



Utilizing data management and analytics for monitoring and optimization of wastewater treatment and water reuse facilities

October 2021

IOSight – Overview

- A leading data-driven water management platform
- More than 100 installations, world-wide (since 2008)
- Expanding to global markets

**A Unique Combination of Technology, Team, and
Customer Experience**

With over 100 installations worldwide, we deliver value across the water eco-system

Water and Wastewater Utilities and Facilities

- Over 8.5 M Cubic Meters per day
- Mid-large water facilities and utilities
- The City of Chicago, Southern Company



Desalination

- Over 2.5 Million Cubic Meters per day
- All SWRO plants in Israel
- BWRO plants
- The Israeli Water Authority
- Carlsbad – the largest plant in the US



Watersheds and Environment

- Unique and proven solutions for watershed and source water protection
- Mekorot, The State of Utah, Chicago River



Our vision

To become the global leader in data-driven water management.

To implement AI/ML based technologies in order to guide the utilities market into the digital era.

To turn data into actionable insights that enable.

Water quality
assurance

Cost
reduction

Environmental
impact
mitigation

Asset
performance
monitoring

Facilities – Complex, Data-Rich, Critical Operations



The Shafdan WWTP



Sorek Desalination Plant

Modern facilities are heavily equipped with sensors, meters and other digital indicators – making it very difficult to manage and respond without a comprehensive, smart layer

Our solution - The water utility data hub

A single source for reliable data and digital technologies



iGreen

Technology hub – integration with diverse solutions (ours and 3rd party)

Data foundation –
collection and
cleaning

Outputs –
dashboards and
reporting

Event management
solution – prevention
and response

Advanced analytics –
AI and ML based
algorithms

iNet iShed iWT iWWT iDetect

The Four Pillars of Data-Driven Water Management



Data Foundation

- Data collection
- Cleansing and normalization
- Tag virtualization and modeling



Advanced Analytics

- Historical data analysis – “anatomy and pathology”
- Anomaly detection
- Optimization



Insightful Outputs

- Dashboards
- Reports
- Ad-hoc data investigation



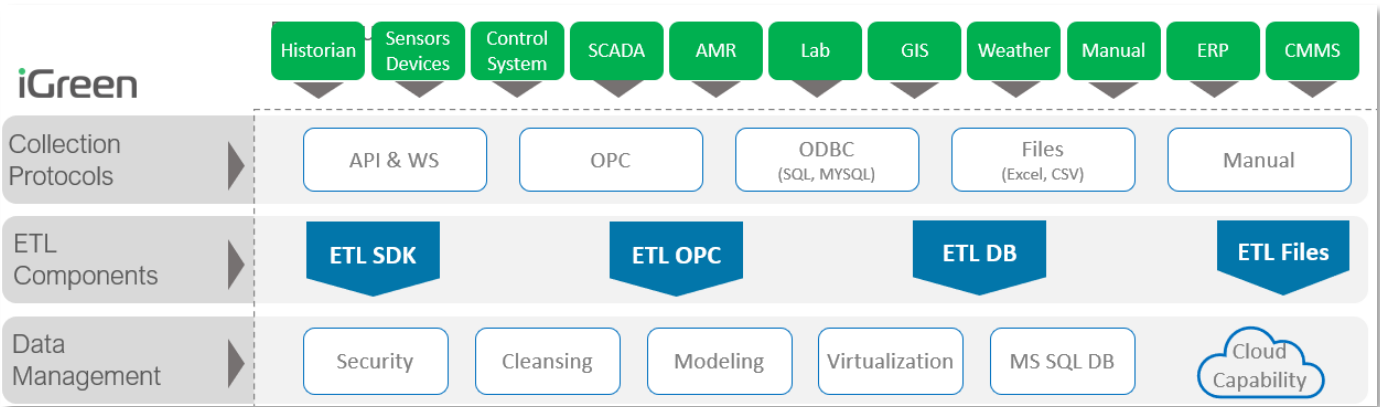
Prevention and Response

- Rules-based event management
- Task management

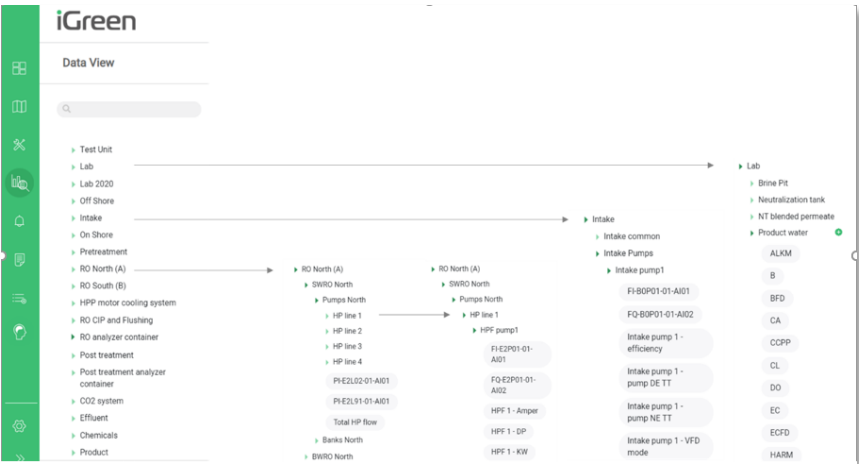
Data Foundation

- Data collection and integration
- Data Management
- Cleansing and normalization
- Tag virtualization and modeling

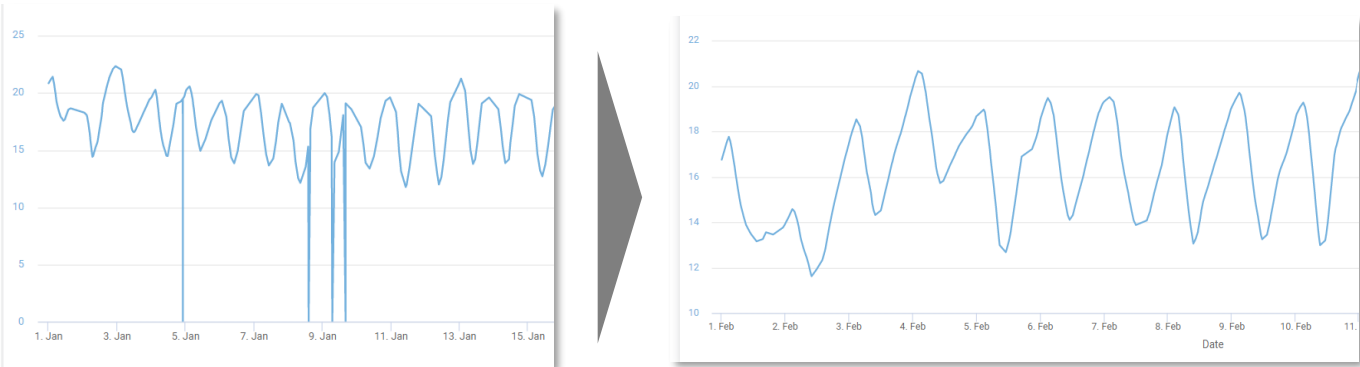
Data Collection and Integration



Data Modeling – Structure Tree

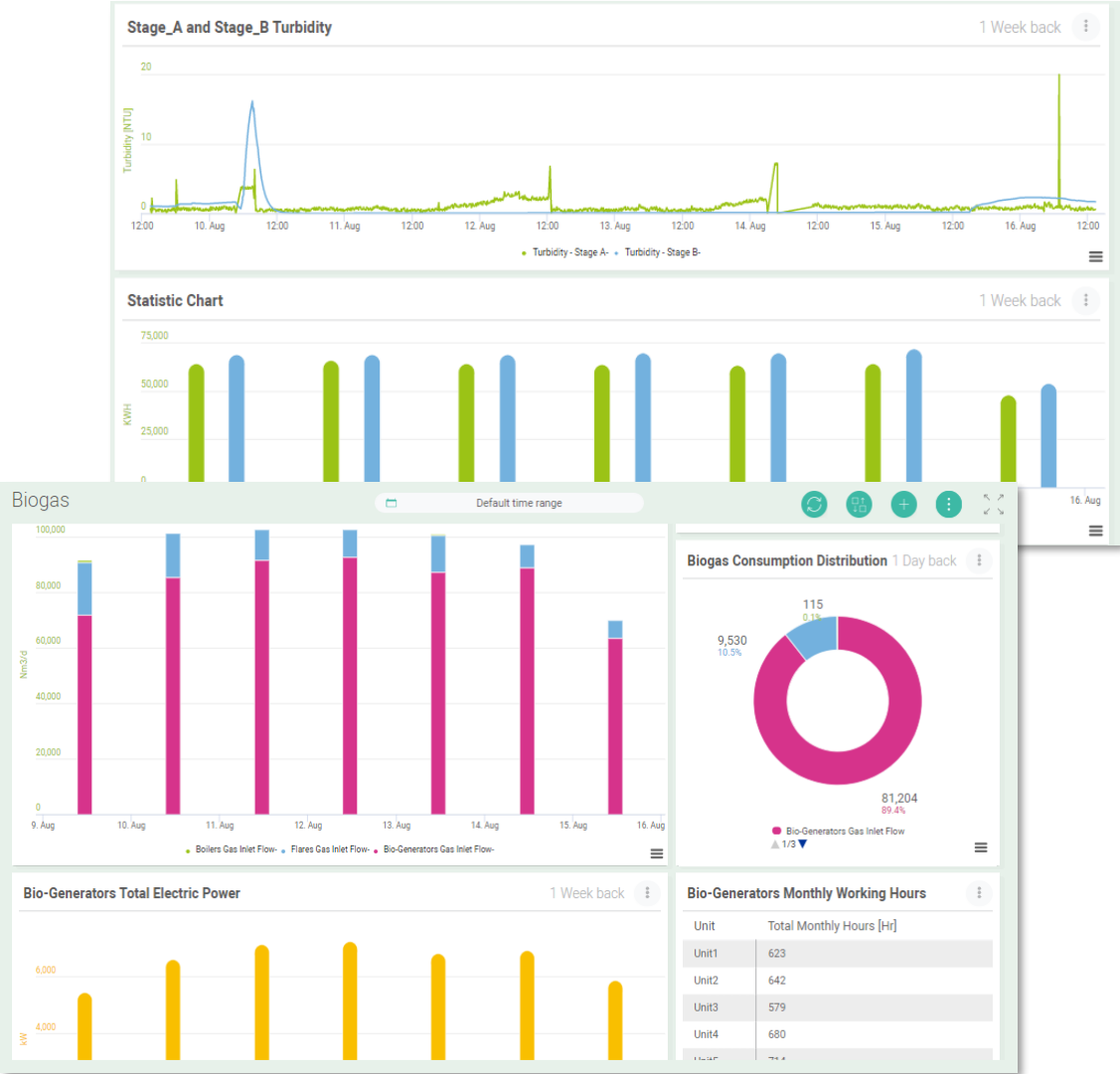


Cleansing and Normalization



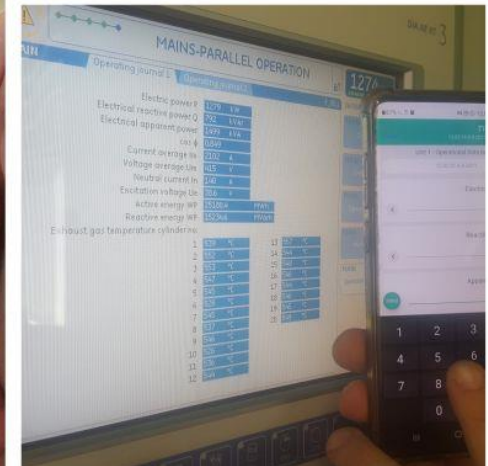
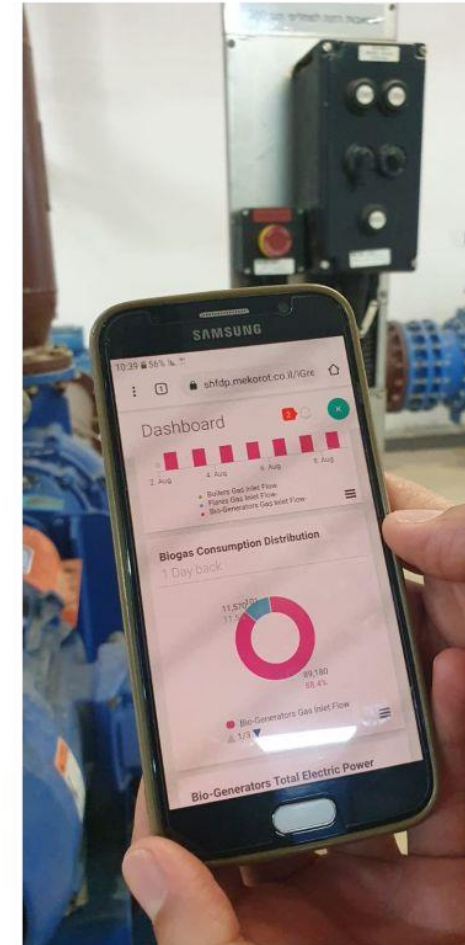
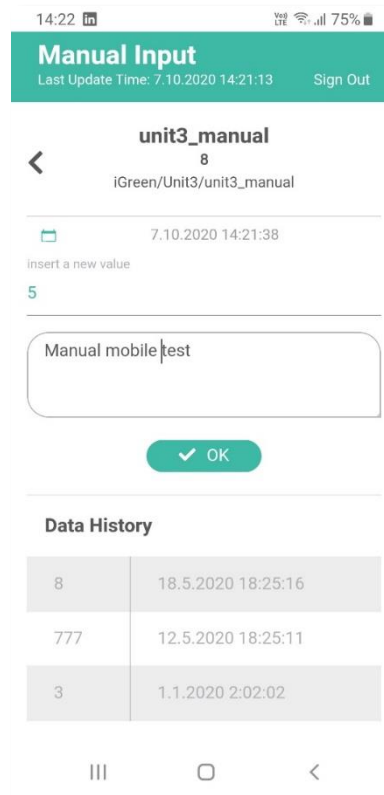
Insightful Outputs

- Dashboards
- Reports
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Mobile Dashboards and Data Entry

- Feed quality and meters data
- get access to managerial dashboards from the field



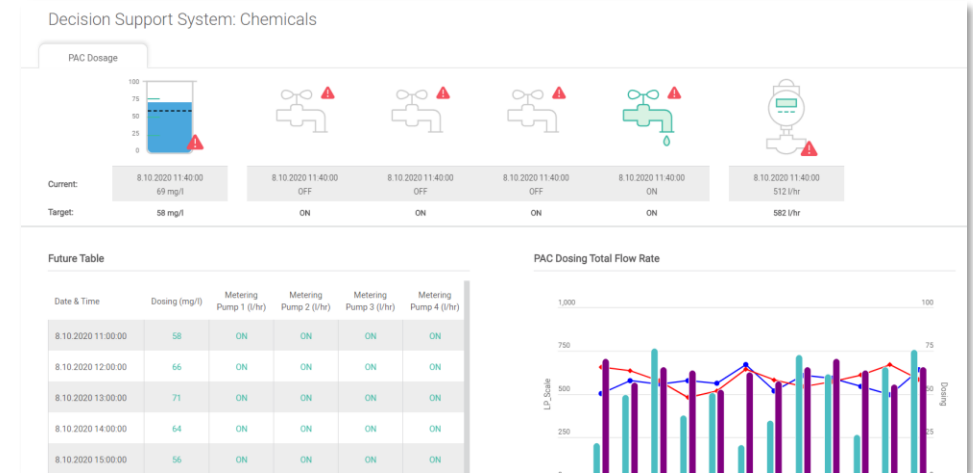
Anomaly Detection and Optimization Solutions (AI/ML)

iWT
iWWT



Optimization for WTPs and WWTPs

- Energy consumption of pumps/blowers
- Chemical dosing
- Up to 10% cost savings

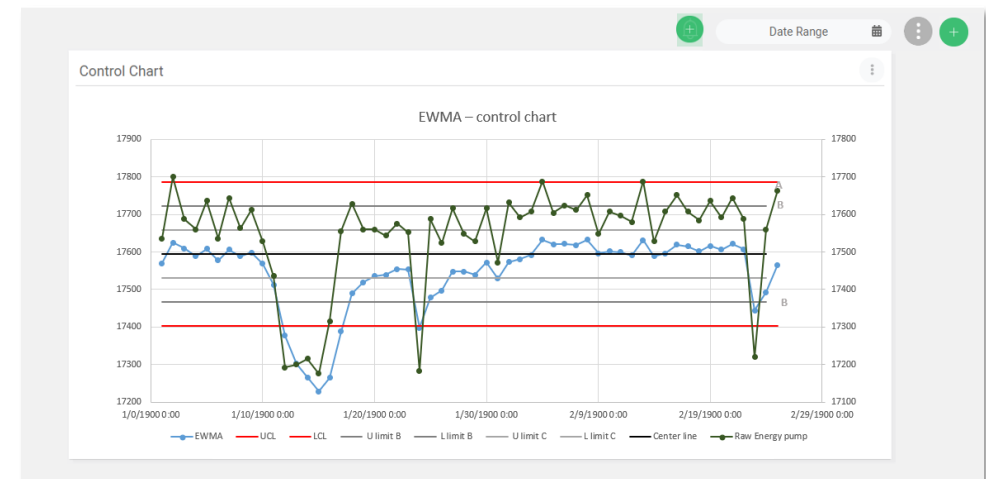


iDetect



Early Fault Detection Engine

- Machine failure
- Quality exceptions
- Flow and pressure anomalies



IOSight's Unique Value Proposition

- **Engineering-driven** development and implementation
- **Vertically integrated – an off-the-shelf end-to-end solution**
- **Intuitive, easy-to-use, and scalable solution**
- **“Market-grown” solutions – based on vast experience (over 100 installations)**
- **Seasoned team** – engineers, data scientists, software development
- **Water-specific software assets (reports, formulas, analytics)**

Delivering proven solutions and outcomes

Case Studies



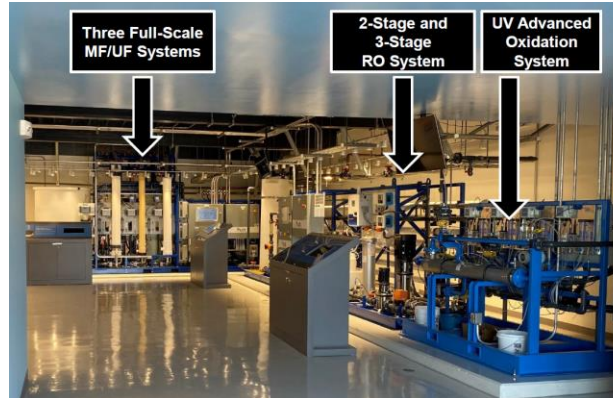
Data-driven wastewater treatment, reuse, and energy recovery

The Shafdan WWTP and Advanced Treatment Demonstration Plant (Israel)



- WWTP dashboards and reports
- ATDP monitoring during demo stage

Tapia Water Reclamation Facility and the Pure Water Demonstration Facility at Las Virgenes Municipal Water District (CA, USA)



- Reports, and analytics for monitoring plant and asset performance
- AI-based optimization

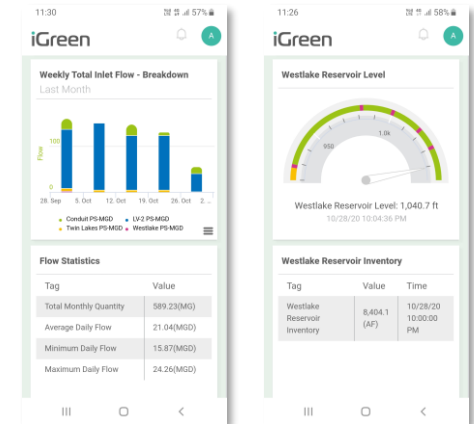
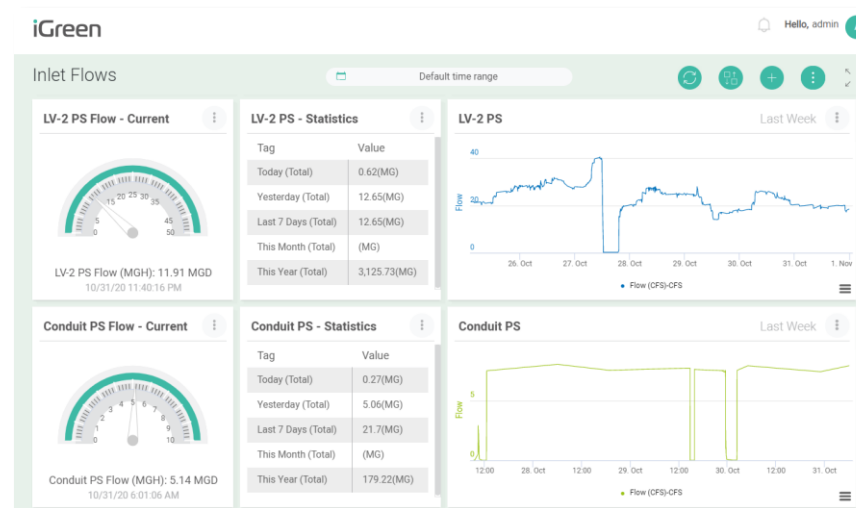
The Sorek Water Reclamation Plant (Israel)



- Plant performance monitoring
- Optimization of biogas yield and recovered energy production process

Las Virgenes Municipal Water District, California

- 100% remote project management and execution
- Scope
 - Reservoir, filtration plant
 - Potable and reclaimed water distribution networks
 - **Tapia Water Reclamation Facility**
 - **Pure Water Demonstration Facility**
- DSS with Carollo Engineers and Yokogawa
- At Tapia – Optimization of DO set points
- Technology hub for additional applications
- AI-based optimization



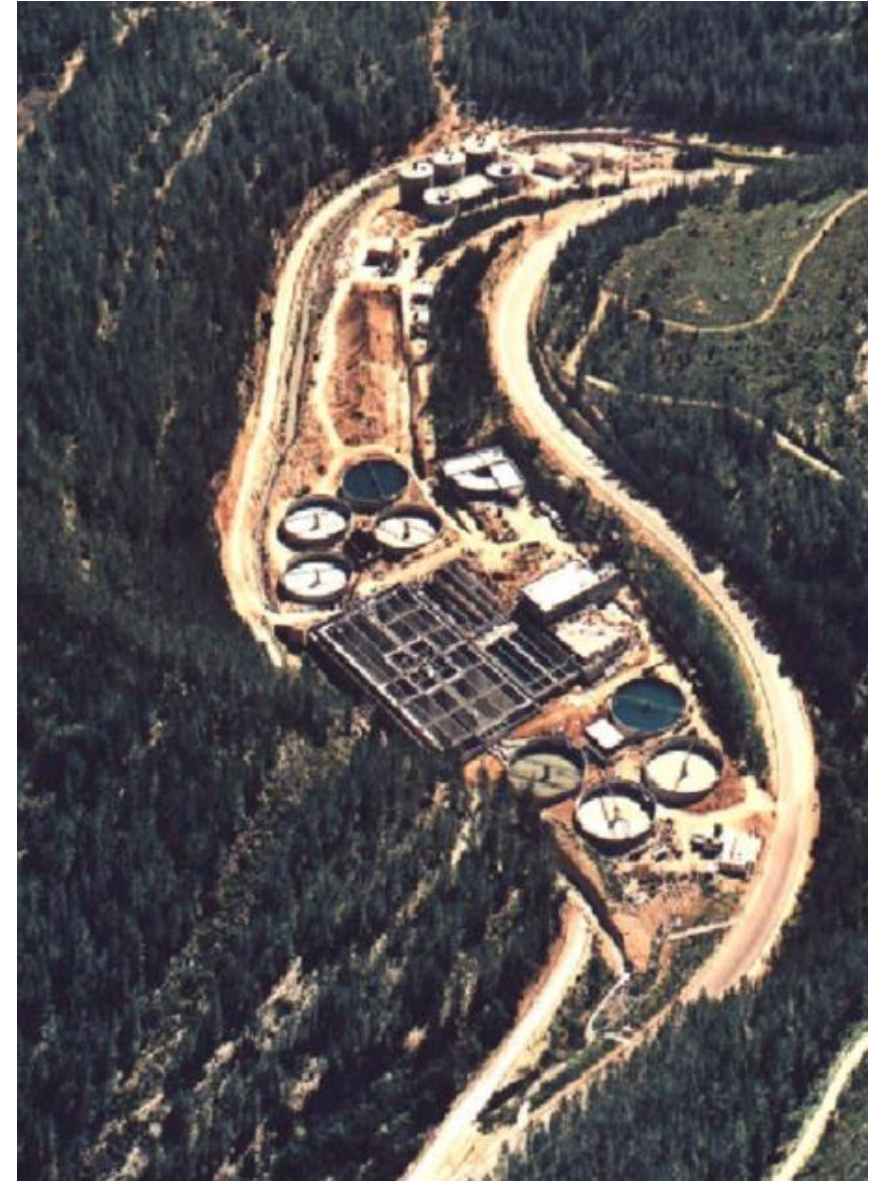
The Shafdan WWTP (Israel)

- The largest wastewater treatment plant in Israel
- Treats approximately 145 million cubic meters of wastewater per year
- iGreen – the center of operations, and the main DSS
- Data collected from SCADA and Lab (over 4,000 tags)
- **Outputs**
 - Engineering and regulatory reports, online web dashboards
 - Algorithm-driven event management (e.g., detection of water quality inconsistencies, pump efficiency, pump early fault detection, chemical dosing optimization)
 - Remote access, and ability to monitor the facility's performance
 - Numerous daily reports and web dashboards
 - AWTP monitoring during demo stage



The Sorek Water Reclamation Plant (Israel)

- **The 2nd largest wastewater treatment plant in Israel**
- **Treats approximately 50 million cubic meters of wastewater per year**
- **iGreen – the center of operations, and the main DSS**
- **Data collected from SCADA and Lab (over 2,000 tags)**
- **Biogas system optimization**
 - Optimization algorithm that consists of the ratio between
 - production volumes VS biogas produced,
 - biogas produced VS energy management
 - energy management VS production regime – a circular process with cross implications
 - Solving production VS energy rates and maximizing the potential to sell at peak and buy at low





THANK YOU

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