

ENVIRONMENT DIRECTORATE  
ENVIRONMENT POLICY COMMITTEE

**Working Party on Integrating Environmental and Economic Policies**

**SCOPING PAPER ON NEW PROJECT: "ECO-INNOVATION AND GREEN GROWTH"**

**16-17 March 2011**

*This paper is for discussion under Item 4 of the WPIEEP agenda. It takes stock of recent developments in the work on eco-innovation and explores avenues for further work in 2011-12. In particular, the paper indicates a number of areas where further work can be undertaken as part of the follow up of the Green Growth strategy.*

*ACTION REQUIRED: Delegates are invited to discuss the paper and to provide guidance on priorities and next steps.*

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### **NOTE FROM THE SECRETARIAT**

This scoping paper takes stock of recent developments in the work on eco-innovation and explores avenues for further work in 2011-12. In particular, the paper indicates a number of areas where further work can be undertaken as part of the follow up of the Green Growth strategy in May 2012.

***Action required:*** Delegates are invited to discuss the paper and to provide guidance on priorities and next steps.

## SCOPING PAPER ON NEW PROJECT: “ECO-INNOVATION AND GREEN GROWTH”

### 1. Introduction

1. The purpose of this paper is to provide an overview of the current and recent OECD work on eco-innovation and discuss work on eco-innovation that can be undertaken under Output Result Area 2.3.4 in the 2011-12 Programme of Work and Budget (PWB) [ENV/EPOC(2010)1/ANN1/REV1]. An earlier planning document for the 2011-12 PWB considered by the former WPGSP and WPNEP [ENV/EPOC/WPNEP(2009)7] identified the broad outlines of possible future work on eco-innovation. As its title indicates, this project was specifically targeted as part of the follow up to the Green Growth Strategy which will be delivered to the OECD Ministerial Council Meeting in May 2011. A draft of the Green Growth strategy was discussed at a major workshop in Paris on 10-11 February 2011 and the important role of innovation in promoting Green Growth was addressed at length (see [C(2011)29], pp 45-59).

2. The Green Growth strategy draft report acknowledges innovation, and eco-innovation in particular, as a major driver of the transition to a green economy. The former WPSP and WPNEP groups have undertaken considerable work on eco-innovation in recent years, focusing on analysing patterns of technology development and diffusion, intellectual property rights issues, and policies to support eco-innovation. The aim of the current project is to build on and extend this body of work to provide practical policy advice in key areas to support the transition to green growth.

### 2. Objective of the project

3. The overall objective of the project is to provide policy advice to help governments guide the development of eco-innovation in the context of the implementation of Green Growth strategies, focusing in particular on the governance issues surrounding eco-innovation, and the role of international cooperation in eco-innovation. The project will be undertaken in consultation with the Directorate for Science, Technology and Industry and the Public Governance and Territorial Development Directorate in order to exploit potential synergies with work being done in other Committees.

### 3. Recent developments on eco-innovation related work

4. The OECD has accumulated a lot of experience and analysis on eco-innovation, its role in environmental policies, and the effectiveness of policies to support its development and diffusion.

#### 3.1 *Eco-innovation related work in the Environment Directorate*

5. In the Environment Directorate, work was initiated a decade ago to measure eco-innovation on the basis of patent data. Sophisticated algorithms have been being developed to select environment related inventions in patent data bases. The first set of findings from this stream of work were presented in the publication *Environmental Policy, Technological Innovation and Patents* (OECD 2008).

6. This robust analytical basis is being used to analyse the effects of public environmental policy on technological innovation with the aim of improving the design, implementation and evaluation of environmental policies. Data on selected OECD countries are analysed to study innovation effects of alternative policy instruments (such as emission or technology standards, investment incentives, taxes, tariffs, and tradable permits). Recent developments in this area are synthesised in *The Invention and Transfer of Environmental Technologies* [ENV/EPOC/WPIEEP (2011)3], which is being discussed under agenda item 4(i) at this WPIEEP meeting. In 2011-12, this stream of work will focus on climate-related

technologies and will lead to the planned publication on *Energy and Climate Change Policy and Innovation* (see [ENV/EPOC/WPCID(2011)3] for the annotated outline of this paper).

7. Complementing this focus on patent data, a second stream of work has developed to examine eco-innovation policies more broadly and investigate how countries support its development and deployment. The financial support of the European Commission made enabled this work to be undertaken. This work was supported by a number of country profiles on national strategies to support eco-innovation. While European countries are generally covered by the former Environmental Technology Action Plan of the European Commission, the OECD Secretariat also developed country profiles for selected non-European OECD countries and China, based on a similar structure for the profiles. These country profiles are available under a dedicated website. This effort continues, and country profiles on Israel and South Africa should be available soon.

- Delegates should note that the Secretariat is available to continue compiling country profiles for countries not already covered, for new members, or for EE5 countries not yet covered, should appropriate resources be made available.

8. This work, together with a series of analytical papers, was discussed at a Global Forum on Environment focused on eco-innovation, organised in November 2009. All relevant documentation from the Global Forum, including the proceedings, is available on the Forum's webpage ([www.oecd.org/environment/innovation/globalforum](http://www.oecd.org/environment/innovation/globalforum)). A publication, *Better Policies to Support Eco-Innovation*, will be released in early 2011 and brings together the results from the Global Forum, the insights from the country profiles, and the analytical papers.

9. Several policy messages emerge from this work. In particular, the case studies suggest that generic policies eco-innovation should be avoided and that eco-innovation policies need to consider several variables:

- the coexistence of a variety of technological trajectories (in contradistinction with information technology, which relies more on norms);
- the need to validate technological choices and their environmental benefit (hence the importance of the demonstration phase);
- national contextual features, such as the knowledge base, the dynamics of the venture capital market, the industry and market structure;
- the priorities and ambitions of the government vis-à-vis a particular technology (e.g. address a domestic environmental concern, develop a dynamic industry, access international markets, etc); and
- social acceptance by the populations.

### ***3.2 Eco-innovation related work in the Directorate for Science, Technology and Industry***

10. The OECD project on Sustainable Manufacturing and Eco-Innovation was launched in 2008 under the auspices of the Committee in Industry, Innovation and Entrepreneurship, and undertaken by the Directorate for Science, Technology and Industry (DSTI). The project seeks to promote the concept of eco-innovation and to stimulate both technological and systemic solutions to global environmental challenges.

11. Results from the first phase are captured in the publication *Eco-innovation in industry* (OECD, 2009). It takes stock of national strategies and policy initiatives for promoting eco-innovation in OECD countries and analyses the strengths and weaknesses of existing methodologies for measuring eco-innovation.

12. Further work is on-going, focused on innovative business models (drawing on business case studies), on demand side policies (procurement, standards), and venture capital (drawing on a database of venture capital for clean technologies). The overall orientation leans towards a better account of transition and the political economy of the reform of industry policy.

### ***3.3 Eco-innovation in the aftermath of the Green Growth strategy***

13. As noted above, innovation (and eco-innovation in particular) is acknowledged as a major driver in the transition to a greener economy. Drawing on the messages from the OECD Innovation Strategy, the Green Growth Strategy Synthesis Report makes the case for a number of policy orientations to support the development and deployment of eco-innovations. These include framework policies, strengthening research, supporting innovation and deployment, deploying demand-side policies, technology transfer and diffusion, governance issues and the need for international cooperation. A report bringing together existing OECD work in this area these broad issues in more detail is currently being prepared by DSTI.

## **4. Proposition for a programme of work on eco-innovation under the WPIEEP**

14. Building on the previous and current work described above, two key policy issues have been identified as being of particular relevance to the follow-up of the Green Growth strategy and which have not been analysed in detail as yet. These relate to governance, with a particular emphasis on the linkages between national and local initiatives, and to international cooperation in eco-innovation.

### ***4.1 Governance issues in policies to support eco-innovation***

15. The country profiles flag numerous initiatives taken at the local, sub-sovereign<sup>1</sup> level to support eco-innovation. Sub-national entities are involved because some environmental problems require local responses (this is the rationale for Regional Environmental Technology Development Centres in Korea), or because these entities consider the development of environmental goods and services as a new engine for growth (for instance, German Länder join with the Federal government to fund R&D for fuel cells and micro CHP; Ontario supports the development of electric cars by car manufacturers located in the province). Important measures, increasingly in use at local level, include support for industry or technology clusters, performance standards such as requirements for green buildings or CO<sub>2</sub> emissions for motor vehicles, or portfolio standards for renewable energy.

16. The key policy concern in this instance is the coherence and alignment between national and local initiatives. The question arises of the effectiveness of local initiatives in the context of central/federal policies, and vice-versa. Additional research in this area is required, in particular in the context of fiscal consolidation (when public finance is particularly scarce), and of green growth policies. Ultimately, research should substantiate policy discussions on framework conditions central governments may wish to create to support and coordinate local initiatives, and on the appropriate combination of instruments to enhance the cost efficiency and environmental effectiveness of central and local eco-innovation policies.

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<sup>1</sup> In the document, *local*, *regional* and *sub-sovereign* are used indifferently and refer to all geographical scales smaller than the national level

17. Exploratory work in this area has been initiated, in consultation with the Public Governance and Territorial Development Directorate (GOV). A draft scoping paper will be available for information as a room document. Further work could be developed in two areas:

- i. Further in-depth analytical work could focus how much coordination is needed between national and local initiatives and what are the best instruments or processes to reach the appropriate level of coordination. This would be based on a literature review, the development of an analytical framework, and the application to a number of case studies.
- ii. Participation in the project that GOV is currently undertaking on the role of cities in green growth, with an emphasis on initiatives taken at city level to support the development and deployment of eco-innovation. This project will draw on a series of city case studies, with Paris being the first one. The WPIEEP could cooperate with GOV on this project and could, depending on resources and interest from WPIEEP Delegates, contribute to the case study work.

#### ***4.2 International cooperation for eco-innovation***

18. The case studies of selected eco-innovation (see *Better Policies to Support Eco-innovation*) highlighted the increasing “mismatch” between policy that has a domestic focus and economic activity that has an international reach. Under certain circumstances, international cooperation is required to share cost, avoid duplication of efforts, limit sunk costs, and stimulate eco-innovation at a global scale. A key policy issue is how much cooperation is needed, and how can it be achieved.

19. An exploratory paper has been commissioned on the role of standards in such cooperation. Examining the case of carbon capture and storage, the exploratory paper illustrates how international cooperation can contribute to the development of an international standard that will facilitate technology development and deployment. A draft report will be available as room document, for information.

20. There are pros and cons for the development of such international standards in the case of eco-innovation. Timing is key to an efficient : if it develops too soon, the standard may lock technological development in suboptimal solutions. If developed “too late”, the standard may not be able to avoid diseconomies of scope and scale. Additional research could help identify the conditions under which an international standard can contribute to the cost-effective development and deployment of eco-innovation.

21. This aspect of the project could seek to better understand the issues of scope and timing of international cooperation and the particular instruments which are conducive to the appropriate level of it. Work in this area could be developed in coordination with DSTI in order to draw on its experience in interacting with international science and industry policies.

#### **5. An agenda for work on eco-innovation policies under the WPIEEP**

22. Based on the discussion above, the Secretariat proposes four lines of work under this project on “Eco-innovation and Green Growth”. They fit into the initial mandate given to WPIEEP, would contribute to the promotion of green growth policies, and would complement work being done elsewhere in the OECD. The proposals are:

- Undertake analysis on the issues surrounding the mix of local and national initiatives to support eco-innovations. The output from this part of the project could build on the scoping paper and existing work on national policies, going into greater depth on selected country case studies.

- Analyse the opportunities and means for international cooperation in the field of eco-innovation. The work could be done in consultation with DSTI, and would result in a paper aimed at informing the development of international policies on eco-innovation.
- Cooperate with GOV on the analysis of initiatives taken by cities to develop and deploy eco-innovations, in the context of green growth policies, which may include a contribution to the development of a case study. Countries may wish to nominate a particular city that would be a good case study, which could also form the basis of an in-kind contribution to the project.
- Expand the geographical coverage of country profiles for non European OECD countries and for EE5 countries; possible update the existing profiles. This work would require in-kind assistance or voluntary contributions from countries. Outputs would be in the form of profile papers that can be placed on the OECD Eco-Innovation web page.

23. The overall results from this work could be captured in a synthesis report at the end of the biennium as a continuation of the work on national policies to support eco-innovation, bringing together the main policy messages from the various lines of work. Depending on the availability of resources and interest of Delegates, it may be possible to hold a workshop on one of the particular issues, especially either of the first two topics in paragraph 22.

#### **6. Action required**

24. Delegates are invited to discuss the paper and to provide guidance on priorities and next steps.