UPMU Variables And Indicators related – Non-Revenue Water

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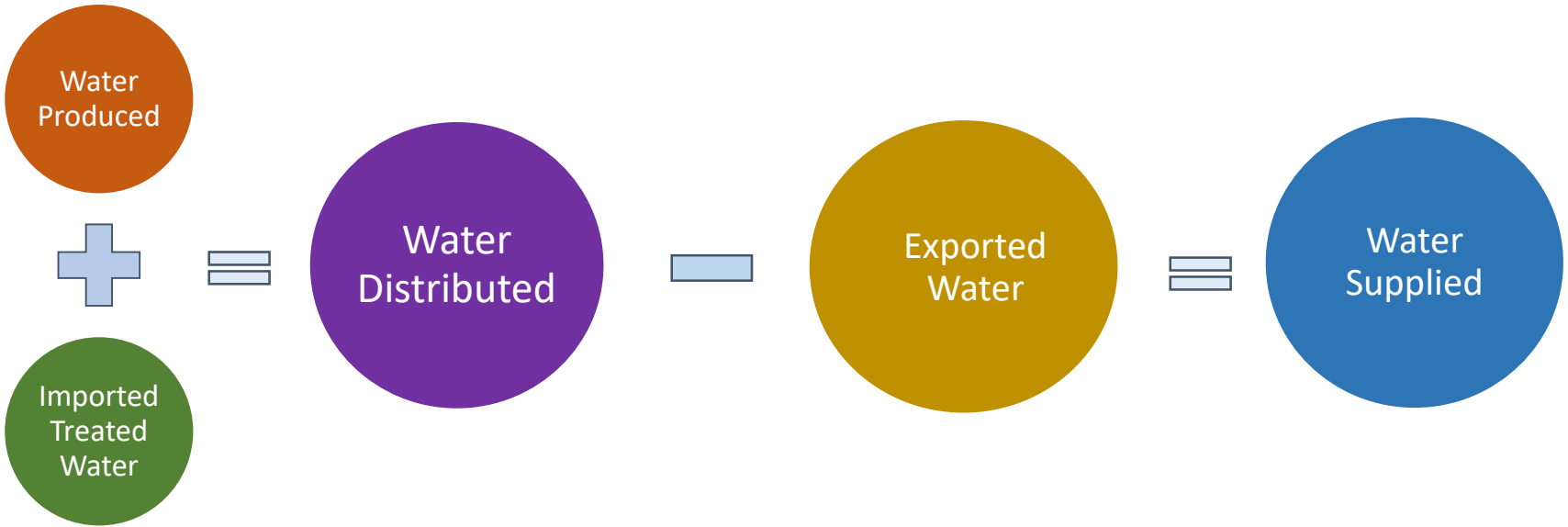
Operation variables related to NRW

Name	Definition	Reporting frequency	Directorate	Unit
Operation				
Water produced	Total volume of water treated for input to water transmission lines or directly to the distribution system	quarterly & annually	Operation	m³
Imported treated water	Total volume of water imported from other water utility or system	quarterly & annually	Operation	m³
Water distributed	Total volume of water distributed (Water produced + Water imported)	quarterly & annually	Operation	m³
Exported treated water	Total volume of water exported to other water utility or systems from the supply area	quarterly & annually	Operation	m³
Water supplied	Net volume of water distributed to subscribers (Water produced + Water imported - Water exported)	quarterly & annually	Operation	m³
Real water losses	Estimated real losses (leakage) as percentage of water distributed (water produced + water imported)	quarterly & annually	Operation	%



Variables in Customer Service category related to NRW

Name	Definition	Reporting frequency	Directorate	Unit
Authorized consumption	Billed and unbilled authorized consumption	quarterly & annually	Customer Services	m^3
Billed authorized consumption	Billed authorized consumption, including subscriber bills, billing for illegal usage, tankered water and exported water	quarterly & annually	Customer Services	m^3
Residential billed consumption	Total volume of water billed for residential subscribers, including water provided through tankers	quarterly & annually	Customer Services	m^3
Non-Residential billed consumption	Total volume of water billed from non-residential subscribers, including water provided through tankers	quarterly & annually	Customer Services	m^3
Unbilled authorized consumption	Total amount of unbilled water consumed. This may include items such as free supply to Mosques, free supply to Bedouins (if authorized), firefighting and training, flushing of the water and sewer network, street cleaning, watering of municipal gardens.	quarterly & annually	Customer Services	m^3
Volume billed from illegal usage	Total volume provided through tankers and not billed for to residential or non-residential subscribers	quarterly & annually	Customer Services	m^3
Volume provided through tankers	Total volume provided through tankers and not billed for to residential or non-residential subscribers	quarterly & annually	Customer Services	m^3

Residential billed consumption
Non-Residential billed consumption
Unbilled authorized consumption
Volume billed from illegal usage
Volume provided through tankers

=

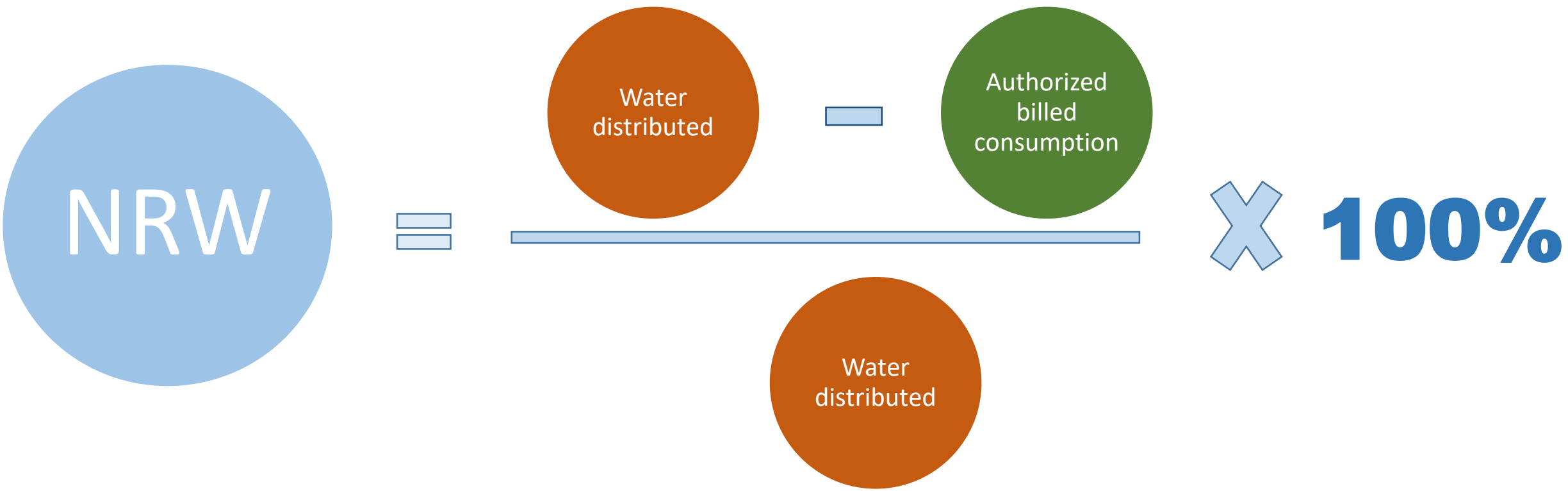
Unbilled authorized consumption

=

Billed authorized consumption

Authorized Consumption

NRW% formula

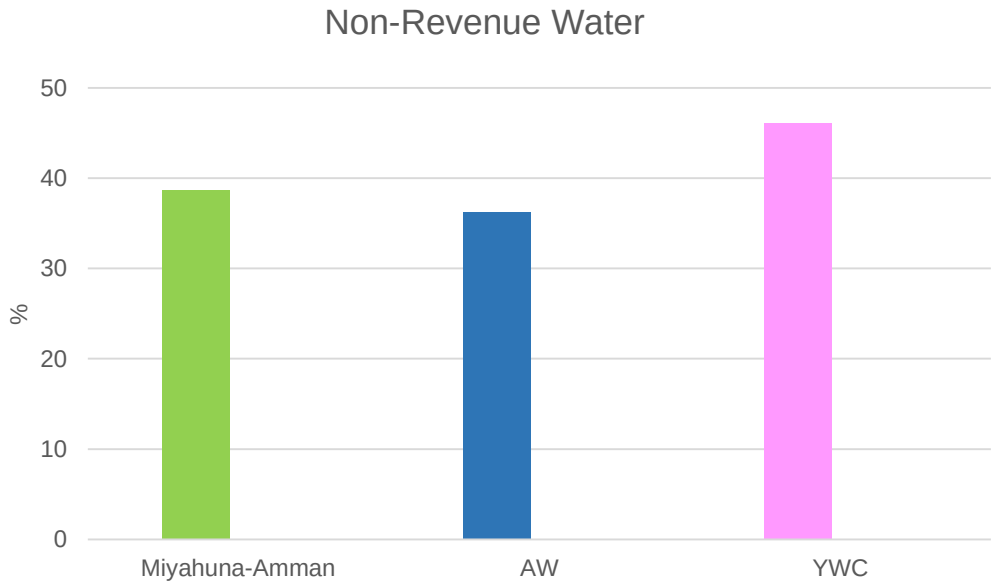

NRW
=
Water distributed
−
Authorized billed consumption
Water distributed
X
100%

PI's related to NRW

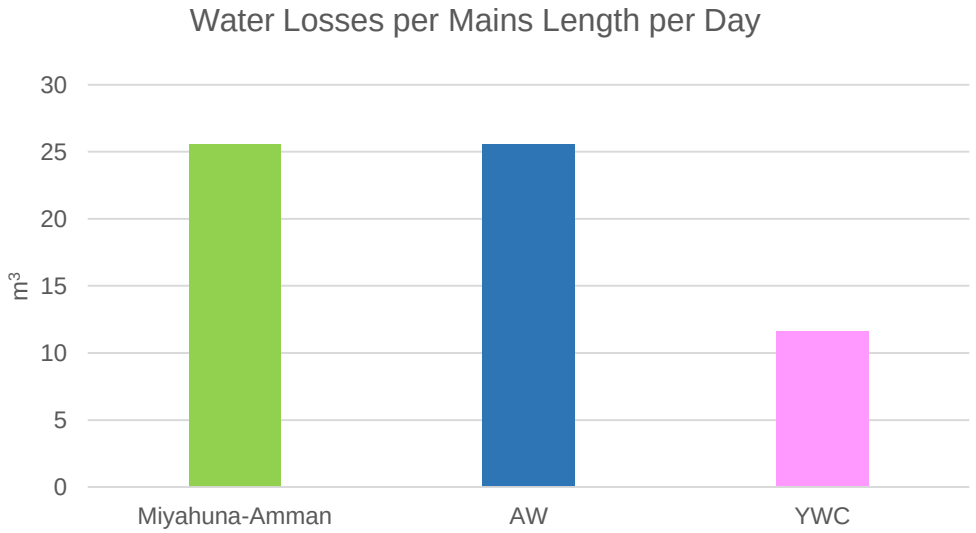
Key Performance Indicators	Explanation	Formula	Period for regulatory evaluation	
Non-Revenue Water	Percentage of system input volume not being billed	= (Water distributed - Billed authorized consumption) / (Water distributed) * 100	quarterly & annually	% of system input

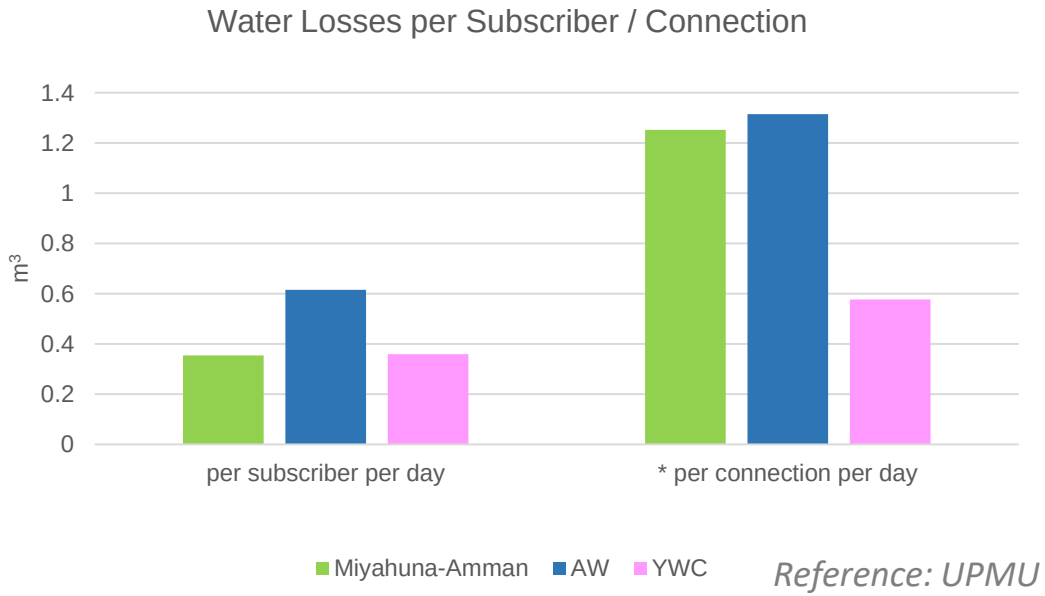
Lower Level Performance Indicators	Explanation	Formula	Period for regulatory evaluation	
Inefficiency of use of water resources	Real losses during the assessment period / System input volume during the assessment period *100	= (Water produced + Imported treated water - Exported treated water - Billed consumption) / (Water produced + Imported treated water - Exported treated water) * 100) * (Real water losses/100)	annually	%
Water resources use per capita/day	Average daily volume of water supplied per capita	= (Water produced + Imported treated water - Exported treated water) / (Resident population) * 1000 / 365	annually	L/ cap/d
Water loss per subscriber	Total (apparent and real) losses, expressed in terms of volume of supplied water lost per subscriber	= (Water supplied -(Authorized consumption-Exported water)) / Total water subscribers) / 365	annually	m³/subscriber/ day
Water loss per connection	Total (apparent and real) losses, expressed in terms of volume of supplied water lost per connection	= (Water supplied -(Authorized consumption-Exported water)) / Water service connections) / 365	annually	m³/connection/ day
Water losses per mains length	Total (apparent and real) losses, expressed in terms of volume of distributed water lost per mains length.	= (Water distributed -Authorized consumption) / Length of water network) / 365	annually	m³/km/d

Charts on UPMU 2019 report related to NRW



Ser.	Cluster	PI Name	Unit	Miyahuna -Amman	AW	YWC
1.	Water Loss	Non-Revenue Water	% of system input	38.7	36.2	46.1
2.		Water loss per subscriber	m^3/subscriber/day	0.355	0.616	0.360
3.		Water loss per mains length	m^3/km/day	25.5	25.5	11.6
4.		Water loss per connection per day	m^3/connection/day	1.25	0.62	0.58

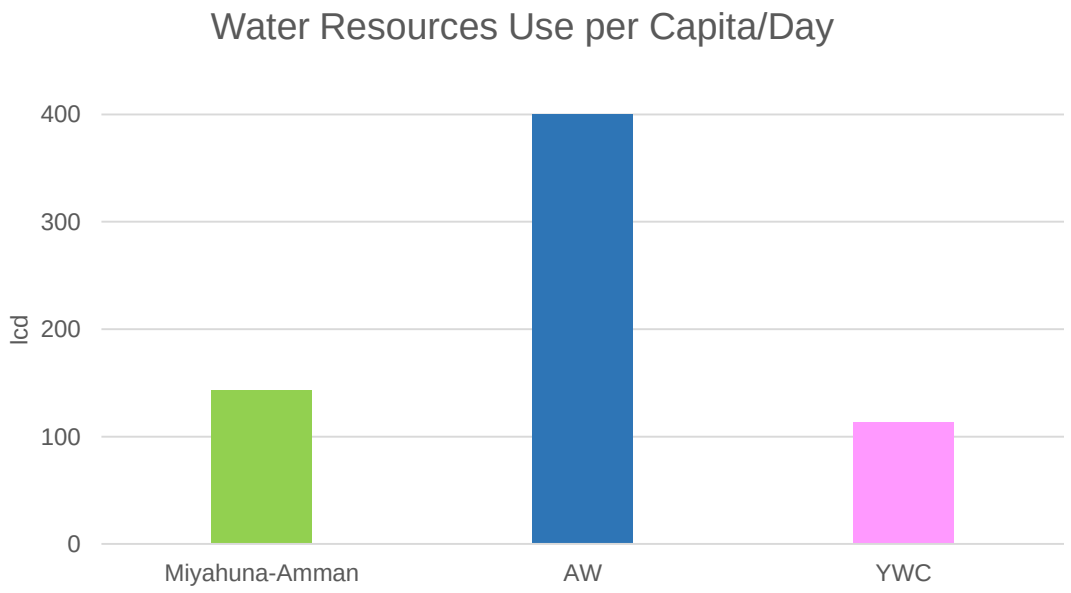


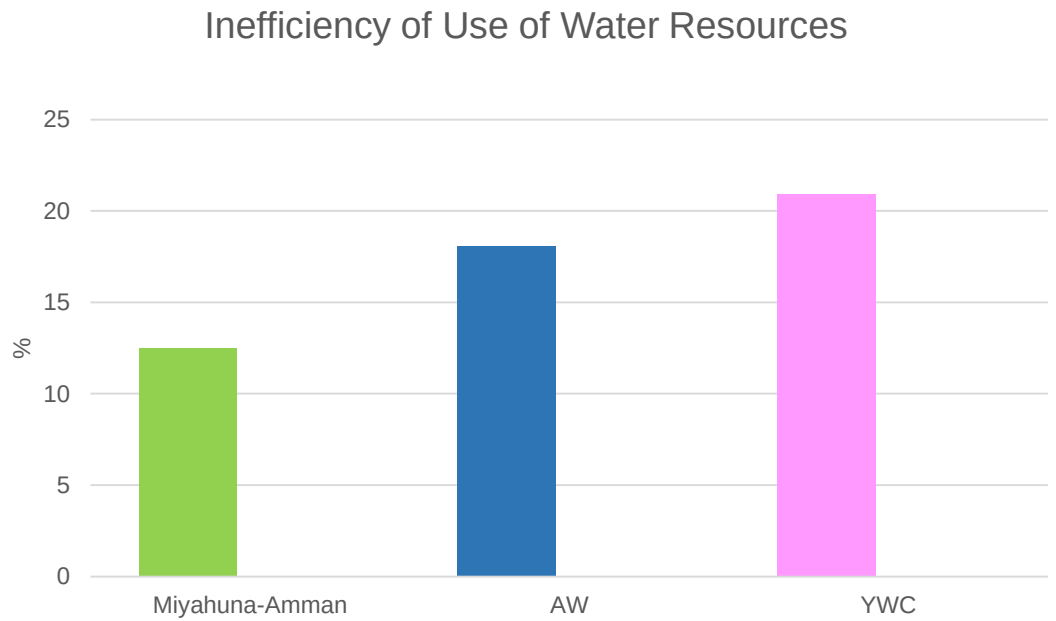


Reference: UPMU report 2019

Charts on UPMU 2019 report related to NRW

Ser.	Cluster	PI Name	Unit	Miyahuna-Amman	AW	YWC
5.	Network Efficiency	Inefficiency of use of water resources	% of inefficiency of use of water resources related to real losses	12.5	18.1	20.9
6.		Water resources use per capita/day	lcd	142.8	404.2	112.9





Reference: UPMU report 2019

Indirect PI's reflect to NRW

Lower Level Performance Indicators	Explanation	Formula	Period for regulatory evaluation	
Percentage of inactive subscribers	Percentage of subscribers inactive at the time of reporting	= (Total water subscribers - Active subscribers) / Total water subscribers * 100	annually	%
Mains rehabilitation	Percentage of mains length rehabilitated per year	= Mains rehabilitated / Length of water network * 100	quarterly & annually	%/ year (quarter)
Service connection rehabilitation	Percentage of service connections replaced or renovated per year	= Service connections rehabilitated / Water service connections * 100	quarterly & annually	Nr/ 1000 connections
Speed of repair of failures	Percentage of network and water service connection failures repaired within target time	= (Network failures repaired in target time) + (Service connection failures repaired in target time) / (Network failures + Water service connection failures) * 100	quarterly & annually	% of bursts
Leakage control per year	Percentage of mains length subject to active leakage control	= Network surveyed for leakages / Length of water network * 100	quarterly & annually	%
Subscriber meter replacement ratio	Percentage of subscriber meters replaced during reporting period	= Subscriber meters replaced during reporting period / Subscriber meters * 100	quarterly & annually	%
Meter reading ratio	Percentage of active customers whose meter has been read during reporting period	= Customer meters read / Active subscribers *100	quarterly & annually	%

Indicators derived from national strategies	Explanation	Formula	Period for regulatory evaluation	
Operational well and reservoir meters	Percentage of wells and reservoirs with operational meters	= Number of operational reservoir meters / Number of metered reservoirs	quarterly & annually	%
Calibration of well and reservoir meters	Percentage of calibrated well and reservoir meters	= Number of reservoir meters calibrated / Number of reservoir meters that require calibration	quarterly & annually	%
Metering of import and export points	Percentage of metered import and export points	= (Number of metered import points + Number of metered export points) / (Number of import points + Number of export points) * 100	quarterly & annually	%

Thank you