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Memo

Technical Assistance on Methodology for Greenhouse Gas Registry (Inventories) and UNFCCC reporting

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As part of the Technical Assistance on Methodology for Greenhouse Gas Registry (Inventories) and UNFCCC Reporting a mapping has been made of the tasks of Ukraine.

The assistance considered the latest review reports published by the UNFCCC of Ukraine's annual inventory submission[1] as well as the review report of the first biennial report[2]. A large part of the assistance focussed on the issues identified by Ukraine as areas for improving the annual greenhouse gas inventory.

Status on Ukraine´s greenhouse gas inventory reporting to the UNFCCC

The latest UNFCCC review report for the annual greenhouse gas inventory submission by Ukraine lists a number of recommendations for the energy sector. The main recommendations are related to development of country-specific carbon contents of fuels and improvements to the modelling of road transport emissions. These two areas account for the majority of the recommendations. The review report also includes recommendations to investigate the difference between the reference approach (supply model) and the sectoral approach (demand model) and to investigate the differences between the energy data reported in the greenhouse gas inventory with the data provided by the International Energy Agency (IEA). The main issues identified by the UNFCCC review were discussed in detail during a meeting. The outcome of the discussion is included in the following part.

Specific issues related to the greenhouse gas inventory and UNFCCC reporting

A meeting took place on November 24 2015 in Kiev with representatives from the Ministry of Ecology and Natural Resources, Ministry of Energy and Coal Industry, Ukrainian-Danish Energy Centre, State Road Transport Research and Design Institute and the State Statistical Service.

[1] http://unfccc.int/resource/docs/2015/arr/ukr.pdf
[2] http://unfccc.int/resource/docs/2015/trr/ukr01.pdf

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The issues brought forward by Ukraine related to improving the GHG inventory were discussed. The issues were related to four separate main issues, i.e.:

1. Systematization of data on physical and chemical properties of different types of coal and natural gas consumed in Ukraine, and harmonization of data on the use of coal and natural gas to the types of plants, which exploiting energy
2. Development of methods and measuring of GHG emissions from non-energy use of fuels in Ukraine
3. Development of methods and measuring of GHG emissions from leakage and loss of natural gas to customers in Ukraine with the purpose to conduct a national inventory of GHG
4. Assessment of GHG emissions from the use of transport vehicles

The discussions and recommendations related to the four main topics are summarized below.

Ad 1) Four separate issues were discussed under this item, namely determination of carbon content and oxidation factor for coal use, determination of net calorific values (NCVs), methane emissions and recovery from coal mines and determination of properties (NCV and carbon content) of natural gas.
Regarding determination of physical properties related to coal, the possibilities of obtaining information directly from the producers were discussed as an alternative to relying on data from the users of coal as collected by the central statistical office. Under the UNFCCC reporting there is a requirement to report country-specific carbon content, whereas there is no requirement to use a country specific NCV. Therefore, the focus should be on the carbon content.
In the change from the 1996 IPCC Guidelines to the 2006 IPCC Guidelines there was a change in the default oxidation factors. In the 2006 IPCC Guidelines, the default assumption is full (100 %) oxidation, if country-specific data are not available.
One of the challenges in Ukraine is that data have become unavailable in the later years causing an incomplete time-series. In this respect, it was discussed that data available from previous years can be used, if verified that the basic conditions have not changed.
For coal mine methane the data provider has become unavailable. This causes that no exact data for methane recovery are available. It was discussed that the same recovery rates could be used as for the last year with detailed data, if it could be documented that methane recovery is still implemented in the coal mines.
For natural gas the issues are very similar to the challenges accounted with coal. For natural gas there is however, additional options to getting data from the producers. One option is measurements of the gas quality in the gas transmission network, but another option is to research country-specific properties of the natural gas from the countries from which import occurs, and use this to create a weighted average carbon content.

Ad 2) The different difficulties related to the reporting of emissions from non-energy use of fuels were discussed. In particular, related to the use of lubricants. Emissions from the use of lubricants should only be considered combustion emissions in the case of two-stroke engines, where the lubricants are mixed with the fuel during combustion, while in the more widely used four-stroke engines, the lubricants are not combusted, but a fraction will be oxidised during use. The use of two-stroke engines is in many countries limited and hence most countries only estimate emissions from the unintentional oxidation during use. Most countries use the default factor provided in the 2006 IPCC Guidelines for the fraction of lubricants that is oxidised during use.

Ad 3) Emissions from leakage of natural gas at the end-user was discussed. Ukraine currently uses the default guidance from the 1996 IPCC Guidelines, which consisted of very broad ranges and also very high values. The 2006 IPCC Guidelines do not include any default emission factors for emissions at the end-user.
It is very important to consider how emissions are estimated from the distribution network as it can include part of the emissions that would be associated with the end-user. The default values in the 1996 IPCC Guidelines are very high and should be reconsidered keeping in mind that the 2006 IPCC Guidelines does not include a default emission factor for this source. Denmark will investigate whether there are any Danish studies on leakage emissions from cooking appliances.

Ad 4) For road transport there is a need for a more detailed characterisation of the vehicle stock to comply with the new UNFCCC reporting guidelines. Potential data sources were discussed including getting information from vehicle registration databases. Regarding the carbon content of the common motor fuels, i.e. gasoline and diesel, there is generally two options, either getting data from refineries/importers or take fuel samples and have them analysed to establish the carbon content.
More work will need to be done to comply with the recommendations of the UNFCCC review team in terms of acquiring the detailed data needed as input for the COPERT model.

One of the key outcomes was the importance of having a good dialogue between the inventory agency and other agencies with information valuable to the inventory compilation. Inter-agency cooperation is of the greatest importance to achieve the improvements that have been requested during the UNFCCC review process.
A strong inter-agency cooperation is also important in order to achieve data consistency, between the official statistics, e.g. the energy balance and the emission inventory.

Ukraine informed that there was no need for technical assistance concerning preparation of the second biennial report.

No information was provided on other activities involving bilateral or multilateral assistance aiming to improve the national greenhouse gas inventory.

Recommendations for Ukraine to reach the 2017 target on methodology available for establishing and updating effective national greenhouse gas inventory

Several recommendations for follow-up actions can be made based on the latest UNFCCC review report as well as the discussions during the meeting in Kiev. The proposals for follow-up actions are:

- Continue the dialogue between the inventory team and key data providers such as the State Statistical Service
- Consider using available data for parts of the time-series to extrapolate data for filling gaps
- Investigate possibilities to gather data for the vehicle stock and mileage to support the requirements of the COPERT model
- Determining national carbon content factors, by either using data from producers/importers or by taking fuel samples and analysing them
    - For natural gas, the possibilities for getting a national carbon content could be through the gas transmission company alternatively a carbon content could be derived by using the country-specific carbon content of the countries from which import occurs, e.g. Russia[3]
    - For coal, the most probable solutions would be data from the producers/importers and secondary from the users. The latter option would mean that the carbon content for coal used in e.g. the residential sector would have to be based on assumptions
    - For liquid fuels, either information from refineries/importers or analysed fuel samples can be used to derive country-specific carbon contents
- Work on ensuring consistency between the data used in the greenhouse gas inventory with other datasets, e.g. the national energy balance and IEA reporting

[3] http://dx.doi.org/10.1080/17583004.2015.1049105