



+ Wind power



WIND TURBINE  
REPAIR  
AVAILABLE

# Your challenges are our opportunities



The world's population is growing and political concerns about climate change are increasing. So it's not surprising that demand for emission-free forms of energy is strong.

Growth projections for wind power are positive, with costs for wind generated power continuing to decline. Fluctuating tax policies, financing challenges, and transmission constraints are challenging developers like you to optimize their wind power projects, regardless of where they are in the development cycle. Your goal is to achieve the greatest energy output at the lowest possible cost, and drive down operation and maintenance expenses.

We can help from concept to commissioning.

You'll get expert help, sound advice, and full support with:

- Site research
- Project business case analysis
- Wind resource assessments
- Feasibility studies
- Preliminary design
- Detailed engineering design
- Procurement
- Project management
- Construction management
- Interconnection services
- Environmental assessment and permitting
- Owner's engineer services
- Independent engineer services



# Essential services, sound strategies

Planning and implementing wind projects. Optimizing the performance of your current assets. Our objective remains to address your most serious challenges and solve your toughest problems.

## Design, engineering, procurement, and construction management

You need successful projects, delivered with strict schedule oversight, tight scope management, effective project controls, and smart design options. We're experienced at putting all the pieces together in the right sequence, combining them to maximize quality, and reduce risks and life cycle costs.

## Independent engineer services

When you partner with us, you can take our reputation for quality and integrity to the bank. We've got a world of experience helping developers obtain financing through our independent engineer services, encompassing a variety of prefeasibility, feasibility, and project implementation risk analyses.

## Owner's engineer services

From concept to commissioning, we're on your team, managing your project with the same care and precision we would our own. Our wind power experts can help you enhance quality during every step of development.

## Energy resource assessments and site selection

Successful wind power projects depend on rigorous, accurate resource appraisals. The detailed evaluation of the wind regime at a power project site means energy yields can be predicted accurately, enabling optimal financial projections to be made. Our ISO 17025 accreditation for power performance testing is your assurance that your project will meet the highest standards of execution and operational excellence.

Vents du Kempt wind project, where Hatch completed an energy assessment and Lidar campaign in difficult terrain



# A full range of support for your wind projects

Developing new technologies. Making processes more efficient. Partnering with you to build new facilities, renew and optimize existing ones, and support your operation any way we can. We do it all.

## Environmental services

Our environmental specialists can carry out assessments, complete the reporting processes, and represent you at hearings and stakeholder information sessions. Having this know-how close at hand expedites the permitting processes and facilitates regulatory compliance.

## Interconnection services

Grid congestion, reliability, and stability are key considerations when integrating your wind generation asset with a utility grid. Our transmission system modeling-and-system-protection experts can help you optimize the point of interconnection with utility grids. We'll design efficient substation and voltage control measures to allow for efficient and minimally impactful generation integration.

## Off-grid hybrid power solutions

Remote communities and industrial facilities want to reduce their reliance on oil and diesel fuels. Wind power offers a clean alternative that can be integrated into a remote energy mix. Our in-house know-how covers all the phases required to develop hybrid power at remote sites, whether they're communities or mining operations.

The Kruger Energy Port Alma and Chatham wind project



# Project experience

All over the world, we've demonstrated our ability to accelerate and optimize projects for wind developers like you. Here are just a few examples of what we've done for them... and can do for you.

## Bull Creek wind project

Alberta, Canada

This 17-turbine, 29.2 MW project became operational in December 2015, selling energy to several of the province of Alberta's rural school boards.

Working with the project lender and drawing on our experience with Alberta's renewable generation market, we provided independent engineering services for pre-construction evaluation, construction oversight, and project close-out.

## Brookfield Tehachapi wind projects

California, USA

As well as providing owner's engineer services during engineering and construction, we were responsible for third-party engineering reviews and construction quality assurance services during construction for this project's limited partnership. Our experience with detailed design, construction oversight, and construction management of wind projects across the globe meant our experts could provide a unique perspective and exceptional value to the review of the EPC contractor's designs.

Our wind experts also provided detailed engineering services to Brookfield's fleet of operational projects in California, updating turbine arc flash studies for multiple turbine and electrical network configurations.

## Port Alma and Chatham wind projects

Ontario, Canada

These wind projects consist of 88 wind turbine generators totaling 200.6 MW of capacity. After successfully delivering power to the electrical grid and gathering operational information, we were engaged by Kruger Energy to provide an updated long-term annual energy production estimate of the projects.

We reviewed actual production records and measured met data from three existing meteorological masts and our in-house wind-resource-assessment team executed this energy analysis, considering the wake of the presence of nearby turbines to establish the long-term wind speed at the positions of the masts. With current production data, we provided improved energy numbers that assisted Kruger Energy in obtaining the refinancing it needed for the project.

## Vents du Kempt wind project

Quebec, Canada

The Énergie éolienne Vents du Kempt S.E.C (Eolelectric) engaged our services to provide preliminary siting and wind resource assessment, turbine selection services, preliminary road layouts, LIDAR deployment, and project-development support for this 41-wind-turbine-generator project. The scope extended to public consultation and land owner management from the initial development phase, starting in 2003 and continuing through to construction in 2014.



## Bear Mountain wind project

British Columbia, Canada

This 34 wind turbine project was the first to be connected to the British Columbia power grid. The Bear Mountain Wind Limited Partnership (AltaGas) engaged us to provide full engineering, procurement, and construction management services for the design, construction, and commissioning of access roads, turbine pads, a substation, and associated 34.5 kV collection and 138 kV transmission systems.

Facing important challenges, we performed extensive technical studies prior to implementation to help ease the government's concerns about wind power affecting system capacity and reliability. Several logistical obstacles had to be overcome, including working in difficult terrain with the 3 MW Enercon wind turbines which was the largest installed in Canada at the time. The project was completed on time and on budget, an achievement the partnership attributed largely to our ability to provide excellent engineering support, efficient construction management, and site supervision that focused on safety and results.

The Bear Mountain wind project posed some significant logistical challenges, including construction of the turbine pads and construction roads on a steep, narrow ridge. Despite these challenges, the project was completed on time and on budget





## About Hatch

Whatever our clients envision, our engineers can design and build. With over six decades of business and technical experience in the mining, energy, and infrastructure sectors, we know your business and understand that your challenges are changing rapidly.

We respond quickly with solutions that are smarter, more efficient, and innovative. We draw upon our 9,000 staff with experience in over 150 countries to challenge the status quo and create positive change for our clients, our employees, and the communities we serve.

[hatch.com](http://hatch.com)