

## **Abstract**

This thesis focuses on the question whether it is economically viable to operate a system for household electricity production and if so, what are the necessary conditions to do so. In the text of this thesis a brief summary of environmental protection and sustainable development is presented, followed by the description and current state of technologies needed to construct systems for electricity production in the scale of family houses with focus on photovoltaic systems, and a description of the current legislation and administrative barriers related to this subject. Economic view (costs and return of investment) is examined in relation to multiple conditions, focus of this examination being on the geographical conditions, legislation and administrative conditions, state subsidies, electricity production and consumption profiles in the household and electricity price development scenarios. Technologies for household electricity production are therefore put into the context relevant to the citizens of the Czech Republic. The results of this work show, that the systems for photovoltaic electricity production in family houses in the conditions of the Czech Republic are economically viable with the premise that the surpluses of electricity produced are effectively consumed, for example for water heating; selling them to the power grid is not profitable. Batteries for electricity accumulation are still relatively expensive and the payback period of the photovoltaic systems where the batteries are used is much longer than in those without them.

### **Key words**

sustainable development, renewable energy sources, photovoltaic, energy accumulation, demand side management, payback period