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Supporting Information for

Implications of Mitigating the Ozone and Fine Particulate Matter Pollution in the Greater Bay Area Using a Regional-to-Local Coupling Model

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Introduction

The supporting information consists of 18 pages, including 15 figures. Besides the research framework and the model domain setting are shown in Figures S1, and S2, some example emission plots for the 1 km domain are shown in Figures S3–S8. All emissions presented are given as "daily column" values, i.e., the values correspond to daily average emissions summed over all vertical levels included in the modeled 3D emissions grids. In the regional model, VOCs are a complex mixture of different components. For the emissions plots shown here, paraffin (PAR) emissions have been used as a species representative of total anthropogenic VOCs. Figure S4 compares the total PAR emissions for the BAU case and the three scenarios. Visually, the reduction in PAR emissions on the roads can be seen by comparing Figures S4a and S4b, i.e., the signature of the road sources is reduced; comparing Figures S4a and S4c highlights the reduction in industrial source emissions; and Figure S4d shows the result of both reductions. Figure S5 presents spatial plots of differences that emphasize the changes in emissions. Figure S5a clearly indicates reductions near-road networks in the difference between the base case and the reduced traffic scenario. At the same time, Figure S5b shows large reductions at locations where there is intensive industrial activity (Shenzhen, Dongguan, and Guangzhou). Similar patterns of NO_x and $PM_{2.5}$ can be assessed in Figures S6 and S8, respectively.

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