

Final Pipeline Verification Checklist

1. S3 Bucket with Uploaded Data

```
C:\Users\Zeel Desai\renewable-energy-pipeline\src>python data_generator.py
Energy Data Generator Starting...
Generating test data...
Generated 25 records for 5 sites
Uploading to S3...
SUCCESS! Uploaded 25 records to:
s3://zeel-energy-data-2025/energy_data/test_batch_20250613_153305.json
Test completed successfully!
Check your S3 bucket in AWS Console to see the file
```

Amazon S3

Account snapshot - updated every 24 hours All AWS Regions [View Storage Lens dashboard](#)

Storage lens provides visibility into storage usage and activity trends. Metrics don't include directory buckets. [Learn more](#)

General purpose buckets | Directory buckets

General purpose buckets (1) Info All AWS Regions [Copy ARN](#) [Empty](#) [Delete](#) [Create bucket](#)

Buckets are containers for data stored in S3.

Name	AWS Region	IAM Access Analyzer	Creation date
zeel-energy-data-2025	US East (N. Virginia) us-east-1	View analyzer for us-east-1	June 7, 2025, 18:44:27 (UTC-05:00)

Amazon S3 > Buckets > zeel-energy-data-2025 > energy_data/

Objects (15) [Copy S3 URI](#) [Copy URL](#) [Download](#) [Open](#) [Delete](#) [Actions](#) [Create folder](#) [Upload](#)

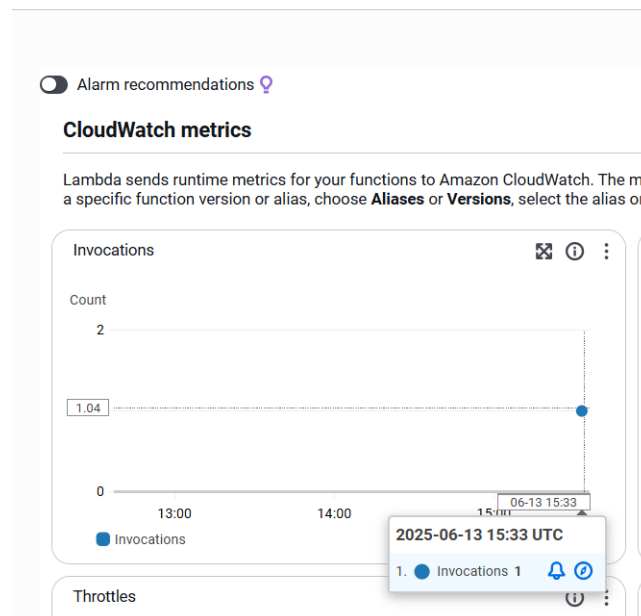
Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Name	Type	Last modified	Size	Storage class
2038.json				
test_batch_20250611_060540.json	json	June 11, 2025, 01:05:43 (UTC-05:00)	3.8 KB	Standard
test_batch_20250611_060819.json	json	June 11, 2025, 01:08:22 (UTC-05:00)	3.7 KB	Standard
test_batch_20250611_061035.json	json	June 11, 2025, 01:10:39 (UTC-05:00)	3.8 KB	Standard
test_batch_20250613_153305.json	json	June 13, 2025, 10:33:08 (UTC-05:00)	3.7 KB	Standard

2. Lambda Function Processing

The screenshot shows the AWS Lambda console for the 'energy-data-processor' function. The 'Function overview' tab is active, displaying a diagram of the function's architecture, including an S3 bucket and a Lambda function. The 'Code source' tab is also visible, showing the Python code for the function. The code includes imports for boto3, decimal, and dynamodb, and a lambda_handler function that processes S3 events and downloads files from S3.

Lambda > Functions > energy-data-processor



3. DynamoDB Data Storage

The screenshot shows the AWS DynamoDB console for the 'energy-data' table. The 'Run' button has been clicked, and a green status bar indicates 'Completed · Items returned: 206 · Items scanned: 206 · Efficiency: 100% · RCUs consumed: 7.5'. Below this, the 'Table: energy-data - Items returned (206)' is displayed, showing a list of items with columns for site_id, timestamp, anomaly, anomaly_reasons, and energy_consumed_kwh. The first five items are shown in the table.

site_id (String)	timestamp (String)	anomaly	anomaly_reasons	energy_consumed_kwh
SITE_001	2025-06-08T00:15:28...	false	[]	98.91
SITE_001	2025-06-11T06:05:39...	false	[]	124.46
SITE_001	2025-06-11T06:08:18...	false	[]	47.81
SITE_001	2025-06-11T06:10:35...	false	[]	32.79
SITE_001	2025-06-12T16:29:13...	false	[]	79.95

4. API Endpoints Working

← → ↻ ⓘ localhost:8000/health

Pretty-print ☒

```
{
  "status": "healthy",
  "timestamp": "2025-06-13T15:42:22.537748Z",
  "services": {
    "dynamodb": "connected",
    "s3": "accessible",
    "api": "running"
  },
  "data_available": true,
  "version": "2.0.0"
}
```

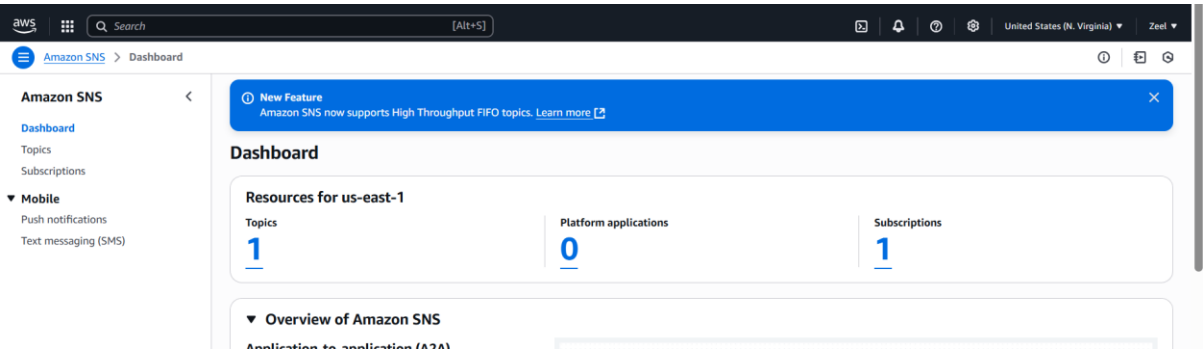
← → ↻ ⓘ localhost:8000/summary

Pretty-print ☒

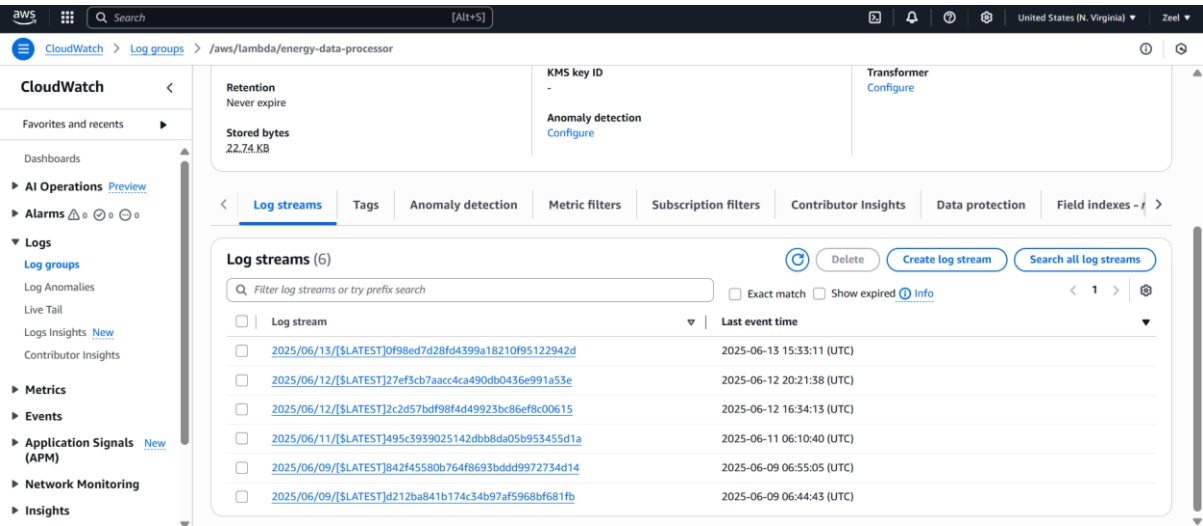
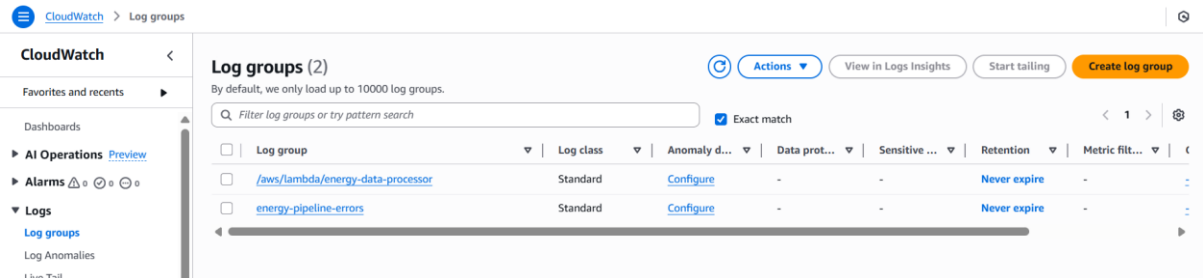
```
{
  "summary_timestamp": "2025-06-13T15:43:11.642027Z",
  "overall_statistics": {
    "total_sites": 5,
    "total_records": 206,
    "total_anomalies": 4,
    "overall_anomaly_rate_percent": 1.9,
    "total_generation_kwh": 8945.84,
    "total_consumption_kwh": 20073.33,
    "total_net_energy_kwh": -11127.49
  },
  "site_summaries": {
    "SITE_001": {
      "record_count": 47,
      "avg_generation_kwh": 46.62,
      "avg_consumption_kwh": 98.67,
      "avg_net_energy_kwh": -52.05,
      "total_generation_kwh": 2191.17,
      "total_consumption_kwh": 4637.46,
      "anomaly_count": 2,
      "anomaly_rate_percent": 4.3
    },
    "SITE_002": {
      "record_count": 37,
      "avg_generation_kwh": 46,
      "avg_consumption_kwh": 96.07,
      "avg_net_energy_kwh": -50.07,
      "total_generation_kwh": 1701.85,
      "total_consumption_kwh": 3554.53,
      "anomaly_count": 0,
      "anomaly_rate_percent": 0
    },
    "SITE_003": {
      "record_count": 41,
      "avg_generation_kwh": 40.3,

```

5. SNS Alerts Configured



6. CloudWatch Monitoring



7. Generated Visualizations

