

Case No: 72903
Event No: 658238
Dec. No: 74/13/COL

[non confidential version]

EFTA SURVEILLANCE AUTHORITY DECISION
of 20 February 2013
on Aid to Norcem AS for the Construction of a Carbon Capture Research Facility
at its Cement Plant in Brevik
(Norway)

The EFTA Surveillance Authority (“the Authority”),

HAVING REGARD to:

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

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 Article 24,

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

WHEREAS:

I. FACTS

1. Procedure

- (1) By letter dated 28 November 2012 (Events No 654881 and 654882) received and registered by the Authority on 28 November 2012, following pre-notification contacts, the Norwegian authorities notified to the Authority state aid to Norcem AS (“Norcem”), pursuant to Article 1(3) of Part I of Protocol 3.
- (2) Following the notification, the Authority asked for further information by way of e-mail dated 11 January 2013 (Event No 658954) and 22 January (Event No 660691) and the Norwegian authorities replied by e-mail dated 15 January 2013 (Event No 659461), 24 January (Event No 662089) and 6 February 2013 (Event No 662045, 662047 and 662048).

2. Description of the proposed measure

- (3) Norway intends to grant NOK 69,6 million (EUR 8,7 million)¹ to Norcem for the construction of a research facility for the testing of post combustion CO₂ capturing technologies at its cement plant in Brevik/ Norway. The project is a test pilot for capturing technologies and does not involve transport or storage.

2.1. Objective

- (4) Norway submits that the primary objective of the measure is to test carbon capture technologies in order to promote environmental protection by reducing CO₂ emissions from cement production.

2.2. Background

- (5) According to the Norwegian authorities, the support for the measure is the result of the commitment of the Norwegian government to combat climate change by reducing CO₂ emissions.

Policy Background

- (6) The promotion of carbon capture and storage (“CCS”) for fossil fuel power plants and other industrial installations has been endorsed at EEA level as a mean to prevent climate change.
- (7) The need for a reduction of carbon emissions in the fight against climate change is widely recognised and has led to the adoption of a number of instruments providing incentives for carbon free energy production (e.g. Chapter of the State aid guidelines on State aid for environmental protection²) and disincentives for carbon-intensive fossil fuelled energy production (e.g. Emission Trading System Directive³).
- (8) The Contracting Parties have declared that CCS technology will play a key role in the fight against climate change.⁴ Therefore, the CCS Directive⁵ now provides the legal framework for operators of CCS equipped power plants and industrial applications to subtract safely stored CO₂ from their duties under the Emission Trading System (ETS) Directive. The Norwegian authorities are currently in the process of implementing both directives. However, the high costs and risks of first-of-kind CCS applications have proven to be a main barrier for investment in CCS technology⁶ and - in combination with relatively low carbon prices - have so far prevented companies from investing into CCS

¹ The conversions from NOK to EUR and EUR to NOK are based on an exchange rate under which 1 NOK = 8 EUR.

² OJ L 144, 10.6.2010, p. 1, EEA Supplement No 29, 10.6.2010, p.1. This Chapter corresponds to the European Commission Community Guidelines on State Aid for Environmental Protection (OJ C 82, 1.4.2008, p. 1).

³ Directive 2009/29/EC of the European Parliament and of the Council of 23.4. 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community, OJ L 140, 5.6.2009, p. 63. This Directive has been incorporated into the EEA Agreement in point 21(a)(l) of Annex XX.

⁴ See conclusions of the Council of the EEA, most recently Conclusions of the 38th meeting of the EEA Council, 26.11.2012, Ref. EEE 1607/1/12 REV 1, point 17.

⁵ Directive 2009/31/EC of 23.4.2009 and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006, OJ L 140 5.6.2009, p. 114. This Directive has been incorporated into the EEA Agreement in point 21(1)(a) of Annex XX.

⁶ Commission staff working document accompanying documents to the communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions “European Strategic Energy Technology Plan (SET-Plan) – Technology Map” of 22.11.2007, COM(2007)723 final; SEC(2007) 1510, p.28.

without State aid. Therefore it is generally accepted that there is a need for public support mechanisms for CCS.⁷

- (9) Until now a number of support mechanisms have been established both at European and at national level. At European level EUR 1 billion has been provided for the support of six CCS projects under the European Energy Program for Recovery (EEPR).⁸ Moreover, additional funding is provided for such projects under the revised ETS Directive.⁹ At national level, a number of EEA States have notified state aid to full-scale CCS projects, which were subsequently approved by the Authority and the Commission.¹⁰ As regards Norway, already in 2005 the Norwegian authorities notified and the Authority approved a scheme to promote CCS (the “Gassnova scheme”) which is administered by a specially created administrative body (“Gassnova”).¹¹ Gassnova funded a number of projects relating to CCS, inter alia the projects at Mongstad and Kårstø. So far, the projects focussed on the power generation sector, even though the scheme is now open to industrial applications such as cement production, too.

CCS in the Cement Industry

- (10) Cement production is responsible for both indirect and direct emissions. The indirect emissions stem from the generation of the energy, which is consumed by the cement production plants. Since cement production is a highly energy intensive process, it is responsible for a high amount of indirect emissions. Often cement production plants generate the energy themselves. Traditionally coal has been used as a primary fuel in the process. The direct emission stem from the production process itself. Cement is produced through the calcinations of limestone, which is the primary raw material for cement. Limestone consists mostly of calcium carbonate. In the calcinations process (essentially the crushing of the limestone) the calcium carbonate is split into calcium oxide and carbon dioxide. The latter is emitted into the atmosphere.
- (11) The possibility to equip cement production plants with CCS has been discussed for some time and has been subject to several studies. In 2005, US researchers published a study on the role of CCS in reducing emissions from cement plants in North America (hereafter: Mahasenan-Study), which estimated the CO₂ abatement costs at 40-80 EUR /ton of CO₂.¹² A year later, in 2006 Norwegian researchers published a study on the technical and economic aspects of CCS for Norcem’s cement plant in Brevik (hereafter: GasSTEK-

⁷ Recital 69 Chapter of the State aid guidelines on State aid for environmental protection.

⁸ Regulation (EC) No 663/2009 of the European Parliament and of the Council of 13.7.2009 establishing a programme to aid economic recovery by granting Community financial assistance to projects in the field of energy, OJ L 200, 31.7.2009, p. 31–45.

⁹ Art. 10 (a) point 8 ETS Directive.

¹⁰ Authority Decision No. 503/08/COL of 16.7.2008 on Test Center Mongstad; Authority Decision No. 27/09/COL of 29.1.2009 on the Carbon Capture and Storage Project at Kårstø; Commission Decision N74/2009 of 8.4.2009 on United Kingdom - CCS Demonstration Competition - Feed; Commission Decision N381/2010 of 27.10.2010 on The Netherlands – Aid for a CCS Project in the Rotterdam Harbour Area; Commission Decision N190/2009 on The Netherlands – CO₂ Catch-up Pilot Project at Nuon Buggenum Plant.

¹¹ Decision 302/05/COL of 30.11.2005 on a notified scheme for research and development concerning gas technologies with improved environmental performance („Gassnova“). Subsequent amendments were approved by Decision 786/08/COL of 17.12.2008 on the alteration to the scheme for research and development concerning gas technologies with improved environmental performance (i.a. extension of the scheme to other fossil fuels) and by Decision 348/10/COL of 15.9.2010 on the notified amendment to the scheme for research and development concerning gas technologies with improved environmental performance (i.a. extension of the scheme to industrial applications).

¹² Mahasenan, Dahowski and Davidson (2005) *The Role of Carbon Dioxide Capture and Storage in Reducing Emissions from Cement Plants in North America*, in: *Greenhouse Gas Control Technologies*, Volume I, eds. E.S.Rubin, D.W. Keith and C.F. Gilboy. Elsevier Science, 2005, p.907, last paragraph (50-100 USD/ ton CO₂).

Study), which estimates the operational costs of capture at approximately NOK 360 (EUR 45) per ton of CO₂.¹³ Two years later, in 2008, the International Energy Agency published a study undertaken by the British Cement Association on CO₂ capture in the cement industry (hereafter: Mott MacDonald-Study), which estimates the costs of CO₂ abatement at 118 EUR/ ton CO₂.¹⁴ Furthermore, in 2011, the European Technology Platform for Zero Emission Fossil Fuel Power Plants (hereafter: ZEP Platform) published a report on the costs of CO₂ capture, transport and storage (hereafter: ZEP-Report), which estimates the costs for storage at to 1 - 20 EUR/ton CO₂, depending on whether storage is implemented offshore or onshore and whether the storage facility is a depleted oil or gas field or a saline aquifer.¹⁵

- (12) At the same time, it can be noted that the incentives to invest into CO₂ abatement are mainly driven by the development of the costs of emitting CO₂. The development of the carbon price in the EU ETS over the trading period 2008 – 2012 fluctuated between 6-34 EUR/ton of CO₂ as follows (in EUR/ton of CO₂).¹⁶



- (13) As regards the trading period 2013-2020, the European Commission estimated in a study from 2010 that the carbon price would be at 16-25 EUR/ ton of CO₂.¹⁷ However, more

¹³ Hegerland, Pande, Haugen, Eldrup, Torkheim and Hatlevik (2006) *Capture of CO₂ from a cement plant - technical possibilities and economical estimates*, 8th International Conference on Greenhouse Gas Control Technologies, 19-22 June 2006, Trondheim, Norway, p. 5. The researchers worked for GassTEK and ProjectInvest Energy, research institutes based in Trondheim/Norway. The cost estimate includes cost for a 10km pipeline which was to join another transport line. However, it does not include the costs for further transport and storage.

¹⁴ Barker, Holmes, Hunt, Napier-Moore, Turner and Clark (2008) *CO₂ Capture in the Cement Industry*, IEA Greenhouse Gas R&D Programme, Cheltenham, Table 5-10, p.5-13. The researchers worked for Mott MacDonald, an engineering consultancy based in Brighton/ UK.

¹⁵ Zero Emission Platform, *The Costs of CO₂ Capture, Transport and Storage*, July 2011, p. 8 et seq..

¹⁶ The prices reflect the daily over-the-counter (OTC) closing prices for EUAs to be delivered at the end of 2012 (Source: European Environment Agency, see: www.eea.europa.eu/data-and-maps/figures/eua-future-prices-200820132012).

¹⁷ European Commission, 26.5.2010, Commission Staff Working Document, Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage - Background information and analysis, SEC(2010) 650, p.33 and

recently the Barclays Bank estimated the carbon price for the trading period 2013-2020 trading period to average 9 EUR/ ton of CO₂.¹⁸

ECRA and the Brevik Project

- (14) In 2003 a number of European cement producers founded the European Cement Research Academy (ECRA) as a platform on which the European cement industry supports, organises and undertakes research activities within the context of the production of cement and its application in concrete.¹⁹ To date, more than 40 European cement producers participate in ECRA. As part of its activities, ECRA analysed the options to use CCS in the cement industry and carried out a study on the matter. According to the study, Norcem's plant at Brevik could be a suitable test site, because it is equipped with both, a SO_x-scrubber (GSA) and an SNCR (de-NO_x unit), which enables Norcem to change the exhaust gas composition to imitate the emissions at other cement plants in Europe.
- (15) Subsequently, ECRA and Norcem further developed the project of construction of a carbon capture test facility at Norcem's Brevik plant. The project is divided into a concept study phase (Phase I) and an execution phase (Phase II).
- Phase I consisted of drawing up a concept study for the testing facility and of identifying suitable technology providers. The technology providers were chosen with a view on covering a wide range of both more developed and upcoming potential technologies. In the end the project management selected two more developed technologies (Aker Clean Carbon's amine technology and Alstom's carbonate looping technology) and two upcoming technologies (i.e. DNV KEMA's membrane technology and RTI's solid absorbent technology). Phase I was concluded in 2011.
 - Phase II is based on the findings of the concept study from Phase I and consists of the construction of the carbon capture testing unit and the testing of the different technologies. Phase II is subject to the present notification and is supposed to start as soon as the measure is approved by the Authority and last until 2016. The notified project will only test the capturing of CO₂. The captured CO₂ will then not be stored but will be emitted into the atmosphere. Consequently, there will be no economic advantage in terms of saved emission allowances under the ETS.
- (16) According to the Norwegian authorities the costs of the project amount to approximately NOK 93,3 million (EUR 11,7 million). A more detailed description of the costs is depicted in the table below:

	CAPEX (investment costs)		OPEX (operating costs)		Total Costs	
	MNOK	MEUR	MNOK	MEUR	MNOK	MEUR
Project Administration			[5-10]*	[1-5]	[5-10]	[1-5]
Infrastructure	[10-20]	[1-5]	[1-5]	[0-1]	[10-25]	[1-5]
Amine Process (ACC)	[1-5]	[0-1]	[10-20]	[1-5]	[10-25]	[1-5]
Membrane	[1-5]	[0-1]	[5-10]	[1-5]	[5-15]	[1-5]

¹⁸ See Bloomberg 11.10.2012 Barclays Raises 2013-2020 EU Carbon Permit Price Forecast by 13%, available at: <http://www.bloomberg.com/news/print/2012-10-11/barclays-raises-2013-2020-eu-carbon-permit-price-forecast-by-13-.html> (last accessed 7.11.2012).

¹⁹ See www.ecra-online.org.

* In this Decision, information covered by the obligation of professional secrecy has been replaced with ranges represented in square brackets.

Process (DNV KEMA, NTNU & Yodfat)						
Solid Sorbent Absorption (RTI)	[5-10]	[0-1]	[5-10]	[0-1]	[10-20]	[1-5]
RCC De-Risk Study (Alstom)			[1-5]	[0-1]	[1-5]	[0-1]
Benchmark Study			[0-1]	[0-1]	[0-1]	[0-1]
Test Program			[10-20]	[1-5]	[10-20]	[1-5]
Total	27.54	3.44	65.72	8.21	93.6	11.66

(17) The Norwegian authorities submit that there are a number of partners participating in the project. Norcem is the actual aid beneficiary and carries out the project. However, the Norwegian authorities stresses that the project is unique to the extent that many other European cement producers, through the membership in ECRA, support the project. Apart from Norcem, the following partners are – to different extents - involved in the project:

- ECRA is a Düsseldorf based organisation through which the European cement producers support, organise and undertake research activities within the context of the production of cement and its application in concrete. Both Norcem and HeidelbergCement are members of ECRA. ECRA's aim is to create and disseminate know-how from research findings.²⁰ ECRA has more than 40 members including large European cement producers such as Italy's Buzzi Unicem, France's Lafarge, Switzerland's Holcim and Germany's HeidelbergCement.²¹ According to the Norwegian authorities, any cement producer can join ECRA and thus participate in the exchange of know-how. ECRA's activities comprise the organisation of seminars, workshops and dedicated research project.
- Gassnova has been established by the State in order to promote research and development of CCS. According to §2 of Gassnova's by-laws its purpose is to manage the State's interest related to CO₂-handling without engaging in economic activities. The Norwegian State – through the Ministry of Petroleum and Energy – is the sole shareholder of Gassnova. Gassnova is fully financed by the Norwegian State, which controls its activities. According to the Norwegian authorities Gassnova qualifies under Norwegian law as a public body established for the specific purpose of meeting needs in the general interest, not having an industrial or commercial character.²² According to the Norwegian authorities, with regard to the development of the carbon capture testing unit, Gassnova will act as an agent for the State supervising the implementation of the project and the use of the funds by Norcem.
- Furthermore, Norcem will enter into contractual relationships with certain technology providers. These providers are Aker Clean Carbon (amine technology), Alstom (carbonate looping), DNV KEMA (membrane technology) and RTI (solid absorbent technology). According to the Norwegian authorities, these providers were chosen with a view on covering a range of developed technologies (amine technology and carbonate looping) without neglecting small,

²⁰ See <http://www.ecra-online.org/172/>.

²¹ ECRA Newsletter 1/2005 (available at <http://www.ecra-online.org/192/>).

²² The Norwegian authorities refer to §1-2 Norwegian Public Procurement Regulation implementing Art. 1 (9) of Directive 2004/18/EC.

upcoming technologies (membrane technology and solid absorbent technology). The Norwegian authorities have confirmed that there are no corporate links between Norcem and HeidelbergCement on the one side and the technology providers on the other side.

- (18) Gassnova finances the majority of the costs through a grant under the CLIMIT programme. Norcem, ECRA and the technology providers cover the remaining costs, partly in cash and partly in kind. A description of the financing is set out below:

	Cash		In-kind		Total	
	MNOK	MEUR	MNOK	MEUR	MNOK	MEUR
Norcem/ HeidelbergCement	[1-5]	[0-1]	[5-10]	[0-1]	[10-15]	[1-5]
ECRA			[1-5]	[0-1]	[1-5]	[0-1]
Technology Providers			[5-10]	[0-1]	[5-10]	[0-1]
Gassnova (CLIMIT)	69.6	8.7			69.6	8.7
Total	74.6	9.3	18.6	2.3	93.3	11.7

- (19) Norcem will provide both cash and in-kind contributions, the latter *inter alia* through the construction of the infrastructure and the general administration and control of the project. HeidelbergCement, ECRA and the technology providers will contribute in kind. HeidelbergCement will amongst other contributions provide input to the test program and the benchmark analysis. ECRA will *inter alia* contribute through the evaluation, publication and dissemination of the results and the technology providers will contribute – depending on the provider - through the provision of testing material, the operation of testing units, the drafting of studies or construction and commissioning.

Contractual Framework

- (20) The infrastructure will be owned by Norcem. However, Norcem will make the infrastructure available to the technology providers for testing. According to the Norwegian authorities, the specific IPRs developed by technology providers (i.e. for membranes, absorbents, etc.) will remain their property. Personnel from Norcem or from other project partners will have to sign a confidentiality agreement in that regard. Other results from the project (i.e. general know-how, etc.) will belong equally to the technology providers, Norcem and HeidelbergCement, Gassnova and ECRA.

2.3. National Legal Basis

- (21) According to the Norwegian authorities the legal basis for the measure is the CLIMIT programme.²³

2.4. Beneficiary

- (22) The beneficiary of the measure is Norcem. Norcem is the sole cement producer in Norway, where it operates – together with a second plant - a cement production facility in Brevik. Norcem supplies cement to the Norwegian market but also exports a significant share of its production to other markets (e.g. Africa, Russia, USA and to the EU). Norcem is a 100% subsidiary of HeidelbergCement, a global market player in the production and

²³ The aid intensity of the measures at hand goes beyond the maximum aid intensity for comparable projects as approved by the Authority in its Decision No. 348/10/COL (“Gassnova Scheme”). However, in November 2012 the Norwegian authorities have since amended these rules to allow funding of certain projects with higher aid intensities provided that these projects are notified to the Authority.

distribution of aggregates and one of the biggest producers of cement worldwide. The company employs some 52 500 people at 2 500 locations in more than 40 countries.

2.5. Amount of Aid

- (23) The contribution of the Norwegian State amounts to NOK 69,6 million (EUR 8,7 million). The estimated costs of the total project amount to NOK 93,3 million (EUR 11,7 million). This corresponds to an aid intensity of approximately 75%.

2.6. Form of the Aid and Means of Funding

- (24) The Norwegian State will grant the aid through Gassnova, acting as its agent, to the beneficiary in form of a direct grant.

2.7. Duration

- (25) The project is scheduled to start with the approval of the Authority and is estimated to last until 1 March 2016.

2.8. Cumulation

- (26) The Norwegian authorities have confirmed that the aid will not cumulate with any other aid granted by the Norwegian authorities.

II. ASSESSMENT

1. The Presence of State Aid

- (27) Article 61(1) of the EEA stipulates that “[s]ave as otherwise provided in this Agreement, any aid granted by EC Member States, EFTA States or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Contracting Parties, be incompatible with the functioning of this Agreement.”
- (28) It follows that a measure constitutes State aid under Article 61(1) of the EEA if it fulfils four conditions. Firstly, the measure is funded by the State or through State resources. Secondly, the measure confers an advantage to the recipients. Thirdly, the measure favours selected undertakings or economic activities. And fourthly, the measure affects trade between the Contracting parties and distorts or threatens to distort competition in the EEA.

Advantage

- (29) It is established case law that a State intervention favours an undertaking, if it provides the undertaking with an economic advantage, which it would not have obtained under normal market conditions.²⁴ The most common form of such an advantage is the granting of a subsidy, i.e. a payment in cash or in kind made in support of an undertaking other than the payment by the purchaser or consumer for the goods or services, which it produces.²⁵ The

²⁴ Case C-301/87 *France v Commission* [1990] ECR I-307, para. 41; Case 30/59 *De Gezamenlijke Steenkolenmijnen v High Authority of the European Coal and Steel Community* [1961] ECR 50, p.19; Case C-241/94 *France v Commission (Kimberly Clark)* [1996] ECR I-4551, para. 34; Case T-109/01 *Fleuren Compost* [2004] ECR II-132, Para. 53.

²⁵ Case 30/59 *De Gezamenlijke Steenkolenmijnen v High Authority of the European Coal and Steel Community* [1961] ECR 50, p.19 et seq.

Authority notes that the Norwegian State grants – through Gassnova – NOK 69,6 million (EUR 8,7 million) to Norcem for the construction of a carbon capture testing facility, without Norcem providing any consideration in return, which would directly benefit the State. The Authority concludes from the above that the payment is a subsidy for the benefit of Norcem and – as such – constitutes an economic advantage within the meaning of Article 61(1) of the EEA.

State Resources

- (30) It is established case law that a measure is financed *through State resources*, if it results in a burden on the budget of public undertaking, provided the measure is imputable to the State.²⁶ In the case at hand the financing of the project results in a burden on the budget of Gassnova. The Authority notes that – in the context of the CLIMIT programme – Gassnova does not act as an undertaking, but rather as an agent for the State.²⁷ The burden on the budget of Gassnova is therefore imputable to the State. Consequently, the measure is financed through State resources within the meaning of Article 61(1) of the EEA.

Selectivity

- (31) It is established case law that a measure is selective if it derogates from the common regime inasmuch as it differentiates between economic operators who are otherwise in the same legal and factual situation.²⁸ In that regard the Authority notes that the measure is financed through the CLIMIT programme, which aims at promoting environmentally friendly gas-fired power technologies and solutions for the disposal of CO₂.²⁹ This scheme is only open to industrial undertakings emitting CO₂. Other Norwegian undertakings (e.g. from the service sector) are de facto excluded from receiving aid under this scheme although they are in the same legal and factual situation under Norwegian law. Consequently, even though the measure is open to certain other undertakings, it is not open to all undertakings and is thus selective within the meaning of Article 61(1) of the EEA.

Effect on Trade and Competition

- (32) It is established case law that a measure distorts or threatens to distort competition in a way that affects trade between Contracting Parties if it strengthens the position of the recipient compared with other companies³⁰ and if the recipient is active in a sector, in which trade between Contracting Parties takes place.³¹ In the case at hand, the aid strengthens the position of Norcem AS compared to other cement producers. Moreover, Norcem AS is active in the cement industry where trade between Contracting Parties takes place. Consequently, the measure distorts or threatens to distort competition in a way that affects trade between Contracting Parties within the meaning of Article 61(1) of the EEA.

Conclusion

- (33) The Authority concludes from the above that the measure involves State aid within the meaning of Article 61(1) of the EEA for the benefit of Norcem AS.

²⁶ Case C-482/99 *France v Commission (Stardust)* [2002] ECR I-4397, para. 52.

²⁷ This approach is in line with the Authority's Decisions No 302/05/COL, 786/08/COL and 348/10/COL.

²⁸ Case C-143/99 *Adria-Wien Pipeline* [2001] ECR I-8365, para. 41; Cases C-106/09 P and C-107/09 P *Commission and Spain v Gibraltar and UK (Gibraltar corporate tax)* [2011] not yet published, para. 36.

²⁹ Decision 302/05/COL of 30.11.2005, p.2.

³⁰ Case 730/79 *Philip Morris Holland BV v Commission*, [2005] ECR, 2671, para. 11.

³¹ Case 102/87, *France v Commission (SEB)*, [1988], 4067, Case C-310/99, *Italian Republic v Commission*, [2002] EC R I-289, para. 85, Case C-280/00, *Altmark Trans GmbH and Regierungspräsidium Magdeburg v Nahverkehrsgesellschaft Altmark GmbH (Altmark)*, [2003] ECR, I-7747, para. 77; Case T-55/99, *Confederación Española de Transporte de Mercancías (CETM) v Commission*, [2000] ECR II-3207, para. 86.

2. Procedural Requirements

(34) 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”. By notifying their intention to grant the present aid the Norwegian authorities have complied with the notification requirement set out in Article 2 of Part II of Protocol 3. The measure has not been put into effect and is conditional on the Authority’s approval. Norway has therefore complied with the standstill obligation. The Authority concludes that the Norwegian authorities have respected their obligations pursuant to Article 1(3) of Part I of Protocol 3.

3. Compatibility of the Aid

(35) The Authority notes that the Gassnova scheme was approved on the basis of the R&D&I Guidelines.³² However, it follows from para. 69 of the Chapter of the State aid guidelines on State aid for environmental protection that the assessment of the compatibility of aid to CCS projects can be based directly on Article 61(3)(b) EEA or Article 61(3)(c) EEA. The Norwegian authorities have notified the measure under Article 61(3)(c) EEA which states that “... *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*” may be considered to be compatible with the functioning of the EEA Agreement.

(36) In assessing whether an aid measure can be deemed compatible with the functioning of the EEA Agreement, the Authority balances the positive impact of the aid measure in reaching an objective of common interest against its potentially negative side effects, such as distortion of trade and competition. This assessment consists of three steps; the first two steps address the positive effects of the state aid and the third addresses the negative effects and resulting balancing of the positive and negative effects.³³ This balancing test is structured as follows:

1. Is the state aid measure aimed at a well-defined objective of common interest?
2. Is the state aid well designed to deliver the objective of common interest?
 - a. Is the state aid an appropriate policy instrument?
 - b. Is there an incentive effect in the sense that the aid changes the behaviour of undertakings?
 - c. Is the aid proportional, that is, could the same change in behaviour be obtained with less aid?
3. Are the distortions of competition and effect on trade limited, so that the overall balance is positive?

3.1. Objective of Common Interest (Market Failure)

(37) The measure has to aim at a well-defined objective of common interest. An objective of common interest is an objective, which has been recognised by the Contracting Parties as

³² See Decision No 302/05/COL, 786/08/COL and 348/10/COL.

³³ See Authority’s Decision No. 503/08/COL of 16.7.2008 on the Mongstad Test Centre as well as with the Authority’s Decision No. 27/09/COL of 29.1.2009 on the Carbon Capture and Storage Project at Kårstø.

being in their common interest. As described above, the Contracting Parties have declared that the protection of the environment and the reduction of CO₂ emissions are in their common interest and that the CCS technology will play a key role in that regard³⁴. Therefore the Contracting parties are generally supportive of aid for the CCS technology. This is also confirmed by the wording of para. 69 of the Chapter of the State aid guidelines on State aid for environmental protection, which stresses the strategic importance of this technology for the EEA in terms of energy security, reduction of greenhouse gas emissions. On that basis the Guidelines state that “...*the Authority will have a generally positive attitude towards state aid for such projects*”. Against this background both the Commission and the Authority have recognised that the development of such CCS demonstration projects is in the common interest of the contracting parties.³⁵ The Authority concludes from the above, that the high costs of CO₂ demonstration plants constitute a market failure and that the notified measure aims at a well-defined objective of common interest.

3.2. Appropriate Instrument

- (38) A measure is appropriate if there are no other less distortive instruments to achieve the objective of common interest.³⁶

Making CCS Mandatory (Regulatory Instrument)

- (39) Norway considered making CCS mandatory for cement producers and other industries with high direct CO₂ emissions. However, it is generally accepted that the CCS technology is – at present - not sufficiently developed at an industrial scale to impose such an obligation. Indeed, the EU decided to adopt the CCS Directive as an enabling framework without imposing a CCS obligation.³⁷ This approach was justified by the impact assessment accompanying the proposal for the Directive.³⁸ The Authority concludes that the imposition of an obligation to equip cement production plants with CCS facilities is therefore for the time being not an appropriate instrument to achieve this objective.

Increasing CO₂ costs through tax-based measures (Taxation Instrument)

- (40) Norway considered raising taxes on CO₂ emissions in order to provide more incentives for industrial emitters to engage in CCS. However, tax-based instruments were not found to be sufficient to make CCS economically viable. In that regard the Authority observes that Norway is already participating in the Emission Trading System, which – albeit comparable to a tax-based instrument to the extent that both instruments increase CO₂

³⁴ See conclusions of the Council of the EEA, most recently Conclusions of the 38th meeting of the EEA Council, 26.11.2012, Ref. EEE 1607/1/12 REV 1, point 17.

³⁵ Authority Decision No. 503/08/COL of 16.7.2008 on Test Center Mongstad, p. 18; Authority Decision No. 27/09/COL of 29.1.2009 on the *Carbon Capture and Storage Project at Kårstø*, p.17 et seq; Commission Decision N74/2009 of 8.4.2009 on *United Kingdom - CCS Demonstration Competition - Feed*, para. 28; Commission Decision N381/2010 of 27.10.2010 on *The Netherlands – Aid for a CCS Project in the Rotterdam Harbour Area*, para. 52 et seq.; Commission Decision N190/2009 on *The Netherlands – CO₂ Catch-up Pilot Project at Nuon Buggenum Plant*, para. 36 et seq.

³⁶ See also para. 169 of the chapter of the State aid guidelines on State aid for environmental protection.

³⁷ Directive 2009/31/EC of the European Parliament and of the Council of 23.4.2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006, OJ L 140, 5.6.2009, p.114.

³⁸ European Commission 23.1.2008 *Commission Staff Working Document – Accompanying document to the Proposal to for a Directive of the European Parliament and of the Council on the geological storage of carbon dioxide – Impact Assessment* (available at http://ec.europa.eu/clima/policies/lowcarbon/ccs/docs/ccs_ia_jan2008_en.pdf)

costs – has failed to provide the necessary incentives. Thus, there are not sufficient grounds to conclude that an increase in CO₂ costs through tax-based measures would have resulted in cement producers engaging in CCS at their own costs. Consequently, tax-based instruments are not – at this stage and with regard to the case at hand – an appropriate instrument to achieve this objective.

Conclusion

- (41) The Authority concludes from the above that the funding of the notified project is an appropriate instrument to increase environmental protection through promoting CCS technology in industrial applications.

3.3. Incentive Effect

- (42) The measure provides the necessary incentive effect if the beneficiary would not have engaged in the desired behaviour without the aid and the aid changes his behaviour in such a way towards engaging in the desired behaviour. Conversely, a measure does not provide the necessary incentive effect if the beneficiary would have engaged in the desired behaviour without the aid (counterfactual scenario).

Prospects of a Full-Scale CCS Unit

- (43) The Norwegian authorities submit that Norcem would not construct a capturing facility without the aid. They stress that Norcem will operate the capture facility without a storage site so that the project does not lead to any savings of CO₂ costs under the ETS. However, the Authority notes that the construction of a capture unit is not an end in itself, but merely a necessary step towards the construction and operation of full scale CCS facilities. The decision to construct a test centre is therefore primarily driven by the economic prospects of a full-scale application and not by the commercial potential of the test centre on a stand-alone-basis. The Authority therefore has to assess the economic prospects of a full-scale CCS unit.
- (44) As described above, the 2005 GasTek Study on the technological and economic aspects of the notified project estimates the operational costs of capture at NOK 360 (EUR 45) per ton of CO₂. Under the assumption that the costs for storage amount to 1 - 20 EUR/ton CO₂, as indicated by the ZEP-Report, the costs of a full CCS cycle would amount to 46-65 EUR/ton CO₂. These figures are supported by the 2004 Mahasenon-Study, which estimated the costs of a full CCS cycle for cement plants in North America at 40-80 EUR/ton CO₂ depending on a number of parameters such as the type of storage. A more recent study from 2008 undertaken by the British Cement Association estimates the costs for a full CCS cycle even at approximately 118 EUR/ ton CO₂. It follows from the above, that the estimated costs of a full CCS cycle at Norcem's cement plant in Brevik would likely amount to 46-65 EUR/ton of CO₂.
- (45) At the same time, the possible benefits from constructing and operating a full CCS facility remain modest. At the end of the trading period 2008-2012 the carbon price fluctuated around 8 EUR/ ton of CO₂. Furthermore, the Commission estimated the carbon price for the trading period 2013-2020 to between 16 EUR and 35 EUR per ton. More recent estimates of Barclays Bank for the trading period 2013-2020 see the average carbon price at 9 EUR/ ton of CO₂. It should be noted that these estimates are subject to significant uncertainties since they depend on political choices (e.g. the carbon cap of future phases of the Emission Trading System) as well as on economic developments (e.g. the drop in carbon price as a result of the financial and economic crises). However, there are at this stage no significant indications that the carbon price is likely to rise above these estimates.
- (46) It follows from these estimates that the costs of CO₂ abatement (46-65 EUR/ton of CO₂) outweigh the potential benefits of such CO₂ abatement (9-35 EUR/ ton of CO₂).

Consequently, the prospects of CCS do not provide for sufficient incentives for Norcem to invest in a full-scale CCS unit at its own costs.

Prospects of the Capturing Unit

- (47) As indicated above, the decision to construct a test centre is primarily driven by the economic prospects of a full-scale application. However, the Authority recognises that test sites usually have some economic potential on a stand-alone-basis. This potential lies in the commercial value of the IP rights and project know-how gathered in the course of the testing. However, it is unlikely that the operation of the capture unit will provide Norcem with marketable IP rights or know-how. As regards the IP rights, these rights will remain with the technology providers. As regards project know-how, which Norcem will acquire in the course of the operation, Norcem committed to share it with other cement producers through the ECRA network. In any case, the value of such know-how – while difficult to determine – is usually linked to the economic prospects of the project itself, which are – in the case of CCS – not sufficient to justify the investment.

Conclusion

- (48) Based on the above, the Authority concludes that the recipient would not have engaged in the desired behaviour (i.e the construction of a capturing unit) without the aid. Consequently, the aid is necessary to incentivise Norcem to construct the capturing unit.

3.4. Proportionality

- (49) A State aid measure is proportional if the desired change in behaviour of the beneficiary cannot be obtained with less aid. In that regard the Authority verifies that the aid amount does not exceed the expected lack of profitability (including a normal return) over the time horizon for which the investment is fully depreciated.³⁹ According to the Norwegian authorities, the aid is limited to NOK 69,6 million (EUR 8,7 million), while the estimated costs of the project amount to approximately NOK 93,2 million (EUR 11,7 million). At the same time, the project is unlikely to yield any profits in the short or medium term. Naturally, Norcem has an interest in CCS with a view to reducing its emission costs under the ETS system. Also, it cannot be excluded that the project will help Norcem to improve its public image by developing a more environmentally friendly profile. However, the information at hand also shows that the project will not create efficiencies for the operation of the cement plant. Furthermore, Norcem will not be able to save CO₂ allowances as a result of the project, because there is no suitable storage site at Brevik or its surroundings. Moreover, Norcem will not acquire IP rights, because these rights will remain with the technology providers. Finally, Norcem committed to sharing its project know-how for free with other cement producers through the ECRA network. The Authority therefore concludes that the desired change in behaviour of Norcem could not be obtained with less aid and that the measure is thus proportional in relation to the common objective pursued by the aid.

3.5. Distortion of Competition, Effect on Trade and Balancing

- (50) The aid to Norcem is compatible if the distortions of competition and the effect on trade are limited, so that the overall balance is positive.

Distortion of Competition

- (51) The Authority notes that the negative impact of a given measure is likely to be limited if the aid is proportional. However, even proportional aid might result in significant

³⁹ This approach is also reflected in para. 174 c) of the chapter of the State aid guidelines on State aid for environmental protection.

distortions of competition, especially if it helps the beneficiary to maintain or increase sales, if it gives him a ‘first mover’ advantage or if it strengthens the his market power in a given market.

- (52) As regards the prospect of an increase in sales, the Authority notes the carbon capture unit is an end-of-pipe solution, which will neither increase the capacity nor in any other way improve the efficiency of the Norcem’s cement production as such. Moreover, the measure will not create any indirect efficiencies in terms of reduced CO₂ costs because the captured CO₂ will not be stored but will be emitted into the atmosphere. The Authority further notes that distortions of competition may arise where – as a result of the aid – the beneficiary manages to increase its sales due to an improved environmental image. However, it seems unlikely that Norcem will be able to translate an improved environmental image into a significant increase in sales of cement. This is so because cement is a highly homogenous product, the market is characterised by competition based on price and Norcem does not sell to end customers, which are usually more environmentally conscious than commercial customers higher up the value chain. The Authority concludes that the measure will not enable Norcem to increase its sales.
- (53) As regards the possibility to obtain a ‘first mover’ advantage, the Authority notes that the carbon capture unit will have no impact on the quality of Norcem’s cement. At the same time, the project know-how gained in the course of the notified measure might give Norcem a first mover advantage with regard to the construction and operation of CCS facilities in the cement production. However, the Norwegian authorities have confirmed that Norcem will have no rights with regard to the technical solutions, because the IP rights will remain with the technology suppliers. Furthermore, Norcem will share its project know-how for free with other cement producers through the ECRA network. The extent to which Norcem will be able to translate this know-how into a ‘first mover’ advantage will be limited accordingly. The Authority concludes that the measure is unlikely to provide Norcem with any significant ‘first mover’ advantage.
- (54) As regards the possible strengthening of the beneficiary’s market power, the Authority notes that according to the Norwegian authorities Norcem is the sole cement producer in Norway and an important market player in the Nordic cement market. Norcem is active in the markets for grey cement, white cement and cement additives. While the exact extent of the geographic markets is unclear, the Authority concludes from the above that Norcem holds significant market power in the local markets for the forms of cement it produces. However, it seems unlikely that the measure at hand will affect the structure of these markets, because it does not directly increase the efficiency of Norcem’s cement production and because Norcem will – in any case – share its know-how with its competitors. The Authority concludes that the measure is unlikely to strengthen Norcem’s market power in the markets for the forms of cement it produces.
- (55) Based on the above the Authority concludes that possible distortions of competition in the market for cement as well as in the market for CCS solutions will be very limited.

Effect on Trade

- (56) A measure might have an effect on trade in particular if it reduces production costs or increases production standards in some territories at the expense of other territories, which may incentives companies from the non-aided to the aided areas.⁴⁰ With regard to the case at hand, it has already been established that the aid will not lead to a reduction in production costs or an increase in sales and will provide no significant advantages in terms an improved environmental image, additional know-how and access to intellectual property rights. Furthermore, there is no guarantee that companies which would move to

⁴⁰ Point 183 of the chapter of the State aid guidelines on State aid for environmental protection.

Norway would receive similar funding in the future. On this basis the Authority concludes that any possible effect on trade of the measure at hand is very limited.

Balancing

- (57) The overall balance of a measure is positive, if the benefits for the objective of common interest outweigh the limited distortions of competition and effects on trade. With regard to the distortions of competition and the effects on trade it has been noted above that these are limited. In particular, the measure will not affect Norcem's production costs or sales and will provide Norcem with very limited advantages in terms of an improved environmental image and additional know-how. With regard to the positive effects the development of the CCS technology is a well-established objective of common interest and the measure is well targeted to meet this objective. In view of the above it can be concluded that the negative effects of the measure on competition and trade are outbalanced by the positive effects of the aid for the environment, so that the overall balance of the measure is positive.

3.6. Conclusion

- (58) For these reasons, the Authority concludes that at this point of the development of carbon capture technologies and taking into account the issue of climate change, the measure can be considered as State aid compatible with Article 61(3)(c) EEA.

HAS ADOPTED THIS DECISION:

Article 1

The EFTA Surveillance Authority raises no objections to the aid to Norcem for the construction of a carbon capture research facility at its cement plant in Brevik.

Article 2

The implementation of the measure is authorised accordingly.

Article 3

This Decision is addressed to the Kingdom of Norway.

Article 4

Only the English version is authentic.

Done at Brussels, 20 February 2013

For the EFTA Surveillance Authority

Oda Helen Sletnes

President

Sabine Monauni-Tömördy

College Member