EUROPEAN COMMISSION

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| In the published version of this decision, some information has been omitted, pursuant to articles 30 and 31 of Council Regulation (EU) 2015/1589 of 13 July 2015 laying down detailed rules for the application of Article 108 of the Treaty on the Functioning of the European Union, concerning non-disclosure of information covered by professional secrecy. The omissions are shown thus […] | | PUBLIC VERSION<br><br>This document is made available for information purposes only. |

**Subject:** **State Aid SA.101183 (2021/N) – Finland – Individual aid for pumped hydroelectricity storage facility investment to Suomen Energiavarasto Oy**

Excellency,

## 1. PROCEDURE

(1) Following pre-notification contacts, pursuant to Article 108(3) of the TFEU, Finland notified to the Commission on 9 November 2022 its intention to grant individual investment aid to Suomen Energiavarasto Oy ("SEVO") (the "notified measure").

(2) On 10 November 2022, the Commission asked Finland for additional information, to which Finland answered on 24 November 2022.

(3) Finland exceptionally agrees to waive its rights deriving from Article 342 TFEU in conjunction with Article 3 of Regulation 1/1958 ([1]) and to have this Decision adopted and notified in English.

([1]) Regulation No 1 determining the languages to be used by the European Economic Community, OJ 17, 6.10.1958, p. 385.

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## 2. DETAILED DESCRIPTION OF THE MEASURE

### 2.1. Background and objectives

(4) Finland intends to provide individual investment aid for a pumped hydroelectricity storage project located in the Pyhäsalmi mine, the deepest non-active mine in Finland where the activities have ceased at the end of August 2022, to promote energy efficiency and the production of energy from renewable energy sources ("RES"). By supporting this pilot project for an underground pumped hydroelectricity storage unit (the "storage unit"), the Finnish authorities aim at achieving more innovative storage solutions for a higher level of penetration of RES in the Finnish electricity system based on studies provided by the Finnish authorities ([2]) and in line with the Finnish national energy and climate plan ([3]) (the "NECP"). According to Finland, there are currently no other measures that would incentivise the development of electricity storage in Finland.

(5) The Finnish authorities submit that without the aid, the investment would not take place due to the high risks related to this project. In such case, this specific new technology project would not be realised. According to Finland, due to high business risks related to the project, there is a need to compensate its investors. Once this storage unit as a demonstration project is successful, the Finnish authorities expect the level of risk and costs of this technology to decrease, and they argue that there is a high potential that other market participants will then decide to invest.

(6) The storage unit is expected to participate in the electricity market by performing a price arbitrage function, i.e. absorbing and storing electricity when electricity market prices are low, and injecting it back into the grid when electricity market prices are high. As such, the storage unit effectively substitutes expensive electricity generated by high-cost units for low-cost, clean electricity available during high RES generation conditions ([4]), thus facilitating RES integration and reducing RES electricity curtailments ([5]) during over-generation periods ([6]).

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([2]) Joint Research Centre: "Pumped-hydro energy storage: potential for transformation from single dams" https://publications.jrc.ec.europa.eu/repository/handle/JRC68678; IRENA: "*Electricity Storage: Technology Brief*" https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2012/IRENA-ETSAP-Tech-Brief-E18-Electricity-Storage.pdf; IRENA: "*Innovative Operation of Pumped Hydropower Storage*" https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Jul/IRENA_Innovative_PHS_operation_2020.pdf.

([3]) https://ec.europa.eu/energy/sites/ener/files/documents/fi_final_necp_main_en.pdf

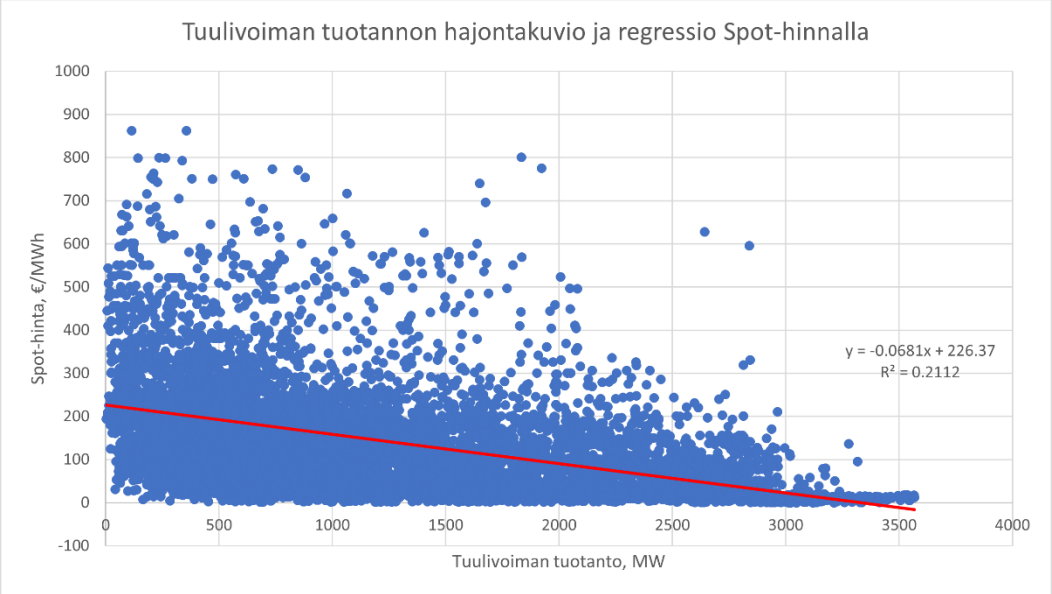
([4]) https://www.fingrid.fi/en/electricity-market/power-system/

([5]) Art. 2 point 26 Regulation (EU) 2019/943 defines redispatching as a measure, including curtailment, that is activated by one or more transmission system operators or distribution system operators by altering the generation, load pattern, or both, in order to change physical flows in the electricity system and relieve a physical congestion or otherwise ensure system security. Curtailment in this context refers to the reduction of power generation output due to physical congestion or other system security concerns.

([6]) In Finland curtailment of can occur, when in times of high feed in from renewable sources the power system cannot take up additional generation. Otherwise the security margins of the grid may be violated. Upon request of a responsible party, such as the transmission system operator, renewable generators are forced to generate less than possible, e.g. based on the availability of wind.

Figure 1 illustrates the correlation between electricity generation from wind and the wholesale electricity spot-market price. Despite strong fluctuations, the graph shows a general trend of more wind generation being linked to lower market prices. This underscores the Finnish argument, that the storage facility can store cheap electricity in times of abundant wind generation to inject it in situations with lower RES generation. According to Finland, apart from enabling a higher level of RES penetration, the storage unit will also have other benefits, such as balancing the market by reducing price volatility. Furthermore, according to the calculations submitted by the beneficiary, the project would result in a $CO_2$ reduction as high as 202,000 tonnes annually by reducing generation in the most expensive hours, which often involves the most polluting generation.

**Figure 1: Dispersion pattern and regression of wind power production at the spot price([7])**




Source for data: Fingrid ([8])

(7) Finally, Finland submits that the measure will bring societal benefits, such as job creation on national and local level due to the construction, installation and operation of the new storage facility.

(8) The notified measure was submitted following a selection procedure organised by the Finnish authorities. Finland reports that the selection procedure was based on the innovative character of the projects. The applications included at least the applicant's name, a description of the project, including its location and the amount of aid needed to carry out the project.

([7]) As the amount of solar power in Finland is very low and mostly seasonal (i.e. Summer) due to the geographical location of Finland, it does not have a significant effect on the energy market and therefore the graph only includes wind power.

([8]) Fingrid is Finland's transmission system operator.

### 2.2. The beneficiary

(9) The notified measure is a non-refundable investment grant to SEVO. SEVO is a project company, which will be fully owned by EPV Energia Oy ("EPV") ([9]). EPV is a Finnish energy company active in electricity production and district heating. In 2020, the total turnover of the EPV group companies' was EUR 293 million with a profit of EUR 13 million. Currently, EPV employs 115 persons.

(10) According to Finland, in 2021, EPV produced 3.5 TWh of electricity. This is approximately 5 % of the total Finnish electricity production. However, compared to total of the Nordic and Baltic day-ahead markets (around 720 TWh in 2021) the production of EPV is below 0.5 %. EPV also owns shares in other energy companies that produce electricity, however, such shares are minority shares ([10]).

(11) Finland confirms that SEVO is not an undertaking in difficulty as defined by the Commission Guidelines on State aid for rescuing and restructuring non-financial undertakings in difficulty ([11]).

(12) Finland also confirms that SEVO is not subject to an outstanding recovery order following a previous Commission decision declaring an aid illegal and incompatible with the internal market, to take account of the amount of aid still to be recovered ([12]).

### 2.3. National legal basis

(13) With regard to national legislation, the Finnish authorities have provided the following legal basis:

a) Act on Discretionary Government Transfers (688/2001) ([13]);

b) Government Decree on General Terms of Granting Energy Support in years 2018-2022 (1098/2017) ([14]);

c) The investment decision of the Ministry of Employment and the Economy of 23 September 2021 ([15]) determining the granting of the aid ("investment aid decision"), together referred as the "legal basis".

([9]) EPV in turn is owned by 20 undertakings mostly in the utilities sector.

([10]) For example, Pohjolan Voima Oyj: 5.5 %, Teollisuuden Voima Oyj: 6.6 %, Voimapiha Oy: 33.3 %.

([11]) Communication from the Commission — Guidelines on State aid for rescuing and restructuring non-financial undertakings in difficulty (OJ C 249, 31.7.2014, p. 1).

([12]) See judgment of the Court of First Instance of 13 September 1995, *TWD* v *Commission*, T-244/93 and T-486/93, ECLI: EU:T:1995:160, paragraph 56. See also Communication from the Commission — Commission Notice on the recovery of unlawful and incompatible State aid (OJ C 247, 23.7.2019, p. 1).

([13]) Valtionavustuslaki (688/2001), see https://www.finlex.fi/fi/laki/ajantasa/2001/20010688.

([14]) Valtioneuvoston asetus energiatuen myöntämisen yleisistä ehdoista vuosina 2018–2022 (1098/2017), see https://www.finlex.fi/fi/laki/ajantasa/2017/20171098.

([15]) Decision TEM/867/521/2019 VN/6969/2019.

(14) The investment aid decision includes a stand-still clause, according to which no State aid will be granted until the notification of the Commission's decision.

### 2.4. Form and duration of the notified measure and the granting authority

(15) The notified measure provides for support in the form of a non-refundable direct grant to support the construction of a storage unit in the deepest mine of Finland for pumped hydroelectricity storage.

(16) Finland anticipates that the project will be finished by end of 2025.

(17) The granting authority for the notified measure is Ministry of Economic Affairs and the Employment (the "Ministry").

### 2.5. Budget and financing

(18) The total budget of the measure is estimated at EUR 26.3 million. This will be financed from the State budget.

(19) Payments are made by the granting authority when invoices of the eligible costs are presented. At least 20 % of the aid will be paid after the operation has started.

### 2.6. Financial aspects

#### *2.6.1. Technical characteristics of the storage unit*

(20) According to Finland, the installed power (nameplate capacity) of the storage unit will be 75 MW while the reservoirs have the capacity to store water equivalent to 530 MWh of energy. According to the technical data submitted by the Finnish authorities, SEVO estimated there would be 113 to 300 full cycles of charging and discharging the storage facility per year, and therefore the total annual production would be around 60 to 160 GWh of electricity. The roundtrip efficiency rate of the storage unit would be 77 % with an estimated life span of approximately 40 years. The storage unit capacity could be later expanded to 150 MW. The storage unit would be connected to the transmission system.

#### *2.6.2. Eligible investment costs*

(21) The total costs of the planned investment amount to EUR 125.3 million (or more specifically EUR 125 272 789, see Table 2) and are detailed in Table 1:

**Table 1: Costs of the planned investment**

| Eligible investment costs | EUR million (rounded ([16])) |
|---|---|
| Machinery | […](*) |
| Power plant space | […] |
| Lower pool | […] |
| Pressure shafts | […] |
| Other eligible costs ([17]) | […] |
| **Total eligible investment costs** | **125.3** |

*2.6.3. Funding gap*

(22) The Finnish authorities have submitted a business plan for the project, showing the expected revenues and costs over the duration of its expected technical lifespan of 40 years. The business plan assumes that the project will be operational at the beginning of 2026 and during the subsequent 40 years including a major maintenance after 24 years of service. The main project assumptions are summarized in the Table 2.

**Table 2: Funding gap calculation**

| | |
|---|---|
| **CAPEX – investment costs (EUR)** | 125,272,789 |
| **OPEX – operational costs per year (EUR/year)** | 1,880,000 |
| **Project IRR** | […] |
| **Corporate Tax rate** | 20 % |
| **Project lifetime [years]** | 40 |
| **Projected cost for major maintenance after 24 years of operation (EUR)** | 1,800,000 |
| **WACC** | […] |

(23) Finland submitted that the business case of SEVO shows that through its participation in the relevant electricity markets, most notably, the energy arbitrage in the day-ahead market as well as the electricity balancing market, the project could obtain approximate annual revenues between EUR […] million. In the absence of the aid, this market revenue does not suffice to ensure the viability of the project, leading to a negative net present value ([18]) (the "NPV").

(*) Confidential information

([16]) In the interest of convenience, rounded numbers were submitted by the Finnish authorities for the general costs table. For specific costs concerning the funding gap, see Table 2.

([17]) Other eligible costs, such as construction costs of upper pool and stone trap.

([18]) Net present value (NPV) is used to calculate the current value of a future stream of payments from a company, project, or investment.

(24) The Finnish authorities and SEVO submitted a business plan reporting projected revenues for each year of operation, according to which, the revenues from energy arbitrage at the day-ahead market will be between EUR […] million and […] million per year. Further, the business plan reports a […] % share of revenues from energy arbitrage for the lowest year and […] % for the year with highest shares of revenues from energy arbitrage. The projected annual income from the balancing power market, i.e. the whole balancing market, including capacity and power, is assumed to range between EUR […] million and EUR […] million for the reported years of operation. For the individual years of operation the corresponding share of income from the balancing market ranges between […] and […] of the gross revenues. However, Finland submits that there are large uncertainties concerning the potential revenues, due to the current volatility of electricity markets.

(25) The Finnish authorities submitted that the total trade volume in the combined Nordic and Baltic day-ahead electricity market in 2021 was around 720 TWh. Operating at full capacity, the storage facility would generate 0.16 TWh per year at maximum which corresponds to a market share of approx. 0.02 %. At this low market share, Finland does not expect any impact on the day-ahead markets.

(26) For balancing markets on the other hand, Finland submitted an estimation by the beneficiary, that the sold electricity would constitute approximately 10 to 15 % of market share of the Finnish balancing markets. At the same time, the amount of intermittent capacity is expected to increase very rapidly in Finland. Thus, the need for flexibility is expected to increase rapidly as well in the coming years. According to Finland, with the flexibility market getting tighter, the added flexibility from the pumped hydroelectricity storage would lessen the need to build other flexible capacity and would diminish the price fluctuations to the benefit of all customers.

(27) According to Finland, in the absence of State aid for the notified measure, based on the estimated market revenues alone, SEVO as a private investor would not have the necessary incentive to undertake the project and install the storage unit. With these inputs the business plan provided results in an internal rate of return ([19]) (the "IRR") of […] which is not sufficient for the investment. Finland reports the normal IRR for similar projects to be […] . At this IRR the funding gap is presented to be EUR […] . Due to budget constraints, the Finnish authorities are willing to grant EUR 26.3 million, which results in an IRR of […] . Further, Finland submitted a weighted average cost of capital ([20]) (the "WACC") for the beneficiary of […].

(28) Finland confirms that the works on the construction of the storage unit have not yet started.

([19]) Internal rate of return (IRR) is a method of calculating an investment's rate of return.

([20]) The weighted average cost of capital (WACC) is the average rate that a business pays to finance its assets.

*2.6.4. Mechanism to avoid overcompensation*

(29) The Finnish authorities submit that it is not possible to use a claw-back mechanism for the measure due to the uncertainty of the market situation, the long run-time of the project (40 years) and the volatility of various factors, such as $CO_2$ prices or day-ahead market prices for electricity.

(30) However, Finland argues that for the reasons below, the notified measure will not lead to over-compensation and even if it leads to small scale profits, such profits will help to incentivise SEVO to engage in such a risky and novel project.

(a) First, the project has been selected to receive State aid due to its demonstration aspects, i.e. novelty. Despite the actual technology being mostly mature, the project would be the first pumped hydroelectricity project in Finland. In addition, it is reported to be one of the first pumped hydroelectricity projects planned in an old mine worldwide. Finnish authorities submit that the utilization of an old mine for the storage project requires special planning and includes the risk of additional investment costs due to this particular project site. Due to the novelty of the project, the beneficiary will undertake additional business risks, therefore it should also receive an additional incentive to engage in the project.

(b) Second, Finland reports the aid intensity for this measure to be comparatively low, at 21 % of the total eligible investment costs. This would limit the risk for over-compensation even if the profitability of the investment increased. In comparison, under the Finnish Energy aid scheme (SA.60149), typically new technology investments receive aid around 30 to 40 % of the total investment costs.

(c) Third, the profitability including the granted aid amount is low compared to other energy projects. In projects including technological or other similar risks, the required IRR may increase up to 15 %. For example, in the International Energy Agency estimates for solar projects in Europe, the WACC projections range between 5.9 and 8.8 % ([21]). Due to its novelty, the risk level of the measure at stake is however much higher than an average solar project in Europe. For almost risk-free investments concerning electricity transmission and distribution networks, the average WACC was reported to be approximately 5 to 7.5 % in the years 2015 to 2020 in Finland. Finland argues that the expected profitability for the measure is much lower than in comparable projects related to pumped hydroelectricity. Even if the revenues were to increase compared to the expected values, there would be no overcompensation as the IRR would be […].

(d) Fourth, it should be noted that these calculations have been performed with an estimated lifespan of 40 years. According to Finland, for most energy investments the technical-economical lifespan is much shorter (around 15 to 20 years), thus calculations expect a faster return on

([21]) IEA (2021), *The cost of capital in clean energy transitions*, IEA, Paris, online: https://www.iea.org/articles/the-cost-of-capital-in-clean-energy-transitions.

investment, whereas the present project has a very long-term return expectation, increasing the risk that the lifetime may not be fully reached, e.g. due to changes in market structure or regulation. If only a shorter lifetime of the project was assumed, the profitability would further decrease. The long amortisation leads to a higher risk born by SEVO.

### 2.7. Cumulation, transparency and applicable sector-specific legislation

(31) Finland confirms that the notified measure would not be cumulated with other forms of State aid to cover the same eligible costs. Further, Finland submits that any other aid must be reported immediately to the Ministry. If such an aid is reported, the Ministry would conduct an assessment whether there is a risk of overcompensation and if conditions laid down in the decision by the Commission are still respected.

(32) Finland will ensure compliance with the transparency requirements laid down in points 58 to 61 of the CEEAG. The relevant data of the notified measure will be published on a national website that will link to the Commission's transparency register: https://webgate.ec.europa.eu/competition/transparency.

(33) Furthermore, the Finnish authorities confirmed that the project will not be exempted from the relevant sector-specific EU legislation and the beneficiaries will therefore have to comply with the energy market regulations and in particular with the requirements set out in Regulation (EU) 2019/943 ([22]) and Directive (EU) 2019/944 ([23]) (e.g. excluding system operators from owning, developing, managing or operating energy storage facilities).

(34) The Finnish authorities confirm that the beneficiary has assessed the need for all the relevant permits and also for an environmental impact assessment (EIA) ([24]). According to the Finnish authorities, the beneficiary has requested a statement from the local authority, Centre for Economic Development, Transport and Environment (CEDTE) ([25]), about the need for an EIA in this case. According to the statement from the CEDTE the project would not need to conduct an EIA under the Finnish Law 252/2017 (changed 126/2019).

## 3. ASSESSMENT OF THE MEASURE

### 3.1. Existence of State aid within the meaning of Article 107(1) TFEU

(35) According to Article 107(1) TFEU, the qualification of a measure as State aid requires the following conditions to be met cumulatively:

(a) the measure is financed through State resources;

([22]) Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity, OJ L 158 p. 54.

([23]) Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU, OJ L 158 p. 125.

([24]) Finnish: Ympäristövaikutusten arviointi (YVA).

([25]) Finnish: Elinkeino-, liikenne- ja ympäristökeskus (Ely-keskus).

(b) it grants a selective advantage liable to favour certain undertakings or the production of certain goods;

(c) the measure distorts or threatens to distort competition;

(d) it has the potential to affect trade between Member States.

*3.1.1. Imputability and State resources*

(36) The Commission notes that the support to the storage unit under the notified measure is imputable to the State, as it will be established by a national law and other implementing acts (see recital (13)).

(37) As regards the State resources criterion, the Commission notes that the investment grant will be financed from the State budget (see recital (18)).

(38) Therefore, the notified measure is imputable to the State and the resources employed are deemed under State control and qualify as State resources.

*3.1.2. Economic Advantage*

(39) The Commission notes that the notified measure will provide an economic advantage to SEVO, as SEVO will obtain a non-refundable investment grant which it would not have obtained under normal market conditions, i.e. in the absence of the State intervention.

*3.1.3. Selectivity*

(40) The measure is selective since it is individual aid provided to only beneficiary (SEVO) and is not accessible to all undertakings.

*3.1.4. Impact on competition and on trade between Member States*

(41) In accordance with settled case law ([26]), for a measure to impact competition and trade it is sufficient that the recipient of the aid competes with other undertakings on markets open to competition.

(42) The electricity market has been liberalised and electricity producers engage in trade between Member States. The electricity stored by the beneficiary (SEVO) of the notified measure will generally be sold on the market where it will enter in competition with electricity from different sources (such as electricity from other RES and conventional sources). Moreover, the Finnish market is interconnected to other markets, for example the markets of Estonia, Sweden and Norway.

(43) Therefore, the advantage granted to the beneficiaries of the measure is likely to distort competition and affect trade between Member States.

([26]) Judgment of 30 April 1998, *Het Vlaamse Gewest* v *Commission*, T-214/95, EU:T:1998:77.

#### *3.1.5. Conclusion regarding existence of State aid*

(44) Based on the considerations in this section 3.1, the Commission concludes that the notified measure constitutes State aid within the meaning of Article 107(1) TFEU.

### 3.2. Lawfulness of the aid

(45) By notifying the aid measure before its implementation (see recital (14)), the Finnish authorities have respected the notification and standstill obligation laid down in Article 108(3) TFEU.

### 3.3. Compatibility of the aid

#### *3.3.1. Legal basis for assessment*

(46) Article 107(3)(c) TFEU provides that the Commission may declare compatible aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest. Therefore, compatible aid under that provision of the Treaty must contribute to the development of certain economic activity ([27]). Furthermore, the aid should not distort competition in a way contrary to the common interest.

(47) The Commission notes that the notified measure aims at supporting the construction of a pumped hydroelectricity storage unit in Finland, which qualifies as an energy storage facility under point 19(33) of the CEEAG. According to point 377 of the CEEAG, section 4.9 of the CEEAG will also apply to energy storage facilities until 31 December 2023, connected to transmission or distribution lines irrespective of the voltage levels. The planned storage facility would be connected to the transmission network.

(48) The Commission has therefore assessed the compatibility of the notified measure on the basis of the general compatibility provisions of the CEEAG (set out in section 3 of the CEEAG) and the specific compatibility criteria for aid for energy infrastructure (section 4.9 of the CEEAG).

#### *3.3.2. Positive condition: the aid must facilitate the development of an economic activity*

##### 3.3.2.1. Contribution to the development of an economic activity

(49) In line with points 23 to 25 of the CEEAG, Member States must identify the economic activities that will be facilitated as a result of the aid and describe if and how the aid will contribute to the achievement of Union policies and targets.

(50) The Commission notes that the measure aims at promoting the construction of a pumped hydroelectricity storage unit in Finland. It thus contributes to the development of a certain economic activity. The Commission also notes that the

([27]) Judgment of 22 September 2020, *Austria v Commission*, C-594/18 P, EU:C:2020:742, paragraphs 20 and 24.

notified measure will allow the feasibility of the benefitting project, i.e. storage unit for pumped hydroelectricity in an old mine, which would not have taken place in the absence of the aid due to the existing funding gap and risk related to this novel application of the underground pumped-hydro storage technology (see recitals (5) and (22) to (27)).

(51) Moreover, the promotion of the development of electricity storage is in line with Finland's NECP (see recital (4)). By supporting this pilot project for the pumped hydroelectricity storage unit, the Finnish authorities aim at achieving more innovative storage solutions for a smooth integration of a higher level of penetration of RES in the Finnish electricity system (see recital (4)).

(52) Apart from enabling a higher level of RES penetration, the storage unit will also help reducing market price volatility and the project will lead to a reduction of 202,000 tonnes of $CO_2$ emissions annually (see recital (6)). In that context, the notified measure will also contribute to the attainment of the Union targets of reduction of greenhouse gas emissions by 2030 and towards a climate neutral Union by 2050.

(53) Furthermore, the notified measure will also provide societal benefits, such as job creation (see recital (7)).

(54) Therefore, the Commission concludes that the notified measure contributes to the development of economic activities of electricity storage, as required by Article 107(3)(c) TFEU.

3.3.2.2. Incentive effect

(55) According to point 26 of the CEEAG, aid can be considered as facilitating an economic activity only if it has an incentive effect. An incentive effect occurs when the aid induces the beneficiary to change its behaviour, to engage in additional economic activity or in more environmentally-friendly economic activity, which it would not carry out without the aid or would carry out in a restricted or different manner. The aid must not support the costs of an activity that the aid beneficiary would anyhow carry out and must not compensate for the normal business risk of an economic activity (point 27 of the CEEAG).

(56) Proving an incentive effect entails the identification of the factual scenario and the likely counterfactual scenario in the absence of aid (point 28 of the CEEAG). For aid to infrastructure, the counterfactual scenario is presumed to be the situation in which the project would not take place (point 381 of the CEEAG).

(57) The Commission notes that without the aid, the investment would not take place, as undertakings do not want to take the risk accompanying such a novel project (see recital (5)) and would prefer to wait rather than to invest first (see recital (5)). The Commission notes that the analysis provided by Finland shows that without the notified measure, the storage unit would not be constructed because the expected market revenues do not suffice to ensure viability of the storage unit, leading to a negative NPV (see recitals (22) to (27)).

(58) Furthermore, the Commission notes that the aid application, required in point 30 CEEAG, was submitted in the context of a selection procedure organised by the Finnish authorities. Finland confirmed that the application procedure included at

least the applicant's name, a description of the project, including its location and the amount which was needed to carry out the project in accordance to point 30 CEEAG (see recital (8)).

(59) The Commission further notes that the works on the storage unit have not yet started, in line with point 29 CEEAG (see recital (28)).

(60) Therefore, it can be concluded that the notified measure has an incentive effect, as it induces the beneficiary (SEVO) to engage in an economic activity which it would not carry out without the aid.

3.3.2.3. No breach of any relevant provision of Union law

(61) According to point 33 of the CEEAG, if the supported activity, or the aid measure or the conditions attached to it, including its financing method when it forms an integral part of the measure, entail a violation of relevant Union law, the aid cannot be declared compatible with the internal market.

(62) In the present case, the Commission has assessed in particular whether the notified measure contravenes any relevant Union legislation in the energy sector. The Commission notes that the beneficiary (SEVO) will comply with the energy market regulations and notably with the requirements set out in Regulation (EU) 2019/943 and Directive (EU) 2019/944 (e.g. excluding system operators from owning, developing, managing or operating energy storage facilities) (see recital (33)). Hence, the measure is in line with the applicable energy legislation.

(63) Further, the Commission has assessed whether the notified measure contravenes any relevant Union legislation due to the financing of the measure. For example, any levy that has the aim of financing a State aid measure and forms an integral part of that measure needs to comply in particular with Articles 30 and 110 TFEU ([28]). As the notified measure is not financed through a levy, Articles 30 and 110 TFEU are not applicable. Therefore, the Commission concludes that the notified measure does not contravene any relevant provision or general principles of Union law, and is in line with point 33 of the CEEAG.

*3.3.3. Negative condition: the aid measure must not unduly affect trading conditions to an extent contrary to the common interest*

3.3.3.1. Minimisation of distortions of competition and trade

(64) The measure affects mainly the electricity markets in Finland, where several suppliers are in competition with each other. The measure might also affect the electricity markets in neighbouring countries, in view of the cross-borders interconnections (see recital (42)). However, the Commission considers that the market share of SEVO's parent company, EPV, in the Finnish market, but also in the combined Nordic and Baltic day-ahead markets, is small (5 % and 0.5 %,

([28]) Judgment of 17 July 2008, *Essent Netwerk Noord and Others*, C-206/06, EU:C:2008:413, paragraphs 40 to 59. For the application of Articles 30 and 110 TFEU to tradable certificates schemes, see Commission Decision C(2009)7085 of 17.9.2009, State aid N 437/2009 — Aid scheme for the promotion of cogeneration in Romania (OJ C 31, 9.2.2010, p. 8), recitals 63 to 65.

accordingly, see recital (10)), and hence, any potential distortions of competition and trade on the internal markets would be very limited.

3.3.3.1.1. Necessity of the aid

(65) In order to demonstrate the necessity of the measure, it has to be established that the measure is targeted towards a situation where aid can bring about a material improvement that the market alone cannot deliver.

(66) The Commission recognised in point 372 of the CEEAG that where market operators cannot deliver the infrastructure needed, State aid may be necessary in order to overcome market failures and to ensure that the Union's considerable infrastructure needs are met. In the present case, without the aid, the investment to engage in a novel project of pumped hydroelectricity would not happen, which in turn would lead to a decreased level of RES penetration, which would undermine the objectives of the Finnish NECP (see recital (4)).

(67) Energy infrastructure is typically financed through user tariffs and the granting of State aid is a way to overcome market failures which cannot be fully addressed by means of compulsory user tariffs (points 379 to 380 of the CEEAG). According to point 380(c) of the CEEAG, in order to demonstrate the need for State aid for electricity storage facilities, the Commission may require the demonstration by the Member State of a specific market failure in the development of facilities to provide similar services.

(68) The Commission notes that, based on Finland's analysis, in the absence of a State aid, the market revenues of the storage unit are not sufficient to avoid a funding gap, leading to a negative NPV (see recital (57)). State aid is necessary in order to bridge the funding gap of the storage unit and thus promote the development of the required storage capacity, which will allow material increase in RES penetration levels in the coming years.

(69) In the absence of the notified measure, RES electricity generation in Finland would face curtailment problems, which would likely increase over time, because of the increasing penetration of RES into the electricity system (see recital (6)). The introduction of the storage unit will mitigate the level of RES curtailment, promoting thereby the sustainability and viability of RES investments. Furthermore, the project would also result in a reduction of $CO_2$ as high as 202,000 tonnes annually (see recital (6)).

(70) The Commission therefore concludes that there is a market failure and the measure is necessary for the development of storage units in Finland.

3.3.3.1.2. Appropriateness

(71) The proposed aid measure must be an appropriate policy instrument to achieve the intended objective of the aid, that is to say there must not be a less distortive policy and aid instrument capable of achieving the same results.

(72) The Commission recalls that, according to point 380 CEEAG, the granting of State aid is a way to overcome market failures which cannot be fully addressed by means of compulsory user tariffs.

(73) The Commission notes that the storage unit is expected to participate in the electricity market notably performing a price arbitrage function, thus facilitating RES integration and reducing RES electricity curtailments during over-generation periods (see recital (6)). Hence, the notified measure will offer short-term flexibility to the Finnish system, which is required to support the enhanced penetration of volatile RES sources.

(74) The Commission also notes that, based on the information provided by the Finnish authorities, under normal market conditions, no market investor would invest in the storage unit project aid due to the funding gap (see recital (22)). In such case, the benefits of the notified measure (e.g. facilitation of the development of the new storage unit, support to the integration of RES, societal benefits) would not materialise.

(75) Finally, the Commission emphasises that different from classical energy infrastructure, storage is pursuant to Article 54 Directive 2019/944 in principle not part of the asset base for transmission or distribution system operators. As such, it generally cannot be financed by general transmission or distribution tariffs ([29]).

(76) Given the need for a grant in order to finance the funding gap, the Commission considers that the notified measure constitutes an appropriate instrument to bring the project forward.

3.3.3.1.3. Proportionality

(77) Aid is considered to be proportionate if the aid amount per beneficiary is limited to the minimum needed for carrying out the aided project or activity (point 47 of the CEEAG).

(78) As a general principle, aid will be considered as limited to the minimum needed for carrying out the aided project or activity if the aid corresponds to the net extra cost (i.e. the funding gap) necessary to meet the objective of the aid measure, compared to the counterfactual scenario in the absence of aid. The net extra cost is determined by the difference between the economic revenues and costs (including the investment and operation) of the aided project and those of the alternative project which the aid beneficiary would credibly carry out in the absence of aid (point 48 of the CEEAG).

(79) Where the aid is not granted under a competitive bidding process, the net extra cost must be determined by comparing the profitability of the factual and counterfactual scenarios. The Commission will verify whether this counterfactual is realistic. The Member State must provide reasons for the assumptions used for each aspect of the quantification, and explain and justify any methodologies applied (point 51 of the CEEAG).

([29]) In section 4.9 on energy infrastructure of the State aid guidelines on climate, environmental protection and energy (CEEAG) storage is only included as an exception and with a time limit until the end of 2023.

3.3.3.1.3.1. Funding gap

(80) Proportionality is assessed on the basis of the funding gap principle, as set out in points 48, 51, and 52 of the CEEAG.

(81) Where the aid is not granted under a competitive bidding process, the funding gap must be determined by comparing the profitability of the factual and counterfactual scenarios.

(82) Aid is considered as limited to the minimum needed for carrying out the aided project or activity if the aid corresponds to the funding gap necessary to meet the objective of the aid measure, compared to the counterfactual scenario in the absence of aid. The counterfactual scenario in the case of the notified measure corresponds to the situation in which the storage project would not be realised, in line with point 381 of the CEEAG.

(83) The Commission notes that the calculation of the funding gap (see recitals (22) to (27)) provided by Finnish authorities is based on detailed business projections, which the Commission has reviewed. The underlying assumptions of the projected costs, especially the capital expenditures, and revenues are credible and in line with the possible developments as well as the uncertainty in the Finnish electricity market.

(84) In addition, the Commission verified that the profitability of the project does not exceed the remuneration that would be required for the project to be implemented by market investors. The Finnish authorities submitted a reference IRR of […] for the market expectation while this measure is expected to yield an IRR of […]. Without the investment aid and taking into account the proposed IRR, the NPV of the project over its lifetime would be negative ([…], see recital (27)) and the project would thus not materialise.

(85) The Commission concludes further that the assumptions made to calculate the WACC (see recital (22)) are sufficiently justified by the specificities of the market at stake and the investment made in the specific project, and that these specificities are satisfactorily captured by the WACC computed by the Finnish authorities.

(86) According to point 381 of the CEEAG, the introduction of monitoring and claw-back mechanisms may be necessary where there is a risk of windfall profits, e.g. when the aid is close to the maximum allowed, while keeping incentives for the beneficiaries to minimise their costs and develop their business in a more efficient manner over time. The Commission notes that the long-term development of market revenue for electricity storage technologies is difficult to predict. In case of increased market volatility with significantly higher differences between maximum and minimum hourly electricity prices within one day, for instance, market revenues of storage operators may be significantly higher compared to the assumptions of the funding gap analysis. At the same time, the assumed number of cycles per year might be too optimistic leading to revenues below the forecasts in the funding gap calculations.

(87) The Commission notes that the Finnish authorities have submitted that for the notified measure, the use of a claw-back mechanism is not necessary (see recital (29)). The Commission further notes that, first, the project has been selected by

the Finnish authorities due to its demonstration aspects for this new technology. Utilising an old mine for a pumped hydroelectricity storage requires special planning and there is no previous experience with similar projects in Finland. Hence, there might be additional unforeseen investment costs, which the beneficiary might have to bear. Second, the aid intensity of the project amounts to approximately 21 %, which can be considered low. The Commission notes that according to the Finnish authorities, new technology investments under the Finnish Energy aid scheme (SA.60149), typically receive an aid intensity up to 40 % of the investment costs (see recital (30)(b)). Third, the […] profitability of the measure reported in the business plan submitted for the funding gap analysis can be considered low compared to energy infrastructure projects. Taking into account the financial risk carried by the beneficiary and the fact that an unplanned increase in revenues and subsequent moderate increase of the profitability would be unlikely to lead to overcompensation, the Commission finds that the risk of overcompensation is reasonably low and does not necessitate a claw-back mechanism.

3.3.3.1.3.2. Cumulation

(88) The Commission notes that Finland confirmed that the notified measure would not be cumulated with other forms of State aid to cover the same eligible costs. Further, the Commission positively notes that the Finnish authorities have submitted that any other aid must be reported immediately to the Ministry. If such an aid is reported, the Ministry would conduct an assessment whether there is a risk of overcompensation and if conditions laid down in the decision by the Commission are still respected (recital (31)).

(89) Therefore, the Commission concludes that the measure is proportionate.

3.3.3.1.4. Transparency

(90) Finland commits to comply with the transparency requirements laid down in points 58 to 61 of the CEEAG (see recital (32)). The relevant data of the notified measure will be published on a national website that will link to the Commission's transparency register.

3.3.3.2. Avoidance of undue negative effects on competition and trade

(91) In line with point 382(a) of the CEEAG, the Commission will generally consider that aid for energy infrastructure that is subject to full internal market regulation does not have undue distortive effects. In the present case, the storage unit will indeed be governed by the internal market regulation (see recital (33)) and will in particular not be exempted from the rules on market participation or storage ownership by system operators laid out in Article 54 Directive (EU) 2019/944.

(92) According to point 382(d) of the CEEAG, for support to electricity storage facilities, the Commission will in particular assess the risks of distortion of competition which may arise in related services markets as well as on other energy markets.

(93) The Commission notes that any pumped hydroelectricity storage facilities in closed mines have not yet been installed in Finland or to the best knowledge of

the Finnish authorities, it is one of the first pumped hydroelectricity projects in an old mine anywhere in the world (see recital (30)(a)).

(94) Furthermore, the storage capacity to be supported by the notified measure contributes to the flexibility required to integrate increasing shares of variable renewable electricity generation, which is regularly identified by several studies and reports (see recitals (4) and (6)).

(95) The Commission takes note, that the potential market share of the beneficiary even after the construction of the storage unit in the day-ahead electricity market is sufficiently low to avoid any significant distortion of competition and trade. This is so, because the market share of the beneficiary in the combined Nordic and Baltic day-ahead markets is less than 0.5 % (or approx. 5 %, if considering the Finnish day-ahead market only) – these figures would not be significantly increased due to the storage facility (see recital (10) and (25)). In contrast, the market size of the Finnish electricity balancing market is still limited. Due to the limited size, the capacity of the storage facility supported under the notified measure could in theory capture a significant market share. In practice however, there is healthy competition in this market presently and such market is expected to grow substantially in the next years. Given the required time for construction and the expected strong increase of demand for balancing capacities along with the integration of renewable electricity generation, the Commission finds the notified measure to be contributing towards the necessary liquidity in the balancing markets and therefore outweighing potential negative effects on competition and trade in the electricity balancing market (see recital (26)).

(96) The Finnish authorities do not foresee a claw-back to avoid overcompensation of the notified measure for the reasons described in recital (30). Due to the low aid intensity, low profitability of the aided project, and the level of technical and financial risk of the project borne by the beneficiary, the Commission does not find the absence of a claw-back mechanism to cause an undue negative effect on competition and trade (see recital (87)).

(97) Therefore, it can be concluded that the risk of undue negative effects on competition and trade from the notified measure is limited.

*3.3.4. Weighing the positive effects of the aid against the negative effects on competition and trade*

(98) A carefully designed aid measure should ensure that the overall balance of the effects of the measure is positive in terms of avoiding adversely affecting trading conditions to an extent contrary to the common interest.

(99) As shown in section 3.3.2.1, the aid will facilitate the development of the storage unit, thereby contributing to saving $CO_2$ emissions, the development of economic activities of electricity storage and, moreover, to the smooth and effective transition to clean RES energy of the Finnish power system.

(100) At the same time, the negative effects of the aid on competition and trade are sufficiently limited. First, the aid is limited to minimum necessary, which will help avoid over-compensation. Second, the market position of the beneficiary and its parent company EPV is small considering the size of both the Finnish and the cross-border regional markets, 5 % and 0.5 %, respectively (see recital (10)).

Hence the aid to the beneficiary will likely not significantly distort competition and trade.

(101) Therefore, the positive impact of the notified measure in developing the economic activity at issue outweighs any potential negative effects on competition and trade. On balance, the notified measure is in line with Article 107(3)(c) TFEU as it facilitates the development of electricity storage in Finland, but does not adversely affect competition to an extent contrary to the common interest.

*3.3.5. Companies in difficulty and under recovery order*

(102) As explained in recitals (11) and (12), Finland confirms that SEVO is not an undertaking in difficulty and not subject to an outstanding recovery order. Therefore, the Commission concludes that the notified measure complies with points 14 and 15 of the CEEAG.

*3.3.6. Conclusion on the compatibility of the measure*

(103) The Commission concludes that the aid facilitates the development of an economic activity and does not adversely affect trading conditions to an extent contrary to the common interest. Therefore, the Commission considers the aid compatible with the internal market based on Article 107(3)(c) TFEU and on the relevant provisions of CEEAG.

## 4. AUTHENTIC LANGUAGE

(104) As mentioned in recital (3), the Finnish authorities have accepted to have the decision adopted and notified in English. The authentic language will therefore be English.

## 5. CONCLUSION

The Commission has accordingly decided not to raise objections to the aid on the grounds that it is compatible with the internal market pursuant to Article 107(3)(c) of the Treaty on the Functioning of the European Union.

Yours faithfully,

For the Commission

Margrethe VESTAGER
Executive Vice-President