

# Energy Billing System - Slack Communications

## CHANNEL: #proj-ebs-dev (Technical Discussions)

**Channel Purpose:** Technical discussions, code reviews, architecture questions, deployment notifications

**Members:** 23 (Development Team, QA, DevOps, Tech Leads, Architects)

**Created:** January 15, 2025

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### Thread: Rate Structure Data Modeling Question

**Date:** October 2, 2025

**@James-Patterson** (Tech Lead - Backend) - 10:42 AM

Hey team, working through the data model for the new rate structure implementation and hit a design decision point that needs input.

The new R2 time-of-use rate includes a fixed monthly service charge of \$15. Question: Should this be applied to the `invoice_header` table as a header-level charge, or should it be a distinct `invoice_line_item` with type=FIXED\_CHARGE?

My initial thought was header-level for simplicity, but want to make sure we're thinking through downstream implications. @Dr-Kumar @Marcus-Rodriguez - thoughts?

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**@Dr-Kumar** (Principal Architect) - 10:48 AM

Good question, James. Let me walk through the architectural considerations here.

Per the functional spec on Confluence (<https://confluence.energyco.com/ebs/billing-spec> section 4.2), the Finance team has a business requirement to report on fixed vs. variable charges separately for regulatory filings and revenue recognition purposes.

If we put the service charge at the header level, we lose that granularity. Every financial report would need custom logic to extract and separate fixed charges from the header. Not scalable.

**Recommendation:** It should be a distinct `invoice_line_item` with:

- `line_item_type = 'FIXED_CHARGE'`
- `description = 'Monthly Service Charge'`
- `amount = $15.00`
- `rate_plan_component_id = (reference to rate plan definition)`

This gives us:

1. **Reporting flexibility** - Finance can easily sum all `FIXED_CHARGE` items vs `ENERGY_CHARGE` items
2. **Audit trail** - Each charge is explicitly documented with provenance
3. **Rate plan evolution** - Easy to add/modify/remove fixed charges without schema changes
4. **Invoice clarity** - Customers see itemized breakdown of charges
5. **Promotional campaigns** - Can easily implement "3 months free service charge" promotions by suppressing specific line items

The only downside is slightly more complex queries when retrieving invoice totals, but that's easily handled in the service layer.

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**@Marcus-Rodriguez** (Product Owner) - 10:52 AM

Confirming @Dr-Kumar's architectural recommendation from the business perspective.

Finance absolutely needs to report fixed vs variable charges separately. This comes up in our quarterly PUC filings where we have to break down revenue by category. Having it as a line item makes that trivial.

Also, from a customer experience standpoint, itemized line items help reduce billing disputes. When customers see exactly what they're paying for, they're less likely to call support saying "why is my bill \$121 when I only used \$97 worth of electricity?" The \$15 service charge being visible as a line item answers that question immediately.

Plus the promotional flexibility @Dr-Kumar mentioned is huge. Marketing has already talked about "first 3 months service charge waived" campaigns for new TOU enrollments. If it's a line item, that's a simple line item suppression rule. If it's baked into the header, that's custom code for every promotion.

**Decision:** Go with distinct `invoice_line_item` approach. Thanks for catching that design decision point early, @James-Patterson!

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**@James-Patterson** (Tech Lead - Backend) - 10:56 AM

Perfect, exactly the clarity I needed. Makes total sense from both architecture and business perspectives. I'll update the data model and create the line item type enum values.

Creating Jira story: EBS-195 "Add FIXED\_CHARGE line item type support to invoice generation"

Also updating the invoice generation service to handle the new line item type. Should be straightforward - just need to ensure proper ordering (I'm thinking: energy charges first, then fixed charges, then taxes, then total).

Thanks for the quick turnaround, team!

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**@Sarah-Kim** (Developer) - 11:02 AM

Question on the ordering @James-Patterson mentioned - do we want to alphabetically sort line items within each type category, or is there a specific business-driven sequence?

For example, if we have multiple fixed charges (service charge, infrastructure fee, franchise fee), does it matter which order they appear on the invoice?

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**@Marcus-Rodriguez** (Product Owner) - 11:08 AM

Good question @Sarah-Kim. Let me check with Finance on their preference...

*(2 minutes later)*

Spoke with Tom Richardson (Finance Rep). His preference:

1. Show energy charges first (these are the biggest numbers, should be prominent)
2. Within energy charges: sort by tier/period (Tier 1, Tier 2, etc.)
3. Then show ALL fixed charges
4. Within fixed charges: sort by amount descending (largest fee first)
5. Then show adjustments/credits if any
6. Then show taxes
7. Finally show total

Rationale: Customers see the big usage charges first (the controllable part of their bill), then the smaller fixed fees, then taxes, then total. Psychological flow makes sense.

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**@Sarah-Kim** (Developer) - 11:12 AM

Perfect, that's super helpful. I'll implement that ordering logic in the invoice line item sorting method.

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**@Michael-Chen** (Developer) - 11:24 AM

One more consideration - what about the database query performance implications? If we're creating 5-10 line items per invoice instead of 1-2, that's 5-10x the rows in the invoice\_line\_item table.

We're talking about 2.3M invoices per month, so if each has 7 line items on average, that's 16 million rows per month, 192 million rows per year. Need to think about indexing strategy and archival policies.

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**@Dr-Kumar** (Principal Architect) - 11:31 AM

Good catch @Michael-Chen. Yes, we need to think about this at scale.

**Indexing Strategy:**

```
CREATE INDEX idx_line_item_invoice ON invoice_line_item(invoice_id, line_item_sequence);
CREATE INDEX idx_line_item_type ON invoice_line_item(invoice_id, line_item_type);
CREATE INDEX idx_line_item_date ON invoice_line_item(created_date)
WHERE created_date > CURRENT_DATE - INTERVAL '90 days';
```

The partial index on created\_date helps with recent data queries without bloating the index with historical data.

**Archival Strategy:**

- Keep last 36 months in hot storage (regulatory requirement)
- Move older data to cold storage (S3 via partitioning)
- Archive after 7 years per retention policy

**Query Pattern Optimization:** Most queries will be "get all line items for invoice X" which is well-served by the invoice\_id index. The line\_item\_type index helps with reporting queries.

With proper indexing, retrieval of 7 line items vs 2 line items has negligible performance difference. The index lookup is  $O(\log n)$  and we're returning the rows anyway.

I'll add a story to the backlog for implementing table partitioning: "Implement time-based partitioning for invoice\_line\_item table"

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**@Michael-Chen** (Developer) - 11:38 AM

Thanks @Dr-Kumar, that addresses my concerns. I'll make sure the migration script includes those indexes.

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## Thread: API Versioning Discussion

**Date:** October 2, 2025

**@Jennifer-Wong** (Data Engineer) - 2:15 PM

Quick question for the API design folks. We're about to expose the billing calculation API to the customer portal team, and I want to make sure we're thinking about versioning strategy upfront.

Current endpoint: `POST /api/billing/calculate`

Should we version this as:

- `POST /api/v1/billing/calculate` (version in path)
- `POST /api/billing/calculate` with `Accept: application/vnd.energyco.v1+json` header
- `POST /api/billing/calculate?version=1` (query parameter)

What's our standard?

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**@Dr-Kumar** (Principal Architect) - 2:22 PM

Great question. We discussed this in Architecture Review Board back in March and the decision was: **version in path** (`/api/v1/...`)

Rationale:

1. **Visibility** - Version is immediately obvious in logs, documentation, and API calls
2. **Simplicity** - Easier for consumers to understand and implement
3. **Caching** - CDN and proxy caching works cleanly with different paths
4. **Deprecation** - Clear separation when we need to run v1 and v2 simultaneously

The header-based versioning is more "RESTful" but adds complexity for our use case. Query parameters get messy with other query params.

**Standards Document:**

<https://confluence.energyco.com/display/ARCH/API-Versioning-Standards>

Key points:

- Major version in path: `/api/v1/`, `/api/v2/`
  - Backward compatible changes don't require version bump (adding optional fields, etc.)
  - Breaking changes require new major version
  - Support previous version for minimum 12 months after new version released
-

**@Jennifer-Wong** (Data Engineer) - 2:28 PM

Perfect, that doc answers all my questions. I'll go with `/api/v1/billing/calculate`

One follow-up: Do we need to version the request/response schemas separately, or is the API version sufficient?

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**@Dr-Kumar** (Principal Architect) - 2:34 PM

API version is sufficient for our purposes. The schema version is implicitly tied to the API version.

However, we do want to include schema metadata in responses for debugging:

```
{
  "apiVersion": "v1",
  "schemaVersion": "1.2.0",
  "data": { ... }
}
```

This helps us track which exact schema version was used if we make minor changes within v1 (like adding optional fields).

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**@Jennifer-Wong** (Data Engineer) - 2:38 PM

Got it, thanks!

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## Thread: Performance Testing Results

**Date:** October 3, 2025

**@Carlos-Martinez** (DevOps Lead) - 9:47 AM

Performance test results from overnight run are in. Processed 50,000 test accounts through the full billing pipeline.

### Results:

- Total processing time: 34 minutes
- Throughput: 1,470 accounts/minute
- Target: 1,333 accounts/minute (80,000 accounts in 60 minutes)
- **Result: EXCEEDS TARGET by 10%**

### Detailed Metrics:

- Meter Ingestion Service: avg 12ms per record
- Rating Service: avg 41ms per calculation
- Invoice Generation: avg 28ms per invoice
- Database queries: avg 8ms
- Kafka message latency: avg 15ms

### Resource Utilization:

- CPU: 45% average, 68% peak
- Memory: 62% average, 71% peak
- Database connections: 24/30 peak utilization
- Network throughput: 145 Mbps average

**Bottleneck Analysis:** The Rating Service calculation is the longest step at 41ms. This is within acceptable range, but if we need more headroom, that's where we'd optimize.

Full report: <https://confluence.energyco.com/display/EBS/Performance-Test-Results-2025-10-03>

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**@James-Patterson** (Tech Lead - Backend) - 9:54 AM

Excellent results. 10% over target gives us good buffer for production variability and data volume growth.

Question on the Rating Service 41ms - can you break that down? I'm curious how much is computation vs database lookup vs business rule evaluation.

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**@Carlos-Martinez** (DevOps Lead) - 10:03 AM

Good question. Added detailed profiling to the report. Breakdown of Rating Service 41ms:

- Database queries (tariff lookup, customer data): 18ms (44%)
- Business rule evaluation (tier calculation): 12ms (29%)
- Tax calculation service call: 7ms (17%)
- JSON serialization/deserialization: 3ms (7%)
- Logging and audit trail: 1ms (3%)

The database queries are the biggest component. We're doing 3-4 separate queries per calculation:

1. Load customer rate plan assignment
2. Load tariff tier structure
3. Load tax jurisdiction data

#### 4. Load any customer-specific adjustments/credits

These could potentially be optimized with query consolidation or caching.

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**@Dr-Kumar** (Principal Architect) - 10:12 AM

That database query time is higher than I'd like for something we'll do 2.3 million times per month.

Two optimization opportunities:

**1. Redis Caching for Tariff Data** Tariff structures rarely change (maybe monthly). We can cache them in Redis with appropriate TTL. This would cut the tariff lookup from ~8ms to <1ms.

**2. Customer Data Denormalization** We're doing multiple joins to get customer rate plan + tax jurisdiction. Could denormalize this into a single `customer_billing_profile` table that's optimized for billing queries.

These aren't critical for MVP, but let's add them to the backlog for post-launch optimization. We've got 10% headroom now, but as we add more rate plans and features, that might shrink.

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**@James-Patterson** (Tech Lead - Backend) - 10:18 AM

Agreed. I'll create two stories:

- EBS-201: Implement Redis caching for tariff lookup
- EBS-202: Create denormalized `customer_billing_profile` table

Prioritizing as P2 (nice to have, not critical path).

The current performance is good enough for launch. If we see performance degradation in production, we can pull these stories forward.

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**@Michelle-Anderson** (QA Lead) - 10:25 AM

From a QA perspective, these results look solid. We hit our performance targets with room to spare.

One question: Did the test include error handling scenarios? I want to make sure error cases don't significantly degrade performance (retries, exception handling, error logging, etc.)

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**@Carlos-Martinez** (DevOps Lead) - 10:31 AM

Good catch. The 50K test was all "happy path" data. I ran a separate test yesterday with 10% error injection (invalid data, missing fields, etc.).

**Results with 10% error rate:**

- Overall throughput: 1,385 accounts/minute (down 6% from clean data)
- Error handling adds ~3ms per error case
- Failed records properly queued for manual review
- No cascade failures or system instability

The performance degradation is acceptable. Even with 10% errors (way higher than we expect in production), we're still above target throughput.

Full error injection test results:

<https://confluence.energyco.com/display/EBS/Error-Handling-Performance-Test>

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**@Michelle-Anderson** (QA Lead) - 10:36 AM

Perfect, that's exactly what I needed to see. Error handling performance looks good.

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## **Thread: Code Review Request**

**Date:** October 3, 2025

**@Sarah-Kim** (Developer) - 11:42 AM

Code review requested: PR #247 - "Implement late fee calculation logic"

<https://github.com/energyco/ebs/pull/247>

**Summary:**

- Implements automated late fee assessment (EBS-76)
- Adds \$5 late fee for invoices 15+ days overdue
- Includes 24-hour grace period for recent payments
- Excludes payment plan customers and disputed bills

**Changes:**

- New scheduled job: LateFeeAssessmentJob.java
- Business logic: LateFeeCalculationService.java
- Database migration: V1.12\_\_add\_late\_fee\_support.sql
- Unit tests: 23 new test cases, 94% coverage
- Integration test: End-to-end late fee workflow

Reviewers: @James-Patterson @Michael-Chen

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**@James-Patterson** (Tech Lead - Backend) - 12:15 PM

Looking at it now...

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**@James-Patterson** (Tech Lead - Backend) - 12:47 PM

**Code Review Feedback:**

Overall structure looks good. A few comments:

**1. Potential race condition (line 143):**

```
if (!invoice.hasLateFee()) {  
    createLateFee(invoice);  
}
```

If two job instances run simultaneously (shouldn't happen, but defensive programming), this could create duplicate late fees. Add database unique constraint:

UNIQUE (invoice\_id, line\_item\_type) WHERE line\_item\_type = 'LATE\_FEE'

**2. Hardcoded late fee amount (line 89):**

```
BigDecimal LATE_FEE_AMOUNT = new BigDecimal("5.00");
```

Should be configurable. What if the business wants to change the late fee amount? Move to configuration table or environment variable.

**3. Missing audit log (line 167):** The code creates the late fee but doesn't log to the audit trail. We need full audit logging for all financial transactions per compliance requirements.

Add:

```
auditLogService.logLateFeeAssessment(invoice, lateFee, reason);
```

**4. Test coverage gap:** I don't see tests for the "disputed bill" exclusion logic. Need test cases:

- Invoice with active dispute - should NOT assess late fee
- Invoice with resolved dispute - SHOULD assess late fee if still overdue

**5. Error handling:** What happens if the late fee creation fails (database error, validation error, etc.)? Should we:

- Skip and try again next run?
- Alert and require manual intervention?
- Retry with exponential backoff?

Need explicit error handling strategy.

**Overall Assessment:** Good start, but needs these issues addressed before merge. Change request status to "Changes Requested".

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**@Sarah-Kim** (Developer) - 1:18 PM

Thanks for the thorough review @James-Patterson. All valid points.

Working on fixes now:

1. Adding unique constraint - good catch on race condition
2. Moving late fee amount to config table - makes sense
3. Adding audit logging - will implement this afternoon
4. Adding disputed bill test cases - oversight on my part
5. Error handling - I'll implement retry with alert after 3 failures

Will push updated PR by EOD today.

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**@Sarah-Kim** (Developer) - 4:52 PM

Updated PR pushed. All feedback addressed:

**Changes:**

- Added unique constraint on (invoice\_id, line\_item\_type)
- Moved late fee amount to system\_config table (configurable by admins)
- Added comprehensive audit logging for all late fee events
- Added 4 new test cases for disputed bill scenarios
- Implemented retry logic with exponential backoff (3 attempts, then alert)
- Added integration test for error handling

New test coverage: 96%

Ready for re-review.

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**@James-Patterson** (Tech Lead - Backend) - 5:23 PM

Re-reviewed. All concerns addressed. Code looks good now.

**Approved** - ready to merge.

Nice work @Sarah-Kim. The error handling implementation is particularly solid.

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**@Michael-Chen** (Developer) - 5:31 PM

Also reviewed. No additional concerns.

**Approved**

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**@Sarah-Kim** (Developer) - 5:34 PM

Thanks team! Merging to develop branch now.

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## Thread: Database Migration Issue

**Date:** October 3, 2025

**@Alex-Martinez** (Developer) - 3:22 PM

Hit an issue running the latest database migration (V1.13) in my local dev environment:

ERROR: duplicate key value violates unique constraint "rate\_tier\_pkey"

Detail: Key (rate\_tier\_id)=(a7f3c2e1-5b4d-5a9f-8c7e-1d2f3e4a5b6c) already exists.

The migration is trying to insert test data that already exists. Did someone manually insert this data previously?

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**@Jennifer-Wong** (Data Engineer) - 3:28 PM

Ah, I know what happened. Last week I manually inserted some test rate tier data for the R1 rate plan in dev environment for testing purposes. The migration script is trying to insert the same UUIDs.

The migration script should use INSERT ... ON CONFLICT DO NOTHING or check for existence before inserting.

Sorry about that - should have communicated the manual data changes.

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**@Alex-Martinez** (Developer) - 3:33 PM

No worries. I'll update the migration script to be idempotent:

```
INSERT INTO rate_tier (rate_tier_id, rate_plan_id, tier_number, ...)
VALUES (...)
ON CONFLICT (rate_tier_id) DO NOTHING;
```

This way the migration can run multiple times safely.

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**@Dr-Kumar** (Principal Architect) - 3:41 PM

Hold on - using ON CONFLICT DO NOTHING might hide actual problems. If there's a conflict, we should know about it.

Better approach:

```
INSERT INTO rate_tier (rate_tier_id, rate_plan_id, tier_number, ...)
VALUES (...)
ON CONFLICT (rate_tier_id) DO UPDATE SET
  tier_number = EXCLUDED.tier_number,
  threshold_kwh = EXCLUDED.threshold_kwh,
  updated_at = CURRENT_TIMESTAMP;
```

This way:

- First run: inserts data
- Subsequent runs: updates data if anything changed
- We get a proper audit trail of what changed

Also, @Jennifer-Wong - going forward, please don't manually insert data in shared environments. If you need test data, create a separate migration script or use the data seeding framework we set up.

Manual data changes cause exactly this kind of problem and make environments drift from each other.

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**@Jennifer-Wong** (Data Engineer) - 3:48 PM

You're right, my bad. I was in a hurry and took a shortcut. Won't happen again.

I'll document the manual changes I made so we can incorporate them properly:  
<https://confluence.energyco.com/display/EBS/Manual-Data-Changes-Log>

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**@Alex-Martinez** (Developer) - 3:54 PM

Updated the migration script with the UPSERT approach @Dr-Kumar suggested. Testing locally now.

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**@Alex-Martinez** (Developer) - 4:12 PM

Migration now runs cleanly. Updated PR #249 with the fix.

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## Thread: Production Monitoring Alert

**Date:** October 3, 2025

**@DevOps-Bot** - 6:45 PM

**WARNING: High Memory Usage Detected**

Service: ebs-rating-service (staging)

Memory Usage: 82% (threshold: 80%)

Duration: 15 minutes

Instances affected: 3/4

Dashboard: <https://grafana.energyco.com/ebs-staging/memory>

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**@Carlos-Martinez** (DevOps Lead) - 6:48 PM

Looking into this now. Memory usage spiked around 6:30 PM.

Checking what happened at that time...

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**@Carlos-Martinez** (DevOps Lead) - 6:53 PM

Found it. QA team kicked off a load test at 6:30 PM without announcing it in the channel. The test is processing 100,000 accounts simultaneously, which is way beyond normal load.

The memory spike is expected given the test volume. System is handling it fine - no errors, just high utilization.

@Michelle-Anderson - can your team please announce load tests in advance? This helps us distinguish between real problems and expected test behavior.

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**@Michelle-Anderson** (QA Lead) - 6:58 PM

Sorry about that! You're right, I should have announced it. The load test is part of our stress testing for Sprint 14 - testing how the system behaves under 5x normal load.

Test will run until 8:00 PM. After that, memory usage should return to normal.

I'll set up a convention: all load tests announced in #proj-ebs-dev at least 1 hour before execution with expected duration and impact.

---

**@Carlos-Martinez** (DevOps Lead) - 7:02 PM

Perfect, thanks. That'll help us a lot.

FYI the system is handling the 5x load well. Memory is high but stable, no errors, response times still acceptable (avg 156ms vs normal 41ms). Good stress test results actually.

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**@Michelle-Anderson** (QA Lead) - 7:05 PM

Glad to hear it's holding up. We'll analyze the full results tomorrow and add them to the performance testing report.

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**@DevOps-Bot** - 8:15 PM

**RESOLVED: Memory Usage Back to Normal**

Service: ebs-rating-service (staging)

Memory Usage: 64% (threshold: 80%)

Alert duration: 1 hour 30 minutes

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## **Thread: Sprint 14 Demo Preparation**

**Date:** October 4, 2025

**@Amanda-Chen** (Scrum Master) - 9:15 AM

Good morning team! Sprint 14 Review/Demo is Tuesday Oct 8 at 3:00 PM. We need to prepare our demo content.

What are we showcasing? Here's what I have so far:

**Completed Stories (Demo Candidates):**

1. EBS-24: Rate tier database structure
2. EBS-25: R1 rate configuration
3. EBS-156: Rating Service integration with legacy DB
4. EBS-76: Late fee calculation logic

Which of these should we include in the demo? Remember we have stakeholders from Finance, IT, and Executive leadership attending.

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**@Marcus-Rodriguez** (Product Owner) - 9:28 AM

Let's focus on stories that have visible business value for stakeholders:

**Definitely Include:**

1. **EBS-156: Rating Service integration** - Show end-to-end flow from meter data through billing calculation. This is a major milestone.
2. **EBS-76: Late fee calculation** - Finance team specifically asked about this. Demo the automated dunning process.

**Skip:**

- EBS-24 and EBS-25 are database/configuration work. Important but not visually interesting for stakeholders.

**Additional Item:** Can we also show the performance testing results? The 10% over target throughput is a great story for leadership.

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**@James-Patterson** (Tech Lead - Backend) - 9:34 AM

Agree with Marcus's priorities.

For the integration demo, I suggest this flow:

1. Show meter data coming from Smart Grid API (use Postman or curl)
2. Show data validation and ingestion
3. Show rating calculation being triggered
4. Show invoice line items being generated
5. Show the complete invoice in the database

Live demo or recorded? I'm slightly nervous about live demos with external APIs.



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**@Marcus-Rodriguez** (Product Owner) - 9:41 AM

Let's do live demo but have a recorded backup ready in case of technical issues.

Live demos are more impressive and show confidence in the system, but we need the safety net.

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**@Sarah-Kim** (Developer) - 9:45 AM

I can prepare the late fee demo. I'll set up a test account with an overdue invoice and show the automated job running.

Do we want to show the code, or just the business outcome?

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**@Marcus-Rodriguez** (Product Owner) - 9:52 AM

Business outcome only for the main demo. Stakeholders don't care about code.

However, if there are technical questions during Q&A, be ready to dive into details.

Focus on:

- "Invoice is 15 days overdue"
- "System automatically assesses \$5 late fee"
- "Customer notification sent"
- "Late fee appears on next invoice"

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**@Amanda-Chen** (Scrum Master) - 10:05 AM

Perfect. Demo agenda:

### **Sprint 14 Review - Tuesday Oct 8, 3:00-4:00 PM**

1. **Sprint Overview** (Amanda, 5 min)
  - Sprint goal recap
  - Story completion metrics
  - Velocity trend
2. **Demo 1: End-to-End Billing Flow** (James, 15 min)
  - Meter data ingestion through invoice generation
  - Live demo with backup recording

3. **Demo 2: Automated Late Fee Assessment** (Sarah, 10 min)

- Business process demonstration
- Customer impact discussion

4. **Performance Testing Results** (Carlos, 10 min)

- Throughput metrics
- System scalability discussion

5. **Q&A** (All, 15 min)

6. **Sprint 15 Preview** (Marcus, 5 min)

- Upcoming priorities
- Key deliverables

Everyone good with this agenda?

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**@James-Patterson** (Tech Lead - Backend) - 10:12 AM

Works for me. I'll prepare both live and recorded demos by Monday EOD.

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**@Sarah-Kim** (Developer) - 10:14 AM

Sounds good. I'll have my demo ready by Monday as well.

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**@Carlos-Martinez** (DevOps Lead) - 10:16 AM

I can do the performance presentation. I'll create a slide deck with key metrics and graphs.

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**@Amanda-Chen** (Scrum Master) - 10:20 AM

Excellent. Reminder: Please test your demos in the actual conference room setup (projector, network, etc.) on Monday afternoon. I've reserved Conference Room A from 2-4 PM Monday for demo rehearsal.

Calendar invite going out now.

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**CHANNEL: #proj-ebs-status (Project-Wide Updates)**

**Channel Purpose:** Status updates, major announcements, production alerts, stakeholder communications

**Members:** 47 (All project team + key stakeholders from Finance, Support, IT, Compliance)

**Created:** January 15, 2025


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## Announcement: Weekly Status Report Published

**Date:** October 3, 2025

**@Sarah-Williams** (Program Manager) - 4:35 PM

**WEEKLY STATUS REPORT - Week of October 1, 2025**

**Project Status:**  YELLOW

Team, the full weekly status report has been published to Confluence and sent via email to leadership. Quick summary for the team:

**Accomplishments:**  Meter Ingestion API complete and tested


 R1 rate calculation unit tests complete (94% coverage)

 UAT test plan finalized with Finance team

**Coming Up:**  Integration testing starts next week

 Rating Service deploying to staging Monday

 Sprint 15 planning Wednesday

**IMPORTANT - Risk Escalation:**  Data migration risk (R3) escalated to executive leadership. Data quality issues discovered are more extensive than expected. Mitigation plan in progress, need additional resources approved by Friday.

This may impact Data Verification Milestone by 2 weeks, but we have mitigation strategy to contain the delay. More details in the full status report.

**Sprint 14 Velocity:** On track - 38/82 points complete with 8 days remaining.

Questions? Post here or reach out directly.

Full report: <https://confluence.energyco.com/display/EBS/Status-Report-2025-10-03>

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**@Tom-Richardson** (Finance Rep) - 4:42 PM

Saw the status report. Glad to see UAT plan finalized - that was getting tight on timeline.

Question on the data migration issue: Does this impact Finance team's ability to do preliminary testing in staging environment? We were planning to start exploring next week.

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**@Sarah-Williams** (Program Manager) - 4:48 PM

Good question Tom. The data migration issue does NOT impact your staging access. We have 50,000 high-quality test accounts loaded in staging environment already - perfect for your preliminary testing.

The migration issue affects our ability to migrate ALL 2.3M production accounts on schedule, but your UAT testing can proceed as planned starting next week.

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**@Tom-Richardson** (Finance Rep) - 4:51 PM

Perfect, thanks for clarifying.

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## **Announcement: Production Deployment Scheduled**

**Date:** October 3, 2025

**@Carlos-Martinez** (DevOps Lead) - 10:00 AM

### **DEPLOYMENT NOTIFICATION**

#### **Scheduled Deployment to STAGING Environment**

**Service:** Rating Service v1.2.3

**Date:** Tonight, October 3, 2025

**Time:** 10:00 PM - 11:30 PM IDT

**Expected Impact:** None (staging environment only)

#### **What's Being Deployed:**

- R1 residential tiered billing logic
- Enhanced error handling and validation
- Performance optimizations
- Bug fixes from Sprint 13-14

**Testing Window:** Oct 4-7 (available for Finance team preliminary testing)

**Rollback Plan:** Ready if needed - can revert to v1.2.2 in under 5 minutes

#### **Deployment Team:**

- @Carlos-Martinez (Lead)
- @James-Patterson (Backend Support)
- @Michelle-Anderson (Testing)

**Status Updates:** Will post progress here throughout deployment window

Bridge line for issues: <https://zoom.us/j/987654321>

---

**@Sarah-Williams** (Program Manager) - 10:05 PM

Deployment in progress. Good luck team!

---

**@Carlos-Martinez** (DevOps Lead) - 10:18 PM

**Update:** Database schema migration complete. All Flyway scripts executed successfully.

Proceeding to application deployment...

---

**@Carlos-Martinez** (DevOps Lead) - 10:34 PM

**Update:** Rating Service v1.2.3 deployed to ECS cluster. Health checks passing. Traffic cutover complete.

Beginning smoke tests...

---

**@Michelle-Anderson** (QA Lead) - 10:52 PM

**Smoke Test Results:** ALL PASSING

Executed 15 critical test cases:

- R1 calculation: PASS
- R2 TOU calculation: PASS
- Service charges: PASS
- Tax calculation: PASS
- Invoice generation: PASS
- API response times: PASS (47ms avg)

No issues detected. Performance looks excellent.

---

**@Carlos-Martinez** (DevOps Lead) - 11:24 PM

**Performance Validation Complete**

Processed 50,000 test accounts in 34 minutes:

- Throughput: 1,470 accounts/min (target: 1,333)
- Error rate: 0.02% (10 errors, all test data related)
- CPU: 45% avg
- Memory: 62% (stable)

System performing above target. Ready for stakeholder testing.

---

**@Sarah-Williams** (Program Manager) - 11:35 PM

### **DEPLOYMENT SUCCESSFUL**

Rating Service v1.2.3 is live in STAGING and ready for testing.

Summary:

- Zero downtime deployment
- All tests passing
- Performance exceeds targets
- No rollback required

Finance team can begin testing tomorrow morning. Great work everyone!

---

**@Tom-Richardson** (Finance Rep) - 11:42 PM

Excellent! Finance team will start testing tomorrow. Looking forward to it.

---

## **Thread: Customer Support Training Request**

**Date:** October 4, 2025

**@Rachel-Foster** (Customer Support Manager) - 10:22 AM

Morning team. Customer Support is starting to think about our training needs for the new EBS system. We'll need our agents trained before production cutover (April 2026).

Key questions:

1. When will training materials be available?
2. How different is the new system from the old one?
3. How long should we plan for training? (we have 45 agents)
4. Will there be a test environment where agents can practice?

We typically need 6-8 weeks lead time for training 45 people without impacting current operations.

@Sarah-Williams @Marcus-Rodriguez

---

**@Sarah-Williams** (Program Manager) - 10:45 AM

Great timing to bring this up Rachel. Let me address your questions:

**1. Training Materials Timeline:**

- Training guide (draft): January 2026
- Video tutorials: February 2026
- Hands-on lab environment: February 2026
- Final materials: March 2026

**2. System Differences:** Significant changes in:

- User interface (modern web vs. mainframe green screens)
- Search functionality (much faster and more intuitive)
- Bill research tools (drill-down capability, visual charts)
- Customer history access (instant vs. 30-second load times)

Similar concepts:

- Core billing logic remains the same
- Account structure familiar
- Most terminology unchanged

**3. Training Duration:** Recommend 2-day intensive training per agent:

- Day 1: System navigation, basic operations
- Day 2: Advanced features, troubleshooting, practice scenarios

With 45 agents, running 5 concurrent training sessions = 2 weeks total

**4. Practice Environment:** Yes - we'll have a dedicated training environment with realistic test data (no real customer info). Agents can practice unlimited without impacting real systems.

**Proposed Timeline:**

- March 3-14, 2026: Training sessions (2 weeks)
- March 17-28, 2026: Practice period with training environment access
- March 31, 2026: Training sign-off, readiness assessment
- April 1, 2026: Production cutover

Does this timeline work for your team?

---

**@Rachel-Foster** (Customer Support Manager) - 11:08 AM

This timeline works well. March is typically our slower period, so we can dedicate people to training.

Two additional requests:

**1. Super Users:** Can we identify 5-6 "super users" from our team who get advanced training earlier? They can help support the broader team during rollout and serve as internal experts.

**2. Quick Reference Guides:** Our agents heavily rely on quick reference cards for common scenarios. Can we get printable guides for:

- How to research a bill dispute
- How to process payment arrangements
- How to look up billing history
- Common error messages and resolutions

These need to be super concise - one page per topic max.

---

**@Marcus-Rodriguez** (Product Owner) - 11:24 AM

Both excellent ideas.

**Super User Program:** Great approach. We can do advanced training for 5-6 super users in February (4 weeks before main training). They learn the system deeply, then help deliver training to peers in March.

Benefits:

- Super users become internal experts
- They understand support-specific use cases
- Peer training is often more effective than vendor training
- Builds organizational capability

@Rachel-Foster - can you nominate your super users by October 15? We'll work with them starting February.

**Quick Reference Guides:** Absolutely. Our technical writing team will create these. However, we need YOUR input on what scenarios are most common. Can you provide:

- Top 10 support call types (by volume)
- Common pain points with current system
- Scenarios where agents frequently need help

This helps us focus the quick reference guides on real needs.



---

**@Rachel-Foster** (Customer Support Manager) - 11:38 AM

Will do! I'll compile the support call data and common scenarios by October 20.

For super users, I'm thinking:

- 2 from billing team (complex calculation questions)
- 2 from general support (high volume, basic inquiries)
- 1 from escalations team (complex disputes)
- 1 from our technical support specialist (system issues)

I'll get you the specific names by October 15.

This is shaping up well. Thanks for being so responsive to our training needs!

---

**@Sarah-Williams** (Program Manager) - 11:45 AM

Perfect collaboration. I love the super user approach - that's a best practice that will really pay off.

I'll add all this to the project plan:

- EBS-SuperUser-Training: Feb 3-28, 2026
  - EBS-Agent-Training: Mar 3-14, 2026
  - EBS-Quick-Reference-Guides: Due Feb 15, 2026
- 

## **Thread: Security Vulnerability Scan Results**

**Date:** October 4, 2025

**@Priya-Sharma** (Security Lead) - 2:15 PM

Security scan results from yesterday's automated run:

**CRITICAL: 0 HIGH: 2 MEDIUM: 7 LOW: 15**

The two HIGH severity issues need immediate attention:

**HIGH-1:** Spring Boot dependency outdated (version 3.1.2, vulnerable to CVE-2023-34035)

- **Risk:** Potential remote code execution
- **Fix:** Upgrade to Spring Boot 3.1.5 or later
- **Affected:** All microservices using Spring Boot

**HIGH-2:** PostgreSQL JDBC driver outdated (version 42.6.0, vulnerable to CVE-2024-1597)

- **Risk:** SQL injection in specific edge cases
- **Fix:** Upgrade to PostgreSQL JDBC 42.7.2 or later
- **Affected:** All services with database connections

Both vulnerabilities have patches available. I recommend addressing these before next production deployment.

Full report: <https://confluence.energyco.com/display/EBS/Security-Scan-2025-10-04>

@James-Patterson @Dr-Kumar

---

**@James-Patterson** (Tech Lead - Backend) - 2:28 PM

Thanks for flagging @Priya-Sharma. Taking these seriously.

**Spring Boot upgrade:** This is straightforward. We're using 3.1.2 across all services. Upgrading to 3.1.5 should be low-risk (patch version bump, backward compatible).

**PostgreSQL JDBC upgrade:** Also straightforward. Version bump, no breaking changes.

I'll create emergency stories for both:

- EBS-SECURITY-001: Upgrade Spring Boot to 3.1.5
- EBS-SECURITY-002: Upgrade PostgreSQL JDBC to 42.7.2

Target completion: Monday October 7 (before staging deployment)

---

**@Dr-Kumar** (Principal Architect) - 2:35 PM

Agree with priority. Security vulnerabilities take precedence over feature work.

@James-Patterson - after upgrading, let's run the full regression test suite to ensure no unexpected impacts. These are supposed to be backward compatible, but let's verify.

Also, @Priya-Sharma - can you re-run the security scan after the upgrades to confirm vulnerabilities are resolved?

---

**@Priya-Sharma** (Security Lead) - 2:41 PM

Absolutely. I'll re-scan as soon as the upgrades are deployed to dev environment.

Also, I'm implementing automated security scanning in the CI/CD pipeline so these get caught earlier (at build time rather than post-deployment).

Target: Security gates in CI/CD by end of Sprint 15.

---

**@James-Patterson** (Tech Lead - Backend) - 2:48 PM

Perfect. I'm assigning both security stories to @Michael-Chen for immediate work. He can knock these out Monday morning.

@Michael-Chen - please prioritize these over other Sprint 15 work. Security first.

---

**@Michael-Chen** (Developer) - 3:02 PM

Got it. I'll start on these first thing Monday morning. Should have both upgrades done and tested by Monday afternoon.

---

## Thread: Data Migration Progress Update

**Date:** October 5, 2025

**@Lisa-Thompson** (Data Tech Lead) - 9:30 AM

Data migration team - MAJOR PROGRESS UPDATE

After implementing the automated data quality tools this week, we've made significant headway on the problematic 352K accounts.

### Progress Report:

#### Automated Remediation (completed overnight):

- Address standardization tool: Fixed 31,000 addresses (74% of address issues)
- Date format parser: Fixed 15,800 date fields (90% of date issues)
- Duplicate detection: Identified 7,200 duplicates, flagged for manual review
- Phone number formatter: Fixed 12,400 phone numbers (85% of phone issues)

#### Remaining Manual Work:

- Duplicate account merges: 7,200 accounts (requires human decision-making)
- Complex address issues: 11,000 accounts (missing critical data, need research)
- Orphaned records: 10,500 accounts (referential integrity repairs)

**Total remaining:** 28,700 accounts (8% reduction from original 15%)

**Revised Timeline:** With automated tools doing the heavy lifting, we're back on track:

- Target completion: November 5, 2025 (originally November 8)
- We're AHEAD of the revised schedule by 3 days!

The \$48K investment in automated tooling is paying off. @Sarah-Williams - thought you'd want this good news for the executive update.

---

**@Sarah-Williams** (Program Manager) - 9:42 AM

This is FANTASTIC news @Lisa-Thompson!

So let me make sure I understand:

- Automated tools reduced problem accounts from 352K to 29K (92% reduction)
- We're actually ahead of the revised timeline
- The manual work remaining is manageable with current team + contractors

This is exactly the kind of problem-solving I love to see. Your team turned a crisis into a success story.

I'm briefing Jennifer Morrison this afternoon - this will be great news for her. Can you send me a one-page summary with before/after numbers and key wins? I want to make sure you get proper credit for this excellent work.

---

**@Lisa-Thompson** (Data Tech Lead) - 9:58 AM

Will do. Sending you the summary by 11 AM.

Credit really goes to the whole data team - everyone put in extra hours this week to get the automated tools working. Special shoutout to @Jennifer-Wong who built the address standardization tool that fixed 74% of our address issues in one night.

---

**@Jennifer-Wong** (Data Engineer) - 10:15 AM

Thanks @Lisa-Thompson! The address standardization was a fun challenge. Lots of edge cases (apartment numbers, PO boxes, international addresses, etc.) but we got it working.

For those interested, the tool uses a combination of:

- Israeli postal code validation API
- Pattern matching for common address formats
- Fuzzy matching for misspelled street names
- Manual review queue for ambiguous cases

Code is in the repo: [github.com/energyco/ebs-data-tools/address-standardization](https://github.com/energyco/ebs-data-tools/address-standardization)

---

**@Dr-Kumar** (Principal Architect) - 10:28 AM

Impressive work team. This is a great example of "automate the boring stuff."

**@Lisa-Thompson** - these data quality tools you've built are reusable assets. Other projects will face similar data migration challenges. Can you package these as a general-purpose data quality toolkit that other teams can use?

This could save the company significant money on future data migration projects.

---

**@Lisa-Thompson** (Data Tech Lead) - 10:35 AM

Great idea. I'll work with **@Jennifer-Wong** to generalize the tools and create documentation for reuse. We can contribute it to the enterprise data engineering toolkit.

---

## Thread: Sprint 15 Planning Preparation

**Date:** October 6, 2025

**@Amanda-Chen** (Scrum Master) - 10:00 AM

Good morning team! Sprint 15 Planning is Wednesday Oct 8 at 1:00 PM.

Please review the prioritized backlog before the meeting:

<https://jira.energyco.com/sprint-15-backlog>

**Proposed Sprint 15 Goal:** "Complete Invoice Generation Service integration and begin Time-of-Use (TOU) billing development"

### Top Priority Stories (tentative):

1. EBS-189: Deploy Invoice Generation Service to staging
2. EBS-191: Integrate Invoice Service with Rating Service
3. EBS-193: PDF invoice template implementation
4. EBS-201: Redis caching for tariff lookups (perf optimization)
5. EBS-210: Begin TOU rate plan data model

**Team Capacity:** Based on Sprint 14 velocity (projected 80 points), I'm budgeting 82 points for Sprint 15.

### Planning Agenda:

1. Sprint 14 retrospective (30 min)
2. Sprint 15 backlog review (45 min)
3. Story estimation (60 min)
4. Sprint commitment and goal finalization (15 min)

Any concerns or questions before Wednesday?

---

**@James-Patterson** (Tech Lead - Backend) - 10:18 AM

One concern: We have the two security vulnerability stories (Spring Boot and JDBC upgrades) that need to go into Sprint 15 as highest priority.

These are emergency items that weren't in the original backlog. They'll consume about 8 story points.

So our actual capacity for planned work is more like 74 points, not 82.

---

**@Amanda-Chen** (Scrum Master) - 10:24 AM

Good point. I'll add the security stories to the top of the backlog and adjust capacity accordingly.

Updated Sprint 15 capacity: 82 points total, minus 8 for security = 74 points available for planned features.

---

**@Marcus-Rodriguez** (Product Owner) - 10:33 AM

From a business priority perspective, I'm comfortable with that. Security takes precedence.

One request: Can we include EBS-76 (late fee calculation) in Sprint 15 even though it's mostly done? @Sarah-Kim - what's the status? Any remaining work?

---

**@Sarah-Kim** (Developer) - 10:41 AM

EBS-76 is code complete and merged. Remaining work:

- Deploy to staging environment
- UAT with Finance team
- Documentation updates

Estimate: 3 story points for remaining work. We can include it in Sprint 15 to properly close it out.

---

**@Marcus-Rodriguez** (Product Owner) - 10:45 AM  
Perfect. Let's include it.

---

**@Michelle-Anderson** (QA Lead) - 11:02 AM

From QA perspective, Sprint 15 priorities look good. The Invoice Generation Service is critical path, so that should definitely be the focus.

One ask: Can we allocate some points for test automation infrastructure improvements? We're starting to hit scaling issues with our test suite (running the full suite takes 45 minutes now).

Not urgent, but want to address it before it becomes a real bottleneck.

---

**@Amanda-Chen** (Scrum Master) - 11:15 AM

Good callout. Let's discuss in planning meeting. We might need to create a dedicated "technical infrastructure" story for Sprint 15.

@Michelle-Anderson - can you come to the planning meeting with a rough estimate of points needed?

---

**@Michelle-Anderson** (QA Lead) - 11:20 AM

Will do. Estimate is probably 8-13 points depending on scope.

---

## **Thread: Weekend Production Support Handoff**

**Date:** October 6, 2025

**@Carlos-Martinez** (DevOps Lead) - 4:45 PM

Weekend on-call handoff:

**Primary On-Call:** @SRE-David (DevOps) **Secondary On-Call:** @James-Patterson (Backend)

**Escalation:** @Carlos-Martinez (me - available by phone)

**Current System Status:** All environments: GREEN

- Dev: Stable
- Test: Stable
- Staging: Stable (Rating Service v1.2.3 deployed successfully)
- Production: N/A (not yet in production)

### Upcoming Events:

- Saturday 2 AM: Automated database backup (staging)
- Sunday 10 AM: Scheduled AWS maintenance window (no expected impact)

### Known Issues:

- None currently

### Recent Changes:

- Thursday: Rating Service v1.2.3 deployed to staging
- Friday: Security vulnerability patches applied (Spring Boot, JDBC)

### Contact Info:

- On-call phone: +972-50-555-ONCALL
- Escalation (Carlos): +972-50-555-8823
- Emergency bridge: <https://zoom.us/j/emergency>

Have a good weekend team!

---

**@SRE-David** (DevOps Engineer) - 4:52 PM

Thanks @Carlos-Martinez. On-call phone in hand, monitoring dashboards open.

Hopefully a quiet weekend!

---

**@James-Patterson** (Tech Lead - Backend) - 4:55 PM

Standing by as secondary. Phone on and charged.

---



## Automated Status Update

**Date:** October 7, 2025



**@StatusBot** - 9:00 AM

### AUTOMATED DAILY STATUS UPDATE

#### Build Status:

-  ebs-rating-service: Build #347 PASSED (main branch)
-  ebs-ingestion-service: Build #298 PASSED (main branch)





-  ebs-invoice-service: Build #156 PASSED (main branch)
-  ebs-customer-portal: Build #89 FAILED (develop branch)



### Test Results:

- Unit Tests: 847/847 passing
- Integration Tests: 124/124 passing
- E2E Tests: 18/19 passing (1 flaky test: test\_concurrent\_billing)

### Code Quality:

- Code Coverage: 87.3% (target: >85%) 
- Technical Debt Ratio: 3.1% (target: <5%) 
- Code Smells: 23 (down from 31 last week)
- Blocker Issues: 0
- Critical Issues: 2 (both in progress)

### Security Scan:

- Critical Vulnerabilities: 0 
- High Vulnerabilities: 0  (down from 2 - security patches applied!)
- Medium Vulnerabilities: 7
- Low Vulnerabilities: 15

### Environment Status:

- Dev:  Healthy
- Test:  Healthy
- Staging:  Healthy
- Production: N/A

Full dashboard: <https://dashboard.energyco.com/ebs>

---

**@James-Patterson** (Tech Lead - Backend) - 9:08 AM

Good to see those security vulnerabilities down to zero! Nice work @Michael-Chen on the quick turnaround.

@Kevin-Park - the customer portal build is failing. Can you take a look?

---

**@Kevin-Park** (Frontend Tech Lead) - 9:15 AM


Already on it. The failure is a test environment configuration issue, not a code problem. Should have it fixed in 10 minutes.

---

**@Kevin-Park** (Frontend Tech Lead) - 9:28 AM  
Fixed. Retriggering build now.

---

**@StatusBot** - 9:35 AM  
**BUILD UPDATE:**

-  ebs-customer-portal: Build #90 PASSED (develop branch)

All builds now passing.

---