

# Mid-Semester Report

Group 01-01

# Web Interface

Energy Type

Average Cost per month:


☐ Total

☒ Energy Type

☐ Meter

Meter_Type	January_Cost	February_Cost	...	December Cost
Electric - Grid				
Co-Gen Electric				
Fuel Oil				
Natural Gas				

LINE GRAPH



Meter

Average Cost per month:

☐ Total

☐ Energy Type

☒ Meter

Meter_Name	Meter_Type	January_Cost	February_Cost	...	December Cost
EL_1	Electric				
EL_2	Electric				
NG_1	Natural Gas				
...					
...					
...					
...					
...					

Meter

Average Cost per month:


☒ Total

☐ Energy Type

☐ Meter

January_Cost	February_Cost	...	December Cost

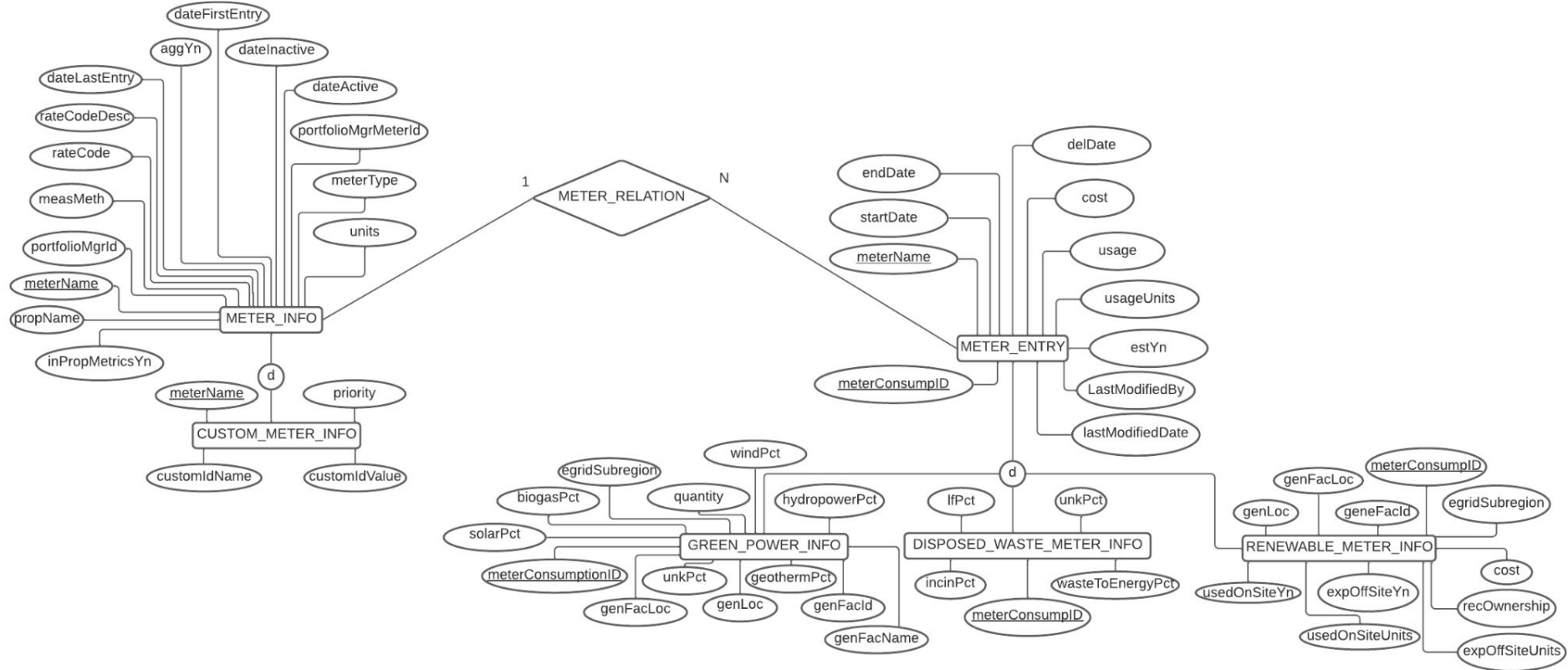
LINE GRAPH



# Database Model Overview

- Six tables
  - METER\_INFO, CUSTOM\_METER\_INFO, METER\_ENTRY, GREEN\_POWER\_INFO, DISPOSED\_WASTE\_METER\_INFO, RENEWABLE\_METER\_INFO
- METER\_INFO tracks information about each meter
- METER\_ENTRY tracks the cost and usage of each meter during throughout every month
- METER\_INFO:METER\_ENTRY is a 1:N relationship defined using a foreign key approach
- GREEN\_POWER\_INFO, DISPOSED\_WASTE\_METER\_INFO, RENEWABLE\_METER\_INFO are subclasses of METER\_ENTRY
  - These classes track additional data about each meter entry instance
  - Note: these data values are currently all empty, however, we decided to create the tables in case they are used in the future since these columns existed in the excel sheet
- CUSTOM\_METER\_INFO is a subclass of METER\_INFO
  - This class tracks custom names of each meter

# ER Diagram



# Relational Schema

METER\_INFO

<u>meterName</u>	progName	portfolioId	portfolioMge	meterId	meterType	units	measMeth	isProprieticsYn	dateActive	dateInactive	dateFirstEntry	dateLastEntry	aggregateYn	rateCode	rateCodeDesc	customInfo
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CUSTOM\_METER\_INFO

<u>meterName</u>	customName	customValue	priority
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METER\_ENTRY

<u>meterName</u>	<u>meterConsumptId</u>	month	dateDate	usage	usageUnits	cost	estYn	lastModifiedDate	lastModifiedBy	meterPowerInfo
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GREEN\_POWER\_INFO

<u>meterConsumptId</u>	quantity	biogasPct	geothermPLu	hydropowerPct	solarPct	windPct	unkPct	genFacLoc	genFacId	genFacName	egndSubRegion
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RENEWABLE\_METER\_INFO

<u>meterConsumptId</u>	usedOnSiteYn	usedOnSiteUnits	expOffSiteYn	expOffSiteUnits	cost	recOwnership	genLoc	egndSubRegion	genFacLoc	genFacId
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DISPOSED\_WASTE\_METER\_INFO

<u>meterConsumptId</u>	rfPct	recnPct	wasteToEnergyPct	unkPct
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# Supported Queries and Relational Algebra

Average total cost per month

RESULT  $\leftarrow$   $\text{month } G_{\text{AVG cost}}(\text{METER\_ENTRY})$

Average meter cost per month

RESULT  $\leftarrow$   $\text{meterName, month } G_{\text{AVG cost}}(\text{METER\_ENTRY})$

Average cost per month of energy sources

SOURCE  $\leftarrow$  METER\_ENTRY  $\bowtie_{\text{meterName=meterName}}$  (METER\_INFO)  
RESULT  $\leftarrow$   $\text{meterType, month } G_{\text{AVG cost}}(\text{SOURCE})$

Note: this is just an overview of how needed data can be obtained using our data model. Queries are not final.

# Estimations

There are about 1,430 meter entries in the data given. Since this is the bulk of our data, we can assume that the rest of our records will add up to substantially less than this number. In total, we expect between 1,500 and 2,000 records,

We expect to need about 5-10 searches in our web application. The majority of these searches will access data in the METER\_ENTRY table since this is where the most important data is. Many of these searches will use aggregate functions to obtain meaningful values such as average costs.