

# Environmental Reporting's Impact on Corporate Financial Performance: Evidence from Power Generation and Distribution Sector Companies

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## Abstract

For smooth operational environment and sustainability of the company corporate reporting has been playing an essential protagonist. Environmental reporting has become an evolving concern before every corporate, since stakeholders have been turning ever more environmentally conscious gradually. The power generation and distribution sector impacts the environment to a large extent as the waste disposal methods, compliance with environmental standards, conservation of biodiversity and other liability costs are crucial to be disclosed by companies impacting their operational environment. The purpose of the study is to investigate the extent of disclosure and reporting practices adopted by power generation and distribution sector companies viz., NTPC Ltd and Power Grid Ltd. listed at BSE 30 companies for three years from 2018-19 to 2020-21. To accomplish the research objectives 14 parameters disclosure Index has been constructed based on annual reports and prior literatures. This study has further analyzed the relationship between Environmental disclosures practices and corporate financial performance using Return on capital employed as a financial indicator. The hypotheses on Interrelationship between Environmental Disclosure and corporate financial performance has been tested using Hausman test for panel data and the study concentrates on the Fixed Effect estimators to explain the findings. It has been found that there has been no significant relationship between the extent of disclosures made and return on capital employed. The qualitative disclosures have been located in large numbers by NTPC Ltd and Power Grid Ltd in the entire study period. However, NTPC Ltd has managed consistency and reported more number of disclosures in all three consecutive years and Power Grid Ltd. failed to do the same. It's been concluded that this study would prove useful for the potential investors and policy makers in strategic decision making and this would pave the way for companies to disclosure and report both positive aspects and negative impacts according to their nature in their annual reports.

**Keywords:** Environmental Disclosures, Power Generation and Distribution Companies, Return on Capital Employed, Annual Reports, BSE 3

## Introduction

The Environmental concerns have witnessed enormous growth over the time. Earlier concerns were restricted to population growth, depletion of natural resources however it later converted into major environmental disruptions, fear of climate change, harming bio-diversities etc. Corporate Environmental disclosures are generally related to those activities which have impacted the physical or natural environment. The companies have been impelled to make these kinds of voluntary disclosures beyond regulatory requirements as they perceive several benefits. It reduces the risk of legal actions, public smearing and increases brand recognition of the corporation. The voluntary nature of environmental disclosures has risen substantially. The Government of India highlighted its concern for environmental disclosures in 1991 (Pramanik et al., 2008). Later in 2011, National Voluntary Guidelines on Social, Environmental, and Economic Responsibilities of Business got published and these guidelines provide the principles and the format for responsibility disclosures by business and have been made compulsory to be reported by top 100 listed BSE and NSE companies on the basis of market capitalisation. In 2015, through some amendments in Companies Act, 2013, Companies having turnover of 1000 Crores or more or Net Profit of 5 crore or more or net worth of 500 crore or more in immediately preceding Financial year need to spend 2% of the average net profit of three immediately preceding financial years for prescribed parameters as per Section 135 of Companies Act, 2013. Despite of this regulatory requirement corporations have been observed making expenditures in health, education and charity more over environmental initiatives. It has also been observed that more environmental disclosures lay emphasis on positive environmental aspects and dismisses negative impacts which portrays gloomy picture of the environmental disclosures. In absence of mandatory regulations on environmental aspect, disclosures quality and quantity varies which significantly disrupts the reputation of the entity. Environmental reporting needs to become a part of mainstream reporting to mitigate the risk of investors' interest (Malik and Mittal, 2015). Environmental Reporting has gained significance due to the improved concerns for the environment with

rising global warming and pollution. The benefits of adhering to environmental issues can be multifold. It can help in increased trust among investors, brand loyalty by customers and also impacts the financial performance through decreased costs, lower wastage, efficient usage of resources etc. This study focuses on establishing relationship between environmental reporting disclosures and the financial performance to see the impact of one on the other.

## Review of Literature

The companies issue their corporate environmental reports publicly that too voluntarily highlighting the environmental initiatives and activities undertaken by them (Brophy and Starkey, 1996). The two terms are swapped with each other i.e., environmental reporting and environmental disclosure but reporting seems to have broader meaning and have gained importance over the years (Johnson, 1993). The volume of environmental reporting by UK and US based companies has increased in their annual reports as legislation has improved over the years (Holland and Foo, 2003). In UK, it has been observed that companies which are more profitable disclose additional environmental disclosures in comparison to other firms making less profits (Campbell 2004). The study on UK based 450 companies found to have high quality of environmental disclosure and it's been perceived that large profitable firms have indulged in voluntary disclosures (Brammer and Pavelin 2006). Individuals perception has been considered such as of shareholders, employees etc. and maximum of stakeholders opined the usefulness of environment reporting in strategic decision making (Prasad 2006). Then in other survey of 101 large manufacturing companies varies chartered accountants perception has been procured and survey has been done to determine expectations related to environmental reporting and they favored in making environmental disclosures reporting mandatory for Indian companies operating their business and impacting the environment directly or indirectly Pahuja (2007). Regulations propounded by SEBI have augmented the disclosures quality and quantity in annual reports or sustainability reports of Indian listed companies (Kumar and Prakash, 2019). Sustainability reporting practices of top

10 banks in India have also been explored and less focus on environmental disclosures have been located (Kumar, Pandey and Afreen 2018). In a study of Indian petroleum and gas companies, barely any kind of environmental disclosures have been unearthed (Shukla and Vyas, 2013). Stakeholders are concerned by the climate footprint of the energy firms and the accuracy of the information they report. Therefore, firms disclose to stakeholders sustainability information gauging the impact of their operations on climate change (Hrasky 2012). In Indian companies, the extent of Green reporting practices have been reviewed and results revealed that reporting is yet at nascent stage (Malik & Mittal, 2015) Industries hardly provide any information regarding environmental issues even when they realize their duty towards the protection and maintenance of the environment. The significant relationship has been found between environmental disclosures and financial performance of 100 Malaysian companies (Noor et al., 2016).

## Research Gap

Plethora of empirical studies has highlighted the disclosure of environmental reporting and its impact on corporate financial performance though Indian power generation and distribution sector have not been explored. The importance reporting has increased tremendously over the years. Fewer numbers of studies have been found on level and extent of disclosures adopted by companies in the concerned sector and this created the need to explore this sector and its environmental reporting practices and its impact on corporate financial performance as this would enrich the existing literature.

## Research Methodology

### Research Objectives

1. To measure and examine the extent of environmental disclosures reported by the power generation and distribution sector companies.
2. To compare the disclosure level of sampled power generation and distribution sector companies in terms of reporting individually and amongst each other.
3. To investigate the relationship between Environmental reporting and corporate financial performance.

4. To propose suggestions for the further enhancements in environmental disclosures by the sampled sector companies.

### Hypotheses

#### Intra-Company Comparison

**H01-** There is no significant difference in the Environmental reporting practices of individual power generation and distribution sector companies since 2018-19 to 2020-21.

**H11-** There is a significant difference in the Environmental reporting practices of individual power generation and distribution sector companies since 2018-19 to 2020-21

#### Inter Company Hypothesis

**H02:** There is no significant difference in the reporting practices of sampled Power Generation and Distribution sector companies.

**H12:** There is a significant difference in the reporting practices of sampled Power Generation and Distribution sector companies.

#### Interrelation

**H03:** There is no significant relationship between extent of environmental disclosure practices and corporate financial performance.

**H13:** There is a significant relationship between extent of environmental disclosure practices and corporate financial performance.

### Sample

On the basis of market capitalization, out of BSE 30 SENSEX Companies, Power Generation and Distribution Sector has been chosen which comprises of 2 companies namely National Thermal Power Corporation Ltd. and Power Grid Corporation of India Ltd. as on March 2016. This sample has been considered for the reason that production and distribution of energy causes several environmental impacts such as emitting climate warming greenhouse gases, spoiling water quality and harming biodiversity habitats. Henceforth, it becomes the responsibility of Power Generation and distribution sector companies to meet the surge of corporate environmental commitments for stakeholders and maintain transparency

for the progress of concerned companies by reporting such disclosures.

### Firm performance based indicator chosen for the study

The Return on capital employed in terms of percentage (%) has been taken of three financial years i.e., from 2018-19 to 2020-21. The ROCE has been chosen as performance indicator as it is considered by companies one of the useful and reliable measure to gauge their performance.

### Data Collection

For the aforesaid purpose, secondary data have been resorted and annual reports from official websites of sampled companies, blogs, research articles have been considered for the same.

### Tools and Techniques

This study uses panel technique to determine the hypothesis. The regression model utilised in this investigation were adapted and adjusted from Jang et al. (2013) and Saleh et al. (2011) studies.

$$EDS_{it} = \beta_0 + \beta_1 ROE_{it} + u_{it}$$

Where, EDS is the outcome variable, ROE is measuring the causal effect on EDS<sub>it</sub>, u is the error term, i is notation for companies and t is the notation for time.

### Limitations

- The study is limited to three financial year's data i.e. 2018-19 to 2020-21.

- Environmental disclosures have been premeditated.
- Single financial indicator that Return on capital employed has been chosen.
- This study is limited to 2 Power Generation and distribution sector Indian companies included in BSE 30 SENSEX Companies.

### Data Analysis and Interpretation

Environmental Reporting is commonly available in qualitative form. It is a great initiative by the companies and sense of responsibility towards sustainability; even stakeholders are benefitted with the information related to environmental activities and initiatives adopted by the companies. Increasing awareness related to environmental activities various International organizations like the United Nations Global Compact, the Global Reporting Initiative etc. have interposed in bringing a standardized reporting mechanism and disclosure norms in order to improve comparability and efficiency of the reporting practices. GRI guidelines are adopted by many companies these days and there has been increased information availability and a better format for presentation of information after the implementation of the GRI guidelines. This study has framed Environmental Disclosure Index alignment with disclosures made in annual reports and as per previous researches carried out. This disclosure index has been constructed using 14 Indicators and all kinds of relevant disclosures have been taken into consideration relevant for the sampled sector.

**Table 1: Environmental Disclosures made by NTPC and Power Grid for the Year 2018-19**

Year	Disclosures	NTPC	Power Grid
2018-19	1. Compliance with Environmental standards such ISO 14001 or	Yes	Yes
	2. Technological advancement for improving efficiency	Yes	Yes
	3. Training education for environmental protection/ Environmental initiatives	Yes	No
	4. Conservation of natural resources/ remediation, clean-up, restoration	Yes	Yes
	5. Waste management and disposal information	Yes	Yes
	6. Use of renewable energy/biofuel/ solar/windmill	Yes	Yes
	7. Environment-friendly production processes	Yes	No
	8. Web links of Policies related to Water/E -Waste/ Safety etc.	Yes	No
	9. Project Related to Clean Development Mechanism	Yes	No
	10. Initiatives to support and leverage Government of India's Swachh Bharat Mission	Yes	No
	11. Smart townships for residents	No	No
	12. Development of ecoparks for conservation of ecosystem and protection of environment	No	No
	13. MOU's with IITs for energy efficiency enhancement	No	No
	14. Awards for Environment Protection	Yes	Yes

**Observation:**

From the above table 3 for the year 2018-19, it can be depicted that NTPC Ltd. managed to disclosure 11 indicators in its annual report whereas only 6 indicators have been presented by Power Grid Ltd. in its annual report. The indicators such as Smart townships for residents, Development of eco parks for conservation of ecosystem and protection of environment, MOU's with IITs for energy efficiency enhancement have not been noticed in annual

reports of NTPC Ltd and Power Grid Ltd. But, there have been other indicators also in case of Power Grid which it couldn't managed to disclosure and they are related to Training education for environmental protection/ Environmental initiatives, Environment-friendly production processes, Web links of Policies related to Water/E-Waste/ Safety etc., Project Related to Clean Development Mechanism, Initiatives to support and leverage Government of India's Swacch Bharat Mission.

**Table 2: Environmental Disclosures made by NTPC and Power Grid for the Year 2019-20**

Year	Disclosures	NTPC	Power Grid
2019-20	1. Compliance with Environmental standards such ISO 14001 or	Yes	Yes
	2. Technological advancement for improving efficiency	Yes	Yes
	3. Training education for environmental protection/ Environmental initiatives	Yes	No
	4. Conservation of natural resources/ remediation, clean-up, restoration	Yes	Yes
	5. Waste management and disposal information	Yes	Yes
	6. Use of renewable energy/biofuel/ solar/windmill	Yes	Yes
	7. Environment-friendly production processes	Yes	No
	8. Web links of Policies related to Water/E-Waste/ Safety etc.	Yes	No
	9. Project Related to Clean Development Mechanism	Yes	No
	10. Initiatives to support and leverage Government of India's Swacch Bharat Mission	Yes	No
	11. Smart townships for residents	Yes	No
	12. Development of ecoparks for conservation of ecosystem and protection of environment	Yes	No
	13. MOU's with IITs for energy efficiency enhancement	No	Yes
	14. Awards for Environment Protection	No	Yes

**Observation:**

In the year 2019-20, it has been observed from the Table 2 that Power Grid Ltd. has been reported 7 indicators while NTPC Ltd have been able to disclose 12 such indicators. The NTPC ltd. missed the mark of any kind of MOU's with IITs for energy efficiency enhancement and have not grabbed any Awards for Environment Protection. On the

other hand, Compliance with Environmental standards such ISO 14001, Conservation of natural resources/ remediation, clean-up, restoration, Use of renewable energy/biofuel/ solar/windmill, MOU's with IITs for energy efficiency enhancement, Awards for Environment Protection have been reported successfully by Power Grid Ltd. Though, Power Grid Ltd. have not been managed to get at par with NTPC Ltd. in the year 2019-20 also.

**Table 3: Environmental Disclosures made by NTPC and Power Grid for the Year 2020-21**

Year	Disclosures	NTPC	Power Grid
2020-21	1. Compliance with Environmental standards such ISO 14001 or	Yes	Yes
	2. Technological advancement for improving efficiency	Yes	No
	3. Training education for environmental protection/ Environmental initiatives	Yes	No
	4. Conservation of natural resources/ remediation, clean-up, restoration	Yes	Yes
	5. Waste management and disposal information	Yes	No

Year	Disclosures	NTPC	Power Grid
	6. Use of renewable energy/biofuel/ solar/windmill	Yes	Yes
	7. Environment-friendly production processes	Yes	Yes
	8. Web links of Policies related to Water/E -Waste/ Safety etc.	Yes	No
	9. Project Related to Clean Development Mechanism	Yes	No
	10. Initiatives to support and leverage Government of India's Swacch Bharat Mission	Yes	No
	11. Smart townships for residents	Yes	No
	12. Development of eco -parks for conservation of ecosystem and protection of environment	Yes	No
	13. MOU's with IITs for energy efficiency enhancement	No	Yes
	14. Awards for Environment Protection	Yes	Yes

### Observation:

As per the Table 1, more assortments in Disclosures have been located in case of NTPC Ltd. over Power Grid Ltd for the Year 2020-21. Amongst 14 indicators presented in index, NTPC Ltd have reported 13 whereas merely 6 indicators have been disclosed by Power Grid Ltd. Common disclosures observed in both the companies include Compliance with Environmental standards such ISO 14001, Conservation of natural resources/remediation, clean-up, restoration, Use of renewable energy/biofuel/ solar/windmill, Environment-friendly production processes, MOU's with IITs for energy efficiency enhancement and lastly Awards for Environment

Protection. However, indicators namely Technological advancement for improving efficiency, Training education for environmental protection, Waste management and disposal information, Web links of Policies related to Water/E-Waste/ Safety etc., Project Related to Clean Development Mechanism, Initiatives to support and leverage Government of India's Swacch Bharat Mission, Smart townships for residents, Development of eco-parks for conservation of ecosystem and protection of environment have not been reported by the Power Grid Ltd. in its annual report though all such environmental non – financial disclosures have been reported by NTPC Ltd. in the respective year.

**Table 4: Extent of Environmental Disclosure from 2018-19 to 20-21 (in %)**

S.No.	Years	NTPC	Power Grid
1.	2018-19	78.57 %	42.85 %
2.	2019-20	85.74 %	50%
3.	2020-21	92.85%	42.85%

### Observation:

It has been interpreted from Table 1, Table 2 and Table 3 that highest number of disclosures has been reported by NTPC Ltd. in the entire study period that 78.57%, 85.74% and 92.85% for the year 2018-19, 2019-20 and 2020-21 respectively. The disclosure trend has increased over the

years in NTPC Ltd. On the other hand, Power Grid Ltd. managed to report only 42.85% in 2018-19, it then further increased to 50% in 2019-20 but reduced again in 2020-21 i.e., 42.85%. The NTPC Ltd. has been consistently disclosing more environmental disclosures in its annual report in the entire study period.

**Table 5: Return on Capital Employed (%) from 2018-19 to 20-21**

S.No.	Years	NTPC	Power Grid
1.	2018-19	12.51 %	6.64%
2.	2019-20	10.48 %	6.79%
3.	2020-21	10.86 %	6.93%

**Observation:**

The above table represents the return on capital employed earned by NTPC Ltd. and Power Grid Ltd. from 2018-19 to 2020-21. The ROCE earned by NTPC Ltd. is 12.51 %, 10.48% and 10.86% for the year 2018-19, 2019-20 and 2020-21. The Power Grid Ltd. has 6.64%, 6.79% and 6.93% ROCE for the study period from 2018-19 to 2020-21.

**Analysis:**

The Hausman test is included in this analysis to determine best amongst the two estimators using STATA software. The Hausman test reveals that the FE (Fixed

effect) estimator is the most efficient when compared to the RE (Random effect) estimators. As a result, the study concentrates on the FE estimators to explain the findings. The basic rule is to assess the Hausman test probability value using the null hypothesis that the preferred model is random effects. If the sig. value is less than 0.05, the null hypothesis is rejected, and the model is fixed effects. Environmental disclosure scores are statistically insignificant in impacting the return on capital employed, as seen in the table. H03 has been approved. (Atan et al., 2018) (Refer Table 6). Coefficient of determination ( $r^2$ ) is 42% which signifies the variation in the model.

**Table 6: Environmental Disclosure Practices influencing Corporate Financial Performance**

Variable	Fixed effect
ROE	110.29
Environmental Disclosure Practices	-4.96
Observations	6
Number of companies	2
$R^2$	0.42
T-statistics(p-value)	-1.50 (0.23)
Hausman between FE and RE	0.00

Note: Hausman sig. value states FE is efficient over RE, 0.05 sig. level respectively

**Findings and Suggestions**

The results empirically revealed that Environmental disclosure scores are statistically insignificant in impacting the return on capital employed. This shows that companies reporting more or less number of environmental disclosures have no impact on its return on capital employed. Though, level of disclosures has been quite satisfactory in case of NTPC Ltd. The entire study period of three years from 2018-19 to 2020-21 have 78.57%, 85.74% and 92.85% of environmental disclosures in its annual report respectively

as per the Index constructed. However, Power Grid Ltd. managed to report 42.85%, 50% and 42.85% environmental disclosures based on Index which provided handful of information. It has also been perceived that more kind of non-financial information disclosures are exposed. The increasing percentage of disclosures by NTPC Ltd. demonstrates raised concern for environmental disclosures and it's been responsibly acting towards societal duties. The environmental disclosures in an emerging economy like India have experienced watershed moment over the years.

Though Director's Report, Business Responsibility Report and Management Analysis and Discussion Reports have made sections for disclosure of environmental data but such disclosures differ in one company to another company. Moreover, worldwide nations such as China, Brazil and Switzerland etc. have made significant strides towards making separate environmental reports containing financial and non - financial data.

## Conclusion

This study has been steered to investigate whether there is any relationship between Environmental disclosures and financial performance of Indian listed power generation and distribution sector companies using return on capital employed as criteria. Another way of analyzing the results could be that three years of study may not yield that much significant results compared to longer periods of study done in earlier literatures. The emerging economies like India and that also in sectors impacting the climate for say, power generation and distribution, gas and mining sectors need to be explored more. This study would prove to be useful for the potential investors and policy makers in strategic decision making and this would pave the way for companies to disclosure and report both positive aspects and negative impacts on its operational environment. These disclosures required to be backed up by regulatory authorities and legal provisions.

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