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Strategy and Action Plan for the Implementation of Multi-national Programmes on Clean Fossil Energy

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PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Strategy and Action Plan for the Implementation of Multi-national Programmes on Clean Fossil Energy

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Executive Summary[1]

This report forms the final output to FENCO-ERA WP3. It builds on the previous activities and deliverables within this work package namely D3.1, D 3.2 and especially D3.3 a 'Draft Strategy and Action Plan for the Implementation of Multi-national Programmes on Clean Fossil Energy'. It also draws upon the findings of other work packages.

The activities of FENCO-ERA both in terms of deliverables from other work package and results from projects in the 1st FENCO-ERA joint call may further help re-shape and refine the strategy presented here.

Keywords

FENCO-ERA WP3, Preliminary Strategy and Action Plan, Implementation of Multi-national Programmes, Clean Fossil Energy

Contribution to

Work Package 3, D 3.4, of FENCO-ERA project

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1. Introduction

This report forms the final output to FENCO-ERA WP3. It builds on the previous activities and deliverables within this work package namely D3.1, D 3.2 and especially D3.3 a 'Draft Strategy and Action Plan for the Implementation of Multi-national Programmes on Clean Fossil Energy'. It also draws upon the findings of other work packages.

The activities of FENCO-ERA both in terms of deliverables from other work package and results from projects in the 1st FENCO-ERA joint call may further help re-shape and refine the strategy presented here.

2. Identifying subjects for joint action

The key to the identification of subjects for joint actions is to establish a common understanding between National Funding Agencies (NFAs) of their priority objectives. If a joint action is to be sustained it is vital that it addresses priority issues affecting a group of Member States, and an increased research output may be expected. However, it is also important that establishing this common understanding should be very efficient in terms of time and budget required. Therefore it is proposed that subjects for joint action should be identified by an annual workshop of NFAs. The actions needed to do this are:

- NFAs, organised in the established FENCO–NET, should take turns to organise and host the workshop.
- In advance of the workshop the actual national objectives of the FENCO–NET member states should be collected by email and further potentially interested NFAs should be informed and involved.
- The programme of the workshop should be fixed by a standing committee of NFA representatives, chaired by the hosting NFA.
- For identification of subjects for joint actions, non-NFA stakeholders are invited to propose ideas to its NFA.
- The conclusions of the workshop will by recorded by a secretariat provided by the host NFA.

This arrangement will require the hosting NFA to carry the cost of providing workshop facilities. The workshop should be sufficiently flexible to enable joint actions to be defined that cover topics with a regional or technology specific theme as well as those that encompass the whole of the EU.

3. Engaging non-NFA stakeholders

It is important to the success of joint actions that other stakeholders, principally those from industry and research organisations, are fully engaged in the selection of the subjects for a joint action. It is proposed that this should be done through a second annual workshop, which will follow the workshop for NFAs described above. By holding these workshops sequentially the NFAs will define the range of possible subjects for joint actions and then other stakeholders will be given the opportunity to influence priorities within this range.

An alternative approach would be to combine the workshops. In that case the different objectives of the stakeholders must be considered, which could make it difficult to agree on priorities, particularly for regional or technology specific actions. The actions needed to do this are similar to the NFA workshop:

- NFAs, organised in the established FENCO–NET, take turns to organise and host the workshop.
- In advance of the workshop the actual national objectives of the FENCO-NET member states and the other stakeholders should be collected by email and further potentially interested NFAs and industrial stakeholders should be informed and involved.
- The programme for the workshop would be fixed by a standing committee of NFA representatives, chaired by the host NFA. Keeping in mind the R&D aspects considered by ETP ZEP, consultation might be useful.
- The conclusions of the workshop will by recorded by a secretariat provided by the host NFA.

This arrangement will require the hosting NFA to carry the cost of providing workshop facilities.

4. Coordination with other activities at EU level

The final objective of transnational actions or programmes is to facilitate more effective research, development, demonstration and implementation of ZEPs. To maximise these benefits, joint actions between Member States should also be coordinated and harmonized with EU level actions. This coordination needs to encompass both the selection of subjects for R&D activity and the timing of calls for proposals, with the aim of establishing joint actions that can also participate and receive financial support at EU level as well as at national level.

It was reported previously in deliverable D 3.3 that experience from the 1st joint call under FENCO-ERA has led NFAs to conclude that joint actions are more likely to be cost effective if the total funding exceeds €10m per project. Combining this level of

funding with EU support opens up the possibility of having significantly larger R&D and pilot scale activities that up to now have rarely been possible with Member State or EU funding alone.

Specific actions needed at this stage to achieve this level of coordination are:

- Establish a dialogue with the EC to consider how this coordination could be achieved as a part of the FENCO-ERA initiative
- Agree with the EC a mechanism for its involvement in the subject definition workshops described above.

At EU level other activities directed towards R&D coordination and technology demonstration are in progress, which may show thematic overlap with initiatives by national funding agencies, in particular the Strategic Energy Technology Plan (SET Plan) by the European Commission and the European Energy Research Alliance (EERA), which is initiated by leading European research institutes. As a starting point a brief description of the SET Plan and the EERA - with a close alignment to the development of the SET Plan - is given as a coordination and harmonisation set. Together it forms one important issue for a successful facilitation of efficient research, development, demonstration, and implementation of ZEPs of transnational activities and programmes.

4.1 The SET Plan

The European Strategic Energy Technology Plan (SET Plan) [DECC, 2010b] is tracking a new approach in energy research policy. New and efficient energy technologies will be crucial to combat climate change and to achieve Europe's targets on greenhouse gas emissions, new technologies need to be deployed in Europe. Research and actions to develop new technologies, lower their costs and bring them to market must be organised.

The SET Plan focuses on the collaboration of economy, science and policy. The goal is to accelerate innovation and technological progress to secure a save and efficient energy supply in Europe.

The European Commission (EC) presented the SET Plan on 22.11.2007 [DECC, 2010b]. The European Council supported the SET Plan on a meeting on 13./14.03.2008. The European Parliament also rated the plan positive in a plenary meeting on 09.07.2008.

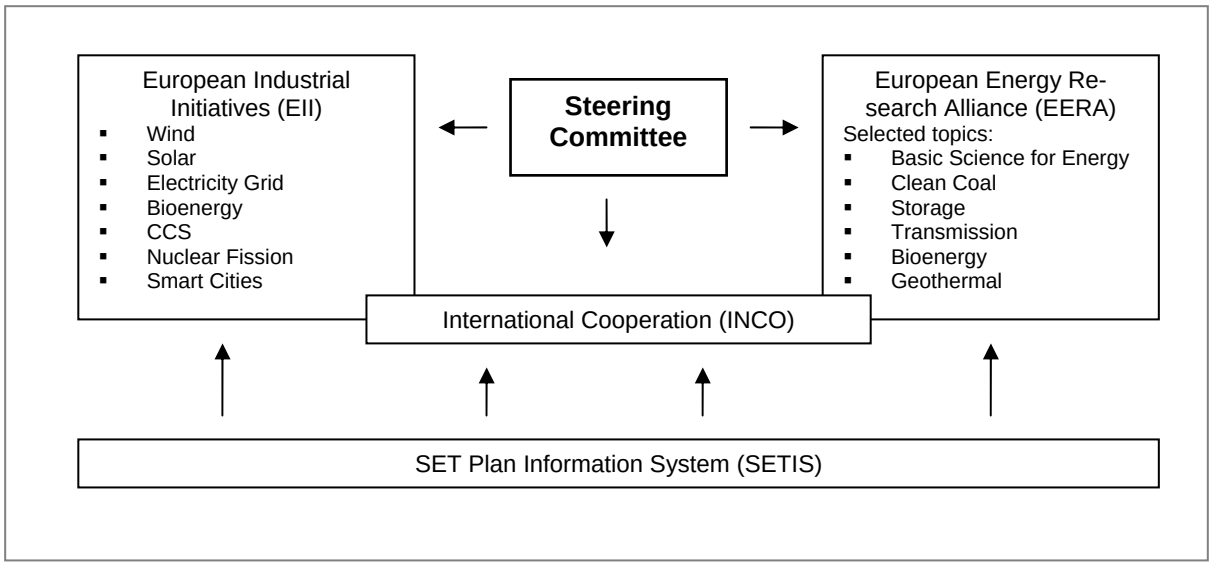
Elements of the SET Plan [DECC, 2008], [DECC, 2010a], [greengrants, 2010]

The SET-Plan includes several initiatives, including The European Industrial Bioenergy Initiative, The European Electricity Grid Initiative, The Fuel Cells and Hydrogen (FCH) Joint Technology Initiative, The Sustainable Nuclear Initiative, Energy Efficiency – The Smart Cities Initiative, The Solar Europe Initiative, The European Wind Initiative, The SET-Plan Steering Group (SET-Group), The SET-Plan Information System (SETIS): collecting all relevant information about the development of technologies in the energy sector.

Two initiatives are special relevance for FENCO initiatives:

- The European CO_2 Capture, Transport and Storage Initiative with the central objective to further demonstrate and develop the most promising CCS technologies in power generation and in other energy-intensive industries that use fossil fuels (mainly coal and gas).
- The European Energy Research Alliance (EERA), aiming at accelerating the development of new energy technologies, working towards a long-term, durable integration of excellent research capacities dispersed across the EU, strengthening Europe's capacity to initiate and execute large high-risk, high-gain R&D programmes.

The European Community Steering Group[2] on Strategic Energy Technologies is steering all activities and consists of experts from the member states of the SET Plan. It aims to coordinate national, European and international energy research policies and to establish Joint Programmes.



[2] The SET Plan Steering Group is currently composed of 58 representatives from 32 European countries.

Source: [Kübler, 2010]

Fig. 1: Elements of the SET Plan

Main activities

The main activities comprise

- A large demonstration programme aiming at the construction and operation of up to 12 industrial-scale CCS projects by 2015. Each project will integrate and test existing components of CCS, demonstrating the feasibility of the concept and generating knowledge that will help to reduce costs, orientate further research and technological development (R&D) and increase public awareness about the benefits of the technology.
- A research programme building on and complementing the CCS demonstration activities. It will focus on the continued development of more efficient components for individual CCS technologies that could be commercially available around 2020. It should also enable CCS to have a wide range of commercial applications in energy-intensive industries.

4.2 The European Energy Research Alliance (EERA) [DECC, 2010a], [greengrants, 2010]

The European Energy Research Alliance was founded in 2008 by 10 leading research organisations by signing a Declaration of Intent [DECC, 2010a], expressing their commitment to contribute to the main objectives of the EERA[3]. The key objective is to accelerate and to develop new energy technologies. A number of workshops have been held [greengrants, 2010] to harmonise activities on program level. Conceiving and implementing Joint Programmes of research in support of the SET Plan priorities are other important elements to achieve the key objective.

Key objectives of EERA [DECC, 2010a], [greengrants, 2010]

The high-level objectives of the Alliance will be to:

[3] The EERA Executive Committee is currently composed by 15 of the top Public Research Organisations dealing with energy in Europe, namely: the “Austrian Institute of Technology”, AIT (AT), the “Commissariat à l’Energie Atomique et aux Energies Alternatives”, CEA (FR), the “Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas2, CIEMAT (ES), the “Centre for Renewable Resources”, CRES (GR), the “Energy Research Centre of the Netherlands”, ECN (NL), the “Italian National Agency for New Technologies, Energy and Sustainable Economic Development”, ENEA (IT), the “Helmholz Association”, HZ, (GE), the “Institute of Power Engineering”, IEN (PL), the “Laboratorio Nacional de Energia e Geologia”, LNEG (PT), the “Paul Scherrer Institute”, PSI (CH), the “National Laboratory for Sustainable Energy”, Risø-DTU (DK), the “Foundation for Scientific and Industrial Research”, SINTEF (NO), the “UK Energy Research Centre”, UKERC (UK) and the “Technical Research Centre of Finland”, VTT (FI). The EERA Executive includes two European organisations as observers – the European University Association (EUA) and the European Heads of Research Councils (EUROHORCs).

- Accelerate the development of new energy technologies by conceiving and implementing Joint Programmes of research in support of the SET Plan priorities, pooling and integrating activities and resources, combining national and Community sources of funding and maximising complementarities and synergies, including international partners.
- Work towards a long term, durable integration of excellent but dispersed research capacities across the EU, overcoming fragmentation, optimising the use of resources, building additional research capacity and developing a comprehensive range of world class pan-European energy research infrastructures.
- Strengthen Europe's capacity to initiate and execute large precompetitive high-risk high-gain research and development programmes.
- Develop links and sustained partnerships with industry to strengthen the interplay between research outcomes and innovation, facilitate industry access to world-class research and ensure the early take-up of promising results.
- Develop training, education and outreach activities, encouraging researcher mobility, providing a training environment for new researchers and professionals in strategic energy sectors and raising public awareness.

Main tasks of EERA [DECC, 2010a], [greengrants, 2010]

In order to contribute to achieving the SET Plan objectives and strengthen the research base in the EU, the EERA aims to:

- Identify and define Joint Programmes of research to be carried out by EERA coalitions consistent with the SET Plan taking into account activities of European technology platforms and industry groupings.
- Implement Joint Programmes through the exploitation of existing 'own' resources (staff, facilities and funding as appropriate) from participating organisations, according to agreed rules, and attracting additional resources from other sources adding to scale and impact while ensuring coherence with other activities in the same fields.
- Share information and strategic plans to help identify strengths, weaknesses, overlaps and gaps, and to determine potential areas of coordinated efforts.
- Proactively engage with industry to create and exploit partnerships of mutual interest and benefit.
- Support prenormative research efforts at Community level for energy technologies.

- When appropriate, engage in international cooperation actions with leading research organisations in developed and emerging nations in support of the EU strategy on energy technology.
- Systematically monitor and review the progress of the Alliance and its research programmes, using appropriate indicators, in association with the SET Plan Information System (SETIS).

EERA and CCS [greengrants, 2010]

The scientific and technological development of energy research of the EERA is supported on a broad base. Three new EERA Joint Programmes will be officially launched in the occasion of the SET-PLAN Event, taking place in Brussels on November 2010. Besides New Materials for Nuclear and Bioenergy the new Joint Programmes cover Carbon Capture and Storage.

The CCS research area is subdivided into the parts:

1. Pre-combustion and oxyfuel
2. Post-combustion and
3. CO_2 transport and storage.

5. Establishing a mechanism for operating joint calls

FENCO–ERA Work Package 5 reported on the evaluation of first joint FENCO calls for proposal (D 5.5.1). Important findings are summarized in this deliverable. From February 2007 to the end of 2008 Joint Calls for proposals of FENCO-ERA were prepared and executed. D 5.5.1 describes this process and confronts it with criteria of efficiency, efficacy, budget issues and successfulness. Furthermore, the evaluation and review of Joint Calls is presented in the following as an important factor for the development of a mechanism for operation for further Joint Calls:

Conflicts of Interest

A transparent and consistent line should be taken with respect to “conflicts of interest” during the proposal evaluation stages. This means that no potential contractor should have any access to this part of the process. Clearly this would include participation even as an observer within Call Steering Committee meetings. It is easy to envisage a conflict of interest arising where there is not clear separation between NFAs and research contractors or where NFAs might on occasions perform a dual function. In this situation the strong recommendation would be that the NFA in question or part thereof is banned from undertaking any contractor/partner role in projects that it supports financially. Such an outcome would give comfort to other potential contractors.

Impact of differing national funding rules

Projects arising from Joint Calls or other initiatives are most likely to be funded from a "virtual common pot". This means that each NFA funds its own national partners collaborating in joint projects. Individual NFAs have different rules and arrangements regarding the allocation of finance and this can impact on the letting of projects and the execution of the work. Some countries for instance can allocate an amount of funding and then place no constraints regarding the timescale of its use. Other countries have to commit from a timed allocation (usually annual) and will only allow the allocation to be drawn down (spent) over a finite period. This can give rise to difficulties if there are delays in letting contracts with money previously promised no longer being available. Also it can impact on delivery where one partner's task is dependent on progress on another partner's task. Delays can cause that project finance may no longer be available to the concerned partner. This situation became an issue within one of the FENCO-ERA 1st Joint Call projects. A harmonisation of the respective regulations of the NFAs would be desirable and are recommended.

Overall project reporting

FENCO-ERA acted as a facilitator for the FENCO-ERA 1st Joint Call and didn't provide project funding. FENCO-ERA did not identify prescriptive project reporting requirements. It was left to the respective NFAs to ensure that their own contractors reported to them on the individual packages of work undertaken. This meant that there was no overall report of the project available. It is therefore strongly recommended that if NFAs fund projects either as the result of a Joint Call, or from some looser bilateral or multilateral procedure, arrangements are in place for overall reporting. It became apparent as an issue in the course of the FENCO-ERA 1st Joint Call projects that no overall executive summary for each project was available.

Experience with the 1st joint call under FENCO-ERA, and through the one to one discussions with NFAs has identified two considerations which should guide the definition of a mechanism for operating joint calls:

- Needs to have a low, but appropriate administrative cost if joint calls are to be cost effective.
- Needs to be a fast track approach to enable urgent actions and to facilitate coordination with national and EU programme timescales.

NFAs generally considered that the 1st Joint Call procedure under FENCO-ERA lagged due to administrative burdens in the selection of projects. However, there are administrative requirements placed on NFAs, which are intended to control the use of public funds and cannot be avoided. Actions to address this issue are:

- Establish a generic format for making joint calls for projects that can be reused in each annual round. This call procedure should have a single bidding round to speed project selection. This action should be completed as part of current FENCO-ERA initiative drawing on recommendations from WP4 Task 4.4 and the evaluation of options undertaken by WP5 Task 5.5.
- Establish a generic system for evaluating bids into joint calls that can be re-used in each annual round. This evaluation procedure should be based on a single bidding round to speed up project selection. This action should be progressed as part of current FENCO-ERA initiative drawing on recommendations from WP5 Task 5.5.
- Establish an internet based system for receiving, logging and distributing joint proposals. The internet system is preferably to be maintained by a professional web master and is to be paid by contributions from each participating NFA.
- The Joint Calls should be published in the EC information platform NetWatch (http://netwatch.jrc.ec.europa.eu/nw/)
- The NFA acting as annual host to the joint action (see above) is to provide secretariat services for the assessment of proposals.

6. Contracting and monitoring joint projects

The 1st Joint Call under FENCO-ERA has established that NFAs are only able to fund the participation of their own national based entities in joint actions. Therefore the contractual arrangement between NFAs and national participants is a matter for individual Member States. However, there is a need for an overarching agreement between NFAs and participating organizations for the arrangements under which work will be done, results disseminated and problems resolved. Actions needed to address this issue are:

- Establish a generic collaboration agreement for all joint actions which can be reused in each annual round. This action should be completed as part of the current FENCO-ERA initiative drawing on recommendations from WP4 Task 4.4.
- The level of monitoring needed needs to be agreed between NFAs and a decision made on whether this should be done at the Member State level or centrally.

7. R&D in support of policy

This action area was identified as one requiring R&D that would benefit from transnational collaboration. However, the driver for joint programmes was predominantly knowledge sharing in order to advise policy making at Member State level. Projects were likely to be relatively small and would not gain the other benefits of joint actions (i.e. increased effort, accelerated progress). NFAs agreed joint actions of this type were worthwhile, but only if they could be implemented quickly with minimal administrative burden. The action needed to facilitate such projects is:

- To design the generic collaboration agreement described above to enable rapid implementation of smaller projects without a formal call for proposals.

8. Knowledge sharing from joint projects

An agreement is needed on the level of knowledge transfer to third parties required from joint actions and how this should be delivered.

9. First FENCO-ERA experiences

First experiences were made during FENCO workshops in Amsterdam organised by SenterNovem / Agency NL. Lessons learned, important findings and recommendations mainly from two workshops are presented in the following:

The Workshop on 'CCS for members of Clean Fossil Programme Advisory Committees', held in Amsterdam on August 27th 2008 (see D 5.3.1), came up with three recommendations, all of which are essential for further collaborations.

- In order to overcome existing differences regarding national programmes and subsidy schemes, it is important that CCS European Flagship projects and capacity building come into effect. These transnational networks can focus for example on differences in national laws, common technology issues, harmonisation spearheads, public acceptance topics, tendering procedures, etc.
- In order to improve transnational cooperation and to tackle the problem of long throughput times of European programmes, a CCS development vehicle or intermediary level should be installed between the individual countries and the European Commission. Such a vehicle should shorten the time taken to select CCS topics that need to be boosted.
- All participants agreed upon the following ranked recommendations:
    - Develop breakthrough capture technology in order to decrease costs and energy penalty of the chains.
    - Develop reliable storage capacity estimation techniques and calculation methodologies.

- In order to improve transnational cooperation, CCS information and knowledge should be shared more intensively and extensively.
- Pursue transnational cooperation with a clear focus on a European CO_2 infrastructure, bringing CO_2 sources and storage sites together and improving transnational regulation.
- Develop techniques and methodologies for monitoring measurement and verification (MM&V).

When developing monitoring and / or storage estimation techniques and methodologies it is vital that the European countries agree upon standardisation. For transnational cooperation and the development of a European infrastructure it is important that outcomes and data can be compared in an unbiased manner.

The Workshop on 'The coherence of non-technical aspects of CCS and monitoring', held in Amsterdam on June 10th 2009 (see SenterNovem workshop report), came up with the following recommendations, all of which are essential for further collaborations.

- FENCO-ERA members believe that a scientific panel for communication and public acceptance could be very useful. This panel facilitates discussion between all stakeholders.
- A panel can also decide on the monitoring techniques to be used for a regulation framework. It is important that extensive monitoring should take place initially. Further, complete openness regarding findings must be given, in order to gain the best learning effects and the maximum public acceptance.
- Due to lack of industrial experience it is also important to set up a scientific panel to support and harmonise the implementation.
- Finally, the scientific panel should promote the development of a wider network of researchers. As the present CCS community is regarded too small new and independent experts could strengthen the network.

10. Summary

As a final output of work package 3 deliverable D 3.4 (Strategy and Action Plan for the Implementation of Multi-national Programmes on Clean Fossil Energy) provides suggestions and recommendations for the establishment of a structural and organisational framework for co-operation of National Funding Agencies to cooperate with respect to national fossil energy R&D programmes and for FENCO-NET as the organizational body. By this, D 3.4 proves to be the key deliverable of FENCO-ERA providing the basis for a European network of funding agencies (FENCO-NET) for the development of ZEPs through the coordination of procedures and practices.

Table 1 specifies the actions discussed above, the organizations that should take responsibility for their delivery and the recommended timescale for their completion.

Actions		Organisation Responsible	Timescale for completion
1	Agree proposed arrangements for annual workshop of NFAs to identify subjects for joint actions.	NFAs	Conclusion of FENCO
2	Identify the NFA to run the first annual workshop of NFAs	NFAs	Conclusion of FENCO
3	Collect actual national objectives	Hosting NFA	1 Month before Workshop
4	Run first annual workshop of NFA's to identify subjects for joint actions (to include NFAs not represented in FENCO).	NFAs	Spring 2011
5	Report first annual workshop NFAs	Hosting NFA	1 Month after Workshop
6	Run first annual workshop of other stakeholders to review and prioritise subjects for joint action identified in NFA workshop.	NFAs / Stakeholders	Early autumn 2011
7	Report first annual workshop stakeholders	Hosting NFA	1 Month after Workshop
8	Identify the NFA to run the second annual workshop of NFAs	FENCO-NET	First NFA Workshop
9	Run second annual workshop of NFA's to identify subjects for joint actions	FENCO-NET	Late autumn 2011
10	Fix coordination arrangements between joint call process and EU level programme activities	FENCO-NET	First NFA Workshop
11	Establish a generic collaboration agreement for all joint actions which can be reused in each annual round.	FENCO-NET	Second NFA Workshop
12	Establish the level of monitoring needed for joint actions.	FENCO-NET	First NFA Workshop
13	Agree on a framework for sharing knowledge from joint actions with third parties.	FENCO-NET	Second NFA Workshop
14	Agree an informal framework for smaller policy related joint actions.	FENCO-NET	Second NFA Workshop

Tab. 1: Summary of actions

11. References

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