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# Using the Return on Sustainability Investment (ROSI) Framework to Value Accelerated Decarbonization

by Kevin Eckerle and Tensie Whelan, New York University Stern School of Business; Bryan DeNeve and Sameer Bhojani, Capital Power; and John Platko and Rebecca Wisniewski, ALO Advisors, LLC

 Companies face a big challenge when integrating sustainability into business strategy—namely, how to quantify the expected benefits and increase in value of a business from implementing more sustainable practices, including those aimed at reducing energy consumption and carbon emissions. As an illustration of that challenge, a recent analysis of survey responses and executive interviews found that although 60% of the responding companies said they have a sustainability strategy, only 25% claimed to have established a clear business case for that strategy.<sup>1</sup>

Developing a comprehensive business case for an investment in sustainability can be difficult. First, those responsible for developing and executing the sustainability strategy often work in different business units or on different functional teams, making it challenging to identify and track all of the ways in which value can be generated by sustainability programs and initiatives. In addition, the corporate tendency to implement multiple projects, each aimed at improving the company's sustainability performance, all at the same time complicates the task of attributing specific benefits to any single project or investment. Finally, whereas the typical business case created within a company focuses on a limited set of immediate and tangible benefits, such as cost reductions from energy savings, much of the value of sustainability projects and investment comes in less tangible forms, such as increases in customer loyalty, worker productivity and morale, and even regulatory flexibility and forbearance. To the extent their analysts fail to take account of these less tangible benefits, companies may be relying on incomplete information that leads them to pass up or underinvest in sustainable practices and programs.

In response to this challenge, and with the aim of stimulating greater corporate action on sustainability, the NYU

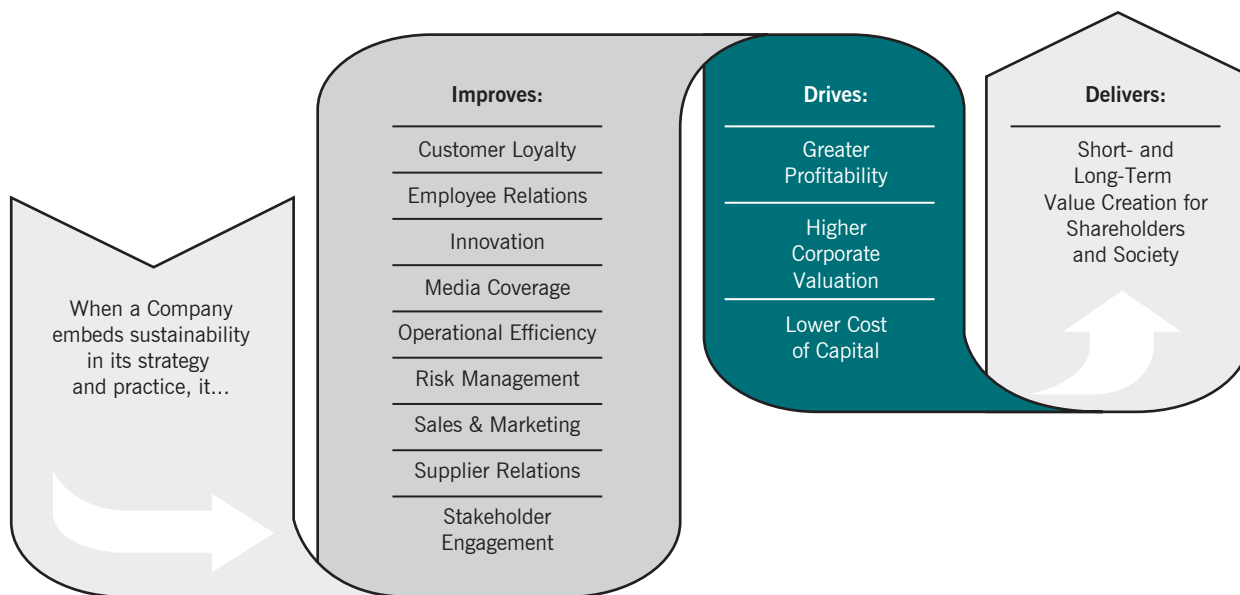
Stern Center for Sustainable Business and ALO Advisors, (which together constitute the “Stern CSB Team”) have been working to develop and refine NYU Stern's Return on Sustainability Investment (ROSI™) framework for valuing sustainable business practices. At the center of the ROSI™ framework, as summarized in Figure 1, are a number of reasonably well-documented relationships between higher corporate market values and changes in “mediating factors” that include customer and employee loyalty (and retention), reduced stakeholder and regulatory intervention and other signs of effective risk mitigation, as well as the energy savings and other increases in operating efficiency that come with more sustainable business practices.<sup>2</sup> But if the contribution

1 David Kiron, Gregory Unruh, Nina Kruschwitz, Martin Reeves, Holger Rubel, Alexander Meyer, Zum Felde, 2017, “Corporate Sustainability at a Crossroads: Progress Toward Our Common Future in Uncertain Times,” *MIT Sloan Management Review* 58, no. 4, <https://sloanreview.mit.edu/projects/corporate-sustainability-at-a-crossroads/>.

2 Ulrich Atz, Tracy Van Holt, Elyse Douglas, and Tensie Whelan, 2019, “The Return on Sustainability Investment (ROSI): Monetizing Financial Benefits of Sustainability Actions in Companies,” *Review of Business: Interdisciplinary Journal on Risk and Society*, Vol. 39, No. 2, pp. 1-31. For evidence of increases in operational efficiency, see: Ki-Hoon Lee, Byung Min, Keun-Hyo Yook, 2015, “The impacts of carbon (CO<sub>2</sub>) emissions and environmental research and development (R&D) investment on firm performance,” *International Journal of Production Economics*, 167, 1-11, accessed at <https://doi.org/10.1016/j.ijpe.2015.05.018>; regarding risk mitigation, see: Witold J. Henisz, James McGlinch, 2019, “ESG, Material Credit Events, and Credit Risk,” *Journal of Applied Corporate Finance*, 31(2), 105-117. <https://doi.org/10.1111/jacf.12352>; regarding customer loyalty, see: Sayedeh Parastoo Saeidi, Saudah Sofian, Parvaneh Saeidi, Sayyedah Parisa Saeidi & Seyyed Alirez Saeidi, 2015, “How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction,” *Journal of Business Research*, 68(2), 341-350. <https://doi.org/10.1016/J.JBUSRES.2014.06.024>; regarding stakeholder engagement, see “Governance and Performance in Emerging Markets: Empirical Study on the Link Between Performance and Corporate Governance of IFC Investment Clients,”

Figure 1

The Stern Center for Sustainable Business' Return on Sustainability Investment (ROSI™) framework for estimating the value of sustainability.



to value of factors such as increased operating efficiency and energy savings is fairly easy to estimate, quantifying the effects on value of more forgiving regulators, more loyal customers, and more highly motivated and productive employees is a more complicated undertaking. The good news is that we now have studies showing, for example, that companies with strong sustainability programs tend to have more stable and productive workforces. But the question that remains to be answered is: how reliably does such reduced workforce turnover and productivity translate into higher long-run values?<sup>3</sup>

In seeking to provide answers to such questions, the ROSI™ framework typically follows an iterative process, summarized in Figure 2, that is designed to translate qualitative descriptions of benefits into quantitative (annual) flows

and then (cumulative) stocks of value.<sup>4</sup> The process calls for continuous collaboration between the Stern CSB team and teams representing key business units or functions from within the investing companies. In general, the steps are as follows:

**Step 1:** Identify the most financially material environmental, social and governance (ESG) issues facing a company, and the actions the company is (or could) take both to limit the risks and/or capitalize on any opportunities associated with those material ESG issues.

**Step 2:** Considering the ROSI™ mediating factors, identify the potential business benefits that are expected to accrue to the company as a result of actions planned or undertaken to address the risks and opportunities associated with the most material ESG issues.

**Step 3:** Once the business benefits are identified and described, assess how value will be realized within the company for each benefit.

**Step 4:** Quantify the costs and benefits associated with each of the actions the company is taking (or plans to take) to address the targeted risks and opportunities (ROSI™ can be used to quantify the value of expected benefits in the past,

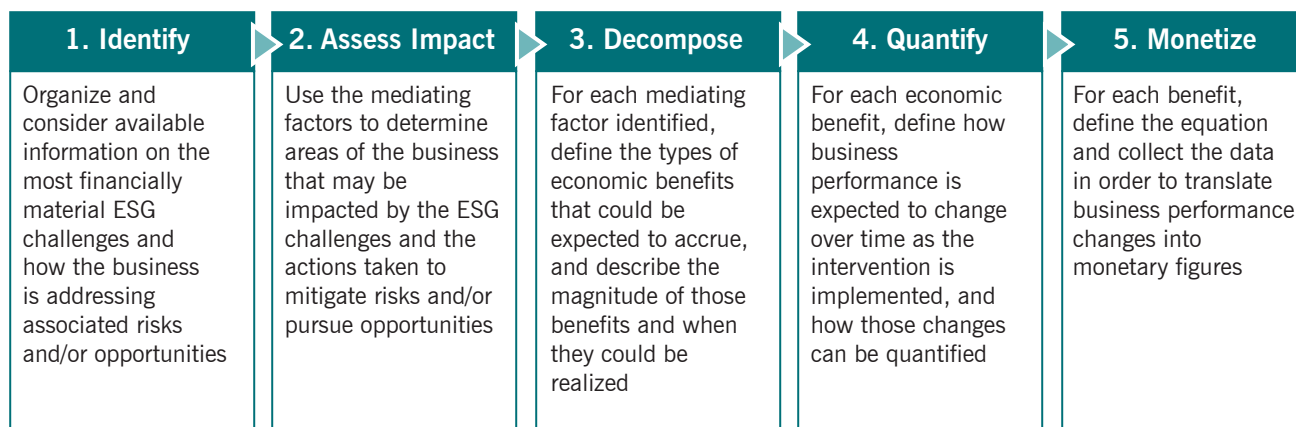
2018, IFC - International Finance Corporation; regarding employee relations, see "SHRM Report: HR Central to Organizations' Sustainability Efforts," accessed at: <https://www.shrm.org/about-shrm/press-room/press-releases/pages/sustainabilityreport.aspx> and Donald Vitaliano, 2010, "Corporate social responsibility and labor turnover," *Corporate Governance*, Vol. 10, No. 5, pp. 563-573.

<sup>3</sup> Regarding the relationship between sustainability and employee retention, see Daniel B. Turban and Daniel W. Greening, 1997, "Corporate Social Performance and Organizational Attractiveness to Prospective Employees." *Academy of Management Journal*, 40, No. 3: 658-72. doi:10.2307/257057.; Donald F. Vitaliano, 2012, "Corporate Social Responsibility, Ethics, and Corporate Governance," *Social Responsibility Journal* 10, no. 5: 653, doi:10.1108/14720701011085544; and Magali A. Delmas and Sanja Pekovic, 2013, "Environmental Standards and Labor Productivity: Understanding the Mechanisms That Sustain Sustainability." *Journal of Organizational Behavior* 34, no. 2: 230-52. doi:10.1002/job.1827.

<sup>4</sup> Ulrich Atz, Tracy Van Holt, Elyse Douglas, and Tensie Whelan, 2019, "The Return on Sustainability Investment (ROSI): Monetizing Financial Benefits of Sustainability Actions in Companies," *Review of Business: Interdisciplinary Journal on Risk and Society*, Vol. 39, No. 2, pp. 1-31.

Figure 2

The typical process for applying the ROSI™ framework.



Graphic adapted from Ulrich Atz, Tracy Van Holt, Elyse Douglas, and Tensie Whelan, “The Return on Sustainability Investment (ROSI): Monetizing Financial Benefits of Sustainability Actions in Companies,” *Review of Business: Interdisciplinary Journal on Risk and Society*, Vol. 39, No. 2, pp. 1-31.

on an ongoing basis, or those associated with potential future investments).

**Step 5:** For all actions on material ESG issues, define the “models” (or equations) that translate improvements in business performance into increases in both annual operating cash flow and long-run discounted cash flow (DCF) values. Then, using either data provided by the company or sourced from academic or industry studies, use the models to calculate the values derived from each of the company’s sustainability actions.

**ROSI™ Case Study: Accelerated Decarbonization at Capital Power**

Capital Power Corporation (TSX: CPX) is a North American power producer headquartered in Edmonton, Alberta. CPX develops, acquires, owns, and operates power generation facilities that use a variety of fuels and technologies, including coal, natural gas, wind, solar, and biomass.<sup>5</sup> The company owns more than 6,300 megawatts (MW) of power generation capacity at 26 operating facilities across North America, and has roughly 900 MW of owned generation capacity that is in advanced development in Alberta. The company is committed to improving its reporting and disclosure of climate-related risks and opportunities; and as part of that commitment, it provides support for the Task Force on Climate-Related Financial Disclosures (TCFD), whose mission is to increase the consistency and usefulness for investors, lenders, insurers, and

other stakeholders of disclosures associated with the potential risks and opportunities of climate change for businesses.<sup>6</sup>

Although coal accounts for less than 10% of electricity in Canada, it produces more than 65% of the greenhouse gas (GHG) emissions by the electricity sector. Reducing the emission of GHGs and other pollutants were two of the main reasons cited by Catherine McKenna, Canada’s Environment Minister, for the government’s decision, announced in December 2018, to phase out traditional coal-fired electricity by 2030.<sup>7</sup>

**Applying ROSI™ to Capital Power**

In the summer of 2018, CPX appointed Kate Chisholm as Chief Sustainability Officer, adding to her role as Chief Legal Officer. In that role, Kate and her team began to reconsider CPX’s sustainability program.

**Step 1:** As their first step in reconsidering sustainability at CPX, Kate and her team conducted a materiality assessment in which they asked more than 100 key internal and external stakeholders to identify the three most impactful ESG issues for CPX from among a list of 27 issues that included climate change and carbon footprint, water use, energy use, and conservation. The findings of that analysis, as shown in Figure 3, showed climate change as the most important, and hence the top priority, ESG issue for CPX.

6 <https://www.fsb-tcfd.org/>.

7 See “Canada’s coal power phase-out reaches another milestone,” *Newsrelease, Environment and Climate Change Canada*, Dec. 12, 2018, <https://www.canada.ca/en/environment-climate-change/news/2018/12/canadas-coal-power-phase-out-reaches-another-milestone.html>.

5 <https://www.capitalpower.com/operations/>.

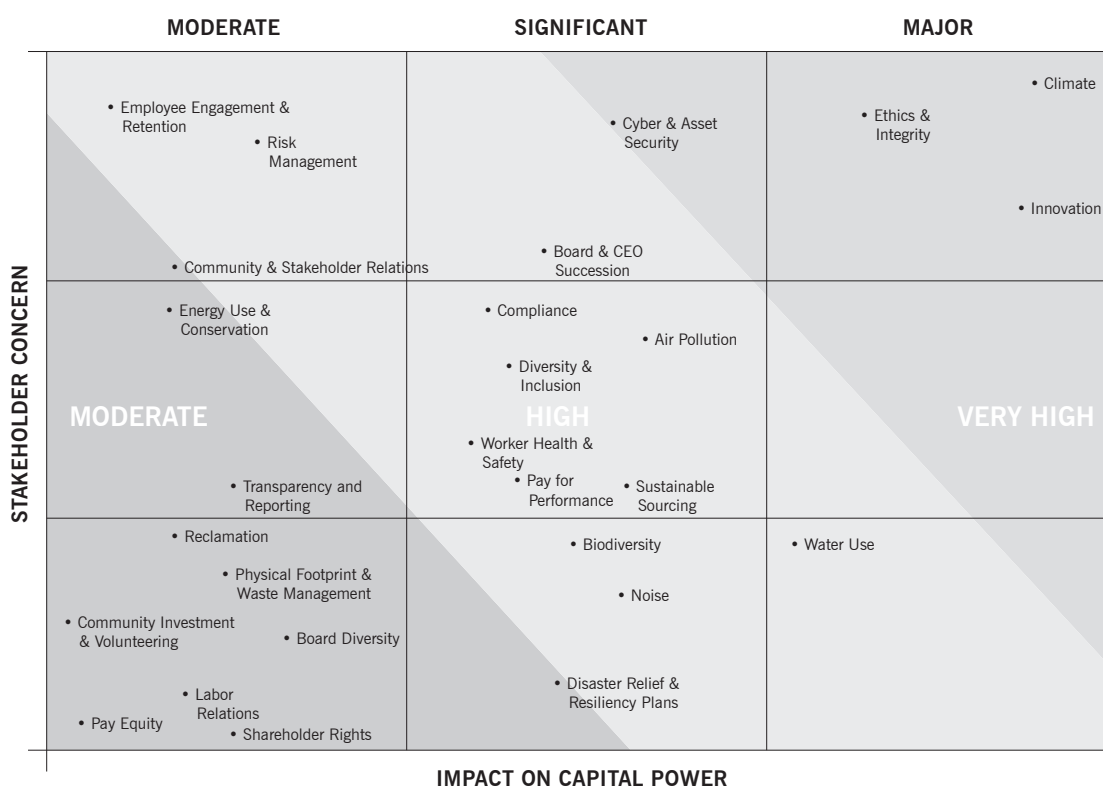
Table 1

Top risks to, and opportunities for, CPX associated with climate change (neither of the lists below is exhaustive).

Top risks to CPX	Top opportunities for CPX
Economics on coal fleet challenged by increased regulatory stringency	Taking early action on coal fleet
Government intervention impacting markets	Reducing GHG emissions and capturing the remaining GHG emissions through carbon capture, utilization and storage (CCUS)
Reputational risk leading to employee disengagement and negative shareholder action	Generating goodwill through accelerated action on GHG emission reductions

Figure 3

CPX’s materiality matrix, highlighting 27 Environmental, Social and Governance issues of concern to Capital Power.



Following the completion of the materiality assessment, CPX enlisted the support of the Stern CSB team in formulating a business plan to address the company’s material sustainability challenges and accelerate CPX’s progress toward being a more sustainable energy provider. The first step in the Stern CSB team’s collaboration with CPX was to conduct a two-day workshop in which Kate Chisholm and more than a dozen members of CPX leadership engaged in a series of large and smaller, break-out working sessions, and facilitated exercises to define a high-level action plan to address the most

material ESG issues for CPX, especially climate change.<sup>8</sup> These were the functional leaders of a wide variety of corporate functions, from legal and compliance, regulatory affairs, and human resources to business development, risk management, supply chain, and environmental health and safety.

<sup>8</sup> Although the materiality matrix and sustainability executive team discussions identified four highest priority ESG issues for CPX—climate change, water consumption, sustainable sourcing, and innovation—for the sake of brevity, we will focus exclusively on climate change and GHG emission reductions.

Table 2

The ways in which the financial performance of Capital Power is expected to improve, and a description of how that benefit could be monetized as a result of a more aggressive approach to sustainability that includes a faster phase-out of coal-generated electricity.

Mediating factor	Expected benefit	Benefit description	Quantification and Monetization method
Risk Management	Lower cost of debt	Cost avoided through better debt terms from lenders who view the company as less risky	Current cost of debt, multiplied by the expected decrease in the cost of debt
	Lower cost of equity	Cost avoided through lower required equity returns from stockholders who view the company as less risky	Current cost of equity, multiplied by the expected decrease in the cost of equity
Employee Relations	Improved retention/ decreased turnover of employees	Avoided hiring and training costs of new employees as a result of higher retention of existing employees	Projected difference between future annual turnover rate and current annual turnover rate, multiplied by the current annual cost of turnover
	Increased productivity	Avoided labor costs as existing employees work harder/more efficiently	Average annual cost for a CPC employee, multiplied by the expected increase in productivity per employee
Sales and Marketing	Increased competitiveness in the marketplace and winning bids for new project investments	New revenues from higher win rate of competitive bids as a result of being viewed as a more sustainable supplier	Typical unlevered annual return on a new project investment, multiplied by the compounded annual expected increase in new project wins
Stakeholder Engagement	Fewer stakeholder interventions	Avoided costs resulting from fewer stakeholder interventions during new and renewal permitting	The expected reduction in the number of stakeholder interventions, multiplied by the annual number of projects that may need stakeholder interventions, multiplied by the typical cost of a stakeholder intervention
	Accelerated permitting	Earlier accrual of revenues from new facilities as a result of faster permitting	Monthly (or daily/annual) marginal revenue from operations at a typical owned facility, multiplied by the expected decrease in permitting time

Among the first exercises was to identify the risks and opportunities for CPX associated with climate change. Over the course of the small group discussions, the greatest risk—and opportunity—was identified as the company’s existing coal fleet (see Table 1). And the workshop participants accordingly concluded that a key step in becoming a more sustainable business was to set ambitious GHG emission reduction targets and consider an accelerated pace for reducing the company’s use of coal as a fuel source.

**Steps 2-4:** Follow-up discussions focused on the use of the ROSI™ framework to arrive at a collective understanding of which mediating factors, when analyzed more closely, would most clearly and reliably reflect the benefits and longer-run value of a quicker transition, what form those benefits would take, and the best method for quantifying the value of such benefits. That dialogue identified seven potential business benefits—each expected to increase CPX’s long-run value—from accelerating its phase-out of coal-generated electricity.

As discussed in more detail (in Table 2), those seven potential sources of financial benefits are as follows:

1) *Lower cost of debt*, which translates into interest cost savings from the otherwise higher interest rates on existing debt, because CPX is viewed by rating agencies and fixed income investors as a less risky investment.

2) *Lower cost of equity*: The higher market value, for a given level of earnings and cash flow, resulting from the reduction in the rates of return required by CPX shareholders to reflect the company’s lower perceived risk.

3) *Increased retention of existing employees*, thereby avoiding the costs associated with hiring and training new employees to replace those who voluntarily leave the company.

4) *Increased productivity of existing employees*, thereby avoiding the costs associated with the extra staff needed to make up the additional time (over the standard work day) existing employees invest in their jobs, because they feel a stronger connection to and engagement with CPX.

5) *Increased competitiveness in the marketplace*, resulting in added revenues and earnings from winning more competitive bids because CPX is seen as a preferred vendor of clean energy.

6) *Fewer regulatory and other stakeholder interventions*, as reflected both in CPX’s lower cost of capital, and lower out-of-pocket costs of addressing stakeholder concerns during new or renewal permitting processes.

7) *Accelerated permitting*, whose benefits take the form of earning revenue earlier on new or existing projects because of CPX’s higher corporate citizenship standing.

**Step 5:** Following the workshop, we worked directly with the most relevant functional teams within the business to estimate the value potential associated with each expected

benefit. In each case, the model for valuing the benefits defined in the workshop (see Table 2) was then further refined by CPX's financial planning team to provide a more accurate reflection of the attributes of the business and the available data. Throughout the process, the Stern CSB team developed the equations and engaged with each functional team to test and confirm key assumptions and collect data for the calculations. After completing initial estimates, the outcomes were shared with the same functional teams for review, refinement, and final confirmation.

As part of these discussions, the decision was made *to make no attempt to quantify* the values of two kinds of benefits—those associated with increased competitiveness in the marketplace and improved stakeholder engagement. Prior research has shown, and all project stakeholders agreed, that being more sustainable could make a company more competitive in the marketplace.<sup>9</sup> Nevertheless, there was also a consensus that a number of aspects of CPX's business reduce the applicability of this benefit to CPX. Most notably, because CPX, like most utilities, has a fixed annual budget for new project investments, even if becoming a more sustainable energy producer improves the company's chances of winning, say, renewable energy projects, such projects are likely to displace non-renewables projects, which to date have produced higher rates of return—and the effect of substituting lower-risk (and even risk-reducing) and lower-return investments for higher-risk, higher-return projects is unclear. And although research has demonstrated a significantly positive relationship between effective stakeholder management and corporate financial performance—and everyone involved in this project believed it was reasonable to expect that CPX would experience such benefits—the data now available were not sufficient to justify attempts to quantify the value of such benefits, apart from the possible effects on investors' perception of the company's risk and cost of capital that are captured in other parts of our analysis.<sup>10</sup>

## Valuing the Benefits of an Early Carbon Transition

Let's begin by estimating the value of better risk management and the expectations for reduced risk, including the value attributable to a lower cost of capital (debt as well as equity), as a result of a more accelerated approach to decarbonization. Several studies have shown that companies with better

9 Hirunyawipada, T., & Xiong, G. (2018), "Corporate environmental commitment and financial performance: Moderating effects of marketing and operations capabilities," *Journal of Business Research*, 86, 22-31; and Mishra, S., & Modi, S. B. (2016). "Corporate social responsibility and shareholder wealth: The role of marketing capability," *Journal of Marketing*, 80(1), 26-46.

10 "Governance and Performance in Emerging Markets: Empirical Study on the Link Between Performance and Corporate Governance of IFC Investment Clients," 2018, IFC - International Finance Corporation.

sustainability practices are less risky, and therefore have lower costs of debt and equity.<sup>11</sup> In an analysis of 12,915 observations representing 2,809 unique U.S. companies from across 48 different industries, between 1992 to 2007, El Ghoul et al. found that companies with high corporate social responsibility (CSR) scores had a significantly lower cost of equity, on average 10-56 basis points lower, than companies with low CSR scores.<sup>12</sup> In a subsequent analysis of 7,122 firm-year observations, representing 2,107 manufacturing companies spanning 30 countries (including the U.S.), between 2002-2011, the same researchers found that companies with lower environmental costs (higher corporate environmental responsibility scores) have equity costs that are 39 basis points lower, on average, than those companies with higher environmental costs.<sup>13</sup>

In a review of more than 29 academic studies, Clark et al. found that 26 showed an inverse relationship between a company's sustainability practices and its cost of capital.<sup>14</sup> The analysis included the 'G'overnance dimension as well as both the 'E'nviroinmental and 'S'ocial dimensions of ESG, and both the cost of debt and of equity. Across the studies assessing the cost of debt, companies with fewer CSR concerns (better ESG performance) pay 7-18 basis points less than companies with greater CSR concerns.<sup>15</sup> Across studies assessing cost of equity, companies exhibiting good sustainability/CSR practices had a cost of equity as much as 136-180 basis points lower than companies with poorer sustainability/CSR practices.<sup>16</sup>

The Stern CSB team worked with representatives from CPX's Corporate Treasury and Finance teams to establish the following model to estimate the increases in value resulting from reductions in capital costs.

11 Sadok El Ghoul, Omrane Guedhami, Chuck C. Y. Kwok, and Dev R. Mishra, 2011, "Does corporate social responsibility affect the cost of capital?" *Journal of Banking & Finance*, Vol. 35, pp. 2388-2406. Gordon L. Clark, Andreas Feiner, and Michael Viehs, 2015, *From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance*, University of Oxford and Arabesque Partners (and references therein).

12 Sadok El Ghoul, Omrane Guedhami, Chuck C. Y. Kwok, and Dev R. Mishra, 2011, "Does corporate social responsibility affect the cost of capital?" *Journal of Banking & Finance*, Vol. 35, pp. 2388-2406. Variability in the cost of equity reduction were the result of different statistical modelling techniques.

13 Sadok El Ghoul, Omrane Guedhami, Hakkon Kim, and Kwangwoo Park, 2014, "Corporate Environmental Responsibility and the Cost of Capital: International Evidence," KAIST Business School Working Paper Series No. 2014-008, accessible at: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2470853](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2470853)##.

14 Gordon L. Clark, Andreas Feiner, and Michael Viehs, 2015, *From the Stockholder to the Stakeholder: How Sustainability can Drive Financial Outperformance*, University of Oxford and Arabesque Partners.

15 Ibid.

16 Ibid.

#### EQUATION (1)

(Current debt value) x (Expected reduction in cost of debt from accelerated decarbonization) x (Proportion of coal-fired generation) x [(Average time remaining until debt maturity) / (Expected term of debt)]

#### EQUATION (2)

(Current equity value) x (Expected reduction in cost of equity from accelerated decarbonization) x (Proportion of coal-fired generation)

Although CPX provided the information on most of the factors needed to make the calculations required by each of the models, we were forced to use other sources to estimate the expected reduction in the costs of debt and equity resulting from its more aggressive approach to decarbonization. Using the available literature as a reference guide, we used values of 0.15% (15 basis points) and 0.50% (50 basis points) for the expected reductions in the cost of debt and equity, respectively.<sup>17</sup>

Next, we estimated the value of CPX's expected improvement in retention, or reduced turnover, of its employees. A number of studies have demonstrated a relationship between a company's sustainability program and employee retention, with retention improving by anywhere from 12% to 50% in companies with strong sustainability programs, better sustainability performance, or in organizations where employees participate in programs with a social impact focus.<sup>18</sup> In working with CPX's Human Resources and Finance teams, we developed the following model to estimate the value of improved retention:

#### EQUATION (3)

(Current rate of voluntary turnover) x (Current cost of turnover) x (Expected decrease in turnover from accelerated decarbonization) x (Proportion of coal-fired generation) x (Proportion of non-union labor force)

CPX was able to provide data on both the current rate of voluntary employee turnover and the current cost of turnover,

17 Gordon L. Clark, Andreas Feiner and Michael Viehs, 2015, "From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance." Sadok El Ghoul, Omrane Guedhami, Chuck C. Y. Kwok, Dev R. Misha, 2011, "Does Corporate Social Responsibility Affect the Cost of Capital?" *Journal of Banking & Finance*, 35: 2388-2406.

18 SHRM Report: HR Central to Organizations' Sustainability Efforts, accessed at: <https://www.shrm.org/about-shrm/press-room/press-releases/pages/sustainabilityreport.aspx>. Donald Vitaliano, 2010, "Corporate social responsibility and labor turnover," *Corporate Governance*, Vol. 10 No. 5, pp. 563-573. <https://doi.org/10.1108/14720701011085544>. Christiane Bode, Jasjit Singh and Michelle Rogan, 2015, "Corporate Social Initiatives and Employee Retention," *Organization Science*, Vol. 26, pp. 1702-1720.

as well as information on the number of employees that could be affected by an early phase-out of coal-generated electricity, which they expected to include only the non-union workforce at coal-generating facilities. Using prior research as a guide, we applied the assumption that turnover among non-union workers would decrease by 25% as a result of CPX's more aggressive approach to sustainability, which included a more accelerated phase-out of coal-generated electricity.<sup>19</sup>

And since we also know that companies with higher employee engagement typically have more productive employees, we also estimated the value of expected increases in productivity.<sup>20</sup> Consistent with the findings on workforce turnover in sustainable companies, research shows that companies that have adopted environmental standards have higher labor productivity than those that have not.<sup>21</sup> Therefore, we estimated the potential value that we expected CPX to realize as employees become more engaged and increase productivity in response to a more aggressive approach to sustainability, including a more accelerated pace for phasing out coal as a generation fuel.

In partnership with CPX's Human Resources and Finance teams, we developed the following model to estimate the value of increased productivity:

#### EQUATION (4)

(# of full-time equivalents) x (Average annual employee salary) x (Expected increase in employee productivity from accelerated decarbonization) x (Proportion of coal-fired generation) x (Proportion of non-union labor force)

Key data for all variables, except for the expected increase in employee productivity were provided directly by CPX. Earlier studies have suggested that productivity increases ranging from 16%-21% are achievable when a company adopts environmental standards.<sup>22</sup> In consultation with CPX's Human Resources and Finance teams, we used a more conservative estimate of 5%.

One critical step in the process of producing these value estimates is assessing the degree of confidence in attribution for these benefits to specific actions taken by CPX. Given

19 "SHRM Report: HR Central to Organizations' Sustainability Efforts," accessed at: <https://www.shrm.org/about-shrm/press-room/press-releases/pages/sustainabilityreport.aspx>. Donald Vitaliano, 2010, "Corporate social responsibility and labor turnover," *Corporate Governance*, Vol. 10, No. 5, pp. 563-573.

20 Jim Harter, 2016, "Moneyball for Business: Employee Engagement Meta-Analysis": <https://www.gallup.com/workplace/236468/moneyball-business-employee-engagement-meta-analysis.aspx>.

21 Delmas, Magali A., and Sanja Pekovic, 2013, "Environmental Standards and Labour Productivity: Understanding the Mechanisms That Sustain Sustainability," *Journal of Organizational Behavior*, Vol. 34, pp. 230-252.

22 Ibid.



Table 3

**Summary of the estimated value that could accrue to Capital Power through a more aggressive approach to sustainability, including an accelerated phase-out of coal-generated electricity, as estimated using the Stern CSB's ROSI methodology.**

Benefit	Annual Benefit (CAD 1,000s)	10-Year Cumulative Benefit (CAD 1,000s)
Reduction in cost of debt	276.7	2,767.0
Reduction in cost of equity	2,376.3	23,762.7
Increased productivity	439.2	4,391.8
Improved employee retention	42.1	420.5
Total	3,134.3	31,342.0

other factors and actions being taken by CPX, and in the interest of conservatism, the company's executive leadership team suggested that, after producing the initial estimates for each benefit, we discount the estimate for each benefit by a factor of 25% before determining the final estimate for the expected benefits from accelerated decarbonization. These calculations, as reported in Table 3, produced expected annual benefits of \$3.1 million (CAD), and a cumulative 10-year benefit of \$31.3 million that were expected to be realized by CPX through a more aggressive sustainability program whose centerpiece is an early phase-out of coal-generated electricity.

**Subsequent Actions by CPX and Stakeholder Response**

Following the completion of this project and a presentation of outcomes to the Executive Leadership Team, CPX made a public commitment to accelerate its natural gas capability at its Genesee Generating Station, which previously burned primarily coal.<sup>23</sup> Implementing this dual-fuel capability at Genesee is expected to enable CPX to reduce its GHG emissions by 20%-33% while also increasing adjusted funds from operations by \$10 million in 2020 and \$20 million in 2021.<sup>24</sup> CPX has also taken steps to incorporate the ROSI™ framework and methodology into its investment decision-making process. What's more, the company has used this approach to justify a 0.50% (50 basis point) reduction in the internal equity hurdle rate for its solar investments on the basis that such investments

make the company less vulnerable to the risk of political and regulatory intervention.

Evaluating stakeholder response to these specific actions is somewhat complicated, especially since other major actions have been taken and announcements made around the same time. But casual observation suggests that the responses by employees and regulators to the company's accelerated transition away from coal-powered generation have ranged from neutral to quite positive. As just one example, after attending the company's Investor Day in December 2019, Ben Pham of BMO Capital Markets noted that the company's "gradual shift to a less carbon intensive footprint...is resonating positively with investors adopting more of an ESG lens, but also has led to new growth opportunities," and announced an increase in his price target from \$29 to \$32.<sup>25</sup>

And positive feedback from analysts and investors generally was likely an important contributor to the notable increase in CPX's share price during the latter half of 2019. CPX's share price was \$30.27 on June 17, the day before the Genesee announcement. The share price increased 2.28% (to \$30.96) by the end of trading on June 19, and since then, it has continued to rise through the end of 2019, closing at \$34.39 (a 13.6% increase). In comparison, the Dow Jones Utility average increased by 8.0% over the same time period.<sup>26</sup>

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<sup>23</sup> See "Capital Power accelerates plans for natural gas capability at the Genesee facility," *Media Releases, Capital Power*; [https://www.capitalpower.com/media/media\\_releases/capital-power-accelerates-plans-for-natural-gas-capability-at-the-genesee-facility/](https://www.capitalpower.com/media/media_releases/capital-power-accelerates-plans-for-natural-gas-capability-at-the-genesee-facility/).

<sup>24</sup> *Ibid.*

<sup>25</sup> <https://researchglobal0.bmccapitalmarkets.com/research/7ae4ab20-b75c-4f7d-a7a3-3a914a70f8c4/>

<sup>26</sup> <https://www.marketwatch.com/investing/index/dju>.

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