

## EFTA SURVEILLANCE AUTHORITY DECISION

of 25 May 2016

not to raise objections to individual aid in favour of Glencore Nikkelverk AS for the construction of a copper production demonstration plant

(Norway)

The EFTA Surveillance Authority (“the Authority”),

HAVING REGARD to the Agreement on the European Economic Area (“the EEA Agreement”), in particular to Article 61(3)(c) and Protocol 26,

HAVING REGARD to the Agreement between the EFTA States on the Establishment of a Surveillance Authority and a Court of Justice (“the Surveillance and Court Agreement”), in particular to Article 24,

HAVING REGARD to Protocol 3 to the Surveillance and Court Agreement (“Protocol 3”), in particular to Article 1(3) of Part I and Article 4(3) of Part II,

Whereas:

### I. FACTS

#### 1. Procedure

- (1) The Norwegian authorities notified individual aid in favour of Glencore Nikkelverk AS (hereinafter “Nikkelverk”) pursuant to Article 1(3) of Part I of Protocol 3 by letter received and registered by the Authority on 8 April 2016.<sup>1</sup>

#### 2. Description of the notified measure

##### 2.1. The notified aid measure

- (2) The notification concerns individual state aid in the form of a non-reimbursable grant of NOK 380 000 000 in nominal value (around EUR 39 million) to Nikkelverk for a full-scale demonstration project in Kristiansand municipality (county of Vest-Agder), Norway (“the notified measure”). The objective of the aid is to demonstrate and verify a novel technology for copper production.

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<sup>1</sup> Document No 799846. The letter enclosed a notification form (Document No 799847), an explanatory document (Document No 799848) and eight annexes (Documents No 799849-799856).

- (3) The aid will be disbursed to Nikkelverk in the period 2016-2021.

## 2.2. Enova's New Energy Technology Programme

- (4) The notified measure will be financed by the Energy Fund, which is managed by Enova SF ("Enova"), a state enterprise fully owned by the Norwegian State via the Ministry of Petroleum and Energy. Enova was established on 1 January 2002 with the purpose of managing the Energy Fund and administering several Norwegian support programmes aimed at promoting the use of energy-efficient technologies. One is the New Energy Technology Programme ("NETP"), which assists demonstration projects for innovative technologies in order to foster their market diffusion. By Decision No 248/11/COL,<sup>2</sup> the Authority declared the Energy Fund scheme, including the NETP, compatible with the EEA Agreement.
- (5) The NETP foresees a maximum aid intensity of 50% for large enterprises. According to Decision No 248/11/COL, an individual notification to the Authority of any aid measure above EUR 7.5 million is required.<sup>3</sup> The notified aid exceeds this notification threshold.
- (6) Enova awarded the aid for Nikkelverk's demonstration project in a decision adopted by the board of directors on 19 June 2015 (Annex 6 to the notification).<sup>4</sup> The aid is conditional upon the Authority's approval.

## 2.3. The beneficiary

- (7) Nikkelverk in Kristiansand is one of the world's biggest nickel refineries. Nickel (main product) and copper (by-product) are produced by electrowinning of aqueous electrolytes made from leaching of matte. In addition, sulphuric acid and precious metals are produced as other by-products.
- (8) Nikkelverk is part of a group controlled by Glencore PLC, which is primarily listed on the stock exchange in London but also has secondary listings in Hong Kong and Johannesburg. It is one of the world's largest diversified and vertically-integrated producers, processors and marketers of commodities.
- (9) Nikkelverk is a toll refiner, i.e. all metals that are produced at Nikkelverk's plant belong to its tolling customers (also part of the Glencore group) which then perform all the metal sales. The business model is based on "cost-plus", i.e. it covers the plant's actual costs with the addition of a fixed percentage of these costs as margin. This concept is fairly common within the metallurgical industry.
- (10) Nikkelverk mainly produces nickel and copper. Glencore group's main activities are the production of nickel, copper and zinc. See **Table 1** below. The LME (London Metal Exchange) is the main market for pricing copper, zinc and nickel.

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<sup>2</sup> Decision No 248/11/COL of 18 July 2011 on the Norwegian Energy Fund scheme (OJ C 314, 27.10.2011, p. 4). The full text is available at the Authority's website: <http://www.eftasurv.int/media/decisions/248-10-COL.pdf>

<sup>3</sup> *Ibid.*, para. 58, cross-referring to point (160) of the Guidelines on State aid for environmental protection ("EAG"), published on 10 June 2010 (OJ L 144, 10.6.2010, p. 1 and EEA Supplement No 29, 10.6.2010, p. 1).

<sup>4</sup> Document No 799854.

**Table 1. Production capacity and market shares**

	Glencore, sum of sold metal and concentrate	Glencore, metal produced from own sources (own mines)	Kristiansand Nikkelverk capacity	Total world market
	Kt	Kt	Kt	Kt
<b>Nickel</b>	203 (10%)	100.9 (5%)	92 (5%)	2000 (100 %)
<b>Copper</b>	2800 (13%)	1546 (7%)	40 (0.2%)	22000 (100%)
<b>Zinc</b>	3400 (26%)	1386.5 (11%)	0 (0%)	13000 (100%)

Glencore's and Nikkelverk's activity within nickel, copper and zinc, given in tonnes and as a % share of the global market. LME volumes represent total volume delivered "in" during 2014. The figures for Nikkelverk represent installed capacity, not actual production. Market shares represent MacQ estimates rounded to 2 significant figures. Source: Glencore

- (11) The beneficiary does not have any pending recovery order and it is not an undertaking in difficulties; the beneficiary and its group have sound financial accounts. Nikkelverk is a large company.

## 2.4. The demonstration project

### 2.4.1. Current and new technology for copper production

- (12) The objective of the project is to demonstrate and verify a highly-efficient one-step electrowinning<sup>5</sup> process for copper production in a full-scale demonstration plant with an annual production capacity of 40 000 tonnes/year. The demonstration plant is expected to be built in the period 2017–2020 and its expected financial lifetime is 30 years.
- (13) Today's copper electrowinning process faces several challenges such as a highly corrosive environment and high energy consumption due to the steps taken to counteract the high risk of short-circuits and the limited ability to control and automate the process. The demonstration plant will put together several innovative technological components functions<sup>6</sup> as a single, integrated system. These components have been developed by Nikkelverk and its technology partners.<sup>7</sup>
- (14) The demonstration plant will have a capacity of 40 000 tonnes/year of copper, and will replace the existing production capacity at Nikkelverk's premises at Kristiansand. Comparable production plants using electrowinning are typically larger in scale with a capacity of 100 000 to 400 000 tonnes/year. The planned demonstration plant is in that perspective small, but the Norwegian authorities submit that it is large enough to verify

<sup>5</sup> There are two main electrolysis processes for the manufacturing of copper; electrowinning and electrolytic refining. Electrowinning is the electrodeposition of metals that have been put in solution via a process commonly referred to as leaching. Electrorefining uses a similar process to remove impurities from a metal. In electrowinning, a current is passed from an inert anode through an electrolyte containing the metal. The metal deposits onto the cathode. In electrorefining, the anodes consist of unrefined impure metal, and as the current passes through the acidic electrolyte the anodes are corroded into the solution so that the electroplating process deposits refined pure metal onto the cathode.

<sup>6</sup> In particular, there are seven innovative technological components that are included in the project: (i) use of permanent cathodes, (ii) use of dimensionally stable anodes, (iii) short circuiting monitoring, (iv) spacers to control and ensure a constant distance between the anode and the cathode, (v) a new electrowinning tank design to allow for simple maintenance and repairs, (vi) introduction of an open connector system to allow light weighted low energy anodes that are easy to handle and at the same time achieve as good electrical contact to the busbar as for heavy lead anodes, and (vii) a new ventilation system and bush technology for aid mist suppression.

<sup>7</sup> Among them Sunwest, SAME Ingenieria, Hatch, and Outotec.

the technology. The objective is to develop a system that represents a next-generation electrowinning process, focused on eliminating any source of unnecessary energy losses in the process whilst achieving maximum automation, using advanced materials to make the process more robust and finding technical solutions that will simplify the operation and maintenance of the system.

- (15) The Norwegian authorities have requested SINTEF, an external consultancy, to verify the innovation nature of the project. SINTEF has confirmed the relevance of the project for the copper industry as well as its innovative characteristics.<sup>8</sup>

#### *2.4.2. Expected environmental impact of the demonstration project*

- (16) The current technology used at Nikkelverk has an energy consumption of 2.39 kWh/kg copper. Typical energy consumption in electrowinning is currently approximately 2.0 kWh/kg copper. The energy consumption at Best Available Technology (“BAT”) level in the market today is 1.74 kWh/kg copper. Through the new concept, Nikkelverk will be able to reduce its consumption to 1.56 kWh/kg. Consequently, in comparison to Nikkelverk’s current operations, the project will give a 35% reduction in its energy consumption totalling up to 35 GWh per annum, for an annual production of 40 000 tonnes of copper. These figures represent an energy reduction of 10% compared to BAT levels. Verifying the technology will establish the Nikkelverk copper electrowinning plant as the most energy efficient in the world, while also setting a new and better industrial HSE (Health, Safety and Environmental) standard.

#### *2.4.3. Commercial potential for technology diffusion in the market*

- (17) The new process can be transferred to other new copper electrowinning plants. The results might also be of direct interest to the zinc industry. The transferability of the process to nickel production would only be possible in a long-term perspective, as it would require further research and development to adapt the process to nickel production.

#### *2.4.4. Costs and benefits of the demonstration plant*

- (18) The exchange rates have been fluctuating significantly in the past six months. Nikkelverk bases its calculations on 6.8 NOK/USD and 9 NOK/EUR.
- (19) The **accepted total investment costs** for the demonstration project are 949 471 000 NOK in nominal value.
- (20) **Operating costs** comprise several elements: manning, energy prices, input factors for the electrolyses, maintenance costs, etc. For this project, the electricity price is set at NOK 0.249 kWh (0.274 kWh including transmission cost). The electricity price is based on the market price of the three-year forward contract on the Nordic power market as of 2014.12.01 (moving average over past six months). The discounted operating costs of the project during the first five years are NOK 568 million. The current operating costs of Nikkelverk are NOK 638 million. The difference in operating costs is NOK 70 million.
- (21) **Operating benefits** of the demonstration project include income from the added value of the product, saved costs for manning, reuse of existing equipment, inventory release, reduced energy consumption and reduced maintenance cost. The demonstration plant has a

<sup>8</sup> Annex 4 to the notification. Document No 799856.

discounted operational revenues during the first five years of operation amounting to NOK 22 million.

#### 2.4.5. Extra cost calculation

- (22) Paragraphs 117 and 118 of Decision 248/11/COL establish that the eligible costs under the NETP are determined to be the extra investment costs established by comparing the aided investment with the counterfactual situation in the absence of state aid.
- (23) The Norwegian authorities consider that the counterfactual scenario is no investment,<sup>9</sup> therefore the eligible costs of the demonstration project are calculated on the basis of the entire investment costs of the project which amount to NOK 950 million. Once the operating extra costs and benefits are taken into account, the eligible costs are NOK 858 million (see **Table 2**).

**Table 2. Eligible extra costs calculation**

	Nikkelverk demonstration plant (MNOK). Nominal value	Counterfactual MNOK	Difference MNOK
Investment costs	950	0	950
Operating extra costs (first 5 years)	568	638	-70
Operating extra benefits (first 5 years)	22	0	-22
Eligible extra costs			858

Source: Enova

- (24) The proposed aid amount of NOK 380 million, in nominal value, results in an aid intensity of 44.3% of the eligible extra costs, as described in **Table 3**.

**Table 3. Aid calculations**

	Aid in Nominal value MNOK
Investment costs	950
Eligible costs	858
Aid intensity according to Decision No 248/11/COL	50%
Maximum aid amount according to Decision No 248/11/COL	429
Aid to Nikkelverk	380
Aid intensity	44.3%

Source: Enova

- (25) Thus, the aid intensity is below the maximum aid intensity of 50% permitted under the NETP.

<sup>9</sup> The NETP envisages that eligible costs will normally be calculated by reference to a counterfactual investment. However, it foresees that a “no investment” counterfactual may be a more realistic counterfactual alternative under certain circumstances (Decision No 248/11/COL, para. 142).

### 3. Comments by the Norwegian authorities

#### 3.1. Legal framework for the assessment of the measure

- (26) According to the Norwegian authorities, the notified measure should be assessed in line with Decision No 248/11/COL as aid granted under the NETP of the Energy Fund scheme, which the Authority declared compatible with the functioning of the EEA Agreement on the basis of Article 61(3)(c) of the EEA Agreement.<sup>10</sup>
- (27) Since the measure has an environmental objective, following previous Authority practice,<sup>11</sup> the Norwegian authorities use the guidelines for environmental protection adopted in 2010 (hereinafter “the EAG”<sup>12</sup>) and in force when Decision No 248/11/COL was adopted, and the current guidelines on state aid for environmental protection and energy 2014–2020 (hereinafter “the EEAG”<sup>13</sup>) as general insight into relevant principles for the compatibility assessment.
- (28) In their assessment, the Norwegian authorities have firstly examined whether the project is eligible for aid under the NETP. Secondly, they have appraised the compatibility of the measure in line with the conditions laid down in Decision No 248/11/COL. In that regard, Norway has checked whether: (i) the aid is aimed at a well-defined objective of common interest; (ii) there is a need for State intervention; (iii) the aid measure is an appropriate instrument to achieve the objective; (iv) there is an incentive effect; (v) the aid measure is proportionate; and (vi) the distortions of competition and effects on trade are limited.
- (29) The Norwegian authorities have also confirmed that the transparency obligation will be complied with for all aid granted from July 2016, in line with the transparency requirements laid down in Section 3.2.7 of the EEAG.

#### 3.2. Eligibility of the project under the NETP

- (30) The Norwegian authorities explain that all applications under the NETP are subject to the following procedure.
- (31) First, Enova carries out an individual assessment of the information provided by the applicant on the technical potential of the project and the relevant costs and benefits.
- (32) Secondly, Enova undertakes a financial analysis of the project in order to determine the aid required to ensure a normal return on capital, taking into account operating benefits and costs. Projects with an estimated return on capital that exceeds what is considered normal for the relevant industry are not eligible for aid.

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<sup>10</sup> With reference to the Commission Decision N 521/2008, *Alpha Ventus*, the Authority concluded that the programme fell within a gap between the scope of the EAG and the R&D&I Guidelines. See Decision No 248/11/COL, paras. 132–137. State aid guidelines for environmental protection (“EAG”), OJ L 144, 10.6.2010, p. 1 and EEA Supplement No 29, 10.6.2010, p. 1. Decision No 248/11/COL refers to the former R&D&I state aid guidelines (“R&D&I Guidelines”), OJ L 305, 19.11.09, p.1 and EEA Supplement No 60, 19.11.09.

<sup>11</sup> Decision No 476/15/COL of 11 November 2015 not to raise objections to individual aid in favour of Tizir Titanium & Iron AS for the construction of a demonstration plant in Tyssedal (OJ C 73, 25.2.2016, p. 8) (“*Tizir decision*”), paragraph 171.

<sup>12</sup> State aid guidelines for environmental protection (“EAG”). See footnote 10.

<sup>13</sup> Guidelines on state aid for environmental protection and energy 2014–2020 (“EEAG”). OJ L 131, 28.5.2015, p. 1 and EEA supplement to the OJ No 30, 28.5.2015, p.1.

- (33) Thirdly, Enova compares the aid required to ensure a normal return on capital with the applicable maximum aid intensities.
- (34) Finally, Enova gives priority to projects according to the level of aid needed (per KWh saved), as well as the likely future environmental impact of the new technology to be verified, until the annual budget is allocated. Thus, projects which qualify under steps one to three of the assessment might in the end not be awarded aid due to budgetary limits and competition from other, more efficient projects.
- (35) According to Decision No 248/11/COL, demonstration projects have to fulfil a number of criteria in order to be eligible for aid under the NETP. The fulfilment of these criteria are supervised by Enova. The criteria are:

*3.2.1. Limited market dissemination and no prior full-scale testing<sup>14</sup>*

- (36) The technology concept has not been tested in full commercial scale in Norway or any other country, and therefore it has not been used in production nor introduced into the market.

*3.2.2. End-user participation<sup>15</sup>*

- (37) Glencore will use the technology at their plant in Kristiansand and in other facilities in the future. Consequently, the project involves an end-user participation in line with Decision No 248/11/COL.

*3.2.3. Full scale testing under typical operating conditions<sup>16</sup>*

- (38) The demonstration plant will be a full-scale copper production plant. The project will have a production capacity of 40 000 tonnes/year of copper. Comparable production plants typically have a capacity of 100 000 to 400 000 tonnes/year. Consequently, the plant is relatively small but still large enough to demonstrate the technology.

*3.2.4. Two-years operational period<sup>17</sup>*

- (39) The operational period of the demonstration plant is expected to be at least 30 years.

*3.2.5. Measurable energy result and positive cash flow<sup>18</sup>*

- (40) The expected reduction in energy consumption is 35 GWh/year. Furthermore, the business plan shows a positive cash flow from the operation of the demonstration plant.

*3.2.6. Sufficient market diffusion of the new technology<sup>19</sup>*

- (41) It follows from Decision No 248/11/COL that the long-term aim of the NETP is to contribute to environmental protection by promoting the diffusion of new and more energy efficient technologies. Sufficient market diffusion of the new technology – once

<sup>14</sup> Decision No 248/11/COL, para. 111.

<sup>15</sup> *Ibid.*, para. 112.

<sup>16</sup> *Ibid.*, paras. 113 and 114.

<sup>17</sup> *Ibid.*, para. 115.

<sup>18</sup> *Ibid.*, para. 116.

<sup>19</sup> *Ibid.*, para. 11.

verified in the demonstration plant – is therefore a necessary condition for a project to be eligible for aid under the NETP.

- (42) The Nikkelverk copper plant will have an “open door” policy towards companies and institutions wanting to learn more about the new technology and key parameters. Nikkelverk has no intention of making a profit from selling the technology, but rather intends to share its experience on the solution, since copper is viewed as a by-product. Nikkelverk does not plan to patent any copper electrowinning technology. Nikkelverk has also established development agreements with the technology suppliers that participate in the project (see paragraph (12) above). All of them will be welcome to bring their own customers to view and assess the new plant. Nikkelverk’s commitment to sharing of the technology concept is confirmed in the written commitment contained in Annex 3 to the notification.<sup>20</sup>

### **3.3. Contribution to an objective of common interest**

- (43) The Norwegian authorities argue that the measure responds to an objective of common interest, namely environmental protection. The Norwegian authorities also recall that promoting research and development and innovation is in itself an important EEA objective laid down in Articles 1(2)(f) and 78 of the EEA Agreement.

### **3.4. The need for the State intervention**

- (44) The Norwegian authorities recall that the most common market failure in the field of environmental protection is related to negative externalities. Undertakings acting on their own have no interest in taking into account the negative externalities arising from the production.
- (45) Without the aid, Nikkelverk will have no incentive to increase environmental protection in its production process. As a consequence, the aid is intended to correct a market failure that leads to a sub-optimal level of environmental protection.

### **3.5. Aid as an appropriate instrument**

- (46) The Norwegian authorities argue that state aid represents an appropriate instrument to achieve the pursued environmental objective.
- (47) The Norwegian legislation does not impose upon the industry to construct plants using new innovative technologies instead of more conventional production facilities/state of the art technologies. Provided that they respect the standards applicable (notably as regards air pollution or building codes), conventional production facilities/buildings using conventional technologies known to the market may be authorised and built.<sup>21</sup>
- (48) According to the Norwegian authorities, less distortive aid instruments, e.g. a loan or a guarantee, would not be suitable to trigger investment in the new technology by Nikkelverk. They argue that loans and guarantees may be meaningful in situations where a distinct incident could trigger a huge change of an uncertain cash flow and is therefore relevant for companies in strong growth areas or businesses venturing into new areas, e.g.

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<sup>20</sup> Document No 799849.

<sup>21</sup> Cf. para. (135) of the Decision No 37/15/COL of 4 February 2015 not to raise objections to individual aid in favour of Hydro Aluminium AS For the construction of the Karmøy demonstration plant, para. 141 (OJ C 193, 11.6.2015, p. 6), (“Hydro decision”).

a situation where there is an uncertainty as to whether or not a major contract will be signed, a product launch with a binary outcome proves successful or a technical breakthrough with a binary outcome is realised. This is not the case for the project at hand.

### 3.6. Incentive effect of the state aid

- (49) As already stated, the NETP foresees that for a demonstration plant, the assessment may be undertaken based on a “no investment” counterfactual. The Norwegian authorities argue that such a “no investment” counterfactual approach is particularly appropriate in the case of the proposed demonstration plant for the following reasons.
- (50) Nikkelverk has not considered a counterfactual in the form of an alternative reference investment. The purpose is to demonstrate the new one-step electrowinning process in a full-scale plant. The alternative is to maintain the current production process.
- (51) As set out in Decision No 248/11/COL, in case of a “no investment” counterfactual the following elements need to be assessed in order to determine whether the aid has an incentive effect: (i) whether any relevant EU or national standards will be introduced in the foreseeable future; (ii) whether the investment in the relevant project represents normal market behaviour; (iii) the level of risk connected to the project and the extent of the production advantages obtained by the aid recipient; (iv) whether the investment, without the aid, would generate an appropriate profit; (v) the project’s level of increased environmental protection.<sup>22</sup>

#### *(i) Relevant EU or national standards*

- (52) The Norwegian authorities submit that to their knowledge, there are no on-going negotiations on EU or national level to introduce new or higher mandatory standards which the investment aid in favour of Nikkelverk would help the company to achieve faster than its competitors or gain any other advantages from.

#### *(ii) Normal market behaviour*

- (53) Even though there is a strong incentive for the metal industry to improve its production processes in order to reduce energy consumption, the investment in a full commercial scale plant in order to demonstrate an energy efficient production technology is not considered normal market behaviour. Nikkelverk’s existing copper production plant is very well maintained, and a large upgrade was performed in 2011-2012. Still, the potential for further improvements concerning energy efficiency using the existing production process is considered to be very limited. The remaining lifetime of the plant is estimated to be at least 30 years. Hence, Nikkelverk could continue its production using its existing, but less energy efficient, production technology.
- (54) Copper is sold on the market without any form of labelling with regard to its environmental impact. In light of this, a more environmentally friendly production process is unlikely to have an impact on customer demand and general market conditions for Nikkelverk’s products. Due to the relative unimportance of a green product image in the metal market, it is unlikely that Nikkelverk would have an incentive to invest in environmental protection beyond its legal requirements in the absence of aid.

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<sup>22</sup> Decision No 248/11/COL, para. 142.

*(iii) Level of risk and the extent of the production advantages*

- (55) The aid concerns an investment in a production plant that aims to verify a new production technology for copper. If successfully verified, the technology will reduce Nikkelverk's energy consumption by 35% in comparison to its current operations, and by 10% in comparison to the BAT level. This improved energy efficiency will lead to substantial cost reductions in the production process. Thus, the aid will lead to production advantages. However, the Norwegian authorities do not consider that the production advantages will negatively affect the incentive effect, because of several reasons.
- (56) First, the aid is granted net of any operating benefits. The net present value ("NPV") calculation of the project based on the life time of the demonstration plant shows that the project does not exceed a reasonable rate of return ("RR").
- (57) Second, there are clear financial risks involved in the project, such as the investment cost, operation and maintenance costs, the dollar exchange rate and/or changes in the price of electricity. There are also technological risks related to the scaling-up of the technology elements up to a commercially relevant scale, the lifetime of the anodes and cathodes, the effect of full automation of a very complex process etc.

*(iv) Profitability of the project*

- (58) According to the Norwegian authorities, due to the risk profile and the unprofitability of the investment, Nikkelverk will not undertake the investment without aid.
- (59) The Norwegian authorities refer to the EEAG<sup>23</sup> as well as the *Hydro* and *Sway*<sup>24</sup> decisions, in which the Authority stated that the unprofitability of the project can serve to demonstrate the incentive effect of the aid.
- (60) The NPV analysis shows that with the proposed aid of 380 000 000 NOK the project will have an internal rate of return ("IRR") of 6.7%.<sup>25</sup> Without the aid the project has an IRR of 3.3%.
- (61) Nikkelverk is normally not comfortable with a RR of 6.7%<sup>26</sup> but is willing to accept this as long as the project has strategic relevance for the company. The project has a strategic value for Nikkelverk, since if successful the project will allow for energy savings, improved HSE and verify a more cost efficient process. Nikkelverk has previously accepted RR in the same range as the case at hand for other strategic projects.
- (62) This shows that the project suffers from a funding gap. In line with point (57) of the EEAG, the Norwegian authorities argue that the unprofitability of the project serves to demonstrate that the aid has an incentive effect.

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<sup>23</sup> See point (57) of the EEAG.

<sup>24</sup> Decision No 249/11/COL of 18 July 2011 on the aid to Sway Turbine AS (OJ C 314, 27.10.2011, p. 3) ("Sway decision").

<sup>25</sup> The IRR is the RR at which the NPV is 0.

<sup>26</sup> According to the information provided by the Norwegian authorities, Nikkelverk normally requires a rate of return after tax of 17-20% for stand-alone investments.

*(v) Level of environmental protection*

- (63) If the technology is successfully verified, the new electrowinning process will reduce the energy consumption at Nikkelverk by about 35%. This gives an annual energy saving of 35 GWh.

**3.7. Proportionality of the state aid***3.7.1. The aid is limited to the minimum necessary*

- (64) The Norwegian authorities acknowledge that according to points (78) and (79) of the EEAG, for individual aid, compliance with the maximum aid intensities is not sufficient to ensure proportionality. As a general rule, individually notifiable aid will be considered to be limited to the minimum if the aid amount corresponds to the net extra costs of the aided investment, compared to the counterfactual scenario in the absence of aid.
- (65) The calculation of eligible costs of the project at hand is based on Section II.7 of Decision 248/11/COL, as well as point (68) of the EEAG, i.e. the extra cost necessary to meet the environmental objectives.<sup>27</sup> As the NPV analysis demonstrates, operational benefits have been subtracted from the additional investment costs. The extra cost approach applied to the project is thus net of all operational benefits.
- (66) The Norwegian authorities have provided a NPV calculation to demonstrate that the aid does not exceed the project's lack of profitability. The IRR of 6.7% is significantly below what is normally required for investments by Nikkelverk (17–20% for stand-alone investments). The expected RR of the project also falls into the range of average RR required by comparable industries in Norway.<sup>28</sup>
- (67) Even with the aid and with an NPV calculation based on 30 years of operation with a positive cash flow, the project only reached an IRR of 6.7%. The aid amount does not exceed the expected lack of profitability (including a normal RR) over the time horizon for which the investment is fully depreciated.
- (68) The Norwegian authorities, referring to the *Salzgitter* case<sup>29</sup>, do not consider that possible cost savings resulting from the energy savings potential at future Glencore plants reduce the proportionality of the proposed aid amount. Such possible deployments are far into the future, and are depending on prevailing market conditions and other factors at the time of the future investments. Furthermore, there is no way of quantifying the possible advantages of future energy savings at this stage. Moreover, the electrowinning process runs the risk of being less energy efficient than expected and operating cost could be higher.
- (69) The start-up investment for the demonstration project is high and there are no additional revenues since the production volume will remain the same. However, given that the operating results remain positive during the lifetime of the demonstration project, the state

<sup>27</sup> This concept implies that, in order to establish how much aid can be granted, all the economic benefits accrued by the investment have been subtracted from the additional investment costs.

<sup>28</sup> This is confirmed by the report drafted by Menon. See Rapport nr. 2/2013. "Vurdering av normalavkastningskrav for utvalgte næringer i Norge". Table 1 at page 3. According to the report, the estimated normal rate of return before tax for the energy-intensive industries is 6.6%.

<sup>29</sup> Decision of 14.4.2010, State aid Case N 451/2009. Germany. Energy saving by direct trip casting for light steels – aid to Salzgitter Flachstahl GmbH.

aid from Enova does not alleviate Nikkelverk of any operating costs. Thus, the state aid is solely granted to the investment in the demonstration project, in order to achieve the environmental objective of testing and verifying the new technology for copper production in full-scale operations. The objective is to reduce technological risks for the future full-scale deployment of the energy saving production method and increase the probability for further development of the production process towards even more energy efficient and environmentally sustainable solutions.

- (70) On that basis, the Norwegian authorities submit that the aid amount is limited to the minimum needed to achieve the higher level of environmental protection in the form of the investment in a demonstration project for the verification of the electrowinning process. The calculation of eligible costs, the selection process and the lack of profitability ensures that the aid to Nikkelverk is proportionate.

### *3.7.2. Aid intensity*

- (71) The aid amount of NOK 380 million in nominal value is equivalent to an aid intensity of 44.3%, below the applicable maximum aid intensity of 50% under the NETP. The Norwegian authorities consider that reducing the aid intensity constitutes a means of ensuring the proportionality of the aid.

### *3.7.3. Adjustment of the aid amount*

- (72) The Norwegian authorities note that Nikkelverk is not automatically entitled to the full aid amount. The amount of NOK 380 million effectively represents the maximum aid amount. In accordance with the rules for disbursements of aid under the Energy Fund Scheme, as explained in chapter I.7 of Decision 248/11/COL, the aid amount will be reduced in case the incurred investment costs are lower than budgeted. In case of realised savings, the aid amount will be proportionately reduced. Furthermore, Nikkelverk is not free to redistribute costs between budget posts. Changes are subject to Enova's approval. The adjustment of the aid is facilitated by the fact that Enova withholds the last 20% of the aid until the project is completed and will only disburse the remaining aid when it has approved an audited final project report with audited final project accounts.
- (73) Furthermore, the assessment of profitability and appropriate aid level is based on available data/estimates updated at the time of Enova's board decision to grant the aid to Nikkelverk, on 19 June 2015. The basis for the estimates could change further before Nikkelverk takes the decision to initiate the project, which will happen when the Authority has approved the aid from Enova.

## **3.8. Limited distortion of competition and trade**

### *3.8.1. The relevant markets*

- (74) Nikkelverk is a toll refiner, producing mainly nickel. Copper is a by-product. However, since the project at hand concerns a new technology for the refining of copper, the Norwegian authorities submit that the main relevant product market is the market for the production of refined copper. This is so even if, as described in paragraph (17) above, the process could also be of interest to the zinc industry and maybe, in a long-term perspective, to the nickel industry. However, the Norwegian authorities consider that the

potential negative effects of the measure in any of these markets is limited and outweighed by the positive effects.

### 3.8.2. *The lack of distortive effects*

- (75) The Norwegian authorities argue that the aid measure has limited negative effects on the relevant markets because of several reasons.
- (76) First, the Norwegian authorities note that “*if the aid is proportional, notably if the calculation of the extra investment or operating costs has taken into account all advantages to the undertaking; the negative impact of the aid is likely to be limited.*”<sup>30</sup> In the case at hand, the Norwegian authorities consider that the aid is proportional. Moreover, the sales revenues are based on estimated market prices and volumes and are all taken into account and subtracted in the NPV-analysis, and thus not eligible for aid.
- (77) Second, copper is a globally traded commodity. The demonstration project will not increase Nikkelverk’s production capacity. The project therefore cannot be expected to have any impact on global prices, nor to negatively affect the structure of the market.
- (78) Third, the Norwegian authorities argue that as the new technology in question aims at reducing energy consumption, production advantages are to a certain degree inherent in energy efficiency measures.
- (79) Fourth, Nikkelverk will diffuse the new technology to the market allowing competitors to catch up with Nikkelverk if the technology is successfully tested.
- (80) Finally, Nikkelverk has been chosen as eligible for the aid in a non-discriminatory, open and transparent selection process, without excluding any undertakings that may compete with projects addressing the same environmental objective falling within the ambit of the respective aid programme.<sup>31</sup>

### 3.8.3. *Dynamic incentives/crowding out*

- (81) The Norwegian authorities acknowledge that the investment undertaken by Nikkelverk is innovative and as such technologically strategic. Thus, if verified, the new technology may possibly provide Nikkelverk with a first mover advantage. However, this advantage will be outweighed by the positive environmental effects stemming from the verification of a more efficient technology and its diffusion not only in the market for copper production, but also potentially zinc or even nickel in a long-term perspective (see paragraph (17) above).
- (82) Nikkelverk will share its knowledge from the demonstration plant through an open door policy. Consequently, the potential of the one-step electrowinning technology will have widespread effects and the competitive advantage will not be long-lasting.
- (83) The demonstration plant will not change Nikkelverk’s market position in a substantial manner, given that the company will not increase its copper production capacity but merely replace its current production capacity at Kristiansand.

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<sup>30</sup> Point (176) of the EAG and point (93) of the EEAG.

<sup>31</sup> As emphasised at point (94) of the EEAG.

- (84) Finally, as the aided project concerns an innovation activity, the existence of exit barriers in the relevant market is of particular relevance.<sup>32</sup> The Norwegian authorities refer to the *Bombardier* case<sup>33</sup>, where the European Commission stated that due to the high existing barriers in the relevant market the aid in question “*should further incentive the market players to innovate*”.<sup>34</sup>

#### 3.8.4. *Maintaining inefficient firms afloat*

- (85) The Norwegian authorities believe that Nikkelverk is an efficient undertaking with sound financial accounts. Consequently, the Norwegian authorities are of the opinion that the aid granted is not used to maintain an inefficient firm afloat.

#### 3.8.5. *Market power/exclusionary behaviour*

- (86) The Norwegian authorities do not consider that the aid will create or enhance market power, neither in the copper market nor in the nickel or zinc markets, since Nikkelverk is a small market player. The company has a 0.2% share in the copper market and a 5% share in the nickel market. Neither the beneficiary nor its group hold a dominant position in any of these markets.
- (87) The Norwegian authorities recall that copper, but also nickel and zinc, are priced based on LME quotations. Furthermore, the buyer power in these markets is strong and therefore it is unrealistic to believe that Nikkelverk or the Glencore group could change their market behaviour because of the aid.
- (88) The Norwegian authorities conclude that the aid will not strengthen or maintain market power.

#### 3.8.6. *Effects on trade and location*

- (89) When the new technology is verified, it will be used in Nikkelverk’s plant in Kristiansand. However, this will not result in projects located in Kristiansand benefiting from more favourable production conditions in general, neither in terms of comparatively lower production costs nor in higher production standards. The aid is only granted to one beneficiary.

### 3.9. **Cumulation**

- (90) The Norwegian authorities have confirmed that Nikkelverk has not received other aid for this project; neither from Enova nor from other public authorities.

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<sup>32</sup> See points (86) and (87) of the EEAG, as well as para. (161) of the *Hydro* decision.

<sup>33</sup> Decision of 17.6.2009. State aid N 654/2008. United Kingdom. Large R&D aid to Bombardier.

<sup>34</sup> See paragraphs (277) to (278) of the decision.

## II. ASSESSMENT

### 1. The presence of state aid

- (91) A measure constitutes state aid within the meaning of Article 61(1) of the EEA Agreement if the following conditions are cumulatively fulfilled: the measure: (i) is granted by the State or through state resources; (ii) confers an economic advantage to the beneficiary; (iii) is selective; and (iv) is liable to distort competition and to affect trade between Contracting Parties.
- (92) In Decision No 248/11/COL approving the Energy Fund (including the NETP), the Authority concluded that disbursements to undertakings under the Energy Fund constitute state aid within the meaning of Article 61(1) of the EEA Agreement.<sup>35</sup> There is nothing in the current notification to alter that conclusion.
- (93) Nikkelverk will be awarded aid by Enova under the Energy Fund, the funding of which comes from various sources controlled by the State and therefore constitutes state resources.
- (94) An individual financial grant will be awarded to Nikkelverk, which will thus receive an economic advantage it would not have received in the normal course of business. Given that the aid is granted to a single undertaking, it is clearly selective.
- (95) Nikkelverk produces nickel and copper. The demonstration plant will produce copper. Copper and nickel are subject to competition and trade within the EEA. The economic advantage conferred on Nikkelverk by the notified measure is therefore liable to distort competition and affect trade between the Contracting Parties to the EEA Agreement.
- (96) For these reasons, the Authority concludes that the notified measure constitutes state aid within the meaning of Article 61(1) of the EEA Agreement.

### 2. Procedural requirements

- (97) Pursuant to Article 1(3) of Part I of Protocol 3: “*the EFTA Surveillance Authority shall be informed, in sufficient time to enable it to submit its comments, of any plans to grant or alter aid (...). The State concerned shall not put its proposed measures into effect until the procedure has resulted in a final decision*”.
- (98) The notified measure is based on the NETP under the Energy Fund scheme as authorised by Decision No 248/11/COL. That decision foresees the obligation to notify individual aid grants over EUR 7.5 million to the Authority for a detailed assessment.<sup>36</sup>
- (99) The Authority notes that under the Energy Fund, the award of aid above this threshold is conditional upon the Authority’s approval.<sup>37</sup> Accordingly, the Norwegian authorities have not yet implemented the individual aid measure in favour of Nikkelverk. Furthermore, by submitting the notification received and registered by the Authority on 8 April 2016, the Norwegian authorities have complied with the notification requirement.

<sup>35</sup> Decision No 248/11/COL, para. 54.

<sup>36</sup> *Ibid.*, para. 58, cross-referring to point (160) EAG.

<sup>37</sup> *Ibid.*, para. 57.

(100) The Authority therefore concludes that the Norwegian authorities have respected their obligations pursuant to Article 1(3) of Part I of Protocol 3 and Decision No 248/11/COL.

### **3. Compatibility of the state aid**

#### **3.1. Legal framework**

(101) The Norwegian authorities have conducted their assessment to grant aid to Nikkelverk according to the procedures approved by the Authority for the NETP in its Decision No 248/11/COL (see paragraph (26) above). For the reasons provided by the Norwegian authorities (see paragraphs (30) to (42) above), the Authority finds that the notified aid is eligible for aid under the NETP.

(102) The NETP was assessed directly on the basis of Article 61(3)(c) of the EEA Agreement.<sup>38</sup> The Authority considers that this is the correct legal framework for the compatibility assessment of the aid to Nikkelverk. However, since the aid to Nikkelverk has an environmental objective, the Authority finds that the EAG and the EEAG can be used for general insight into relevant principles for this assessment.<sup>39</sup>

(103) Pursuant to Article 61(3)(c) of the EEA Agreement, aid to facilitate the development of certain economic activities or of certain economic areas may be considered compatible with the functioning of the EEA Agreement where such aid does not adversely affect trading conditions to an extent contrary to the common interest.

(104) In order to confirm that this is the case regarding the notified measure, and in line with Decision No 248/11/COL, a detailed assessment of the measure must be carried out. In order to do so, the following issues have been assessed:<sup>40</sup>

1. contribution of the measure to a well-defined objective of common interest;
2. need for the State intervention;
3. appropriateness of the state aid;
4. existence of incentive effect;
5. proportionality of the aid amount (aid limited to the minimum necessary); and
6. avoidance of undue negative effects on competition and trade.

#### **3.2. Detailed assessment of the notified measure**

##### *3.2.1. Contribution to a well-defined objective of common interest*

(105) An objective of common interest is an objective that has been recognised as being in the common interest of the EEA States. The Authority acknowledges that the protection of the environment is an objective of common interest.

<sup>38</sup> The Authority concluded that the NETP fell outside the scope of the R&D&I Guidelines. It also concluded that many of the projects to be supported by the NETP will not, due to their inherent characteristics as demonstration projects, follow the economic logic of the EAG. Therefore, the NETP was assessed directly under the EEA Agreement. See also footnote 10 above.

<sup>39</sup> See *Tizir* decision (referred to in footnote 11 above), para. 171.

<sup>40</sup> *Ibid.*, para. 139, cross-referring to para. 87.

- (106) The determination to protect the environment is already established in the EEA Agreement, when the Contracting Parties defined themselves as “*determined to preserve, protect and improve the quality of the environment*”. This determination is reflected in Chapter 3 of Part V of the EEA Agreement, entitled “Environment” (Articles 73 to 75). In particular, Article 73(1)(a) of the EEA Agreement states that “*action by the Contracting Parties relating to the environment shall have the following objectives: (a) to preserve, protect and improve the quality of the environment*”.
- (107) In its Decision No 248/11/COL, the Authority found that the NETP is aimed at an objective of common interest. More in particular, the notified project has positive environmental effects. As already described in paragraph (16) above, if successful, the project will result in a reduction of energy consumption of 35% compared to the existing copper refinery at Nikkelverk and a 10% reduction compared to the BAT level.
- (108) The project also contributes to developing a new, more efficient production technology. Therefore, the project promotes innovation within the EEA. The Authority notes that research and innovation is covered by Protocol 31 to the EEA Agreement. The promotion of innovation falls under the scope of the EEA Agreement. Research and innovation is, in particular, one of the core objectives of the Europe 2020 Strategy for smart, sustainable and inclusive growth.<sup>41</sup> Norway is an associated country of the Horizon 2020 programme.<sup>42</sup>
- (109) Based on the above, the Authority concludes that the aid measure is aimed at well-defined objectives of common interest, i.e. environmental protection and innovation.

### 3.2.2. *Need for the state intervention*

- (110) As a general consideration, the Authority considers that state aid should be targeted towards situations where it can bring about a material improvement that the market cannot deliver itself.
- (111) As recognised by the Authority in Decision No 248/11/COL, the primary objective of state aid under the NETP is to introduce new energy technologies to the market.<sup>43</sup> The substantial environmental benefits pursued by the project are more effective energy production and saving technologies. The NETP attempts to favour the market diffusion of such technologies and to address a market failure in the sense that the long-term positive externalities such as knowledge spill-overs stemming from the testing and deployment of new technologies are not sufficiently taken into account when profit-seeking undertakings make investment decisions. Due to the perceived unattractive rates of return from a commercial perspective, the number of investments in this field risk are sub-optimal from a community perspective.<sup>44</sup>

<sup>41</sup> Further information regarding the 2020 Strategy is available at:

[http://ec.europa.eu/europe2020/index\\_en.htm](http://ec.europa.eu/europe2020/index_en.htm)

<sup>42</sup> Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe’s global competitiveness. More information is available at:

<http://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020> See further:

[http://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/hi/3cpart/h2020-hi-list-ac\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf)

<sup>43</sup> Decision No 248/11/COL, para. 106.

<sup>44</sup> *Ibid.*, para. 140.

- (112) The notified measure is aimed at addressing this market failure. The purpose of the demonstration plant is to verify a new and more energy efficient production technology, which will be made available to the market.
- (113) The Authority concludes therefore that the aid is needed to cover the defined market failure.

### 3.2.3. *Appropriate instrument*

- (114) In its Decision No 248/11/COL, the Authority found that state aid represents an appropriate instrument to achieve the objective of common interest identified above.
- (115) This finding was based on the information provided by the Norwegian authorities that there are no other, less distortive instruments to achieve the same results, and that the goals of the NETP could not be attained through regulation.<sup>45</sup>
- (116) Regarding the notified measure, the Authority notes in particular that the Norwegian legislation does not require undertakings to construct plants using new innovative technologies, and therefore Nikkelverk could continue its production using its current technology and facilities (see paragraph (53) above).
- (117) The Authority also notes, as the Commission had in the *Salzgitter* case,<sup>46</sup> that in the present case it is not possible to use a regulatory instrument to achieve the same result in terms of environmental protection as with the aid. The Authority considers that the Norwegian authorities could only set certain standards but not impose a specific technology upon the industry. However, standards may provide a less efficient incentive for further improving a given technology compared to aid. Therefore, in the current situation the Authority concludes that the grant constitutes an appropriate instrument to obtain the objective of environmental protection, given that less distortive instruments will not allow to achieve the immediate objective of the aid, i.e. to implement the project.
- (118) The demonstration project will not be profitable, having very limited operating benefits. Consequently, the Authority considers that less distortive aid instrument, e.g. a loan or a guarantee, would not be suitable to trigger investment in the new technology (see paragraph (48) above).
- (119) The Authority concludes therefore that the notified measure is an appropriate instrument.

### 3.2.4. *Incentive effect*

- (120) As set out in Decision No 248/11/COL, aid generally does not present an incentive effect for the beneficiary in cases where the project has already started prior to the aid application to Enova.<sup>47</sup> Nikkelverk's application for aid to Enova was submitted before the start of the project.
- (121) State aid for environmental protection must result in the recipient of the aid changing its behaviour so that the level of environmental protection will be higher than if the aid had not been granted. The Authority thus needs to verify that Nikkelverk would not, without the aid, build the planned demonstration plant, e.g. because of its intrinsic benefits.

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<sup>45</sup> *Ibid.*, para. 141.

<sup>46</sup> See the *Salzgitter* case. Footnote 29 above.

<sup>47</sup> Decision No 248/11/COL, para. 142.

- (122) The NETP foresees that the incentive effect will normally be assessed by reference to a counterfactual investment.<sup>48</sup> However, as the Norwegian authorities correctly point out, Decision No 248/11/COL recognises that in some cases, aid applicants may not have considered an alternative investment.<sup>49</sup> For many investors, the key element for a demonstration project is to reduce the perceived risk of investing in the innovation on a larger scale, and to increase the user acceptance of a new alternative technology or solution. A demonstration project is a risk mitigation measure related to future investment decisions. Alternative investments may be further research, technology monitoring or to wait until others have made the investment necessary to demonstrate the technology.<sup>50</sup>
- (123) The Authority notes that Nikkelverk has not considered a counterfactual in the form of an alternative reference investment. The purpose of the notified project is to demonstrate a highly efficient one-step electrowinning process for copper production. This objective of the project is not to increase Nikkelverk's production, but rather to verify technology enabling the reduction of environmental footprint. The Authority believes that this objective cannot be attained by building a conventional production plant.
- (124) The Authority accepts therefore that the business as usual scenario would be a credible counterfactual scenario in the present case. The information provided to the Authority shows that Nikkelverk has steady and economically sustainable operations as it is today. Consequently, the notified project is not necessary for further operations. If no aid would be granted, it does not seem realistic to consider that other investments costs would be incurred as an alternative to the demonstration plant. The Authority has reached similar conclusions in previous cases,<sup>51</sup> as has the Commission.<sup>52</sup> Consequently, the Authority accepts that the counterfactual is a no-investment decision and that the alternative investment costs would be zero, as indicated in **Table 2** above (paragraph (23) above).
- (125) As also set out in section 3.6 Part I above, NPV calculations have been used to examine whether the aid has an incentive effect. NPV calculations determine how much aid is needed in order to trigger an investment. A project is triggered when it reaches an NPV of zero with a reasonable RR.
- (126) The data submitted by the Norwegian authorities indicate that, without the aid, the demonstration project would have an IRR of 3.3% (see paragraph (60) above). With the aid, the project will have an IRR of 6.7%.
- (127) The Authority also notes that the RR normally required by Nikkelverk is 17–20%, much higher than the one obtained with the project even with aid. The Norwegian authorities have explained that Nikkelverk can exceptionally accept a lower RR in case of projects of particular strategic relevance. The aim of the project is of a long-term strategic nature in

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<sup>48</sup> *Ibid.*, para. 142.

<sup>49</sup> Annex 2 to the EEAG contains a list of relevant counterfactual scenarios for various kinds of environmental measures. The list does not contain a counterfactual scenario for situations of aid to energy efficiency. The project at hand is an integrated project, i.e. it is a technological project but ensures some energy efficiency.

<sup>50</sup> Decision No 248/11/COL, para. 142.

<sup>51</sup> See the *Hydro* decision, para. 141 and the *Tizir* decision para. 194.

<sup>52</sup> In the AMEH case, the Commission approved aid from Germany to Arcelor Mittal Eisenhuettenstadt GmbH for the deployment of a Top Gas Recycling (TGR) demonstration project at a steel production plant. The Commission found that in absence of aid AMEH would not invest in TGR, but would follow the business as usual scenario. State aid case – Germany – N 450/2009 Top Gas Recycling (TGR). Project - Aid to ArcelorMittal Eisenhüttenstadt GmbH. (OJ C 94, 14.4.2010, p. 9.)

the sense that a successful demonstration of the concept will be the basis for future investments using the improved processes. The Authority considers that a RR of 6.7% can be accepted, also because it is in line with the estimated normal RR of comparable industries in Norway (see paragraph (66) and footnote 26 above).

- (128) Based on the above premises, the Authority concludes that the NPV calculations demonstrate that the project is not viable without the aid, and therefore the aid is needed to trigger the investment.
- (129) As set out in Decision No 248/11/COL, in case of a “no investment” counterfactual the following further elements must also be assessed in order to determine whether the aid has an incentive effect: (i) whether any relevant EU or national standards will be introduced in the foreseeable future; (ii) whether the investment in the relevant project represents normal market behaviour; (iii) the level of risk connected to the project and whether the investment, without the aid, would generate an appropriate profit; (iv) the project’s level of increased environmental protection; and (v) the extent of the production advantages obtained by the aid recipient.<sup>53</sup>
- (130) As stated in section 3.6.(i) of Part I above, the Norwegian authorities have confirmed that there are no ongoing negotiations at EU or national level to introduce new or higher mandatory standards in respect of which the aid would result in any advantages to Nikkelverk. Furthermore, the Norwegian authorities have explained that the construction of demonstration plants without state support to verify a new copper production process does not represent normal market behaviour. This is mainly due to the risks involved and the highly unprofitable nature of the investment.
- (131) As regards the levels of risk and profitability, as well as the extent of production advantages, Enova’s financial analysis of the project using an NPV calculation has taken into account all production advantages, as well as the levels of risk and profitability over the lifetime of the project (see section 3.7.1 of Part I above). These factors do not affect the findings of the NPV calculation that the investment is not viable without the aid.
- (132) Finally, as regards the likely level of environmental protection resulting from the aid, the Authority refers to the estimate of the environmental impact of the project compared to the current Nikkelverk’s standards and the BAT level (see paragraph (16) above).
- (133) Having assessed these factors, the Authority concludes that Nikkelverk, with the aid and if the new technology is successfully tested, will change its behaviour so that the level of environmental protection will be higher than if the aid had not been granted. Thus, the notified measure fulfils the conditions regarding the incentive effect.

### 3.2.5. Proportionality

- (134) A state aid measure is proportionate if the measure is designed in such a way that the aid is kept to the minimum necessary.
- (135) Enova carries out a competition for aid under the NETP. The competition contributes to promoting an efficient use of state resources and limiting the risk of overcompensation. However, given the influence of qualitative elements (e.g. the potential of a new technology to create future energy savings) in the selection process, competition for aid

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<sup>53</sup> Decision No 248/11/COL, para. 142.

does not by itself ensure that the notified measure is proportionate. The Authority considers that an *ad hoc* assessment of this criterion is required.

- (136) The aid intensity of the notified measure is 44.3% (see **Table 3** above). This is below the maximum aid intensity of 50% for large enterprises under the NETP. The Authority also notes that, in line with Decision 248/11/COL, the eligible costs have been calculated net of the operating benefits and operating costs related to the extra investment arising during the first five years of operation of the demonstration plant.
- (137) As explained in Decision No 248/11/COL, Enova also carries out an NPV calculation to ensure that the aid amount is limited to the amount necessary to trigger the project. The result of the NPV calculations provided by the Norwegian authorities demonstrates the extent of the funding gap for the project and that the aid amount does not exceed this funding gap. With the aid, the project reached an IRR of 6.7%, which is below the normal RR requirement of Nikkelverk and in line with the estimated industry average.
- (138) Finally, the rules for disbursements of aid under the Energy Fund Scheme, as explained in paragraphs (72) and (73) above, ensure that there is no overcompensation in case the investment costs or the main profitability drivers change between the date of this decision and the implementation of the project.
- (139) The Authority also notes that the aid will not be cumulated with other aid for the same project.
- (140) On the basis of the above, the Authority concludes that the aid measure is proportionate.

### 3.2.6. *Avoidance of undue negative effects on competition and trade*

- (141) Based on the information provided by the Norwegian authorities and summarised in paragraphs (75) to (89) above, the Authority has examined the potential for distortions of competition and an effect on trade, in the light of the foreseeable impact of the aid on competition and trade between undertakings in the relevant markets.
- (142) The Authority agrees that the main relevant product market is copper production, because the demonstration plant has as an objective to demonstrate a new process for the production of this metal. The zinc and nickel markets could be secondary potentially affected markets because the technology could also be used for zinc electrowinning and, in a long-term perspective, for nickel processing. In any event, based on the information provided by the Norwegian authorities, the Authority has concluded that there is no undue negative effects in competition or trade in those markets.
- (143) The Authority notes that, as a general rule, if the aid is proportionate, its negative impact on trade and competition is likely to be limited.<sup>54</sup> As set out in section 3.2.5 of Part II above, the Authority has concluded that the aid is proportionate.
- (144) Furthermore, the Authority has received detailed information from the Norwegian authorities (summarised in paragraphs (75) to (89) above) to demonstrate that the effects

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<sup>54</sup> For instance the former EAG stated that: “if the aid is proportional, notably if the calculation of the extra investment or operating costs has taken into account all advantages to the undertaking; the negative impact of the aid is likely to be limited”. The EEAG similarly indicate that “if the aid is proportionate and limited to the extra investment costs, the negative impact of the aid is in principle softer” (point (93)).

of the measure in the directly affected market (copper) but also in the other potentially affected markets (i.e. nickel and zinc) would be limited and outweighed by the positive effects in terms of contribution to the objective of common interest.

- (145) The Authority notes that Nikkelverk is a small operator. Neither Nikkelverk, nor the Glencore group as a whole, hold a dominant market position in the copper market or in the other potentially affected markets, i.e. zinc and nickel. The project will not result in an increase of Nikkelverk's copper production capacity. Moreover, copper is a commodity, which is priced based on LME quotations, which will further reduce the risk that the aid could have an effect on prices.
- (146) The Authority underlines the importance of the commitment on market diffusion of the technology to ensure that the supported technology will be spread to the industry in order to outweigh the negative effects on competition and trade linked to the measure.
- (147) Therefore, the Authority concludes that the aid measure has limited effects on competition and intra-EEA trade.

#### *3.2.7. Transparency*

- (148) The Authority finally notes the Norwegian authorities' commitment to meet the transparency obligation laid down in Section 3.2.7 of the EEAG from July 2016.

#### *3.2.8. Conclusion on the compatibility assessment*

- (149) Based on the detailed assessment set out above, the Authority has balanced the positive and negative effects of the notified measure. The Authority concludes that the distortions resulting from the notified measure do not adversely affect trading conditions to an extent contrary to the common interest.

### **4. Conclusion**

- (150) On the basis of the foregoing assessment, the Authority concludes that the notified individual aid to Nikkelverk is compatible with the functioning of the EEA Agreement pursuant to Article 61(3)(c) thereof.

HAS ADOPTED THIS DECISION:

#### *Article 1*

The individual state aid to Nikkelverk, notified by the Norwegian authorities on 8 April 2016, for the demonstration of a new, energy-efficient electrowinning process for copper production at the company's premises in Kristiansand, is compatible with the functioning of the EEA Agreement pursuant to Article 61(3)(c) thereof.

#### *Article 2*

The implementation of the notified measure is authorised accordingly.

#### *Article 3*

This Decision is addressed to the Kingdom of Norway.

*Article 4*

Only the English language version of this decision is authentic.

Done in Brussels, on 25 May 2016.

*For the EFTA Surveillance Authority*

Sven Erik Svedman  
President

Frank Büchel  
College Member

*This document has been electronically signed by Sven Erik Svedman, Frank Buechel on 25/05/2016*