

# **Renewable Electricity and Canada-United States Cross-Border Developments**

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Governance in Canada and the United States'

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# Introduction

- Purpose
  - To investigate the ways in which efforts to promote the increased use of renewable electricity in either Canada or the United States have been affected by transnational actors, institutions and structures.



sources: [www.green-e.org/getcert\\_re.shtml](http://www.green-e.org/getcert_re.shtml); [www.ecologo.org](http://www.ecologo.org); [www.powerauthority.on.ca](http://www.powerauthority.on.ca)

# Introduction



- Rationale
  - Power sector has significant air quality impacts

Table 1.1  
PERCENT CONTRIBUTION FROM THE ELECTRICITY GENERATING SECTOR TO TOTAL NATIONAL EMISSIONS<sup>a</sup>

Pollutant	Canada <sup>b</sup>	Mexico <sup>c</sup>	United States <sup>d</sup>
Sulfur dioxide (SO <sub>2</sub> )	20%	55%	69%
Nitrogen oxides (NO <sub>x</sub> )	11%	27%	22%
Mercury (Hg)	25%	3%	40%
Carbon dioxide (CO <sub>2</sub> )	22%	30%	39%

<sup>a</sup> Contribution to total national emissions from all stationary, area, mobile, and other human-related sources.

source: [http://www.cec.org/files/PDF/POLLUTANTS/PowerPlant\\_AirEmission\\_en.pdf](http://www.cec.org/files/PDF/POLLUTANTS/PowerPlant_AirEmission_en.pdf)

# Introduction

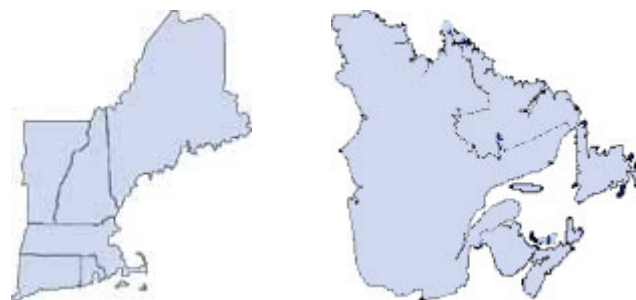
- Outline
  - Context
  - Case study I: New England / Atlantic & Quebec
    - Studied in some depth:  
potential, history, aspiration, reality, prospects
  - Other case studies
    - Manitoba/Midwest; British Columbia/Western
  - Other areas
  - Messages for environmental governance
  - Summary and conclusions

# Context

- Rationale
  - efficiency of operations in the system
    - increased reliability through diversity of supply
  - can improve the performance of renewables in electricity systems
    - greater geographical diversity dampens variability
    - greater resource availability does the same

# Case Study I: New England / Atlantic & Quebec

- potential



State	Predominant resource (share)
Massachusetts	Natural Gas (51%)
Connecticut	Nuclear (48%)
New Hampshire	Nuclear (43%)
Maine	Natural Gas (43%)
Rhode Island	Natural Gas (97%)
Vermont	Nuclear (72%)

summer  
winter  
peaking ↔  
peaking  
system  
system

sources:  
<http://www.negc.org/premiers.html>;  
<http://www.tonto.eia.doe.gov/state>;  
 Natural Resources Canada

Province	Predominant resource (share)
Quebec	Hydropower (93%)
Newfoundland and Labrador	Hydropower (96%)
New Brunswick	Oil (43%)
Nova Scotia	Coal (60%)
Prince Edward Island	Wind (80%)

# Case Study I: New England / Atlantic & Quebec

- History of bilateral cooperation
    - generally
      - ‘Northeast International Committee on Energy (NICE)’ of the Conference of New England Governors and the Eastern Canadian Premiers dates from 1978
    - specifically
      - 2001 goal (Climate Change Action Plan) to reduce the carbon intensity of the electricity system
      - ‘energy dialogue’ focusing on ‘renewable power promotion’
-

# Case Study I: New England / Atlantic & Quebec

- But the reality has been sub-national priorities
  - In Canada

Quebec RfP:  
wind with 'local  
content'  
requirement



PEI RPS:  
broader  
interpretation

New Brunswick RPS:  
EcoLogo (TerraChoice)  
certification

Nova Scotia RPS:  
generated within the  
province

# Case Study I: New England / Atlantic & Quebec

- But the reality has been sub-national priorities
  - In the United States

5/6 states have an RPS ... different roles of hydropower

Connecticut:  
up to 5 MW



Rhode Island:  
up to 30 MW

New Hampshire: up to 5 MW

Maine: up to 100 MW

Massachusetts: none

To what extent are extra-jurisdictional resources acceptable ... using the 'NEPOOL Generation Information System'

sources: <http://www.dsireusa.org>; [www.iso-ne.com](http://www.iso-ne.com)



# Case Study I: New England / Atlantic & Quebec

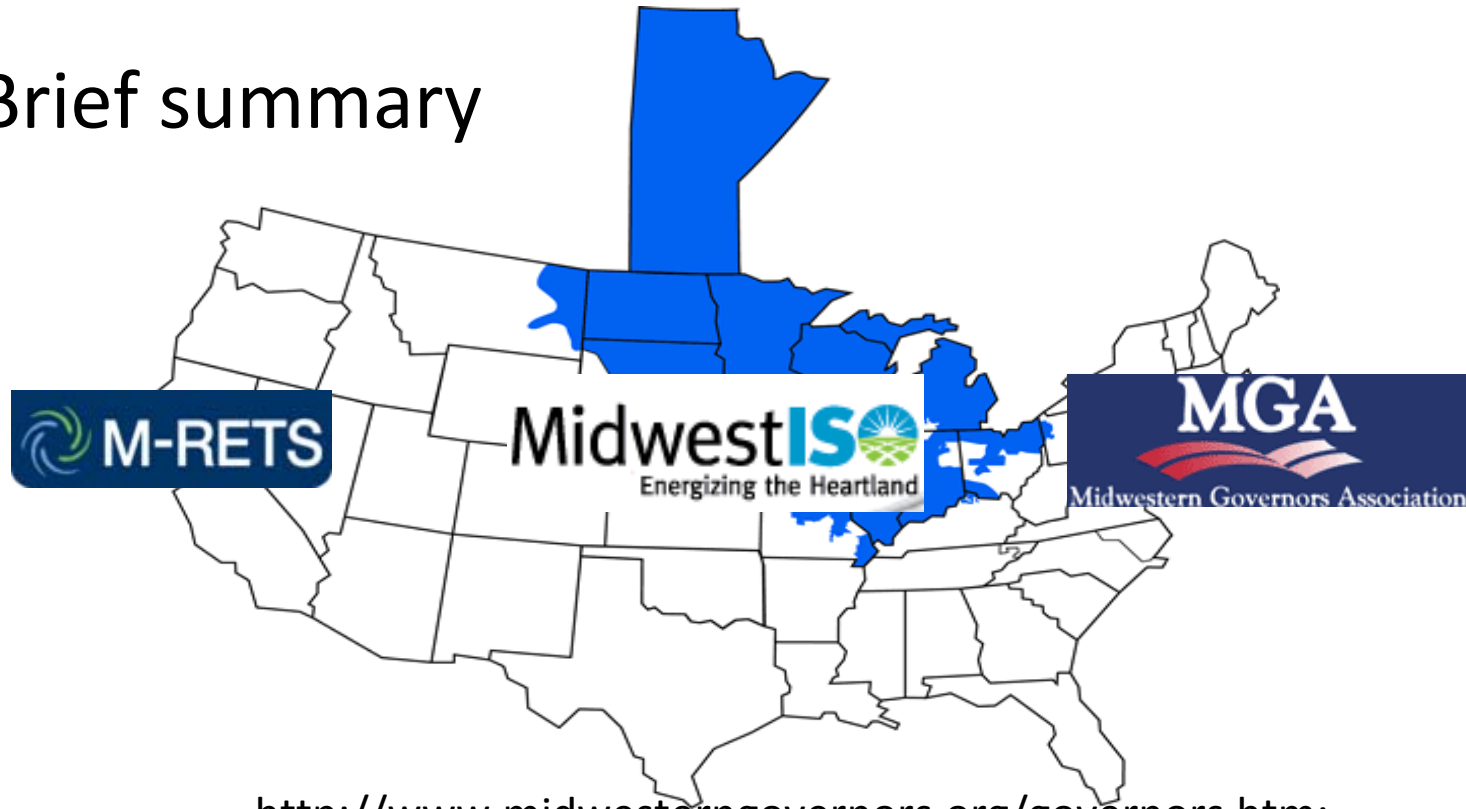
- Emerging bilateral relationship of significance



sources: <http://bangordailynews.com/> <http://www.maine.gov/portal/government/>; <http://www.gnb.ca/cnb/logos/index-e.asp> ;  
<http://mainegov-images.informe.org/mpuc/images/electricity.jpg>; <http://elements.nb.ca/theme/archive.htm>

# Case Study II: Manitoba / Midwestern States

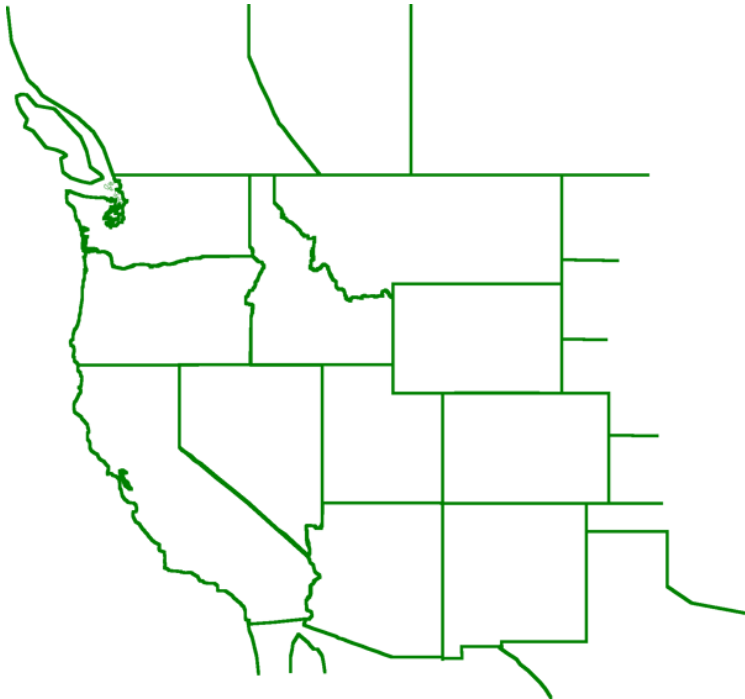
- Brief summary



<http://www.midwesterngovernors.org/governors.htm>;  
<http://mktweb.midwestiso.org/home> ; <http://mrets.net/>

# Case Study III: British Columbia / Western States

- Brief summary



sources: <http://www.wregis.org/content/view/57/49/> ;

[http://www.gov.bc.ca/premier/media\\_gallery/downloads/2007/may/07may31\\_pgc\\_arnold\\_gal\\_m.jpg](http://www.gov.bc.ca/premier/media_gallery/downloads/2007/may/07may31_pgc_arnold_gal_m.jpg)

# Other areas

- Ontario – neighbours
- Alberta – Montana



MONTANA ALBERTA TIE LTD  
A TONBRIDGE POWER COMPANY



<http://www.isorto.org/>; <http://www.matl.ca/>

# Messages for environmental governance

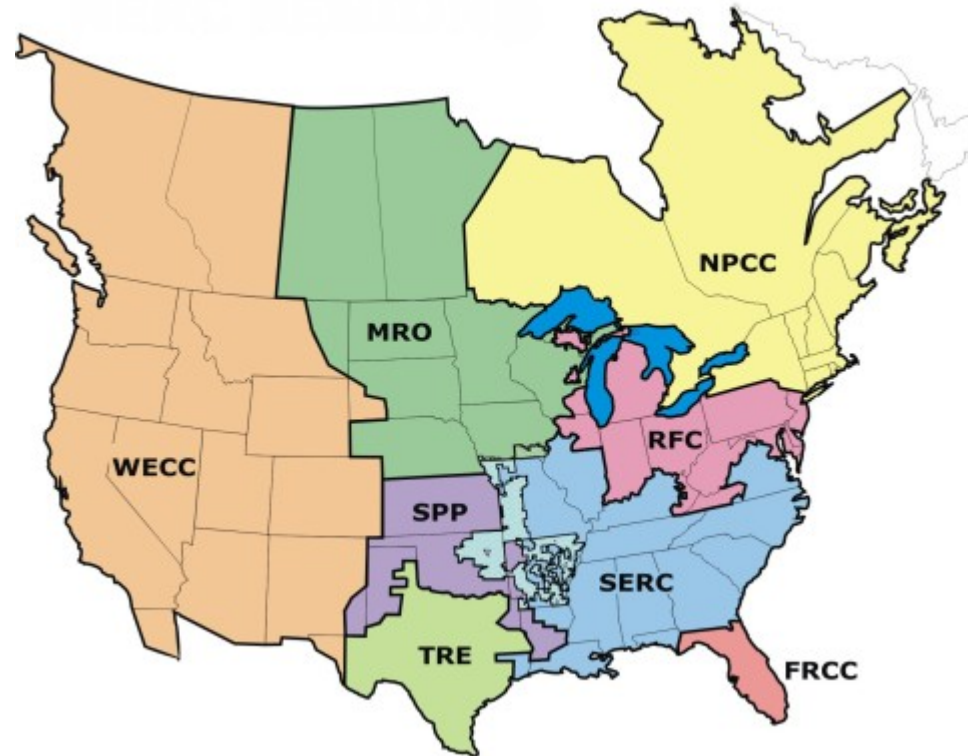
- Form of governance
  - ‘early days’, thus predominantly ‘soft law’, for it is just coming on to the agenda
  - but three distinct kinds of groups having influence
    - Governors / Premiers making declarations
    - Engineers (in RTOs/ISOs) as the knowledge-base (though complemented by economists/auditors in design of REC markets)
    - Local communities defining ‘what is green’ and how to catalyse it (through, for example, an RPS) ... ideas flow internationally
  - analogy at the global level
    - still ‘soft law’, for discussions regarding the ‘International Renewable Energy Agency’

# Messages for environmental governance

- Process of governance
  - traditionally, ‘policy professionals’
    - encouraged by the complexity and closed nature of electricity supply systems
  - but this conservative industry being pressed by new challenges (e.g., environmental issues) and new paradigms (e.g., distributed generation)
    - driven by constituents, elected officials have a role to play, by means of collective leadership (for this issue cuts across many new domains)

# Messages for environmental governance

- Geographic scope
  - importance of state/provincial/regional bodies in electricity, traditionally
  - nature of the commodity: ‘electricity losses with distance’ encourage this
  - present international organisations (through NERC)



<http://www.nerc.com/regional/>

# Messages for environmental governance

- Impact of governance
  - too early to tell
  - as session title suggests, ‘the next frontier’
  - ... but it will be critical

# Summary and conclusions

- Presenter's contact details

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