

RBC – PV Bias Safety Net v1.3

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Design Framework: DAI + RBC Framework v5.85 (October 2025)

Change Reference: Documentation – Detailed Design Creation (No behavioural change).

1. Functional Overview

This automation acts as a ****safety net**** for the PV Daily bias. If the PV bias Producer has not stamped today's period by 23:55, it invokes the RBC PV updater once to ensure the daily bias is updated. The flow uses a pre-condition (template condition) to check the stamp and then runs a single call to the updater script, followed by structured logging (logbook.log) and a mobile notification. No events are fired.

2. Entity Map

Entity ID / Var	Purpose	Direction
input_text.rbc_last_period_pv	Last processed period key (YYYY-MM-DD)	Read
input_number.rbc_bias_pv_daily	Stored PV Daily bias (kWh)	Read/Write (by updater script)
script.rbc_update_bias_pv_daily	RBC PV bias updater blueprint/script	Execute
notify.mobile_app_pixel_9_pro	Notification target (Pixel 9 Pro)	Send

3. Trigger Matrix

Trigger ID	Condition	Purpose
t_2355	Time = "23:55:00"	Run safety check shortly before midnight

4. Logic Flow

- Pre-condition: verify ``states('input_text.rbc_last_period_pv') != now().date()|string``.
- If condition holds (i.e., no stamp for today):

3. a) Invoke ``script.rbc_update_bias_pv_daily``.
4. b) Logbook entry: 'Invoked PV updater at 23:55 for period `{{ now().date() }}`.'
5. c) Send notification to ``notify.mobile_app_pixel_9_pro`` advising the safety net has run.
6. If the pre-condition is false (already stamped), nothing runs and no logbook entry is written by this automation.

5. Guards and Safety

- No inverter writes; the updater script only updates helpers.
- Pre-condition ensures idempotence: safety net runs only when the period stamp is missing.
- ``mode: single`` avoids overlap if multiple triggers were to occur around the same time.
- Structured logging uses ``logbook.log``; no `event.fire` calls are used.

6. Scheduling

Single daily trigger at 23:55. The pre-condition ensures action executes only if the Producer path has not processed today.

7. Acceptance Tests

Test ID	Scenario	Expected Result
T1	Producer missed stamp; time 23:55	Updater script invoked; logbook written; notification sent.
T2	Producer stamped earlier	Automation does nothing; no log/notify from Safety Net.
T3	Notification target unreachable	Bias still updated; logbook written; notification may fail separately.
T4	Rapid consecutive 23:55 triggers (edge)	<code>`mode: single`</code> suppresses overlap; single execution.

8. Version Lineage & Governance

v1.3 – Safety Net executes ``script.rbc_update_bias_pv_daily`` at 23:55 when period stamp is missing; adds logbook + mobile notification.

Governance: Protected Architecture Mode v5.9; Two-Phase Code-Change Gate v2.2. This document records the live YAML behaviour; no changes introduced.

9. YAML Reference (Read-Only Excerpt)

trigger: 23:55; condition: last_period_pv != today

actions: script.turn_on rbc_update_bias_pv_daily → logbook.log (period) →

notify.mobile_app_pixel_9_pro

10. Compliance Checklist

- ✓ Entity ↔ ID alignment confirmed: rbc_last_period_pv, rbc_bias_pv_daily, rbc_update_bias_pv_daily, notify.mobile_app_pixel_9_pro.
- ✓ Trigger has ID; template condition pre-checks stamp.
- ✓ Visual-Editor-safe structure; no anchors/includes.
- ✓ No inverter writes; Master-only rule unaffected.
- ✓ Idempotence via pre-condition; structured log and notify paths recorded.