



FICHTNER

GAF-RE Program

Webinar:
"Financing Battery Energy Storage Systems
(BESS) under the GAF-RE Program"

9 September 2026

ENGINEERING  CONSULTING

01

Welcome and Opening Remarks





Agenda



1. Welcome and Opening Remarks
2. Program Overview: Phases IV–VII and Financing Conditions
3. Why BESS? Why now?
4. Regulatory and Legal Framework
5. Eligibility Conditions for BESS-PV Combinations
6. Application Process
7. Techno-Commercial Illustration: Indicative Example
8. Q&A and Open Discussion
9. Closing Remarks

02

Program Overview: Phases IV-VII and Financing Conditions



"PROMOTION OF RENEWABLE ENERGIES" PROGRAM

First phase
Y2004 6 Mio. EUR

Second phase
Y2010 18 Mio. EUR

Third phase
Y2012 40 Mio. EUR

Forth phase
Y2019 20 Mio. EUR

Fifth phase
Y2021 40 Mio. EUR

Sixth phase
Y2023 12 Mio. EUR

Seventh phase
Y2024 26 Mio EUR

Eighth phase
Y2025 40 Mio EUR

LENDING CONDITIONS

- Currency - AMD;
- Maturity - up to 10 years for PFIs , for end borrowers – no threshold;
- **BESS projects up to 1 MW capacity:**
 - LTV can be 100%,
 - maximum actual interest rate should not exceed 9.5-10%,
 - the final beneficiary should be a legal entity or a physical person (up to 150kW).

03

Battery Energy
Storage Systems
Why BESS?
Why now?



BESS – From Niche Technology to Mainstream Component in Power Systems

Global Trends Driving BESS Deployment

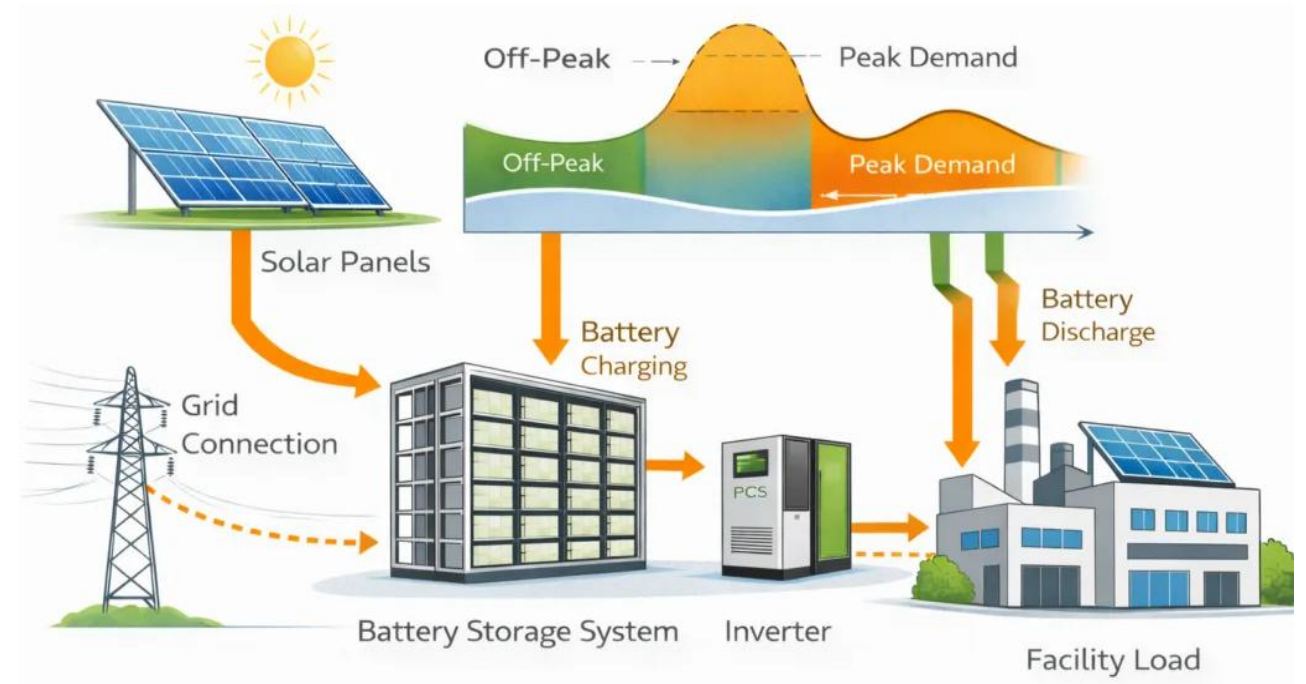
What is the Value of Using BESS?

Without BESS

- Excess solar generation may not be fully utilized
- Electricity still needs to be purchased from the grid later
- Higher exposure to future grid constraints
- Lower flexibility in managing energy costs

With BESS

- Higher self-consumption of solar energy
- Lower electricity purchases from the grid
- Greater energy independence
- Improved utilization of existing PV investments
- Increased operational flexibility
- Opportunity to participate in future storage-related markets

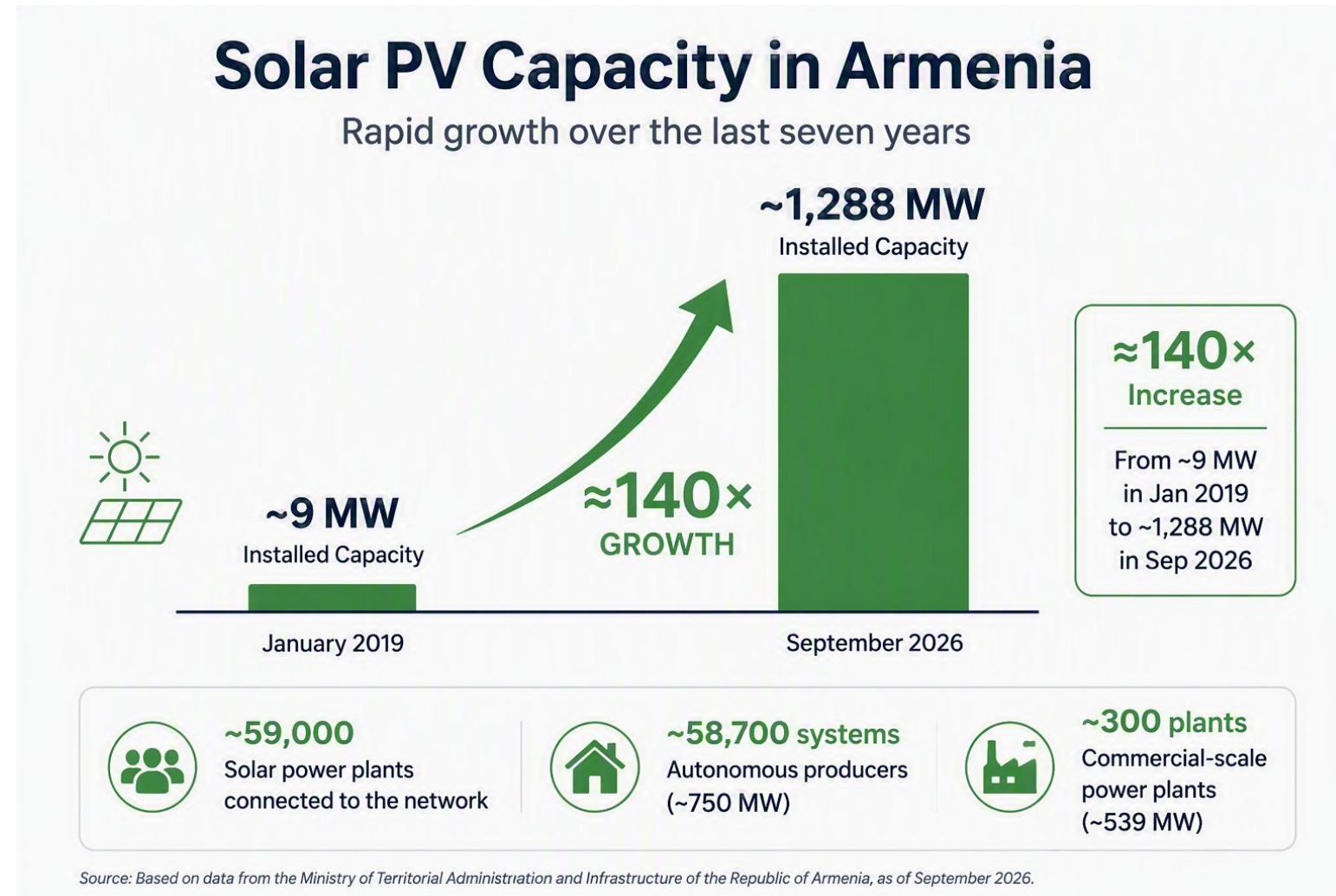


Battery storage enables both peak shaving and load shifting by storing energy during low demand periods and discharging during peak demand

Source: <https://sunlithenergy.com/peak-shaving-vs-load-shifting/>

Why Is BESS Becoming Relevant in Armenia?

Armenia's Energy Sector Is Evolving



Emerging Need for Energy Storage

- Increasing solar penetration creates periods of surplus daytime generation
- Energy storage can help shift energy consumption to later hours
- BESS can improve self-consumption and increase the value of existing PV investments

New Opportunities Are Emerging

- Financing now available under GAF-RE Program
- Energy storage recognized under the amended Energy Law
- Technical requirements available for project developers
- Market and regulatory framework continuing to evolve

Why Is GAF Supporting BESS Now?

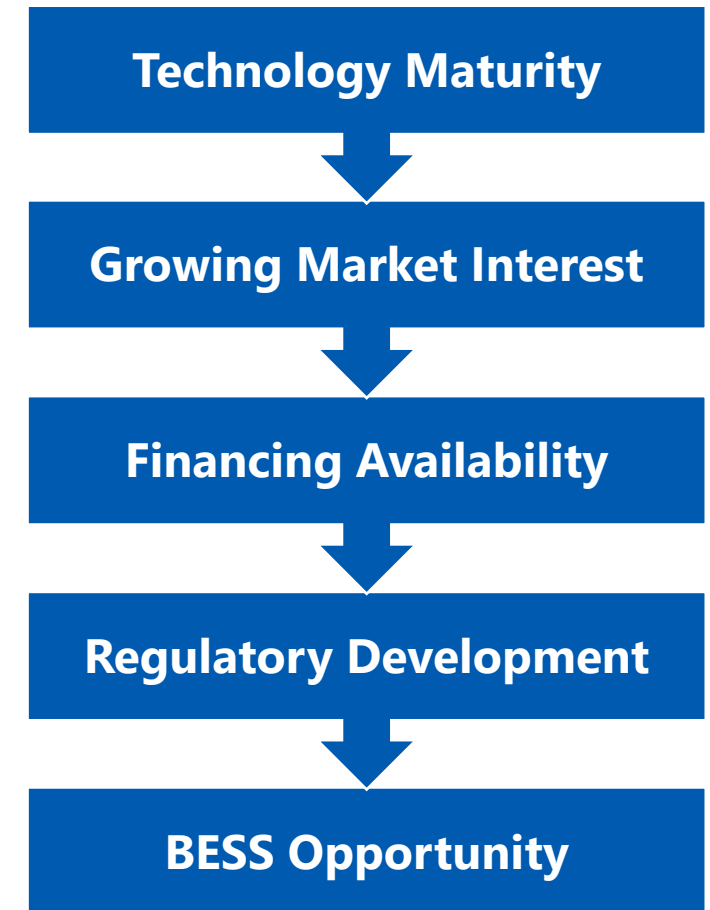
Creating the Conditions for Early BESS Adoption

The conditions for the development of BESS projects are increasingly falling into place:

- **Technology maturity** - Battery storage has become a proven and widely deployed technology.
- **Growing market interest** - Increasing interest from investors, EPC contractors, commercial consumers and financial institutions.
- **Financing availability** - Eligible BESS projects can now access financing under the GAF-RE program
- **Evolving regulatory framework** - Armenia is creating the foundations for future storage deployment and market participation.

The objective of the GAF-RE Program:

- Raise awareness of BESS opportunities
- Support project preparation
- Facilitate access to financing
- Build experience among investors, developers and PFIs



What Are We Seeing in the Market?

Growing Interest, But Many Questions Remain

Typical Questions Received

- Is BESS financing available?
- Which projects are eligible?
- Can existing PV systems integrate storage?
- Are stand-alone Storage Systems eligible?
- What technical requirements apply?
- What are the potential economic benefits?
- Do I need License?
- How can project developers apply?



Why We Developed the One-Pager

To provide stakeholders with:

- A concise introduction to BESS opportunities
- Key regulatory information
- Financing conditions
- Example applications
- Application process
- Contact points to guide you

Interest in BESS is growing, but stakeholders need practical guidance to move from concept to implementation.

The New BESS One-Pager

From Concept to Implementation

To provide investors, developers and PFIs with a concise overview of:

- Why BESS matters now
- Advantages of BESS
- Eligibility and Market opportunities
- Current regulatory framework
- Example applications
- Financing conditions
- Available support and contact points

UNLOCKING ENERGY STORAGE (BESS) IN ARMENIA

Financing Now Available for Battery Energy Storage Systems

WHY BESS MATTERS NOW

- For autonomous PV producers, proposed grid requirements may limit exports during 12:00-15:00h.
- Battery storage can capture excess midday solar generation.
- Stored energy can later be used on-site, increasing self-consumption and reducing electricity purchases.

ADVANTAGES OF BESS

- ✓ Increase self-consumption of solar energy
- ✓ Reduce electricity purchases from the grid
- ✓ Improve energy independence and resilience
- ✓ Capture excess solar generation for later use
- ✓ Prepare for evolving grid requirements
- ✓ Position for future electricity market opportunities

WHO CAN BENEFIT?

- Residential and commercial consumers
- Autonomous PV producers
- Future market participants

CURRENT REGULATORY FRAMEWORK*

Energy storage is now recognized as a distinct regulated activity under the amended Energy Law

LICENSING

No license generally required for:

- Storage projects up to 1 MW
- Own-consumption storage facilities (above 1 MW)

MARKET OPPORTUNITIES

- Energy storage services
- Electricity trading
- Future balancing markets

EXAMPLE APPLICATIONS**

- a. 10 kWh BESS + Rooftop PV
 - Potential savings: up to ~150,000 AMD/year
 - Higher solar self-consumption
- b. Commercial / Industrial PV + BESS
 - Maximize the value of on-site solar generation
 - Reduce reliance on grid electricity
- c. Standalone Utility-Scale BESS
 - Future electricity trading and storage revenues***
 - Business case depends on future market rules

FINANCING CONDITIONS

Effective Interest Rate	Up to 10%
Loan Tenor	Up to 10 years
Maximum Financing Amount	Based on eligible investment costs

INTERESTED IN A BESS PROJECT?

Apply for Financing

Apply for financing, obtain technical guidance, and learn about current eligibility requirements through GAF and participating financial institutions.

<https://re.gaf.am/>

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04

Regulatory and Legal Framework



Purpose & Scope

The purpose of this memorandum is to provide an updated overview of the **current Legislative and Regulatory Aspects of BESS technology** in **Armenia**, with a specific focus on **factors influencing the viability** of new BESS projects under the upcoming program phase.

Contents

This section covers the following topics:

1	Key regulatory areas for introducing Battery Energy Storage
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2	Why BESS is becoming increasingly relevant in Armenia
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3	Curtailment Risks & Restrictions
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4	Trends & Regulatory Actions
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5	Net Metering → Net Billing Transition
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6	Energy Law Amendment
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The New BESS One-Pager

What this section covers

- Current Regulatory Framework
- Licensing Requirements

UNLOCKING ENERGY STORAGE (BESS) IN ARMENIA

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Key Regulatory Areas for Introducing BESS

Definition and legal status of electricity storage

Licensing and permitting requirements for large-scale BESS

Environmental assessment and classification of BESS facilities

Technical, safety and security requirements for BESS

Role and status of storage facilities in the wholesale electricity market

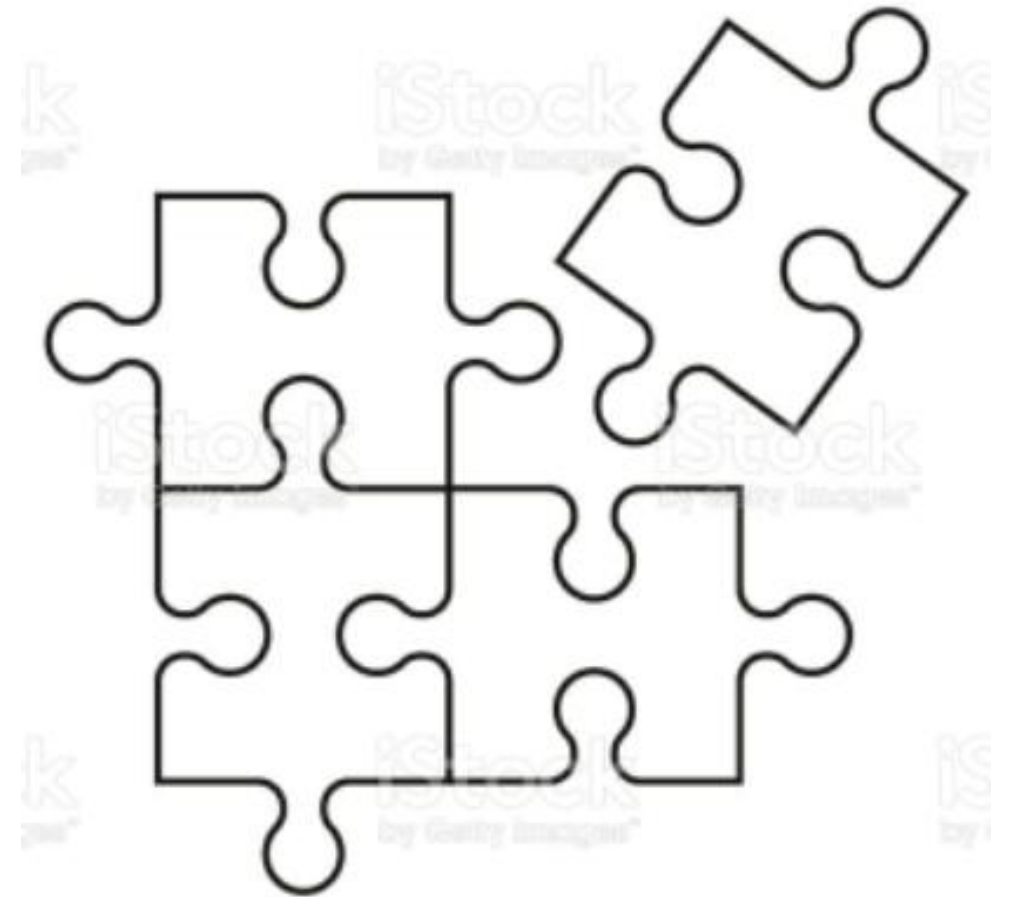
The rights and responsibilities of companies involved in electricity storage activity

Tax and customs treatment of BESS investments

Why is BESS Becoming Increasingly Relevant in Armenia?

The growth of renewable generation, electricity market liberalization and emerging system constraints are creating a stronger case for battery energy storage.

- Growing **renewable generation**
- Renewable **curtailment risk**
- **Grid constraints** + limited hosting capacity
- Electricity market **liberalization**
- Need for system **flexibility & balancing**
- **Legislative changes**
- Transition from **Net-Metering** → **Net-billing**



Renewable Curtailment Risk

**Restricted
Producer** concept
introduced

1,080-hour limit
(plants after
July 1, 2024)

2,200-hour limit
(plants after
Apr 12, 2025)

Pre-2024 limit was
87.6 hours

*The revision of the Curtailment Policy makes the consideration of **BESS** for **Restricted Producer** significantly more **financially justified**.*

Trends & Regulatory Actions

Curtailment rules
(1,080 → 2,200 hrs)

Limiting the PPA-
backed plants

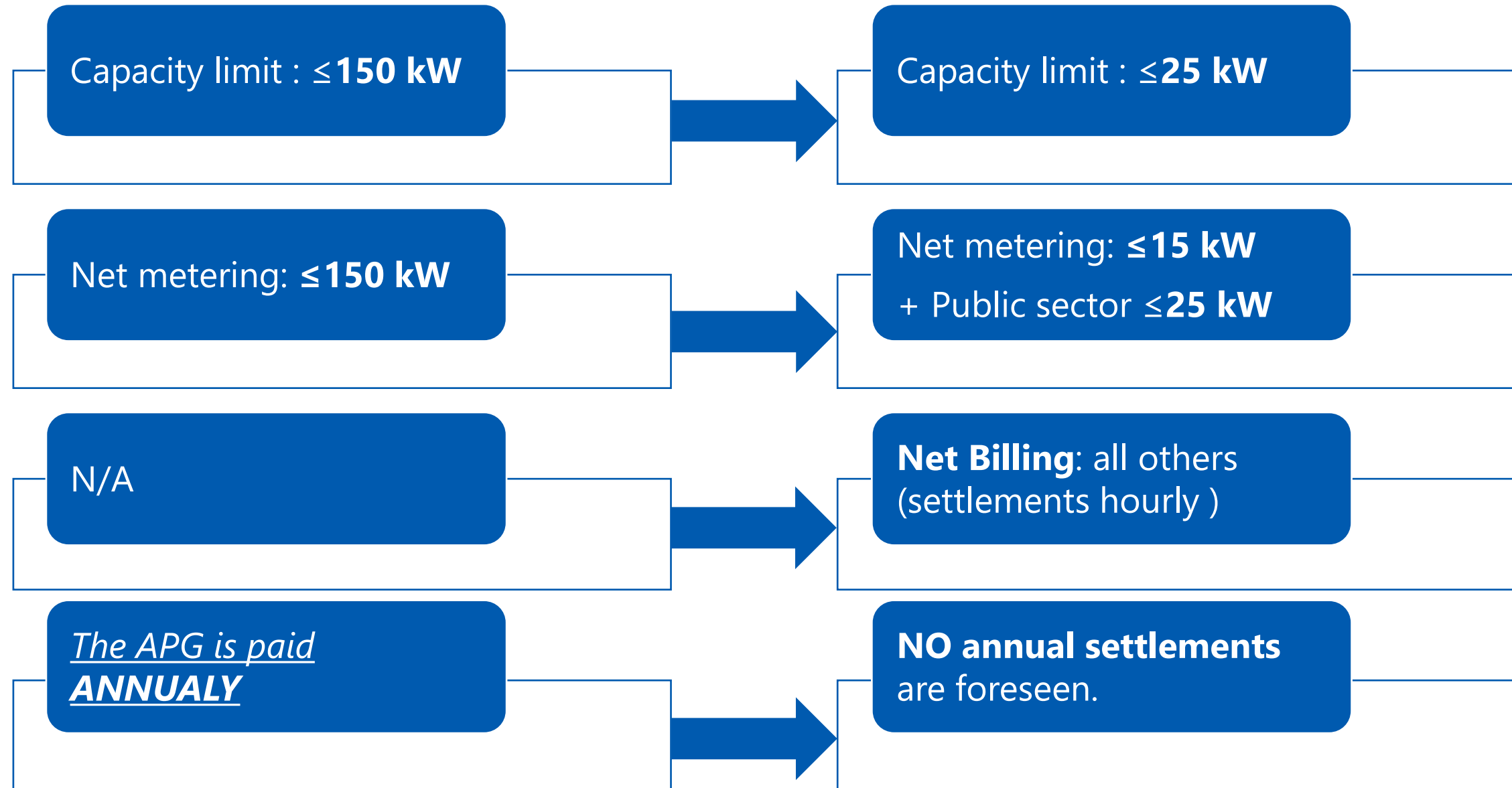
Minimum technical
requirements (HV
& LV)

Net Metering →
Net Billing
Transition

Consideration of
state support for
PV plants with
BESS

Energy Law
Amendment
(Storage)

Net Metering → Net Billing Transition



What has changed since the March 2026 Seminar?

Draft Minimum Technical Requirements for Small-Scale PV Plants

- Draft Minimum Technical Requirements for **Small-Scale PV Plants**
- Drafted and published on **e-draft since March 2026**
- Requires inverters for new autonomous PV installations **to be capable of connecting to BESS**
- Creates an important technical basis for future integration of battery storage with distributed PV

Amendments to the RA Law on Energy

- Adopted in **May 2026**
- Establishes the **legal framework for electricity storage**
- Introduces storage as a distinct activity and provides for its regulatory treatment
- **Entry into force: 4 December 2026**

Draft Electricity Law

- Draft published on **e-draft** for public consultation, with the consultation period running until **17 September 2026**
- Includes provisions addressing **electricity storage**
- The storage framework will subsequently be regulated under the **Electricity Law**
- Expected to enter into force in **2029**

Energy Law Amendment

The amendments were adopted in **May 2026** and will enter into force on **4 December 2026**.

LICENSE REQUIRED

- Storage facilities **above 1 MW**
- Where storage activity is undertaken as a **market activity** (licensed storage operators may sell and purchase electricity in the wholesale electricity market and provide storage services in accordance with market rules)

NO LICENSE REQUIRED

- Storage facilities **up to 1 MW**
- Storage facilities **above 1 MW used exclusively for own consumption/self-consumption**

STORAGE GUARANTEE

The framework introduces the concept of a **storage guarantee**, under which storage services may be subject to a guaranteed procurement arrangement for **15 years**

LICENSING OPTIONS

Storage licenses may be issued:

- **With a storage guarantee and tariff regulation** (*including PPP arrangements*), **OR**
- **Without a storage guarantee, under competitive market conditions**

WHAT SECONDARY LEGISLATION IS STILL NEEDED?

The Energy Law establishes the legal basis for electricity storage; detailed secondary regulations are required to make the framework operational.

Regulatory area	Key elements to be addressed	Status / expected timing
Licensing framework	Licensing rules and procedures for electricity storage	December 2026
Tendering & storage guarantees	Tender rules and procedures for licenses with storage guarantees and PPP	December 2026
Tariff methodology	Regulated storage guarantees, tariffs and PPP arrangements	December 2026
Market rules	Wholesale and balancing-market participation, market rules and contract templates	December 2026
Grid codes & MTR for BESS	Grid connection rules, technical requirements and minimum technical requirements for BESS	December 2027 (initial)
Contract templates	Standard Power Purchase Agreements / Electricity Purchase Agreements	December 2026
Energy Strategy	Update of the Energy Sector Development Strategic Programme to reflect the role of energy storage	December 2026

05

Eligibility Conditions for BESS-PV Combinations



The New BESS One-Pager

What this section covers

- Eligibility – Who can benefit?
- Market opportunities

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Eligibility Conditions for BESS-PV Combinations

Which Types of Projects Are Covered?

1. Rooftop PV + BESS

- Residential and commercial applications
- Increased self-consumption of solar electricity
- Reduced dependence on electricity purchased from the grid



2. Commercial / Industrial PV + BESS

- Behind-the-meter storage
- Energy shifting and operational flexibility
- Optimized use of on-site renewable generation



3. Standalone BESS*

- Subject to applicable regulatory and technical requirements
- Potential future participation in electricity trading and storage services

* Subject to project-specific eligibility assessment.



Two Main Business Models for BESS

Self-Consumption Model

- Energy is stored and later used by the same consumer.
- Examples:
 - Rooftop PV + BESS
 - Commercial/Industrial PV + BESS
 - Behind-the-meter Storage
- Main benefit:
 - Reduced purchases of electricity from the grid
 - Increased self-consumption
 - Greater energy independence

2. Market-Based Model

- Energy storage participates in future electricity markets.
- Examples:
 - Standalone BESS
 - Future storage service providers
 - Future balancing market participants
- Main benefit:
 - Future revenues from storage-related services and market participation
 - Electricity trading

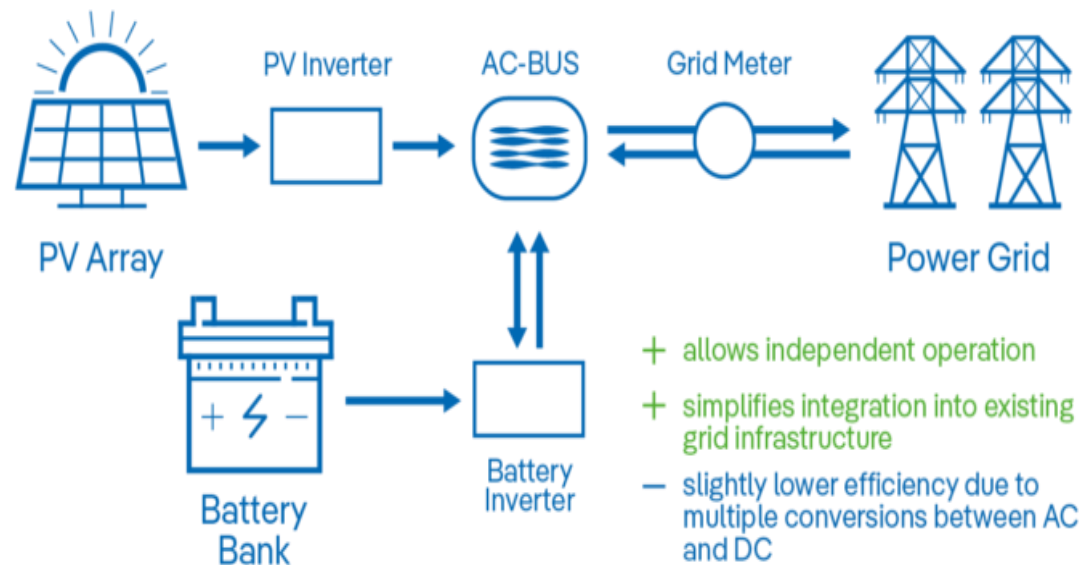
Most current BESS opportunities focus on self-consumption, while additional market-based opportunities may emerge as the regulatory framework develops.

AC-Coupled vs. DC-Coupled BESS

Two Ways to Combine Solar PV and Battery Storage

AC-Coupled Configuration

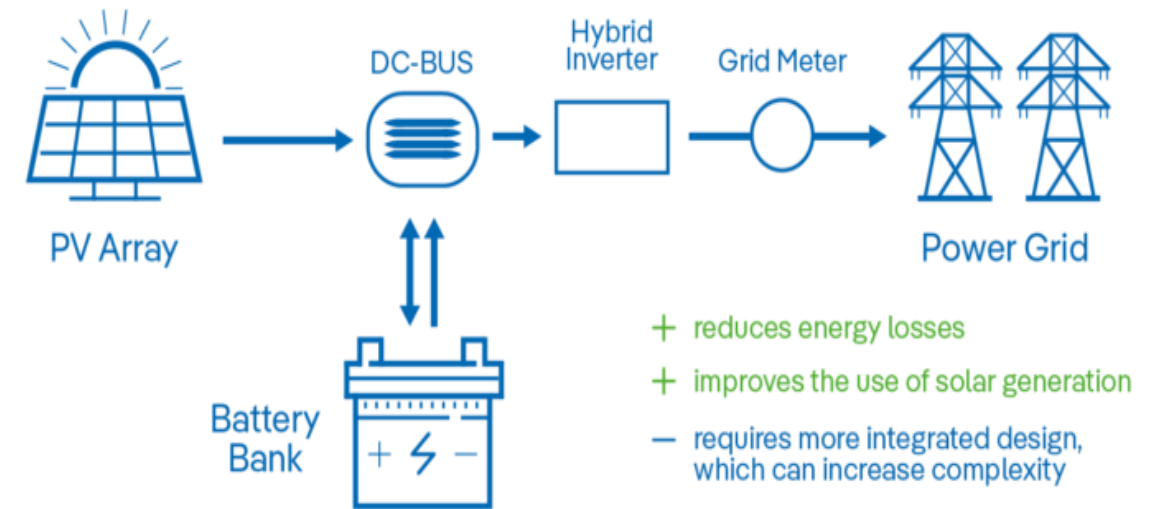
- PV system and battery operate through separate inverters
- Battery can be charged from solar PV or directly from the grid
- Greater operational flexibility



- **Typical application:** Existing PV plant + new battery system

DC-Coupled Configuration

- Solar energy can charge the battery directly
- Fewer energy conversion steps
- Higher overall efficiency



Source: <https://www.chintsolar.com>

- **Typical application:** New solar-plus-storage project developed as a single system

Licensing Exemption Does Not Mean "No Requirements"

Certain storage projects may not require an energy storage license. However, projects must still comply with:

- ✓ Grid connection requirements
- ✓ Technical requirements and standards
- ✓ Safety requirements
- ✓ Permit requirements, where applicable
- ✓ Applicable environmental and construction regulations
- ✓ Technical review under GAF requirements

Important

Licensing exemptions reduce administrative burden, but they do not eliminate technical or safety obligations.

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Licensing exemptions reduce administrative burden, but they do not eliminate technical or safety obligations.

Existing PV Projects and Feed-in Tariff Arrangements

Existing PV Projects: What Should Investors Consider?

Current Situation

- Existing PV projects operating under a Feed-in Tariff (FiT) arrangement may face restrictions regarding the integration of battery storage systems.
- Project developers should verify storage eligibility under the applicable regulatory framework before investing in BESS solutions.

Alternative Pathway

- FiT project owners may opt out of the FiT scheme and participate in the liberalized electricity market (currently possible until 1 February 2028).
- Once a project leaves the FiT scheme, it cannot return to it.

Important Commercial Consideration

For utility-scale BESS projects, financial viability will depend on factors such as:

- Future electricity price spreads
- Development of balancing markets
- Availability of ancillary service revenues
- Future regulatory developments

Minimum Technical Requirements (MTR)

GAF-RE Phase VII | Fichtner



Home

About GAF

Organization

Project Cycle

Eligibility / Selection Criteria

Application

ESHS Requirements

Technical Assistance

Contacts

Links

Downloads

Downloads

Forms and Checklist for Required Documents

Application Form for PV Plants up to 500 kW

Application Form for PV Plants up to 5 MW

Checklist of Required Documents for TA of up to 5 MW PV Plants

Application Form and Checklist for Battery Energy Storage Systems (BESS)

Application Form and Checklist for Small-Scale BESS

Minimum Technical Requirements and Checklist for Required Documents

Minimum Technical Requirements for PV plants up to 150 kW and BESS

Minimum Technical Requirements for PV plants from 150 to 500 kW and BESS

Minimum Technical Requirements for PV plants up to 5 MW PV and BESS

→ <http://re.gaf.am/>

Three Project Tiers – One Updated MTR Framework

Apply the tier matching your contracted installed capacity

► **Large-scale PV & BESS – up to 5 MW(AC)**

- Full engineering-grade requirements; utility-scale grid interface; detailed technical assessment by Fichtner/R2E2

► **Mid-scale commercial – 150 kW to 500 kW**

- Simplified requirements for own-consumption systems; same technology standards but less formal documentation

► **Small-scale – up to 150 kW**

- Basic checklist-based approach; rooftop or small ground-mount; fund specialist assessment on request

► **ALL THREE TIERS:** BESS requirements now included in the Minimum Technical Requirements (MTR) for the first time



Tier Comparison – Key Requirements at a Glance

Requirements scale with project size – same quality foundation for all tiers

Large-Scale up to 5 MW(AC)

Modules

- Min. 22% efficiency STC (20% if operational)
- Track record: 2 plants ≥ 10 MW; ≥ 50 MW total
- Warranty: 10-yr product / 30-yr power

Inverters

- 96% (central) / 97% (string) CEC efficiency
- 5-year warranty; grid support, cybersecurity

Mounting / Monitoring

- 25-yr warranty; 500 MW manufacturer track record
- Full SCADA + weather station + LDC interface

BESS

- PCS: $>97\%$ CEC; $<0.01\%$ idle loss; <3 s ramp
- 5-yr warranty (ext. 15); noise ≤ 45 dB

ESHS

- Full ESHS plan; KfW categorization; EIA if required

Mid-Scale 150 kW – 500 kW

Modules

- Min. 22% efficiency STC
- Standard certified modules (IEC 61215 / 61730)
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- SCADA + monitoring recommended

BESS

- PCS: $>95\%$ CEC; pre-commissioned units
- 3-yr warranty (ext. 10); noise ≤ 55 dB

ESHS

- ESHS plan required; EIA generally not required

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Inverters

- 97% Euro efficiency; single manufacturer
- Standard IEC compliance

Mounting / Monitoring

- 25-yr warranty; standard products
- Basic monitoring recommended

BESS

- $\geq 90\%$ round-trip efficiency; LFP preferred
- 5-yr battery / 2-yr PCS warranty; ≤ 40 dB

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- Basic EHS checklist; no EIA required

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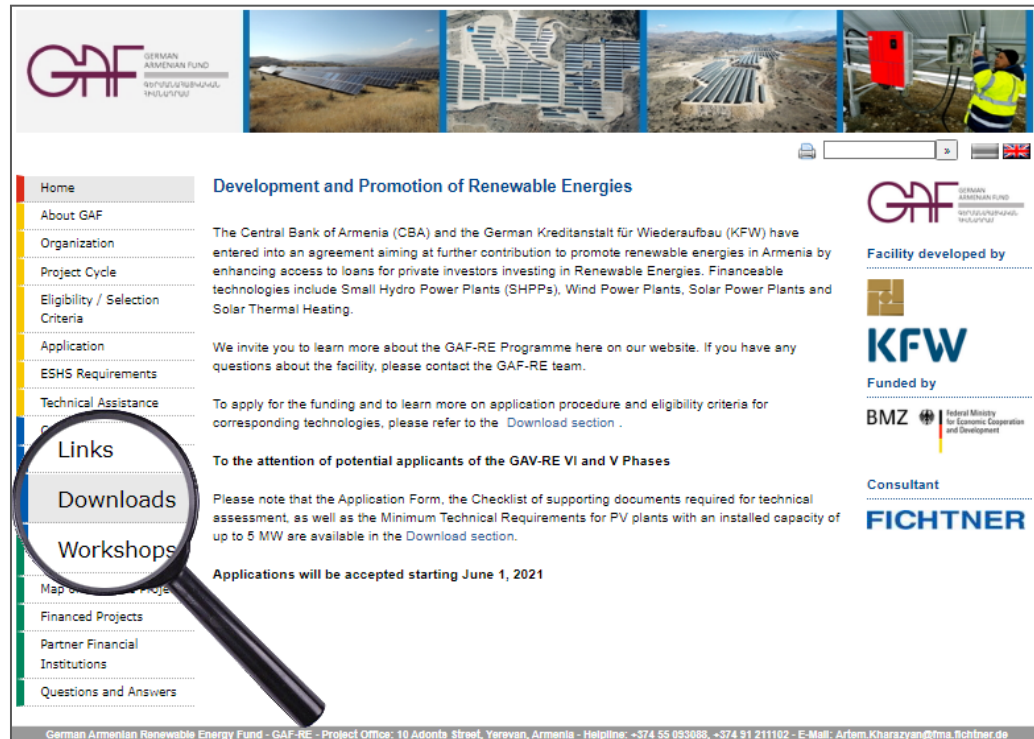
Application Process



Application Process

Application Forms, Check Lists and Minimum Technical Requirements for BESS

Website: re.gaf.am



Downloads

Forms and Checklist for Required Documents

[Application Form and Checklist for Battery Energy Storage Systems \(BESS\)](#)

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Minimum Technical Requirements

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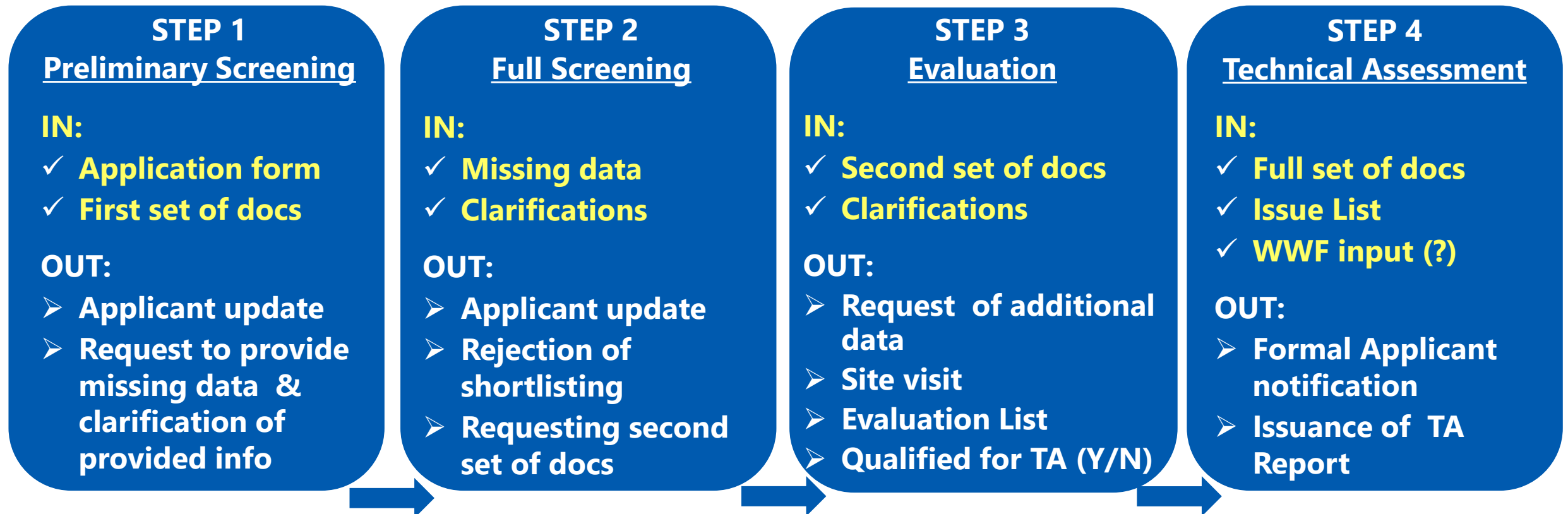
Checklists of the required documents for BESS projects are integrated into the corresponding Application Forms!

Application Process

Application Workflow

Duration of the application workflow covering eligibility screening, evaluation of applications, site visits, clarifications and technical assessment depends on the capacity class of the project.

(The application workflow for BESS is presented in a similar way to that of a LS PV power plants)



Email is the **primary** method of communication and document flow, with the option of clarifying the evaluation and approval procedure or document requirements via video or phone calls with a contact person in Armenia and Project Team.

Application Form

- Filled out as **completely** as possible based on the available data;
- Submitted **signed** and **stamped** in an **electronic** form;
- Submission to: artem.kharazyan@fma.fichtner.de;
- Submission of corresponding **supporting documents** specified in the Application Form and Checklist;
- The **completeness** of information and supporting documents guarantee **quick registration** and **evaluation** of the application;
- Applications with **incomplete** set of supporting documents will **not be registered** until all missing documents are submitted;
- No **hard copy** of application or any other documents are accepted;
- **Compliance** of the project with **MTRs** shall be noted;
- Applicants are **notified** of the **receipt** of the documents via email;
- In case of meeting eligibility requirements the **screening** and **evaluation** process is launched.

Application Process

Eligibility

Application form is designed for the following two types of projects:

- New-construction projects and projects under construction
- Already completed and operational projects

Application form covers the following BESS configurations:

- Stand-alone BESS (grid-connected energy storage systems)
- Co-located BESS (battery storage integrated with existing or new PV/renewable generation on the same site)
- Hybrid systems (AC-coupled or DC-coupled configurations with renewable generation)

Application Process

Application Form for Battery Energy Storage Systems (BESS)

1. Project Name
2. Contact Data of Applicant / Focal Point
3. Applicant Company Profile
4. Ownership of Other Energy Storage or Generation Assets
5. Description of the Proposed Project
 - a. Narrative: battery cells, battery management system, power conversion system, energy management system, current status of the project:, e.g. design stage, construction, operational, etc.).
 - b. Project configuration type:
 - Stand-alone BESS (grid-connected battery storage only)
 - Co-located with existing / new PV plant
 - Hybrid AC-coupled system (battery connected on AC side of PV inverters)
 - Hybrid DC-coupled system (battery connected on DC side sharing inverter with PV)
 - c. Location of the project site
 - d. Proximity to other energy facilities

Application Process

Application Form for Battery Energy Storage Systems (BESS)

5. Technical Data of the BESS

- a. BESS specifications
- b. Power Conversion System) / Inverter Specifications
- c. Energy Management System (EMS)
- d. Auxiliary Systems
- e. Transformer and Grid Connection
- f. Co-located PV Plant Data (if applicable)
- g. Expected Performance

6. Information on EPC Contractor

7. Project Milestones and Timeline

8. Financial Data

(cost breakdown , financing structure, operating revenue and expenses, project financial indicators, etc.)

9. Environmental, Health, and Safety

10. Grid Integration and Technical Requirements

Application Process

Checklist of Required Documents for Technical Assessment

New Construction or Under Construction BESS Projects

All documents to be delivered in English except for official documents issued by local authorities and national institutions

- F = First Set of Supporting Documents (FSSD) - documents required at application stage
- S = Second Set of Supporting Documents (SSSD) - documents required before first loan tranche disbursement
- T = Third Set of Supporting Documents (TSSD) - documents required before final loan tranche disbursement

Application Process - Checklist of Required Documents

First Set of Supporting Documents

1. SITE AND LAND DOCUMENTATION (coordinates, ownership)
2. LEGAL ENTITY DOCUMENTATION (state registration, charter, TIN, etc.)
3. GRID CONNECTION DOCUMENTATION (layout plan of evacuation line, preliminary TC for grid connection)
4. LICENSING AND PERMITTING (PSRC license)
6. ENERGY AND PERFORMANCE ASSESSMENT (grid data assessment: historical load profiles, grid frequency data, voltage stability data, solar resource assessment, energy yield assessment, PV energy production calculation)
7. ENVIRONMENTAL, SOCIAL, HEALTH & SAFETY DOCUMENTATION (EIA report, land acquisition plan)
8. DESIGN BASIS AND TECHNICAL DOCUMENTATION (design basis short-form report, electrical single line diagram)
9. SITE DOCUMENTATION (photos of the site, structures and equipment)
10. PROJECT SCHEDULING AND COSTING (implementation schedule, cost estimation, business plan, financing plan)
11. EQUIPMENT SPECIFICATIONS AND PROCUREMENT (technical specifications and certificates of equipment, warranty documentation, purchase agreements for equipment)
12. CONTRACTS (grid services agreement or power purchase agreement)
14. FOR CO-LOCATED PV+BESS PROJECTS ONLY (PV plant technical specifications and datasheets, PV-BESS integration study, PV plant operating data)

Application Process - Checklist of Required Documents

Second Set of Supporting Documents

- 3. GRID CONNECTION DOCUMENTATION (final technical conditions for connection to grid)
- 5. SITE ASSESSMENT AND ENGINEERING STUDIES (topographic survey report, geotechnical study, structural analysis of battery container foundations and mounting structures, load-bearing capacity analysis for equipment)
- 7. ENVIRONMENTAL, SOCIAL, HEALTH & SAFETY DOCUMENTATION (fire risk assessment and fire safety plan, emergency response plan, health and safety management plan for construction and operation)
- 8. DESIGN BASIS AND TECHNICAL DOCUMENTATION (detailed design of the project and drawings, battery system layout drawings, fire suppression system layout)
- 12. CONTRACTS (EPC contract or system integration contract, O&M concept including budget, insurance certificate)
- 13. GRID CODE COMPLIANCE AND TESTING (grid code compliance (type test) certificates from eq. manufacturers)

Third Set of Supporting Documents

- 7. ENVIRONMENTAL, SOCIAL, HEALTH & SAFETY DOCUMENTATION (Environmental and Social Management Plan for Construction & Operation Phase, Biodiversity Assessment Report, Stakeholder Engagement Plan)
- 13. GRID CODE COMPLIANCE AND TESTING (Factory Acceptance Test (FAT) protocols for battery system, Site Acceptance Test (SAT) protocols and commissioning reports)

Application Process

Assessment of Environmental Sensitivity of Large-Scale Projects (WWF Input into TA Report)

Since July 2021 the collaboration with WWF Armenia has been maintained to evaluate **environmental sensitivity** of up to 5 MW PV projects through the following activities:

- Evaluation of the level of **potential impact** of the project activity and infrastructure to the identified sensitive zones and ecosystems;
- Development of recommendations on suitable **mitigation** activities.

Based on the data available, the WWF concludes if a project is expected or not expected to have negative impact on biodiversity by evaluating distance of a project site for the following sensitive areas: Key Biodiversity Areas (**KBA**), Important Plant Areas (**IPA**), Important Bird Areas (**IBA**), Community Conservation Area (**CCA**) and Emerald Sites. WWF conclusions are **integrated** into TA Reports.

In case of proximity of the project site to the above areas WWF recommends Investors engaging an appropriate **botanist** to assess plants' diversity. In the case of finding any red listed species, a **translocation plan** should be developed by relevant botanists and approved by the state authority.

Botanical surveys are to be organized and financed by Investors / Applicants and the results to be **integrated** into the TA Report. **Mitigation measures** are implemented by Investors / Applicants.

Application

Guidance on Document Preparation

The **completeness** and reliability of the information provided significantly impact the speed of project evaluation and approval.

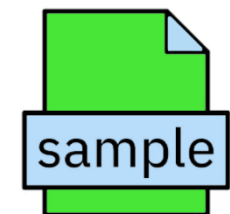
Incompleteness of the application package is the most common cause of evaluation **delay**.

To facilitate the submission process, the following support to applicants is available:

- **Individual consultations** on the format, content and purpose of the required documentation (email communication with the Consultant's local or international team);
- Detailed and periodically updated **instructions** in the **"Questions & Answers"** section of the website;
- **Sample documents** from the successfully appraised projects shared with the applicants upon request;
- **Recommendations** on local experts with knowledge and qualifications to prepare documents.



Help Desk



Application Process - Step-by-Step Guidance

Borrower Corrective Action List of TA Report / Issue List of Monitoring Reports

If, in the course of project evaluation and Technical Assessment of a new project, construction and/or installation work is carried out at the project site, then a **due diligence monitoring visit** is organized to collect information for the report and determine if the work being carried out **complies** with the requirements of the Program.

Deficiencies identified during a monitoring visit and recommended rectifications are outlined in the **Borrower Corrective Action List** to be annexed to the TA Report and to be **implemented** by an applicant as a **pre-condition** for disbursement of the second tranche of the loan.

7 Annex 2: Borrower Corrective Action List									
In the course of project evaluation and Technical Assessment, Fichtner performed a site inspection on 25 July 2025 and shared a comprehensive site inspection protocol with the Owner. Derived from that was the following Issue List comprising the immediate corrective action to be taken (UC23_Areg 1 Plant IL_25.07.2025 (Updated on 16.09.25).xlsx). Part of it is already done in the meantime. Items that are still open or ongoing will need to be closed before the disbursement of the final loan tranche of 10%. Fichtner will double check the closed items during the site monitoring visit(s).									
N	Category	Issue	Explanation	Action required	Priority	Date commitment	Status	Investor comment	Fichtner reply
1	Electrical	DC LV wire labelling at inverters	Although DC LV cables were labelled/numbered initially, due to improper marking, most of them are not visible or are missing.	DC LV cables are to be fully labelled and numbered at inverter.	1	30/09/2025	closed	DC cables are properly labelled before the committed date.	Photos demonstrating the labels installed on all the DC strings are provided to Fichtner. The results and quality of the rectification will be checked during the next monitoring visit.

Application Process - Step-by-Step Guidance

Borrower Corrective Action List of TA Report / Issue List of Monitoring Reports

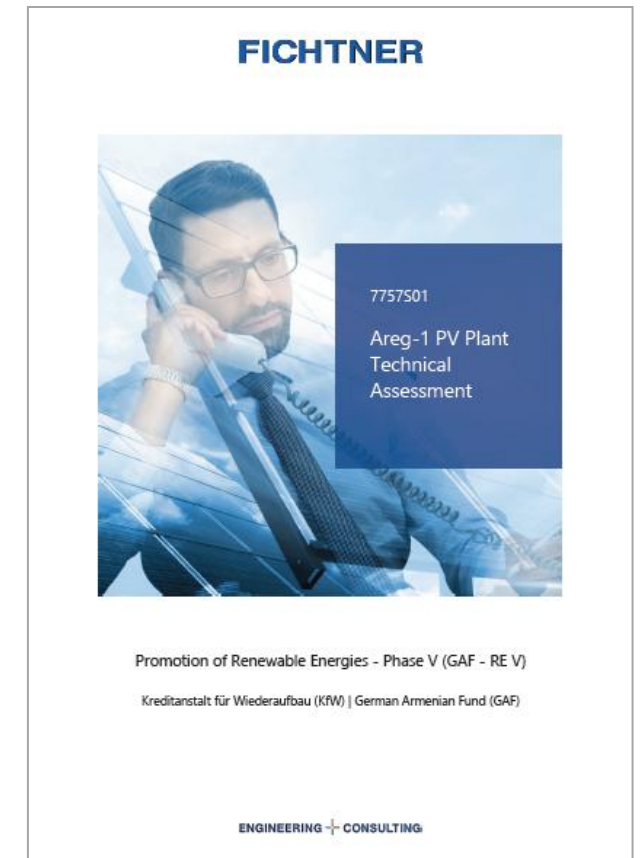
The List provides the following information:

- **Category** (e.g. *Electrical*)
- **Issue** (e.g. *Exposed gaps at the end of conduits*)
- **Explanation** (e.g. *Open gaps remain at the conduit ends, some of which are partially filled with degraded PU foam, allowing moisture and dust to enter*)
- **Action required** (e.g. *the gaps should be fully sealed and covered with bituminous sealant; the damaged conduit should be replaced with UV-resistant materials or properly repaired*)
- **Priority level** (e.g. *Immediate*)
- **Date Commitment** (the deadline for implementation of rectification proposed by an applicant)
- **Status** (status of implementation at the moment of submission or report - open, ongoing or closed)
- **Investor comment:** (comments of the applicant on implementation of the rectification, i.e. *UV-resistant tape will be wrapped around the pipes to prevent cracking and future damage*)
- **Fichtner reply** (e.g. *Please provide photos demonstrating the results of the rectifications, once the work is completed, the results and quality of the rectification will be checked during the next monitoring visit*)

Application Process - Step-by-Step Guidance

Technical Assessment Report for Large-Scale PV Projects

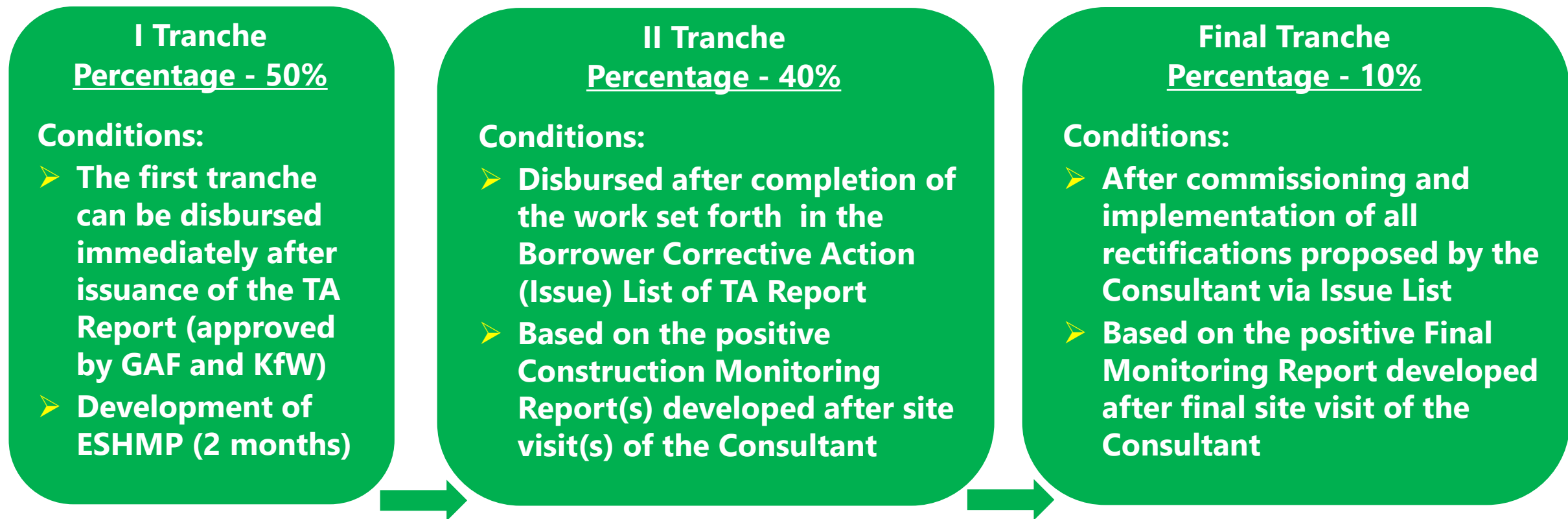
- Prepared based on the documentation and data **made available** to Fichtner at the time of writing.
- The content of this expert appraisal is **confidential** and intended for the exclusive use of the client.
- Subject to the approval of **GAF** and **KfW**.
- The Report provides:
 - ✓ **Technical Assessment** (permitting and licensing, reviewed documents, findings, risks and mitigations for key components such as PV modules, inverters, transformers, electric works, grid connection, foundation and mounting structure, site security, operation monitoring, etc.).
 - ✓ **Environmental, Social, Health and Safety Analysis** (ESHS Assessment Methodology, WWF conclusion, Environmental and Social Action Plan)
 - ✓ **Recommendations**
 - ✓ **Financial Assessment** (capital structure and financing, bearing capacity of the project, conclusion – loan amount and loan disbursement scheme)
 - ✓ **Borrower Commitment Checklist** and **Borrower Corrective Action List**



Application Process - Step-by-Step Guidance

Loan Disbursement Procedure

(The loan disbursement procedure for BESS is presented in a similar way to that of a LS PV power plants)



In case the Investor fails to implement the project taking into consideration the requirements and recommendations stated in the respective chapters of the TA Report, the previously disbursed loan will be withdrawn and called back by GAF

07

Techno-Commercial Illustration



The New BESS One-Pager

What this section covers

- Illustrative Example Application
 - 10 kWh Rooftop PV + BESS

UNLOCKING ENERGY STORAGE (BESS) IN ARMENIA

Financing Now Available for Battery Energy Storage Systems

WHY BESS MATTERS NOW

- For autonomous PV producers, proposed grid requirements may limit exports during 12:00-15:00h.
- Battery storage can capture excess midday solar generation.
- Stored energy can later be used on-site, increasing self-consumption and reducing electricity purchases.

ADVANTAGES OF BESS

- ✓ Increase self-consumption of solar energy
- ✓ Reduce electricity purchases from the grid
- ✓ Improve energy independence and resilience
- ✓ Capture excess solar generation for later use
- ✓ Prepare for evolving grid requirements
- ✓ Position for future electricity market opportunities

WHO CAN BENEFIT?

- Residential and commercial consumers
- Autonomous PV producers
- Future market participants

CURRENT REGULATORY FRAMEWORK*

Energy storage is now recognized as a distinct regulated activity under the amended Energy Law

LICENSING

No license generally required for:

- Storage projects up to 1 MW
- Own-consumption storage facilities (above 1 MW)

MARKET OPPORTUNITIES

- Energy storage services
- Electricity trading
- Future balancing markets

EXAMPLE APPLICATIONS**

- a. 10 kWh BESS + Rooftop PV
 - Potential savings: up to ~150,000 AMD/year
 - Higher solar self-consumption
- b. Commercial / Industrial PV + BESS
 - Maximize the value of on-site solar generation
 - Reduce reliance on grid electricity
- c. Standalone Utility-Scale BESS
 - Future electricity trading and storage revenues***
 - Business case depends on future market rules

FINANCING CONDITIONS

Effective Interest Rate	Up to 10%
Loan Tenor	Up to 10 years
Maximum Financing Amount	Based on eligible investment costs

INTERESTED IN A BESS PROJECT?

Apply for Financing

Apply for financing, obtain technical guidance, and learn about current eligibility requirements through GAF and participating financial institutions.

<https://re.gaf.am/>

artem.kharazyan@fma.fichtner.de

+374 91 211102

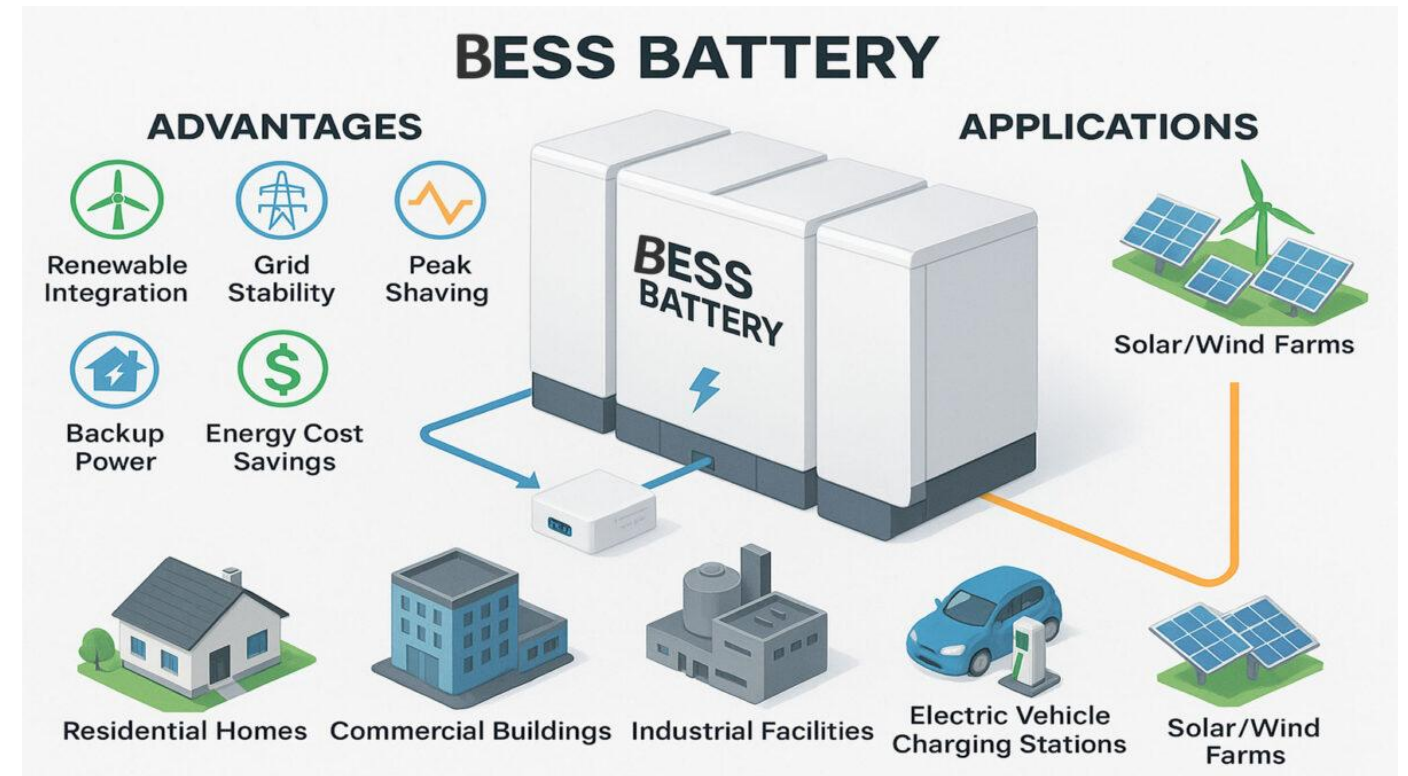
How Does a BESS Create Economic Value?

Economic value depends on:

- Battery size
- Available solar generation
- Consumption profile
- Electricity tariff avoided
- Frequency of battery cycling
- Battery performance over time
- Investment and financing costs

Different projects may create value through:

- Higher solar self-consumption
- Reduced electricity purchases
- Load shifting
- Peak shaving
- Future storage services and electricity trading



Source: <https://aqueouss.in/wp-content/uploads/BESSNEW4-1024x576.jpg>

Illustrative Example 1: Rooftop PV + BESS

Objective:

Increase self-consumption of solar electricity and reduce electricity purchases from the grid.

Assumptions:

Parameter	Value
Battery Capacity	10 kWh
Application	Rooftop PV + BESS
Battery Cycling	1 cycle/day
Utilization Factor	~80%
Electricity Tariff	~50 AMD/kWh
<u>Avoided Electricity Purchases</u>	<u>~150,000 AMD/year</u>

Rationale:

- Step 1 – Annual Battery Throughput:** $10 \text{ kWh} \times 365 \text{ days} = 3,650 \text{ kWh/year}$
- Step 2 – Useful Stored Energy:** $3,650 \times 80\% = 2,920 \text{ kWh/year}$
- Step 3 – Avoided Electricity Purchases:** $2,920 \times 50 \text{ AMD/kWh} = 146,000 \text{ AMD/year} = \sim 150,000 \text{ AMD/year}$

How Sensitive Are the Results?

Illustrative Scenarios

Scenario	Annual Benefit
Conservative	~100,000 AMD/year
Indicative Case	~150,000 AMD/year
Higher Utilization	~180,000 AMD/year

What Drives the Difference?

- Electricity tariff
- Number of cycles
- Consumption profile
- Battery utilization
- Energy available for charging

Important Limitations

The Example Does NOT Include

- ✗ Battery investment cost
- ✗ Financing cost
- ✗ O&M expenses
- ✗ Battery degradation
- ✗ Future replacement costs
- ✗ Future tariff changes
- ✗ Future regulatory developments

A Complete Project Assessment Requires

- ✓ Actual load profile
- ✓ Actual PV generation profile
- ✓ Supplier quotations
- ✓ Financing conditions
- ✓ Technical design
- ✓ Applicable regulatory framework

Important:

- Existing PV projects operating under Feed-in Tariff (FiT) arrangements should verify storage eligibility and available market participation options before investing in BESS solutions.
- This document is for informational purposes. Regulatory framework is subject to finalization of secondary legislation by the PSRC. For technical compliance, refer to the SET Centre (www.setcenter.am).
- Illustrative examples only. Actual savings depend on electricity tariffs, battery size, consumption profile and future regulatory requirements.
- Tariff methodologies and market mechanisms for energy storage are currently being developed.

08

Q&A and Open Discussion



09

Closing Remarks



Material & Contact Details

Downloadable Material

GAF Website



Armenian
and English
versions
available

- BESS One-Pager
- Application Forms
- MTRs
- Workshop & Seminar Presentations
- EPC Guidelines

Home
About GAF
Organization
Project Cycle
Eligibility / Selection Criteria
Application
ESHS Requirements
Technical Assistance
Contacts
Links
Downloads
Workshops & Seminars

Downloads

Forms and Checklist for Required Documents

- Application Form for PV Plants up to 500 kW
- Application Form for PV Plants up to 5 MW
- Checklist of Required Documents for TA of up to 5 MW PV Plants
- Application Form and Checklist for Battery Energy Storage Systems (BESS)
- Application Form and Checklist for Small-Scale BESS

Minimum Technical Requirements and Checklist for Required Documents

- Minimum Technical Requirements for PV plants up to 150 kW and BESS
- Minimum Technical Requirements for PV plants from 150 to 500 kW and BESS
- Minimum Technical Requirements for PV plants up to 5 MW PV and BESS

Material and Contact Details

Contact Points:

German Armenian Fund:

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Email: Satenik@gaf.am

Fichtner:

- Mr. Artem Kharazyan
Local Project Coordinator
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Email: Artem.Kharazyan@fma.fichtner.de

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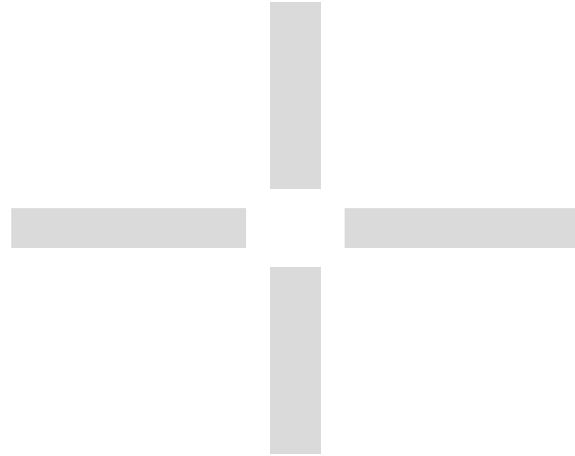
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<https://re.gaf.am/>

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FICHTNER



Thank you for your
attention

References

- IEA (2026), Battery storage is scaling up and taking on a larger system role, IEA, Paris
<https://www.iea.org/commentaries/battery-storage-is-scaling-up-and-taking-on-a-larger-system-role>, Licence: CC BY 4.0
- IEA (2026), Global Energy Review 2026, IEA, Paris <https://www.iea.org/reports/global-energy-review-2026>,
Licence: CC BY 4.0
- Electricity installed capacity | Armenia (1980–2024) – Data, Charts & Analysis
- <https://armenpress.am/en/article/1259636>