Scream OpenData

A Permanent Home for Energy Big Data

Overall Context

Scream OpenData will use social media to publish structured energy information. This project can be regarded as energy data benchmarking that at its best can be used as a tool to help energy consumers to evaluate and prioritize their improvement opportunities. Through the benchmarking process, energy consumers can continuously compare and measure their energy data to gain a sense of efficiency improvement opportunity.

Scream OpenData will be actionable data. Quality of data will be reinforced before entering the system. However, the quality and accuracy will improve further as participation increases. A practical and suitable example of open data effort is Government of Canada's open data initiative Open Data 101, as it is described as a practice that makes machine-readable data freely available, easy to access, and most importantly, simple to reuse.

Energy Data is Homeless

The energy (big) data do not have a permanent home to live, which is causing energy data to face many problems like those who are without a home. However, there are solutions to solve the problem of homelessness. Screaming Power has the vision to build a home for energy data. Screaming Power will provide this opportunity to utilize energy data for providing further insights. This will ensure utilization of energy data in a meaningful way. Ideological conflict is one important reason for people to be away from home. And, unfortunately, there are conflicts among the providers in the way they capture and deliver data to their users. This conflict hinders the standardization process of energy data. Screaming Power's platform for energy data will tackle any conflict by providing a standardized data and a common source of public energy data.

What Triggers Scream OpenData?

Apart from the above satirical ground, what are more practical grounds that triggered a necessity to

have a platform for energy (big) data? Some of them are mentioned below:

- *No such initiative:* Until now there was no initiative to gather the energy data which is getting bigger every hour and day. This gathering of energy data will provide many visible benefits to the community.
- *Lack of standards:* Energy data, at least in Canada, is not standardized yet. This makes the handling of such data in a unique fashion harder for its target users.
- *Lack of collaboration among the utilities:* The utility companies sometimes compete each other to grab the energy market without properly using the technology that will best suit them. Even they do not collaborate among themselves which can create a shared marketplace generating similar data of similar quality and quantity.
- *No or lack of communication among consumers:* Even consumers do not communicate each other. In other words, they are completely unaware of communicating each other while energy usage and energy data are the concern.
- *Scarcity of centralized data store:* A centralized data store could make the life much easier for market analysts and researchers. But utility companies are highly reluctant in having or storing their proprietary data in a centralized place so that everyone can play with it.
- *Collecting data in a unique manner:* Utility companies are using different technologies and methods for collecting same data from their individual and enterprise customers. Even, the infrastructures themselves are not yet fully technology friendly.
- *The Scarcity of heterogeneous source of energy data:* Electrical and gas energy consumption data are readily available to the consumers from their utility providers. However, many other clear energy data, which are playing a key role in the energy market, are still not available with full details and interesting format. The *Scream OpenData* platform will combine heterogeneous sources of energy data in a generic manner, which will ease the life of analysts and researchers around the globe.

Potential Benefits and Applications

There are many potential benefits and applications to have a permanent home for energy (big) data. In

the below, some benefits that will be achieved via the Screaming Power platform –- *Scream OpenData*.

- According to the *Open Data 101* initiative, the primary benefits of open data systems are:
  - o *Support for innovation:* access to knowledge resources in the form of data supports innovation in the private sector by reducing duplication and promoting reuse of existing resources. The availability of data in machine-readable form allows for creative mash-ups that can be used to analyze markets, predict trends and requirements, and direct businesses in their strategic investment decisions;
  - o *Leveraging public sector information to develop consumer and commercial products:* open and unrestricted access to energy data for public interest purposes, particularly statistical, scientific, geographical, and environmental information, maximizes its use and value, and the reuse of existing data in commercial applications improves time-to-market for businesses;
  - o *Support for research:* access to public energy data supports evidence-based primary research in Canadian and international academic, public sector, and industry-based research communities. Access to collections of data, reports, publications, and artifacts held in federal institutions allows for the use of these collections by researchers;

- It's hard for providers to experiment with data as their primary goal is to provide energy to their consumers. Therefore, open data systems like *Scream OpenData* lets other experiment on the behalf of the energy providers and users;
- Open data systems like *Scream OpenData* can create new markets;
- New development opportunities will be created based on an open data system like *Scream OpenData* including but not limited to: data visualization and analysis, combining data sets, data mining, and so on;
- Open data systems like *Scream OpenData* can help in establishing an energy efficiency transparency to prioritize energy efficiency improvement opportunities;
- By participating in data benchmarking and creating open energy data through *Scream OpenData*, energy providers and consumers will increase the value of community based studies;
- One of the major benefits of *Scream OpenData* is that it will help users to understand their energy efficiency relative to technology and climate conditions;
- In general, some of the areas where open data systems like *Scream OpenData* can create value include: transparency, participation, innovation, improved efficiency of services, new knowledge from combined data sources and patterns in large data volumes;
- More citizens (*a.k.a.* energy consumers) will engage in policy making process by the governmental bodies or by the providers;
- Screaming Power can publish energy data, based on which 3rd parties and create tools for analysis and oversight;
- Open data systems like *Scream OpenData* will allow external contributions from multiple parties;
- Users can collaboratively monitor, socialize and benchmark, detect issues, give feedback report and resolve;
- The open energy data triggers the development of a standardized set of processes and energy metrics;

Potential Capabilities
- Import/export energy data that are non-duplicated, structured, and remediated
  - o Using Privacy by Designs principles, energy data will be upload or download to the server via the *Scream OpenData* app;
- Search for a consumer or a property location
  - o Users can search for any consumer within the public data domain;
- Filter data based on provided constraints
  - o Users will also able to filter data based on their own constraints or based on the predefined filtering constraints;
- Energy data may be provided in XML, JSON, XLS, or CSV (a data format conversion engine will help to represent the data interchangeably)
  - o Energy data can be provided to the interested party in any of the above formats. Authenticated user give their preference while export/download the public data;
- There will be options for sharing (in various social media), bookmarking, or refreshing the data

- o The publicly available data can be shared by authenticated users to any other open media;
- The main menu items can be: Home, Recent Datasets, Datasets, Search, Terms, App Details, App Settings, Tutorial/Help, etc.
  - o Menu items can be extended and organized in any suitable order/manner;
- Under the feedback menu there can be: Rate App, Give Feedback, Ask Questions, and (perhaps) Submit a Data Portal
  - o Upstream communications can be supported via this feedback feature, which might help to improve the *Scream OpenData* further;

Examples of Existing Open Data Platforms
- Open Data Companion (ODC) developed by Utopia Software provides a unified access to 170 data portals around the world in several formats but mostly in html and textual

- Other related open data apps are Open Data 101 initiative government of Canada registered apps including Community Information Database by Agriculture and Agri-Food Canada, Canadian Patents Database by Industry Canada, Canadian Copyrights Database by Industry Canada, Trade Data Online (TDO) by Industry Canada, and so on.

Challenges to Face and Questions to Answer
Apart from all the above issues related to energy data centralization and benchmarking, there are major open questions that need to be answered with the energy data.
- How are fundamental energy resources impacted by climate?
  - o Each energy sources are impacted by the weather and, in other way, the climate has a significant impact on the energy resources. Research and investigation need to be carried out to find answers to this vital question.
- What capacity do we currently have to adapt energy systems, and how might technology solutions, systems designs, and operational changes improve energy system resilience for climate change?
  - o At present, technology is the closest partner of energy industry like many other areas including medical, telecom, or banking. Our energy systems need to be resilient to

climate change, and, research and investigation should follow to implement the adaptation of energy systems and technology solutions through the appropriate use of energy (big) data.

Conclusion
In summary, energy data is playing a hidden role in governing the energy industry. But the data itself is hidden and, in many cases, not complete. The *Scream OpenData* will play a significant role in publicizing energy data, which will open many other windows to analysts and researchers in both industry and academics.

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