Development of a sample rooftop solar project

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Today’s Topics

I. Why Solar?

II. Our Business

III. Main Phases of PV projects

IV. Aspects of Ideal Site and Size Selection

V. Financial Considerations

VI. Overview of the Installation Works

VII. Current Strategic Moves due to Customer Preferences
Photovoltaic solar electricity potential in European countries

Irradiation and solar electricity potential in Turkey

http://re.jrc.ec.europa.eu/pvgis/cmaps/eu_cmsaf_hor/G_hor_TR.png
Irradiation and solar electricity potential in Hungary
enHome was born within RWE HU, due to visionary thinking and first mover strategy

**Goal: viable business boosting environmentally conscious energy generation and consumption**

- International trends, changing European energy scene, RWE (now: Innogy) experience and lessons learnt from late mover strategy → belief in Hungarian business potential
- New business unit set up to fit the profile of the new business, while being backed by the well-known stable company → enHome, as an endorsed brand of RWE HU
- National market entry in September, 2014 → continuous improvement and growth ever since
Complex energy modernization solutions of enHome

<table>
<thead>
<tr>
<th>What we offer</th>
<th>How we offer it</th>
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<tr>
<td>Energy consulting</td>
<td>With 120+ year experience in the energy industry</td>
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<td>Financing and complex tendering solutions</td>
<td>With dynamic, innovative solutions</td>
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<td>Tailor-made proposals, turnkey implementations</td>
<td>With customer-focused services</td>
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<td>Energy efficiency and renewable-based projects</td>
<td>With continuous product development &amp; standardization</td>
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<td>Energy management and additional services</td>
<td>With trusted partners, in exceptional quality</td>
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<td>With experienced engineers and business professionals</td>
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<td>With countrywide coverage</td>
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<td>With economical, competitive prices</td>
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Rapidly increasing and constantly improving PV achievements

Accumulated PV experience nationwide

B2C PV experience

- About 500 B2C customers
- Turnkey, efficient installation
- Standardized products 1-10 kW
- Tailor-made solutions for different needs
- Optimized procurement, quality control
Quick and easy turnkey PV realizations

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<th>Turnkey PV process</th>
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<td>1. Online offer request, relevant input data</td>
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<td>2. Preliminary price calculation and sales consultation</td>
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<td>3. Site visit and quick contracting with the help of data form</td>
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<td>4. Licensing, the time of which depends on the regional service provider</td>
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<td>5. Installation typically within a day, putting into operation after that</td>
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It is essential to select the optimal PV system for the house professionally

Deciding factors for choosing the right system

1. In Hungary today it is most beneficial economically to match the size of the PV system to the future electricity consumption of the household (cover approx. 90-95% of it)

2. The orientation of the roof, the available surface area on the roof, as well as its tilt angle are also amongst the important factors in the designing phase

3. When comparing different offers, it is also worth paying attention to the system size, its detailed technical content, the suppliers, warranties and the overall complexity of the offer
PV is a mature technology that can be utilized on most houses

- Due to the grid connection and net-metering system, electricity supply is constant
- Installation is always weather-dependent, but can be done in most of the year (in Hungary)
- Approx. 15 kg/m² is the average weight, which is not a problem in case of roofs in normal condition
- Panels withstand the Hungarian weather conditions, but it is worth taking a look at the home insurance
- Installation can be done on mostly all of the Hungarian roof types, construction license is not required
PV is an economically sound, long-term investment

Return on investment depends on a couple of factors, including:

- Predictable and stable electricity prices, regulatory and support environment
- Investment cost of the technology, its lifetime and the warranties

Current cost of PV investment:

- Average family house from about 4800 EUR
- Investment largely raises the property’s value

Net-metering is a favorable condition:

- The exact amount of input/output electricity is measured accurately by the installed net-meter
- Settlement is at the end of the cycle (annual periods)
Potential pitfalls and connections

Our experiences so far

Pitfalls

- Poor quality roof
- Weak internal electrical network
- Strict DSO requirements may lead to need for standardization or modification of meter point
- Sales representative may make mistakes with assessments (happened rarely in the beginnings, happens less and less)

Connections

Net-metering in Hungary

- Connection to the heating system is very rare
- Usually in case of oversized PV system customers ask at the end of the year how to use it, then an electric heating patron into the boiler is suggested
- Demand can be for 100% independent house with heat-pumps
We find the fitting solutions for all property types

Standard (1-10 kW) B2C PV systems on sloped roof and flat roof, as well as ground mounted solutions

Installation video: https://www.youtube.com/watch?v=V4clyoThWP4
Although we primarily target household customers, we also cater for larger, B2B PV needs.
Introducing enHome’s Premium Line this fall

NAPENERGIA A JÖVŐBŐL
KOMPROMISSZUMOK NÉLKÜL
Current elements of our premium product portfolio (planned to be extended in the future)
Additional innovations, featuring e-carport

Innovative enHome product ideas: green, multi-functional mobile charging device & smart, solar parking
Looking for partners (subcontractors and sales personnel) with the help of our new online tool partner.enhome.hu
Thank you for your attention!
You may contact me on adam.szorenyi@enhome.hu.