Fiber Optic Backbone

Project Update- Operating Committee

Fiber Optic Backbone
Project Update–Operating Committee

- **Background and History**
- **Analysis of Project Performance to Date**
- **Identification of Production & Cost Trends**
- **Changes to Baseline Assumptions**
- **Next Steps/Future Plans**

Fiber Optic Backbone
Scope and History

- Project Approved by VELCO Board of Directors in June of 2009
- Project entails upgrading communications infrastructure to enhance the reliability of the Transmission System
- Project has the ancillary benefit of supporting the eEnergy Vermont Statewide Smart Grid Effort

Fiber Optic Backbone
Review of Project Baselines

- **Baseline Estimate (Top Down)**
- Based Upon a target cost of $9.00/ft and Approximately 1000 Miles of Installation
- Historical Basis for Estimate
- Finish Project by December 2012
- Approved by VELCO Board of Directors in June of 2009
- Total Project $53,236,593
  - Construction $36,009,960
  - Admin/Overhead/Eng $ 9,823,072
  - Interest During Const. $ 1,700,000
  - Contingency $ 5,703,921

Fiber Optic Backbone
Review of Project Baselines

- **Baseline Schedule (Milestones)**
  - Project Start
    - Secure “Attachment Agreement “ with DUs in the First 6-months
    - Milestone- November 2009
  - Engineering
    - Minimal Engineering Effort “Performance Specification”
    - Milestone- October 2009
  - Construction
    - Begin with Blissville – West Rutland (Fall 2009) and St. Johnsbury to Irasburg (Spring 2010) construction of full project to follow with history and experience on those projects to follow
    - Milestone- Begin Construction on full project Summer 2010

Fiber Optic Backbone
Review of Project Baselines

- **Assumptions and Known Risks**
  - Regulatory
    - Work is considered “maintenance” as such no regulatory approval needed
    - Minimal permitting required Sec 10 Waterway, Rail, and DOT permits
  - Pole Plant/Construction
    - Condition of Sub Transmission Pole Plant is unknown
    - Availability of good records from DU’s is unknown
    - Condition of Sub Transmission ROWs is unknown
  - Design/Engineering
    - Design and Final Mileage of system is conceptual
    - Final routing needs to be determined with DU input

Fiber Optic Backbone
Performance to Date

- **Work Complete /In progress**
  - **Engineering/Design**
    - Design of proposes backbone currently details approximately 950 Miles
    - Engineering issued either Preliminary or Final on 665 miles
  - **Construction Stringing Complete-102 Miles**
  - Blissville to West Rutland (12 Miles Transmission)
  - St. Johnsbury to Irasburg (41 Miles Transmission)
  - Rutland District Stringing (21 Miles Sub Transmission)
  - Johnson to Irasburg (27.9 Miles Sub Transmission)
  - **In Construction-143 Miles**
  - Poultney District In Progress(38 Miles Sub Transmission)
  - Sunderland 3A In Progress (40 Miles Sub Transmission)
  - Sunderland 3B In Progress (27 Miles Sub Transmission)
  - Burlington North Terminal to Essex (9.9 Miles Transmission)
  - Granite to Barnet (28.5 Miles Transmission)

Fiber Optic Backbone
Performance to Date

- Cost of Work
  - Total Project Costs through February $ 10.9 M
    - $4.6 M on Management /Engineering/Planning
      - $2.4 M Management/Env/Legal/VELCO Engineering
      - $2.2 M Outside Engineering
    - $6.3 M on Direct Project and Construction
- Run Rate Estimates of Work
  - Limited performance data-skewed by weather conditions
  - $8.44 /ft Transmission
  - $10.83/ft Sub Transmission

Fiber Optic Backbone
Contracting Strategy – Performance

- Status

Job	Line Type	Mileage	Contractor	CPI Index	EAC
Rutland District One Make Ready	Trans & Sub-T	20.9	NLU	1.61	$199,774.35
Rutland District One Fiber install	Trans & Sub-T	20.9	ELC	0.84	$568,608.31
Poultney Make Ready	Sub-T	38.2	NLU	1.01	$250,015.52
Poultney Fiber Installation	Sub-T	38.2	NLU	0.61	$948,000.00
Johnson to Irasburg Make Ready	Sub-T	27.9	ELC	0.91	$257,552.07
Johnson to Irasburg Fiber Install	Sub-T	27.9	ELC	0.60	$631,814.73
Sunderland 3A Make Ready	Sub-T	39.9	NLU	0.82	$695,131.72
Sunderland 3A Fiber Install	Sub-T	39.9	NLU	1.00	$595,307.72
Sunderland 3B Make Ready	Trans & Sub-T	27.3	CVPS	1.32	$74,400.00

- CPI vs Contractor Estimates for Work
- Lessons Learned to Date
  - Work more difficult than anticipated due to many small jobs
  - Contractors not realizing benchmarks on SubTransmission
  - Costs appear to be more favorable on Transmission vs Sub Transmission
  - Sub Transmission costs appear to be higher than expected for the segments under construction – primary cost drivers appear to be winter conditions and ROW access

Fiber Optic Backbone
Recommended Path Forward

- **Schedule**
- Targeted Completion December 2012
- Working Schedule of 5/10s
  - Make Ready Crews

    Currently the project is supporting <u>two</u> Make-ready[3] crews with a large geographical separation. To meet the end of 2012 finish date, <u>five</u> Make-ready crews will need to be employed to meet the project end date.
  - Fiber installation Crews

    Currently the project is supporting <u>four</u> fiber stringing crews (two crews on each of two projects), to meet the project end date, and additional <u>two</u> stringing crews will be required.

  - Accounting for Winter Installation
    - Actual costs for winter construction in 2010/2011 exceeded budget estimates for Make-ready and Fiber components due to extended construction durations caused by heavy snow conditions.
    - Going forward, although we have tried to minimize winter construction, it will still be necessary to perform fiber string during the winter period

Fiber Optic Backbone
Recommended Path Forward

Recommended Path Forward

- Secure Final Scope (who's in who's out)
- Evaluate Routing for Reductions
- Contracting Strategy
  - Short Term Plan- to keep project moving release enough work to take project through engineering (July/August)
  - Long Term- Bundle remaining work to set up performance based contract with limits (Similar to Southern Loop)
- Enhance Reporting and Communication
  - Top to Bottom Review at 25%, 50% Construction Complete
  - Drive results of engineering detail to sub project level on finances
  - Weekly Status Report with Management
  - Evaluate potential CIAC impact