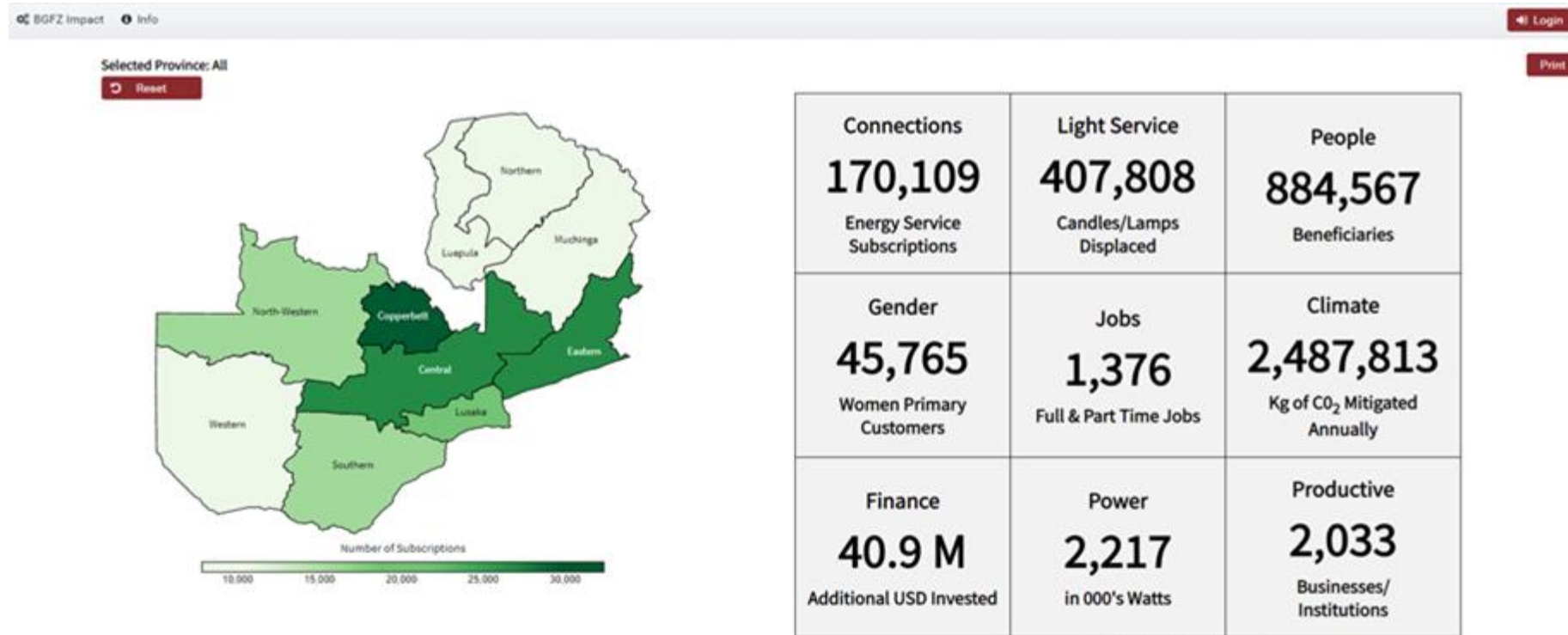# On-grid Collection of Off-grid Energy Data

REEEP

Saminu Salisu, Software Developer
Dan Sweeney, Data Scientist

edison.bgfz.org

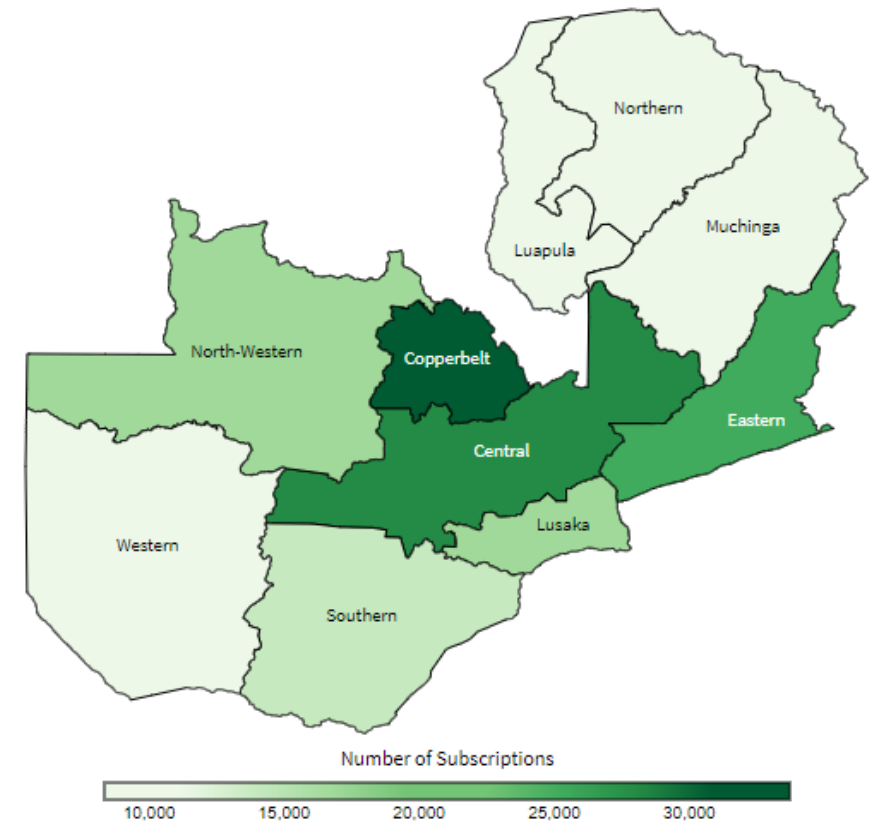# Agenda

- Background

- Methodology

- Dashboards and Visualisations

- Reflection

Background and origins of Edison

Energy Data and Intelligence System for Off-grid Networks

- Beyond the Grid Fund for Zambia
  - RBF, want *active* connections, not just sales
  - Pay-as-you-go platforms
  - Custom mini-grid data

- Sida grant to develop Edison independently of Beyond the Grid Fund
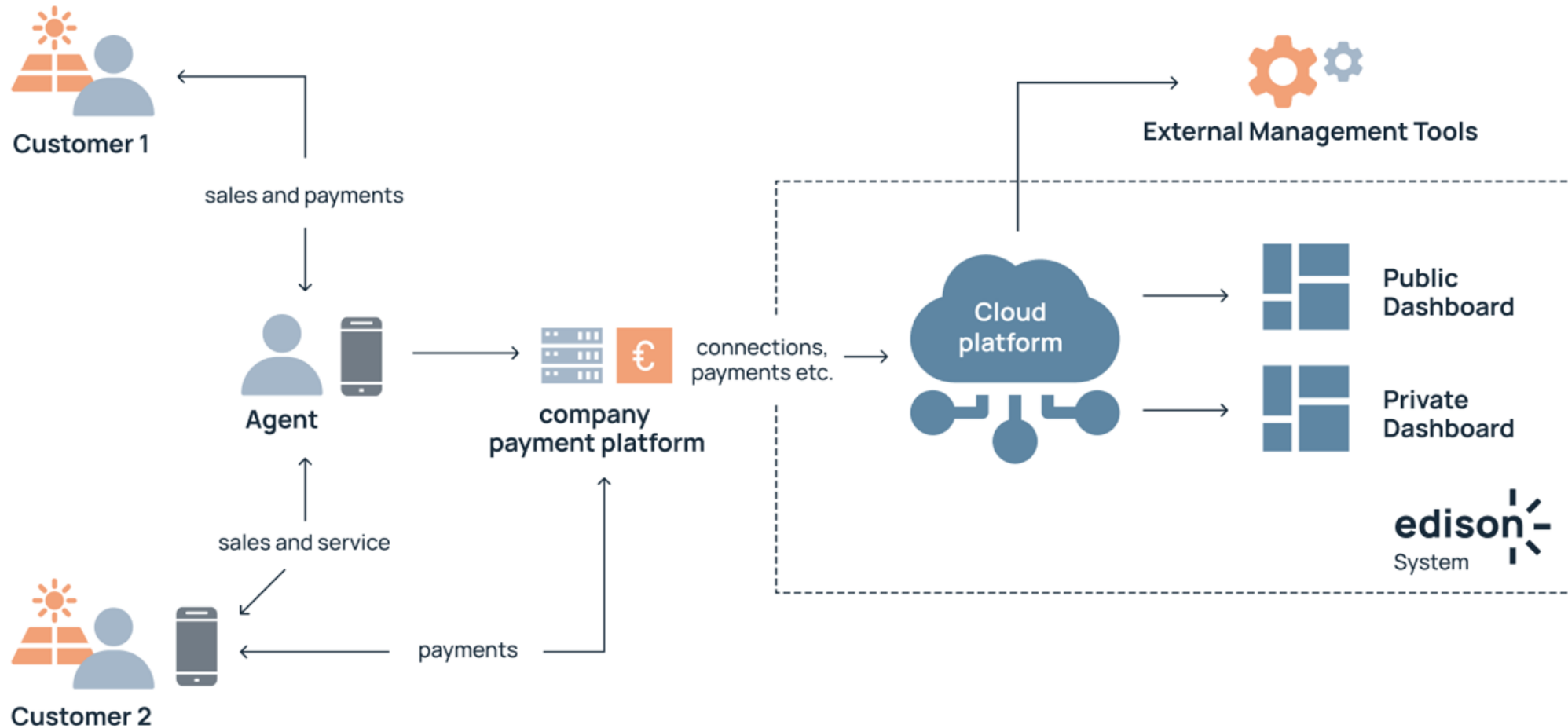 - Aligned with Principles for Digital Development

Number of Subscriptions

10,000   15,000   20,000   25,000   30,000

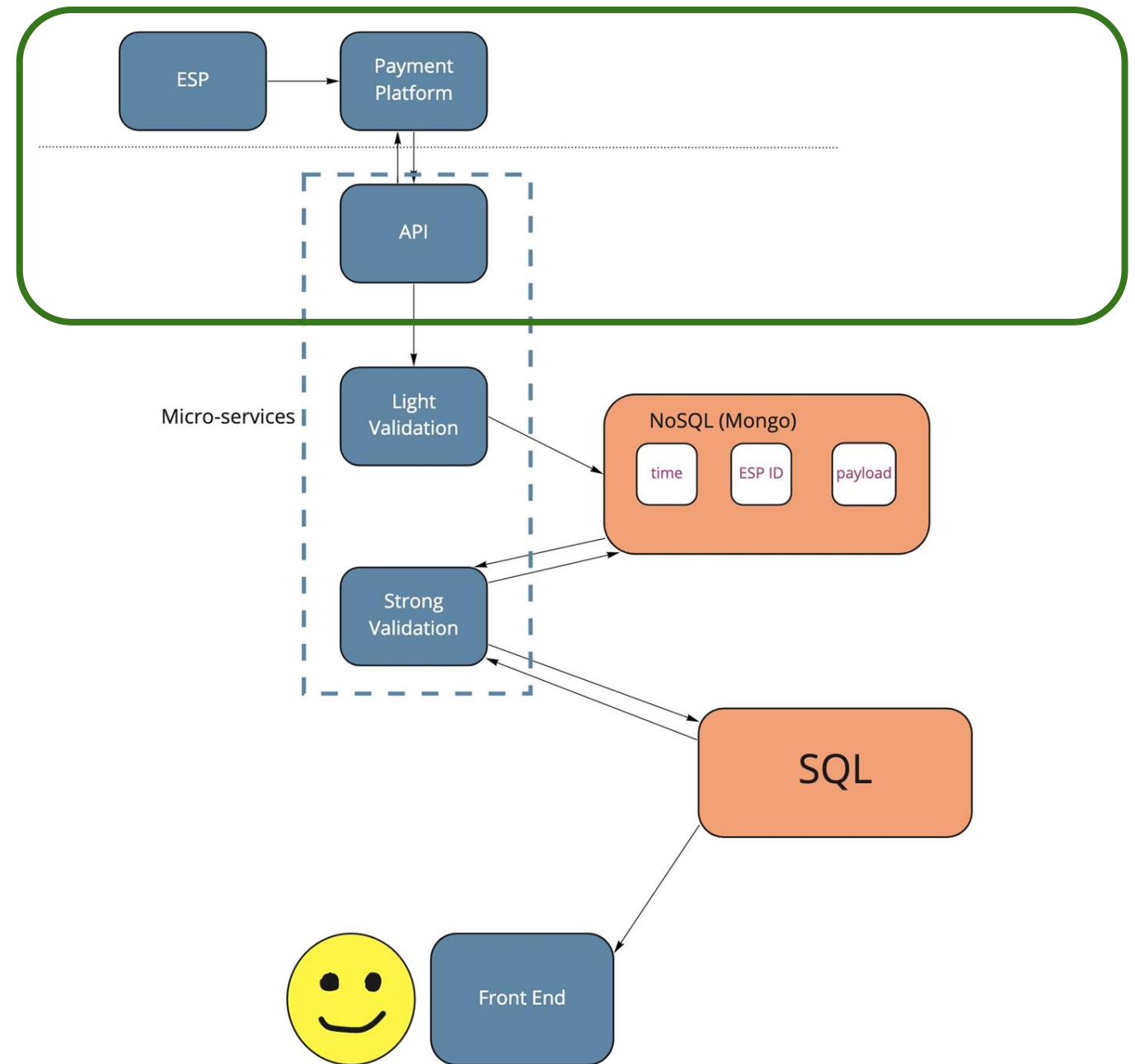# Edison within the larger information ecosystem

- Near real time data
  - Pay-as-you-go (or cash) Solar home system payments
  - Mini-grid contract payments, more information depending on mini-grid specifications

- Fill gaps between surveys and censuses

- More detailed data for more in depth research / analysis

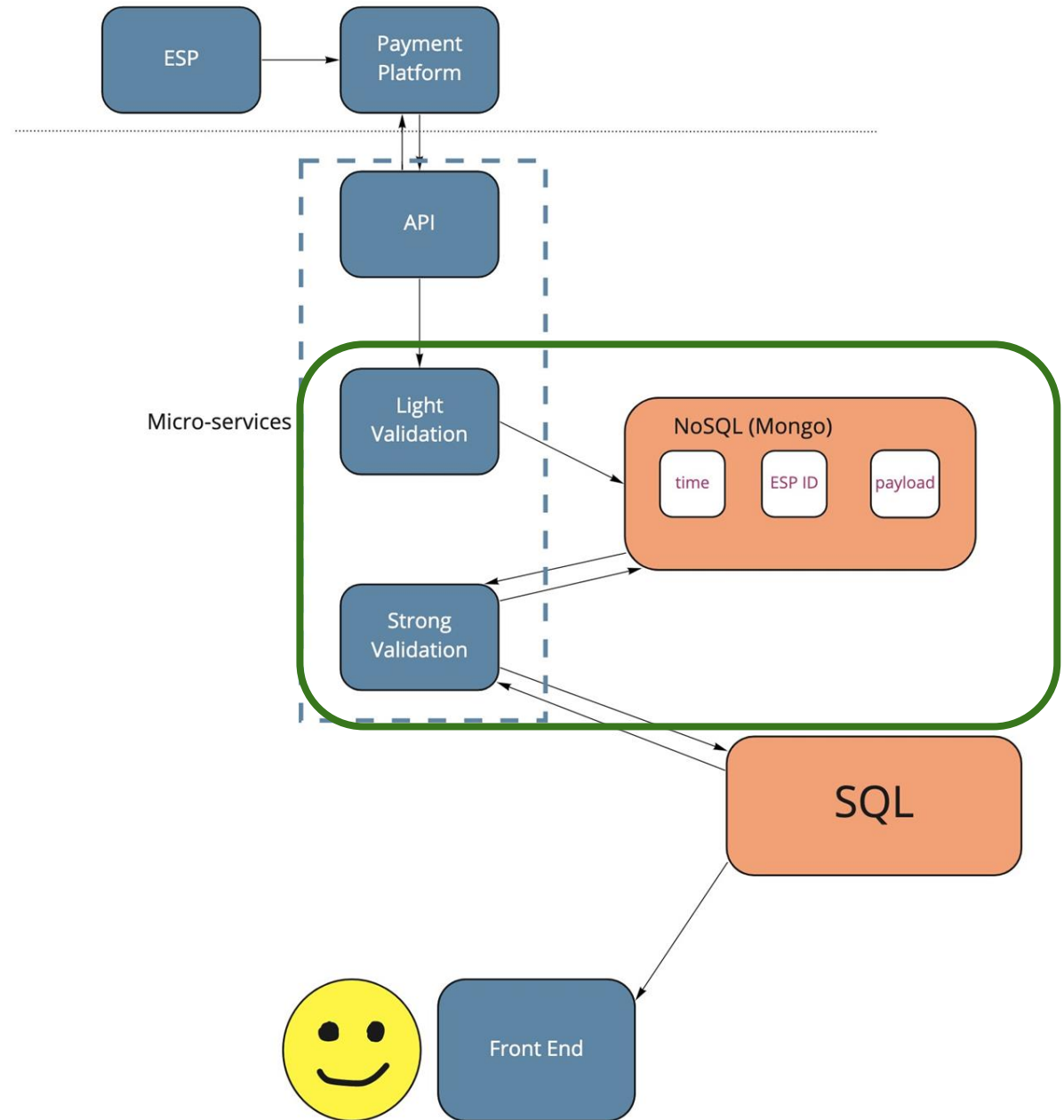- Validate suspect data

System Overview

Data Ingestion

- ESP, Payment Platform and API

- Solar Home Systems and Mini grid connections
  - ongoing payments
  - electrical use - differences in mini-grid business models
- How we collect: Application programming interface (API)

- Historic and Daily Data Transfer

Data Processing

- Light and Strong Validation Layers

- Data Transfer from API to escrow database (NoSQL)

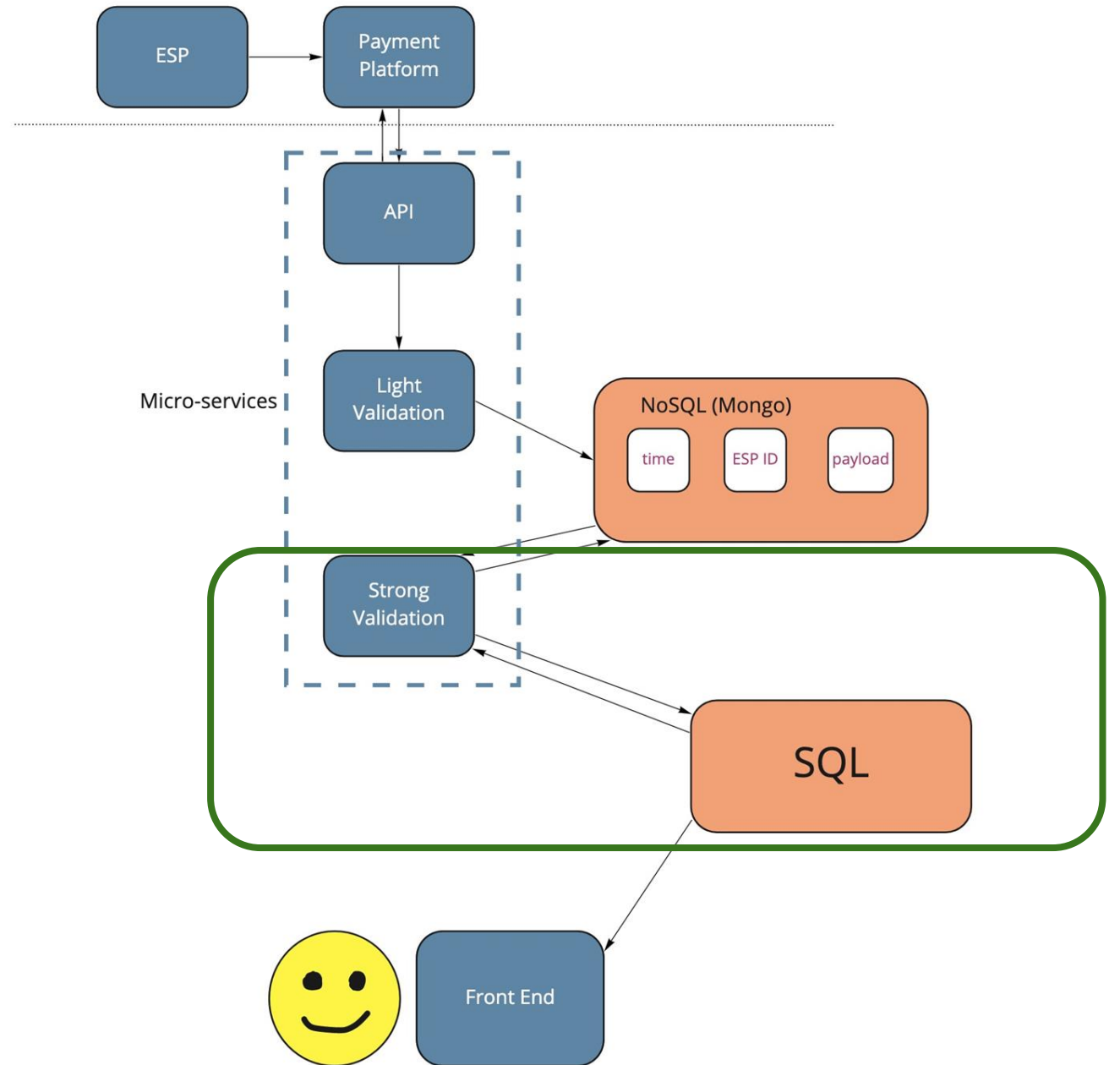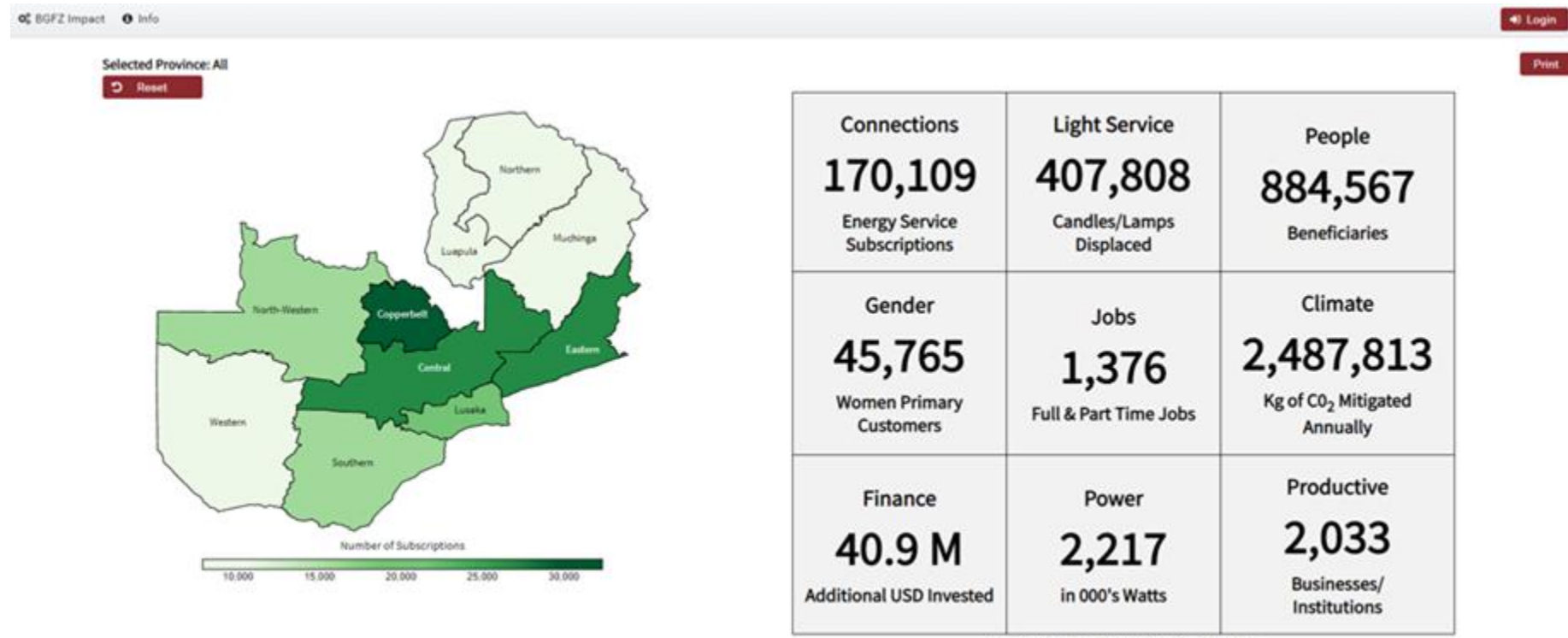- Data filtering to Preservation database

Data Preservation

● MySQL Database

   ○ Solar Home System Schema
      ■ Customers
      ■ Systems
      ■ Payments

   ○ Minigrid Schema
      ■ Customer
      ■ Wh purchased
      ■ Minigrid output
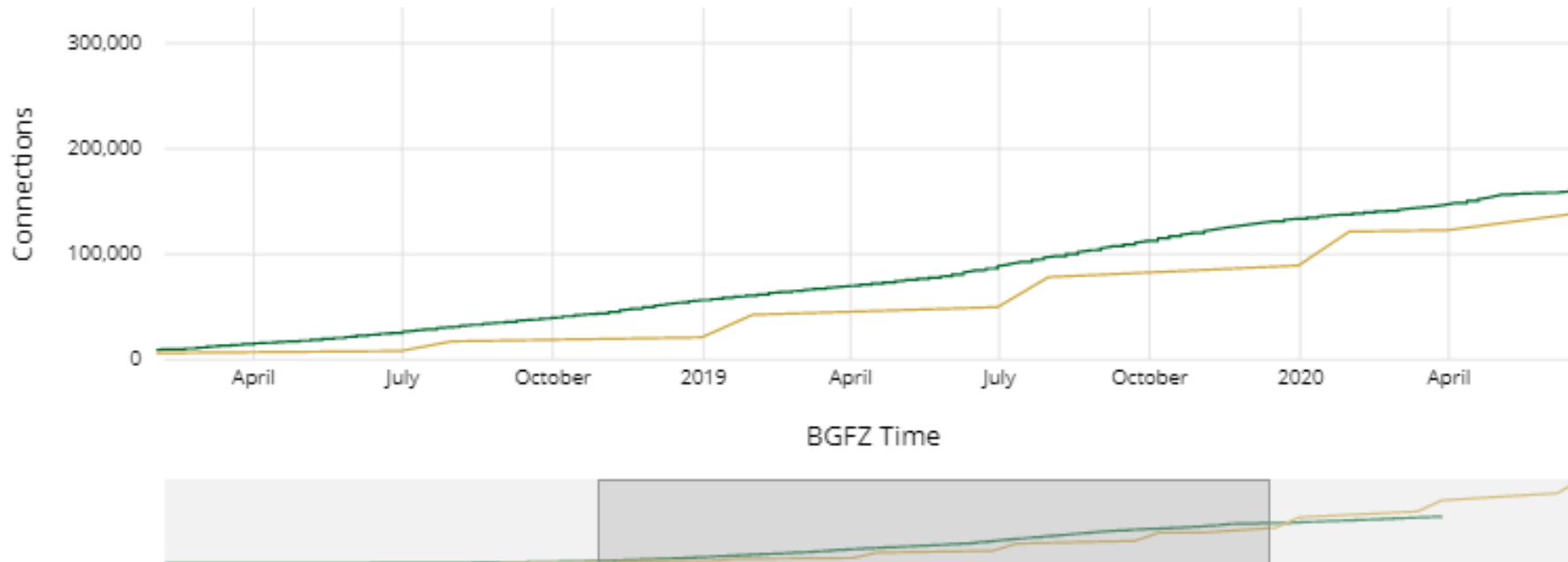
Data Presentation: edison.bgfz.org

Data Presentation: Tracking Programme Results
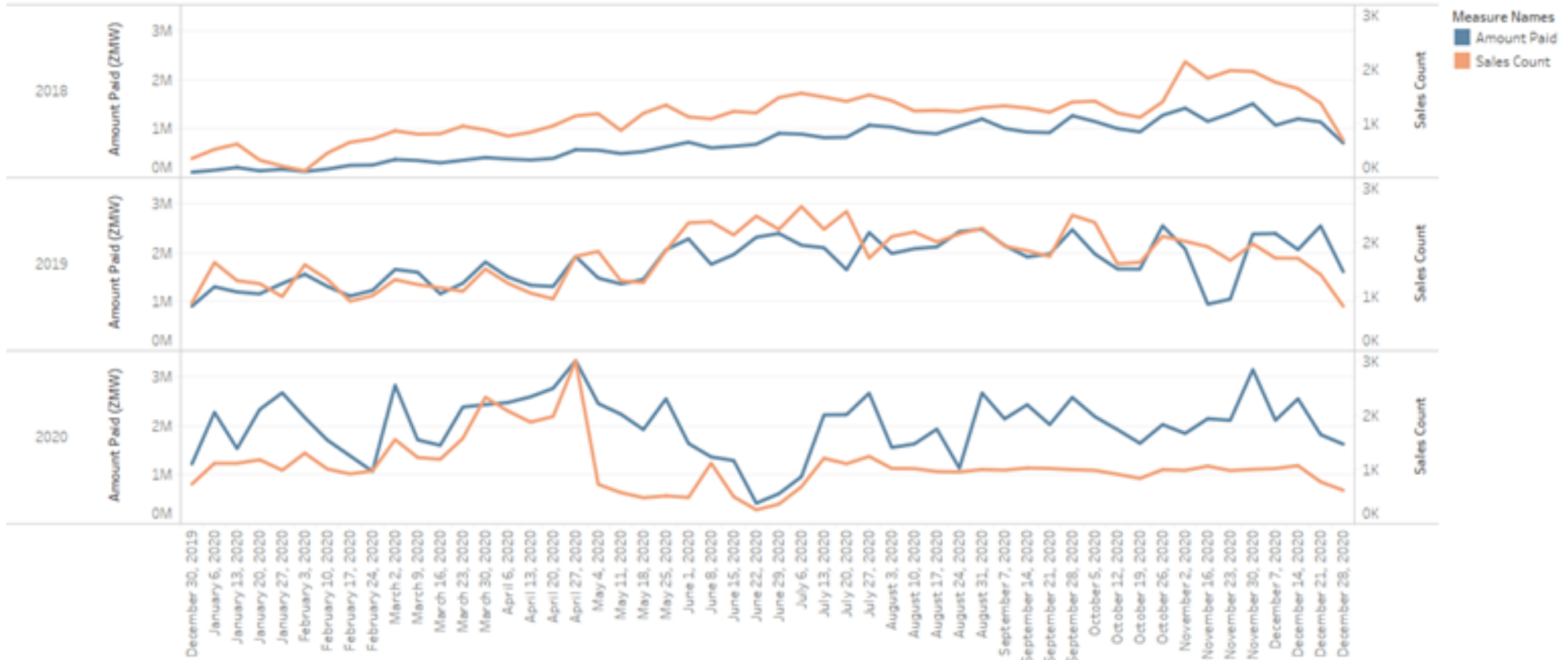
Data Presentation

Solar Home System Sales Counts and Payment Amounts (in ZMW)

Reflection

- Technical: a lot of elbow grease AND domain knowledge
  - Data / developers
  - Programme managers
  - Relationships with on the ground stakeholders in the off-grid energy market

- Institutional
  - Donors: key players in the off-grid space
  - National governments: regulators

Outlook

- Automated data collection is possible (and being done) in off-grid space

- Scaling up this approach is valuable for tracking renewable energy targets

- Requires a combination of institutional and technical effort

- Edison demonstrates that the approach works

Thank you

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