Atmospheric
Chemistry
and Physics

Discussions

Open Access

Interactive comment on "Impact of the Green Light Program on haze pollution in the North China Plain, China" *by* Xin Long et al.

Anonymous Referee #1

Received and published: 17 June 2019

This paper assessed the air quality impact of the Green Lights Program (GLP) in China using WRF-CHEM. The topic is interesting and has not been fully investigated by previous studies. However, I have big concern about the reliability of the results, due to the large uncertainties of the assumptions and methodology adopted by the study. I also have the impression that the study focused on the air quality impact of power plants, which has been explored by many existing work, but not GLP. I would recommend substantial improvements to infer the impact of GLP, but not power plants.

General comments:

1. Introduction: The authors tried to emphasis the importance of lights based on the fact that power plants play significant role in air pollution. However, what the ratio of power electricity goes to lights? This information is not clear to me after reading the

introduction. The same problem for the contents on Page 7, line 138-139.

2. Section 2.1. This section needs to be re-organized. The authors claim conclusions without showing data support. For instance, Page 7, line 154 and afterwards. "The above long-term variability of thermal power electricity and associated coal consumption for power generation was based on the situation that the GLP was conducted in China." The impact of GLP on power plants has not been quantified when stating so.

3. Page 12, line 264. "To estimate the emission reduction induced by the GLP, we assumed that the potential emission reduction was mainly due to the emissions from the thermal power plants." The uncertainty of this assumption is missing.

4. Regional diversity of LED market share. The emission rates of power plants have large diversities over regions in China. If the LED market share has large variations over regions as well, the derived emission reductions will be significantly different from what was estimated in the current study.

5. Secondary particles in Table. The method of calculating secondary particles from power plants is not clear to me.

Specific comments:

1. abstract. "In the upper limit case of emission reduction. . ." and "in the lower limit case of emission reduction. . ." The English sounds not correct for me.

2. line 77-78, please consider rephrasing "the famous nation-wide project of utilizing emission control facilities" . famous?

3. line 88. Missing a space before 2005.

4. line 92-93. I don't quite get the meaning of the sentence. Please consider rephrasing it.

5. line 105. The English is incorrect.

C3