



2025 TGO Fall Summit

Orchestrating the Grid to Enhance Reliability and Unlock Grid Resources

October 14-15, 2025

Hilton Garden Inn Atlanta Downtown

275 Baker St NW

Atlanta, GA 30313



Agenda	2
Welcome	4
Important Information	5
Keynote Address	6
TGO Alignment	7
Working Group 1: TGO Framework	8
National Grid Case Study	13
Working Group 2: Localized Grid Flexibility	14
Rappahannock Case Study	19
Digital & Data Readiness	20
Rising Trend Breakout	21
Public Services of New Mexico Case Study	26
Schneider Case Study	27
Working Group Planning	28
Closing Remarks	30
Connect with Attendees	31
Additional Notes	33

Agenda

Tuesday, October 14, 2025 | Alliance in Action

Breakfast & Check-In	7:30 am – 8:30 am
Welcome	8:30 am – 9:00 am
Keynote Address Mark Ortiz	9:00 am – 9:30 am
TGO Alignment	9:30 am – 10:15 am
TGO Framework	10:30 am – 11:30 am
National Grid Case Study	11:30 am – 12:00 pm
<i>Flexible Interconnections</i>	
Lunch	12:00 pm – 1:00 pm
Localized Grid Flexibility	1:00 pm – 3:00 pm
Rappahannock Electric Co-Op Case Study	3:00 pm – 3:30 pm
<i>Innovative Distribution Planning</i>	
Digital & Data Readiness	3:45 pm – 4:45 pm
Social Event	6:00 pm – 8:00 pm
<i>Connect and unwind with games, food, and drinks!</i>	

Fight Club Atlanta
1055 Howell Mill Rd
Atlanta, GA 30318

Agenda

Wednesday, October 26, 2025 | Advancing TGO

Breakfast & Check-In	7:30 am – 8:30 am
Welcome	8:30 am – 8:45 am
Industry Rising Trends	8:45 am – 9:05 am
Rising Trend Breakout	9:05 am – 10:00 am
1. <i>Evolving Energy Models (DSO)</i>	
2. <i>AI for Grid Operations</i>	
3. <i>Data Centers as Flexible Load</i>	
Rising Trend Regroup	10:00 am – 10:45 am
Public Services of New Mexico Case Study	11:00 am – 12:00 pm
<i>Transmission Real-Time Contingency Analysis & Applications for TGO</i>	
Lunch	12:00 pm – 1:00 pm
Schneider Electric Case Study	1:00 pm – 1:45 pm
<i>One Digital Grid Platform</i>	
Working Group Planning	1:45 pm – 2:45 pm
Debrief & Closing Remarks	2:45 pm – 3:15 pm
Social Event	4:00 pm – 5:00 pm

Welcome to the 2025 TGO Fall Summit!

Over the next two days, we will discuss the importance of Total Grid Orchestration in navigating significant transformations in grid investments and fostering a more robust, adaptable grid. We will delve into the most recent trends, technologies, and tactics in grid orchestration and explore how they can be leveraged to cultivate a more resilient and sustainable grid.

Our Alliance members will provide key updates from our working groups that were mobilized in 2025 including a TGO developed concept, Localized Grid Flexibility. Furthermore, we will work together to chart our course for 2026 and beyond.

We look forward to engaging discussions, insightful exchanges, and collaborative efforts to shape the future of grid orchestration. Thank you for being part of this important gathering.

Lastly, we'd like to extend our warm appreciation to our event sponsors, session speakers, and event planners for making this event possible.



Guillaume Paradis

*Co-Chair, TGO Alliance
COO - Distribution and Generation,
Hydro Ottawa Limited*



Joe Zhou

*Co-Chair, TGO Alliance
Infrastructure Advisory Markets
Group Leader, Black & Veatch*

A special thank you to our event sponsors

Tier 1 Sponsors



Tier 2 Sponsors



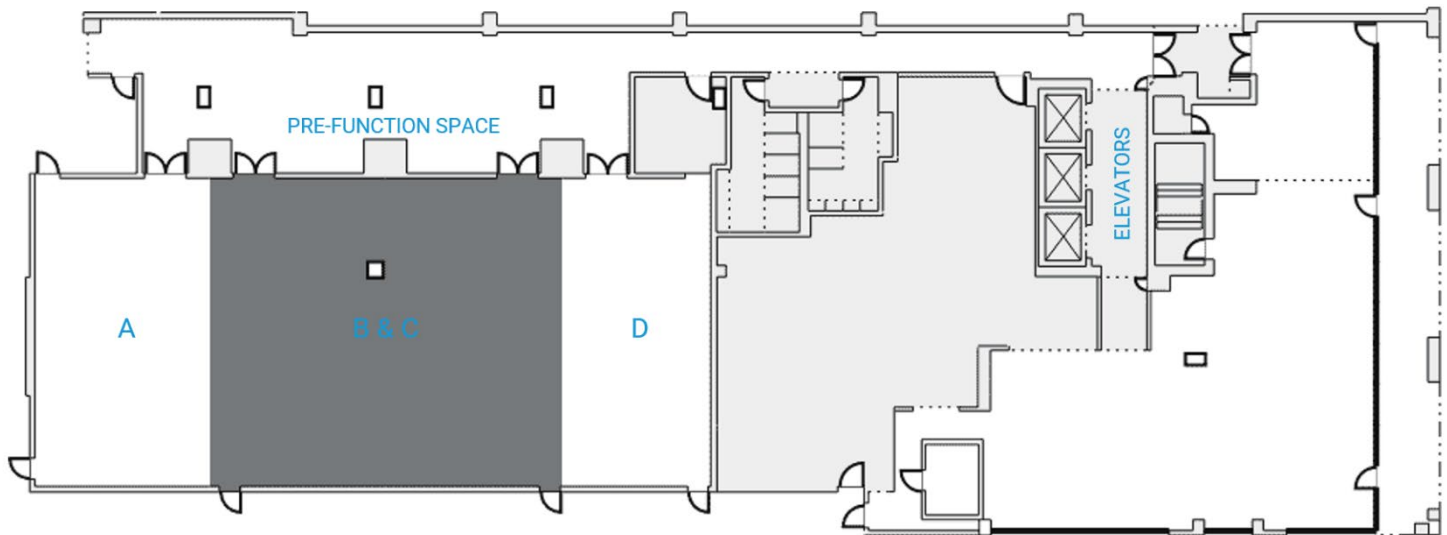
Tier 3 Sponsors



Important Information

Hilton Garden Inn Atlanta Downtown
275 Baker St NW
Atlanta, GA 30313

- **Fall TGO Summit** will be held in **Oceanic Ballroom** (4th floor)
- **Food and Beverages** can be found in **Pre-Function space** (hallway)



Need support this week?



Allie Broussard

Alliance Administrator, TGO Alliance
Electric Markets Specialist, Black & Veatch
(832) 260-3054

As a reminder, it is important to adhere to all antitrust laws and regulations. This includes avoiding discussions or agreements with competitors on pricing, market allocation, or any other competitive sensitive information.

Mark Ortiz

Senior Director and Chief Architect, Power and Grid,
Schneider Electric

Mark Ortiz is a forward-thinking energy professional specializing in the development and delivery of large complex Energy Infrastructure and Digital Transformation programs that are modernizing the electric grid. With over 25 years of utility experience from strategy, smart grid architecture, regulatory support, and industry standards- Mark brings a collaborative spirit in shaping the future of grid orchestration.



Co-Chair, TGO Alliance
Infrastructure Advisory Markets Group Leader

[illegible]

Total Grid Orchestration Framework

Refining TGO Framework and Maturity Model to advance TGO focus areas



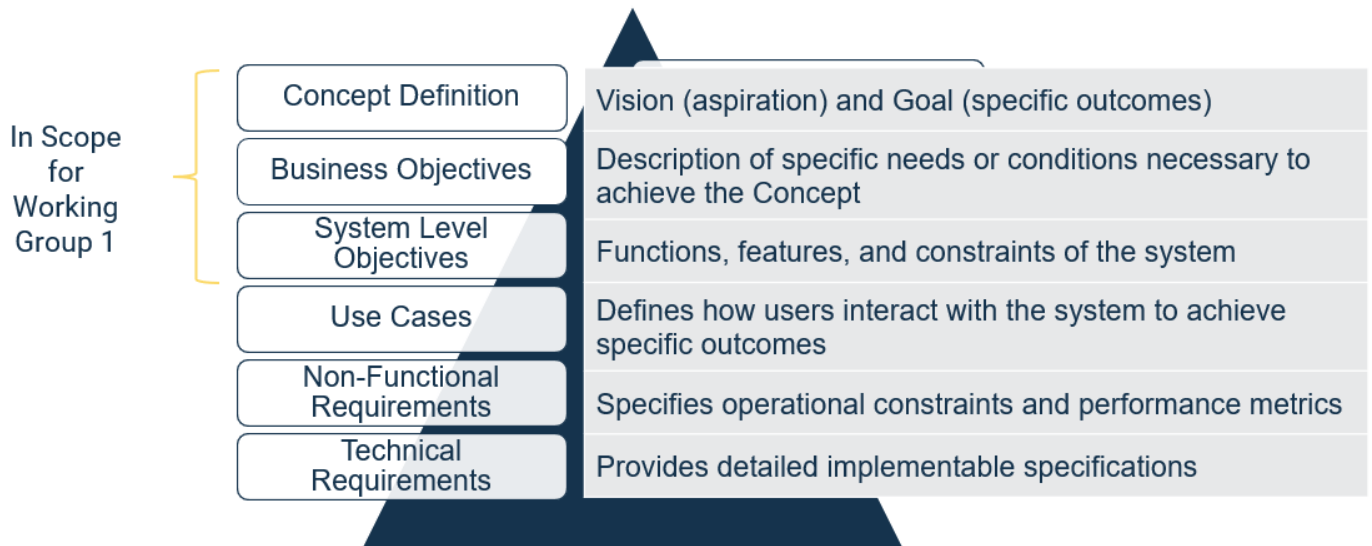
**BLACK &
VEATCH**

Paul Moran

Principal Consultant, Integrated Solution Strategist

[illegible]

TGO Framework Hierarchy



TGO Business Objectives

Total Grid Orchestration (TGO) TGO is a coordinated approach to manage the risks across the entire grid, thereby optimizing the performance of the energy grid, especially in extreme reliability and resiliency situations.

WG 1 identified **8 core objectives** of Total Grid Orchestration



Holistic Visibility and Control: Achieve comprehensive and secure situational awareness and real-time control of all grid assets.



Integrated Planning & Operations: Foster collaboration across generation, transmission, distribution and customer (as applicable) for synchronized planning and operations.



Localized Grid Flexibility: Utilize flexible resources to balance supply and demand, ensuring grid stability.



Ability for Enhanced Resilience and Reliability: Strengthened ability to respond to disturbances and support grid resilience.



Customer and Prosumer Integration: Empower consumers and distributed energy resources to participate in grid services while respecting their preferences.



Asset Optimization Capabilities: Enable optimization of grid assets.



Market Enablement and Coordination: Support and incentivize flexible and reliable behavior in grid services markets.



Risk-Informed Decision-Making Capabilities: Quantified and predictive grid analysis to inform near real-time operational actions.

Legend
Operations & Analytics
Planning & Capital Improvement
Market & Policy Design
Data Collection & Situational Awareness

- Planning & Capital Improvement
- Market & Policy Design
- Collection & Situational Awareness



Risk-Informed Decision-Making

The platform to act on the outputs of situational awareness based on quantifiable risk

Ensure compatibility with grid components, including DERs, electric vehicles, and flexible loads, as well as control of these grid assets.

Joint Planning Tools
Developed tools for collaborative forecasting, planning, and decision-making.

Advanced Forecasting
Use of predictive analytics to anticipate demand and supply variations.

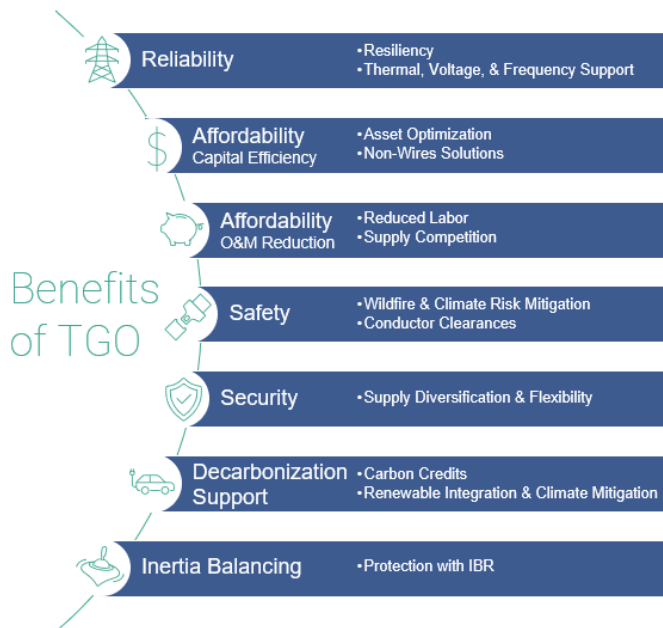
Resilience Planning
Develop strategies for islanding, black start, microgrid operations.

User-Friendly Interfaces
Developed platforms that allow consumers to easily engage with grid services

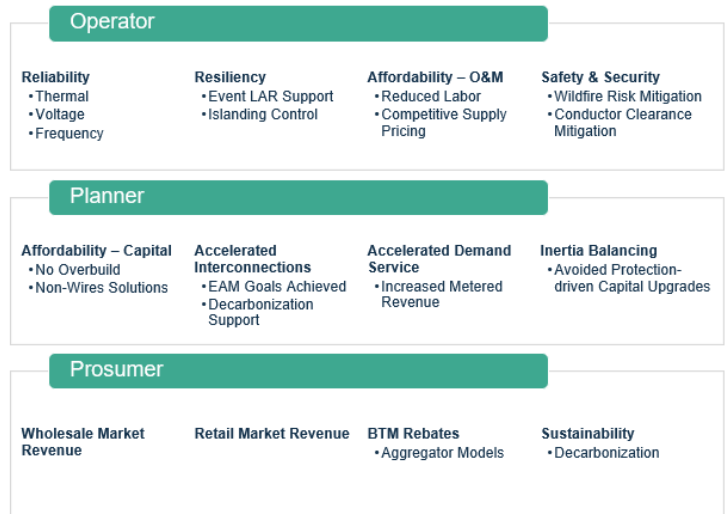
Scenario Analysis Tools
Developed tools for
simulating and analyzing
various grid scenarios.

Regulatory Compliance
Ensure alignment with regulatory requirements and standards.





TGO Value Proposition



Stakeholder Benefits



TGO Maturity Model Definitions

Maturity Level	Description	Key Characteristics	Value Realization
 1. Foundational (Awareness & Enablement)	Basic capabilities and awareness of orchestration potential.	<ul style="list-style-type: none"> - Manual processes - Siloed systems - Limited visibility - Minimal DER integration 	<ul style="list-style-type: none"> - Initial reliability improvements - Basic O&M cost savings
 2. Integrated (Data-Driven Coordination)	Systems and data begin to integrate across domains.	<ul style="list-style-type: none"> - Shared data platforms - Early-stage DERMS, ADMS - Some demand response - Basic forecasting & analytics 	<ul style="list-style-type: none"> - Improved asset utilization - Moderate O&M and capital efficiency - Early resilience planning
 3. Orchestrated (Dynamic Optimization)	Real-time orchestration across grid layers and actors.	<ul style="list-style-type: none"> - Real-time/locational situational awareness - Coordinated TSO/DSO operations - Automated fault detection - Virtual Power Plants (VPPs) - Risk-informed decision-making 	<ul style="list-style-type: none"> - High reliability & resilience - Capital deferral via non-wires solutions - Enhanced market participation
 4. Adaptive (Predictive & Proactive Ecosystem)	Fully adaptive, self-optimizing grid ecosystem.	<ul style="list-style-type: none"> - AI/ML-driven analytics - Self-healing networks - Dynamic pricing & incentives - Full prosumer integration - Regulatory-aligned orchestration 	<ul style="list-style-type: none"> - Maximum grid flexibility - Decarbonization & sustainability - Resilient, affordable, secure grid

TGO Maturity Model Expanded Definitions

	Maturity Level			
	Foundational	Integrated	Orchestrated	Adaptive
Objective				
Holistic Visibility & Control	Basic SCADA, siloed data, limited DER visibility	Unified dashboards, partial DERMS, AMI integration	Real-time situational awareness, DERMS + ADMS, IoT sensors	Predictive grid state modeling, AI-driven control, full DER orchestration
Integrated Planning & Operations	Separate TSO/DSO planning, manual coordination	Shared data lakes, joint planning sessions	Coordinated control systems, integrated forecasting	AI-assisted co-optimization, dynamic planning with real-time feedback
Localized Grid Flexibility	Manual DR programs, limited BTM visibility	Aggregator platforms, early VPP pilots	Automated DR, storage dispatch, flexible load orchestration	Fully modular flexibility, AI-optimized dispatch, prosumer-led balancing
Enhanced Resilience & Reliability	Manual outage response, basic redundancy	FLISR, automated switching, resilience planning tools	Self-healing networks, microgrid integration, black start readiness	Predictive failure analytics, adaptive islanding, climate risk mitigation
Customer & Prosumer Integration	TOU pricing, basic portals, passive consumers	Real-time pricing, DER enrollment, mobile apps	VPPs, DER aggregation, active market participation	Full prosumer orchestration, dynamic incentives, sustainability dashboards
Asset Optimization Capability	Time-based maintenance, siloed asset data	Predictive maintenance, digital twins, APM tools	Scenario-based planning, cross-platform analytics	AI-driven optimization, real-time asset orchestration, lifecycle extension
Market Enablement & Coordination	Manual settlements, limited DR markets	Real-time trading platforms, DRMS integration	Dynamic pricing, flexible market rules, DER market access	Fully transactive energy markets, blockchain-enabled P2P trading
Risk-Informed Decision-Making	Qualitative risk logs, manual assessments	Quantitative scoring, early modeling tools	Real-time risk dashboards, decision support systems	Predictive risk optimization, AI-driven orchestration under uncertainty

Flexible Interconnections

nationalgrid

Joe Ciccarello

Lead Engineer, Electrical Planning and Design



Localized Grid Flexibility (LGF)

Review LGF concept progression and learn how to assess your organizations LGF maturity

Andrew Fawcett

Supervisor, Distribution Systems Integration



Allie Broussard

Market Specialist, Electric Markets

[illegible]

Localized Grid Flexibility Defined

The orchestration of multiple Grid Services to alleviate constraints in the distribution network to balance energy supply and demand at the local level by providing real-time reporting and analytics and control on localized Grid Services to evaluate effectiveness and optimize dispatch.

GOALS

- ✓ Alleviate localized constraints by orchestrating Grid Services and resources in the most efficient way possible.
- ✓ Effectively prepare grid resources based on constraints identified in the short-term forecast.
- ✓ Leverage a single platform to plan and orchestrate all available Grid Services in the short-term (operational) time horizon (<10 days).
- ✓ Orchestrate solutions for a single or set of constraints to support local solutions and enable more granular usage of Grid Services.

SCOPE

Distribution system from the distribution service transformer, up to the sub-transmission (34.5 - 100kV) level.

Grid Services

- Volt Var Optimization (VVO)
- Conservation Voltage Reduction (CVR)
- Load Balancing (Grid Reconfiguration)
- Demand Response Programs
- Flexible Interconnections
- BESS
- Asset Optimization
- Virtual Power Plant

OUT OF SCOPE

- System Planning
- Multiple Violations

PRE-CONDITIONS

#1 – Multiple Grid Services

2 or more Grid Services must be available for orchestration.

#2 – Organization Structure

- ✓ Visibility to real-time grid constraints
- ✓ Access to multiple services that can be managed to alleviate constraints
- ✓ Ability to directly manage Grid Services in real-time

#3 – Regulation and Market Structure

Contract or rate recovery mechanisms that allow multiple Grid Services to be used to remediate reliability or power quality issues on the localized system.

#4 – Available Flexibility

Knowledge of location and amount of flexibility available to alleviate grid constraints across different time scales.

Localized Grid Flexibility Working Group Guardrails

LGF Working Group Guardrails

Expanding LGF Scope Moving Forward

IN SCOPE	OUT OF SCOPE
Current State Infrastructure	Long Term System Planning
Single System Constraints	System-wide Grid Management

Planning & Design

Changes to the distribution planning model to better leverage LGF capability

System Wide Application

Orchestration of many constraints across the distribution and sub-transmission system

LGF Deployment

Utility pilot for LGF in partnership with a vendor or simulated pilot in a lab environment

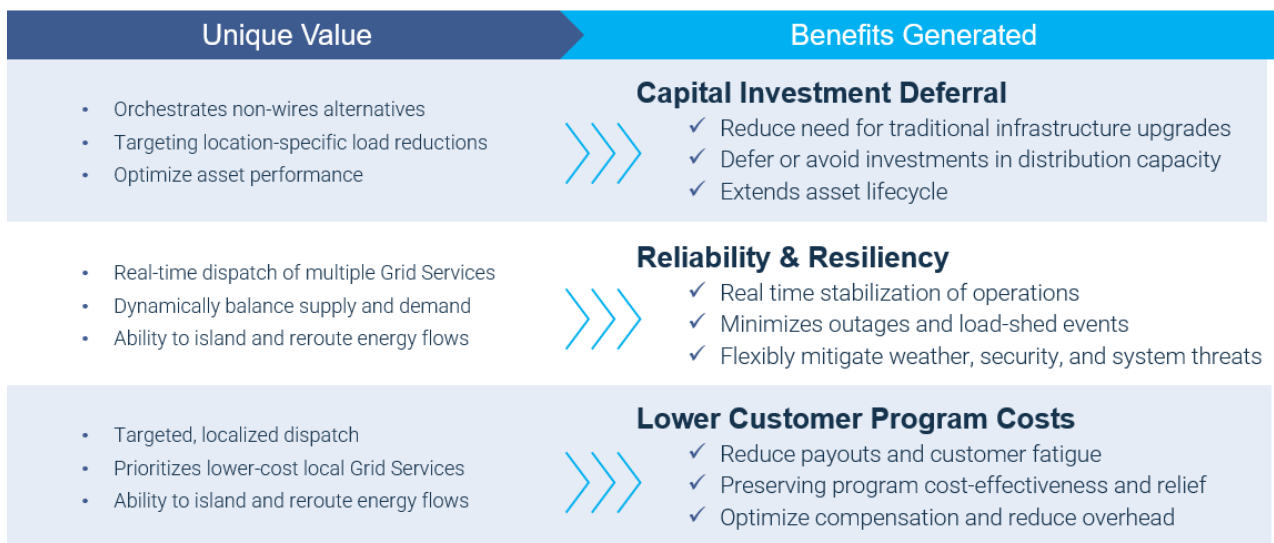
Unlocking the Value of Localized Grid Flexibility

Localized Grid Flexibility (LGF) is the coordinated use of multiple Grid Services— such as Demand Response, Volt/VAR Optimization (VVO), and Battery Energy Storage Systems (BESS)— to resolve distribution-level constraints in real time, optimize system performance, and reduce costs. As Distributed Energy Resources (DER) continue to proliferate, electrification accelerates, and climate resilience becomes critical, grid flexibility is becoming increasingly essential for reliable, cost-effective operations.

The TGO Alliance identified LGF as an emerging solution concept that can address distribution-level constraints with precision and agility. Rather than relying on isolated, program-by-program interventions, LGF will embrace a platform-based orchestration of Grid Services to target local constraints. It's not just about deploying more technology; it's about using what utilities already have more intelligently and in locally targeted ways.

But what will LGF actually deliver and how will electric utilities begin to quantify its value?

Top 3 Benefits LGF Could Unlock



1. Capital Investment Deferral

LGF will enable utilities delay— or in some cases avoid costly infrastructure upgrades by using non-wires alternatives like Demand Response, VVO, and BESS to manage local constraints. Instead of building new substations or upgrading feeders, utilities will be able to call for location-specific reductions to relieve stress on the grid. This will extend the useful life of existing assets and let planners prioritize capital where it is truly needed, especially in areas with uncertain load growth or high DER penetration.

2. Improved Reliability & Resiliency

LGF will enhance reliability by coordinating multiple Grid Services to stabilize operations and respond to localized conditions in real-time. By dynamically balancing supply and demand at the distribution level, utilities will be able to minimize outages and load-shed events.

In addition, LGF will support resiliency planning by enabling demand-reduction tactics, rerouting of energy flows, and pre-planned switching strategies—an important capability in regions facing extreme weather or aging infrastructure. The expected result: fewer and shorter outages, a better customer experience, and lower restoration costs and operational risk.

3. Lower Customer Program Costs

Traditional Demand Response often relies on system-wide activations that drive up incentive payouts and risk customer fatigue. LGF will shift this paradigm by enabling targeted, localized dispatch—activating Grid Services only where needed to relieve constraints. This precision will reduce unnecessary compensation and improve program cost-effectiveness, while preserving customer goodwill by avoiding overuse of DR events.

Top 3 Benefits LGF Could Unlock

Using the TGO Alliance's LGF Benefit-Cost Analysis framework, we have assessed several additional value streams that utilities can tailor to their context:

- **Reduced Engineering & Planning Effort** – Streamlined studies and fewer iterations.
- **Improved System Efficiency** – Lower system losses through localized optimization.
- **Carbon Emissions Reduction** – Demand reduction and DER integration shift generation to cleaner sources.
- **Shortened Interconnection Queue** – Faster DER connections through flexible interconnection management.
- **Improved Customer Experience** – Better power quality and fewer outages lead to higher satisfaction and trust.

Moving Forward & Getting Involved

While the potential benefits are compelling, quantification will vary by utility systems, regulatory environments, and data availability. The TGO Alliance working group explored sample calculations and modeling approaches but ultimately chose to develop a high-level BCA framework that utilities can adapt to their own context.

The TGO Alliance continues to refine LGF Deployment Playbook and measurement strategies. By aligning, refining, and sharing frameworks and best practices, we aim to help accelerate LGF from concept to implementable solution across the industry.

Localized Grid Flexibility Maturity Measures

CAPABILITY / MEASURE	LEAST MATURE LEVEL	MOST MATURE LEVEL
System Integration	Data from Grid Services is siloed; requires manual extraction and analysis.	Data flows seamlessly across systems into a single operational interface with full automation.
Visibility	Minimal or no real-time monitoring through SCADA, field sensors, or Grid Service monitoring.	Sensors have high penetration providing clear view of the telemetered state of the system and Grid Services.
Control Capability	No centralized dispatch; Grid Services may require manual field operation.	Centralized platform can issue automated, secure dispatch commands to all Grid Services at any scale.
Local vs. System Control	Grid Services can only be dispatched at a system-wide level.	Grid Services are dispatchable at any level of granularity, from system-wide to individual device.
Grid Service Prediction & Forecasting Analysis	Service availability is estimated manually with limited accuracy.	Grid Services data in a single platform automatically shows current state, predicted capacity and availability.
Load Prediction & Forecasting Analysis	Constraints are assessed using historical data and manual calculations.	Ability to accurately predict and identify expected local system constraints within the short-term planning period.
Orchestration Analysis and Optimization	Manual analysis using spreadsheets; no optimization across services.	Automated, closed-loop optimization of multiple grid services within a single platform.
Network Model	No detailed distribution model; connectivity and asset attributes are incomplete.	High-fidelity, continuously updated network model enabling confident forecasting and control.
Data Management	Data is fragmented, error-prone, and difficult to access across systems.	Data is accurate, current, and seamlessly integrated using industry-standard practices.

Innovative Distribution Planning



Karan Patel

Managing Director - Energy Solutions and Clean Energy



IT/OT Implications for TGO

Discuss the importance of digital and data readiness to support grid orchestration solutions

Marcelo Sandoval

Director of Innovation and Technology Strategy

Landis+Gyr

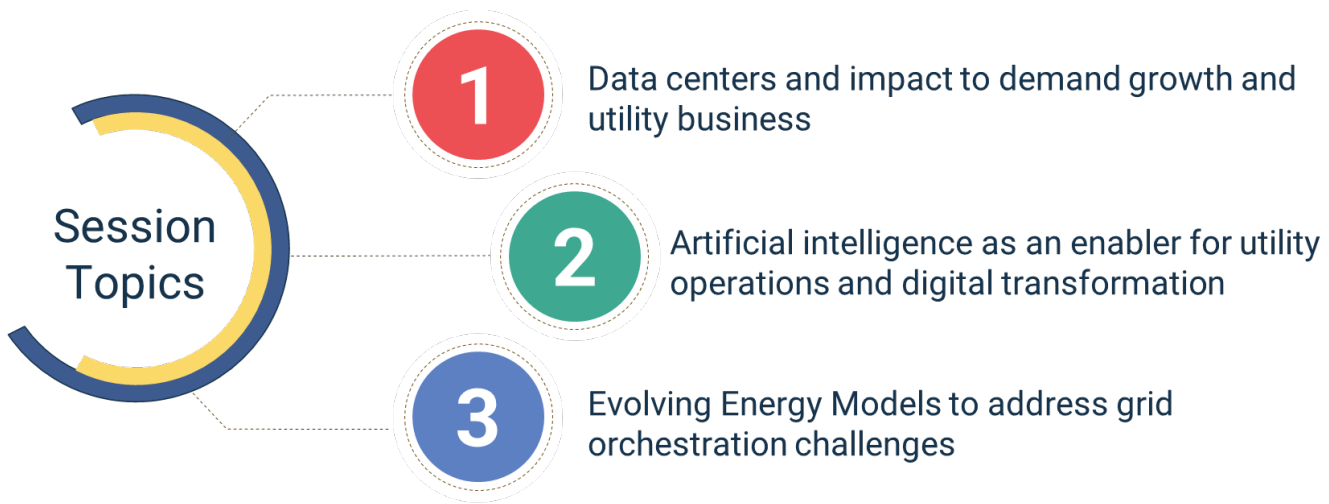


Paul Moran

Principal Consultant, Integrated Solution Strategist



Rising Trend Breakout



1

Andy Wickless

Cesar Miron

Cindy Schweitzer

Eric Seiter

Jason Morris

Marcelo Sandoval

Nicholas Bennett

Nils Frenkel

Patty Cook

Ross Smith

2

Samir Succar

Chaitanya Baone

Allie Broussard

David Rodriguez

Giovanni Herazo

Joe Ciccarello

Karan Patel

Santhosh Jayasankar

Shishir Shekhar

Todd Weisrock

3

Paul Moran

Andrew Fawcett

Chris Rea

Eric Gupta

Joe Zhou

KJ Jain

LeeRoy Perez

Mark Ortiz

Omni Warner

Surhud Vaidya

Please be back in the main area by 10:00 am.

Breakout Session: Impact & Prioritization Rubric (Page 1 of 2)

Topic: _____

1) Significance & Time Horizons

Impacts	Now	2-yr	5-yr	10-yr
Define & Describe Impact	L/M/H	L/M/H	L/M/H	L/M/H

2) List 3 – 5 benefits of leveraging or enabling this trend, including who benefits:

- a.
- b.
- c.
- d.
- e.

Breakout Session: Impact & Prioritization Rubric (Page 2 of 2)

3) List 3 – 5 barriers, challenges, or blockers preventing utilities from effectively managing, supporting, or leveraging this trend:

a.

b.


c.

d.

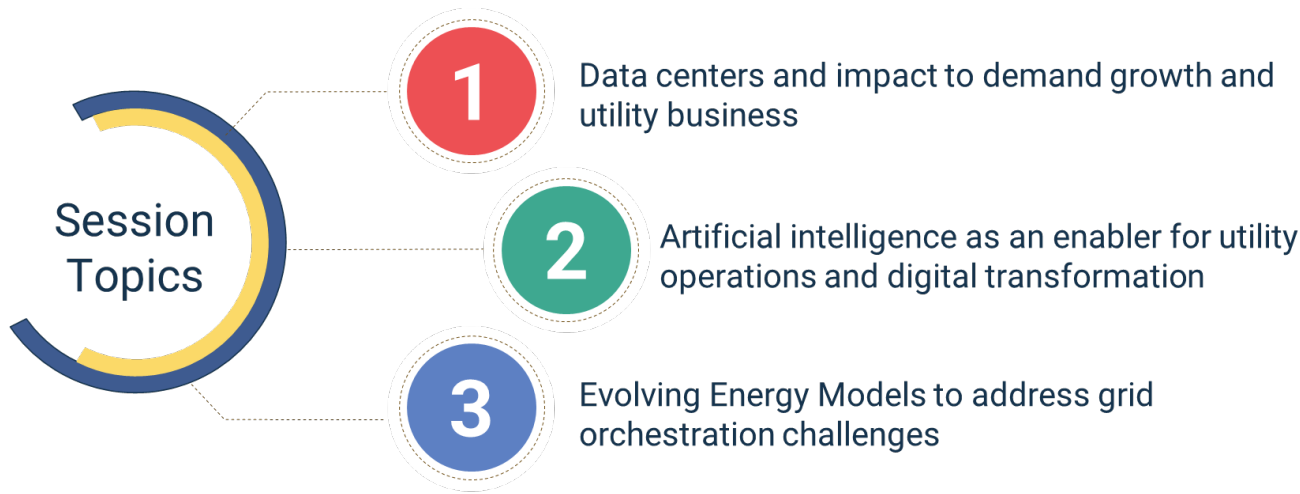
e.

4) Priority for TGO Alliance to Focus on in 2026 (L/M/H) and why?

5) What TGO Capabilities are required to address this trend?

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings on the paper.

Rising Trend Regroup



1

2

3

Real-Time Contingency Analysis



Cesar Miron

Manager of Operations Engineering

[illegible]

One Digital Platform



Ross Smith

Digital Grid VP of Sales North America



[illegible]

[illegible]

Joe Zhou

Co-Chair, TGO Alliance

Infrastructure Advisory Markets Group Leader

[illegible]

Connect with Attendees

CPS Energy

LeeRoy Perez

Vice President, T&D Engineering & Grid Transformation
lperez@cpsenergy.com

Nicholas Bennett

Manager, Economic Development
nbennett@cpsenergy.com

Hydro Ottawa

Andrew Fawcett

Supervisor, Distribution Systems Integration
andrewfawcett@hydroottawa.com

Santhosh Jayasankar

Manager, Enterprise Architecture
santhoshjayasankar@hydroottawa.com

National Grid

Joe Ciccarello

Lead Engineer, Integrated Planning & Solutions
joseph.ciccarello@nationalgrid.com

Public Service of New Mexico

Omni Warner

VP Operations & Engineering
omni.warner@pnm.com

Cesar Miron

Manager of Operations Engineering
cesar.miron@pnm.com

Rappahannock Electric Cooperative

Karan Patel

Managing Director - Energy Solutions and Clean Energy
kpatel@myrec.coop

Black & Veatch

Allie Broussard

Market Specialist, Electric Markets
broussardar@bv.com

Joe Zhou

Infrastructure Advisory Markets Group Leader
zhoum@bv.com

Paul Moran

Integrated Solution Strategist, Electric Markets
moranpa@bv.com

Andrew Wickless

Integrated Solution Strategist, Growth Markets
wicklessa@bv.com

Eric Seiter

Infrastructure Advisory Client Advisory Partner
seiterew@bv.com

Eric Gupta

Principal Consultant, Infrastructure Technology
guptaes@bv.com

Valerie Antaki

Energy Utilities Marketing Sector Lead
antakiv@bv.com

Todd Weisrock

Principal Consultant, Customer Strategy & Management
weisrocktm@bv.com

Gurobi Optimization

Jason Morris

Power and Utilities Account Director -
Americas Region
morris@gurobi.com

ICF

Surhud Vaidya

Manager Distributed Grid Strategy
surhub.vaidya@icf.com

Patty Cook

Sr. VP, Clean Energy Solutions
patty.cook@icf.com

Landis+Gyr

Marcelo Sandoval

Director of Innovation and Technology Strategy
marcelo.sandoval@landisgyr.com

KJ Jain

Global Technology & Innovation Lead
Kshitiz.Jain@landisgyr.com

Shishir Shekhar

Sr. Director, Technology & Innovation,
Americas and Japan
Shishir.Shekhar@landisgyr.com

Schneider Electric

Giovanni Herazo

Head of solution Architecture Digital Grid
gio.herazo@se.com

Ross Smith

Digital Grid VP of Sales North America
ross.smith@se.com

Nils Frenkel

DERMS Business Dev Leader
nils.frenkel@se.com

Mark Ortiz

Sr. Director and Chief Architect, Power and Grid
mark.ortiz@se.com

ThinkLabs

Chaitanya Baone

Head of Product
chaitanya.baone@thinklabs.ai

Samir Succar

Head of BD and Customer Success
samir.succar@thinklabs.ai

Uplight

Chris Rea

Commercial Strategy Manager
chris.rea@uplight.com

Cindy Schweitzer

Senior VP of Sales
cindy.schweitzer@uplight.com

David Rodriguez

Utilities Sales Director, East
david.rodriguez@uplight.com

TGO Alliance

The Total Grid Orchestration (TGO) Alliance, a consortium of utilities and solution providers across North America, has committed to codifying the vision of the TGO concept. This utility-driven alliance shares a commitment to promoting dynamic, integrated, and transparent grid orchestration, enabling the grid platform to continue delivering reliable and affordable services.

The TGO Alliance fosters a collaborative forum to establish an industry-wide framework for grid orchestration across planning, engineering, and operation through a unified risk assessment and mitigation approach.

We strive to enhance situational awareness and integrated planning and operational capabilities across Generation, Transmission, Distribution, and BTM assets, maximizing distributed and variable energy supply and demand optimization. The TGO Alliance is working to create frameworks which can be utilized by solutions vendors, utilities, and the prosumer community to optimize the electric grid and deliver better outcomes through an agnostic and scalable approach.

Orchestrating the Grid to Enhance Reliability and Unlock Grid Resources



[illegible]

[illegible]

[illegible]

[illegible]

[illegible]



TGOAlliance.org