TBI-Report

Project:

TBI-Report-Example 7.10

Your TBI contact:

EiiF Example
Henry Insulator

+41 22 99 500 70
henry.insulator@eiif.org
www.eiif.org/tbi

This will be your LOGO

This Report was produced using the TBI-App developed by EiiF: www.eiif.org

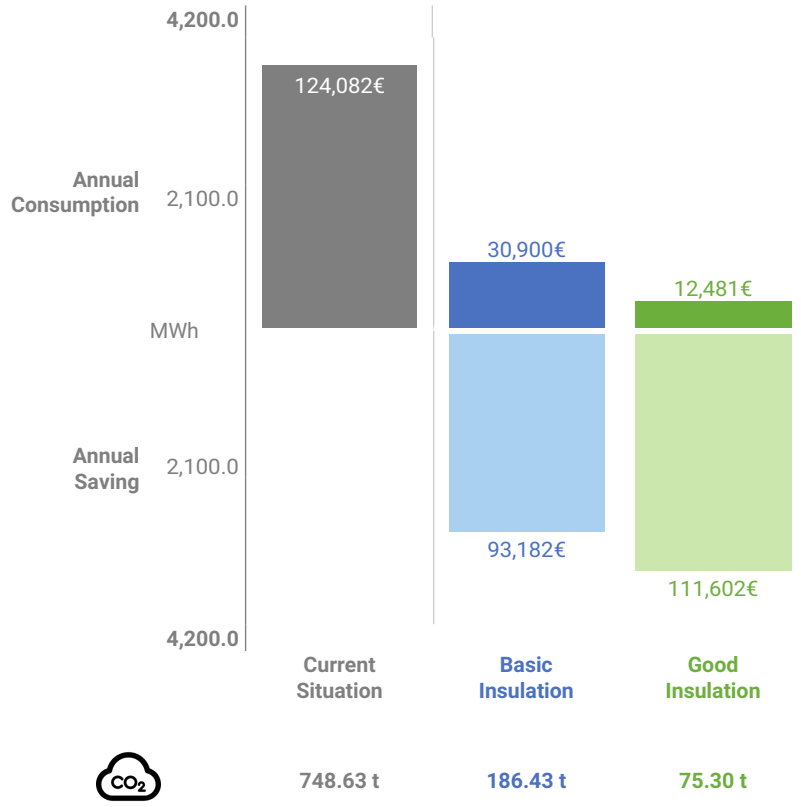
TBI-Report-Example 7.10
Result at a glance

Annual current losses:

- 4,136.08 MWh
- 124,082 €
- 748.63 tn CO_2

Annual saving potential:

- 3,106.08 - 3,720.06 MWh
- 93,182 - 111,602 €
- 562.20 - 673.33 tn CO_2



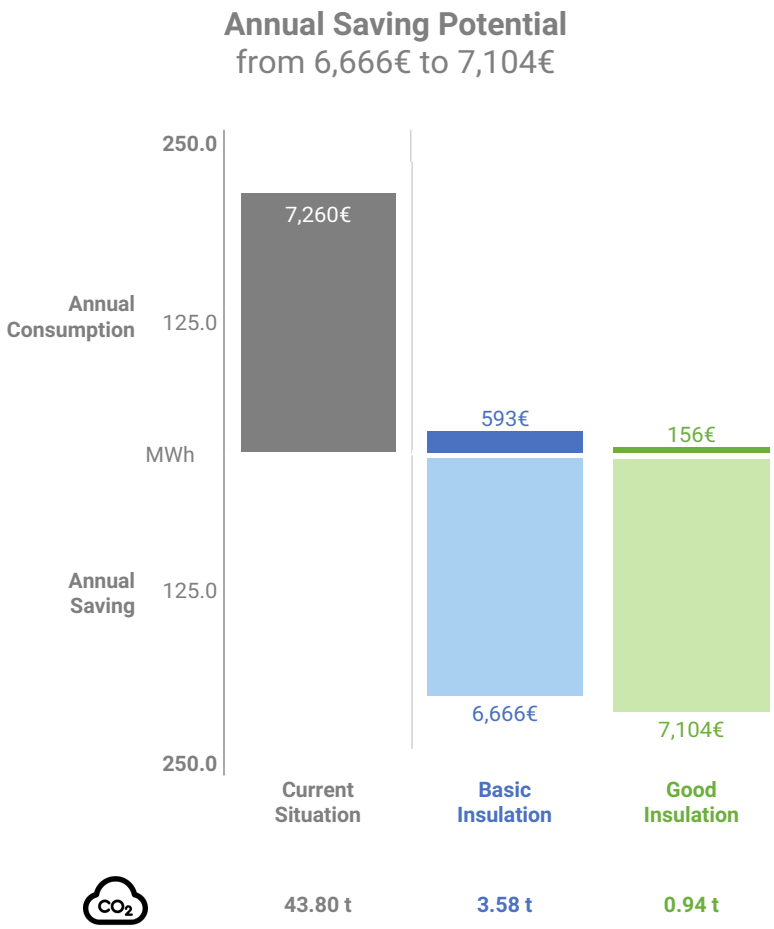
	Component Location	Energy & CO2 analysis per year			Safety	Maintenance	Other	TBI Advice	Input				
		Units	Current Losses & Emissions	Potential savings					Insulated	Surface (m^2)	Diameter	Length	Items number
1	Pipe 1 / outside	MWh	241.99	222.21 - 236.79	Hot surface				N		610	3	
		€	7,260	6,666 - 7,104									
		tn CO_2	43.80	40.22 - 42.86									
2	Pipe 1.2 / Hall 1	MWh	1,560.93	1,428.10 - 1,523.22	Hot surface				N		406.4	35	
		€	46,828	42,843 - 45,697									
		tn CO_2	282.53	258.49 - 275.70									
3	Valve 1 / outside	MWh	46.09	42.12 - 44.91	Hot surface				N		323.9		1
		€	1,383	1,264 - 1,347									
		tn CO_2	8.34	7.62 - 8.13									
4	Flanges 1 / Hall 1	MWh	13.93	12.67 - 13.52	Hot surface				N		219.1		1
		€	418	380 - 406									
		tn CO_2	2.52	2.29 - 2.45									
5	Wall Tank 1 / outside	MWh	620.57	329.85 - 496.73					Y	157.08			
		€	18,617	9,895 - 14,902									
		tn CO_2	112.32	59.70 - 89.91									
6	Wall Tank 2 / outside	MWh	1,652.57	1,071.13 - 1,404.89	Hot surface				Y	314.16			
		€	49,577	32,134 - 42,147									
		tn CO_2	299.12	193.87 - 254.29									
7	Fire extinguisher empty	Not considered >			Fire Protect								
8	Emergency Exit Signage / inside	Not considered >			Fire Protect								

	Component Location	Energy & CO2 analysis per year			Safety	Maintenance	Other	TBI Advice	Input				
		Units	Current Losses & Emissions	Potential savings					Insulated	Surface (m^2)	Diameter	Length	Items number
9	Pipe 2 / Bridge	Not considered >				Damaged							
10	Pipe 3 + Valves Combi.	Not considered >				Condensation							
11	Ellbow 1 / outside Tank 2	Not considered >				Condensation							
12	Pipe 4 / outside	Not considered >				Damaged							
13	Pipes 5-10 / outside	Not considered >				Damaged							
	ESTIMATION TOTAL PROJECT	MWh	4,136.08	3,106.08 - 3,720.06									
		€	124,082	93,182 - 111,602									
		tn CO_2	748.63	562.20 - 673.33									

Maintenance
Surface unknown
Insulation recommended
Increase performance or thickness

Pipe 1 / outside: Uninsulated pipe

Project TBI-Report-Example 7.10	Component/Location Pipe 1 / outside
Energy cost (€/kWh) 0.03	CO_2 emission factor (grCO_2/kWh) 181
Diameter (mm) 610	Length (m) 3
Operational time 8760	Surface material General value [0.80]
Surface temperature (°C) 250	Ambient temperature (°C) 15



Pipe 1 / outside: Hot Surface

Project
TBI-Report-Example 7.10

Component/Location
Pipe 1 / outside

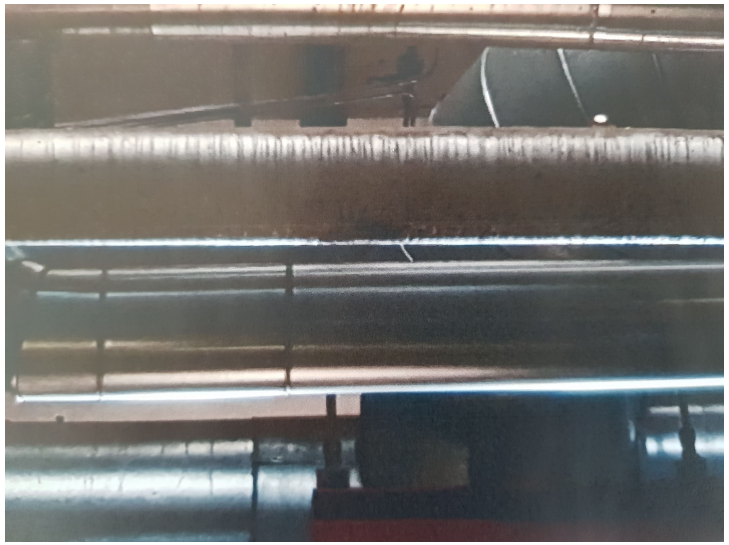
Summary id
Hot Surface

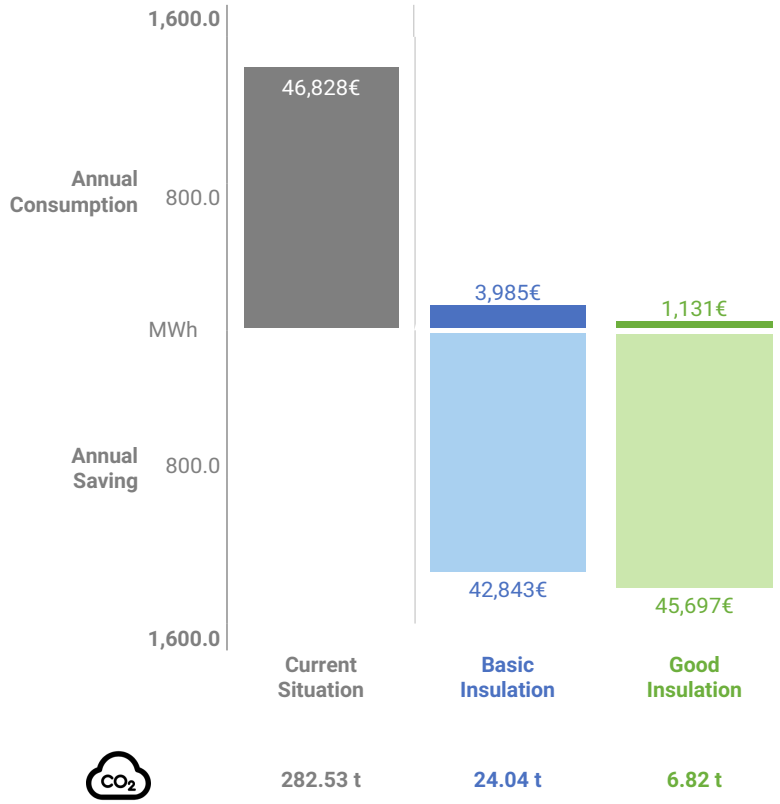
Surface temperature (°C)
250

Comments
Hot Surface

Pipe 1.2 / Hall 1: Uninsulated pipe

Project TBI-Report-Example 7.10	Component/Location Pipe 1.2 / Hall 1
Energy cost (€/kWh) 0.03	CO_2 emission factor ($grCO_2$/kWh) 181
Diameter (mm) 406.4	Length (m) 35
Operational time 8760	Surface material General value [0.80]
Medium temperature (°C) 250 (Gas)	Ambient temperature (°C) 23





Pipe 1.2 / Hall 1: Hot Surface

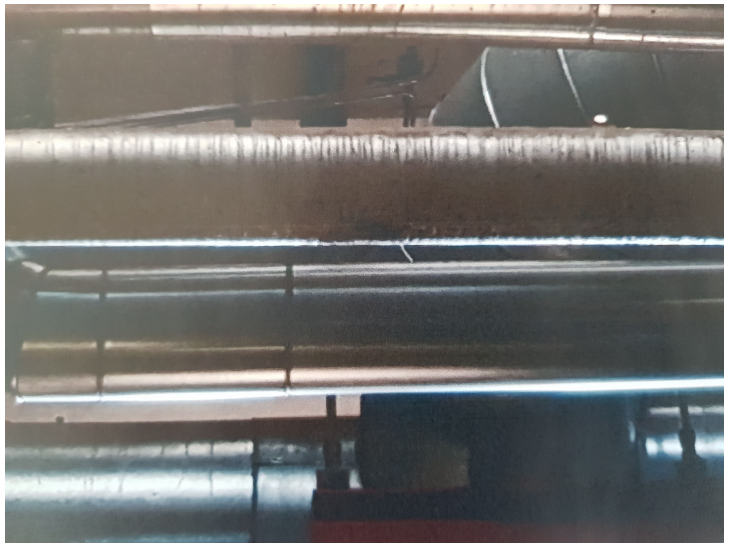
Project
TBI-Report-Example 7.10

Component/Location
Pipe 1.2 / Hall 1

Summary id
Hot Surface

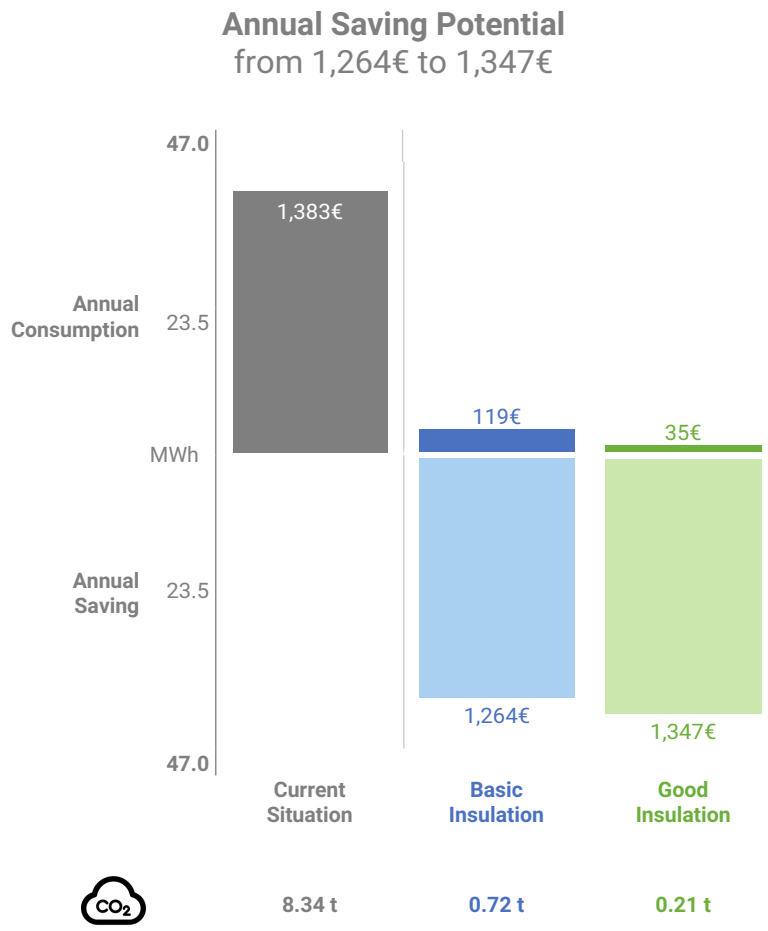
Medium temperature (°C)
250 (Gas)

Comments
Hot Surface



Valve 1 / outside: Uninsulated valve

Project TBI-Report-Example 7.10	Component/Location Valve 1 / outside
Energy cost (€/kWh) 0.03	CO_2 emission factor ($grCO_2/kWh$) 181
Diameter (mm) 323.9	Nº of items (m) 1
Operational time 8760	Surface material General value [0.80]
Surface temperature (°C) 260	Ambient temperature (°C) 15



Valve 1 / outside: Hot Surface

Project
TBI-Report-Example 7.10

Component/Location
Valve 1 / outside

Summary id
Hot Surface

Surface temperature (°C)
260

Comments
Hot Surface

Flanges 1 / Hall 1: Uninsulated flange

Project
TBI-Report-Example 7.10

Component/Location
Flanges 1 / Hall 1

Energy cost (€/kWh)
0.03

CO_2 emission factor ($grCO_2/kWh$)
181

Diameter (mm)
219.1

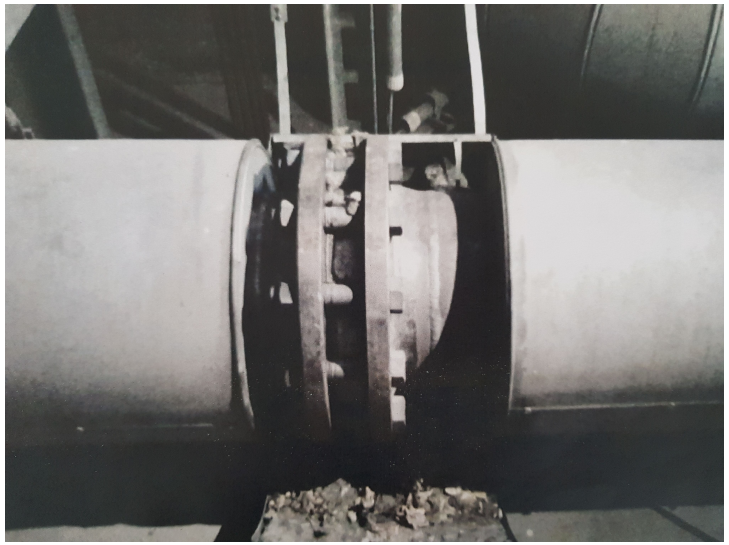
Nº of items (m)
1

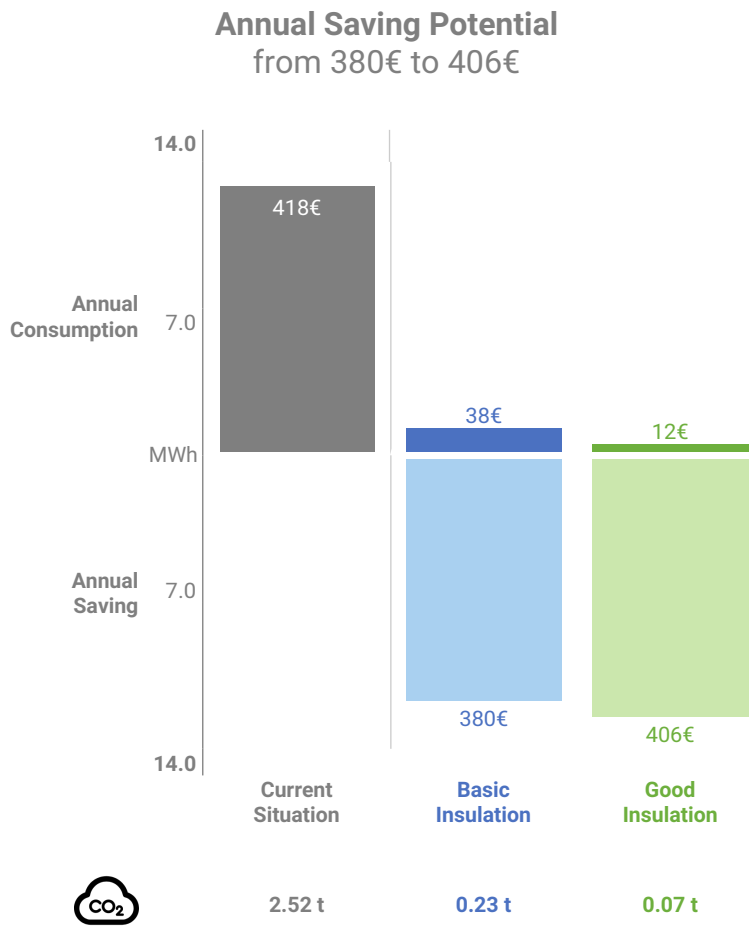
Operational time
8760

Surface material
General value [0.80]

Medium temperature (°C)
270 (Gas)

Ambient temperature (°C)
23





Flanges 1 / Hall 1: Hot Surface

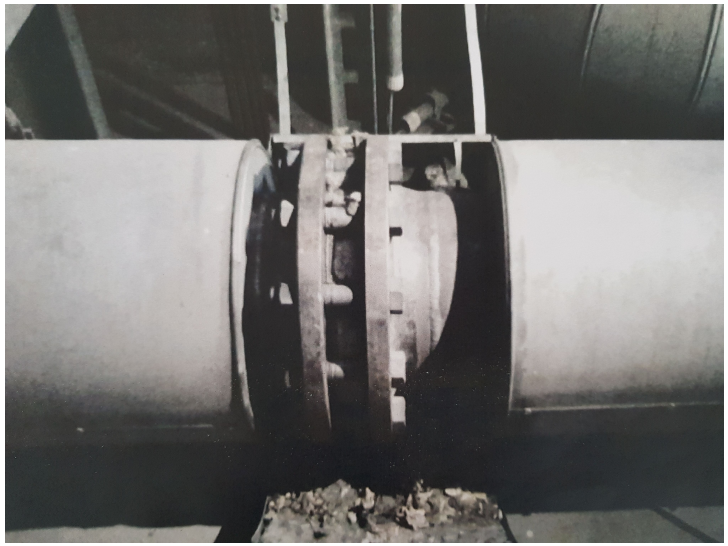
Project
TBI-Report-Example 7.10

Component/Location
Flanges 1 / Hall 1

Summary id
Hot Surface

Medium temperature (°C)
270 (Gas)

Comments
Hot Surface



Wall Tank 1 / outside : Insulated surface

Project
TBI-Report-Example 7.10

Component/Location
Wall Tank 1 / outside

Energy cost (€/kWh)
0.03

CO_2 emission factor ($grCO_2/kWh$)
181

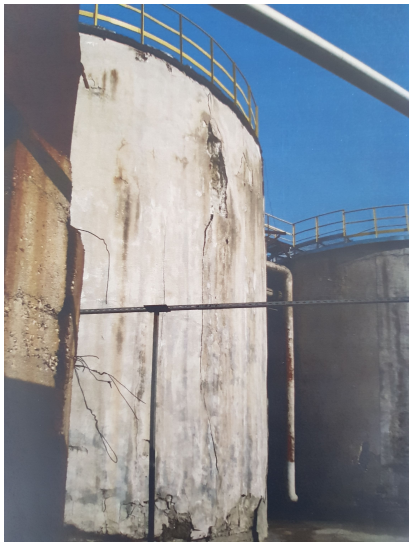
Operational time
8760

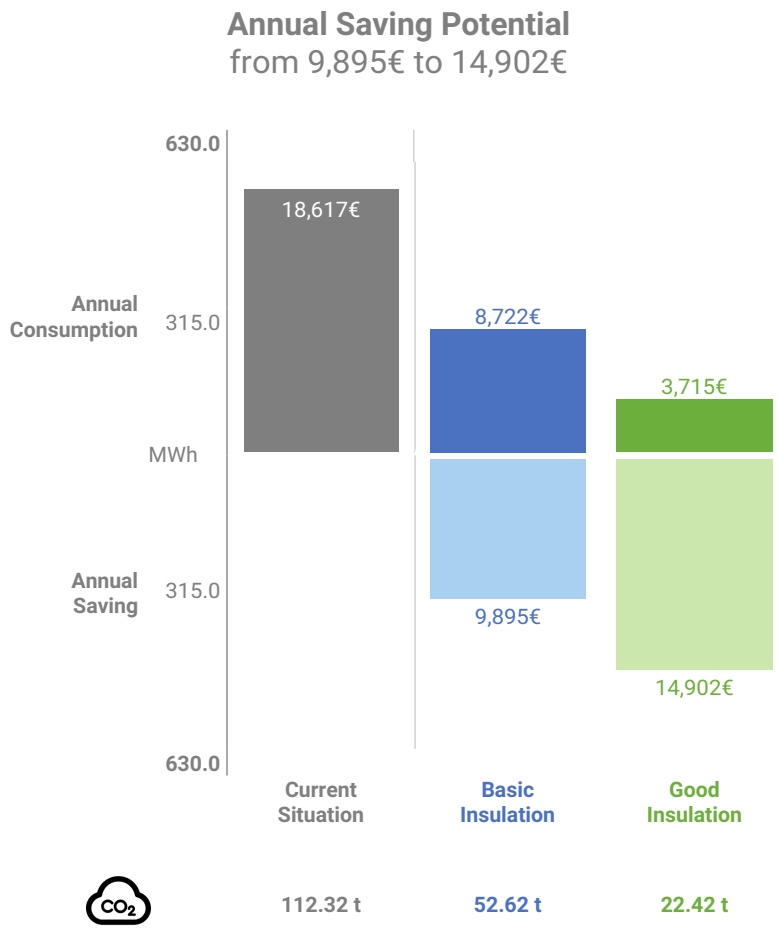
Surface (m^2)
157.08

Surface material
General value [0.80]

Surface temperature (°C)
55

Ambient temperature (°C)
15





Wall Tank 2 / outside: Insulated surface

Project
TBI-Report-Example 7.10

Component/Location
Wall Tank 2 / outside

Energy cost (€/kWh)
0.03

CO_2 emission factor ($grCO_2/kWh$)
181

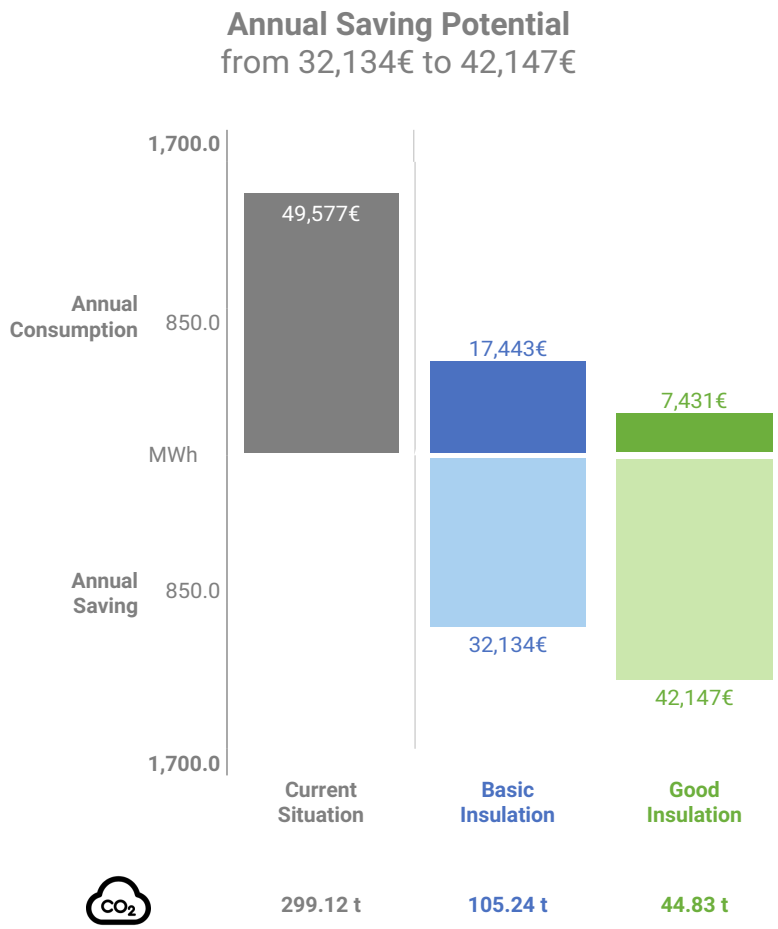
Operational time
8760

Surface (m^2)
314.16

Surface material
General value [0.80]

Surface temperature (°C)
65

Ambient temperature (°C)
15



Wall Tank 2 / outside: Hot Surface

Project
TBI-Report-Example 7.10

Component/Location
Wall Tank 2 / outside

Summary id
Hot Surface

Surface temperature (°C)
65

Comments
Hot Surface

Fire extinguisher empty: Fire Protect

Project
TBI-Report-Example 7.10

Component/Location
Fire extinguisher empty

Summary id
Fire Protect

Comments
FE needs to be refilled and replaced.

Emergency Exit Signage / inside: Fire Protect

Project
TBI-Report-Example 7.10

Component/Location
Emergency Exit Signage / inside

Summary id
Fire Protect

Comments
Light needs to be repaired.

Pipe 2 / Bridge: Damaged

Project
TBI-Report-Example 7.10

Component/Location
Pipe 2 / Bridge

Summary id
Damaged

Comments
Needs to be re-painted: Corrosion

Pipe 3 + Valves Combi.: Condensation

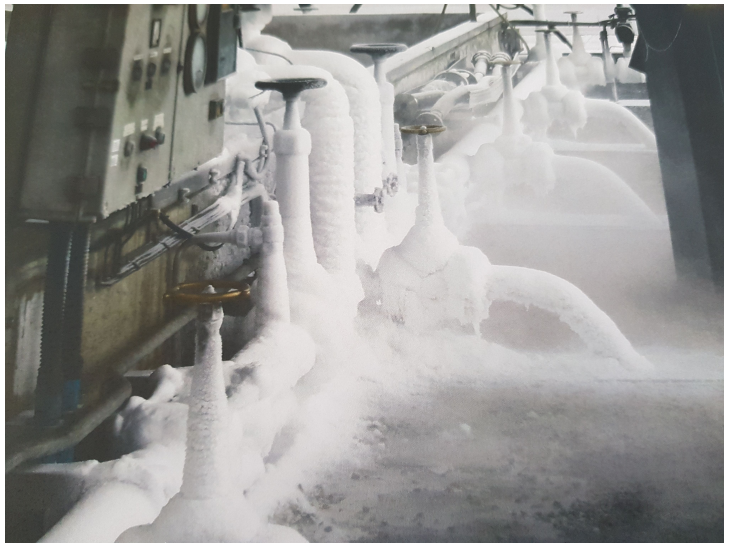
Project
TBI-Report-Example 7.10

Component/Location
Pipe 3 + Valves Combi.

Summary id
Condensation

Condensation
Ice block

Comments
Valves are blocked, pipe heavily iced etc.



Ellbow 1 / outside Tank 2: Condensation

Project
TBI-Report-Example 7.10

Component/Location
Ellbow 1 / outside Tank 2

Summary id
Condensation

Condensation
Ice block

Comments
Ice getting too heavy

Pipe 4 / outside: Damaged

Project
TBI-Report-Example 7.10

Component/Location
Pipe 4 / outside

Summary id
Damaged

Damaged cladding
Lack of cladding

Comments
Missing cladding leading to wet insulation: Corrosion risk + energy waste

Pipes 5-10 / outside: Damaged

Project
TBI-Report-Example 7.10

Component/Location
Pipes 5-10 / outside

Summary id
Damaged

Damaged cladding
Foot traffic/Dent

Comments
Water ingress due to damaged cladding: Corrosion risk + energy waste

Project contacts

Project Leader:	Luis López Brunner	luis.lopez@eiif.org	+41 22 99 500 70
Energy Manager:	Minna Skagen	minna.skagen@eiif.org	+41 22 99 500 70
Maintenance Manager:	Andreas Guertler	andreas.guertler@eiif.org	+41 22 99 500 70
HSE manager:	Jane Doe	info@eiif.org	+41 22 99 500 70

Your TBI contact

EiiF Example
Henry Insulator

+41 22 99 500 70
henry.insulator@eiif.org
www.eiif.org/tbi

You want to know more about TBI-App and EiiF?
Please contact the EiiF office: tbi@eiif.org / www.eiif.org / +41 22 99 500 70

About TBI

TBI is an easy-to-use insulation self-inspection and reporting tool for anyone who wants to very quickly check and estimate how much energy and money saving potential a technical insulation system has to offer.

TBI offers a conservative estimation of the amount of energy a component is losing. In addition it shows the potential savings if insulated or if an improved insulation system is being installed. The saving estimations are given in a range evaluating the performance of a typical basic and a realistic good insulation system. The estimation methodology is based on:

1. EiiF's vast TIPCHECK experience: In 2010 the European Industrial Insulation Foundation developed its insulation energy appraisal programme called Technical Insulation Performance Check.
2. Simplified heat transfer formulas taken from the ISO 12241 Standard: Thermal insulation for building equipment and industrial installations – calculation rules.
3. Generic values allowing a conservative estimation such as using by default e.g. 0 m/s wind speed and horizontal as the orientation of the system.