OPEN ENERGY DATA ASSESSMENT METHODOLOGY

Version 1.0 - November 2015

PURPOSE

The purpose of this methodological tool is to assist energy stakeholders and related authorities in assessing and planning what actions to consider in order to strengthen the use of open data in the energy sector at a national or local level. This tool is developed based on the findings of a first set of urban energy assessments, and as such could also be valuable to teams working on urban emission inventories or in other related urban sustainability initiatives.

WORLD BANK OPEN DATA TOOLKIT

This methodology is an adaptation of the Open Data Readiness Assessment (ODRA) methodology prepared by the World Bank, which is part of the "Open Data Toolkit" published at data.worldbank.org/ogd and made freely available for others to adapt and use.  The ODRA has been implemented in over 15 countries to date. The methodology is based on a rapid diagnostic of dimensions considered essential for the success of open data in the energy sector, including the assessment of related key datasets.

AUDIENCE

A variety of stakeholders could make use of this methodology, including government actors, private companies, and representatives from civil society, academia or international development organizations. It might be helpful to use this methodology together with the ODRA User Guide which provides guidance on how to plan, conduct and deliver an ODRA. The general ODRA Methodology could also be considered a complementary document. This methodology is intended to be a part of the Open Data Toolkit.

# Contents

[Acknowledgement 2](#_Toc434477728)

[Glossary 3](#_Toc434477729)

[Why open data for the energy sector? 4](#_Toc434477730)

[Introduction to the methodology 5](#_Toc434477731)

[Step by step guide 6](#_Toc434477732)

[Using the assessment framework 8](#_Toc434477733)

[Open Data Readiness Assessment (lightweight version) 9](#_Toc434477734)

[Open Energy Data Assessment Dimensions 11](#_Toc434477735)

[1. Policy, regulation and structure of the energy sector 11](#_Toc434477736)

[2. Energy sector legal framework provisions relevant to open data 13](#_Toc434477737)

[3. Leadership, responsibilities and capabilities within the energy sector 15](#_Toc434477738)

[4. Data management within the energy sector 16](#_Toc434477739)

[5. Key energy datasets availability 17](#_Toc434477740)

[6. Use and demand of energy data 20](#_Toc434477741)

[7. ICT use and infrastructure in the energy sector 21](#_Toc434477742)

[8. Funding an open data initiative within the energy sector 22](#_Toc434477743)

[Annex 1: List of stakeholders 23](#_Toc434477744)

[Annex 2: Tools and method for energy planning 24](#_Toc434477745)

[Annex 3: Sample letter of request for energy data 25](#_Toc434477746)

# Acknowledgement

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# Glossary

**Energy sector** this methodology considers the energy sector in a broad sense, including all the stakeholders involved in the production, transmission, distribution, regulation, management and planification of energy on a given territory.

**Energy statistics** refers to statistics on energy stocks and flows, energy infrastructure, performance of the energy industries, and the availability of energy resources within the national territory of a given country during a reference period[[1]](#footnote-1).

**Energy data** refers to any data that may be useful for the development of the energy sector. This definition of energy data extends the definition of energy statistics as it includes data which is not usually collected within the National Statistics System.

**Open data** data is considered to be open if anyone can freely use, reuse and redistribute them, for any purpose, without restrictions. To be considered open, the data must be re-usable, meaning they can be downloaded in open formats and read by software, and users have a legal right to reuse the data.

**Open energy data** is any energy data considered open. Open energy data can be data produced by any entity such as government and public bodies, private companies, researchers, NGOs or media.

For a comprehensive glossary of terms used in the energy sector, you can refer to the [International Energy Agency Glossary](http://www.iea.org/aboutus/glossary/).

# Why open data for the energy sector?

Access to affordable, reliable and sustainable energy is considered to be vital to ending extreme poverty and promoting shared prosperity. According to the World Bank, around 1.2 billion people worldwide are still living without access to electricity, a majority living in Sub-Saharan Africa and Asia. Another 2.8 billion relies on wood or other biomass for cooking and heating, resulting in indoor and outdoor air pollution attributable for 4.3 million deaths each year.

At the same time, growing concerns about the sustainability and reliability of the current production and consumption patterns and the impact of the use of fossil fuel on the environment are being raised. Governments, private sector and academia agree that adopting more efficient, secure and sustainable energy policies is key to poverty reduction and shared prosperity.

However, given traditional practice and development patterns, the global shift towards a more sustainable energy sector often requires profound changes for all energy sector actors. These can include reforms in policy and market regulations, a more distributed and localized approach for power generation, and improved transparency and accountability between all stakeholders.

It is clear that governments and public actors cannot realize this changes on their own, and contributions from private sector players, technology innovators and citizens are becoming more and more essential. In such a context, access to reliable energy statistics is an important enabler to informed evidence-based policy making, improved public service delivery, and increased innovation in the sector. But high-level national statistics is not enough for our data enabled world anymore. People are seeking access for more granular and localized data, from disaggregated macro statistics to real time local data. Looking to the transformation this has enabled in sectors like transport or water, the energy sector has a lot to gain from embracing these demands. A new principle is recommending that any data which might be useful for making the energy sector more efficient, sustainable and reliable should be publicly available for anyone to use or reuse for any purpose - within the limit of law. This principle is called open energy data.

**Some examples of open energy data**

* In the Netherlands, detailed electricity consumption, cadastral data and energy audit certificates are available as open data and used by academics and private companies who are contributing to the climate change policy of the country.
* In Uganda, private companies, governmental agencies and NGOs have created a lot of location-based data. An energy sector GIS working group has decided to gather and release all these datasets as open data in order to drive informed decision making[[2]](#footnote-2).
* In the U.S., a private company called oPower uses a mix of open data and proprietary smart meter data to offer customers insights about their energy consumption. The company partners with utilities who are motivated to reduce peak consumptions, or who are looking to differentiate their product offering by helping customers save energy.
* In Kenya, IBM Research - Africa is developing an application to modelize rural electrification strategies and predict potential economic and social benefits. This decision-making tool could be of great help to local governments and donors. The effectiveness of the application clearly depends on the availability of energy data.

# Introduction to the methodology

This methodology has been designed to support a cost-efficient technical deep-dive of the readiness of the energy sector to implement or reinforce open data. The main objectives are to help prioritize key actions and identify where and which interventions can be most effectively applied in order to increase the use of open data in the energy sector.

This methodology considers the energy sector as an ecosystem, made up of stakeholders producing or using energy data, acting under specific constraints (market, legal framework, public funding for open data, etc.). The value add of the methodology resides in the process of analyzing this ecosystem and providing recommendations for removing the critical barriers and establishing the right conditions in order to make the ecosystem more open data friendly. Therefore, it is important to get a good understanding of the key challenges of the ecosystem in terms of the scope of the energy issues and identify how open data could help to address them.

This methodology is based on the standard Open Data Readiness Assessment which defines key dimensions where actions are needed to be taken in order to develop an open data program. This methodology adapts the dimensions of the standard ODRA by introducing specific questions and topics relevant to the development of open data in the energy sector at a national or local level.

The dimensions are: Policy, regulation and structure of the energy sector; Energy sector legal framework provisions relevant to open data; Leadership, responsibilities and capabilities within the energy sector; Data management within the energy sector; Key energy datasets availability; Use and demand for energy data; ICT use and infrastructure in the energy sector; and Funding an open energy data initiative within the energy sector.

The existence of a general open data initiative in a country can be a great help for the energy sector deep dive, particularly in regards to a standardized approach to releasing data publicly, expressions of political support for the use of open data, awareness of benefits of open data and the likely existence of an open data user community. If no such general open data initiative exist, a user of this methodology might want to consider doing a lightweight version of the standard Open Data Readiness Assessment. Therefore, this document also contains a specific section suggesting which questions from the ODRA that could be raised as part of the Open Energy Data Assessment.

This methodology is intended to lead to rapid and tangible results, including - when it is possible - the identification and release of key energy datasets as open energy data. This is called *data surfacing,* which is identifying, requesting, accessing, assessing datasets and, whenever possible, releasing the data or at least informing about its status. Ultimately, it is the responsibility of the client and the respective data producers or data owners to ensure the integration of surfaced datasets within a national open data program, if such exist.

# Step by step guide

The Open Energy Data Assessment is intended to be performed rapidly according to the steps outlined below. The methodology is primarily designed to respond to energy stakeholders and Open Data Initiatives wishing to advance open data in the energy sector. It can be used by anyone with a good basic level of open data. The methodology is aimed to be light-touch and rapidly deployed, the work can normally be completed within three to four weeks depending on the size of the energy sector. It is recommended that the open energy data consultant is accompanied by a local energy expert who can act as an advisor and facilitate understanding of the institutional structure.

|  |  |  |
| --- | --- | --- |
| **Steps** | **Description** | **Estimated time** |
| 1. **Desk Research** | Identify with client team main priorities and scope of the national or local energy sector as well as well as related key stakeholders. A key stakeholder can be an energy data producer, user, or a regulator. | 5 days |
| 1. **Set-up interviews** | Agree schedule of interviews with client team if there is one and/or set up interviews with identified stakeholders for fieldwork week | 1 day |
| 1. **Fieldwork week** | Day 1: Going through agenda and interview schedule with counterpart/client, day one might also include a briefing for interviewees as a group.  Following days: undertake scheduled interviews, and add new ones as new contacts/leads are identified in interviews.  Last day: initial debrief of emerging findings to counterpart/client for a first feedback session | 5-10 days |
| 1. **Drafting Assessment Report and Action Plan** | Drafting assessment report following the Open Energy Data Assessment methodology, including the Action Plan | 5 days |
| 1. **Data surfacing** | Identification, submission of a request, assessment and - wherever possible - release of identified datasets as open energy data. This activity can also include the realization of basic dataviz to showcase high-value energy data. | 5 days |
| 1. **Missions follow up** | Deliver the report and follow up with the client team (data producers, publishers) to support first step implementation of the action plan. This can include a dedicated workshop event. | 5- 10 days |

The timeline does not factor in any time needed to reach an agreement over the scope of work, seek and secure financial and human resources, and scope out all the information necessary to make the assessment. Nor does it include any time spent by the stakeholders on revising the draft reports. These time periods vary depending on a context and depend on energy sector circumstances and commitment of a client agency. Overall, the assessment and its delivery should not exceed a timeframe of 4 months.

# Using the assessment framework

The Open Energy Data Assessment framework is described below, and uses the same assessment framework as the previously mentioned ODRA.

**Questions**

The Assessment Framework is arranged along eight distinct dimensions. Within each dimension a small number of primary questions are specified. The dimensions and primary questions form the basis of this assessment and help frame recommendations. For each primary question a number of subsidiary questions are suggested to probe specific aspects of the question, to gather additional detail or to draw attention to a topic of interest to the assessment which has not yet been raised by an interviewee. It is not necessary to ask all subsidiary questions to all interviewees.

**Evidence**

The assessment framework suggests some hard evidence - existing documents or facts - which are relevant to the dimension, though these are intended to be illustrative and do not present an exhaustive list. Users of this tool should seek to collect and study these documents or facts, if they exist, in advance of the field interviews.

Individual items of evidence are marked “+” for evidence of a higher level of readiness and “-“ for evidence of a lower level of readiness. Use of the “o” sign indicates that evidence has mixed implications or neither favors nor weighs against readiness. In this case, readiness refers to the availability of evidence or awareness of something in relation to the question posed. The absence of particular evidence is not necessarily evidence the other way, but reasons for its absence is certainly something to test in relevant interviews.

**Assessment**

The user should make a qualitative assessment of the degree of readiness for each dimension on the following scale:

* Green means there is clear evidence of readiness
* Yellow means that evidence of readiness is less clear
* Red means there is an absence of evidence for readiness
* Grey means insufficient information to assess readiness

**Outcomes**

* Assessment report
* Action Plan (Usually combined with the Assessment Report)
* Energy datasets surfaced

# Open Data Readiness Assessment (lightweight version)

*This dimension could be a valuable contribution in the case where a general open data assessment is missing, resulting in a standalone Open Energy Data Assessment. In the case where the Open Energy Data Assessment methodology is used in complement to an existing ODRA, this section can be skipped.*

Importance Very High

Context:

The existence of an National or local Open Data Initiative or at least basic components for the establishment of an open data program are essential to the success of open data within the energy sector since it can help energy sector stakeholders connect their efforts to a national agenda. When assessing open data at city level, both national and city level evidences should be taken into account.

**Evidence**

+ A publicly announced political commitment or policy position on Open Data or related topics (such as Open Government or FOI) by senior political figure with influence across the government as a whole.

+ Specific, named person / body officially charged with overall responsibility for Open Data, with machinery of government in place to coordinate their leadership of open government/access to information across ministries.

+ There is an existing Open Data Initiative, supported by a specific policy, and a network of representatives across government (e.g., one per agency) to manage implementation of open data.

+ Most of key national datasets, according to international standards, are available as open data.

+ Government already uses shared ICT infrastructure and shared e-Services.

- Basic infrastructure needed for Open Data does not exist or is under-developed (little Internet access or freedom, connectivity is poor or prohibitively expensive).

**Questions to ask and/or investigate**

*When it exists your main counterpart for this section should be the Open Data Initiative team. For a better understanding of the questions asked, please refer to the standard Open Data Readiness Assessment.*

1 What is the level of political leadership on open data?

2 What is the current legal framework surround the protection of personal privacy, access to public information, ownership and licensing of government data?

3 What are the institutional structures, responsibilities and capabilities regarding data?

4 What are Government data management policies and procedures?

5 What is the overall demand for data across all sectors?

6 What is the level of civic engagement and capabilities for open data?

7 To what extent are there funding available for open data?

8 What is the current status of the ICT infrastructures and related skills?

# Open Energy Data Assessment Dimensions

## 1. Policy, regulation and structure of the energy sector

Importance Very-High

Context:

The structure and related regulation of the energy sector has an impact on how easily open data principles can be integrated, and how direct the benefits from open data can be for the sector. For instance, the incentives for a public monopoly to support the release of open data might differ from those of a private utility operating in a free market. Similarly, access to information around dispatch decisions and load shedding are likely more limited for a regulator in a sector dominated by private distribution companies. Understanding how the energy industry is organized and regulated is thus key to identifying structural barriers and value opportunities for open data.

The assessment should not only consider the current situation in the energy sector but also, if it exists, any futures policy reform or strategy. The design of a new policy is indeed a good opportunity to mainstream open data into the sector and ensure it will benefit from it.

Effective and sustainable energy policies, which in many places will depend on more distributed, less centralized approach, are more prone to open data principles. Therefore, the assessment should look for the existence of any plan seeking energy transition or renewable energy reforms.

**Evidence**

+ The Government is committed to reducing its dependency to non-renewable energy and is currently working on an ambitious energy transition program.

+ Private or public off-grid electrification initiatives are being implemented in the country.

+ Renewable energy mapping has taken place or is planned by the Government or other stakeholder.

+ Infrastructure upgrades like smart meters are deployed among certain electricity customer segments.

- The electricity sector is entirely managed from production to distribution by a state-owned company and SMEs do not have access to the energy market.

**Questions to ask**

1.1 What is the current structure of the energy sector (its main policies, regulations, actors) and how could it benefit from open data?

1.2 To what extent are key indicators of the energy sector conducive to an energy sector specific open data program?

- current and projected energy mix (the range of energy sources, either renewable or non-renewable) for the assessed territory;

- size of the industry;

- energy imports and exports.

1.3 What is the dynamic of the energy market, in particular regarding development of IPPs and SMEs; and to what extent does it rely on the energy broker system and broker companies?

1.4 How are the national and/or local governments supportive of renewable energy solutions and what are the current or foreseen reforms in this area?

## 2. Energy sector legal framework provisions relevant to open data

Importance High

Context:

The long-term success and sustainability of an open data program is greatly impacted by the policy and legal framework that exists. When addressing open data for the energy sector, the legal framework regulating this specific area is of equal importance as the more general framework. The assessment should analyze whether the legal framework and regulations in the energy sector have the potential to hinder or leverage any open data effort in this area.

Therefore, it is important to identify existing policies, laws and regulations with respect to a core set of issues at an early stage, and to identify actual or perceived obstacles in order to have policy or legal change initiated early enough, if necessary.

**Evidence**

+ The Open Data Policy is mandating the energy sector to release its public data as open data.

+ The Energy Act contains a specific section establishing a centralized energy database and mandating that non-personal data be released as open data.

+ A Regulation is mandating building management companies to perform energy audits and make results (certificates) available to the public.

+ There is a balanced data protection framework ensuring protection of personal data without impeding the release of aggregated non-personal data at a detailed level (e.g. buildings, blocks, postcodes).

+ Companies are required by law to release energy consumption and CO2 emissions of their facilities.

- There are exceptions to the general Open Data Policy that applies to the energy sector limiting their involvement in a national open data agenda.

**Questions to ask**

2.1 Does the legal and policy framework of the energy sector contain specific components related to the protection of personal data?

2.2 Is there any provision or exception applied to the energy sector with regard to the right of access to information?

2.3 What are the components related to data management, archiving and data security within the legal and policy framework of the energy sector?

2.4 What other policies/laws within the legal and policy framework of the energy sector may have a significant impact on open data?

## 3. Leadership, responsibilities and capabilities within the energy sector

Importance High

Context:

Open data requires the implementation of changes - often including legal, institutional, technological and cultural changes - and may affect stakeholders both inside and outside the energy sector. Leadership therefore is critical.

At the same time, open data requires strong commitment and capacity from stakeholders in the energy sector to ensure management of processes for data gathering, security, quality control, and release.

**Evidence**

+ The Minister of Energy and the main energy utilities have publicly committed towards open data in the energy sector.

+ The Energy Regulatory Authority is mandated to maintain a comprehensive database for national decision making on energy resource and planning.

**Questions to ask**

3.2 To what extent is the energy sector aware of open data and its potential benefits?

3.1 To what extent are the lead stakeholders within the energy sector (Government, Energy Regulatory Authority, energy utilities) supportive of open data/open government/access to information?

3.3 Which stakeholders within the energy sector are primarily responsible for data or statistics production, collection and management?

3.4 How strong are ICT and data management skills within the energy sector?

## 4. Data management within the energy sector

Importance High

Context:

Open energy data can build on established digital data sources and information management procedures within government where they already exist.

**Evidence**

+ There is an open energy data working group comprised of the main energy utilities, the National Statistics Agency, the Energy Regulatory Authority, the Open Data Initiative and energy data users.

+ Main electricity utilities have their own website showing current and planned power outages and are also using social networks to alert their customers about power disruptions.

**Questions to ask**

4.1 What are the current practices and procedures of data sharing among the main energy stakeholders?

4.2 What data management policies and standards have been implemented to improve quality and diffusion of data within the energy sector, and what is the role of the National Statistics Office in that regard?

4.3 What energy data is made available outside the energy sector - either free or for a fee - and on what conditions?

4.4 To what extent and how does the energy sector communicate to the population about the status of the energy System (Capacity level, Power Outages, Construction Plan, etc.)?

4.5 What are the data management procedures in place to prevent and cope with a disaster involving the energy sector?

4.6 Which agencies with established capabilities in implementing data management procedures and standards would have leadership to drive open data in the energy sector?

## 5. Key energy datasets availability

You will find below a list of potential key datasets to look at when exploring open data in the energy sector. This list is not comprehensive but aims at giving an overview of which data is requested in relation to the energy sector.

Energy is closely linked to other sectors such as mining and extractive industries, water, transport, urban planning, and environmental protection. To some extent, an assessment of open data in the energy sector should also look at key datasets in these sectors. You will find below some examples of energy sector-related key datasets but you may want to include more.

Ultimately, the selection of key datasets for the assessment should be mainly driven by the analysis of key challenges within the energy and related sectors and by the existing demand from the energy actors.

**Table 1: Example of key datasets for the energy sector**

|  |  |  |
| --- | --- | --- |
| **Dataset** | **Description** | **Example of best practice[[3]](#footnote-3)** |
| Detailed electricity consumption | Average electricity consumption at the most detailed level (building, block, district) | [Average electricity consumption at block level for Amsterdam](https://www.liander.nl/over-liander/innovatie/open-data/data?searchterm=open%20data) ([map](http://maps.amsterdam.nl/energie_gaselektra/?LANG=en)); [Postcode level electricity estimates in UK](https://www.gov.uk/government/statistics/postcode-level-electricity-estimates-2013-experimental) |
| Power stations | List of current power stations in the country, including their localization, installed and effective capacity | [Existing and Potential Generation Sites in Uganda](http://opendata.arcgis.com/datasets/f0cdeab0a7044e5696225b318391cd80_3) |
| Electricity transmission and distribution networks | Geospatial data of lines and stations of electricity transmission and distribution network including length capacity, and expansion project. | Existing electricity [transmission lines](http://data.energy-gis.opendata.arcgis.com/datasets/5105064a0e4c409491d334e61669e605_0) and [distribution lines](http://data.energy-gis.opendata.arcgis.com/datasets/5c8f33a0f509459da348f15576d7b9c5_0?geometry=32.577%2C0.262%2C32.683%2C0.288) in Uganda |
| Statistics on renewable energy | Statistics on generation of renewable energy per type of energy source. | [Local data on renewable electricity production facilities in France](http://www.statistiques.developpement-durable.gouv.fr/energie-climat/r/energies-renouvelables.html?tx_ttnews%5btt_news%5d=22748&cHash=456972c7ec7922e1211544c259485316) |
| Power outages | Historical, planned and real time power outages data. | [Scheduled outages for Kenya Power](http://poweralerts.kenyapower.co.ke/) |
| Energy audit (Certificate) | Results of energy audits for private, public buildings and other infrastructures | [The Display Energy Certificates for Bristol City Council buildings](https://opendata.bristol.gov.uk/Energy/Display-Energy-Certificates-BCC-Buildings-Jan-15/qupi-w6ui) |
| Detailed domestic gas consumption | Average gas consumption at the most detailed level (building, block, district) | [Average gas consumption at block level for Amsterdam](https://www.liander.nl/over-liander/innovatie/open-data/data?searchterm=open%20data) ([map](http://maps.amsterdam.nl/energie_gaselektra/?LANG=en)) |
| Detailed domestic fuel consumption | Average domestic fuel consumption at the most detailed level (building, block, district) | [Detailed data on NYC buildings with oil boilers, including fuel consumption](https://data.cityofnewyork.us/Housing-Development/Oil-Boilers-Detailed-Fuel-Consumption-and-Building/jfzu-yy6n) |
| Buildings | List of main buildings including including properties such as type of roof. | [Building footprints in Chicago](https://data.cityofchicago.org/Buildings/Building-Footprints/qv97-3bvb) |
| Publicly-owned real estates | List of publicly-owned, let or managed real estates | [Bedford Borough Council (UK) property ownership](http://data.gov.uk/dataset/council-property-ownership) |
| Land Register (cadastral) parcels | Geospatial data of boundaries of lands and real estates. | [Cadastral parcels in Denmark](http://download.kortforsyningen.dk/content/geodataprodukter?field_korttype_tid_1=441&field_aktualitet_tid=All&field_datastruktur_tid=All&field_scheme_tid=All) |
| Household survey (Census) | The dataset should contains socio-economics indicators as well as as information related to assets ownerships and housing | [2009-2011 American Community Survey 3-Year PUMS Housing File](http://catalog.data.gov/dataset/2009-2011-american-community-survey-3-year-pums-housing-file) |
| Air Quality | Realtime and historical data of emissions of pollutants | [London air quality](http://www.londonair.org.uk/london/asp/datadownload.asp) |
| Transport statistics | Number and type of registered vehicles, historical and real time traffic data, public transport networks, roads density, etc | [Vehicle survey, passenger-kilometres, by type of vehicle](http://open.canada.ca/data/en/dataset/f6d4e581-fc41-4c2e-816d-f6b2bd5d22c2) and  [fuel consumption rating per type of vehicle](http://open.canada.ca/data/en/dataset/98f1a129-f628-4ce4-b24d-6f16bf24dd64) in Canada |
| Wind Capacity | Geospatial data of wind capacity on the territory | [Ghana high resolution wind resource](http://datahub.io/dataset/ghana-high-resolution-wind-resource) |
| Solar capacity | Geospatial data of solar capacity on the territory | [Solar: monthly and annual average direct normal (DNI) GIS data at 10km resolution in Ghana](http://datahub.io/dataset/solar-monthly-and-annual-average-direct-normal-dni-gis-data-at-10km-resolution-in-ghana) |
| Hydrological map | Geospatial data of historical and real time water resources on the territory | [Hydrological data from the Swedish Meteorological and Hydrological Institute (SMHI)](http://vattenwebb.smhi.se/) |
| Biomass | Geospatial data about the biomass resources generated (quantity and composition) | [Biomass resources generated by county in the United States](http://en.openei.org/doe-opendata/dataset/nrel-solid-biomass-gis-data) |

## 6. Use and demand of energy data

Importance Very High

Context:

The value of energy data is in its use. A strong demand-side “pull” of data is important not only in creating and maintaining pressure on government to release data but also in ensuring that the wider open energy data ecosystem develops, and that open data is turned into economically or socially valuable services for citizens. The “pull” can come from civil society, the private sector, international organizations, donors and individual citizens.

**Evidence**

+ Example of applications or businesses which are dependent on the availability of energy data.

+ Example of Government entities external to the energy sector, SMEs, academia, CSOs requesting / using energy data.

**Questions to ask**

6.1 What is the level and nature of actual and latent demand for energy data from ministries, departments, agencies and local government outside the energy sector?

6.2 What is the level and nature of actual and latent demand for energy data from the private sector? What kind of business models are developed around the use of open data? And what is or what would be the added value for their consumer / client?

6.3 What is the level and nature of actual and latent demand for energy data from the civil society, the development partners, and the media? How do they use or want to use energy data and for which purpose?

6.4 How do the energy sector data holders react to the demands for data?

6.5 To what extent can energy consumers access their own consumption data through their contracted utility company, or through third-party services, thanks to specific agreements or mechanisms such as the Green Button?

6.6 To what extent - if it exists - has the Open Data Initiative engaged with the energy sector and facilitated the interaction between data producers and users in this area?

## 7. ICT use and infrastructure in the energy sector

Importance High

Context:

Success of open data programs normally rely in part on the state of the national technology infrastructure, which is understood as availability of technology and information and communications services as well as the quality of existing ICT skills among officials, infomediaries, and the general public. The same applies to open data within the energy sector.

**Evidence**

+ Population is using dedicated applications to manage their energy consumption.

+ A track record of tech companies working in the energy sector.

- Lack of basic ICT infrastructure is hindering the performance of the energy sector.

**Questions to ask**

7.1 What is the level of ICT infrastructure within the energy sector?

7.2 What is the level of web and mobile applications used within the traditional energy sector (website, social network, SMS)?

7.3 What is the extent of ICT-based innovations within the energy sector?

## 8. Funding an open data initiative within the energy sector

Importance Medium High

Context:

Funding with respect to both the “supply side” and “demand side” of open data is important to ensure that the objectives of an open data are met within the energy sector.

**Evidence**

8.1 What funding is available to support open data in the energy sector from the (local) Government? (from the energy sector itself or from funding for eGovernment, Open Data, or ICT in Government)

8.2 To what extent are energy industries investing in information management capacity and infrastructure?

8.3 To what extent is there funding mechanisms for innovation in the energy and ICT sectors?

# Annex 1: List of stakeholders

Here is a list of potential stakeholders for the interview. It is important for each stakeholder to engage at both senior and technical level (data management / ICT) in order to explore all the dimensions with them.

National and local Government:

* Ministry of Energy
* Ministry of Lands
* Ministry of Environment
* Ministry of Water
* Ministry of Petroleum
* Ministry of Natural Resources
* Energy Regulation Authority
* Municipal Authority
* Open Data Initiative

Energy utility and market:

* Power generation private company or public utility
* Power transmission private company or public utility
* Power distribution private company or public utility
* Energy audit company / council
* Energy consumers advocacy organization
* Cleantech company (appliances, building, software, etc.)

Others:

* Academia, Research Centers, Think Tanks with a focus on energy
* Bilateral or Multilateral Development Partners
* Non-governmental Organizations

# Annex 2: Tools and method for energy planning

**RETscreen ® International (Natural Resources Canada)**

RETSCREEN is a trademark for RETScreen International and is a renewable energy awareness, decision-support and capacity building tool developed by the CANMET Energy Diversification Research Laboratory (CEDRL) of Natural Resource – Canada with major support from UNEP and the World Bank. The core of the tool consists of a standardised and integrated renewable energy project analysis software that can be used world-wide to evaluate the energy production, life-cycle costs and greenhouse gas emission reductions for various types of renewable energy technologies. Renewable energy technology (RET) projects are not routinely considered by planners and decision-makers at the critically important initial planning stage. The RETScreen® Renewable Energy Project Analysis Software has been developed to help address this barrier. For more information visit [www.retscreen.net/ang](http://www.retscreen.net/ang)

# Annex 3: Sample letter of request for energy data

Obj: Request for access to data on electricity consumption and network for ….

Dear Director,

Following ... we kindly request access to the following data from ... :

* Electricity consumption per year for the past 3 years at the most detailed level for the city (at the level of blocks or facilities if possible, with the understanding we are not requesting for personal level data).
* Specific list of facilities that need to comply with the Energy Audit Regulation (electricity consumption > 180 MWh per year).
* National grid network map (high-voltage transmission lines), including basic information of connected power plants.

We would like the data to be made accessible online for downloading or to be sent to [email] in machine-readable format (CSV, Excel) for the datasets and in Shapefile or another GIS format for the maps. We also request that these datasets be accompanied by their related metadata (description of fields, date of production, etc.) if such exists.

The data will be used for the purpose of the Open Energy Data Assessment.

Sincerely,

1. United Nation Statistics Division, International Recommendations for Energy Statistics (IRES), 2011 [↑](#footnote-ref-1)
2. See http://data.energy-gis.opendata.arcgis.com/ [↑](#footnote-ref-2)
3. For some data, the example provided may not be fully open data [↑](#footnote-ref-3)