

Flowing into the Future

**Embedded Acoustic Leak
Detection is Resolving
Non-Revenue Water Loss**



Bruce Bharat

Vice President and Country Manager,
Kamstrup North America

Inspire confidence and trust
Lead the industry in reliability
Deliver actionable data



75+

Years of
Innovation

30+

Years of
Ultrasonic

13M+

Meters installed
globally

6+

Years manf in USA

2M+

Meters shipped
in North America

0.25%

Return Rate in NA



IT'S TIME TO KNOW

Kamstrup is an ideal partner for any utility embarking on a smart water journey.

Best in Class, Period

Success begins with a high-quality smart water meter...Made in the United States.

0.25%
RETURN RATE
IN NORTH AMERICA
(0.5% GLOBALLY)

INDUSTRY
LEADING
**LOW FLOW
CAPTURE**

BEST IN CLASS
**AUTOMATION &
QUALITY**
QA/QC PROCESS

100% Ultrasonic

Our ultrasonic expertise drives both reliability and innovation, since 1991.

100%
ULTRASONIC
PORTFOLIO



30+
YEARS
ULTRASONIC
EXPERIENCE

Flexible Communication

RF & Cellular AMI (Alone or Hybrid)
RF AMR Fallback (In All Communicating Meters)
Encoded Output (3rd Party AMI)



flowIQ® 2200
RF Meter (SS)



flowIQ® 2200
Cellular Meter



flowIQ® 2200
Encoded Meter



Acoustic Leak Detection (ALD)

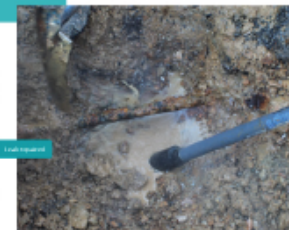
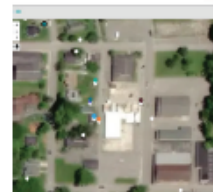
Meter-embedded ALD proactively finds leaks on distribution mains and service lines, simply by installing your meter.



flowIQ® 2200
RF Meter

Utility Service Line – Multiple Correlations

- High noise detected on several meters
- Service line leak had been running a minimum of 5 months



Leak estimated at 2.6 GPM and had been running for at least 5 months

Utility Service Line made from ductile iron

Distance to leak was approximately 30 feet to 350 ft

California leads the country in low flow household technology



Low Flow Showerheads



Low Flow Toilets



HE Washing Machine



Tankless Water Heaters

Lead the industry in Low Flow Accuracy

Flow rate histogram examples

Minimum [US gal/min]	Maximum [US gal/min]	Volume [US gal]
0.00	0.04	26,234.619
0.04	0.09	9,503.887
0.09	0.49	5,898.728
0.49	0.74	936.064
0.74	7.49	184,894.119
7.49	10.00	3,922.904
10.00	12.50	245.578
12.50	14.99	0.748
14.99	18.74	0.544

Installed May 2022 – read Aug 2023

Townhouse



35,738.5
gallons below
1/10 GPM
or
**17.18% of
all flow**

Minimum [US gal/min]	Maximum [US gal/min]	Volume [US gal]
0.00	0.04	23,822.802
0.04	0.09	57,232.910
0.09	0.49	47,952.197
0.49	0.74	10,496.208
0.74	7.49	98,882.182
7.49	10.00	5,898.479
10.00	12.50	9,884.411
12.50	14.99	25,264.692
14.99	18.74	45,447.810

Installed March 2021 – read Nov 2023

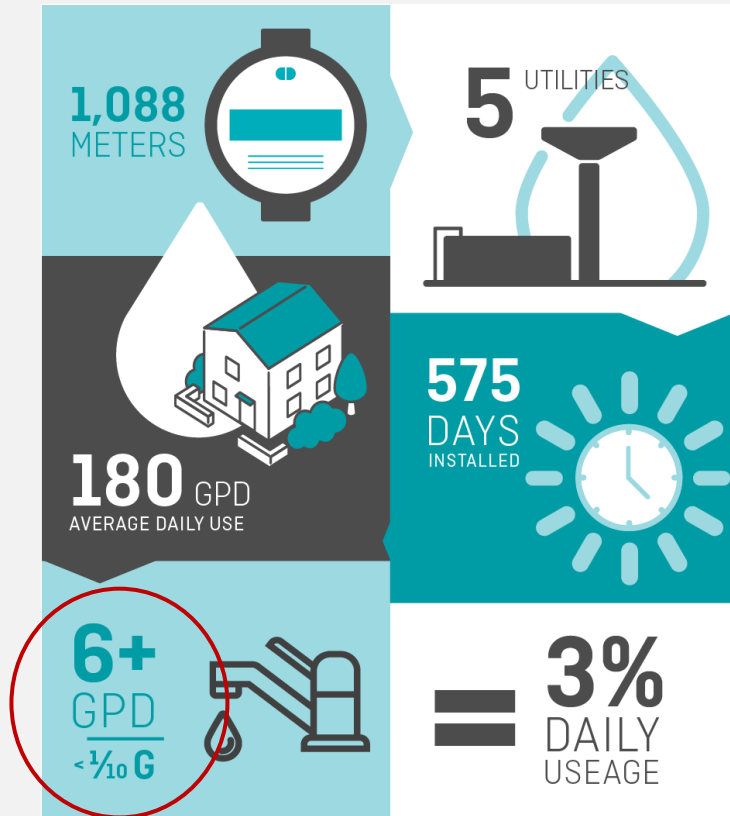
Home on Large Lot



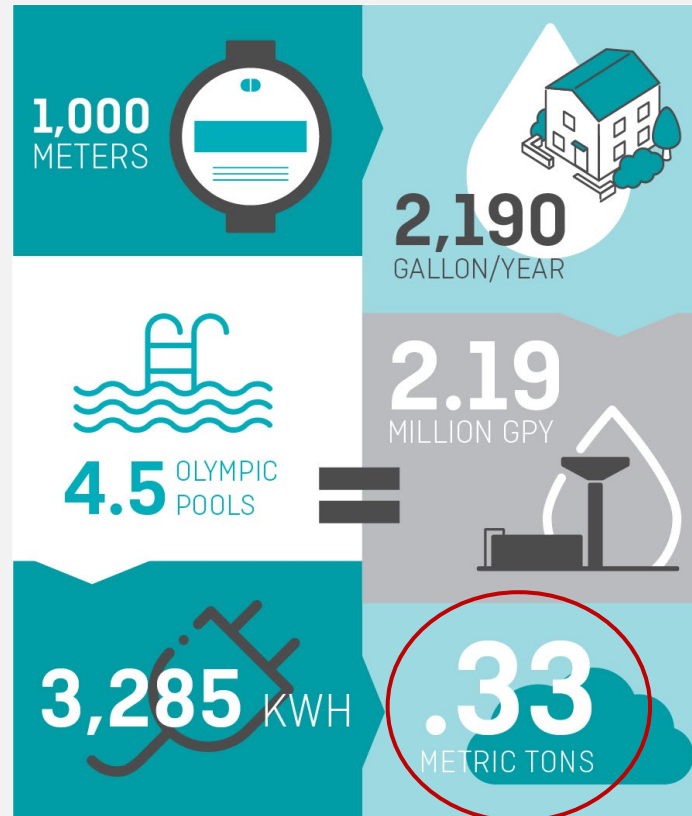
81,055.7
gallons below
1/10 GPM
or
**24.95% of all
flow**
(83 gal / day)

Low flow is not inconsequential to revenue or carbon emissions

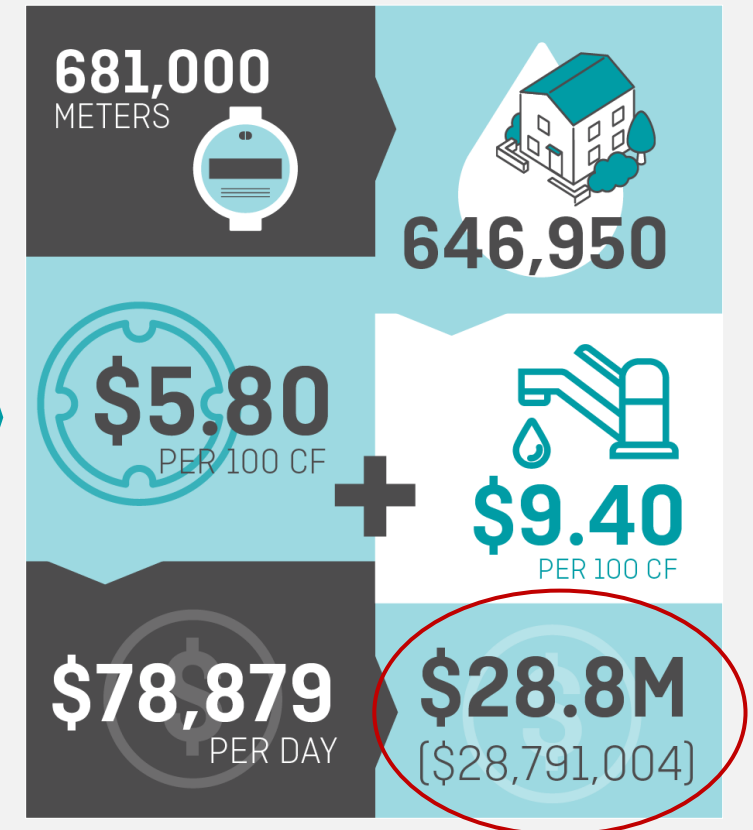
Random Sampling of Kamstrup Customers



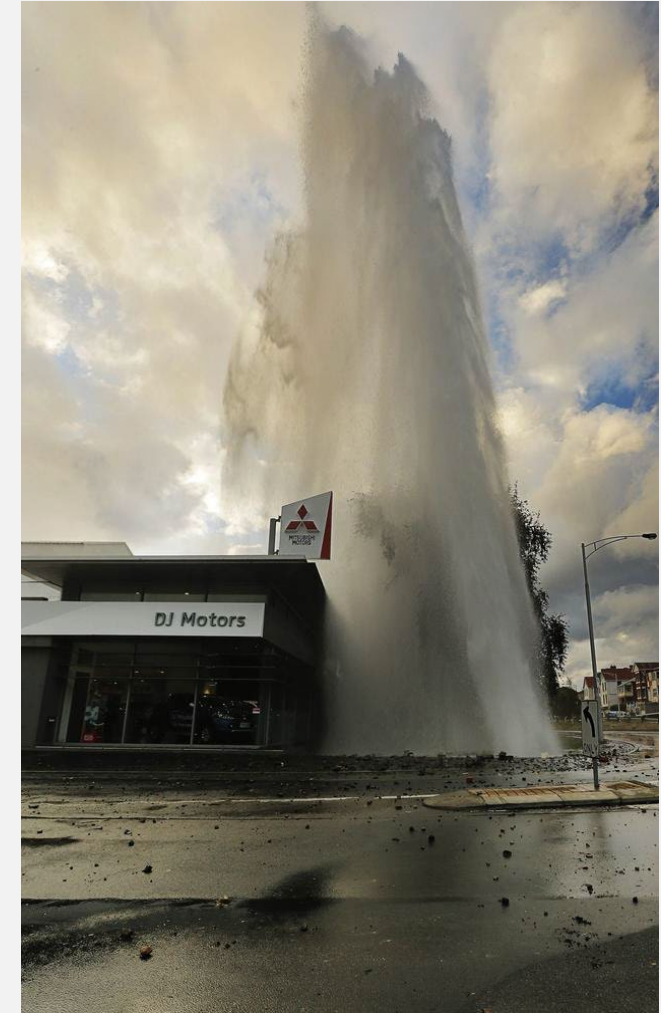
1,000 Customer Utility Example



City the Size of Los Angeles



“Breaking” News



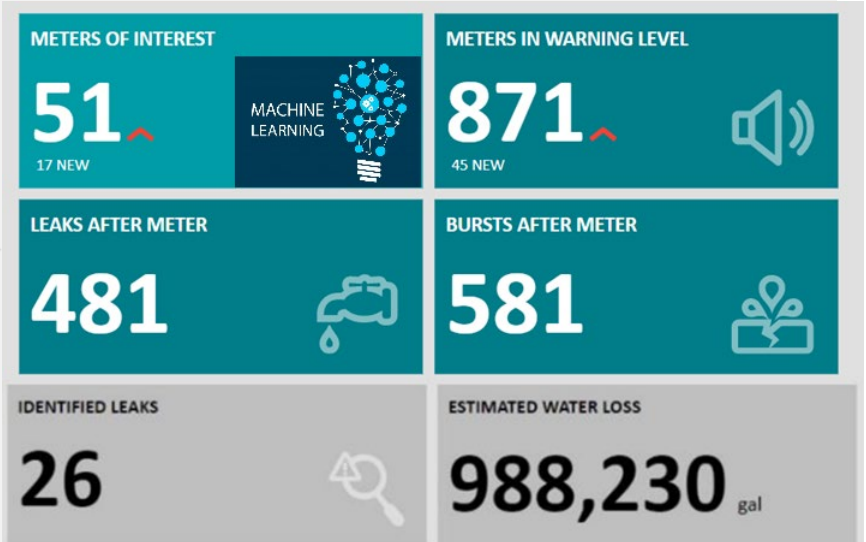
According to the American Water Works Association (AWWA), there are about 240,000 water main breaks in the U.S. every year.

Imagine easily surveying your entire system every day

100%

Integrated Acoustic Leak Detection

- Requires no additional hardware
- Simplifies the leak detection process
- Reduces leak run time
- Continuously listens for 20 years!



WE LISTEN TO YOUR WATER

IT'S TIME TO KNOW

We Listen to Your Water / Distribution Acoustic Leak Detection Case Studies

Leak Diary 1

Type: **Main Line Leak**

Leak Size: **~30 GPM**

Pipe Size/Material: **14" Steel**

Distance to Meter: **2,640'**

LISTEN TO THIS:

*This leak was detected **over ½ mile away**. Kamstrup ALD listens inside the water column where leak noise can travel farther, enabling **detection at a distance**.*

Leak Diary 2

Type: **Main Line Leak**

Leak Size: **~250 GPM**

Pipe Size/Material: **6" PVC**

Distance to Meter: **300'**

LISTEN TO THIS:

*Kamstrup ALD listens inside the water column rather than to the pipe, **enabling detection in a range of pipe materials, including PVC**.*

Leak Diary 3

Type: **Pressurized Utility Hydrant Line Leak**

Leak Size: **~1,500 GPM**

Leak Duration: **3+ Mos**

Distance to Meter: **600'**

Meters Detected: **20+**

LISTEN TO THIS:

*This was a significant, chronic leak that was **picked up by over 20 meters**. With meter-embedded ALD, utilities can achieve **system-wide coverage at no additional cost**.*

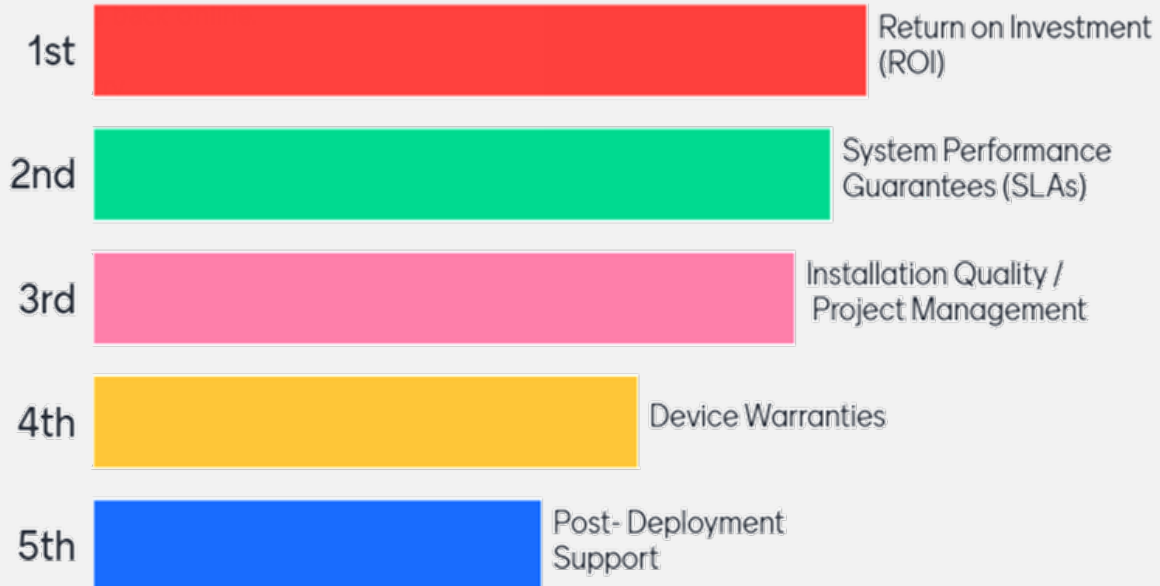
ALD enhanced smart meters can detect various types of leaks!

We asked Water Finance Leaders & Water Utility Executives...

Rank in order of importance these aspects of a Water AML deployment

Water Finance Leaders

Water Finance & Management Conference Aug 2024



Water Utility Executives

Smart Water Summit Sept 2024

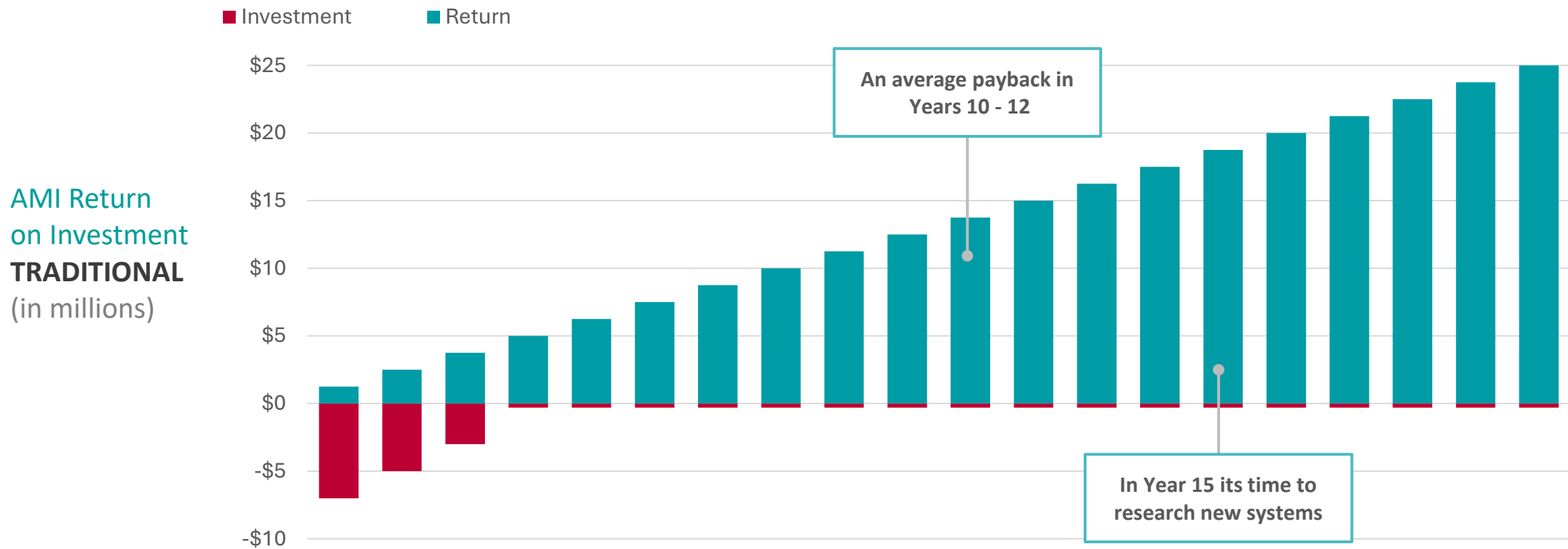


What if I told you...

- ... Complete turnkey deployment of an Advanced AMI Network
- ... No upfront costs
- ... Immediate return-on-investment
- ... A perpetual, complete hardware and system maintenance warranty
- ... If it's not working, you don't pay until it does

With Metering-as-a-Service you can!

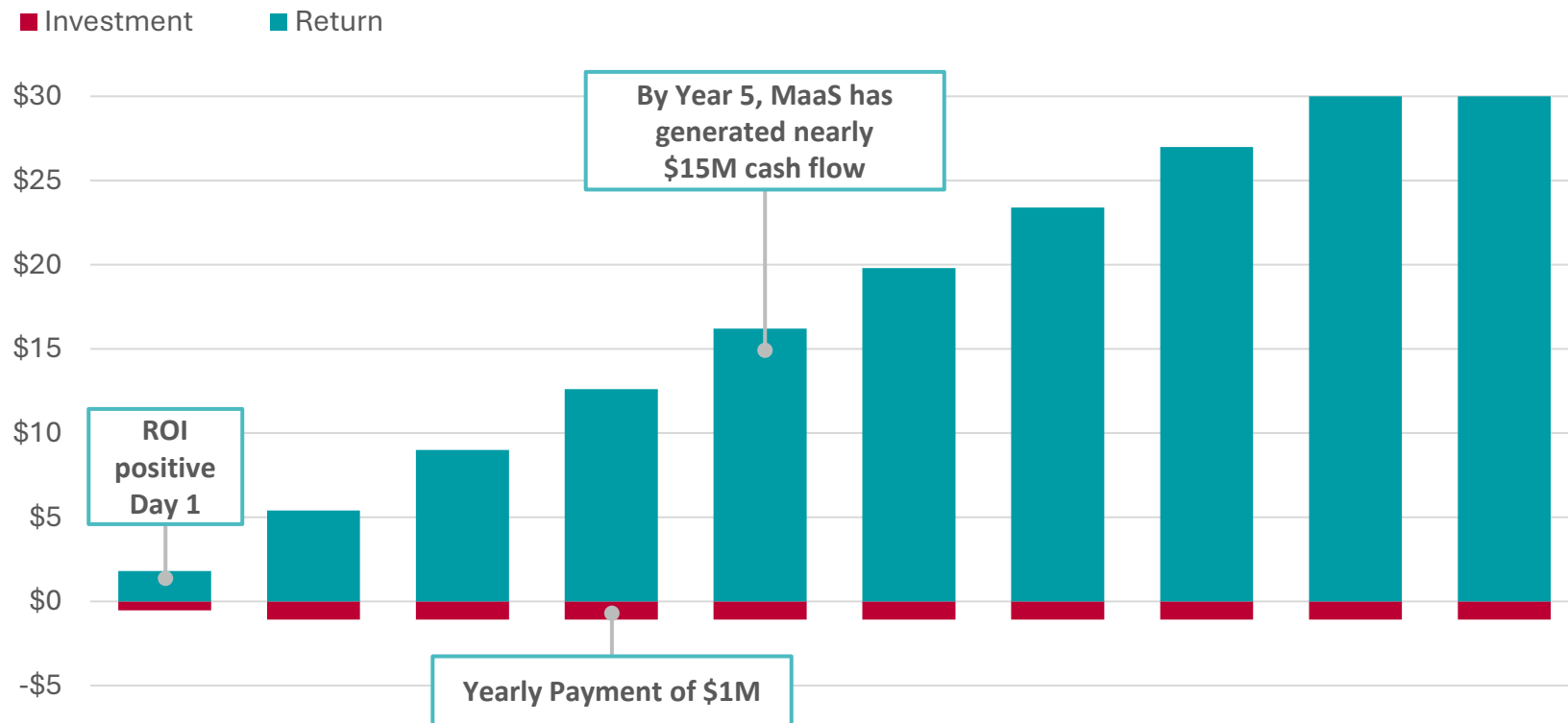
The traditional AMI investment does not yield positive cash flow benefits until over half of the useful life of the meter¹



1. Based on a 30,000 meter service utility, \$15M Investment, complete , turnkey installation with all contingencies

MaaS is an ROI focused model delivering all the benefits of AMI with no upfront cost, perpetual maintenance guarantee

AMI Return
on Investment
MaaS
(in millions)



Return Based on Lake Charles \$14 per meter per month "Net Cash Gain", but used \$10 to be even more conservative

What's the best financial move?

	Traditional CapEx	Metering as a Service (MaaS)
20 Year Total Investment	\$15m	\$21m
20 Year Total Net Cash Return	\$10m*	\$49m

Nothing...

*What you have to lose with Kamstrup
and Metering-as-a-Service*

(nothing, except your Non-Revenue Water!)

kamstrup



Thank you.

IT'S TIME TO KNOW