

# Infrastructure Advisory Services



ARUP

## Advising throughout the project life cycle

Arup's Advisory Services span the entire project life cycle from initial feasibility, broader business analysis and structuring of a transaction, to procurement, deal closing, construction and operation, performance improvement and asset divestment.

We apply a range of commercial, strategic, technical and financial expertise to advise public and private sector clients in the development of infrastructure projects across the globe. We help our clients make informed long-term strategic decisions whilst improving their day-to-day operational and financial performance.

We advise clients across a diverse range of sectors including energy, transportation, social infrastructure, digital infrastructure and the environment.

|   |                                | Private Sector   | Public Sector   |   |
|---|--------------------------------|--|---|---|
| Environmental, Social and Government considerations | Project Origination / Planning | Business Case Development<br>Market Assessment<br>Investment Strategy          | Concept Creation<br>Strategy and Economics<br>Policy Analysis<br>Regulatory Framework<br>Project Feasibility                    | Value for Money Analysis<br>Delivery Method<br>Program Definition<br>Stakeholder Engagement |
|   | Structuring                    | Consortium Formation<br>Bidding Strategy<br>Financing Options                  | Business Plan<br>Key Advisor Engagement<br>Risk Management<br>Procurement Strategy  | Funding Options   |
|   | Procurement                    | Evaluation<br>Debt Raising   | Tendering<br>Financial Modeling<br>Cost Estimation<br>Project Scheduling<br>Technical Due Diligence<br>Commercial Risk Analysis | Tender Strategy<br>RFP and Project Agreement<br>Bid Negotiation                             |
|   | Construction                   |  | Construction Monitoring<br>Health and Safety Monitoring<br>Operational Readiness  |   |
|   | Asset Management               | Operational Improvements<br>M&A Advisory<br>Portfolio Reviews<br>Restructuring | Privatizations<br>Refinancing<br>Performance Turnaround<br>Asset Condition Assessment<br>Asset Valuation                        |   |

Arup provides clients with informed advice, challenging them when necessary, to achieve their objectives.

## Digitalization

*Unlocking new opportunities with data and technology*

- As thought leaders on the Future of Mobility, Arup helps cities and transport networks respond to disruptive technologies, such as autonomous vehicles by integrating new technologies and business models.
- Our digital experts use real-time data and advanced digital tools to optimize asset performance, reduce operations costs and inform investment decisions.

## Responsible Business

*Creating value for people, businesses and the environment*

- Arup has pledged to do all we can to further the UN Sustainable Development Goals.
- Our “Total Value” framework helps clients identify infrastructure solutions that alleviate congestion, improve air quality and promote equity. Our pioneering work in sustainable practices, such as Health & Well Being and the circular economy, boost a project’s impact.

## Business Resilience

*Safeguarding against shocks, protecting stakeholder value and navigating change*

- Arup develops innovative resilience financing models for infrastructure projects in a variety of sectors.
- We help clients prepare for future shocks and stresses, like climate change and cyber-attacks, by devising tailored strategies informed by horizon scanning and scenario development.

## Urbanization

*Preparing cities and their citizens to meet the demands of a new urban age*

- Arup is dedicated to helping cities thrive in the face of hyper urbanization and climate change.
- In accordance with the UN SDG goals, Arup’s advisory team works with city leaders to identify and develop projects aligned with the UN SDGs. We can assist clients with everything from making urban transportation networks more sustainable and future-proofed, to cutting carbon emissions, to modernizing aging infrastructure to meet increasing demand.

## Enhanced Infrastructure Performance

*Using assets more intelligently and efficiently to better meet society’s needs*

- Arup has successfully delivered major network upgrades for a variety of clients.
- Our digital asset management tools and circular economy methodology allow clients to better anticipate and prepare for future growth and advancements in technology.

## Impact Investing and New Financial Models

*Delivering impact through funding and financing for capital investments*

- We help clients launching major capital projects to take full advantage of economical infrastructure models and land value capture mechanisms.
- Our experienced transaction advisors can match projects with finance providers and assist clients in driving change through strategic impact investment.

Arup has worked with organizations in a range of sectors to develop new routes to market, expedite procurement, create bespoke integrated solutions, improve operations and energy performance, and maximize return on investment.



TRANSPORTATION

## Presidio Parkway, San Francisco, CA

Arup provided technical, commercial, and financial advice to the San Francisco County Transportation Authority throughout the Phase II procurement process of California's first transportation P3.



TRANSPORTATION

## Champlain Bridge, Montreal, QC

Arup served as a key advisor to the Canadian government throughout design, procurement and construction, significantly expediting P3 procurement and working with the client to tailor a program management approach.



GOVERNMENT

## Long Beach Civic Center, CA

Arup developed a P3 procurement strategy that reduced the project timeline, helping the city build market confidence and find an appropriate development partner.



CITIES

## Denver P3 office, CO

Arup advised the Denver Mayor's Office on the development of a municipal P3 program aimed at improving the tracking and management of potential P3 projects.



AVIATION

## JetBlue Terminal 5, JFK, Jamaica, NY

As masterplanner and design manager for JetBlue's benchmark low-cost hub, Arup helped reduce the volume of the 26-gate terminal, thereby cutting costs and boosting energy efficiency.



RAIL

## Texas High Speed Rail, TX

In our role as Owner's Engineer, Arup developed alternative alignments, led conceptual design, provided multidisciplinary engineering services, and assisted the client with the regulatory approval process.



ENERGY

## San Juan and Totoral Wind, Chile

Arup advisors performed due diligence for a 230MW portfolio of onshore wind projects in Chile, on behalf of investors and lenders.



WATER

## Rialto Water P3, CA

Working on behalf of the lender, Arup performed due diligence related to the design and construction of this water & wastewater P3 project in California.



DIGITAL

## Kentucky Fiber Optic Network, KY

Arup served as the lenders technical advisor for the statewide 'middle-mile' network built, financed and operated under a 30-year P3 concession.



## SOCIAL INFRASTRUCTURE

### Los Angeles Civic Center *Public Sector Advisory Services*

Arup has been appointed financial advisor to the City of Los Angeles for the LA Civic Center P3 project. This new 27-29-story tower, located on the site formerly occupied by the Los Angeles Police Department headquarters, is part of the newly-passed Los Angeles Civic Center Master Plan. The project features 750,000ft<sup>2</sup> of office space and underground parking for 1000+ cars.



## RAIL

### Boston MBTA *Public Sector Advisory Services*

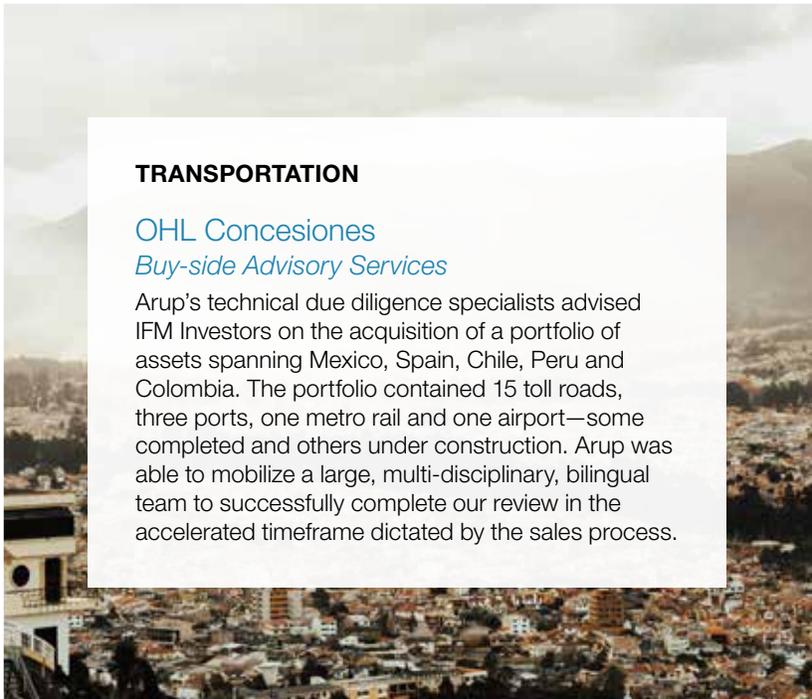
Arup is analyzing contract options for the Massachusetts Bay Transportation Authority's (MBTA) commuter rail concession to determine the most advantageous way to commercially structure operations and maintenance. Our scope includes identifying incentive mechanisms designed to ensure high-quality service for the duration of the contract.



## HIGHWAY

### Colombia 4G Program *Lenders' Technical Advisor*

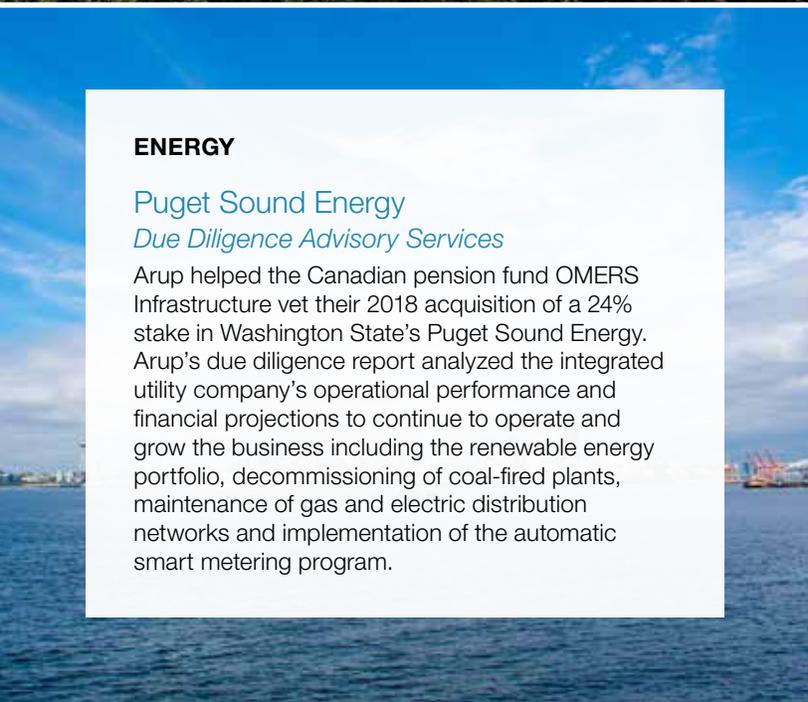
Arup has served as a technical advisor, providing technical and environmental due diligence on multiple new construction projects occurring as part of the Colombia 4G Program. These projects include: the Conexion Norte Toll Road, Conexion Pacifico Toll Roads 1, 2 & 3, the Ruta al Mar Toll Road, the Cartagena-Barranquilla Toll Road, and the Alto Magdalena Road.



## TRANSPORTATION

### OHL Concesiones *Buy-side Advisory Services*

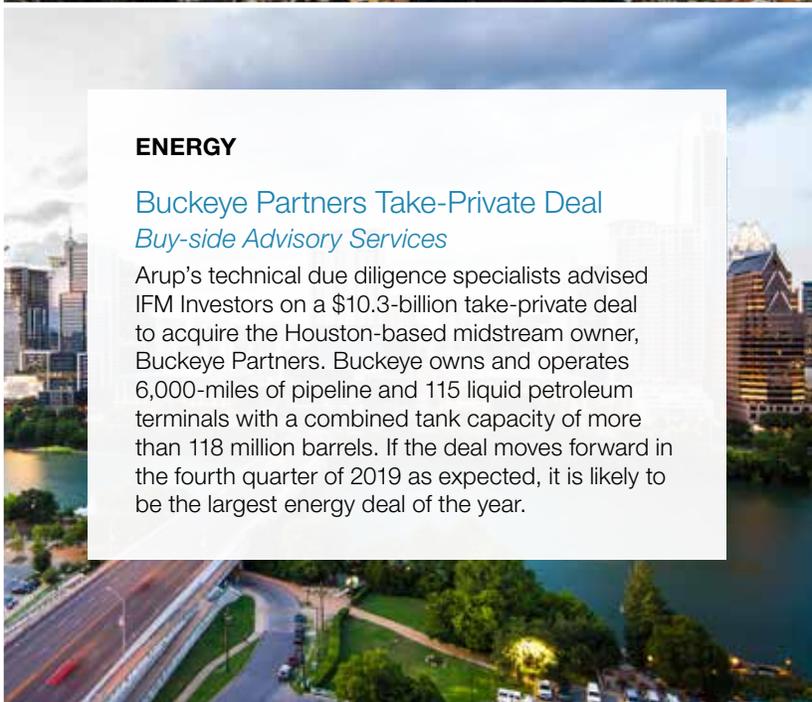
Arup's technical due diligence specialists advised IFM Investors on the acquisition of a portfolio of assets spanning Mexico, Spain, Chile, Peru and Colombia. The portfolio contained 15 toll roads, three ports, one metro rail and one airport—some completed and others under construction. Arup was able to mobilize a large, multi-disciplinary, bilingual team to successfully complete our review in the accelerated timeframe dictated by the sales process.



## ENERGY

### Puget Sound Energy *Due Diligence Advisory Services*

Arup helped the Canadian pension fund OMERS Infrastructure vet their 2018 acquisition of a 24% stake in Washington State's Puget Sound Energy. Arup's due diligence report analyzed the integrated utility company's operational performance and financial projections to continue to operate and grow the business including the renewable energy portfolio, decommissioning of coal-fired plants, maintenance of gas and electric distribution networks and implementation of the automatic smart metering program.



## ENERGY

### Buckeye Partners Take-Private Deal *Buy-side Advisory Services*

Arup's technical due diligence specialists advised IFM Investors on a \$10.3-billion take-private deal to acquire the Houston-based midstream owner, Buckeye Partners. Buckeye owns and operates 6,000-miles of pipeline and 115 liquid petroleum terminals with a combined tank capacity of more than 118 million barrels. If the deal moves forward in the fourth quarter of 2019 as expected, it is likely to be the largest energy deal of the year.

# We shape a better world

Arup was founded by visionary engineer Sir Ove Arup on the belief that great design comes from a commitment to quality, creativity, and interdisciplinary problem-solving. Today, more than 70 years later, our global group of more than 14,000 designers, engineers, planners and consultants continue to embrace these values, collaborating across borders to create innovative solutions that help shape a better world.

## Multidisciplinary services

Acoustic consulting • Advisory services • Audiovisual consulting • Bridge design  
Building design • Civil engineering • Construction planning • Controls and commissioning  
Cost management • Development planning • Electrical engineering • Energy consulting  
Environmental consulting • Façade engineering • Facilities management  
Fire/life safety consulting • Geotechnical engineering • Highway engineering • Infrastructure  
Impact and blast engineering • Information technology and communications consulting  
Laboratory design • Lighting design • Logistics consulting • Management consulting  
Maritime engineering • Mechanical engineering • Offshore engineering  
Plumbing engineering • Project management • Rail engineering • Risk consulting  
Security consulting • Seismic design • Structural engineering • Sustainability consulting  
Transport planning • Tunnel engineering • Vehicle design • Venue consulting  
Visualization and modeling • Water engineering • Wind engineering

## Americas offices

Bogotá • Boston • Chicago • Dallas • Houston • Los Angeles • Montreal • New Jersey  
New York • Oakland • San Francisco • Seattle • Toronto • Washington DC