

 	DESCRIPCIÓN BIBLIOGRÁFICA DEL TRABAJO FIN DE ESTUDIOS IKASKETEN AMAIERAKO LANARI BURUZKO BIBLIOGRAFIAREN DESKRIBAPENA	PC 934 ANX1
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Campos OBLIGATORIOS / NAHITAEZ bete beharreko eremuak	
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Título del TFG/TFM / GAL/MALaren izenburua: Alternative energy supply study for a cottage in Vifors	
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Inglés Ingelesa	Abstract (Resumen de 100-250 palabras)/ Abstract (Laburpena 100-250 hitzetan)
	<p>The present master thesis was done during the spring of 2018. A cottage located in Vifors is studied with regard to its heating requirements. At the time of the study, the house could not be inhabited the whole year because there was no tap hot water available and the space heating demand was covered by electricity. Thus, an alternative heating supply is required to be developed. As a strategic prerequisite, the solution should be achieved considering both solar thermal collectors and a heat pump.</p> <p>First, the characteristics of the building were collected/determined in order to obtain the total heating demand per month and hence annually. Parameters such as the U-values, roof orientation, room dimensions, ventilation rates and internal gains were required to configure the building model in the software IDA ICE 4.8. In addition, the amount of tap hot water required per year was determined as 17 m³ per year. Cold water at 5 °C had to be heated until 55 °C to obtain the tap hot water.</p> <p>Once the heating requirements were known, the most suitable solution was to use a combi system (solar thermal collectors and a heat pump). Solar energy could fulfil the demand in the summer and the heat pump provided energy in the winter. For a commercial model of the flat solar thermal collector (Vitosol 100-F) the solar system was sized according to the heating demand in the summer time. The maximum energy that could be obtained from the solar collectors in summer was calculated, the rest of the demand had to be fulfilled by a heat pump, model WPL-18 E.</p> <p>The achieved solution is compounded by the heat pump and 3 solar thermal collectors with a surface of 2.33 m² each. The solar energy obtained is 1 843 kWh per year, which covers 9 % of the total annual heating demand (20 098 kWh). However, the 98 % of the heating demand during the summertime comes from the solar collectors. The investment cost is 113 900 SEK and the payback period is estimated in 8 years.</p>
	Materias o Palabras Clave (máximo 5) / Gaiak edo hitz gakoak (gehienez 5)
	Building heating demand, IDA ICE, Solar thermal collectors, Heat pump, Combi systems

Campos OPTATIVOS / AUKERAKO eremuak
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Castellano Gaztelania	Abstract (Resumen de 100-250 palabras) / Abstract (Laburpena 100-250 hitzetan)
Euskera Euskara	Abstract (Resumen de 100-250 palabras) / / Abstract (Laburpena 100-250 hitzetan)
	Materias o Palabras Clave (máximo 5) / Gaiak edo hitz gakoak (gehienez 5)
Otro Idioma Beste hizk. bat	Abstract (Resumen de 100-250 palabras) / / Abstract (Laburpena 100-250 hitzetan)
	Materias o Palabras Clave (máximo 5) / Gaiak edo hitz gakoak (gehienez 5)