

1 Year After the Energy Bill

EPAAct 2005 creates significant opportunities

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Good afternoon,

Pierre asked me to briefly describe to you first what NEMA is. We are a trade association for manufacturers who sell electrical products into the United States market. We have 430 members. Their sales into the U.S. market is about \$120 billion a year. 40% of our revenue comes from entities that are headquartered outside the United States.

Acronyms

DOE-US Department of Energy

FERC-US Federal Energy Regulatory Commission-independent agency responsible for rate regulation of electric transmission

CFE-Comisión Federal de Electricidad-principal utility in Mexico

NERC-North American Electric Reliability Council-responsible for reliability of the electric transmission system in Canada and the US

ERO-The Electric Reliability Organization defined in EPAAct 2005

PUHCA-US Public Utilities Holding Company Act-among other things, outlawed holding of non-contiguous electric utilities in 1930s

PURPA-US Public Utilities Regulatory Policy Act-encouraged independent small generators in 1978

PJM Interconnection-Regional Transmission Organization for all or part of 13 states and Washington, DC

NYISO- State of New York Independent System Operator (ISO)

NEISO-New England ISO

North American Plans pre-EPAAct

- US transmission system integrated with Canada and a small part of northwest Mexico
- North American Electric Reliability Corporation 2005 Long-Term Reliability Assessment is the main reference for the integrated parts of North America
- Mexico assessment based on the Comisión Federal de Electricidad Programa de Obras e Inversiones del Sector Eléctrico 2005-2014
- Average electrical peak demand growth assumed 2005-2014
 - > Canada 13% in 10 years (2006 assessment)
 - > USA 19% in 10 years (2006 assessment)
 - > Mexico 5.3%/ year

I will talk first of all about the plans that existed prior to the Energy Policy Act. Of course, we have plans ongoing every year. Then we will look at the underlying economic drivers, in particular in the U.S., the EPAAct 2005 provisions, their status and impact, and finally at the provisions with lasting impact.

The source I used to put the numbers together for each year is a 10 year projection that is done for the U.S. and Canada. U.S. and Canada have integrated transmission grids. There is a long-term reliability assessment. Its 2006 version came out last week. So I took a quick look at that to check if it may impact what I say here. There is a similar item done in Mexico by CFE covering the period of 2005 to 2014.

The new 2006 assessment says that the Canadian load will increase by 13% over the next 10 years, it is 19% for USA. In the 2005 assessment done by CFE the Mexican market is expected to grow at 5.3% annually. That is the electrical demand by the end user.

High Voltage Transmission (miles) (US annual investment to go from \$4B to \$6B)

	<u>230 kV AC</u>	<u>or</u>	<u>Greater</u>	<u>250 kV DC</u>	<u>or</u>	<u>Greater</u>	
	Existing	2005- 2009	2010- 2014	Existing	2005- 2009	2010- 2014	Total
Canada	43943	941	906	2871	0	539	49200
US	158075	6000	3917	2633	36	0	170661
Mexico	27164	4293	6289	0	0	0	37746

This is a table that shows the high voltage transmission miles in the 2005 NERC and CFE plans. I corrected these numbers all to statute miles. Basically there are 10,000 miles planned in the next 10 years in the USA, 10,000 miles in Mexico, 2,000 miles in Canada plus 500 miles HV DC.

Positive economic drivers

- Population growth
- Migration to west and south, and to distant suburbs
- Low interest rates (until recently)
- Large home size
- Homeland security spending
- Aging equipment
- Storm damage
- Shutdown of old power plants
- Renewable portfolio standards (wind energy)
- New technologies

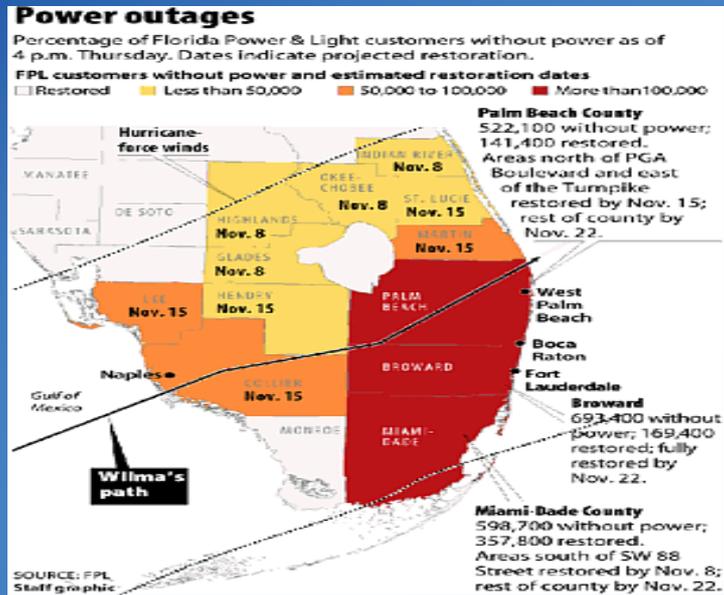
Here I list some of the economic drivers, that are positive, at least when I wrote this a few months ago. Population growth: As you may have heard the USA has now 300 million inhabitants. There is also an internal migration in the US to the coast and the sunshine. That creates a need for new homes in those areas. Until recently we had low interest rates. People live in larger homes. Since 9/11/2001 a lot of homeland security spending has occurred. There is a lot of aging equipment. Most of the transmission and distribution system is at or near its design life. There is a great deal of storm damage, which keeps a lot of manufacturers busy replacing equipment. Old power plants are being shut down. There is something called Renewable Portfolio Standard, which appears in about half the states now. It says, that a certain percentage of generation has to be from renewable energy, which typically turns out to be wind power, which is the most competitive source right now. And there are also new technologies coming into the market place expanding the market as well.

Katrina \$81B & Wilma \$17B



These are a couple of hurricanes from 2005. Katrina had the largest damage, mostly because of the flooding in New Orleans. From an electric standpoint it was actually less damaging, except for flooding substations. Wilma was the most powerful hurricane in history from the standpoint of what the negative pressure was in the eye. Besides the power of these storms, it was interesting from a standpoint of T&D in Florida. Katrina started from the East and went West, which was anticipated in Florida, but Wilma came from the other side. This let utility regulators realize that they had to harden the whole state of Florida and not just the region around Miami.

Wilma Impacts



This is what South Florida looked like when Wilma went through.

Wilma Impacts



This is a distribution pole, an engineered concrete pole with a very high wind velocity design. It doesn't have a lot of cables hanging on it. Typically a pole is not audited to see what is hanging on it. So many times, poles will fail even though they did not look like they might based on utility records.

So what is happening in Florida? There is a concerted effort to underground a lot more distribution and to strengthen the transmission grid as well.

Negative economic drivers

- New commercial buildings (fewer than historic)
- Electricity deregulation
 - Rate freezes
 - Underinvestment
 - Bottlenecks
- Materials costs
- Fuel costs

What are some of the negative economic drivers in the USA? The new commercial building market has been low since the last year of the Clinton administration. So that is a long time ago, which has depressed the electrical market. You have heard about deregulation, rate freezes, underinvestment, bottlenecks in the transmission system, material costs which you are all well aware of and fuel costs.

EPAct 2005 provisions

- Mandatory & enforceable transmission standards
- Federal backstop siting
- Incentive-based rates
- Advanced transmission technologies
- 15 year transmission asset tax life
- Public Utilities Holding Company Act repeal
- Revisions to Public Utility Regulatory Policy Act
- Incentives for nuclear and wind energy plants
- Primarily will impact US

Reliability Standards

Federal Energy Regulatory Commission final rule adopted February 2006

Establishes independent Electric Reliability Organization responsible for standards and enforcement

NERC approved as ERO July 2006

This only covers *operational reliability*, not *adequacy*

ERO reports to FERC in US, to CFE in Mexico, and Provincial Authorities in Canada

The President of the US coordinates cross border lines for the US

NERC-North American Electric Reliability Council-responsible for reliability of the electric transmission system in Canada and the US

Federal Backstop Siting

DOE to designate US National Interest Electric Transmission Corridors. Congestion study August 2006. Mid-Atlantic states and Southern California most congested.

NIETC designation necessary for FERC federal backstop siting review

FERC must issue rules for the siting application process (Notice of Proposed Rulemaking issued June 16, 2006)

FERC may issue permits for construction or modifications in DOE designated NIETCs if

- >States have not, cannot, or will not act to approve lines
- >Facilities will used for interstate commerce
- >Proposal is in the public interest
- >Facility will significantly reduce interstate congestion

FERC-US Federal Energy Regulatory Commission-independent agency responsible for rate regulation of electric transmission

Incentive-Based Rates

In July 2006 FERC published a final rule on incentive-based (including performance-based) transmission rates that

- > Promotes reliable and economically efficient transmission & generation by promoting capital investment in enlargement, improvement, maintenance & operation of all transmission facilities
- > Provides a return on equity that attracts new investment
- > Encourages technologies that increase capacity & efficiency
- > Recovers costs for meeting reliability standards and federal siting

Retroactive to projects under consideration on August 8, 2005

At the same time as the rate rule, FERC also ruled that incentive based rates were appropriate for 2 actual projects

Advanced Transmission Technologies

FERC is to encourage

EPA list of 18 technologies chosen to have minimal public impact, so easier to site (basically high density corridors)

FERC can add technologies to list

FERC incentive based rate rule considers the 18 to be examples

FERC to incent through higher rates of return

Project proposals must evaluate advanced technologies and justify non-use

Transmission Assets Tax Life

Life for transmission assets 69 kV or more contracted for and placed in service after April 11, 2005 is reduced to 15 years from 20 years

Transmission & distribution assets need to be split (distribution assets still have 20-year tax life)

Transmission assets are from generator bus bar to, but not including, the distribution substation

PUHCA Repeal

Rather than repealing PUHCA, FERC replaced it with PUHCA 2005
Mergers & Acquisitions facilitated

Would also make it easier for new entrants to get into the business

PUHCA-US Public Utilities Holding Company Act-among other things, outlawed holding of non-contiguous electric utilities in 1930s

PURPA Revisions

Market based rates for new PURPA generation contracts in competitive markets
[FERC initially defined as PJM (Pennsylvania, New Jersey, Maryland)
Interconnection, New York (State) Independent System Operator, New England
ISO]

Time differentiated rates and associated metering

Connection of distributed generation in accordance with IEEE-1547

All PURPA provisions are strongly impacted by state policy

**PURPA-US Public Utilities Regulatory Policy Act-encouraged independent small generators in
1978**

Nuclear and Renewables

Production tax credit for both

First 6 units of new nuclear capacity eligible for loan guarantees for costs
from regulatory or litigation delays

Also, Renewable Portfolio Standards in most states will provide a large
market for wind energy, requiring long transmission lines to remote sites

Lasting EPAct Influence

Mandatory Standards with Penalties
Federal Siting
Incentive-Based Rates
Transmission Technologies
Nuclear and Wind Incentives

The things, I think, which will exist for a long time are listed here. I talked about mandatory standards, but what is different here is that you have financial penalties associated with them. Consider how penalties work in the United States. For example, for environmental violations, it is not only the company it is also a person who can be held liable.

Federal siting at some time in the distant future will be important. Right now it will be problematic, because many states will go to court. The first time a corridor is designated, it will be claimed that the Department of Energy did an inadequate job of making the determination.

Incentive-based rates are being used right now. People are trying to get 14% for certain types of installations.

Hopefully people will be looking at the new transmission technologies. From a standpoint of a manufacturer, you want to sell the latest commercial thing you have, because you want to recover the development costs. Therefore, I think this will fit well. It does not have a lot of technical risk, at least in our opinion, but it will have a large profit margin.

The last thing is the nuclear and wind incentives. The wind incentives have been periodically stopped. I think they will be renewed indefinitely. There will be more wind energy in the United States. The nuclear incentives will work at least for the first 6 stations. You do not know what will happen after those 6 plants.

Thank you for your attention.