Energizing Transmission Development

Presentation to the NYISO Transmission Workshop

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The Bulk of the Next $50 Billion Invested in the Power Sector Will Be in Transmission
Meeting U.S. Transmission Needs

A report for the Edison Electric Institute by Energy Security Analysis, Inc.

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ESAI

NEPTUNE/ANBARIC

The word anbaric is derived from the Arabic word for amber, which is “ambar.” The Greek word for amber is “elektron.” The ancient Greeks observed that if amber is rubbed with fur, it attracts light objects such as feathers. This effect on stationary objects was the first witnessed study of electricity.
Past Investment in Transmission and Projected Investment Levels Compared with NERC's ES&D Database

Source: NERC database and EIA Transmission Report

ESAI TRANSMISSION ANALYTICS
INDEPENDENT TRANSMISSION DEVELOPMENT
Neptune

Three Iterations of Neptune
The Seminal Neptune Project

[Diagram with boxes and lines representing relationships and processes]
The Seminal Neptune Project

• What’s the Product?
  – In PJM, “Firm Transmission Withdrawal Rights” (to withdraw energy and capacity from PJM)
  – Across the Neptune line: “Firm Controllable Transmission Capacity”
  – In New York: “UDRs” (Unforced Capacity Deliverability Rights) by which LIPA can obtain on-Island “UCAP” by contracting with PJM generators
The Seminal Neptune Project

- Project economies
  - The ability to procure capacity, energy, reliability, portfolio diversity, and other system benefits at a price that is competitive with other generation or transmission solutions
The Seminal Neptune Project

- **Project completion**
  - 660MW project will go into construction in July 2005
  - Siemens/Pirelli are the EPC contractors
  - Scheduled in-service date is summer of 2007
Next Steps

• Neptune team members branching out to develop next opportunities
  – More New York (Zone J and K) projects under various LLCs: HTP, Anbaric
  – Canadian proposals (Lower Churchill)
  – Evaluating initiatives in PJM (Mountaineer)
  – Evaluating what we have called “Power Express” in WECC but the governors are calling “Frontier Line”
ESAI provided ongoing market analysis services from the inception of the project.
“Transmission Development Collaborative”

- forum for intelligent discussion of transmission development
  - ESAI serves as analytical center
  - Semi-annual Round Tables, invitation-only
  - September RT is at Hay-Adams in DC
  - Feb 2006 RT is in San Francisco
- Includes both independents and utilities
What Are the Next Steps?

Lessons from Neptune
Primary Lessons from Neptune

- Why Not More Neptunes?
- The unique and useful roles of Independent Projects
- HVDC assets are attractive to investors
- From Merchant to Independent back to merchant
- Successful transmission development takes an unusual combination of skill sets
  - Not a “cookie cutter” business
- Successful developers will be especially attracted to larger projects
- The Rules of the Game are still evolving
  - Interconnection rules, PUHCA
Lessons from Neptune

• **Why is this still the first project?**
  – Has more to do with general investor retreat from merchant sector than with transmission per se
    • In 2001, Neptune had secured a customer in the merchant paradigm… then merchant collapsed
  – Merchant transmission, like generation, awaits the development of an investable capacity market
    • Independent Transmission gets developed on basis of the combination of capacity and energy spread
  – PUHCA repeal will certainly help…
Independent transmission plays a unique and useful role

- **Independent Projects Suitable for Selected Types of Transmission Needs**
  - “back yard” – usually local utilities
    - Little room for independent transmission
  - “neighborhood” – RTOs and interconnecting utilities, inter-RTO
    - Where it’s inter-RTO, independent transmission companies are more likely to develop
  - “long distance” – connect baseload and renewable energy resources with high-price energy markets
    - Ideal for independent transmission companies
HVDC assets are attractive to Investors

- **Neptune equity process**
  - Neptune succeeded raising several tranches of development capital over the 2000 – 2004 period
  - Competition for permanent equity investment in Neptune was intense, with more than ten investors submitting offers
From Merchant to Independent
(back to Merchant?)

- Merchant transmission was viable when merchant generation was viable
  - Neptune conducted open season in fall 2001
    - Winner on several legs; bid sufficient to finance several legs of the original project design
- When investment withdrew from merchant sector, Neptune began pursuit of long-term contracts
- When capacity market policies allow, merchant transmission (and generation) will return
Successful transmission development takes an unusual combination of skill sets

• First Skill Set Required: Patience
  – Four phases, each phase 1 yr if team good and lucky; 5 years if not
  1. Predevelopment/feasibility phase
  2. Rights development phase
     • Uniquely difficult due to array of property rights
  3. Financial close and NTP phase
  4. Construction phase
Successful transmission development takes an unusual combination of skill sets

- **Second Skill Set Required: Modesty**
  - Transmission Development is by its very nature COLLABORATIVE
  - Developers MUST deal with LSEs, state and federal commissions, towns
  - Typical developer attitudes won’t work
Successful transmission development takes an unusual combination of skill sets

- **Third Skill Set Required: Money**
  - Transmission development is expensive
  - Major projects likely to exceed $10 million in development costs even if things go well
  - Developers must choose opportunities carefully and pace development expenditures thoughtfully
  - Many contractors must work on at least partially contingent basis
Successful transmission development takes an unusual combination of skill sets

- Fourth Skill Set Required: Accuracy
  - Transmission development has little room for error
  - Development concepts must be conceptually sound within the parameters of the rules of the day
    - E.g., Conjunction was a good technical proposal, but did not fit the realities of the day
Successful transmission development takes an unusual combination of skill sets

- Fifth Skill Set Required: Lots and lots and lots of lawyers
  - Transmission development is a lawyer’s paradise. Until transmission interconnection policy is fixed (5 more years?), you need
    - Excellent FERC counsel
    - Excellent ISO counsel that comprehensively understand still-immature interconnection and neo-network transmission rules
    - Excellent state and local counsel