

Energy Efficient Pumps 2020

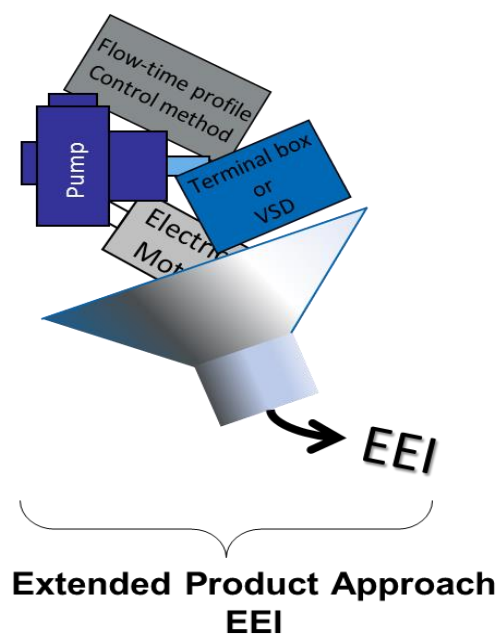
Implications of the Extended Product Approach

April 2016

Extended Product Approach: new regulation for pumps in 2019/2020

The EU is constantly raising the bar regarding energy efficiency for pumping systems. Up until now the regulation focused on the energy efficiency of individual components. In the Energy-related Products (ErP) Directive of 2009, minimum efficiency requirements have been set for electric motors and pumps. In the next implementation stage the approach for determining efficiency will include the extended pump product (including motors, with or without a variable speed drive). This approach is referred to as the **Extended Product Approach (EPA)**, which is expected to be used for all pump set-ups in EU-regulations by 2019/2020.

Massive energy reductions can be reached if the pump system is considered as a whole (pump + motor + control). For water pumps alone industry association Europump estimates an annual economy of 35 Terawatt, which represents potential savings of approximately **18 million tons of CO₂ emissions and 120 million euros per year**. EPA is expected to become the legal standard and replace energy ratings of individual components.

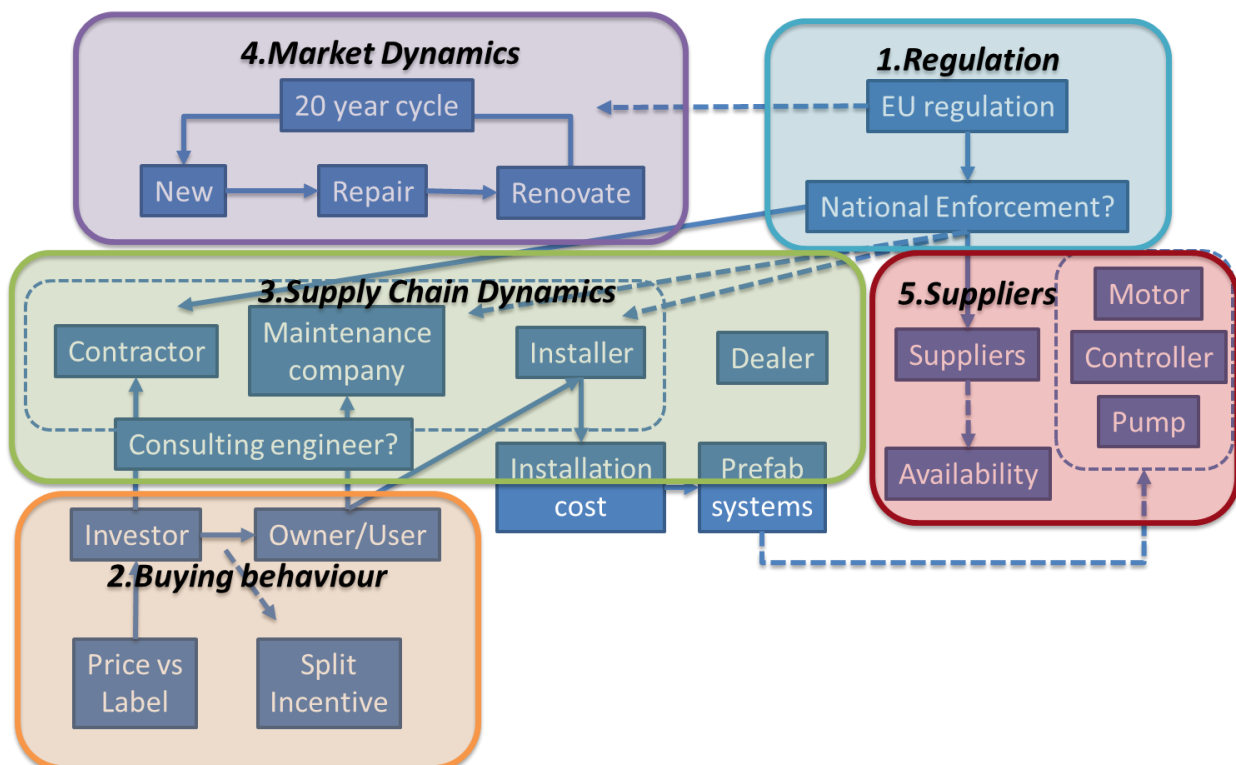


Focus: buildings

The EPA is not introduced in a vacuum; it coincides with several other industry developments. This study focuses on buildings since buildings are responsible for 40% of energy consumption and 36% of CO₂ emissions in the EU. Currently, about 35% of the EU's buildings are over 50 years old. The European **Energy Performance of Buildings Directive (EPBD)** requires member states to ensure that by the end of 2020, all new buildings are **nearly zero-energy buildings (NZEB)** and, by the end of 2018, new buildings occupied and owned by public authorities are NZEB.

Whether the regulation will actually lead to more energy efficiency in buildings depends on a number of contextual factors and the behaviour of parties who should comply to the new standard. De Ruijter Strategy has asked European pump manufacturers, wholesalers, building constructors, consulting engineers and installers about their view on the introduction of EPA:

1. How will regulations develop in the next five years?
2. What will determine the buying decision in the future?
3. What will the playing field look like in the future (parties, rules of the game)?
4. How do you see the future (2020 and beyond) of the usage of pumps and pumping systems in the built environment?
5. What kind of systems will dominate the supply side in the next 5 years with the advent of Extended Product Approach regulation in 2019?



1. Regulation

An important driver for regulation in politics as well as in society is the growing importance of lowering the carbon footprint. During the United Nations COP conference in December 2015,

countries from all over the world discussed the importance of CO₂ reduction and agreed upon new goals and measures. **Lobbying groups** and interest organisations such as the European Engineering Industries Association: **Orgalime**, the European Association of Pump Manufacturers: **Europump** and the European Environmental Citizens' Organisation for Standardisation: **Ecos**, are involved in this process. **Energy efficiency** in the building sector has been high on the political agenda via Energy Performance in Buildings Directive (EPBD) and the Energy Efficiency Directive (EED). Buildings in Europe are required to reach a 20% efficiency target in 2020, and national action plans have been made to reach this target. In relation to this, the Energy Related Products directive (ErP) for circulators was effected in all 28 EU countries in 2013. Each government gives its own priority to the directive and has its own **strategy for enforcement**.

2. Buying behaviour

The commercial building sector can be divided in existing and new buildings. For new buildings **consulting engineers** specify installations' requirements according to the latest standards. For repair and renovation of installations in existing buildings, buying behaviour depends on who decides on the purchase and which interest prevails: purchasing price, energy efficiency or easy installation. Most **building owners** focus on price only, except for the few owners interested in energy labelling and green certificates like BREEAM and LEED. Building users focus on energy efficiency and installers tend to buy products they are already familiar with and know how to install.

(Energy) Service companies (ESCo's) play a role of growing importance in this decision making process. They guarantee their customers a certain level of service in case of breakdown of an installation, see to it that components and spare parts are ordered, and that the pump gets fixed as quickly as possible. It is uncertain how service companies will affect the conversion to controlled pumps?

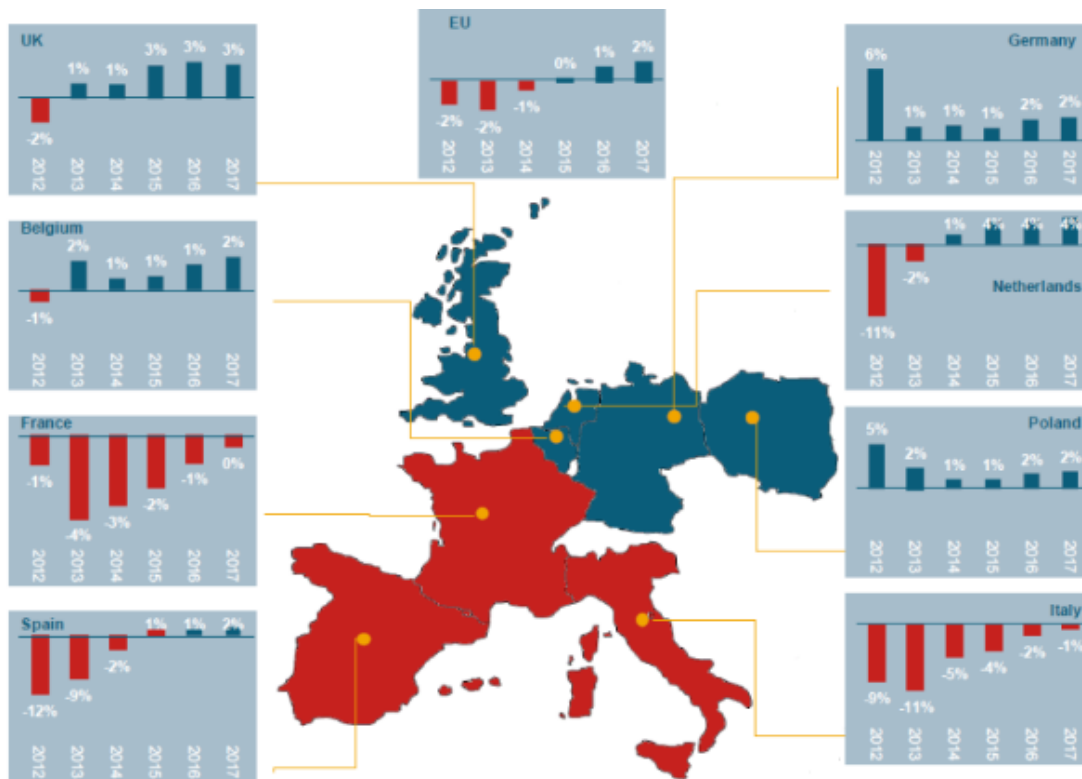
3. Supply chain dynamics

The pump industry is dynamic in that new players enter the market and existing players consolidate or take on new roles. The value chain is digitalising and is becoming leaner; parts of the chain are being integrated through **prefab solutions** and through **partnerships** between producers of complementary parts or services. Time will tell how fast the industry will change and how much time there will be to influence and adjust to the new game. Another question is: what partnerships – with other suppliers or service companies – are going to be important to focus on?

4. Market dynamics

The building industry is on the rebound from a 7-year recession in which new build and renovations have been postponed. Increasing building activities in combination with available innovations such as smart metering might lead to more demand for **smart, sustainable solutions**. As the EPA regulation more or less coincides with the recovery of the building industry, increasing conversion to controlled pumps (a substantial part of the market still uses non-controlled pumps) might be the result. However, recovery speed will be differ in each of the 28 countries, and fundamental market uncertainty will remain. Also unknown is how aware consulting engineers and installers are of the upcoming regulation?

Development building volumes in 8 European countries



Source: European Architectural Barometer, Arch-Vision

5. Consequences for suppliers

The market for pumps is an interesting and profitable market for manufacturers to enter. The upcoming EPA regulation may call for new partnerships to live up to the new demands. We foresee two possible consequences of the new regulation for suppliers:

- If products perform below the mandatory EEI, suppliers will either be locked out or looking for loopholes
- Suppliers will improve their products to comply, and competition will increase

The larger the number of (compliant) suppliers, the more challenging it will be for current premium brands to maintain their position as market leaders.

Prompt action is required

As stated before, the introduction of EPA in 2019 may seem far away, but for many parties involved, prompt action is required in order to be able to grasp opportunities and tackle possible risks in time:

- **Building owners and building users** should determine the right timing for their transition to the new EPA standard. Depending on the state of their current installation, they need to decide whether they want to start saving energy and money today, or wait for 2019.
- **Consulting engineers** need to develop their knowledge and competences to be able to incorporate the new EPA directives in their advice to constructors, installers and building owners.
- **Installers** will play a key role in the implementation of new legislation, as the checkpoint for being compliant is whether an extended pump product is actually **put into service**. Therefore installers need to update their skills and grasp this opportunity for upselling. If an old pump breaks down, they run the risk of being non-compliant if they just repair. They should advise the building owner that repair is not an option due to the upcoming regulation, and that replacement with an extended pump product offers many advantages.
- **Manufacturers of pumps, motors and controllers** need to adapt their products to the required standards of the new legislation, and might seek partnerships with each other.
- **Governments, both EU and national**, need to determine how they are going to enforce EPA regulation. They should be aware that this legislation offers an additional opportunity to reach their sustainability, energy efficiency and CO₂-emission reduction targets.
- **Industry Associations** need to inform their members about the upcoming legislation and its consequences, and might need to start lobbying for their members' interests.
- **Utility companies/ESCO's** need to carry out an impact assessment of the new legislation on their required capacity, and work on business models that bridge the split incentive between building owners and users.



Colofon

<i>Research</i>	Exploring possible implications of EPA legislation in building
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About De Ruijter Strategy (DRS)

De Ruijter Strategy is specialised in strategic studies about the future of energy in buildings. DRS works for a wide range of international, national and local governments, associations, contractors, engineering firms, technology companies, investors and utilities.