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**THE EUROPEAN UNION CLIMATE POLICY AND RELATED STATISTICAL
USER NEEDS**

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I. INTRODUCTION

1. The European Union climate policy is structured along two main dimensions – the international dimension predicated by decisions taken at the global level at UNFCCC climate talks (e.g. COP decisions) and the EU-internal dimension linked to policy measures and implementation towards meeting internally set climate targets. This paper does not aim to be exhaustive in presenting the totality of climate policies in the EU, nor does it claim to cover all possible data needs. It aims to provide a broad overview of the most important policy pillars and their corresponding reporting requirements, if existing, or the data needs associated with the relevant policy analysis. Some of the data mentioned already exist, others exist but not to the desired level of detail, while third are generally far from easy to obtain.

II. MONITORING, REPORTING AND VERIFICATION

2. In line with UNFCCC and Kyoto Protocol obligations, each Member State and the EU as a whole are required to compile a greenhouse gas emissions inventory. They also have to report regularly on their climate change policies and measures through National Communications.

3. The annual EU GHG inventory report is prepared on behalf of the European Commission by the European Environment Agency each spring. The annual inventory covers emissions up until two years previously. The EU inventory reflects the sum of national inventories, based on Member States' monitoring of their own GHG emissions.

4. This national monitoring is required under the so called GHG monitoring mechanism (Monitoring Mechanism Decision or MMD, Decision 280/2004/EC), which was established in 1993 and revised in 2004 as part of the EU's preparations for meeting its Kyoto Protocol emissions reduction target. Its purpose is to: monitor all anthropogenic (man-made) GHG emissions, evaluate progress towards meeting GHG reduction commitments, ensure the timeliness, completeness, accuracy, consistency, comparability and transparency of reporting and implement the UNFCCC and the Kyoto Protocol as regards national programmes, greenhouse gas inventories, national systems and registries of the EU and its Member States.

5. In November 2011, the Commission made a legislative proposal to expand and replace the MMD by the Monitoring Mechanism Regulation (MMR, COM 2011/789) which is currently in legislative negotiations. The new legal instrument has become necessary in order to implement commitments arising from the 2009 climate and energy package.

Under the monitoring mechanism the Commission is required to produce an annual report assessing the progress of the EU and its Member States towards meeting their commitments under the UNFCCC and the Kyoto Protocol. These reports, which are submitted to the European Parliament and to the Council, cover actual (historic) emissions as well as Member States' projections of their future emissions. The European Environment Agency (EEA) assists the Commission in the preparation of the report and the assessment of progress.

6. The main data needs from an user point of view concerning the implementation of the monitoring, reporting and verification obligations of the EU concern primarily the quality data on emissions from the inventories. This of course presupposes very high quality of inventory compilation, which in turn requires robust activity data and sound adherence to the IPCC methodology. For the purposes of the annual progress report, the Commission also uses data on main aggregates such as GDP and energy consumption, usually taken from Eurostat.

III. CLIMATE AND ENERGY PACKAGE

7. The climate and energy package is a set of binding legislation which aims to ensure the European Union meets its ambitious climate and energy targets for 2020. It consists of four mutually reinforcing measures: the revised Emissions Trading System (EU ETS) Directive, the Effort Sharing Decision (ESD), the Renewable Energy Directive and the Carbon Capture and Storage Directive. The three targets, known as "20-20-20" were set by EU leaders in March 2007, when they committed Europe to become a highly energy-efficient, low carbon economy, and were enacted through the climate and energy package in 2009. They comprise:

- (a) A 20% reduction in EU greenhouse gas emissions from 1990 levels;
- (b) Raising the share of EU energy consumption produced from renewable resources to 20%;
- (c) A 20% improvement in the EU's energy efficiency.

8. The data needs related to the climate and energy package are linked to the implementation of the specific legal instruments that concern the EU climate policy, most notably the EU Emissions Trading System (ETS) and the Effort Sharing Decision (ESD).

A. EU Emissions Trading System

9. The EU ETS is a cornerstone of the European Union's policy to combat climate change and its key tool for reducing industrial greenhouse gas emissions cost-effectively. Being the first and biggest international scheme for the trading of greenhouse gas emission allowances, the EU ETS covers some 11,000 power stations and industrial plants in 30 countries.

10. The ETS works on the "cap and trade" principle. This means there is a "cap", or limit, on the total amount of certain greenhouse gases that can be emitted by the factories, power plants and other installations in the system. Within this cap, companies receive emission

allowances which they can sell to or buy from one another as needed. EU ETS covers mainly large emitters, such as power stations and large industrial plants, and the installations currently in the scheme account for almost half of the EU's CO₂ emissions and 40% of its total greenhouse gas emissions. Airlines joined the scheme in 2012. The EU ETS will be further expanded to the petrochemicals, ammonia and aluminium industries and to additional gases in 2013, when the third trading period will start.

11. The monitoring, reporting and verification under the EU ETS is done on the basis of annual reporting, following legally binding guidelines adopted by the European Commission set out in two Commission regulations (on monitoring and reporting and on verification and accreditation of verifiers). Industrial installations and aircraft operators are required to have an approved monitoring plan, according to which they monitor and report their emissions during the year. In the case of industrial installations, the monitoring plan forms part of the approved permit that is also required. The data in the annual emissions report must be verified before 31 March each year by an accredited verifier. Once verified, operators must surrender the equivalent number of allowances by 30 April of the same year.

12. The ETS verified data is further used as a quality assurance/quality control check for the inventory compilation. Since ETS emissions are verified, they potentially provide a robust source for additional checks even though differences also exist (e.g. the ETS does not cover small emitters, while the inventory does, etc.) and the comparison is not necessarily perfect.

13. There is almost no involvement of national statistical offices in the data concerning the ETS with one notable exception concerning carbon leakage. The ETS Directive requires that every five years the Commission assesses industrial sectors and sub-sectors to determine whether they are exposed to significant risk of carbon leakage according to the criteria outlined in Article 10a. This list has a large economic impact on industrial sectors, as it has a direct impact on the quantity of free emissions allowances to be allocated. For the purposes of compiling the list, several sets of statistics are needed including: national data on electricity consumption at NACE¹ 4-digit level, data on direct emissions, GVA and trade statistics. Typically such data is collected by NSOs. Experience shows that difficulties may arise due to the very low level of disaggregation required (at NACE 4-digit level) where often the data are confidential and countries are reluctant to disclose it.

B. Effort Sharing Decision

14. The Effort Sharing Decision² establishes binding annual greenhouse gas emission targets for Member States for the period 2013–2020. These targets concern emissions from most sectors not included in the EU ETS such as transport (except aviation), buildings, agriculture and waste. In contrast with the EU-wide reduction targets of the ETS, the ESD sets national emission targets for 2020, expressed as percentage changes from 2005 levels. The national targets are set based on GDP/capita, ranging from a 20% emissions reduction by 2020 for the richest Member States to a 20% increase for the least wealthy ones. It is up to the Member States to decide how emissions reductions are achieved, i.e. a shift from transport based on fossil fuels, promotion of public transport, ambitious energy performance

¹ NACE – Statistical classification of economic activities in the European Community.

² Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

standards for buildings, more efficient heating systems, renewable energy for heating, more efficient farming practices etc.

15. By 2020, the national targets will collectively deliver a reduction of around 10% in total EU emissions from the sectors covered compared with 2005 levels. Together with a 21% cut in emissions covered by the EU ETS, this will accomplish the overall emission reduction goal of the climate and energy package, namely a 20% cut below 1990 levels by 2020.

16. An example of EU's efforts in contribution to national plans is the legislation on curbing emissions from cars and vans. The legislation sets binding emission targets for new car and van fleets. For cars, manufacturers are obliged to ensure that their new car fleet does not emit more than an average of 130 grams of CO₂ per kilometre (g CO₂/Km) by 2015 and 95g by 2020. For vans the mandatory target is 175 g CO₂/Km by 2017 and 147g by 2020. This compares with an average of 203g in 2007 and 181.4g in 2010.

17. Tracking of progress under the ESD requires robust data from the inventories as well as information from MS on policies and measures that complement existing domestic action to reduce/curb emissions. Put in very simple terms, the emissions attributed to the ESD share are the total emissions without the emissions from ETS. In reality, the calculation is more complex than that.

18. In addition, further statistics that could be useful for policy analysis comprise:

(a) Transport statistics – detailed breakdowns by mode, by fuel, split freight/passenger, etc.;

(b) Statistics on households – energy consumption, buildings stock, urban planning, etc.;

(c) Statistics on energy efficiency in buildings (not only households, but comprising all buildings in general) – age of buildings, number of buildings under the different levels of energy performance³, etc.;

(d) Waste statistics – recycling, landfill, incineration, etc.;

(e) Agriculture statistics – on farming practices, soil carbon data, land use and land use change, forestry statistics, geo-referenced annual parcel level data on land use/management and soil carbon parameters, livestock, feed use, etc.;

(f) Some of these statistical sets are already available (e.g. waste, transport), while others, most notably concerning buildings and households, are not yet available at the required level of detail.

IV. EUROPE 2020 - CLIMATE-FRIENDLY GROWTH

³ Under Directive 2002/91/EC on the energy performance of buildings Member States must establish and apply minimum energy performance requirements for new and existing buildings, ensure the certification of building energy performance and require the regular inspection of boilers and air conditioning systems in buildings. Moreover, the Directive requires Member States to ensure that by 2021 all new buildings are so-called 'nearly zero-energy buildings'. The certification concerns such elements as building envelope, windows, heating, electrical and ventilation installations, lighting, heat sources (incl. boilers, CHP units) cooling systems and others.

19. Europe 2020 is the EU's growth strategy for the coming decade. Concretely, the Union has set five ambitious objectives - on employment, innovation, education, social inclusion and climate/energy - to be reached by 2020. Each Member State has adopted its own national targets in each of these areas.

20. The "20-20-20" targets of the climate and energy package are also headline targets of Europe 2020. This reflects the recognition that tackling the climate and energy challenge contributes to the creation of jobs, the generation of "green" growth and a strengthening of Europe's competitiveness.

21. The progress of each Member State towards meeting the targets is assessed every spring as part of the annual Europe 2020 policy coordination exercise, known as the European Semester. Member States are assessed on progress towards meeting their national emission target for 2020 under the Effort Sharing Decision and their national renewable energy target for 2020 under the Renewable Energy Directive.

22. Policy making under the Europe 2020 strategy requires a broader set of statistical information that goes beyond narrowly defined climate change issues and into the wider topic of green growth and sustainable development. Therefore, besides emissions, information on other parameters is also required, such as:

- (a) Economic growth indicators such as GDP, GVA, investment, etc.;
- (b) Subsidies for green technologies as well as subsidies for fossil fuels (environmentally harmful subsidies);
- (c) Turnover and employment of the "green" sectors, e.g. the renewable energy technologies industries;
- (d) Financing of research and development related to "green" sectors as well as subsidies to the commercialization of green technologies;
- (e) Breakdown by individual sectors (energy, buildings, transport, industrial sub-sectors, etc.) to assess the greatest growth potential in relation to the abatement potential;
- (f) Data on environmental taxes;
- (g) Environmental protection expenditure for climate-related activities;
- (h) Financial support and level of technology transfer to developing countries;
- (i) New investment in "green" jobs and sectors.

23. The biggest part of these statistics is unfortunately not readily available yet. Part of the problem lies in the difficulty to clearly delineate the boundaries of the "green" economy and to clearly define what "green" comprises. Another issue relates to the difficulty to always discern whether economic developments have been brought about due to climate policies or due to other factors.

V. ADAPTATION

24. Adaptation means anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise the damage they can cause. Early action will save on damage costs later. Adaptation strategies are needed at all levels of administration, from the local up to the international level.

25. Due to the varying severity and nature of climate impacts between regions in Europe most adaptation initiatives will be taken at national, regional or local level. Likewise, the ability to cope and adapt also differs across population, economic sectors and regions within Europe.

26. By complementing the activities of its Member States, the European Union can support action by promoting greater coordination and information sharing between Member States, and by ensuring that adaptation considerations are addressed in all relevant EU policies.

27. In April 2009 the European Commission presented a policy paper known as a White Paper which presents the framework for adaptation measures and policies to reduce the European Union's vulnerability to the impacts of climate change.

28. The framework focuses on the following key areas:

(a) Building a stronger knowledge base since sound data is vital in the development of climate policy;

(b) Taking climate change impacts into consideration in key EU policies;

(c) Financing climate change policy measures;

(d) Supporting wider international efforts on adaptation by helping for example non-EU countries to improve their resilience and capacity to adapt to climate change.

29. Adaptation policy requires a complex set of information, much of which may not come from NSOs but rather from environmental agencies, meteorological institutes, research bodies, etc. As the first prerogative of the EU White Paper on Adaptation, developing the knowledge base is pivotal for the formulation of adequate measures. Relevant information comprises for example the following:

(a) Cost of investment in adaptation, per country or region;

(b) Extreme weather events (number and costs of damage), by type;

(c) Climate-related morbidity and mortality;

(d) Cost of fighting coastal erosion;

(e) Environmental protection expenditure related to climate proofing.

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