Comments on the Revised Atmospheric Impact Report (AIR)
for the Thabametsi Power Plant

prepared by uMOYA-NILU

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by

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On May 21, 2018, I prepared comments on the Atmospheric Impact Report (AIR) for the proposed Thabametsi Power Plant dated April 24, 2018.[1]

In Section II of those comments, I discussed technical deficiencies in the April 2018 AIR. Specifically, my comments highlighted that the April 2018 AIR:

- only considers Phase 1 of the Thabametsi project;
- relies on air dispersion modeling that is insufficiently presented;
- selectively models only some of the sources of air pollution from the proposed Thabametsi power plant and other existing sources;
- makes unfounded assumptions about the timing of the Medupi flue gas desulphurization (FGD) retrofit;
- misstates coal and other material usage rates; and
- misstates air pollutant emission rates.

The AIR for Thabametsi was revised/updated and reissued on 16 August, 2018 by the same authors as the April 2018 AIR.

I have reviewed the revised AIR. This AIR assumes that the Thabametsi power plant will become operational in 2023.[2] The previous April 2018 AIR had assumed that the Thabametsi power plant would become operational in 2025.

The revised AIR does not address or acknowledge any of my prior comments except for one – comment II.D, dealing with the timing of the FGD retrofit to reduce SO2 emissions from the Medupi power plant, located proximate to Thabametsi's location.

[1] uMoya-NILU (2018): *Atmospheric Impact Report in support of the Atmospheric Emissions License (AEL) application for the proposed Thabametsi Power Plant near Lephalale, Limpopo Province*, Report No. uMN112-2017, April 2018 ("April 2018 AIR").

[2] uMoya-NILU (2018): *Atmospheric Impact Report in support of the Atmospheric Emissions License (AEL) application for the proposed Thabametsi Power Plant near Lephalale, Limpopo Province*, Report No. uMN112-2017, 16 August 2018 ("Revised AIR"), p. i.; p. ii.

Given that the revised AIR assumes that Thabametsi will become operational in 2023, two years earlier than previously assumed, in its cumulative analysis for SO2, the revised AIR includes the scenario in which the Medupi FGD retrofit to reduce SO2 emissions would not be complete in 2023.[3] It assumes that only the FGD retrofit on Medupi units 4, 5, and 6 would be complete by 2023 and that the FGD retrofit on the other Medupi units would not be complete until 2025.[4]

Not surprisingly, therefore, the revised AIR predicts significant additional SO2 impacts when Thabametsi becomes operational in 2023 and Medupi's second FGD retrofit is not operational. This is illustrated in Table 23 of the revised AIR, excepted below. Values in red show the predicted exceedances.

Table 23: Predicted number of exceedances of the 1-hr and 24-hr limit value of the NAAQS for SO_2 at the sensitive receptors in 2023. Shaded cells indicate non-compliance with the NAAQS.

Receptor number	Sensitive Receptor name (See Figure 7)	Model Year 2014			Model Year 2015			Model Year 2016		
		Frequency of Exceedance of hourly NAAQS limit	Frequency of Exceedance of daily NAAQS limit	Within SO_2 NAAQS (Y/N)	Frequency of Exceedance of hourly NAAQS limit	Frequency of Exceedance of daily NAAQS limit	Within SO_2 NAAQS (Y/N)	Frequency of Exceedance of hourly NAAQS limit	Frequency of Exceedance of daily NAAQS limit	Within SO_2 NAAQS (Y/N)
1	Lephalale	0	1	Y	0	0	Y	0	3	Y
2	Onverwacht	68	7	N	38	3	Y	74	8	N
3	Marapong	37	11	N	37	9	N	30	8	N
4	Onbelyk	0	0	Y	0	0	Y	0	0	Y
5	Gelykebult 455	0	0	Y	0	0	Y	0	0	Y
6	Gelykebult 450	1	3	Y	0	0	Y	0	0	Y
7	Eendragtpan 451	0	0	Y	0	0	Y	0	0	Y
8	Vooruit 449	12	2	Y	0	0	Y	0	0	Y
9	D'Nyala Nature Reserve	0	0	Y	0	0	Y	0	0	Y
10	Settlement 1	0	0	Y	0	0	Y	0	0	Y
11	Settlement 2	0	0	Y	0	0	Y	0	0	Y
12	Settlement 3	0	0	Y	0	0	Y	0	0	Y
13	Settlement 4	0	0	Y	0	0	Y	0	0	Y
14	Settlement 5	22	12	N	16	12	N	0	7	N
15	Settlement 6	20	14	N	4	10	N	0	4	Y
16	Settlement 7	41	10	N	24	10	N	24	10	N
17	Settlement 8	27	11	N	49	10	N	51	5	N
18	Settlement 9	0	0	Y	0	0	Y	0	1	Y
19	Settlement 10	152	13	N	163	10	N	163	16	N
20	Settlement 11	35	2	Y	5	1	Y	11	3	Y
21	Settlement 12	0	0	Y	0	0	Y	0	0	Y

Of course, it is speculative that the FGD retrofit on any of the Medupi units will be complete by 2023, as assumed in the revised 2018 AIR.

None of the deficiencies I highlighted in my review of the April 2018 AIR have been addressed. In particular, the revised AIR does not include sufficient verifiable technical detail, and does not correct errors in the air pollutant emissions rates used to calculate emissions. I stand by my previous comments and conclusions that the AIR is under-predicting all Thabametsi's impacts, due to these and other technical deficiencies outlined in my previous comments.

[3] Revised AIR, p. ii. "For the cumulative assessment it is assumed that Thabametsi Power Station will become operational in 2023. Therefore, the planned 2023 emissions from Matimba and Medupi Power Stations are used. The current emissions from Matimba Power Station apply and it is assumed that the FGD retrofit will be operational on Units 4, 5 and 6 at Medupi Power Station by November 2023."

[4] Revised AIR, p. ii. "The FGD retrofit on all units at Medupi is planned to be complete in November 2025."