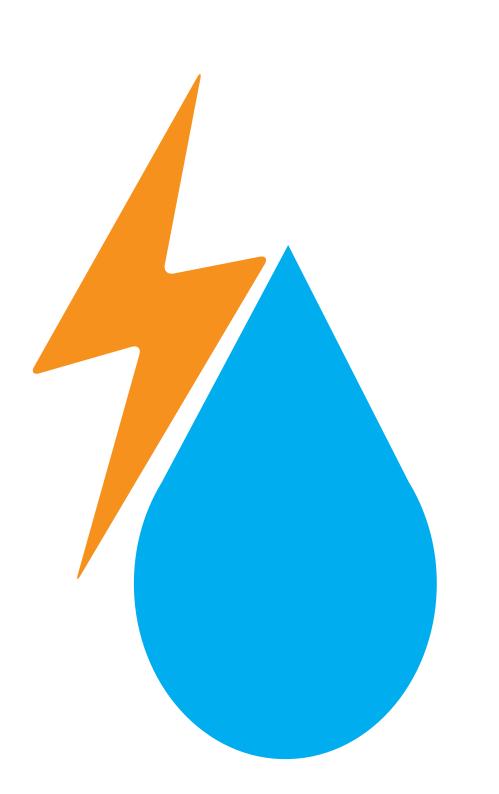
### SAFER, SMARTER, GREENER

### Leveraging Energy Efficiency to Save Water in Industrial Facilities The Goal The Challenges The Results



The goal is to promote the importance of water savings in industrial energy saving projects



Industrial plants use both energy and water in their main equipment such as boilers, cooling towers, and dryers.

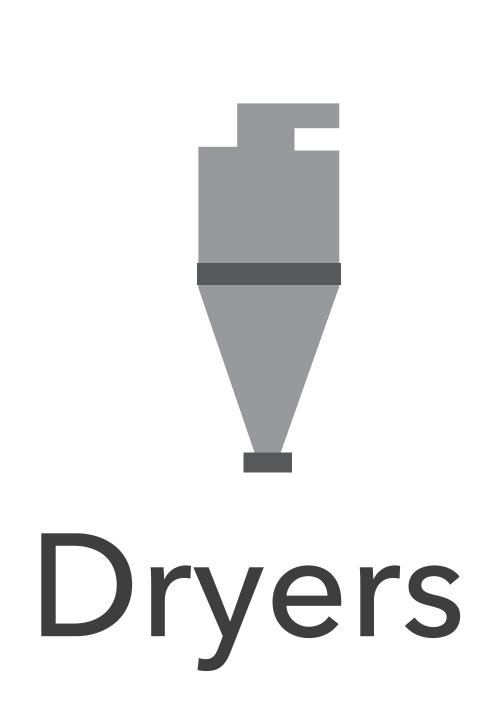




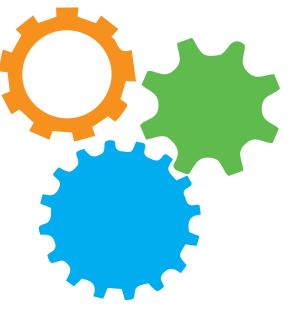


A refinery uses 1 to 2.5 gallons of water for every gallon of product.

Water savings can push a project to implementation



- Energy-water savings projects mostly rely on new technologies
- Implementing a new technology in industrial plants is not as easy as in other sectors
- To make a decision, industrial facilities need:



**Operational reliability** 







Economic analysis



Support company goal

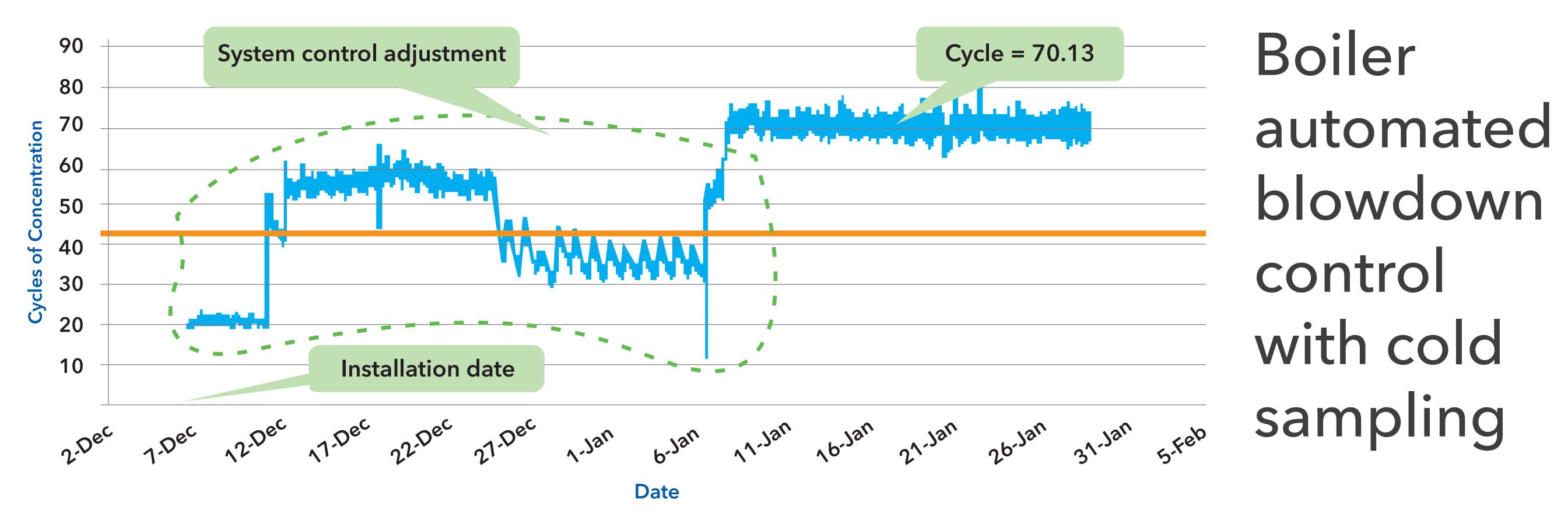


**Environmental benefits** 



**Comprehensive engineering** 

## Case Study



## Description Steam generation ra Gas saving (therm/y Water saving (mill g Electricity saving (kV Project cost (\$) Simple payback \*\*



### DNV·GL

Boiler automated blowdown control with cold

	Boiler A with flash tank	Boiler A without flash tank	Across evaluated refinery*
rate (lb/hr)	190,000	190,000	1,500,000
yr)	52,000	170,000	410,000
gallon/yr)	4.5	5.5	35.5
Wh/yr)	45,000	55,000	355,000
	88,000	88,000	880,000
(yr)	2.4	0.7	2.4

# Payback less than a year

35 million gallon water can be saved in a typical refinery by better boiler blowdown control

Plant implemented 8 more projects due to water saving benefits