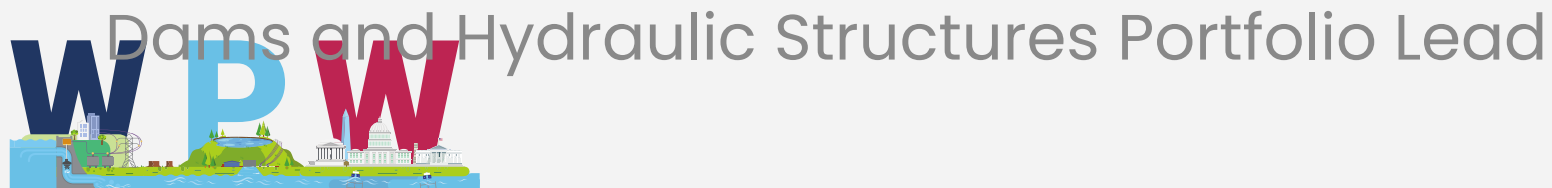


Pumped Storage Development: Pitfalls and Promise

- A Designer's Perspective

John Chesterton | Mott MacDonald



Global expertise and experience



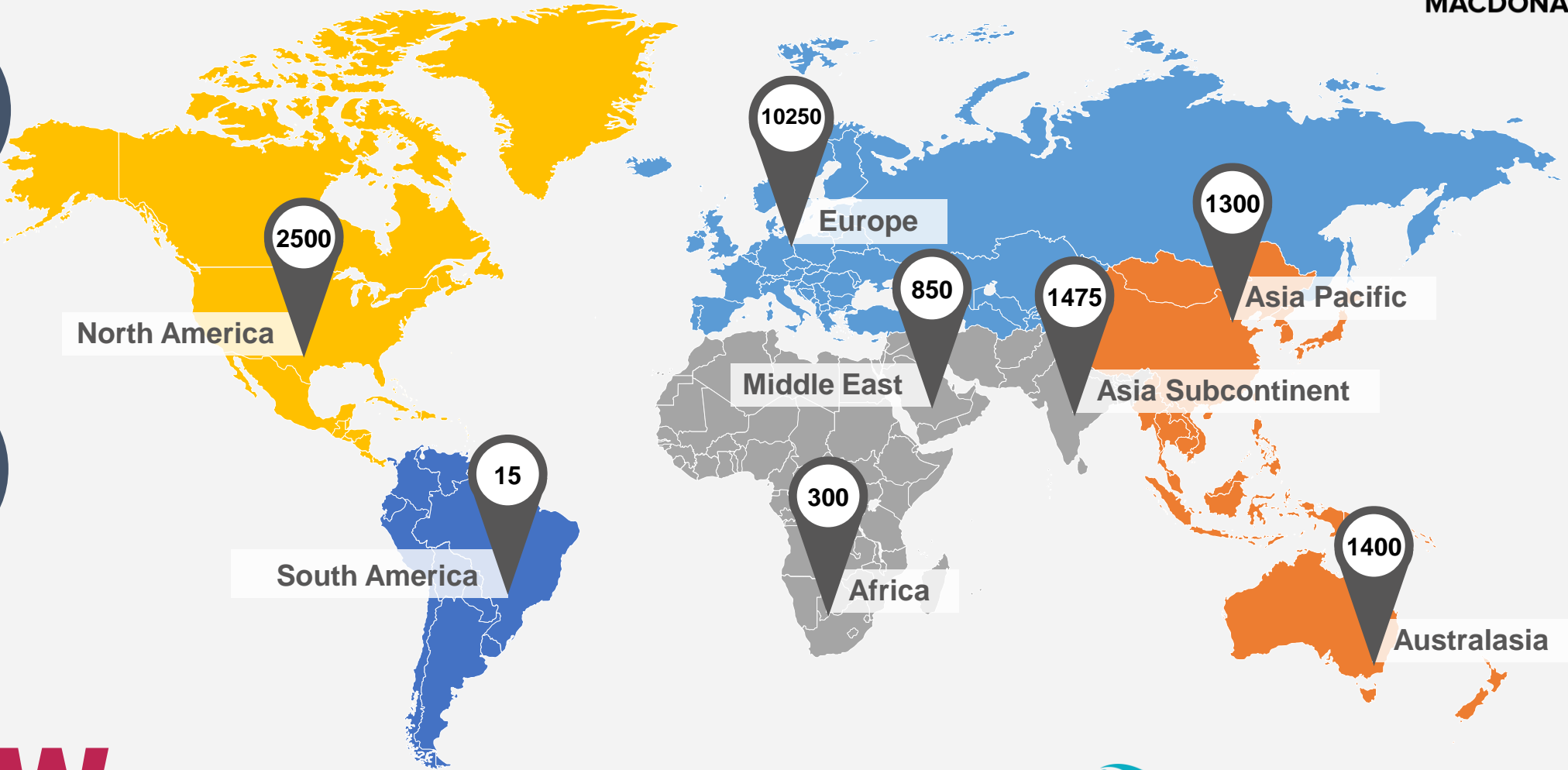
We work in 140 countries

160 permanent offices 50 countries

18k staff

\$2.6bn turnover

Over 150 years' heritage



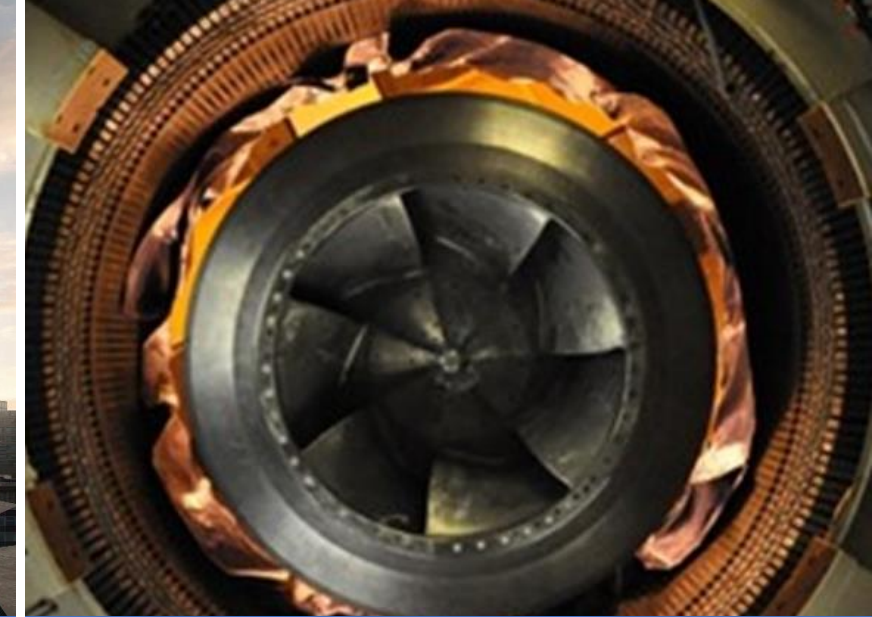
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Advisory



Built environment



Energy



International development

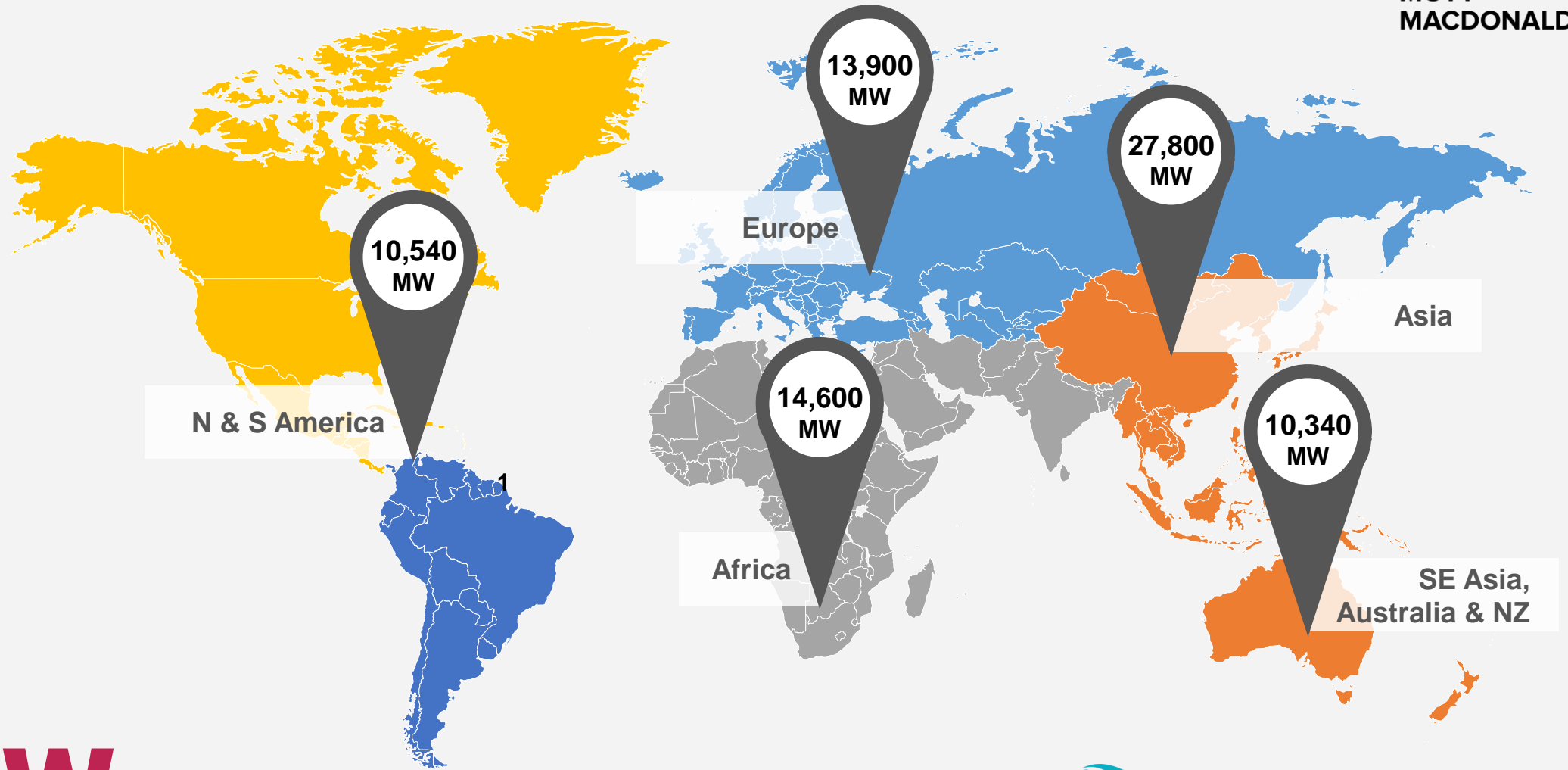


Transport



Water

Global Hydropower Experience

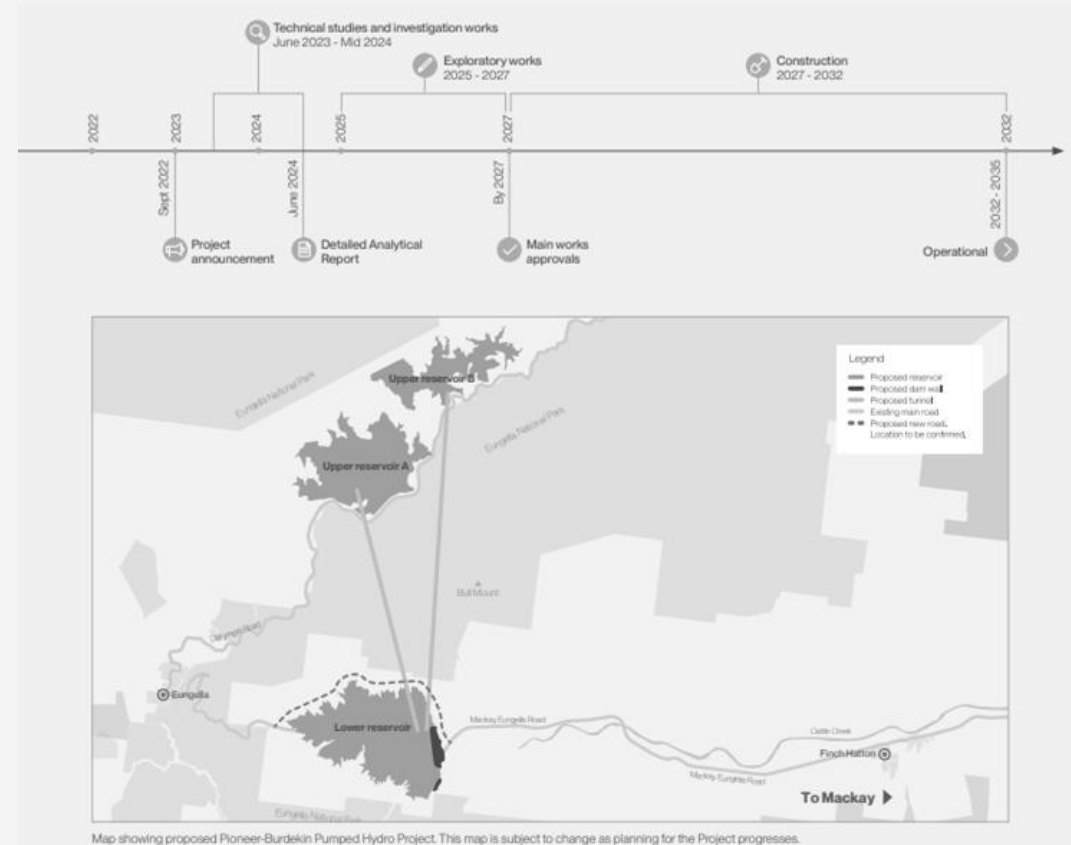


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Permitting and Licensing Impacts

- Project Layout and Configuration
- Environmental Impacts
- Water Rights Allocations
- Public and Operational Safety inc.

Dam Safety



Pitfalls:

- Lack of Alignment between Design, Permitting & Licensing processes
- Multi-Stakeholder Communication and Engagement
- Stakeholder, Developer and Designer knowledge gaps

REDESIGN

CAPEX

DELAY

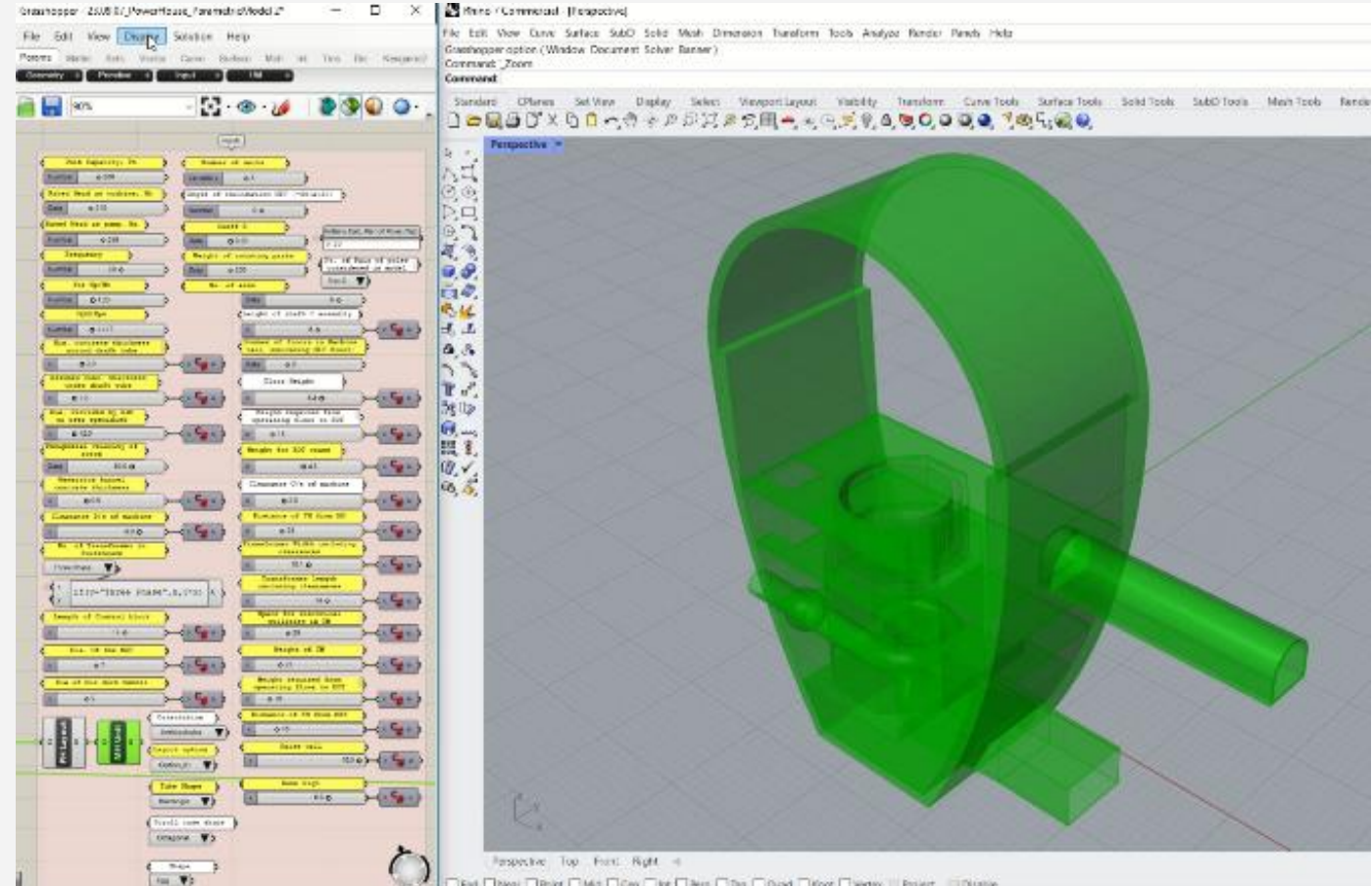
- Lack of recent local precedent



Promise: Designer Observations

- Alignment:
 - Early engagement
 - Early site assessment
 - Early expert opinion

■ Lessons Learnt



Promise: Designer Observations

- Knowledge
 - Plan for communication and visualization
- Risk / Uncertainty
 - Understanding Project Risk



Kidston Pumped Storage Project | Cavern Construction late 2023