

Brunswick Steam Electric Plant Units 1 and 2

Extended Power Uprate
October 24, 2001



CP&L

A Progress Energy Company

Agenda

- | | |
|-----------------------------------|---------------|
| ● Opening Comments | Jeff Lyash |
| ● Project Overview | Bob Kitchen |
| ● Regulatory Reviews | Dave DiCello |
| ● Brunswick Unique Aspects of EPU | Mark Grantham |
| ● Open Discussion | All |

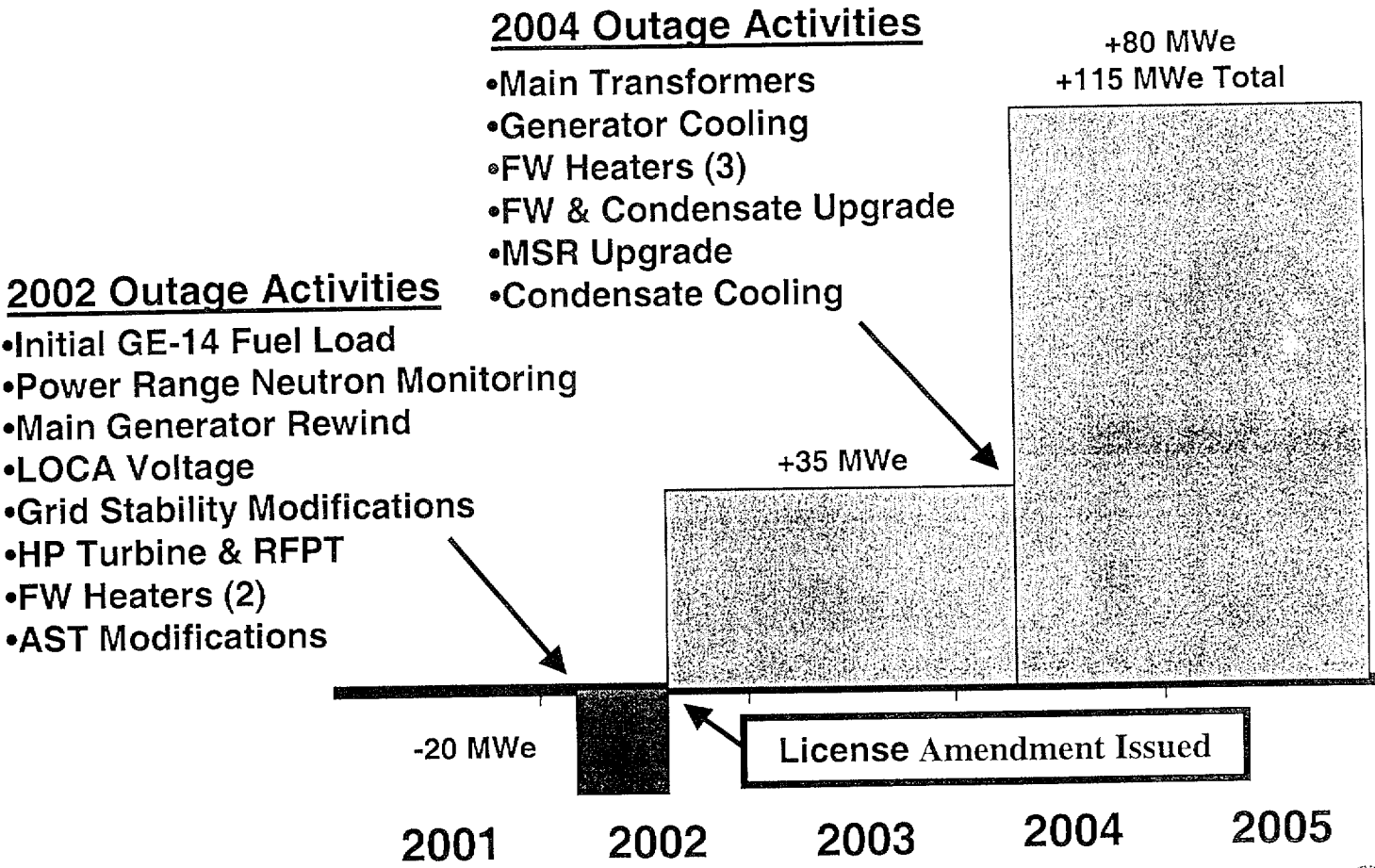
Meeting Objectives

- Provide Overview of EPU Project
- Discuss Licensing Actions Necessary to Support EPU
- Highlight Potential Focus Areas for Review

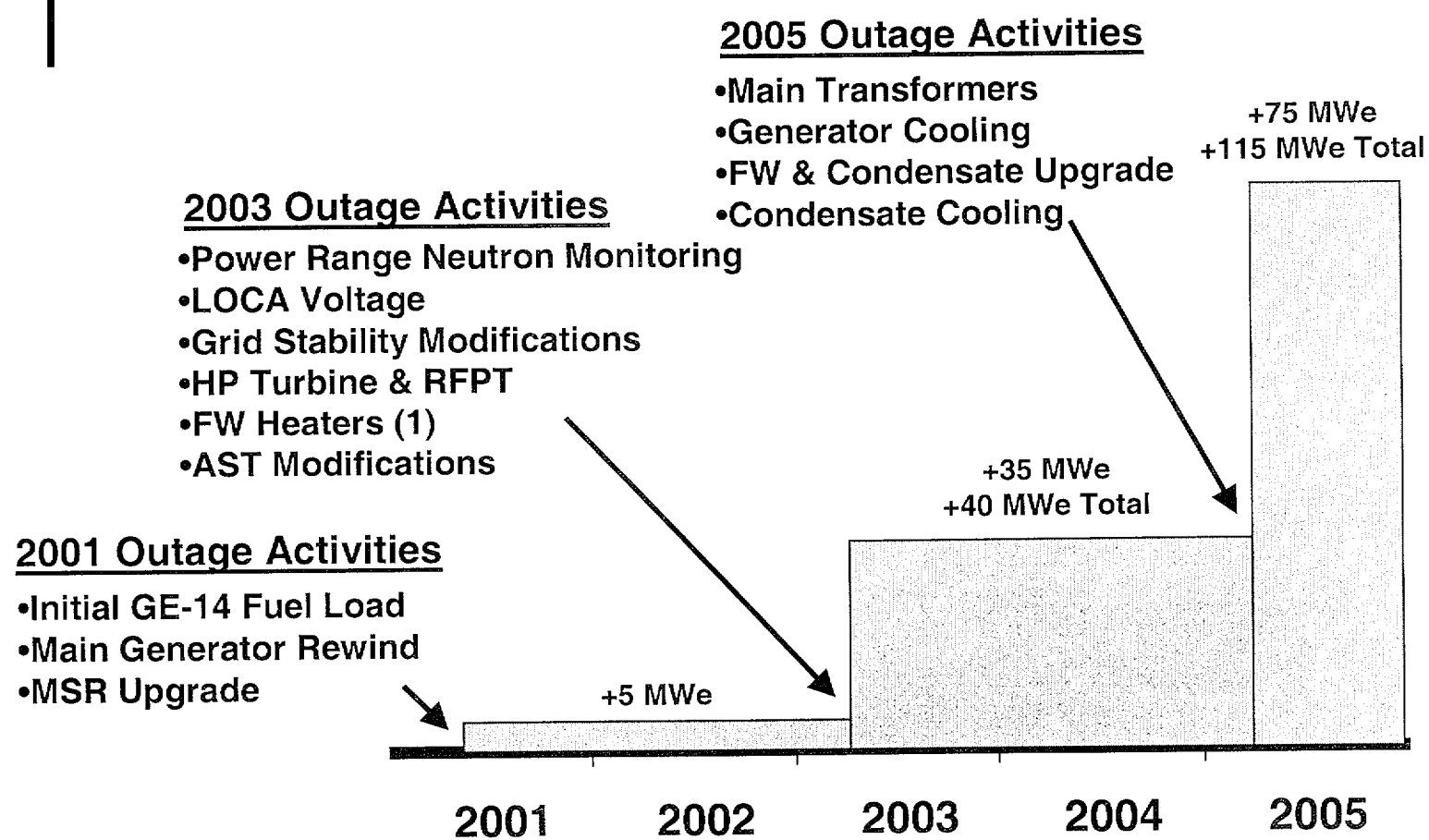
EPU Benefits

- Design Strength and Plant Reliability Improvement
- Current Life Attainment
- Plant Life Extension
- Plant Staff Technical Capabilities

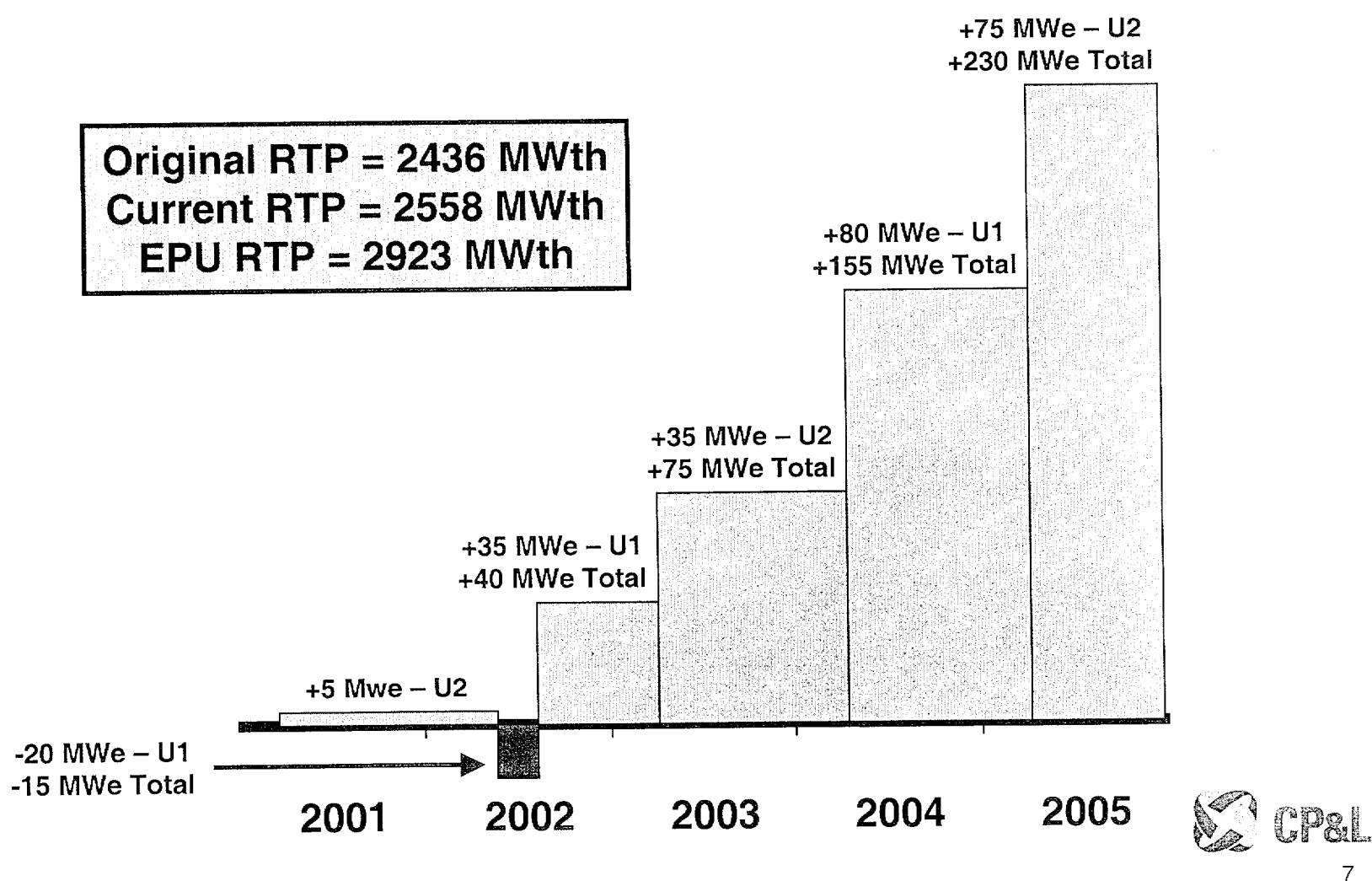
Unit 1 Schedule and Modifications



Unit 2 Schedule and Modifications



Overall Generation Schedule



Project Overview

Testing

- Chemistry and Radiation Monitoring
- Nuclear Instrumentation Calibration
- Core Performance
- Pressure Control Incremental Regulation
- Feedwater Level Control Regulation
- Turbine Valve and MSIV Surveillance
- Main Steam and FW Piping Vibration
- BOP System Monitoring

Extended Power Uprate

Licensing Status

Topic	Submittal Date	Needed Approval Date	Impact
THI Option III (Units 1 & 2)	June 26, 2001	February 2002	PRNM Hardware in Place Unit 1 Startup
Safety Limit MCPR (Unit 1)	September 18, 2001	February 2002	Needed for Unit 1 Startup with GE-14 and Uprate
Alternative Source Term (Units 1 & 2)	August 1, 2001	February 2002	RFO Secondary Containment Relaxation
		June 2002	Needed to Support Uprate Submittal
Power Uprate (Units 1 & 2)	August 9, 2001	June 2002	Unit 1 Initial Uprate
MELLLA+ (Units 1 & 2)	April 2002	February 2003	Flow Window Expansion Unit 1 Core Design
SLC (Units 1 & 2)	June 2002	February 2003	Unit 2 Startup
Safety Limit MCPR (Unit 2)	October 2002	February 2003	Unit 2 Startup



Extended Power Uprate

Key Communications Moving Forward

- RAI Goals
 - ▶ 3 Week Turnaround
 - ▶ RAI Clarity and RAI Matrix
- BNP Available for Meetings As Needed
- Lessons Learned
 - ▶ ACRS
 - ▶ Duane Arnold, Dresden/Quad Cities

Extended Power Uprate

Plant Unique Aspects

- Containment Overpressure
 - Currently Committed to Safety Guide 1
 - ◆ No Credit for Containment Overpressure
 - Short-Term NPSH
 - ◆ No Credit for Containment Overpressure Required
 - Long-Term NPSH
 - ◆ Maximum Required Overpressure 3.1 psig, With 11.3 psig Available
 - ◆ 5.0 psig Requested

Extended Power Uprate

Plant Unique Aspects

- MSIV Closure Test Exception
 - ▶ CP&L Believes That the MSIV Closure Test Is Not Necessary
 - ◆ Industry Experience Has Demonstrated Predicted Plant Performance
 - ◆ Industry Modeling, Data Collection, and Analyses Capabilities
 - ◆ Unnecessarily Challenges Operators and Safety-Related Equipment
 - ◆ Aspects of Test Demonstrated by Component Level Testing

MSIV Closure Startup Test Criteria

- Minimal Heat Flux Increase/Thermal Limits Not Exceeded
- Reactor Pressure Increase Close to Predictions
- MSIV Closure Time (3 to 5 Seconds)
- SRVs Close Properly Without Leakage
- Feedwater Controls Prevent Steam Line Flooding
- RCIC Starts and Operates Without Isolating

MSIV Closure Test Criteria

Heat Flux Increase/Thermal Limits Not Exceeded

- 0% Desired / 2% With Analysis
 - ▶ Scram Due to MSIV Position Switches Offsets Reactivity Increase Due to Pressure
 - ▶ Thermal Performance for Test Much Less Limiting Than Other Evaluated Transients
 - ▶ Minimal EPU Impact on Components Important to Achieving Desired Thermal Performance
 - ◆ Reactor Protection System Logic Unaffected
 - ◆ Control Rod Insertion Times
 - ◆ MSIV Closure Speed

MSIV Closure Test Criteria

Reactor Pressure Increase Close to Prediction

- 120 psi Desired / 145 psi With Evaluation
 - ▶ Since Flux Transient Minimal, Depends Primarily on SRV Performance
 - ▶ BNP Analysis Assumes 2 SRVs Out-of-Service
 - ▶ Significantly Improved SRV Performance
 - ◆ No High Lift Failures During Last Two Test Sets
 - ◆ No More Than Two High Failures Since Modifications
 - ▶ SRV Performance Confirmed During Component Tests

MSIV Closure Test Criteria

MSIV Closure Time

- Between 3 and 5 Seconds
 - ▶ MSIV Closure Speed Set by Actuator Adjustments
 - ▶ BNP MSIV Component Test Performance is Good
 - ▶ No Significant Industry Issues
 - ▶ MSIV Closure Times are Highly Reliable

MSIV Closure Test Criteria

SRVs Close Properly Without Leakage

- SRV Setpoints Not Being Changed by EPU
- Leakage Performance Not Changed by EPU
- SRV Performance Confirmed During Routine Component Testing

MSIV Closure Test Criteria

Feedwater Controls Prevent Steam Line Flooding

- Overfill at Vessel Level of 260 Inches
- FW, HPCI, and RCIC Turbines Trip at Vessel Level of 208 Inches
- BSEP Operating History Shows Significant Margin
- Minimal EPU Impact on Level Overshoot
- Turbine Trips Verified Reliable by Testing

MSIV Closure Test Criteria

RCIC Starts and Operates Without Isolating

- RCIC Performance Demonstrated During Several Plant Events
- RCIC Routinely Tested per Tech Specs
- HPCI Starts Concurrently with RCIC
- Testing Would Not Confirm RCIC Capable of Maintaining Level