



# A Technology Perspective: Dynamic Line Ratings

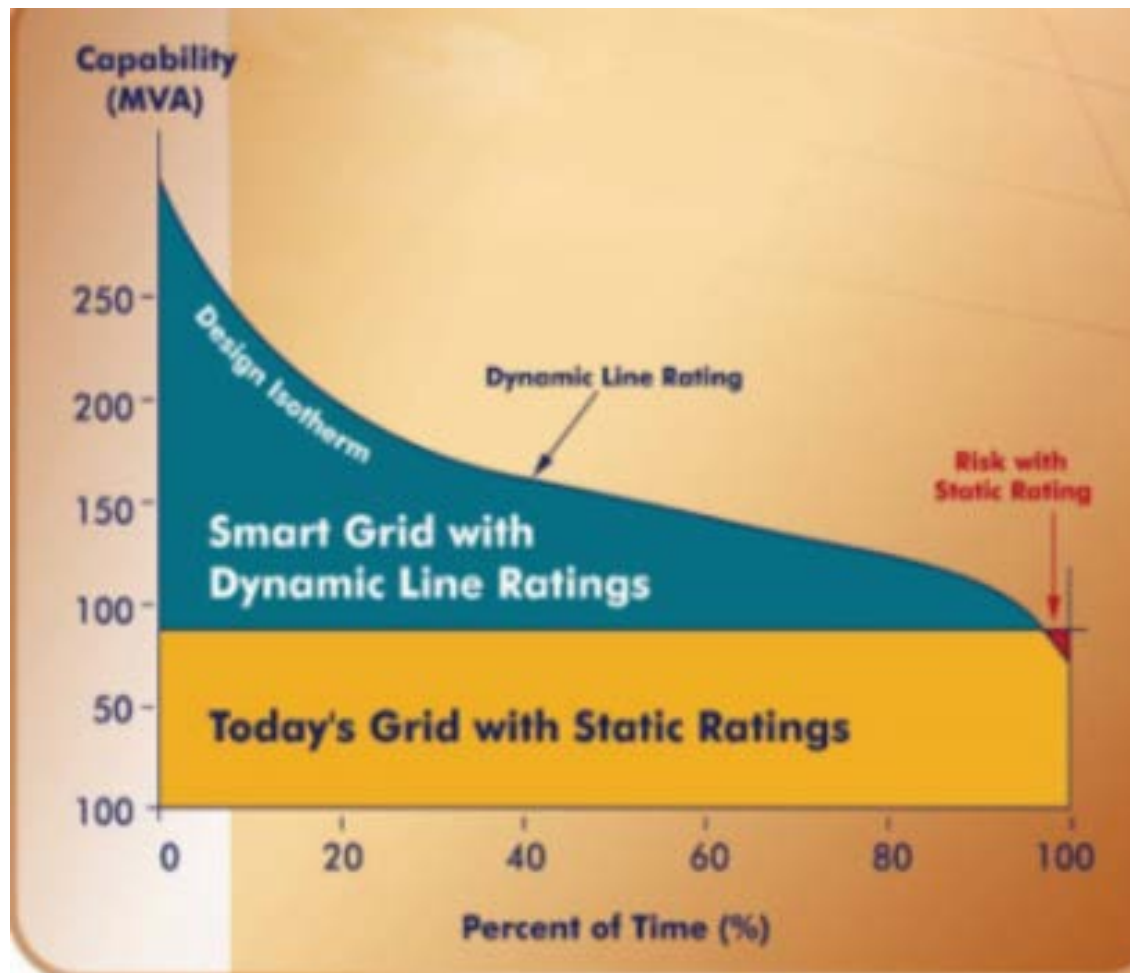
**SMARTLINE™**

**LINDSEY**

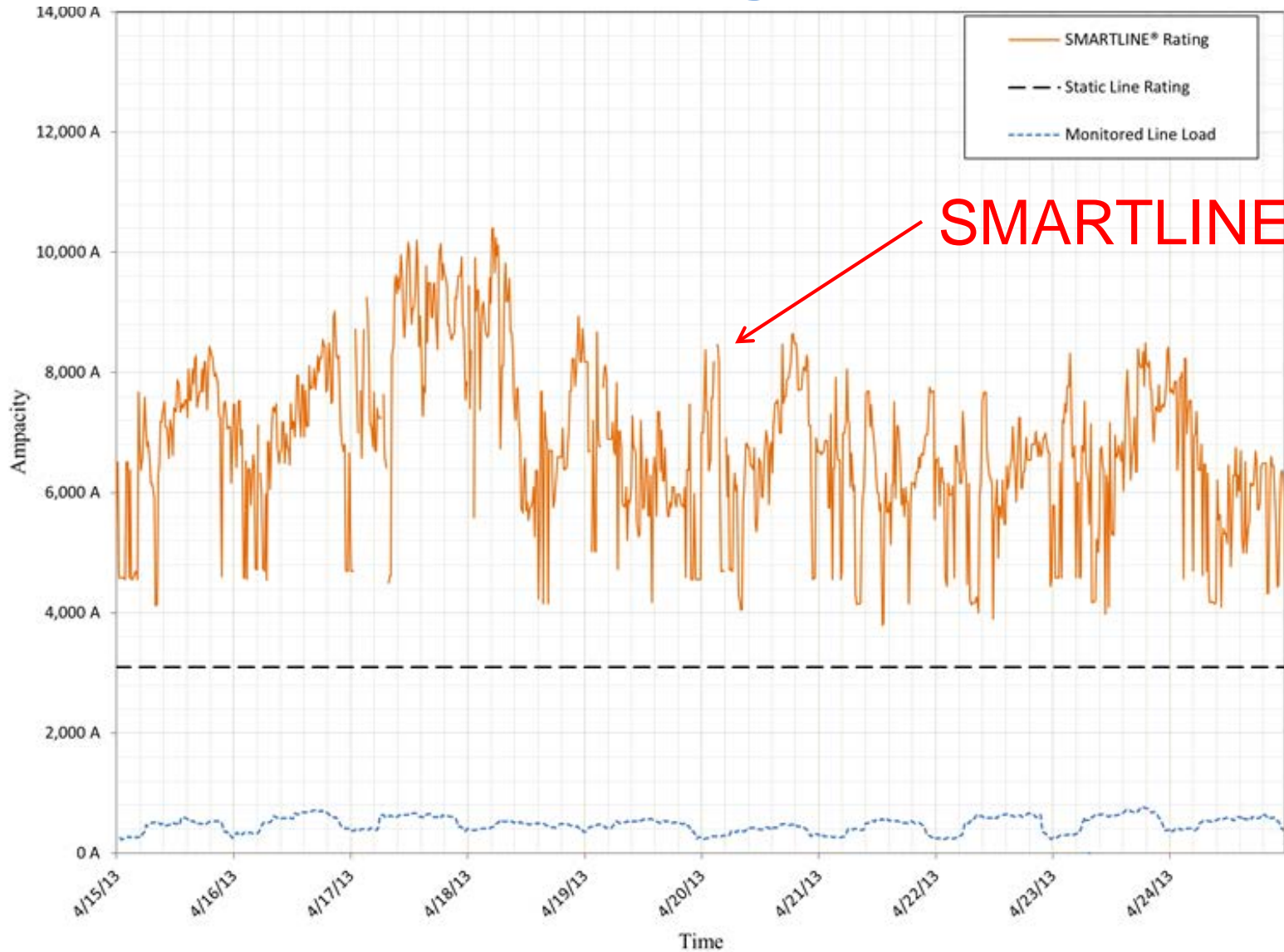
## *A Technology Perspective - Dynamic Line Ratings: More to offer Transmission Owners today than ever before*

- Technology known for decades as capable to increase the efficient use of transmission networks up to 25%
- Hundreds of installations including two recent DOE-sponsored projects validate DLR systems indicate excess real-time capacity above the static rating most of the time (95% availability in the majority of projects)
- However, DLR is not implemented as a transmission owner's standard practice nor is it generally accepted as part of operational contingency management

# What is a Dynamic Line Rating (DLR)?



# SMARTLINE DLR Rating



SMARTLINE® DLR

## DOE Reported Value of DLR \*

Accurate dynamic ratings enable a transmission owner to know the true transfer capacity of transmission grid elements in real time.

- The primary benefits of a DLR system are
  1. increasing transmission grid efficiency
  2. optimizing the allocation of transmission capital investment by:
    - improving the utilization of existing transmission assets,
    - decreasing congestion costs, and
    - reducing greenhouse gas emissions by facilitating the integration of renewable energy generation into the transmission system.

These benefits can accrue to transmission owners, system operators, and customers.

\* SGDP Transmission DLR Topical Report 04-25-14

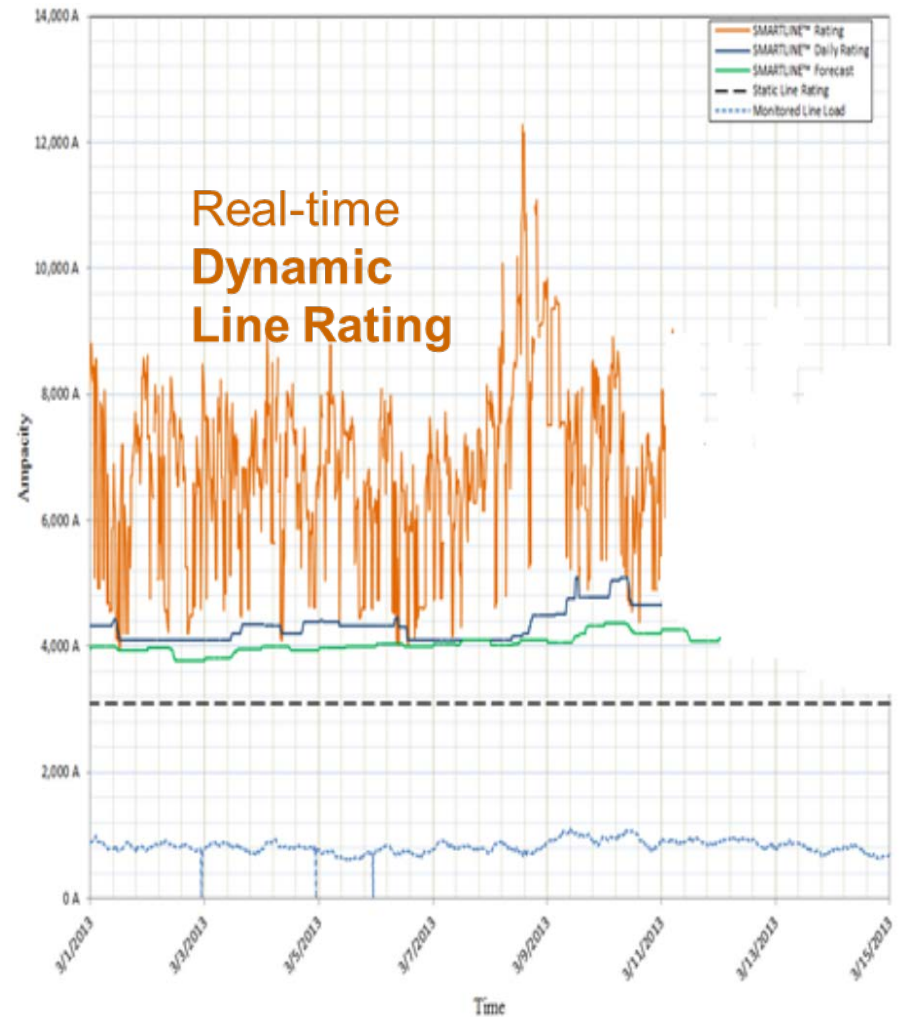
# 1<sup>st</sup> Generation DLR Technology

- Inaccurate or calculated (not direct) measurements
- Intrusive, expensive and time-consuming installations
- Ratings and collected data not provided in a format easily viewed and integrated into operational applications
- No capacity forecasting capability



# Next Generation DLR Improved Technology

- DLR computed from direct measurements
- Simple, non-intrusive installation with no outage required
- Real-time reporting of all data can be viewed using a standard browser
- One hour or increments up to 48 hour capacity forecasting





# Why Consider DLR Today?



TOWARD MORE  
EFFECTIVE  
TRANSMISSION PLANNING:  
ADDRESSING THE COSTS AND RISKS OF  
AN INSUFFICIENTLY FLEXIBLE  
ELECTRICITY GRID

- Supports grid flexibility: Options in light of today's changing industry
- Pressure to take advantage of renewable generation
- FERC's recent focus on improving the grid through technology or price reforms
- Network reliability during maintenance or outages
- New perception of generation sources



*Touching High Voltage Everyday*

# LINDSEY

for more information:

visit <http://lindsey-usa.com/dynamic-line-rating/>

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