Foreword

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Global leaders have set a milestone to triple renewable energy capacity by 2030, providing an unprecedented opportunity for continued growth. Against a backdrop of heightened energy security concerns and the development imperative of ensuring affordable energy, renewable and clean energy sources offer immense promise – not only for reducing emissions and advancing climate goals, but also for delivering economic, environmental and social gains.

Realizing this transformation will require a proper understanding of all its impacts, to maximize positive outcomes and minimize negative impacts. As industry and governments intensify efforts to meet energy and affordability needs while achieving their climate objectives, the way we expand the necessary clean energy infrastructure matters.

Success will require forward-looking policies, innovative approaches and collaboration to accelerate deployment. This must be done while ensuring value for all stakeholders, safeguarding biodiversity and making optimal use of land and ocean resources, as well as engaging communities meaningfully to secure their buy-in and support. Planned and executed responsibly, the accelerated deployment of renewable energy can provide multiple social and economic benefits – for example, increasing local wealth and well-being, reducing conflict and social unrest, accelerating permitting, and managing risks in a way that attracts required investments and increases asset resilience.

Building on the World Economic Forum's Responsible Renewable Infrastructure Initiative, the Clean Energy Ministerial (CEM) and the Forum have partnered to produce this joint publication. Drawing on a diverse range of case studies across geographies and technologies, it showcases how renewable energy expansion can be balanced with environmental stewardship and social inclusion, thereby creating lasting value for communities, ecosystems and economies.

We are proud to present this work at CEM16 in Korea, and we thank all contributing CEM member and partner countries, as well everyone involved at the World Economic Forum and the CEM Secretariat. It is our hope that these best practices inspire and inform the regulatory, investment and project decisions needed to make responsible renewables the standard for a clean, sustainable, affordable and equitable energy future.

Executive summary

Tripling renewable energy capacity by 2030 will require an unprecedented buildout of infrastructure across both land and ocean, spanning wind, solar, hydro, battery and grid transmission. This scale-up, essential for energy security and climate goals, will intersect with communities, as well as land and ocean ecosystems at an intensity not seen before. Without early and inclusive planning, these intersections risk triggering local opposition, environmental conflicts and costly project delays.

Experience from real-world projects increasingly shows that integrating environmental and social considerations early in the project life cycle is not a constraint but a strategic enabler. Responsible deployment practices can help reduce conflict risk, accelerate permitting, improve long-term asset resilience and unlock access to environmental, social and governance (ESG)-linked capital – strengthening the business case for renewables. This alignment of sustainability with performance increasingly reflects sound business practice, mitigating risk while enhancing long-term returns.

This collection of case studies by the Responsible Renewables Infrastructure (RRI),[1] developed in collaboration between the World Economic Forum, the Clean Energy Ministerial (CEM) and knowledge partner Accenture, highlights best-in-class examples of renewable energy projects that integrate environmental and social priorities into their design and delivery. From utility-scale solar to offshore wind, pumped hydro and hybrid systems, the case studies span diverse technologies and geographies. Some cases apply technological innovations such as AI-driven siting or advanced environmental monitoring, while others focus on policy and permitting reform to accelerate deployment – together offering insight into what "good" infrastructure looks like – projects that not only deliver environmental and social value but also reflect sound business practices that generate long-term returns – and how it can be replicated at scale.

The case studies illustrate the Principles for Responsible Deployment of Renewables Infrastructure:[2] inclusive community engagement, biodiversity conservation and restoration, economic development and multi-level collaboration for systemic change.

Value creation through renewable deployment

As competition for land and ocean resources intensifies and as public expectations for inclusive and sustainable development grow, responsible deployment is becoming a source of strategic advantage. The case studies show how early integration of environmental and social priorities can:

- Accelerate permitting and reduce the risk of delays by aligning with local priorities and regulatory expectations.
- Secure long-term community partnerships and social licence through inclusive engagement and benefit-sharing.
- Unlock access to ESG-linked or concessional finance by demonstrating integrity and impact.
- Improve project resilience through better siting, biodiversity safeguards and integrated grid planning.

These outcomes demonstrate that responsible deployment is an enabler of speed, scale and system value – delivering broad-based benefits across economic, environmental and societal dimensions.

System value framework for renewable energy projects

To support a broader understanding of impact, the collection draws on the World Economic Forum's System Value Framework[3] to evaluate each project beyond financial metrics – looking at carbon impact, air and water quality, local jobs, resilience, energy access and social equity. This multidimensional lens supports better decision-making across stakeholder groups.

TABLE 1 **System value and project-level focus for renewables**

System value dimension	Project-level focus for renewables
Carbon emissions	Life cycle GHG reductions; fossil displacement
Air quality	Lower particulate matter (PM), nitrogen oxides (NO_x) and sulphur oxides (SO_x) through fossil fuel avoidance
Water footprint	Reduced water use, water-smart solutions
Jobs and economic impact	Local jobs, skills development, supply chain growth
System resilience	Grid integration, storage co-location, climate adaptation
Energy access	Expanded access, improved affordability, reliability
Energy security	Domestic generation and diversification
Cost and investment effectiveness	Improved bankability, reduced ESG risk premiums

Lessons learned

Across geographies, technologies and stakeholder models, several lessons have emerged from the case studies:

1. **Community participation strengthens success**

Whether through ownership models, benefit-sharing funds or co-development partnerships, projects that embed local participation early are more likely to succeed – and more likely to avoid opposition or delay.

2. **Environmental integration reduces risk**

Proactive biodiversity protection, species monitoring and nature-based solutions not only reduce regulatory risk, they also improve investor confidence and long-term asset resilience.

3. **Multi-use land and ocean strategies unlock co-benefits**

From agrivoltaics to reusing industrial sites, dual- and multi-use models lower costs, reduce land conflict and create new income streams – supporting food security, circularity and rural regeneration.

4. **Digital and AI tools are raising the bar**

Spatial decision tools are helping developers avoid sensitive areas, accelerate permitting and reduce conflict. As data availability improves, such tools will become standard in responsible project planning.

5. **Policy-driven models can scale equity**

Policy can drive both investment and inclusion when community equity, procurement standards and social metrics are hardwired into competitive auctions.

A resource for action

This paper serves as a resource for:

- Developers, asset owners and operators integrating community and environmental considerations in project design to mitigate risks, accelerate deployment and generate long-term value.
- Policy-makers and regulators building enabling conditions for responsible and accelerated deployment.
- Investors and financial institutions assessing long-term risk, resilience and ESG alignment.
- Civil society organizations and local leaders working to ensure that energy transitions deliver shared value.

Each case study aims to provide implementation insights and context-specific lessons for adaptation and replication. While the case studies presented span diverse geographies, technologies and contexts, many illustrate models and approaches with potential for replication and scale. The practices and principles embedded in these examples provide a valuable starting point for peer learning and policy design, especially as governments and developers look to accelerate renewables responsibly.

Meeting global energy and climate goals will require not just more renewable projects, but more effective and impactful ones. Responsible deployment is not about slowing progress for consensus: it is about building faster, smarter and with fewer avoidable risks.

These case studies show that responsible deployment – done right – accelerates delivery, strengthens community trust and enhances economic and ecological outcomes. As governments, developers and financiers look to triple capacity by 2030, the path forward is clear: scale responsibly, together.