SCOoPE Saving Cooperative Energy

WEBINAR 8

8. Eficiencia Energética en Industrias Alimentarias y Energías Alternativas / Energy Efficiency in Food Industry and Renewable Energies

Co-funded by the Horizon 2020 programme of the European Union. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 695985

Energías renovables: una oportunidad en la industria alimentaria

Renewable energies: an opportunity in the food industry

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DIRECTIVE 2009/29/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 April 2009

amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Economic and Social Committee ([1]),

Having regard to the opinion of the Committee of the Regions ([2]),

Acting in accordance with the procedure laid down in Article 251 of the Treaty ([3]),

Whereas:

countries commit themselves to comparable emission reductions and economically more advanced developing countries contribute adequately according to their responsibilities and respective capabilities. By 2050, global greenhouse gas emissions should be reduced by at least 50 % below their 1990 levels. All sectors of the economy should contribute to achieving these emission reductions, including international maritime shipping and aviation. Aviation is contributing to these reductions through its inclusion in the Community scheme. In the event that no international agreement which includes international maritime emissions in its reduction targets through the International Maritime Organisation has been approved by the Member States or no such agreement through the UNFCCC has been approved by the Community by 31 December 2011, the Commission should make a proposal to include international maritime emissions according to harmonised modalities in the Community reduction commitment, with the aim of the proposed act entering into force by 2013. Such a proposal should minimise any negative impact on

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DECISIONES ADOPTADAS CONJUNTAMENTE POR EL PARLAMENTO EUROPEO Y EL CONSEJO

DECISIÓN nº 406/2009/CE DEL PARLAMENTO EUROPEO Y DEL CONSEJO

de 23 de abril de 2009

sobre el esfuerzo de los Estados miembros para reducir sus emisiones de gases de efecto invernadero a fin de cumplir los compromisos adquiridos por la Comunidad hasta 2020

EL PARLAMENTO EUROPEO Y EL CONSEJO DE LA UNIÓN EUROPEA,

Visto el Tratado constitutivo de la Comunidad Europea y, en particular, su artículo 175, apartado 1,

Vista la propuesta de la Comisión,

Visto el dictamen del Comité Económico y Social Europeo [1],

de aquí a 2050, una reducción de al menos un 50 % de las emisiones mundiales de gases de efecto invernadero en relación con los niveles de 1990. Las emisiones de gases de efecto invernadero de la Comunidad reguladas por la presente Decisión deben seguir disminuyendo después de 2020 como parte de los esfuerzos de la Comunidad para contribuir a este objetivo global de reducción de las emisiones. Los países desarrollados, incluidos los Estados miembros de la Unión Europea, deben seguir liderando esa iniciativa, comprometiéndose a alcanzar para 2020 una reducción colectiva del 30 % de sus emisiones de gases de efecto invernadero en relación con las cifras de 1990. Deben hacerlo asimismo con vistas a alcanzar para 2050

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Apartados energéticos: eléctrico y térmico
Energy aspects: electrical and thermal


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Energía térmica / Thermal energy
Gas o gasoil: entre 20 y 80 euros por MWh
Gas or diesel: between 20 and 80 euros per MWh

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Oportunidad: sustitución de calderas convencionales obsoletas por calderas de biomasa

Opportunity: replacement of obsolete conventional boilers with biomass boilers

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Biomasa: entre 5 y 15 euros por MWh
Biomass: between 5 and 15 euros per MWh

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Colectores solares térmicos
Solar thermal colectors

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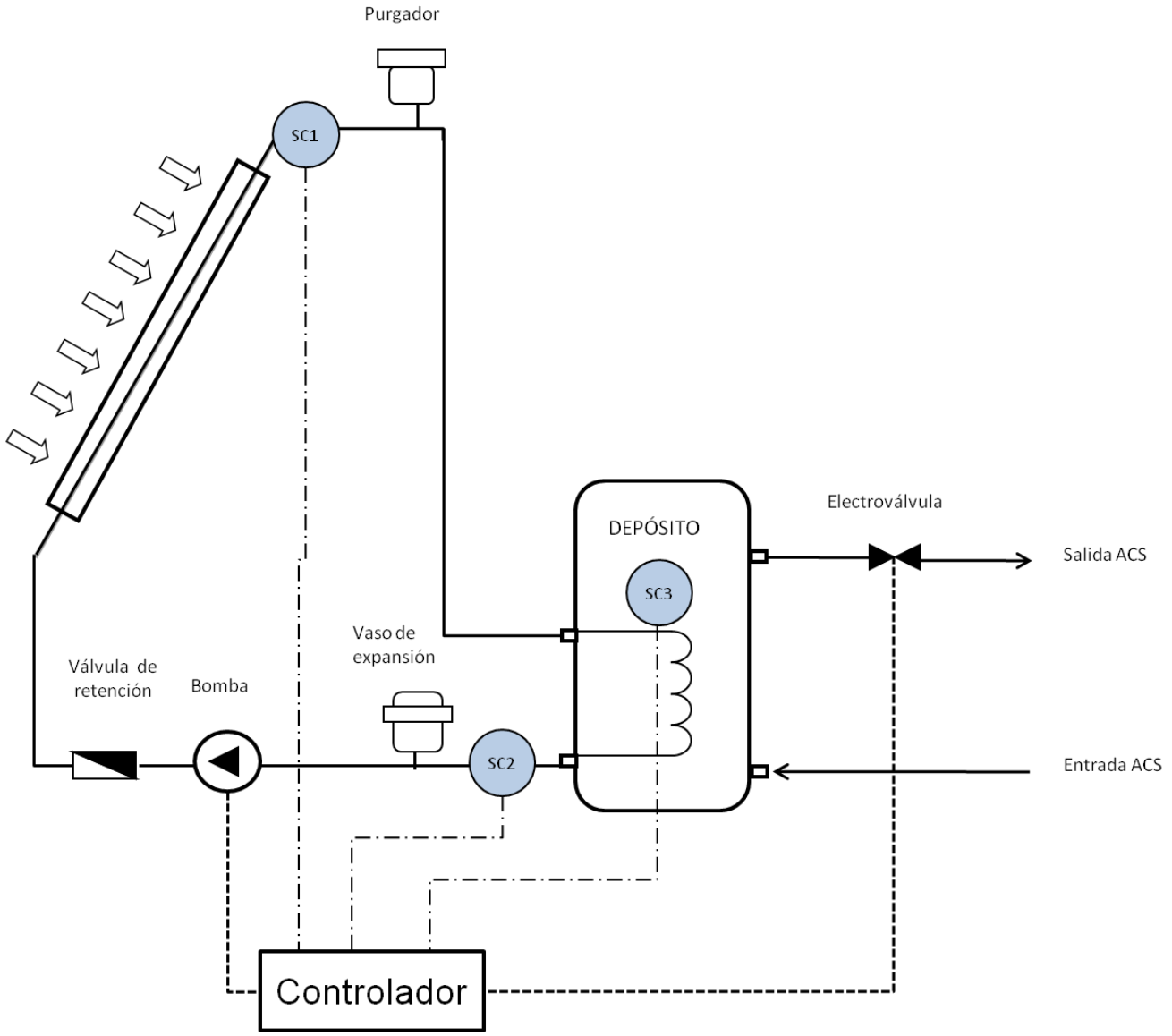

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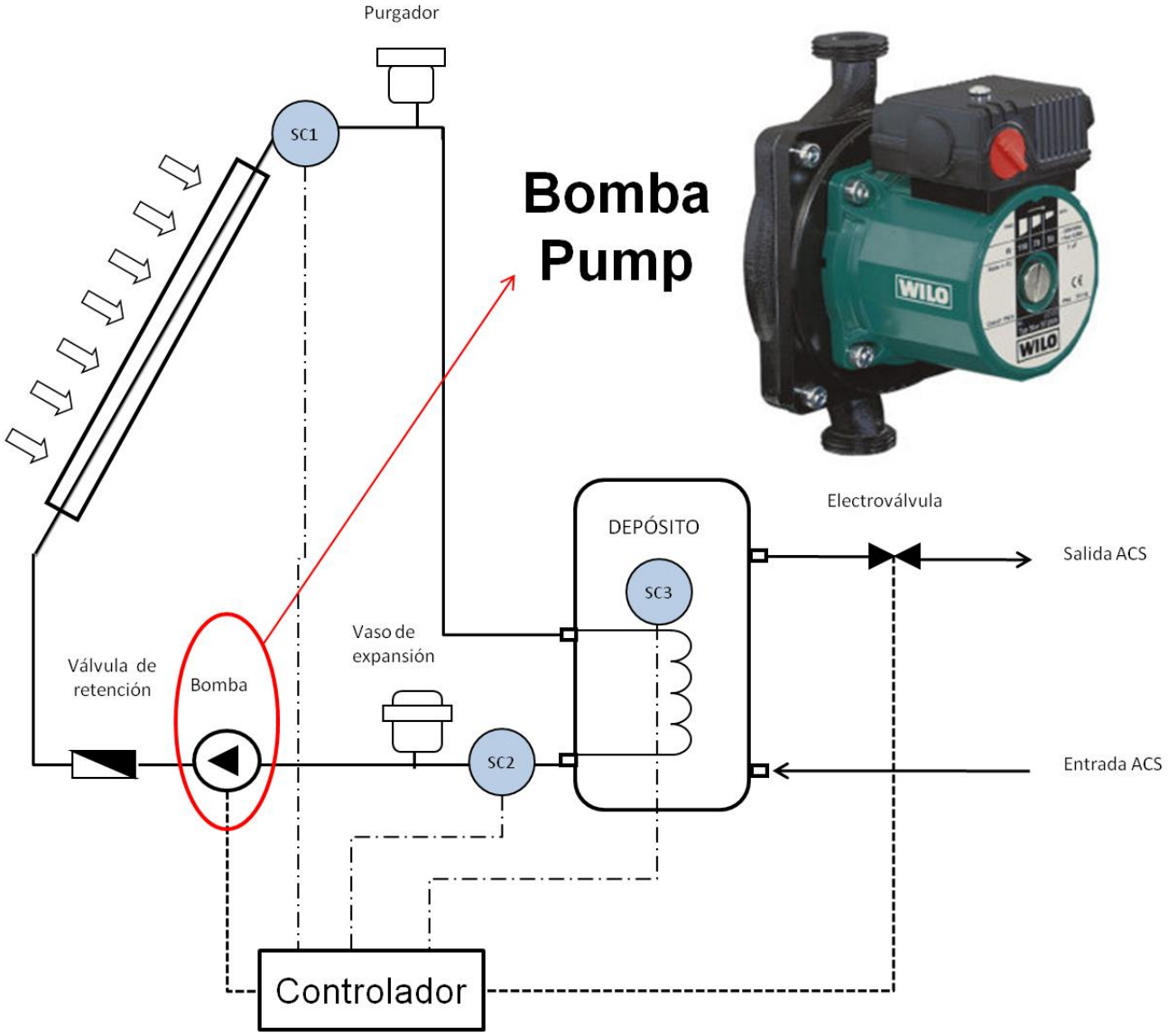

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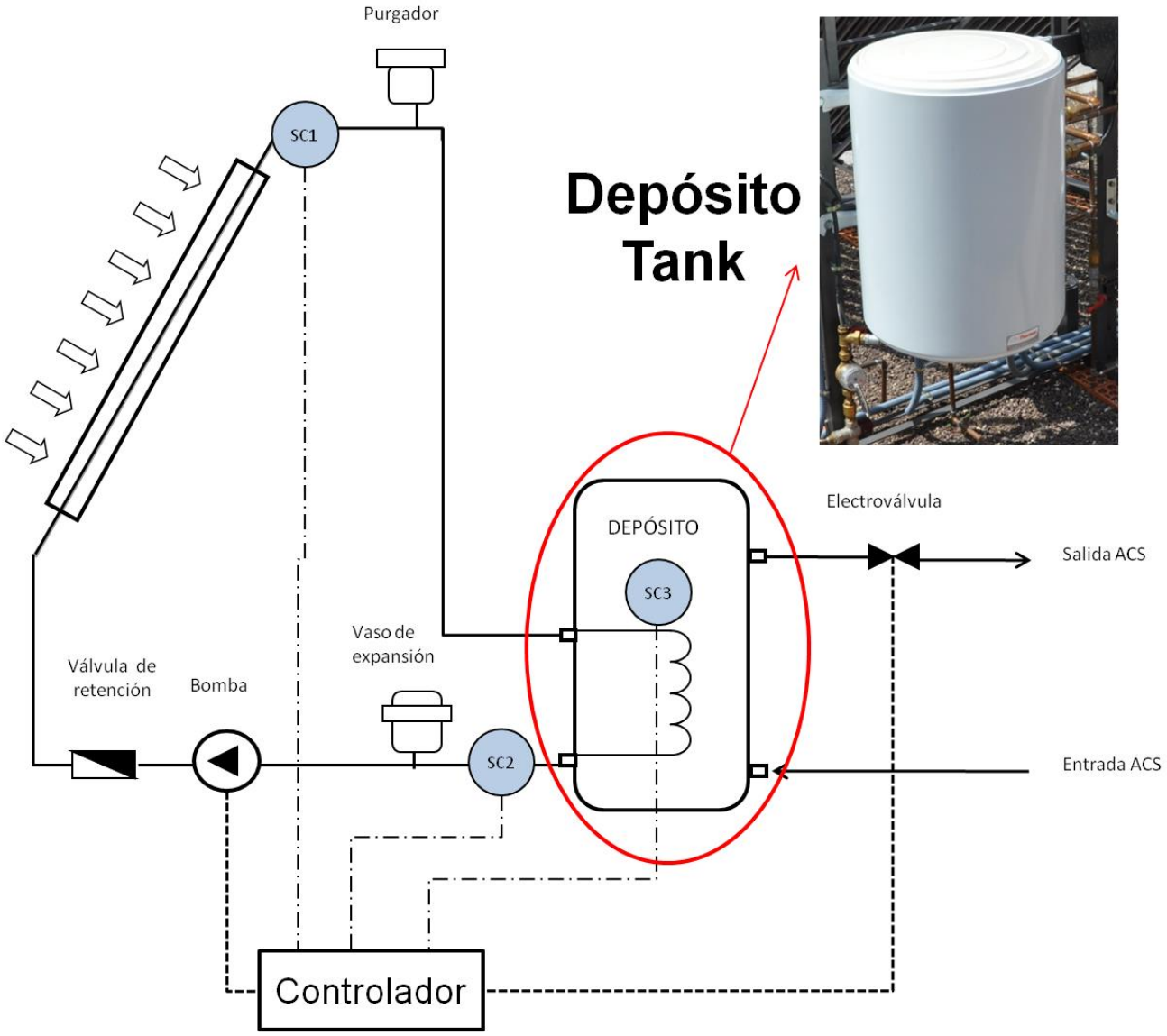

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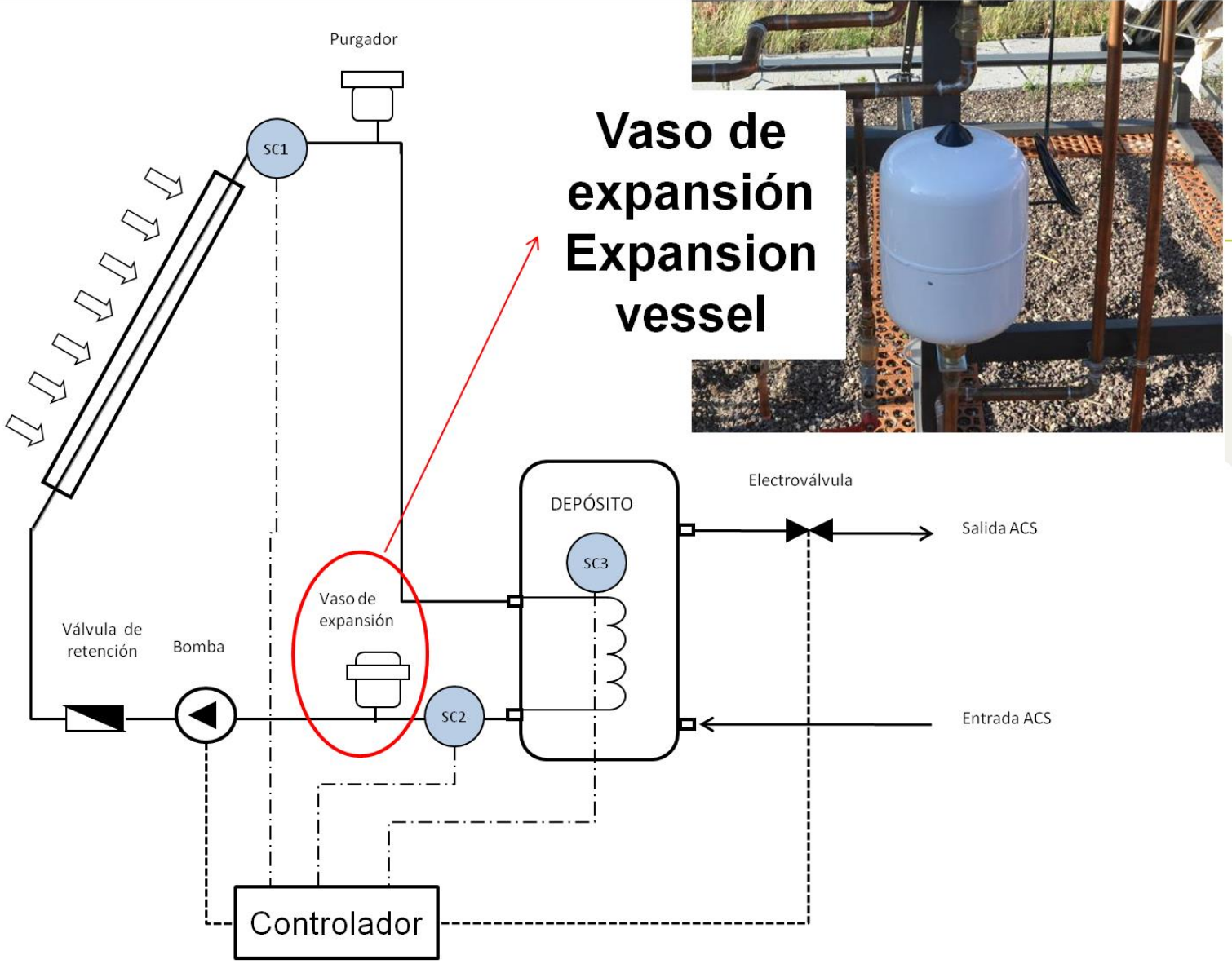

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Colectores solares planos: generan agua entre 30 y 70 ºC
Colectores solares de vacío: pueden generar agua a 90 ºC

Flat solar collectors: generate water between 30 and 70 ºC
Evacuated tube collectors: can generate water at 90 ºC

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Coste sistema solar térmico, completamente instalado: en el rango de 1.000 euros por m² de colector

Cost solar thermal system, fully installed: in the range of 1.000 euros per m² collector

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Suministro de energía variable en función del clima: valor medio en el rango del 40% de la radiación recibida

Variable energy supply depending on the climate: average value in the range of 40% of the radiation received

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Colectores fotovoltaicos
Photovoltaic collectors

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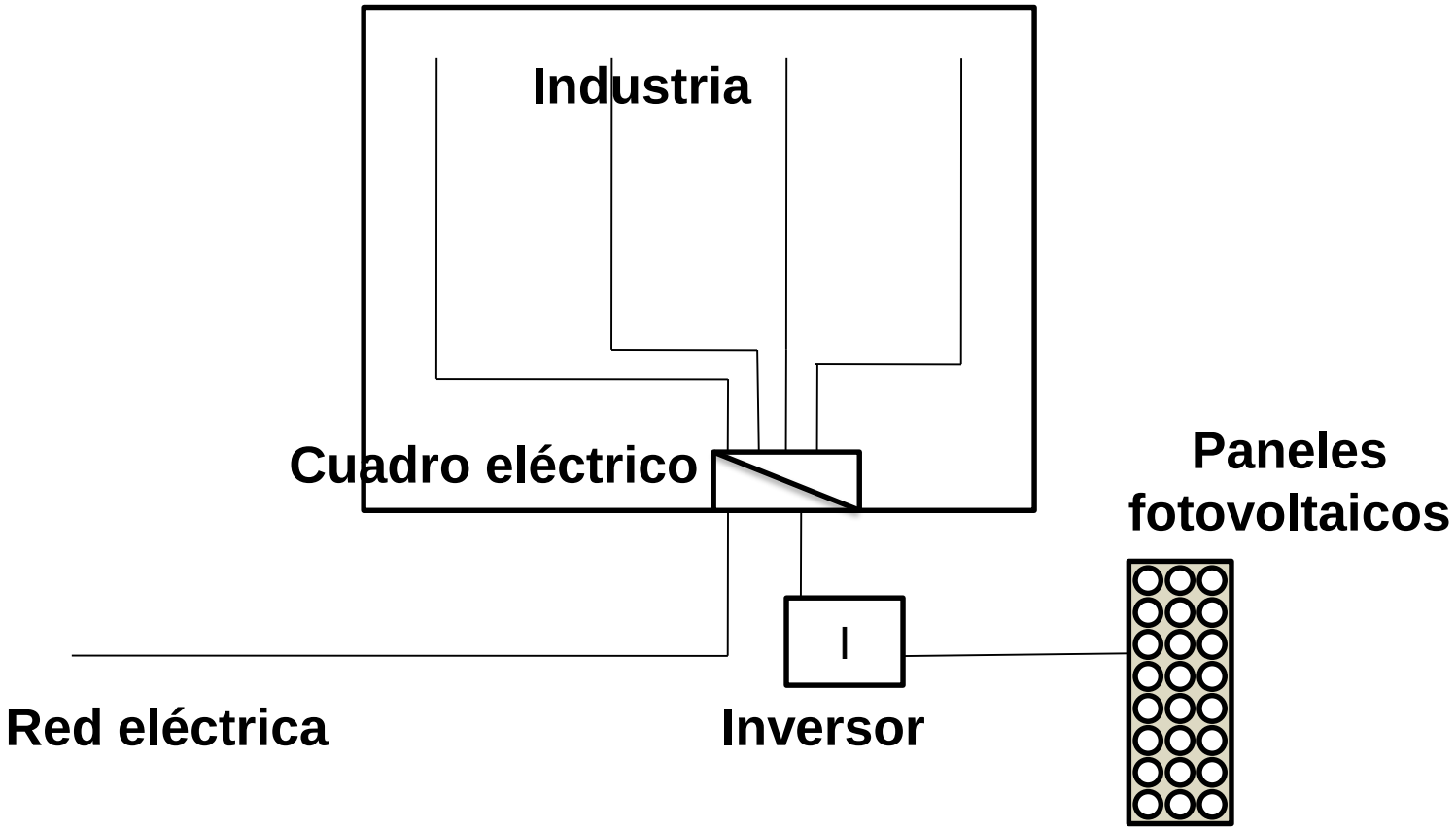
Esquema de instalación para autoconsumo



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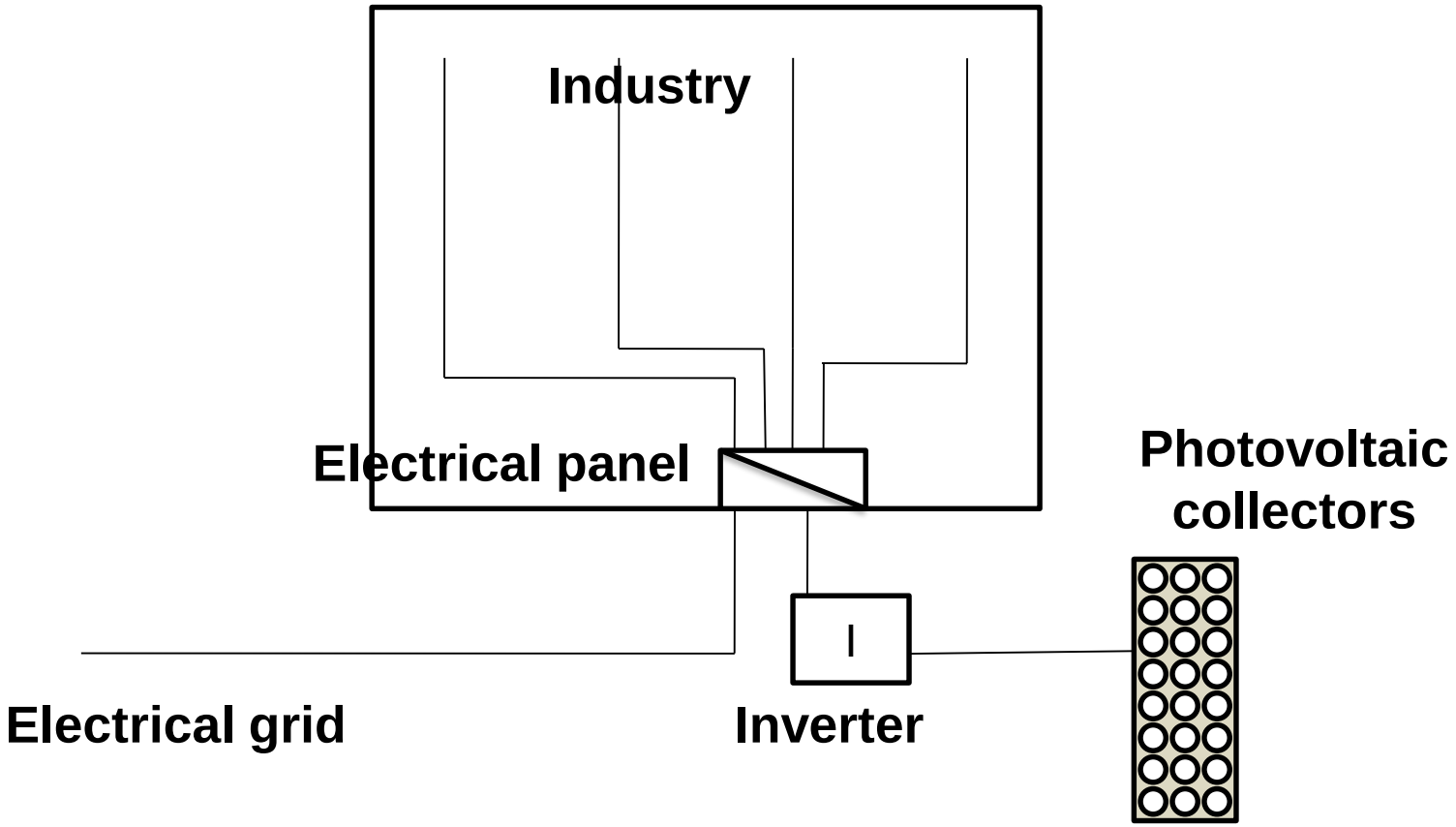
Grid-connected photovoltaic power system



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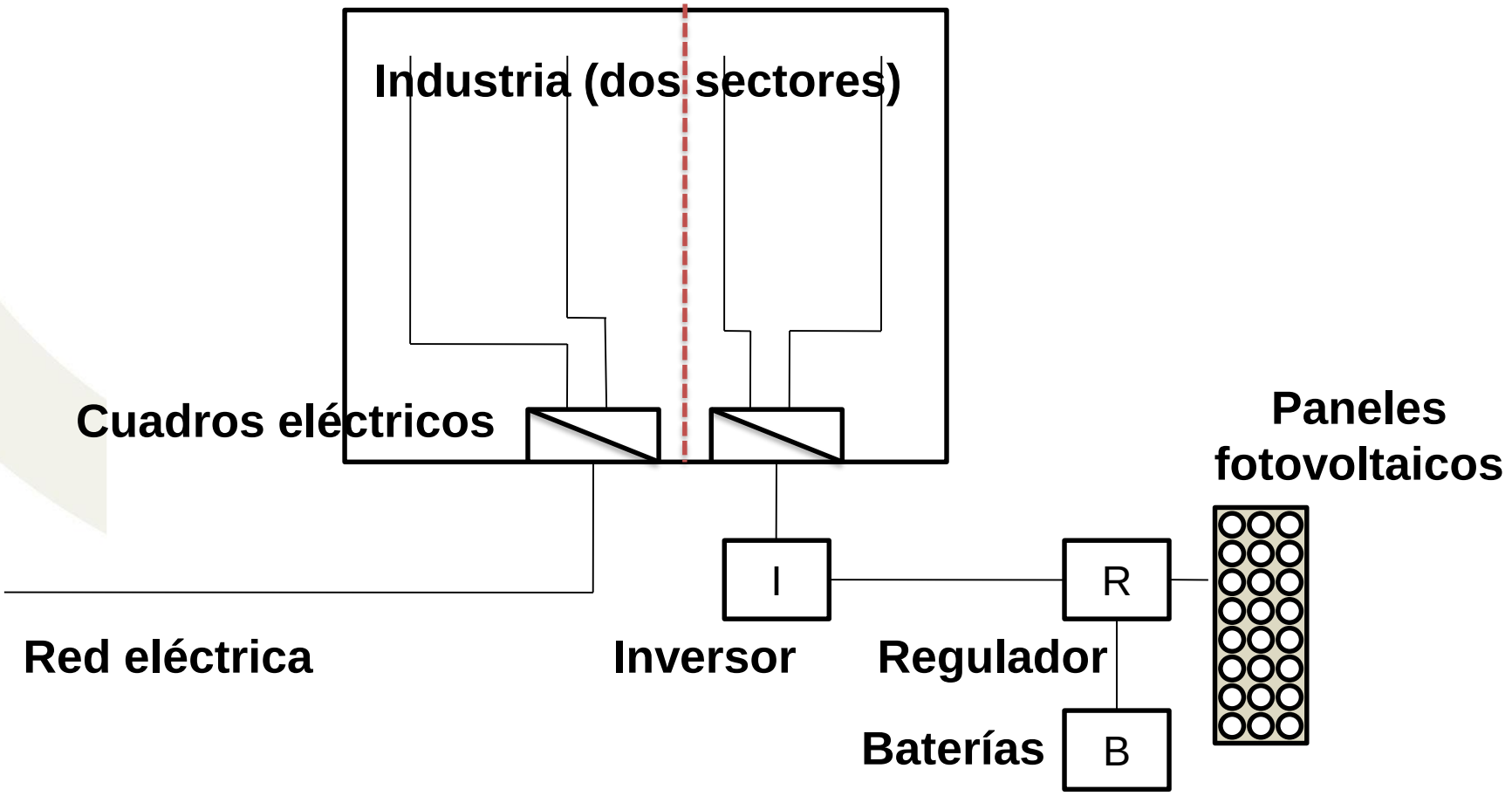
Esquema de instalación de un sector de la industria en isla (o aislado)



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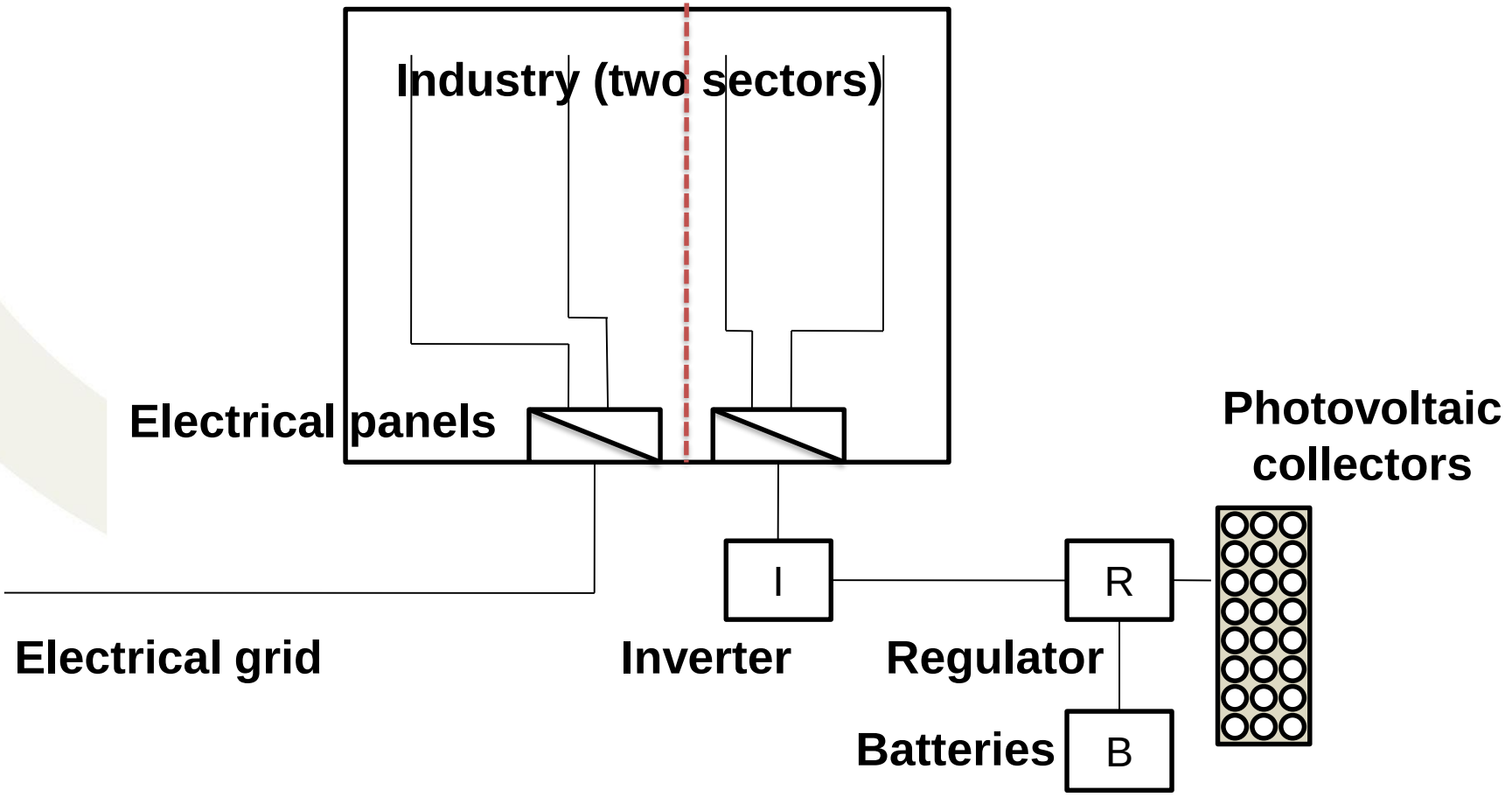
Stand-alone power system in an isolated sector of the industry



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El coste completamente instalado del sistema fotovoltaico (sin baterías) puede estar en torno a los 2 o 3 euros/vatio.

The price for a photovoltaic system fully installed (without batteries) goes around 2 or 3 euros/watt.

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Si el sistema requiere baterías para el almacenamiento de la energía, el coste sube hasta aproximadamente los 6 euros/vatio.

If the system requires batteries to store energy, the price raises to approximately 6 euros per watt.

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Suministro de energía eléctrica variable en función del clima: valor medio en el rango del 10% de la radiación recibida

Variable electrical supply depending on the climate: average value in the range of 10% of the radiation received

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Energía geotérmica
Geothermal energy

10-04-2018

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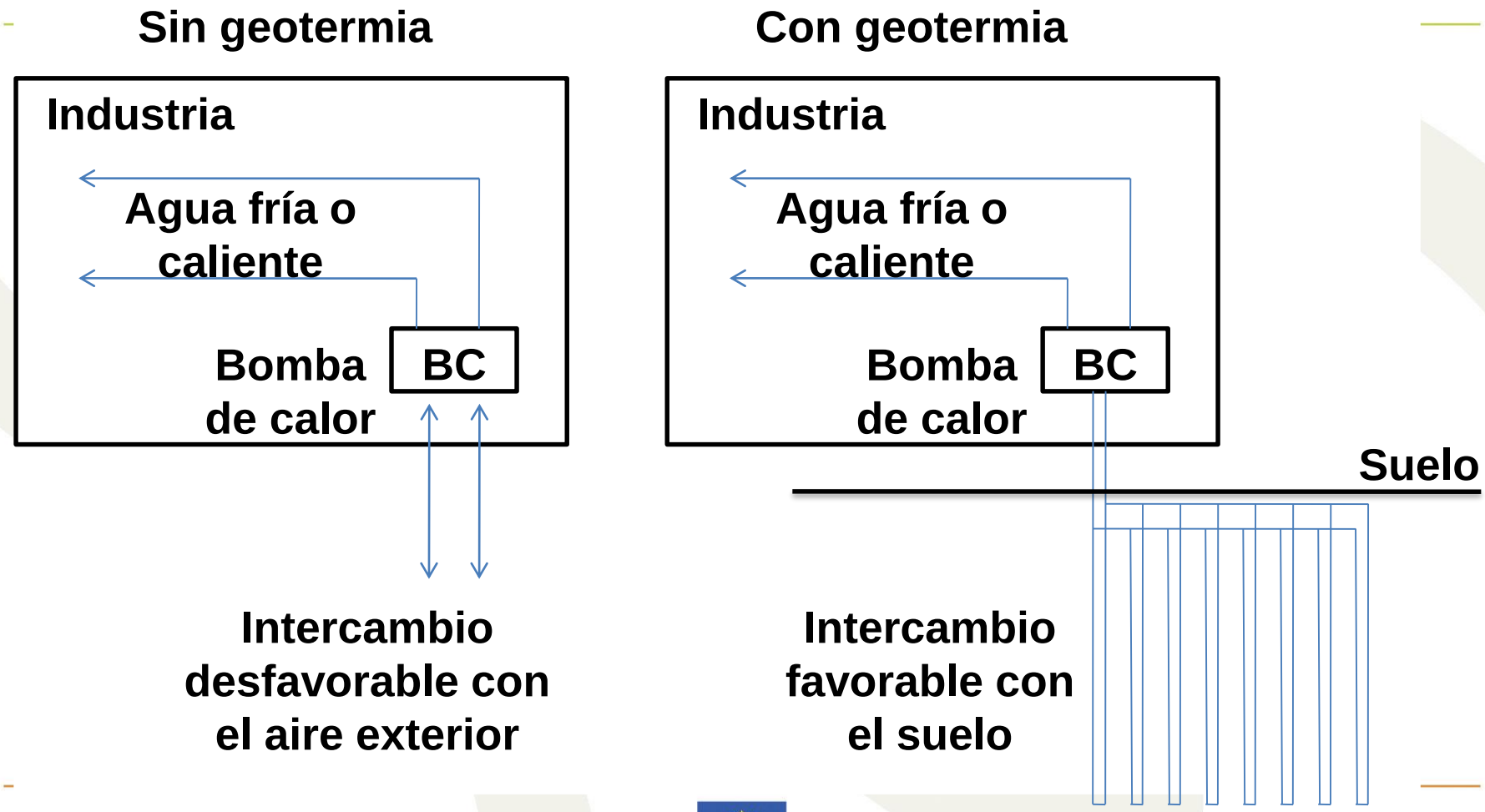
Energía geotérmica / Geothermal energy



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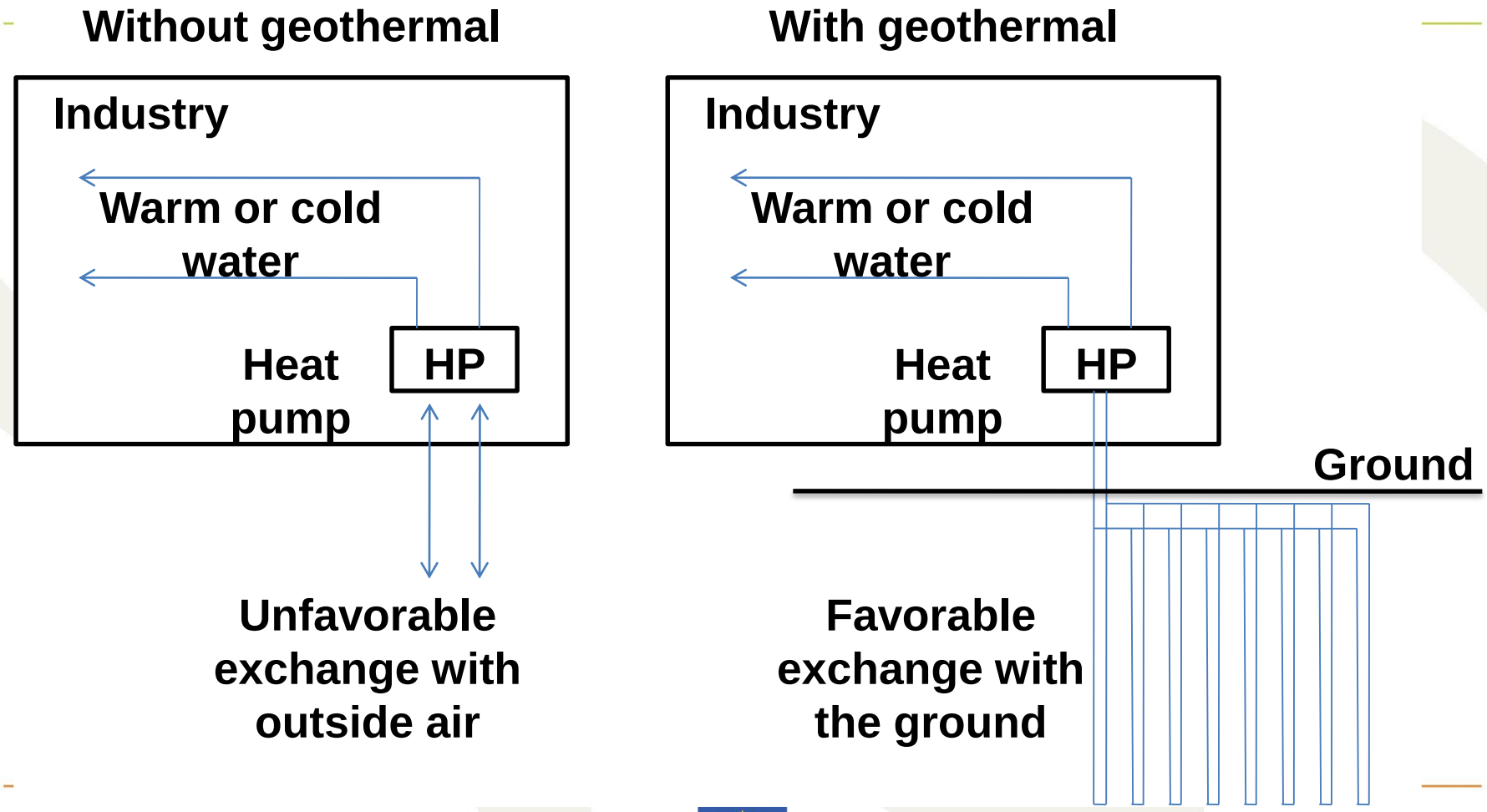
Energía geotérmica / Geothermal energy



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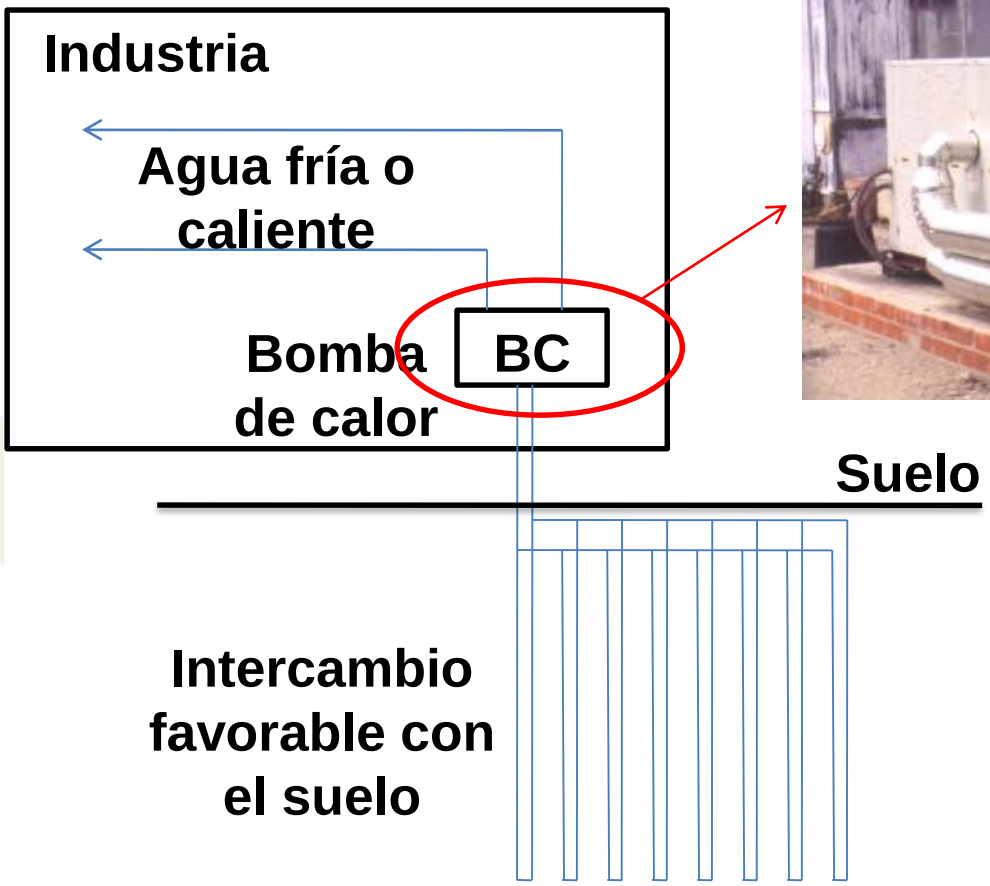

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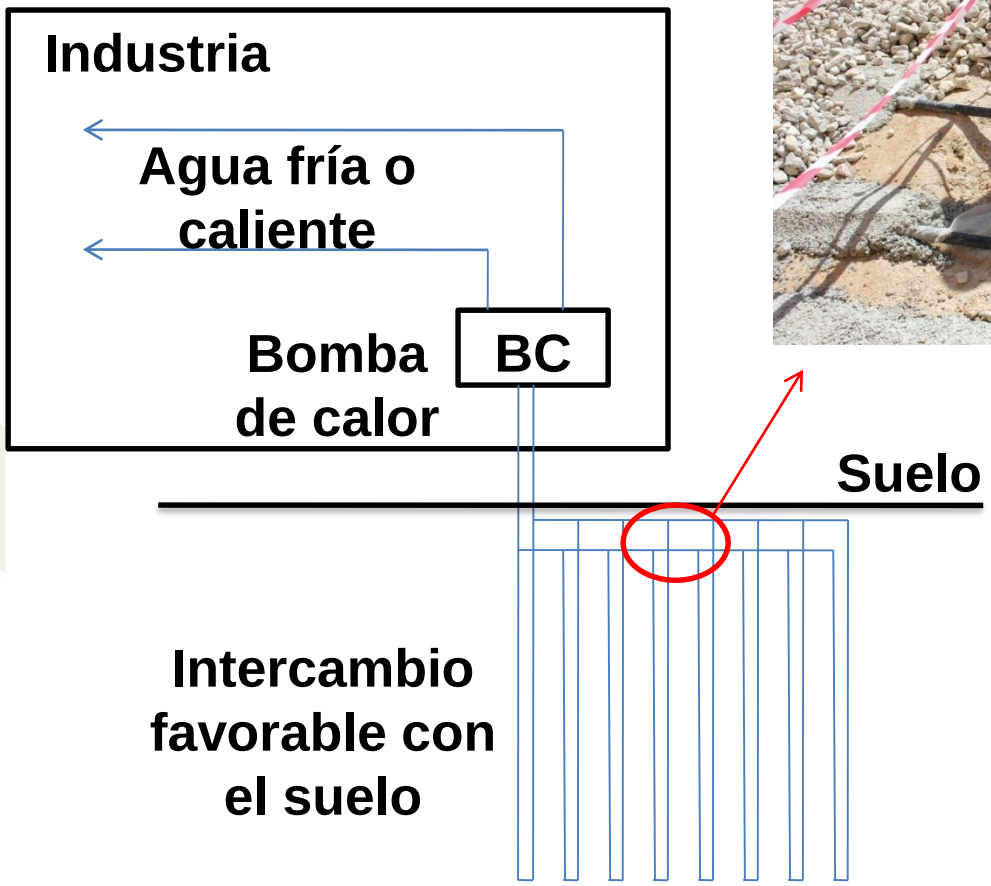

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El coste de las perforaciones de la geotermia está en torno a los 1000 euros por kW térmico. El coste de la bomba de calor es similar al equipo convencional.

The cost of the geothermal drilling is around 1000 euros per thermal kW. The cost of the heat pump is similar to the conventional device.

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La eficiencia se determina con el COP, que puede ser de 1,5 a 4 en una bomba de calor convencional, en condiciones reales, y pasar a ser de 5 a 6 con geotermia.

The efficiency is determined with the COP, which can be 1,5 to 4 in a conventional heat pump, under real conditions, and become 5 to 6 with geothermal.

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$$COP = \frac{\text{Energía térmica suministrada}}{\text{Energía eléctrica consumida}}$$

$$COP = \frac{\text{Thermal energy supplied}}{\text{Electrical energy consumed}}$$

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Alternativas:

1) Aerotermia
2) Biocombustibles
3) Minihidráulica

Alternatives:

1) Aerothermal energy
2) Biofuels
3) Mini-hydraulics

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Carretillas elevadoras de exterior con biocombustibles

Outdoor forklift drivers with biofuels

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PAYBACK

Criterio de valoración de inversiones

Habitual en energías alternativas

PAYBACK

Investment assessment criteria

Usual in alternative energies

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EJEMPLO

Inversiones: caldera convencional, 30.000 euros; caldera de biomasa, 36.000 euros; diferencia, 6.000 euros

Gastos anuales (energía, mantenimiento): caldera convencional, 5.000 euros/año; caldera de biomasa, 3.000 euros/año; diferencia, 2.000 euros/año

Payback: 6.000 / 2.000 = 3 años

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EXAMPLE

Investment: conventional boiler, 30.000 euros; biomass boiler, 36.000 euros; difference, 6.000 euros

Annual cost (energy, maintenance): conventional boiler, 5.000 euros/year; biomass boiler, 3.000 euros/year; difference, 2.000 euros/year

Payback: 6.000 / 2.000 = 3 years

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PAYBACK

*Interesante en biomasa
* En función de las condiciones en solar
* Interesante en geotermia, pero con fuertes inversiones

PAYBACK

* Interesting in biomass
* Depending on conditions in solar
* Interesting in geothermal, but with high investment

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Resumen de opciones

* Calderas de biomasa
* Solar térmica
* Fotovoltaica
* Geotermia

Summary: options

*Biomass boilers
* Solar thermal
* Photovoltaics
* Geothermal

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¡Gracias por vuestra atención!
Thank you for your attention!

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