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Role of utilities, Big data and geo-spatial data in energy transition

Draft outcomes of the discussion on the role of utilities, Big data and geo-spatial data in energy transition

1. Major barriers for application of geo-spatial data and Big data methods in energy transition projects

1. There are administrative and financial barriers. Local governments and municipalities often do not have resources (both financial and human) to apply geo-spatial data and Big data. In addition, bureaucratic complexity and a lack of awareness are serious obstacles to the application of modern IT solutions. The private sector, including utilities, may have required experience and capacity but not a financial incentive to engage in this activity and/or available financing to implement such projects. In some cases, there is resistance from residents to installation of meters, as they can lead to increased energy bills compared to bills for estimated consumption.

2. Legislative barriers are important. The technological capacities develop at higher speed that the legal framework. As a result, there is often uncertainty over what data can be used for what purpose. Data protection is always an issue. Sometimes rules are too strict to make use of existing data. For example, unbundling rules may prevent utilities from taking advantage of synergies between different areas of economic activity.

3. Technical barriers remain significant. The availability of open, reliable, standardized and detailed datasets accompanied with high-quality meta-data about both utility networks and the built environment is considered one of the greatest barriers to application of GIS and Big Data techniques in energy transition projects. Datasets need to be open and standardized to scale up and speed up processes and to reduce costs. Datasets also need to be reliable and detailed at the demand point level (the building), in order to provide accurate analysis of what is needed up the energy supply chain. There are also a lack of a common (or at least transparent) methodologies and vocabulary and a lack of efficient infrastructure and trained professionals.

2. Proposed legal and organizational practices to mitigate or remove the existing barriers

4. Shift to Open Data allows to bring energy planning, implementation and evaluation of energy policies to a new level. An Open Data project would involve several stages: 1) developing conceptual and legal framework determining the process of data collection and rights of use; 2) establishing standards for the datasets and metadata; 3) building efficient infrastructure compatible with different information technologies; and 4) actively involving all the relevant stakeholders (national authorities, municipalities, utilities, public and private companies, and households) in all the steps of the open data project from the project conceptualization to data collection and final use.

5. Formulation of and adherence to clear rules regarding open data, unbundling and data protection would help in overcoming many barriers. National governments should create a base infrastructure of Key High Value Datasets that cover entire countries and are openly available. In this context, it is important that the datasets produced for smaller scales (regional level) are compatible. The base infrastructure, including both digital and governance frameworks, will give local governments, the national agencies, and utility companies clear mandates and means to accomplish their goals.

6. The way to make practical use of open and geo-spatial at the municipal level is to develop a city strategy that use geo-spatial data and Big Data solutions as analytical and collaborative tools allowing to engage public and private sector, as well as citizens in implementing projects under the strategy. Raising awareness at all levels is critically important. Training sessions and workshops targeted to particular stakeholders are indispensable.

3. Role of institutions and utilities in creation and sharing of geo-spatial and Big data

7. Local governments and municipal authorities have made progress regarding open data. They can serve as major actors responsible for data collection and dissemination through open access platforms. For example, in the canton of Geneva in Switzerland the law obliges the canton to have and maintain the territorial database with most of the dataset in open access, for which the data are provided by public and private companies.

8. Utilities are the main repositories of expertise and energy-related data. They remain reluctant in making the data accessible if it is not required by legislation. In some cases, regulation can promote data sharing. For example, in France utilities are required to provide certain data to public administrations to help them in planning the energy transition.

4. Finding a balance between open access and personal data protection policies on energy-related data

9. The geo-spatial and Big Data can be presented in such way that personal information is not disclosed. At the level of a multi-apartment building, this dilemma is solved by staying at the building level rather than the individual consumer level, which is sufficient for energy planning and policy evaluation purposes.

10. An important task for governments is to assure people that data sharing does not infringe their privacy and security and to ensure trust in the system for all stakeholders. Transparency of public services and institutions can improve collaboration between the State and its citizens, and the data, once made available, can contribute to innovations and increased competitiveness.