



Attachmnet #5.3
Return to Agenda

CP-11 Working Group
A-10 Methodology Review
Phase 1 Final Report
Revision 1

Alessia Dawes
Chair, CP-11 Working Group

Daniel Schwarting
Vice-Chair, CP-11 Working Group



Overview

1. Phase 1 – Scope
2. Proposal #1 – Improvement to Existing A-10 Methodology
3. Proposal #2 – Performance-Based Methodology
4. Proposal #3 – Connectivity-Based Methodology
5. Phase 2 Deliverables & Schedule
6. Final Report Questions & Answers



Phase 1 - Scope

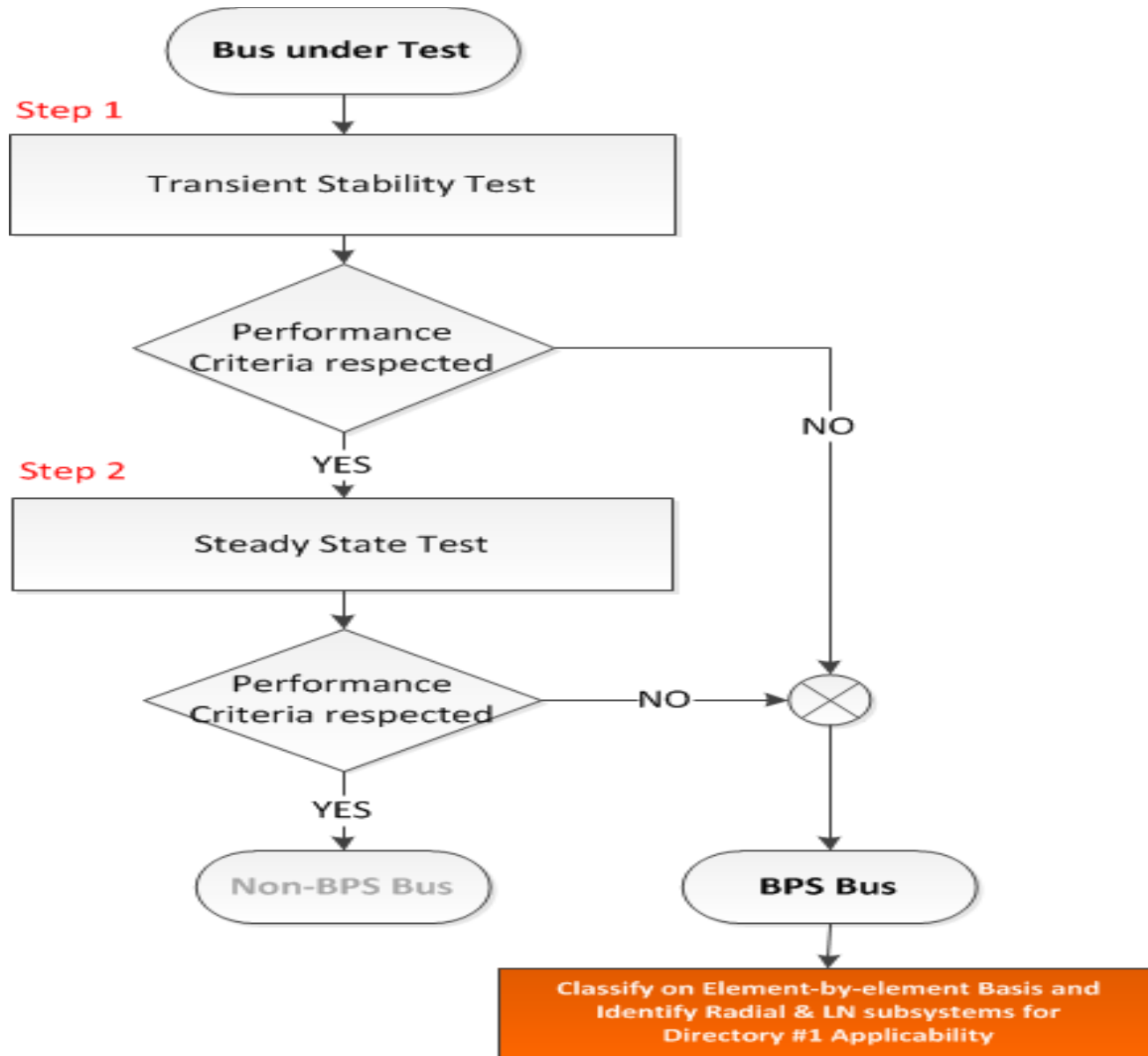
Considering Existing and Alternate/New Methodologies

- ❖ Identify critical facilities for application of NPCC Directories

- ❖ Simplify existing methodology to make it less labour-intensive

- ❖ Improve consistency across Areas
 - ❖ Application of methodology and
 - ❖ Outcome of methodology

Proposal #1 – Improvement to Existing A-10





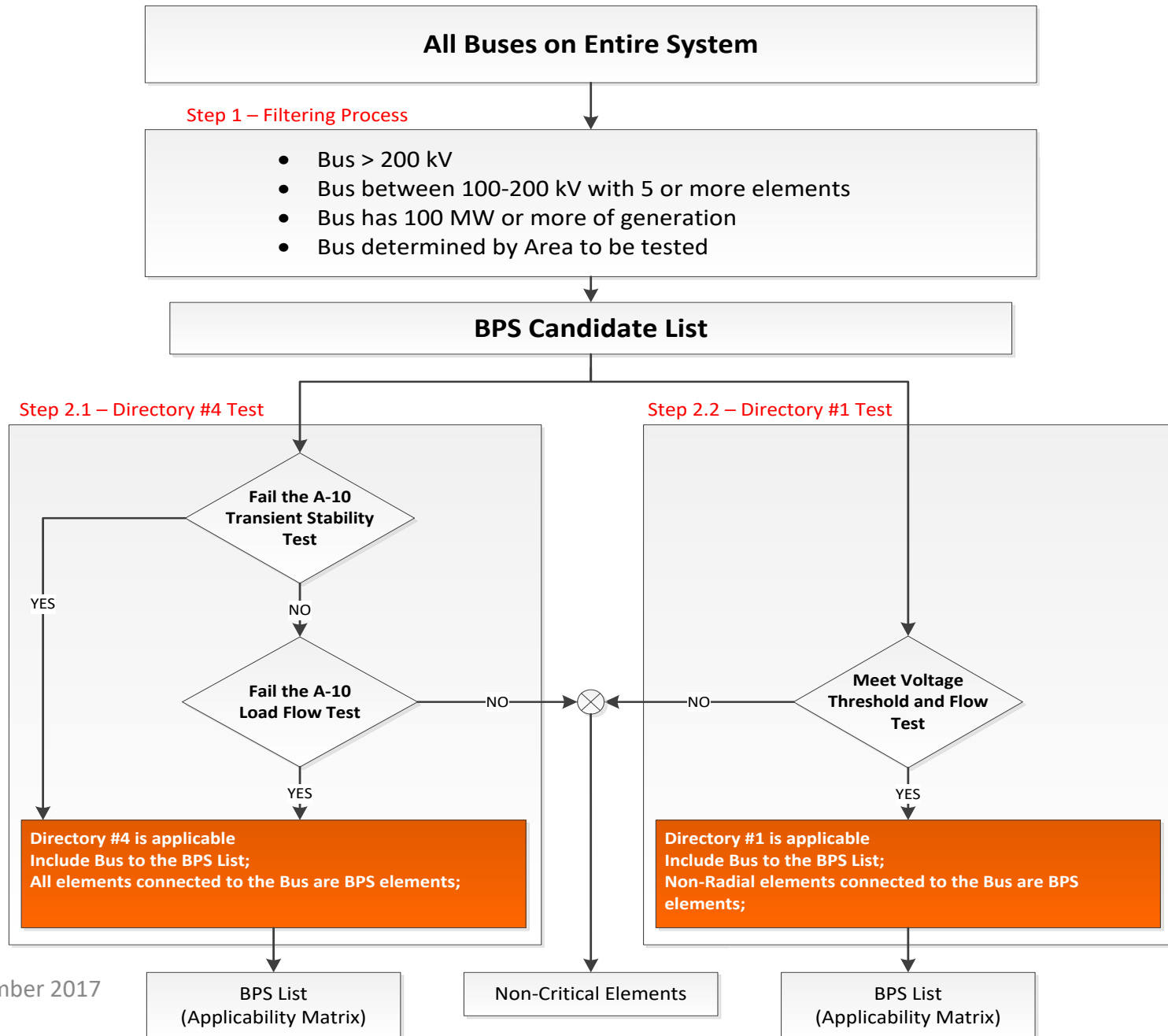
Proposal #1 – Improvements to Existing A-10

Proposed Improvements include:

1. Base Case Setup Instructions
 - Power Flow Transfers & Generation Patterns
 - Load Levels & Load Models
 - Reactive Dispatch
 - Number of Test Cases
2. Directional Comparison Blocking Protection Scheme Assumption
3. Simulation Assumptions & Procedure Guidelines
4. Revised BPS Determination Performance Requirements
 - Loss of Source
 - Un-damped oscillations
 - System Separation
 - Voltage and Loading violations
5. Identification of Radial & Local Network Subsystems for Directory #1 Performance Requirement Exclusion



Proposal #2 – Performance-Based





Proposal #2 – Directory Tests

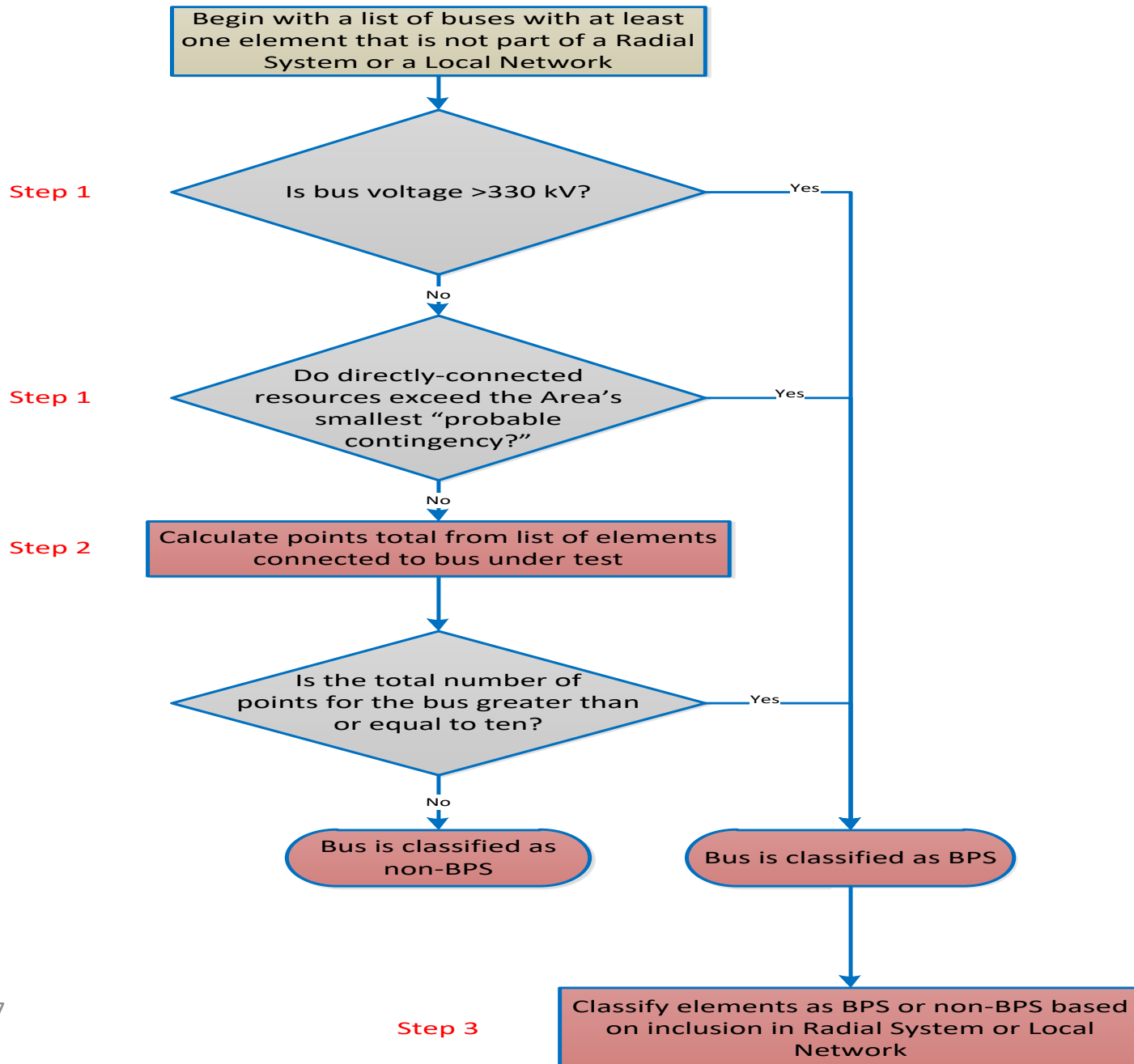
Directory #4 Test

- Existing 3-Phase fault with delayed remote clearing
- Improved Base Case Setup - Proposal #1
- Directional Comparison Blocking Scheme Assumption - Proposal #1
- Simulation Assumptions & Procedure Guidelines - Proposal #1
- BPS Determination Performance Requirements - Proposal #1

Directory #1 Test

- Combination of Voltage & Flow Test
- Use Improved Base Case Setup for the Flow Test – Proposal #1
- Identification of Radial & Local Network for Exclusions – Proposal #1

Proposal #3 – Connectivity-Based





Proposal #3 – Point System

1 Point – Each Transmission Element (except Radial or Local Network)

1 Point – For each 100 MVAR of Shunt Reactive Resources

Additional 2 Points – Each Transformer Connected to ≥ 330 kV

Additional 1 Point – Each Element that is part of a Major Interface

Additional 1 Point – Each Element that includes a series FACTS device, phase shifting transformer, or series capacitive compensation

10 Points = BPS Classification for Directory #4 & Directory #1
Applicability



Phase 2 Deliverables & Schedule

Tentative Phase 2 Deliverables

Selection of Preferred Methodology to TFCP

Recommendation of Each Directory's Applicability to BPS list

Identification of Indirect Consequences

Revised A-10 Documentation for NPCC Open Process

Tentative* Phase 2 Schedule (High-Level)

CP-11 Testing & Selection of Methodology = 9-12 months

TFCP Review & Endorsement of Methodology = 2 months

CP-11 Prepare Documentation for Open Process = 5 months

TFCP Review Documentation for Open Process = 1 month

17-20 months total (May 2019 – August 2019)



Final Report

General Questions & Answers