EURELECTRIC responses to the invitation in Draft decision -/CMP.5 to make submissions to the UNFCCC secretariat on:

1. **Inclusion of CCS in Clean Development project activities**

2. **Standardized baselines for Clean Development Mechanisms**

The **Union of the Electricity Industry–EURELECTRIC** is the sector association representing the common interests of the electricity industry at pan-European level, officially registered as non-governmental organisation to the UNFCCC.

In line with its mission, EURELECTRIC seeks to contribute to the competitiveness of the electricity industry, to provide effective representation for the industry in public affairs, and to promote the role of electricity both in the advancement of society and in helping provide solutions to the challenges of sustainable development.

This paper represents the view of EURELECTRIC, in accordance with Draft decision -/CMP.5 on "Further guidance relating to the clean development mechanism", on the following issues:

1. Inclusion of carbon dioxide (CO_2) capture and storage in geological formations in Clean Development Mechanism (CDM);

2. Development of CDM standardized baselines.

EURELECTRIC believes the inclusion of Carbon Capture and Storage (CCS) in CDM is a critical bridging opportunity towards a low-carbon future in which CCS is deployed on a large scale as part of a portfolio of mitigation options.

EURELECTRIC would also invite the UNFCCC and the Subsidiary Body for Scientific and Technological Advice to further develop these methods of standardization, and to take a decision on this matter at the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its sixth session.

Inclusion of CCS in Clean Development project activities

EURELECTRIC is of the opinion that the inclusion of CCS projects in CDM would be crucial, taking into consideration that:

1. **To achieve the ambitious levels of CO_2 reductions needed, all mitigation options must be used to their full potential**. The IEA concluded that CCS will need to contribute one fifth of the necessary emissions reductions in order to achieve GHG emissions reduction of 50% by 2050[1]. According to the IPCC, CCS has the capacity to achieve up to 55% of the cumulative mitigation effort by 2100[2].

2. **CCS is an important part of the lowest-cost GHG mitigation portfolio**. According to the IEA, if CCS technologies are not available the overall cost to achieve a 50% reduction in CO_2 emissions by 2050 will increase by 70%[3]. The Stern Review found that omitting CCS would, on average, increase overall GHG abatement costs[4].

3. **CCS has the potential to reduce overall mitigation costs and increase flexibility in achieving emissions reductions worldwide**, given its potential application to a wide range of CO_2 emissions sources (e.g. electricity generation, ammonia, cement production, gas processing) and geographical locations.

4. The world is dependent on fossil fuels as an energy source for the foreseeable future, even with accelerated renewable sources. Moreover, **for some developing countries** which are dependent on fossil fuels and have little other natural resources, **CCS is the only way to reduce emissions**.

5. **In order to avoid emissions "lock-in" once plant is built, it is timely that CCS is demonstrated and deployed now**. Delaying its use risks large GHG emissions to the atmosphere that could have been captured and stored, thereby reducing our ability to tackle global climate change.

6. **All the elements of CCS have been separately proven and deployed in various fields of commercial activity**. The oil and gas industry has gained considerable experience over several decades relating to the capture, transport and storage of CO_2 and the monitoring of CO_2 injected in geological formations.The vital stage now is the successful demonstration of fully integrated, large-scale CCS systems fitted to commercial-scale installations, in particular in power generation.

[1] IEA, Energy Technology Perspectives (2008)
[2] Intergovernmental Panel on Climate Change CCS Special Report (IPCC, 2005)
[3] IEA Technology Roadmap Carbon Capture and Storage
[4] Stern Review, 2007

7. **CCS needs incentives** for deployment due to the additional costs of capture, transport and storage. The **CDM can act as a catalyst** to incentivize "early opportunities", help build technical understanding of CCS applications, reduce technology costs and develop the confidence needed for widespread deployment.

8. **The CDM also represents the main mean available for allowing CCS to become commercially available in developing countries**, particularly in those where CO_2 emissions will raise most rapidly in future years.

9. **CCS projects will not flood the CDM market**. Hardly any project can be approved and come into operation before 2012, as long lead times are an unavoidable physical limit, and the CER prices are likely to remain too low to incentivize widespread deployment of CCS in the short term. In the longer term, demand for greater CO_2 cuts will be needed and CCS projects will compete with other mitigation options where they are cost-effective.

10. **CCS needs effective regulation to ensure safe deployment**. Many Annex I countries, such as the European Union, are making rapid progress in developing public policy which creates an enabling framework for CCS development. A large number of non-Annex I countries also support the demonstration and deployment of CCS technologies. Early deployment of CCS projects in developing countries will come with capacity building efforts from developed countries and other non-Annex I countries with good expertise of sub-surface management operations.

Specifically looking at the issues raised by COP/MOP draft decision[5], EURELECTRIC would like to state the following observations:

1) Project activity boundaries

The CDM project boundary of a CCS project should accommodate all components across the full CCS chain, i.e. all aspects from capture, transport and storage, and the project activities boundaries shall be described and referenced in the Project Design Document (PDD).

In particular, the project boundaries shall include the whole storage complex, which comprises a larger volume than just the storage reservoir, and ensures the inclusion of all surrounding geological domains which can have an effect on overall storage integrity and security.

[5] Namely: Non-permanence; Measuring, reporting and verification; Environmental impacts; Project activity boundaries; International law; Potential for perverse outcomes; Safety; Insurance coverage and compensation for damages caused due to seepage or leakage.

If a storage complex is comprised of several injection wells which can receive CO_2 from different sources and at different times, the project boundaries shall include all CO_2 capture sources and transport infrastructure to the storage site.

In order to properly define the project activity boundaries, a good site characterization shall be undertaken, including storage dynamic behaviour, potential seepage pathways and risk assessment. The European Directive on the geological storage of carbon dioxide (EU CCS Directive) Annex I, the US EPA legislation (Federal Requirements Under the Underground Injection Control Program for Carbon Dioxide Geologic Sequestration Wells) and the 2006 IPCC Guidelines for National Greenhouse Gas Inventories provide a sound framework for the characterization of the storage complex.

The project boundaries shall be reviewed periodically (as required by the US EPA legislation) and in the event that CO_2 moves out of the spatial boundaries, these shall be reviewed and the PDD revised and reassessed, to ensure all potential seepage locations are included within the project boundary.

2) Measuring, reporting and verification

A new sectoral scope and new baseline and monitoring methodologies for CCS project activities (including capture, transportation and storage) need to be created under the CDM. These methodologies shall incorporate the knowledge and experience gained to date, in particular the framework for monitoring and verification of the 2006 IPCC Guidelines, the EU CCS Directive (Annex II) and Best practices for Monitoring, Verification, and Accounting of CO_2 Stored in Deep Geologic Formations (NETL – DoE), and shall take into account the best available technologies both from a technological and economical perspective. Methodologies should not prescribe a specific monitoring technique, as every storage site is geologically different and the monitoring programme should be determined by ex ante site characterization and modelling and should be fully described in the PDD.

The assessment of a monitoring programme and verification of emission reductions requires a DOE with appropriate CCS expertise. Thus DOEs will have to be accredited by the CDM Executive Body (CDM EB) for validation and verification of CCS project activities.

3) Environmental impacts

A comprehensive Environmental Impact Assessment (EIA) shall be undertaken for each potential CCS project included in the CDM. We recommend that the EIA carried out, albeit governed by national regulations, should be based on principles and criteria established by the UNFCCC for CCS projects. Such principles can be developed by the IPCC or another recognised international body, and shall be fulfilled in addition of national regulation from the host country.

4) Non-permanence, including long-term permanence and insurance coverage and compensation for damages caused due to seepage or leakage

During the crediting period of a CCS project under the CDM, the liability for CO_2 seepage should reside within the operator. In case of seepage, the storage operator has to surrender an amount of CERs equal to the quantity of seepage CO_2. This is the same principle as in the European Emission Trading Directive (EU ETS Directive), where the storage operator has to surrender emission allowances equivalent to the seepage amount.

The potential for long-term seepage of CO_2 from geological CO_2 storage will outlast the CDM project crediting period, and even the closure of the storage site. The risk of seepage, even if extremely small for appropriate selected and managed storage sites, will have to be addressed. Nevertheless, necessary regulatory framework for stored CO_2 should exist, to secure environmental integrity in host countries.

After the CDM Project crediting period, there must be a means of ensuring that the environmental integrity is maintained. In the event of seepage, an amount of CERs (or equivalent at the time) equal to the quantity of seepage CO_2 must be surrendered, and the seepage source remediated. During the operation phase, the storage operator must make financial contributions available to the ultimate responsible of the storage site (normally, the host country) to cover (among others) the cost of CO_2 emissions in case of seepage after the transfer of responsibility has taken place. This is a similar mechanisms to the one followed by the EU CCS Directive.

5) International law

Storage sites, CO_2 pipelines and potential seepage locations which cross national borders will have additional legal implications and might be a source of dispute between States. Moreover, where several CCS projects share the same storage reservoir, there is an issue of who would ultimately be responsible for safety issues and liabilities around leakage during both the operational stage and, beyond, before transfer to the host country.

For these reasons, an agreement at international level as to the assignment of liabilities, together with a cooperation mechanism between countries to solve potential disputes might be created in the framework of the UNFCCC and/or international jurisdiction.

6) Potential for perverse outcomes

Perverse outcomes are not expected in the CDM market when including CCS project activities. As stated in point number 9 of our main views, the levels of investment required, the limited CER prices, the long project lead times, CDM approval process and post-2012 uncertainty will mean that only a few CCS projects could come into operation in the short to medium term, and therefore they will not be able to flood the CDM market.

7) Safety

To ensure the suitability of the storage formation, sound characterization and good site selection are needed. In this sense, the EU CCS Directive Annex I, US EPA legislation and the 2006 IPCC Guidelines provide a good framework. During the injection and post-injection phases, safety must be guaranteed through a sound monitoring and remediation plan based on a previous risk analysis. This can be based on the existing knowledge, experience and regulation, such as the EU CCS Directive Annex II.

During the operation phase of the storage site, operators shall make financial contributions available to the competent authority after the transfer of responsibility (normally, the host country). This financial contribution may be used to cover the costs of monitoring and remediation in case of seepage, to ensure that the CO_2 is completely and permanently contained in geological storage sites after the transfer of responsibility. This scheme is similar to one followed by the EU CCS Directive.

Standardized baselines for CDM

EURELECTRIC believes that all projects that aim to generate CERs under the CDM rules have to meet essentially the same criteria and complete the same steps.
Currently, an initial step in the project cycle requires that project proponents undertake a lengthy eligibility exercise, including the justification of project additionality and identification of the baseline scenario. Streamlining and simplifying this process, through the introduction of certain standardization methods, would thus decrease project costs and simplifies the very complicated process of CDM registration and issuance, thereby increasing access to the CDM and the transparency and predictability of the system.

In this sense, standardized baselines provide numerous benefits to the CDM along a number of parameters:

1. **Regional and Sectoral Distribution**: The uncertainty and costs related to determining crediting baselines and establishing additionality on a case-by-case basis disproportionately impacts the economic viability of certain project types (PoAs, small-scale projects, projects in LDCs, projects trying to break into new, untried sectors). Lowering these high transaction costs is absolutely key to incentivizing the investment into underrepresented host countries.

2. **Extensive Cost Reduction**: By reducing the cost of proving additionality, the use of standardized methods directly affects the commercial viability of projects, including currently unprofitable projects.

3. **Greater Predictability and investment certainty:** The lack of ability to predict whether a project will be registered by the CDM EB and eligible to receive emission reduction disincentives the willingness of private actors to invest in CDM projects, specially in countries with less favourable investment environments. The use of standardized methods increases predictability and encourages the investment in CDM projects.

4. **Increased Simplicity and Accessibility**: Objectively establishing additionality and determining crediting baselines through the use of standardized procedures and data sets would simplify the project development process so that the CDM would be clearer and thereby more easily accessible to potential stakeholders.

EURELECTRIC recommendations for the development of standardized baselines are based on some already existing methods of standardization, although currently underused:

1. **Emissions intensity benchmarks**: Set baseline emissions and establish additionality for project and program activities for which the business-as-usual GHG intensity per unit of production can be established (electricity generation, cement, aluminium and nitric acid production, and vehicle emissions). Emissions intensity benchmarks would be determined country-by-country in principle, unless it was more beneficial in terms of ease of measurement and monitoring to determine them regionally or globally. Or, on the other hand, in very large countries it may be necessary to have several benchmarks within the country to address significant differences between different areas.

   Here is an example of how emissions intensity benchmarks can be applied in renewable electricity projects: the grid-specific GHG intensity benchmark could be adapted from the grid factor defined by the CDM in the *Tool to calculate the emission factor for an electricity system*; the grid factor should be determined annually by a central authority in each host country and validated by a DOE one time, after which project developers should be able to apply the result directly to their projects without any additional DOE validation.

2. **Positive lists**: They can be established based on a determination of eligibility for crediting made beforehand by policymakers. Positive lists can be determined both for "project or program activities that generate non-carbon revenue streams, but are generally observed to face high barriers to investment" (electricity generation from solar, wind (in some countries), and small hydro; avoided and residential or commercial building efficiency) and for "project or program activities for which there is no real motivation for the activity if not for CDM revenues—including either no regulatory requirements or demonstrable non-enforcement of existing regulation" (landfill gas and anaerobic digestion of agricultural wastewater).
   A **group of experts** should be tasked with defining the specific criteria for categories of project activities for inclusion in a positive list and should also be tasked with deciding an appropriate procedure for the necessary period review of these lists over time.
   Positive lists **should not exclude the possibility to register project types not included in the list** if project developers are able to demonstrate additionality and establish a crediting baseline.
   If a project type is removed from the list registered project activities should continue to be issued credits for all allowed **crediting periods**, in order to avoid retrospective application of possible new rules.

3. **Deemed or per-unit values**: Determine the emission reductions of a project or program activity by multiplying a conservative estimate of the average emission savings of a given unit by the number of those units involved in the project activity, rather than carry out an extensive and costly monitoring plan. Examples

of project types that could use deemed values include: solar lamps, high efficiency cook stoves, and high efficiency light bulbs.

4. **Default values**: Use conservative default values in place of actual measurements. Default values are normally based on actual existing measurement data of similar, but not identical, conditions and are already used in many methodology types, particularly in countries where data is unavailable and/or costly to obtain.

5. **Standardized barriers tests**: For project types where the entire additionality determination cannot be standardized, methods can also be devised to address each of the "barriers tests" currently used in the Tool for the Demonstration and Assessment of Additionality.

Many of these concepts are not new to the CDM. However, there are only a few examples of their use in the CDM today, despite the great promise they hold to simplify registration and issuance. Indeed, of all these approaches, the development and use of emissions intensity benchmarks has proven particularly difficult because of a lack of the data available to individual project developers. A **designated work program to gather such data at a level higher than individual project developers would substantially ease these constraints**.