Energy Innovation Summit
Finding Value in Volatility

+

Empa
Materials Science and Technology



SESSION ABSTRACTS

Energy Innovation Summit 2026

Finding Value in Volatility

November 17–18, 2026 · Empa Akademie, Dübendorf · Greater Zurich area, Switzerland

Schedule at a Glance

DAY ONE · TUESDAY, NOVEMBER 17 · AKADEMIE

08:00–09:00	Registration · Foyer
09:00–09:10	**Welcome: Context Setting, Housekeeping, and Gurobi and Empa Team Presentation** · *Tim Reintgen & Dr. Georgios Mavromatidis, Gurobi / Empa*
09:10–09:15	**Empa Welcome Note** · *Dr. Nathalie Casas, Empa*
09:15–09:45	**TSO-DSO Coordination: Unlocking Grid and System Value from Distributed Flexibility** · *Raphael Wu, Swissgrid*
09:45–10:05	**From Spreadsheet Merit-Order to System-Wide Optimization** · *Sebastian Angerhausen, Stadtwerke Krefeld / Quantum*
10:05–10:25	**Embedded Surrogate Models for Real-Time Optimization of Industrial Energy Systems** · *Joshua Schäfermeyer, Iqony Solutions GmbH*
10:25–10:35	**Session Panel: Technology Layer** · *Sebastian Angerhausen, Joshua Schäfermeyer*
10:35–11:05	Coffee Break · Foyer
11:05–11:25	**Optimizing Flexible Assets in Long-Term Markets: Generating Value When the Future Is Unknown** · *Dr. Olivier Mégel, Alpiq*
11:25–11:45	**Optimizing Value in Volatility: From Fragmented Decisions to Portfolio Intelligence** · *Quinten de Wit, Eneco*
11:45–12:05	**From Formulation to Gate Closure: Trading Flexibility in Short-Term Markets Under Uncertainty** · *Azzurra Casali & Dr. Stefanos Delikaraoglou, Axpo*
12:05–12:20	**Session Panel: Market Layer** · *Dr. Olivier Mégel, Quinten de Wit, Dr. Stefanos Delikaraoglou, Azzurra Casali*
12:20–13:50	Lunch · Foyer
13:50–14:10	**Rethinking Strategic Planning: From Forecasts and Silos to Portfolio Optimization** · *Sebastian Wehrle, Wien Energie*
14:10–14:30	**When Optimization Stops Being Optional: Lessons from Planning Decentralized Energy in the Real World** · *Dr. Andrew Bollinger & Helen Heinz, Urban Sympheny AG / Rapp AG*
14:30–14:50	**Open Source Energy Models in Production: Lessons and New Frontiers** · *Dr. Harry van der Weijde, Open Energy Transition*
14:50–15:10	**Balancing Analysis Breadth and Depth in Large-Scale Energy System Optimization** · *Dr. Turhan Demiray, ETH Zurich*
15:10–15:30	**Session Panel: System Layer** · *Sebastian Wehrle, Helen Heinz, Dr. Andrew Bollinger, Dr. Harry van der Weijde, Dr. Turhan Demiray*
15:30–16:00	Coffee Break · Foyer
16:00–16:20	**Rethinking Grid Operation in the Context of Climate Resilience and Carbon-Aware Electric Loads** · *Dr. Line Roald, Google / University of Wisconsin–Madison / Empa*
16:20–17:00	**Panel: Finding Value in Volatility** · *Dr. Line Roald, Raphael Wu, Dr. Mashael Yazdanie, Empa, Sebastian Wehrle, Dr. Olivier Mégel · Moderator: Lennart Lahrs, Gurobi*
17:00–17:10	**Closing Words and Dinner Preview** · *Tim Reintgen & Dr. Georgios Mavromatidis, Gurobi / Empa*
19:00–22:00	Networking Dinner · Arven-Honig Hall, Hotel Sonnental

DAY TWO · WEDNESDAY, NOVEMBER 18

09:00–09:10	**Welcome to Day 2** · *Tim Reintgen & Dr. Georgios Mavromatidis, Gurobi / Empa*
09:10–09:30	**From Ideas to Reliable Decisions** · *Lennart Lahrs & Dr. Charmae Franchesca Mendoza, Gurobi*
09:30–09:50	**The Secret Sauce: How Developers and Experts Innovate Together** · *Dr. Oliver Bastert & Dr. Sonja Mars, Gurobi*
09:50–10:10	**A Moonshot for the Energy Transition: Optimization as the Trusted Decision Layer** · *Dr. Oliver Bastert & Frank Häger, Gurobi*
10:10–10:40	Coffee Break · Foyer
10:40–11:00	**The Organization Behind the Optimization: Delivering Value to the Trading Desk** · *Dr. Nadya Chernyavskaya, TotalEnergies*
11:00–12:00	**Panel: The Energy Decision System** · *Dr. Nadya Chernyavskaya, Dr. Line Roald, Dr. Saverio Bolognani, ETH Zurich, Dr. Harry van der Weijde, Dr. Oliver Bastert*
12:00–13:30	Lunch · Foyer

	GUROBI BREAKOUT · AKADEMIE	EMPA BREAKOUT · LB 0.11.0
13:30–13:55	**Explainability in Optimization** · *Dr. Christine Tawfik & Jaap Pedersen, Gurobi*	**Predict, Optimize and Decide: An Interactive Workshop on Energy System Modeling with ehubX and Sympheny** · *13:30–15:30 · Empa team*
13:55–14:20	**What's New in Gurobi 14** · *Xavier Nodet, Gurobi*	
14:20–14:45	**v14 Performance on the Open Energy Benchmark** · *Dr. Matthias Miltenberger, Gurobi*	
14:45–15:10	**Solving Nonlinear Models with Gurobi** · *Dr. Jaromił Najman, Gurobi*	
15:10–15:30	**Ask the Experts** · *Gurobi Experts*	

	CLOSING EXCHANGE · PARALLEL ROUNDTABLES
15:30–17:00	**Technology Roundtable · Market Roundtable · System Roundtable**

Day One · Tuesday, November 17, 2026

Registration · Foyer — 08:00–09:00

WELCOME — 09:00–09:10 · Akademie

Welcome: Context Setting, Housekeeping, and Gurobi and Empa Team Presentation



Tim Reintgen
Account Manager Power & Utilities EMEA (Gurobi)



Dr. Georgios Mavromatidis
Head of Urban Energy Systems Laboratory (Empa)

WELCOME — 09:10–09:15 · Akademie

Empa Welcome Note



Dr. Nathalie Casas
Head of the Department "Energy, Mobility and Environment" (Empa)

KEYNOTE — 09:15–09:45 · Akademie

TSO-DSO Coordination: Unlocking Grid and System Value from Distributed Flexibility



Raphael Wu
Principal Specialist Market Strategy (Swissgrid)

How can distributed flexibility create value across both transmission and distribution grids? The TSO-DSO Coordination project explores how flexibility can be used in a grid-safe and optimal, yet pragmatic and accessible way, and how decision support facilitates the coordination between DSOs, TSO and aggregators.

TECHNOLOGY LAYER — 09:45–10:05 · Akademie

From Spreadsheet Merit-Order to System-Wide Optimization

How a District Heating Cooperative Rebuilt Its Dispatch Process Around a Biomass CHP Plant, Volatile Prices, and Uncertain Industrial Waste Heat



Sebastian Angerhausen
Energy System Optimization Specialist (Stadtwerke Krefeld / Quantum)

Quantum GmbH, a Stadtwerke Krefeld subsidiary that pools energy market and optimization services for 19 municipal utilities, develops and operates these services on behalf of its shareholders. One of them operates a district heating network and recently began using Quantum's services to optimize its generation fleet.

Dispatch used to be based on a daily merit order from an Excel- and BoFiT-based process. It could not react to intraday price volatility, and since the network's assets belong to several companies with individual commercial interests, it relied on contractually fixed internal heat prices to reconcile them, so what was rational for each company did not guarantee the best outcome for the system.

This talk follows the change process behind replacing that setup with a quarter-hourly, system-wide optimization model that Quantum develops and operates, feeding directly into downstream trading. The rollout happens in stages: the biomass CHP plant, with two boilers and two turbines, already runs in production, while the rest of the portfolio is in test operation. We show why the plant had to be modeled at the level of its internal steam flows rather than as one aggregated unit, producing schedules that were initially counterintuitive to the customer and had to be explained to build trust.

We also touch on the infrastructure behind this shift: a move from AIMMS/CPLEX with auxiliary R scripts to a Julia/JuMP model library solved with Gurobi, and from an on-premise database to Azure Databricks with containerized model execution, which let Quantum reuse and maintain plant models across customers while staying flexible for bespoke solutions.

As an outlook, we briefly touch on the next challenge: coordinating the existing thermal storage, currently used only to buffer a large, hard-to-forecast industrial waste heat feed-in, with the fleet's economic dispatch, and whether stochastic optimization could help manage that trade-off.

TECHNOLOGY LAYER

10:05–10:25 · Akademie

Embedded Surrogate Models for Real-Time Optimization of Industrial Energy Systems



Joshua Schäfermeyer
Project Manager (Iqony Solutions GmbH)

The economic optimization of industrial energy supply systems requires consideration of numerous technical and regulatory constraints. Especially in site-wide energy networks, complex interactions between steam, heat, and power generation plants, fuel restrictions, emission limits, and plant-specific operational boundaries need to be accounted for. Realistically representing these interdependencies requires highly detailed thermodynamic models.

In industrial applications, Ebsilon Professional is used for this purpose, which enables a physically-based modeling of complex energy generation and supply systems. However, the high fidelity of the models comes with significant computational effort. Since individual simulation runs typically require several seconds, direct integration of the simulation model into iterative optimization procedures is impractical for many online applications.

The presented approach addresses this tension by combining process simulation, machine learning, and mathematical optimization. First, training data are generated from a detailed Ebsilon model, based on which neural surrogate models for the relevant plant characteristics are trained. These models are then automatically converted into a MILP-compatible form and integrated as constraints in an optimization model that is solved with Gurobi.

By shifting the computational load from thermodynamic simulation to surrogate-based optimization models, solution times can be reduced by several orders of magnitude while preserving the key technical relationships of the underlying Ebsilon model. This enables the use in operational optimization systems with short update cycles.

The methodology was developed and validated using real industrial energy network systems. After a successful offline proof-of-concept, the approach is currently being transferred to industrial online operation. The results show that the automated transformation of Ebsilon-based simulation models into Gurobi-enabled optimization models represents a promising path toward real-time optimization of complex energy systems.

TECHNOLOGY LAYER

10:25–10:35 · Akademie

Session Panel: Technology Layer



Sebastian Angerhausen
Energy System Optimization Specialist (Stadtwerke Krefeld / Quantum)



Joshua Schäfermeyer
Project Manager (Iqony Solutions GmbH)

The speakers of the technology layer session come together to discuss moving from rule-based and spreadsheet planning to optimization embedded in operations. The discussion covers model building and solving speed, how surrogate and data-driven models can sit inside real-time optimization, and what it takes to keep these systems running reliably in production.

Coffee Break · Foyer

10:35–11:05

MARKET LAYER

11:05–11:25 · Akademie

Optimizing Flexible Assets in Long-Term Markets: Generating Value When the Future Is Unknown



Dr. Olivier Mégel
Senior Energy Analyst (Alpiq)

How do you optimize a hydro storage plant for the next five years, when the only certainty is that the realized electricity price will not follow your forecast? The long-term value of a flexible asset is fundamentally an option value, for which methods can be borrowed from quantitative finance. But a physical asset is far more complex than a financial option, so the real question is: what is the right blend of option-pricing and physical modelling? Drawing on long-term asset valuation at Alpiq, this talk explores that trade-off and its concrete consequences for formulation, solve time, and data requirements.

MARKET LAYER

11:25–11:45 · Akademie

Optimizing Value in Volatility: From Fragmented Decisions to Portfolio Intelligence



Quinten de Wit
Senior Product Manager (Eneco)

The energy transition is creating an unprecedented explosion in complexity. More renewables, batteries, flexible assets, markets, and cross-border opportunities are increasing the number of decisions that must be made every minute.

The traditional response has often been to build another optimization model. One for trading. One for dispatch. One for scheduling. One for flexibility. While effective in isolation, these fragmented approaches can create new operational complexity as portfolios continue to grow.

Drawing on lessons learned from operating optimization in the critical path of a live Virtual Power Plant across multiple countries and energy markets, this session explores a different perspective: the evolution from fragmented decisions toward portfolio intelligence. Current VPP operations already demonstrate how interconnected assets, markets, and operational constraints can be coordinated through production-grade optimization running continuously at scale.

We will discuss how digital twins and Mixed Integer Linear Programming (MILP) can serve as a foundation for managing flexibility across an increasingly complex energy landscape, and share practical lessons on reliability, trust, scalability, and operational excellence. The session will move beyond mathematical optimality to explore what it actually takes to make optimization a dependable component of critical energy infrastructure. Existing production environments already operate across multiple countries and markets with continuous optimization and stringent availability requirements.

Most importantly, the session presents a vision for where the industry may be heading next: from optimizing individual decisions toward creating portfolio intelligence capable of transforming volatility into coordinated action.

The future of energy optimization may not be built on more models.

It may be built on a better understanding of the portfolio as a whole.

MARKET LAYER

11:45–12:05 · Akademie

From Formulation to Gate Closure: Trading Flexibility in Short-Term Markets Under Uncertainty



Azzurra Casali
Data Scientist (Axpo)



Dr. Stefanos Delikaraoglou
Senior Data Scientist (Axpo)

Optimization formulations for trading flexible assets may look clean on a whiteboard: stack the markets, price the risk, solve. Running that formulation live, gate after gate, exposes a different set of problems the textbook version doesn't have an answer for. Market-specific rules add further restrictions, whereas business requirements require tailored modelling methods that increase the complexity of the underlying optimization framework. Drawing on operational trading use cases at Axpo, this talk will discuss how these realities get folded into the formulation, and why the optimizer is only one link in a broader trading strategy chain.

MARKET LAYER

12:05–12:20 · Akademie

Session Panel: Market Layer



Dr. Olivier Mégel
Senior Energy Analyst (Alpiq)



Quinten de Wit
Senior Product Manager (Eneco)



Dr. Stefanos Delikaraoglou
Senior Data Scientist (Axpo)



Azzurra Casali
Data Scientist (Axpo)

The market layer session speakers discuss how utilities and traders capture value when prices swing within the day. Topics include portfolio-wide versus asset-by-asset decisions, short-term trading under uncertainty, and how optimization teams work alongside trading desks to make sure model results lead to action.

Lunch · Foyer

12:20–13:50

SYSTEM LAYER

13:50–14:10 · Akademie

Rethinking Strategic Planning: From Forecasts and Silos to Portfolio Optimization



Sebastian Wehrle
Head of Quantitative Analytics | Associate Researcher (Wien Energie | BOKU University Vienna)

Every business unit can make a compelling growth case. But when capital is scarce and the future is uncertain, attractive business cases do not necessarily add up to a strong corporate portfolio.

At Wien Energie, we set out to rethink corporate planning by moving beyond individual market outlooks and replacing isolated evaluations with an integrated assessment of business activities. By deriving business cash flows from thousands of consistent market scenarios and applying portfolio optimization, we developed a common framework for evaluating capital allocation across the enterprise.

This allows us to evaluate investments not only by their expected returns, but by their contribution to the performance and the resilience of the company as a whole.

SYSTEM LAYER

14:10–14:30 · Akademie

When Optimization Stops Being Optional: Lessons from Planning Decentralized Energy in the Real World



Dr. Andrew Bollinger
CEO & Co-founder (Urban Sympheny AG)



Helen Heinz
Energy Consultant (Rapp AG)

Energy planners today face an uncomfortable reality: the intuition and rules of thumb that guided infrastructure decisions for decades break down when systems combine district heating, local renewables, storage, and volatile markets. At what point does optimization shift from a nice-to-have analysis to a prerequisite for defensible decisions?

We will walk through real planning projects where this question had a concrete answer, where infrastructure pathways, scenario comparisons, and investment choices hinged on what optimization could reveal that spreadsheets and experience could not. From these projects, we distill lessons on integrating optimization into energy planning workflows people actually follow: how to earn trust in results, how to keep scenario analysis connected to the decisions at stake, how to balance technical performance and social acceptance, and how to know when a simpler approach is enough. We close with a look ahead at how growing uncertainty and volatility in technology, markets, and policy is reshaping what "a confident decision" means and how decision intelligence and AI may change who plans energy systems, and how, in the next decade.

SYSTEM LAYER

14:30–14:50 · Akademie

Open Source Energy Models in Production: Lessons and New Frontiers



Dr. Harry van der Weijde
Head of Research and Market Development (Open Energy Transition)

Open energy models combined with powerful optimization solvers can support transparent, flexible energy planning. Drawing on work with system operators, regulators and utilities across the world, this talk shares practical lessons from deploying these tools in enterprise environments, for transmission planning, flexibility assessment and electricity market modelling. It examines what it takes to move from open models to production-ready workflows, covering aspects from data and computational performance to maintenance and user capacity. It also highlights promising new applications where open models and optimization solvers could unlock further value.

SYSTEM LAYER

14:50–15:10 · Akademie

Balancing Analysis Breadth and Depth in Large-Scale Energy System Optimization



Dr. Turhan Demiray
Research Director (Research Center for Energy Networks, ETH Zurich)

Energy system analysis requires both breadth and depth. Broad sensitivity analyses are needed to identify which combinations of weather, system design and European developments drive system outcomes, while detailed nodal analyses are needed to understand the spatial and network implications of selected critical conditions. Applying full detail to all scenarios, however, is computationally prohibitive.

We present a two-level optimization strategy. An aggregated country-level European model provides analysis breadth, enabling thousands of full-year hourly simulations, each involving tens of millions of variables. The resulting insights are then used to select relevant cases for analysis depth with a nodal European model, where full-year hourly resolution would involve hundreds of millions of variables.

To make these detailed analyses computationally feasible, a two-stage temporal approach first determines monthly storage boundary conditions from a daily full-year optimization, followed by parallel monthly optimizations at hourly resolution.

The approach combines broad scenario exploration with targeted high-resolution analysis: first identifying where and under which conditions to look, and then examining what happens there in detail — broad where possible, deep where necessary.

SYSTEM LAYER

15:10–15:30 · Akademie

Session Panel: System Layer



Sebastian Wehrle
Head of Quantitative Analytics | Associate Researcher (Wien Energie | BOKU University Vienna)



Helen Heinz
Energy Consultant (Rapp AG)



Dr. Andrew Bollinger
CEO & Co-founder (Urban Sympheny AG)



Dr. Harry van der Weijde
Head of Research and Market Development (Open Energy Transition)



Dr. Turhan Demiray
Research Director (Research Center for Energy Networks, ETH Zurich)

The system layer session speakers bring together the planning perspective: decentralized energy projects, large-scale system models, open-source tools and utility practice. The panel discusses how to balance model detail with speed, how to make results understandable for decision-makers, and where system planning needs better data and better collaboration.

Coffee Break · Foyer

15:30–16:00

KEYNOTE

16:00–16:20 · Akademie

Rethinking Grid Operation in the Context of Climate Resilience and Carbon-Aware Electric Loads



Dr. Line Roald
Visiting Faculty Researcher / Associate Professor / Group Leader (Google / University of Wisconsin–Madison / Empa)

Climate change impacts and growing electricity demand are reshaping power grid operations. This talk explores how mathematical optimization can help address the resulting risks and opportunities. Specifically, we discuss how grid topology optimization can be used to support wildfire risk mitigation and the evolving role of carbon-aware electricity consumption—including rapidly growing data center loads—in electricity dispatch and market design. Connecting these developments to topics discussed earlier in the day, we offer perspectives on adapting energy infrastructure and coordinating grid operations to meet changing societal needs.

PANEL AND CLOSING

16:20–17:00 · Akademie

Panel: Finding Value in Volatility



Dr. Line Roald
Visiting Faculty Researcher / Associate Professor / Group Leader (Google / University of Wisconsin–Madison / Empa)



Raphael Wu
Principal Specialist Market Strategy (Swissgrid)



Dr. Mashael Yazdanie
Group Leader, Macro-Energy Systems (Empa)



Sebastian Wehrle
Head of Quantitative Analytics | Associate Researcher (Wien Energie | BOKU University Vienna)



Dr. Olivier Mégel
Senior Energy Analyst (Alpiq)



MODERATOR · **Lennart Lahrs**
Senior Technical Account Manager (Gurobi)

The closing panel of Day 1 brings together voices from grid operation, research, utilities and trading to answer the summit's central question: who captures value when the energy system becomes more volatile, and how?

Panelists discuss coordination between transmission and distribution, the role of flexibility and markets, how to plan under uncertainty, and what each layer of the system needs from the others to turn volatility into an opportunity rather than a risk.

CLOSING

17:00–17:10 · Akademie

Closing Words and Dinner Preview



Tim Reintgen
Account Manager Power & Utilities EMEA (Gurobi)



Dr. Georgios Mavromatidis
Head of Urban Energy Systems Laboratory (Empa)

Networking Dinner · Arven-Honig Hall, Hotel Sonnental

19:00–22:00

Day Two · Wednesday, November 18, 2026

WELCOME

09:00–09:10 · Akademie

Welcome to Day 2



Tim Reintgen
Account Manager Power & Utilities EMEA (Gurobi)



Dr. Georgios Mavromatidis
Head of Urban Energy Systems Laboratory (Empa)

MAKING OPTIMIZATION WORK

09:10–09:30 · Akademie

From Ideas to Reliable Decisions



Lennart Lahrs
Senior Technical Account Manager (Gurobi)



Dr. Charmae Franchesca Mendoza
Technical Account Manager (Gurobi)

Many optimization projects start with a promising idea, but only some become tools that teams rely on every day. This talk discusses success strategies to take confident steps towards trusted decision support and helps to foresee challenges that regularly come up in real-world projects.

Drawing on Gurobi's work with customers, the speakers share practical patterns that help optimization projects reach production and stay there.

MAKING OPTIMIZATION WORK

09:30–09:50 · Akademie

The Secret Sauce: How Developers and Experts Innovate Together



Dr. Oliver Bastert
CTO (Gurobi)



Dr. Sonja Mars
Vice President of Customer Support and Enablement (Gurobi)

Optimization projects can deliver real value, yet some never realize it. Usually not because the maths is wrong, but because of everything around it: messy data, changing requirements, unexpected edge cases, and the distance between the people who build the technology and the people who use it. At Gurobi, our support team (the Gurobi Experts) and development have worked as one team from the start. Our experts represent the users inside the company: they bring difficult customer models into our test sets, translate customer issues for developers, and help customers make full use of new and advanced features, which in turn teaches us even more. In this talk, Sonja Mars and Oliver Bastert share how this came about, what it takes to keep it working as a company grows, and why it matters for innovation. The focus is on practices that others building and running optimization applications may find useful in their own organizations.

MAKING OPTIMIZATION WORK

09:50–10:10 · Akademie

A Moonshot for the Energy Transition: Optimization as the Trusted Decision Layer



Dr. Oliver Bastert
CTO (Gurobi)



Frank Häger
Director, Power & Utilities (Gurobi)

What does the energy transition consist of? Wind turbines, cables, batteries, etc. And attached to all, decisions. Volatility multiplies them. Every swing in weather, prices, and flows asks for a new answer, and that answer must be right and arrive in time. Volatility creates value only for those who can decide at its pace.

The Optimizer is what computes many of these decisions today, in grid operation, trading, and planning. It remains the foundation, and we keep developing it in close work with power and utility companies across Europe. Where speed becomes the limit, the Gurobi AI Innovation Lab adds a second engine: learned models that propose answers in milliseconds, which the Optimizer then checks, repairs, and certifies.

In research, this already works for grid operation. It could also help trading, where positions are re-decided before every gate closure, and planning, where every investment could be tested against thousands of futures instead of a few. Many of these models are linear programs, the class with the most direct applicability.

This is our moonshot: optimization as the trusted decision layer of the energy transition. We share why it excites us, how far we have come, and what it will take: real models and data, explored together with those who run them.

Coffee Break · Foyer

10:10–10:40

MAKING OPTIMIZATION WORK

10:40–11:00 · Akademie

The Organization Behind the Optimization: Delivering Value to the Trading Desk



Dr. Nadya Chernyavskaya
Manager of AI & Quant Developments (TotalEnergies)

Asset-backed trading looks years ahead. Its portfolio holds physical positions, such as a power or renewable gas plant, and the long-term structural contracts that connect them to clients. Their value is shaped by decisions made today and continuously revisited as markets evolve. The optimization behind this portfolio serves traders daily, and every new contract can change what the model has to represent: a new plant or a new client, each with constraints that are formalized only once the negotiation ends.

In this talk, we share how our team of software engineers, energy market specialists, data scientists and optimization engineers organizes its work: how research is time-boxed and measured against simple baselines, how validation with the desk begins in the first week so that traders can trust the decisions the model recommends, how the team chooses which parts of a system to make generic, and how every change is tested and versioned. The focus is on practices that other teams building and running optimization for trading may find useful, including the role AI now plays in each step.

PANEL AND CLOSING

11:00–12:00 · Akademie

Panel: The Energy Decision System



Dr. Nadya Chernyavskaya
Manager of AI & Quant Developments (TotalEnergies)



Dr. Line Roald
Visiting Faculty Researcher / Associate Professor / Group Leader (Google / University of Wisconsin–Madison / Empa)



Dr. Saverio Bolognani
Senior Scientist (ETH Zurich)



Dr. Harry van der Weijde
Head of Research and Market Development (Open Energy Transition)



Dr. Oliver Bastert
CTO (Gurobi)

Bringing together research, trading, open-source modelling and optimization technology, this panel looks at energy decision-making as a connected system rather than a set of separate tools.

Panelists discuss how decisions in markets, grids and planning influence each other, how AI and optimization are changing the way decisions are made, and what organizations need, in people, data and processes, to make better decisions across the whole energy value chain.

Lunch · Foyer

12:00–13:30

EMPA BREAKOUT · PARALLEL SESSION

13:30–15:30 · LB 0.11.0 · Empa Breakout

Predict, Optimize and Decide: An Interactive Workshop on Energy System Modeling with ehubX and Sympheny



Dr. Georgios Mavromatidis
Head of Urban Energy Systems Laboratory (Empa)



Dr. Michel Obrist
Researcher (Empa)



Dr. Barton Chen
Researcher (Empa)



Dr. Mashael Yazdanie
Group Leader, Macro-Energy Systems (Empa)



Arijit Upadhyay
PhD Researcher (Empa & ETH Zurich)



Dr. Julien Marquant
CPTO (Sympheny)

How can energy system modeling support better investment and planning decisions? In this interactive workshop, participants will explore the capabilities of ehubX and Sympheny through practical examples and hands-on exercises. Starting with a simplified neighborhood energy system, participants will be challenged to predict optimal technology investments and operational strategies before comparing their expectations with optimization results. Using ehubX, an open-source energy system optimization framework developed at Empa, participants will explore how different assumptions and constraints, such as CO_2 reduction targets, grid capacity limits, and electricity tariffs, affect system design, costs, and technology choices. Building on these insights, Sympheny will demonstrate how energy system modeling can be translated into practical planning and decision-making. The workshop combines interactive polls, scenario comparisons, real-world applications, and discussions to illustrate both the opportunities and challenges of optimization-based energy planning.

GUROBI BREAKOUT

13:30–13:55 · Akademie · Gurobi Breakout

Explainability in Optimization



Dr. Christine Tawfik
Optimization Engineer (Gurobi)



Jaap Pedersen
MIP Development Scholar (Gurobi)

Optimization models often produce good decisions, but users also need to understand why a solution looks the way it does. This session introduces practical ways to explain optimization results: identifying which constraints drive a decision, exploring what-if scenarios and communicating trade-offs to non-experts.

Attendees will see how explainability builds trust in model results and helps teams adopt optimization in their daily decision-making.

GUROBI BREAKOUT

13:55–14:20 · Akademie · Gurobi Breakout

What's New in Gurobi 14



Xavier Nodet
Senior Product Manager, Optimizer (Gurobi)

Gurobi 14.0 provides major performance improvements across most problem categories: from LPs to MIPs and MINLPs, on both CPUs and GPUs, for long-established algorithms such as simplex as well as newer additions such as PDHG, whether you seek a local optimum, a global one, or simply a good solution in the time available.

Attendees will learn about the advances behind these performance improvements.

GUROBI BREAKOUT

14:20–14:45 · Akademie · Gurobi Breakout

v14 Performance on the Open Energy Benchmark



Dr. Matthias Miltenberger
Manager of Optimization Support (Gurobi)

Energy system models are some of the largest and most demanding optimization problems in practice. This session presents how Gurobi 14 performs on the Open Energy Benchmark, a public collection of energy models, and what the results mean for users solving these problems.

Attendees will learn which improvements matter most for these models and how to get the best performance from Gurobi for their own applications.

GUROBI BREAKOUT

14:45–15:10 · Akademie · Gurobi Breakout

Solving Nonlinear Models with Gurobi



Dr. Jaromił Najman
Senior Developer (Gurobi)

Many energy problems are naturally nonlinear, from power flow and storage behavior to efficiency curves of conversion units. This session explains how to use Gurobi to construct and solve nonlinear problems.

Attendees will learn how to model nonlinear relationships effectively and what to expect from the solver on real-world energy problems. In particular, we discuss the differences between Gurobi's local and global solver for nonlinear problems and how and when to use each solver.

GUROBI BREAKOUT

15:10–15:30 · Akademie · Gurobi Breakout

Ask the Experts



Dr. Christine Tawfik
Optimization Engineer (Gurobi)



Jaap Pedersen
MIP Development Scholar (Gurobi)



Xavier Nodet
Senior Product Manager, Optimizer (Gurobi)



Dr. Matthias Miltenberger
Manager of Optimization Support (Gurobi)



Dr. Jaromił Najman
Senior Developer (Gurobi)

Bring your questions to the Gurobi Experts. In this open session, Gurobi's technical staff answer questions on modelling, performance tuning, Gurobi 14 features and best practices for applying optimization to your own problems.

CLOSING EXCHANGE

15:30–17:00 · Room TBC

Technology Roundtable

A networking opportunity on the technology layer of the energy system: modelling approaches, solver performance, AI and optimization, open-source and commercial tools, and how to run optimization reliably in production. Participants share their own experience and challenges and take away practical ideas from peers.

CLOSING EXCHANGE

15:30–17:00 · Room TBC

Market Roundtable

A networking opportunity on the market layer: trading and portfolio optimization under volatile prices, flexibility and short-term markets, and how optimization teams and trading desks work together. Participants exchange experiences and discuss where the next sources of value lie.

CLOSING EXCHANGE

15:30–17:00 · Room TBC

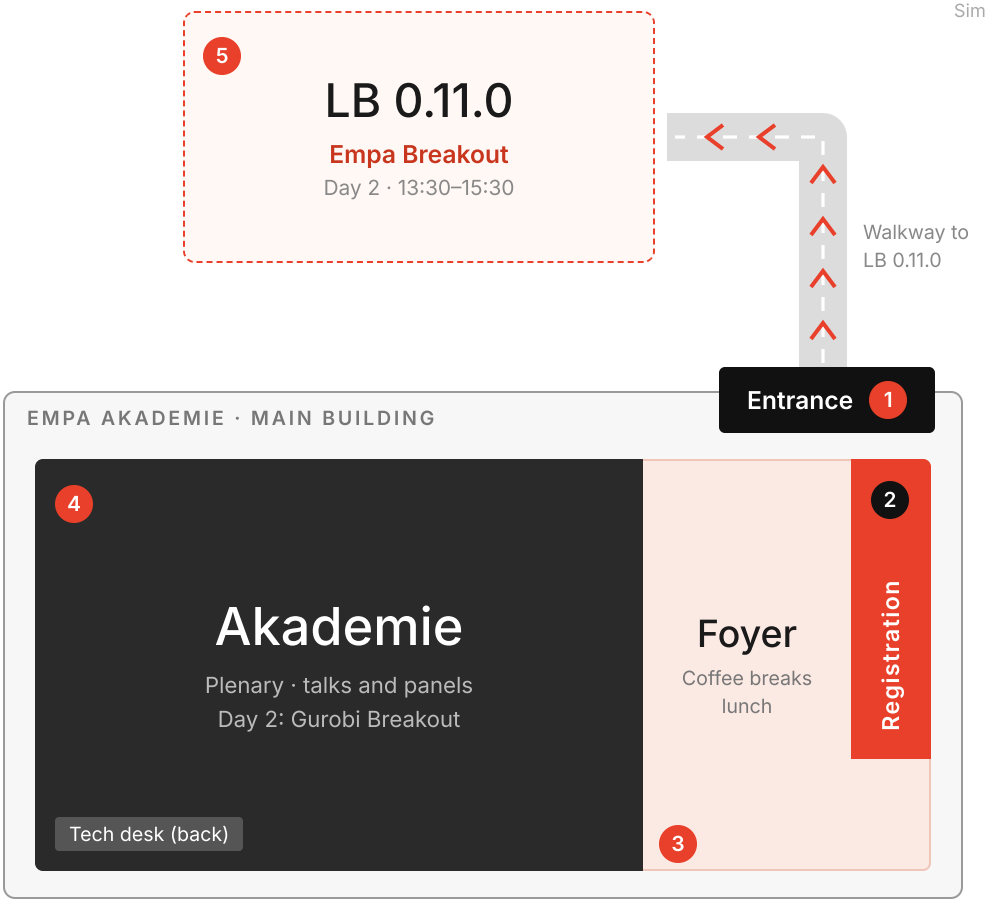
System Roundtable

A networking opportunity on the system layer: grid coordination, decentralized energy planning, large-scale system models and the role of research and policy. Participants explore how better planning and collaboration between grid operators, utilities and researchers can make the energy system more resilient and efficient.

Venue Floor Plan

EMPA CAMPUS · ÜBERLANDSTRASSE 129, 8600 DÜBENDORF

Simplified layout · not to scale



1 Entrance
Main building entrance · coat racks

2 Registration
Badge pick-up and welcome desk, before the Foyer

3 Foyer
Coffee breaks, lunch and pinboards

4 Akademie
Plenary on Day 1 & Day 2 · Gurobi Breakout on Day 2 afternoon (13:30–15:30)

5 LB 0.11.0 · Empa Breakout
Day 2 afternoon (13:30–15:30) · follow the walkway from the entrance

D Networking Dinner
Day 1, 19:00 · Arven-Honig Hall, Hotel Sonnental, Zürichstrasse 94 (about 15 min walk)

Notes

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Notes

Energy Innovation Summit
Finding Value in Volatility + Empa
Materials Science and Technology

Thank you for joining us in Dübendorf.

Energy Innovation Summit 2026 · Finding Value in Volatility · November 17–18 · Empa Akademie

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Resources, events and the latest on Gurobi