



Technology Executive Committee

24 March 2026

Thirty-second meeting

14–17 April 2026 (17 April 2026 TEC-CTCN Advisory Board Joint session)

Draft outline for the policy brief on accelerating the deployment of energy storage to advance clean energy transitions

Cover note

A. Background

1. As per activity A.2.1 of its rolling workplan, building on the work on collaborative Research Development and Demonstration (RD&D), the TEC is to analyse the needs for RD&D for high-impact emission-reduction technologies to help countries implement their NDCs and other mitigation strategies and ensure long-term environmentally sustainable energy supply.
2. At TEC 30, the TEC agreed that the Future Cleantech Architects (FCA) shall lead the development of a TEC brief on accelerating the deployment of energy storage to advance clean energy transitions, working under the guidance of the open-ended activity group, and actively engaging with partners through a consortium-based approach, to uphold high standards for the composition and outputs of the open-ended activity group.
3. At TEC 31, the TEC requested the open-ended activity group, to organize an event on energy storage, with a view to gathering inputs and perspectives for the policy brief, and to develop the outline of the policy brief to be presented at TEC 32.
4. The TEC, in partnership with FCA and the International Renewable Energy Agency (IRENA) organized a webinar on the topic of “[Powering the Paris Agreement: The role of energy storage today and tomorrow](#)” on 9 March 2026, which provided a global overview of energy storage deployment, technologies, including decentralized and off-grid storage solutions and market trends and explored the role of storage in future low to zero emission and climate-resilient energy systems.

B. Scope of the note

5. The annex to this note contains the draft outline for the policy brief on accelerating the deployment of energy storage to advance clean energy transitions.

C. Possible actions by the Technology Executive Committee

6. The TEC will be invited to consider the draft outline of the policy brief and provide guidance to the activity group on the development of the draft policy brief.

Annex

Draft outline for the policy brief on accelerating the deployment of energy storage to advance clean energy transitions

I. Proposed structure

1. The policy brief is intended as a concise, reader-friendly document of approximately 20–25 pages designed for policymakers, national governments, international organisations, multilateral development banks, and the private sector. The proposed structure is as follows.

Section	Content focus	Length
1. Executive Summary	Key messages, priority findings and policy recommendations	~2 pages
2. Why Energy Storage Matters Now	Global energy transition context; CMA pledges	~3 pages
3. Technology Landscape	Overview by type (short-, medium-, long-duration; sector coupling)	~4 pages
4. Deployment Trends and Investment	Current status, cost trajectories, scale-up requirements	~4 pages
5. Policy and Regulatory Frameworks	Enabling conditions, market design, barriers and best practices	~4 pages
6. Developing Country Perspectives	Access, just transition, mini-grids, climate finance and technology transfer	~3 pages
7. RD&D Priorities	Key gaps; supply chains; standardisation; innovation pathways	~2 pages
8. Conclusions and Recommendations	Actionable policy recommendations for governments and stakeholders	~2 pages

2. The policy brief will be complemented by an executive summary of approximately two pages and will include a comprehensive reference list. Infographics, data visualisations, and call-out boxes will be used throughout to enhance accessibility and policy relevance.

II. Methodology and analytical approach

3. The policy brief will be developed through a rigorous, evidence-based analytical process drawing on the combined expertise of IRENA, FCA and the TEC with support from the secretariat, as well as on extensive stakeholder engagement. The analytical approach will include the following components:

(a) Systematic review of recent peer-reviewed literature, industry analyses, and national policy documents related to energy storage deployment, economics, and governance;

(b) Quantitative data analysis drawing on IRENA's IRENASTAT database, IEA statistics, industry cost data, and other authoritative datasets to track deployment trends, technology costs, and investment flows;

(c) Technology readiness assessment using FCA's established methodology to evaluate the maturity, commercial viability, and deployment readiness of key storage technologies, providing a basis for differentiated policy recommendations;

(d) Policy review and comparative analysis of enabling frameworks across a representative set of advanced economies, emerging markets, and developing countries, identifying patterns, enabling conditions, and policy gaps;

(e) Expert consultations and a dedicated stakeholder webinar to validate findings and incorporate practical perspectives from policymakers, industry representatives, researchers, and civil society;

(f) Peer review by TEC members and invited external experts prior to finalisation, ensuring scientific rigour and policy relevance.

4. The policy brief will analyse the role of energy storage technologies in facilitating renewable energy integration, improving energy system resilience and enabling cross-sector electrification. It will provide policy insights and recommendations to support governments and stakeholders in accelerating the deployment of energy storage technologies in support of NDC implementation and long-term low-emission development pathways.

III. Areas of focus

5. The policy brief will be organised around the following thematic areas, each of which addresses a distinct but interconnected dimension of energy storage deployment:

A. The critical role of energy storage in renewable energy integration

6. The brief will analyse the essential role of energy storage in facilitating high shares of variable renewable energy – solar PV and wind – in power systems. Drawing on IRENA's global modelling and system integration work, it will examine how different storage technologies and configurations contribute to managing variability, reducing curtailment, providing ancillary services, and enabling the retirement of fossil fuel plants. Case studies from diverse geographies will illustrate how countries are deploying storage to support renewable integration in both grid-connected and off-grid contexts.

B. Technology solutions and case studies

7. The document will present a structured assessment of technology solutions, drawing on case studies selected to reflect:

(a) Geographic diversity, including advanced economies, emerging markets, and least developed countries;

(b) A range of storage technologies, from utility-scale battery storage and pumped hydro to distributed systems, thermal storage, and hydrogen;

(c) Different application contexts, including grid-scale balancing, mini-grid and off-grid electrification, industrial decarbonisation, and transport;

(d) Emission reduction and climate resilience potential;

(e) Innovative business and financing models relevant to developing countries, with a particular focus on least developed countries (LDCs) and small island developing States (SIDS).

C. Enabling policies for deployment

8. A central contribution of the policy brief will be its analysis of the policy and regulatory frameworks that enable or constrain energy storage deployment. This will include:

(a) Electricity market design and revenue stacking regulations that allow storage to access multiple value streams;

(b) Grid codes, interconnection standards, and permitting frameworks that affect the speed and cost of storage deployment;

(c) Procurement mechanisms including long-term contracts, capacity auctions, and aggregation frameworks;

(d) Supply chain and industrial policies, including battery manufacturing strategies, critical mineral governance, and local content frameworks;

(e) International support mechanisms: climate finance instruments, technology transfer frameworks, and capacity-building initiatives relevant to developing country storage deployment.

D. Analysis of energy storage in NDCs and other policy frameworks

9. Building on the findings of the NDC synthesis report and the TEC's broader work on technology needs, the brief will examine the extent to which energy storage is reflected in NDCs, LTSS, and TNAs. It will identify gaps and opportunities and provide guidance on how countries can strengthen the treatment of storage in their climate policy frameworks. Particular attention will be given to just transition aspects, including job creation, skills development, and equitable distribution of benefits.

E. Key messages and policy recommendations

10. Drawing on the full analysis, the policy brief will develop a set of key messages and actionable policy recommendations targeted at national governments, international organisations, multilateral development banks, and the private sector. These recommendations will be tailored to of NDC implementation and structured to inform discussions at COP and CMA, as well as the next Global Stocktake.
