In addition, certain decisions relating to the production companies require

at least a majority of the votes cast at the relevant General Meeting of Shareholders and at least three-quarters of the votes cast in respect of the series of the Issuer's shares that the decision concerns.

According to the Issuer's Articles of Association and the Shareholders' Agreement, the shares in the Issuer are not freely transferable to third parties. The purchase of shares in the Issuer requires an approval from the Board of Directors of the Issuer. If a shareholder wishes to transfer its shares in the Issuer, other shareholders have a pre-emption right to such shares in accordance with the Issuer's Articles of Association and the Shareholders' Agreement.



## GOVERNANCE OF THE ISSUER

The Issuer is a public limited liability company incorporated and domiciled in Finland. The Issuer's governance is based on the Finnish Companies Act (624/2006, as amended; *Fi: osakeyhtiölaki*) (the “**Finnish Companies Act**”), its Articles of Associations and the Shareholders' Agreement, which give more detailed stipulations on the PVO Group's governance. See “*Shareholders—Shareholders' Agreement Relating to the Issuer*”. Even though the Issuer is a non-listed company, it observes the Corporate Governance Code, where applicable. However, the Issuer is not obliged to observe the Corporate Governance Code nor, therefore, the Corporate Governance Code's “comply or explain” principle.

### General Meeting of Shareholders

Shareholders participate in the control and management of the Issuer through resolutions passed at the General Meetings of Shareholders. The General Meeting of Shareholders decides on statutory matters. It also elects the members of the Board of Directors, in accordance with the procedure specified in the corporate documents, and issues binding directives to the Board of Directors regarding the elections of the Board members of the PVO Group companies and any significant investments.

Pursuant to the Articles of Association, the Annual General Meeting of Shareholders also elects the members of the Board of Directors and the auditor and decides on the remuneration of the members of the Board of Directors.

### Management and Administration

#### Board of Directors

Under the Articles of Association, the Issuer's Board of Directors consists of a minimum of five and a maximum of 13 ordinary members. The members of the Board of Directors are elected on an annual basis for a term beginning after the close of the General Meeting of Shareholders executing the election and ending at the close of the next General Meeting of Shareholders executing the election. According to the Articles of Association, a personal deputy member may be elected to each member of the Board of Directors.

According to the Articles of Association, the Board of Directors is responsible for managing the administration of the Issuer and arranging its operations appropriately and for supervising that the operations of the Issuer are carried out in accordance with the law, the Articles of Associations and directives and decisions by the General Meeting of Shareholders. In addition, the Board of Directors decides, unless it has authorised the President and CEO to do so, on purchases and sales of real estate and other investments and on borrowing and granting security. The Board of Directors discusses and approves, for example, the code of conduct and the policies defining corporate responsibility and risk management of the Issuer. The Board of Directors annually assesses its own activities. The Board of Directors has prepared a written charter including the Board's main tasks and operating principles.

The Annual General Meeting of Pohjolan Voima Oyj was held on 21 March 2019. The Annual General Meeting elected the following nine persons as members of the Board of Directors and the following nine persons as their personal deputy members.

The following table sets forth the members of the Board of Directors as of the date of this Listing Prospectus:

Name	Position	Born	Qualifications	Other positions of trust
<b>Ordinary members</b>				
Tapio Korpeinen / Chairman of the Board.....	UPM-Kymmene Corporation, Chief Financial Officer; Executive Vice President, UPM Energy Oy	1963	M.Sc. (Tech.), MBA	Vice Chairman of the Board: Kemijoki Oy Member of the Board: TVO Member of the Supervisory Board: Varma Mutual Pension Insurance Company
Seppo Parvi / Deputy Chairman.....	Chief Financial Officer, Deputy to the CEO and Country Manager, Stora Enso Oyj	1964	M.Sc. (Econ.)	Deputy Chairman of the Board: Finnish Forest Industries Federation Member of the Board: Ilmarinen Mutual Pension Insurance Company
Rami Vuola / Board Member .....	President & Chief Executive Officer, EPV Energy Ltd	1968	M.Sc. (Eng.)	Chairman of the Board: EPV Alueverkko Oy, EPV Bioturve Oy, EPV Tase Oy, EPV Tuulivoima Oy, PVO Huippuvoima Oy, Rajakiiri Oy, Tornion Voima Oy, Vaskiluodon Teollisuuskiinteistöt Oy Member of the Board: LeaseGreen Group Oy, Raahen Voima Oy, Suomen Energiavarat Oy, Suomen Merituuli Oy, TVO, Vaskiluodon Voima Oy, Voimapiha Oy

Name	Position	Born	Qualifications	Other positions of trust
Jukka Hakkila / Board Member.....	Group General Counsel and Deputy to the CEO, Kemira Oyj	1960	LL.M.	–
Anders Renvall / Board Member ....	Managing Director, Kymppivoima Oy	1973	M.Sc. (Eng.)	Chairman of the Board: Voimapiha Oy, Voimapiha Ab, PVO-Lämpövoima Oy Member of the Board: TVO, EPV Energy Ltd, Vattenfall Indalsälven Ab, Vaskiluodon Voima Oy
Esa Kaikkonen/ Board Member .....	CEO, Metsä Tissue Corporation	1969	LL.M.	Member of the Board: Metsä Fibre Oy, TVO, Finnish Forest Industries Federation
Tomi Sederholm/ Board Member ...	Head of Finance & Control and Strategy, UPM Energy Oy	1981	M.Sc. (Econ.)	–
Mikael Surakka / Board Member	Energy Manager, Outokumpu Oyj	1968	M.Sc. (Eng.)	–
Mikko Rintamäki / Board Member	CEO, Kokkolan Energia Oy	1963	B.Sc. (Eng.), MBA	Member of the Board: KIP Infra Oy, Power-Deriva Oy, Solar Power Holding Oy
<b>Deputy members</b>				
Jussi Pesonen Personal substitute for Tapio Korpeinen.....	President and CEO, UPM-Kymmene Corporation	1960	M.Sc. (Eng.)	Chairman of the Board: Finland Chamber of Commerce and ICC Finland, Finnish Forest Industries Federation (FFIF) Member of the Board: Confederation of European Paper Industries (CEPI), East Office of Finnish Industries Oy, UPM-Kymmene Corporation
Markus Mannström, Personal substitute for Seppo Parvi .....	Executive Vice President, Division Biomaterials, Stora Enso Oyj	1963	M.Sc. (Paper Tech.)	Member of the Board: TVO
Stefan Damlin, Personal substitute for Rami Vuola.....	CEO, Vaasan Sähkö Oy	1968	M.Sc. (Econ.)	–
Seppo Tuomisto, Personal substitute for Jukka Hakkila.....	Manager, Energy Business Support and Development, Kemira Oyj	1962	M.Sc. (Eng.)	–
Jorma Korhonen, Personal substitute for Anders Renvall .....	Managing Director, Pohjois-Karjalan Sähkö Oy	1957	M.Sc. (Eng.)	Managing Director, Pohjois-Karjalan Energiaholding Oy
Ilkka Hämälä Personal substitute for Esa Kaikkonen.....	President and CEO, Metsä Group	1961	M.Sc. (Eng.)	Chairman of the Board: Metsä Board Oyj, Metsä Tissue Oyj, Metsä Fibre Oy, Finnish Forest Industries Federation Member of the Supervisory Board: Mutual Pension Insurance Company Ilmarinen Member of the Advisory Board: Finnish Quality Association
Pekka Tynkkynen, Personal substitute for Tomi Sederholm .....	Director, UPM Energy Oy	1968	M.Sc. (Eng.)	–
Mikko Lepistö, Personal substitute for Mikael Surakka .....	Energy Manager, SSAB Europe Oy	1976	M.Sc. (Eng.)	–
Roger Holm, Personal substitute for Mikko Rintamäki .....	CEO, Oy Herrfors Ab	1967	M.Sc. (Eng.), Lic.Sc. (Econ.)	–

## ***Board Committees***

The Board of Directors has established an Audit and Finance Committee and a Remuneration and Nomination Committee, assisting and reporting to the Board of Directors and consisting of at least three members of the Board. The Board of Directors nominates the members of the committees, appoints their chairman and approves each Committee's charter.

The Audit and Finance Committee provides assistance to the Board of Directors in processing and preparing matters that are the responsibility of the Board of Directors concerning financing, financial reporting, monitoring and auditing.

The members of the Board Committees are:

### *Audit and Finance Committee*

Tomi Sederholm	Chairman
Jukka Hakkila	Member
Rami Vuola	Member

### *Remuneration and Nomination Committee*

Tapio Korpeinen	Chairman
Seppo Parvi	Member
Anders Renvall	Member

In addition to the two Committees referred to above, the Board of Directors nominates certain other committees to assist the Board of Directors and the Corporate Executive Team when deemed necessary.

## ***President and CEO***

The President and CEO deals with the Issuer's day-to-day management in accordance with the Finnish Companies Act and the instructions and orders issued by the Board of Directors.

Ilkka Tykkyläinen (1966) serves as the Issuer's President and CEO. He holds a M.Sc. (Eng.). He serves as the Chairman of the Board of Directors of TVO and as a member of the Boards of Directors of Alholms Kraft AB, PVO-Vesivoima Oy and PVO-Lämpövoima Oy.

## ***Corporate Executive Team***

In operational management, the President and CEO is supported by the Corporate Executive Team, which discusses the main principles related to the operations of the PVO Group and the Issuer.

The Corporate Executive Team comprises of the following members:

Ilkka Tykkyläinen .....	President and CEO, Chairman
Petri Hurri .....	Executive Vice President, Thermal Power; President of PVO-Lämpövoima Oy and PVO Huippuvoima Oy and the Chairman of the Board of Directors of several PVO Group companies.
Minna Laakso .....	Chief Financial Officer; Corporate Planning, Finance; A member of the Board of Directors of Posiva Oy and several PVO Group companies.
Riitta Larnimaa .....	Executive Vice President, Communications and Public Affairs; Chairman of the Electricity Production Committee of the Finnish Energy Industries.
Tiina Nyström .....	General Counsel, Executive Vice President; Human Resources and Legal Affairs, Properties and Corporate Security
Pertti Pietinen.....	Executive Vice President, Hydropower; Chairman or a member of the Board of Directors of several PVO Group companies.

## ***Business Address***

The business address of the members of the Board of Directors and the Corporate Executive Team is c/o Pohjolan Voima Oyj, Töölönkatu 4, FI-00100 Helsinki, Finland.

## ***Internal Control, Risk Management and Internal Auditing***

The Board of Directors and the management are responsible for the Issuer's internal control and risk management system. The purpose of internal control and risk management is to ensure the efficiency and effectivity of the operations, the

reliability of information, as well as compliance with the regulations and operating principles. The Issuer's governance and internal control system is based on the Articles of Association, Shareholders' Agreement as well as code of conduct and other company policies, approved by the Board of Directors.

The key principles of risk management are defined in the PVO Group Risk Management policy. Subsidiaries and Group functions are responsible for their own risk management and associated reporting. The management reporting on the comprehensive risk circumstances to the Board of Directors is linked to the strategy and long-term planning process. The Board of Directors oversees the reporting on risk exposures, risk management activities and results related to the Issuer's strategy and operations.

According to the PVO Group's insurance policy, the PVO Group assures its assets and operations against possible financial losses caused by unforeseen events and accidents. Property is insured at replacement value. In addition, the PVO Group maintains insurances with requirements of Finnish laws and regulations or otherwise mandatory obligations. The PVO Group's insurance policy is approved by the Board of Directors of the Issuer.

The operating principles and principal procedures of the Issuer's internal audit have been defined in the audit charter approved by the Board of Directors. Internal audit assists the Issuer in achieving its objectives by providing a systematic approach to evaluate and improve governance processes, risk management and internal control. Internal audit reports functionally under the Audit and Finance Committee and reports summaries of its plans and findings to the Issuer's Board of Directors.

### **Absence of Conflicts of Interest**

Provisions regarding conflicts of interest of the management of a Finnish company are set forth in the Finnish Companies Act. Pursuant to Chapter 6, Section 4 of the Finnish Companies Act, a member of the Board of Directors may not participate in the handling of a contract between himself/herself and the company, nor may he/she participate in the handling of a contract between the company and a third party if he/she may thereby receive a material benefit which may be in contradiction with the interests of the company. The above provision regarding contracts shall correspondingly apply to other legal acts and to other legal proceedings and other similar matters. The same provisions are applied with regard to the President and CEO.

None of the members of the Board of Directors, the President and CEO or the other members of the Corporate Executive Team have any conflicts of interests between any duties to the Issuer and their private interests and/or their other duties.

## TERMS AND CONDITIONS OF THE NOTES

### Pohjolan Voima Oyj EUR 150,000,000 1.250 percent Fixed Rate Notes due 2025

#### ISIN CODE FI4000410683

The Board of Directors of Pohjolan Voima Oyj (the “**Issuer**”) has in its meeting on 28 October 2019 authorised the Issuer’s management to decide on the issue of senior unsecured notes referred to in Paragraph 1 of Section 34 of the Act on Promissory Notes (622/1947, as amended in 746/1993, *Fi: velkakirjalaki*). Based on the authorisation, the Issuer has decided to issue senior unsecured notes (the “**Notes**”) on the terms and conditions specified below.

Nordea Bank Abp and Danske Bank A/S will act as lead managers in connection with the offer and issue of the Notes (the “**Joint Lead Managers**”).

#### 1. PRINCIPAL AMOUNT AND ISSUANCE OF THE NOTES

The principal amount of the Notes is EUR 150,000,000 (EUR 150,000,000) or a higher amount, as may be determined by the Issuer. The Issuer may later create and issue further notes having the same terms and conditions as the Notes, as further set out below under Condition 20 (*Further Issues of Notes*).

The Notes will be issued in dematerialised form in the Infinity book-entry securities system of Euroclear Finland Ltd (“**Euroclear Finland**”) in accordance with the Finnish laws and regulations governing book-entry system and book-entry accounts as well as the regulations and decisions of Euroclear Finland, and cannot be physically delivered.

The issue date of the Notes is 18 November 2019 (the “**Issue Date**”).

The Notes will be offered for subscription in a minimum amount of EUR 100,000. The principal amount of each book-entry unit (*Fi: arvo-osuuden yksikkö*) is EUR 100,000. The maximum number of the Notes is 1,500 or a higher number should the Issuer decide to increase the maximum principal amount of the Notes.

The issuer agent (*Fi: liikkeeseenlaskijan asiamies*) of the Notes referred to in the regulations of Euroclear Finland (the “**Issuer Agent**”) and the paying agent of the Notes (the “**Paying Agent**”) is Nordea Bank Abp.

#### 2. SUBSCRIPTION OF THE NOTES

The Notes shall be offered for subscription through a book-building process (*private placement*). The Notes will be offered to investors outside the United States in reliance on Regulation S under the U.S. Securities Market Act of 1933, as amended. The subscription period shall commence and end on 11 November 2019 (the “**Subscription Date**”).

The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area, accordingly, no key information document pursuant to Regulation (EU) No. 1286/2014 (the “**PRIPs Regulation**”) has been prepared by the Issuer.

Bids for subscription shall be submitted during regular business hours to: (i) Nordea Bank Abp, Satamaradankatu 5, FI-00520 NORDEA, Finland, tel. +358 9 369 50880; or (ii) Danske Bank A/S, c/o Danske Bank A/S, Finland Branch, Kasarmikatu 21 B, PL 1613, FI-00075 DANSKE BANK, Helsinki, Finland, tel. +358 (0)10 513 8791.

Bids for subscriptions are irrevocable. All subscriptions remain subject to the final acceptance by the Issuer. The Issuer may, in its sole discretion, reject a subscription in part or in whole. The Issuer shall decide on the procedure in the event of over-subscription.

Subscriptions shall be paid for as instructed in connection with the subscription.

Notes subscribed and paid for shall be created by the Issuer Agent and approved by Euroclear Finland in the Infinity book-entry securities system and routed by the Issuer Agent to the respective book-entry accounts of the subscribers on a date advised in connection with the issuance of the Notes in accordance with the Finnish laws and regulations governing book-entry system and book-entry accounts as well as regulations and decisions of Euroclear Finland.

### 3. ISSUE PRICE

The issue price of the Notes is 99.616 percent.

### 4. INTEREST

The Notes bear fixed interest at the rate of 1.250 percent per annum (the “**Interest Rate**”). Interest shall be payable annually in arrears commencing on 20 January 2021 and thereafter on each 20 January (each an “**Interest Payment Date**”) until the Maturity Date (as defined below), subject to the Issuer’s redemption of the Notes in accordance with Condition 7.2 (*Voluntary Total Redemption (Call Option)*) or prepayment of the Notes in accordance with Condition 8 (*Change of Control*), 10 (*Excess Secured Indebtedness*) or 12 (*Events of Default*) below.

Subject to the Issuer’s redemption of the Notes in accordance with Condition 7.2 (*Voluntary Total Redemption (Call Option)*) or prepayment of the Notes in accordance with Condition 8 (*Change of Control*), 10 (*Excess Secured Indebtedness*) or 12 (*Events of Default*) below, interest shall accrue for each interest period from (and including) the first day of the interest period to (but excluding) the last day of such interest period on the principal amount of Notes outstanding from time to time. The first interest period commences on the Issue Date and ends on the first Interest Payment Date. Each consecutive interest period begins on the previous Interest Payment Date and ends on the following Interest Payment Date. The last interest period ends on the Maturity Date (as defined below).

Interest in respect of the Notes will be calculated on the basis of the actual number of days elapsed in the relevant interest period divided by 365 or, in the case of a leap year, 366 (Actual / Actual ICMA).

### 5. STATUS AND SECURITY

The Notes constitute direct, unconditional, unsubordinated, unguaranteed and unsecured obligations of the Issuer ranking *pari passu* among themselves and at least *pari passu* with all other present and future unsecured and unsubordinated obligations of the Issuer, save for such obligations as may be preferred by mandatory provisions of law.

### 6. PAYMENTS

Interest on and principal of the Notes shall be paid in accordance with the Finnish laws and regulations governing book-entry system and book-entry accounts as well as the regulations and decisions of Euroclear Finland.

Should the payment date of interest or principal payable pursuant to these terms and conditions fall on a date which is not a Business Day (as defined below), the payment of the amount due will be postponed to the next following Business Day. The postponement of the payment date shall not have an impact on the amount payable.

In these terms and conditions, “**Business Day**” shall mean a day on which banks in Helsinki are open for general business and on which the Trans-European Automated Real-Time Gross Settlement Express Transfer (TARGET2) System is open.

### 7. REDEMPTION

#### 7.1 Redemption at Maturity

The Notes shall be repaid in full at their nominal principal amount on 20 January 2025 (the “**Maturity Date**”), unless the Issuer has redeemed the Notes in accordance with Condition 7.2 (*Voluntary Total Redemption (Call Option)*) or prepaid the Notes in accordance with Condition 8 (*Change of Control*), 10 (*Excess Secured Indebtedness*) or 12 (*Events of Default*) below.

#### 7.2 Voluntary Total Redemption (Call Option)

- (a) The Issuer may, if it gives not less than thirty (30) nor more than sixty (60) days’ notice (an “**Optional Redemption Notice**”) to the Issuer Agent and the holders of Notes (the “**Noteholders**”) in accordance with Condition 15 (*Notices and Right to Information*) (which notice shall be irrevocable and shall specify the date fixed for redemption), redeem all, but not only some, of the Notes on the relevant date (the “**Optional Redemption Date**”) specified for redemption in the relevant Optional Redemption Notice at a redemption price equal to, in the case of an Optional Redemption Date occurring before the Business

Day falling three (3) months prior to the Maturity Date, the Make-Whole Redemption Amount together with accrued but unpaid interest up to (but excluding) the relevant Optional Redemption Date; or

- (b) The Issuer may, if it gives an Optional Redemption Notice to the Noteholders (which notice shall be irrevocable and shall specify the date fixed for redemption), redeem the Notes, in whole but not in part, at any time from and including the first Business Day falling three (3) months prior to the Maturity Date to, but excluding, the Maturity Date, at an amount equal to 100 percent of their outstanding nominal principal amount together with any accrued but unpaid interest up to (but excluding) the relevant Optional Redemption Date.

In this Condition 7:

**"Make-Whole Redemption Amount"** shall be calculated by the Issuer or on behalf of the Issuer by such a person as the Issuer shall designate and will be the greater of (a) 100 percent of the principal amount of the Notes to be redeemed and (b) the sum of the then present values of each remaining scheduled payment of principal and interest up to, but excluding, the Maturity Date (for the avoidance of doubt, not including any interest accrued on the Notes to, but excluding, the relevant Optional Redemption Date) discounted to the relevant Optional Redemption Date on an annual basis at the sum of the Make-Whole Redemption Rate and the Make-Whole Redemption Margin;

**"Make-Whole Redemption Margin"** means 0.30 percent;

**"Make-Whole Redemption Rate"** means, with respect to the relevant Optional Redemption Date, the rate per annum equal to the annual yield to maturity or interpolated yield to maturity (on the relevant day count basis) of the Reference Bond, assuming a price for the Reference Bond (expressed as a percentage of its nominal amount) equal to the Reference Bond Price for the Reference Date;

**"Reference Bond"** means OBL 0.0% 10/2024 #180;

**"Reference Bond Dealer"** means each of the banks selected by the Issuer, or their affiliates, which are (a) primary government securities dealers, and their respective successors, or (b) market makers in pricing corporate bond issues;

**"Reference Bond Dealer Quotations"** mean, with respect to each Reference Bond Dealer and the relevant Optional Redemption Date, the arithmetic average, as determined by the Issuer or on behalf of the Issuer by such person as the Issuer shall designate, of the bid and offered prices for the Reference Bond (expressed in each case as a percentage of its nominal amount) at 11.00 a.m. (Brussels time) on the Reference Date quoted by such Reference Bond Dealer;

**"Reference Bond Price"** means (a) the average of five (5) Reference Bond Dealer Quotations, after excluding the highest and lowest of such Reference Bond Dealer Quotations; or (b) if the Issuer obtains fewer than five (5) such Reference Bond Dealer Quotations, the average of all such Reference Bond Dealer Quotations; and

**"Reference Date"** means the third (3rd) Business Day prior to the Optional Redemption Date.

The calculations and determinations related to the Make-Whole Redemption Amount made by the Issuer or any party on behalf of the Issuer shall (save for manifest error) be final and binding upon all Noteholders.

## 8. CHANGE OF CONTROL

If, after the Issue Date, any person or group of persons other than one or more of the shareholders of the Issuer as at the Issue Date or their Affiliates, acting in concert, directly or indirectly, gains control of the Issuer, the Issuer shall promptly notify the Noteholders upon becoming aware of such event in accordance with Condition 15 (*Notices and Right to Information*).

Upon occurrence of a change of control, the Issuer shall, on the CoC Prepayment Date (as defined below), prepay the principal amount of and the interest accrued on the Notes held by the Noteholders who have required prepayment of Notes held by them by a written notice to be given to the Issuer no earlier than thirty (30) Business Days after the publication or the delivery of the notice referred to in the first paragraph of this Condition and no later than twenty (20) Business Days before the CoC Prepayment Date. Interest on the Notes accrues until the CoC Prepayment Date (excluding the CoC Prepayment Date).

If Notes representing more than seventy-five (75) percent of the aggregate principal amount of the Notes have been prepaid on the CoC Prepayment Date pursuant to this Condition 8, the Issuer is entitled to prepay also the remaining outstanding Notes at their principal amount with accrued interest but without any premium or penalty by notifying the relevant Noteholders in accordance with Condition 15 (*Notices and Right to Information*) no later than fifteen (15) Business Days after the CoC Prepayment Date. Such prepayment may be effected at the earliest on the tenth (10th) Business Day and at the latest on the sixtieth (60th) Business Day following the date of publication of such notice.

In this Condition 8:

“**Affiliate**” means, in relation to any person, a Subsidiary of that person or a Holding Company of that person or any other Subsidiary of that Holding Company.

“**acting in concert**” means a group of persons who, pursuant to an agreement or understanding (whether formal or informal), actively co-operate, through the acquisition by any of them, either directly or indirectly, of shares in the Issuer, to obtain or consolidate control of the Issuer;

“**control**” means either:

- (a) acquiring or controlling the beneficial ownership of shares in the Issuer representing more than fifty (50) percent of the total voting rights represented by the shares in the Issuer; or
- (b) capability of appointing the majority of the board of directors of the Issuer.

“**Holding Company**” means in relation to a person, any other person in respect which it is a Subsidiary.

“**CoC Prepayment Date**” means the date falling seventy (70) Business Days after the publication of the notice referred to in the first paragraph of this Condition.

## 9. NEGATIVE PLEDGE

For so long as any Note remains outstanding, the Issuer shall not, and the Issuer shall procure that none of its Subsidiaries (as defined below under Condition 12 (*Events of Default*)) will, create any mortgage, charge, lien, pledge or other security interest to secure any other notes, bonds or other similar debt securities issued after the Issue Date that would be capable of being listed on a stock exchange or subject to trading in a regulated market (if the Issuer were a public limited liability company) or a multilateral trading facility (“**Debt Instrument Indebtedness**”) (nor create any such security interest to secure any guarantee or indemnity over such notes or other securities), unless the granting of such security interest is required under Finnish law or other law governing such notes, bonds or other debt securities.

## 10. EXCESS SECURED INDEBTEDNESS

If the Issuer or any of its Subsidiaries (as defined below under Condition 12 (*Events of Default*)) encumbers or has encumbered its present or future revenues or assets by placing a Collateral (as defined below) as security, and the amount of the outstanding principal amount of indebtedness secured by such Collateral (when aggregated with the outstanding principal amount of any other indebtedness which has the benefit of any Collateral given by any of its Subsidiaries) exceeds fifteen (15) percent of the Consolidated Total Assets on the date on which such Collateral is created, the Issuer shall promptly notify the Noteholders of such event in accordance with Condition 15 (*Notices and Right to Information*).

The Issuer shall on the Prepayment Date (as defined below) prepay the nominal principal amount of and accrued interest on the Notes, but without any premium or penalty, held by the Noteholders who have required prepayment of the Notes held by them by a written notice to be given to the Issuer no later than fifteen (15) Business Days before the Prepayment Date. Interest on the Notes accrues until the Prepayment Date (excluding the Prepayment Date).

If Notes representing more than seventy-five (75) percent of the aggregate nominal principal amount of the Notes have been prepaid pursuant to this Condition 10 on the Prepayment Date, the Issuer is entitled to prepay also the remaining outstanding Notes at their nominal principal amount with accrued interest but without any premium or penalty by notifying the relevant Noteholders in accordance with Condition 15 (*Notices and Right to Information*) no later than fifteen (15) Business Days after the Prepayment Date. Such prepayment may be effected at the earliest on the tenth (10th) Business Day and at the latest on the sixtieth (60th) Business Day following the date of publication of such notice.



In this Condition 10:

“**assets**” includes present and future properties, revenues and rights of every description;

“**Collateral**” means any mortgage, charge, pledge, lien, assignment by way of security, hypothecation, security interest, trust arrangement or other encumbrance securing any obligation of any person or any other type of preferential arrangement (including, without limitation, title transfer and retention arrangements) having a similar effect. The definition of “Collateral” does not apply to:

- (a) any Collateral existing on the Issue Date;
- (b) liens arising solely by operation of law (or by an agreement evidencing the same) in the ordinary course of its day-to-day trading business;
- (c) any Collateral given in favour of another member of the Group securing only indebtedness owing to one or more members of the Group;
- (d) any Collateral:

- (A) over assets or revenues situated in Finland granted by the Issuer or any other member of the Group incorporated in Finland to Nordic Investment Bank or European Investment Bank to secure loans made by Nordic Investment Bank or, as the case may be, European Investment Bank; or

- (B) granted by the Issuer or any other member of the Group to a supranational or specialised public sector financial institution which is required by applicable laws, regulations or directives,

*provided* that, in each case, the total indebtedness and liabilities to which the Collateral listed in sub-paragraphs (A) and (B) above relate do not exceed an aggregate amount of EUR 250,000,000 (or its equivalent in other currencies);

- (e) any Collateral created over all or any part of its right, title or interest in or over the assets of any joint venture partnership or similar venture to secure indebtedness for borrowed money in respect of such venture provided that the total indebtedness and liabilities to which such encumbrances relate does not exceed an aggregate amount of EUR 50,000,000 (or its equivalent in other currencies);
- (f) any Collateral over the property, assets or revenues of any person which is acquired by a member of the Group and becomes a Subsidiary of such member of the Group after the date hereof which exists at the time of such acquisition by such member of the Group provided that the amount thereby secured is not subsequently increased and provided that such Collateral is discharged within 6 months of such acquisition;
- (g) any Collateral created over any asset in connection with financing the acquisition or development of that asset after the date hereof provided that the amount thereby secured is not subsequently increased and provided that such Collateral is discharged within 6 months of the completion of such acquisition or development;
- (h) any title retention arrangements entered into in the ordinary course of its day-to-day trading business;
- (i) Collateral securing indebtedness to the Finnish State Nuclear Waste Management Fund (*Fi: Valtion ydinjätehuoltorahasto*) in respect of indebtedness created pursuant to the terms of the Finnish Nuclear Energy Act (990/1987, as amended, *Fi: ydinenergialaki*) (“**NWMF Indebtedness**”) from time to time and incurred by:
  - (i) the Issuer; or
  - (ii) TVO, but only to the extent the indebtedness so secured is proportionate to the percentage of the Issuer’s ownership in the share capital of TVO. Notwithstanding the foregoing, if TVO on-lends the proceeds of any NWMF Indebtedness to its shareholders other than in proportion to the ownership of the shareholders of TVO in the share capital of TVO, the amount of such NFWM Indebtedness secured by the Collateral granted by members of the Group may not exceed the principal amount subject to on-lending to the Issuer; and

- (j) any Collateral which is a Collateral created in substitution for any other Collateral which secures an amount raised not exceeding the principal amount secured by any existing Collateral permitted by paragraphs (a) to (i) above together with any interest accruing on such amount.

“**Consolidated Total Assets**” means at any time the total assets of the Group at that time determined from the most recent consolidated financial statements of the Group.

“**indebtedness**” includes any obligation (whether incurred as principal or as surety for the payment or repayment of money), whether present or future, actual or contingent, excluding Debt Instrument Indebtedness.

“**indebtedness for borrowed money**” in relation to any person means:

- (a) any indebtedness for moneys borrowed or raised by that person or for money owing in respect of any other form of financial accommodation whatsoever made available to that person (excluding normal trade indebtedness);
- (b) any indebtedness under any letter of credit, stand-by letter of credit or note purchase facility or acceptance credit opened on behalf of that person and any receivables purchase factoring or discounting arrangements;
- (c) any indebtedness under any bill discounting facility or bills of exchange on which that person is liable as drawer, acceptor, endorser or otherwise; and
- (d) any other transaction having the commercial effect of borrowing entered into by any person to finance its operations or capital requirements.

a “**person**” includes any individual, firm, company, corporation, government, state or agency of a state or any association, trust, joint venture, consortium, partnership or other entity (whether or not having separate legal personality).

“**Prepayment Date**” means the date falling forty-five (45) Business Days after the publication of the notice referred to in the first paragraph of this Condition 10.

“**TVO**” means Teollisuuden Voima Oyj.

## 11. REPORTS

The Issuer shall furnish to the Noteholders information pursuant to the applicable laws and Nasdaq Helsinki Ltd.’s Rules of the Exchange (as amended from time to time) on the Issuer’s website at the address [www.pohjolanvoima.fi](http://www.pohjolanvoima.fi) or on a website which is available to persons who are registered as investors in accordance with the instructions on the website [www.pohjolanvoima.fi](http://www.pohjolanvoima.fi) or on such other address as provided by the Issuer to the Noteholders in accordance with Condition 15 (*Notices and Right to Information*). The Issuer shall also furnish such reports to the Noteholders upon written request.

## 12. EVENTS OF DEFAULT

If an Event of Default (as defined below) occurs, any Noteholder may by a written notice to the Issuer declare the outstanding principal amount of such Note together with the interest then accrued on such Note to be prematurely due and payable at the earliest on the tenth (10th) calendar day from the date such notice was received by the Issuer *provided* that an Event of Default is continuing on the date of receipt of the notice and on the specified early repayment date. Interest accrues until the early repayment date (excluding the early repayment date).

Each of the following events shall constitute an “**Event of Default**”:

- (a) Non-Payment: Any amount of interest on or principal of the Notes has not been paid within five (5) Business Days from the relevant due date, unless the failure to pay is caused by a reason referred to in Condition 16 (*Force Majeure*); or
- (b) Cross-default: Financial Indebtedness (as defined below) is not paid when due as extended by any originally applicable grace period, or is declared to be due and payable prior to its specified maturity as a result of an event of default (however described), provided that no Event of Default will occur under this sub-Condition (b) if the aggregate amount of such Financial Indebtedness due is less than EUR 25,000,000 and provided that it does not apply to any Financial Indebtedness owed to a Group Company. A Noteholder shall not be entitled to demand repayment under this sub-Condition (b) if the Issuer has *bona fide* contested the existence of the occurrence of an Event of Default under this sub-

Condition (b) in the relevant court or in arbitration within forty-five (45) days of the date when the Issuer or its Material Subsidiary became aware of such alleged Event of Default as long as such dispute has not been finally and adversely adjudicated against the Issuer without any appeal period and any such contested amount shall not be taken into account in the calculation of the EUR 25,000,000 pursuant to this sub-Condition (b).

“**Financial Indebtedness**” means for purposes this Condition 12:

- (i) any indebtedness for moneys borrowed or raised by the Issuer or any of its Material Subsidiaries or for money owing in respect of any other form of financial accommodation whatsoever made available to the Issuer or any of its Material Subsidiaries (excluding normal trade indebtedness);
  - (ii) any indebtedness under any letter of credit, stand-by letter of credit or note purchase facility or acceptance credit opened on behalf of the Issuer or any of its Material Subsidiaries and any receivables purchase factoring or discounting arrangements;
  - (iii) any indebtedness under any bill discounting facility or bills of exchange on which the Issuer or any of its Material Subsidiaries is liable as drawer, acceptor, endorser or otherwise;
  - (iv) any indebtedness relating to principal and premiums (if any) and capitalised interest in respect of any debenture, bond, note, loan stock or similar instrument of the Issuer or any of its Material Subsidiaries; and
  - (v) any other transaction having the commercial effect of borrowing entered into by the Issuer or any of its Material Subsidiaries to finance its operations or capital requirements.
- (c) Negative Pledge: the Issuer does not comply with its obligations under Condition 9 (*Negative Pledge*); or
- (d) Cessation of Business: The Issuer ceases to carry on its current business in its entirety; or
- (e) Winding-up: An order is made or an effective resolution is passed for the winding-up (*Fi: selvitystila*), liquidation or dissolution of the Issuer or any of its Material Subsidiaries, except for (i) actions which are frivolous (*Fi: perusteeton*) or vexatious (*Fi: oikeuden väärinkäyttö*), or (ii) in the case of a Material Subsidiary, on a voluntary solvent basis; or
- (f) Insolvency: (i) The Issuer or any of its Material Subsidiaries becomes insolvent or is unable to pay its debts as they fall due; (ii) or, by reason of actual or anticipated financial difficulties, commences negotiations with one or more of its creditors with a view to rescheduling any of Financial Indebtedness or (iii) an application is filed for it being subject to bankruptcy or re-organisation proceedings, or for the appointment of an administrator or liquidator of any of the Issuer’s or its Material Subsidiaries’ assets, save for any such applications that are contested in good faith and as long as such application has not been finally and adversely adjudicated against the Issuer or its Material Subsidiary without any appeal period.

For the purposes of these terms and conditions:

“**Group**” means the Issuer and its Subsidiaries from time to time (as defined in the Finnish Accounting Act (1336/1997, as amended, *Fi: kirjanpitolaki*)) and “**Group Company**” means the Issuer or any of the Subsidiaries.

“**Material Subsidiary**” means for the purposes of these terms and conditions, at any time, any Subsidiary of the Issuer:

- (a) whose total assets (consolidated in the case of a company which itself has Subsidiaries) represent not less than ten (10) percent of the consolidated total assets of the Group taken as a whole, all as calculated by reference to the then most recent financial statements (consolidated or, as the case may be, unconsolidated) of such subsidiary and the then most recent consolidated financial statements of the Group. If the Subsidiary has been acquired since the date at which the then most recent consolidated financial statements of the Group were prepared, the financial statements shall be adjusted in order to take into account the acquisition of that Subsidiary (such adjustment to be certified by the Group’s auditors as representing an accurate reflection of the total assets following the Subsidiary’s acquisition); or
- (b) to which is transferred the whole or substantially the whole of the sales or assets and undertakings of a subsidiary which, immediately prior to such transfer, was a Material Subsidiary.

“**Subsidiary**” means a subsidiary within the meaning of Chapter 1, Section 6 of the Finnish Accounting Act (1336/1997, as amended, *Fi: kirjanpitolaki*) (or under such provision as may replace this provision).

### 13. TAXATION

All payments in respect of the Notes by or on behalf of the Issuer shall be made without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or governmental charges of whatever nature (“**Taxes**”) imposed or levied by or on behalf of Finland or any political subdivision or authority of Finland having power to tax, unless the withholding or deduction of the Taxes is required by law. In such case, the Issuer shall make such payment after such withholding or deduction has been made and shall account to the relevant authorities for the amount so required to be withheld or deducted. The Issuer will not be obligated to make any additional payments to the Noteholders in respect of such withholding or deduction.

### 14. NOTEHOLDERS’ MEETING AND PROCEDURE IN WRITING

- (a) The Issuer may convene a meeting of the Noteholders (a “**Noteholders’ Meeting**”) or request a procedure in writing among the Noteholders (a “**Procedure in Writing**”) to decide on amendments of these terms and conditions or other matters as specified below. Euroclear Finland and the Issuer Agent must be notified of the Noteholders’ Meeting or a Procedure in Writing in accordance with the regulations of Euroclear Finland.
- (b) Notice of a Noteholders’ Meeting and the initiation of a Procedure in Writing shall be published in accordance with Condition 15 (*Notices and Right to Information*) no later than ten (10) calendar days prior to the Noteholders’ Meeting or the last day for replies in the Procedure in Writing. The notice shall specify the time, place and agenda of the Noteholders’ Meeting or the last day and address for replies in the Procedure in Writing (or if the voting is to be made electronically, instructions for such voting) as well as any action required on the part of a Noteholder to attend the meeting or to participate in the Procedure in Writing. No matters other than those referred to in the notice may be resolved upon at the Noteholders’ Meeting or through the Procedure in Writing.
- (c) Only those who, according to the register kept by Euroclear Finland in respect of the Notes, were registered as holders of Notes on the fifth (5th) Business Day prior to the Noteholders’ Meeting or the last day for replies in the Procedure in Writing on the list of holders of Notes to be provided by Euroclear Finland in accordance with Condition 15 (*Notices and Right to Information*), or proxies authorised by such holders of Notes, shall, if holding any of the principal amount of the Notes at the time of the Noteholders’ Meeting or the last day for replies in the Procedure in Writing, be entitled to vote at the Noteholders’ Meeting or in the Procedure in Writing and shall be recorded in the list of the holders of Notes present in the Noteholders’ Meeting or participating in the Procedure in Writing.
- (d) A Noteholders’ Meeting shall be held in Helsinki, Finland and its chairman shall be appointed by the Issuer.
- (e) A Noteholders’ Meeting or a Procedure in Writing shall constitute a quorum only if a Noteholder (or Noteholders) holding fifty (50) percent or more of the principal amount of the Notes outstanding attends the Noteholders’ Meeting or provides replies in the Procedure in Writing.
- (f) If, within thirty (30) minutes after the time specified for the start of the Noteholders’ Meeting, a quorum is not present, any consideration of the matters to be dealt with at the Noteholders’ Meeting may, at the request of the Issuer, be adjourned for consideration at a meeting to be convened on a date no earlier than fourteen (14) calendar days and no later than twenty-eight (28) calendar days after the original Noteholders’ Meeting at a place to be determined by the Issuer.

Correspondingly, if by the last day to reply the Procedure in Writing constitutes no quorum, the time for replies may be extended as determined by the Issuer.

The adjourned Noteholders’ Meeting or the extended Procedure in Writing shall constitute a quorum if a Noteholder (or Noteholders) holding ten (10) percent or more of the principal amount of the Notes outstanding is present or provides replies in the Procedure in Writing.

- (g) Notice of an adjourned Noteholders’ Meeting or in the Procedure in Writing, information regarding the extended time for replies shall be given in the same manner as notice of the original Noteholders’ Meeting or the Procedure in Writing. The notice shall also state the requirements for the constitution of a quorum.

- (h) Voting rights of the Noteholders shall be determined according to the principal amount of the Notes held on the fifth (5th) Business Day prior to the Noteholders' Meeting or the last day for replies in the Procedure in Writing. The Issuer and any companies belonging to its group shall not hold voting rights at the Noteholders' Meeting or in the Procedure in Writing.
- (i) Subject to Condition 14 (l) below, resolutions shall be carried by a majority of fifty (50) percent of the votes cast. In the event of a tied vote, the chairman of the Noteholders' Meeting shall have the casting vote.
- (j) When consent from the Noteholders representing the requisite majority, pursuant to Condition 14 (i) or Condition 14 (l), as applicable, has been received in the Procedure in Writing, the relevant decision shall be deemed to be adopted even if the time period for replies in the Procedure in Writing has not yet expired.
- (k) A representative of the Issuer and a person authorised to act for the Issuer may attend and speak at a Noteholders' Meeting.
- (l) A Noteholders' Meeting or a Procedure in Writing is entitled to make the following decisions that are binding on all the Noteholders:

- (i) to change these terms and conditions of the Notes;
- (ii) to grant a temporary waiver on these terms and conditions of the Notes;

However, consent of at least seventy-five (75) percent of the aggregate principal amount of the outstanding Notes is required to:

- (iii) decrease the principal of or interest on the Notes;
- (iv) extend the maturity of the Notes;
- (v) amend the requirements for the constitution of a quorum at a Noteholders' Meeting or a Procedure in Writing; or
- (vi) amend the majority requirements of the Noteholders' Meeting or Procedure in Writing.

The consents can be given at a Noteholders' Meeting or in the Procedure in Writing or by other verifiable means.

The Noteholders' Meeting and the Procedure in Writing can authorise a named person to take necessary action to enforce the decisions of the Noteholders' Meeting or of the Procedure in Writing.

- (m) Resolutions passed at a Noteholders' Meeting or in the Procedure in Writing shall be binding on all Noteholders irrespective of whether they have been present at the Noteholders' Meeting or participated in the Procedure in Writing, and irrespective of how and if they have voted.
- (n) Resolutions passed at a Noteholders' Meeting or in the Procedure in Writing shall be notified to the Noteholders in accordance with Condition 15 (*Notices and Right to Information*). In addition, Noteholders are obliged to notify subsequent transferees of the Notes of the resolutions of the Noteholders' Meeting (or Procedure in Writing).

The Issuer shall have the right to amend the technical procedures relating to the Notes in respect of payments or other similar matters without the consent of the Noteholders, a Noteholders' Meeting or a Procedure in Writing.

## 15. NOTICES AND RIGHT TO INFORMATION

Noteholders shall be advised of matters relating to the Notes by (i) a notice published in Helsingin Sanomat or any other major Finnish daily newspaper selected by the Issuer, and/or (ii) a notice published on the official website of the Issuer, and/or (iii) with a stock exchange release. Alternatively, the Issuer may deliver notices on the Notes in writing directly to the Noteholders at the address appearing on the list of the Noteholders provided by Euroclear Finland in accordance with the below paragraph. Any such notice shall be deemed to have been received by the Noteholders when published or delivered in the manner specified in this Condition 15.

Notwithstanding any secrecy obligation, the Issuer shall, subject to the regulations of Euroclear Finland and applicable laws, be entitled to obtain information of the Noteholders from Euroclear Finland and Euroclear Finland shall be entitled to provide such information to the Issuer. Furthermore, the Issuer shall, subject to the regulations

of Euroclear Finland and applicable laws, be entitled to acquire from Euroclear Finland a list of the Noteholders, provided that it is technically possible for Euroclear Finland to maintain such a list. The Issuer shall at the request of the Issuer Agent pass on such information to the Issuer Agent.

Address for notices to the Issuer is as follows:

Pohjolan Voima Oyj  
Töölönkatu 4  
P.O. Box 40  
FI-00101 Helsinki  
FINLAND

## **16. FORCE MAJEURE**

The Issuer, the Joint Lead Managers, the Issuer Agent or the Paying Agent shall not be responsible for any losses of the Noteholders resulting from:

- (a) action of any authorities, war or threat of war, rebellion or civil unrest;
- (b) disturbances in postal, telephone or electronic communications or the supply of electricity which are due to circumstances beyond the reasonable control of the Issuer, the Joint Lead Managers, the Issuer Agent or the Paying Agent and that materially affect operations of any of them;
- (c) any interruption of or delay in any functions or activities of the Issuer, the Joint Lead Managers, the Issuer Agent or the Paying Agent as a result of fire or other similar disaster;
- (d) any industrial action, such as strike, lockout, boycott or blockade affecting materially the activities of the Issuer, the Joint Lead Managers, the Issuer Agent or the Paying Agent even if it only affects part of the employees of any of them and whether any of them is involved therein or not;
- (e) any other similar force majeure or hindrance which makes it unreasonably difficult to carry on the activities of the Issuer, the Joint Lead Managers, the Issuer Agent or the Paying Agent.

## **17. PRESCRIPTION**

In case any payment under the Notes has not been claimed by the respective Noteholder entitled to this payment within three (3) years from the original due date thereof, the right to such payment shall be prescribed.

## **18. LISTING**

Following the issue of the Notes, an application will be made to have the Notes listed on the official list of the Helsinki Stock Exchange maintained by Nasdaq Helsinki Ltd.

## **19. PURCHASES**

The Issuer may at any time purchase Notes in any manner and at any price. If purchases are made through a tender offer, the possibility to tender must be available to all Noteholders alike, subject only to restrictions arising from applicable securities laws. The repurchased Notes may be resold or nullified.

## **20. FURTHER ISSUES OF NOTES**

The Issuer may from time to time, without the consent of and notice to the Noteholders, create and issue further notes having the same terms and conditions as the Notes in all respects (or in all respects except for the first payment of interest on them, the issue price and/or the minimum subscription amount thereof) by increasing the maximum principal amount of the Notes or otherwise. For the avoidance of doubt, this Condition 20 shall not limit the Issuer's right to issue any other notes.

## **21. INFORMATION**

Copies of the documents relating to the Notes shall be available for inspection during office hours at the office of (i) the Issuer at Töölönkatu 4, 00100 Helsinki (ii) Nordea Bank Abp, Satamaradankatu 5, FI-00020 NORDEA,

Finland, and (iii) Danske Bank A/S, c/o Danske Bank A/S, Finland Branch, Kasarmikatu 21 B, PL 1613, FI-00075 DANSKE BANK, Helsinki, Finland.

## **22. APPLICABLE LAW AND JURISDICTION**

The Notes are governed by Finnish law.

Any disputes relating to the Notes shall be settled in the first instance at the District Court of Helsinki (*Fi: Helsingin käräjäoikeus*).

## ADDITIONAL INFORMATION ON THE ISSUE OF THE NOTES

Unless otherwise stated herein or the context otherwise requires, capitalised terms used below shall have the meaning ascribed to them in the Terms and Conditions.

Issuer:.....	Pohjolan Voima Oyj.
Type of the Issue:.....	Private placement of Notes.
Ranking of the Notes: .....	The Notes constitute direct, unconditional, unsubordinated, unguaranteed and unsecured obligations of the Issuer ranking <i>pari passu</i> among themselves and at least <i>pari passu</i> with all other present and future unsecured and unsubordinated obligations of the Issuer, save for such obligations as may be preferred by mandatory provisions of law.
Principal amount: .....	The principal amount of the Notes is EUR 150,000,000 million.
Effective yield of the Notes on the Issue Date: .....	At the issue price of 99.616 percent, 1.327 percent per annum.
Minimum subscription amount: .....	EUR 100,000.
Denomination of a book-entry unit:.....	EUR 100,000.
Issue Date:.....	18 November 2019.
Maturity Date:.....	20 January 2025.
Redemption:.....	At par, bullet, on the Maturity Date earlier upon an Event of Default, a Change of Control or due to Excess Secured Indebtedness.  In addition, the Issuer may at any time voluntarily redeem the Notes. In case the date of the voluntary total redemption is on or after the date falling three months prior to the Maturity Date, the redemption price is 100 percent of the outstanding principal amount of the Notes plus accrued but unpaid interest. In case the date of the voluntary total redemption is before the date falling three months prior to the Maturity Date, the redemption price is the Make-Whole Redemption Amount calculated in accordance with Condition 7.2 ( <i>Voluntary Total Redemption (Call Option)</i> ) plus accrued but unpaid interest.
Interest: .....	The Notes bear fixed interest at the rate of 1.250 percent per annum. Interest shall be payable annually in arrears commencing on 20 January 2021 and thereafter on each 20 January until the Maturity Date, subject to the Issuer's redemption of the Notes in accordance with Condition 7.2 ( <i>Voluntary Total Redemption (Call Option)</i> ) or prepayment of the Notes in accordance with Condition 8 ( <i>Change of Control</i> ), Condition 10 ( <i>Excess Secured Indebtedness</i> ) or Condition 12 ( <i>Events of Default</i> ), in which case interest shall be payable until such prepayment date. The Issuer may at any time voluntarily redeem the Notes, in which case interest is payable until such redemption date.
ISIN Code of the Notes: .....	FI4000410683.
Covenants: .....	Negative pledge, change of control, cross default, excess secured indebtedness, information undertaking.
Form of the Notes: .....	Dematerialised securities issued in book-entry form in the Infinity book-entry system maintained by Euroclear Finland.
Depository and Settlement System: .....	Euroclear Finland, address Urho Kekkosen katu 5C, FI-00100, Helsinki, Finland, Infinity-system of Euroclear Finland.
Listing: .....	The Issuer will apply for listing of the Notes on Nasdaq Helsinki and the trading on the Notes is expected to commence on or about 20 November 2019.
Use of proceeds: .....	Proceeds from the issue of the Notes will be used for general corporate purposes, including investments and refinancing certain existing indebtedness.



Estimated net amount of the proceeds: ...	Approximately EUR 149.0 million.
Estimated expenses: .....	The Issuer's estimated expenses relating to the issue of the Notes are approximately EUR 0.6 million.
Interests of the Lead Managers: .....	Business interest customary in the financial markets. The Lead Managers were paid a fee by the Issuer in respect of the offering and issue of the Notes. Certain Lead Managers and/or their affiliates may be creditors under the facilities, which are planned to be refinanced and may be repaid in whole or in part from the net proceeds of the issue of the Notes.
Decisions and authorisations: .....	Decision and authorisation of the Board of Directors of the Issuer dated 28 October 2019.
Applicable law: .....	Finnish law.
Lead Managers:.....	Danske Bank A/S and Nordea Bank Abp.

## FINNISH TAXATION

*The following summary is based on the tax laws of Finland as in effect on the date of this Listing Prospectus, and is subject to changes in Finnish law, including changes that could have a retroactive effect. The following summary does not take into account or discuss the tax laws of any country other than Finland and does not purport to be a comprehensive description of all the tax considerations which may be relevant to a decision to subscribe for, purchase, own or dispose of the Notes and does not purport to deal with the tax consequences applicable to all categories of investors, some of which may be subject to special rules. Prospective purchasers of the Notes are advised to consult their own tax advisers concerning the overall tax consequences of their ownership of the Notes.*

### **Finnish Resident Noteholders**

#### ***Individual***

If the recipient of interest paid on the Notes is an individual (natural person) residing in Finland or an undistributed estate of a deceased Finnish resident, such interest is, when paid by the Issuer or securities dealer (*i.e.*, a Finnish financial institution making the payment), subject to an advance withholding tax in accordance with the Finnish Withholding Tax Act (1118/1996, as amended, *Fi: ennakkoperintälaki*) and final taxation as capital income in accordance with the Finnish Income Tax Act (1535/1992, as amended, *Fi: tuloverolaki*). The current withholding tax and capital income tax rate is 30 percent. Should the amount of capital income received by a resident natural person exceed EUR 30,000 in a calendar year, the capital income tax rate is 34 percent on the amount that exceeds the EUR 30,000 threshold. However, advance tax withholdings will still be made at the rate of 30 percent.

If Notes are disposed of during the loan period, any capital gain as well as accrued interest received (secondary market compensation) is taxed as capital income. The Issuer or a securities dealer (*i.e.*, a Finnish financial institution making the payment) must deduct an advance withholding tax from the secondary market compensation paid to an individual (natural person) residing in Finland or an undistributed estate of a deceased Finnish resident.

An individual (natural person) residing in Finland or an undistributed estate of a deceased Finnish resident may deduct eventual capital losses primarily from its taxable capital gains and secondarily from its other taxable capital income in the year of disposal and in the five subsequent calendar years.

If Notes are acquired in the secondary market, any accrued interest paid (secondary market compensation) is deductible from the capital income or, to the extent exceeding capital income, from earned income subject to the limitations of the Finnish Income Tax Act.

#### ***Corporate Entity or Partnership***

Interest paid to Finnish corporate entities (other than non-profit associations) and to Finnish partnerships is deemed to be taxable income of the recipient of interest. Any gain or loss realised following a disposal of the Notes will be taxable income or a tax deductible loss for the relevant Noteholder. The current tax rate for corporate entities is 20 percent. Interest paid to such Noteholders is not subject to any withholding tax.

### **Non-Finnish Resident Noteholders**

Noteholders who are not resident in Finland for tax purposes and who do not engage in trade or business through a permanent establishment or a fixed place of business in Finland will not be subject to Finnish taxes on interest or gains realised on the sale or redemption of the Notes. Interest payments made by the Issuer or a securities dealer (*i.e.*, a Finnish financial institution making the payment) to Noteholders who are not resident in Finland for tax purposes may, however, be subject to Finnish withholding tax, unless the identity of the Noteholders can be appropriately established.

## ADDITIONAL INFORMATION

### Governmental, Legal and Arbitration Proceedings

#### *The PVO Group*

Except as discussed below, neither the Issuer nor any other member of the PVO Group is or has been involved in any governmental, legal or arbitration proceedings (including any such proceedings which are pending or threatened of which the Issuer is aware) in the 12 months preceding the date of this Listing Prospectus which may have or have in such period had a significant effect on the financial position or profitability of the Issuer or the PVO Group.

#### *Joint Ventures*

Due to the delays in the construction of the OL3 EPR project, TVO was party to arbitration proceedings under the ICC with respect to costs and losses incurred in relation thereto. The Supplier had submitted claims to the ICC for an aggregate amount of approximately EUR 3.59 billion, which included a total amount of approximately EUR 1.58 billion in penalty interest (calculated up to 30 June 2017) and payments allegedly delayed by TVO under the Plant Contract, as well as approximately EUR 132 million of alleged loss of profit. TVO's estimated quantum of costs and losses in respect of the period ending in late 2018 (which was the Supplier's earlier estimate for the start of regular electricity production at OL3 EPR), which it had counter-claimed from the Supplier, was approximately EUR 2.6 billion, including TVO's actual claim and an estimate of certain costs and interest.

In 2016 and 2017, the ICC tribunal made three final and binding partial awards on the initial key issue areas in the arbitration. The partial awards resolved the great majority of the facts and matters covered in these proceedings in favour of TVO, and rejected the great majority of the Supplier's contentions in this regard. The partial awards do not take a position on the claimed monetary amounts.

In March 2018, Areva NP, Areva GmbH, Areva group parent company Areva SA, Siemens AG and TVO agreed finally and irrevocably to settle the claims pending or reserved in the arbitration and any other existing disputes among TVO and the Supplier in relation to the OL3 EPR project, whether or not raised in the arbitration, known and unknown claims between TVO and the Supplier arising out of or relating to events and circumstances regarding the OL3 EPR Project occurred prior to the signing date of the GSA, regardless of when the impact of such events and circumstances occurs, whether or not raised in the arbitration. In addition to settling all on-going legal actions related to the OL3 EPR project, the GSA is aimed at securing the provision of adequate and competent technical and human resources as well as funds for completion and start-up of the OL3 EPR until the end of the applicable guarantee periods. For more details on the GSA, see "*Risk Factors—Risks Related to Nuclear Operations of TVO—There are several risks related to the Olkiluoto 3 EPR project*" and "*Information about TVO—Business and Operations of TVO—Nuclear Power—Olkiluoto 3 EPR*".

The arbitration settlement does not release the Supplier from any liability with regard to quality, performance and defects of the OL3 EPR, whether in design, configuration management, workmanship or any other cause whatsoever and regardless of when the event or circumstance giving rise to this liability occurs, or settle any future entitlement of the Supplier to unpaid portions of the contractual price, or settle any claims arising out of or relating to events and circumstances after the signing date of the GSA.

In accordance with the terms of the GSA, TVO also withdrew its appeals with the General Court of the EU against the European Commission's decisions in January 2017 and in January 2018 related to the contemplated State Aid connected with the plan to restructure Areva's business. The restructuring plan involved a transfer of the operations of Areva NP, excluding the OL3 EPR project and resources necessary for its completion, to New NP which was sold to a consortium led by EDF. In July 2017, Areva and EDF confirmed the signature of binding agreements with Mitsubishi Heavy Industries and Assystem for the acquisition of an equity interest in New NP. Agreements pertaining to the OL3 EPR project and the resources necessary for its completion, as well certain agreements pertaining to components that are forged at the Creusot plant, remained within Areva NP. The transaction was completed on 31 December 2017, and thereafter the shares of New NP were sold respectively to EDF (75.5 percent), Mitsubishi Heavy Industries (19.5 percent) and Assystem (5 percent). New NP was renamed Framatome as of January 2018.

See also "*Risk Factors—Risks Related to Nuclear Operations of TVO—There are several risks related to the Olkiluoto 3 EPR project*" and "*Information about TVO—Business and Operations of TVO—Nuclear Power—Olkiluoto 3 EPR*".

#### **Recent Trends**

The Issuer operates on a cost-price principle as described in Article 4 of the Issuer's Articles of Association. On long-term basis, the Issuer aims to provide stable and cost-efficient energy to its shareholders. Curbing climate change by reducing greenhouse gas emissions increases the production of weather-dependent renewable energy (e.g., wind and solar power), which also increases the importance of flexible energy systems and adaptive production in the future.

Other than as discussed above and elsewhere in this Listing Prospectus, the Issuer is not aware of any major recent trends that could reasonably be expected to have a material effect on PVO's business or financial position. See "*Information about PVO—Market Information*".

**Material Adverse Changes in the Prospects of the Issuer**

There has been no material adverse change in the prospects of the Issuer since 31 December 2018, which is the last day of the financial period in respect of which the most recently audited financial statements of the Issuer have been prepared.

**Significant Changes in the Issuer's Financial Performance or Position**

There has been no significant change in the Issuer's financial performance or position since 30 June 2019.

## **DOCUMENTS INCORPORATED BY REFERENCE**

The documents listed in paragraphs (i)–(iii) below have been incorporated by reference to this Listing Prospectus. The documents incorporated by reference are available at the Issuer’s website at [www.pohjolanvoima.fi/en/newsroom/financial-publications](http://www.pohjolanvoima.fi/en/newsroom/financial-publications), and at the office of the Issuer located at Töölönkatu 4, FI-00100 Helsinki, Finland on business days during normal business hours.

- (i) Audited consolidated financial statements of the Issuer, including auditor’s report, as of and for the financial year ended 31 December 2018.
- (ii) Audited consolidated financial statements of the Issuer, including auditor’s report, as of and for the financial year ended 31 December 2017.
- (iii) Unaudited consolidated interim financial statements as of and for the six months ended 30 June 2019, including the comparative information as of and for the six months ended 30 June 2018.

## **DOCUMENTS ON DISPLAY AND AVAILABLE INFORMATION**

In addition to the documents incorporated by reference, the Issuer’s Articles of Association (together with English translations thereof) are available for viewing at the office of the Issuer, Töölönkatu 4, FI-00100 Helsinki, Finland for as long as any of the Notes are outstanding on weekdays from 9:00 a.m. to 4:00 p.m. In order to ensure the best possible service, persons wishing to examine the documents referred to in this section are kindly requested to notify the Issuer of their visit in advance by telephone (+358 10 478 5000).

The Issuer publishes annual and half-year reports, including its audited consolidated financial statements, at the Issuer’s website at [www.pohjolanvoima.fi/en/newsroom/annual-reports](http://www.pohjolanvoima.fi/en/newsroom/annual-reports). In addition, copies of these documents can be obtained from the Issuer, Töölönkatu 4, FI-00100 Helsinki, Finland , tel. +358 10 478 5000.

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