INTELLIWATT BILL PARSER – SYSTEM OVERVIEW (FOR CURSOR + SMT WORKFLOW)

1. PURPOSE

This document describes the unified "Bill Parsing Module" used across IntelliWatt’s platform:
- SMT Onboarding page (upload bill → extract meter number automatically before SMT agreement)
- Current Plan page (upload bill → auto-fill plan, rates, TOU, credits, contract dates, etc.)
- Future Rate Analyzer inputs.

2. HIGH-LEVEL FLOW

A. User uploads utility bill (PDF or image)
B. Backend extracts raw text (PDF parser + optional OCR)
C. Bill Parser converts raw text into structured CURRENT PLAN inputs:
- ESIID
- Meter number
- Provider (REP)
- TDSP
- Customer name
- Service address (structured fields)
- Plan name
- Rate type (FIXED, VARIABLE, TIME_OF_USE)
- Term months
- Contract start/end date
- Early termination fee
- Base charge (cents/month)
- Tiered energy rates
- TOU periods (day codes, start/end minutes, rate)
- Bill credits (kind enum + amounts + usage thresholds)
- Billing cycle dates (optional)

D. Parsed result is stored in ParsedCurrentPlan table.
E. UI auto-fills the Current Plan (manual entry) form with parsed values.
F. User reviews, fills gaps, confirms.
G. /api/current-plan/manual saves the finalized structured plan.

3. SMT INTEGRATION

When used on the SMT onboarding page:
- Extract service address
- Extract meter number
- Extract ESIID

This information auto-fills the SMT Agreement form so the customer can authorize IntelliWatt to pull Smart Meter Texas data.

After SMT authorization:
- Interval data comes from SMT, NOT from the bill.

4. CURRENT PLAN INTEGRATION

On the `/current-plan` page, the bill parser attempts to auto-fill EVERY field required for:
- calculatePlanCostForUsage()
- Rate comparison engine
- TOU rate window mapping
- Credit calculations
- Contract renewal dates and reminders

5. DATA MODELS

Bill Parser outputs a strict, full input object that mirrors the Current Plan manual payload:

- No free-text labels for logic
- All data expressed as enums, numbers, dates, structured ranges

Example structure keys:

rateType
variableIndexType
planName
termMonths
contractStartDate
contractEndDate
baseChargeCentsPerMonth
energyRateTiers[]
timeOfUse.periods[]
billCredits.rules[]
esiid
meterNumber
providerName
serviceAddress fields

6. GOAL FOR CURSOR

Cursor should understand:

- This PDF describes the full purpose of the bill parser
- Parser is used BEFORE SMT onboarding to get meter #
- Parser is used on Current Plan page to auto-fill data
- Parser outputs EXACT fields the manual route requires
- Human description removed; all must be structured inputs
- Final form is ALWAYS user-confirmed before save

7. IMPLEMENTATION NOTE

PDF → text → extract → ParsedCurrentPlan → front-end defaults → /manual save route.