

# The Surat Emissions Trading Scheme

## A First Look at the World's First Particulate Trading System

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## Introduction

In the coming years, India must meet the twin challenges of achieving rapid economic growth and cleaning up the environment. To do so, India needs environmental regulation that is highly effective while imposing minimal costs on industry. Unlike existing command-and-control regulations that impose high costs, provide no flexibility, and are enforced by costly and time-consuming criminal penalties, Emissions Trading Schemes (ETS) provide a transformative alternative with a track record of success around the world.

An ETS, or “cap-and-trade” system, caps the amount of pollution allowed from regulated industries and allots permits to plants. Plants that can inexpensively cut pollution can then make money by selling their permits to other factories. In this way, the system uses the power and flexibility of markets to deliver the win-win-win of simultaneously (i) reducing total cost of regulation, (ii) increasing firm profits, and (iii) protecting citizens from air pollution.

## History

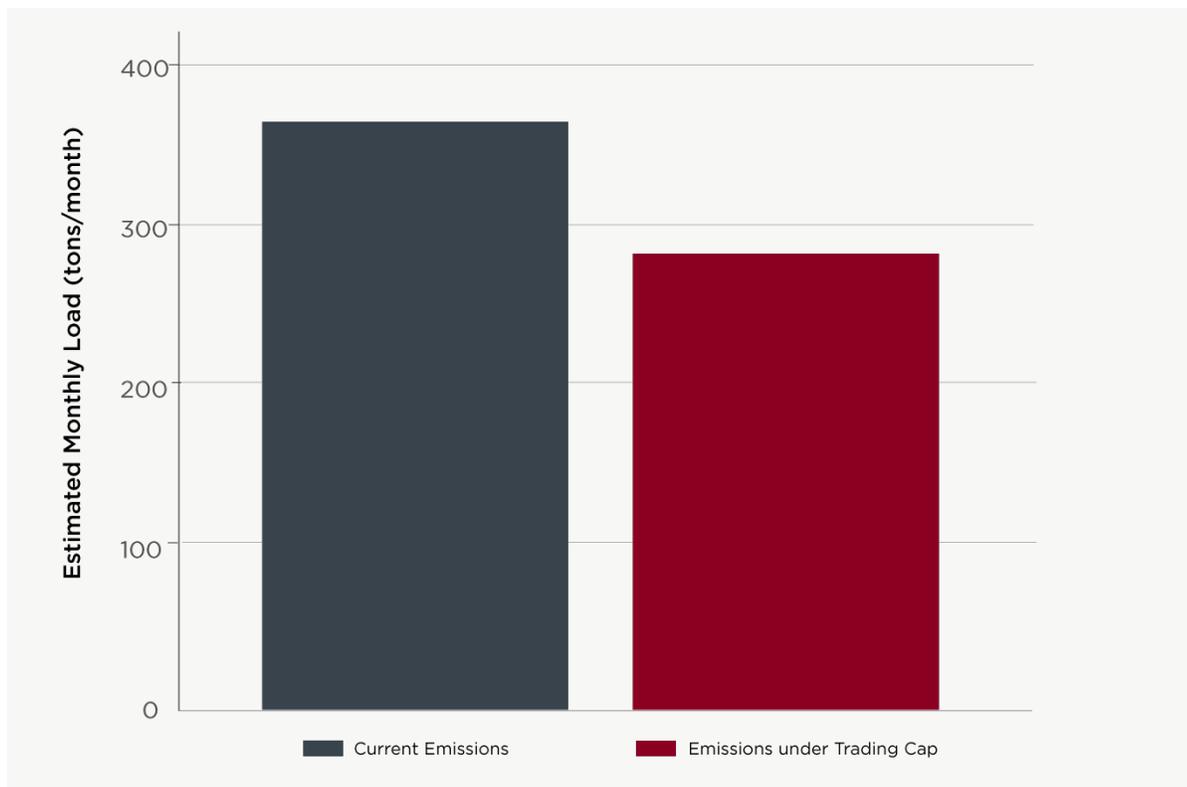
The Gujarat Pollution Control Board launched India’s first ETS—and, the world’s first cap-and-trade market in particulate pollution—on July 15, 2019, in the form of a large-scale pilot programme in Surat, Gujarat. The Surat ETS began with two months of mock-trading to allow for intensive stakeholder capacity building before coming into full force on September 15, 2019, with the design of a sophisticated trading platform in partnership with the National Commodities and Derivatives Exchange. This groundbreaking step by the state of Gujarat represents the realization of an idea that was first conceptualized by the Ministry of Environment, Forests, and Climate Change (MoEFCC) in 2012 together with the state boards of Gujarat, Maharashtra, and Tamil Nadu. The GPCB has partnered with researchers from top academic institutions across the world to develop ETS rules and evaluate the benefits and costs.

## Key Take-Aways

Based on survey results from each of the 158 plants that are participating in the pilot, this report is an initial evaluation of the benefits and costs of the ETS. We will provide periodic updates throughout the course of the pilot, and will fully evaluate the programme at its conclusion, in coordination with the Gujarat Pollution Control Board. This report provides results from our preliminary analysis and describes four ways in which the Surat ETS will be superior to existing regulation. The Surat ETS is projected to:

- 1 Reduce particulate emissions by 29 percent from current levels
- 2 Lower the costs of reducing particulate emissions
- 3 Increase *average* industry profits, relative to status quo regulations
- 4 Increase *every* industry’s profits, relative to status quo regulations

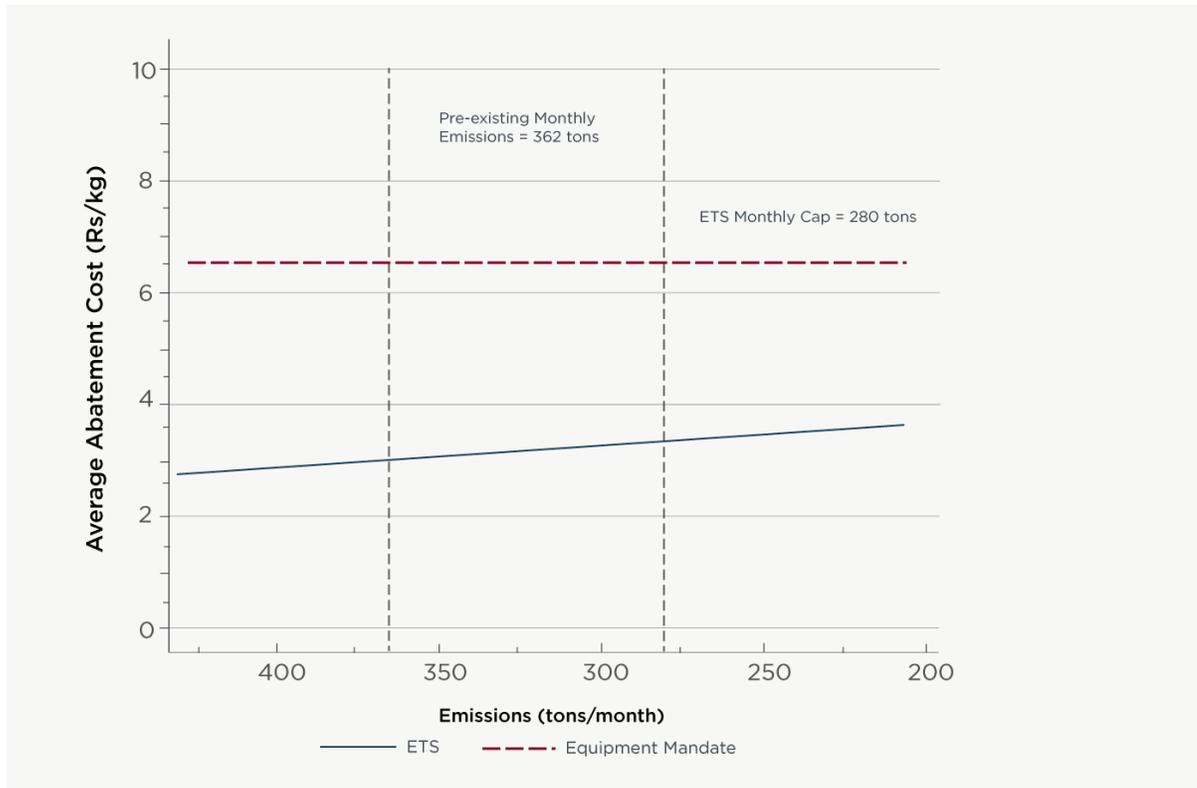
## Fact 1: The ETS is Projected to Reduce Particulate Emissions by 29 Percent



Before the ETS pilot went into effect, several plants were not complying with existing pollution regulations—bringing the amount of pollution emitted from the 158 plants that are part of the programme to 362 tons per month. The ETS set a cap on emissions equivalent to the amount of pollution that would have been released if all plants had been in compliance: 280 tons per month, or a 29 percent reduction in pollution.

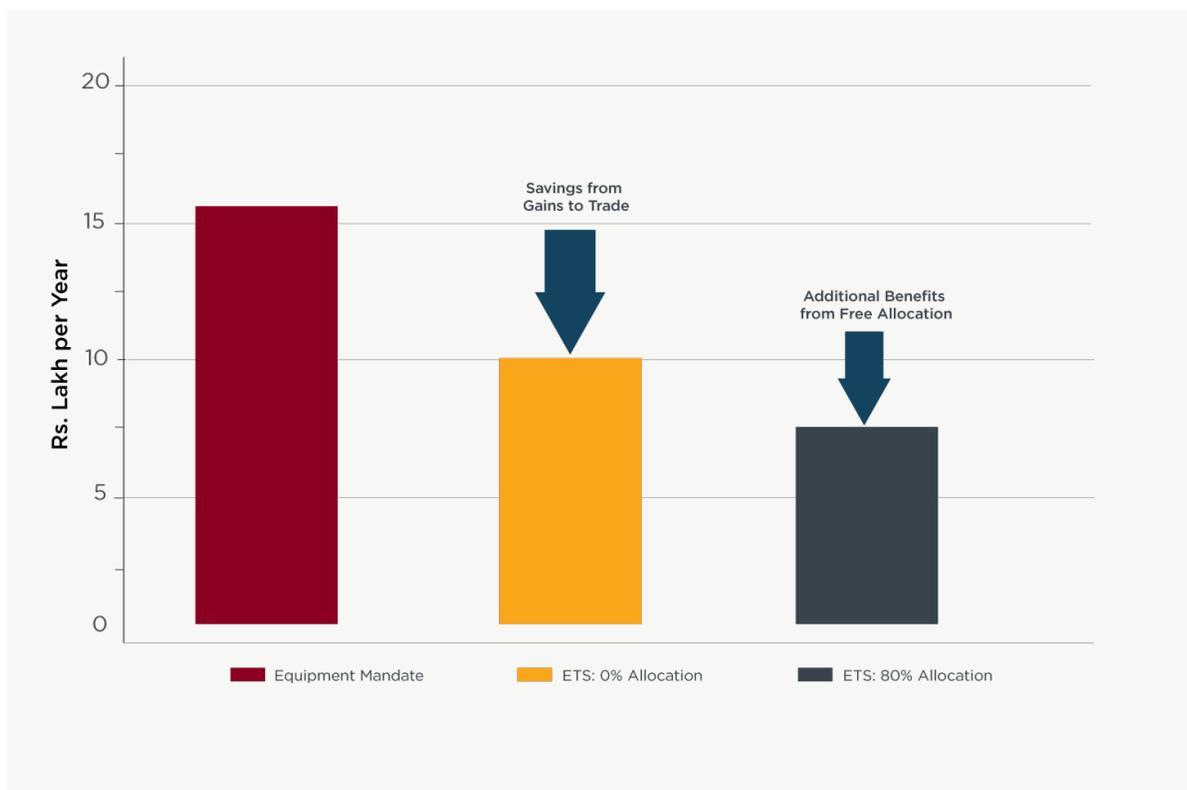
Importantly, the ETS cap is based on the total amount of pollution released into the atmosphere. This improves upon the current approach, which regulates based on how dirty a factory’s emissions are regardless of how many hours the factory operates—and thus, how much total pollution it emits.

## Fact 2: The ETS is Projected to Lower the Costs of Reducing Particulate Emissions



Under existing practice, industries are normally required to install bag filters and cyclones equipment to obtain environmental clearance and meet pollution standards. Under ETS, the average price of reducing one kilogram of pollution (solid gray line) is well below the cost of installing the bag-filters and cyclones (dashed red line). In fact, not only are the abatement costs lower under ETS, they rise slowly as the emissions cap is reduced. Because of the ability to buy and sell permits, the cost to plants is gradual. This means the regulator can tighten environmental standards without imposing much additional burden on plants.

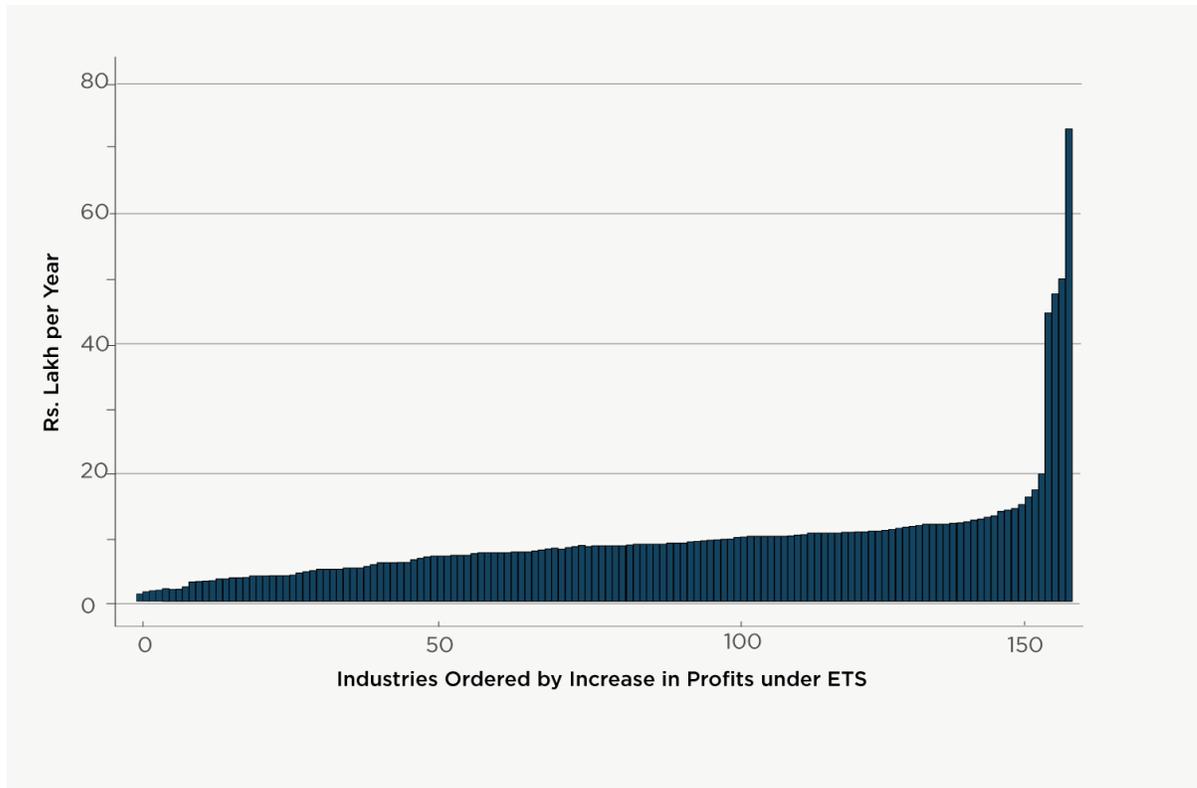
### Fact 3: The ETS is Projected to Increase Average Industry Profits, Relative to Status Quo Regulation



Under ETS, industries with low abatement costs can make larger reductions in emissions and thus profit by selling excess permits. Industries with high abatement costs can save money by buying permits instead of installing expensive equipment. The flexibility from this trading system allows plants to pay 36 percent less than if they were to install a cyclone and a bag-filter (second bar). In some cases under the current system plants must install even more expensive equipment, such as an electrostatic precipitator (ESP), to meet the pollution standard or to obtain environmental clearance.

The Surat ETS provides an additional feature that makes it industry friendly. Eighty percent of total permits provided under the cap are given away for free to industries at the start of the market, in proportion to their boiler size. Because permits have monetary value under ETS, this further increases industry profits (third bar). This can provide significant revenue to factories that have low pollution today, since they are likely to have permits available to sell to other market participants. Importantly, none of these benefits come at the expense of the environmental integrity of the scheme.

## Fact 4: The ETS is Projected to Increase Every Industry's Profits, Relative to Status Quo Regulation



When comparing the costs of purchasing and operating a bag-filter and cyclone to the costs under ETS, every industry in Surat is projected to be better off. For more than 75 percent of industries, profits are projected to increase by greater than 5.5 lakh per annum with the average increase in profits being 8.6 lakhs per year. The industries that benefit the most are those that have expensive operating equipment (such as large pulse-jet bag filters) and/or those that are able to sell permits.

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