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www.statcan.gc.ca



Country Practice: The Use of Administrative Data in Canada

**Presentation to OG9
Abu Dhabi, United Arab Emirates
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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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