



# i-PCGRID Workshop 2019

## Expanding the Clearance Window to Support Construction and Maintenance: A Case Study

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Chifong Thomas  
Andrew Martin  
Smart Wires Inc.  
USA

# Topics

1. Case Study Description
2. Challenges of Finding Clearance Windows
3. Solution Options

# Modular Power Flow Control Technology

Flexible form factors and deployment options

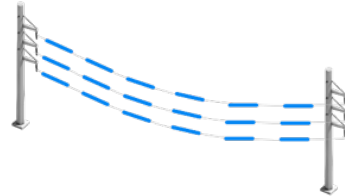
**PowerLine Guardian®**



Push 



Spread Deployment



Compact Deployment

**Power Guardian™**



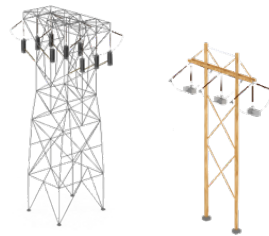
Push 



Right-of-way

Substation-based

Mobile



Tower-based





Ground-based



Mobile deployment

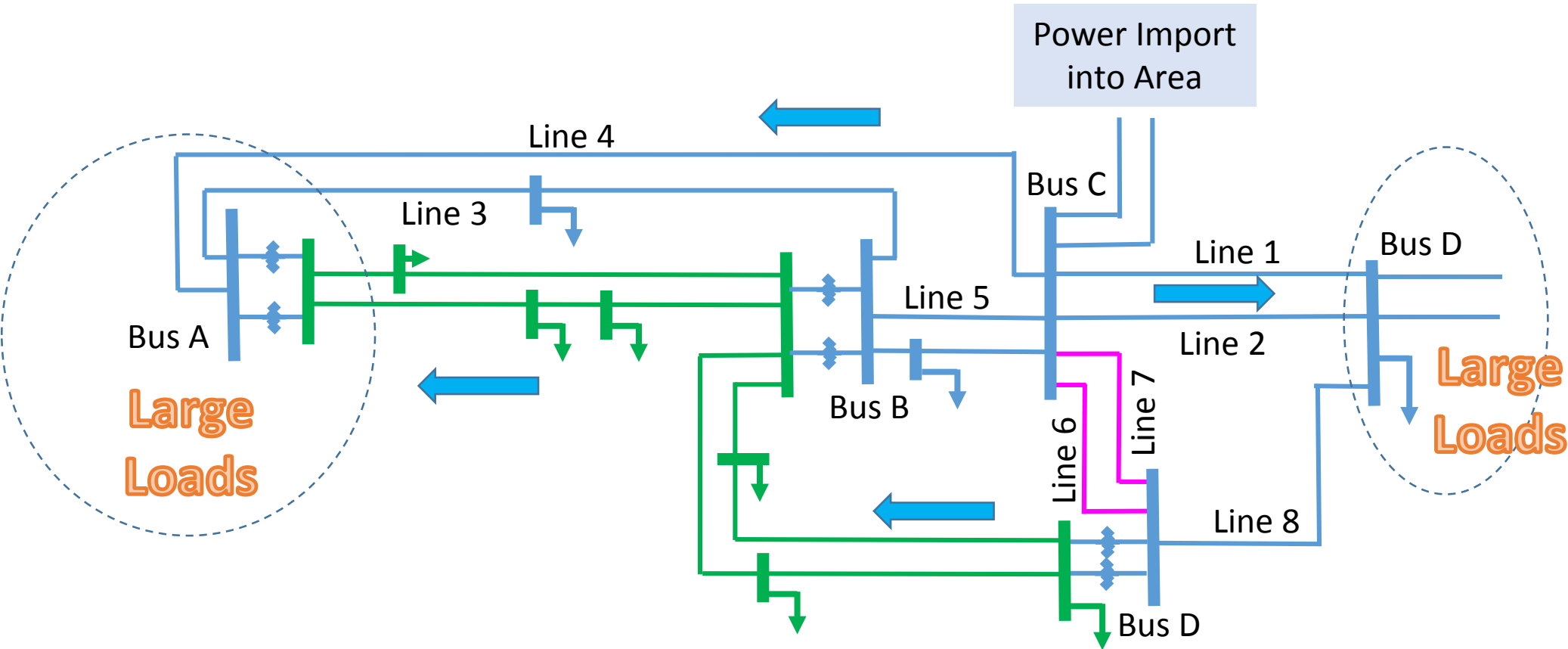
**SmartValve™**



 Push + Pull 

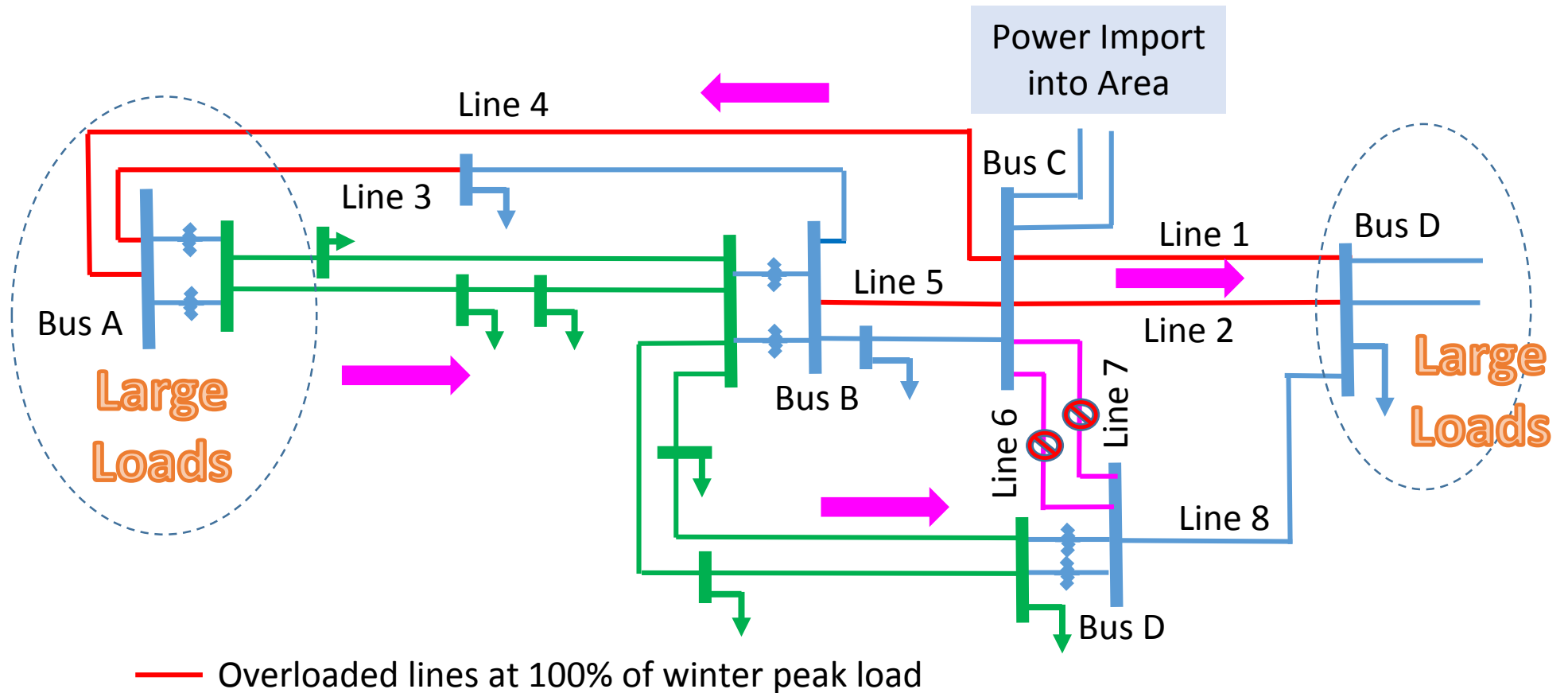
# The Project: Reconductor Lines 6 and 7

Requirement: 6-8 weeks of clearance



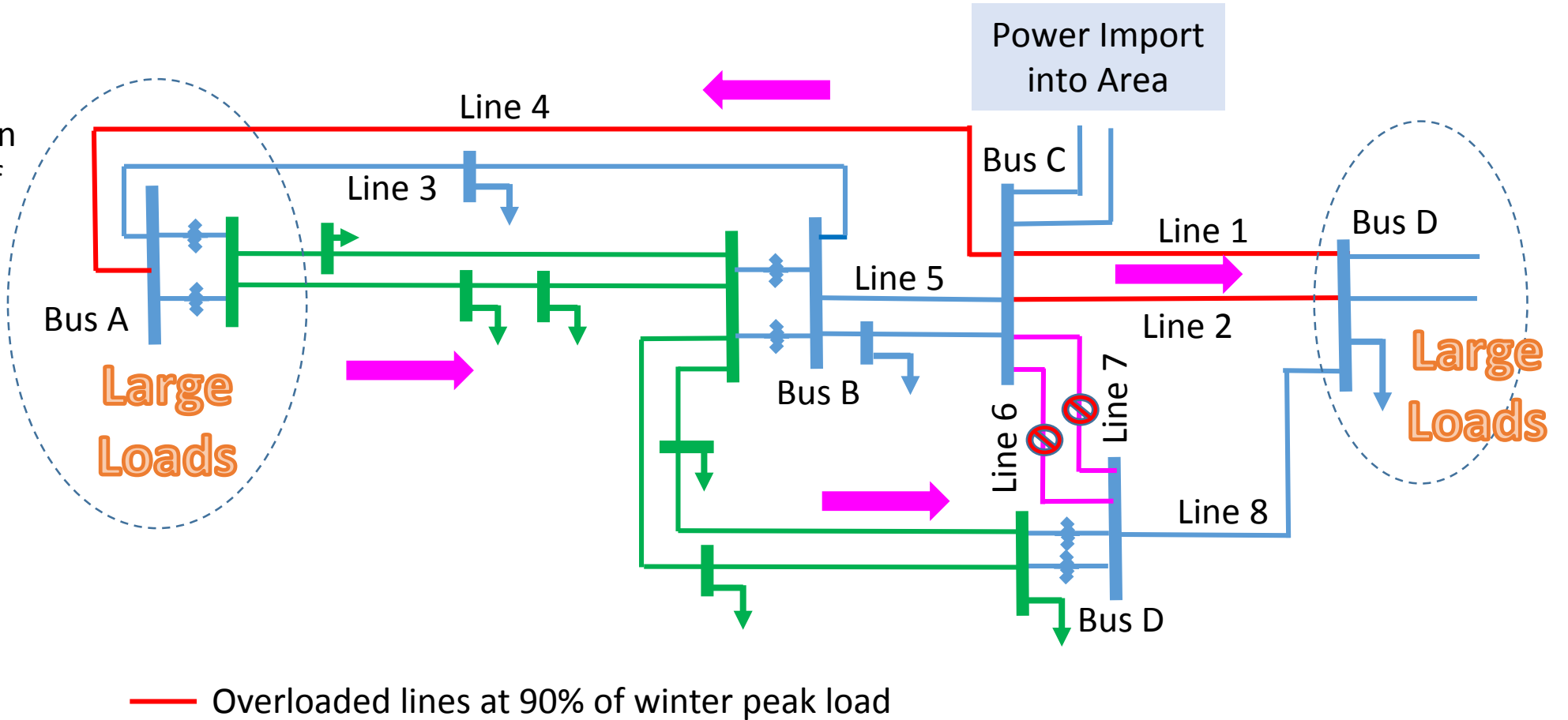
# Challenges: Finding Clearance Window

- The clearance window will depend on the next overload under the expected conditions when the clearance is taken
- Overloads after various Contingencies when Area Load = 100% of winter peak
- To avoid overloads, the load level has to be lower than 75% of winter peak. This will limit the available clearance window to 3 weeks.



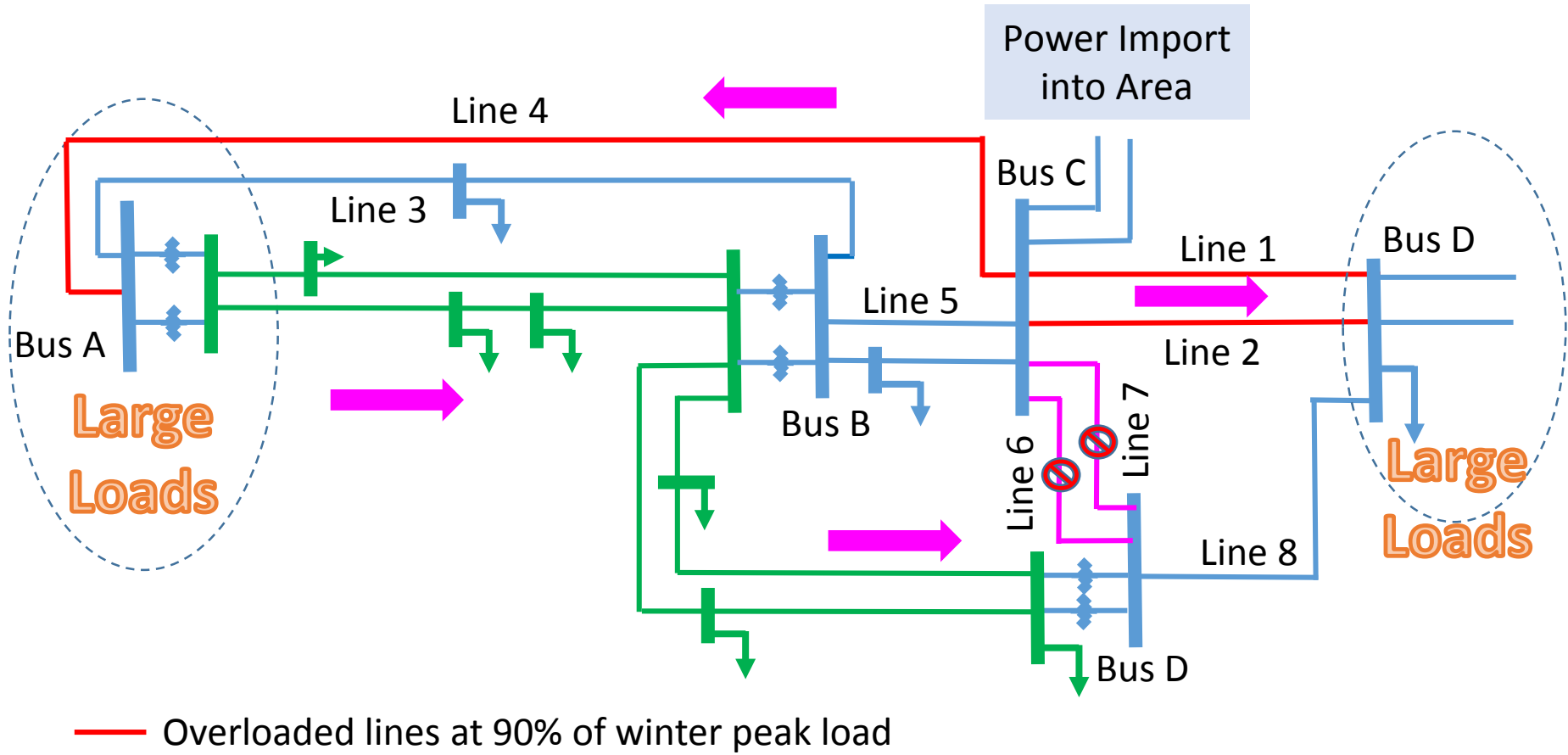
# Challenges: Finding Clearance Window

- Overloads after various Contingencies when Area Load = 90% of winter peak



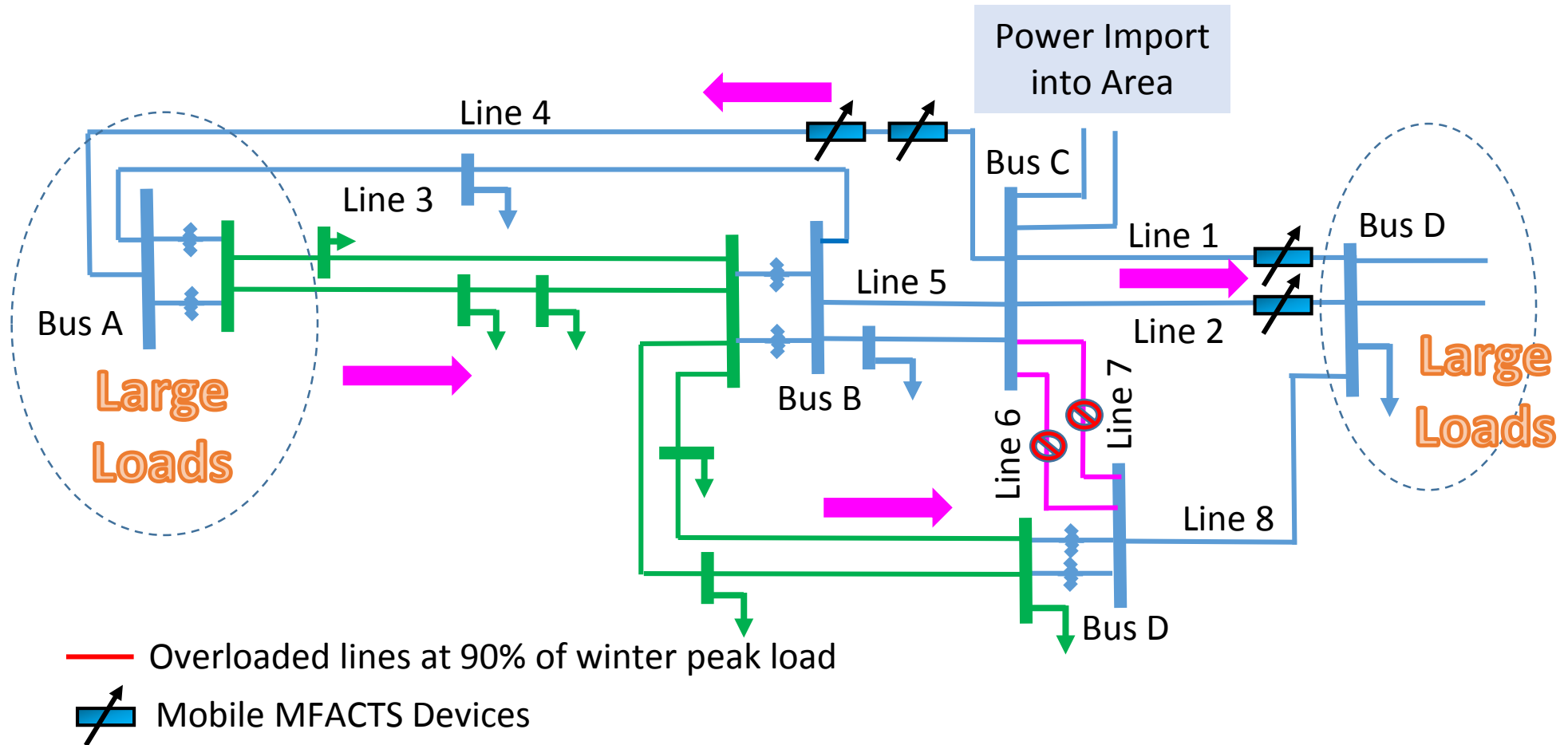
# Challenges: Finding Clearance Window

	Loading % of Winter Emergency Rating	
	100% of Winter Peak Load	90% of Winter Peak Load
Line 1	135	120
Line 2	133	120
Line 3	102	92
Line 4	121	108
Line 5	101	92



# Challenges: Finding Clearance Window

- Adding four 15 MVAR Mobile MFACTS Units to eliminate overloads after various Contingencies when Area Load = 90% of winter peak
- This expands Clearance window to 12 weeks

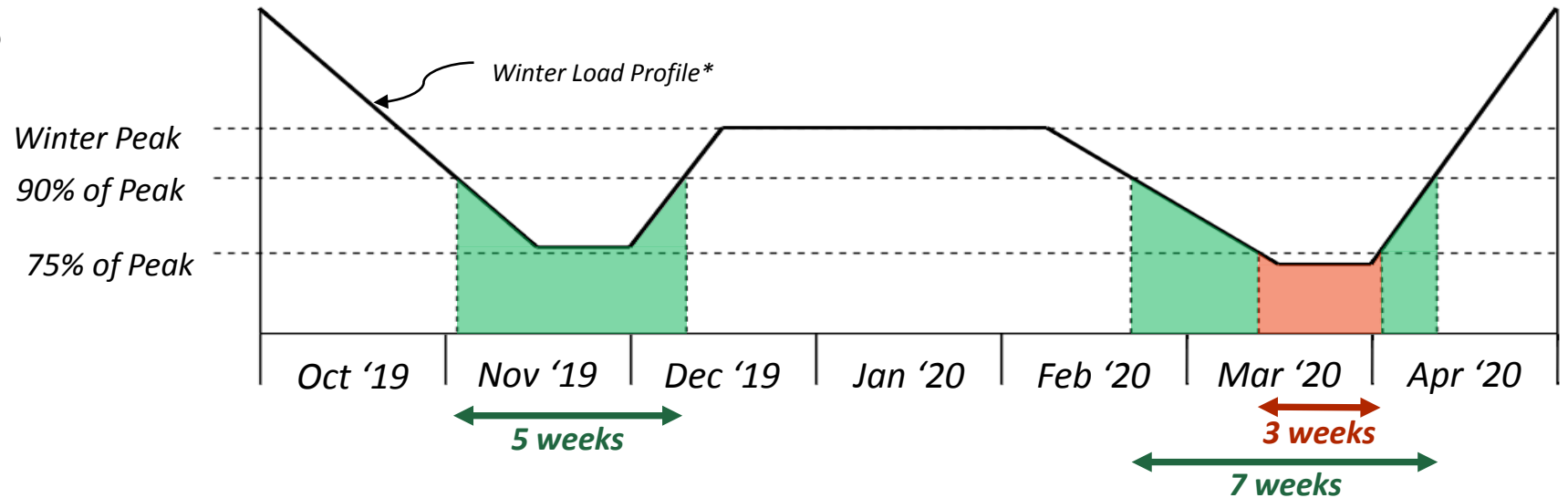




# Expanded Clearance Window

Some Options:

1. Status Quo: Clearance window = when load is < 75% of winter peak
2. 4 Mobile MFACTS Units: Clearance window = when Load < 90% of winter peak
3. 6 Mobile MFACTS Units (Option 2 w/ 1 more on Line 4, 1 on Line 5): Clearance window = when Load < 95% of winter peak
4. Construct temporary line (shoo-fly)
5. Load Curtailment



\*Generic Utility Load Profile used for sample assessment.



# Questions?

Chifong Thomas  
Chifong.Thomas@SmartWires.com