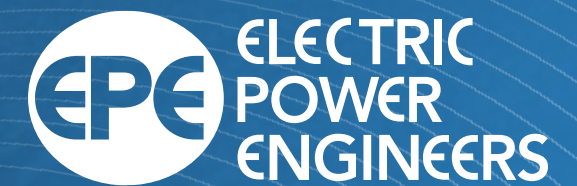


From Conventional Planning to GET-Enabled Studies: Key Implementation Challenges

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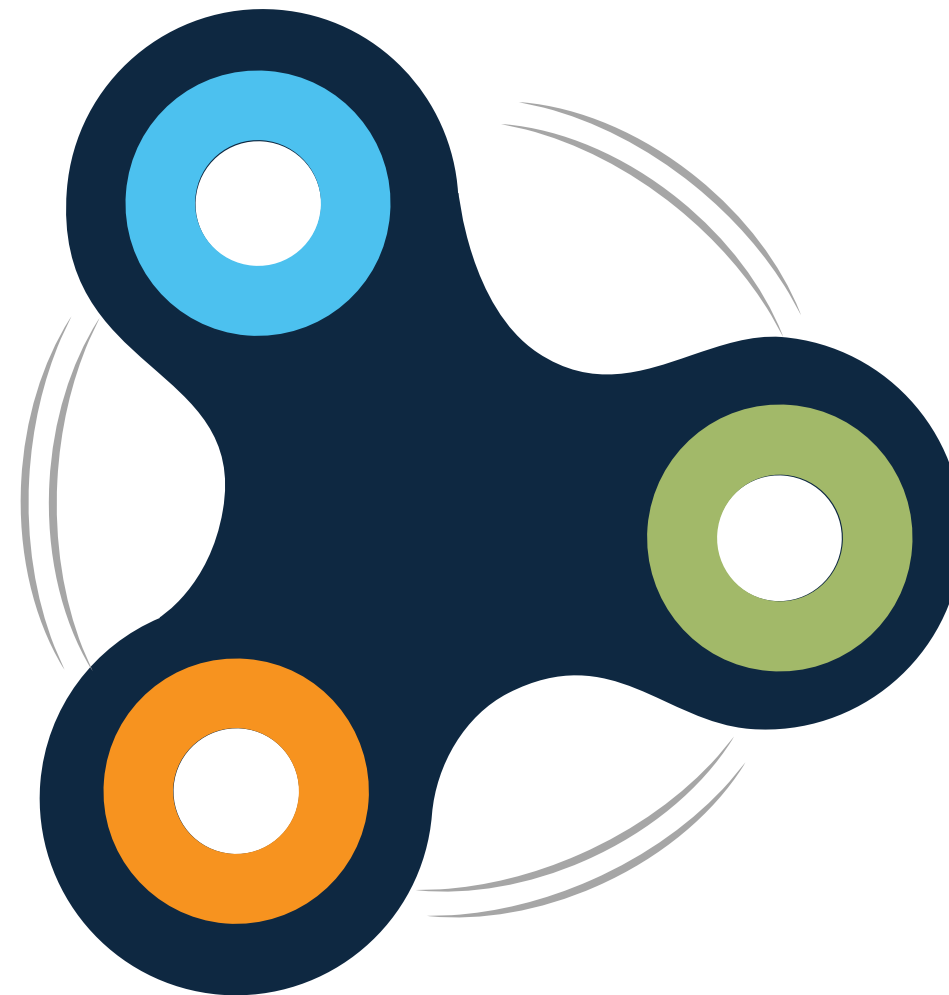
Why Normal to Have Challenges in GET Adoption?

1. The “Natural Inertia”

Transitioning to new technologies inherently introduces implementation challenges.

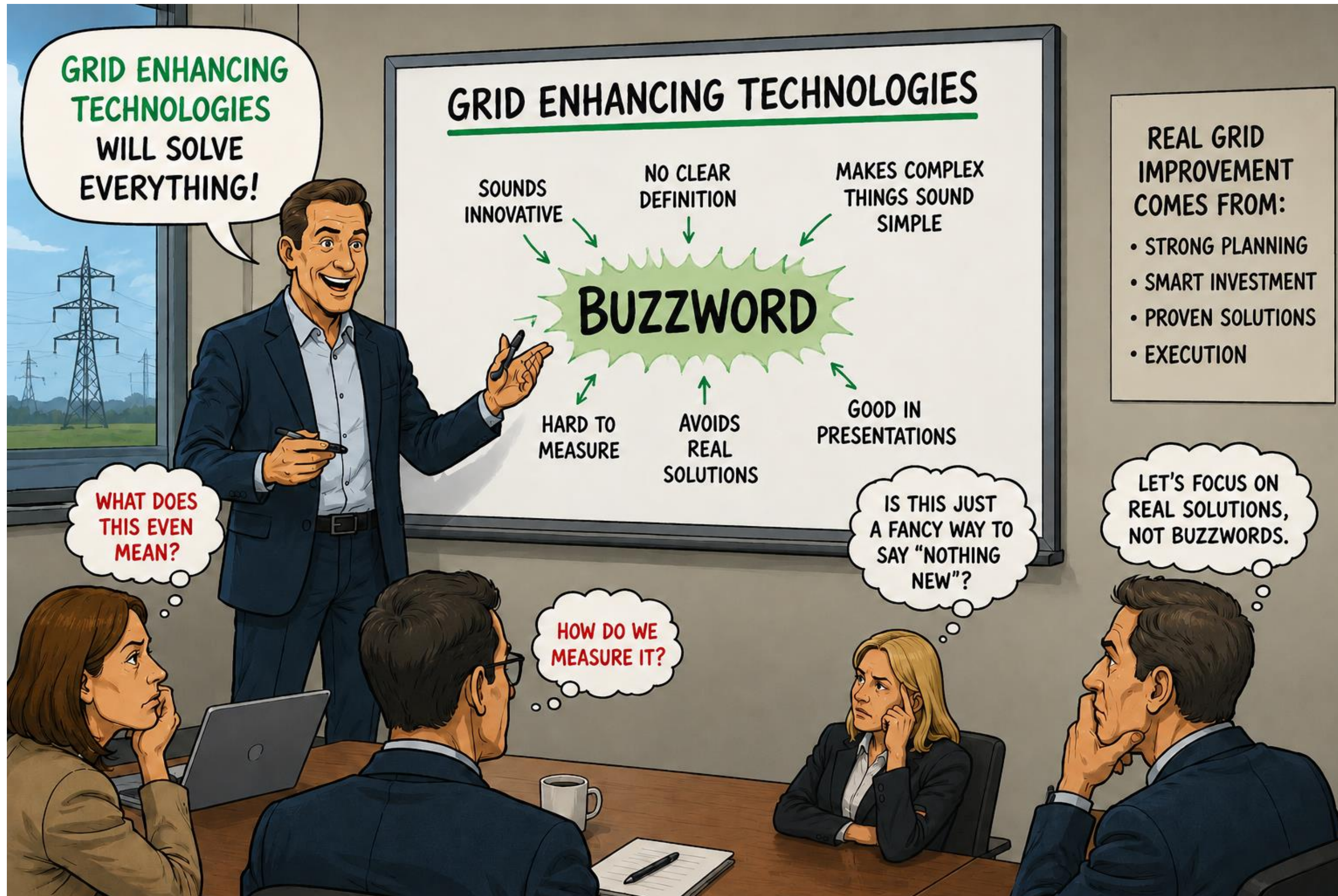
3. The “Buzzword Fatigue” Barrier

Oversaturation of the term "GETs" in policy and marketing risks diluting its perceived technical credibility.

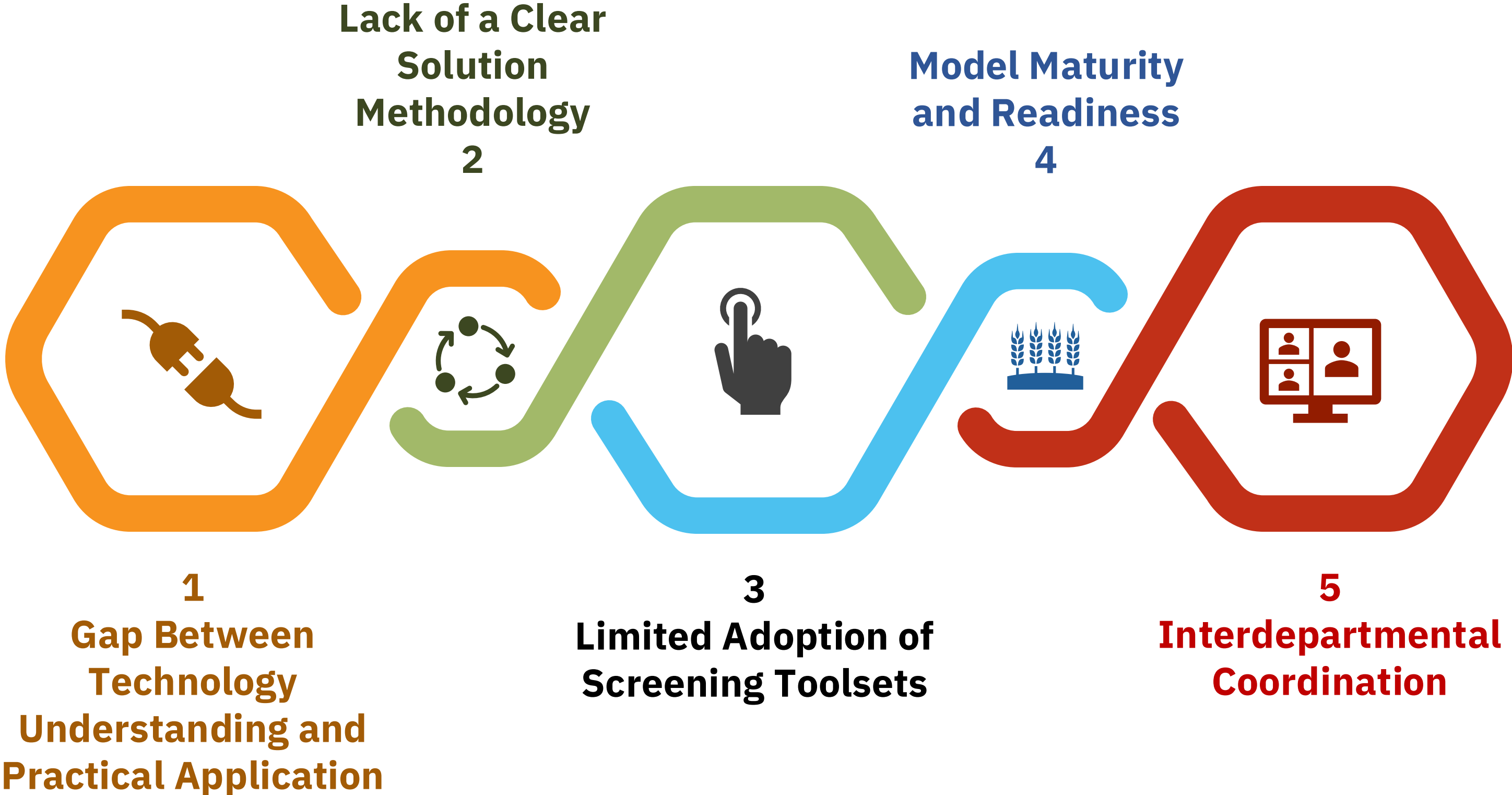


2. The “check-the-box” Compliance

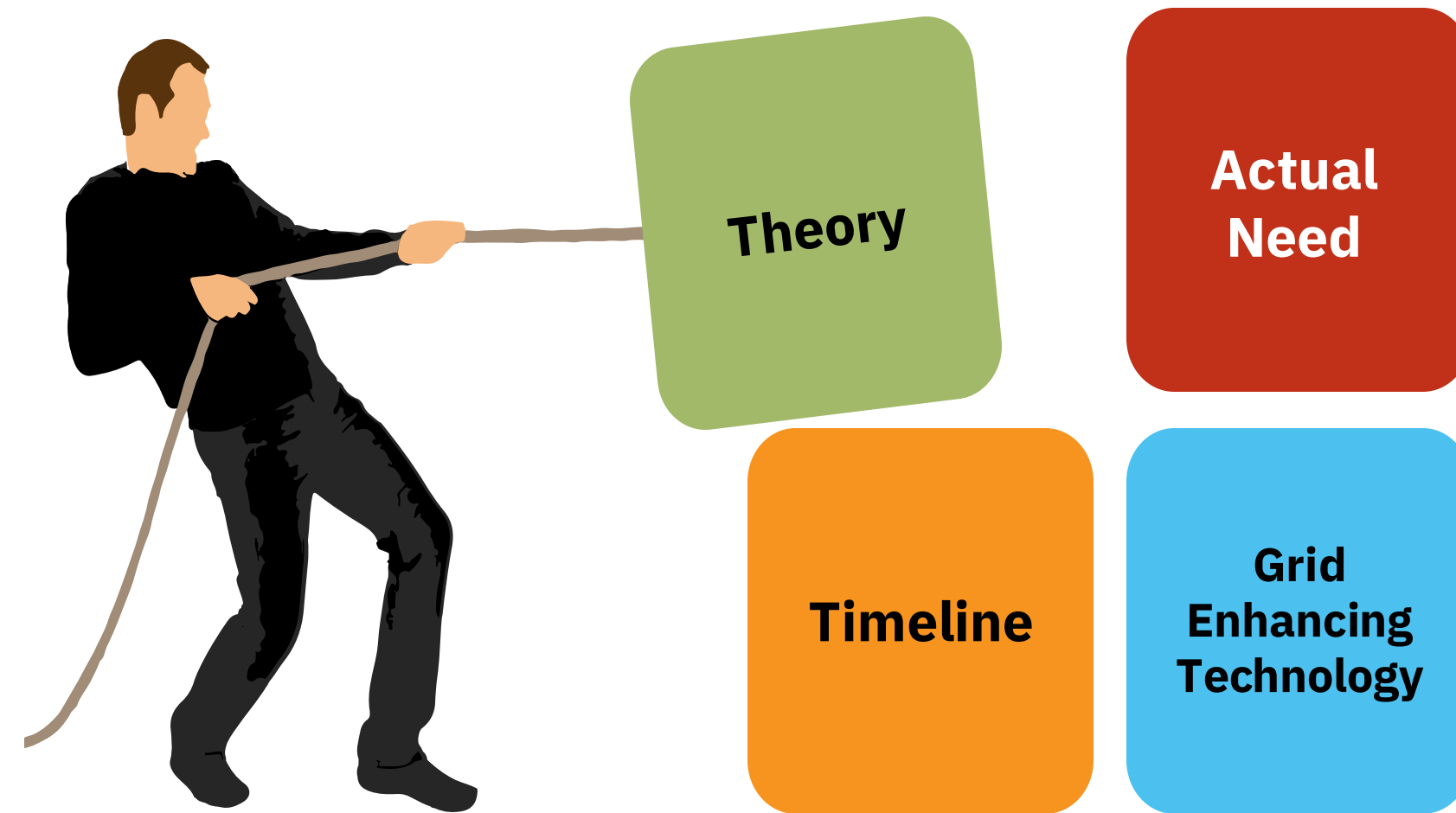
Regulatory intent to accelerate GETs is bottlenecked by the utility's ability to technically dismiss them during compliance filings.



Challenges to be Discussed



1. Gap Between Technology Understanding and Practical Application



Theoretical awareness **without**
practical execution

Samples of the Common Gaps Observed

A STATCOM was recommended to resolve post-fault dynamic voltage instability during a P5 contingency.

Transmission switching was proposed to mitigate an overload in close proximity to a **nuclear** generating station.

APFC was proposed to mitigate an EHV line overload within a **highly constrained installation footprint**.



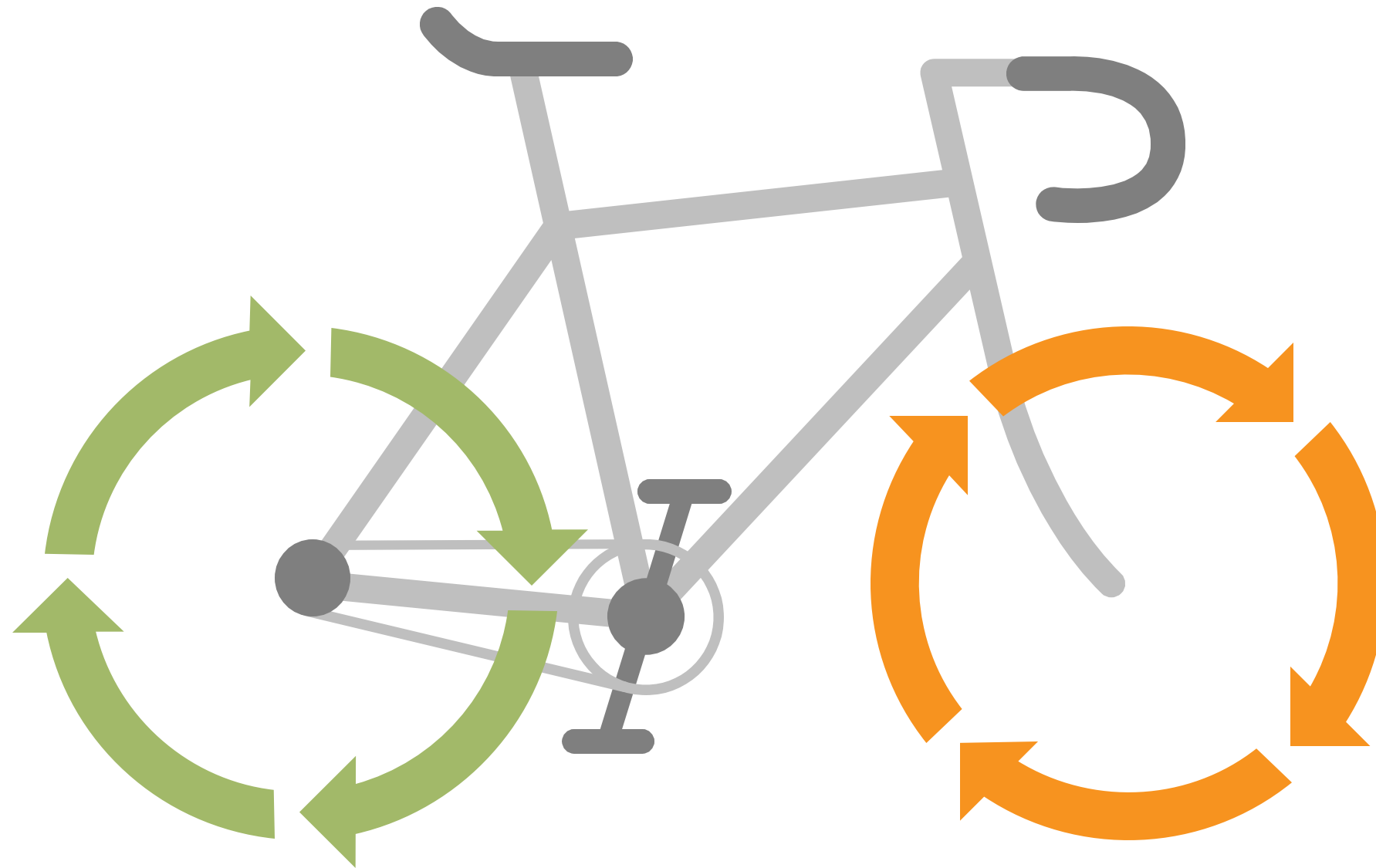
APFC was proposed to mitigate thermal overloads identified on a **short transmission line**

Engineer started testing APFC to resolve overload on a feeder that becomes **radial post-contingency**

Advanced conductors were proposed to mitigate overloads on a circuit where **ground clearance is the primary limiting factor**.

How to Cover the GAP?

Translate high-level technology profiles into practical use cases that address immediate planning constraints.



Equip transmission planning engineers with robust techno-economic evaluation skills and a comprehensive understanding of real-world deployment barriers.

2. Lack of a Clear Solution Methodology

Engineers understand the technology conceptually but lack a defined workflow to integrate GETs once standard steady-state or dynamic violations are identified.

1

Regional variations in standard study practices prevent a 'one-size-fits-all' GETs methodology across different transmission zones.

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4

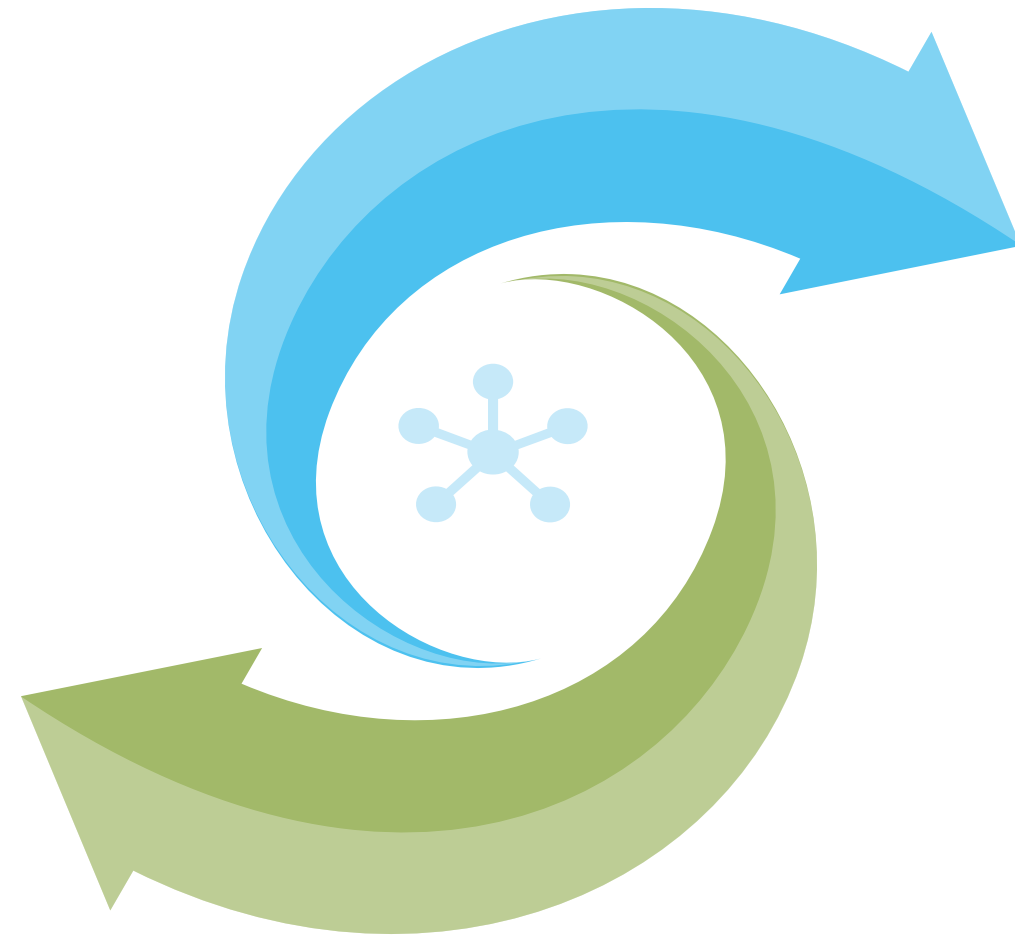
The methodology must encompass both steady-state and dynamic analyses while seamlessly integrating mandatory transmission planning studies, such as LL SIS, GI SIS, NERC TPL-001, TPL-008, CIP-014.

2

Ensure the GETs analytical framework mirrors existing conventional planning methodologies to minimize friction.

3. Limited Adoption of Screening Toolsets

Because GET evaluations typically start at the tail end of the planning cycle, they face severe timeline constraints and are often discarded due to project schedule pressure



Evaluating a diverse suite of GETs simultaneously adds significant complexity and duration to the standard planning cycle.

Expectations from the Screening Toolsets

- Rapidly scan/map all thermal and voltage violations across the study area.
- Screen out non-viable technologies based on localized constraints
- Identify and prioritize the technologies with the highest probability of mitigating the issue.
- Provide a robust engineering defense for every technology shortlisted or ruled out during the screening phase.

The screenshot displays the 'Alternative Technologies Framework' web application. The interface is divided into two main steps:

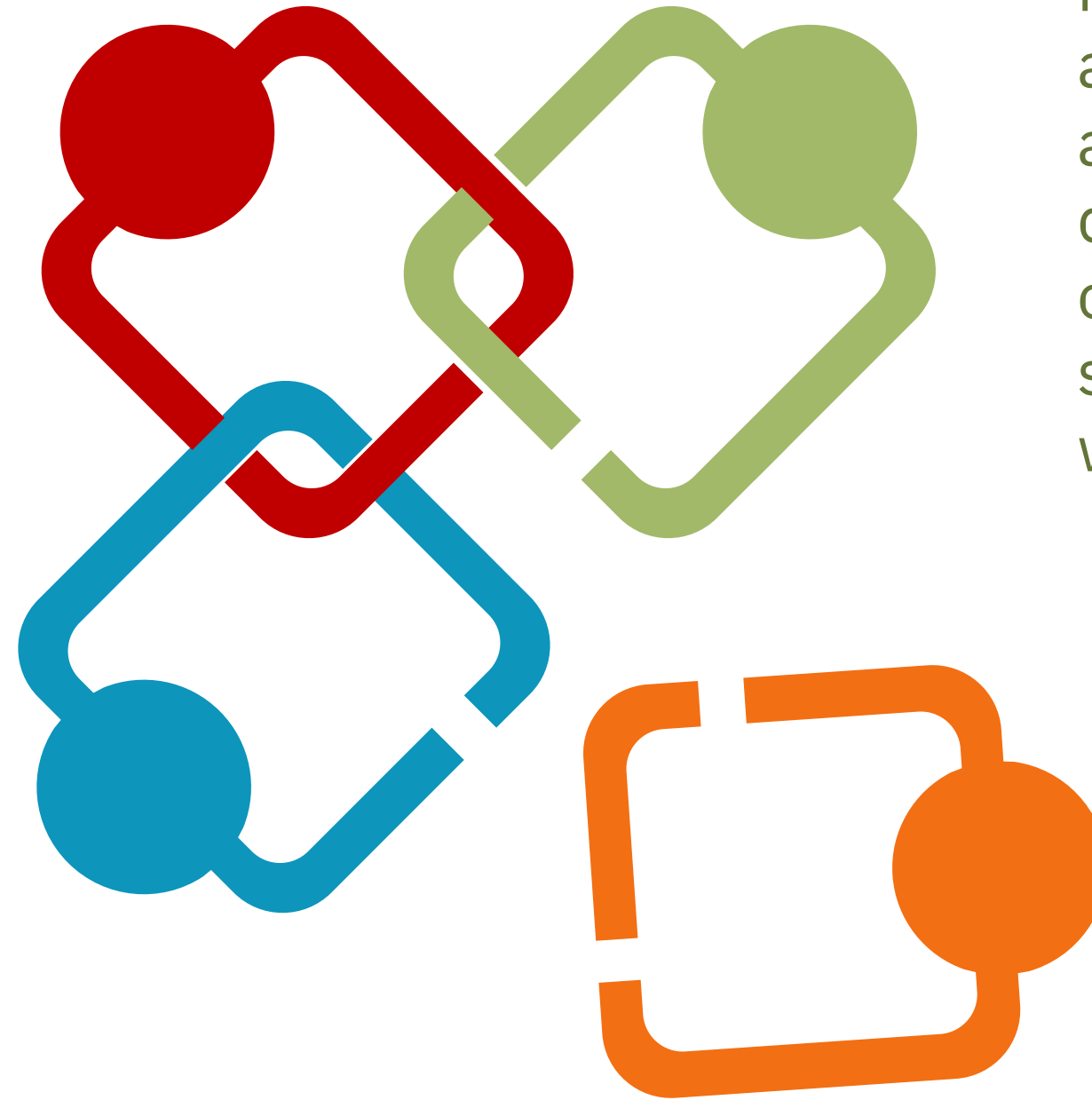
- Step 1: Process TARA Raw Results**
 - Description: Processes the raw GD TARA output file and prepares a summary workbook for user review.
 - Form fields: 'Select Contingency Type' with radio buttons for 'N-1 (Summer)' and 'N-1-1 (Spring)', and a 'Contingency set' dropdown menu currently set to 'P3 contingencies'.
 - Instructions: 'Select a TARA Excel output file containing the 'TVAGDLoadingSummary' tab (.xlsb, .xls, .xlsx, or .csv).' followed by a 'Browse' button.
 - Buttons: 'Check Input' and 'Run Step 1 + Step 2'.
- Step 2: Thermal Violation Assessment**
 - Description: Generates radial index via AC analysis and evaluates ATT feasibility.
 - Form fields: 'Select processed workbook generated in Step 1 (.xlsx).' followed by a 'Browse' button.
 - Button: 'Run'.

At the bottom of the interface, there is a 'Status / Log' section and an 'Export Log' button.

4. Model Maturity and Readiness Challenges

Technology vendors demonstrate a visible readiness gap when adapting their tools and methodologies from real-time operational needs to rigid transmission planning workflows.

Technology vendors must collaborate closely with standard simulation software providers to embed their asset models directly into existing transmission planning platforms.



Current technology models do not adequately serve the analytical needs of planners; attempting to integrate multiple distinct models into a single grid case significantly disrupts simulation stability and workflow efficiency.

Accelerated GI and Large Load growth leaves zero margin for error, eliminating any organizational buffer for handling vendor model maturity gaps.

5. Interdepartmental Coordination Challenges

Introducing facilities that modify network impedance fundamentally shifts protection design baselines, necessitating updated coordination practices between planning and protection teams.

Successful GET enablement requires more than just mitigating an active violation; it must include a defined protocol for returning the grid to its normal state. In transmission switching, the operations team requires planners to explicitly define the trigger and timeline for reverting back to the pre-action configuration.



New technology adoption is bound by supply chain compliance, requiring rigorous component testing and vendor vetting before field integration.

Thank You!

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