

Bow River TransAlta agreement

Flood management

The agreement allows the Province of Alberta to set elevations on the Ghost Reservoir during the period of May 16 to July 7 until 2021, which is typically the highest storm risk period of the year. By keeping the reservoir lower during this period there is more space to store flood events thereby lowering peak flows downstream of the dam or, at the very least, delaying those peaks.

Drought management

The agreement includes the ability of the Alberta government to have TransAlta store water in the Kananaskis system to be used in periods of low flows in the Bow River. This part of the agreement is year-round for the duration of the agreement.

TransAlta compensation

As per the 5-year agreement, reservoir levels at TransAlta facilities will now be set by the Province based on flood or drought mitigation needs. Compensation paid to TransAlta is intended to offset the estimated commercial loss TransAlta will incur due to modified operations at the four facilities included in the agreement. These reservoirs are designed and operated to produce electricity. The lower the water level, the less electricity TransAlta is able to produce.

Stakeholder engagement

Government of Alberta staff met with impacted residents, business owners, recreational users and other key stakeholders in 2015 and 2016, through a series of open houses, to explain the agreement and to identify and discuss issues related to low water levels at Ghost Reservoir. Moving forward, seasonal operating information can be found on the Provincial Rivers App.

Mitigation options for the Bow River

The Bow River Working Group, jointly chaired by the Province and the City of Calgary, has completed their assessment of flood and drought mitigation options for the Bow River from the Banff National Park boundary through to Medicine Hat. The Government of Alberta is currently reviewing the options, which include recommendations on a combination of new structural projects and modified operations at TransAlta facilities.

Because of the amount of storage required to meet flood and drought mitigation goals, the use of TransAlta infrastructure will almost certainly be a significant part of any potential mitigation solutions for the Bow River.

Flood storage

Up to 65 million cubic metres of storage will be available at Ghost Reservoir for flood mitigation purposes. Up to 40 million cubic metres may be available at the Kananaskis-area reservoirs further upstream for drought mitigation. The amount of storage available will vary each year based on prevailing conditions.

Flood storage at Ghost Reservoir

65 million cubic metres is a significant amount of storage. While this would not completely prevent flooding if an exact repeat of the 2013 event occurred, it would effectively mitigate smaller floods like the one Calgary experienced in 2005 and provide benefits to communities downstream as well.

The 2013 flood was a rare event and there is tremendous value in mitigation projects that can prevent smaller floods, which are much more common. Flood storage at Ghost Reservoir does provide peak flow attenuation, but just as importantly, it also delays peak flows downstream. This is critical when evacuating major population centers.

Implications for Calgary and other Bow River communities

The ability to attenuate high flows on the Bow River will help reduce the impact of major floods and can potentially eliminate smaller floods in communities along the watershed, including Calgary. During times of drought, water stored in upstream reservoirs (Kananaskis System) can be released into the Bow River to maintain environmental flows, for municipal drinking use and for use in irrigation, thereby helping to protect valuable crops.

Other water storage options in southern Alberta

Recent grant approvals through the Watershed Resiliency and Restoration Program will see over 500 hectares of wetlands created or restored, mostly in southern Alberta. Wetlands are very effective for improving both flood and drought resiliency.

Reservoir management

Major floods are rare, but they are difficult to predict and their impacts can be devastating. Water levels at TransAlta reservoirs included in this agreement will fluctuate during the modified operations period to reflect ongoing risk assessments for both flood and drought.

The new agreement with TransAlta includes the Kananaskis sub-basin, which provides the Province with potentially more storage options to supplement flows in the Bow River during dry years. This is a key element in adapting to weather extremes brought on by climate change.

Initial reservoir target elevations prior to each operating season will be based on the provincial Water Supply Outlook, snowpack and soil moisture conditions, and prevailing weather patterns. In wet cycles, reservoir levels will be kept lower to facilitate potential flood storage. During dry cycles, target elevations will be kept higher to offset potential water shortage conditions later in the season, but still allow the reservoir to be lowered up to five days prior to a flood event. Seasonal operational targets will be posted on the Alberta River Basins website (<https://rivers.alberta.ca/>) under Forecaster's Comments.

2018 reservoir operations

Government is working closely with TransAlta to assess what elevations reservoirs should be set at going into this coming operating season. Looking at current snowpack conditions in the mountains, baseline river flows and the

Provincial Water Supply Outlook, conditions are looking to be above average to much above average coming into this summer.

Much above average snow in the mountains means storm events could generate higher flood flows but also means a higher likelihood of being able to fill the reservoir later in the summer. For these reasons the Ghost Reservoir level will be set lower than last year, at 1185 metres to start the control period.

Up to date information on all reservoir elevations, river flows and proposed forecasted operations will be posted on the Provincial Rivers App.

Water wells

A study was completed by an independent engineering consultant on behalf of the department to determine how domestic wells may be impacted at different reservoir elevations.

While the study is complete, it did not provide any conclusive information on connectivity between the reservoir and the groundwater characteristics within Ghost Lake Village. The department has provided a temporary water supply to residents who identified well issues during the control period and will continue to do so for the life of the agreement.

Aquifer study

The department's engineering consultant contacted all licensed water well owners within the Ghost Lake Village in the summer of 2016 and requested completion of a detailed questionnaire to identify wells that have experienced issues in the past. The consultant also visited several private wells for inspection and gathering of technical information including water levels and pump test results. The study also utilized existing information for licensed wells within the Village and published geological information for this area as key inputs for their analysis.

Alberta Environment and Parks is working with the Village administration to ensure that if residents experience water issues directly linked to reservoir operations, they will be supplied with supplementary water similar to last year. This involved trucking and piping water to affected residents as required.

Repeated water well issues

If residents have repeated issues with their wells, the first point of contact for municipal water supply is the local municipality. For general inquiries, residents can contact the department's Information Centre at AEP.Info-Centre@gov.ab.ca.

Emergency water supply

The Village will be supplied with a portable pump and piping which will be in place until the reservoir rises. This is to ensure firefighting equipment is reliably connected to a water supply.

Compensation

Impacts caused by lower water levels at Ghost Reservoir

Landowners and businesses around Ghost Reservoir will not be compensated for the impacts caused by lower water levels at the reservoir. Lower water levels at Ghost Reservoir during the period of this agreement are still within the operating limits of TransAlta's water licence.

Access to fire prevention water supply and residents' insurance

Ghost Lake Village and the rural municipality are responsible for fire suppression services. Alberta Environment and Parks has supplied the Village with a large mobile pump (and appropriate training) to aid the Village in fire suppression and will do so again for 2018 should that be required. If residents have concerns regarding insurance they should get in contact with their insurance provider.

Land values and taxes

Residents are reminded that Ghost Lake Reservoir is a 'reservoir' and will fluctuate over a broad range of elevations. This year's elevations during May were not unprecedented and closer to historical norms. The reservoir is being operated within its licensed range and has, historically, been at these levels.

Issues regarding municipal taxes should be discussed with the municipality. The province has not compensated other residents near flood mitigation projects. Some flood mitigation projects have a land acquisition requirement in order to proceed. Acquiring land to build a project is not the same as compensating residents for minor impacts.

Cattle fencing and access to water from the lake

The government will not provide funding for fencing or other means for watering cattle. Residents are reminded that Ghost Lake Reservoir is a 'reservoir' and will fluctuate over a broad range of elevations. As mentioned earlier, planned reservoir levels during May are not unprecedented and closer to historical norms.

Access to Ghost Reservoir

Alberta Parks is planning to extend their existing boat launch the spring of 2018 to allow better access to the reservoir during the control period.