

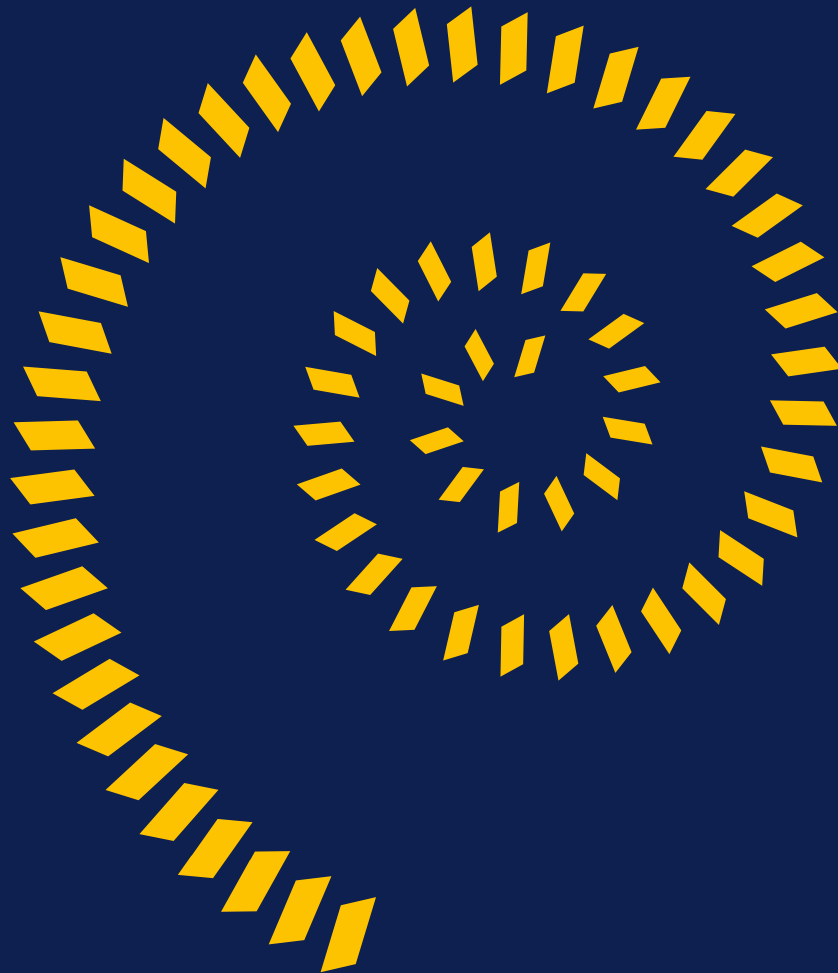


UNIVERSITY OF
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Enel

Pathways to Purposeful Transformation through Shared Value and Innovation



An Economics of Mutuality Case Study

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Enel: Pathways to Purposeful Transformation through Shared Value and Innovation



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About the Economics of Mutuality Forum Case Studies

This series of case studies explores how mutual approaches to business can help companies and their partners tackle some of the most pressing global challenges. The businesses featured in this series share a commitment to objectives beyond purely financial performance, as well as a serious intent to implement mutual practices through new forms of ownership, governance, leadership, measurement and management.

In particular, these cases address the measurement of multiple forms of capital, ecosystem shaping approaches, leadership development, business education, and policy formulation through laws and regulation that promote mutual conduct. The authors appreciate the collaboration of participating companies in creating these cases.

These cases were first developed for the annual Economics of Mutuality Forum, the convening event of the Mutuality in Business Project, a joint research programme between Saïd Business School, University of Oxford, and the Catalyst think tank at Mars, Incorporated. The Economics of Mutuality Forum brings together global companies, MBA candidates, scholars and activists to share their experience in confronting key challenges in their ecosystems to generate financial, social and environmental value.

Authors' Note

The conclusions and recommendations of any Saïd Business School, University of Oxford, publication are solely those of its author(s), and do not reflect the views of the Institution, its management, or its other scholars. These cases are based on information provided to the researchers by participating companies.

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Introduction

The increasing awareness of systemic challenges, such as climate change, biodiversity loss and resource depletion, has pressured some industries more intensely than others. These industries have been challenged to reimagine business models to go beyond “no-harm” strategies and product offerings so that they can ‘do good and do well’. The energy industry is one of these industries.

The energy industry has been plagued with scandals due to its negative impact on the environment and communities across the world.² One of the most environmentally harmful business segments is thermal power generation from coal and other fossil fuels. In fact, the energy sector accounts for more than 73% of global greenhouse gas (GHG) emissions, making the use of energy the single biggest driver of anthropogenic climate change.³

Decarbonising the energy sector is thus a critically important lever to combat climate change. However, the reduction and eventual elimination of GHG emissions from the energy sector is a monumental challenge. In 2019, fossil fuels (oil, gas, coal) accounted for more than 84% of global primary energy consumption, whereas the share of renewables and hydro was only 11.4%.⁴

And yet there are also signs that the transition from fossil-based to renewable power is accelerating. Last year alone, renewable energy consumption recorded the largest year-on-year growth (0.5%) of all fuels, while coal consumption fell by 0.6%.⁵ A growing number of countries and businesses committed to reaching net zero GHG emissions by mid-century will drive these structural changes in the energy system at an increasing speed and magnitude in the years to come.

While this transition poses significant challenges to companies in the energy sector, it also offers enormous opportunities to shape the future of the global energy system and to address some of the world’s most pressing challenges. This case study explores how Enel, a global energy company headquartered in Italy, has addressed these challenges through both a mindful transition away from brown energy

sources and an open and innovative transition towards a more renewable and sustainable future.

ENEL: Open Power

Enel is a global energy company that generates and distributes electricity in over 30 countries in five continents. In 2019, Enel was the largest private network operator in the world (2.2 million kilometres of grid) and world’s largest player in renewables (by installed capacity with 46 GW). Headquartered in Rome, Italy, Enel has a workforce of more than 68,000 people and serves more than 74 million end users globally.

Founded in 1962 as Italy’s national entity for electricity, Enel developed an increasingly global reach in the 2000s. During the 2000s Enel established significant operations in Spain, Latin America, and North America. In 2008, the company formed Enel Green Power, which is a subsidiary dedicated to developing and managing power generated from renewable sources, to scale up its renewable energy production. Enel’s commitment to sustainable development was reinforced in 2015, when the company adopted a new strategy that fully integrated sustainability into its business model and operations. This commitment relates both to Enel’s own operations and to its supply chain, where procurement services goes through a supplier evaluation system to examine aspects related to health and safety, environment, sustainability and circular economy, ethics and human rights as reward factors for the contractors the company works with⁶.

In a world shaped by climate change, global population growth, technological acceleration, and shifting geopolitical balances, Enel’s business model “prioritizes addressing climate change, a just energy transition and continually ethical, transparent relations with all our stakeholders”.⁷ Consequently, Enel has accelerated the decarbonisation of its energy generation assets and developed new product offerings that assist customers in transitioning to a low-carbon economy. For instance, the company has invested heavily in shoring up renewable energy projects while simultaneously divesting of thermal generation assets. Table 1 provides a snapshot of Enel’s performance between 2015 and 2019.

2 From the collapse of Enron in the early 2000s to concerns of greenwashing in the energy sector, <https://www.ft.com/content/5db43966-e064-11e9-9743-db5a370481bc>

3 <https://ourworldindata.org/emissions-by-sector#sector-by-sector-where-do-global-greenhouse-gas-emissions-come-from>, see also Climate Action 100+ on the 100 largest global carbon emitters: <http://www.climateaction100.org/>

4 BP (2020) Statistical Review of World Energy, p. 4

5 BP (2020) Statistical Review of World Energy, pp. 6-7

6 <https://www.enel.com/company/stories/articles/2020/01/enel-procurement-sustainability-sustainable-supply-chain>

7 Enel (2020) Sustainability Report 2019, p. 5

Figure 1: Enel Key Performance Indicators, 2015-2019

	Unit	2019	2018	2017	2016	2015	% change 2015 - 2019
Financials							
Revenues	mio €	80,327	75,575	74,639	70,592	75,658	+6%
Net Income	mio €	3,476	6,350	5,329	3,787	3,372	+3%
Electricity Generation							
Total net production	GWh	229,129	250,339	249,876	261,812	284,012	-19%
Renewable net production	GWh	99,391	98,940	81,695	85,974	89,274	+11%
Zero-emission generation	% of total	55.0	49.2	43.3	45.6	45.5	+21%
Electricity Distribution							
Electricity distribution lines	mio km	2.23	2.22	2.16	1.87	1.86	+20%
Electricity transported	TWh	504.0	484.5	460.7	426.7	427.4	+18%
Sales							
Electricity sold	TWh	302	295	285	263	260	+16%
Electricity customers	mio	64.05	65.38	58.04	56.03	55.95	+14%
Climate Performance							
Direct GHG Emissions Total (Scope 1)	mio t eq	69.98	95.23	105.96	106.73	119.51	-41%
Specific emissions of CO ₂ from net generation	gCO ₂ /kWh _{eq}	296	369	411	395	409	-28%

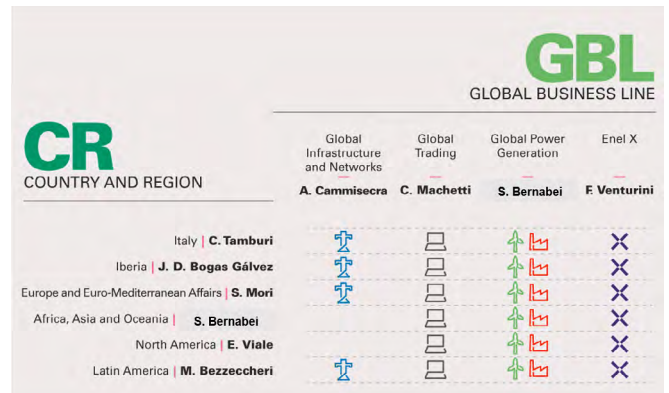
Enel’s commitment to leading the global energy transition is reflected in its corporate purpose: “Open Power for a brighter future. We empower sustainable progress”.⁹ The company delivers its purpose through four global business lines:

- *Global Power Generation* comprises energy generation assets with a net installed capacity of 84.3 GW, 50% from renewable energy sources.
- *Global Infrastructure & Networks* brings together capabilities to reliably supply energy and serve communities through its resilient, digital and flexible networks.
- *Enel X* is dedicated to facilitating the energy transition by delivering innovative services that support the electrification and decarbonisation of customers
- *Retail* is responsible for interacting and bringing energy to Enel’s global customer base.

Enel is organised through a matrix structure that comprises *Global Business Lines* and *Countries and Regions* (see Figure 1). The Global Business Lines (GBLs) are responsible for managing and developing Enel’s assets. This mandate includes optimising returns on capital, improving the efficiency of the processes under management, and sharing best practices at the global level. Importantly, each GBL is also in charge of advancing Enel’s leading role in the energy transition and combatting climate change. Countries and Regions are responsible for managing relationships with institutional bodies and regulatory authorities, selling electricity and gas in each of the countries in which Enel operates, and providing staff and other service support to the GBLs.

At the Group level, the Global Service Functions further support Enel’s matrix organisation by managing communication and information technology as well as procurement services. In addition, a number of Holding Group functions manage key governance processes, including (1) Administration, Finance and Control; (2) People and Organization; (3) Communications; (4) Legal and Corporate Affairs; (5) Innovability®, combining Innovation and Sustainability; and (6) Audit.

Figure 2: Enel’s matrix organisation¹⁰



Note: figure from Enel Annual Report 2019 updated by authors with relevant personnel changes after disclosure, as announced under <https://www.enel.com/media/explore/search-press-releases/press/2020/07/enel-announces-changes-in-top-management>.

Purpose as Strategy

The vision of Enel is to tackle some of the world’s biggest challenges as captured in the United Nations Sustainable Development Goals¹¹ (SDGs). This is also reflected in Enel’s corporate purpose: “Open Power for a brighter future. We empower sustainable progress”.¹² More specifically, Enel has directed its activities towards mitigating climate change (SDG 13)¹³ through decarbonising the production and consumption of energy, while simultaneously extending access to affordable and clean energy (SDG 7). Enel’s corporate purpose translates into a mission that comprises five ambitions:¹⁴

- opening energy access to more people;
- opening the world of energy to new technologies;
- opening new ways for people to manage energy;
- opening new uses of energy;
- opening more partnerships

9 Enel (2020) Consolidated Annual Report 2019

10 Enel (2020) Annual Report 2019, p. 27

11 The Sustainable Development Goals (SDGs) were adopted in 2015 by all member states of the United Nations and provide a shared blueprint for peace and prosperity for people and the planet. The 17 goals address the world’s most pressing global challenges, ranging from poverty to environmental degradation and peace and prosperity. See <https://sdgs.un.org/goals> for more information.

12 Enel (2020) Consolidated Annual Report 2019

13 Enel strategy focuses on the achievement of the 17 UN Sustainable Development Goals (SDGs) throughout the entire value chain, placing SDG 13 (Action to combat climate change) at the centre. In particular, Enel directly targets 4 main SDGs.

Regarding SDG 7, on Affordable Clean Energy, our investments are focused on supporting the decarbonisation process driven by our Global Power Generation line and accelerated by our retail unit. Investments on SDG 9, on Industry, Innovation and infrastructure, are deployed by reinforcing the resiliency and improving the digitalisation, efficiencies and quality of our networks. For SDG 11, on Sustainable Cities and Communities, investments go mainly to new electrification-oriented services such as public and private charging for Electric Vehicles. Finally, overall investments contribute to SDG 13 aimed at taking urgent actions against climate change, which is a core priority for Enel.

To execute this mission, Enel has devised a strategy for 2021-2023 that comprises two complementary business models.¹⁵ The *Ownership* business model aims to seize opportunities of shared value creation through direct investments in renewable energy generation, networks, and customers. The *Stewardship* business model, on the other hand, positions Enel as a platform provider that offers services to third parties, enables new business opportunities for customers, and co-invests with third parties through joint ventures and partnerships.

Through these two business models, Enel plans to invest around €40 billion directly and catalyse further €8 billion of investments from third parties in 2021 – 2023. Around €38 billion of investments will be allocated through the Ownership business model. Enel will dedicate €17 billion of this to expanding renewable power generations, €16.2 billion to improving, expanding, and digitalising infrastructure and networks, and the remainder to expanding new services that facilitate the decarbonisation and electrification of energy consumption. The €2 billion investments under the Stewardship business model will target renewables, Fiber, e-transport, and flexibility. More than 90% of these planned investments contributes to the SDGs and advances Enel's capabilities to deliver effective action on climate change.

Enel CEO Francesco Starace has taken ownership of this strategy, which reflects the ambitions of Enel's leadership to include sustainability in each aspect of the business. Starace frames Enel's ambition like this: "Energy must be at the heart of the global agenda to lead the world on a more sustainable pathway, focusing multi-stakeholder action especially on renewables and energy efficiency, which are key for delivering on the goals of energy access and climate mitigation¹⁶." Starace made his personal commitment even clearer when he was recently named Chair of the non-profit international organization SEforALL (Sustainable Energy for All), which works closely with the United Nations to accelerate and deliver at scale the solutions needed to achieve Sustainable Development Goal 7 (SDG7) – *access to affordable, reliable, sustainable and modern energy for all*.

To make good on this promise, "Open Power" is the defining feature that connects Enel's purpose, mission, and strategy. Openness is fundamental to how the company puts these ambitions and plans into practice. In this context, two interrelated concepts are critical:

- Creating Shared Value (CSV), which refers to the notion that Enel's long-term success depends on creating value for both businesses and the communities in which they are embedded.
- Open Innovability[®], which is grounded in the belief that sustainability will be the driver of innovation and that open collaboration is the best way for businesses and society to address the complex challenges that humanity faces.

Both concepts work in tandem to ensure Enel creates value for all stakeholders through innovation towards a just energy

transition. The rest of this case study will explore how Enel continues to leverage CSV and Open Innovability[®] as it leads the decarbonisation and electrification of the global energy sector.

Creating Shared Value

Enel's strategy pursues shared value creation through its focus on decarbonising energy generation and electrifying energy consumption. Through this dual focus Enel hopes to create shared value through mitigating climate change and expanding energy access.

Creating shared value (CSV) refers to the idea that companies are successful when the communities in which they are embedded are also prospering. By effectively addressing societal challenges, companies can generate value for business and wider society alike. Initially proposed by Michal E. Porter and Mark R. Kramer, two Harvard academics, the concept of shared value can be defined as "policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates."¹⁷ In contrast to views that pit the interests of business and society against each other, the shared value concept understands the relationships between companies and communities to be characterised by mutual dependencies. Viewed through a shared value lens, business models that provide solutions to societal challenges, such as climate change, offer great rewards for companies and stakeholders alike.

At Enel, an approach to creating shared value was initially developed within Enel Green Power (EGP). Francesco Starace and Alberto De Paoli, Chief Executive Officer and Chief Financial Officer of EGP at the time, realised early on that sustainability was a key lever for growing renewable power generation. However, conventional corporate social responsibility approaches offered little insights into how sustainability could be systematically integrated into EGP's value chains. The CSV concept, on the other hand, offered a useful conceptual framework for EGP to enhance its business model, which comprised the construction, operation, and maintenance of renewable energy generation assets in local communities. EGP thus worked on translating CSV from an academic concept into a practical model for understanding societal needs in specific local contexts.

¹⁵ <https://www.enel.com/media/explore/search-press-releases/press/2020/11/enels-2030-vision-in-20212023-strategic-plan-a-decade-of-opportunities->

¹⁶ <https://www.enel.com/media/explore/search-press-releases/press/2020/10/francesco-starace-named-new-seforall-chair>

¹⁷ Porter and Kramer (2011, p. 66)

The development of renewable energy projects is not a one-off sale of a product. These projects involve a continuous presence in and engagement with local communities. In this context, EGP developed the CSV model as a tool for building relationships with local stakeholders through the identification of common needs. For example, EGP developed a geothermal plant in an ancestral area in Chile and set up a social enterprise that offered meaningful employment opportunities for indigenous communities. While the social enterprise provided supporting services to the development of the geothermal project - Cerro Pabellón in the Chilean Atacama Desert - it simultaneously generated sustainable income for members of local communities. The Cerro Pabellón project was also awarded the “Seal of

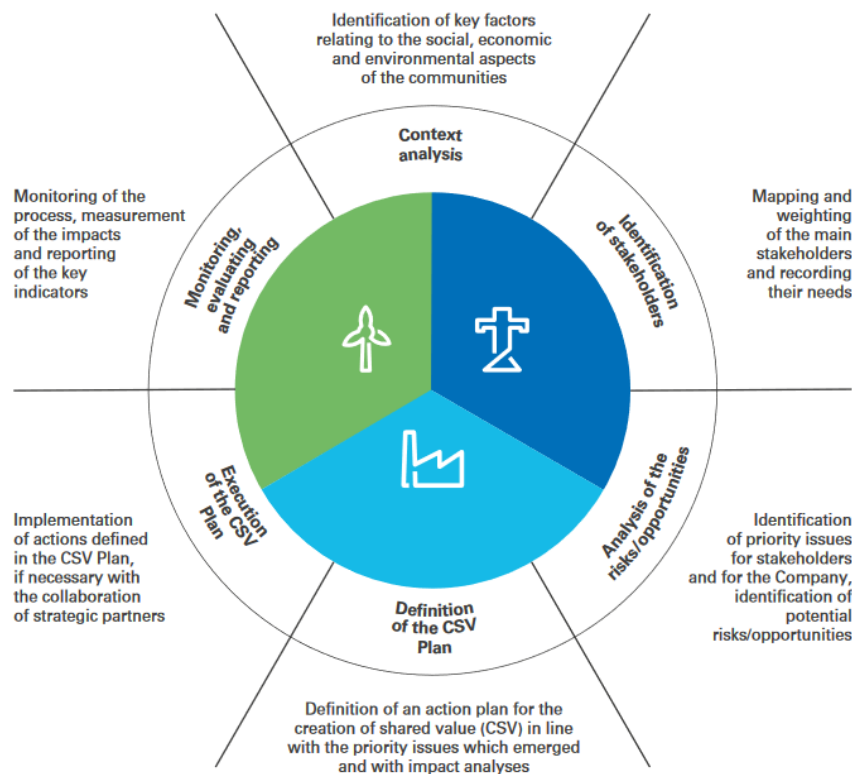
Excellence” by the Chilean Ministry of the Environment for minimising the environmental impacts of the project.

A Six-Step Approach to Integrating CSV

After becoming Enel Group CEO and CFO in 2014, Francesco Starace and Alberto De Paoli scaled up the CSV model from EGP to Enel Group at large.¹⁸ Today, CSV is embedded into Enel’s entire value chain – ranging from Business Development to Engineering & Construction to Operation & Maintenance – and the application of the CSV model includes six steps (see Figure 4).

Figure 3: Application of CSV Model in Enel.¹⁹

Application of the CSV model in the Group



The first three steps of defining shared value are context analysis, identification of stakeholders, and analysis of the risk/opportunities. They are focused on understanding the local context, mapping the potential positive and negative impacts of Enel’s activities, and identifying common needs between Enel and stakeholders. To this end, the CSV model draws on a broad range of socio-economic, environmental, and cultural data from external consultants and public organisations. This data-driven analysis is complemented with interviews with local stakeholders and colleagues

within Enel working on the project under consideration. Subsequently, a materiality analysis is conducted to correlate the priorities of stakeholders and Enel and identify common needs. For example, Enel worked closely with rural communities in Brazil to understand their context and needs, which enabled Enel to identify the best ways to connect those remote communities to the electricity grid.

The subsequent steps of the CSV model include the definition and execution of a plan to maximise the potential

¹⁸ <https://www.sharedvalue.org/resource/enel-redefining-the-value-chain/>

¹⁹ Enel Sustainability Report 2019, p. 109

positive impacts and minimise negative impacts from Enel’s activities in a specific community. Depending on where the identified impacts are in the value chain, the CSV plan can include actions ranging from changing procurement plans to modifying technical specifications of engineering projects. For instance, if the initial CSV assessment identifies a lack of educational facilities in a community, construction containers can be equipped with solar panels and repurposed as school buildings after the construction of a project is concluded. The next section presents more examples illustrating the ways in which Enel’s CSV plans address the social and environmental impacts of its activities.

The final piece of the CSV model comprises monitoring, evaluating, and reporting on the key impacts addressed in the previous steps of the CSV model. The use of key performance indicators is location-specific and depends on the preliminary impact assessment and materiality analysis in earlier stages of the CSV model.

CSV Governance

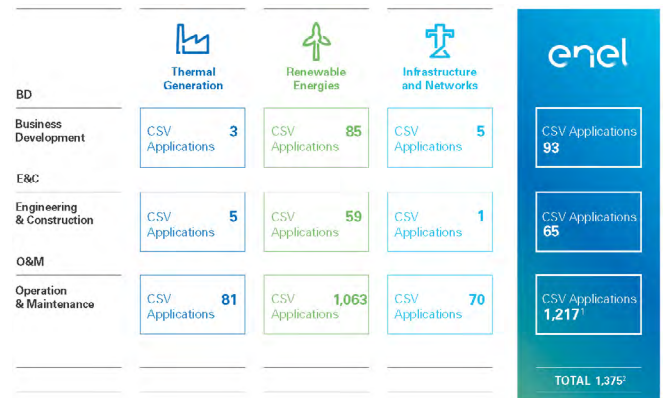
How is this thinking around shared value then integrated? Primarily, Enel’s Shared Value Creation strategy is embedded in the business through three pillars: sustainable value chains, developing sustainable and inclusive products and services and through enriching the ecosystem of partners and collaborators²⁰. At the group level, the holding function Innovability® (Innovation + Sustainability) is responsible for managing and developing the CSV model. This includes the definition and dissemination of guidelines on applying the CSV model. The Innovability® function also share best practices in the various countries in which Enel operates. To ensure the integration of the CSV model in all its subsidiaries, Enel established dedicated sustainability functions in each of its Global Business Lines in 2019, which are in charge of adapting the global CSV procedures and guidelines to local conditions considering the specific business context.

An important element of the application of CSV are tools that define shared value and how to capture shared value. These tools include a library of sustainable actions, organised by technologies, that engineers can use to mitigate negative environmental impacts and enhance positive social impacts of projects. Another example of a CSV tool are scorecards that comprise selected key performance indicators designed to monitor the social and environmental performance of taking sustainable actions. Alongside these, there are a number of tools designed to support a context-specific application of CSV throughout the value chain and range from CSV Plan and Analysis and stakeholder mapping to stakeholder management tools and impact assessments.

While the Innovability® function is responsible for the central management of the CSV model, the application of CSV tools is devolved to a broad range of internal stakeholders and the compensation of managers with variable remuneration plans is partly linked to sustainability outcomes. In 2019, there were 1,375 applications of the CSV model across Enel’s value chain, where each application represents the use of at least one CSV tool in any phase of the value chain and in any Business Line.²¹

Enel’s transition towards a sustainable business model from 2016, has included circular economy as a strategic driver. This approach has been gradually extended to the entire value chain and is now being applied systematically (based on a circularity model developed by Enel: “Circularity Model”) from the procurement phase to production and distribution, and from the product to the customer.²² Innovation and a collaborative approach are two key elements of this circular transition. Innovation plays a fundamental role as a circularity accelerator through both new technologies and business models. Moreover, Enel is strongly committed to circular cities, mainly in the domains of electric mobility, storage, renewables, energy efficiency, smart grids, public lighting, building management.

Figure 4: Overview of CSV Applications 2019²³



A Shared Value Energy Transition

Enel uses the CSV model in all Global Business Lines²⁴ to put its purpose of empowering sustainable progress into action and advancing the global energy transition. As part of its strategic commitment to combat climate change, Enel is investing heavily into expanding its renewable energy

20 Enel has started an inclusive business model that is designing and delivering products and services for all taking account in particular the needs of people with disabilities. The specific context (potential market, spending capacity) has been studied and gauged against the unmet needs of local associations of People with disabilities, creating a shared value approach to business. Among others for example, Enel has implemented Padius – a text to speech app- for deaf clients, who are enabled to call Enel contact centres just like any other customer. In terms of products, other examples include Juiceability the charging device for electric wheelchair batteries that uses the same infrastructure available for electric vehicles.

21 Enel (2020) Sustainability Report 2019, p. 110.

22 The principal business areas involved include: a) Power Generation: with the aim of reappraising the main renewable energy supply chains along their entire value chain and the management of thermal assets to their decommissioning; Infrastructure and Network: with the aim of using “Circularity by Design” to redefine the value chain of major assets (e.g. smart meters) and render them circular, and accelerating, through digitalization, the role of the network as a platform; End customers: with the aim of fostering its customers’ transition to circularity through new products, services and consultancy services; Suppliers: to guide the entire supply chain towards circularity.

23 Enel Sustainability Report 2019.E

24 See, for example, the “Circular Smart Meter” project in Italy, and the “Urban Futurability” in Brazil, to name just a few.

generation capacity. When developing new renewable energy projects, Enel applies the CSV model to ensure that these projects generate shared value.

Consider, for example, the construction of a photovoltaic (PV) plant in a semi-desert area. The location is water stressed but the construction and maintenance of the plant requires water (e.g. for cleaning PV panels). Water is thus a critically important issue for the PV plant project, both for Enel and surrounding communities. Applying the CSV model in this scenario includes the design of a CSV plan to ease water stress in the area of the PV plant through a range of technical measures along the value chain. Local communities are involved in every phase of a project, from its design through to its completion, continuing not only when a plant becomes operative, but also when it becomes decommissioned. This also applies to the last coal fired plant Enel still operates in Chile, which is planned to be shut down by mid-2022²⁵ and therefore has a large decommissioning phase ahead. In line with Enel's emphasis on integrating CSV applications into day-to-day operations, these technical measures are planned by the project engineer and their implementation is overseen by the project manager. To minimise, for example, the water usage in the construction phase, technical requirements and sustainability criteria are also integrated into the contractual arrangements with contractors providing construction services.

While the expansion of renewable energy generation is the cornerstone of Enel's strategy, the decarbonisation of existing energy generation assets is another important aspect of the energy transition. Enel leverages the CSV model to decommission thermoelectric power stations and repurpose those sites into new development opportunities for local communities. For example, in 2015, Enel launched the Futur-e project, the world's first large-scale redevelopment of an industrial area. It was conducted using a circular economy approach and displayed a unique program designed to find new uses for old thermal power plants. Due to its success, the Future-e project approach has been extended to the geographical areas in which the Group will manage its thermoelectric power plants through energy transition processes, such as in Spain and Chile. The aim is for this project to be seen as international best practice for the end-of-life management of disused industrial facilities.²⁶

Another example is Endesa, a subsidiary of Enel, which is working with a broad range of stakeholders to develop a sustainable business project for the Compostilla power plant in Northern Spain. Following Enel's CSV model, the objective is to mitigate the social and economic consequences of the plant closure and to create shared value with all local stakeholders. To this end, Endesa has developed a plan that, amongst other measures, seeks to install 700 megawatt of renewable energy projects in the area, train the local workforce in renewable energies, and issue an international call for project proposals that invites third-parties to submit additional redevelopment plans.²⁷

Challenges

The CSV model embeds open engagement with communities into day-to-day operations. It does this through a systematic framework for collaborating with stakeholders. This collaborative approach to working with local communities blurs more conventional conceptions of the boundaries between firms and stakeholders. However, this approach also poses both cultural and technical challenges.

Firstly, Enel needed to convince both external and internal stakeholders of the mutual benefits of a large company like Enel genuinely committing to creating shared value for local communities. For external stakeholders, this required a change of perspective on the role that business can play to create positive impact in their communities. For internal stakeholders, this required a change of perspective that previously saw community engagement as a cost to one that saw shared value partnerships as commercial opportunities. Getting the buy-in from some internal stakeholders required various engagements in the form of training and workshops. Whereas business development teams were quick to realise the opportunities of the CSV model, some engineering teams were initially sceptical. To convince internal stakeholders – especially those in technical positions – it was important to quantify and then communicate the benefits of the CSV approach. Demonstrating that the CSV model delivered long-term value was also critical to gaining buy-in across Enel.

Secondly, and related to the cultural challenge, there were several technical challenges with regard to measuring shared value creation. While measurements of financial outcomes are well developed, there are currently no widely accepted frameworks or standards for capturing the social and environmental aspects of business activities. This challenge is particularly pertinent in a large and complex business such as Enel with its extensive global operations. Enel has worked with a number of frameworks – ranging from social returns on investment to Life Cycle Assessments – to derive key performance indicators for measuring and disclosing the performance of CSV model applications. And although Enel has made encouraging progress working with frameworks from the International Finance Corporation (IFC), the measurement and disclosure of shared value creation remains challenging.

Innovability[®]

Innovation is a key enabler of Enel's approach to creating shared value. Finding new ways of using and managing energy is essential if the world is to achieve the Sustainable Development Goals. Innovation is also critical to success in the context of the global energy transition.

The central role of innovation in facilitating sustainable development is reflected in Enel's Open Innovability[®] approach. Open Innovability[®] combines innovation and sustainability to create value for Enel and all its stakeholders.

25 <https://www.enel.com/media/explore/search-press-releases/press/2020/05/enel-group-accelerates-closure-of-its-last-coal-fired-plant-in-chile>

26 <https://corporate.enel.it/en/futur-e>

27 <https://www.endesa.com/en/projects/all-projects/energy-transition/futur-e/convocatoria-compostilla>

For example, Enel X, the Enel Group business line dedicated to innovative products and digital solutions, has been working on technologies capable of transforming energy into new growth and development opportunities for people, businesses, and cities. Another pillar on which Enel X and the entire Enel Group is strongly committed and permeates its Innovability® strategy is the Circular Economy, a perfect example of the fusion between sustainability and innovation, an instrument to guide companies in a virtuous path that also represents a concrete business opportunity for them.

In order to develop a sustainable business, the enabling role of Enel Infrastructure & Networks, as Distribution System Operator in the territories where Enel operates, it will be essential to increase its capacity to host more renewable energy sources, to ensure a paradigm shift with new electrification streams, such as heating and cooling, electric mobility etc. The entire value chain is also being reconsidered, using approaches like “Circularity by design” fostering recycling and reuse of materials for grid assets, by implementing a full sustainable and decarbonized supply chain. To face all these challenges the grid edge transformation will allow greater levels of participation by different stakeholders, mapping their needs, becoming more resilient and customer centric, creating positive impacts and fostering shared value in the communities, ensuring successful roll out of tailored solutions.

Enel’s approach to leveraging innovation to advance sustainable development and shared value creation is grounded in an Open Innovability® model. This model connects all areas of the company with start-ups, industrial partners, small and medium-sized enterprises, research centres and universities. Over 800 partnerships with these stakeholders have been established globally due to this model of Open Innovability® and enable Enel to be agile in addressing new challenges and recognizing new opportunities. Enel shares innovation challenges coming from within the group with its partners across its innovation ecosystem. The ecosystem then collaboratively develops new solutions for a wide range of applications, including e-mobility, microgrids, energy efficiency and the industrial Internet of Things (IoT). The innovation challenges emerging from within Enel are closely linked with the group’s strategic priority to advance the global energy transition by decarbonising and electrifying the use of energy. By opening up these innovation challenges to external stakeholders, the Open Innovability® model embodies purpose - Open Power.

Innovability® Infrastructure

There are two approaches to identifying, developing, and implementing innovation through the Open Innovability® model. Following the inside-out approach, Enel reaches out proactively to innovation partners with a challenge raised internally by one of Enel’s business line. The outside-in approach, in contrast, involves partners approaching Enel with a potential solution. On top of this, continuous innovation intelligence activities are run to identify potential disruptions without being necessarily related to business needs.

The inside-out approach begins with the collection of innovation challenges from within Enel’s business lines. Each business line has a dedicated Innovability® manager who works closely with internal stakeholders (e.g. Head of Engineering, Head of Manufacturing) to identify the challenges that require innovative solutions. Enel works on challenges but also on trends. For example, for electric mobility 5 current challenges of the business could be considered while also scouting 1-2 innovative new solutions not necessarily linked to challenges. The innovation challenges identified by Enel’s business lines are then tackled together with Innovability® holding function, through the activation of the Innovability® tools aimed at searching for potential solutions. The innovation challenge is shared with a global ecosystem of entrepreneurs, companies, venture capital investors, regulators, universities and research centres.

The infrastructure supporting this innovation ecosystem is a global network of innovation hubs with locations in Italy, Spain, Russia, USA (Boston and Silicon Valley), Brazil, Israel and Chile.²⁸ Supported by the Innovability® holding function, the innovation hub manager is responsible for establishing and maintaining a network of relationships with innovation partners. After an innovation challenge is formulated by one of Enel’s business lines, the challenge is passed on to these networks through Enel’s innovation hubs. Importantly, Enel looks for solutions. While many are early stage, the company also considers collaborations with ideas and solutions at a mature level. Interactions with partners, even at this early stage, can be very insightful. For instance, a conversation with an experienced venture capital investor can provide novel insights and trigger a redefinition of the innovation challenge.

Another channel for sharing innovation challenges with partners is the crowdsourcing platform openinnovability.com®. The company regularly launches challenges on this platform and invites the submission of proposals that offer innovative and sustainable solutions. After being reviewed by a panel of technical experts, successful proposals gain access to Enel’s innovation hubs to further develop and scale up the solution across Enel’s networks. To date, participants from over 100 countries have submitted more than 74.000 proposals to Enel’s Open Innovability® platform.

An innovation challenge shared through the innovation hubs or openinnovability.com® typically yields a list of 40 to 50 start-ups. After applying a number of filters (e.g. maturity of technology, funding level, etc.), this list is usually reduced to 10 to 20 start-ups which are fed back to the business line that originated the innovation challenge in the first place. At this stage, the business line engages directly with a smaller number of start-ups and conducts PoCs and/or tests of proposed solutions. Eventually an innovation committee – staffed with the leadership of the business line – makes a decision whether to collaborate with a start-up to further develop, and ultimately scale, the proposed solution.

When Enel decides to collaborate with start-ups it does so primarily from an industrial – and not from a financial – perspective. In fact, Enel rarely invests equity into start-ups

but instead works with incubators, accelerators, and venture capital investors who can support start-ups with business planning and fundraising. The underlying rationale is that Enel is mostly interested in functioning as an industrial partner to start-ups. Through the partnerships Enel provides expertise and resources through its laboratories, internal and external experts, customers, and data. In cases when Enel works with early-stage start-ups and adds significant value to the development of solutions, it usually seeks legal protection for its intellectual property. If a solution proves to be smart, cost-effective, and scalable, Enel shares the developed innovation globally with its plants, networks, and customer bases. Since 2016, Enel has collaborated with more than 300 start-ups and more than 80 solutions have been scaled up globally and shared across Enel's networks.

The hallmark of the Open Innovability[®] model is that Enel systematically opens up its innovation challenges and strategic needs to an external innovation ecosystem. Reflecting Enel's corporate purpose of Open Power, this open innovation approach is fundamentally different from conventional approaches to Research & Development (R&D). R&D projects at large companies are typically complex, resource-intensive, and managed in-house, which often makes it difficult to change course quickly if a solution turns out to be unworkable. In contrast, the collaborations with external innovation partners in the Open Innovability[®] model allow for testing solutions more rapidly and pivoting quickly if something is not working. By leveraging the expertise and creativity of external innovation partners, the Open Innovability[®] model can also operate with less resources than conventional R&D approaches. With the exception of the development of a few key technologies (e.g. smart meters), Enel has re-allocated its former R&D budget completely to its Open Innovability[®] model.

Energizing a Sustainable Future for All

Enel views innovation as a key lever to support its strategic priorities to combat climate change and extend the access to clean and affordable energy. The Open Innovability[®] model enables Enel to deploy innovative solutions that facilitate the decarbonisation of energy generation as well as the electrification of energy consumption. For example, Enel X collaborated with e-vehicle producer BYD Chile and the Chilean public transport company Metbus to integrate more than 400 electric buses into Santiago de Chile's public transportation network.²⁹ By providing the charging infrastructure, battery monitoring technology, and the energy necessary for running the buses, Enel X has contributed to bringing Latin America's largest electric bus fleet on the roads.

The approach also enabled Enel to meaningfully contribute to the current Covid-19 pandemic responses. For instance, Enel technology's tool "Smart Assistance", a Digital Health platform that connects the status of patients with medical centres and was developed through innovation partnerships, was included in the EU's Toolbox for fighting Covid-19.

Other tools, such as City Analytics-Mobility Map³⁰, a big-data mobile connectivity solution developed in partnership with Here Tech, was used to analyse the impact of Covid-19 containment measures in different geographic areas and to provide data-driven support for government decision-making.

Another example is Enel Green Power North America's collaboration with Raptor Maps to optimise the field operations and maintenance of solar assets. The two companies partnered up in 2016 to develop a solution that would allow real-time identification and classification of faults at solar power plants.³¹ Working closely with Enel Green Power (EGP) allowed Raptor Maps to shorten the cycle for building, testing, and iterating new ideas. This partnership accelerated the development of an innovative solution for monitoring solar assets, combining Raptor Map's artificial intelligence software solutions with EGP's drone technology. In 2019, three years after the collaboration began, EGP was able to scale up this solution and deploy it to all its solar assets worldwide.³²

Challenges

Enel's move from a traditional R&D approach to the Open Innovability[®] model posed several challenges. Firstly, embedding the Open Innovability[®] model in a governance structure proved to be challenging, since the implementation of an open innovation approach in a large, multinational organisation is subject to seemingly paradoxical tensions. On the one hand, open innovation is closely tied to creativity and experimentation, both of which are not closely associated with notions of governance and control. On the other hand, providing people with a structure in which they can operate is beneficial for achieving outcomes and ensuring accountability.

Secondly, adopting an open innovation approach that was steered by the Innovability[®] holding function was challenging from a cultural perspective, in particular for business lines with limited exposure to innovation processes. In the beginning, the Innovability[®] holding function attempted to drive innovation as an external function to Enel's various business lines, which sometimes triggered defensive reactions that limited the effectiveness of the model. Leveraging its matrix organisational structure, Enel then embedded Innovability[®] managers directly into business lines. This revised governance structure helped to increase the acceptance of the Open Innovability[®] model. However, the major driver of innovability[®]'s widespread adoption was the success of the approach. Quick wins that resulted in solutions to the challenges faced by business lines boosted the acceptance of the model.

Thirdly, measuring the outcomes and effectiveness of the Open Innovability[®] model is challenging. Enel is working on developing key performance indicators (KPIs) that measure the success of the Open Innovability[®] model.

29 <https://www.enel.cl/content/dam/enel-cl/en/investors/enel-chile/information-for-the-shareholder/presentations/2021/IR-Presentation-Enel-Chile-January-2021.pdf>
<https://www.enel.cl/en/meet-enel/media/news/d202009-joint-venture-to-boost-electric-public-transportation-in-the-americas.html>

30 <https://www.enelx.com/it/en/smart-cities/solutions/smart-services/city-analytics>

31 <https://startup.enel.com/en/stories/a201809-raptor-maps-solar-power-artificial-intelligence.html>

32 <https://startup.enel.com/en/stories/a201909-raptor-maps-revolutionary-drone-technology-for-solar-energy.html>

The value any given innovation solution contributes to the group is among the most important performance indicators. However, calculating this value is problematic, partly because the development and deployment of solutions can take multiple years. To understand the effectiveness of the Open Innovability® model, Enel monitors several other lead indicators, including the total number of collaborations with start-ups, the number of collaborations with start-ups that are established through an inside-out vice versa an outside-in approach, and the number of innovation solutions that are scaled up globally across Enel's operations.

Fourthly, synchronising the operations of a large, multinational company and its start-up ecosystem posed challenges. To work successfully with start-ups requires agility, quick decision-making, and fast execution. To thrive in this environment Enel revised its organisational processes to enhance the compatibility of its operations with those of its innovation partners.

Finally, building trust and brand recognition in the innovation ecosystem is critically important. Becoming a trusted partner of start-ups takes more than building a local presence in relevant geographies, it requires establishing strong relationships with start-ups and other external stakeholders. Building trust and brand recognition is a delicate exercise. Being too slow or too bureaucratic when working with start-ups can have significant impacts on Enel's reputation across its innovation ecosystem. Through measures such as streamlining organisational processes, creating innovation hubs, and establishing successful collaborations with start-ups, Enel has successfully built its brand as a valuable partner for start-ups interested in scaling up their solutions.

Discussion

This case study has laid out how Enel has not only set out a powerful purpose in a challenging sector, but how it is working to deliver on these commitments through leveraging Creating Shared Value (CSV) and Innovability® approaches. Three key success factors can be drawn from the company's experience implementing these approaches: 1. true collaboration through openness, 2. a culture that enables true collaboration, and 3. leadership commitment and role modelling that drives home the focus on creating value for all stakeholders.

Firstly, *openness* is the defining feature of Enel's CSV and Open Innovability® approaches. Openness is the key ingredient that helps to turn Enel's Open Power purpose, mission, and strategy into practice. Working closely with communities to understand their needs is at the very heart of the CSV model. Collaborating with a broad range of stakeholders – ranging from NGOs to government agencies – is an important part of developing solutions that create shared value. Likewise, sharing internal innovation challenges with external partners is about opening formerly closed-off research and development processes to networks of entrepreneurs, venture capital investors, regulators, universities and research centres. This outward-looking stance is characterised by an acknowledgement that no one organisation has all the answers. It also reflects Enel's willingness to listen to, learn from, and collaborate with partners in new ways. The feature of openness leads back to the core idea of shared value as defined by Porter and Kramer, which underline that value creation for society and business is best done in collaboration with local stakeholders, particularly including NGOs and government agencies. The depth and breadth of public-private partnerships at Enel is an important feature of its collaborative ecosystem that could further be explored and expanded on.

Secondly, *culture* played an important role in implementing the CSV and Open Innovability® models at Enel. In both cases, it was critical – and at times challenging – to convince people to do things differently, such as adopting new ways of innovating or managing construction projects. It is important to note that the issue of measurement is critically important to support culture change. For instance, conventional performance approaches were initially insufficient to capture the benefits of implementing the CSV model, making it difficult to engage and convince some engineering teams when CSV projects were first rolled out. Increasingly, Enel is developing new measurement approaches that translate the long-term benefits of the CSV model into quantitative measures, thus facilitating the buy-in from internal stakeholders. This helps to tie together the intangible benefits of shared value and open innovation with the tangible core objectives of different business units and the entire group.

Thirdly, strong *leadership* has been instrumental in both initiating the decisive strategic shift towards renewables and rolling out the innovative approaches to successfully implement these strategic changes. Francesco Starace and Alberto De Paoli, Group CEO and CFO, have been strong advocates for a culture of openness and collaboration (including amongst the executive leadership team) since they began working together in 2008. After initially serving as CEO and CFO of Enel Green Power, they became Group CEO and CFO in 2014 and subsequently rolled out the CSV model, which had been incubated at Enel Green Power, across the whole Group. In all instances of our conversations and case research, the impulse of purposeful transformation and meaningful change was led back to the leadership at Enel. This indicated just how important Leadership commitment was to Enel's transformation journey. To cascade the commitment into all management levels, Enel has also included a variety of non-financial metrics into the long-term incentive schemes of executives – a powerful tool to incentivize and prioritize corporate purpose at any company.

Conclusion

Confronted with systemic challenges such as climate change, the energy sector is undergoing a fundamental transition away from centralised, fossil fuel based, thermal power generation towards renewable solutions for generating and distributing power. Enel has assumed a leading role in this energy transition and aligned its corporate purpose, mission, and strategy with the Sustainable Development Goals. In particular, Enel has directed its activities towards mitigating climate change (SDG 13) through decarbonising the production and consumption of energy, while simultaneously extending access to affordable and clean energy (SDG 7). Through a powerful approach of combining Open Innovability® and CSV, Enel has been able to address the growing challenges of its industry by fostering a fundamental level of openness at all its organizational levels, a strong culture to allow for this openness and an exemplary commitment of its leadership team. While both industry and company still have many challenges to address, these characteristics have put Enel on route to not only prepare but be able to shape and innovate a more sustainable and inclusive future for the energy sector.