

“Distribution Grid of the Future” Distribution Vision 2010

Reclaiming the Distribution Business Unit

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Presentation note

- This presentation is being made on behalf of the DV2010 group and is based on a presentation made by Bob Huber to the EPRI ADA Advisors Group in Miami, FL in September 2004.

Issues for the Power Distribution System Today

- Bumping the limits of reliability
- Engineers asked to drive the system harder – resulting in reduced bridging capacity
- Customers expect greater reliability
- Reactive Mode, wait for customer to call
- Insufficient information on status of system outside of the substation
- Lack of fault location information

Reliability Analysis for Delivery System

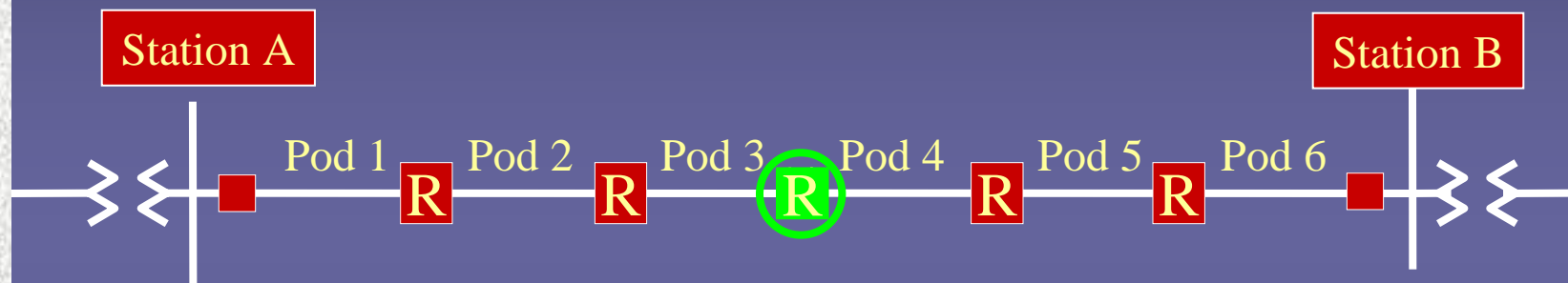
	<u>Outage %</u>	<u>Reliability</u>
■ Transmission	< 1/2 %	3%
■ Substation	< 1/2 %	8 %
■ Primary Voltage Systems	47 %	83%
■ Secondary Voltage Systems	52 %	6%

DV2010 Vision

“Initial Plateau”

- Improved recloser and recloser control system
- Developed the POD system
- Improved Communication systems
- Developed a Local Area Controller
- Developed a Wide Area Controller
- System made of a combination of open loops, closed loops and primary networks
- Elimination of Distribution Dispatcher as first response
- Move from a reactive mode to a PROACTIVE MODE

Automated Radial Feeders



The addition of automation for remote control of line devices allows the Distribution system to be partitioned into Automated Control Areas called

Premium Operating Districts

DV2010 System Design ¹

4 Tier Distributed Logic

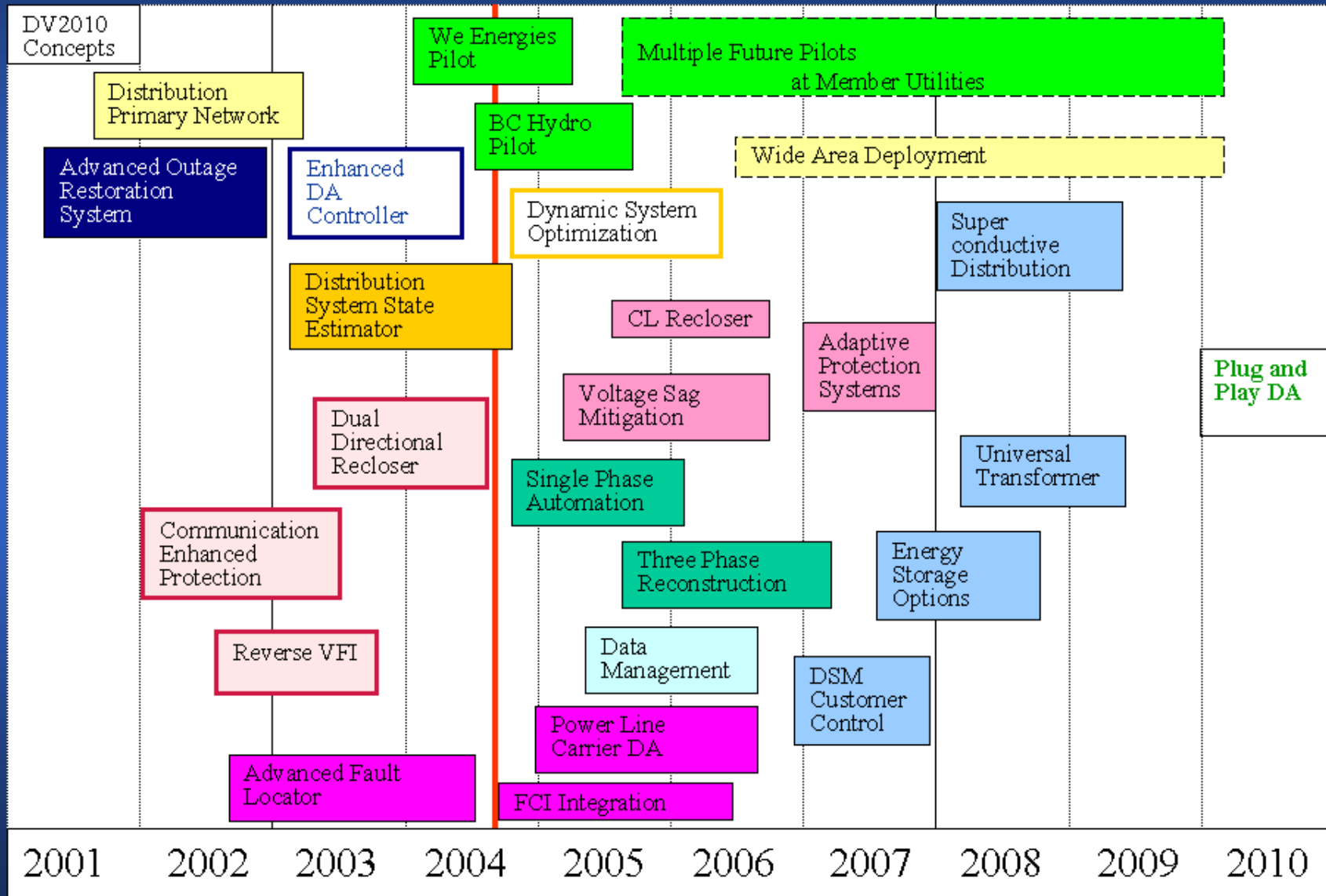
- Tier 1: Autonomous Protection
- Tier 2: Distributed Automation Logic
- Tier 3: Local Area Control - Substation
- Tier 4: Wide Area Control - Region

¹ Patent applied for December 2002



DV2010 Roadmap

Membership Opportunities and Benefits

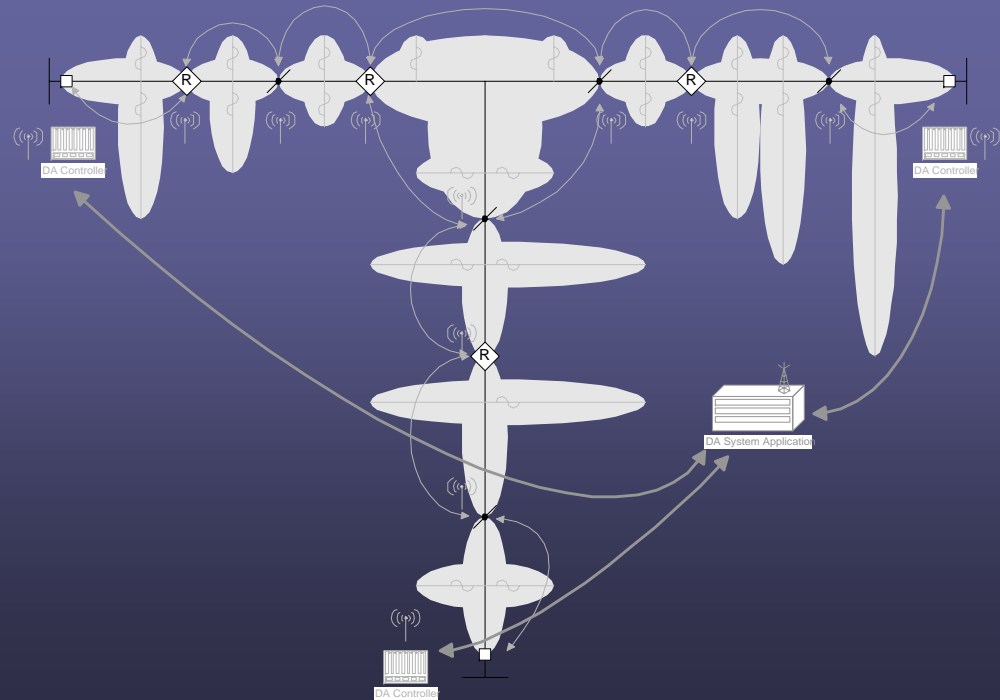


Consortium Objectives

- Define a Universal need
- Support Cooperative Development
- Provide necessary R & D funding
- Develop new Applications and Guidelines
- Develop Safe Operating Procedures
- Provide Pilot Projects
- Provide Pilot Project validation

DV2010 technologies will...

- Move the power distribution industry “REactive” \Rightarrow “PROactive”
- ...become the norm for utilities by year 2010.



The Next Big Thing....

System Optimization

- Automation assisted operations
- Reduced Losses
- Maximize Asset Utilization
- Integrated Outage Management Analysis
- Dynamic Voltage Control
- Distributed Generation Integration

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