



**Statistics Canada** 



www.statcan.gc.ca Country Practice: The Use of Administrative Data

in Canada

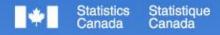
Presentation to OG9 Abu Dhabi, United Arab Emirates 6 May 2014





#### **Overview of presentation**

- Administrative data at Statistics Canada
- Use of administrative data in the Energy Statistics Program – a variety of applications
- Feasibility Study on the Use of Big Data
  - Smart metres
  - Potential benefits
  - Current status
  - Going forward challenges and solutions





#### **Growing importance of administrative data**

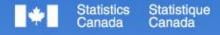
- Statistics Canada is relying more on administrative data
- Driving factors: fiscal restraint, evolving technology, respondent burden
- Success based on legislative authority and ongoing collaboration





#### Statistics Canada – Administrative Data Secretariat

- Management and use of sources of administrative data
- Analyze legal and privacy issues
- Review the administrative data acquisition process
- Optimize methods and processes
- Investigate new sources and methods





#### **Administrative data inventory**

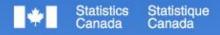
- Encourage the use of administrative data in the production of official statistics
- Track how the use of administrative data changes over time
- Help with the acquisition of administrative data sources.





# **Examples from the Energy Statistics Program at Statistics Canada**

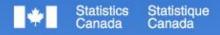
Using administrative data ...





### **For direct collection**

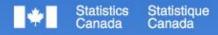
- Where survey data do not exist
- Eg. Deregulation of the energy market created secondary distributors
  - Data collected from natural gas distributors and transporters on sales to residential, commercial and industrial sectors
  - A proxy for consumption data
- Eg. Import and export data from the National Energy Board
  - From admin files on permits





## **For direct collection**

- As a supplement for existing data
- Eg. For monthly crude oil and natural gas production, imports, exports, domestic deliveries and inventories, data are collected through both survey & admin data
  - Producing provinces gather regulatory data





#### As a substitute for survey data

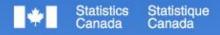
- Eg. Electric Utility Financial Report gathers an annual breakdown of a series of balance sheet and income statement items
  - In 2008, negotiated with Ontario Energy Board to gather aggregate admin data for 85 municipal respondents
  - Reduced costs, burden





### For estimation, edits, imputation

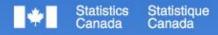
- Where data are missing, incomplete, inconsistent with historical data
- Eg. Missing fuel consumption values are calculated using the change in fuel consumption by industry





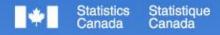
### **To support survey frames**

- All energy surveys recently hooked up to the Statistics Canada Business Register
- A good source of information to establish and maintain survey frames
- Promotes harmonization across department



## For data analysis and validation

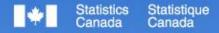
- Energy statistics program uses other sources of information for quality control, outlier detection, confrontation
- Examples:
  - Reports from industry associations
  - Reports from other government departments
  - Media reports





# **For improving timeliness**

- Collection and reporting of key petroleum production data
- Most oil production comes from the province of Alberta
- Tap into provincial regulatory bodies as a valuable source of data.





#### **Big Data**

- Recent technological advances have led to an explosion of "Big Data": informational assets characterized by their large quantity and variety
- Significant potential for official statistics





### **Smart Meters**



- Smart meters track how much energy homes or businesses use on a real time basis
- Between year 2008 and 2012, cumulative smart meter deployment in the world increased by 500%
- The International Energy Agency projects that global cumulative smart meter installation will grow from 285 million in 2012 to 1 billion meters in 2018

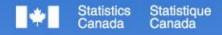
International Energy Agency (2013), "Tracking Clean Energy Progress 2013", Paris.





### Potential benefits to official statistics

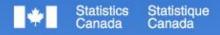
- Reduce response burden
- Reduce costs
- Improve data quality
- Improve timeliness
- Fill data gaps
- Enriched analytical value





#### **Current status**

- Discussions with
  - Independent Electrical Systems Operators (IESO) of Ontario
  - Local electric utilities in Ontario
  - Academics
- Obtained data sharing agreements
  - with 2 local utilities in Ontario Feasibility Study





### **Current Status (continued)**

- Obtained data
  - Received several years of hourly Smart Meter data from one local distributor
- Will obtain more data
  - Years of hourly data from another local distributor
- Began processing and analysing the data
- Started comparing smart meter data with survey data (Electricity Disposition - Quarterly, Residential Sector)





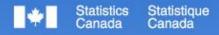
# Challenges

- Data Acquisition
  - Legislative
  - Privacy
  - Volume of data
- Technology
  - Infrastructure
  - Software
  - Security
- Methodology
- Cost/funding

#### **Solutions**

- Partnership with key stakeholders
  - Tailored Memorandum of Understanding
  - Data stripped of identifiable variables
- Explore the potential for new and existing tools

- Random sample, real time data, several years
- Share findings with data providers





# Conclusion

 Administrative data represents a wealth of information

 A better balance among relevance, quality, cost and respondent burden





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