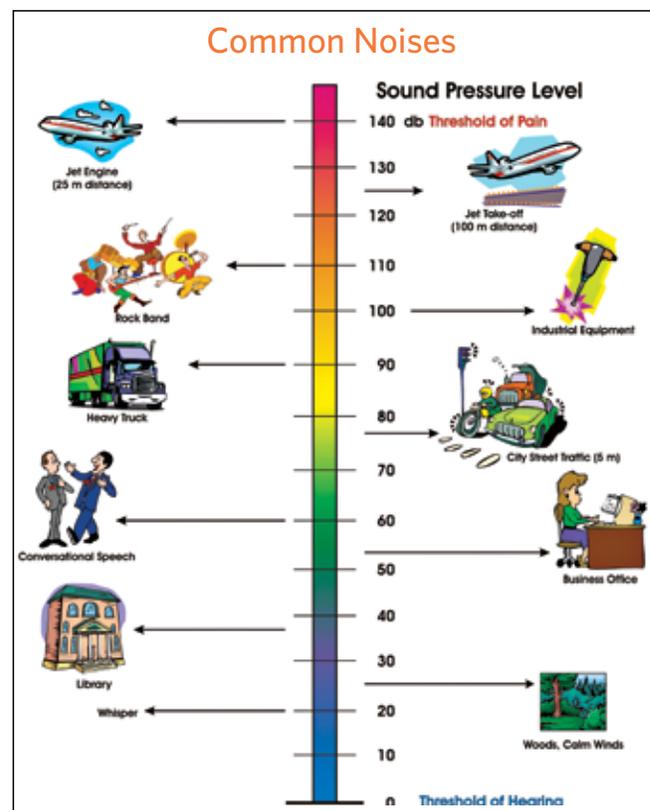


Overview of Environmental Studies

- Environmental studies are being undertaken in order to understand how Sundance 7 will interact with and affect the natural environment.
- Identifying potential effects on the environment is critical, so that design, controls or procedures can be established to mitigate, reduce or eliminate possible impacts.
- TAMA Power has initiated environmental studies, including: air quality, noise, water quality, aquatic environment, archeology, terrestrial, hydrogeology and historical resources.
- Final results and details of all of the studies will be included in the applications submitted to Alberta Environment and Sustainable Resource Development (ESRD) and the Alberta Utilities Commission (AUC). A project description will also be sent to the Canadian Environmental Assessment Agency.

Noise

- TAMA Power is designing Sundance 7 to ensure the noise from this facility, measured cumulatively with noise levels in the surrounding area will not exceed the permissible sound limits specified in the AUC's Rule 012 (Noise Control).
- TAMA Power is in the process of completing a noise impact assessment on the cumulative effect of Sundance 7 on noise in the area. This includes the existing soundscape, with sounds from natural sources and sounds produced from existing facilities such as the Sundance and Keephills power plants and the Highvale Mine. Preliminary results of this assessment indicate the operation of Sundance 7 will be compliant and meet permissible limits.
- Possible noise mitigation may include: placement and orientation of buildings, locating loud equipment inside insulated buildings or enclosures, sound barriers and mufflers.



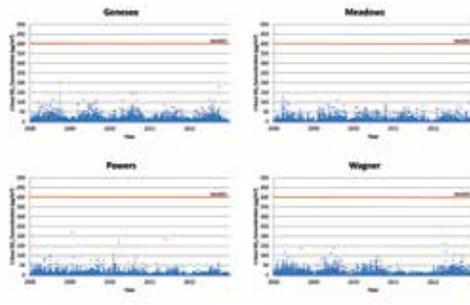
Air Quality

Existing Air Quality in the Region

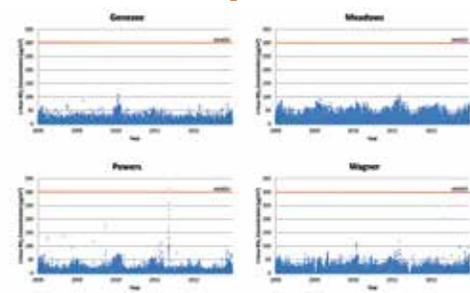
- The West Central Airshed Society (WCAS), of which TransAlta is a member, maintains a comprehensive air quality monitoring program in the region. The graphs below show results of the monitoring program for stations near the proposed Sundance 7 project.



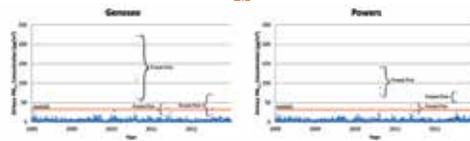
1-HOUR SO₂ TIME SERIES



1-HOUR NO₂ TIME SERIES



24-HOUR PM_{2.5} TIME SERIES



Sundance 7 Air Emission Sources and Controls

- Sundance 7 air emission sources include two gas fired turbines each coupled with a heat recovery steam generator (HRSG), boilers/heaters, and a fourteen cell cooling tower.
- The two gas turbines use Dry Low NO_x (DLN) combustors for control of NO_x emissions.
- The two HRSG units are equipped with selective catalytic reduction (SCR) also for control of NO_x emissions.
- Sundance 7 turbines will comply with the following provincial and federal emissions limits:
 - The Alberta Air Emission Standards for Electricity Generation (AENV 2005) and
 - The Canadian Council of Ministers of the Environment (CCME) National Guidelines for Stationary Combustion Turbines (CCME 1992).
- Sundance 7 boilers/heaters will comply with the National Emission Guidelines for Commercial/Industrial Boilers and Heaters (CCME 1998).

Sundance 7 Air Quality Assessment

- TAMA Power is conducting an air quality modelling assessment according to the ESRD Air Quality Model Guideline (ESRD 2013a) using five years of meteorological data (2002 to 2006) and the CALPUFF 3-D model. The full assessment will be included with the application filed with ESRD.
- The air quality assessment will consider emissions of the following compounds:
 - Sulphur dioxide (SO₂)
 - Oxides of nitrogen (NO_x)
 - Particulate matter with diameter less than or equal to 2.5 micro metres (PM_{2.5})
 - Carbon monoxide (CO)
 - Ammonia (NH₃)
- The cumulative effects of Sundance 7 will be assessed, taking into consideration the existing Sundance and Keephills power plants, the Highvale Mine and other existing and approved industrial sources.
- The maximum ground level concentrations predicted using the CALPUFF model will be compared with the Alberta Ambient Air Quality Objectives (AAAQOs; ESRD 2013b) to determine compliance.
- The preliminary modelling results show that the change in maximum ground-level concentrations due to the Sundance 7 project is 1% or less.

Aquatic Environment

- Sundance 7 will be located near and will use water directly from the Sundance Cooling Pond, which is fed from the North Saskatchewan River. Currently, water from the cooling pond is periodically discharged back to the North Saskatchewan River as part of the normal operations of the existing Sundance coal fired power plant. The water is discharged through existing infrastructure and is regulated by ESRD.
- Studies are underway to understand the potential effects of Sundance 7 on local and regional aquatic resources - wetlands, lakes, the North Saskatchewan River, and the fish and other aquatic life that live in these waterbodies. The assessments will review existing information on water quality and the organisms that live in that water, supplemented by new survey information where required.
- Sundance 7 is being designed to minimize the potential effects on local and regional aquatic resources.
- Based on the design of the facility, and the preliminary results of the aquatic resource assessment, it is not expected that Sundance 7 will have measureable effects on aquatic resources in the area.

