



# Can we use Reliability Indices to estimate the impact of Undergrounding?

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# Background

Undergrounding is often suggested as one of the ways to build a more resilient electrical infrastructure and thereby improve reliability

## It's Time for Utilities to Reconsider Undergrounding Power Lines – T&D World 2019

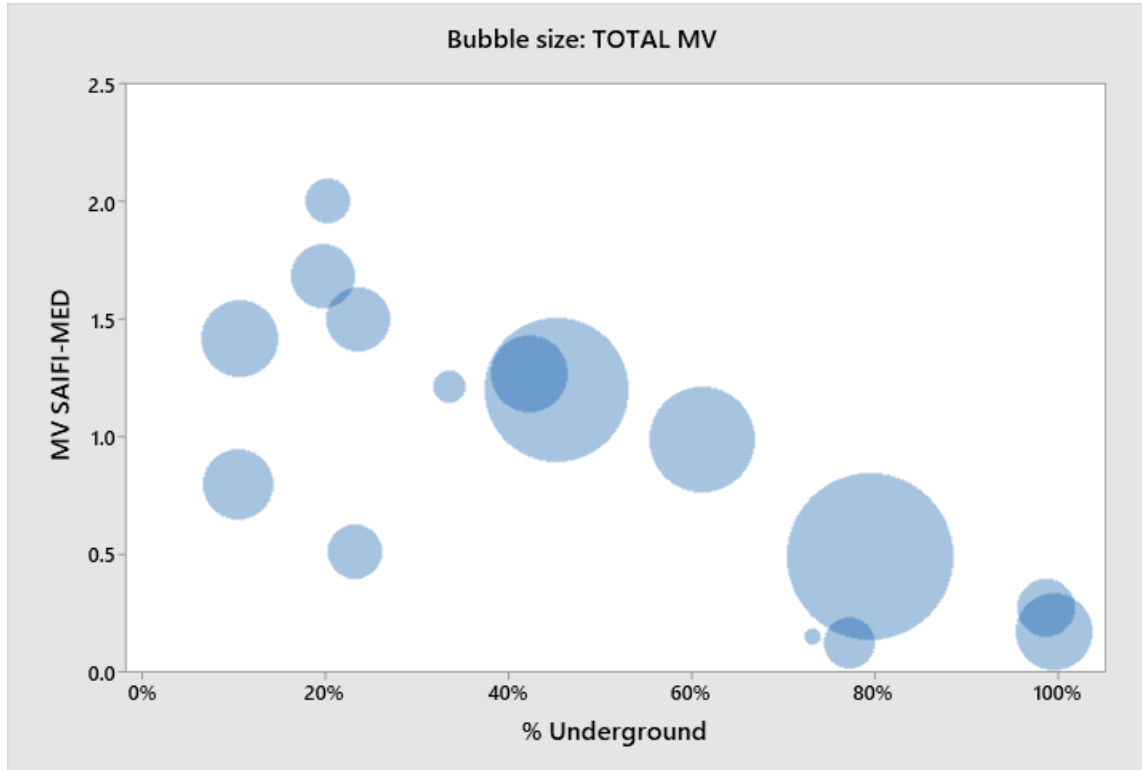
Cost of undergrounding power lines is no excuse – San Francisco Chronicle 2019

Converting existing overhead lines to underground, by nearly all measures, is prohibitively expensive and generates modest benefits, at best, in reliability and system longevity. – North American Wood Pole Council 2017

Undergrounding is not new, many utilities with various % underground.

- Can the effect of undergrounding be seen in the Reliability data?
- How large might the Reliability Benefit be?

# Europe – CEER Report

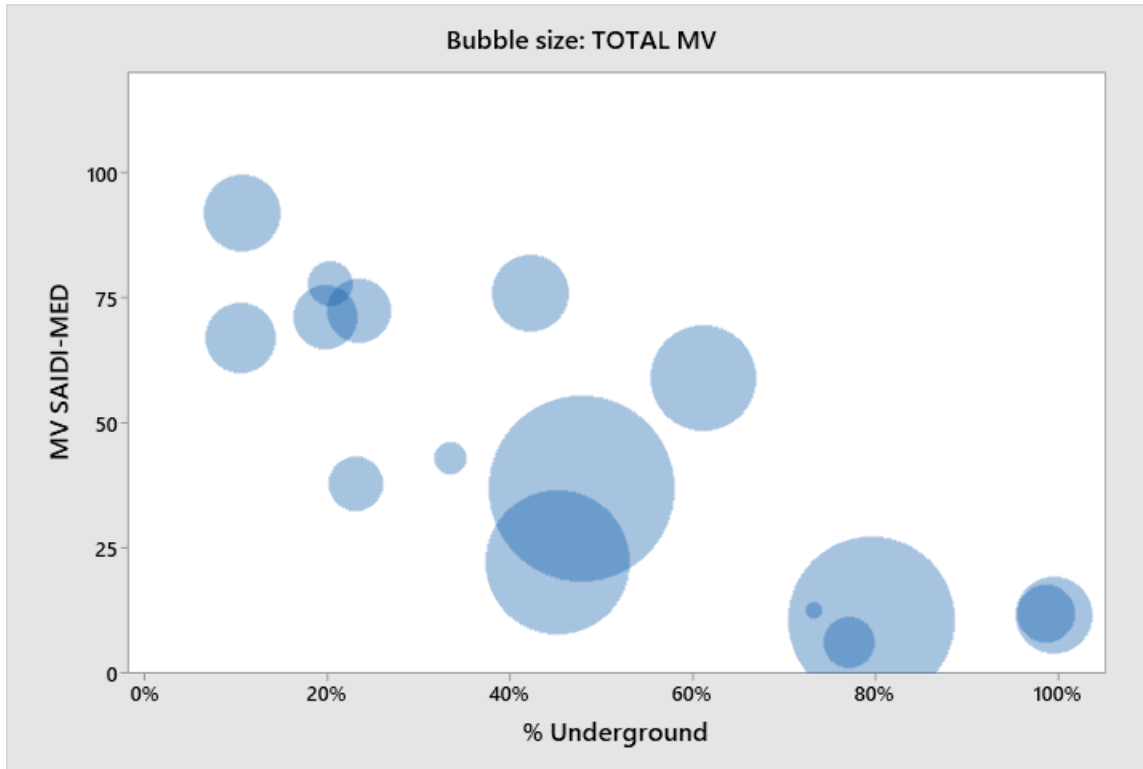


**SAIFI**  
the average number of interruptions that a customer would experience

**SAIDI**  
the average outage duration for each customer served

**MED**  
A set of outages which occurred during a specific time and location and which combined, exceeds historically expected outage duration (SAIDI) for at least one day (as defined in IEEE 1366-2012)

# Europe – CEER Report



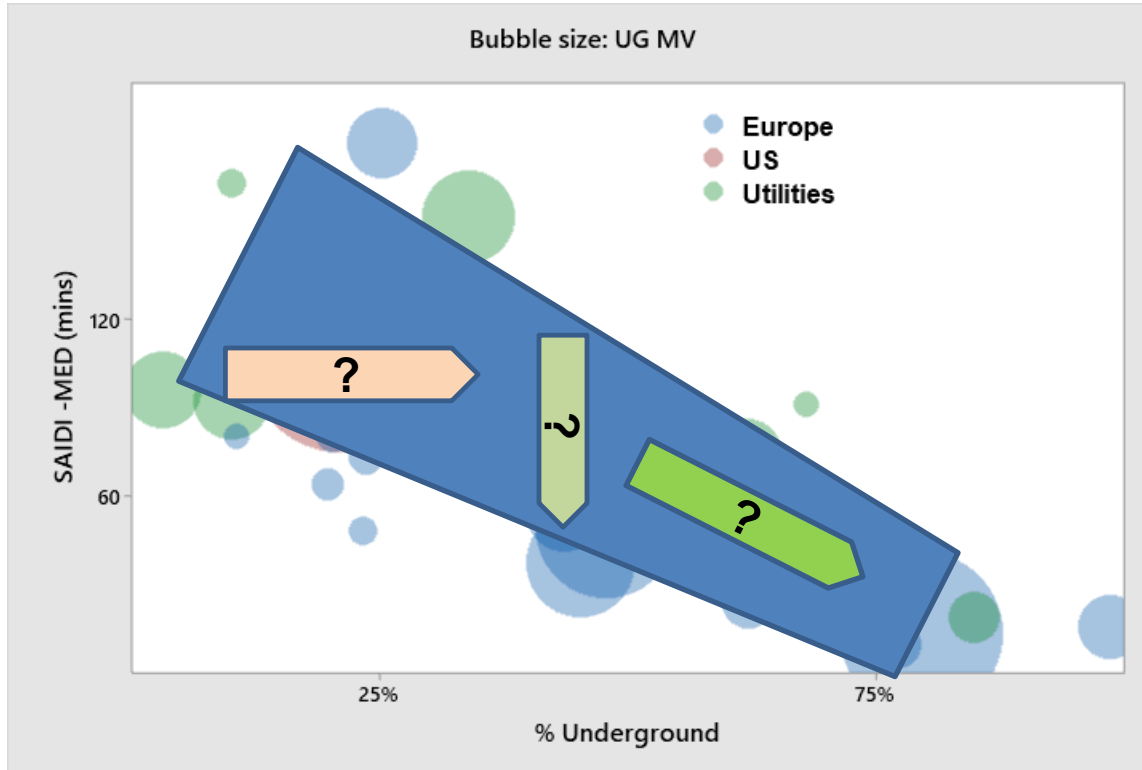
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# US + Europe – CEER Report + Legwork



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# Foreground

Undergrounding is not new, many utilities with various % underground.

- Can the effect of undergrounding be seen in the Reliability data?
- How large might the Reliability Benefit be?

The increase in undergrounding can be **correlated** with lower Reliability Indices

Correlates with **both** SAIFI and SAIDI

System wide it could be modest

Likely significant in strategic areas