



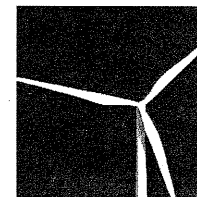
Régie de l'énergie
DOSSIER: 12-3669-2008 Phase
DÉPOSÉE EN AUDIENCE
Date: 20 octobre 2010
Pièces n°: B-163

**HQT Open Transmission Planning Process  
Case-in-Chief of Judah Rose  
October 20, 2010**

# Outline

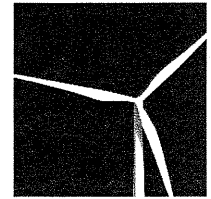


- Mandate
- Introduction to and History of Attachment K and Open Planning in the U.S.
- Comparison of U.S. and Quebec Industries
- Reciprocity
- Other Canadian Utilities
- Conclusions

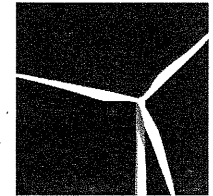


# Mandate

## Scope of Mandate

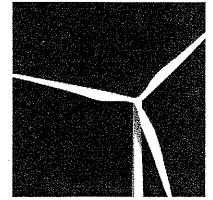


- Explain the motivation for U.S. Federal Energy Regulatory Commission's Order 890 Attachment K including the importance FERC placed on resolving U.S. transmission system deficiencies.
- Describe differences between TransEnergie's situation and that of typical U.S. Transmission Providers.
- Rebut aspects of the testimony of: (1) Dr. Robert Sinclair, (2) William Marshall, and (3) Phillip Raphals.



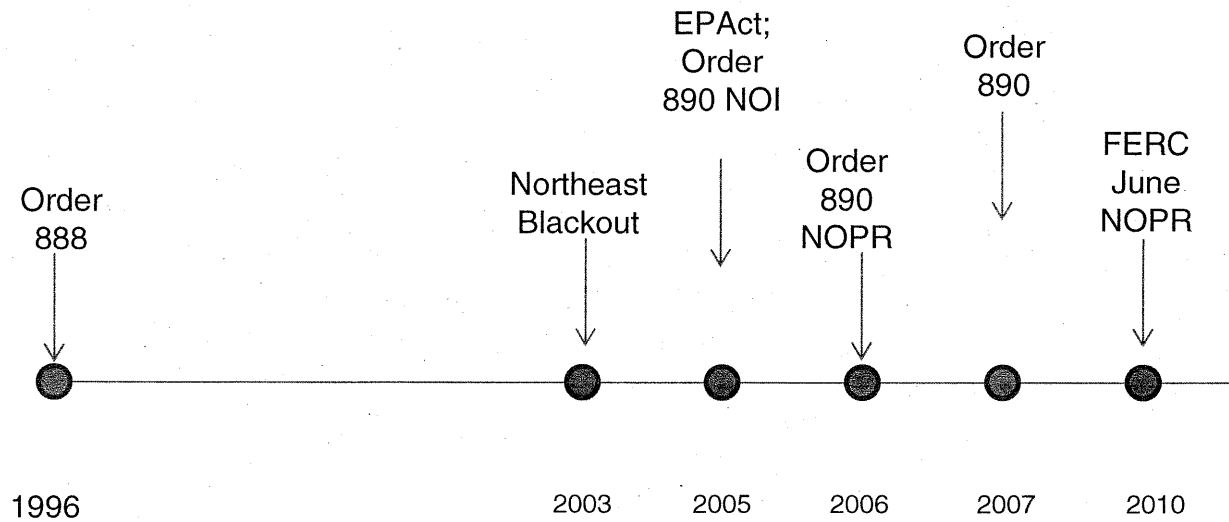
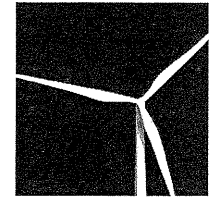
# **Introduction to History of Attachment K and Open Planning in the U.S.**

# History of FERC Order 890 and Attachment K



- Order 890 and Attachment K are attempts to fix U.S. transmission planning in response to a series of events in United States demonstrating the failure of U.S. transmission planning.
  - Prolonged degradation of U.S. transmission infrastructure due an acute lack of investments
  - Increased congestion on U.S. transmission networks and decreased reliability and quality of transmission service resulting from lack of investments
  - Extensive coordination problems involving thousands of utilities and other parties
  - The blackout of August 14, 2003 which was the largest in US history affecting more than 50 million people and 8 states and provinces and the desire to prevent another similar event caused by these problems
  - The adoption of the U.S. Energy Policy Act in August 2005 with a goal of developing transmission infrastructure
  - Within a few weeks, the issuance of FERC Notice Of Inquiry (NOI), which is the origin of FERC Order 890
- Attachment K is also the basis for new expanded policy measures specific to the U.S. that could encroach on Regie’s jurisdiction.

# History of FERC Order 890 and Attachment K

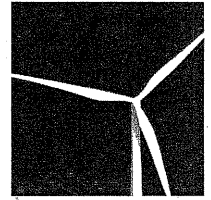


NOI = Notice of Intent

NOPR = Notice of Proposed Rulemaking

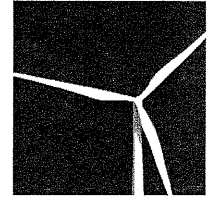
EPAAct 2005 = U.S. Energy Policy Act of 2005; Modifies Federal Power Act (FPA)

# Growing Concern About U.S. Grid and the FERC Response



- State of the U.S. Grid in 2007 prior to Order 890:
  - Under-investment, and growing congestion and reliability problems.
- In the U.S., discrimination concerns go back to the passage of the Federal Power Act in 1935. The primary trigger for Order 890 in 2007 was the failure of transmission planning to ensure reliability and adequate service. As a consequence, there was also increased potential for discrimination.

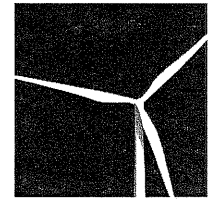
# Growing Concern About U.S. Grid and the FERC Response



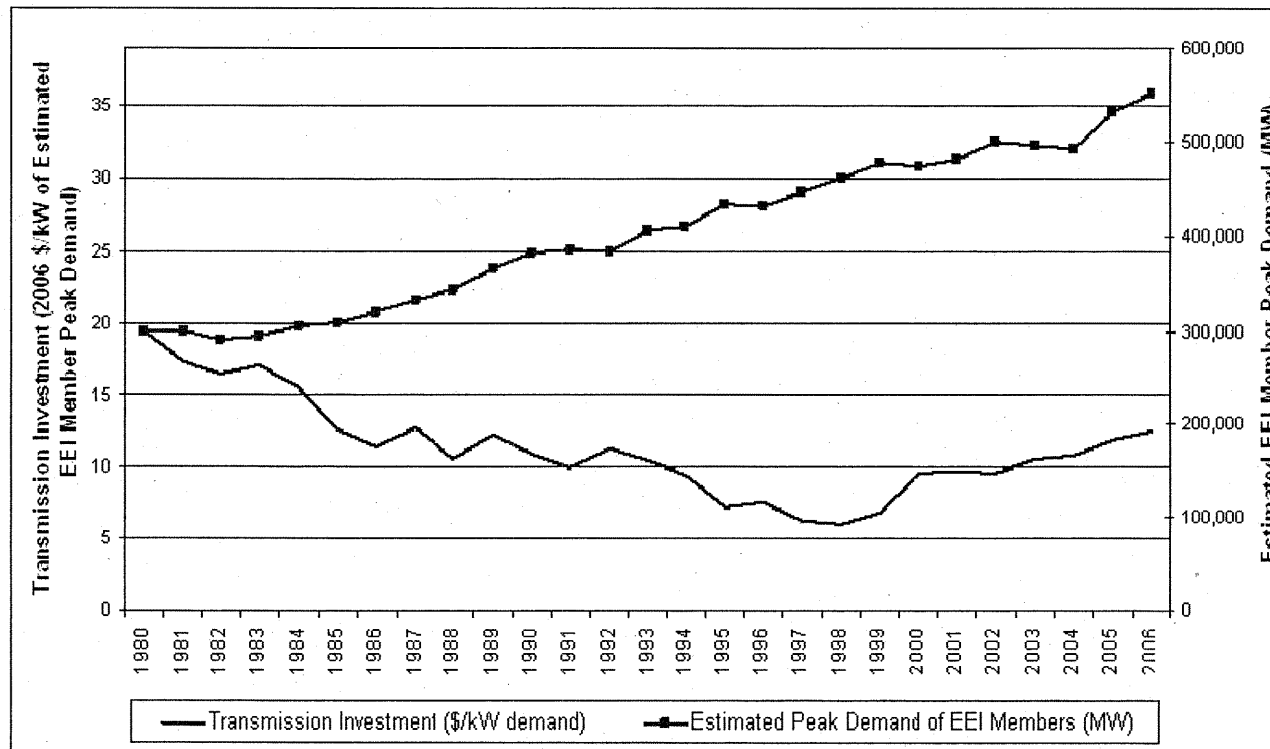
Transmission Investment and Electricity Demand in the U.S.			
Year	Transmission Investment (Millions 2006\$)	Peak Demand (MW)	Transmission Investment (2006 \$/kW of Estimated EEI Member Peak Demand)
1980	5,817	427,058	19.46
1981	5,188	428,295	17.31
1982	4,784	414,489	16.49
1983	5,014	420,408	17.04
1984	4,719	434,534	15.51
1985	3,866	439,916	12.56
1986	3,625	455,911	11.36
1987	4,232	474,043	12.75
1988	3,622	489,396	10.57
1989	4,463	523,432	12.18
1990	4,181	545,537	10.95
1991	3,859	551,320	10.00
1992	4,354	548,707	11.34
1993	4,254	580,753	10.46
1994	3,886	585,320	9.49
1995	3,137	620,249	7.22
1996	3,283	616,790	7.60
1997	2,800	637,677	6.27
1998	2,763	660,293	5.98
1999	3,274	682,122	6.86
2000	4,580	678,413	9.64
2001	4,696	687,812	9.75
2002	4,812	714,565	9.62
2003	5,232	709,375	10.54
2004	5,319	704,459	10.79
2005	6,308	758,876	11.88
2006	6,909	789,475	12.50

- As contained in my report, the EPAct 2005 Follows From 2003 Blackout and Near Collapse in U.S. Transmission Investment – Nearly 70% Decrease in \$/kW of Load Between 1980 and 1998.

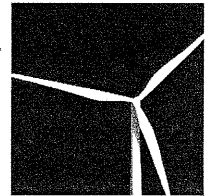
# Growing Concern About U.S. Grid and the FERC Response



- U.S. Transmission Investment Falls by Nearly 70% Between 1980 and 1998 on a \$/kW of Load Basis



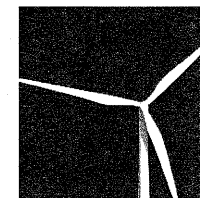
# Growing Concern About U.S. Grid and the FERC Response



- On February 15, 2007, the day before FERC Order 890 was issued, FERC Commissioner Phillip Moeller said:

*“With the passage of more than ten years since the Commission undertook the effort to promote wholesale competition through open access transmission service, it was time for us to revisit Order No. 888 and determine if any changes were due. During this intervening decade, the transmission grid has experienced unprecedented challenges as the demand for energy has grown at a pace that far exceeds the grid’s available transmission capacity and the current rate of transmission investment. [underline added] With these facts, it should come as no surprise that if changes are not made to make better use of the transmission system, the public will bear the cost of transmission congestion through increased utility bills, to say nothing of the looming possibility of power outages in many of the nation’s more congested urban areas. Also, the passage of the Energy Policy Act of 2005, which recognized the need for additional transmission infrastructure development and its role in facilitating the development of competitive wholesale markets, has influenced the policies in our Final Rule.” [underline added]*

# Growing Concern About U.S. Grid and the FERC Response



- FERC Acknowledgement of this Acute Problem in Order 890

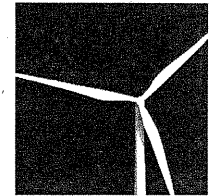
“3. [...] These deficiencies are serious, given the substantial need for new infrastructure in this Nation. We act today to remedy these deficiencies by requiring transmission providers to open their transmission planning process to customers [...]

52 [...] to ensure that transmission infrastructure is constructed on a nondiscriminatory basis and is otherwise sufficient to support reliable and economic service to eligible customers. [...]

58. Our concern over this flaw is heightened by the critical need for new transmission infrastructure in this Nation. [...]”

“421. [...] the Nation has witnessed a decline in transmission investment relative to load growth in the ten years since Order No. 888 was issued. Transmission capacity per MW of peak demand has declined in every NERC region. Transmission constraints plague most regions of the country, as reflected in the limited amounts of ATC posted in many regions, increased frequency of denied transmission requests, increasingly common transmission service interruptions or curtailments and rising congestion costs in organized markets.”

# Growing Concern About U.S. Grid and the FERC Response



“422. We do not believe that the existing pro forma OATT is sufficient in an era of increasing transmission congestion and the need for significant new transmission investment. [...]”

# Underinvestment, Congestion, Reliability and the Potential for Undue Discrimination

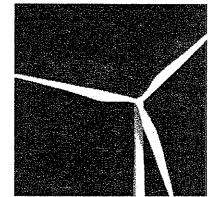


- Congestion Defined

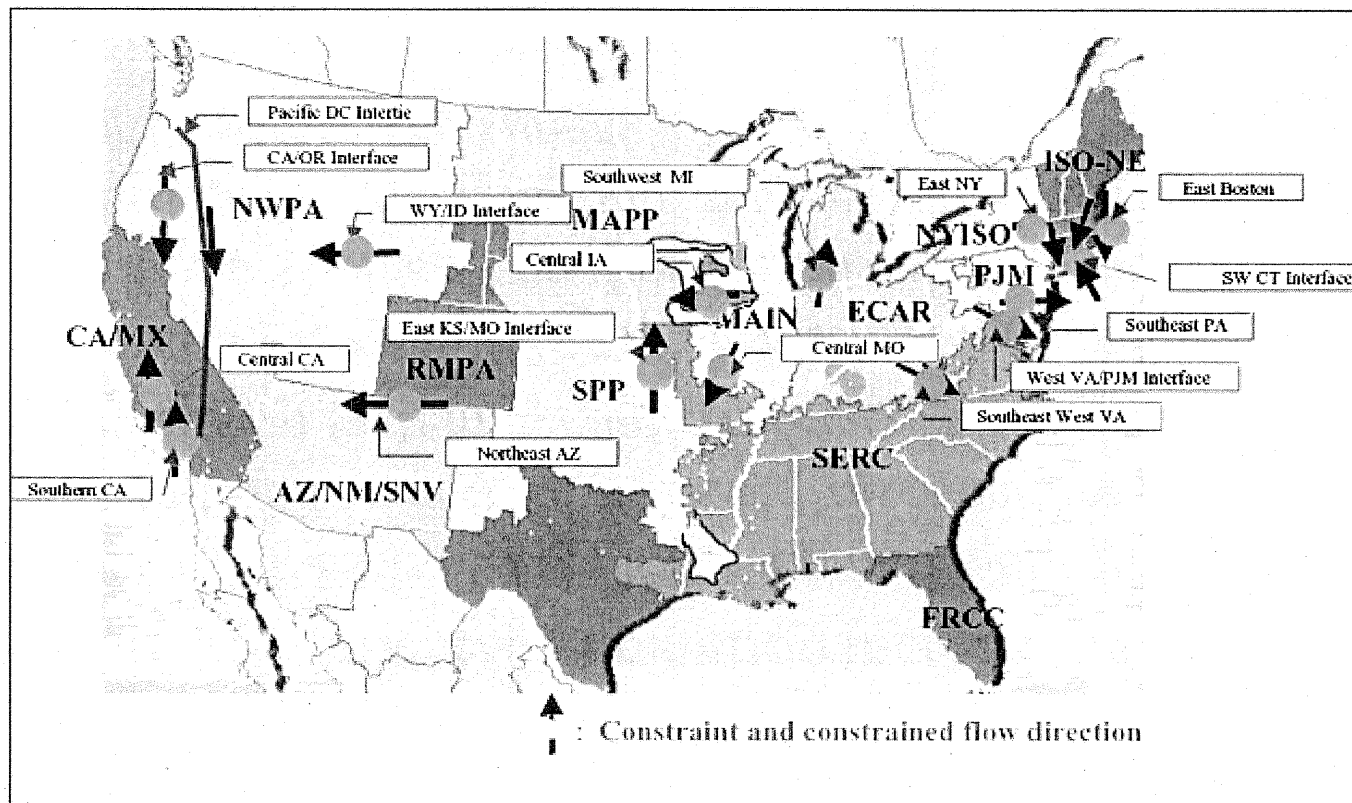
*“Transmission system congestion arises when the transmission system operator must dispatch generation units out of so-called ‘merit order’, i.e. a higher cost generator is chosen to generate over a lower cost generator, and this results in differences in the costs of providing power at different locations on the transmission system. In the majority of transmission systems where thermal generation dominates, merit order dispatch is determined by the cost of fuel, with the lowest fuel cost units dispatched first, and so on.”*

- Transmission congestion is also a precursor of potential reliability problems and an indicator of potential lack investment.

# Underinvestment, Congestion, Reliability and the Potential for Undue Discrimination

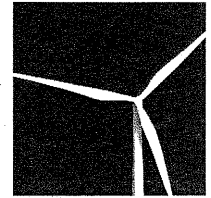


Selected Transmission Constraints in the Contiguous U.S.



Source: "National Transmission Grid Study"; US Department of Energy; May 2002; Pg. 18

# Underinvestment, Congestion, Reliability and the Potential for Undue Discrimination



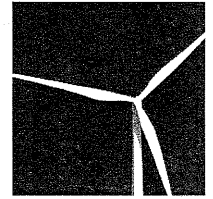
- Potential for Undue Discrimination Increases With Congestion
  - FERC Order 890: “52. [...] *The Commission noted in the NOPR that the ability and incentive to discriminate increases as the transmission system becomes more congested.*”
  - Rose Report, page 33: “*Transmission congestion creates price differentials which can favor transmission owners or prevent transmission of competing sources of power which can also favor transmission owners.*”

## Very Large Number of U.S. Utilities and Planning Participants Creates Large Coordination and Planning Problems



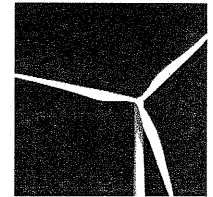
<b>Utilities and Non-Utilities in the U.S.</b>		
<b>Type</b>	<b>Number of Companies</b>	<b>Nameplate Capacity (GW)</b>
<b>Utilities</b>		
Investor Owned Utilities	220	557
Rural Electric Cooperatives	930	
Public Power Systems	2,000	
Federal Utilities	9	73
<b>Non-Utilities</b>		
Independent Power Producers	1,034	388
Other Non-Utilities	628	78
<b>Total</b>	<b>4,821</b>	<b>1,096</b>

# Order 890 – Transmission Planning Requirements – Attachment K

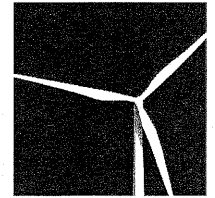


- Attachment K Nine Planning Principles:
  - (1) Coordination
  - (2) Openness
  - (3) Transparency
  - (4) Information Exchange
  - (5) Comparability
  - (6) Dispute Resolution
  - (7) Regional Participation
  - (8) Economic Planning Studies
  - (9) Cost Allocation For New Projects

# Order 890 – Transmission Planning Requirements – Attachment K

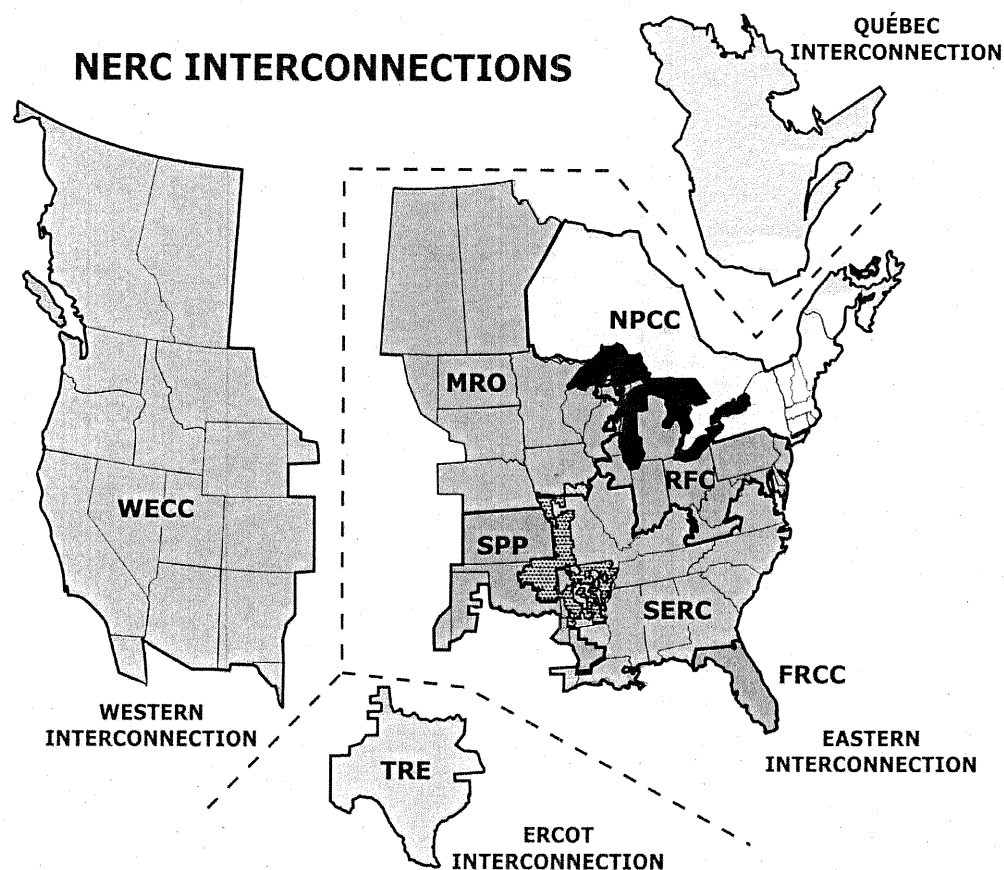
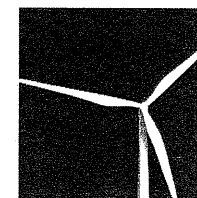


- Coordination at local and regional levels
  - U.S. Interconnections gather hundreds of Transmission Providers, grouped in zones and in Regional Transmission Organizations (RTO)
  - Transmission Owners, Transmission Providers, Zones, RTOs are all synchronized within one Interconnection
  - Coordinated planning between Transmission Owners, Transmission Providers, Zones and RTOs is vital to enable guaranteed and reliable transmission service
  - Coordinated planning efforts are necessary to implement fast and efficient measures to redress the situation.



# **Comparison of U.S. and Quebec Industries**

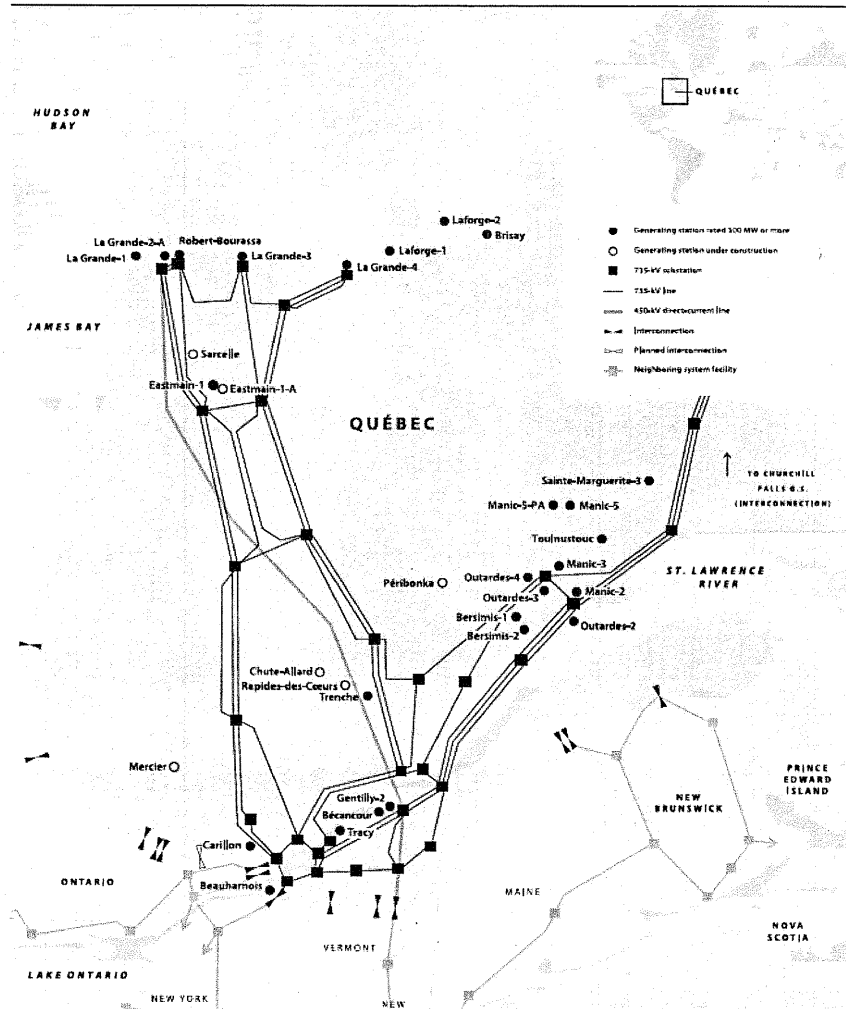
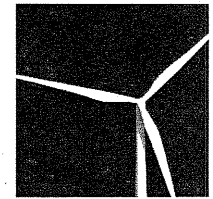
# Comparison of U.S. and Quebec Electric Industries



Source: NERC

- NERC Interconnections – HQT’s Unique Situation
  - The HQT System is the only Interconnection with one regulator and one major Transmission Provider (TP) making regulation and coordination much simpler.
  - FERC’s process was focused on the larger U.S. Interconnections, especially the Eastern Interconnection (EI). This is the world’s largest and is roughly 15 times larger than HQT. TP coordination within the (EI) has been extremely poor in spite of the necessity of interaction due to “loop flows” and being interconnected.

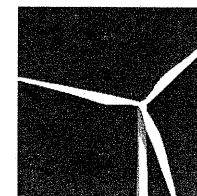
# Comparison of U.S. and Quebec Electric Industries



Source: Hydro-Quebec

- HQT Transmission System contains much fewer participants than the U.S. systems and is its own Interconnection. Thus, coordination and regulation is much easier.

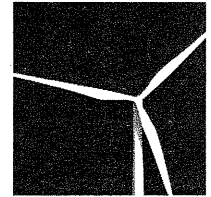
# Comparison of Eastern Interconnect and Quebec Electric Industries



- HQT and Eastern Interconnection Comparison Highlights Differences

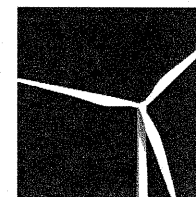
Parameter	HQT	Eastern Interconnection
Number of Primary Regulators	1	41 (39 states, District of Columbia and FERC)
Number of Jurisdictions	1	40
Synchronous with Other Regions	No	No
Number of Utilities	1 Major	2,535
Number of Transmission Owners	1 Major	218
Number of Transmission Customers	Very Small	Large (Confidential)
Summer Peak Demand (GW)		Around 15 times Quebec Demand
Congestion	No	Yes, Mid-Atlantic, West and Pacific Northwest have critical congestion
Transmission Investment Adequate	Yes	No
Transmission Investment per \$/kW Load	\$31/kW	\$18/kW

# Comparison of U.S. and Quebec Electric Industries



- Additional distinguishing features
  - HQD has a monopoly for supply of native load (subject to minor exceptions) decreasing number of participants
  - HQT has a planning criteria which calls for no congestion under normal events (N-0 conditions) which is unique to HQT; none of the three major interconnections in North America has such a demanding planning criterion and all have significant congestion.
  - The level of investment in HQT's transmission network is increasing, from \$24/kW in 2002 to \$31/kW between 2006 and 2010, compared with \$18/kW in the U.S.
  - The projected investment on HQT's networks is increased to \$42/kW between 2009 and 2013 compared with \$22/kW in the U.S. for the same period
- Lack of congestion and strong investment on HQT system supports the view that HQT's planning process is working.

# HQT's Planning Process – A Functional Equivalent



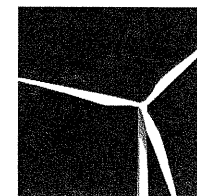
- HQT's transmission planning process works. The Régie does not have to fix U.S. problems.
- HQT's current planning process are meeting the goals of coordinated, open and transparent planning as a functional equivalent
  - Rate cases and aspect of network planning
  - Exploratory studies relating to connection of generating stations (Section 12A.5 HQT OATT)
  - Authorization process under Section 73 of the *Act Respecting the Régie de l'énergie*
  - Filing guidelines before the Régie
  - NPCC
  - Consultation process on environmental impact
  - Complaint process
  - Neighbouring systems discussion on planning and operation
  - Code of conduct
  - System Impact Study (SIS) process

# HQT's Planning Process – A Functional Equivalent



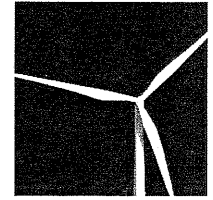
- Adequate Coordination Measures considering HQT's Unique Situation:
  - HQT is its own Interconnection, has one major Transmission Provider and is not synchronized with its neighbouring systems. FERC itself recognizes the importance of being in a separate Interconnection
  - HQT Point Concept
  - The physical specific conditions of the network and the existence of a monopoly for the supply of native load reduces significantly the needs for coordination
- HQT is better coordinated than any other regional grids in the U.S.

# HQT's Planning Process – A Functional Equivalent

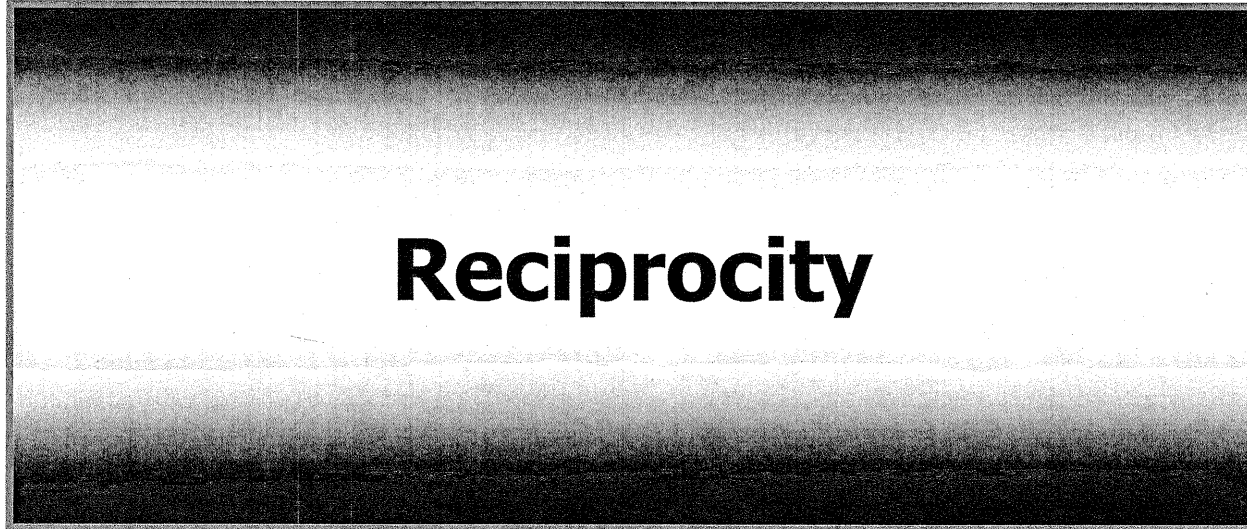
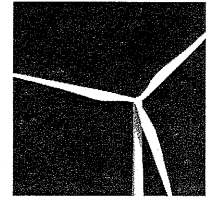


- Adequate Openness and Transparency Measures
  - Utility Funded Intervenorship
  - Multiple Avenues for Input
  - Ability to Influence Planning
  - Transparent Measures
  - Multiple Safeguards Against Undue Discrimination
  - Fewer undue Discrimination Incentives in Planning
    - Absence of problems that could create an incentive for undue discrimination that could be addressed with open planning
    - Absence of evidence of undue discrimination in planning
  - Access to Relevant Information

# HQT's Planning Process – A Functional Equivalent



- In conclusion, HQT's planning process already meets the goals of Order 890:
  - Coordinated
  - Open
  - Transparent
  - Non discriminatory
- As evidenced by:
  - More than Adequate Investments Level
  - No Congestion
  - Reliable Grid
- Conclusion: It is not necessary for HQT to adopt Attachment K

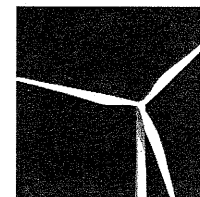


# Reciprocity



- Reciprocity requires that foreign utility affiliate of US marketers offer “comparable non discriminatory access” to its transmission facilities (Order 697; Regulations §35.37(d)).
- HQT must provide “comparable transmission service [...] on similar terms and conditions” (Section 6 of *pro forma* OATT) i.e., HQT’s OATT must be “substantially conforming or superior” to the revised *pro forma* OATT (Order 890, par. 191).
- Proposed HQT’s OATT is “substantially conforming” to the *pro forma* OATT in spite of the absence of an Attachment K, in light of its specific context.

# Reciprocity



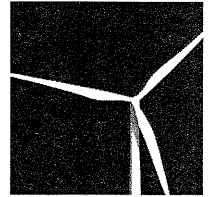
- FERC is *“amenable to a variety of approaches to meet for Canadian utilities to meet the reciprocity condition”*.
  - FERC Order 888-A: *“However, consistent with the approach we have taken in other contexts involving foreign utilities seeking to transact in United States electricity markets, we are amenable to a variety of approaches for Canadian utilities to meet the reciprocity condition.”*
  - TransAlta Enterprises Corporation, 75 F.E.R.C. P61, 268<sup>1</sup>

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<sup>1</sup> “The marketer must be able to demonstrate that its transmission owning affiliate offers non-discriminatory access to its transmission system that can be used by competitors of the power marketer to reach United States markets.” See also FERC Order 890, page 252, footnote 248: “FPA Section 211A (b) provides...that “the Commission may, by rule or order, require an unregulated transmitting utility to provide transmission services – (1) at rates that are comparable to those that the unregulated transmission utility charges itself; and (2) on terms and conditions (not relating to rates) that are comparable to those under which the unregulated transmitting utility provides transmission services to itself and that are not unduly discriminatory or preferential.” The non-public utility transmission providers referred to in this Final Rule include unregulated transmitting utilities that are subject to FPA section 211A.” Canadian utilities are not subject to FPA section 211A but should not be treated less favorably.

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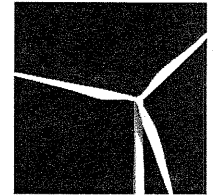
# Reciprocity



- FERC recognizes the principle of tailoring planning to specific conditions. FERC Order 890 states (Par. 451):

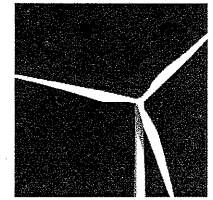
*“The Commission adopts the coordination principle proposed in the NOPR. Commenters overwhelmingly desire flexibility as to the coordination principle, and as such, we will not prescribe the requirements for coordination, such as the minimum number of meetings to be required each year, the scope of the meetings, the notice requirements, the format, and any other features. We will allow transmission providers, with the input of their customers and other stakeholders, to craft coordination requirements that work for those transmission providers and their customers and other stakeholders.”*

# Reciprocity

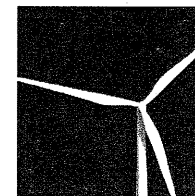


- The Régie should ensure that reciprocity is not misused even inadvertently to achieve goals of FERC that exceed the requirements for open and comparable access and that are inapplicable to HQT's situation.
- HQT's planning is a functional equivalent to Order 890's goals.
- HQT offers comparable, non-discriminatory access to its transmission facilities.
- Reciprocity requirements are met.

# U.S. Policy Concerns on Transmission Planning



- U.S. policies on transmission planning are expanding and going beyond the issue of offering open, non-discriminatory and comparable service, accommodating contracted service requests, solving reliability problems and significant and recurring congestion.
- Risks of adopting a FERC Attachment K include possible encroachment on the authority of the Regie and this could be *“The tip of the iceberg”*.
- Recent FERC policy consideration include:
  - Requiring planning to accommodate state renewable energy policy, potentially separate from specific service requests,
  - FERC cost allocation and specification of interregional transmission lines under which FERC potentially resolves how much is paid by load in each region versus requestors of new service,
  - Elimination of utility Right of First Refusal (ROFR) under which HQT would have to participate in a RFP to reinforce the system.
- This in addition to proceedings addressing VER (Variable Energy Resources) and Demand Side Management (DSM).

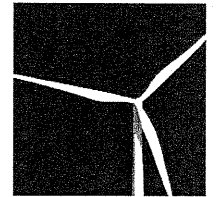


# Other Canadian Utilities

## Other Canadian Utilities



- No Canadian utility currently has filed an Order 890 Attachment K with the 9 principles in their OATT with their Commissions.
- Similarities among Canadian utilities include their common view that Attachment K does not apply where it is not applicable to local conditions or violates their own Commission rules.
- However, only HQT is part of its own Interconnection; others are synchronized parts of largely U.S. Interconnections which face large congestion, under-investment and extensive coordination problems. New Brunswick is synchronous with the Eastern Interconnection.
- Different current processes and payment of intervener costs.



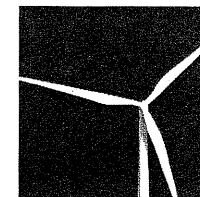
# Conclusions

## Conclusions



- Transmission planning is working in Quebec. HQT's current planning process is meeting the goals of Order 890 of coordinated, open, transparent and non-discriminatory planning. It functions equivalently even if its form is different. This is evidenced by:
  - More than adequate investments level
  - No congestion
  - Reliable grid
- HQT offers comparable, non-discriminatory access to its transmission facilities.

## Conclusions



- It is not necessary for HQT to adopt Attachment K because transmission planning is not working in the US and in Interconnections which are composed mostly of US utilities.
- Regie must guard against even inadvertent usurping of Regie's Authority as the U.S. pursues policies that may or may not make sense for Quebec. Attachment K could inadvertently be the tip of the iceberg of U.S. encroachment on Regie authority.