



DLR From the Utility Perspective

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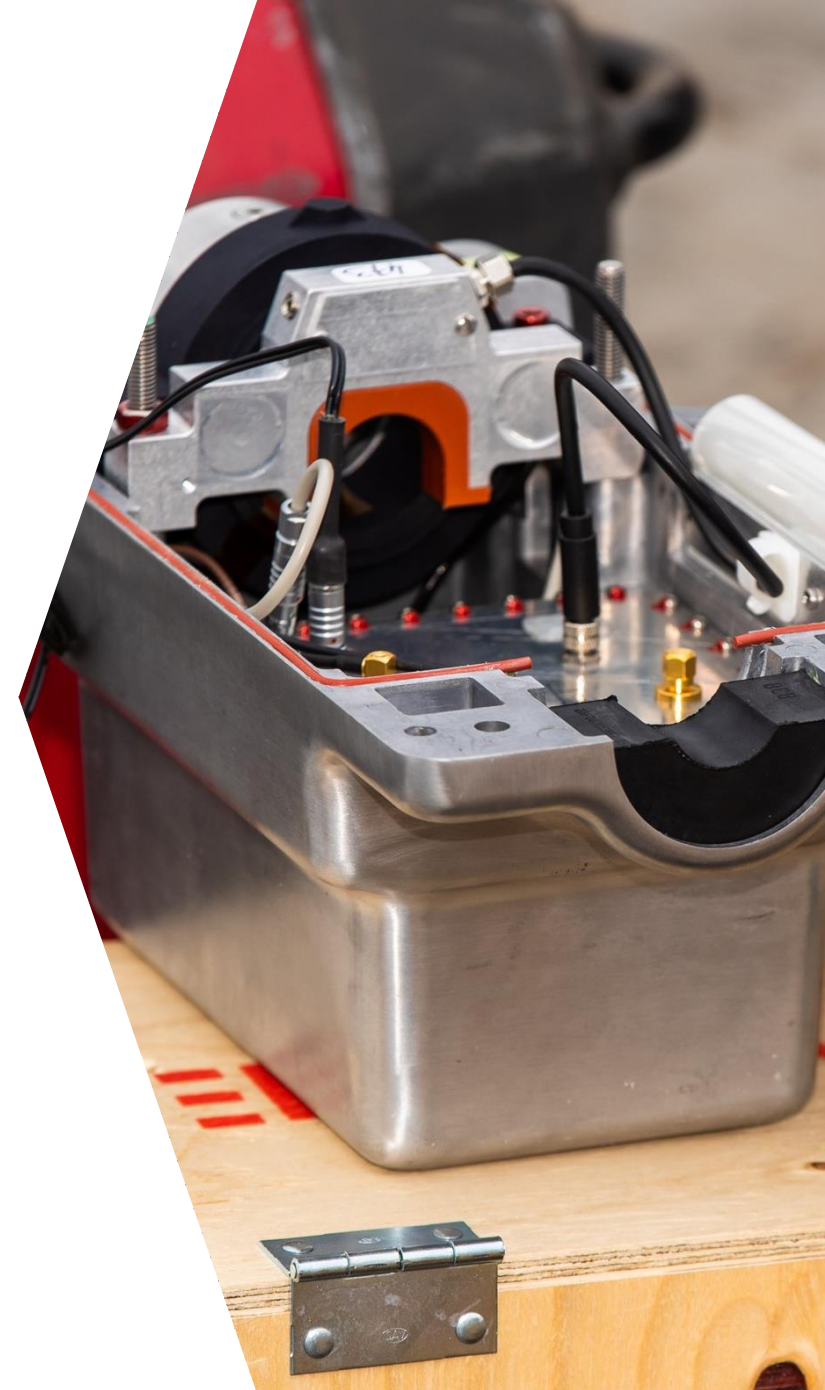
What Is DLR?

Traditional Line Ratings

- Based on conservative assumptions

Dynamic Line Ratings

- Based on real time data from sensors
- Maximizes ratings of existing equipment



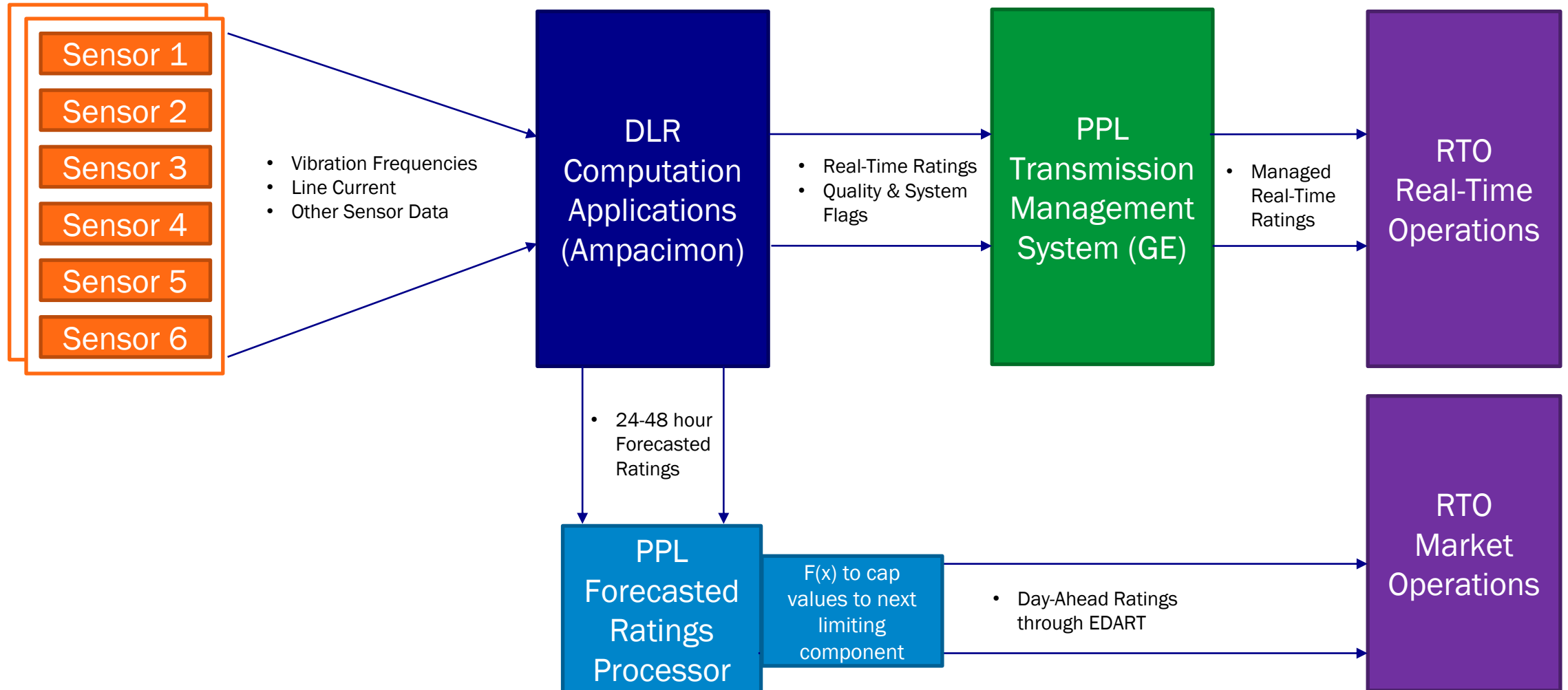


Benefits of DLR

- **Eliminated \$23 million** annually in congested generation costs
- \$250,000 DLR solution instead of an estimated \$50 million line rebuild.
- DLR is considered as a solution for market efficiency congestion.
- PPL's integration of DLR infrastructure allows faster and less costly DLR implementation on other transmission lines.
- DLR provides asset health data for lines.



Overview: DLR at PPL



Challenges: Solved and Ongoing



- NERC standards impacts and processes
- Ratings management
- Regional transmission operator and stakeholder coordination
- Best practices for ratings validation
- Ratings methodologies industry best practices:
 - Real-time
 - Long-term forecasts
- Large scale system considerations, risks and mitigations