ADDRESSING RESOURCE GAPS IN WATER RATES AND DATA MANAGEMENT

- CONSERVATION – REVENUE LOSS CONUNDRUM
- WHAT IS A MEANINGFUL CONSERVATION PRICE SIGNAL?
- WHAT'S RIGHT FOR MY COMMUNITY'S CIRCUMSTANCES?
- HOW DO I GET BUY-IN?

TIMELINE

Water Pricing Work Group (WCS)

Survey – rate-setting experience in MA (114 responses)

Case Study Lessons from MA PWS Experiences

Survey of MA water suppliers' metering and billing software (83 responses)

IPSWICH TECHNICAL ASSISTANCE

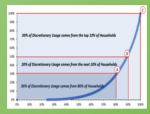
Water Conservation Toolkit – Pricing and Data Management pages

2014 2017 2018 2018 2018 2019 2019 2019 2020

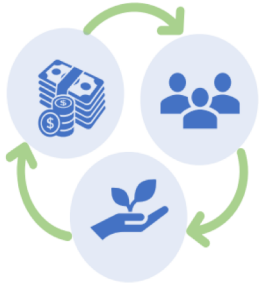
Water Conservation Standards

Financing Sustainable Water Workshop (AWE - 86 participants)

BMP GUIDE FOR WATER DATA MANAGEMENT AND ANALYSIS



Collecting, Managing and Analyzing Water Usage Data



Division of Ecological Restoration

dcr Massachusetts

Amy Vickers & Associates, Inc.
Water Planning, Policy, and Management

Tighe&Bond

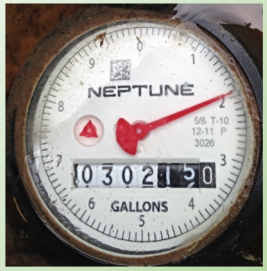
I. Data Collection and Management

II. Data Assembly and Preparation

III. Data Analysis and Interpretation

I. DATA COLLECTION AND MANAGEMENT

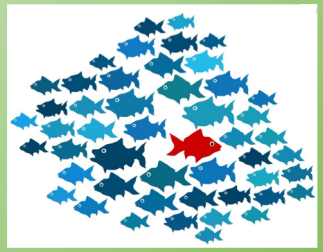
- Meter all connections (including non-revenue accounts) and read them at the same frequency.



- Meter monthly, even if unable to bill monthly.

- Eliminate or reduce estimated reads.

- Eliminate or correct meter read errors to protect validity of analyses.

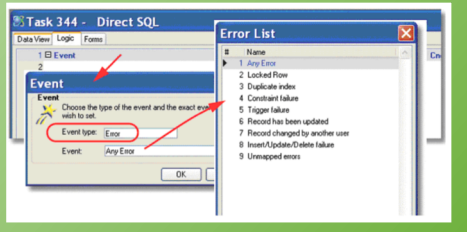


I. DATA COLLECTION AND MANAGEMENT

- Investigate meter codes indicating tampering, leaks, or theft.

- Backup and preserve meter data in perpetuity.

- When meter read errors are identified during billing, make sure the source data is also corrected.



II. DATA ASSEMBLY AND PREPARATION

A. What data to collect?

Basic Data (needed for almost any useful analysis)

- Customer account #
- Meter size
- Customer class
- Water usage
- Fixed billed amount
- Volumetric billed amount

II. DATA ASSEMBLY AND PREPARATION

A. What data to collect?

Intermediate Data (can add substantially to understanding of water use and revenue patterns without too much more effort)

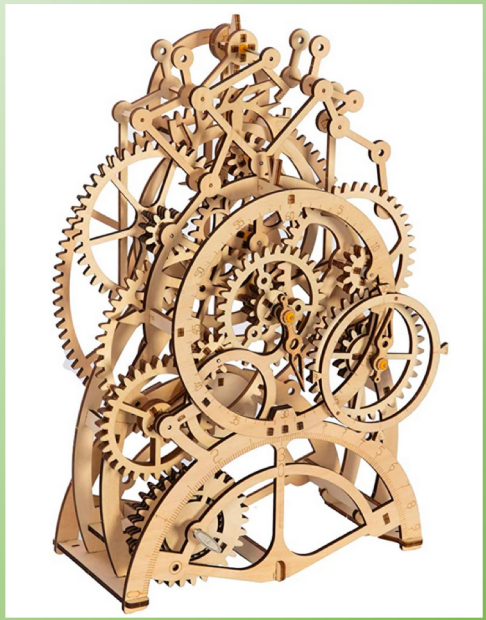
- Customer subclass
- # units per multi-family account
- Presence of separate irrigation account (and means to link it for total usage)
- Address (if in separate system/database)

DATA ASSEMBLY AND PREPARATION

A. What data to collect?

Advanced Data (can add context and help drill down into usage patterns, but generally needs much more effort)

- Household size
- Year of construction or recent kitchen/bathroom renovation
- Lot size
- Water features (irrigation system, fountain, pool, artificial pond, etc.)



II. DATA ASSEMBLY AND PREPARATION

B. Where to obtain the needed data

C. File formatting recommendations

II. DATA ASSEMBLY AND PREPARATION

D. Quality control / analysis preparation

- Organize data and arrange in useable

II. DATA ASSEMBLY AND PREPARATION

D. Quality control / analysis preparation

- Review zero values and outliers

II. DATA ASSEMBLY AND PREPARATION

D. Quality control / analysis preparation

- Calculate key metrics (e.g. annual totals, seasonal averages, monthly averages, annual max and min, etc.)

D5 =SUM(Sheet2!A1:D1)

	B	C	D	E	F	G
2						
3	account	MAX_day	Summer Total 2018	Winter Total 2018	Irrigation	Annual total
4	28628	195	12,530	11,766	12,501	36,444.38
5	28928	2,035	73,525	15,099	73,340	132,936.00
6	13636	107	8,029	9,679	7,878	26,562.38
7	24060	566	9,721	8,950	4,631	28,006.88

III. DATA ANALYSIS AND INTERPRETATION

Must be customized!

- Define your system's challenges and priorities
  - What are the salient trends of your system?
  - Do you have annual or peak capacity concerns?
  - Do you have revenue sufficiency or stability concerns?
- Set your analysis goals
  - Based on your challenges and priorities, what questions do you need answers to?

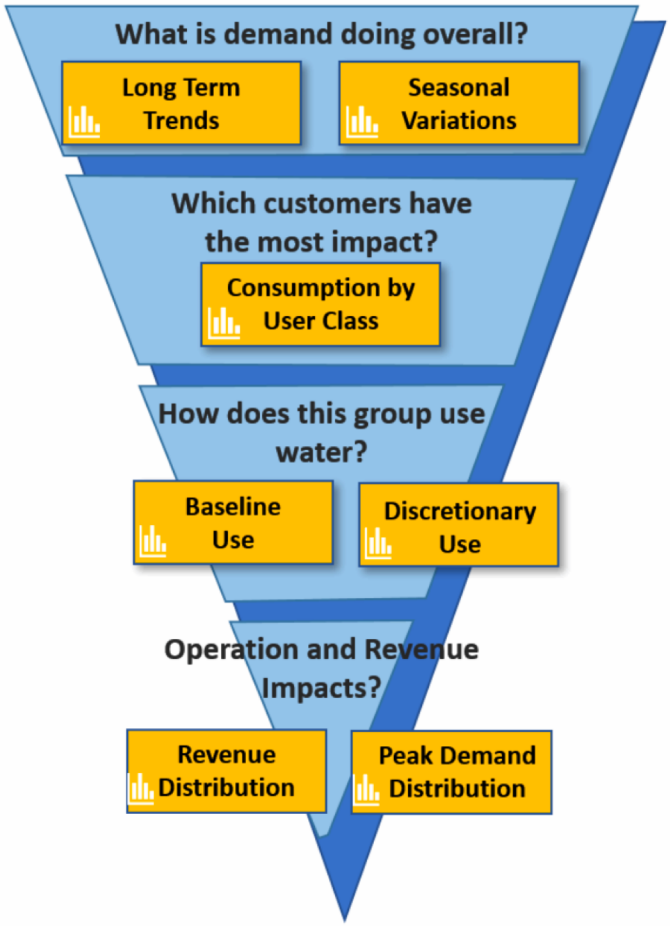
III. DATA ANALYSIS AND INTERPRETATION

<u>Example community</u>

Key issues:

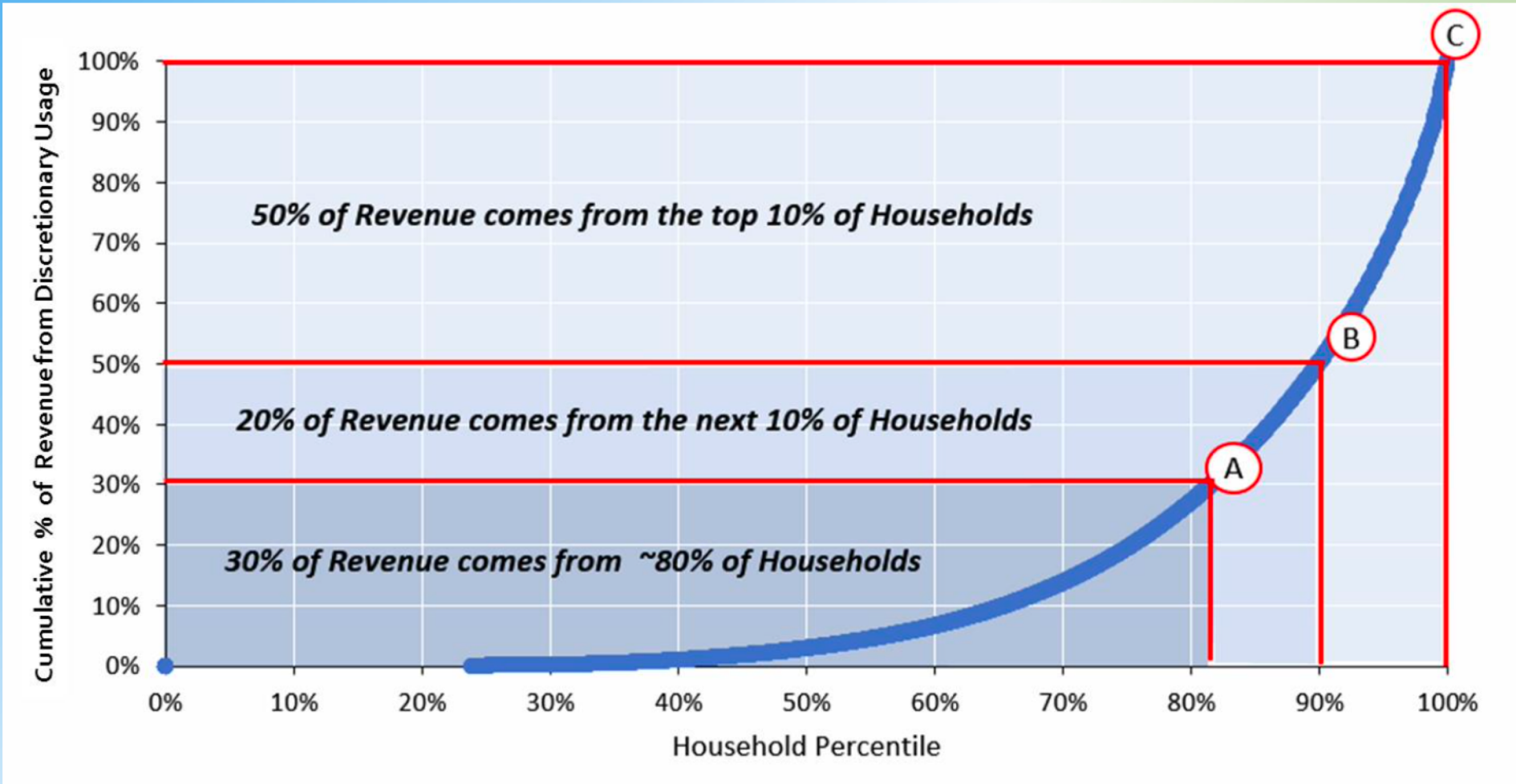
- peak demand capacity
- revenue instability, especially in wet years.

Figure 1. Diagram of Logic Flow for Sample Analyses



INTERMISSION…

For Kate Bentsen's Presentation

III. DATA ANALYSIS AND INTERPRETATION

Revenue Analysis