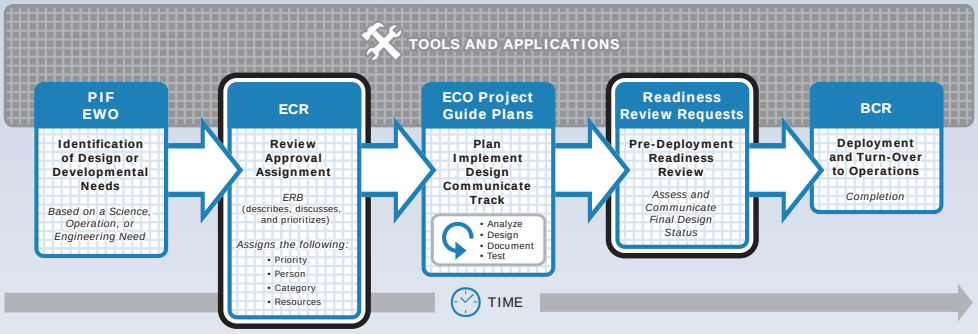
Atmospheric Radiation Measurement
Climate Research Facility
U.S. Department of Energy

Navigating the ARM Climate Research Facility's Engineering Process



Overview

The ARM Climate Research Facility (ACRF) engineering process is a series of formal tasks to initiate, revise, and guide ACRF engineering tasks. Using recognized engineering principles and software development lifecycle, the ACRF engineering process is based on a series of steps that are supported by online applications. By following this process, ACRF users keep the Infrastructure Management Board aware of their needs and concerns, allowing the Board to make more informed decisions about ACRF resources.

- Identify a design or development need
- Review and approve request
- Assign accepted request to a developer
- Plan, design, and implement request
- Conduct readiness review of completed request
- Deploy solution to production environment.

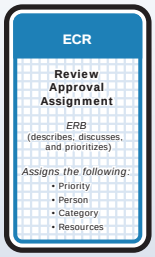
Starting a Request for a New ARM Product, Capability, or Functionality

Anyone from the ARM Science Team or ACRF Infrastructure can initiate an engineering request by identifying a need. A need is based on a science, engineering, or operational request that can result in a new product, capability, or functionality or in a modification to an instrument, computer system, or data stream. Choosing the right path to communicate this need to the ACRF Engineering Group depends upon whether it is a recognized problem, a new functionality, or an immediate operational concern.

Reporting Problems

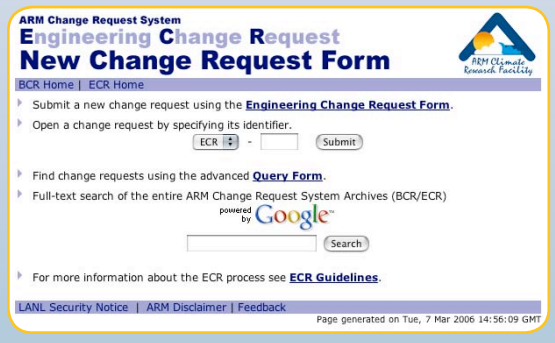
If a problem is identified that can impact data quality in the ACRF infrastructure, it should be reported through the **Problem Identification Form (PIF)**. Problems can be related to the performance of a system (e.g., instrument or computer) or state of a product (e.g., quality, measurement, filename/content, metadata, or documentation). To report a problem, go to www.db.arm.gov/problemreporting.html. All problem reports will be reviewed and responded to by the Problem Review Board (PRB), usually within a week. Some PIFs may result in the opening of an **Engineering Change Order (ECO)** or **Engineering Work Order (EWO)** to correct the problem.

Adding New Functionality



When a new product or capability is needed, an **Engineering Change Request (ECR)** is created. This request can lead to the installation of a new, or redesign of an existing instrument, data system, data product, value-added product (VAP), or some other physical aspect of the infrastructure. To submit a new ECR for discussion and approval, go to ecr.arm.gov.

Approved ECRs become ECOs. ECOs are planned, tracked, and deployed by the **Engineering Review Board (ERB)** and may result in a change to the operational or functional baseline of ACRF. To learn more about the engineering change request process, visit the Project Guide Plans at engineering.arm.gov/engr/task/project_guide_plans.html.



At ecr.arm.gov, you can start a change request or search for open ECRs.

Reporting an Urgent Operations Need

Problems related to the operational performance of a system (e.g., computer or instrument) that adversely affect the collection, processing, or delivery of data require immediate attention. These are reported to ACRF Engineering through an Engineering Work Request (EWR). To report an operational problem via the EWR system, go to ewr.arm.gov. Requests may also be submitted via email to ewr@arm.gov or by phone to an ACRF Engineering and/or Operations contact. Feedback related to the assignment of an EWR will be immediate.

EWOs may also be opened for engineering tasks that require little or no design work. After analyzing an EWR/EWO, it may be determined that an ECR/ECO is required to resolve the task. In that case, the respective EWO is closed out and an ECR is initiated. Approved ECRs and EWRs are assigned to an ACRF staff member and given a tracking number. An approved ECR will be assigned an ECO number; an approved EWR will be assigned an EWO number.

Throughout the ECO/EWO process, roles and responsibilities are defined to facilitate understanding, priority, impact, and status of tasks using ExtraView™—the ACRF Engineering Task Tracking Tool. Regular updates are made in ExtraView during the planning, design, and implementation phases. By following the EWR/EWO process, ACRF Engineering is able to establish a procedure and method to take prompt action on pressing problems, usually of an operational nature.

Getting Closure Using the Baseline Change Request

At the completion of an engineered product, capability, or functionality, a **readiness review request** is submitted via a **Baseline Change Request (BCR)** at bcr.arm.gov. The BCR system is used to manage all operational procedures, hardware, software, and structures for all systems within the ACRF. A BCR is required to change an established operational baseline through a detailed description of the proposed change, with assigned reviewers for comments and recommendations. The BCR establishes the hand-off of the engineered product, capability, or functionality to ACRF Operations and gains approval to implement. For more information on the BCR process, see the BCR guidelines at www.arm.gov/publications/engineering/bcr_guidelines.stm.

Using ExtraView™—The ACRF Engineering Task Tracking Tool

This software application provides the necessary tools for management of the ECO and EWO processes. ACRF Engineering uses this tool to perform resource loading, track and communicate status, and schedule and set priorities.

To review the status of an engineering task, or to plan a project or task resulting from an ECR, go to ewo.arm.gov and login. (Cookies must be enabled.) To find an ECO or EWO, go to the EWO/ECO# Box and type in the 5-digit number (e.g., 00275). This will bring up the request, where you are able to edit and add comments and/or attachments. If an error dialog box appears, try logging in again. Contact Kelle Smith at kelle.smith@pnl.gov if you need assistance.

To create a new account, look for "New User Registration" at the bottom of the Sign On dialogue box. After completing the registration form, select the "Update" button. You are now logged into the ExtraView software.

Infrastructure Contacts

Contacts	Name	Email Address
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ECR/ECO/EWR/EWO Administrator	Kelle Smith	kelle.smith@pnl.gov
BCR Administrator	Laurel Chapman	lachapman@anl.gov

For More Information

Engineering Support Website:
engineering.arm.gov/engr/task/

Engineering Work Order:
ewo.arm.gov

Engineering Change Request:
ecr.arm.gov

Project Guide Plans:
engineering.arm.gov/engr/task/project_guide_plans.html

Baseline Change Request:
bcr.arm.gov

Baseline Change Request Guidelines:
www.arm.gov/publications/engineering/bcr_guidelines.stm

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