



CAPEX Procurement in Energy Study 2024: Challenges, best practices & strategic outlook

INVERTO GmbH | October, 2024

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CAPEX procurement in the energy sector: Broad market survey provides various insights across markets

389

Responses to the CAPEX
Procurement in energy survey
conducted in July 2024



~50%

of participants held steering
positions in their company
(e.g., CPO, COO, board members)



6

Markets covered



5 out of 10

Responses originate from companies with an
annual procurement expenditure, including
CAPEX of over €1.5 bn

49%

OEM companies¹

30%

Energy producer

6%

Service companies

5%

Grid operators



~ €1 trillion

in CAPEX for 2023 was covered
by the procurement spend of
surveyed participants

Main results

- The dominant challenge across markets is long lead times
- There is a lack of skilled resources and capabilities in CAPEX procurement
- LTAs & joint project development are the main instruments for improving supplier relationships
- CAPEX cost trends remain unclear, with expectations split between decreases, stability, and increases

1) OEM companies include: Materials & Process industries; Oil and Gas companies down- & upstream; Power & utilities; Power generation; Renewables and low-carbon; Tier 1&2 contracting organizations; Transmissions Systems; Transport, Cities & Infrastructure. Note: Numbers don't add to 100% because of n/a answers.

Agenda

- 1 Introduction & Executive Summary
- 2 Key findings in detail
- 3 Recommendations for action
- 4 Study design & Participants

Introduction & Executive Summary

The energy sector is facing unprecedented CAPEX-related challenges – enhancing procurement skills is key to success



Demand in the energy sector

The energy transition requires unprecedented large-scale CAPEX investments in capital projects

The European Union requires approximately €600 billion in investments by 2030 to modernize its aging power grids and meet growing consumption, while renewable energy capacity needs to increase by 43% — highlighting the significant CAPEX demands and the need for multi-dimensional value creation.



CAPEX procurement in energy

Supply market shortages, talent gap, and regulatory pressures

The energy sector is characterized by a significant pipeline of planned investments and sourcing volumes, but structural supply constraints, a shortage of specialized procurement talent & projects and new regulations are posing challenges to CAPEX efficiency.



Best practice strategies

Companies adopt a variety of strategies – there is no one-size-fits all solution, but key principles must be established for success

To achieve long-term success, companies need to position themselves as the “partner of choice” by engaging suppliers early and implementing transparent demand planning. By utilizing top-tier procurement strategies and delivery models, companies can optimize CAPEX investments and effectively mitigate risks.



Profit from market development

Companies can benefit from expected market developments

While future investments may benefit from improved market conditions, companies must actively manage ongoing projects and supply market risks. To fully capitalize on market shifts, they need to adopt a cross-functional approach and establish strategic partnerships in key supply categories.

4 Key priorities for CEOs and CPOs to drive CAPEX Procurement Excellence



Strategically manage risk & supply, based on cross-portfolio transparency

Achieve comprehensive portfolio visibility to optimize resource allocation, mitigate risks, and align with strategic goals, ensuring timely and cost-effective project execution.



Strengthen teams & develop strategic procurement capabilities

Invest in upskilling, foster cross-functional collaboration, and enhance capabilities in digital tools, risk management, and ESG integration to drive better project execution and long-term value creation.



Strengthen & shape strategic supplier relationships

Develop long-term partnerships with key suppliers by fostering early engagement, promoting transparency, and implementing risk-sharing strategies to secure critical resources, mitigate supply risks, and improve project performance.



Drive innovation through ESG integration & digitalization

Leverage digital tools and establish measurable ESG targets to align procurement with sustainability goals, boost efficiency, and meet evolving regulatory demands for long-term competitiveness.

Key findings from the 2024 CAPEX procurement in energy study

1

**CAPEX procurement in energy faces supply chain shortages, talent gap, and regulatory pressures**

Survey participants manage a significant pipeline of planned investments and sourcing volumes, yet they perceive supply market constraints, a lack of specialized talent in procurement & projects, and new regulations as key challenges to their success.

2

**Project success and challenges are measured across multi-dimensional factors for energy clients**

On-time project execution and maximization of NPV are key in CAPEX procurement, but true success is measured across multiple dimensions, including ESG factors. These goals are increasingly challenged by risks like long lead times and inflation.

3

**The preference for EPC(I) delivery model requires active procurement involvement**

Most CAPEX projects are executed through EPC(I) partnerships using various contract models. Significant potential exists for optimizing delivery models, particularly through enhanced spend transparency and demand management.

4

**The management of partners as well as critical value chain elements is essential for strategic market positioning**

Capex-heavy companies are focused on becoming the “partner of choice” for their key suppliers. To achieve this, they primarily leverage Long-Term Agreements (LTAs) and aim to improve demand planning along the value chain.

5

**Procurement involvement often comes in late, highlighting the need for improved cross-functional integration**

Despite the considerable challenges posed to the value chain and procurement, the procurement function assumes a leading role in CAPEX procurement at only one in ten clients.

6

**The outlook emphasizes building and applying key capabilities that align with market trends and needs**

While future investments may benefit from better conditions, companies must actively manage ongoing projects and supply risks. Cross-functional collaboration and strategic partnerships are key amid stable lead times and reduced supplier margins.

Key findings in detail

CAPEX procurement in energy faces supply chain shortages, talent gap, and regulatory pressures



Key findings

- Widespread supply shortages are delaying critical project components, leading to significant timeline extension
- Over 30% of companies are experiencing procurement talent shortages, impacting overall project efficiency
- New regulatory requirements, particularly around ESG, are prompting companies to rethink procurement strategies for compliance and competitiveness
- Companies must view Procurement Excellence as a strategic priority, focusing on resilience, talent development and navigating regulatory constraints in their procurement strategies



Key priorities & variations across regions & industries

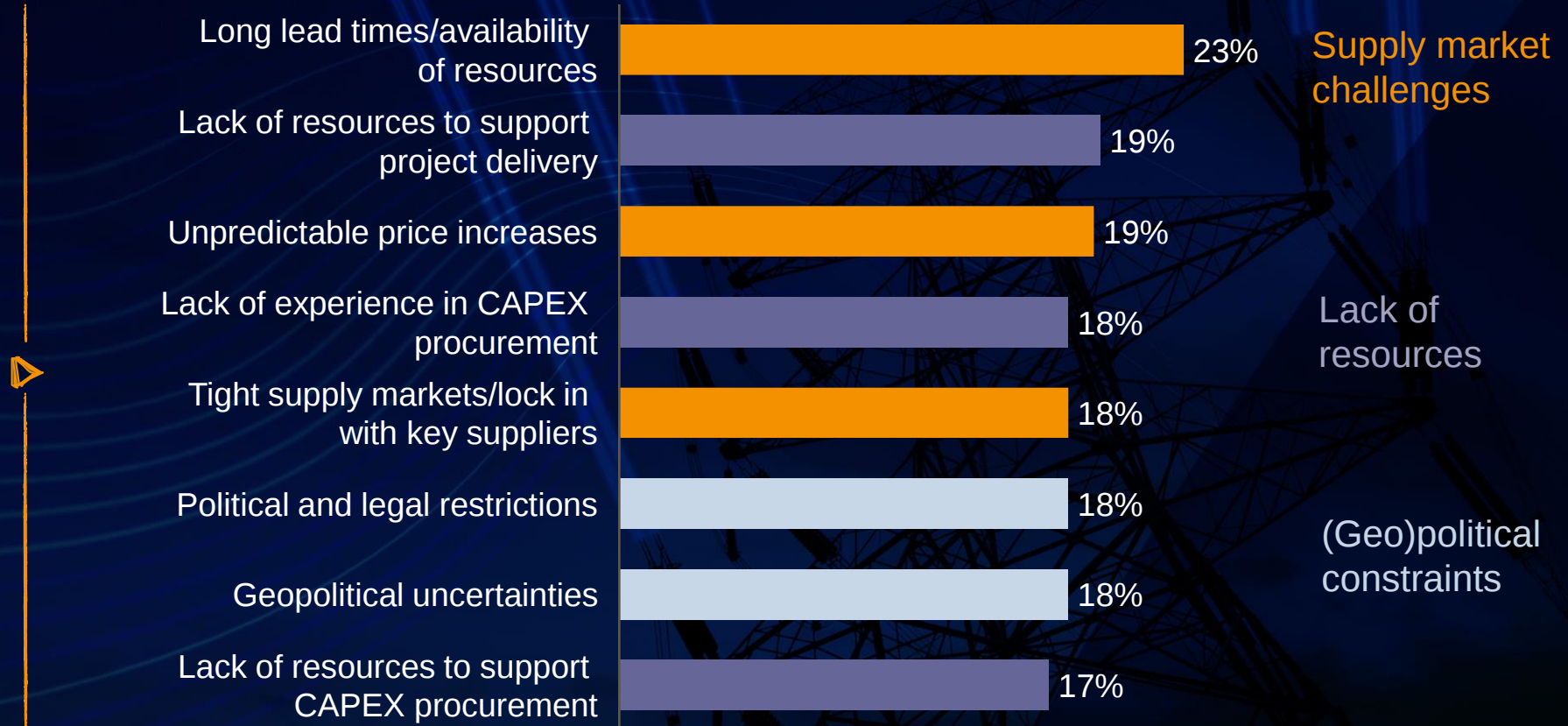
- **Germany:** Faces severe lead time challenges, while Middle Eastern companies are more concerned with funding uncertainties
- **OEMs:** Frequently encounter contractual disputes, whereas grid operators prioritize maintaining high quality standards
- **Energy producers:** Are uniquely burdened by political and regulatory restrictions, leading to delays in project timelines
- **Grid operators:** Struggle with quality concerns, long lead times, rising costs, and a lack of experience in CAPEX procurement

Supply market challenges, lack of resources and escalating geopolitical restrictions were identified as the main challenges in CAPEX procurement

What are the top challenges you face in CAPEX procurement?

Top challenges in CAPEX procurement

(Top 8 out of 13)



Project success and challenges are measured across multi-dimensional factors for energy clients



Key findings

- On-time project execution is the top metric in CAPEX procurement (32%), followed by NPV (31%) and staying on budget (32%), all of which are critical. Proactive project management is essential to mitigating delays and enhancing value
- Long lead times (32%) and resource availability (30%) are key threats to meeting targets. Investing in supply chain optimization is essential to reduce these risks
- ESG considerations are increasingly important but inconsistently prioritized across regions. Companies should develop a comprehensive ESG strategy that not only mitigates risks but also aligns with global sustainability standards to improve their market position. A key element of this strategy should be integrating ESG criteria into the company's awarding processes



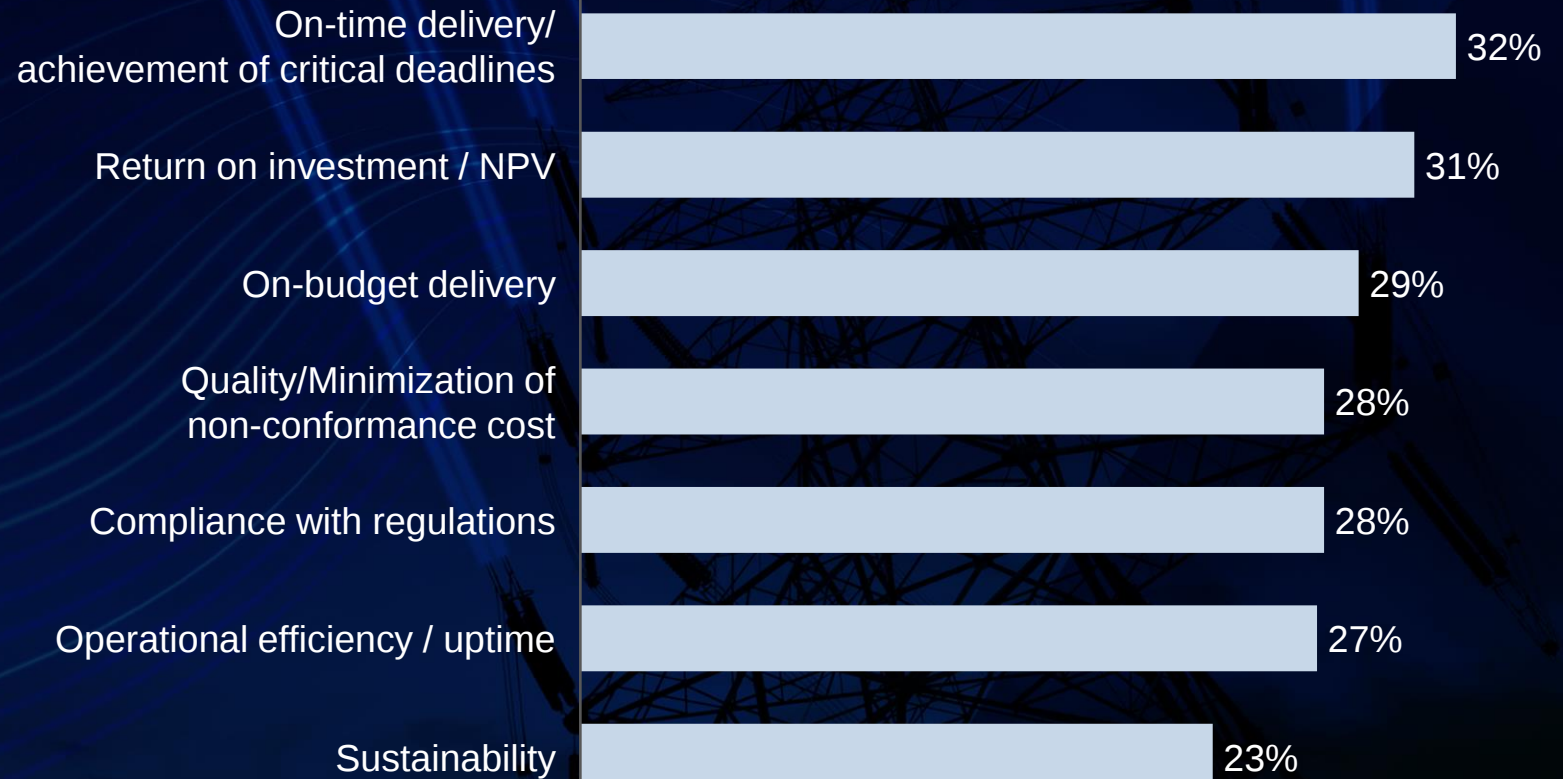
Key priorities & variations across regions & industries

- **UK:** Inflation and time delays are key risks in CAPEX projects
- **Germany:** Severe long lead times are a major issue, particularly impacting OEMs involved in complex projects
- **Nordics:** Resource availability is a critical challenge, especially for grid operators managing extensive networks
- For **grid operators**, quality assurance and on-time project delivery are top priorities. In contrast, **OEMs** and **Energy producers** place greater emphasis on return on investment (ROI) and operational efficiency. **Energy producers** also prioritize compliance with regulations as a key metric

Energy clients focus on on-time delivery and project realization

What are the top metrics you monitor to ensure project success, if any?

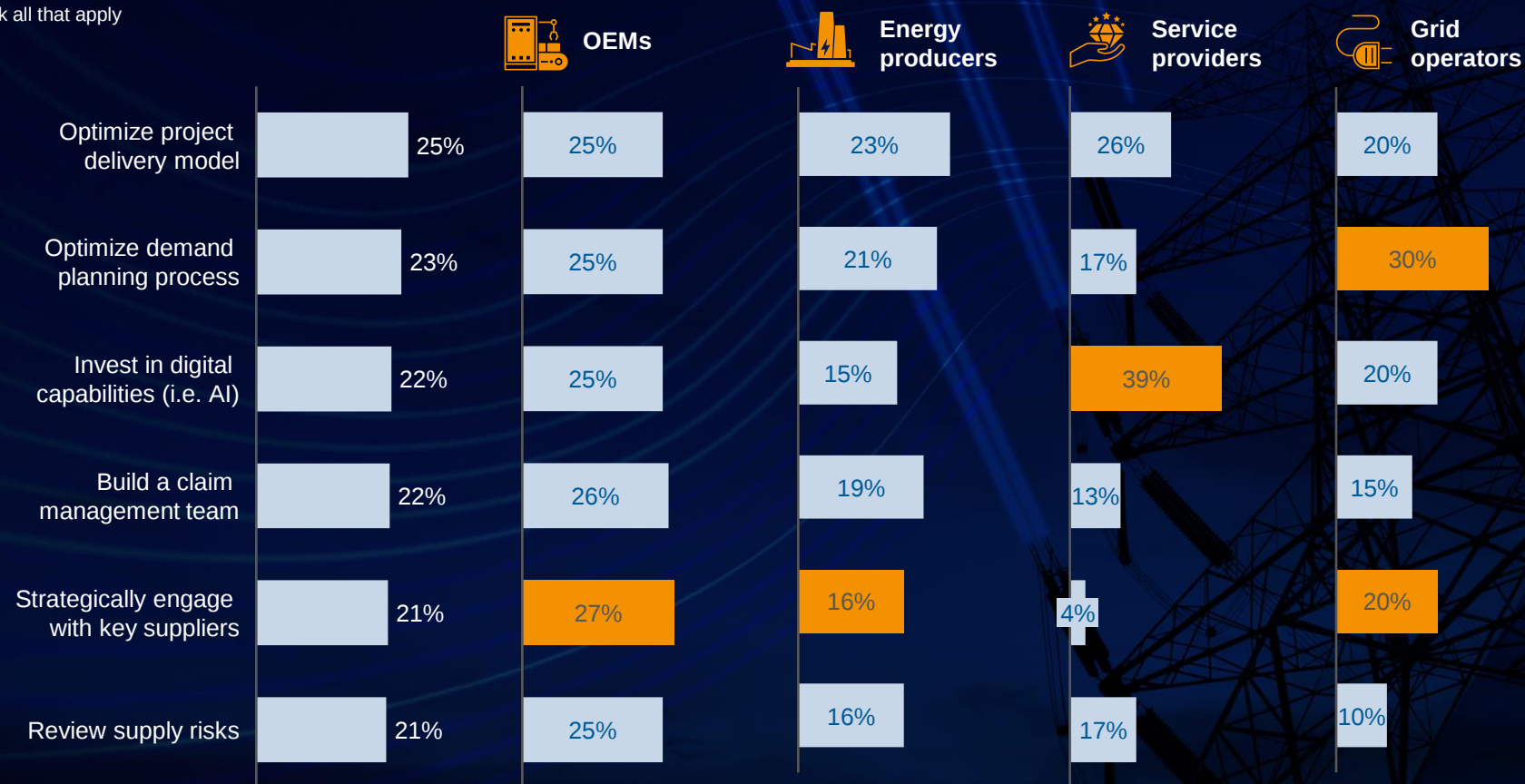
Key metrics
to monitor CAPEX
procurement
in projects



Performance optimization focuses on supplier engagement for OEMs, digital solutions for service providers, and demand planning for grid operators

What actions is your organization implementing in order to optimize its CAPEX procurement performance? (%)

Tick all that apply



- Strategically engaging with suppliers is more common for OEMs (27%) than for energy producers (16%) and grid operators (20%)

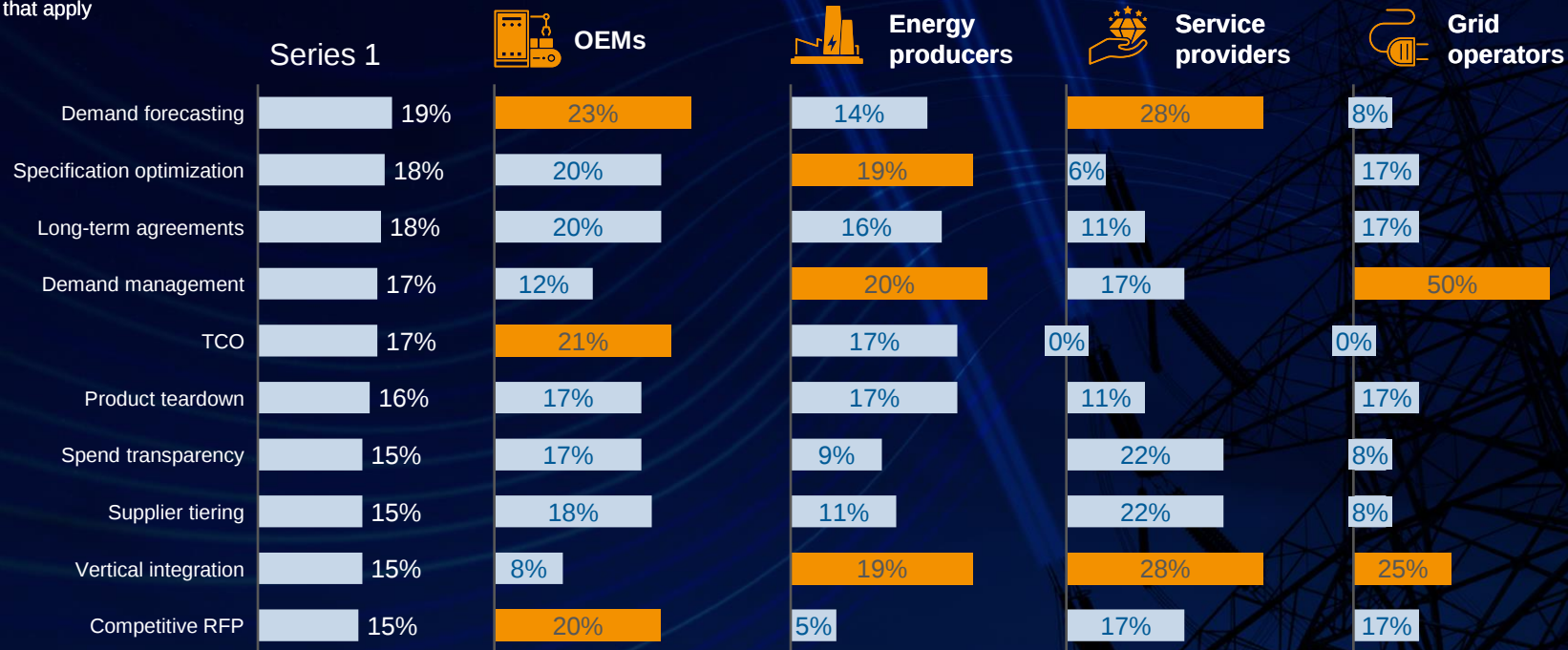
- Service providers are particularly focused on investing in digital capabilities (39%)

- Grid operators are primarily optimizing their demand planning processes (30%)

Grid operators focus on demand management, while OEMs rarely pursue vertical integration to maximize CAPEX value

How do you typically maximize value for CAPEX equipment? (%)

Tick all that apply



- **OEMs** favor demand management (23%), TCO approaches (21%) and competitive RFPs (20%) to maximize value for CAPEX equipment
- **Energy producers** instead apply specification optimization (19%), demand management (20%) & vertical integration (19%)
- **Service providers** have two favored methods: Demand forecasting (28%) and vertical integration (28%)
- **Grid operators** highly prefer demand management (50%) as the main method

Need for action: Leverage demand management and vertical integration to enhance CAPEX value, especially for grid operators

The preference for EPC(I) delivery model requires active procurement involvement



Key findings

- **Applied project delivery models** are evenly distributed, with EPC (31%) and EPCI (32%) being the most common. Many companies use a **design bid- build** delivery model, especially in markets that prioritize predictability and cost control
- **Pricing models** are similarly varied, with 34% of participants favoring **guaranteed maximum price** and **lump sum** models
- To achieve superior CAPEX procurement performance, companies are focused on improving their delivery models. Standardizing delivery & pricing models will provide a major operational boost, with substantial potential for further improvement through spend transparency and demand management



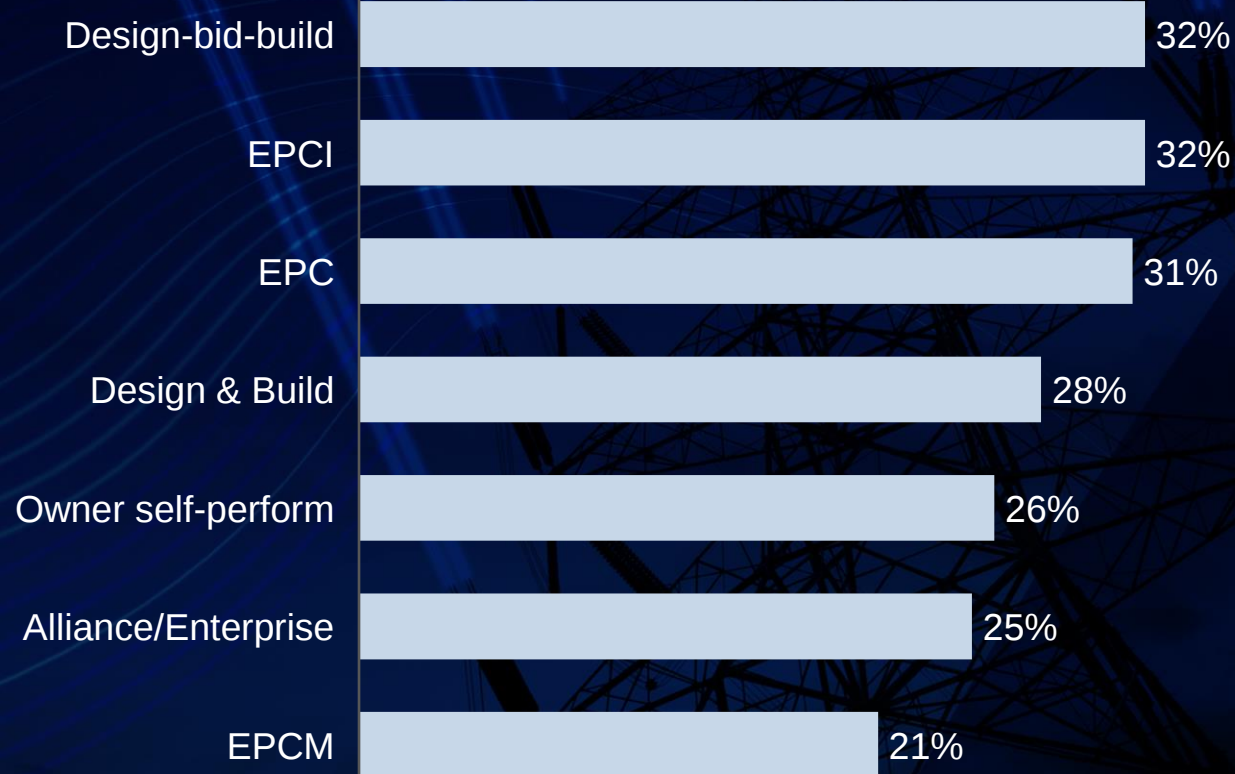
Key priorities & variations across regions & industries

- Significant regional variations exist, with EPC/EPCI and Design-Bid-Build being the most favored approaches. The UK stands out for favoring owner self-perform models, highlighting a trend toward increased control and flexibility
- OEMs typically favor variable cost models, focusing on managing price fluctuations and securing competitive bids. They also lead in strategic supplier engagement to drive value in CAPEX projects
- Grid operators prefer approaches that include additional services within pricing, indicating a need for comprehensive project management solutions. Additionally, they focus on optimizing demand planning to ensure CAPEX investments align with future needs

Energy clients prefer applying different EPC partnerships and design-bid-build solutions

What are the usual project delivery models you establish for delivering large CAPEX projects?

Top delivery
models in use



The management of partners as well as critical value chain elements is essential for strategic market positioning



Key findings

- LTAs are the top strategy for companies seeking to become preferred clients, favoured by 39% of respondents. Joint project development (38%) also plays a key role in securing long-term partnerships
- Strategic supplier engagement is prioritized by 36% of companies, with joint ventures (34%) also seen as crucial for optimizing partnerships and project outcomes
- While LTAs are important, **companies should also adopt complementary strategies** such as joint development projects and strategic partnerships to fully optimize supplier relationships and drive innovation



Key priorities & variations across regions & industries

- **Germany:** 48% of companies prefer joint ventures to enhance collaboration and secure better terms with suppliers. Additionally, there is a strong focus on optimizing project governance for improved oversight and control
- **UK:** 57% of companies in the UK use LTAs as their primary engagement strategy, while also prioritizing the development of strong claim management teams to handle CAPEX project complexities effectively
- **Grid operators** aim to optimize their demand planning process, engage strategically with key suppliers and optimize selected delivery models
- **OEMs:** 46% of OEMs prefer LTAs, with a focus on integrating suppliers into strategic development projects

Companies seek to strategically partner with their suppliers, using Long-Term Agreements as the main lever to strengthen these partnerships

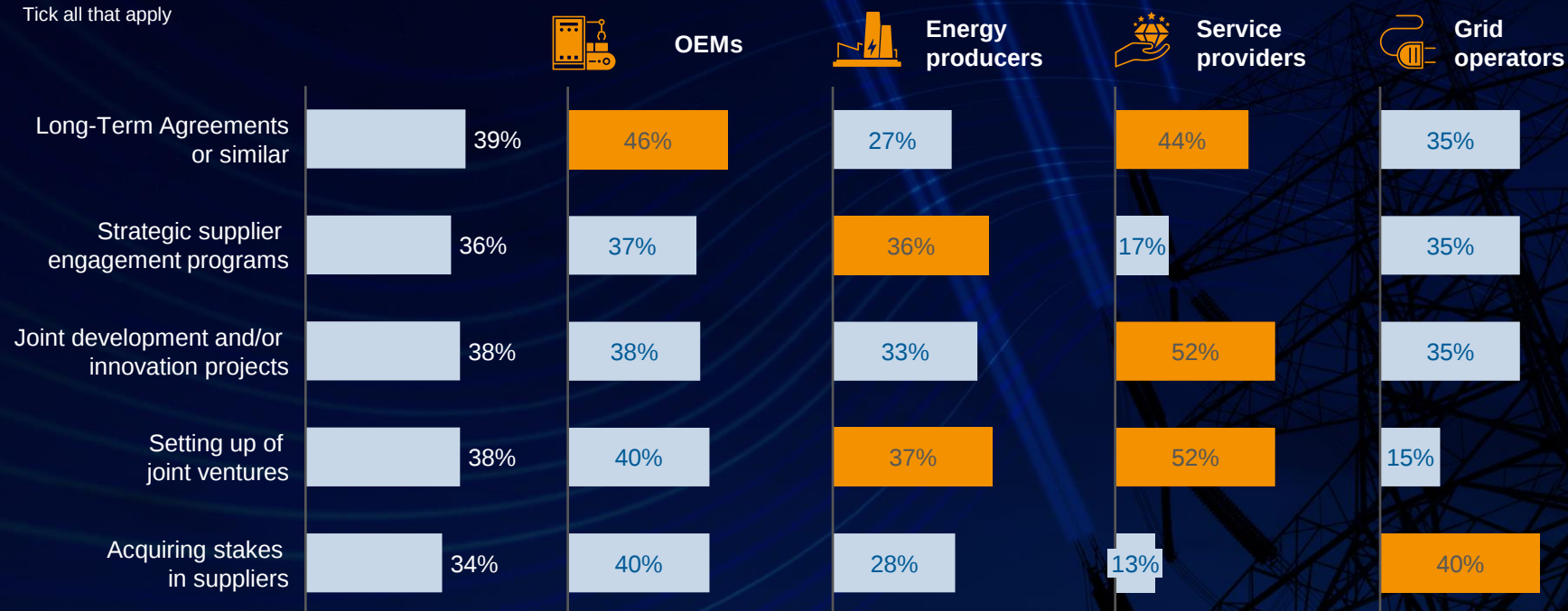
What methods do you employ to become the preferred client for your key suppliers, if any? (Tick all that apply) (%)



A full range of strategic levers is applied to manage key relationships, with slight differences across sectors

What methods do you employ to become the preferred client for your key suppliers, if any? (Tick all that apply) (%)

Tick all that apply



- Long-Term Agreements (LTAs) are more frequently used with OEMs (46%) than with energy producers (27%)
- Strategic supplier engagement programs (36%) and setting up joint ventures (37%) are the main methods for energy producers. Service providers focus on LTAs, joint development projects and joint ventures
- Acquiring stakes is the most commonly used method for grid operators (40%)

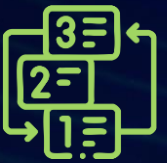
Need for action: Customize CAPEX procurement strategies to industry needs: LTAs for OEMs, joint ventures for grid operators

Procurement involvement often comes in late, highlighting the need for improved cross-functional integration



Key findings

- Procurement leads in **10%** of CAPEX project portfolios, highlighting an opportunity for greater strategic involvement. Empowering procurement to play a strategic role throughout the project lifecycle will be highly beneficial
- The role of procurement in CAPEX projects has grown, with **70%** of companies reviewing portfolios for synergies. However, only 5% regularly update projects in response to market changes
- There is a significant need for more proactive management. Companies should regularly update CAPEX portfolios to stay aligned with market shifts



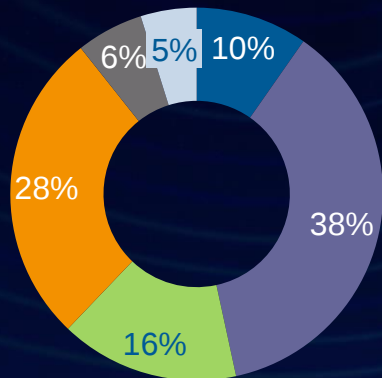
Key priorities & variations across regions & industries

- **UK and Spain:** Early involvement of procurement teams, particularly in the conceptualization phase, allows for strategic influence over project direction
- **UK:** Procurement takes significant responsibility for managing claims and cost escalations, improving overall project control
- **Germany:** Procurement is involved later in the process, focusing on operational execution and compliance, which may limit its strategic impact
- **Energy producers** engage procurement early in the project to mitigate risks, while **OEMs** focus on procurement during the execution phase to enhance operational efficiency. **Grid operators** engage procurement teams in projects during detailed specification & the project definition phase

Survey participants report that procurement teams are often involved too late in the CAPEX process, limiting their influence on sourcing decisions

What role does procurement play in managing claims and cost escalation for CAPEX projects, if any?

Single choice



Lead role	Supportive role
Significant role	Minimal role
Advisroy role	no role

At what stage in the project are procurement typically first involved in CAPEX investments?

Timing of
Procurement
involvement
in Capex projects

**Sourcing &
contracting – 24%**

Feasibility assessment – 19%

**Detailed specification & project
definition – 20%**

Project conceptualization – 20%

Portfolio Planning – 17%

The outlook emphasizes building and applying key capabilities that align with market trends and needs



Key findings

- A reduction in supplier margins is widely anticipated by 52% of participants, while 31% expect margins to remain flat, attributed to enhanced procurement strategies and competitive market conditions. To capitalize on this trend, companies should strengthen their negotiation tactics and supplier relationships to secure better pricing
- **37%** of respondents expect a reduction in project-based CAPEX costs, indicating that cost-saving measures are taking effect. However, the overall outlook remains mixed, as an equal proportion of respondents expect costs to remain stable or increase
- While half of the participants expect lead times to remain stable, some anticipate shorter timelines due to improvements in supply chain efficiency. Continued investment in supply chain management and responsive logistics will be key to maintaining or reducing lead times



Key priorities & variations across regions & industries

- **The UK and France** are the only regions anticipating a high CAPEX equipment cost increase of over 30% in the next 5 years, while the other regions expect a moderate increase of less than 30%
- Across all regions, **decreasing supplier margins** are anticipated, though there are regional differences in expected lead time development. **Spain** expects longer lead times, while the **Middle East** expects shorter ones
- **Grid operators** constitute the only industry, where no decrease in supplier margins is expected. Instead, they expect margins to remain flat. Additionally, grid operators are also the only ones anticipating shorter lead times in the future

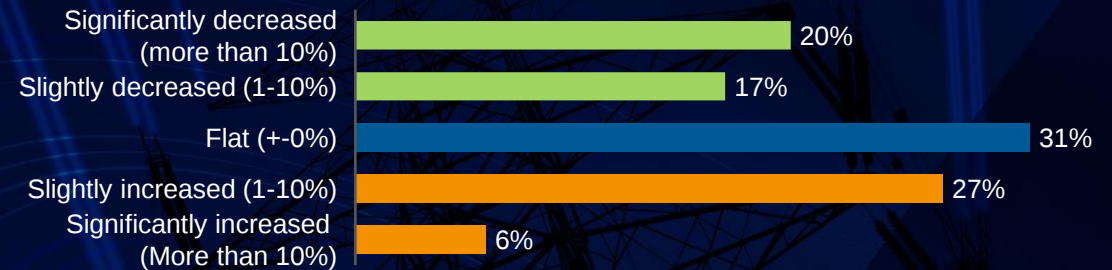
Most respondents are uncertain about CAPEX cost trends or lead time improvements, with half expecting supplier margins to decrease

How, if at all, do you see the following key parameters changing in the next 3-5 years?

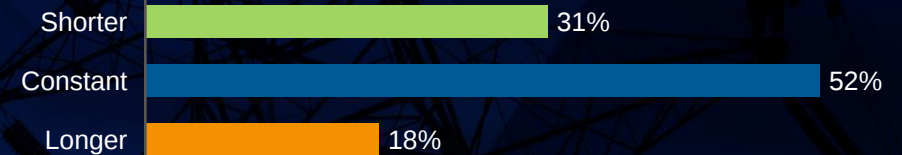
Market
developments



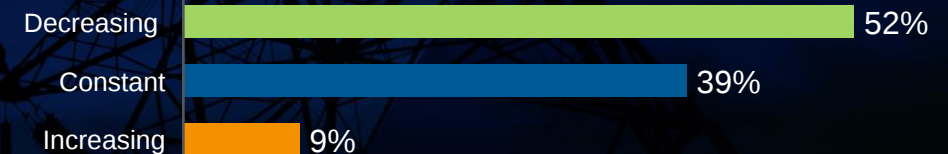
Cost for project-
based CAPEX



Lead times

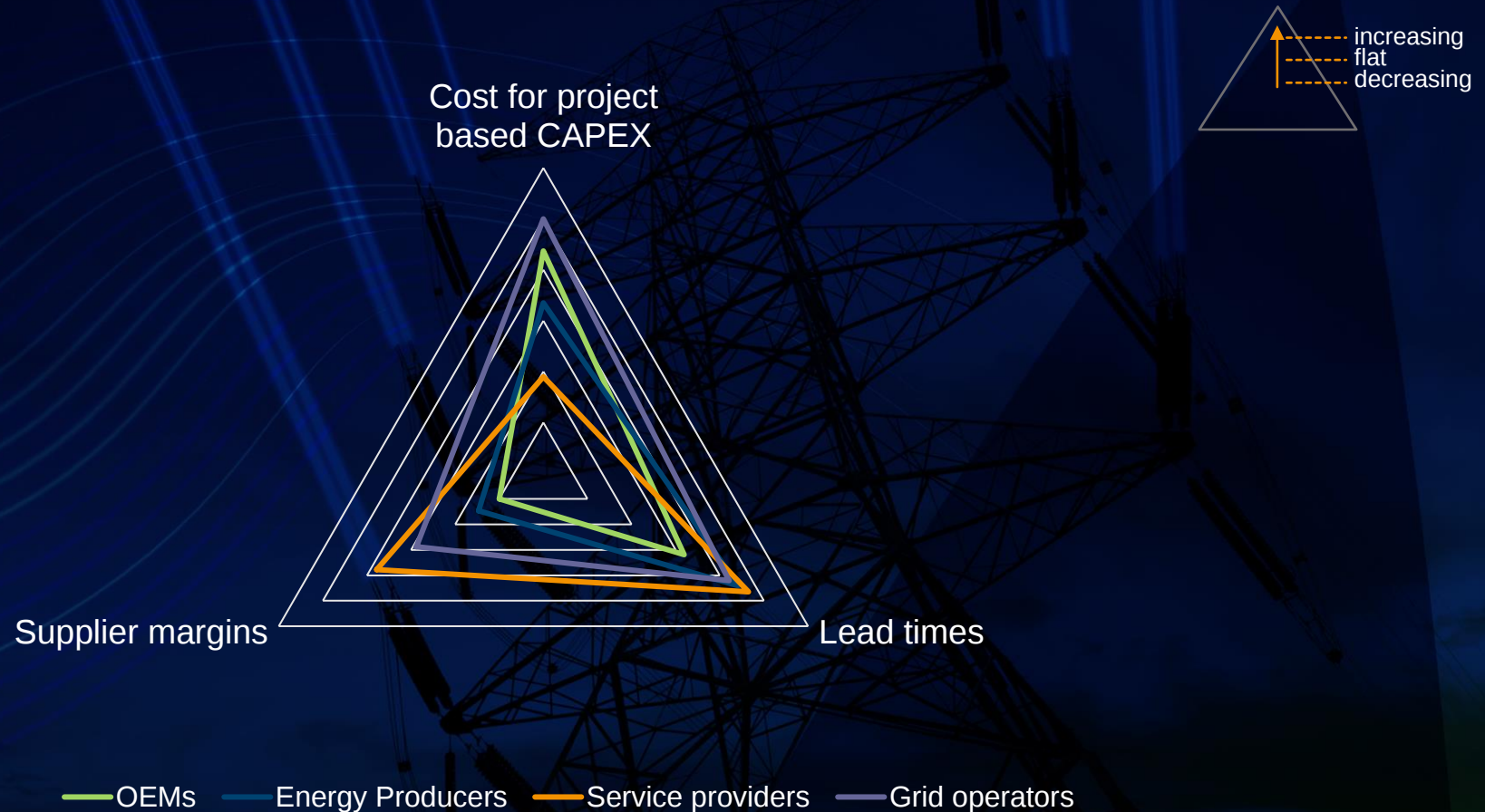


Supplier margins



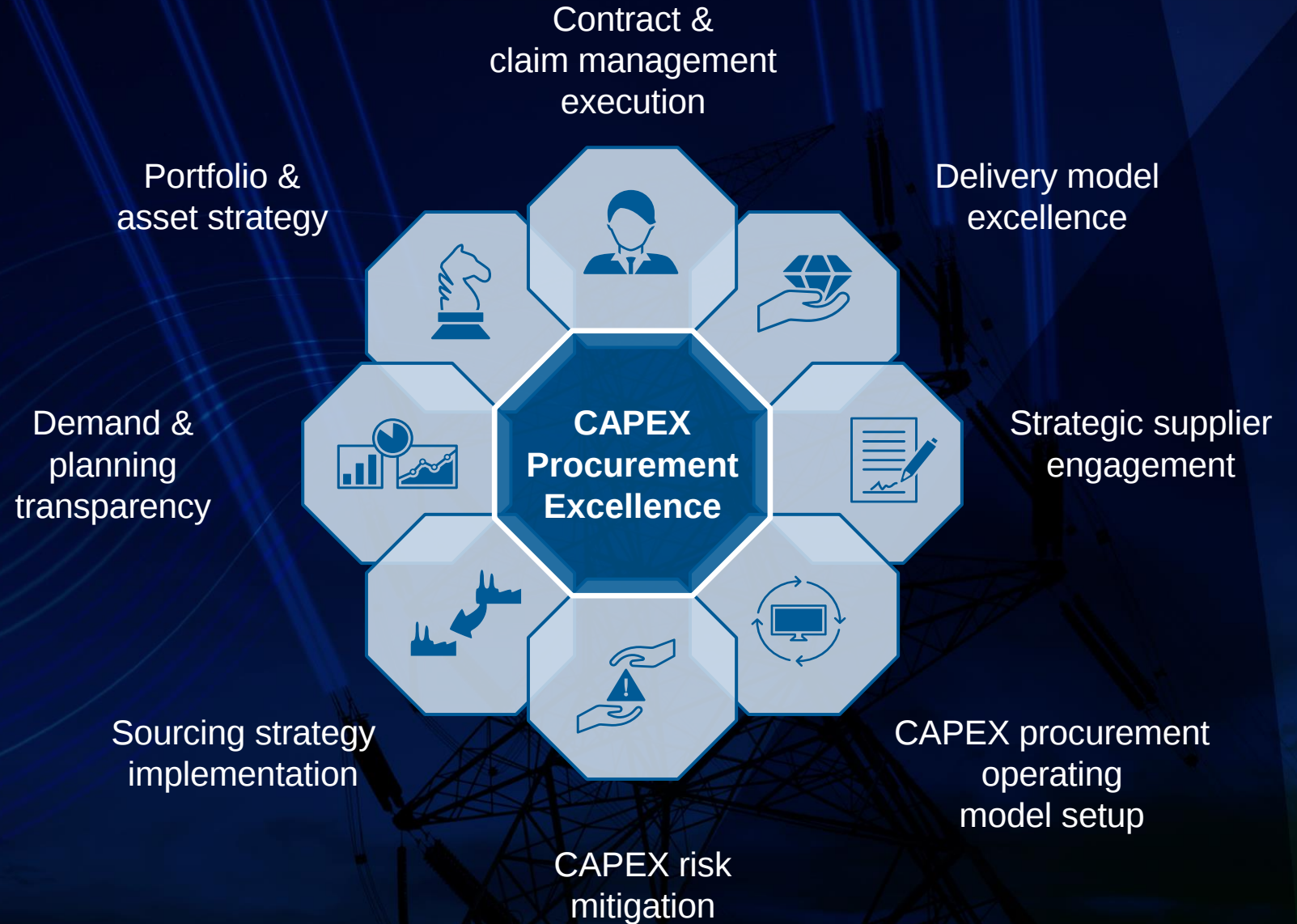
Sector-specific expectations: Grid operators anticipate rising CAPEX costs and longer lead times

INVERTO CAPEX
procurement
triangle

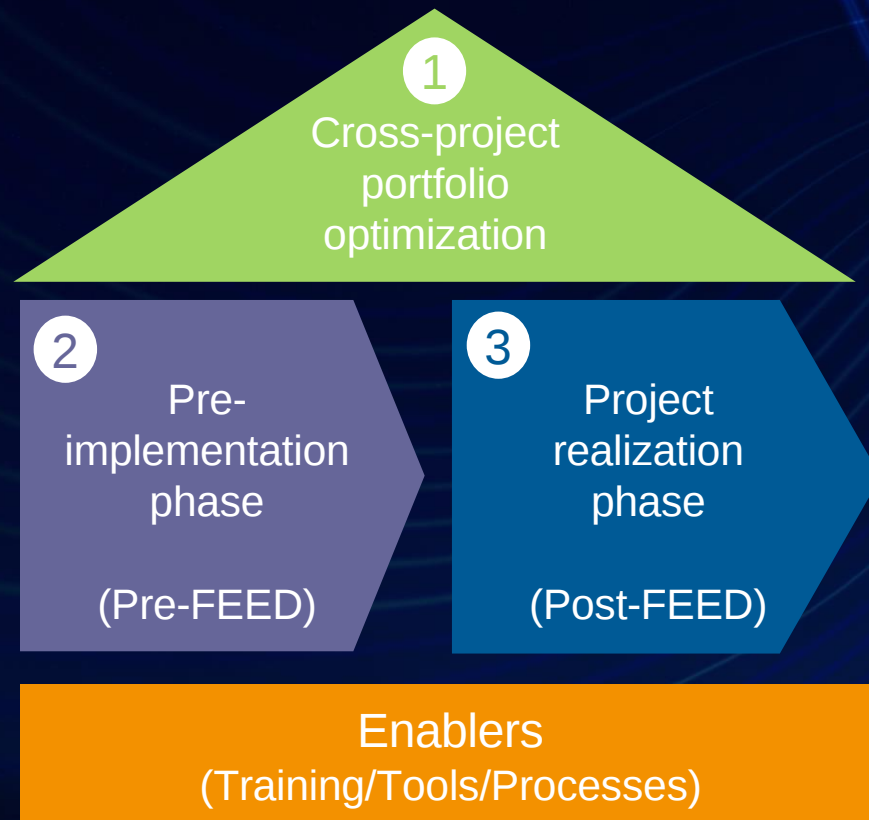


Recommendations for action

Addressing
the challenges
in **the Energy Sector**
with proven methods
and tools from
INVERTO



INVERTO CAPEX Procurement Excellence supports clients in achieving capital procurement excellence across key project activities



Methods & offering

	1	2	3
Portfolio & asset strategy			
Demand & planning transparency			
Sourcing strategy implementation			
CAPEX risk mitigation			
CAPEX procurement operating model			
Strategic supplier engagement			
Delivery model excellence			
Contract & claim management			

The execution of recommended actions starts with an efficient baselining phase, followed by the conceptualization and implementation of the strategy

	Baselining	Strategy and mobilization	Implementation and rollout
 Portfolio & asset strategy	Analyze the current asset portfolio, identify gaps, and assess the existing investment strategy	Develop a long-term portfolio and asset strategy aligned with corporate goals and future market trends	Implement integrated portfolio management systems to monitor asset performance and ensure strategic alignment
 Demand & planning transparency	Review current portfolio and its planning processes, identifying gaps and areas for optimization	Implement planning tools to increase transparency and predictability of demand and resource needs	Train teams on new planning tools and establish a dynamic reporting and control process
 Sourcing strategy	Assess the existing sourcing strategy, analyze the supplier base, and identify efficiency levers according to portfolio and demand	Develop a strategic sourcing plan for key categories, focusing on cost reduction and supplier optimization	Implement category-specific strategies and establish strategic partnerships with key suppliers to ensure long-term value creation
 CAPEX risk mgmt.	Assess the current risk management framework and identify critical risk factors in CAPEX planning	Develop a comprehensive risk management strategy focusing on proactive mitigation and scenario planning	Establish a systematic risk reporting mechanism and train teams on continuous risk management
 Operating model	Evaluate the current operating model and identify inefficiencies in project execution	Develop an optimized operating model focused on enhancing efficiency and improving project delivery	Roll out new operating models alongside a performance monitoring system for continuous improvement
 Strategic supplier engagement	Analyze current supplier relationships and assess the integration of strategic suppliers into the value chain	Develop a supplier integration strategy to become a preferred client and foster joint innovation initiatives	Implement joint venture programs and partnership models to strengthen long-term strategic supplier relationships
 Delivery model excellence	Review existing delivery models, assess efficiency, and identify optimization opportunities on portfolio level	Develop an excellence framework for delivery models focused on flexibility and cost-efficiency	Introduce agile delivery models to enhance adaptability to dynamic market conditions and ensure project delivery
 Active contract & claim mgmt.	Review current contract and claims management processes, identifying weaknesses and areas for improvement	Design a comprehensive contract and claims management approach, including early warning systems and standardized claims procedures	Introduce automated tools for contract and claims management and train key stakeholders

4 key priorities to operationalize CAPEX procurement transformation and achieving procurement excellence in CAPEX-heavy organizations



As-is assessment on CAPEX procurement capabilities

- Baselining & segmentation of project activities
- Performance evaluation
- Deep dive assessment of prioritized projects & categories



Scenario-based evaluation of CAPEX sourcing strategies

- Sensitivity analysis of the business case across procurement levers
- Definition of scoping options based on project spend forecasts
- Evaluation of alternative scenarios for project realization



Assess open questions and key options related to portfolio setup

- Ownership of project tasks & governance
- Delivery model selection and contracting options



Plan the next steps in project development & partner management

- Prepare key decisions on contracting and partner selection
- Assess timing within the project plan to guide key decisions

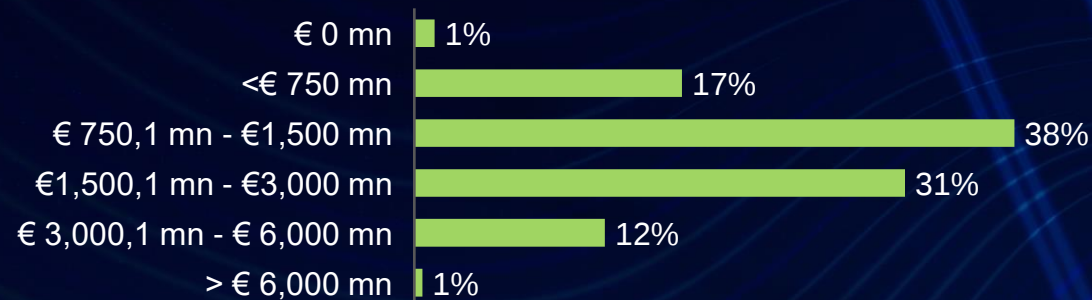
Holistic 2-year CAPEX procurement transformation in 4 steps



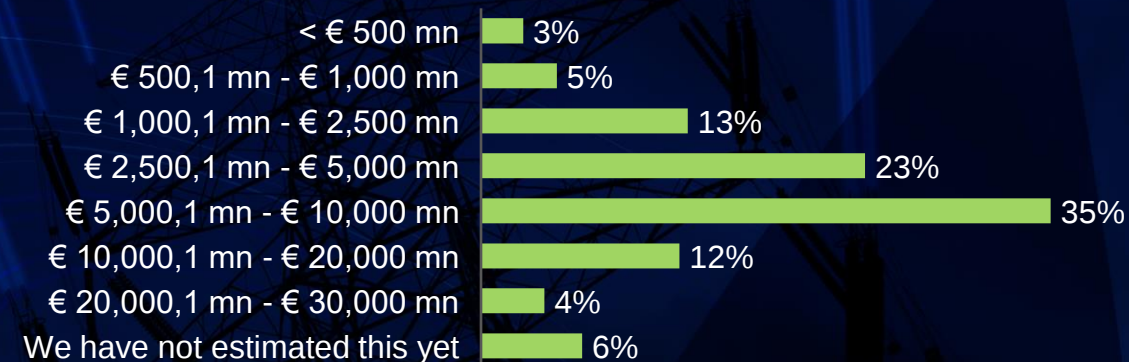
Study design & participants

82% of the participants report a procurement expenditure including CAPEX, exceeding €750 million, with a strong increase expected by 2030

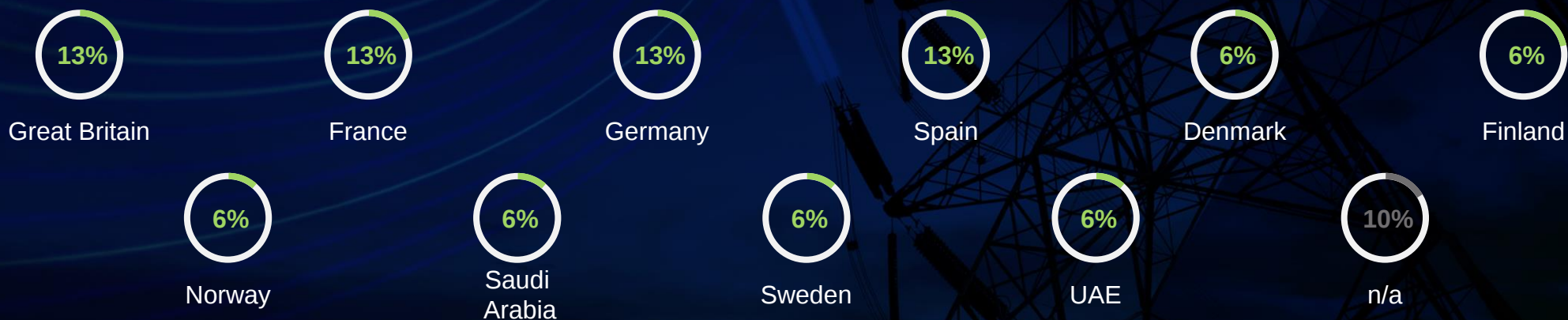
What was your company's procurement expenditure incl. CAPEX in 2023? (€ mn)



What is your company's estimated annual CAPEX expenditure for FY 2024 to FY 2030? (€ mn)

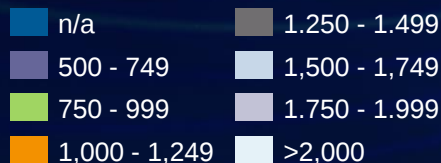
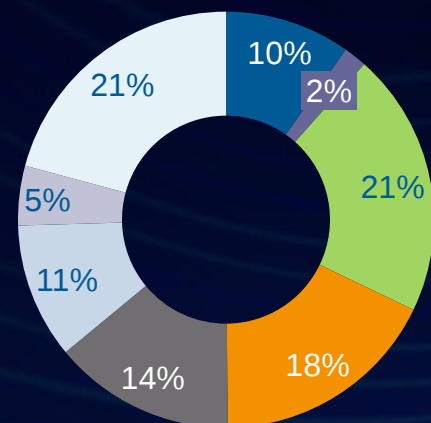


What country does your company operate in? (in %)

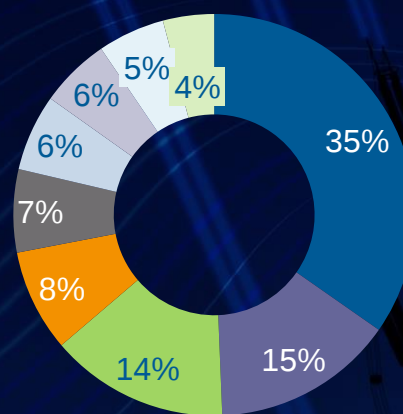


Over 250 of participating companies employ more than 1,000 people, with 2/3 of responses coming from individuals in strategic positions

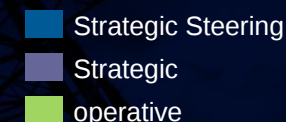
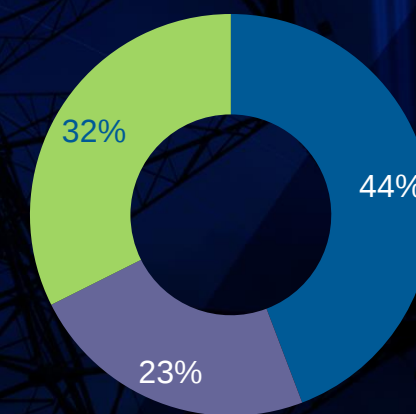
How many employees work in your company?



What is your position within your company?

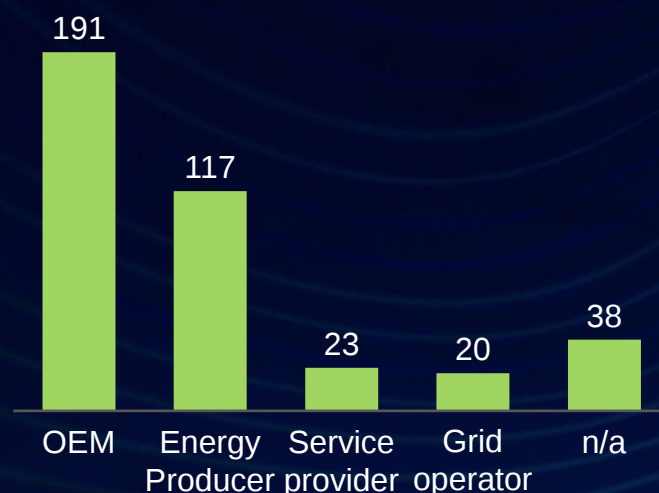


What is your position within your company?



The survey included 389 participants, with ~80% representing OEMs and energy producers, showing a homogenous distribution across sub-industries

Overview of company types (absolute numbers)



Method: Online survey of companies in the Europe and near east

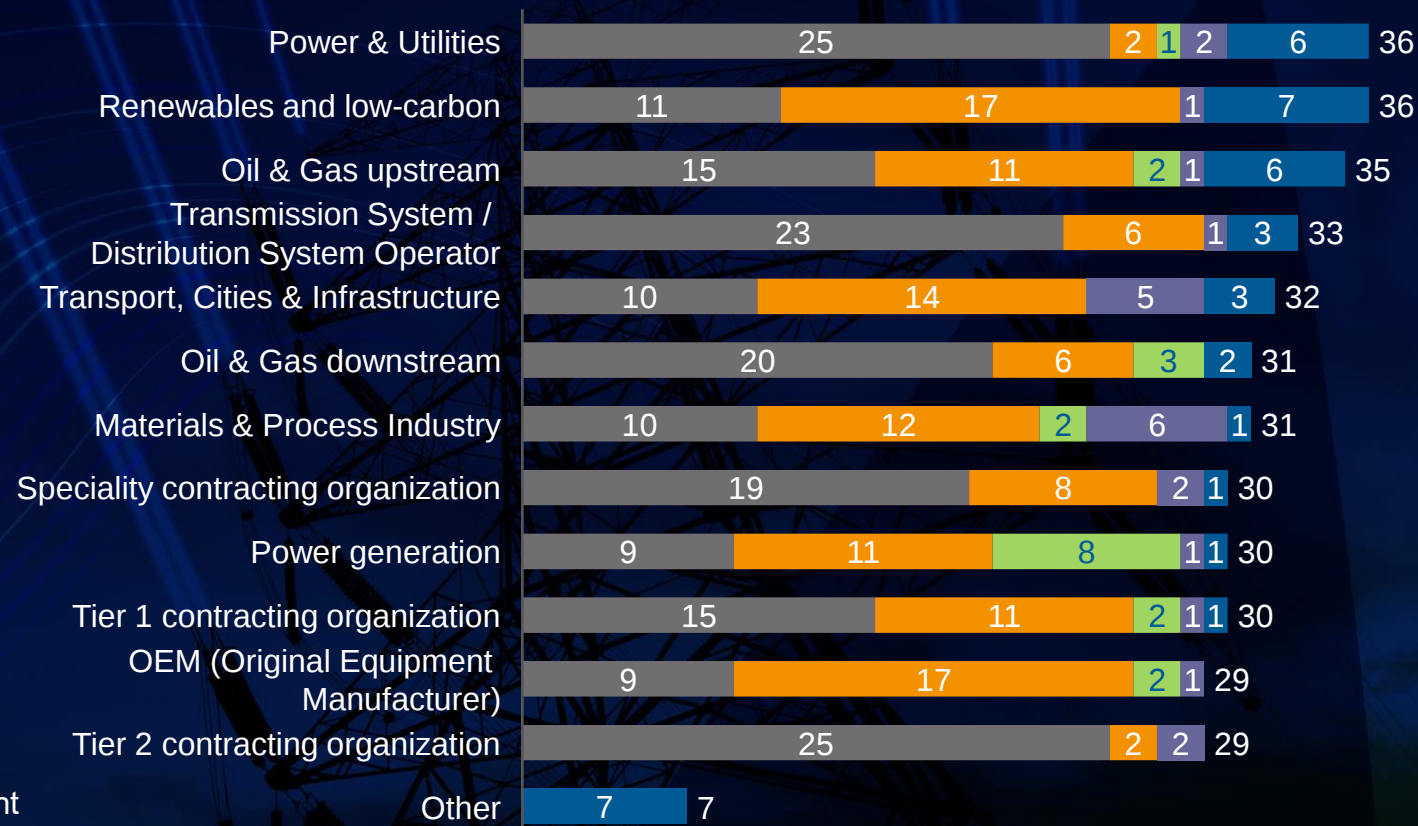
Author: INVERTO GmbH in cooperation with Censuswide

Data: Anonymized collection and evaluation

Participants: 389 CPO's, COO's, Project manager and Procurement experts

Period: July 2024

Sub-industries of companies (absolute numbers)



■ OEM
 ■ Energy Producer
 ■ Grid operator
 ■ Service provider
 ■ n/a

Your Energy Capex Survey team...



Kevin Domnick
Principal & Node
Integrated Energy



Björn Krämer
Senior Project Manager
& Chief of Staff



Laura Astengo
Marketing Specialist
Energy Practice Area



Daniel Weise
Managing Director &
Senior Partner, CEO
INVERTO



Stefan Benett
Managing Director &
Practice Area Lead



Mohamad Kaivan
Managing Director &
Node Low Carbon
Energy & Networks



David Ring
Managing Director &
Lead Business
Development



Joshua Fenlon
Principal & Co-Node
Low Carbon Energy &
Networks



Callum Philipps
Senior Project Manager
& Lead Marketing