

## CASE STUDY CONSTRUCTION



# Strabag chooses CompAir for Big Becky, the world's largest hard rock tunnel-boring machine

On the 1st September, 2006, Big Becky, the world's largest hard rock boring machine began the huge task of tunnelling a 10.4 kilometre tunnel below the City of Niagara Falls – with two CompAir L160 compressors right at her side!

When completed in 2009, the \$600 million hydro tunnel project, managed by Austrian general contractors, Strabag AG for Ontario Power Generation, will allow 500 cubic metres of water per second to be diverted for electricity generation at the Sir Adam Beck power station, increasing its annual capacity by 14%.

### Overview

#### ▶ Client

Strabag AG

#### ▶ Location

Niagra Tunnel Project, Niagara Falls, Ontario, Canada

#### ▶ Application

Construction of inner tunnel walls

#### ▶ Products

L160 and L37 rotary screw compressors

#### ▶ Customer Benefit

24 hour, reliable operation assured

## Application Details

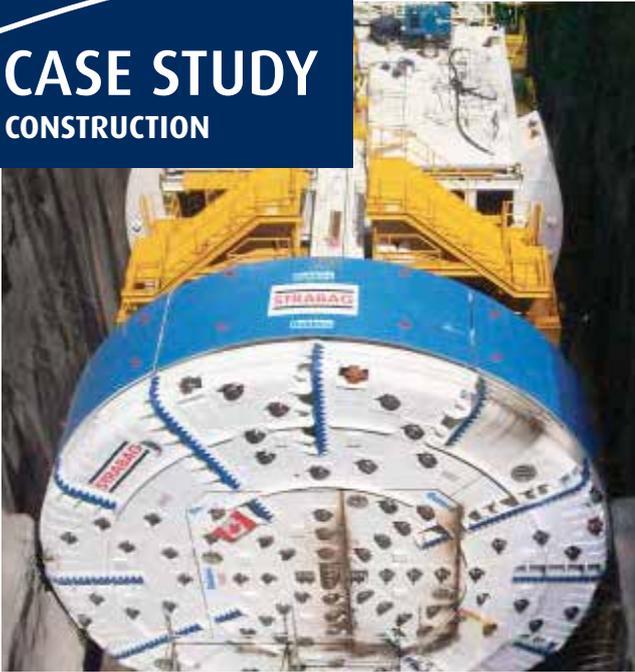
The boring machine rides on the front of a sledge, which tunnels through the rock at a speed of up to 15 metres per day, creating a 14.4 metre diameter 'hole' that must be lined and reinforced rapidly to prevent the tunnel collapsing behind it.

## A critical safety component

The compressors are a critical component in this operation, as they provide a totally dependable source of compressed air, 24 hours a day, which is used to propel the injection concrete to form the inner wall of the tunnel.

For Strabag therefore, choosing the right compressor supplier was vital to both the project's on-time completion and the safety of the contractors working in the tunnel.

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CompAir technical representative, Bob Paton explains. "Strabag was very keen to use our compressors from the outset. Its own engineers and the manufacturers of the drilling machine had worked successfully with CompAir on other projects, including the renowned English Channel Tunnel and a number of other drilling applications across the world, where the compressors had proved their reliability in a harsh environment. Various quotes were received from all the major compressor manufacturers, but it was our excellent track record in an identical application, coupled with our local service capability that won the day."

### Local service support

In order for the project to be completed on time and on budget, drilling must continue 24 hours a day, seven days a week, meaning that the L160 compressors have to perform continuously. CompAir Canada was also the only compressor manufacturer that could offer its own, local service organisation, helping Strabag to ensure that the compressors remain fully operational at all times.

With its head office only 45 minutes from the site, CompAir provides a dedicated engineer, who has undergone special health and safety training to allow him to work underground, backed by a team of technical support staff.

CompAir Canada also supplied an L37 rotary screw compressor complete with dryer, filters and additional ancillary equipment for Strabag's maintenance cabin above ground.

### Benefits at a glance

- ▶ **CompAir compressors are well proven in similar applications, including the English Channel Tunnel - reducing the risk to the contractor**
- ▶ **Local service support - ensures reliable compressor operation, round-the-clock**
- ▶ **High performance assured at all times - ensuring that the inner tunnel wall is formed properly and reducing health and safety risks**
- ▶ **Proven Quality - Minimising downtime during critical operations**

### Project Information

When complete, Big Becky will have bored a tunnel 140 metres below the City of Niagara that will connect with the Niagara River at the power station in Queenston.

The inside diameter of the tunnel will be 12.5 metres and will be lined with 50 centimetres of un-reinforced concrete with double layer seal and pre-stressed injection concrete.

The project will boost Ontario's supply of energy, using a clean and renewable source to produce an extra 1.6 terawatt-hours of electricity. This will service an additional 160,000 homes for at least the next ninety years – sufficient to meet the annual needs of a city of 700,000 people.

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