



Benchmarking Exercise

Material prepared for Int. Benchmarking Exercise

data spreadsheet of

Purewater

(Utility #4)

Full list of variables

Purewater

Variable Name	Category	Purewater
Terrain ()	Context information	Flat
Disposable income per household (€)	Context information	34,346
CI-008 Type of system ()	Context information	Both bulk water supply and direct distribution
CI-014 Supply area (km2)	Context information	5,026
CI-023 Protection area (km2)	Context information	
CI-026 Number of treatment plants (No.)	Context information	41
CI-NEW-001 Responsible for service connection ()	Context information	yes
CI-002 Type of activity ()	Context information	Water supply only
CI-003 Type of assets ownership ()	Context information	Public
CI-004 Type of operations (management) ()	Context information	Public
zCI-095 Upland surface water sources (m3)	Context information	0
zCI-096 Lowland surface water sources (m3)	Context information	0
zCI-097 Natural springs and wetland sources (m3)	Context information	0
zCI-098 Well water sources (m3)	Context information	0
zCI-099 Borehole water sources (m3)	Context information	180,105,580
zCI-100 Saline and brackish water sources (m3)	Context information	0
zCI-NEW-001 Vat return ()	Context information	yes
zCI-NEW-002 Asset valuation method ()	Context information	Valuation based on historical prices
zCI-NEW-007 VAT on top of bill ()	Context information	yes
E-005 Resident population (No.)	Demography and customer	2,413,876
E-006 Direct customer meters (No.)	Demography and customer	983,020
E-009 Bulk customer meters (No.)	Demography and customer	1
E-010 Registered customers (No.)	Demography and customer	1,055,009
E-011b Bulk registered customers (No.)	Demography and customer	1
zE-001 Total connected properties (No.)	Demography and customer	1,068,573
E-001 Residential properties supplied (No.)	Demography and customer	1,026,565
E-001a Non-residential properties supplied (No.)	Demography and customer	42,008
E-007 Residential customer meters (No.)	Demography and customer	982,892
E-008 Non-residential customer meters (No.)	Demography and customer	128
E-011 Residential registered customers (No.)	Demography and customer	1,012,897
E-011a Non-residential registered customers (No.)	Demography and customer	42,111
G-001 Total revenues (€)	Financial	191,802,000
G-002a Operating revenues from drinking water activities (€)	Financial	200,638,000
G-002b Operating revenues from non drinking water activities (€)	Financial	12,114,000
G-003 Sales revenues (€)	Financial	190,906,000
G-032 Investment in tangible assets (€)	Financial	41,645,900
G-035 Capitalised costs of self constructed assets (€)	Financial	8,836,000
G-036 Water sales revenues from direct consumption (€)	Financial	187,687,000
G-037 Water sales revenues from exported water (€)	Financial	3,219,000

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Variable Name	Category	Purewater
zCI-NEW-001a Vat return amount (€)	Financial	16,168,000
zG-NEW-001 Residential connection fee (€)	Financial	0
zG-NEW-002 Indirect taxes (€)	Financial	30,770,480
zG-NEW-004 Percentage of indirect taxes on residential water bill (%)	Financial	19
G-004 Total costs (€)	Financial	160,850,710
G-005 Running costs (€)	Financial	127,878,745
G-006 Capital costs (€)	Financial	32,971,965
G-007 Operational costs (€)	Financial	86,612,445
G-008 Internal manpower costs (€)	Financial	41,266,300
G-009 External services costs (€)	Financial	21,217,900
G-010 Imported raw and drinking water costs (€)	Financial	1,956,700
G-011 Electrical energy costs (€)	Financial	5,127,200
G-012 Purchased merchandises (€)	Financial	11,082,300
G-013 Leasing and rentals (€)	Financial	3,484,200
G-014 Taxes, levies and fees (€)	Financial	36,226,045
G-015 Exceptional earnings and losses (€)	Financial	0
G-016 Other operating costs (€)	Financial	7,518,100
G-028 Depreciation costs (€)	Financial	29,571,909
G-029 Interest expenses costs (€)	Financial	5,668,522
G-030 Interest income (€)	Financial	2,268,466
G-031 Net interest (€)	Financial	3,400,056
G-033 Investments for new assets (€)	Financial	26,949,605
G-034 Investments for asset replacements (€)	Financial	17,357,420
G-036a Water sales revenues from residential consumption (€)	Financial	121,998,200
G-036b Water sales revenue from non-residential consumption (€)	Financial	65,688,800
G-048 Shareholder's equity (€)	Financial	297,072,500
G-050 Total assets (€)	Financial	655,520,000
CI-053 Average mains age (years)	Operational	27
D-001 Pumping energy consumption (kWh)	Operational	73,300,000
D-005 Energy recovery (kWh)	Operational	
D-028 Mains failures (No.)	Operational	4,900
D-028a Mains failures caused by third parties (No.)	Operational	
D-028b Mains failures under own responsibility (No.)	Operational	
D-038 Days with restrictions to water service (days)	Operational	0
D-051 Drinking water quality tests carried out (No.)	Operational	31,216
D-053 Aesthetic tests carried out (No.)	Operational	3,330
D-054 Microbiological tests carried out (No.)	Operational	21,376
D-055 Physical-chemical tests carried out (No.)	Operational	6,348
D-056 Radioactivity tests carried out (No.)	Operational	162
D-062 Compliance of aesthetic tests (No.)	Operational	3,330
D-063 Compliance of microbiological tests (No.)	Operational	21,375
D-064 Compliance of physical-chemical tests (No.)	Operational	6,345
D-065 Compliance of radioactivity tests (No.)	Operational	162
D-20 Mains rehabilitation (km)	Operational	
D-21 Mains renovation (km)	Operational	
D-22 Mains replacement (km)	Operational	
zD-NEW-001 Treatment residuals (tons D.S.)	Operational	
zD-NEW-002 Wasted treatment residu (tons D.S.)	Operational	
B-001 Total personnel (FTE)	Personnel	781
B-018 Total training time (hours)	Personnel	
zB-001 Total FTE normalised (FTE)	Personnel	742

Full list of variables

Purewater

Variable Name	Category	Purewater
zB-025 Nominal working week length (hours/week)	Personnel	38
C-008 Mains length (km)	Physical assets	18,047
C-024 Service connections (No.)	Physical assets	1,018,151
zC-024 New service connections (No.)	Physical assets	
C-024a Residential service connections (No.)	Physical assets	979,251
C-024b Non-residential service connections (No.)	Physical assets	38,900
F-001 Population supplied (No.)	Quality of service	2,413,876
zF-015 Total complaints (No.)	Quality of service	
F-015 Service complaints (No.)	Quality of service	2,114
F-016 Pressure complaints (No.)	Quality of service	294
F-017 Continuity complaints (No.)	Quality of service	0
F-018 Water quality complaints (No.)	Quality of service	1,593
F-019 Complaints on interruptions (No.)	Quality of service	227
F-020 Billing complaints and queries (No.)	Quality of service	777
F-021 Other complaints and queries (No.)	Quality of service	
A-003 System input volume (m3)	Water volume	187,479,872
A-007 Exported drinking water (m3)	Water volume	5,807,957
A-020 Revenue water (m3)	Water volume	178,186,898
A-021 Non revenue water (m3)	Water volume	9,292,974
zA-005 Imported raw water (m3)	Water volume	7,368,292
zA-007 Imported drinking water (m3)	Water volume	6,000
zA-020 Direct revenue drinking water (m3)	Water volume	165,010,649
zA-NEW-001 Total volume of abstracted raw water (m3)	Water volume	180,105,580
zA-NEW-002 Exported and direct revenue raw water (m3)	Water volume	7,368,292
zA-NEW-003 Net volume of raw water exchanged with storage (m3)	Water volume	0
A-006 Water produced (m3)	Water volume	175,552,524
A-019 Real losses (m3)	Water volume	
A-021a Production losses (m3)	Water volume	4,553,056
A-021b Distribution losses and unbilled consumption (m3)	Water volume	4,739,918
zA-006 Distribution Input (m3)	Water volume	175,558,524
zA-020a Residential billed authorised drinking water (m3)	Water volume	99,002,789
zA-020b Non-residential billed authorised drinking water (m3)	Water volume	66,007,860
zA-NEW-004 Unbilled consumption and apparent losses (m3)	Water volume	
zA-NEW-004a Unbilled consumption (m3)	Water volume	
zA-NEW-004b Apparent losses (m3)	Water volume	

Full list of PIs and context information

PI name	Category
CI-076 Network delivery rate (m ³ /km.year)	Context information
CI-061 Service connection density (No./km)	Context information
zCI-070 Total per capita consumption (l per capita per day)	Context information
zCI-072 Average consumption per property (m ³ / property)	Context information
CI-071 Residential consumption (l per capita per day)	Context information
zCI-072a Residential consumption per residential property (m ³ /property)	Context information
zCI-072b Consumption per non-residential property (m ³ /property)	Context information
NEW Population density DW (people/km ²)	Context information
NEW Produced water per treatment plant (m ³ /No.)	Context information
Fi-028 Average water charges for direct consumption (€/m ³)	Economic & Financial
Fi-029 Average water charges for exported water (€/m ³)	Economic & Financial
Pe-001 Employees per service connection (FTE/1000 connections)	Economic & Financial
zCI-071 Average water charges per connected property (€/property)	Economic & Financial
zPe-001 Personnel intensity (FTE/1000 properties)	Economic & Financial
Fi-004 Unit total costs (€/m ³)	Economic & Financial
Fi-005 Unit running costs (€/m ³)	Economic & Financial
Fi-006 Unit capital costs (€/m ³)	Economic & Financial
Fi-007 Internal manpower costs (%)	Economic & Financial
Fi-008 Portion of external services costs in running costs (%)	Economic & Financial
Fi-009 Portion of imported [raw and drinking] water costs in running costs (%)	Economic & Financial
Fi-010 Portion of electrical energy costs in running costs (%)	Economic & Financial
Fi-011 Portion of other costs in running costs (%)	Economic & Financial
Fi-023 Portion of depreciation costs in capital costs (%)	Economic & Financial
Fi-024 Portion of net interest costs in capital costs (%)	Economic & Financial
Fi-025 Unit investment (€/m ³)	Economic & Financial
Fi-026 Investments for new assets and reinforcement of existing assets (%)	Economic & Financial
Fi-027 Investments for asset replacement and renovation (%)	Economic & Financial
Fi-028a Average water charges for residential consumption (€/m ³)	Economic & Financial
Fi-028b Average water charges for non-residential consumption (€/m ³)	Economic & Financial
Fi-030 Total cost coverage ratio ()	Economic & Financial
Fi-031 Operating cost coverage ratio ()	Economic & Financial
Fi-045 Asset turnover ratio ()	Economic & Financial
Pe-002 Employees per water produced (FTE/10 ⁶ m ³)	Economic & Financial
zCI-071a Average water charges for residential properties (€/property)	Economic & Financial
zCI-071b Average water charges for non-residential properties (€/property)	Economic & Financial
zFi-NEW-001 Unit profit costs (€/m ³)	Economic & Financial
zFi-NEW-002 Equity ratio ()	Economic & Financial
zFi-030 Total cost by sales coverage ratio ()	Economic & Financial
zFi-031 Operating costs by sales ratio ()	Economic & Financial
Fi-NEW-020 Share of water bill in disposable household income (%)	Economic & Financial
Op-027 Real losses per connection (l/connection/day)	Operational
Op-028 Real losses per mains length (m ³ /km/day)	Operational
Op-031 Mains failures (No./100 km)	Operational
zOp-027 Distribution losses per connection (m ³ /connection)	Operational
zOp-028 Distribution losses per mains length (m ³ /km/day)	Operational
zOp-031a Mains failures due to third parties (No./100 km)	Operational
zOp-031b Mains failures under own responsibility (No./100km)	Operational
zOp-023 Non-revenue water per connected property (m ³ / property)	Operational

Full list of PIs and context information

PI name	Category
Op-016 Mains rehabilitation (%/year)	Operational
Op-017 Mains renovation (%/year)	Operational
Op-018 Mains replacement (%/year)	Operational
zOp-NEW-001 Electricity use per m3 water produced (kWh/m3)	Operational
Pe-019 Total training (hours/employee)	Personnel
Ph-011 Customer meter density (meters/connection)	Physical
Ph-012 Metered customers (meters/customer)	Physical
zPh-012 Metered properties (%)	Physical
Ph-007 Energy recovery (%)	Physical
QS-003 Population coverage (%)	Quality of service
zQS-003 Household size (people/property)	Quality of service
QS-017 Days with restrictions to water service (%)	Quality of service
QS-026 Service complaints per connection (complaints/1000 connections)	Quality of service
QS-027 Service complaints per customer (complaints/ 1000 customers)	Quality of service
QS-028 Pressure complaints (%)	Quality of service
QS-029 Continuity complaints (%)	Quality of service
QS-030 Water quality complaints (%)	Quality of service
QS-031 Interruption complaints (%)	Quality of service
QS-032 Billing complaints and queries per customer (complaints/1000 customers)	Quality of service
QS-033 Other complaints & queries per customer (complaints/1000 customers)	Quality of service
zQS-027 Service complaints per connected property (complaints/1000 properties)	Quality of service
QS-018 Quality of supplied water (%)	Quality of service
QS-019 Aesthetic tests compliance (%)	Quality of service
QS-020 Microbiological tests compliance (%)	Quality of service
QS-021 Physical-chemical tests compliance (%)	Quality of service
QS-022 Radioactivity tests compliance (%)	Quality of service
zQS-NEW-001 Drinking water quality tests carried out per connection (tests/1000 connections)	Quality of service
zQS-NEW-001a Drinking water quality tests carried out per m3 drinking water (tests/1000 m3)	Quality of service
zWR-001 Inefficiency of use of water resources (%)	Water resources
zWR-001a Inefficiency of use of water production (%)	Water resources

Benchmarking Exercise

Material Prepared for Int. Benchmarking Exercise



Final list of PIs and context information

Purewater

PI name	Category	Purewater PI value	Purewater Accuracy	Purewater Reliability
CI-076 Network delivery rate (m ³ /km.year)	Context information	9,727.85		
CI-061 Service connection density (No./km)	Context information	56.42		
CI-071 Residential consumption (l per capita per day)	Context information	112.37		
Fi-029 Average water charges for exported water (€/m ³)	Economic & Financial	0.55	5-20%	**
Pe-001 Employees per service connection (FTE/1000 connections)	Economic & Financial	0.73	5-20%	**
Fi-028a Average water charges for residential consumption (€/m ³)	Economic & Financial	1.23	5-20%	**
Fi-028b Average water charges for non-residential consumption (€/m ³)	Economic & Financial	1.00	5-20%	**
Fi-030 Total cost coverage ratio ()	Economic & Financial	1.19	5-20%	**
Fi-031 Operating cost coverage ratio ()	Economic & Financial	1.50	5-20%	**
zCI-071a Average water charges for residential properties (€/property)	Economic & Financial	118.84		
zCI-071b Average water charges for non-residential properties (€/property)	Economic & Financial	1,563.72		
zFi-030 Total cost by sales coverage ratio ()	Economic & Financial	1.19	5-20%	**
zFi-031 Operating costs by sales ratio ()	Economic & Financial	1.49	5-20%	**
Fi-NEW-020 Share of water bill in disposable household income (%)	Economic & Financial	0.41	20-50%	**
zOp-027 Distribution losses per connection (m ³ /connection)	Operational	4.66	>50%	*
zOp-028 Distribution losses per mains length (m ³ /km/day)	Operational	0.72	>50%	*
zOp-NEW-001 Electricity use per m ³ water produced (kWh/m ³)	Operational	0.42	20-50%	*
zPh-012 Metered properties (%)	Physical	91.99	5-20%	**
QS-003 Population coverage (%)	Quality of service	100.00	0-5%	**
QS-017 Days with restrictions to water service (%)	Quality of service	0.00	0-5%	***
zQS-027 Service complaints per connected property (complaints/1000 properties)	Quality of service	1.98	>50%	*
QS-018 Quality of supplied water (%)	Quality of service	99.99	0-5%	***
zWR-001 Inefficiency of use of water resources (%)	Water resources	4.96	>50%	*