



Global Experiences with Performance-Based Contracts for NRW Reduction

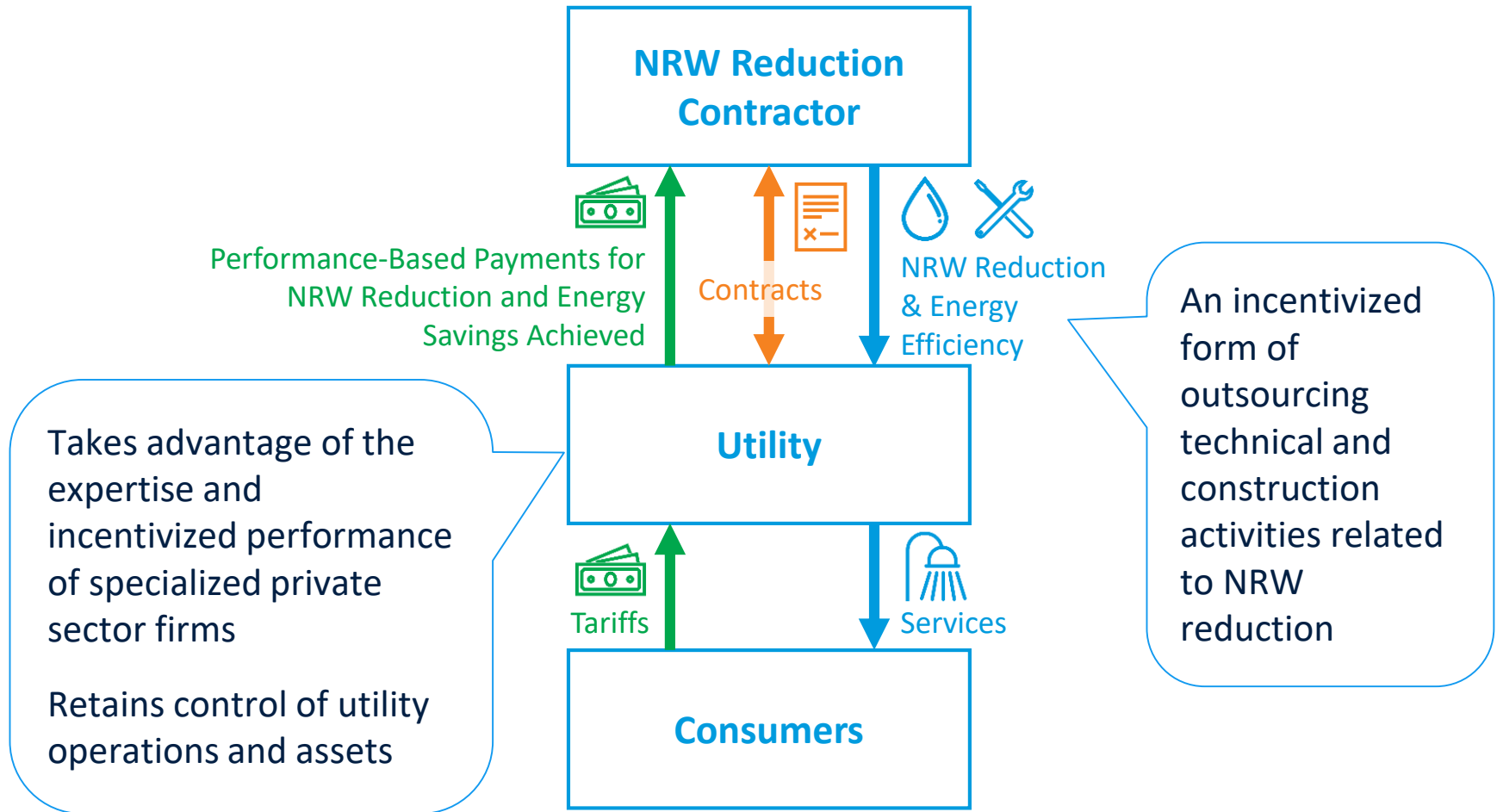
David Ehrhardt, March 2023



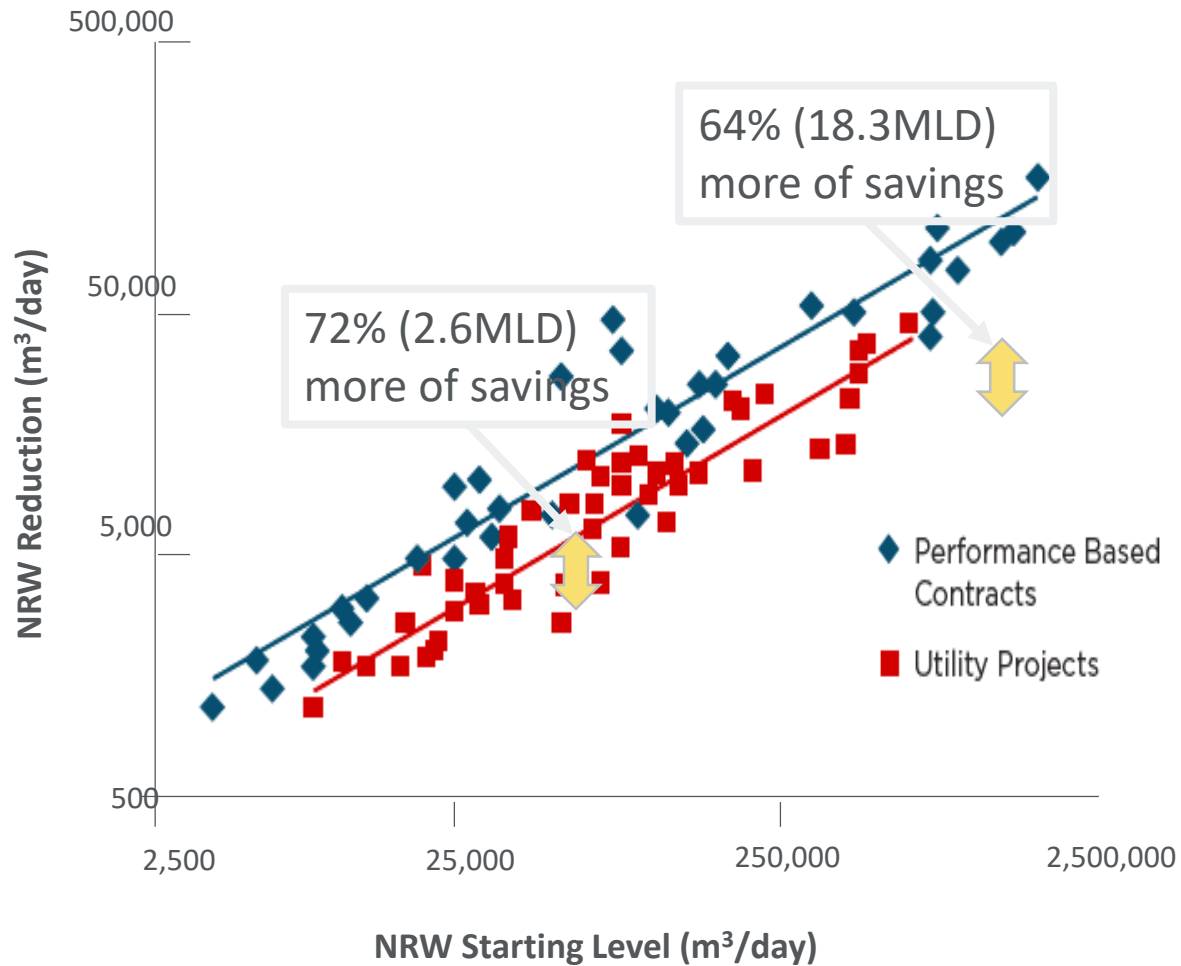
Agenda

- **NRW-PBCs are more effective than utility NRW reduction programs**
- **NRW-PBCs have been successfully implemented around the world**
- **NRW-PBCs can improve resilience, help avoid large capital expenditures, increase cash flow, and cut operating deficits**
- **Successful NRW PBCs can take various forms**

What is an NRW-PBC?



PBCs are about 68 percent more effective than NRW reduction programs implemented by utilities



NRW-PBCs have been implemented worldwide, in developed and developing countries



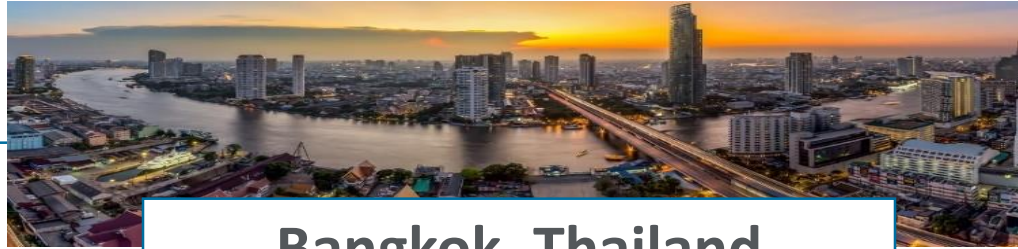
NRW-PBCs can improve resilience and contribute to climate change mitigation



Kuala Lumpur, Malaysia

- ✓ Saved 198 MLD of water
- ✓ Helped avert a water crisis and stopped emergency water rationing
- ✓ Avoided capital expenditure on alternative water supply sources
- ✓ Reduced operating costs per unit of water sold (energy and chemical costs) because a higher percentage of water produced was sold

NRW-PBCs can serve growing populations while avoiding large capital expenditures



Bangkok, Thailand

- ✓ Saved 165 MLD of water
- ✓ Increased water supply to better serve a rapidly growing population (4 million to 6 million people)
- ✓ Replaced more than 550 kms of water mains
- ✓ Established more than 230 District Metering Areas
- ✓ Avoided capital expenditure on alternative water supply sources (using typical benchmark costs, US\$170 million for new supply vs. US\$56 million cost of the NRW-PBC)

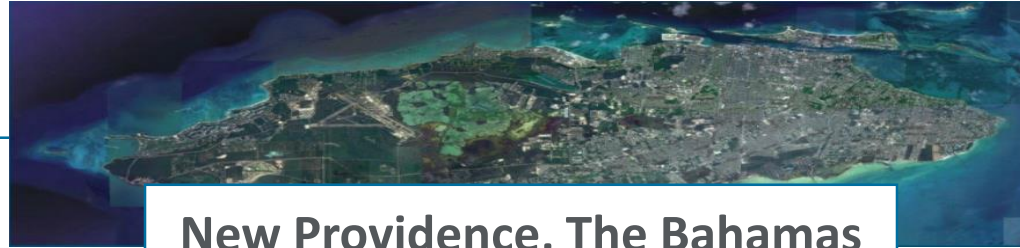
NRW-PBCs and complementary commercial initiatives can bring in extra cash at a low cost



São Paulo, Brazil

- ✓ The NRW-PBCs:
 - ✓ Increased revenue by US\$72 million over 3 years (of which US\$18 million was paid to the contractor and US\$54 million was kept by the utility)
 - ✓ Reduced under-reporting of consumption by 41 MLD, by replacing meters of industrial and commercial customers
- ✓ Complementary PBCs for bad debt collection:
 - ✓ Collected US\$43 million, of which 6% to 20% was paid to contractors

NRW-PBC can cut utilities' operating deficit, by increasing revenues and reducing costs



- ✓ Reduced WSC's EBITDA loss by over 50 percent (US\$10 million/year), contributing to reduced operating subsidies from the Government
- ✓ Remunerated the contractor about US\$1.40 per m³ saved, which is cheaper than the alternative of paying US\$2.00 per m³ of desalinated water
- ✓ Saved 30% of total water production, equal to 17 MLD

Successful NRW PBCs can take various forms

				
	Kuala Lumpur	Bangkok	Sao Paulo	New Providence
 MLD saved	198	165	41	17
 Cost per unit saved (US\$ millions/MLD)	0.56	0.34	0.57	3.05
 Types of losses addressed	Physical and commercial losses	Physical losses	Commercial losses	Physical and commercial losses
 Financial benefit	\$200 million in avoided cost of new water supply source	\$170 million in avoided costs of new water supply source	\$72 million in additional revenue	\$10 million/year in cash flow; \$0.60 profit/m ³ saved
 Compensation structure	Compensation against fixed target	Fixed fee to cover overhead with a strong performance incentive	Payments based on how much billed volumes increased	70% fixed fee and 30% performance-based (\$0.53/m ³)
 Procurement method	Direct negotiation	Competitive procurement	Competitive procurement	Negotiated following failed competitive procurement
 Design features	Simple performance indicators allowed clear monitoring	Multiple contractors allowed benchmarking	Contract was simple and comprehensive	Simple performance indicators and adjustments to price based on system pressure and CPI



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