

Press release

Ventanas' coal-fired power station in Chile's worst sacrifice zone cost public health USD 1.4 billion

SANTIAGO, 28 November 2024 - Nestled in the Bay of Quintero on the west coast of Chile, the Pacific town of Puchuncaví and nearby ancient port town of Quintero could be a coastal paradise. With a Mediterranean climate and proximity to the nation's capital, once upon a time, the Quintero-Puchuncaví area was a resort. After [decades of polluting industrial activity](#), the [Bay of Quintero is now considered Chile's worst sacrifice zone](#), where the population lives in permanent toxic conditions for the benefit of big industry that pollutes the water, the soil, and the air.

Today, the Centre for Research on Energy and Clean Air (CREA) has published a groundbreaking health impact assessment (HIA) that models how emissions from the four units of [Chile's Ventanas coal-fired power station in Puchuncaví](#) have affected air quality, public health, and the economy in the area during its operations from 2013 to 2020.

Coal-fired power plant (CFPP) emissions in particular contribute to the formation of atmospheric pollutants such as fine particulate matter (PM2.5), nitrogen dioxide (NO₂), and sulphur dioxide (SO₂), which have severe impacts on the global environment, public health, and the economy.

CREA's assessment reveals that PM2.5, NO₂, and SO₂ were found in high concentrations around Puchuncaví, and, due to the [transboundary nature of air pollution](#), traveled up to 300 kilometres away, reaching as far as Chile's capital city Santiago.

Exposure to these air pollutants adversely affects the human respiratory, cardiovascular, and reproductive systems, as well as vital organs, including the brain, heart, and lungs, causing asthma, ischaemic heart disease, chronic obstructive pulmonary disease (COPD), lung cancer, lower respiratory infections, and diabetes.

[Children are hit especially hard by the impacts of air pollution](#) and repeated, mass air pollution crises in the Quintero-Puchuncaví area have made [hundreds of schoolchildren, as well as adults, ill](#).

CREA's analysis finds that air pollution from the four units of the Ventanas coal-fired power station led to approximately 1,117 asthma emergency room visits from 2013 to 2020.



The crisis doesn't end at the hospital doors and the repercussions of air pollution have led the population of Quintero-Puchuncaví to live an estimated 575 years with disability, and to over 300,000 days of work absences.

Air pollution from the Ventanas coal-fired power station is also associated with hundreds of deaths. CREA estimates that CFPP emissions in Quintero-Puchuncaví led to some 563 deaths from 2013 to 2020.

The burden on public health of air pollution also translates to the economy. In the case of the Ventanas coal-fired power station, the economic burden during operations from 2013 to 2020 came to an estimated USD 1.4 billion, equivalent to CLP 1.3 trillion.

In 2019, the Supreme Court of Chile ordered the government to take steps to rectify the situation in Quintero-Puchuncaví and the Quintero-Puchuncaví Environmental and Social Recovery Program was set up. As of 2023, [progress has been limited](#). Although two of the Ventanas' coal-fired power units have been retired, for many, it is too little, too late.

'While big polluters rake in their profits and the government stalls in enforcing protective measures, the population and economy downwind of coal-power plants suffer immeasurably. With an astronomical economic burden and hundreds of deaths on the horizon, urgent steps are needed to preserve the population and environment from big polluters like Ventanas,' said Erika Uusivuori, lead author of the report and Analyst at CREA.

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Notes to editors

The publication related to this press release can be found [here](#).
All CREA publications can be found here:
energyandcleanair.org/publications



About CREA

The Centre for Research on Energy and Clean Air (CREA) is an independent research organisation focused on revealing the trends, causes, and health impacts, as well as the solutions, to air pollution. CREA was founded in December 2019 in Helsinki and has staff in several Asian and European countries. The organisation's work is funded through philanthropic grants and revenue from commissioned research.

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About the methodology

Annual emissions of SO₂, NO_x, and PM_{2.5} (referred to as TSP) from all four units of the Ventanas power station complex were calculated in this report, working on the assumption that each unit was compliant with national standards for pollutant flue gas concentrations, for total suspended particulate (TSP). The flue gas concentration levels were then converted into emissions, which varied across each unit depending on different characteristics including capacity factors, generation and coal consumption. Based on the US EPA, we assume that 30 % of TSP is emitted in the form of PM_{2.5} and 37.5 % is emitted in the form of PM₁₀.

Air pollutant concentrations were simulated using the CALPUFF air dispersion model, version 7. CALPUFF has been a widely used industry standard model for long-range air quality impacts of point sources. It is used by both regulators, such as the US Environmental Protection Agency (US EPA), and in academic research. Due to its capability of capturing the complex chemical processes and atmospheric transport of pollutants in the atmosphere, the US EPA officially approves the use of the CALPUFF model to investigate the cases where an emission source is expected to lead to the long-range transport of pollution. The model has been evaluated extensively by the US Environmental Protection Agency, which is open-source and fully documented. The CALPUFF model has been applied in many regions around the world, including the United States, Europe, Central America, South America, the Middle East, Asia, and Africa.