Work on Preparatory studies for implementing measures of the Ecodesign Directive 2009/125/EC

ENER Lot 29 – Pumps for Private and Public Swimming Pools, Ponds, Fountains, and Aquariums (and clean water pumps larger than those regulated under ENER Lot 11) – Task 2: Economic and Market Analysis

Final report to the European Commission, DG ENER
28 March 2014

European Commission

Developed by:

bio by Deloitte.

ATKINS

Document information

CLIENT	European Commission, DG ENER
CONTRACT NUMBER	ENER/C3/413/2010-LOT29-SI.612164
REPORT TITLE	ENER Lot 29 – Pumps for Private and Public Swimming Pools, Ponds, Fountains, and Aquariums (and clean water pumps larger than those regulated under ENER Lot 11) – Task 2: Economic and Market Analysis
PROJECT NAME	Work on Preparatory studies for implementing measures of the Ecodesign Directive 2009/125/EC
PROJECT CODE	ENER Lot 29
PROJECT TEAM	BIO Intelligence Service, Atkins
DATE	28 March 2014
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Please cite this publication as:
BIO Intelligence Service (2014), Work on Preparatory studies for implementing measures of the Ecodesign Directive 2009/125/EC, ENER Lot 29 – Pumps for Private and Public Swimming Pools, Ponds, Fountains, and Aquariums (and clean water pumps larger than those regulated under ENER Lot 11) – Task 2: Economic and Market Analysis. Prepared for European Commission, DG ENER

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Task 2: Economic and market analysis

The purpose of this task is to present the economic and market analysis of the products covered in the scope of ENER Lot 29 preparatory study on pumps for private and public swimming pools, ponds, fountains and aquariums, and clean water pumps larger than those regulated under ENER Lot 11. A clear picture of the product sales and installed stock available on the EU market is provided together with growth and replacement rate forecasts, product trends, and economic data.

There are four main objectives of this chapter, which include:

1. To place the ENER Lot 29 product group within the total context of EU industry and trade.
2. To provide market (sales and installed stock) and energy consumption inputs for the assessment of EU-wide environmental impacts of the ENER Lot 29 products.
3. To provide insights into the latest market trends to indicate the market structures and ongoing trends in product design. This will serve as an input for the subsequent tasks such as improvement potentials.
4. To provide the data on consumer prices and rates that will be used later in the study for Life Cycle Cost (LCC) calculations in Tasks 5 and 7.

From Task 1 of this study it could be seen that clean water pumps for swimming pools, ponds, fountains and aquariums cover a broad range of applications and power capacities.

As the screening exercise and project scoping is presented in Task 1, this report sets out the structure for gathering further information, as well as providing stakeholders an opportunity to review and comment on the data collected so far.

2.1 Generic economic data

The PRODCOM statistics have the advantage of being the official European Union (EU) source. It is based on products whose definitions are standardised across the European Union thus guaranteeing comparability between Member States. It is used and referenced in other EU policy documents regarding trade and economic policy.

However, the PRODCOM statistics have some limitations, some data points are unknown or confidential, and therefore not available. As shown in Task 1 of the present preparatory study, PRODCOM classifies numerous water pump products within the category NACE 28.13:

- 28.13.14.13 Submersible motor, single-stage rotodynamic drainage and sewage pumps
- 28.13.14.15 Submersible motor, multi-stage rotodynamic pumps

- 28.13.14.30 Centrifugal pumps with a discharge outlet diameter > 15 mm, channel impeller pumps, side channel pumps, peripheral pumps and regenerative pumps
- 28.13.14.51 Centrifugal pumps with a discharge outlet diameter > 15 mm, single-stage with a single entry impeller, close coupled
- 28.13.14.53 Centrifugal pumps with a discharge outlet diameter > 15 mm, single stage with a single entry impeller, long coupled
- 28.13.14.55 Centrifugal pumps with a discharge outlet diameter > 15 mm, single-stage with double entry impeller
- 28.13.14.60 Centrifugal pumps with a discharge outlet diameter > 15 mm, multi-stage (including self-priming)
- 28.13.14.71 Rotodynamic single-stage mixed flow or axial pumps
- 28.13.14.75 Rotodynamic multi-stage mixed flow or axial pumps
- 28.29.12.30 Machinery and apparatus for filtering or purifying water

These categories include a wide range of pump products, and as seen in Task 1, these product groups do not match exactly the classification proposed for pumps in ENER Lot 29. Hence, PRODCOM can only serve as a broad overview of the market size. Figure 2-1 to Figure 2-4 show the market volume and value derived from PRODCOM[1,2]. Figure 2-5 also shows the evolution of sales from 2008 to 2010 in the EU-27.

[1] Available at: epp.eurostat.ec.europa.eu/portal/page/portal/prodcom/data/database. Accessed on 04/06/2012

[2] Apparent consumption = Production + Imports – Exports

For some Member States, data are not provided either due to confidentiality or to lack of availability

Figure 2-1: Market size of rotodynamic pumps and machinery for filtering water in the EU-27 in 2010, PRODCOM (in number of units)

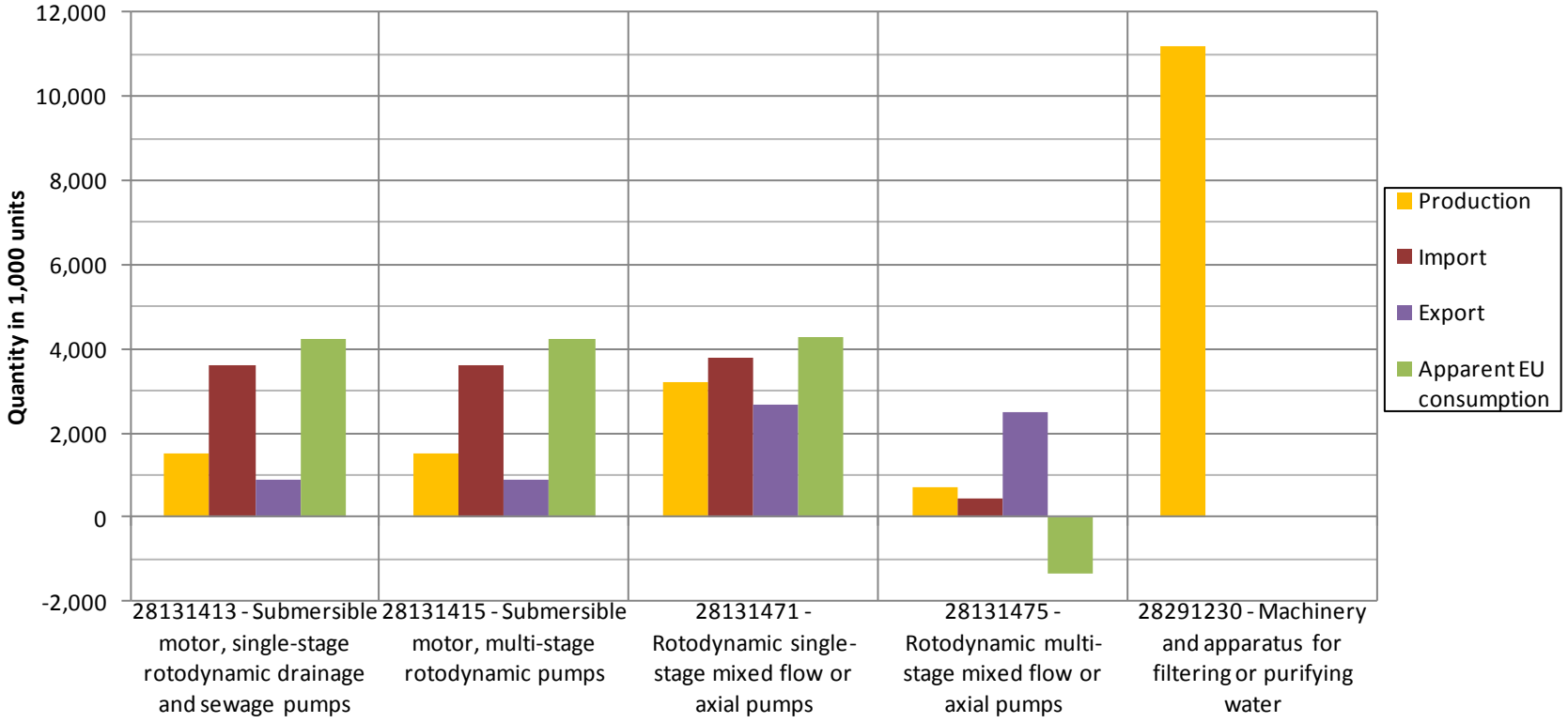


Figure 2-2: Market size of centrifugal pumps in the EU-27 in 2010, PRODCOM (in number of units)

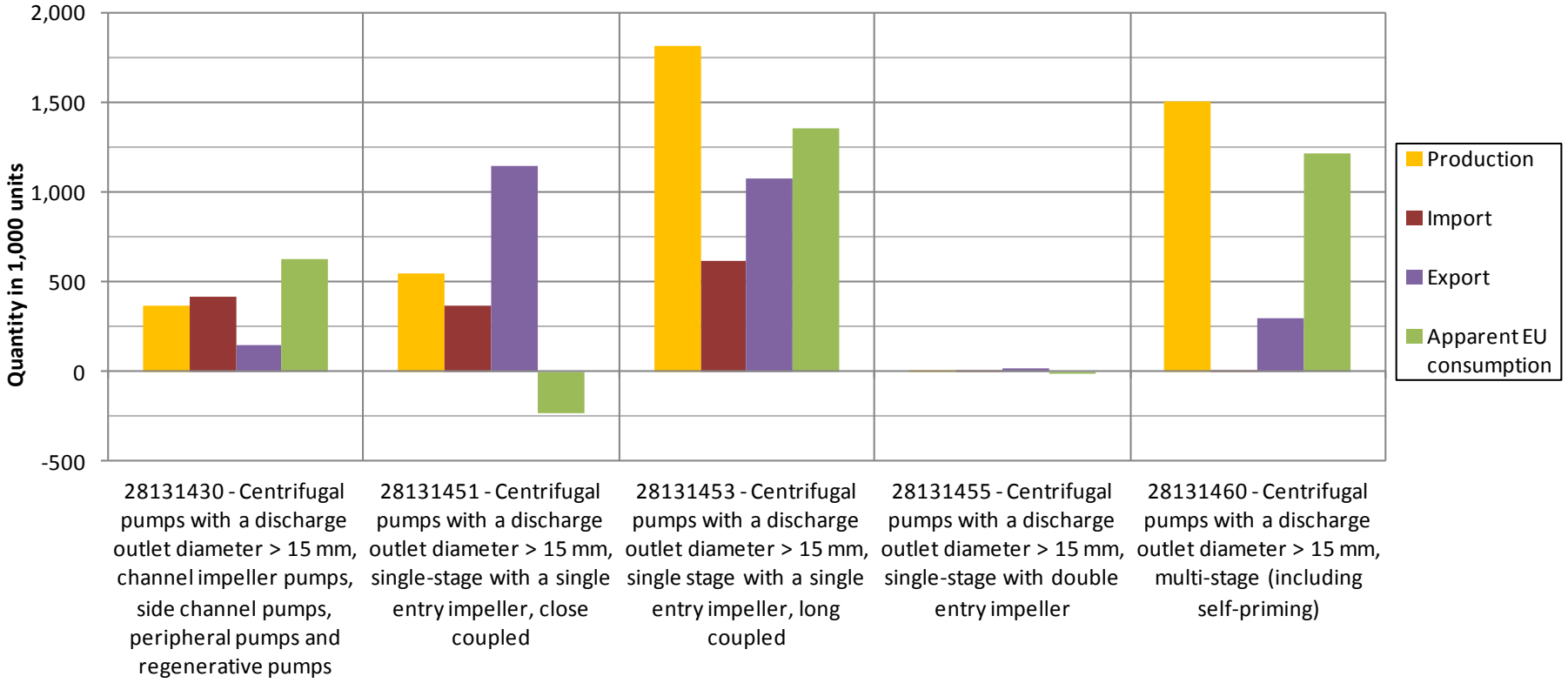


Figure 2-3: Market value rotodynamic pumps in the EU-27 in 2010, PRODCOM (in number of units)

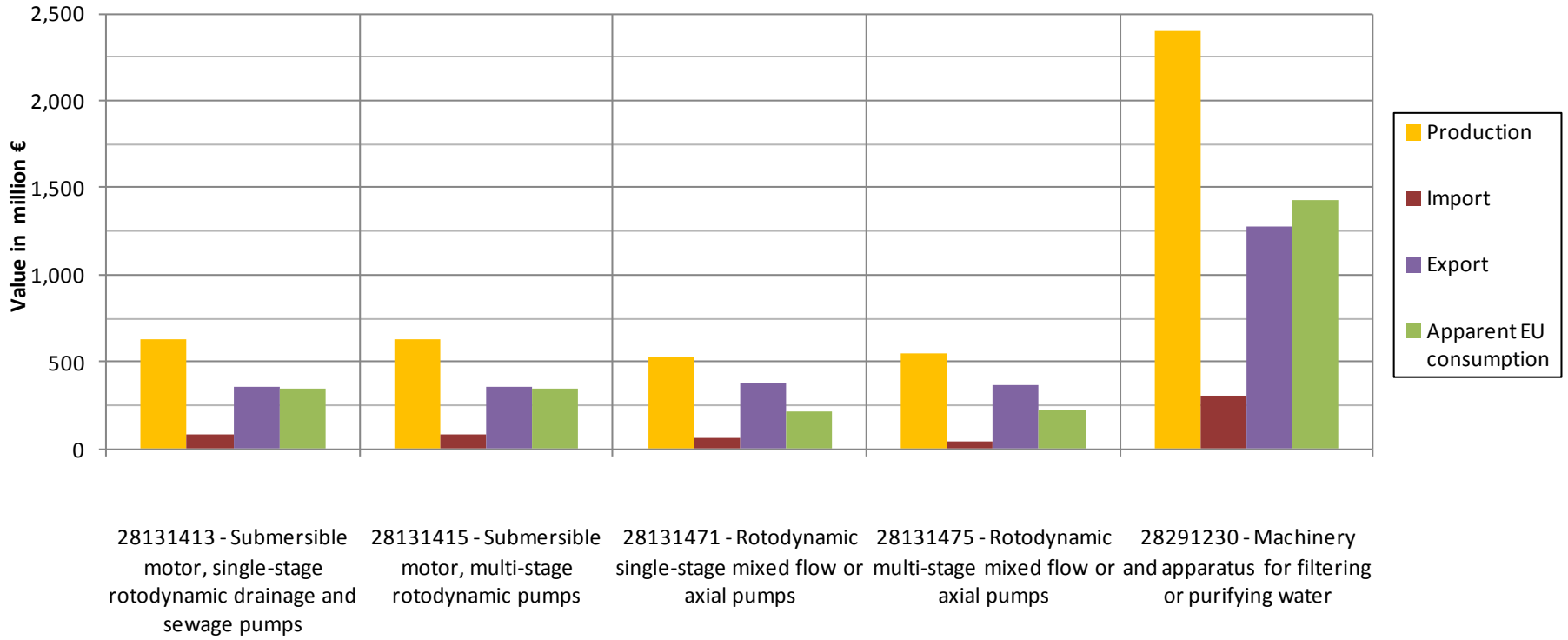


Figure 2-4: Market value of centrifugal pumps in the EU-27 in 2010, PRODCOM (in number of units)

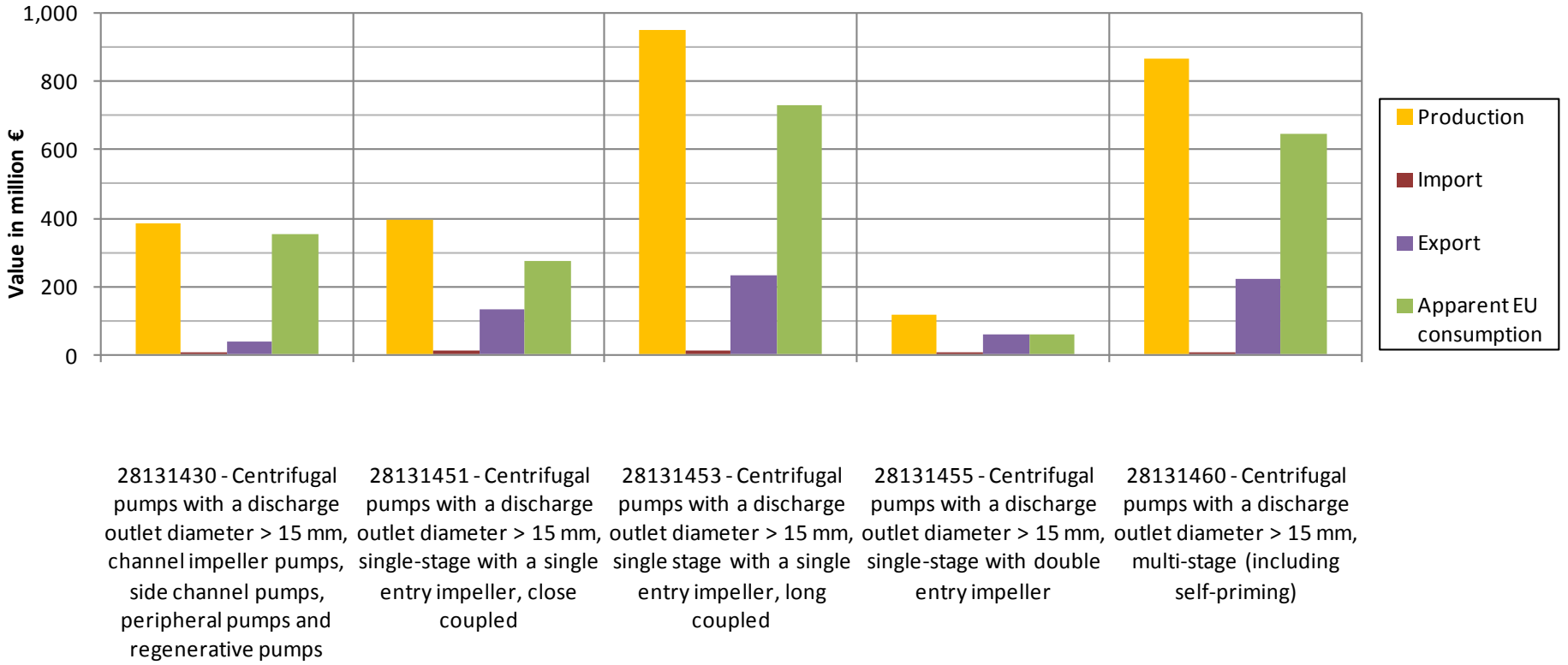
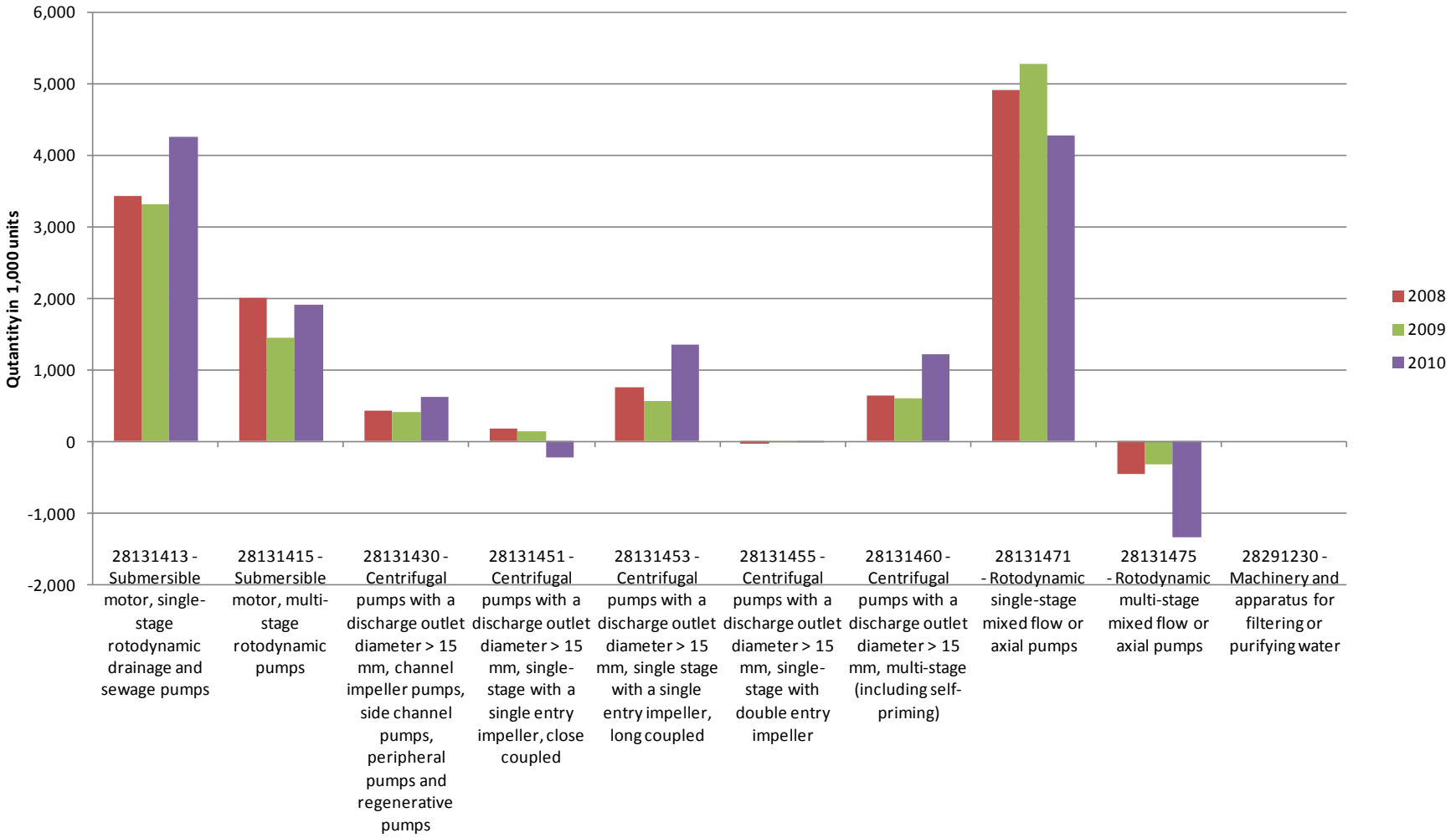


Figure 2-5: Apparent consumption of water pumps in the EU-27 from 2008 to 2010, PRODCOM (in number of units)



2.2 Market and stock data

The aim of this subtask is to provide market and stock data (i.e. number of units sold and installed in the EU) for water pumps covered in ENER Lot 29 study. The market of products within this lot is in general characterised by its diversity. As seen in Task 1, the classification of product groups proposed does not match with the official NACE codes used in PRODCOM. Therefore, the data presented in this section relies mostly on information provided directly by the industry.

The figures provided by Europump Association for this preparatory study can be considered representative of the EU market as Europump represents the majority of pump manufacturers as well as the pump market within Europe. The population outside the Europump membership countries is about 21 %. However, the countries represent only approximately 7.6 % of the pump marked. When Europump preformed the data collection member companies had the total European market in view and reported accordingly.

2.2.1 Sales data

Table 2—1 provides market data for the water pumps covered in ENER Lot 29 following Europump classification sold in 2005 and in 2011.

Table 2—1: Estimated sales per year of pumps in the EU-27

Pump type (and sub-categories)		Estimate of sales per year (units)	
		2005[3]	2011[4]
Swimming Pool pumps (integrated motor+pump)	Domestic with built in strainer up to 2.2 kW	374,060	480,000
	Domestic/commercial with built in strainer over 2.2 kW	8,970	11,500
Fountain, pond, aquarium, spa and counter-current pumps	Fountain and pond pumps to 1 kW	159,760	205,000
	Aquarium pumps (domestic/small aquarium - non-commercial) to 120 W	896,170	1,150,000
	Aquarium power head to 120W	38,970	50,000
	Spa pumps for domestic & commercial spa's	3,280	4,200
	Counter-Current Pumps	77,930	100,000
End Suction water pumps (over 150kW-P2)	ES Close Coupled from 150 kW to 1 MW	80	100
	ES Close Coupled Inline from 150 kW to 1 MW	80	100

[3] The values for 2005 pump sales in EU are provided by Europump based on an average annual growth in sales of 3.5% per year between 2005 and 2011.

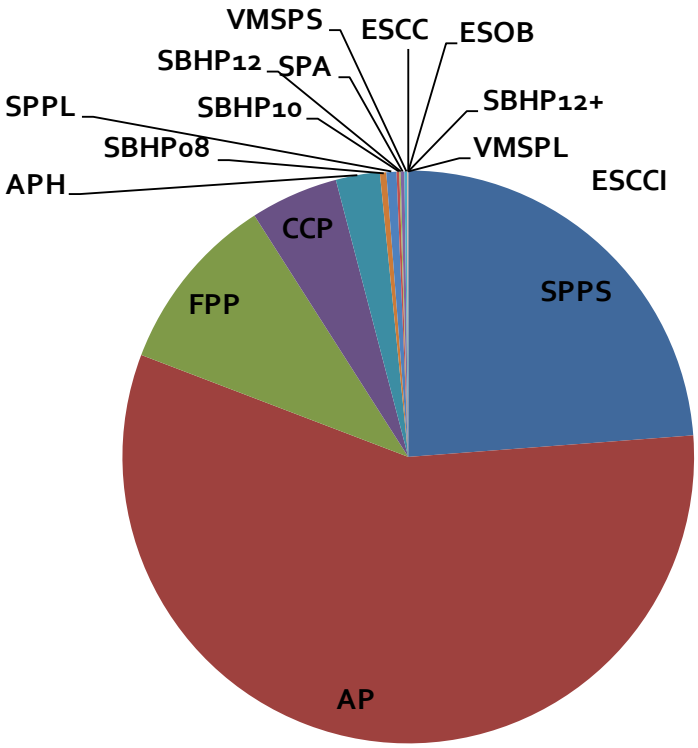
Europump is the European Association of Pump Manufacturers. It represents 18 National Associations in 15 EU Member States, Turkey, Russia & Switzerland. Europump members represent more than 450 companies with a collective production worth more than €10 billion and employing 100 000 people in Europe. Website: www.europump.org/

[4] These sales figures are provided by Europump based on their best estimates without counteracting any law or Directive.

Pump type (and sub-categories)		Estimate of sales per year (units)	
		2005[3]	2011[4]
	ES Own Bearing from 150 kW to 1 MW	430	550
Submersible bore-hole pumps	8" Submersible bore-hole pumps	5,738	7,300
	10" Submersible bore-hole pumps	2,489	3,167
	12" Submersible bore-hole pumps	1,192	1,516
	Submersible bore-hole pumps larger than 12"	360	450
Vertical multi-stage pumps	Vertical multi-stage pump (25 to 40 bar and/or 100 to 180 m3/hr)	2,260	2,900
	Vertical multi-stage pump (>40 bar and/or >180 m3/hr)	220	275

Figure 2-6 presents the share of different pump types in the overall EU sales of ENER Lot 29 pumps in 2011. *"Aquarium pumps"* dominates the overall pump market (market share of 56%) followed by *"swimming pool pumps"* (market share of 23%), *"fountain and pond pumps"* (market share of 10%) and counter-current pumps (5%). Other remaining pumps account for 2% or less of the overall market of ENER Lot 29 pumps in EU in 2011.

Figure 2-6: Sales distribution of ENER Lot 29 pumps in EU in 2011



SPPS	Domestic with built in strainer up to 2.2 kW
SPPL	Domestic/commercial with built in strainer over 2.2 kW
FPP	Fountain and pond pumps to 1 kW
AP	Aquarium pumps (domestic/small aquarium - non-commercial) to 120 W
APH	Aquarium power head to 120W
SPA	Spa pumps for domestic & commercial spa's
CCP	Counter-Current Pumps
ESCC	ES Close Coupled from 150 kW to 1 MW
ESCCI	ES Close Coupled Inline from 150 kW to 1 MW
ESOB	ES Own Bearing from 150 kW to 1 MW
SBHP08	8" Submersible bore-hole pumps
SBHP10	10" Submersible bore-hole pumps
SBHP12	12" Submersible bore-hole pumps
SBHP12+	Submersible bore-hole pumps larger than 12"
VMSPS	Vertical multi-stage pump (25 to 40 bar and/or 100 to 180 m3/hr)
VMSPL	Vertical multi-stage pump (>40 bar and/or >180 m3/hr)

2.2.2 Stock data

Stock is the installed base of existing appliances, i.e. the number of units in operation in EU. However, the shortage of data availability on pump systems in the EU poses a challenge as it makes the market evaluation of these products difficult. For the purpose of this preparatory study, the stock data has been gathered directly from the industry as shown in Table 2—2.

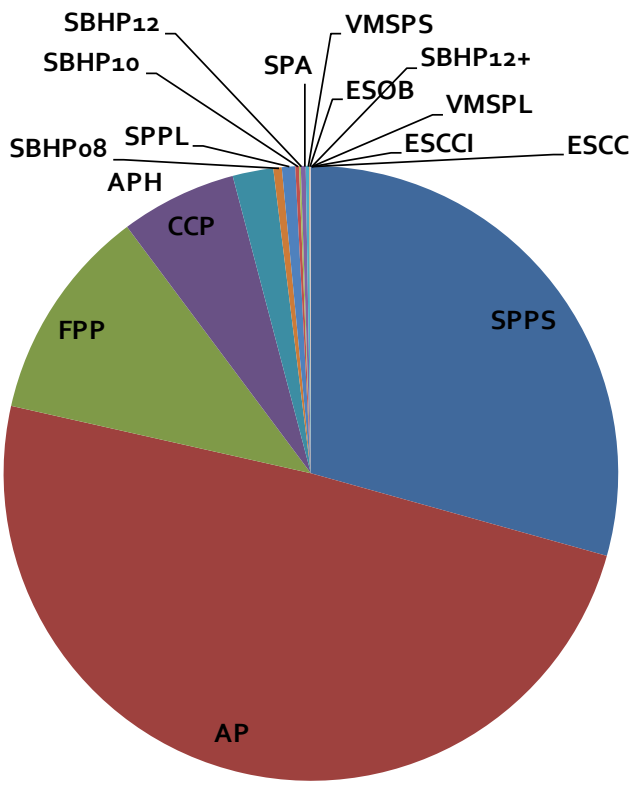
Table 2—2: Estimated installed stock of pumps in the EU-27

Pump type (and sub-categories)		Estimate of installed stock (units)	
		2005[5]	2011
Swimming Pool pumps (integrated motor+pump)	Domestic with built in strainer up to 2.2 kW	4,241,990	4,800,000
	Domestic/commercial with built in strainer over 2.2 kW	101,640	115,000
Fountain, pond, aquarium, spa and counter-current pumps	Fountain and pond pumps to 1 kW	1,630,520	1,845,000
	Aquarium pumps (domestic/small aquarium - non-commercial) to 120 W	7,114,170	8,050,000
	Aquarium power head to 120W	309,320	350,000
	Spa pumps for domestic & commercial spa's	37,120	42,000
	Counter-Current Pumps	883,750	1,000,000
End Suction water pumps (over 150kW-P2)	ES Close Coupled from 150 kW to 1 MW	890	1,000
	ES Close Coupled Inline from 150 kW to 1 MW	890	1,000
	ES Own Bearing from 150 kW to 1 MW	4,870	5,500
Submersible bore-hole pumps	8" Submersible bore-hole pumps	64,532	73,000
	10" Submersible bore-hole pumps	27,996	31,670
	12" Submersible bore-hole pumps	13,401	15,160
	Submersible bore-hole pumps larger than 12"	3,980	4,500
Vertical multi-stage pumps	Vertical multi-stage pump (25 to 40 bar and/or 100 to 180 m3/hr)	25,630	29,000
	Vertical multi-stage pump (>40 bar and/or >180 m3/hr)	2,550	2,875

Figure 2-7 presents the share of different pump types in the overall EU installed stock of ENER Lot 29 pumps in 2011. "*Aquarium pumps"* dominates the overall installed stock of pumps (market share of around 48%) in 2011 followed by "*swimming pool pumps*" (29%), "*fountain and pond pumps"* (market share of 11%) and "*counter-current pumps*" (6%). Other remaining pumps account for 2% or less of the overall installed stock of ENER Lot 29 pumps in EU in 2011.

[5] The pump installed stock in 2005 in EU are estimated by Europump based on an average annual growth in stock of 1.75% per year between 2005 and 2011. Thereby the figures for 2005 can be calculated backwards from figures 2011 by multiplying by 0.9825^7 = 0.884

Figure 2-7: Stock distribution of ENER Lot 29 pumps in EU in 2011



SPPS	Domestic with built in strainer up to 2.2 kW
SPPL	Domestic/commercial with built in strainer over 2.2 kW
FPP	Fountain and pond pumps to 1 kW
AP	Aquarium pumps (domestic/small aquarium - non-commercial) to 120 W
APH	Aquarium power head to 120W
SPA	Spa pumps for domestic & commercial spa's
CCP	Counter-Current Pumps
ESCC	ES Close Coupled from 150 kW to 1 MW
ESCCI	ES Close Coupled Inline from 150 kW to 1 MW
ESOB	ES Own Bearing from 150 kW to 1 MW
SBHP08	8" Submersible bore-hole pumps
SBHP10	10" Submersible bore-hole pumps
SBHP12	12" Submersible bore-hole pumps
SBHP12+	Submersible bore-hole pumps larger than 12"
VMSPS	Vertical multi-stage pump (25 to 40 bar and/or 100 to 180 m3/hr)
VMSPL	Vertical multi-stage pump (>40 bar and/or >180 m3/hr)

2.2.3 Sales growth rate

The sales growth rates data will be used to assess the future evolution of EU market of pumps covered in ENER Lot 29 study. This is useful for development of various scenarios in Task 8.

The sales growth for the years, from 2013 to 2040, is expected to be at a rate of 3%[6].

2.2.4 Product lifetime

Lifetime can be used to estimate the stock data based on sales. In the context of this study, the focus is on "active lifetime" or the so-called "economical life", i.e. the duration that the product is in service. This is usually less than its technical life (time until which the pump functions sustaining minimum acceptable performance criteria).

Some preliminary estimates on average technical and economical product life are presented in Table 2—3. It should be taken into account however that product lifetime can vary greatly depending on use patterns across Member States. Furthermore it should be noted that there have been some discrepancies concerning the data received for the lifetimes of the pumps

[6] The growth rate figures for 2012-2017 are provided by Europump.

discussed in this study, which can have an important impact on the policy recommendations resulting from this study in task 8. Therefore a sensitivity analysis will be performed in task 8 assesing the impact of the diverging data on lifetime received.

The lifetime of the appliances is of interest as a key parameter in assessing the following parameters during the later stages of the study:

- Life Cycle Costs of the Base-Case (BC) and improvement options
- Life cycle environmental impacts of the BC and improvement options
- To compare the impacts of a BC and the improvement options, if some options extend only the lifetime without enhancing the energy efficiency

Table 2—3: Product technical lifetime and average lifetime in service of pumps in the EU-27

Pump type (and sub-categories)		Technical life	Average economical life[7]
		Years	Years
Swimming Pool pumps (integrated motor+pump)	Domestic with built in strainer up to 2.2 kW	20	20
	Domestic/commercial with built in strainer over 2.2 kW	20	20
Fountain, pond, aquarium, spa and counter-current pumps	Fountain and pond pumps to 1 kW	9	9
	Aquarium pumps (domestic/small aquarium - non-commercial) to 120 W	7	7
	Aquarium power head to 120W	7	7
	Spa pumps for domestic & commercial spa's	20	20
	Counter-Current Pumps	20	20
End Suction water pumps (over 150kW-P2)	ES Close Coupled from 150 kW to 1 MW	20	20
	ES Close Coupled Inline from 150 kW to 1 MW	20	20
	ES Own Bearing from 150 kW to 1 MW	20	20
Submersible bore-hole pumps	8" Submersible bore-hole pumps	11	11
	10" Submersible bore-hole pumps	11	11
	12" Submersible bore-hole pumps	11	11
	Submersible bore-hole pumps larger than 12"	11	11
Vertical multi-stage pumps	Vertical multi-stage pump (25 to 40 bar and/or 100 to 180 m3/hr)	12	12
	Vertical multi-stage pump (>40 bar and/or >180 m3/hr)	12	12

[7] The pump technical lifetime and average lifetime in service of pumps in the EU-27 are estimated by Europump

2.2.5 Replacement sales and new sales

In order to estimate the future installed stock of pumps covered in ENER Lot 29 study, a distinction between replacement and new (non-replacement) sales is needed. Overall sales of products are combinations of new sales, which increase the installed stock, and replacement sales, which do not.

The pumps sales in the EU-27 market are mainly for the replacement of old units. According to stakeholder comment, in general, 30% of the sales in EU market are for new installations and 70% are for the replacement. In those EU countries that have a mature water system infrastructure, the sales for new installation and replacement are 10% and 90% respectively. The water pump market for new installation is higher in those EU countries that have high need for improvement in their water systems. In such countries, the share of sales is 50% for new sales and the other half constitutes replacement sales.

2.3 Market trends

This section presents recent evolution and expected orientation of the market, as well as a review of the parameters, which are likely to influence appliances sales and design in the future. It is important to understand such trends to identify products, which might represent a significant or marginal market in the near future.

2.3.1 Market production structures

The pumps industry in the EU is a growing and SME-driven sector. The European pump industry is.mainly comprised of few large manufacturers and a number of SMEs. These manufacturers are well represented by industry associations at Member State and EU level. These mainly include Europump and BPMA[8].

Very large pumps tend to be engineered and produced in the EU. This is the case for some End suction water pumps, Submersible multistage pumps and Vertical multistage pumps. Small pumps for fountains, ponds and aquariums are likely to be cheaper and many of them are manufactured outside the EU. Medium-sized water pumps for swimming pools might be either EU-produced or imported.

[8] BPMA is British Pump Manufacturers Association.

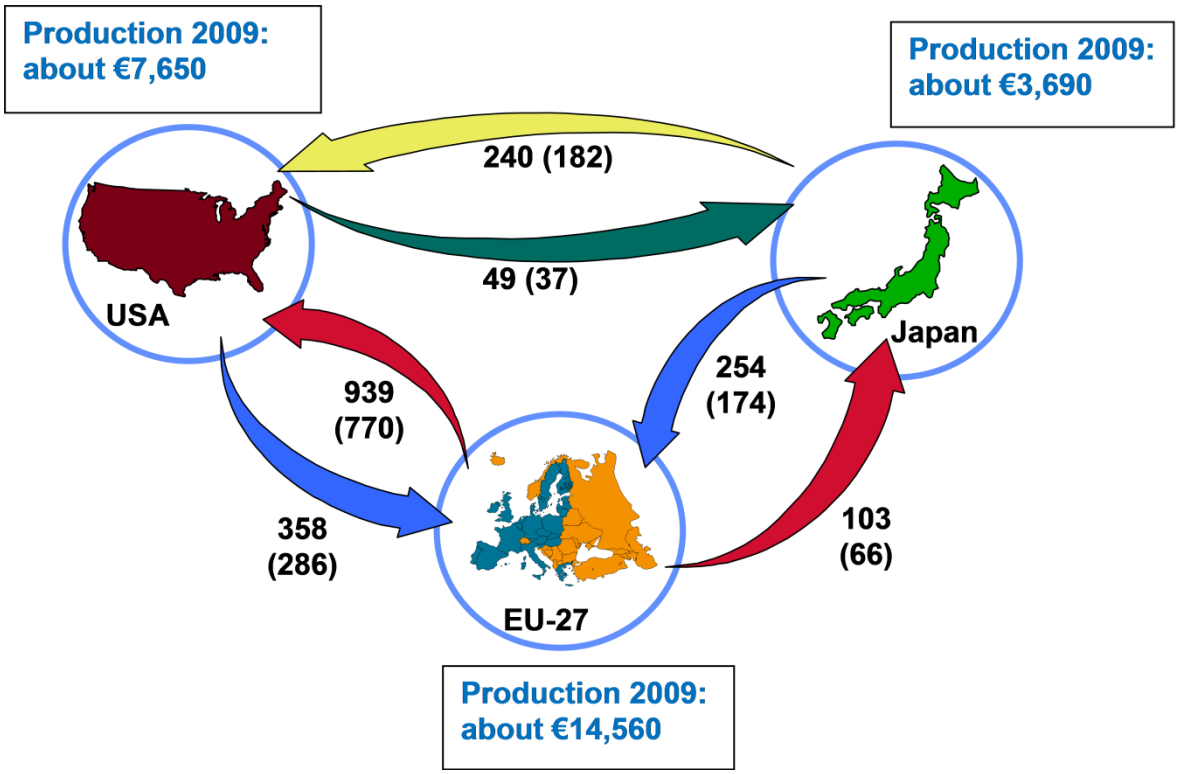
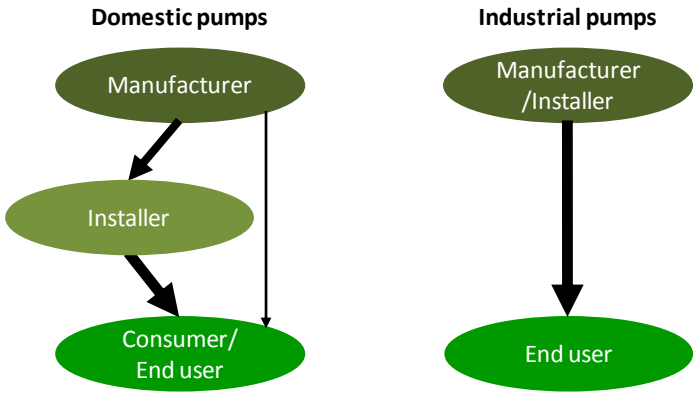


Figure 2-8: Production, imports and exports of European, Japanese and US pump manufacturers in 2009 and 2010, in billion €[9]

The product distribution channels of water pumps are mostly business-to-business, as these products usually need professional installation, with the exception of some aquarium pumps, or are included within other products. The market of water pumps directly sold to the consumer is likely to be very small, mostly for DIY or amateur sectors. Figure 2-9 presents the overview of the market distribution channels of water pumps in ENER Lot 29.

Figure 2-9: Market distribution channels of water pumps in ENER Lot 29



[9] *Source: VDMA Fachgemeinschaft fuer Pumpen*

2.3.2 Trends in product design and features

The main developments in this area concern advances in VSD motors and controls for regulation of the water flow. However, this feature is not applicable to all the water pumps considered within this preparatory study.

For vertical multistage and end suction – the larger end of the market are engineered to high specification (e.g. used in power plants for cooling). Often there are financial penalties set out in contracts if these pumps do not meet their pre-specified efficiencies.

For aquarium pumps and pond pumps, the pump must operate continuously 24/24 and any control of the rotation speed of the pump, from a ON/OFF option up to a variable speed drive (VSD), can be harmful for the livestock see Task 1 Section 1.3.2.

2.3.3 Redesign cycle of water pumps

Many of the worst performing pumps may need to be re-designed in order to meet any potential implementing measures proposed later in Task 8. It is therefore of interest to know the typical duration of the redesign cycle of pumps covered in ENER Lot 29 study.

Manufacturers of low-efficient pumps will therefore have to re-design their pump models and make necessary adaptation to the established production lines. Since the current technology used in ENER Lot 29 pumps has already been on the market for many years, and as many pump manufacturers already produce high efficient pumps, a consideration of around 2 – 4 years timeframe for the manufacturers is considered to be enough[10].

The duration of the re-design cycle will be taken into account in the potential implementing measures in Task 8 in order to give manufacturers adequate time to re-design pumps to replace those that may be noncompliant.

2.4 Consumer expenditure base data

Average EU consumer purchase prices, incl. VAT (in €), as well as installation costs, maintenance costs, applicable rates for running costs (e.g. electricity, water) and other financial parameters (e.g. taxes, rates of interest, inflation rates) are presented in this section. These data will form an input for tasks 5.4 and 5.5 where Life Cycle Costs of pumps will be calculated.

[10] This timeframe is also in line with the observation made in the Impact Assessment concerning Commissions proposal for a regulation with regard to Ecodesign requirements for water pumps. http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2012/swd_2012_178_en.pdf

2.4.1 Purchase price

Table 2—4 presents the range and average purchase price of ENER lot 29 pumps in Euros/unit.

Table 2—4: Estimated product price (including VAT) for pumps in the EU-27

Pump type (and sub-categories)		Purchase price range	Average purchase price	Source*
		€	€	
Swimming Pool pumps (integrated motor+pump)	Domestic with built in strainer up to 2.2 kW	295 - 715	330	Public price list
	Domestic/commercial with built in strainer over 2.2 kW	1,000 – 3,000	1,500	Team estimate
Fountain, pond, aquarium, spa and counter-current pumps	Fountain and pond pumps to 1 kW	23 – 1,000	100	Public price list
	Aquarium pumps (domestic/small aquarium - non-commercial) to 120 W	22 - 465	50	Public price list
	Aquarium power head to 120W	20 - 100	45	Public price list
	Spa pumps for domestic & commercial spa's	230 - 350	275	Public price list
	Counter-Current Pumps	620 – 3,500	1,325	Public price list
End Suction water pumps (over 150kW-P2)	ES Close Coupled from 150 kW to 1 MW	5,500 – 250,000	8,000	Team estimate
	ES Close Coupled Inline from 150 kW to 1 MW	5,500 – 250,000	8,000	Team estimate
	ES Own Bearing from 150 kW to 1 MW	5,500 – 250,000	8,000	Team estimate
Submersible bore-hole pumps	8" Submersible bore-hole pumps	€ 3,150 – 8,800	6,135	Public price list
	10" Submersible bore-hole pumps	6,000 - 13,000	8,000	Team estimate
	12" Submersible bore-hole pumps	7,000 – 15,000	10,000	Team estimate
	Submersible bore-hole pumps larger than 12"	8,000 – 17,000	12,000	Team estimate
Vertical multi-stage pumps	Vertical multi-stage pump (25 to 40 bar and/or 100 to 180 m3/hr)	10,000	10,000	Public price list
	Vertical multi-stage pump (>40 bar and/or >180 m3/hr)	33,000	33,000	Team estimate

* The prices presented are team estimates, confirmed by manufacturers

2.4.2 Installation costs

The installation costs of ENER Lot 29 pumps vary depending on their technology, size, site and application type. Table 2—5 presents the estimated cost of installation for pumps in the EU-27.

Table 2—5: Estimated installation costs (including VAT) for pumps in the EU-27

Pump type (and sub-categories)		Installation costs range	Average installation costs	Source
		€	€	
Swimming Pool pumps (integrated motor+pump)	Domestic with built in strainer up to 2.2 kW	100 – 400	250	Team estimate
	Domestic/commercial with built in strainer over 2.2 kW	200 - 600	500	Team estimate
Fountain, pond, aquarium, spa and counter-current pumps	Fountain and pond pumps to 1 kW	0 - 100	0	Team estimate
	Aquarium pumps (domestic/small aquarium - non-commercial) to 120 W	0 – 50	0	Team estimate
	Aquarium power head to 120W	0 – 50	0	Team estimate
	Spa pumps for domestic & commercial spa's	100 - 600	450	Team estimate
	Counter-Current Pumps	100 - 600	500	Team estimate
End Suction water pumps (over 150kW-P2)	ES Close Coupled from 150 kW to 1 MW	750 – 4,000	2,000	Team estimate
	ES Close Coupled Inline from 150 kW to 1 MW	750 – 4,000	2,000	Team estimate
	ES Own Bearing from 150 kW to 1 MW	750 – 4,000	2,000	Team estimate
Submersible bore-hole pumps	8" Submersible bore-hole pumps	1,000 – 4,000	3,000	Team estimate
	10" Submersible bore-hole pumps	1,000 – 4,500	3,000	Team estimate
	12" Submersible bore-hole pumps	1,000 – 5,000	3,000	Team estimate
	Submersible bore-hole pumps larger than 12"	1,000 – 6,000	4,000	Team estimate
Vertical multi-stage pumps	Vertical multi-stage pump (25 to 40 bar and/or 100 to 180 m3/hr)	750 – 4,000	2,000	Team estimate
	Vertical multi-stage pump (>40 bar and/or >180 m3/hr)	750 – 4,000	2,000	Team estimate

* The prices presented are team estimates, confirmed by manufacturers

2.4.3 Running costs

Maintenance and repair costs can be very significant depending upon the type impellers used, the use pattern and the presence or not of solids suspended in the water. For example, during 'real-life' use, swimming pool pumps and pond pumps might be blocked due to solid (hair, leaves, etc.) contained in the water. Table 2—6 presents the maintenance cost per year of water pumps in the EU-27.

The scope of repair costs mainly concerns expenses related to cost of basic consumables and replacement parts, including:

- Lubricant for bearings
- Replacement seals
- New bearings and new wear rings
- Coatings may also be applied to reduce friction
- Worn hydraulic parts

The scope of maintenance costs presented in this section mainly concerns the visit of pump for:

- Condition inspections
- Security checks
- Electrical tests and jetting

Table 2—6: Maintenance costs per year of water pumps in the EU-27

Pump type (and sub-categories)		Average maintenance costs	Source
		€/year	
Swimming Pool pumps (integrated motor+pump)	Domestic with built in strainer up to 2.2 kW	0	Team estimate
	Domestic/commercial with built in strainer over 2.2 kW	50	Team estimate
Fountain, pond, aquarium, spa and counter-current pumps	Fountain and pond pumps to 1 kW	0	Team estimate
	Aquarium pumps (domestic/small aquarium - non-commercial) to 120 W	0	Team estimate
	Aquarium power head to 120W	0	Team estimate
	Spa pumps for domestic & commercial spa's	0	Team estimate
	Counter-Current Pumps	0	Team estimate
End Suction water pumps (over 150kW-P2)	ES Close Coupled from 150 kW to 1 MW	500	Team estimate
	ES Close Coupled Inline from 150 kW to 1 MW	500	Team estimate
	ES Own Bearing from 150 kW to 1 MW	500	Team estimate
Submersible bore-hole pumps	8" Submersible bore-hole pumps	2,000	Team estimate
	10" Submersible bore-hole pumps	2,000	Team estimate
	12" Submersible bore-hole pumps	2,500	Team estimate
	Submersible bore-hole pumps larger than 12"	3,000	Team estimate
Vertical multi-stage pumps	Vertical multi-stage pump (25 to 40 bar and/or 100 to 180 m3/hr)	1,000	Team estimate
	Vertical multi-stage pump (>40 bar and/or >180 m3/hr)	1,000	Team estimate

The electricity and water prices as listed in the MEErP methodology[11] are used in this subsection. Table 2—7 presents the generic economic data of EU-27 listed in the MEErP methodology.

[11] Source: www.meerp.eu/downloads/MEErP%20Methodology%20Part%201%20Final.pdf

Table 2—7: Generic economic data in the EU-27[12]

	Unit	Domestic incl. VAT	Long term growth per year	Non-domestic excl. VAT
Electricity	€/kWh	0.18	5%	0.11
Water	€/m^3	3.70	2.50%	
Energy escalation rate	%	4%		
VAT	%	20%		

2.4.4 Interest and inflation rates

Table 2—8 presents the generic interest and inflation rates in the EU-27. A default value of 4% is suggested as the EU average discount rate in the MEErP methodology which is proposed to be used in this subsection.

Table 2—8: Generic interest and inflation rates in the EU-27[12]

	Unit	Domestic incl. VAT	Non-domestic excl. VAT
Interest	%	7.7%	6.5%
Inflation rate	%	2.1%	
Discount rate (EU default)	%	4%	

2.4.5 Disposal costs

ENER Lot 29 pumps are normally replaced when they fail or when there is a significant irreversible drop in pump performance. As these pumps are mainly constructed of metals, they are likely to be sold for scrap at the end of their life. Cleaning and removal of pathogens is required prior to their delivery to the scrap yard.

As pumps have positive scrap value, it is an advantage for the company to send the old pumps for scrap and avoid disposal costs. It is assumed that there is no disposal cost required for the handling of pumps at their end-of-life.

2.5 Conclusions

The data presented in Task 2 will help analyse the total environmental impacts of the EU-stock of pumps in the scope of ENER lot 29 and the improvement potential of these products, and will form the basis for selecting the most representative products on the European market and eventually formulating the Base-Cases in Task 5.

Economic data and energy prices are also presented in this task and will be used as inputs to the Life Cycle Costing (LCC) analysis to be carried out in Tasks 5 and 7.

[12] VHK, MEErP 2011 METHODOLOGY PART 1.

This report presents a first draft of the best estimates based on inputs from the industry. The official statistics based on PRODCOM have been also analysed but they can only provide a broad overview and are not sufficiently detailed for the purposes of further analysis in this preparatory study.

Regarding the stock numbers of ENER Lot 29 products when compared to other pumps covered in ENER Lot 28 and ENER Lot 11, it can be said that they represent 1/3 of the market, in terms of units in stock, similar to those of ENER Lot 11 and ENER Lot 28.

Table 2—9: EU installed stock of pumps

Study	Stock (million units)	Year	Geographical scope
ENER Lot 11[13]	17.1	2007	EU-25
ENER Lot 28[14]	15.7	2011	EU-27
ENER Lot 29	16.6	2011	EU-27

As indicated in Table 2—9, the pumps covered within ENER Lot 28 and ENER Lot 11 comprise each almost 1/3 of the market (in terms of units in stock); the ENER Lot 29 products representing 33% of the pumps market.

It is important to note that the information presented in the table only regards the number of pumps installed in the EU. The different sizes, functions and energy consumptions of the pumps are addressed in task 4 and 5. The following tasks of this preparatory study will also determine the energy consumption, the environmental impacts and the potential for improvement of this product sector.

It is also important to note that it is likely to be differences in market size, production and distribution structures, and product trends between different Member States. As large pumps are mostly engineered for industrial applications, they are likely to be part of smaller-scale markets, and production centred within the EU. On the other hand, smaller pumps are more homogeneous, "mass-produced" in a more global market.

[13] Only refers to pumps covered within ENER Lot 11.

[14] ENER lot 28 covers pumps for private and public wastewater and for fluids with high solids content.

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28 March 2014

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