



ETP ZEP EU FLAGSHIP PROGRAMME

AN OPTIONS PAPER FOR THE WAY FORWARD For discussion by ZEP Advisory Council November 2007

This paper is a discussion document considering the way in which the EU Flagship Programme for a series of large scale CCS demonstration plant should proceed. It has been prepared following the ZEP General Assembly held in Paris on 3rd October 2007 for consideration by the ZEP Advisory Council at its forthcoming meeting in Rome on 16th November 2007.

The document lays out several different options in which the Flagship Programme could develop and considers the various issues associated with each option. The aim is to give guidance to the Advisory Council as to which route would be the most favourable bearing in mind the current and likely future position around CCS in Europe and wider a field.

Background

In its strategic documents produced by the ZEP Platform in September 2006, the need for a series of large scale CCS demonstration plant was articulated as a key element in establishing the necessary confidence for commercial deployment of the technology by 2020 and so meet the vision of the Platform, namely “to enable European fossil fuel power plants to have zero emissions of CO₂ by 2020”.

These recommendations were accepted by the European Commission in its proposals for EU Energy Policy in January 2007, primarily in the communication on “Sustainable Fossil fuel Power Generation”. These, in turn, were supported by the Energy Council of Ministers in February 2007 and by the full European Council in March 2007. In the communiqué following this 2007 Spring Council, a statement was made recognising the need “to establish a mechanism to stimulate construction and operation by 2015 of up to 12 demonstration plants of sustainable fossil fuel technologies in commercial power generation”. These ‘up to 12’ demonstration plants have been termed the EU Flagship Programme and it is argued that these should be highly visible with a strong interaction in order to share the lessons learned, reduce the cost level and accelerate the take-up of the technology.

Current Position

As a result of the outcome of the Spring 2007 Council, the Commission has been considering during 2007 how to achieve this objective and is planning a communication on incentives for the demonstration of fossil fuel power plants with CCS. It is anticipated that this will be published in December 2007 or January 2008 along with Communication proposing a “Directive on Geological storage of CO₂” addressing the regulatory framework that will facilitate the deployment of CCS.

The ZEP Platform has developed the concept of a Flagship Programme and has now defined an overall framework that comprises a number of elements covering plant type, fuel source, capture technology, transport and infrastructure issues, storage regimes and public communication. It also recommends a strong geographical spread embracing the above elements. The Platform has also estimated the potential additional CCS related cost of such a Flagship Programme in the range of 6-10 billion euro. This status was presented at the GA2007.

During the same period, several Member States have made announcements regarding their wish to take forward CCS. These include Norway on post-combustion capture with gas and the UK where a CCS demonstration competition has been announced for a post-combustion capture coal fired plant using retrofitable technology by 2014 with the storage of CO₂ being offshore. One of the driving forces has been the recognition that the technology needs to be applicable for developing countries such as China. Such national announcements have raised the issue of how the national actions relate to the proposed Flagship Programme and internationally.

Major Issues

It is recognised that the Flagship Programme is now at a pivotal stage. It is apparently accepted politically that CCS will be a key element in attaining the now agreed GHG/CO₂ reduction targets in Europe. However the difficulty remains in how to get genuine support and establish a series of large scale demonstration plant to give the necessary confidence to enable successful deployment.

There are several major issues being addressed in a concurrent manner, including :

- the financial requirement for the Flagship Programme
- the timeframe over which it will be required
- the mechanism by which this financial requirement can be provided
- the framework of the Flagship Programme and the choice of technology
- the organisational structure of the Flagship Programme and its operation
- the interaction between Member State actions, pan-European and global initiatives.

The ZEP Platform has worked on all of these issues and has put forward a series of recommendations. These have been presented to and discussed with the EC in order to try and help set the way forward. However this way forward now depends significantly on the way in which the EC and the Member State governments react to the proposals. It is agreed within the Platform that without some sort of EU wide funding mechanism to encourage organisations to proceed with demonstration projects, it is unlikely that a Flagship Programme will be effective.

Potential EC Stance

Every indication is that the Commission in their communication on incentives for CCS (to be issued in December [5th?]) will not explicitly mention the amount of funding needed and how it will be provided. It is however likely that they will acknowledge the need for additional financing but will not be explicit on its form. It is hoped that they will reference the Flagship Programme rather than just a 'network of demonstration projects' and that a way forward will be outlined. It has been indicated

that the EC would be willing to facilitate such a 'network' through providing support for its administration and organisation.

There is reason to believe that the EC are taking this stance because they think that this is a practical approach at this stage. By doing this they are keeping the CCS issue 'on the table' politically, for example for the meeting of Energy Ministers in early December 2007 and beyond. This approach therefore would provide time whilst the funding method is discussed, developed and hopefully agreed. In the same period, as noted above, some Member States will declare their strategies and what they are willing to finance.

Initially therefore what demonstration projects do proceed will be those initiated in specific Member States such as the UK, Norway, the Netherlands and Germany.

Options for taking the Flagship Programme forwards

With this background, in order to try and help decide in which way from a ZEP Platform perspective the demonstration action should proceed, a series of options is put forward for consideration. Each is considered briefly in light of the complex political position of CCS in Europe that exists.

1. The Full European Option.

A 'top down' approach that is prescriptive on the types of technology to be selected so that the demonstration framework contains testing of all relevant options. This would result in the full series of demonstration of at least 10-12 plant configurations going forward.

This could be established through an action such as that under Art 169/171, akin to a Joint Technology Initiative or a Joint Undertaking where specific Member States are willing to support a EU-wide action with specific reference to their own countries. Going on experience of other similar initiatives, the likelihood is that such an approach could take several years to establish.

Alternatively it could be addressed through a different mechanism using more of a market based approach.

However, in order to achieve the 2020 deployment date, a fund of some sort would have to be put in place rapidly, certainly by the end of 2008. This option therefore requires immediate urgent action if it is to succeed.

2. The National Option

The funding of the demonstration is plant is left to national governments and the appropriate industrial consortia. The choice of the technology will be decided by the particular Member State. This will mean that in time a series of discrete projects could be established across Europe and that there is likely to be little if any interaction between them.

In this scenario the role of the EU (or Commission) will be minimal, for example just setting a regulatory framework in which any CCS projects would have to be positioned and facilitating State Aid clearance on a project-by-project basis.

The timing of this would be up to the Member State governments as to when they would feel it appropriate to take forward such a project. It is likely if left to national governments alone, insufficient progress will be made in attaining commercial deployment by 2020 as only a limited number of demonstration (maybe upto ~4) would be likely to proceed.

3. The EU Pragmatic Option

Here the framework developed by the Platform would provide the structure into which CCS demonstration projects as they appear could be positioned from a technical and cost improvement perspective. This would allow some Member States to launch their own initiatives with their selected technologies. Provided that they (the government and the consortium) would be willing to share lessons learned and experience gained, these initial projects would form the basis of a Flagship Programme, building to a critical mass as more projects become identified over (say) a two year period (2008 –2009). It could then lead to the EU wide approach given in Option 1. The phasing of this would be that there could be an initial series (~4) financed with the support of the more advanced Member States and subsequently followed by additional projects as and when the funding incentive position was clarified.

In parallel with this approach, it would be necessary to establish a EU wide funding scheme to provide the incentive for additional projects to be established. Such a funding scheme could be a combination of different mechanisms (direct grants, market based schemes, fiscal institutions etc plus industry).

In support of this type of approach, as indicated earlier, the EC appear to be willing to finance the administration to position the emerging demonstration, encourage ones that could populate the framework, and facilitate interaction between the projects to ensure sharing of experience and lessons learned.

Commentary

In the current political situation, Option 1 for a full European scheme looks difficult to achieve quickly enough to get the desired commercial deployment post 2020. Option 2 for only actions within the Member States looks unattractive as it is likely that it will not be sufficient to achieve the same objective. Option 3, the so called pragmatic approach, was discussed at the Advisory Council at Madrid in October 2007 and there appeared to be support for it as it could well be the only practical way to move forward in achieving an effective Flagship Programme in time.

If the pragmatic approach is accepted as the way to proceed then it is absolutely essential that the financing mechanism to create a EU wide fund is addressed on an extremely urgent basis. The basis of this discussion has been established but it needs to be taken through to fruition. The development of this mechanism needs to involve both industry and other stakeholders together with government and EC officials in a joint manner so that whatever is agreed is acceptable to all parties and is capable of being implemented quickly, ie within the next year if at all possible. Part of this would be quantifying the amount that industry would be willing to contribute.

Delay in getting to an acceptable fund will only delay the establishment of the required set of demonstration projects under the Flagship Programme and hence the commercial deployment of CCS, so missing the date of 2020.

Such an approach appears to be consistent with the thinking for the EU Strategic Energy Technology Plan where again it is recognised apparently that there needs to be a 'significant' EU-wide initiative on CCS and that it requires urgent action if it is to contribute to meeting the 2020 and 2050 targets on CO₂ reduction. Having the appropriate level of demonstration will be essential and so recognises the need to address the financing mechanism for such 'low Carbon technologies'.

This demonstration appears to be accepted as one critical element of such an approach that includes a complementary robust R&D action together with the development of infrastructure, a comprehensive communication campaign, the appropriate regulatory and fiscal framework for deployment and the international linkage with other countries, especially the developing ones that will rely heavily on fossil fuels.

It will be important that the actions and strategy being taken forward by the ZEP Platform are aligned appropriately with those being developed by the EC on all fronts, from technology through to communication and regulatory frameworks for deployment.

Final Remarks

Whatever route is supported for the Flagship Programme in its way forward, it has to be recognised that, although the ZEP Platform has played a considerable part in getting the ZEP and CCS on the political table, it needs to do much more in getting the message over in the political and general arena.

Following in the announcements of the EC on CCS expected in December 2007, the ZEP Platform must be in a position to respond with a clear and loud statement that is promoted strongly. There will be a relatively short window of opportunity between early December 2007 when there will be a EU Energy Council and March/April 2008 when the full EU 2008 Spring Council will be held. This may well require a senior

`champion` that works with a professional communication team working at a high `political` level.

Requested Action form the Advisory Council

At its meeting in Rome on 16th November 2007, it is requested that the Advisory Council should agree its approach to the Flagship Programme and be clear of its message to be promoted assertively up to and into the EU 2008 Spring Council.

It is therefore requested to agree/vote as appropriate on the following issues :

- A. The Advisory Council is supportive of the so-called pragmatic approach to the future way forward for the EU CCS Flagship Programme, this being the most practical way forward at this time (November 2007) in the current political context.
- B. The Advisory Council recommends that the EC, with involvement of the appropriate governmental, industrial and other stakeholders and in parallel with the above, should address on an urgent basis, the identification and development of additional financial incentives that could work in a European wide manner to encourage the initiation of additional CCS demonstration projects. Such financial mechanisms should be acceptable to the majority of interested parties. They would need to identified and developed by mid 2008 at the latest.
- C. The Advisory Council will agree on statement that would be released at the time of the release of the EC CCS communications on CCS anticipated on 5th December 2007. This would be based upon the above agreements and be agreed by the end of November 2007. Subsequent to this, the message would need to be promulgated at a high political level during the period of up to March/April 2008,