ENERGY ATLAS

SUMMARY ON HUNGARY

Introduction and chapter on the Hungarian energy transition 2018

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INTRODUCTION

By publishing the Hungarian version of the Energy Atlas, our goal is similar to the one of the original publication: to promote an open and fact-based dialogue with Hungarian decision-makers and affected residents on the Hungarian energy transition, and its implementation. The fundamental principle of the energy transition is to transform an import- and fossil-dependent, highly centralized energy mix into a low carbon, energy efficient and renewable-based one that makes the energy system more decentralized and safer.

Economic, social and environmental interests just further urge the domestic energy transition. In the current fossil and nuclear-based Hungarian energy system, according to a recent national research 380-800 thousand Hungarian households live in energy poverty, meaning it is a hard burden for them to keep their homes warm In the meanwhile, almost 15 thousand Hungarians die of air pollution, mostly as a consequence of fossil fuel burning. Furthermore, health and socio-economic effects of the climate change particularly strike the Carpathian Basin. The UN Climate Report, published in October 2018 also made it clear: we have a dozen years left to accelerate energy transition and to prevent catastrophic climate change.

The Hungarian Energy Atlas has a good timing: as between 2018-2019 Hungary and other EU countries are obliged to transform their climate and energy policies: they have to be harmonized with the main EU legislation targeting 2030, namely the EU Clean Energy Package and with the Paris Agreement. Consequently, the Ministry of Innovation and Technology has started reviewing the outdated national energy strategy and compiling the draft National Energy and Climate Plan (NECP) in 2018.

The latter can be also strengthened by the 2019 review of the recently adopted National Climate Strategy (NES-2). Similarly, energy efficiency and renewable energy regulations have to be adjusted to the EU package and 2030-2050 targets have to be revised.

The international and EU frameworks provide opportunity to Hungary for redesigning. Plans and their implementation will mutually assist each other and the energy transition if Hungarian expert stakeholder groups are regularly involved in the process, and if substantive public debates are also generated on the national energy system.

We contribute to promoting the energy transition and its public debate also beyond publishing this Atlas, cooperating with numerous national expert organizations. To reach the needed change, we need to continue with our public awareness raising on climate protection and energy saving households, with energy consultancy, info days and pilot programs.

In the debate, it is an important question whether the Hungarian energy system can be gradually transformed into an energy efficient and renewable energy-based one, and how. According to energy system models prepared by Hungarian expert think-tanks in the last decades, the answer is yes. The newest model prepared by the Energiaklub shows that up to half of the total domestic energy use, and 80% of the produced electricity can be provided from renewable energies by 2050, and these energy needs can be met without nuclear plants. Furthermore, it would bring 70% reduction in greenhouse gas emissions compared to the 2010 level, demonstrating to be a great and cost-effective step towards a low-carbon economy and climate protection.

Professional analysis and scenarios have long been available.

The cheapest energy is the one that has not been used. The "Energy Efficiency First" Principle is already intertwined with energy transition and EU policies, but the member states including Hungary are far from exploiting their opportunities in this field. The chapter on Energy efficiency and the subsequent chapters mention useful efficiency-boosting measures and tools (support schemes and sector coupling). The primary energy use of Hungary has to be decreased and stabilized as energy objectives can be achieved only if a predictable energy path is guaranteed.

In the domestic climate and energy policies there are promising signs: the planned total solar energy capacity of 2000 MW (by 2020) and of 3000 MW (by cca. 2022) considered to be realistic by the government, proves that the time has expired for the national energy strategy that treat renewable energies as secondary in the energy mix. To achieve the objective that solar energy fulfills its potential in the national energy mix, it would be essential to re-launch the renewable support system (METÁR-KÁT), to increase the available funds, to support renewables thoroughly and to "rehabilitate" wind energy.

Community energy can also contribute to the boom of solar energy use and can give new impetus to the domestic energy transformation, mainly in the form of municipal or other community solar power plants. Based on the requirements of the EU Clean Energy Package, local prosumers and renewable energy communities need to get their rights and access to the network. There are good examples for it in the Citizens, in the Cities, in the Spanish and German chapter.

Regions with a mining and heavy industry past, like Borsod have major industrial crisis areas where transition and structural changes have not been completed yet. The local population has paid and still pays the price today: aging and depopulating villages, high energy poverty and air pollution mostly due to poor quality heating, increasingly using local lignite or household waste. Comprehensive programs and grants presented in the chapter on Energy Efficiency and Energy Poverty can also contribute to the economic and social redevelopment of such and similar areas and reduce energy poverty. Moreover, as seen in the Citizens chapter, renewable community energy can reduce energy poverty by increasing household incomes and by cheaper energy supplies.

We firmly believe that the above questions, issues generate constructive discussions via the Hungarian edition of the Energy Atlas. The reader may see the potential of the Hungarian energy transition and can understand how to play an active part in it. For more information on our joint NGO work on energy transformation, please visit www.mtvsz.hu/energiafordulat.

Alexa Botár
NSC-FoE Hungary

HUNGARY

OUTDATED ENERGY MIX, BUT THE SUN MAY SHINE THROUGH

Due to the outdated national energy strategy, an increase in primary energy consumption, centralized energy mix with overwhelming role of nuclear energy and coal, but under-utilizing energy efficiency and renewables. The Hungarian energy transition could be ignited by solar energy use if allowed.

45 % of the total primary energy supply is provided by domestic energy production (if uranium imported from Russia and used in Paks nuclear power plant is also included), the rest mostly in the form of natural gas and oil comes from an increasing import, mainly from Russia.

60% of oil is used in transportation, while natural gas is mainly consumed by households (heating, hot water) and by commercial sectors. Coal use has been reduced by 43% and coal production by 48% since 2000, which covers now two-thirds of the national coal demand. Domestic gas and oil production have been decreased by 45-49% since 2000, despite favourable concessions and tenders. However moderate support policies are, renewable energy capacities are on the rise. The fall in domestic energy production was faster than the one in energy demand.

Primary energy consumption - similarly to greenhouse gas emissions - has started to increase in 2015, although it has been steadily declining since 1987; in 2015 it was 25 Mtoe (million tons of oil equivalent). This was mainly due to the increasing energy use in industry and transport. In the Hungarian economy to produce per unit GDP, 86% more gross energy was needed in 2015 than the EU-28 average. Primer energy intensity decreased between 2005 and 2015, but in a slower pace than the EU average. Even today, the residential sector is the largest end-user (33%), even its consumption was falling by 10% between 2010 and 2015.

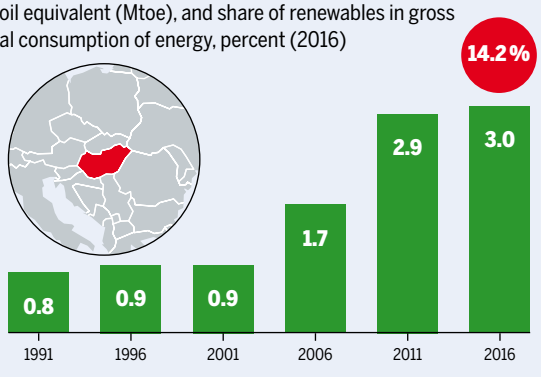
35-40% of Hungary's total primary energy consumption goes to household heating, hot water and power consumption; of which 40% could be saved (see Negajoule 2020 study). Based on its EU commitments, Hungary is obliged to reach about the same amount (4 Mtoe) in the final cumulative energy savings by 2020, but relevant policy measures have so far underperformed mid-term targets by 20%. In fact, from the non-refundable EU funds (2014-2020, Environment and Energy Operational Program), public buildings are renovated, which leads to considerably less savings than with the energy modernization of residential buildings. What is left for the public is the household appliance modernizing subsidy program (Warm Homes program), usually depleted in a few days, and there is a 0% interest rate Households Energy Savings Loan Program running from the spring of 2017. Due to the price cuts to reduce household energy bills and the steep rise in the construction prices the break-even point of the efficiency investments has been prolonged (with complex renovations it could be more than 20 years) and it is hardly accessible for the 10-21% of Hungarians living in energy poverty.

Since 2013 the government has regularly reduced energy prices (for residents' natural gas, electricity and district heating), but since this measure is campaign-like and is not socially targeted – consumers who use more energy get a bigger price reduction –, it rather aggravates energy poverty. The international energy agencies (OECD, IEA) and the EU both propose to phase these energy price cuts out, or to replace them with better means. Energy poverty is a serious national problem that contributes significantly to air pollution due to the individual firing of low-grade fuels (e.g. lignite, household waste).

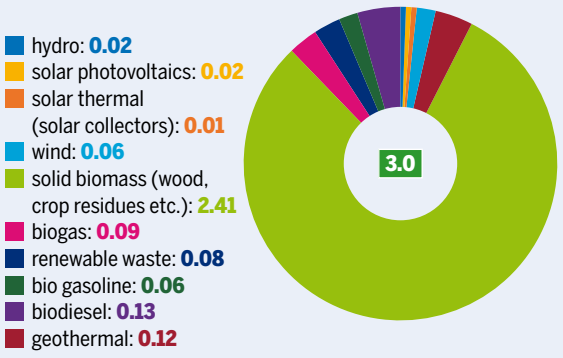
The increasingly intensive centralization and nationalization of the energy sector does not necessarily increase energy security. There is a significant oil, gas and nuclear power dependence on Russia that would be further increased by the implementation of Paks II planned to be done from Russian loan and technology. Hungary is a major gas and electricity transit country. The government strives to diversify supply routes - oil pipelines from Iraq, new gas pipeline plans, gas storage facilities, LNG terminals – however, these currently cannot be economical without EU or other foreign

HUNGARY - CONSERVATIVELY MOVING

Gross domestic renewable energy consumption, million tonnes of oil equivalent (Mtoe), and share of renewables in gross final consumption of energy, percent (2016)

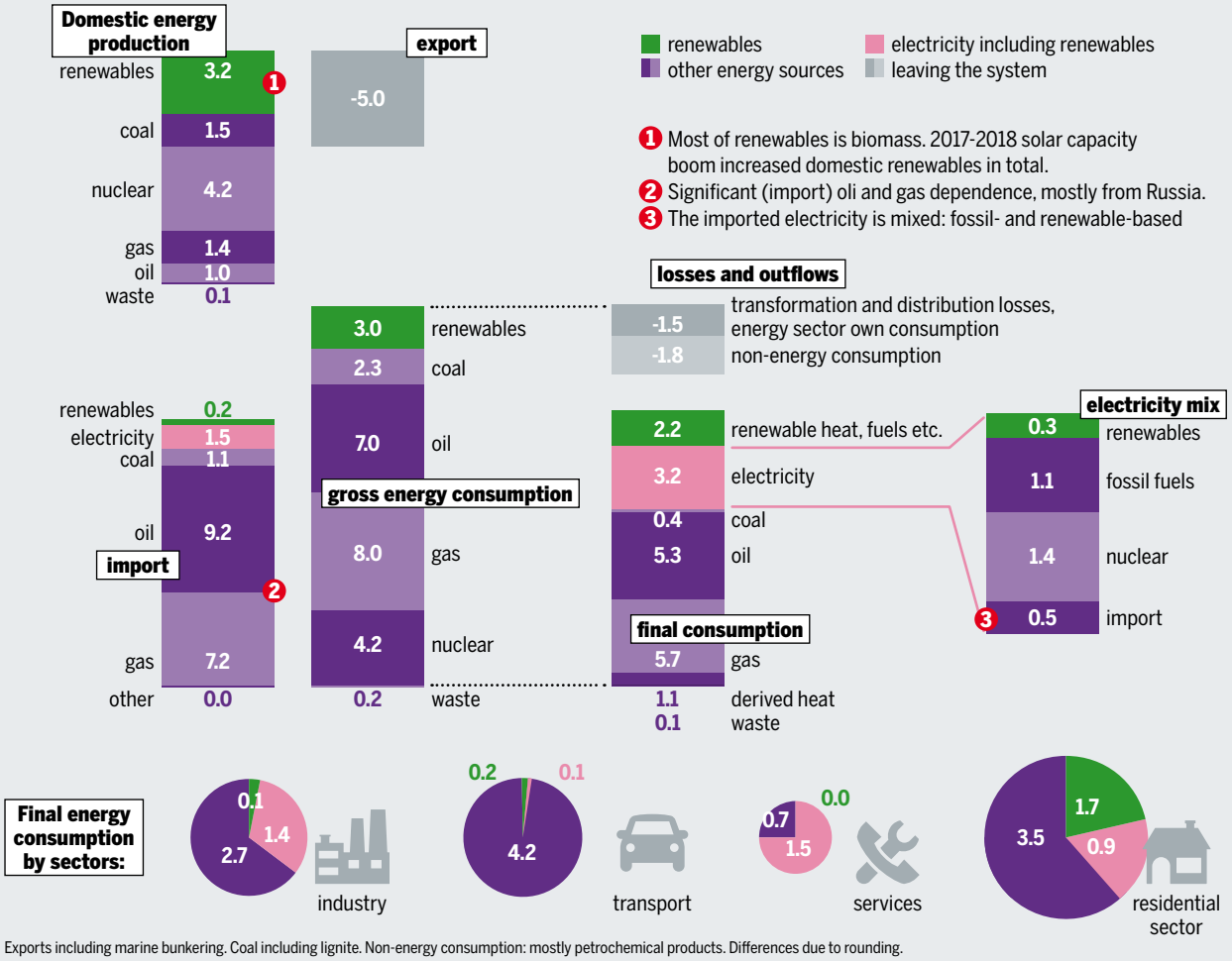


Renewable energy consumption by source, 2016, million tonnes of oil equivalent (Mtoe)



ENERGY FLOWS IN HUNGARY

Total and share of renewable energy from production to consumption, 2016, million tonnes of oil equivalent, simplified representation



Exports including marine bunkering. Coal including lignite. Non-energy consumption: mostly petrochemical products. Differences due to rounding.

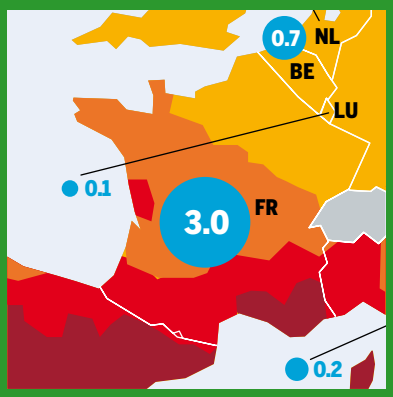
country support, moreover they rather strengthen fossil dependence on the geopolitically unstable regions. There is more progress in the field of power interconnectors, but smart grid development is still in its infancy. There are good power market connections with neighbouring countries, the HUPX electricity market exchange operates, and state dominance is also significant in the power sector (p.eg. national electricity company MVM). The country supports fossil energy use by 106 million eur annually with indirect and direct subsidies, and the elimination of these is a major challenge as well as the future of the Mátra Power Plant burning lignite and biomass.

Thanks to the vast biomass use in the heating and electricity sector, according to the official statistics so far the country has managed to meet its renewable targets, but the predominance of biomass is unhealthy in the energy mix. The rise in solar demand indicates that a greater role should be given to solar energy in the energy system. According to recent government declarations, reaching 2000 MW solar power capacity is realistic until 2020 and potentially 3-4 GW by 2022, but this requires predictable investment conditions.

Nevertheless, support for new solar power capacities is quite volatile. Until 2016, the mandatory feed-in-tariff system (KÁT) helped the acceleration quite cautiously, there was a rush during its phase-out. The new renewable support system METAR, which is compatible with the EU Renewable Directive, has finally entered into force in 2017, with a fixed feed-in-tariff price under 0,5 MW (METÁR-KÁT), with a green premium for 0,5-1 MW units and tenders for new units over 1 MW. (The tender calls were delayed long, the Hungarian energy Ministry promised them for the 1st quarter of 2019). At the end of April 2018, METÁR-KÁT was suspended, explained with an overwhelming number of license/permit applications, depleting its annual financial framework. In addition, the issuance of licenses significantly slowed down. Having started from very few MWs in 2013, the Hungarian solar power generation capacity slowly reached 370 MW by 2017, and can be doubled by the end of 2018, but this new 400 MW capacity would be largely attributed to 2016 KÁT licenses. According to recent (early Nov. 2018) declarations by the Ministry, the METÁR support system will re-open in the 1st quarter of 2019.

At the same time, the installation of new wind farms (competitive with electricity generated from Paks nuclear PP) was literally paralyzed by a 2016 regulation (just as in Poland). However, an increasing number of the Hungarian public supports renewable energies over fossil fuels, and several community energy initiatives have been initiated, usually coordinated locally by municipalities.

As a conclusion, there is an ever-increasing pressure on the Hungarian decision-makers to get rid of the old nuclear-carbon-green energy scenario and – using plans discussed by public participation – to launch Hungary towards an energy efficient and renewable based energy structure that satisfies the energy transition.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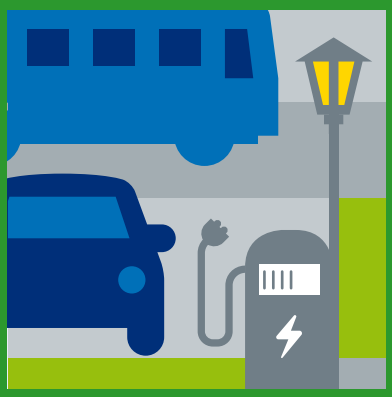

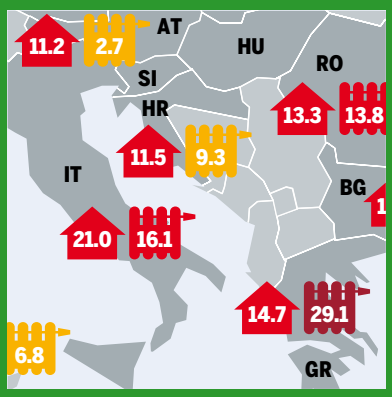
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