

Tracking and Tagging Environmental Attributes

Sakis Asteriadis – Director, APX Inc

Presentation to
RGGI I&L Workshop
June 15, 2006

Summary & Objectives

- Discuss how Tracking Systems handle imports/exports
- Discuss how Tracking Systems handle Emissions
- Can Tracking Systems be used in RGGI?

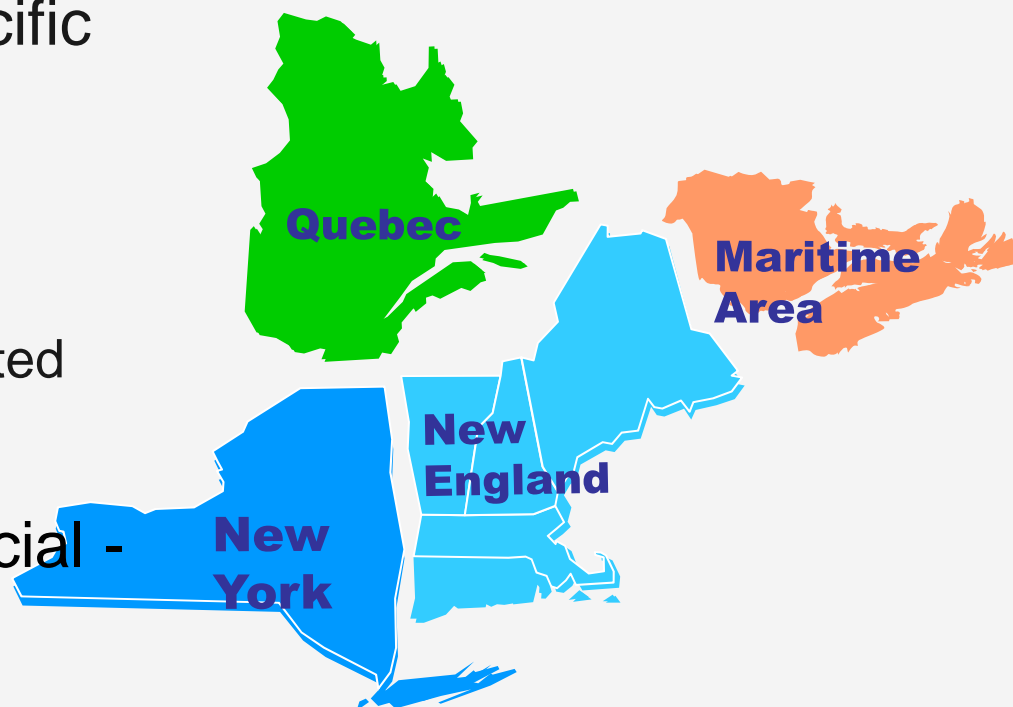
About APX



- APX's technology and services are driving all regional Tracking Systems in the US:
 - **NEPOOL GIS**: APX implemented the GIS, hosts and operates the system and is the GIS Administrator
 - **PJM GATS**: APX implemented GATS and provides technical support
 - **ERCOT / Texas REC**: APX implemented the Texas REC system

Overview of Imports/Exports in GIS

- All imported energy accounted for via creation of certificates
- Imports/Exports: Unit Specific or System
- Unit Specific
 - Eligibility for RPS
 - Adjacent Control Area
 - Confirm energy was generated and flowed into NE
 - Not otherwise sold
- Import generators are special - Once created, they are accessible to all Users
- Currently, REC's created for 8 external generators – all located in NY



Tracking Unit-specific imports in GIS



- The External Generator must register in the GIS
- Account Holder must enter External Transaction information in ISO-NE's scheduling system
- ISO-NE's Settlement System captures the transaction and submits monthly data file to APX, which loads the data into the GIS
- GIS certificates are created after Account Holder submits to the GIS Administrator:
 - Evidence that Generator produced claimed energy
 - A NERC tag
 - Affidavit that claimed attributes not sold elsewhere
- Monthly emission data must be entered for External Generators

What's in the Import/Export Data File



PARTICIPANT_ID	LOCAL_DAY	LOCAL_HOUR	INTERFACE_ID	NERC_TAG	NON_STANDARD_ID	CONTRACT_ID	MW
----------------	-----------	------------	--------------	----------	-----------------	-------------	----

Identifies Participant
(assigned by MSS)

Delivery Point (Tieline)

Identifies Generator
(assigned by MSS)

Assigned by MSS

- File contains all imported/exported energy (Hourly)
- Process not fully automated (Administrator must approve)
- Potential double-counting issues?

Emissions Tracking

The GIS provides three-tiered approach for tracking emissions ...

- Self-reporting for all generators (including external)
- Zero-emission defaults applied for certain fuel types
- Certificates will be retired if no emissions entered at the end of a trading period

Emissions										
Plant - Unit:		Windy - Turbines								
CEM Reporting:		No								
Peer unit name and address (if not reporting actual generator emissions):		n/a								
Year: 2005		Month: December								
Emissions Split by Approved Emissions Protocol:		<input type="checkbox"/> (Active for the GIS Administrator only, please call 408-986-2247 if you would like more information on the Emission Protocol Approval process.)								
Emissions in Pounds per Month (format: 1.1234)										
Fuel		Generation* (MWh)	Carbon dioxide*	Carbon monoxide*	Mercury*	Nitrogen oxides*	Particulate matter*	Particulate matter (<=10µm)	Sulfur dioxides*	Volatile organic compounds
Solar Photovoltaic	Per Month	25	0	0	0	0	0	0	0	0
	Per MWh									
Wind	Per Month	50	0	0	0	0	0	0	0	0
	Per MWh									
* Required Field										
<div>Save Cancel</div>										
Privacy Policy										

Emissions Tracking

- Generators using year-round CEM to the EPA, provide the GIS Administrator with stack emissions data (quarterly)
- Data is compared to self-reported emissions, and tagged if difference is over 1%
- If no emissions are entered, the GIS calculates emissions using fuel type defaults

Emissions Tracking

State Air Regulators provide the GIS Administrator emissions breakdown per control area, for all imported energy...

Import System Mix (Year: 2005 - Month: 7 certificate creation)											
System Mix Year ↑↓	System Mix Month ↑↓	Control Area ↑↓	FuelList ↑↓	CO2 ↑↓	CO ↑↓	Hg ↑↓	NOx ↑↓	Particulates ↑↓	Fine Particulates ↑↓	SO2 ↑↓	Organic Compounds ↑↓
2004	7	New York System Mix	29% Natural Gas 22.7% Nuclear 18.1% Coal 17.3% Hydroelectric/Hydropower 10.8% Oil 1.6% Biomass 0.5% Other	978.47998	0.23000	0.00001	1.46000	0.03000	0.21000	4.13000	0.02000
2002	7	Quebec System Mix	93.97% Hydroelectric/Hydropower 3.56% Nuclear 0.85% Coal 0.71% Other 0.53% Natural Gas 0.38% Oil	31.64000	0.17000	0.00000	0.08000	0.05000	0.00000	0.19000	0.03000
2002	7	PJM System Mix	48.24% Coal 36.33% Nuclear 8.59% Natural Gas 3.74% Oil 1.25% Hydroelectric/Hydropower 1.2% Biomass 0.65% Other	1,217.93005	0.24000	0.00004	2.88000	0.04000	0.00000	9.14000	0.19000
2002	7	New Brunswick System Mix	34.03% Oil 25.58% Coal 24.25% Nuclear 16.14% Hydroelectric/Hydropower 0% Other 0% Natural Gas	1,400.64001	0.24000	0.00002	3.86000	0.19000	0.00000	14.54000	0.04000
2002	7	Ontario Hydro Power Pool	39.18% Nuclear 27.7% Hydroelectric/Hydropower 11.04% Coal 11.04% Natural Gas 11.04% Oil 0% Other	669.76001	0.21000	0.00001	1.25000	0.05000	0.00000	2.71000	0.03000

Concluding thoughts

- The core functionality already exists in the NEPOOL GIS and PJM GATS products to track leakage
- Data provided by the ISO/RTO's to the Tracking Systems will be crucial

Contact Information



Sakis Asteriadis – Director, APX Inc

Email: sasteriadis@apx.com

Phone: 917-415-9380