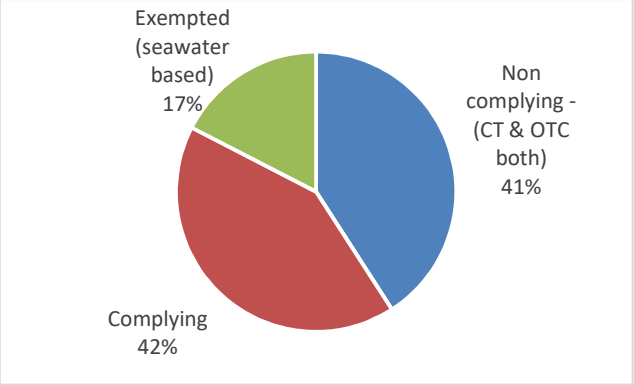
WATER INEFFICIENT POWER – KEY FINDINGS AND RECOMMENDATIONS

A. Major findings of the report:

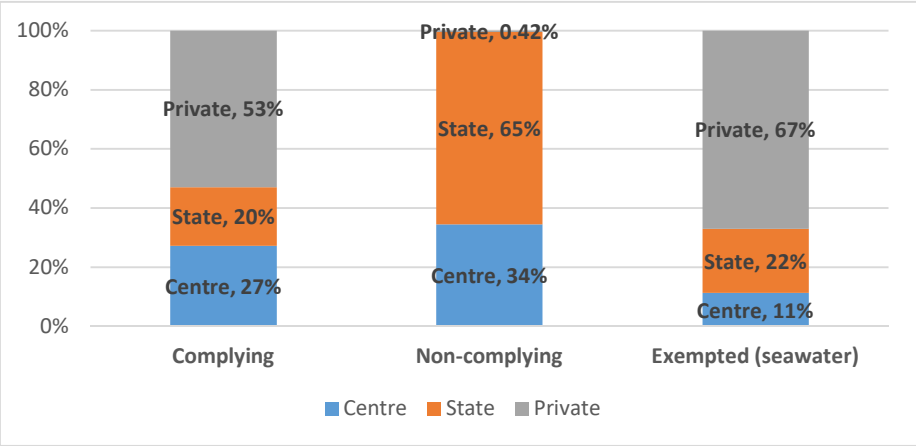
High non-compliance observed even with lax norms: CSE study surveyed over 154 GW coal power capacity comprising of 132 plants. This is about 75 per cent of total installed coal power capacity in India. Of the total 132 plants surveyed, 55 were complying, 54 were non-complying and 23 plants were sea-water based and were exempted from meeting the norms. Excluding seawater-based plants from the surveyed capacity, almost 50 per cent of the plants did not comply with the specific water consumption norms of 3.5/3 m3 per MWh. Capacity-wise, total non-complying capacity stood at 59 GW and complying capacity was 64 GW.

Category	Capacity (in GW)	No. of plants
Complying	**64 GW**	**55**
Non-complying	**59 GW**	**54**
Non-complying (CT based)*	*42 GW*	*36*
*Non-complying (OTC** based)*	*17 GW*	*18*
Exempted (seawater based)	**31 GW**	**23**



CT – Cooling tower; OTC**- Once-through cooling*

State-owned plants are consuming excess water: Private plants are doing fairly well in compliance whereas many state owned plants continue to flout the water consumption norms. Of the 59 GW of non-complying capacity, a major percentage (about 65 per cent) comprised state-owned plants and about 34 per cent Centre owned plants. On the other hand, of the 64 GW of complying capacity, a major percentage (about 53 per cent) included private owned plants. In the non-complying category, a major capacity included state-owned plants belonging to—Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL), Maharashtra State Power Generation Company (MahaGENCO), Rajasthan Rajya Vidyut Utpadan Nigam Limited (RRVUNL), Madhya Pradesh Power Generation Limited (MPPGCL), Chhattisgarh State Power Generation Company Limited (CSPGCL), Andhra Pradesh Power Generation Company (APGenco), Telangana State Power Generation Company Limited (TSGenco) and Gujarat State Electricity Corporation Limited (GSECL).



Uttar Pradesh and Maharashtra possessed maximum non-complying plants: The report gives a detailed state-wise picture of the compliance and non-compliance. Amongst surveyed capacity, U.P. and Maharashtra possessed maximum non-complying plants. While huge non-compliance in Uttar Pradesh can be attributed to the age of plants and inefficient practices, it is also observed that many of the older plants—including Obra, Parichha, Anpara, Rihand and Singrauli—are freshwater-based once-through plants withdrawing enormous amounts of water. Non-complying plants in Maharashtra also possess older units commissioned before 1997, including MahaGENCO's Koradi, Nashik and Chandrapur TPS. In Madhya Pradesh, non-complying plants included MPPGCL's Shree Singaji, Sanjay Gandhi, Satpura (Unit 6-9) and NTPC Khargone and in Rajasthan, RRVUNL's Suratgarh, Kota and Chhabra plants were found to be non-complying. Likewise, the report highlights non-complying plants in other states as well.

Old and inefficient freshwater based once-through cooling plants continue to operate without installing cooling towers, flouting 2015 norms: In June–July 2019, CPCB had issued directions to freshwater-based once-through plants (about 17 GW capacity) to install cooling towers and comply with the limit of 3.5 m3/MWh by 30 June 2022. CSE study found that all once-through-based power plants in India are old and polluting plants, built before 1999. Freshwater based once-through plants withdraw enormous amounts of water and are also lagging in meeting emission norms. Many of these plants were identified for retirement but have not yet retired. They continue to operate, with no plan to upgrade or install either emission control equipment or cooling towers. The old once-through plants include Bandel TPS, Chandrapura TPS, Dr Narla Tata Rao TPS, Korba III (Korba East), Mettur TPS, Neyveli TPS and Obra TPS.

Status of compliance to zero liquid discharge of newer fleet is not inspected: About 21 GW freshwater based coal capacity (comprising 40 units) was commissioned post 2016 and had to follow zero liquid discharge as per norms. Most of the newer units have come up in Maharashtra, Chhattisgarh and Madhya Pradesh. Also, a significant number of these units belong to NTPC. With regard to the zero liquid discharge (ZLD) norm, there is no information on whether these newer plants follow the zero liquid discharge condition laid down in the 2015 water norms. Currently, no on-ground monitoring and inspection is carried out by regulatory authorities to check compliance with respect to zero discharge.

Flaws identified in self-reported data and reporting format: The report also analysed the authenticity of the specific water consumption data that is self-reported by power plants to regulatory authorities in m3/MWhr along-with water consumption break-up consumed in process, cooling, domestic, ash handling, etc. CSE through its study found several loopholes in self-reported data and data format being followed across states to report specific water consumption in environment statements. It was found that many plants continue to underreport or report their specific water consumption incorrectly to authorities in environment statements. Also, no uniform format is followed by power plants across states nor even within a state for submitting water consumption data especially in environment statement. It is observed that many plants skip providing data especially on specific water consumption in their environment statements and are only providing water consumption break-up which is of no relevance when it comes to identifying plant's compliance and non-compliance.

Self-reported data not monitored and verified by independent agency: Along-with the flaws identified in reporting, it is observed that self-reported data is not monitored and verified either by the state Pollution Control Boards or any other independent third party agencies. In such a scenario, there is high probability of data manipulation and under-reporting. Plants might continue to underreport and operate with specific water consumption higher than the limit, leading to excessive water wastages by the sector. There is an urgent need for a uniform reporting format to be followed across all states, robust monitoring and implementation plan for these plants.

B) Recommendations

Based on the above findings, CSE has recommended a slew of measures in its report to expedite compliance with the 2015 norms along-with better and accurate accounting of reported water consumption data, these measures include the following:

- Environment ministry and CPCB must review implementation of water consumption norms and issue clear deadlines to non-complying plants; ensure zero discharge implementation as per norms

- Environment ministry and regulatory authorities must prioritise implementation of norms in water scarce regions
- Ministry must prioritise decommissioning of old and inefficient freshwater based once-through cooling plants
- Cross-verification and monitoring of self-reported water consumption data by third party agency through annual water audits, make it mandatory
- CPCB and SPCB's should ensure adoption of uniform format by all plants to report water consumption and compliance data in environment statements
- Power plants must ensure periodic calibration of raw water meter and submission of calibration report to regulatory agency
- Regulatory authorities must document the best practices of water-efficient complying plants with low specific water consumption (less than 2.5 m3/MWh) and those that have successfully achieved zero discharge
- Evolve systems of effective deterrence and mechanism with firm action plans to ensure compliance with water standards
- Robust and effective policy needed to encourage use of treated municipal sewage to reduce freshwater consumption in power plants