

**ENVIRONMENT POLLUTION (PREVENTION & CONTROL) AUTHORITY  
for the National Capital Region**

**Dr Bhure Lal  
Chairman**

**EPCA-R/2018/L-69  
July 13, 2018**

**To**

**The Registrar General  
Hon'ble Supreme Court of India  
New Delhi**

**Sub: Response to the affidavit filed by the Ministry of Environment, Forest & Climate Change (MoEF&CC) of 09.07.2018 on the directions passed by the Hon'ble Supreme Court on 10.5.2018**

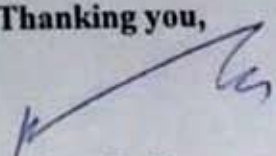
Dear Sir,

This is with reference to the Hon'ble Supreme Court Order dated 09.05.2018, in W. P. (C) No 13029 of 1985 M. C. Mehta v/s UoI & Others.

I am hereby enclosing **Report no. 87** of the Environment Pollution (Prevention & Control) Authority for the National Capital Region (EPCA). EPCA's response to the affidavit filed by the Ministry of Environment, Forest and Climate Change (MoEF&CC) on 09.07.2018 in response to the directions passed by the Hon'ble Supreme Court on 10.5.2018

It is an important report and kindly arrange to place it before the Hon'ble Court at the earliest.

Thanking you,

  
**(Bhure Lal)  
Chairman, EPCA**



**Central Pollution Control Board**

Parivesh Bhawan, East Arjun Nagar, Near Karkardooma Courts, Shahdara, Delhi 110 032  
Tel/Fax: 22301955 (CPCB), Tel: 24623060 (R)-Dr. Bhure Lal, Chairman

## Report No 87

EPCA response to affidavit filed by the Ministry of Environment, Forest and Climate Change (MoEF&CC) on 9.7.2018 in response to the directions passed by the Hon'ble Supreme Court on 10.5.2018

**July 11, 2018**

### **Environment Pollution (Prevention and Control) Authority for NCR (EPCA)**

---

On 10.5.2018 the Hon'ble Supreme Court issued directions on the following issues:

1. Final decision to be taken on ban on import of pet coke
2. Natural gas to be made available to power plants in NCR
3. Natural gas to be made available for power plants and industry
4. Notification and implementation of the comprehensive action plan for air pollution control

In its Affidavit filed on 9.7.2018 the Ministry of Environment, Forest and Climate Change (MoEF&CC) has reported status on these issues. **EPCA is submitting this report to flag certain key issues of concern.**

#### **Issue 1: Ban on import of pet coke**

---

In its order of 10.5.2018, the Hon'ble Court had directed:

*"The learned ASG assures us that the exercise of receiving inputs from Ministry of Petroleum and Natural Gas and DGFT with regard to ban on import of pet coke and the State Governments is under way and will be completed within six weeks. We expect and direct that a decision will be taken in this regard on or before 30th June, 2018 failing which we may have to deal with the matter."*

The MOEF&CC in its 9.7.2018 Affidavit has stated as follows:

*"That with respect to Ban on import of petcoke, a Technical Expert Committee (TEC) has been constituted by the MoEF&CC vide order dated 15.6.2018 (Annexure R-1) comprising members Prof. Sachidanand Tripathi, IIT Kanpur; Prof. MukeshKhare, IIT Delhi; Shri Brijesh Kumar, Executive Director, Centre for High technology MoPNG and Shri Prashant Gargava, Additional Director, CPCB. The Interim Report of the Committee has been received (Annexure R-2) in the Ministry and is under examination. This Ministry would like to share the report with EPCA and other stakeholders and then come to a considered decision. Some more time would be needed for this."*

**EPCA would like to state that this action of the MOEF&CC is not acceptable.** It is a clear attempt to delay a decision that has been long pending. It is also an issue on which there was near consensus and therefore, the decision to set up yet another technical committee is not understandable.

It must be noted that the ban on pet coke import has been endorsed by the Ministry of Petroleum and Natural Gas (MoPNG), which is the key operational ministry in this case. This has been recorded in the order of the Hon'ble Supreme Court, dated 10.4.2018. The ASG had drawn the attention of the Hon'ble Court to the office memorandum issued by MoPNG dated March 9, 2018, in which the ministry had supported the ban on import (Annexure 1).

This issue has also been long pending. EPCA has compiled a chronology of deliberations on the issue of pet coke – the ban on sale and use in NCR states; the exemptions given to industries and its monitoring and the ban on import of pet coke (Annexure 2).

This record of deliberations includes the positions of the MoEF&CC as provided in the IA's submitted to the Hon'ble Court. It also includes the directives of the Hon'ble Court based on the IA of the ministry as well as recommendations of EPCA and the *Amicus*.

It will be seen from this record that the Hon'ble Supreme Court has issued directions on the issue of ban on import of pet coke in its order of 13.12.2017; followed by in its order of 5.2.2018 and then again on 10.4.2018.

The record also shows that MOEF&CC has informed the Hon'ble Court as follows:

**7.12.2017:** "That regarding ban on import of pet coke and furnace oil and confining the use of domestic pet coke for the sole purpose of feedstock at para 2(b) above, MoPNG has informed that Minister PNG had taken a meeting on the issue of imposing a ban on import of pet coke with all stakeholders in 21.11.2017. It was decided in the meeting that import of pet coke should be banned in view of the environmental hazards due to its use. DGFT shall take further action in implementing this. The proceedings of this meeting are enclosed at annexure R-4. This matter has however not yet been finalised, but is under active consideration of the Government."

**1.2.2018:** "That with regard to the ban on import of pet coke, a stakeholder meeting was held under the chairmanship of Secretary (EF&CC) on 12th January 2018. Minutes of the meeting are at Annexure R-10. Subsequent to this meeting DGFT wrote to MoPNG stating that import with end-use restrictions could be considered (Annexure R-11). MoPNG has examined the matter and has opined that import of pet coke may be restricted to industry which is benign to environment on actual use basis. They have also stated that it should be used for industries where pet coke is used in the process and where there are no SOX/NOx emissions (Annexure R-12). MoEF&CC is in broad agreement with these views regarding the import of pet coke for use in cement plants, lime kilns, calcined pet coke as anode in Aluminium industry and calcium carbide manufacturing, and will advise DGFT to regulate imports only for industry where it is used in the process and not as a fuel and only for the end users. For use of Petcoke in gasification plants, the same is under consideration and will be submitted separately to the Hon'ble Court."

**March 2018:** "That letter regarding issue of deficit with regard to availability of domestic pet coke has already been sent to MoPNG (Annexure R-1) and it is under regular discussion with them. The matter will be finalised after receipt of reply from MoPNG."

**April 2018:** "Ministry has received inputs of MoPNG and DGFT. Information is also being compiled from all the states and union territories. This exercise is expected to be completed within 6 weeks"

As will be noted from the above deliberations, MOEF&CC till March was awaiting a decision from MoPNG before it could finalise the ban on import of pet coke. In April, the decision was received and it was in favour of this ban. MoPNG stated that domestically

manufactured pet coke is sufficient to meet the needs of industry with relatively low-pollution impact. This is noted by the Hon'ble Court in its order of 10.4.2018.

Then MoEF&CC informed the Hon'ble Supreme Court that it would compile information from states and UTs and take a final decision in 6 weeks.

The order of the Hon'ble Court of 10.5.2018 takes this into cognisance when it directs that the government must take a final view on or before June 30<sup>th</sup> 2018, *"failing which we may have to deal with the matter."*

Instead of taking this final view, MoEF&CC has decided unilaterally to set up a technical expert committee to once again decide on the pollution impact of pet coke.

EPCA is constrained to point out that this sequence of events as recorded in the affidavits and directions of the Hon'ble Supreme Court make it clear that this decision is inexplicable and unacceptable.

### **EPCA view on the interim report of the Technical Expert Committee (TEC)**

An analysis of the interim report of the TEC shows that conclusions are scientifically untenable and misleading.

The report of TEC uses only one reference to base its entire calculations (*J Jaygopal, K Ganesh Palappan et al 2017*). This paper has compared emissions from pet coke and sub-bituminous coal in a specific CBF boiler, which has specific conditions.

The report concludes that petcoke is more polluting than Indian coal when burned in thermal power plants. However, it is cleaner than Indian coal when burnt in industrial boilers.

This conclusion is based on one assumption – the efficiency of the pollution control device that is installed in thermal power plants as against the efficiency of the same pollution control device installed in industrial boilers. In the case of thermal power plants, it is taken as 99.8 per cent efficient in controlling PM. But in the case of industrial boilers it is taken to be 70 per cent. There is no basis for this assumption.

The fact is that industrial boilers (15 tonnes and above) have to meet PM emission standards of 150 ppm. They are also mandated to install all pollution equipment, like bag filters, ESP, to meet these standards. Calculations will easily show that in order to meet the standard of 150 ppm, the pollution control equipment will need to function at an efficiency of 98 per cent efficiency.

EPCA calculations based on this change in assumption shows the following:

**In 50 MW captive power plant:** In all scenarios, Indian coal and imported coal is less polluting than pet coke. The use of pet coke in small thermal power plants is 5-9 times more polluting than Indian or low-sulphur imported coal. Low-sulphur imported coal and Indian coal have more or less similar emissions performance.

**40 TPH industrial boiler:** In all scenarios, Indian coal and imported coal is less polluting than pet coke. The use of pet coke in industrial boilers is 3-7 times more polluting than Indian and low-sulphur imported coal.

The only time pet coke is cleaner than coal is when there are absolutely no controls in emissions. If this context is used to argue that pet coke is cleaner and therefore, it should be allowed and its import not banned, then it is as good as saying that there is no compliance with emission standards. Or, put another way, MoEF&CC and CPCB are admitting that they cannot ensure compliance with any standards and in any industry.

EPCA's analysis and calculations are provided in Annexure 3.

#### **Coal vs pet coke or gas: matter of compliance and enforcement**

EPCA in its report **No 76 of November 9, 2017** had stated that it is not in favour of coal for combustion. It had recommended that standards for SOx and NOx be mandated so that pollution can be brought under control from these polluting sources of fuel. It had recommended a ban on pet coke and furnace oil as mitigating pollution from these extremely high sulphur fuels would be expensive and not complied with. The notified standards would provide industry options to install pollution control equipment or to move to cleaner natural gas.

Based on the many directions of the Hon'ble Supreme Court, the MOEF&CC has finally (January 2018 and March 2018) mandated standards for SOx and NOx.

Now the challenge is implementation. EPCA is again constrained to bring to the attention of the Hon'ble Supreme Court that this is where the problem is fundamental and fatal. EPCA is working on a detailed report with recommendations on this issue but it would like to point out the following facts:

- Most state pollution control boards of NCR do not have equipment to measure SOx or NOx and therefore, monitoring is not possible.
- In Haryana, under the Ease of Doing Business Rules, the state pollution control board has been directed that it can only inspect a factory (to collect samples or monitor) once in 5 years. Therefore, even if it had the equipment to measure it would not be granted entry.
- The monitoring through continuous emission monitors (online systems) is flawed with problems and is still not operational in most cases.

This is where the real challenge lies. The role of the MoEF&CC and CPCB has to be to improve the enforcement of pollution standards so that pollution from coal and other such fuels is monitored and there is compliance with standards.

---

## **Issue 2: Natural gas to be made available to power plants in NCR**

---

The issue concerns the assured availability of gas supply to Unit 1 of Bawana power plant at a rate that will allow it to be competitive and meet the merit order dispatch. The following has been done in compliance with the directions of the Hon'ble Supreme Court.

1. MOPNG has given assurance that Bawana power plant will get 1.564 mmscd of APM gas without cut;
2. GAIL has taken a cut of 50% on its marketing margin.

However, the third condition that GAIL would take a 50% reduction in pipeline transmission costs has not happened. The regulator has raised concerns about this condition because of its huge cost and national precedence setting implications.

EPCA has reviewed the economics of the Bawana power plant to understand if the 50% reduction in pipeline transmission costs is absolutely necessary in order to run Bawana Unit 1 at competitive rates.

EPCA finds that Bawana is currently functioning at full capacity and is meeting the merit order dispatch requirement, without factoring in the 50% reduction in pipeline transmission costs (see Annexure 4).

EPCA's view is that this issue is now resolved. The future effort has to be to find ways of getting more natural gas for combustion in power and industry.

## **Issue 3: EPCA's views on the request by MoEF&CC to allow the use of pet coke for gasification and in steel industry**

---

**Pet coke for gasification:** The use of pet coke for gasification is not contentious as it was understood to be relatively benign in terms of pollution impact. However, the question was if import of pet coke should be allowed for gasification.

Minutes of meeting attached in MoEF&CC Affidavit of 1.2.2018 had stated that the country would have an expected deficit once RIL's gasification plant is commissioned, which is expected to consume 9.1 mmt of pet coke (their production is 6.7 mmt).

MoPNG(9.3.2018) in its office memorandum (Annex 1) has clarified that as far as gasification is concerned, only one gasification project in any refinery is under commissioning. RIL has informed that after full commissioning of all units the total pet coke requirement will be 9.1 mmt. However, CHT (Centre for High Technology) has informed that no unit has been commissioned till now and consumption of pet coke has not started.

Therefore, it is also not clear why this matter, which involves the use of pet coke in a refinery, which is outside the NCR states where a ban has been imposed, is being brought to the Hon'ble Supreme Court for intervention.

**Pet coke in steel industry:** This is extremely problematic and should not be allowed as it is firstly extremely polluting and secondly will open the flood gates for the use of pet coke in

all industries (see Annexure 5). The use of pet coke is shunned by steel industry itself and there seems to be no evident reason why M/s JSW Ltd should request for its use in its manufacturing process. Furthermore, JSW Steel is also not situated in NCR states, where a ban on the use and sale of pet coke has been imposed.

It would seem from the above, that the reason (perhaps) for MoEF&CC to bring this matter for the consideration and direction of the Hon'ble Supreme Court is in context of the need to allow import of pet coke. EPCA hopes that this is not the case.

**Table: Summary of issues raised in MoEF&CC affidavit of 9.7.2018 and EPCA's recommendations for the consideration of the Hon'ble Supreme Court**

No	Issue	EPCA's recommendations for the consideration of the Hon'ble Supreme Court
1.	Ban on import of pet coke	The decision on this matter is long-overdue. The Hon'ble Supreme Court in its last order of May 10, 2018 had made it clear that a decision had to be taken in this regard on or before June 30, 2018.  It is urgent and important that the Hon'ble Supreme Court directs the ban on import of pet coke and does not allow further procrastination and delay through the reports and counter reports of expert committee and their findings.
2.	Natural gas for Bawana plant	This matter is resolved for the moment and its compliance should be reported through the implementation reports on the comprehensive action plan, where this issue is also listed.
3.	Natural gas to be made available for power plants and industry	The Petroleum and Natural Gas Regulatory Board (PNGRB) has covered the remaining 8 districts of NCR for authorization of gas supply. This is important and therefore, supply of gas will not be a constraint. EPCA is working on a detailed report on the constraint on off-take of gas, including price and will inform the Hon'ble Court on the need for further action/directions on this important measure.
4.	Comprehensive Plan for air pollution control	It is an important landmark that the comprehensive plan has been notified by MoEF&CC. This plan will now be the basis of decision-making. EPCA would recommend that the MoEF&CC should be directed to file quarterly reports on the implementation status of the plan as against the deadlines.
5.	Permitting use of pet coke for gasification	No decision needed from the Hon'ble Court as the refinery (RIL) is not based in NCR states where the ban on sale and use of pet coke is in operation
6.	Permitting use of pet coke for steel industry	<u>Should not be permitted</u> . It will open floodgates in terms of use of pet coke and defeat the very purpose of the ban.



**F.No.R-42011/7/2014-OR.II(Pt-II)**  
**Government of India**  
**Ministry of Petroleum and Natural Gas**

Shastri Bhawan, New Delhi  
Dated 9<sup>th</sup> March, 2018

**Office Memorandum**

Sub: Order of Hon'ble Supreme Court dated 05.02.2018 in the case of M.C.Mehta Vs. UOI (WP No.13029/1985) on the issue of ban on import of petcoke.

The undersigned is directed to refer to the Ministry of Environment, Forests & Climate Change D.O.No.Q-18011/13/2000-CPA dated 13.02.2018 regarding availability of domestic petcoke. The matter has been examined in the Ministry in consultation with Public Sector Oil Companies, CHT and PPAC. Following are comments of MoP&NG on this issue:

**1. Domestic production of petcoke**

CHT has informed that domestic production of petcoke in the country is as follows :

2016-17	12.9 MMT
2017-18 (estimated)	15 MMT
2022-23 (estimated)	17.6 MMT

**2. Consumption of petcoke**

As per available information, domestic consumption of petcoke in the country during 2016-17 was as follows:

Domestic production	13 MMT
Import	13.7 MMT
Total	26.7 MMT

**3. Use of petcoke in industry having low pollution impact**

I. CHT has informed that following can be considered having low pollution impact on environment :

- (a) Cement and lime industry
- (b) Gasification of petcoke
- (c) Anode manufacturing for aluminium industry using low sulphur calcined petroleum coke
- (d) CFBC Boiler with lime or fitted with flue gas desulphurization facility.

II. Cement Industry:

In 2016-17, cement industry reportedly consumed about 15.8 MMT of petcoke of which 6 MMT was from domestic production and 9.8 MMT was through imports. OMCs have informed that about 85% to 90% of petcoke



2

consumed in cement industry is used for clinkering. Accordingly, requirement of clinkering for cement industry is approximately 14 MMT.

III. Gasification:

As far as gasification is concerned, only one gasification project in refinery is under commissioning in the country and RIL has informed that after full commissioning of all the units the total petcoke requirement will be 9.1 MMT. However, CHT has informed that no unit has been commissioned till now and consumption of petcoke in the unit has not started.

IV. CFBC Boiler:

At present only Bina refinery has a working CFBC Boiler of 150 TMT annual requirement. Bhathinda and Guwahati refineries are implementing projects of CFBC Boilers with total requirement of 400 TMT.

- V. As per above information, the total requirement of petcoke in cement, gasification and CFBC Boilers at present is about 14.2 MMT. This will increase as all the units of gasification projects are commissioned.
4. It should also be noted that if import of petcoke is allowed for all the above industries for the total requirement, then there is a possibility of domestically produced petcoke being diverted to other industries which do not have adequate pollution control measures. Hence when taking decision for allowing import of petcoke in the country, the production of domestically produced petcoke should be factored in and import should be allowed only to that extent. However, these industries may be allowed to import for own use only and not for trading.
5. As there will be problem in enforcement and monitoring of emission in unorganised sector, use of petcoke by other industries and unorganised sector may be discouraged. These industries may be encouraged to switch over to alternate lower pollution fuels like natural gas, LPG etc.
6. This issues with the approval of the Minister, Petroleum & Natural Gas & SD&E.

  
(Pawan Kumar)

Under Secretary to the Govt. of India

Tel : 23074369

Mail ID : usref.png@nic.in

Ministry of Environment, Forests & Climate Change  
(Kind Attention : Shri Ritesh Kumar Singh, Joint Secretary)  
Indira Paryavaran Bhawan, Jorbagh Road  
New Delhi-110003

No.Q-18011/13/2000-CPA (Vol-IVA)  
Government of India  
Ministry of Environment Forests & Climate Change

Prithvi Block, 1<sup>st</sup> Floor  
Indira Paryavaran Bhawan,  
Aliganj, Jor Bagh Road,  
New Delhi- 110003

Dated: 20.03.2018

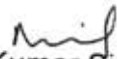
**OFFICE MEMORANDUM**

**Subject: Order of Hon'ble Supreme Court dated 05.02.2018 in the case of M.C. Mehta Vs. UOI (WP No.13029/1985) on the issue of ban of import of Petcoke**

Please find enclosed herewith O.M. of Ministry of Petroleum and Natural Gas dated 09.03.2018 on the above subject.

It is requested that the views of the DGFT on the same may kindly be conveyed to the undersigned regarding this matter, specially with reference to observations at para 5 of the above OM.

Encl: As above

  
(Ritesh Kumar Singh)  
Joint Secretary

To

**Shri Alok Vardhan Chaturvedi  
Directorate General of Foreign Trade  
Ministry of Commerce & Industry,  
Udyog Bhawan, H-Wing,  
Maulana Azad Road,  
New Delhi – 110 011.**

4

F. No. 01/89/180/22/AM-12/PC-2(A)/ [E-1463]

Government of India  
Ministry of Commerce & Industry  
Department of Commerce  
Directorate General of Foreign Trade

Udyog Bhavan, New Delhi  
Dated 27th March, 2018

**OFFICE MEMORANDUM**

Subject: – Order of Hon'ble Supreme Court dated 05.02.2018 in the case of M.C. Mehta Vs. UoI (W.P. No.13029/1985) on the issue of ban on import of petcoke.

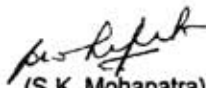
The undersigned is directed to refer to the O.M. No.Q-18011/13/2000-cpa (Vol.IVA) dated 20.03.2018 received from Ministry of Environment, Forests and Climate Change (MoEF & CC) on the subject cited above, seeking comments of this Directorate on Para 5 of the observations made by Ministry of Petroleum and Natural Gas. On examination of the said reference, it is observed that instead of Para 5, Para 4 is relevant to this Directorate. Therefore, DGFT is furnishing its inputs with regard to Para 4 of the reference.

2. In this regard, it may be noted that, as indicated by Ministry of Petroleum and Natural Gas, during 2016-2027, out of total consumption of 26.7 MMT of Petcoke, domestic production is only 13 MMT, thereby we imported more Petcoke (i.e. 13.7 MMT) than the domestic production. This suggests how important the import of Petcoke is for our domestic industry for various purposes. On the specific suggestion of allowing import to tackle the domestic shortage of about 13.7 MMT, the MoEF & CC is indirectly suggesting a Licensing regime for the product. As a general policy, DGFT does not support the idea of bringing back the licensing regime for any product. The following points are worth noting:

- i. Government has progressively moved away from Licensing-Quota system to a more liberal policy where goods are traded freely. Today most goods are free for import and export.
- ii. Quantitative Restrictions (QRs) by itself is WTO inconsistent and also inconsistent with Para 1.07 of FTP, 2015-2020. That means even if Government brings out an import licence-quota system, it may be challenged in the Court of Law within the Country. Moreover, such a measure is very likely to be challenged in the WTO Dispute Settlement Body for the simple reason that it affects the exporting countries whose export of Petcoke to India stands about US \$1,738.51 Million during 2016-2017.

- iii. Government can put a complete restriction i.e. prohibition on import of Petcoke on environmental ground subject to similar prohibition in the domestic sector also. Since the latter is unlikely to happen in the near future, prohibiting import of Petcoke will be blatantly illegal.
- iv. Industries in India import Petcoke for various purposes. A licensing regime will warrant to set limits for various purposes/different industries at different points of time which will be difficult to prescribe and implement.
- v. Under these circumstances, the only way to bring some amount of order to import of Petcoke is to continue allowing import of Petcoke freely subject to Actual User (AU) condition i.e. only the industries actually using Petcoke as an input will be allowed to import the item. This measure can be monitored by the MoEF & CC. This will not violate any commitments with the WTO. Detailed guidelines for AU conditions may be issued by MoEF & CC which may be notified by the DGFT.

This issues with the approval of competent authority.



(S.K. Mohapatra)

Deputy Director General of Foreign Trade

Tel: 2306 1562 / Extn. 277

E-mail: mohapatra.sk@nic.in

**Ministry of Environment Forests and Climate Change**  
**(Kind Attn. Shri Ritesh Kumar Singh, Joint Secretary)**  
**Prithvi Block, 1st Floor, Indira Paryavaran Bhawan,**  
**Alligang, Jor Bagh Road, New Delhi – 110003.**

**Annexure 2: Chronology of directions on pet coke and furnace oil; use and sale; monitoring; setting of emission standards and ban on import**

S. No.	Date	Document Type	Position Taken
1.	2.12.2016	Hon'ble Supreme Court's Order	<p>Based on <b>EPCA's report on "Mandating 'acceptable' fuel to be used in NCR for air pollution control Environment Pollution (Control and Prevention) Authority for NCR"</b> dated December 2, 2016, the Hon'ble Supreme Court gave the following directions:</p> <p><b>Use of Petcoke and Furnace Oil:</b> Mr. Harish N. Salve, learned Amicus Curia next argues that one of the major causes of pollution in the NCR region happens to be the use of Petcoke and furnace oil as fuel generally for industrial purpose and for power generation. He has tendered before us a report which indicates that use of both these types of fuel is highly harmful in view of high sulphur content in the same. He submits that this Court could direct the Government to ban the use of Petcoke and furnace oil as industrial fuel and for generation of electricity in the NCR region.</p> <p>Mr. Ranjit Kumar, learned Solicitor General seeks time to examine the issue and to take appropriate steps. In the circumstances we grant to the Central Government four weeks' time to examine the issue whether Pet coke and furnace oil if used as industrial fuel and for generation of electricity are harmful because of high sulphur content in the same. In case the Government come to the conclusion that the use of the said fuel is indeed harmful for human beings, the Government may consider issuing appropriate directions in terms of Section 3(2)(v) of the Act which empowers the Government to regulate the industries' operations and processes or impose safeguards on such industries' operations and processes. We are of the view that forbidding use of Petcoke and furnace oil as industrial fuel and for generation of power will tantamount to safeguards for such operations or processes as may require the use of such fuel.</p>
2.	17.1.2017	Hon'ble Supreme Court's Order	<p><b>Use of Petcoke and Furnace Oil:</b> The third issue that has been raised is with regard to the very high sulphur content in Pet coke and furnace oil and their utilization in industries in the NCR thereby causing immense air pollution. The learned Solicitor General says that action has been taken in this regard and necessary discussions with the stakeholders will take place tomorrow, i.e., 18th January, 2017 based on the response received from various institutions, such as CSIR, TERI, NPL, CPCB and Ministry of Petroleum and Natural Gas. He says that perhaps more than one meeting will be required in this regard and submits that the matter may be adjourned for some time so that a final response can be given in this regard.</p>
3.	6.2.2017	Hon'ble Supreme Court's Order	<p><b>Use of Petcoke and Furnace Oil:</b> The learned Solicitor General has also made a submission with regard to use of pet coke and furnace oil in NCR. He says that meetings have been held in this regard but a final decision has yet not been reached since some substitute has to be found for pet coke and furnace oil. It is submitted by learned Amicus that natural gas and electricity are viable substitutes. These should be explored by the concerned bodies. We have seen the Report dated 01.02.2017 submitted by Environment Pollution (Prevention &amp; Control) Authority (EPCA). We</p>

			find that the sulphur content in pet coke and furnace oil is extremely high and that is a major cause of pollution in Delhi and indeed in NCR. The learned Solicitor General says that a final decision will be taken within 8 weeks. We are of opinion that so much of time cannot be granted given the urgency in the matter
4.	2.3.2017	MoEF&CC's Affidavit	<p><b>Use of Petcoke and Furnace Oil:</b> That the Ministry has conducted a meeting on 8/2/2017 regarding banning of petcoke and Furnace Oil in Delhi &amp; NCR. It was decided that CPCB may get a study conducted through National Environment Engineering Research Institute (NEERI)/CPCB to collect the necessary information and make it available to the Ministry for arriving at an informed decision.</p> <p>It is submitted that a quick study was taken up by CPCB through NEERI to assess SO<sub>2</sub> and NO<sub>x</sub> emissions from petcoke, furnace oil and other sources in NCR and their share in secondary particulates/PM<sub>2.5</sub>/PM<sub>10</sub> levels. The study report is annexed at Annexure A. Based on the study and on deliberations, it is submitted as under:</p> <ol style="list-style-type: none"> <li>I. The study reveals that the impact of burning of petcoke and furnace oil in NCR in terms of secondary particulates in Delhi is not evident. It may be noted that the use of petcoke and furnace oil is already prohibited in Delhi.</li> <li>II. Further studies have to be done to assess impact in other NCR towns due to use of petcoke and furnace oil.</li> <li>III. Petcoke and furnace oil may be used in Cement Industries and other industries that have appropriate pollution control systems particularly for controlling SO<sub>2</sub> and NO<sub>x</sub> emissions.</li> <li>IV. In respect of industries that use petcoke and furnace oil and do not have appropriate SO<sub>2</sub> and NO<sub>x</sub> pollution control systems, may be given 7 months time to switch over to natural gas or electricity.</li> </ol>
5.	6.3.2017	Hon'ble Supreme Court's Order	<p><b>Use of Petcoke and Furnace Oil:</b> Pursuant to our order dated 06.02.2017, the Ministry of Environment, Forest and Climate Change has prepared a Report. Learned Solicitor General says that the Report is ready along with an affidavit but could not be filed in the Registry. He may have it filed during the course of the day. A letter dated 02.03.2017 has been received from Dr. Bhure Lal, Chairman, EPCA enclosing Report No.70. This Report has been prepared in consultation with the representatives of the CPCB, Environment Department of the NCT of Delhi, Governments of Haryana, Rajasthan and U.P. It appears that the Report is still in a draft form and has been sent to the participants for their review. After receiving inputs from the participants, a meeting by EPCA will be convened in the end of March, 2017 to finalize the Report and plans with these Governments and the CPCB. While finalizing the plan, the Report being filed today by the learned Solicitor General with regard to use of pet coke and furnace oil will also be considered by EPCA in consultation with Governments of Delhi, Haryana, Rajasthan and U.P. and the CPCB and a final report will be filed before us. We expect learned counsel for the States of Delhi, Haryana, Rajasthan and U.P. to be present in the Court when the matter is taken up for hearing on the next date.</p>
6.	7.4.2017	Hon'ble Supreme Court's Order	<p>Based on <b>EPCA Report No.72 dated March 6, 2017</b>, the Hon'ble Supreme Court gave the following directions:</p> <p>This is a report given by the Environment Pollution (Prevention &amp; Control) Authority (EPCA) on mandating acceptable fuels and recommending ban on sale and use of furnace oil and pet coke in NCR in compliance with the order of this Court dated 6th March, 2017. Learned Solicitor General says that the Government of India, particularly</p>

			the Ministry of Environment, Forest and Climate Change and any other concerned Ministry that is relevant will look into the matter and give their views. Learned Solicitor General says that he requires three weeks' time for the aforesaid purposes.
7.	2.5.2017	Hon'ble Supreme Court's Order	<b>Use of Petcoke and Furnace Oil:</b> Learned Amicus has briefed us on the Report. The use of Furnace Oil and Pet Coke is prohibited in Delhi. It is further stated that the State Governments of U.P., Haryana and Rajasthan have no objection if a ban is placed on the use of Furnace Oil and Pet Coke. These State Governments are, of course, at liberty to place such a ban.
8.	24.10.2017	Hon'ble Supreme Court's Order	<p><b>Ban on Use of Pet Coke and Furnace Oil:</b> We have considered the above Report filed by EPCA. On 2nd May, 2017, learned amicus curiae had briefed us on the Report. It was pointed out on that day that use of Furnace Oil and Pet-Coke is prohibited in Delhi. It was further stated that the States of U.P., Haryana and Rajasthan had no objection if the ban is placed on the use of Furnace Oil and Pet-Coke. These State Governments were, therefore, permitted to place such a ban. Almost four months have gone by and we are told that none of these three State Governments have taken any action in this matter. To make the situation worse, there is no representation on behalf of the State of U.P. nor is there any representation from the State of Rajasthan. Learned counsel appearing for the State of Haryana wants us to wait for two minutes so that he can get instructions from the State Government. We are not inclined to wait for two minutes so as to enable learned counsel to get instructions. Instructions should have been obtained well before the date of hearing.</p> <p>Since the State Governments of U.P., Haryana and Rajasthan have no objection and they have not taken any positive action, keeping the pollution level in NCR and particularly in Delhi, we have no option but to place a ban on use of Furnace Oil and Pet-Coke in the States of U.P., Haryana and Rajasthan. The ban will come into effect from 1st November, 2017. We expect the State Governments to issue appropriate notification immediately. Even if they do not issue such notification then in compliance with the order of this Court, the ban will take effect from 1st November, 2017 in any case.</p>
9.	10.11.2017	MoEF&CC's Affidavit	<b>Ban on Use of Pet Coke and Furnace Oil:</b> That as per the source apportionment study report by IIT Kanpur, the contribution of pet coke and furnace oil in ambient PM10 and PM2.5 is in the range of 2-6.9% (mean 4.5%) and 3.6-9.4% (6.8%) respectively. With implementation of standards to be notified, the contribution of emission for pet coke and furnace oil is expected to be reduced to 0.34-1.5% (mean value 0.9%) and 0.58-1.6% (1.1%) for PM10 and PM2.5 respectively. That with the introduction of stringent norms, the contribution of secondary sulphate in particulate matter would just be approximately 1% compared to its absence in blanket ban. With compliance to these standards significant improvement is expected in the air quality. The details of calculations in this regards is annexed herewith and marked as Annexure R-12
10.	13.11.2017	MoEF&CC's Affidavit	<b>Ban on Sale and Use of Pet Coke and Furnace Oil:</b> That the Ministry, at present due to the existing emergent situation pertaining to air pollution in Delhi NCR, supports the existing ban on pet coke and furnace oil as proposed by EPCA and as imposed by Hon'ble Court for period of three (3) months in the Delhi NCR region. That in this period this ministry will review the entire matter in detail including the details of availability of alternative fuel and



			<p>infrastructure for distribution, technical inputs from CPCB and other expert agencies and inputs from all stakeholders. After this review, this ministry will come back to the Hon'ble Court with a definitive view in the matter.</p> <p>That this is however subject to the fact that the government believes that banning may not be the solution in all instances. It could be the approach in certain cases but may not be the solution in several other cases. That stringent standards and norms based approach with rigorous implementation is the way forward to address such pollution related issues.</p>
11.	17.11.2017	Hon'ble Supreme Court's Order	<p>Based on <b>EPCA Report No.76 dated November 9, 2017</b>, the Hon'ble Supreme Court gave the following directions:</p> <p>It is submitted by the learned Amicus that a prohibition on the use of pet coke and furnace oil will solve only a part of the problem. A direction should also be issued to the effect there is a ban on the sale of pet coke and furnace oil in all these three States for being used as fuel. The learned ASG says that he will look into the matter and will get back to us within a week or so.</p>
12.	7.12.2017	MoEF&CC's Affidavit	<p><b>Ban on Sale and Use of Pet Coke and Furnace Oil:</b> That regarding ban on import of pet coke and furnace oil and confining the use of domestic pet coke for the sole purpose of feedstock at para 2(b) above, MoPNG has informed that Minister PNG had taken a meeting on the issue of imposing a ban on import of pet coke with all stakeholders in 21.11.2017. It was decided in the meeting that import of pet coke should be banned in view of the environmental hazards due to its use. DGFT shall take further action in implementing this. The proceedings of this meeting are enclosed at annexure R-4. This matter has however not yet been finalised, but is under active consideration of the Government.</p> <p>That as regarding the suggestion made by the learned amicus curiae it was noted by the High Level Committee (HLC) that pet coke could be safely used by cement industries. However, use of pet coke as fuel needs to be strictly regulated due to higher emissions of SOx. MoPNG also stated that they are in agreement for enforcing a ban on the sale of pet coke and furnace oil for use by industries which is used as fuel and not as feedstock. After detailed deliberations it was decided that suitable mechanism shall be developed by MoEF&amp;CC in this regard, Sale of pet coke and furnace oil should be regulated as per the decision of the HLC on 21.11.2017 (Annexure R-1). To this extent as suggested by the learned amicus curiae subject to approval by this Hon'ble Court, MoEF&amp;CC is prepared to modify the directions issued under Section 5 of EPA regarding ban of pet coke and furnace oil.</p>
13.	7.12.2017	MoEF&CC Affidavit	<p><b>Ban on Sale and Use of Pet Coke and Furnace Oil:</b> It is submitted that the matter has been reviewed by the HLC, CPCB and the Ministry and we have come to the conclusion that the use of pet coke in cement industry may be permitted.</p> <p>It is submitted that the matter has been reviewed by the CPCB and the Ministry and we have come to the conclusion that the use of pet coke in lime kilns may be permitted.</p> <p>It is stated by CPCB that this request merits consideration only to the extent that furnace oil may be allowed as</p>

			<p>secondary fuel for startup/shutdown and stabilization of safety of boiler during low load operation and not on continuous basis. It has also suggested that MoP be advised to present road map for switching from furnace oil to LDO at the earliest. The views of CPCB have been examined in the ministry and we are in agreement with the same.</p>
14.	13.12.2017	Hon'ble Supreme Court's Order	<p><b>Use of Pet Coke in Cement Industries:</b> The view expressed by learned amicus curiae is that the cement industry uses pet coke in its kiln where limestone is ground and burnt till it forms clinker. In this process of calcination, limestone absorbs sulphur and, therefore, emissions are minimized. MOEF has notified emission standards for SO<sub>2</sub> and NO<sub>x</sub> for cement industry. Consequently, permission can be given for use of pet coke in the cement industry. This is acceptable to learned Additional Solicitor General appearing for the Union of India. It is further submitted on behalf of the Union of India that pet coke should be utilized only in industries where sulphur is absorbed in the manufacturing process, for example, cement industry, gasification plants. This is not objected to by learned amicus curiae. However, it is suggested by learned amicus curiae that there is a need to set up a system to regulate the sale and use of pet coke to ensure that there is complete accountability and traceability with no opportunity for leakage. This suggestion is accepted by the learned Additional Solicitor General appearing for the Union of India who says that a system of regulation for the sale and use of pet coke will be brought into force within four weeks on the outside.</p> <p><b>Use of pet coke in lime industry:</b> It is submitted by learned amicus curiae that the limestone industry bakes the limestone to make chuna or slaked lime and pet coke is burnt in a kiln with limestone which absorbs the sulphur. It is further submitted that most of the limestone industries are in the small scale sector and their operations are not regulated. It is also submitted that the final product is not regulated and, therefore, unlike cement its kiln temperature and manufacturing process cannot be guaranteed. On 24th October, 2017, we had directed emission standards with respect to five industries be finalized within a month. It is stated by learned Additional Solicitor General appearing for the Union of India that preliminary standards have already been finalized with regard to four of these industries. With regard to the lime industry, the standards may be notified within a period of three months, i.e., on or before 31st March, 2018. Necessary field studies, etc. may be conducted on priority basis by the Central Pollution Control Board. Learned Additional Solicitor General appearing for the Union of India has no objection to provide information to EPCA about the number of industries dealing with lime and the location and system proposed to be set up to strictly regulate the use of pet coke so that there is no leakage or misuse. We expect the State Governments/Union Territories to cooperate and coordinate with the MOEF in this regard. The compilation of information and framing of regulations may be concluded within a period of four weeks from today and in any case before 31st January, 2018.</p> <p><b>Use of furnace oil should be permitted in thermal power plants:</b> It is submitted by learned amicus curiae that the Ministry of Power and Natural Gas has requested the use of furnace oil for a period of one year till the power plants switch to using light diesel oil. Since this is also stated on affidavit by MOEF, we accept the time line given by the MOEF and direct that the switchover may be completed within a period of one year from today and in any case</p>

			<p>before 31st December, 2018.</p> <p><b>Ban on Import of Pet Coke:</b> We may note that the MOEF has stated on affidavit that a ban on the import of pet coke is under consideration in view of the environmental hazards due to its use. It appears that some discussions are taking place with the Ministry of Petroleum and Natural Gas as well as the Director General of Foreign Trade. We expect the MOEF to expeditiously take a final decision after consulting the stakeholders as well as EPCA in this regard.</p>
15.	1.2.2018	MoEF&CC Affidavit	<p><b>Monitoring and Reporting of sale and use of Petcoke:</b> That a system of regulation for the sale and use of pet coke in cement and lime industry has been finalized and notified (Annexure R-1 and R-2 respectively). The list of industries dealing with lime has also been notified (Annexure R-3)</p> <p><b>Exemption for Calcined Pet Coke (CPC) in Aluminium Industry:</b> CPCB has recommended that CPC may be considered for using Grade A CPC having sulphur content not more than 1.25% as per the proposed BIS Code 2017. The report of CPCB has been examined in the Ministry and the MoEF&amp;CC is in agreement with the same.</p> <p><b>Exemption for Calcium Carbide Manufacturing:</b> Accordingly, CPCB has recommended to permit use of pet coke as feedstock to calcium carbide. The report of CPCB has been examined in the Ministry and the MoEF&amp;CC is in agreement with the same.</p> <p>Further, a draft general regulation to regulate the sale and use of pet coke for the calcined pet coke in aluminium industry and for fuel grade pet coke in calcium carbide manufacturing to ensure that there is complete accountability and traceability with no opportunity for leakage in these sectors as has been formulated in line with those for cement and lime industry is at Annexure R-4.</p> <p><b>Re- Ban on Import of Pet Coke:</b> That with regard to the ban on import of pet coke, a stakeholder meeting was held under the chairmanship of Secretary (EF&amp;CC) on 12th January 2018. Minutes of the meeting are at Annexure R-10. Subsequent to this meeting DGFT wrote to MoPNG stating that import with end-use restrictions could be considered (Annexure R-11). MoPNG has examined the matter and has opined that import of pet coke may be restricted to industry which is benign to environment on actual use basis. They have also stated that it should be used for industries where pet coke is used in the process and where there are no SOX/NOx emissions (Annexure R-12). MoEF&amp;CC is in broad agreement with these views regarding the import of pet coke for use in cement plants, lime kilns, calcined pet coke as anode in Aluminium industry and calcium carbide manufacturing, and will advise DGFT to regulate imports only for industry where it is used in the process and not as a fuel and only for the end users. For use of Petcoke in gasification plants, the same is under consideration and will be submitted separately to the Hon'ble Court.</p>

16.	5.2.2018	Hon'ble Supreme Court's Order	<p><b>Ban on import of Pet Coke:</b> It is stated by the learned ASG that there is some expected deficit with regard to availability of domestic pet coke. A final decision is yet to be taken in the matter and consultations on shortage from domestic production are going on with the Ministry of Petroleum and Natural Gas and a decision will be taken within two weeks.</p> <p><b>Permitted use of pet coke in certain industries:</b> It is stated by the learned ASG that the use of pet coke in Calcium Carbide based industries may be permitted on the basis of recommendations made by the CPCB. This is acceptable to EPCA. However, EPCA has suggested that the recommendations need to be implemented constructively and the CPCB should compile all the data with the assistance of all the State Pollution Control Boards (SPCB) of all the industries using Calcium Carbide within a period of four weeks from today. Thereafter, the source of pet coke and its utilization should be monitored on a monthly basis for the first one year with all the details being put up on the website of the CPCB and thereafter monitoring may be carried out on quarterly basis.</p>
17.	8.3.2018	Hon'ble Supreme Court's Order	<p><b>Ban on import of Pet Coke:</b> The learned ASG says that he will file an affidavit on behalf of the Ministry of Environment, Forests and Climate Change during the course of the day. He has shown us a copy of the affidavit that is proposed to be filed. We find from a perusal of the affidavit that certain issues are pending with the Ministry of Petroleum and Natural Gas for almost about a month. The Secretary in the Ministry of Environment, Forests and Climate Change should take up the question of delay with the above said Ministry in view of urgency in tackling the problem of air pollution in the country. We expect full cooperation from the Ministry of Petroleum and Natural Gas.</p>
18.	3.2018	MoEF&CC Affidavit	<p><b>Ban on import of Pet Coke:</b> That letter regarding issue of deficit with regard to availability of domestic pet coke has already been sent to MoPNG (Annexure R-1) and it is under regular discussion with them. The matter will be finalised after receipt of reply from MoPNG.</p> <p><b>Permitted use of pet coke in certain industries:</b> That CPCB has been asked by the Ministry to compile the list of industries using calcium carbide as directed by the Hon'ble Court (Annexure R-2). That Aluminium Association of India has submitted their representation vide email dated 7.3.2018. That Ministry will re-examine the matter in consultation with MoPNG, CPCB and BIS.</p>
19.	28.3.2018	Hon'ble Supreme Court's Order	<p><b>Exemption for Petcoke in Aluminium Industry:</b> This is an application filed by Aluminium Association of India. The prayer in the application is as follows: "Direct MoEF to modify the Circulars/direction dated 15 November 2017 to the extent that aluminium industry may be permitted to use Anode Grade Green Pet coke, both domestic and imported for the manufacture of carbon anodes" EPCA has filed Report No. 82 in respect of the application and in compliance of the order dated 16.02.2018. A Report has been made by the Aluminium Association of India to the Ministry of Environment, Forests and Climate Change. The matter is still under examination by the said Ministry.</p>

20.	4.2018	MoEF&CC Affidavit	<p><b>Ban on import of Pet Coke:</b> Ministry has received inputs of MoPNG and DGFT. Information is also being compiled from all the states and union territories. This exercise is expected to be completed within 6 weeks</p> <p><b>Permitted use of pet coke in certain industries:</b> That CPCB has compiled the list of industries using Calcium Carbide (Annexure R-2). That the Ministry is examining the representation of the Aluminium Association of India in consultation with CPCB. The notification for regulation of sale and use of pet coke in NCR states for carbide manufacturing using fuel grade pet coke is being finalized and has been sent for legal vetting to Ministry of Law and Justice and will be notified soon.</p>
21.	10.4.2018	Hon'ble Supreme Court's Order	<p><b>Ban on import of Pet Coke:</b> Learned Additional Solicitor General has drawn our attention to the order dated 8th March, 2018. He submits that subsequent to the aforesaid order, an Office Memorandum was issued by the Ministry of Petroleum and Natural Gas, Government of India on 9th March, 2018 wherein it is stated as follows:</p> <p><i>"4. It should also be noted that if import of pet coke is allowed for all the above industries for the total requirement, then there is a possibility of domestically produced pet coke being diverted to other industries which do not have adequate pollution control measures. Hence when taking decision for allowing import of 8 pet coke in the country, the production of domestically produced pet coke should be factored in and import should be allowed only to that extent. However, these industries may be allowed to import for own use only and not for trading.</i></p> <p><i>5. As there will be problem in enforcement and monitoring of emission in unorganised sector, use of pet coke by other industries and unorganised sector may be discouraged. These industries may be encouraged to switch over to alternate lower pollution fuels like natural gas, LPG etc."</i></p> <p>The issue was then considered by the Ministry of Environment, Forests and Climate Change (MOEF) and by an Office Memorandum dated 20th March, 2018 the views of the Director General, Foreign Trade were sought in view of the observations made by the Ministry of Petroleum and Natural Gas. The Ministry of Commerce &amp; Industry, Department of Commerce, Directorate General of Foreign Trade has since responded on 27th March, 2018 in which certain suggestions have been made. Learned Additional Solicitor General says that the matter is under the active consideration of the MOEF. Information and statistics are being compiled from all the States and Union Territories. He says that this exercise will take about 3 to 4 weeks or so.</p> <p>List Report No.79 on 9th May, 2018 by which time we expect some finality on the issue by the MOEF.</p>
22.	10.5.2018	Hon'ble Supreme Court's Order	<p><b>Monitoring and Reporting of sale and use of Petcoke:</b> Mr. S.P. Parihar, the Chairman of the Central Pollution Control Board is present in the Court pursuant to the order dated 09.05.2018. It is stated by him that monitoring the use of pet coke is carrying on and the State Pollution Control Boards are involved in the process of monitoring. He says that for the quarter ending on 30.04.2018 the exercise is completed and that reports are awaited from the State Pollution Control Boards. He says that reports will be received shortly and will be compiled and analyzed on or before 30th May, 2018. This is with regard to industries pertaining to Calcium Carbide, Cement and Lime. It is further stated that pending promulgation of the Rules after appropriate vetting by the Ministry of Law and Justice, the</p>

			<p>monitoring will be done with information being asked from the industries on a fortnightly basis even if the industries do not supply necessary information as directed by the CPCB. The fortnightly monitoring will continue until the Rules are notified. Thereafter, the monitoring exercise will be carried on in accordance with the Rules.</p> <p><b>Ban on import of Pet Coke:</b> The learned ASG assures us that the exercise of receiving inputs from Ministry of Petroleum and Natural Gas and DGFT with regard to ban on import of pet coke and the State Governments is under way and will be completed within six weeks.</p> <p>We expect and direct that a decision will be taken in this regard on or before 30th June, 2018 failing which we may have to deal with the matter.</p>
23.	9.7.2018	MoEF&CC Affidavit	<p><b>Ban on import of Pet Coke:</b> That with respect to Ban on import of Petcoke, a Technical Expert Committee (TEC) has been constituted by the MoEF&amp;CC vide order dated 15.6.2018 (Annexure R-1) comprising members Prof. Sachidanand Tripathi, IIT Kanpur; Prof. Mukesh Khare, IIT Delhi; Shri Brijesh Kumar, Executive Director, Centre for High technology MoPNG and Shri Prashant Gargava, Additional Director, CPCB. The Interim Report of the Committee has been received (Annexure R-2) in the Ministry and is under examination. This Ministry would like to share the report with EPCA and other stakeholders and then come to a considered decision. Some more time would be needed for this.</p> <p><b>Use of Petcoke in Gasification:</b> That the ministry has received representation from the Federation of Indian Petroleum Industry (FIPI) regarding the use of petcoke in Gasification. Technical inputs from CPCB were obtained in this regards vide letter dated 4.5.2018 and the same is annexed herewith and marked as Annexure R-8. CPCB has recommended the use of petcoke for gasification subject to the condition that the concerned industry shall carry out trial runs in the presence of GPCB and CPCB officials to establish level of emissions within the prescribed standards. The views of CPCB have been examined in the Ministry and we are in agreement with the same.</p> <p><b>Use of Petcoke in Steel Industry:</b> That the Ministry has received another representation from Indian Steel Association (ISA) regarding the usage of petcoke in steel industry. Technical inputs from CPCB were obtained in this regards vide letter dated 30.5.2018 and the same is annexed herewith and marked as Annexure R-9. CPCB has recommended utilisation of petcoke in blast furnace subject to conditions that: (i) Concerned member of ISA to carry out trial runs in the presence of SPCB and CPCB officials to establish level of emissions. (ii) Concerned plant shall get amended the EC and obtain Consent to Operate from SPCB. The views of CPCB have been examined in the Ministry and we are in agreement with the same.</p>

### **Annexure 3**

#### **Analysis of the interim report of the Technical Expert Committee on the pollution potential from pet coke verses coal**

1. It is fallacious to say that there is an 'uncontrolled emissions scenario. India has emissions norm for PM currently. Thermal power plants will have to meet SO<sub>x</sub> norms by 2022. So, undertaking a scenario study for uncontrolled emissions and showing pet coke in better light is misleading.
2. The committee has grossly misrepresented the pollution control requirement for industrial boilers. It has stated a pollution control equipment with 70% efficiency to capture particulate matter is sufficient for industrial boiler. This is not tenable. To meet the existing PM norms, industrial boilers of 40 TPH size must have ESP of at least 98% efficiency.
3. The committee has grossly overestimated the primary particulate emissions from Indian coal. It has estimated uncontrolled primary PM emissions from Indian coal as 589.6 kg/tonne of coal. This is impossible considering that at least 20% of the ash is bottom ash.
4. Overall, the committee has made a 'deliberate' attempt to show pet coke in a better light. For instance, while it says that pet coke is used in Europe, it has failed to mention that pet coke has been banned in China for pollution reasons.

#### **EPCA's analysis**

Three scenario studies have been done for a 50 MW captive power plant and a 40 TPH industrial boilers. In addition, we have also estimated emissions from imported low-ash, low-Sulphur coal.

**Scenario 1:** Existing scenario. In this there is pollution control for PM and none for SO<sub>2</sub>. To meet the PM emission norms, Thermal Power Plants will have to have ESP with 99.8% efficiency and industrial boilers will have to have ESP with 98% efficiency.

**Scenario 2:** Controlled PM Emissions & Partially controlled SO<sub>2</sub> emissions. In this scenario, Thermal Power Plants have ESP with 99.8% efficiency and industrial boilers with 98% efficiency. Both have SO<sub>2</sub> control efficiency of 50%.

**Scenario 3:** Controlled PM Emissions & controlled SO<sub>2</sub> emissions. This is likely to happen post 2022. In this scenario, Thermal Power Plants have ESP with 99.8% efficiency and industrial boilers with 98% efficiency. Both have SO<sub>2</sub> control efficiency of 90%.

#### **Results:**

**50 MW captive power plant:** In all scenarios, Indian coal and imported coal is less polluting than pet coke. The use of petcoke in small thermal power plants is 5-9 times more polluting than Indian or low-Sulphur imported coal. Low-Sulphur imported coal and Indian coal have more or less similar emissions performance.

**40 TPH industrial boiler:** In all scenarios, Indian coal and imported coal is less polluting than pet coke. The use of petcoke in industrial boilers is 3-7 times more polluting than Indian and low-Sulphur imported coal



50 MW Captive Power Plants			
	Petcoke	Indian Coal	Imported Coal
GCV (Kcal/kg)	8000	4000	5500
Sulphur (%)	7	0.5	0.75
Ash (%)	1	40	7.5
Daily fuel consumption (tonne/day)	360	720	525
<b>Scenario 1: Existing Scenario (Controlled PM Emissions &amp; Uncontrolled SOx emissions)</b>			
SO2 - Uncontrolled (kg/tonne fuel)	133	9.5	14.25
Secondary particle (kg/tonne fuel)	274	20	29
Primary particle - uncontrolled assuming 20% as bottom ash (kg/tonne fuel)	8	320	60
Primary particle - controlled assuming 99.8% efficiency of ESP (kg/tonne fuel)	0.016	0.64	0.12
Total particle - controlled for PM emissions (kg/tonne fuel)	274	20	29
Total particle - controlled for PM emissions (tonnes/day)	99	15	15
<b>Conclusion:</b> In the existing scenario, Indian coal and imported coal are six times better than Pet coke			
<b>Scenario 2: Controlled PM Emissions &amp; Partially controlled SOx emissions</b>			
SO2 - Uncontrolled (kg/tonne fuel)	133	9.5	14.25
SO2 - controlled, with 50% efficiency of the control system (kg/tonne fuel)	66.5	4.75	7.125
Secondary particle (kg/tonne fuel)	137	10	15
Primary particle - uncontrolled assuming 20% as bottom ash (kg/tonne fuel)	8	320	60
Primary particle - controlled assuming 99.8% efficiency of ESP (kg/tonne fuel)	0.016	0.64	0.12
Total particle - controlled for PM emissions (kg/tonne fuel)	137	10	15
Total particle - controlled for PM emissions (tonnes/day)	49	8	8
<b>Conclusion:</b> In controlled PM and partially controlled SO2 scenario, pet coke is 6 times worse than both Indian and imported coal			
<b>Scenario 3: Controlled PM Emissions &amp; Controlled SOx emissions</b>			
SO2 - Uncontrolled (kg/tonne fuel)	133	9.5	14.25
SO2 - controlled, with 90% efficiency of the control system (kg/tonne fuel)	13.3	0.95	1.425
Secondary particle (kg/tonne fuel)	27	2	3
Primary particle - uncontrolled assuming 20% as bottom ash (kg/tonne fuel)	8	320	60
Primary particle - controlled assuming 99.8% efficiency of ESP (kg/tonne fuel)	0.016	0.64	0.12
Total particle - controlled for PM emissions (kg/tonne fuel)	27	3	3
Total particle - controlled for PM emissions (tonnes/day)	10	2	2
<b>Conclusion:</b> In controlled PM and controlled SO2 scenario, pet coke is 5 times worse than both Indian and imported coal			
<b>Overall conclusion: The use of petcoke in small thermal power plants is 5-9 times more polluting than Indian or low-Sulphur imported coal</b>			



40 TPH Industrial Boiler			
	Petcoke	Indian Coal	Imported Coal
GCV (Kcal/kg)	8000	4000	5500
Sulphur (%)	7	0.5	0.75
Ash (%)	1	40	7.5
Daily fuel consumption (tonne/day)	99	198	144
<b>Scenario 1: Existing Scenario (Controlled PM Emissions &amp; Uncontrolled SOx emissions)</b>			
SO2 - Uncontrolled (kg/tonne fuel)	133	9.5	14.25
Secondary particle (kg/tonne fuel)	274	20	29
Primary particle - uncontrolled assuming 20% as bottom ash (kg/tonne fuel)	8	320	60
Primary particle - controlled assuming 98% efficiency of ESP (kg/tonne fuel)	0.16	6.4	1.2
Total particle - controlled for PM emissions (kg/tonne fuel)	274	26	31
Total particle - controlled for PM emissions (tonnes/day)	27	5	4
<b>Conclusion:</b> In the existing scenario, Indian coal is 5 times and imported coal is 7 times better than Pet coke			
<b>Scenario 2: Controlled PM Emissions &amp; Partially controlled SOx emissions</b>			
SO2 - Uncontrolled (kg/tonne fuel)	133	9.5	14.25
SO2 - controlled, with 50% efficiency of the control system (kg/tonne fuel)	66.5	4.75	7.125
Secondary particle (kg/tonne fuel)	137	10	15
Primary particle - uncontrolled assuming 20% as bottom ash (kg/tonne fuel)	8	320	60
Primary particle - controlled assuming 98% efficiency of ESP (kg/tonne fuel)	0.16	6.4	1.2
Total particle - controlled for PM emissions (kg/tonne fuel)	137	16	16
Total particle - controlled for PM emissions (tonnes/day)	14	3	2
<b>Conclusion:</b> In controlled PM and partially controlled SO2 scenario, pet coke is 5 times worse than Indian and 7 times worse than imported coal			
<b>Scenario 3: Controlled PM Emissions &amp; Controlled SOx emissions</b>			
SO2 - Uncontrolled (kg/tonne fuel)	133	9.5	14.25
SO2 - controlled, with 90% efficiency of the control system (kg/tonne fuel)	13.3	0.95	1.425
Secondary particle (kg/tonne fuel)	27	2	3
Primary particle - uncontrolled assuming 20% as bottom ash (kg/tonne fuel)	8	320	60
Primary particle - controlled assuming 98% efficiency of ESP (kg/tonne fuel)	0.16	6.4	1.2
Total particle - controlled for PM emissions (kg/tonne fuel)	28	8	4
Total particle - controlled for PM emissions (tonnes/day)	3	2	1
<b>Conclusion:</b> In controlled PM and controlled SO2 scenario, pet coke is 1.5 times worse than Indian and 3 times worse than imported coal			
<b>Overall conclusion: The use of petcoke in industrial boilers is 3-7 times more polluting than Indian and low-Sulphur imported coal</b>			

#### Annexure 4

##### Current economics of Bawana power plant and its working at full capacity at competitive rates to meet merit order dispatch

1. Bawana Unit 1 current is working at full capacity (500-600 mw) and qualifies for merit order dispatch.
2. This is after the assurance from MOPNG that they will get 1.564 mmscd without cut of APM gas.
3. This is also after GAIL has taken a cut of 50% on its marketing margin
4. The economics are as follows:
  - a. APM gas: 1.564 mmscd @ \$4.9 mmbtu delivered cost
  - b. Non-APM (RLNG): 1.5 mmscd @ \$10.5 mmbtu delivered cost**Based on this price and gas supply the cost of power generated (variable cost) is: Rs 3.70/unit<sup>1</sup>**
5. **As against this, Dadri power variable cost is: Rs.3.60/unit<sup>2</sup>**
6. Therefore, with this price, Bawana (unit 1) is competitive and matches Dadri power and qualifies for merit order dispatch. Merit order dispatch is based on variable cost.
7. In winter, the price may be a problem as power prices go down because of surplus availability. But by then Badarpur power plant will be closed. Badarpur power cost is Rs 4.06/unit (which does not fluctuate) and therefore, this will result in saving to Delhi government in its power bill. Furthermore, Delhi government pays roughly Rs 400 crore annually for the power commitment made to Badarpur and this can also be saved and put into running of Bawana.

From the above it is clear that for the present Bawana power plant (Unit 1) is functional and meets the merit order dispatch condition even without the additional 50 per cent cut in price of gas transmission costs from GAIL.

---

<sup>1</sup> Variable cost of Bawana is Rs 3.70 + fixed cost of Rs 1.06

<sup>2</sup> Variable cost of Dadri is Rs 3.50+Rs 0.10 (paid to power grid) and fixed cost is Rs 1.00 + 0.55 paid to power grid

## Annexure 5

### **Use of pet coke in steel industry: Why it is not necessary and how it adds to the pollution burden and should not be allowed**

Use of high sulphur fuel-petcoke is by and large discouraged in steel industry. Some steel plants like JSW steel use small amount of pet coke (10-15%) in making coke or in blast furnace for its high energy content.

If pet-coke is used with coking coal in coke making, maximum sulphur will go into coke that is used in blast furnace where it affects hot metal quality. Refining hot metal to remove Sulphur is expensive and problematic, so steel industry would like to avoid its use. Sulphur will also go in flue gas of coke oven (as Coke oven gas) and in blast furnace gas when the same coke is used in blast furnace. As coke oven gas and blast furnace gases are mixed and used as fuel in various furnaces, SO<sub>2</sub> will be formed, which is not controlled and therefore released in the environment.

Coke oven is most polluting and complex part in steel industry where monitoring is difficult. There are two types of coke oven:

1. By product recovery- In this process impurities are recovered as chemicals. For Sulphur, coke oven gas is de-sulphurized to remove Sulphur as sulphuric acid. This sulphuric acid is so dirty, it can't be used in chemical industry. Its recovery and treatment is not economical so not encouraged.
2. Non by-product recovery -- No chemicals are recovered but burnt. Here all the coke oven gas is collected and burned (not recovered) in furnaces as gaseous fuel. In this case H<sub>2</sub>S from coke oven gas will burn and generate SO<sub>2</sub>, which is not controlled.

The Centre for Science and Environment had in 2012 done a detailed rating of the steel industry. It was found that most plants had sulphur concentration of 1800-4000mg/Nm<sup>3</sup> in the coke oven gas. This sulphur was to be recovered or treated by scrubbing before use as fuel. But even though there is a norm of sulphur of 800mg/Nm<sup>3</sup> for coke oven gas before use; plants were exceeding this. Furthermore, monitoring of the emission was difficult and rarely done.

Given that steel industry by and large does not use pet coke because of the above problems and its impact of the quality of metal, it is not clear why JSW would like to use it. The only reason could be that mixing petcoke in coking coal is a cheapest way to get high energy. JSW's claim that Sulphur is removed in slag is also not correct. Only a small proportion of sulphur will be in the slag. The bulk will be converted to SO<sub>2</sub>, which is a pollutant.

JSW's claim of that Sulphur will be disposed in slag is equally problematic. This will require them to dose more limestone, which in turn will increase slag in furnace. More slag means more heat loss in melting this waste and low productivity.

**There is therefore, no reason why pet coke should be permitted in steel industry; it is not a necessary fuel; it adds to pollution load and it even worsens the quality of the final product.**