RETAIL ENERGY CODE

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REFERENCE	RECCHIG_24_0801_04
STATUS	FOR DISCUSSION

I0179: PROPOSAL FOR LIMITING QUERIES IN EES API CALLS (SINGLE API CALL WITH MULTIPLE QUERIES)

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1 PURPOSE

The purpose of this paper is to provide the Change Issues Group with a summary and recommendation of I0179: *Proposal for Limiting Queries in EES API Calls (Single API Call with Multiple Queries).*

I0179 was accepted by the Code Manager on 03 June 2024, and it was agreed that I0179 would be issued for a Request for Information (RFI). The RFI was open for 10 Working Days and received 3 responses. Responses can be found here.

The purpose of this discussion would be to ensure the submission is understood and to obtain feedback on the Issue and recommendation for progression.

2 BACKGROUND

This issue has been raised proposing to establish a limit on the number of queries permitted within a single Application Programming Interface (API) call. APIs are designed to be used often for small amounts of data, rather than infrequently for large volumes of data. APIs are typically used with synchronously within a business process, rather than asynchronously.

There is potential for performance degradation and system instability that can occur when many queries are made in a single API call to the Electricity Enquiry Services (EES) API. The aim would be to prevent overwhelming the system and ensure consistent response times and reliability.

3 PROPOSAL

RECCo are proposing to implement a limit of 1000 queries per single API call.

Best practice for APIs would be to have a 1 query per API call ratio. However, what is being suggested is a limit which allows for a certain amount of multiple queries, but where the impact to the overall performance is more manageable.

This adjustment is intended to enhance the Enquiry Service's capacity to consistently meet user demands without impacting its operations. Additionally, the introduction of this limit would necessitate revisions to Section 3 (Service Functionality) and Section 5 (User Limits) of the

Electricity Enquiry Service (EES) Service Definition, and relevant sections of the EES API Interface Specification and the relevant versions upon this change being discussed.

Upon implementation of a hard limit, the following notification prompts would be implemented in addition to any relevant development work our Service Provider is to complete:

• *The EES API would return a specific error message indicating that the user has exceeded the rate limit.*

• *Exceeding the rate limit could cause slower response times for your queries.*

Additional information provided by the Service Provider can be found here.

4 JUSTIFICATION FOR SUBMISSION

Set out by RECCo:

Resource Allocation: Each query consumes server resources (CPU, memory, etc.). Handling too many queries at once can exhaust these resources, leading to performance degradation.

Response Time: Processing many queries in a single batch can significantly increase the response time, resulting (and depending) in a poor user experience. By limiting the batch size to 1000, we ensure that responses are returned within a reasonable time frame.

Server Overload: Allowing too many queries in a single call can overload the server, leading to crashes or downtime. This can affect not only the user making the request but all other users relying on the service.

Error Handling: Smaller batches make it easier to manage and handle errors. If something goes wrong, it's easier to identify, troubleshoot, and retry smaller batches compared to larger ones.

Bandwidth Usage: Transmitting large amounts of data in a single call can consume significant bandwidth, causing network congestion and potential timeouts.

Timeout Issues: Many APIs have timeout settings to prevent long-running processes from affecting the server's performance. Large batches are more likely to exceed these time limits.

Database Load: Large batches can place a heavy load on the database, affecting read/write speeds and overall performance. Smaller batches help maintain a balanced load.

API Rate Limits: Many APIs have rate limits to prevent abuse and ensure fair usage. Limiting batch sizes helps stay within these limits and avoids potential throttling or blocking.

The EES Provider has shared the below charts showcasing current usage behaviour. These charts illustrate how users utilise the EES, distinguishing between usage under 1000 queries per API call and above 1000 queries per API call.

Notably, January 2024 stands out as the month with the highest number of instances exceeding 1000 queries per API call compared to the previous six months, The proposer believes this suggests that EES users should be comfortable with this change.

5 NEXT STEPS

To raise a potential change to the REC, the Change Issues Group is invited to share views and feedback on the submission which will be incorporated by the Code Manager in the development of this Issue, and the EES Provider during their Impact Assessment.

6 ACTIONS

Change Issues Group Members are invited to:

- **NOTE** the contents of the paper; and
- **DISCUSS** their feedback.