Dark Fiber Program Review & Strategic Plan Development

October 30, 2015
Overview

- TVA’s Fiber History
- TVA’s Network
- What’s Next
The Year Was 1988

- The Hubble Space Telescope Goes into operation to explore deep space and is still in full use today mapping our universe.
- A bomb is exploded on Pan Am Flight 103 over Lockerbie in Scotland on December 21st.
- Prozac is sold for the first time as an anti-depressant.
- Some of the great movies that year included Rain Man, Die Hard and A Fish Called Wanda.

Cost Of Living 1988

- How Much things cost in 1988
- Yearly Inflation Rate **USA 4.08%**
- Year End Close Dow Jones Industrial Average **2168**
- Interest Rates Year End Federal Reserve **10.50%**
- Average Cost of new house **$91,600**
- Median Price Of and Existing Home **$90,600**
- Average Income per year **$24,450.00**
- Average Monthly Rent **$420.00**
- Average Price for new car **$10,400.00**
- 1 gallon of gas **91 cents**

Below are some Prices for UK guides in Pounds Sterling

- FTSE 100 Average **1750**
- Average House Price **61,020**
- Gallon of Petrol **1.67**
- Yearly Inflation Rate **UK 4.9%**
- Interest Rates Year End Bank of England **12.88%**

More Example Prices

- Movie Ticket **$3.50**
- US Postage Stamp **24 cents**
- Dozen Eggs **65 cents**
- Gallon 2% Milk **$1.89**
- Pork Chops Lb **40 cents**
- Lotus 123 Spreadsheet S/W **$299.00**
- Star NSX Dot Matrix Printer **$189.00**
- Logitech Mouse **$89.99**
- Amiga Computer With Color Monitor **$849.00**

IBM PC with 30Mb Hard Disk, Mono Monitor and 512K Memory **$1249.00**

- Ford Taurus **$9,996**
- Volkswagen Rabbit **$7,104**
How Did TVA Get In This Business?

TVA placed an AD in the local paper stating:

“TVA would consider proposals from responsible communications carriers for joint construction of a fiber optic system . . . to support TVA’s internal telecommunications needs.”
What is Optical Ground Wire (OPGW)?

OPGW is a dual functioning cable:

1. Serves as the traditional ground wire for lightning protection
2. Contains optical fibers which can be used for telecommunications purposes
TVA’s Fiber History

• Since 1988, TVA has installed over 3,400 miles of OPGW across the Valley
  • Partnerships
  • TVA capital projects

• TVA uses the fiber for internal operations:
  • Operation and control of the power system
  • Corporate communications

• Leverage surplus fiber to expand fiber foot print

Main driver: power system operations
Map removed due to sensitive information.

Contact Dawna Qualls, djqualls@tva.gov, for more information.

615-838-5642
3 Agreement Options

1. New Construction
   – Builds with mutual benefits

2. Fiber Lease
   – Surplus fibers

3. Swap
   – Leverage opportunities to expand fiber footprint
Swap Leverage

- **Fiber Swaps**: “traded” fibers on an existing TVA route for fibers/waves on an external party network to connect TVA facilities
  - Ring protection, connecting remote facilities to TVA backbone
  - Avoided capital expenditures and O&M
  - 1,954 miles of “swap” fiber added to TVA’s overall network
- **Fiber Builds**: leveraged existing TVA fiber routes with surplus fiber to build other strategic routes

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What’s Next For The Program?

- **Network Focus:**
  - Installing fiber on new transmission lines
  - Replacement plans for aging infrastructure
  - Installing higher fiber count cables (144 fiber count)
  - Work with fiber partners for fiber and/or Ethernet solutions

- **Balancing operation needs with other TVA missions:**
  - Customer Delivery (LPCs)
  - Economic Development

- **Exploring role in a Valley wide interconnecting network, rural broadband, and options to leverage constrained system**
THOUGHTS?
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