Energy Intersection & Innovations

- Artificial Intelligence Platforms for W/WW Systems -

Mahesh Lunani
Founder and CEO
AQUASIGHT

NASEO 2018 Annual Meeting

Water-Energy Nexus Economy Is Significant

TOTAL

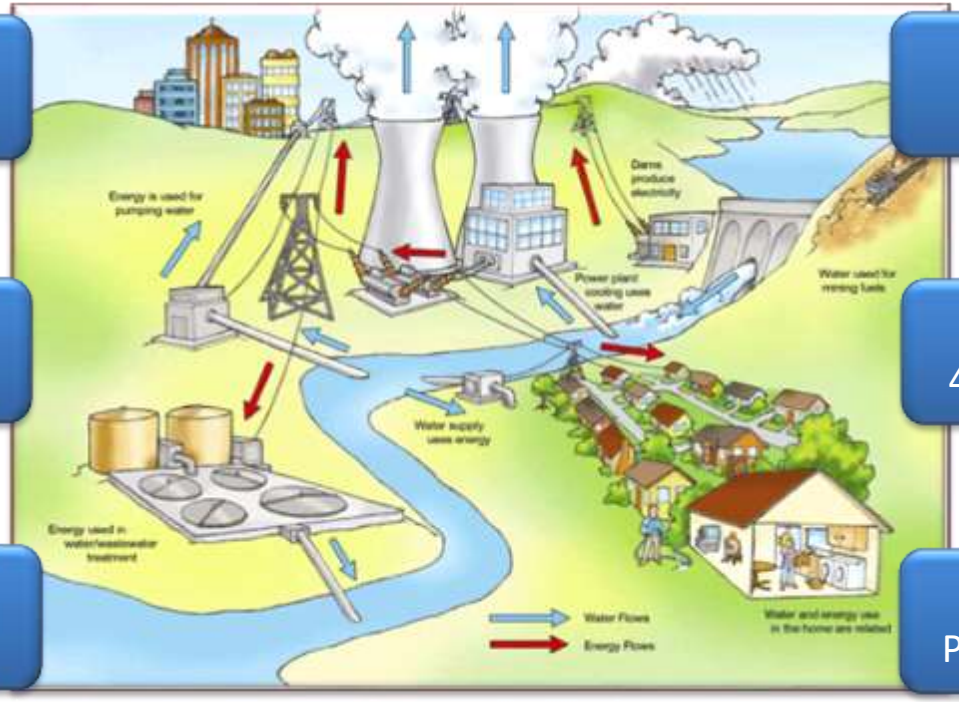
PUBLIC
Water/Wastewater

Strong Water-Energy Interrelationship

Daily Withdrawals:
350B Gallons

Water Related Energy:
12.6% US Annual

Water Related CO2:
= 53M Cars Annual



Withdrawals:
48B Gallons (12%)

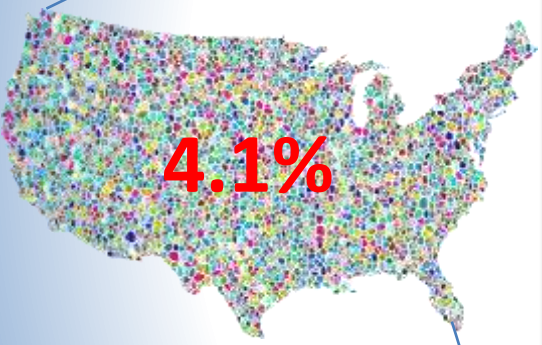
Energy Usage:
4.1% (33%) US Annual

Water-Energy Equiv:
Powering 6.5M Homes

Economic-Environmental-Social Relevance

Source: CRS 2014, USGS, DOE, EPA

Water & Wastewater Energy Efficiency - Focus On High Impact



Public water/wastewater energy consumption

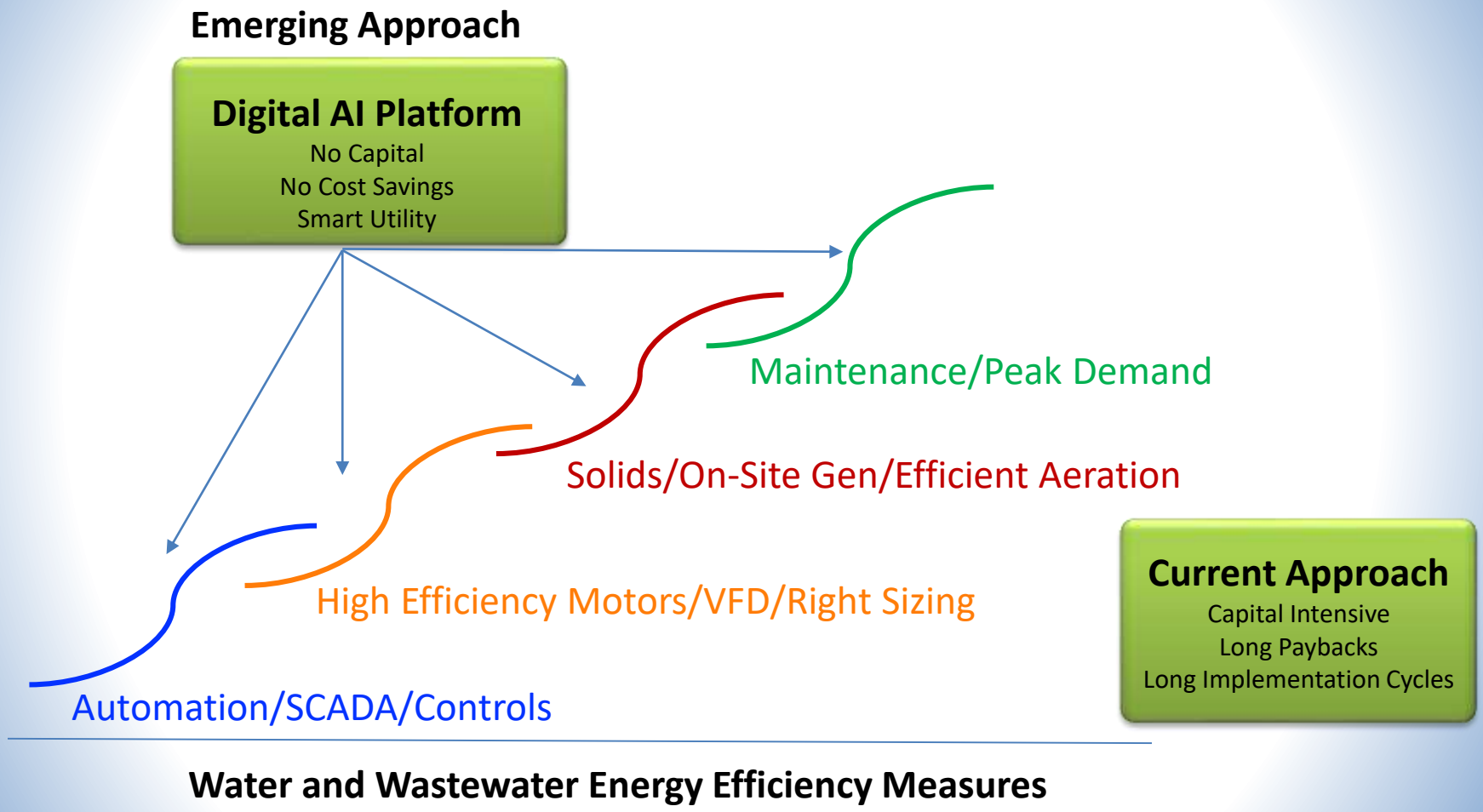
52,000 Water Systems* In US	2,600 Cover 85% Population
15,000 WW Plants* in US	3,300 Cover 75% Population
57 Billion kWh Annual Usage	80% are Pumps, Aeration and Solids
Life Cycle Energy Intensity: 3450 kWh/MG	State to State Varies: 2700 to 12,700 kWh/MG

- 3000 Systems
- 264M citizens
- Key Processes
- Impact States

* Public systems

Source: CRS 2014, AWWA

Emerging Parallel Opportunity



Challenges at Public Water and Wastewater Systems

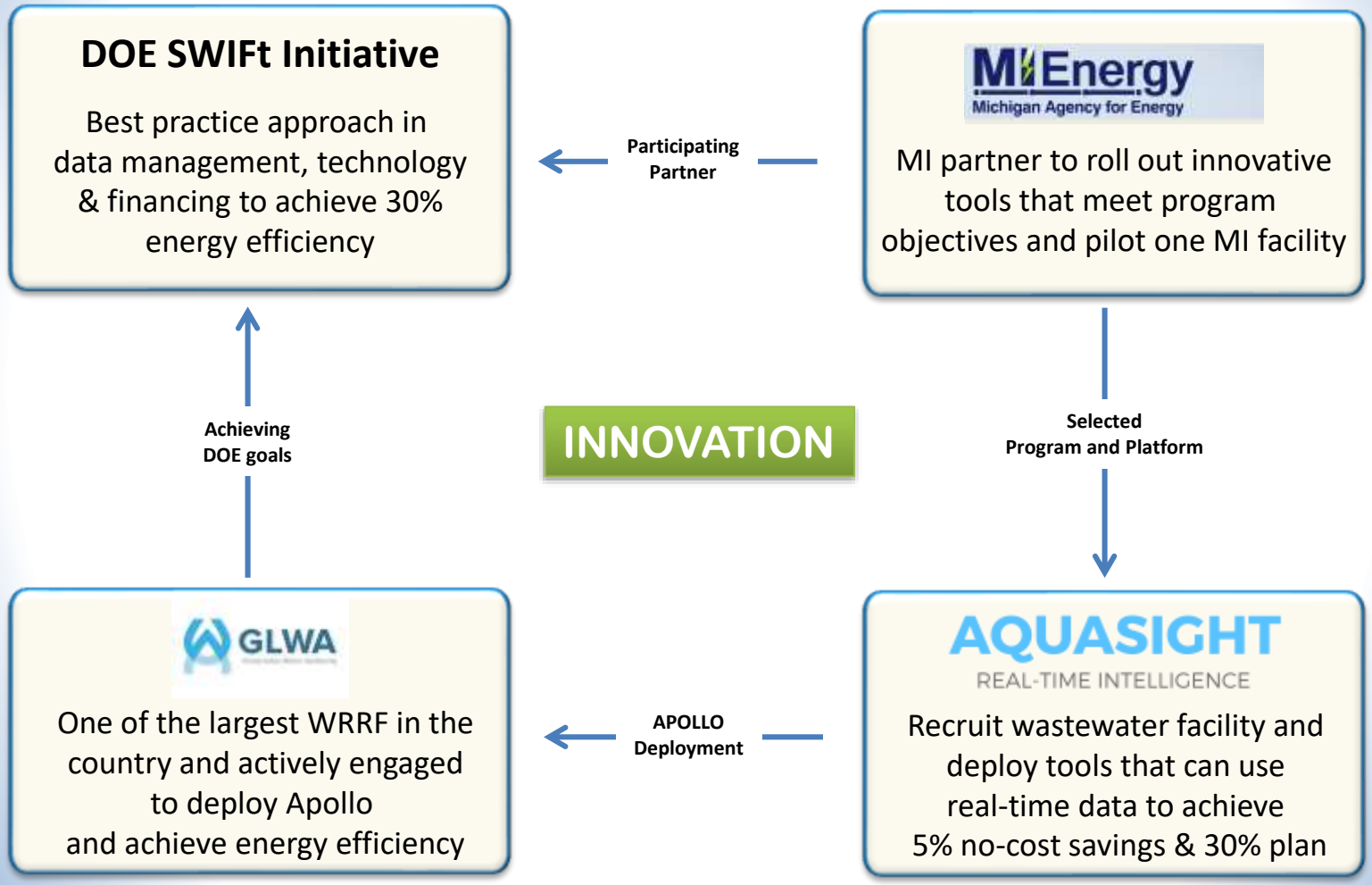
Primary goal of permits & service is not linked to input costs (energy, chemicals, gas)

Very little incentive to investigate energy efficiency, often people are disconnected with electrical bill or passed onto residents

Risk averse culture and resistant to change old habits and methods

Highly resource constrained many capital projects, no focused initiative as a result lack a concentrated effort

New Innovation Required Unique Partnering



APOLLO Innovation Required Tough Entry Criteria

A Digital AI Platform That:

Drive Efficiencies + Meet Pollutant Removal Goals + Leverage Existing Telemetry/Lab + No Capital Investment + Hassle Free to Utility

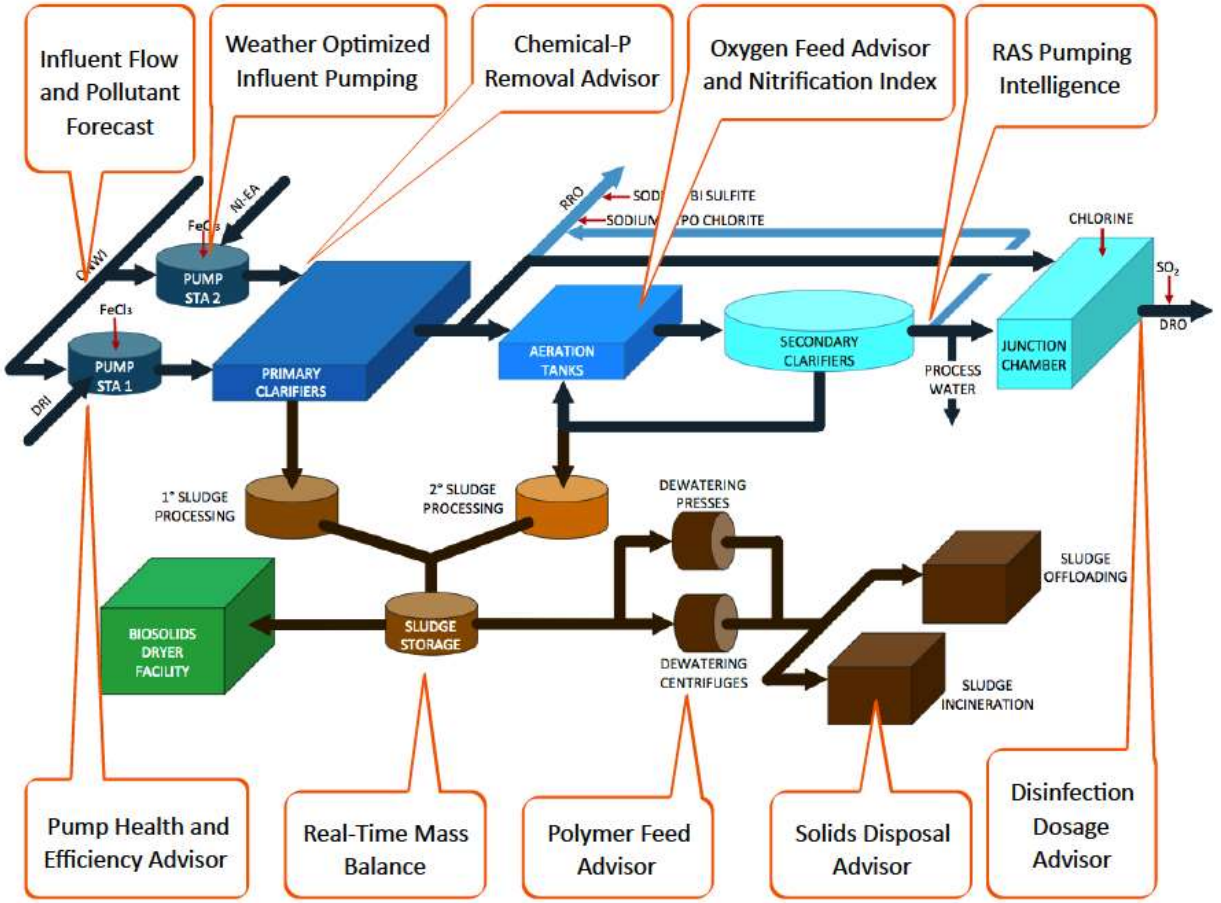
APOLLO

- Real-Time Data Treatment
- Performance and Cost KPIs
- Live Unit Process Dashboards
- Real-Time Advisors
- Digital Asset Intelligence
- Influent Forecasting
- Effluent Analysis
- SAMI™ 24x7 Autonomous Monitoring
- SOP Knowledge Retention

Platform Ready For Wide Spread Adoption

Impact Across Liquids & Solids Processing

Real-Time Performance and Advisory (AI) Platform



O&M Savings

- 20% Identified
- 14% No-Cost
- 9% Realized

Pollutant Removal

- 94% CBOD
- 82% TP
- 94% TSS
- ✓ Permits

GLWA WRRF: 650 MGD Average Treatment Serving SE Michigan

APOLLO – A Workforce Empowerment Enabler

Lessons Learned

Treating real-time data is as important as treating water & wastewater – Digital resource recovery

$1 of recurring O&M savings = $13 of capital w/o raising water rates; no-cost savings can be up to 30%

Digital AI platforms can be cultural change agents, converting Art to Science using AI

Platform is agnostic to treatment process, type & size – scalable and applicable for all sizes

Call to Action

Incentivize Adoption of Digital AI Platforms for W/WW Systems in Your State:

BENEFITS

- **Link permits and services to energy**
- **Enhanced learning of Water-Energy nexus**
- **Digitally offset lack of HR at W/WW systems for EE**
- **Expand EE incentives with low cost/no-cost measures**

OPPORTUNITY

- 11.4Billion kWh/Yr*
- $7.4B* of Capital w/o Raising Rates
- 1.1M* Households

* 20% energy savings of US W/WW annual consumption of 57B kWh, 10% of recurring no cost savings, $1 = $13 capital, 10,600 kWh per household consumption