



# HOW INDIVIDUAL HEAT PUMPS COMPETE WITH DISTRICT HEATING IN THE BALTIC STATES

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# Heat Pump Potential in the Baltic States



## New report shows huge potential for heat pumps in the Baltics

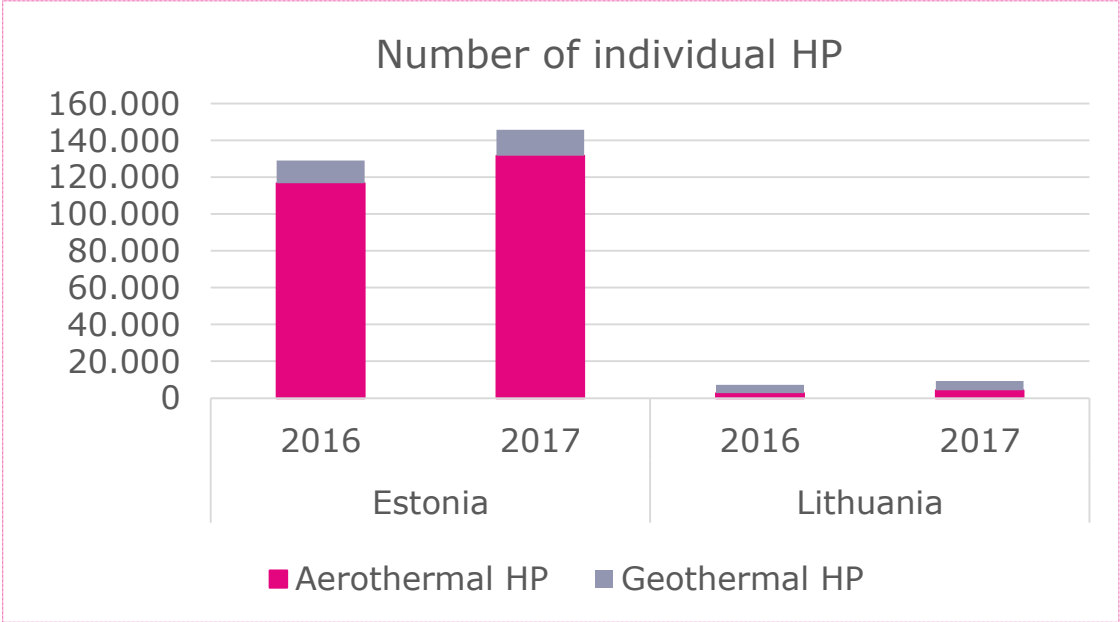
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The recently released report Heat Pump Potential in the Baltic States concludes that the Baltic countries have a huge potential in heat pumps and renewable district heating. The report shows...

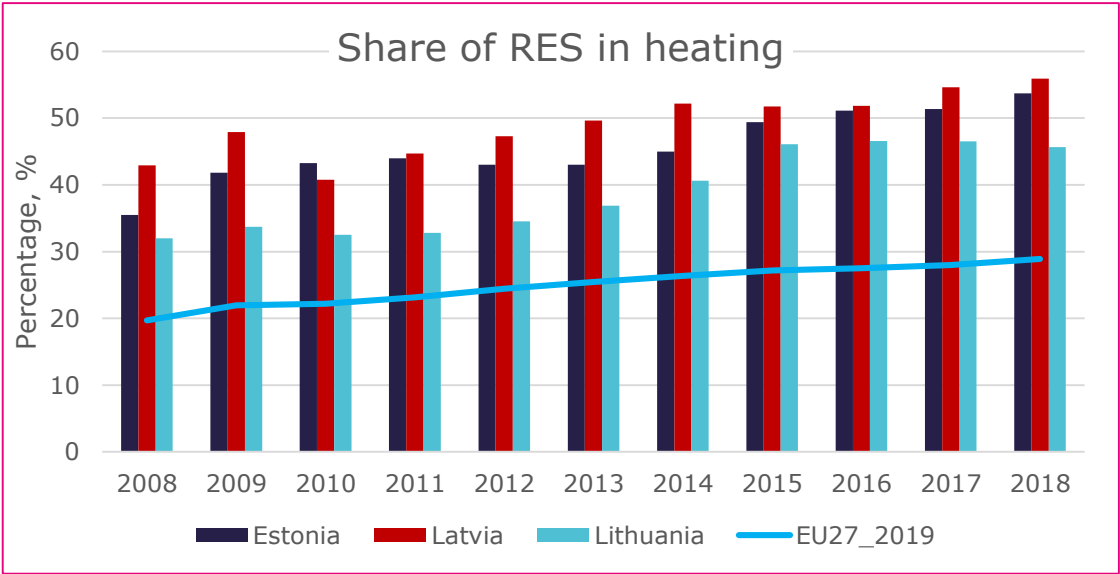
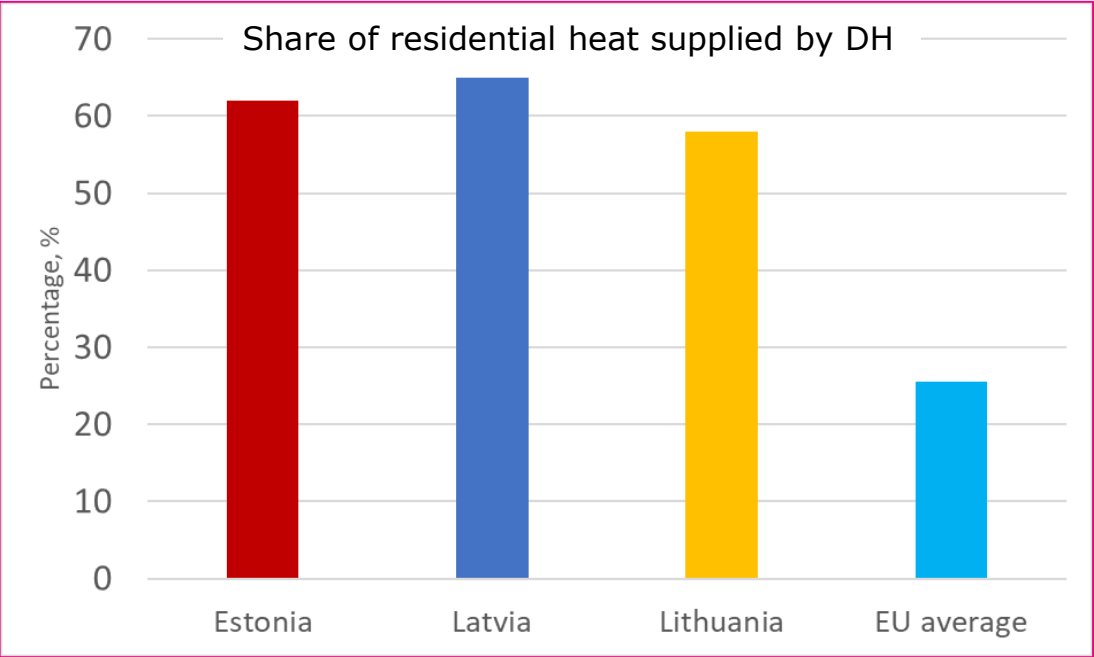


# INDIVIDUAL HEAT PUMPS IN THE BALTIC STATES

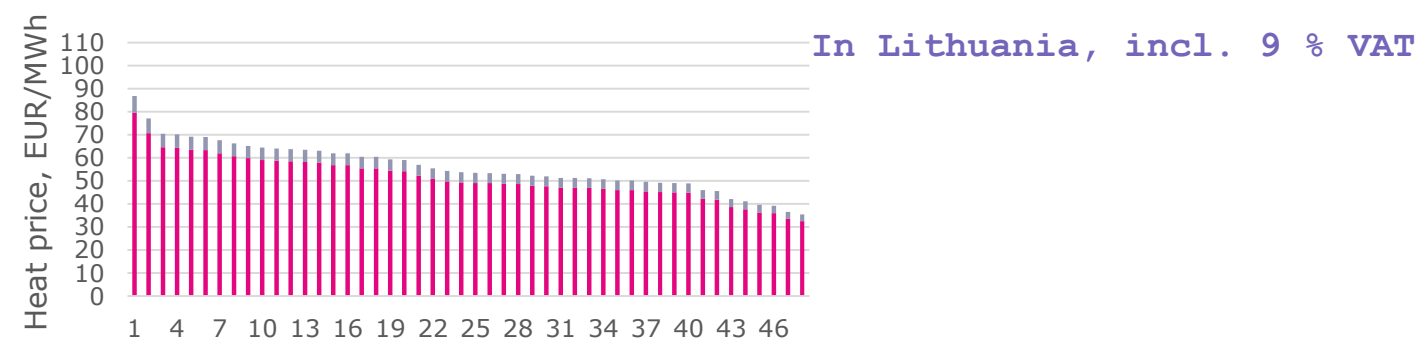
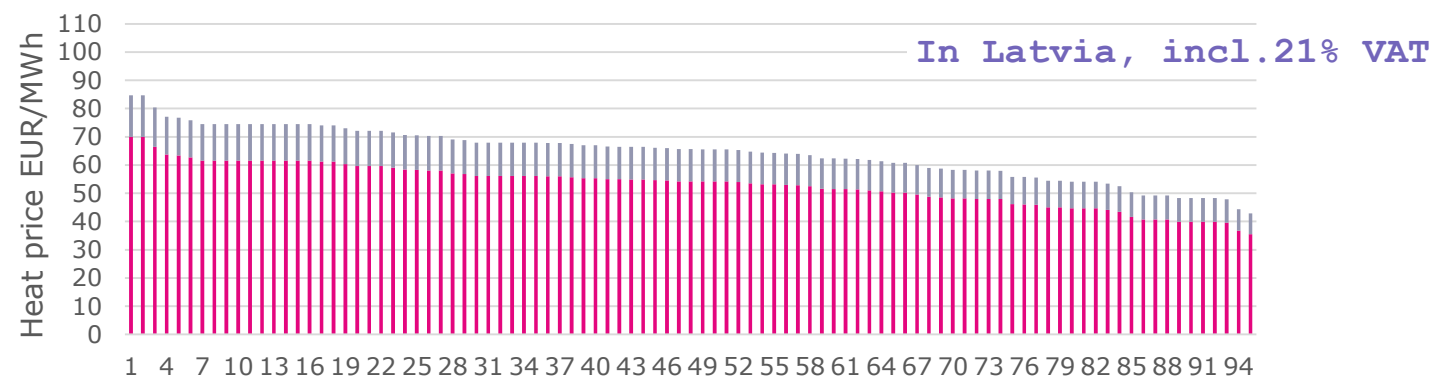
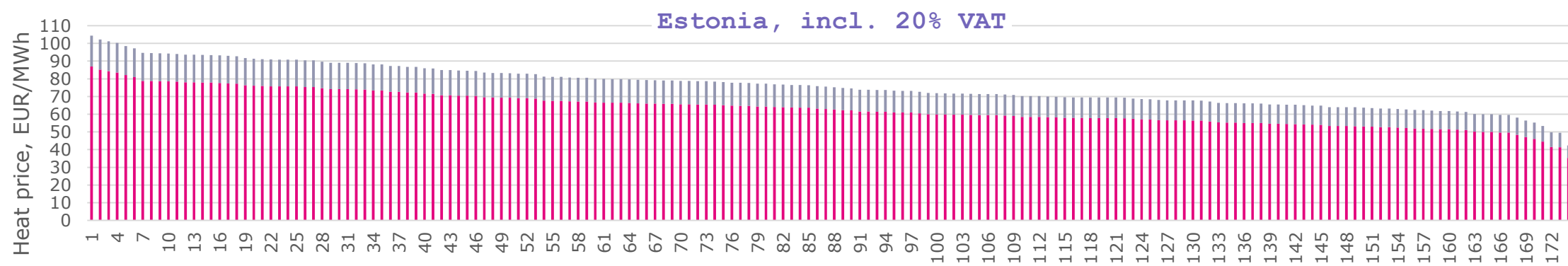
- In 2018:
  - In Estonia **29.3 HPs** units/1000 households (3rd place in Europe)
  - In Lithuania **9 HPs** units/1000 households
  - In Latvia information, that **0.1%** of heat is produced using electricity



# DISTRICT HEATING IN THE BALTIC STATES



# HEAT PRICES IN DISTRICT HEATING NETWORKS

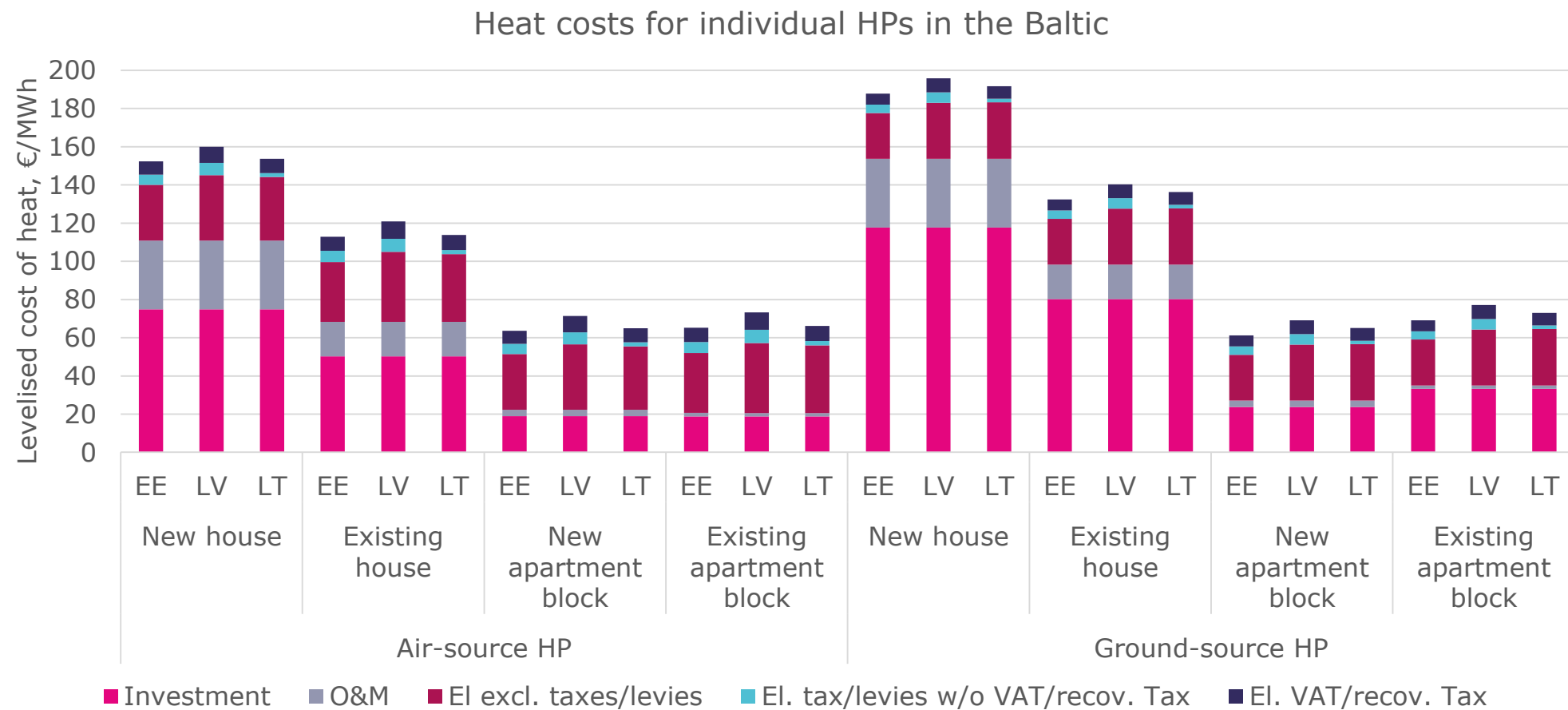


# ASSUMPTION FOR INDIVIDUAL HP PRICE CALCULATION

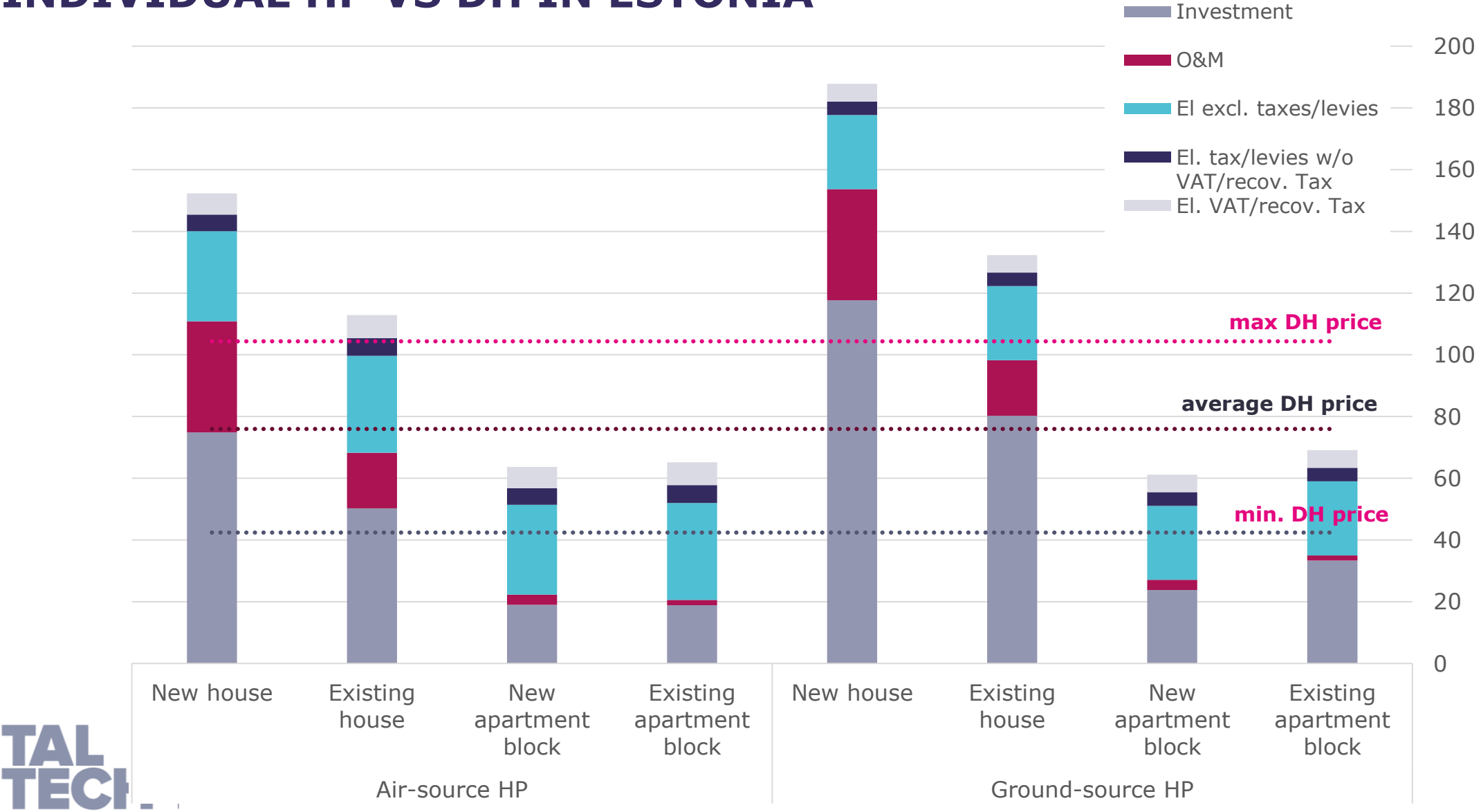
Seasonal performance factors, -	Estonia	Latvia	Lithuania
Air-source HP new building	2.8	3.0	3.2
Air-source HP existing building	2.6	2.8	3.0
Ground-source HP new building	3.4	3.5	3.6
Ground-source HP existing building	3.4	3.5	3.6

- Individual air-source and ground-source HPs for
  - One-family houses:
    - new: 7.5 MWh
    - existing: 15 MWh
  - Apartment buildings:
    - new: 300 MWh
    - existing: 600 MWh

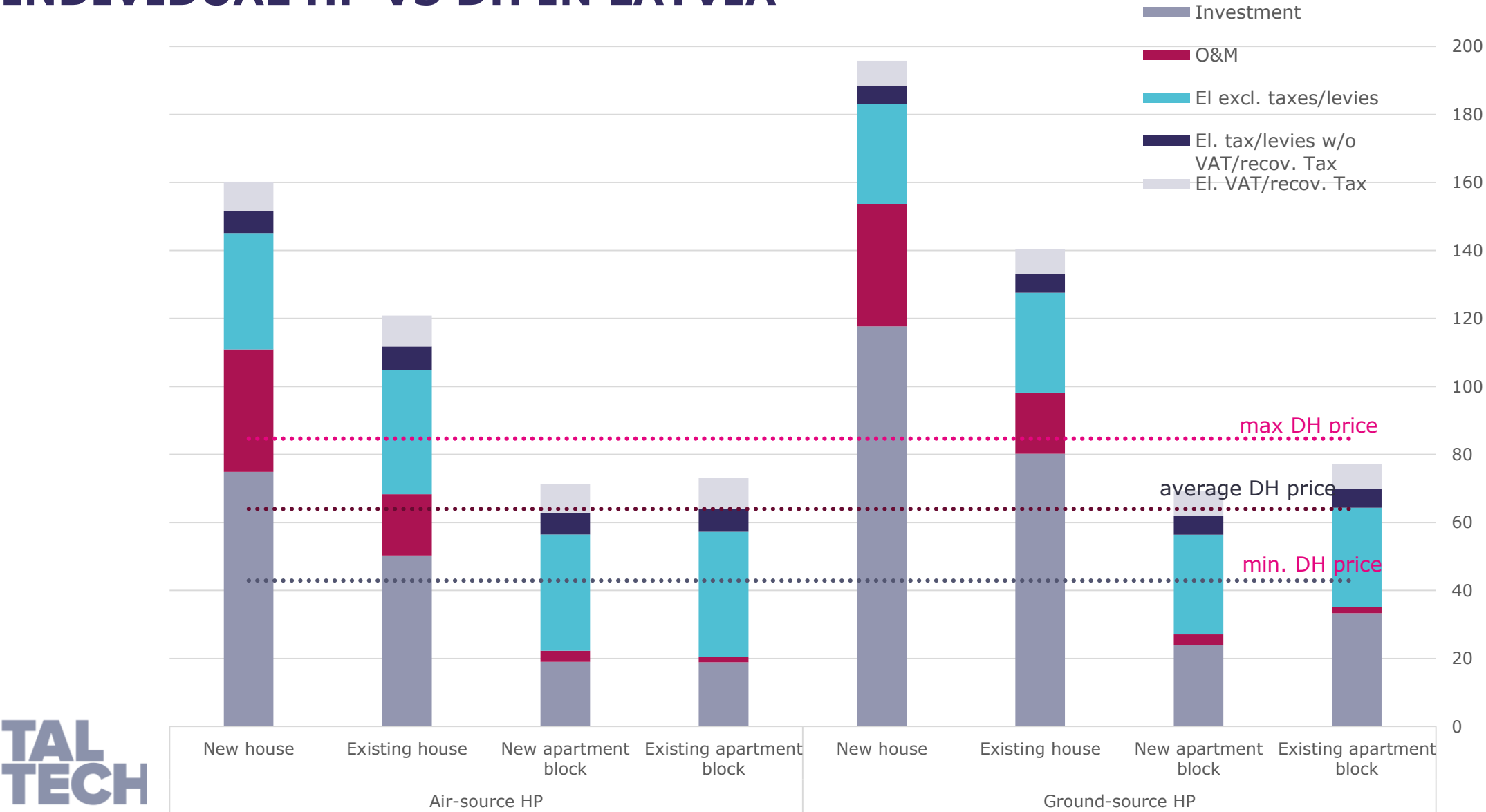
# RESULTS



# INDIVIDUAL HP VS DH IN ESTONIA

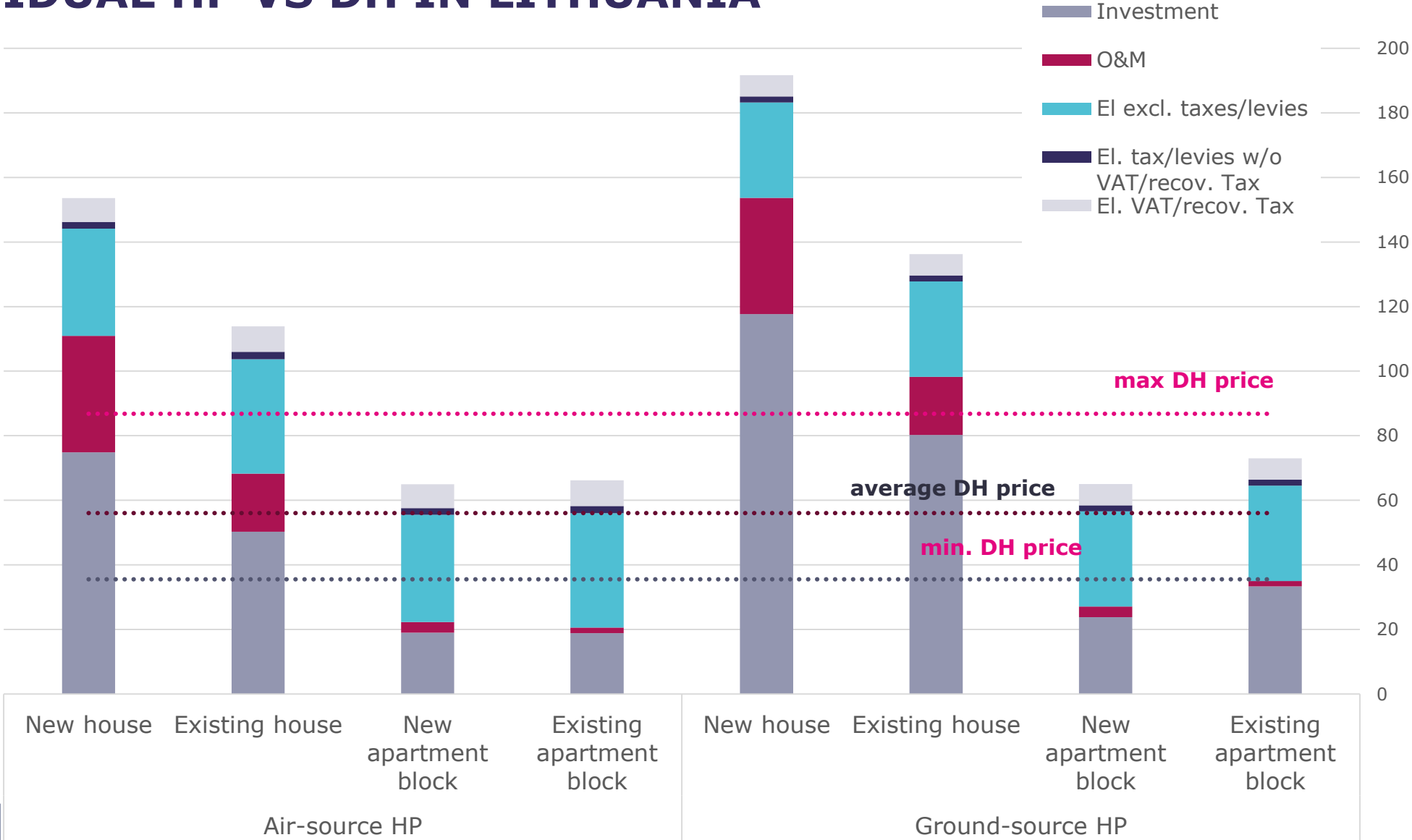


# INDIVIDUAL HP VS DH IN LATVIA

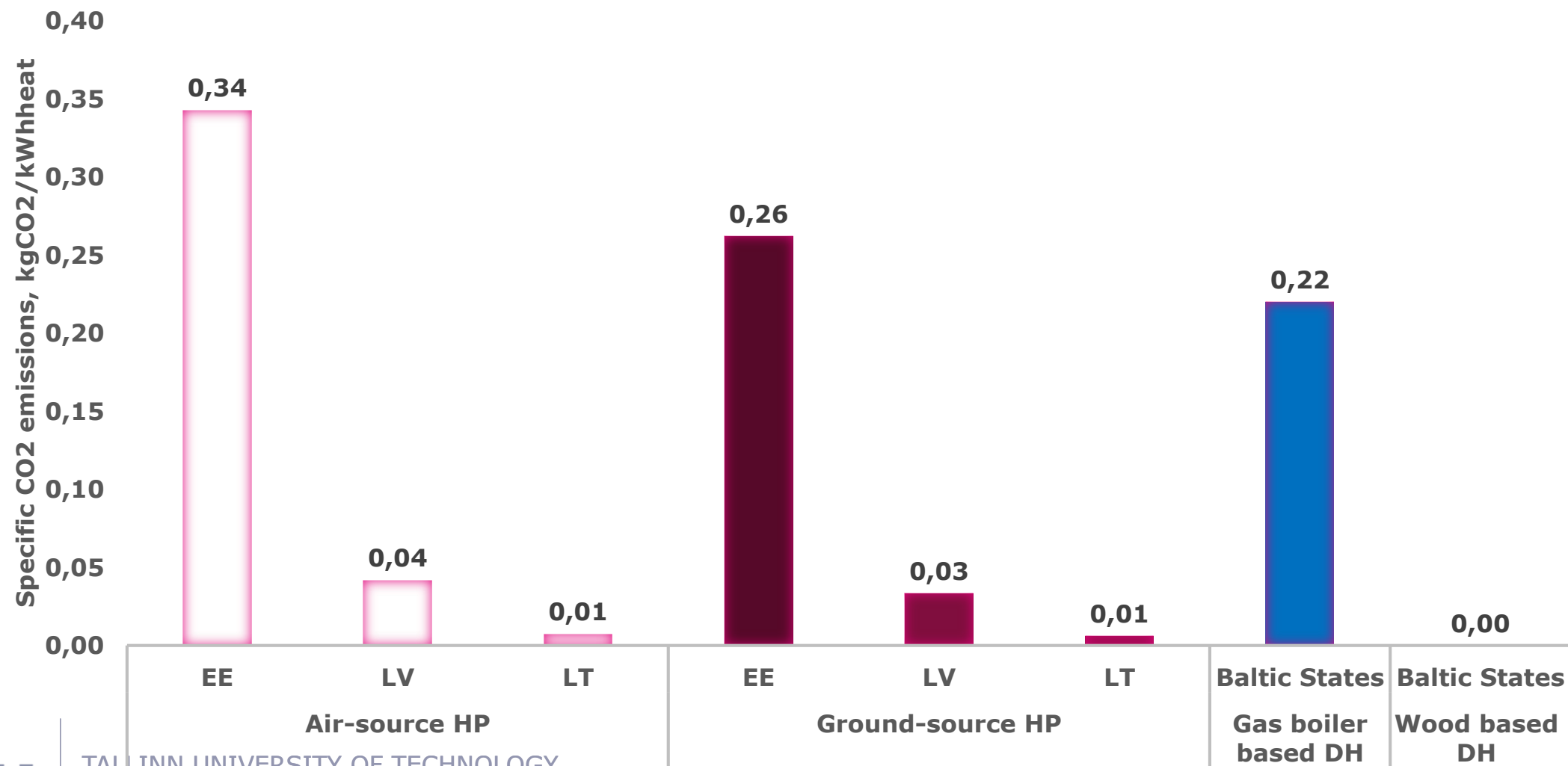




# INDIVIDUAL HP VS DH IN LITHUANIA



# SPECIFIC CO<sub>2</sub> EMISSIONS FOR INDIVIDUAL HEAT PUMPS VS DH IN THE BALTIC



# CONCLUSION

- The levelised cost of heat, individual heat pumps are the most competitive in apartment buildings with the levelised cost of heat of €60 to €80 per MWh.
- In regions with high district heating tariffs individual heat pumps are considered to be more feasible solution
- Taking into account current CO2 emission factor for electricity mix in Estonia, heat supplied by district heating in Estonia, has lower CO2 emission factor.
- In Lithuania and Latvia CO2 emission factor of individual heat pumps will be lower then for gas boiler based DH and higher, then RES based DH.
- Heating electrification is not always better option.



**Research group „Smart District Heating systems and Integrated Assessment Analysis of Greenhouse Gases Emissions“**

**Department of Energy Technology**

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