



# WELCOME TO

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2002 PI T&D User Group  
Las Vegas, NV



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PI Customer Since 2000

PI T&D User Group

# Tacoma Overview

- Municipal utility governed by Utility Board serving multiple jurisdictions in Pierce County that is approximately double the size of the Tacoma City Limits.
- The City operates Tacoma Public Utilities of which Tacoma Power is an operating division (along with Tacoma Water and Tacoma Rail).
- Within Tacoma Power there are 5 business units: T&D, Power Management, Energy Services, Click!Network and Generation

# Tacoma Power Overview

- The City of Tacoma, Washington is about 30 miles south of Seattle
- Approximately 200,000 customers
- In Tacoma Power's control area there are 8 major substations, 4 of which have 230 kV inter-ties with the BPA.
- A 110 kV sub-transmission system distributes power from the major substations to Tacoma Power's 60 unit substations.
- About 75% on 10 MB Ethernet WAN

# EMS Overview

- ABB Ranger EMS - Contract Sept. 2000
- Basic SCADA System in Service, AGC Customized Software to be Installed Q1 2003
- 11 LANs, 4 Dual, 1 Dual GB
- 5 Compaq ML530s for PI Servers
- 2 of These Redundant Pairs
- Remaining PI Server on DMZ LAN. This equipment part of SDI (Substation Data Integration Project)

# System Overview

- GE RTUs: From 7 Node Dual D200s to Darts
- 1 Automatic Fault Restoration DA Scheme  
Adding 3 More Schemes and PQ/DFR
- About 100 RTUs in service

# Comm System Overview

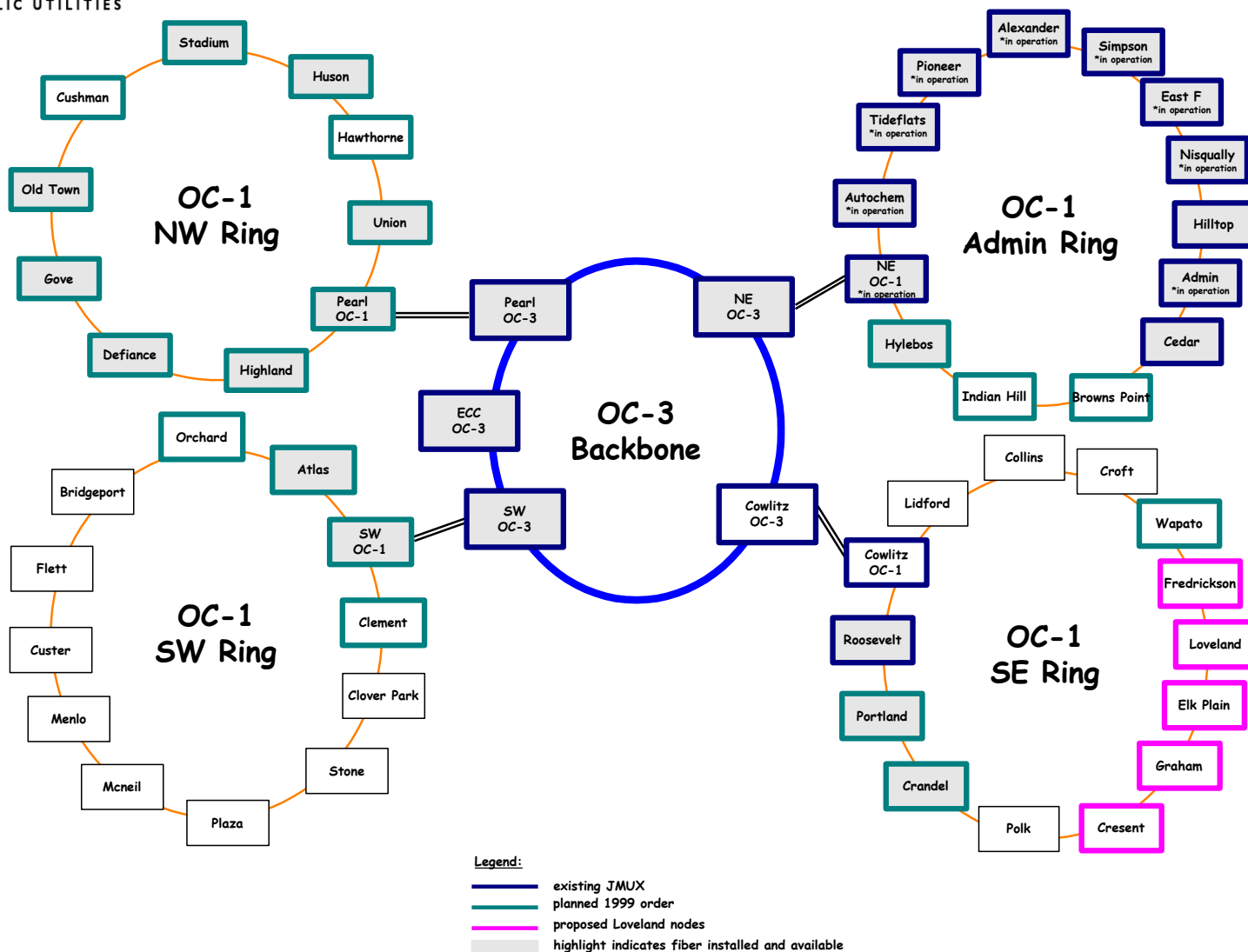
- Nortel J-Mux provides 2, 10 MB Dedicated WANs Acting as Flat LANs - One for Data Acquisition to EMS the Other for SDI
- Other Sites Use Various Comm Options (Microwave, Leased Line, Dial Up, Radio) Adding PPP Over Microwave for SDI



**TACOMA POWER**  
TACOMA PUBLIC UTILITIES

# SCADA SYSTEM ARCHITECTURE

## PASS Network Design





# SDI Project

- Need: To get data from various substation devices to corporate users in uniform manner easy for users to use
- Want: Create an organized, cost efficient way for users to access data that is easy to maintain, flexible and secure and consistent with the EMS and its technology.
- Basically - Gather Data from Numerous Substation Devices
- Utilize 2 WANs to Survive a Single Network Fault (Data Acquisition is Primary Responsibility No Loss or Duplication of Events is Primary Function)
- Bow Networks System in FAT

# SDI Goals

- PI is an Integral Part of the SDI System
- Data is Reported to PI via SDI Servers in the ECC and Substations
- PI Archives the Data and Serves It Up to Corporate Users
- TPWR Expects to Add PI Licenses as We Grow Data Acquisition Capability
- Goal to Have ECC, Lincoln Substation and Test Unit in Service by End of 2002



**Thank You Very Much!!**