

Data Collection Plan

1. Definition of LCPs

In order to make the Data Collection Plan as accurate as possible, it would be worthwhile to recall the definition of LCPs, namely which plants/installations¹ are covered by the definition of the Large Combustion Plants Directive (2001/80/EC) and which are not. Article 2, paragraph (7) of this Directive defines LCPs as:

'...any technical apparatus in which fuels are oxidised in order to use the heat thus generated. This Directive shall apply only to combustion plants designed for production of energy with the exception of those which make direct use of the products of combustion in manufacturing processes².'

The LCPD deals with combustion installations with a rated thermal input exceeding 50 MW. Smaller units can be possibly aggregated into larger installations exceeding 50 MW. LCPs thereby cover all kinds of conventional power plants, including utility boiler plants, combined heat and power plants, and district heating plants. Existing plants are also found in a diverse range of sectors if they use conventional fuel (fuels with a known composition which remains relatively constant), and are divided as follows: crude oil refineries; iron and steel works; other industrial plants, including non-ferrous metal production; chemicals; paper; and food.

Coal, lignite, biomass, peat, liquid and gaseous fuels (including hydrogen and biogas) are regarded as conventional fuels, and waste used as a secondary fuel. Waste Incineration Plants are **not** subject to the LCPD. Chapter IV of the Industrial Emissions Directive (IED) 2010/75/EU - Special Provisions for Waste Incineration Plants and Waste Co-Incineration Plants, deals with Waste Incineration and Waste Co-Incineration Plants.

The objective of the Data Collection Plan is to put together all the relevant information concerning Turkish LCPs and thus provide an overview of their number, locations, technical specificities and environment related performance. The LCP Inventory will be a reliable foundation for the development of a Regulatory Impact Assessment on LCPs and for the public administration's implementation planning actions, including institutional and capacity aspects.

2. Focus of the Data Collection Plan

The outline of the questionnaire for data collection will be prepared drawing on the outcomes of other Donor Funded Projects³. Moreover, the draft *'Questionnaire for Data Collection within the review process of the Best Available Techniques Reference Document (BREF) for Large Combustion Plants'*, and the *'Large Combustion Plants Directive - Reporting under Article 15(3) Template⁴'* will be thoroughly consulted. Other EU experience and documents will be additionally used as reference (also for the presentation of the data collection results in the LCP Inventory Report), including the *'European Commission Analysis and summary of the Member States' emission inventories 2007-2009 and related information under the LCP Directive (2001/80/EC)⁵'*, as well as the *'Annex III of the Regulation (EC) No 166/2006 concerning the establishment of a European Pollutant Release and Transfer Register'*.

The European Pollutant Release and Transfer Register (E-PRTR) is a European register of environmental data on industrial facilities with an online database including annual data from 2007

¹ An installation may comprise multiple plants (stacks), and each plant may comprise multiple combustion units (for instance boilers)

² Industrial Emissions Directive 2010/75/EU, Article 3 Definitions: *'combustion plant' means any technical apparatus in which fuels are oxidised in order to use the heat thus generated;*
Chapter III Special Provisions for Combustion Plants, Article 28: *"This Chapter shall not apply to the following combustion plants: (a) plants in which the products of combustion are used for the direct heating, drying, or any other treatment of objects or materials"*

³ Particularly the 'Air Quality Twinning Project' (2004-2006) and the 2012-2014 'IPPC project'

⁴ http://forum.eionet.europa.eu/x_reporting-guidelines/library/lcp_reporting

⁵ <https://www.bmwfw.gv.at/TechnikUndVermessung/EmissionenVonKesselnUndGasturbinen/Documents/GFA%20EU-Bericht%202007-2009.pdf>

onwards. It can be used for comparison with the results of the LCP Data Collection. However, there are a number of differences which may limit the comparison between the two datasets:

- E-PRTR contains data on SO_x emissions, whilst the LCP inventories list SO₂ emissions;
- E-PRTR covers PM₁₀ emissions, whilst the reporting under the LCP Directive covers dust emissions as total suspended particles (TSP); according to the IED, the list of air pollutants substances dust including fine particulate matter (PM_{2.5});
- E-PRTR may include combustion plants which are excepted from the LCPD range,⁶ including gas turbines, engines, but also plants smaller than 50 MW as the definition and threshold used in E-PRTR equals to the one from the Integrated Pollution Prevention and Control (IPPC) Directive 2008/1/EC and the IED, meaning that it encompasses combustion installations which, when summarised at the site level, amount to a rated thermal input greater than 50 MW;
- LCPs within other industrial installations (refineries, iron and steel, and other) may be neglected given that E-PRTR reporting is performed at the facility level, resulting in an underestimation of the number of LCPs; the LCPD/IED implement the stack approach;
- E-PRTR applies a threshold of annual emission for reporting (150t SO_x, 100t NO_x, and 50t PM₁₀). LCPD/IED requires reporting of emissions regardless their emission values.

Notwithstanding the incompatibilities, the E-PRTR register may serve as an inspiration for formulating some questionnaire details in the reporting exercise. This project aims at creating a database system to be progressively updated by Turkish authorities as the starting point for the periodic E-PRTR report.

3. BAT Compliance assessment

Whereas assessment of compliance with air related Best Available Techniques (BAT) shall be carried out for the RIA report, the Consultant will develop a corresponding set of questions as part of the same questionnaire in order to use the available project timeframe as effective and efficient as possible. Besides, the Consultant takes into account the scarcity of operators' available time due to its daily responsibilities and activities. Sending one integrated questionnaire will save time of all the parties involved. Furthermore, it will ensure continuity in the process of answering to the questions and a comprehensive overview of the received correlated data. The questionnaire will therefore be divided into two parts: Part A and Part B, with different deadlines for filling them in. Part A will comprise basic administrative, technical and operational information, whilst Part B will cover the BAT compliance assessment related questions.

4. Questionnaire outline

At least the following information for each identified installation will be sought. The final outline of the questionnaire with all the details will be developed during the implementation phase of the project in consultation with the Ministry of Environment and Urbanisation (MoEU):

PART A

- **Basic administrative information**

- Name of the company;
- Location of the installation(s) (with geographic information system (GIS) coordinates);
- Contact person; correspondence address of the company; contact telephone and email address;
- Register number of the industrial facility and date of registration;
- Nomenclature of Economic Activities (NACE) code;
- Number of employees at the facility;
- Characteristics of the location (urbanised; industrial zone; landscape relief; nature protection area; cultural heritage; and other);
- EIA report available (Y/N)⁷ and date of approval;

⁶ As per E-PRTR Regulation, 1.(c) thermal power stations and other combustion installations' from its Annex 1 is the most comparable sector with LCPD large combustion plants

⁷ Y-Yes; N-No

- Status of the plant (existing; new);
 - For new installations: planned date of commencement and completion of building activities.
- **Basic technical information**
 - Main activity and other activities at the site (activity number(s) pursuant to Annex 1 of the Draft By-Law on Integrated Environmental Permits (IEP) and of the IED);
 - Cogeneration of heat and power (Y/N);
 - Type of combustion plant (boiler; gas turbine; reciprocating engine; other) and corresponding details (boiler type; boiler combustion process characteristics; number of fuels for gas turbines; primary measures for NO_x emissions; burner type; ignition type; and other);
 - Number of combustion plants;
 - Existence and design of site drainage system⁸ (including rainwater);
 - Capacity of the plant (total rated thermal input, output power);
 - Number of stacks and characteristics (height; inner diameter/surface);
 - Technologies used in the plant;
 - Year that these technologies were installed.
 - **Basic operational information**
 - Start-up of operations date;
 - For new installations: planned date of commencement of operation;
 - Number of operating hours;
 - Fuel type (gaseous; solid; liquid), consumption and corresponding characteristics (lower heating value; moisture; volatiles; ash; chemical analysis; fuel pre-treatment; and other);
 - Indigenous solid fuel⁹ (Y/N);
 - Waste gas abatement techniques and flow diagram of the treatment system;
 - Desulphurisation rate (%);
 - Air emission sources and their characteristics;
 - Air emission limit values (Turkish By-law on Large Combustion Plants¹⁰; IED; and the BREF document for Large Combustion Plants¹¹);
 - Air emission values/levels: total annual emissions (tonnes per year¹²) and mg/Nm³ per day¹³ (for the last few months) of SO₂; NO_x; and dust (as total suspended particles emission values);
 - Air emission levels of CO; HCl; HF; NH₃; CH₄; NMVOC (non-methane volatile organic compounds); TOC (total organic carbon); Cd+Tl; Hg; Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V; Zn; PCDD/PCDF (dioxins and furans) - as per LCP BREF, optional;
 - Gas characteristics at the stack (gas flow; temperature; H₂O %; CO₂ %; O₂ %);
 - Monitoring method (continuous; periodic); standard method of analysis; Continuous Emissions Monitoring System (CEMS); CEMS uncertainty;
 - Energy efficiency (total energy; losses/gains; total efficiency);
 - Economy (local conditions which require special techniques inducing high investment and/or operating costs).

PART B

Given that the IPPC process in Turkey is still in a stage of development, the IPPC experience of both competent authorities and operators requires further efforts. This includes further attention to enhancing the proficiency in the implementation of BREF documents. Bearing that in mind, the

⁸ Important for process waste water streams from Flue Gas Desulphurisation units

⁹ See Article 31, Paragraph 2 of the Industrial Emissions Directive 2010/75/EU.

¹⁰ Official Journal 27605 of 8 June 2010

¹¹ The BREF document for Large Combustion Plants is currently under revision; the first draft is available. If the final version of the revised BREF will have been adopted by the European Commission under the Industrial Emissions Directive 2010/75/EU before the end of the project, the relevant updates will be taken into account.

¹² The yearly average is derived as arithmetic mean value of all the values of half-hourly/hourly/daily/monthly averages obtained during the reference year. For periodic sampling, the availability of a certain average (e.g. half-hourly, hourly, daily, or monthly) is related to the duration of the sampling series; the yearly average is derived as arithmetic mean value of all the values of hourly/daily averages obtained during the reference year.

¹³ Based on daily average, standard conditions and an O₂ level of 6% / 3% / 15% (solid fuels / liquid and gaseous fuels / gas turbines) which represents a typical load situation

Consultant will extract from related horizontal and vertical BREF documents (first of all from the LCP BREF, but also from the Energy Efficiency BREF, Economics and Cross-Media Effects Reference Document, Joint Research Centre (JRC) Reference Report on Monitoring of emissions from IED-installations, and other BREF documents applicable within the framework of the information required under this Technical Assistance) all BATs that have relevant economic consequences, specified per fuel used in the combustion process.

The LCP operators will be offered questions that can be simply responded to with 'Yes' or 'No' as concerns their compliance with each of the BATs offered. If the answer is 'No', the operator will be asked in a separate column to briefly describe the technique applied in its production process.

In summary, Part B of the questionnaire will cover the following:

- BAT compliance (as explained in the text above);
- BAT associated air emission levels (where applicable) and the air emission values/levels of the plant during operation¹⁴.

The questionnaire (both parts, A and B) will contain concise explanatory texts and possibilities for comments. The final draft, including its level of details, will be the product of the consultation process between the Consultant and the Project Coordination Team and, if so supported by the main Beneficiary, other relevant stakeholders.

Confidential information will be marked and treated pursuant to Turkish legislation.

5. Approach and methods

According to earlier research, there are 111 LCPs in the energy sector in Turkey and a number of industrial LCPs in sectors such as food and drink, pulp and paper, refineries, and other, which have yet to be determined. The outcome of a survey performed by the MoEU shows that LCPs are mostly located in metropolitan areas, like Istanbul, İzmir, Ankara, Bursa, Manisa, Kocaeli, Muğla, Kahramanmaraş, and Tekirdağ, with more than one installation subject to the LCPD/IED. There are just over 20 cities with one installation falling under the LCPD/IED. This information is an important starting point for the Consultant's further Data Collection activities for the development of the Turkish administration's LCPs data.

The Consultant proposes to use the following sequence of steps under Project Activity 1.1:

1. Send a request to the Provincial Directorates for general information on all LCPs located in their area of jurisdiction, covering also sectors such as food and drink, pulp and paper, refineries, iron and steel, and other. This request will be formally supported or issued by the MoEU. It will include some basic administrative information (name of the company; contact person; correspondence address of the company; contact telephone; email address; main activity and other activities (if any) at the location as per Annex 1 of the IED);

Note: This request was already sent by the MoEU at an early stage during the Inception Phase.

2. Based on all collected information the Consultant will compose a complete list of LCPs, both in the energy sector and in the industry sector. Data will be double-checked with company information from other sources, including from the MoEU (e.g. permits database, inspection data, company reports submitted on the basis of the LCP By-law, emissions database); the Ministry of Energy and Natural Resources (MENR); the EÜAŞ; the State Privatisation Authority; the Union of Chambers and Commodity Exchanges (TOBB); the Turkish Electricity Producers Association (EÜD); information of the finalised IPPC project; and information on the internet;
3. The Consultant will submit the completed list to the main Beneficiary for approval. The list will only include currently existing LCPs. LCPs that are established at a later stage can then be added to the list;

¹⁴ Once the operator answered to part A of the questionnaire, it will be needed just to copy the corresponding air emission levels to the part B, for BAT comparison purpose

4. The Consultant will fine-tune the information on LCPs to be collected and included in the questionnaire and LCP database, in consultation with the Project Coordination Team (PCT) and other stakeholders, as appropriate. This will inter alia contribute to safeguarding a proper match between data collection (questionnaire) and technical possibilities and limits of their later presentation through the database system;
5. A questionnaire will be compiled by the Consultant and made available for the LCP sector through the project website that can be found on the website of the MoEU;
6. LCP operators are informed through a letter prepared by the Consultant and sent by the MoEU requesting them to fill in the questionnaire on line. Operators will be provided with a password through the project office. Industrial sectors other than the energy sector are invited to answer only to the questions applicable to their case¹⁵;
7. A deadline will be set for operators to submit their filled in questionnaire on line. Different deadlines will apply for Parts A and B (regarding the BAT assessment);
8. With regard to the limited time available and the need for high quality information, it is proposed to consider providing a service telephone number in the project office and an email address of the project team to support the companies with additional explanation and information enabling them to correctly complete the questionnaire. This service is expected to be beneficial, as it may be a significant time-saver at a later stage reducing the load of inaccurate or incomplete information that would have to be re-verified;
9. At the day of the deadline(s) an assessment will be made of the information that is still missing. A reminder letter that was prepared in advance by the Consultant can then be sent by the Ministry to the operators that are not complying with the earlier request, setting a short new deadline for data submission;
10. The Consultant will contact the companies that were sent a reminder letter by telephone to check the receipt of the letter and giving additional importance to the operator's timely response. Simultaneously the availability of the existing service phone and email support will be (once more) brought to the operator's attention;
11. The PCT and the Consultant will discuss and agree with the energy and industry sectors' representatives the best way to collect the required information from operators that did not yet (fully) respond after the above described second round of requests. The MENR and the Ministry of Economy may support this process. A number of options may be available including sharing the experience regarding the defaulted operators with the environmental inspectorates at national and provincial level; inspection visits to these companies¹⁶; individually address the directors of the involved companies; or at the last instance conduct site visits by the Consultant with the MoEU. This final step may need to be supported by the TOBB, the MoEU, the MENR, and provincial directorates, in particular because the Consultant lacks formal powers to enter companies against the will of the operator;
12. Returned questionnaires will be assessed on completeness and correctness by the Consultant. Supplementary information will be kindly asked in writing (via email) or by telephone call, where needed. If information cannot be collected in any other way site visits will be conducted¹⁷ aiming at advising the operators to submit the information. The first Inventory workshop (see Activity 1.4) may contribute to better understanding from the operators of the needs of the request;
13. Eventually, the inspection and permits databases¹⁸ in the MoEU and sources from other competent authorities (provincial directorates, municipalities) will be analysed in order to fill in the remaining gaps;

¹⁵ A slightly different version of the questionnaire for other industrial sectors will be developed in case the representatives of the MoEU deem this necessary

¹⁶ In order to act time-efficient and effective site visits will be planned as soon as a full overview exists for which companies such visits are to be conducted. This will allow planning the visits such that they can be combined through a limited number of location specific missions.

¹⁷ Ibidem

¹⁸ Database from the permitting system which has been developed since the adoption of the By-Law on the Permits and Licenses Required in Accordance with the Environmental Law, according to which the so-called bigger facilities are regulated by the Ministry, whilst the smaller ones or less polluting are under the jurisdiction of the provincial directorates and in some cases of the municipalities. The By-Law on Industrial Air Pollution Control

14. The collected information will be inserted in the developed database and in the LCP Inventory Report which will be drafted in English and translated into Turkish. The report may include (but to be discussed and agreed with the Beneficiary) a number of tables and graphs with different relationships/ratios between the available data: number of LCPs split by energy and industrial sectors; number of LCPs split by all reported individual sectors; number of LCPs against the type of fuel used; emission levels of SO₂, NO_x, and dust from energy sector LCPs and industrial sectors LCPs; number of LCPs split by capacity class; SO₂, NO_x, and dust emissions split by capacity class; and other, depending on the needs expressed by the MoEU;
15. A comparison between air emission levels in Turkey and selected EU Member States (MS) may also be included (e.g. Romania; Bulgaria; Poland; Italy; Ireland - conditioned by available data). The LCP Inventory Report will include an overview of all collected data including the availability of GIS and information about emission sources and levels, technologies, treatment methods and other. The Report will also contain a chapter about how to further deal with data that is still missing or insufficient, since data collection is an on-going process and will continue after the end of the project life;
16. The LCP Inventory Report will be prepared in close cooperation with the MoEU, meaning that prior to its final completion it will be shared for quality control, comments and suggestions.

All the work on the Inventory will be carried out by the Consultant in close cooperation and coordination with the Project Coordinator and the Project Coordination Team (PCT). At the start of Activity 1.1 agreement will be sought about the exact roles and actions to be taken. Site visits, if needed, will be conducted with the consent of the MoEU and with the participation of at least one Beneficiary staff member.

Data collection will be monitored on a regular basis to detect any emerging gaps and the necessary action will be determined and implemented. Where necessary, the Steering Committee will be requested to facilitate collaboration and co-operation.