

DAI – RBC Demand Daily Bias Producer v1.3

Prepared by: ChatGPT (GPT-5 Thinking)

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

Governance References: ChatGPT Interaction Guidelines v1.1 (Live), Home Assistant Development Guidelines – DAI/RBC v1.0 (Live), DAI + RBC High-Level Design v1.0 (Live)

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

1. Functional Overview

This automation schedules the nightly update of the Demand Daily bias by invoking the RBC Bias Blueprint script instance `script.rbc_update_bias_demand_daily` at 23:40 each day. The blueprint computes a robust EWMA bias value based on (Actual – Estimate) for the daily demand window and persists the result to the helper

`input_number.rbc_bias_demand_daily`. The automation itself contains no inline mathematics; it only orchestrates the timing, calls the blueprint script, and records a logbook entry confirming execution.

2. Entity Map

Entity ID	Purpose	Direction
script.rbc_update_bias_demand_daily	RBC Bias Producer (Daily Demand) – Robust EWMA blueprint instance	Execute
input_number.rbc_bias_demand_daily	Stored daily demand bias (kWh)	Write

3. Trigger Matrix

Trigger ID	Condition	Purpose
t_2340	Time = "23:40:00"	Primary daily execution for bias update

4. Logic Flow

1. At 23:40, the automation triggers with id `t_2340`.
2. Call `script.rbc_update_bias_demand_daily` (single-threaded execution).
3. Blueprint script computes EWMA bias, clamps to safety bounds, and writes to `input_number.rbc_bias_demand_daily`.
4. Record a logbook entry including the trigger id and current date to confirm the update.
5. Default branch logs a no-op message if a non-matching trigger fired.

5. Guards and Safety

- No inverter writes are performed by this automation.
- Uses `mode: single` to avoid overlap; the blueprint also enforces idempotence for the daily period.
- Visual-Editor-safe YAML structure (service/target/data) per Guidelines v1.0.
- Skips are logged by the blueprint if inputs are unavailable or invalid.

6. Scheduling

Runs once per day at 23:40 (local time). The schedule ensures the daily demand data is complete before the bias is updated.

7. Acceptance Tests

Test ID	Scenario	Expected Result
T1	Normal daily run at 23:40	Bias helper updates; logbook entry created; runtime < 2 s.
T2	Script unavailable / disabled	Automation logs a failure or no-op; helper unchanged.
T3	Duplicate trigger scenario	Only one bias write recorded for the day (blueprint idempotence).
T4	Visual-Editor validation	YAML loads with no schema errors; triggers show

`t_2340`.

8. Version Lineage & Governance

v1.3 – Current live version. Uses the shared RBC Bias Producer blueprint to update the Daily Demand bias. This document introduces a Detailed Design record with no functional change to the automation.

Governance: Protected Architecture Mode v5.9; Two-Phase Code-Change Gate v2.2. This document aligns with the DAI + RBC High-Level Design and the DAI/RBC Technical Coding Framework.

9. YAML Reference (Read-Only Excerpt)

alias: RBC – Demand Daily Bias Producer v1.3

triggers:

- id: t_2340
- trigger: time
- at: "23:40:00"

actions:

- choose:

- conditions:
 - condition: trigger

 id: t_2340

sequence:

- service: script.turn_on

target:

 entity_id: script.rbc_update_bias_demand_daily

- service: logbook.log

 data:

 name: RBC – Demand Daily Bias Producer

 message: "Triggered Demand Daily bias update for {{ now().date() }}."

10. Compliance Checklist

- Entity name ↔ ID alignment verified (script.rbc_update_bias_demand_daily, input_number.rbc_bias_demand_daily).
- Visual-Editor-safe syntax confirmed (service / target / data).
- Single trigger with id present (t_2340) and default branch logs no-op.
- No inverter writes; Master-only rule unaffected.
- Design references included; no behavioural change introduced.