



# Advanced Field Services

Integrated engineering and technical support

► OUR GOAL

Work with your teams  
to help create long-term value.



# Engineering has transformed. So has BBA.

Advanced Field Services

## +20

Offices across Canada,  
Chili and USA

For over 40 years, we have been intensifying our efforts to improve our practices and design cutting-edge solutions, based on industrial client needs, that are reliable, profitable and environmentally friendly.

## +1.5k

Employees

Outside our more immediate successes, we focus on the future to create long-term value for our clients. Every day, we go beyond engineering and encourage our team members to do the same, so we can build a sustainable world together.

## +40

Years of innovation



“Our team manages the entire project to make sure all stakeholders are well served. Our mission is to safeguard a balance between the environment, performance and profitability.”

Jérôme Pelletier, P.Eng., MBA - President and CEO

# National and international reach with a local presence



Boisbriand  
Calgary  
Concord  
Edmonton  
Labrador City

Mont-Saint-Hilaire  
Mont-Tremblant  
Montréal  
Quebec City  
Rouyn-Noranda

Saguenay  
Salt Lake City  
Santiago, Chile  
Sept-Îles  
Sudbury

Terrace  
Toronto  
Trail  
Val-d'Or  
Vancouver



# Our values

Advanced Field Services

# 0

Onsite accidents.  
We stay alert for everyone's safety.

Our success is largely due to the our highly engaged team members. With a culture based on commitment, development and complementary talents, we build lasting relationships with our employees, clients and partners. BBA's increased presence in the field provides team members with a rich professional experience, offering a broader and more accurate view of operational activities.

# +91%

Client satisfaction

# By 2030

Toward Net Zero

Our objective is a total reduction of our CO<sub>2</sub> equivalencies by 47% by 2030 compared to our 2019 baseline.

## People first

At BBA, we firmly believe that health and safety must be a way of thinking, acting and living—a reflex we sustain over time. Achieving excellence in health and safety is a responsibility we all share, from executives, to managers, to employees. Our 10 golden rules target the aspects of our work that present the highest risks. We ensure the health and safety of our team and clients at all times—a principle that guides all of our decisions.

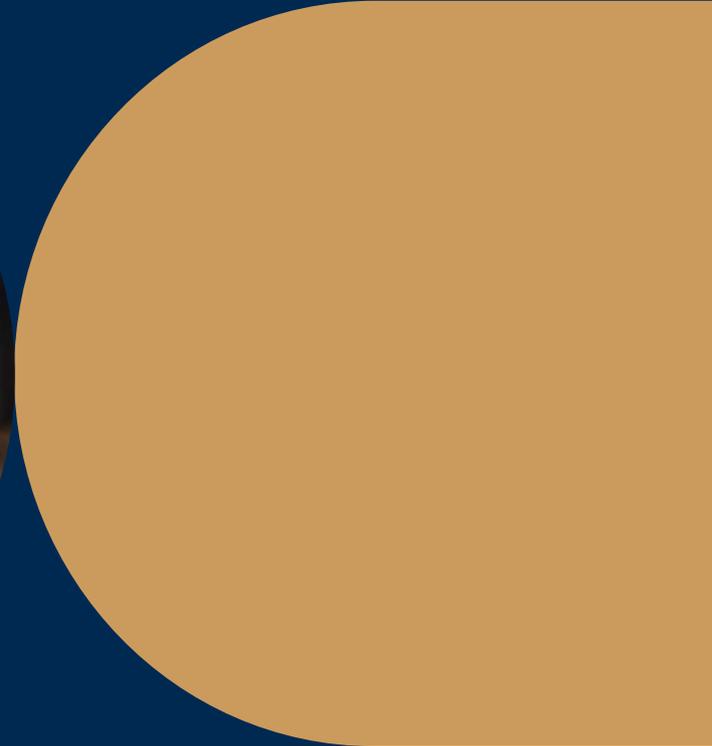
## Rigour, ingenuity and collaboration

We are in the field right from the start of a project, communicating efficiently with our teams, inspiring them and giving them the autonomy that helps them get it right the first time. No matter the challenge, we tackle it together, driven by the desire to exceed expectations.

## Eco-mindfulness

We are fully aware of our influence on developing environmentally-friendly projects, and we are committed to providing our clients with every possible option to reduce their environmental footprint. At BBA, engineers, biologists and environmental experts work closely to strike the right balance between protecting the environment, controlling costs and complying with regulations.

# Our culture is built on values that have stood the test of time.





# Our experience in Field Services

Advanced Field Services

With over 40 years of expertise in the industrial and utility markets, we can solve the most complex problems and adapt to any type of energy or process. Our teams are strategically located near your facilities, so they can be there in the field with you. They understand your challenges, collaborate effectively and respond quickly.



Energy



Mining and  
Metals



Biofuels, Oil  
and Gas



Other industries  
Pulp and paper, industrial  
agriculture, data centres  
and much more

## OUR GOAL

To efficiently manage your assets  
and optimize your productivity, while  
ensuring reliability and team safety.

### Integrated engineering expertise and technical support

- New construction, preventive maintenance and corrective actions
- Integrated cybersecurity services, protecting your OT infrastructure
- Strategic management of your assets
- Advanced testing and analyses:
  - Partial discharge testing
  - Microwave systems
  - IEC 61850 protocol





# Advanced technical capabilities and integrated solutions

Advanced Field Services

Our site technologists, supported by our engineering team, accompany you at every stage of your projects. They make sure deadlines are met and workers are safe, quickly resolve problems in the field and implement plans to minimize risk and get your operations up and running successfully the first time. We invest in advanced test equipment, to ensure we obtain the highest quality in test results.



## ASSET MANAGEMENT

We help you make informed decisions thanks to our approach, which is based on our field experience, combined with an extensive knowledge of available market technologies.

### Power generation and distribution

- Transformer and reactive equipment testing
- Breakers and switchgear testing
- Online and offline partial discharge testing
- Advanced cable testing and fault locating
- Governor and exciter controls
- WECC and NERC testing
- Generator instrumentation and controls
- Equipment inspection
- Generator power optimization and capacity increase

### Telecommunications

- Microwave networks
- Fibre optic networks
- Digital cross-connect (DACs)
- SONET MUX
- Satellite links
- Lease lines
- VHF/UHF
- Power line carrier
- Network architecture
- RTU (RTAC, D400, D25, D20, IBOX)

### Protection and control

- Protection relay maintenance and commissioning
- Control system commissioning
- Brownfield construction
- SCADA and automation
- Remedial action scheme (RAS)
- End-to-end testing
- IEC 61850 communications protocol
- Emergency troubleshooting
- Fault analysis

### Industrial processes

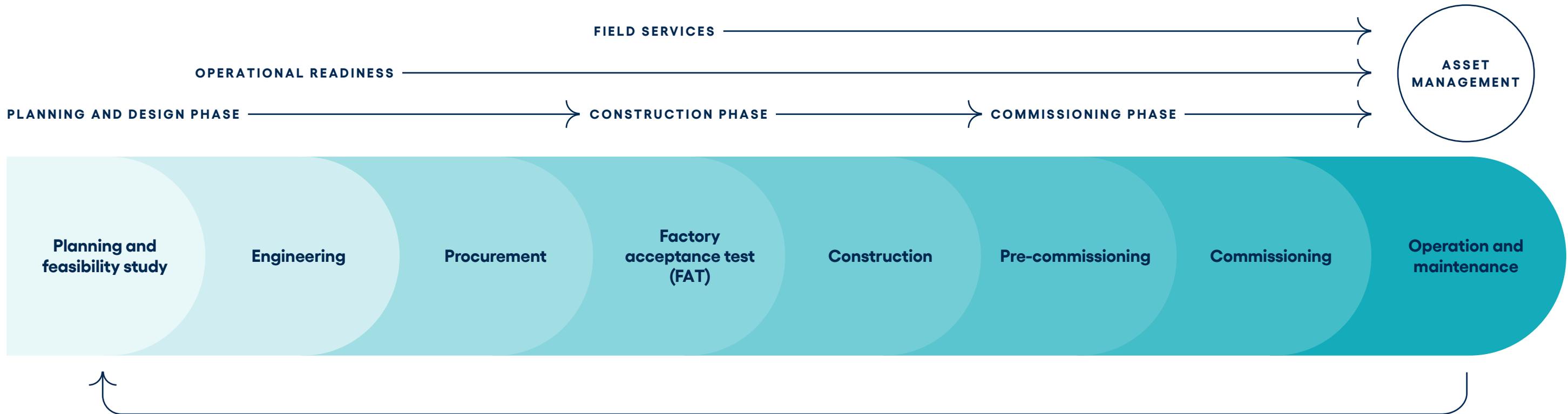
- Automation
- Process optimization
- Power quality correction
- Advanced motor testing
- Operational readiness
- Arc flash analysis
- Project optimization (costs, schedules, risks)
- Commissioning management
- Lockout development and management



# Every minute counts: engineering and technical support join forces

Advanced Field Services

When every minute counts, it is essential to team up with the right business partner. Thanks to our wide range of technical services, we can offer comprehensive multidisciplinary solutions at every stage of your project. Our teams are committed to supporting you and making your project a success. We are there with you, in the field.





# Strategic asset management

Advanced Field Services

A company's assets are a valuable resource, and our experts help you make the right investments at the right time. They consider all factors that can affect your operations: for example, worker safety and equipment reliability, increasing productivity, complying with regulatory requirements, technological advances and risk mitigation.



## Equipment management

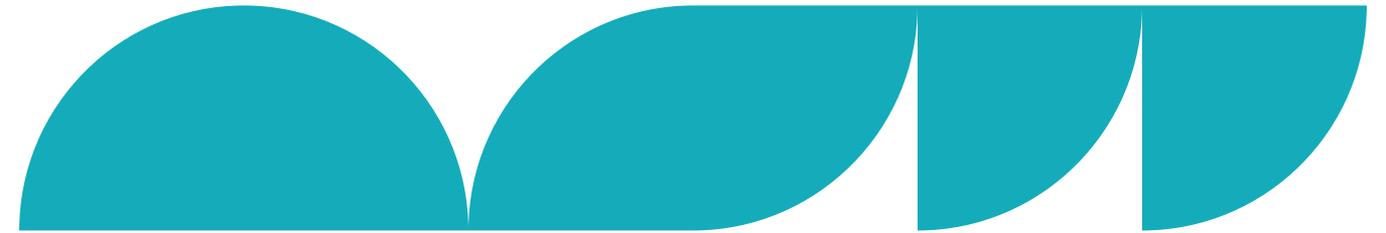
Whether you want to extend the useful life of your equipment or plan on replacing it, BBA is there to ensure every dollar is well invested.

- Optimization of operating and maintenance costs
- Management of asset investments
- Planning, procurement and strategic resources

## New technology integration

You can count on our experts to help you choose and integrate the best technology to extend the useful life of your assets and begin the digital transformation of your business.

- Advanced expertise in data analysis based on artificial intelligence
- Strategy to integrate new technologies: from operations to commissioning



## Data collection and analysis

Our approach in strategic asset management involves collecting reliable and quality data, so you can make informed decisions.

- Assessment of asset condition and performance
- Our onsite experts collect data using state-of-the-art tools
- Information analysis with the aim to optimize, supported by vast knowledge of available market technologies

## Risk management

Your ageing equipment increases risks associated with failures and worker safety. A thorough risk analysis will help you get the facts.

- Analysis of the risk-consequence ratio
- Setting priorities
- Compliance management
- Team training on preventive maintenance
- Environmental mitigation plans



# Operational readiness and commissioning

Advanced Field Services

# 100+

start-up mandates completed to date

Given the significant amount of time, effort and money you invest in the design and construction of your operations, it is imperative for you to reach full production in the shortest timeframe, while respecting your budget. Our structured approach facilitates successful start-ups, ensures sustained production increases and maintains optimal facility performance.



1

## Kick-off meeting: the key to a successful start

We address the following topics as soon as project execution begins, so you can reach planned performance much sooner.

- Work schedules and budgets
- Definition of team roles
- Objectives to safeguard your assets
- Optimization of your overall productivity
- Worker safety

2

## Operational readiness and commissioning plan

BBA's proposed plan includes seven steps for a smooth start-up.

- Define operational readiness activities
- Control operational readiness activities
- Carry out operational readiness activities
- Prepare pre-operational verifications (POVs) and commissioning
- Perform POVs
- Perform commissioning
- Optimize operation and production (ramp-up)

3

## Operational start-up and maintenance

Once your systems are up and running, we will provide the means for you to remain vigilant and resolve deficiencies as quickly as possible, without compromising your operations, and secure greater return on investment.

- Risk management and mitigation plans
- Testing and commissioning
- Energization and startup
- Preparation of preventive maintenance plans
- Emergency response and repair
- Brownfield upgrade

4

## Safety: an ongoing priority

Every day, our teams work in remote, hard-to-reach sites to perform a variety of tasks that can entail risks.

Worker health and safety are extremely important to us and guide us in our day-to-day decisions and actions.

- Training plan for operational and maintenance staff
- Emergency support activities



# Innovation at BBA

Advanced Field Services

We know that to be implemented, new technologies must meet a real need, while remaining cost-effective, efficient and environmentally friendly. Our recommendations are guided by a comprehensive and measured analysis of your operations.

## 3D simulation, virtual reality and augmented reality

Immersive technologies such as virtual reality and augmented reality are used to reduce costs and accelerate project development:

- Optimized constructability
- Design review
- Health and safety training
- Virtual tour
- Public consultations
- Stakeholder communication



## Digital power systems

Our laboratory enables us to verify equipment compatibility and ensure flawless commissioning:

- Control and automation network simulation and testing
- Power system protection



## Motion amplification

Motion amplification is used to visualize complex vibratory phenomena without contact and without stopping production. It is also used to quickly pinpoint fundamental causes for wear issues. This innovation is a complementary tool for the following activities:

- Maintenance
- Modal analysis of structures or foundations
- Analysis of rotating equipment

RDI Technologies certified partner



## Cybersecurity

We have extensive experience with industrial control systems and their associated regulatory requirements:

- Standard gap analyses – NERC, CIP, NIST, CSA Z462, OSHA 3132 and IEC
- Review of work and intervention methods
- Training



## 4.0 solutions

We design innovative solutions for Industry 4.0 to help you meet your digital transformation challenges.

- Learning to use equipment to detect abnormal situations
- Equipment geolocation for operational decision-making
- Performance indicators and optimizing asset utilization
- Augmented reality



## Drones

The use of drones allows us to acquire high-precision data and improve team productivity:

- High-precision imaging
- Multispectral imaging
- Photogrammetry and volume calculation
- Inspection and measurement
- Georeferenced videos



# Environmental Services

Advanced Field Services

At BBA, engineers, biologists and environmental experts work together with sustainable development in mind. Whether it's managing a project throughout its life cycle or meeting specific needs, you can count on us.

## Prefeasibility studies and preliminary design

- Environmental constraints analysis
- Due diligence
- Biological, physical and human environment studies and expertise

## Design and construction

- Design of mitigation and restoration measures
- Environmental management and protection planning
- Environmental site monitoring

## Permits, approvals and social licensing

- Management and coordination of environmental permit and approval applications
- Environmental impact assessment
- Public hearings and consultations

## Operations and commissioning

- Environmental monitoring
- Emissions, noise and pollutant management
- Complaint management

# Mechanical Services

At BBA more than 25% of our time is spent on site, which means we know what rehabilitation your mechanical equipment requires to ensure it continues operating safely. Our Field Services team and mechanical engineers work together to perform an advanced technical analysis of your equipment under real operating conditions.

## Penstock rehabilitation

- Field inspections of penstock condition
- Finite element stress analysis to optimize constructability and repairs
- *Failure Modes and Effects Analysis* with rehabilitation options and capital cost estimates

## Explosive atmospheres

- Dust hazard assessments to improve worker safety and reduce insurance rates
- Explosion protection solutions, including short- and long-term solutions, technical reviews and capital cost analyses
- Development of safe work procedures

## Seismic certifications for piping

- Stress, wind and seismic analysis for piping systems
- Design mitigation measures for existing piping and mechanical equipment under seismic conditions
- Certification of critical infrastructure for seismic loading

## Mine rehabilitation

- Pre-feasibility studies
- Feasibility studies
- Trade-off studies
- Equipment condition assessments
- Process engineering to optimize system performance





# Social licensing and Indigenous relations

Advanced Field Services

PROUD MEMBER OF



BBA supports interest groups and stakeholders of the projects in which it is involved, bearing in mind their long-term impacts on communities, the environment, employees and business partners. This vision is based on principles of sustainability, trust and fairness and guides each of our actions.



1

## Recognizing Indigenous rights and our social responsibility

BBA believes it is essential to develop close and meaningful relationships with Indigenous peoples. We welcome their input and the knowledge they bring when we carry out projects on their ancestral lands and territories.

- BBA's Indigenous Peoples Policy based on the reconciliation process and respect for their rights and traditions
- Commitment to and support for the United Nations Declaration on the Rights of Indigenous Peoples
- Participation in the operations of Indigenous economic development organizations, such as the Canadian Council for Aboriginal Business (CCAB)

2

## Investing in project development with Indigenous peoples

Before a project is even considered, BBA works to establish engagement activities with communities. We aim to understand Indigenous values as they relate to their relationship with the land and its resources and work inclusively while providing support.

- BBA's support and initial investments to start partnership projects—some examples of investments made:
  - Malahat Nation, Vancouver
  - Métis Nation of Alberta
- Ongoing involvement of Indigenous leaders in the decision-making process
- Clear understanding of community impacts and benefits

3

## Establishing lasting and authentic partnerships and agreements

Our vision of partnership is based on the principle of mutual benefit. By striving to develop economic opportunities and positive benefits in the region where the project is carried out, BBA establishes strong and transparent relationships between local and Indigenous communities and developers. Here are some examples:

- Partnership with the Innu – Eastern Canada
- Cree partnership – Northern Ontario
- Métis Nation of Alberta relationship agreement – Western Canada

4

## Giving back to local communities and social involvement

BBA contributes to the well-being of the communities where it operates through various initiatives:

- Granting scholarships and sponsorships—a portion of which is reserved for social agencies and educational institutions in Indigenous communities
- Supporting programs that promote health, poverty and social exclusion abatement and environmental enhancement
- Participating in Indigenous awareness days and events

5

## Support with permitting and approval processes

Our team helps industrial companies navigate the steps of obtaining approvals and permits. We implement and coordinate social licensing action plans by understanding local community concerns and integrating them into project planning to benefit all stakeholders. Our goal is to carry out socially acceptable and economically viable projects while simultaneously mitigating environmental impacts.

- Permit and approval applications coordination
- Environmental impact assessment
- Public hearings and consultations

6

## Valuing communities and acting as an ambassador

BBA is raising awareness about local benefits and wellbeing, inclusion and equity by helping its employees and clients understand how their projects influence cultural, environmental and socio-economic values of the communities involved.

- Ensuring equal access to business opportunities for qualified local professionals
- Identifying training opportunities involving community members
- Valuing the culture, principles and values of host communities
- Participating in social projects and creating local economic benefits
- Understanding and respecting traditions, history and cultural diversity



# Our vision of the industrial future

Advanced Field Services

Think about your operations  
with sustainability in mind

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Economic growth and environmental protection are no longer mutually exclusive. More and more, society is recognizing that the need to use natural resources must be balanced against the need to preserve the environment for future generations.

“Our goal is to adopt work methods that meet the highest safety and environmental standards to maximize the positive impact on communities and to create value for our clients.”

The BBA Field Services team

