

# McCrometer Remote Telemetry



Central Colorado Water Conservancy District

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# Agenda

- Voice of the Customer – Flowmeters & Telemetry
- Telemetry Options
- Initial Metering Sites for CCWCD
- Installation
- Questions

# Voice of the Customer (VOC)

- On-site concept testing and interviews.
  - Nebraska: Central Nebraska Public Power and Irrigation District, Upper Big Blue Natural Resources District.
  - Kansas: Kansas Department of Agriculture.
  - Colorado: Central Colorado Water Conservancy District.
  - California: James Irrigation District, Westlands Water District.
  - Texas: Harlingen Irrigation District, Delta Lake Irrigation District.
  - Florida: South Florida Water Management District
- Web-based survey (n = 83 farmers)
- Web-based survey (n = 22 regulators, influencers)

# Key Outcomes from VOC

- **Durability** - McCrometer propeller meters are viewed as durable, rugged and reliable – strong installed base.
- **Data on Demand** - Customers want the data available on demand – when they want it at just the right frequency, in the right format – once per hour to twice a month.
- **Flexible Communication Technology** – satellite, cellular, radio networks, combination for lowest cost.
- **External Website** - Customers are reluctant to receive their data through an external website
- **No Monthly Fees** – Fixed annual fees or none at all.
- **Expandable** – Work with other sensors for full water management solutions - (e.g. soil moisture sensor, level)
- **Easy to Install & Retrofit** - The ability to retrofit to existing meters affordably, easily, and reliably.

# Top Customer Frustrations with Current Telemetry Options

- Difficult to find one supplier to interpret the reading from the flowmeter, provide the data logging and send the data.
- Too expensive – being oversold systems with data fees too high.
- Systems are susceptible to vandalism.
- Power consumption issues.

# Key Outcomes from VOC

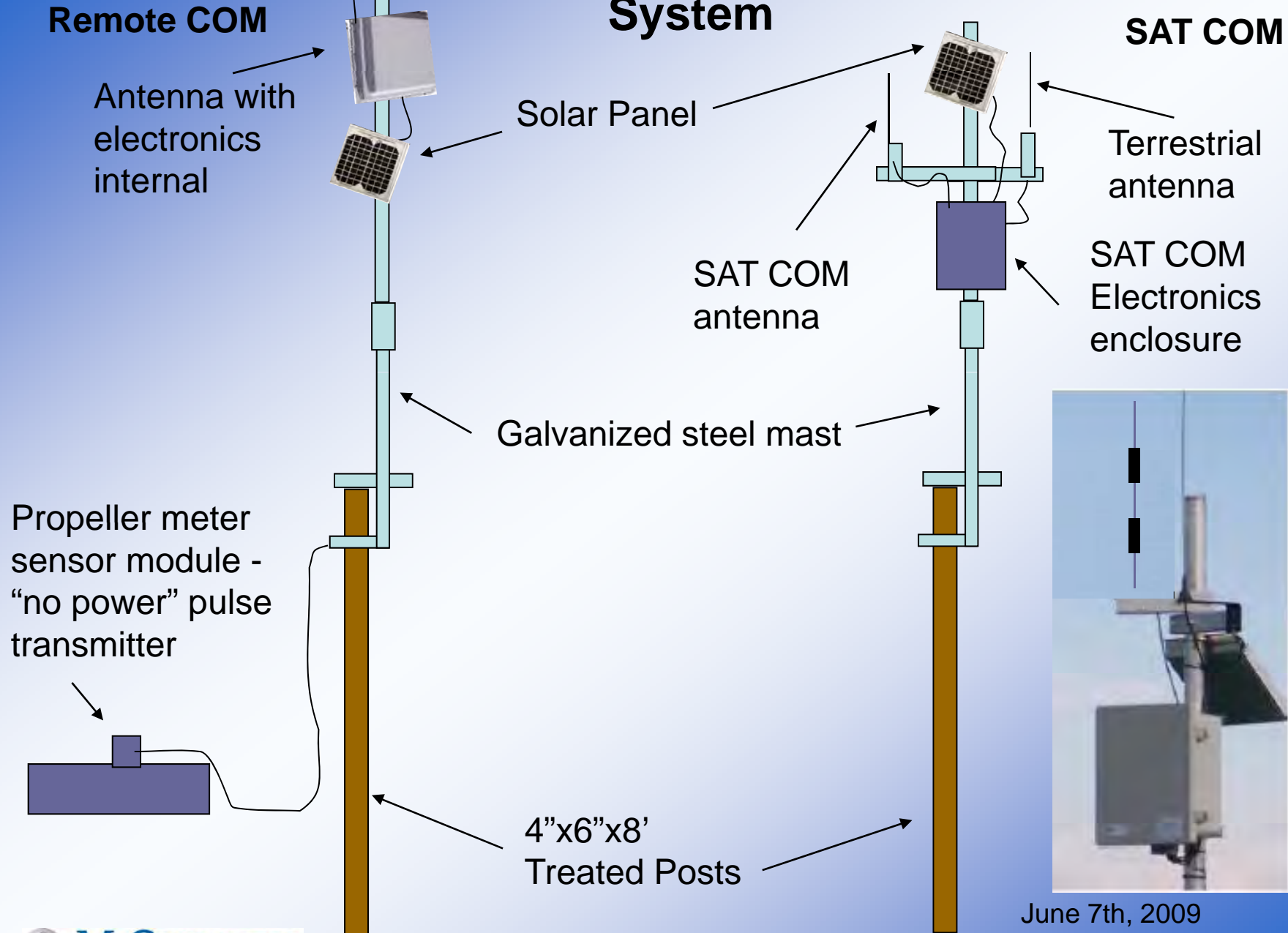
<b>Customer Requirement</b>	<b>Minimum</b>	<b>Target</b>
<b>Data available on demand</b>	<b>Daily</b>	<b>Mix of daily, hourly depending on well</b>
<b>One stop shopping</b>	<b>Get meter remote package from one supplier</b>	<b>Additional sensors available soil moisture, level, water quality.</b>
<b>Solid value equation (affordable for customer – return on investment)</b>	<b>Equal to current cost of retrieving data</b>	<b>Saves money via data available on demand and in correct format.</b>
<b>Easy installation and retrofitting</b>	<b>Package arrives to customer on a pallet with easy directions to follow.</b>	<b>Installation and setup services available.</b>
<b>Durable against tampering, vandalism, etc.</b>	<b>Able to lock the canopy and transceiver</b>	<b>Available in a tamper proof box option</b>

June 7th, 2009

# Key Needs of CCWCD

- Data frequency:
  - Per month, per day
    - Settable using secure web site
- Transmission Data format:
  - ID, Totalizer, Battery Level
  - ID, Totalizer, Hours, Battery Level
- Web Site Data format:
  - WDID#, Permit#, Serial # (Flowmeter)
  - Date of reading
  - GPS Coordinates
  - Totalizer Value Acre Feet
  - Monthly depletion Acre Feet
  - Quota, Exceeded quota flag
  - Well Site Image for identification
  - Farm ID #
- Alarm Functions
  - Water quota per Farm ID
  - Low battery alarm
  - Ability to notify specific users daily
    - Set using secure web site
    - Email and Text Messaging
    - Notification to co-owners
- Winter Hibernation
  - Hibernation period
  - Set using secure web site
- Other
  - Meter Accuracy Check – hours flowed, volume and size of meter.
  - RSS data feed established to “push” the data in correct format for water accounting purposes.

# Remote Water Telemetry System



# Telemetry Options

- **Infrastructure Design**
  - Hardware: 1 RC510-00 sat with up to 25 RC500-00 meter radios
  - Node coverage area: 16 square miles
  - Data access: Direct from secure web site or downloaded data
- **RC500-00 Mc Meter Telemetry Bundle**
  - Transmitter for Mc Propeller Flowmeter
  - Accessible enclosure for replaceable batteries
  - Enclosure with Telemetry computer and Radio Modem
  - Directional Radio Modem Antenna
- **RC510-00 Mc Meter Sat Com Bundle**
  - Transmitter for Mc Propeller Flowmeter
  - Enclosure with Satellite modem and Radio Modem
  - Solar Panel and battery power system
  - Mast 20' for Radio Modem Antenna
  - Satellite Antenna
  - Omni-directional Radio Modem Antenna
- **RC010-00 Data Monitoring**
  - Web interface and database maintenance
  - Log in for each customer
  - Google Earth view of remote monitored site
- **RC020-00 Installation Service**
- **RC550-00 20' Antenna Masts (optional)**



# Initial Metering Sites

## Central Colorado Water Conservancy District



- 15 Wells – Feeding into one satellite node – June 2009
- 5 of the 15 Wells with expanded sensors – flow, soil moisture, level, TDS.
- Additional 185 Wells – Aug, September

# Installation

## McCrometer Installation Service

- Factory-trained Technicians
- Inspect flowmeter
- Install electronic transmitter on meter
- Install 20' mast, antenna & remote telemetry hardware
- Confirm meter data and System Configuration
- Test communications from node to web site

**We realize many customers have their own maintenance teams. We intend to partner with our customers as needed to meet budget constraints while ensuring a successful start-up!**

# Questions ?