

REKK INTRODUCTION

-on H2 and District heating -

Workshop on H2 role in decarbonization
of power and industry sectors and on the
role of heat pumps in DH

REKK – www.rekk.org és www.rekk.hu

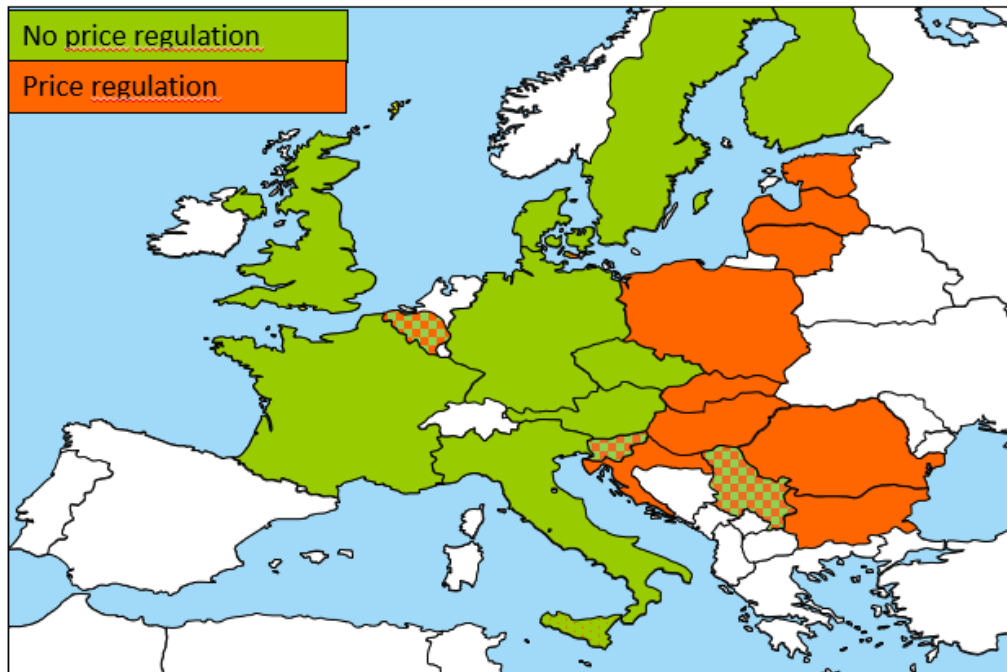
- **Mission:** contribute to the sustainable development of the Hungarian and regional energy sector through our policy driven and scientifically sound research
- **Activities:**
 - Research and education activities in all energy related areas: natural gas, power sector, district heating, carbon markets and water economy
 - Economic assessments covering wide range of areas: from regulatory issues to investments pre-feasibility studies
- **Special competences:** **market modelling**, project evaluation (infrastructure, generation), price forecasts, **regulatory impact** assessment
 - Founded in 2004, presently 20 researchers
 - Having access to expert network – Hungarian, regional, EU
- **Main clients**
 - International organisations: European Commission, Energy Community, European Climate Fund
 - National regulatory agencies and ministries
 - Energy companies
 - Our focus is on wholesale markets and regulators issues

- DH Price regulation (ALTEO, VEOLIA)
- Policies to support renewable energies in DH (Hungarian Energy Regulator)
- DH RES potential estimate with TIMES modelling (MATÁSZSZ, Ministry of Innovation and Technology)

District heating related projects

Searching for European best practice

- Overviewing European practices for district heat regulation
- Identifying best practices in price regulation
- Gap analysis of Hungarian price regulation
- Recommendations for improvement

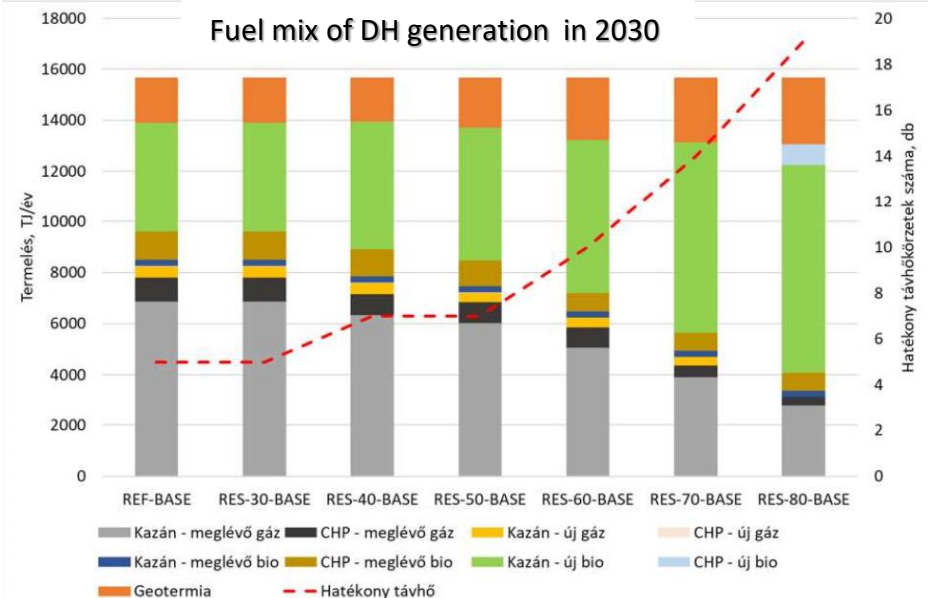
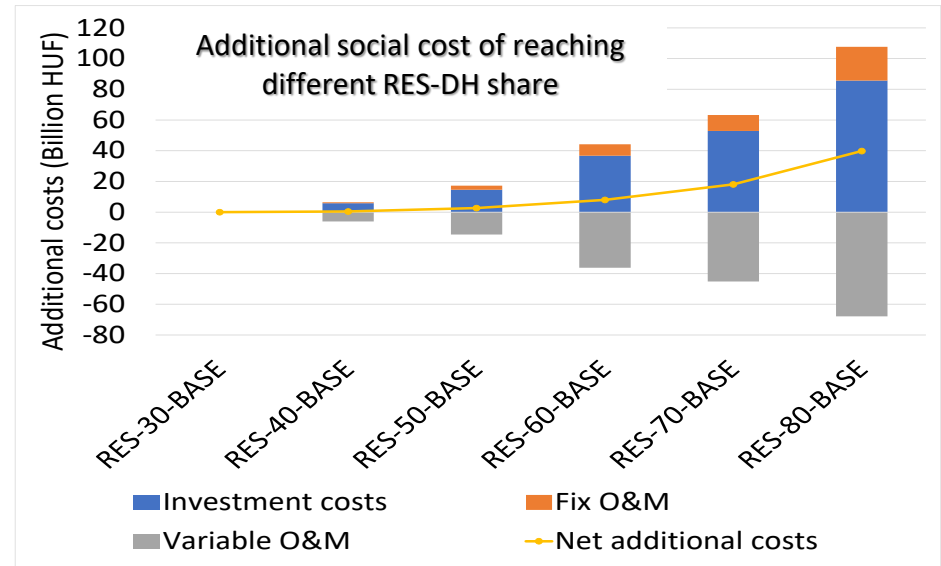


Identifying flaws in Hungarian price regulation

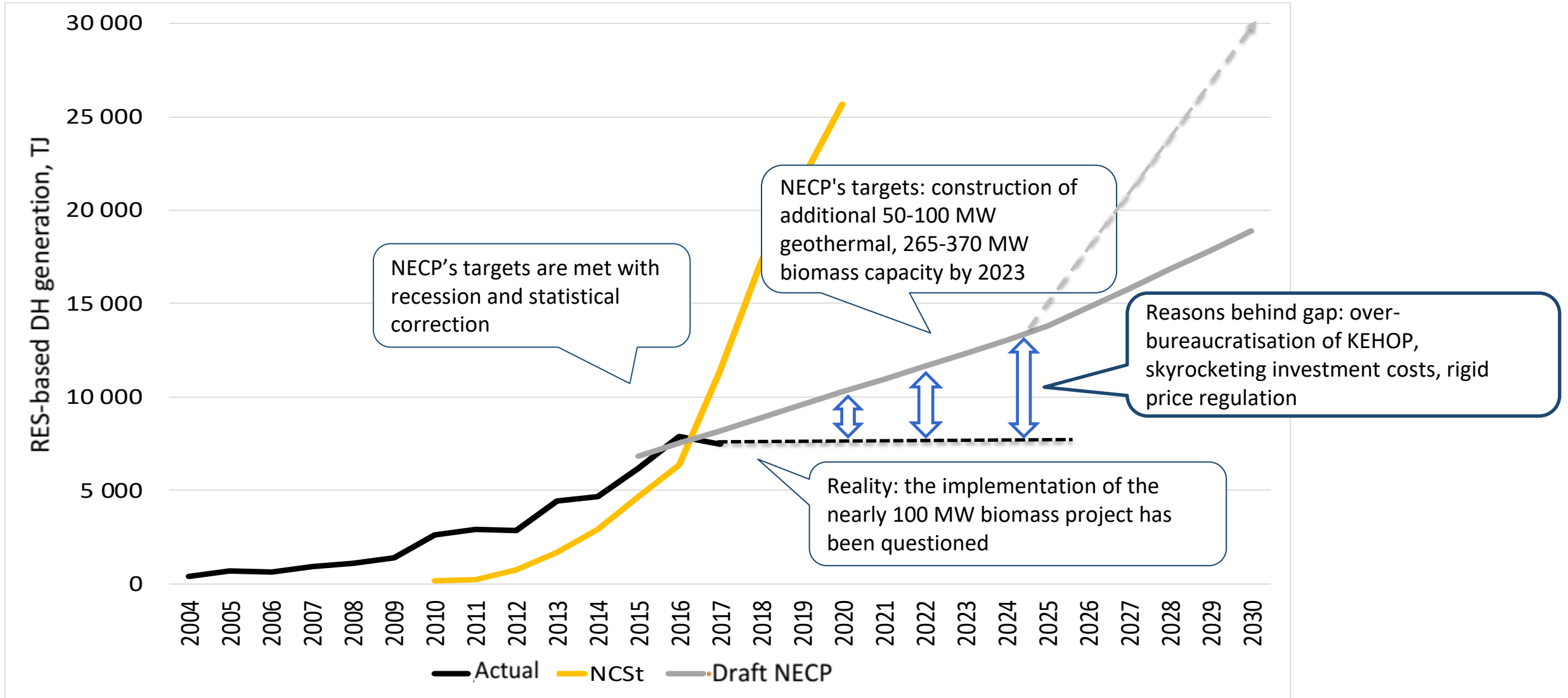
- Limited normativity
 - missing or poorly defined pricing regulations, fluid rules, excessive discretion for the regulatory authority
- Excessive ambitions, disproportionate resource requirements
 - individual assessment of the smallest cost elements and overriding operating decisions
 - information asymmetry and resource constraint
- Limited transparency
 - negotiations with regulatory authority and lobbying by mayors and politicians
- Lack of predictivity
 - annual price setting and subsidy calculation <-> long-term contracting based on business planning
- Lack of incentives
 - annual cost revisions and profit cap <-> cost reduction and efficiency improvements

DH modelling – HU-TIMES-DH model

- Based on TIMES model (developed by IEA-ETSAP) adopted by REKK for the Hungarian DH sector
- Calculate the lowest system cost (investment cost, fix, variable OPEX, fuel cost)
- Large part of the total DH consumption is covered by the model (19 areas) ~60-70% of the total HU DH consumption
- Analysed period: 2018-2030
- Demand side:
 - Daily consumption based on historical data
 - Future consumption are also determined
- Supply side:
 - Characteristics (efficiency, fuel, OPEX cost, CHP or not, etc.) of the present heat producers in a given DH zone
 - Possible new investments:
 - Biomass boiler and CHP
 - Gas boiler and CHP
 - Geothermal

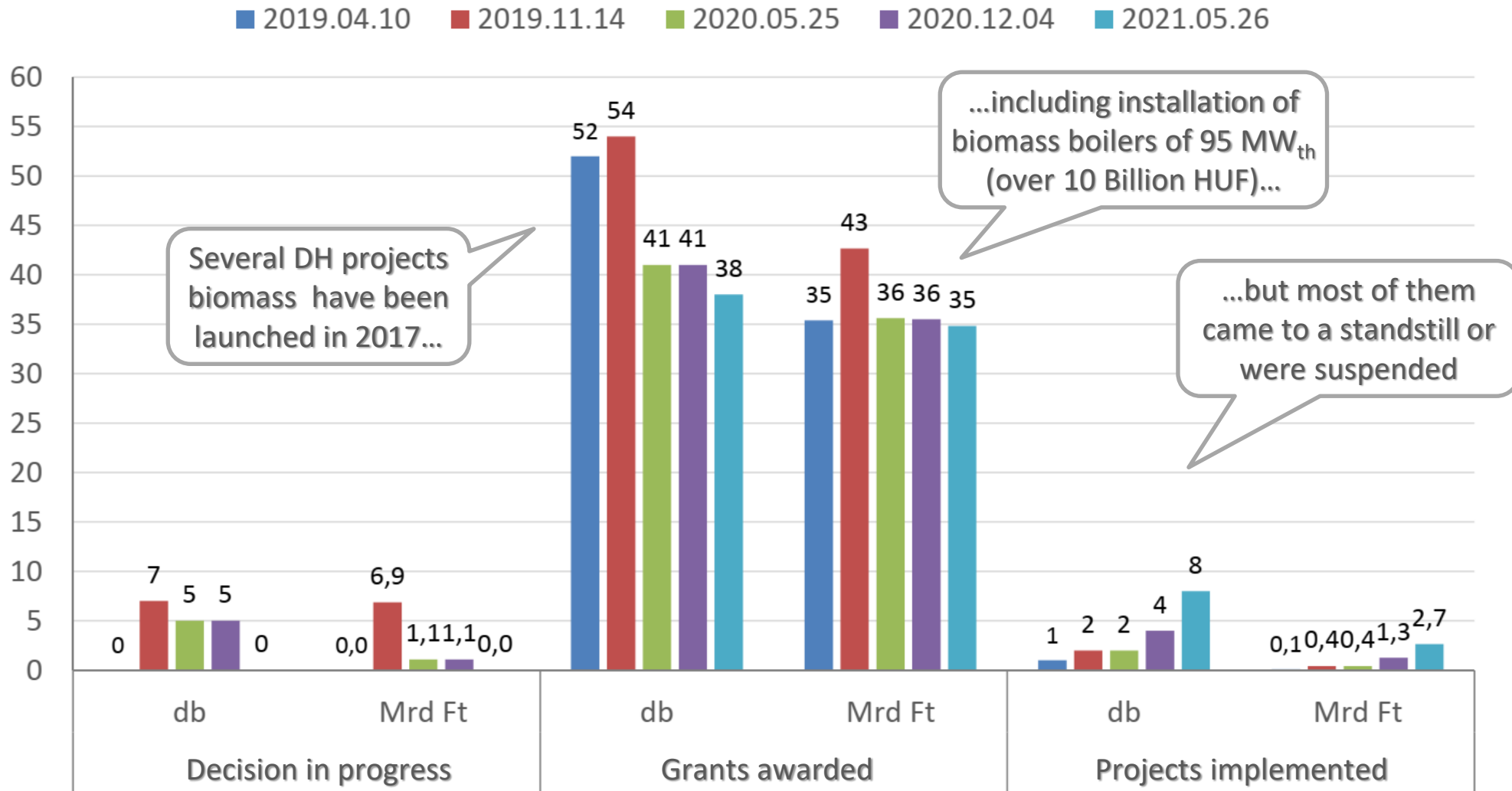


Green District Heating: high hopes, bitter reality




Forrás: SHARES, NCSt, és NEKT

Ambitious plans and bitter realities: status of DH projects funded by EU Grants



DH: perspective, possibilities and perils

Perspective

- member states set extremely ambitious targets for decarbonising and greening
- the heat sector has enormous potential for renewable energies
- Hungary envision 67% renewable share in DH generation by 2030 (NECP)  today: 25%

Possibilities

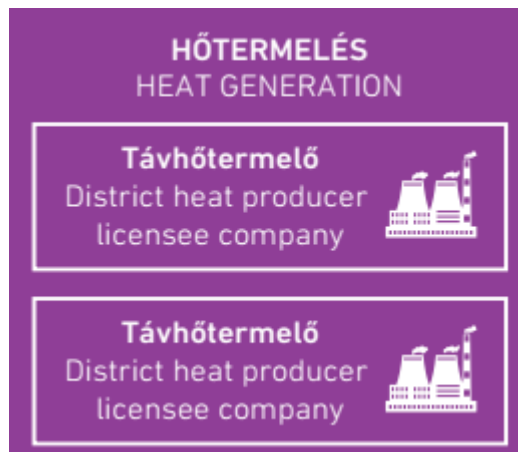
- unexploited geothermal and biomass potential
- hundreds of MW_{th} of new RES heat generation capacities needed >> 150-250 Mrd Ft investment need
- huge EU funds appropriated for supporting renewable energies >> 677 Mrd Ft for KEHOP+

Perils

- huge financing gap & hidden pressure to raise prices + counterproductive price regulation
- limited resource absorption capacity & limited project management ability
- inexperienced contractors & lack of construction practice

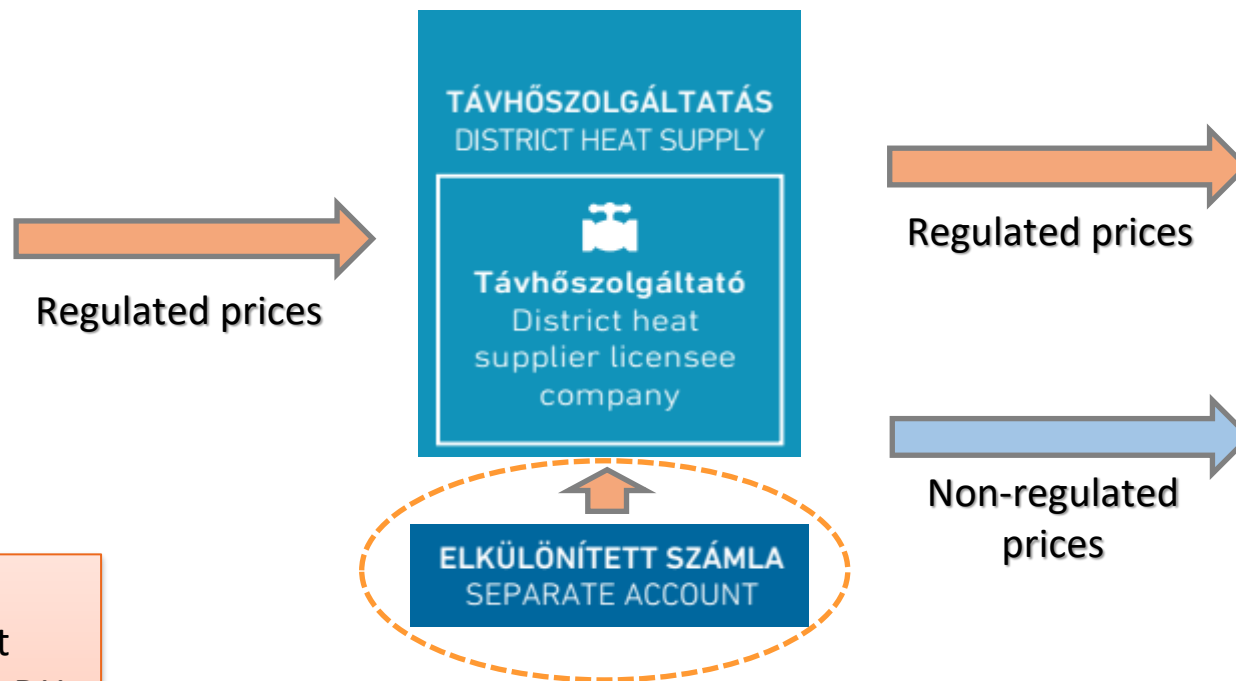
Value chain of District Heat supply

GENERATORS



- Individually regulated heat generation prices (different prices for each unit of each DH producer)
- Basic fee (HUF/month) and Heat fee (HUF/GJ)
- Prices are set by the Minister of Innovation and Technology (ITM) every year

SUPPLIERS



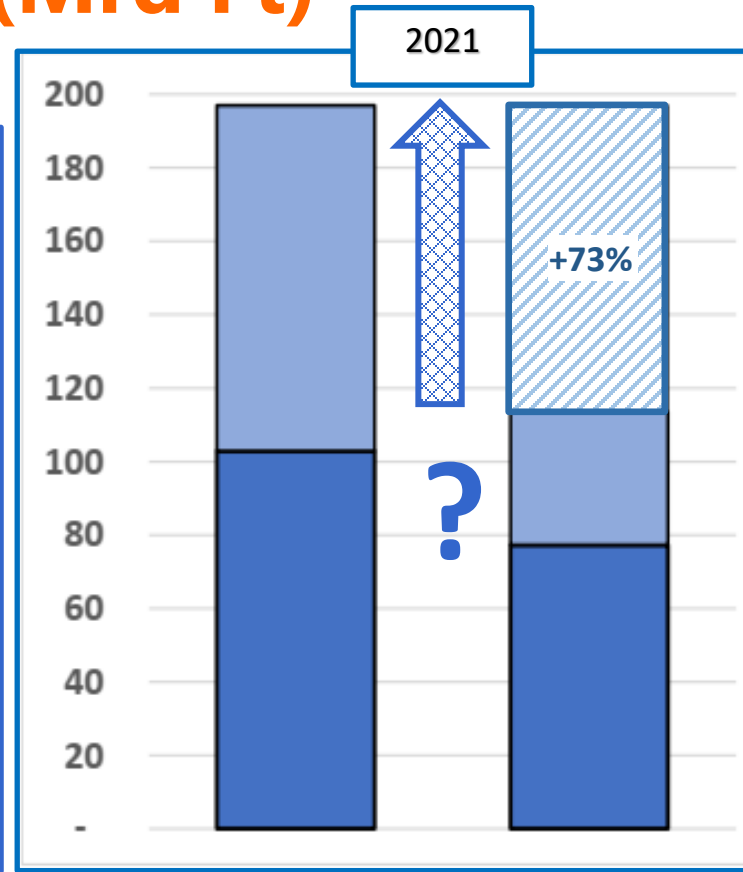
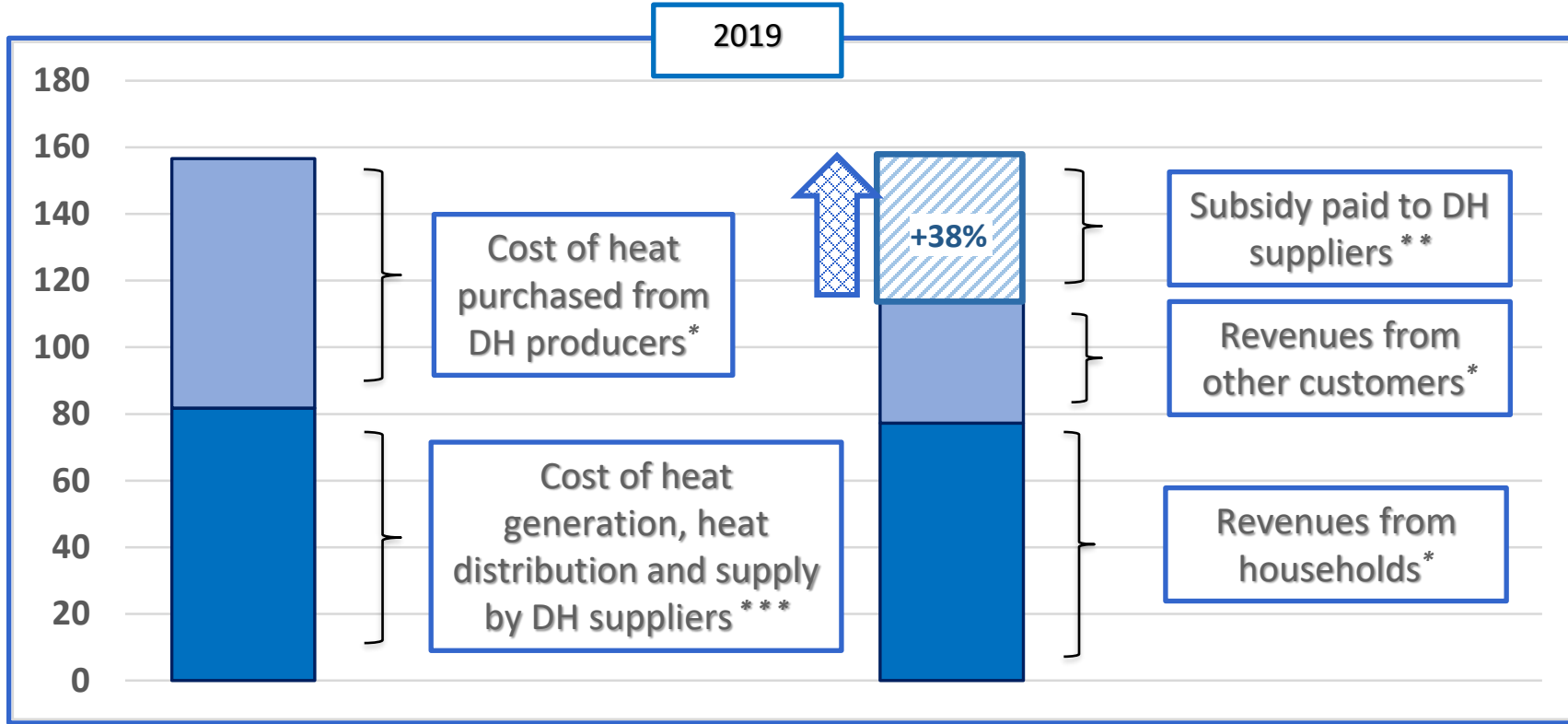
- Subsidy for DH supplier is needed to compensate them for losses
- Different subsidies are set for each DH supplier: fix element (HUF/month) + consumption-based subsidy (HUF/GJ)

CONSUMERS



- Household heat prices are frozen in 2011 and then reduced in several steps
- There is no ministerial decree explicitly setting/containing household prices

Costs and revenues of district heat supply (Mrd Ft)



* Data published by the Association of Hungarian District Heat Suppliers (MaTáSzSz) and Hungarian Energy Regulatory Agency; ** Estimation based on volume of industrial electricity consumption and relevant tariff, and publication of Tibor Orbán; *** Calculated on the basis of above data and estimations

REKK estimation based on Orbán Tibor (2021)

District heat generation prices and subsidies are highly dependent on gas prices >>> Huge increase in 2021/22 !!!

This event has been organized by REKK

For further questions please contact :

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