

## EFTA SURVEILLANCE AUTHORITY DECISION

of 8 August 2017

on continued financing of CO<sub>2</sub> Technology Centre Mongstad  
(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 to the EEA Agreement,

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) By letter received and registered by the Authority on 20 June 2017, the Norwegian authorities notified an individual aid measure for continued financing of the CO<sub>2</sub> Technology Centre Mongstad (“TCM”) for a period of three years (“the notified measure”), pursuant to Article 1(3) of Part I of Protocol 3.<sup>1</sup> The Authority had previously approved state aid for the construction and operation of the TCM by Decision No 503/08/COL of 16 July 2008.<sup>2</sup>

#### 2 Background

##### 2.1 CCS technology

- (2) Carbon Capture and Storage (“CCS”) technology is a means of reducing carbon dioxide (“CO<sub>2</sub>”) emissions, as it enables electricity producers and industrial installations to capture the CO<sub>2</sub> emissions stemming from their production processes and store such CO<sub>2</sub> in underground geological formations. In particular, the CCS process chain has three main

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<sup>1</sup> Document No 861919.

<sup>2</sup> The Authority’s Decision No 503/08/COL of 16 July 2008 on Test Centre Mongstad (OJ C 297, 20.11.2008, p. 11).

stages: (i) CO<sub>2</sub> from the combustion process is captured and compressed (capture), (ii) the compressed CO<sub>2</sub> is transported by pipeline, truck or tanker to the storage site (transport), and (iii) it is injected for long-term isolation from the atmosphere into geological formations, usually in depleted gas or oil fields or deep saline aquifers (storage). Although CCS technology exists, it has not yet reached full commercial-scale level for the whole process chain.<sup>3</sup>

## 2.2 Policy background

- (3) The need for CCS is well documented in reports from the Intergovernmental Panel on Climate Change (“IPCC”) and the International Energy Agency (“IEA”). The Authority’s guidelines on state aid for environmental protection and energy 2014–2020 (“EEAG”) also point to CCS as a technology that can help mitigate climate change.<sup>4</sup>
- (4) The Contracting Parties have declared that CCS technology will play a key role in the fight against climate change.<sup>5</sup> The CCS Directive<sup>6</sup> provides the legal framework for operators of CCS equipped power plants and industrial applications to subtract safely stored CO<sub>2</sub> from their duties under the Emission Trading System Directive.
- (5) Environmental protection is an important EEA objective. In order to promote the long-term decarbonisation objectives, the Authority considers that aid for CCS contributes to the common objective of environmental protection.<sup>7</sup> The European Union (“EU”) is also committed to transforming Europe into a highly energy-efficient, low-carbon economy. The EU has set targets for reducing its greenhouse gas emissions progressively up to 2050 and is working towards meeting them. For 2020, the EU has committed to cutting its greenhouse gas emissions to 20% below 1990 levels. This commitment is one of the headline targets of the Europe 2020 growth strategy and is being implemented through a package of binding legislation and regulations.
- (6) For 2050, the EU has endorsed the objective of reducing Europe’s greenhouse gas emissions by 80–95% compared to 1990 levels as part of the efforts by developed countries as a group to reduce their emissions by a similar degree.<sup>8</sup>
- (7) The EFTA States have introduced many measures to enhance environmental protection. They are part of the European emission trading system and have *e.g.* quantified emission limitations and reduction objectives under the Kyoto Protocol.
- (8) State aid measures can be effective tools for achieving objectives of common interest, thereby correcting market failures, which improve the functioning of markets and enhance competitiveness. In the EEAG, the Authority has stated that given that the cost of capture,

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<sup>3</sup> See, for instance, the Authority’s Decision No 045/17/COL of 16 March 2017 on the financing of “Concept and FEED Studies” on full-scale CO<sub>2</sub> capture and storage (OJ C 198 22.06.2017 p. 4), paragraph 2.

<sup>4</sup> Guidelines on state aid for environmental protection and energy 2014–2020 (OJ L 131, 28.5.2015, p. 1 and EEA supplement to the OJ No 30, 28.5.2015, p.1).

<sup>5</sup> See conclusions of the EEA Council, for example the Conclusions of the 38<sup>th</sup> meeting of the EEA Council, 26.11.2012, Ref. EEE 1607/1/12 REV 1, point 17.

<sup>6</sup> 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 at point 21(1)(a) of Annex XX.

<sup>7</sup> See the EEAG, paragraph 156 and the Authority’s Decision No 045/17/COL, paragraph 7.

<sup>8</sup> Communication from the Commission. A roadmap for moving to a competitive low carbon economy in 2050. Available at: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0112>.

transport and storage is an important barrier to the uptake of CCS, state aid can contribute to fostering the development of this technology.

- (9) In its “Nationally Determined Contribution” to the Paris Agreement under the UN Framework Convention on Climate Change, Norway has committed to a target of at least a 40% reduction of greenhouse gas emissions by 2030 compared to 1990 levels. The emission reduction target will be developed into an emissions budget covering the period 2021–2030.

### 2.3 The Norwegian CCS strategy

- (10) The Norwegian authorities have supported CCS technology development for more than ten years. Their ambitions are formulated against the backdrop of the dual challenge of the need for mitigating climate change and the increasing global demand for energy.
- (11) The Norwegian CCS strategy encompasses a wide range of activities, including research, development and demonstration, work on the realisation of large-scale demonstration facilities, transport, storage and alternative use of CO<sub>2</sub> and efforts to promote CCS on a global scale. The strategy aims at identifying measures to promote technology development and to reduce the costs of CCS.
- (12) The Norwegian Government presented its CCS strategy in the budget proposition to the Norwegian Parliament in October 2014. An important part of the strategy is the Norwegian Government’s ambition of a full-scale CCS chain in Norway by 2022. The TCM is an important element of that strategy.<sup>9</sup>
- (13) The Authority also notes that the Norwegian authorities have previously notified a number of aid measures to CCS-related projects:
- aid to Test Centre Mongstad (Decision No 503/08/COL);
  - the planned carbon capture and storage facility at Kårstø;<sup>10</sup>
  - the development phase of the full-scale carbon capture facility at Mongstad;<sup>11</sup>
  - the carbon capture research facility at Norcem Brevik;<sup>12</sup>
  - the CLIMIT Demo aid scheme;<sup>13</sup> and
  - “Concept and FEED studies” on full-scale CO<sub>2</sub> capture and storage (Decision No 045/17/COL).

### 2.4 The aid measure approved by Decision No 503/08/COL

#### 2.4.1 The Mongstad site and the TCM

- (14) By Decision No 503/08/COL, the Authority approved Norway’s investment in a company to construct and operate the TCM for five years.<sup>14</sup> The TCM is situated in Mongstad in the county of Hordaland in the Western part of Norway.

<sup>9</sup> The Norwegian Government’s carbon capture and storage strategy, information in English. Available at: <https://www.regjeringen.no/en/topics/energy/carbon-capture-and-storage/the-governments-carbon-capture-and-storage-strategy/id2353948/>

<sup>10</sup> Decision No 27/09/COL of 29 January 2009 on the carbon capture and storage project at Kårstø (OJ C 150, 2.7.2009, p. 8).

<sup>11</sup> Decision No 091/12/COL of 15 March 2012 on Aid for the Development Phase of the Mongstad CCS Facility (OJ C 284, 20.9.2012, p. 12).

<sup>12</sup> Decision No 74/13/COL of 20 February 2013 on Aid to Norcem AS for the Construction of a Carbon Capture Research Facility at its Cement Plant in Brevik (OJ C 182, 27.6.2013, p. 11).

<sup>13</sup> Decision No 478/15/COL of 25 November 2015 raising no objections to the prolongation of the CLIMIT Demo aid scheme (OJ C 73, 25.2.2016, p. 9).

<sup>14</sup> At the time of adopting Decision No 503/08/COL, the facility was known as Test Centre Mongstad.

- (15) As explained in Decision No 503/08/COL, the TCM project includes two different carbon capture technologies (chilled ammonia and amines)<sup>15</sup> using two different sources of flue gas: i) a Statoil-owned combined heat and power plant (“CHP plant”) and ii) a Statoil-owned refinery catalytic cracker (“RCC”).<sup>16</sup>
- (16) The Norwegian authorities have explained that whereas the RCC remains in operation, the CHP plant will shut down as of 31 December 2018, and the delivery of flue gas from the CHP plant will discontinue as from 1 January 2019.<sup>17</sup> Work has been initiated to ensure that the TCM can test flue gas similar to the flue gas from the CHP plant after 1 January 2019.<sup>18</sup>

#### 2.4.2 *The company operating the TCM*

- (17) According to Decision No 503/08/COL, the TCM project is owned and operated by a company established on the basis of a contractual arrangement.<sup>19</sup>
- (18) Following Decision No 503/08/COL, the construction of the TCM began in June 2009 and the TCM became operational in August 2012.<sup>20</sup> The TCM is owned by a partnership, CO<sub>2</sub> Technology Centre Mongstad DA (hereinafter the “TCM DA 2009”). Since 2010, the shareholders of TCM DA 2009 have been the Norwegian state through Gassnova SF (“Gassnova”<sup>21</sup> – 75.12%), Statoil ASA (“Statoil” – 20 %), A/S Norske Shell (“Shell” – 2.44%) and Sasol New Energy Holdings Proprietary Limited (“Sasol” – 2.44 %).<sup>22</sup>

#### 2.4.3 *Carbon capture technologies and technology vendors*

- (19) According to Decision No 503/08/COL, the TCM tests post-combustion carbon capture technology<sup>23</sup> and it can test more than one technology. The Norwegian authorities explained during the initial notification that the two most relevant technologies were “amine absorption” and “ammonium carbonate absorption” (chilled ammonia). Both technologies are tested in parallel at the TCM (the chilled ammonia test facility and the amine technology test facility).<sup>24</sup>
- (20) According to the Norwegian authorities, the TCM can capture at least 100 000 tons of CO<sub>2</sub> per year from different sources of flue gas (the CHP plant and the RCC).<sup>25</sup> Capturing CO<sub>2</sub> from two different sources makes it possible to test the technology under different conditions.
- (21) The test facility for chilled ammonia is operated by Alstom Norway AS (“Alstom”). Alstom’s involvement in the project dates back to 2005 when Statoil and Alstom engaged

<sup>15</sup> A third site is available for constructing of a new facility for other technologies, see Document No 862689, section 6.

<sup>16</sup> Decision No 503/08/COL, section 2.1 of Part I and section 3.2.1 of Part II.

<sup>17</sup> Document No 862689, section 6 and footnote 16.

<sup>18</sup> Document No 866398.

<sup>19</sup> Decision No 503/08/COL, section 2.2 of Part I.

<sup>20</sup> Document No 862689, section 1.

<sup>21</sup> For Gassnova, see section 5 below.

<sup>22</sup> *Ibid.*

<sup>23</sup> As explained in Decision No 503/08/COL (footnote 19), there are three alternative technology routes pursued with the objective of achieving cost-effective solutions for large scale operations when it comes to reducing CO<sub>2</sub>-emissions: 1) post-combustion system, 2) pre-combustion systems, which process the primary fuel in a shift reaction to produce a flow of CO<sub>2</sub> and hydrogen which can be separated and 3) oxy-fuel combustion systems, which use oxygen instead of air for combustion, producing a flue gas that is mainly H<sub>2</sub>O and CO<sub>2</sub> which can be easily captured after the water vapor in condensed.

<sup>24</sup> Decision No 503/08/COL, section 2.3 of Part I.

<sup>25</sup> See Decision No 503/08/COL, section 2.3 of Part I.

in a cooperation project on chilled ammonia. At the time of establishment of TCM DA 2009, the chilled ammonia technology was perceived to be less mature and the technology was protected by IPR held by Alstom. Therefore, the design and construction of the chilled ammonia plant (“CAP”) was awarded through a negotiated contract. Alstom was later acquired by GE Power Norway AS.<sup>26</sup>

- (22) According to the Norwegian authorities, the supplier of amine technology operates the test facility for amine technology.<sup>27</sup> In order to establish competition in the market for the supply of amine technology with a corresponding market price, a procurement procedure was carried out.<sup>28</sup> The design and construction contract of the test facility for amine technology was awarded to Aker Clean Carbon AS in 2009.<sup>29</sup>
- (23) The Norwegian authorities have explained that TCM DA 2009 has continuously been making efforts to identify technology providers with a sufficient technology maturity level to qualify for building and testing their technologies at the TCM. At any given time, TCM DA 2009 has maintained a dialogue with 10–15 vendors whose technologies and test requirements may be suitable for testing at the TCM. Test agreements are entered into after thorough assessment regarding risks, merits, integrity etc. The efforts for monitoring the market will be continued and vendors for testing will be chosen on the basis of the same principles.<sup>30</sup>
- (24) The Norwegian authorities also submit that the main focus of the TCM is on mature technologies. In terms of the Technology Readiness Levels, the principal activities at the TCM go beyond Technology Readiness Level (“TRL”) 8.<sup>31</sup> The TCM thus facilitates commercial offering of CCS technology. Furthermore, the TCM as such is by now an operational carbon capture plant.<sup>32</sup>
- (25) The Norwegian authorities provided several examples in that regard. For instance, Shell Cansolv submitted its bid and started operations in the Boundary Dam (Canada) CCS project before carrying out the tests at the TCM. The testing was carried out at the competitive manufacturing level (i.e. TRL 9). Carbon Clean Solution Ltd. (“CCSL”) has tested and verified technology subsequently used in commercial production (a carbon capture and utilisation project in India). CCSL tested and verified its technology for commercial CO<sub>2</sub> capture, going beyond TRL 8.

### 3 Description of the notified measure

- (26) The notified measure concerns continued financing of the TCM for a period of three years, starting from 18 August 2017.

#### 3.1 Objective

- (27) The Norwegian authorities submit that the primary objective of the notified measure is to increase environmental protection by contributing to the commercial offering and use of CCS technologies in full-scale CCS projects.

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<sup>26</sup> Document No 862689, section 9.

<sup>27</sup> Decision No 503/08/COL, section 2.3 of Part I.

<sup>28</sup> *Ibid.*

<sup>29</sup> Document No 862689, section 9.

<sup>30</sup> *Ibid.*

<sup>31</sup> For Technology Readiness Levels, see footnote 44 of the Authority’s guidelines on state aid for research and development and innovation (OJ L 209, 6.8.2015, p. 17).

<sup>32</sup> The Norwegian authorities also submitted an evaluation report on the results of the TCM. “*Rapport. Evaluering av oppnådde resultater på TCM*”, 27.01.2016, Gassnova (Document No 830961).

- (28) CCS has the potential to develop as a sustainable industry with widespread deployment, but only if the technologies can be deployed cost-effectively at scale. Thus, by aiding the development of the individual elements of the CCS value chain, Norway contributes to securing affordable low-emission future technologies to mitigate climate change. The Norwegian authorities have also submitted documentation on the results<sup>33</sup> and the benefits of continuing the activities of the TCM.<sup>34</sup>

### 3.2 The new structure of the TCM

- (29) The Norwegian government and the other current participants of the TCM have reviewed their form of participation and organisation of the TCM. The current participants (except for Sasol) have agreed to continue their participation under a new organisational structure for a period of three years. A new private participant, Total E&P Norge AS (“Total”), joins the project on the same terms and conditions as Statoil and Shell.
- (30) Under the new structure, the ownership and operations of the TCM are split into two different legal entities: (i) TCM Assets AS (“TCM Assets”) is established for owning the TCM; and (ii) TCM DA is established for operating the TCM.
- (31) The Norwegian authorities expect that splitting TCM’s ownership and operations facilitates finding new industrial participants. It would lead to reduced state participation and improved knowledge transfer. As the potential new participants are likely to be CO<sub>2</sub> emitters, the increased knowledge sharing is also expected to reduce the threshold for further investments in the full CCS value chain.

### 3.3 The new contractual framework

- (32) Several agreements are concluded for the new set-up of the TCM. The Norwegian authorities explain that the agreements are in substance similar to the currently applicable contractual framework. Any modifications relate to the new organisational set-up.
- (33) The agreements governing the new set-up apply for a period of three years, starting from 18 August 2017. According to the Norwegian authorities, any agreement to continue TCM’s activities beyond the currently notified three-year period will require a new decision by the TCM participants and a state aid notification to the Authority.

#### 3.3.1 Asset transfer agreement

- (34) TCM Assets will be fully owned by Gassnova. TCM Assets concludes an asset transfer agreement with TCM DA 2009. Under the agreement, TCM Assets will take over the ownership of the TCM as of 18 August 2017. After transferring the ownership of the TCM to TCM Assets, TCM DA 2009 will be dissolved. Whereas TCM Assets owns the TCM, the operations will be the responsibility of TCM DA (see section 3.3.3 below).
- (35) Through its ownership, TCM Assets is liable for the property tax incumbent on the TCM. However, TCM Assets will receive a grant from the state to cover the property tax, estimated to amount to NOK 28 million per year.

#### 3.3.2 Land lease agreement

- (36) The TCM is situated on land owned by Statoil. TCM Assets will – as is the case with TCM DA 2009 today – enter into a land lease agreement with Statoil. The agreement grants TCM Assets the right to sublease the land to TCM DA for operating the TCM.

<sup>33</sup> *Ibid.*

<sup>34</sup> “*Rapport. Vurdering av TCMs relevans etter august 2017*”, 27.01.2016, Gassnova (Document No 830962).

- (37) Under the agreement, TCM Assets is responsible for decommissioning the TCM within the leased area. However, the actual decommissioning costs will be paid by TCM DA and split between the shareholders of TCM DA. The decommissioning costs are uncertain, but estimated to approximately NOK 130 million.

### 3.3.3 *The participants' agreement 2017*

- (38) The operations of the TCM are entrusted to TCM DA. The participants of TCM DA are the Norwegian state through Gassnova, as well as Statoil, Shell and Total (“Industrial Owners”). The relationship between the participants of TCM DA are governed by a Participants’ Agreement (“Participants’ Agreement 2017”). As far as possible, the Participants’ Agreement 2017 is based on the current participants’ agreement.<sup>35</sup>
- (39) Initially, Gassnova participates in the TCM with an equity stake of 77.5 %. The Industrial Owners’ initial participation is 7.5 % each. The Participants’ Agreement 2017 provides that all the participants endeavour to find one or more industrial partners as new participants in TCM DA.
- (40) If a new participant enters TCM DA, all the industrial owners shall have equal ownership interest. The minimum participation is set at 6%. Initially, a new participant will acquire an equal stake from the state and each of the current Industrial Owners, leading to an equal reduction of stakes to this agreed minimum ownership interest. Thereafter, new participants will buy their stakes from the state, leading to a reduced state participation. Thus, the Participants’ Agreement 2017 is designed to allow new participants to enter without amending the Participants’ Agreement 2017.
- (41) The Participants’ Agreement reflects the intention to include all participants in deciding over matters of importance. Hence, the Participants’ Agreement 2017 requires unanimous decisions in significant matters, such as *inter alia* approvals of budgets, work programmes and approval of investments exceeding NOK 25 million per year.
- (42) Any costs of decommissioning and/or removal of the TCM are split between the owners of TCM DA, with a maximum cost for each of the Industrial Owners of NOK 1 million (relating to the CAP) plus NOK 6.75 million (other than the CAP). The responsibility of each of the current Industrial Owners does not change with the entry of new participants. Thus, any new participant in TCM DA is liable for the same part of the removal costs as the initial Industrial Owners, i.e. for a maximum cost of NOK 7.75 million each (reducing the state’s costs for decommissioning correspondingly).
- (43) The parties to the Participants’ Agreement 2017 also endeavour to invite sponsors for specific test campaigns through a sponsor agreement. Sponsors will be given access to the test results against a contribution to the financing of the campaign.

### 3.3.4 *TCM Lease Agreement*

- (44) TCM DA enters into an agreement with TCM Assets for the lease of the TCM, granting TCM DA an exclusive right to use and operate the TCM during the lease period.

### 3.3.5 *Utilities and Services Agreement*

- (45) The provision of utilities and services, such as high pressure steam, electricity, flue gas, water from the RCC and the CHP plant to the TCM is regulated in a separate agreement

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<sup>35</sup> See Decision No 503/08/COL, section 2.2 of Part I.

between TCM DA and Statoil Refining Norway AS. The agreement is similar to the currently applicable utilities and services arrangement with Statoil.

### 3.3.6 Operator Agreement

- (46) The day-to-day operation of the TCM continues to be carried out by Statoil as operator. The operating services include operation, maintenance and minor modifications of the TCM. The agreement is similar to the currently applicable operating services arrangement with Statoil.

### 3.3.7 Research agreement

- (47) It is not an essential part of TCM DA's business to generate IPR to be owned by the company or its owners. The specific IPRs of technology vendors remain their property. However, TCM DA will endeavour to obtain limited licences to such IPR. Based on these principles, TCM DA and its participants enter into a research agreement setting out the terms and conditions for the TCM DA participants' access to test results and IPR arising out of the activities. The terms of the research agreement are in substance similar to the current one.<sup>36</sup>

## 4 National legal basis

- (48) In the budget proposition for 2017, the Norwegian government proposed continued financing to the TCM.<sup>37</sup> The new set-up of the TCM is described in the revised national budget and was adopted by the Norwegian parliament on 21 June 2017.<sup>38</sup>

## 5 Aid granting authority

- (49) Similarly to the aid measure approved by Decision No 503/08/COL, the state funding of the TCM (TCM Assets and TCM DA) is channelled through Gassnova. However, a part of the public funding (property tax compensation to TCM Assets) is granted by the Ministry of Petroleum and Energy ("MPE").
- (50) Gassnova is an administrative body that was established by decision of the Norwegian Government and has been operating since 3 January 2005.<sup>39</sup> Gassnova reports to the MPE and manages Norway's interests in CCS.<sup>40</sup> One of its objectives is to contribute to ensuring that CCS technologies can be implemented and become an effective measure against climate change.<sup>41</sup> In 2007, Gassnova was assigned the task of managing the state's participation in the TCM.<sup>42</sup>

## 6 Financing

### 6.1 Source of financing and budget

- (51) TCM DA will primarily be financed by its participants who provide TCM DA with funds covering capital and operating expenses ("capex" and "opex"), including decommissioning costs. The participants compensate TCM DA in accordance with their participation.<sup>43</sup>

<sup>36</sup> Document No 862689, section 8.8.

<sup>37</sup> Meld. St. 1 (2016–2017), Innst. 2 S (2016–2017).

<sup>38</sup> Prop. 129 S (2016–2017), Vedtak 1051.

<sup>39</sup> Decision No 045/17/COL, paragraph 16.

<sup>40</sup> Decision No 503/08/COL, section 2.2 of Part I.

<sup>41</sup> Further information on Gassnova can be found on its website: <http://www.gassnova.no/en>.

<sup>42</sup> Document No 866398.

<sup>43</sup> In addition to the income from its participants, TCM DA has certain revenues from other sources such as support schemes that do not constitute state aid, technology vendors and sponsors.



- (52) The TCMs' (TCM Assets and TCM DA) estimated total budget for the three-year period is NOK 805 million. The budget and the share covered by the respective participants are shown in the table below:

			Estimated cost (million NOK)	Share (%) & amount (million NOK)								Total budget (million NOK)
				<i>The Norwegian</i>		<i>Statoil</i>		<i>Shell</i>		<i>Total</i>		
				Share (%)	Amount (MNOK)	Share (%)	Amount (MNOK)	Share (%)	Amount (MNOK)	Share (%)	Amount (MNOK)	
Yearly	Opex	Property tax (Lindås local council)	28	100	28							84
		Operating expenses	172	77.5	133.3	7.5	12.9	7.5	12.9	7.5	12.9	516
	Capex	Minor modifications	25	77.5	19.375	7.5	1.875	7.5	1.875	7.5	1.875	75
"Project end"	De-commissioning costs	Chilled Ammonia Plant	40	92.5	37	2.5	1	2.5	1	2.5	1	40
		The rest of the plant	90	77.5	69.75	7.5	6.75	7.5	6.75	7.5	6.75	90
<b>Total budget, 3 years agreement</b>											<b>805</b>	

Table 1. Total budget of the TCM.

- (53) Based on its participation in TCM DA, the state will be responsible for 77.5 % of the costs. However, there are some modifications to this percentage due to the state's coverage of the property tax and decommissioning costs.<sup>44</sup> The state's actual share in financing the TCM is thus approximately 81% (before the entry of new participants to TCM DA).

## 6.2 Investment and operating costs

### 6.2.1 Investment costs

- (54) Any new investments are limited. For instance, certain investments could be undertaken in connection with the amine technology plant or its supporting systems. The estimated annual cost of such new investments is NOK 25 million. The investments will become the property of TCM Assets and will be depreciated in a straight line over the lifetime of the project.
- (55) The Norwegian authorities note that most investments in the TCM have already been made under the aid measure approved by Decision No 503/08/COL. These investment are fully depreciated in August 2017. Thus, no depreciation costs of investments undertaken during the preceding five-year period are included in the costs of TCM DA or TCM Assets.

### 6.2.2 Operating costs

- (56) Gassnova and the Industrial Owners cover through TCM DA operating costs directly attributed to operating the TCM. Operating costs are calculated as best estimate, based on the five years operational experience. Operating costs may include personnel costs, the costs of utilities (e.g., steam and electricity), maintenance, accounting, audit, IT etc. As explained in paragraph (53), cost coverage by the state generally reflects the state's participation in TCM DA with some adjustments for property tax and decommissioning costs.

## 7 Beneficiaries

### 7.1 General remarks

- (57) According to the Norwegian authorities, the state support to the TCM constitutes state aid within the meaning of Article 61(1) of the EEA Agreement. However, the Norwegian authorities consider TCM DA and TCM Assets as vehicles for channelling the aid and the real beneficiaries are the Industrial Owners of TCM DA.

<sup>44</sup> See sections 3.3.1 and 3.3.3.

## 7.2 TCM Assets

- (58) According to the Norwegian authorities, TCM Assets is a single purpose vehicle for leasing the TCM to TCM DA for which there is no regular market. Thus, TCM Assets is a vehicle for channelling aid to the Industrial Owners.

## 7.3 TCM DA

- (59) The Norwegian authorities consider that the state's participation in TCM DA does not constitute a *pari passu* investment, in particular because the state participation of 77.5 % is a necessary condition for the Industrial Owners' continued engagement.
- (60) TCM DA covers TCM Assets' operating and capital costs. However, TCM DA will not compensate TCM Assets for the property tax. The Norwegian authorities note that under normal market conditions, the property tax would have been taken into account by TCM Assets in establishing the rent. Therefore, TCM DA could be seen receiving an advantage that it would not have received under normal market conditions. However, the Norwegian authorities consider that TCM DA is merely a vehicle for channelling the aid to its Industrial Owners.

## 7.4 The Industrial Owners of TCM DA

- (61) According to the Norwegian authorities, the Industrial Owners of TCM DA should be considered as beneficiaries of the state funding to the TCM. This was also the conclusion in Decision No 503/08/COL.<sup>45</sup> The Norwegian authorities submit that the new set-up of the TCM does not change that conclusion.

## 7.5 Gassnova

- (62) The Norwegian authorities refer to Decision No 503/08/COL under which Gassnova could be a beneficiary if considered to be an undertaking.<sup>46</sup> However, the Norwegian authorities have explained that Gassnova's role in the notified measure is limited to channelling state funding to the project. Gassnova will not use access to the TCM results in any economic activity, but merely manages the state participation in the TCM and carries out knowledge-sharing in the public interest.<sup>47</sup>

## 7.6 Technology vendors

- (63) The Norwegian authorities refer to Decision No 503/08/COL, according to which technology vendors do not receive aid.<sup>48</sup> The Norwegian authorities argue that the Authority's conclusions in Decision No 503/08/COL remain valid and new technology vendors should not be considered as aid beneficiaries.

# 8 Norway's comments regarding the compatibility assessment

## 8.1 The applicable legal framework

- (64) The Norwegian authorities consider that since the EEAG covers state aid for CCS and individual elements of the CCS chain, the notified measure should be assessed under the EEAG.
- (65) The transformation to a low carbon society puts the Industrial Owners and their clients under pressure. Climate policies and the promotion of CCS are also reflected in the Industrial

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<sup>45</sup> Decision No 503/08/COL, section 1.3.2 of Part II.

<sup>46</sup> *Ibid.*

<sup>47</sup> Document No 866398.

<sup>48</sup> Decision No 503/08/COL, section 1.3.2 of Part II.

Owners' corporate strategy documents.<sup>49</sup> Thus, the Industrial Owners have a strategic interest in accelerating implementation of full scale CCS projects. The Norwegian authorities also recall that the TCM activities are directed at mature technologies to allow their market entry (see section 2.4.3 above). Therefore, the TCM facilitates achieving environmental benefits by contributing to the realisation of full scale CCS projects.

## 8.2 Contribution to a well-defined objective of common interest

- (66) The Norwegian authorities argue that the notified measure is aimed at environmental protection by promoting CCS technologies. The measure also facilitates deployment of full scale CCS projects either by the Industrial Owners or third parties (see also sections 2.4.3 and 3.3.3). The Norwegian authorities recall that under paragraph 156 of the EEAG, the Authority considers that aid for CCS contributes to the common objective of environmental protection.

## 8.3 Need for State intervention

- (67) The Norwegian authorities argue that reduced emissions resulting from actual deployment of CCS technologies at a later stage and knowledge spill-overs stemming from the testing of technologies are not sufficiently taken into account when profit-seeking undertakings make investment decisions. The Norwegian authorities recall that paragraph 157 of the EEAG presumes that aid for CCS addresses a residual market failure and that to date there is no evidence to rebut this assumption.
- (68) The Norwegian authorities submit that although CCS technologies are available, they are not yet commercially viable and, accordingly, the incentives to make investment decisions are still weak. CCS projects are capital-intensive, involve high risk and require a long-term perspective as well as the ability to execute complex projects. In the absence of state involvement, no activities at TCM would be carried out and the project would be terminated at the end of the current five-year period. The Norwegian authorities explained that, even with state support, it took eighteen months to negotiate and finally secure the Industrial Owners' continuation in the project. Thus, there is a market failure, which needs to be addressed by state aid.

## 8.4 Appropriateness of the aid measure

- (69) The Norwegian authorities argue that there are no other measures, such as sectorial regulation, taxation instruments, pricing mechanisms etc. that could address the market failure.
- (70) When full-scale CCS is deployed at CO<sub>2</sub> emitting installations in the future, industry may save costs related to emission allowances. However, in light of the current carbon price and the magnitude of the costs involved in testing and deploying CCS, these potential future cost savings are presently insufficient to trigger investment into CCS. Absent state support, the Industrial Owners would therefore not invest in the TCM and the project would not be continued. In this respect, the Norwegian authorities highlight that despite the state aid Sasol decided to discontinue its participation in the TCM. The Norwegian authorities also recall that paragraph 158 of the EEAG presumes the appropriateness of aid to CCS projects, provided all other conditions are met.

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<sup>49</sup> Statoil: <https://www.statoil.com/en/how-and-why/sustainability.html> and <https://www.statoil.com/content/dam/statoil/image/how-and-why/climate/A4-climate-roadmap-digital.pdf>, page 12; Shell: <http://www.shell.com/sustainability/environment/our-approach-sustainability.html> and <http://www.shell.com/sustainability/environment/climate-change.html>; Total: <http://www.total.com/en/commitment/environmental-issues-challenges/climate-change>

### 8.5 Incentive effect

- (71) According to the Norwegian authorities, the Industrial Owners would not have agreed to continue their participation in the TCM without state financing.
- (72) The income generated by third parties is not sufficient to allow the TCM to continue its activities. Any cost savings in future industrial deployment of CCS are currently too uncertain to continue the TCM's activities without state support. Thus, without state aid, TCM DA 2009 would be dissolved and the TCM decommissioned and its activities discontinued.
- (73) The incentive effect is further demonstrated by the fact that the Industrial Owners are not bound by their engagement until the Authority has taken a positive decision with respect to the notified measure. Hence, the parties will not commence or continue activities at TCM, and cannot start incurring costs before the aid is approved.
- (74) The Norwegian authorities further explain that the project will not result in profits at the level of the TCM or the Industrial Owners.<sup>50</sup> Their expected contributions exceed the reasonable estimates of their share of the final economic result of TCM DA at the end of the three-year period. Any revenues earned by the TCM are taken into account in the operating result of the TCM, thus reducing the need for financial contributions by the Industrial Owners and Gassnova. According to the Norwegian authorities, the Industrial Owners are motivated by strategic long-term objectives and the envisaged participation of the Norwegian state. The Norwegian authorities also recall that under paragraph 60 of the EEAG, strategic interest can be taken into account in analysing the existence of an incentive effect.<sup>51</sup>

### 8.6 Proportionality of the aid

- (75) The Norwegian authorities refer to paragraph 160 of the EEAG, under which the counterfactual scenario is that the project will not be carried out and the eligible costs are defined as the funding gap. According to the Norwegian authorities, the funding gap includes all costs associated with the continued operation of the TCM, including investment and operating costs. Norway has confirmed that the funding is based on actual costs and any additional revenues are taken into account.<sup>52</sup>
- (76) The Norwegian authorities submit that the activities at the TCM support emissions reductions by incentivising the Industrial Owners to deploy full-scale CCS sooner than they otherwise would have done by lowering the costs and risks related to investments in such full-scale facilities. However, the TCM is neither linked to any specific subsequent investment project for CCS at Mongstad nor at other fossil fuel installations of the Industrial Owners. Thus, any cost reductions or savings resulting from the test activities are uncertain and should therefore not be taken into account at this stage.
- (77) The Norwegian authorities further explain that a number of measures are taken to keep the aid amount to the minimum necessary:
- The new set-up makes participation in the TCM more attractive for new industrial participants.

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<sup>50</sup> Document No 866398.

<sup>51</sup> The Commission has accepted similar arguments in the past: Commission Decision in case N190/2009 of 26.5.2010 CO<sub>2</sub> *Catch-up pilot project at Nuon Buggenum plant* (OJ C 238, 3.9.2010, p. 1), paragraph 50.

<sup>52</sup> Document No 866398.

- The participants have managed to implement cost controls that lead to significant cost reductions during the TCM's operations.
- Unanimity is required for major decisions. This requirement contributes to keeping costs down as any additional investments or increase in operational costs would demand contributions from the Industrial Owners.
- The notification concerns a limited period of three years.

### **8.7 Avoidance of undue negative effects on competition and trade between Contracting Parties**

- (78) According to the Norwegian authorities, since commercial scale deployment of CCS technology is in general not yet viable, the aid is unlikely to create any negative effects on competition or trade under the current market conditions.
- (79) The owners of TCM DA could receive a first-mover advantage as they may be better positioned to deploy CCS at other installations owned by them in the future. However, this first-mover advantage is inherent in the participation in the project, and is in any event mitigated by the knowledge sharing arrangements put in place by TCM DA.
- (80) The Norwegian authorities refer to paragraph 94 of the EEAG, according to which the process of selecting beneficiaries plays an important role in the compatibility assessment. The Norwegian authorities reiterate that one of the main objectives of the state has been to attract new industrial owners and that Gassnova has made significant efforts to achieve this aim.<sup>53</sup> Although in the current state of the market these efforts have proven difficult – and the departure of Sasol could not be averted – Gassnova has nonetheless succeeded in gaining Total for the project.
- (81) According to the Norwegian authorities, the Authority's assessment in Decision No 503/08/COL, as regards effects on competition and trade, remains applicable under the current notification.<sup>54</sup> The Norwegian authorities point out that the current notification concerns a limited period of three years and a new state aid notification is necessary for granting aid to the TCM after that period has lapsed.

#### *8.7.1 Knowledge sharing arrangements*

- (82) The TCM DA participants will enter into a separate agreement on knowledge sharing, regulating the terms and conditions for access to test results and IPR arising out of the activities. In principle, the TCM is open to any third party for demonstrating their carbon capture technologies, subject to the process described in Section 2.4.3 above. Also, the TCM is open to visitors (e.g. scientists, commercial operators) seeking general knowledge about carbon capture technologies.

#### *8.7.2 Knowledge sharing in light of TCM DA's objectives*

- (83) The knowledge-sharing arrangements at the TCM DA should be viewed in light of the overall objectives of the TCM. These objectives have been pursued through three main activities and will be continued by the TCM DA.
- (84) *Conducting test campaigns with technology vendors:* Various technology vendors have performed and will continue with test campaigns. Any proprietary knowledge gained in these campaigns is open only to the technology vendors, TCM DA and the owners of TCM

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<sup>53</sup> See sections 3.2 and 3.3.3.

<sup>54</sup> Decision No 503/08/COL, section 3.2.3 of Part II.

DA. Any additional open knowledge sharing is done by the technology vendors at their discretion.

- (85) *Conducting open-source test campaigns*: Open-source test campaigns include campaigns on capturing CO<sub>2</sub> using the non-proprietary solvent monoethanolamine (“MEA”). Knowledge gained in these specific campaigns is shared openly with all interested parties.
- (86) *Utilising competence at the TCM*: TCM DA 2009 has developed competence in several areas of CCS. These competence areas are shared with the CCS community in a systematic way, thereby contributing to the TCM’s knowledge sharing objective.

#### 8.7.3 Knowledge sharing – industry fora and conferences

- (87) TCM DA 2009 participates in international networks that aim to enhance knowledge exchange and fast-track commercial use of CCS technology.<sup>55</sup> Furthermore, together with seven other founding members, TCM DA 2009 launched the CCS International Test Centre Network to improve the flow of knowledge and experience between test centres worldwide and promote the standardisation of the technology. Such participation continues by TCM DA.
- (88) Likewise, the Industrial Owners share their knowledge and experience. Together with seven other major oil and gas companies, they participate in the OGCI Climate Investments partnership,<sup>56</sup> which has made CCS one of its priority areas. OGCI plans to invest in finding ways to make CCS commercially viable by reducing the cost of the technology and exploring ways to deploy CCS in a wide range of industrial sectors including power, iron and steel.

#### 8.7.4 Knowledge sharing – publications

- (89) TCM DA 2009 has through the years actively published results from the testing activities performed at the TCM. This will also be a high priority for TCM DA. In addition, technology vendors publish results from their campaigns at the TCM. Norway has submitted a list of scientific publications.<sup>57</sup>

#### 8.7.5 Knowledge sharing – reporting/collaboration with authorities

- (90) Gassnova regularly reports activities at the TCM to the relevant Norwegian authorities.<sup>58</sup> TCM DA will be subject to similar reporting obligations.

#### 8.7.6 Knowledge sharing – collaboration with educational- and research institutions

- (91) According to the Norwegian authorities, the activities at the TCM have resulted in knowledge dissemination with various institutions in Norway<sup>59</sup> and internationally.<sup>60</sup> The Norwegian authorities also submitted documentation on these activities.<sup>61</sup>

<sup>55</sup> For instance, TCM DA 2009 participates at the one of the world’s leading CCS conferences (the international conference series on Greenhouse Gas control Technologies) organised by the IEA Greenhouse Gas R&D Programme. More information available at: <http://www.ghgt.info/about-us>.

<sup>56</sup> More information available at: [www.oilandgasclimateinitiative.com/climateInvestments](http://www.oilandgasclimateinitiative.com/climateInvestments).

<sup>57</sup> Document No 862689, Annex 1.

<sup>58</sup> The Norwegian authorities have submitted documentation on these activities, see Documents No 830961 and No 830962.

<sup>59</sup> For instance, the University of Oslo and the Norwegian University of Science and Technology.

<sup>60</sup> For instance, TCM DA 2009 signed in 2017 a knowledge-sharing memorandum with the Guangdong CCUS Centre (China).

<sup>61</sup> Document No: 830961, section 5.6.

## 9 Transparency of aid

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

## 10 Cumulation

- (93) The Norwegian authorities have confirmed that the notified aid cannot be cumulated with aid received from other local, regional, national or EEA schemes to cover the same eligible costs.

## II. ASSESSMENT

### 1 The presence of state aid

- (94) Article 61(1) of the EEA Agreement reads as follows:

*“Save 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.”*

- (95) This implies that 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) is selective; (iii) confers an economic advantage on the beneficiary; and (iv) is liable to affect trade between Contracting Parties and to distort competition.
- (96) In Decision No 503/08/COL, the Authority concluded that the state investment in the company that was to own and construct the TCM fulfilled all the conditions mentioned in the previous paragraph and therefore constituted state aid within the meaning of Article 61(1) of the EEA Agreement.<sup>62</sup>
- (97) The Authority does not see any reasons for departing from that conclusion and finds that the financing granted by the state through Gassnova and the property tax compensation granted by the MPE constitute state aid. However, due to the new set-up of the TCM, the Authority finds it appropriate to examine which entities involved in the TCM project benefit from aid under the notified measure.

#### 1.1 State aid at the level of the TCM (TCM Assets and TCM DA)

- (98) In Decision No 503/08/COL, the Authority did not exclude aid at the level of TCM DA 2009.<sup>63</sup> Under the new set-up of the TCM, the ownership of the assets belongs to TCM Assets and TCM's operations are carried out by TCM DA.<sup>64</sup> The Norwegian authorities argue that both TCM Assets and TCM DA are vehicles for channelling the aid to the Industrial Owners and are not, by themselves, aid beneficiaries.<sup>65</sup>
- (99) While TCM Assets and TCM DA are established for the purpose of carrying out the TCM project, they are engaged in economic activities and may benefit as undertakings from state aid. This is so in particular as regards TCM DA, which is, as the Norwegian authorities

<sup>62</sup> Decision No 503/08/COL, section 1.3.4 of Part II.

<sup>63</sup> *Ibid.*, section 1.3.2 of Part II.

<sup>64</sup> See sections 3.3.1 and 3.3.3 of Part I.

<sup>65</sup> See sections 7.2 and 7.3 of Part I.

explain, partially financed through third party revenues. Furthermore, leasing the TCM and subleasing the land plot of the TCM by TCM Assets to TCM DA is an economic activity. However, given that such aid would be compatible with the functioning of the EEA Agreement, as demonstrated below, it is not necessary to make a definitive finding about the existence of aid at the level of TCM Assets and TCM DA.

### **1.2 State aid at the level of the Industrial Owners**

- (100) In Decision No 503/08/COL, the Authority concluded that aid to TCM DA 2009 would result in aid to its participants.<sup>66</sup> The Norwegian authorities are also of the opinion that the Industrial Owners are aid beneficiaries.<sup>67</sup> The Authority agrees that, taking into account the explanations of the Norwegian authorities, the Industrial Owners are beneficiaries of the notified measure. The Industrial Owners are global energy companies active in international markets and they benefit from participating in the TCM by gaining experience and knowledge concerning CCS technologies.

### **1.3 State aid at the level of the technology vendors**

- (101) In Decision No 503/08/COL, the Authority concluded that there would be no aid at the level of the technology vendors.<sup>68</sup> The Norwegian authorities have explained that the principles for choosing the technology vendors remain the same under the notified measure. The technology vendors are chosen through tenders and negotiations on market terms. The market-based process of choosing technology vendors is further corroborated by the involvement of the Industrial Owners in the TCM's decision-making process.<sup>69</sup> Therefore, the Authority does not see any reasons for departing from its assessment in Decision No 503/08/COL and concludes that the notified measure does not result in aid at the level of the technology vendors.

### **1.4 State aid at the level of Gassnova**

- (102) In Decision No 503/08/COL, the Authority did not conclude on whether Gassnova, as a participant of TCM DA 2009, would be an aid beneficiary.<sup>70</sup>
- (103) However, as explained by the Norwegian authorities, Gassnova's role in the notified measure is limited to channelling state funding to the project and carrying out knowledge sharing in the public interest. The Norwegian authorities have confirmed that Gassnova is not engaged in economic activities that could benefit from its participation in the TCM.<sup>71</sup>
- (104) Hence, Gassnova's tasks appear to be carried out in the interests of the Norwegian state and do not constitute economic activities. The Authority therefore concludes that, for the purposes of the notified measure, no aid is granted to Gassnova.

### **1.5 Conclusion on the presence of state aid**

- (105) For the reasons stated above, the Authority concludes that the notified measure constitutes state aid within the meaning of Article 61(1) of the EEA Agreement.

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<sup>66</sup> Decision No 503/08/COL, section 1.3.2 of Part II.

<sup>67</sup> See section 7.4 of Part I.

<sup>68</sup> Decision No 503/08/COL, section 1.3.2 of Part II.

<sup>69</sup> See section 3.3.3 of Part I.

<sup>70</sup> *Ibid.*

<sup>71</sup> See section 7.5 of Part I.



## 2 Procedural requirements

(106) Norway has fulfilled its obligation, according to Article 1(3) of Part I of Protocol 3, by notifying the aid before putting it into effect.

## 3 Compatibility of the aid

### 3.1 Introduction

(107) In Decision No 503/08/COL, the Authority assessed the compatibility of aid to the TCM directly under Article 61(3)(c) of the EEA Agreement. The Authority referred to paragraph 69 of the previous guidelines on state aid for environmental protection.<sup>72</sup> According to that paragraph, at that stage it was too early to lay down guidelines relating to such projects and aid could be assessed directly under Article 61(3)(c) of the EEA Agreement.

(108) Since the adoption of Decision No 503/08/COL, the Authority has adopted the EEAG that include a chapter on aid to CCS (chapter 3.6 of the EEAG). Thus, the EEAG are applicable for assessing the compatibility of the notified measure under Article 61(3)(c) of the EEA Agreement.<sup>73</sup>

(109) Chapter 3.6 of the EEAG provides for specific rules on aid for CCS projects. Paragraph 155 of the EEAG acknowledges that state aid can contribute to fostering the development of this technology. Under paragraph 159 of the EEAG, aid may be provided to support individual elements of the CCS chain.

(110) The notified measure meets these conditions. The TCM pursues an individual element of the CCS chain (carbon capture). The TCM facilitates qualifying technologies and promotes their use. Thus, the measure fosters the development of CCS technologies.<sup>74</sup>

(111) Based on the above, the Authority considers that the EEAG are the correct legal framework for the compatibility assessment of the notified measure under Article 61(3)(c) of the EEA Agreement.

(112) On the basis of section 3.1 of the EEAG, the Authority applies the following common assessment principles, detailed in sections 3.2 and 3.6 of the EEAG, for the compatibility assessment of the notified measure under Article 61(3)(c) of the EEA Agreement:

- contribution to a well-defined objective of common interest;
- need for state intervention;
- appropriateness of state aid as a policy instrument;
- incentive effect;

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<sup>72</sup> OJ L 144, 10.6.2010, p.1 and EEA Supplement No 29, 10.6.2010, p. 1.

<sup>73</sup> The R&D&I Guidelines are not applicable. According to paragraph 8 of the Authority's guidelines on state aid for research and development and innovation ("R&D&I Guidelines", OJ L 209, 6.8.2015, p. 17), the R&D&I Guidelines apply to research, development and innovation in "all sectors governed by the EEA Agreement". Hence, they also apply in the field of environment and energy technologies. According to footnote 44 of the R&D&I Guidelines, the different R&D categories can be considered to correspond to TRL 1 (fundamental research), 2–4 (industrial research) and 5–8 (experimental development). As the Norwegian authorities have explained, the principal activities and the technologies tested at the TCM go beyond TRL 8, allowing commercial deployment of existing technologies (see section 2.4.3 of Part I) Hence, the notified measure does not have as its primary objective activities that fall under the R&D&I Guidelines.

<sup>74</sup> *Ibid.*

- proportionality of the aid measure;
- avoidance of undue negative effects on competition and trade between Contracting Parties; and
- transparency of aid.

### 3.2 Objective of common interest

- (113) State aid must aim at a well-defined objective of common interest that has been recognised by the Contracting Parties.
- (114) The Contracting Parties have declared that the protection of the environment and the reduction of CO<sub>2</sub> emissions are in their common interest and that CCS technology will play a key role in that regard.<sup>75</sup> Therefore, the Contracting Parties are generally supportive of aid for CCS technology.
- (115) This is also confirmed by the wording of paragraph 155 of the EEAG, which stresses the strategic importance of this technology for the EEA in terms of energy security and reduction of greenhouse gas emissions. Aid can be granted to individual elements of the CCS chain, both as operating and investment aid (paragraphs 158 and 159 of the EEAG). On that basis, paragraph 156 of the EEAG states that “[...] *the Authority considers that the aid for CCS contributes to the common objective of environmental protection*”.
- (116) As described in section 2.4.3 of Part I above, the TCM forms an integrated element of the CCS value chain as the last stage before commercial exploitation. Thus, the Norwegian state facilitates securing an affordable low emission future to mitigate climate change.<sup>76</sup> Moreover, the Authority also concluded in Decision No 503/08/COL that aid to the TCM is aimed at a well-defined objective of EEA interest.<sup>77</sup>
- (117) In view of the above, the Authority considers that the notified measure seeks to achieve an objective of common interest, in accordance with Article 61(3)(c) of the EEA Agreement.

### 3.3 Need for state intervention

- (118) With reference in particular to paragraphs 29 and 33 of the EEAG, state aid should be targeted towards situations where aid can bring a material improvement that the market cannot alone deliver. State aid should address market failures that remain unaddressed by other policies and measures already in place, and – in case of individual aid – targeted to the case at hand.
- (119) The Authority concluded in Decision No 503/08/COL that aid to the TCM addresses a market failure.<sup>78</sup> As the Norwegian authorities have explained, CCS technologies are still not yet commercially viable and the incentives to make investment decisions are weak.<sup>79</sup> Also, the project has limited revenues that are not sufficient to allow the TCM to continue its activities.<sup>80</sup> The Norwegian authorities have provided information showing that the private participants would not have agreed to continue with the project without state

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<sup>75</sup> See conclusions of the EEA Council, for example Conclusions of the 38<sup>th</sup> meeting of the EEA Council, 26.11.2012, Ref. EEE 1607/1/12 REV 1, point 17.

<sup>76</sup> See section 2.3 of Part I.

<sup>77</sup> Decision No 503/08/COL, section 3.2.1 of part II.

<sup>78</sup> Decision No 503/08/COL, section 3.2.2.1 of Part II.

<sup>79</sup> See section 8.3 of Part I.

<sup>80</sup> See sections 6.1 and 8.5 of Part I.

support.<sup>81</sup> Therefore, it appears that in the absence of state involvement, no activities at the TCM would be carried out and the project would be terminated at the end of the current five-year period. How difficult it is to attract any private participation in the project is demonstrated by Sasol's exit and the fact that, even with state support, it took eighteen months to negotiate and finally secure the Industrial Owners' continuation in the project. Thus, there is a market failure that needs to be addressed by state aid.

- (120) As stated in paragraph 157 of the EEAG, the Authority in principle presumes that aid for CCS addresses a residual market failure. Taking into account the above, the Authority does not see any reason for departing from the conclusion it drew in Decision No 503/08/COL and the presumption set in paragraph 157 of the EEAG. The Authority therefore concludes that the notified measure is needed to address a market failure.

### 3.4 Appropriateness of state aid

- (121) According to paragraph 35 of the EEAG, an aid measure will not be considered compatible with the functioning of the EEA Agreement, if the same positive contribution to the common objective is achievable through other less distortive policy instruments or other less distortive types of aid instruments.
- (122) The Authority concluded in Decision No 503/08/COL that aid to the TCM is an appropriate policy instrument.<sup>82</sup> Furthermore, under paragraph 158 of the EEAG, the Authority presumes the appropriateness of aid for CCS provided all other conditions are met. Both operating and investment aid is permitted. Taking into account the above and the explanations of the Norwegian authorities,<sup>83</sup> including the departure of Sasol from the project, the Authority does not see any reasons for departing from its earlier conclusions and the presumption set in paragraph 158 of the EEAG. The Authority therefore concludes that the notified measure is an appropriate instrument.

### 3.5 Incentive effect

- (123) State aid is only compatible with the functioning of the EEA Agreement if it has an incentive effect. An incentive effect occurs when the aid induces the beneficiary to change its behaviour to further the identified objective of common interest, a change in behaviour which it would not undertake without the aid.
- (124) The Authority concluded in Decision No 503/08/COL that aid to the TCM has an incentive effect in that the project would not be carried out without the state participation.<sup>84</sup> The Authority also accepts under paragraph 160 of the EEAG that, in the counterfactual scenario, the CCS project would not be carried out. Paragraph 57 of the EEAG states that, where no specific counterfactual scenario is known, the incentive effect can be presumed when there is a funding gap. On the basis of Norway's submissions,<sup>85</sup> the Authority acknowledges that there is a funding gap.
- (125) In light of the above, the Authority does not see any reasons for departing from the conclusion it drew in Decision No 503/08/COL or from the presumption set in paragraph 57 of the EEAG that the notified measure has an incentive effect. The conclusion is also

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<sup>81</sup> See section 8.3 of Part I.

<sup>82</sup> Decision No 503/08/COL, section 3.2.2.2 of Part II.

<sup>83</sup> See sections 8.4 and 8.5 of Part I.

<sup>84</sup> Decision No 503/08/COL, section 3.2.2.2 of Part II.

<sup>85</sup> See sections 6.1 and 8.6 of Part I.

supported by Norway's submissions according to which the TCM would not continue its activities without state support.<sup>86</sup>

- (126) Based on the above, the Authority considers that the notified measure has an incentive effect.

### 3.6 Proportionality

- (127) According to paragraph 64 of the EEAG, “*environmental and energy aid is considered to be proportionate if the aid amount per beneficiary is limited to the minimum needed to achieve the environmental protection objective aimed for*”. Specifically for CCS projects, paragraph 160 of the EEAG defines the eligible costs as the funding gap.
- (128) The public funding to the TCM covers investment and operating costs, without leading to profits at the level of the TCM. The Norwegian authorities have confirmed that the funding is based on actual costs, and that any additional revenues are taken into account.<sup>87</sup>
- (129) According to paragraph 72 of the EEAG, the Authority applies the maximum aid intensities set out in Annex 1 of the EEAG.
- (130) According to Annex I of the EEAG, the allowable aid intensity for investment and operating aid for CCS is 100% of the eligible costs. The actual aid intensity of the notified measure is approximately 81%. As explained by the Norwegian authorities, the aid covers the investment and operating costs and takes into account all additional revenues.<sup>88</sup>
- (131) According to section 3.2.5.3 of the EEAG, compliance with the aid intensities in Annex 1 is not sufficient alone and these maximum aid intensities are used as a cap for individually notifiable aid. At approximately 81% the aid intensity of the notified measure is well below that cap. Furthermore, the Authority finds that since the public and private funding is limited to the TCM's actual operating and investment costs, and all additional revenues are taken into account, without leading to profits on the level of the TCM (TCM Assets and TCM DA) or the Industrial Owners,<sup>89</sup> the notified measure complies with the terms of section 3.2.5.3 of the EEAG. The Authority also takes note of the measures for keeping the aid amount to the minimum.<sup>90</sup>
- (132) Finally, in line with paragraph 76 of the EEAG, the Norwegian authorities have confirmed that the aid in question cannot be cumulated with other aid.
- (133) Based on the above, the Authority concludes that the notified measure is proportionate.

### 3.7 Avoidance of undue negative effects on competition and trade

- (134) According to paragraph 83 of the EEAG, the Authority considers that for aid to be compatible with the functioning of the EEA Agreement, the negative effects of the aid measure in terms of distortions of competition and impact on trade between the Contracting Parties must be limited and outweighed by the positive effects in terms of contribution to the objective of common interest.

<sup>86</sup> See sections 8.3 and 8.5 of Part I.

<sup>87</sup> Document No 866398.

<sup>88</sup> See also sections 6.1 and 8.6 of Part I.

<sup>89</sup> See sections 8.5 and 8.6 of Part I.

<sup>90</sup> See section 8.6 of Part I.

- (135) In line with paragraph 93 of the EEAG, if the aid is proportionate and, in case of CCS projects, limited to the funding gap, the negative impact of the aid is in principle softened. The notified measure complies with these conditions (see the previous section).
- (136) The Authority stated in Decision No 503/08/COL that CCS technologies can only be spread and used to efficiently combat climate change if they are commercially available and affordable.<sup>91</sup> Any first mover advantage is outweighed by the positive spill-over effects that the availability of commercially accessible and cost-efficient carbon capture technologies will have for consumers and society.<sup>92</sup> These considerations still stand.
- (137) In accordance with paragraph 161 of the EEAG, the Authority has in particular taken into account whether any knowledge sharing arrangements are in place, whether the infrastructure is open to third parties and whether the support of carbon capture in the notified measure has a positive impact on other fossil fuel installations owned by the beneficiaries. In this respect, the Authority notes that participation in the TCM as an additional industrial owner is, in principle, open to all third parties, and that TCM is actively looking for further providers from whom to procure carbon capture technology.<sup>93</sup> Furthermore, the Industrial Owners do not operate installations that could immediately benefit from the project.<sup>94</sup> Finally, there are sufficient knowledge sharing arrangements in place to further limit any negative effects on competition and trade.<sup>95</sup>
- (138) The Authority also considers that the limited duration of the notified measure, which is restricted to three years, minimises any negative effects the aid might have.
- (139) In terms of the additional conditions for the assessment of the distortion of competition, and the balancing test in the context of individually notified aid, the Authority is therefore satisfied, having taken into account section 3.2.6.3 of the EEAG, read together with the CCS-specific paragraph 161 of the EEAG, and the explanations provided by the Norwegian authorities,<sup>96</sup> that the overall balance of the notified aid measure is positive.
- (140) The Authority thus considers that the notified measure does not have any undue distortive effects on competition and trade that would outweigh the positive effects of the measure.

### 3.8 Transparency

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

## 4 Conclusion

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

Has adopted this decision:

### *Article 1*

<sup>91</sup> Decision No 503/08/COL, section 3.2.3 of part II.

<sup>92</sup> *Ibid.*

<sup>93</sup> See sections 2.4.3, 3.3.3 and 8.7 of Part I.

<sup>94</sup> See section 8.6 of Part I.

<sup>95</sup> See section 8.7 of Part I.

<sup>96</sup> See section 8.7 of Part I.

Not to raise objections to the individual state aid for continued financing of the CO<sub>2</sub> Technology Centre Mongstad, on the grounds that it is compatible with the functioning of the EEA Agreement pursuant to its Article 61(3)(c).

*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 language version of this decision is authentic.

Done in Oslo, Norway, on 8 August 2017.

*For the EFTA Surveillance Authority, acting under Delegation Decision No 068/17/COL.*

Sven Erik Svedman  
President

Carsten Zatschler  
Director

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