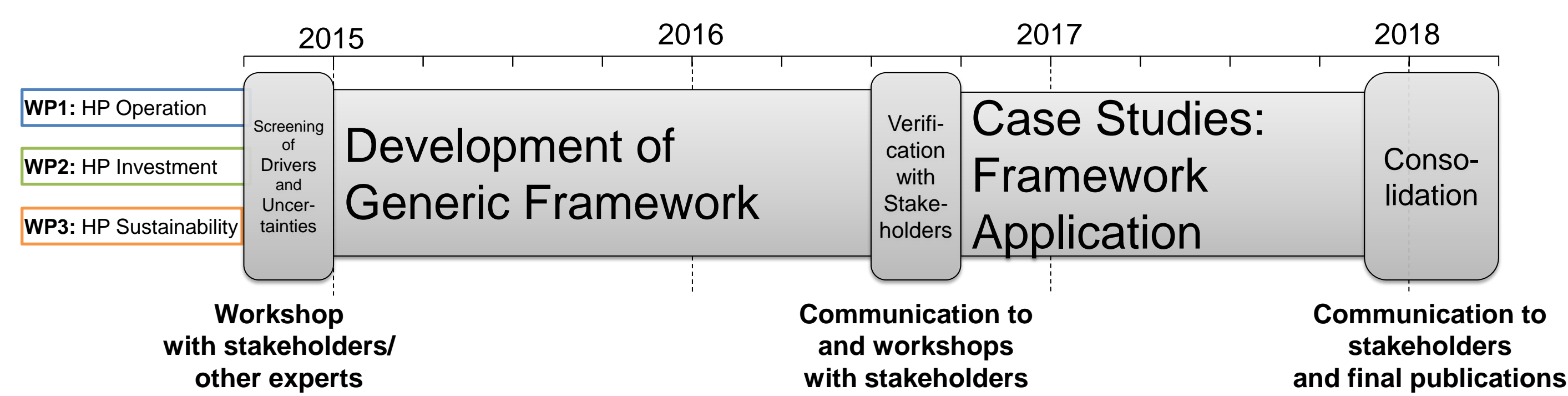


# The Future of Swiss Hydropower A Review on Drivers and Uncertainties

Michael Barry, Patrick Baur, Ludovic Gaudard, Gianluca Giuliani, Werner Hediger, Franco Romero, Moritz Schillinger, René Schumann, Guillaume Voegeli, Hannes Weigt



## Project:



## Project Team:

Weigt, UniBas: Lead, WP1  
Schumann, HES-SO: WP1  
Romero, UniGe: WP2, WP3  
Hediger, HTW Chur: WP3, WP2

## Project Partners:

Alpiq, Repower, Azienda Elettrica Ticinese (AET), Forces Motrices Valaisannes (FMV), and Misurio

## Case Studies:

1. Pilot SA in Valposchiavo, Grisons (Repower)
2. Single-site in Valais (Alpiq)
3. Multi-site in Leventina, Ticino (AET, Alpiq)

## Workshop and Questionnaire March 12, Berne:

### 45 participants from

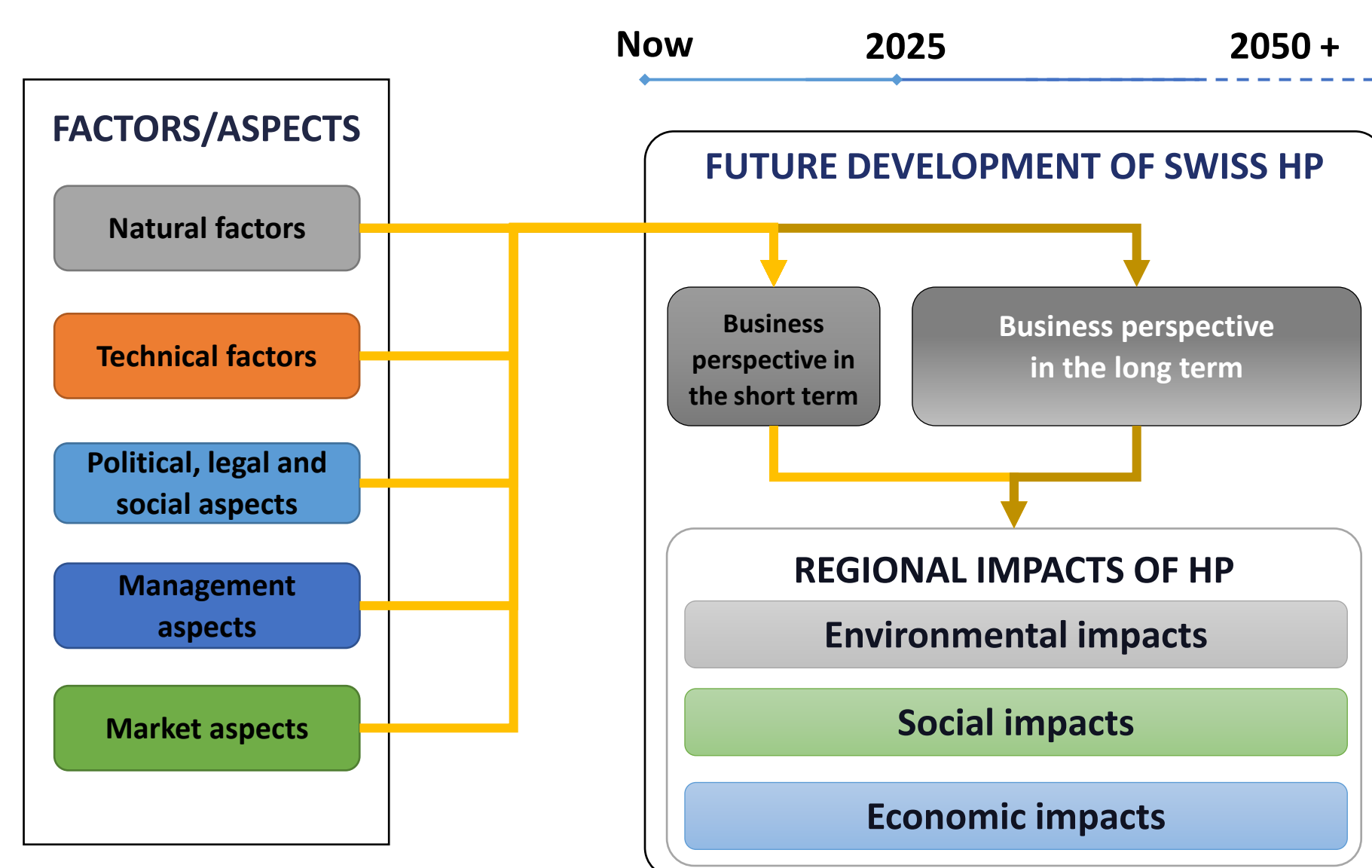
- Business/Industry
- University/Research
- Administration
- NGO

### External input from:

- Norway (A. Midttun)
- Germany (C.v. Hirschhausen)

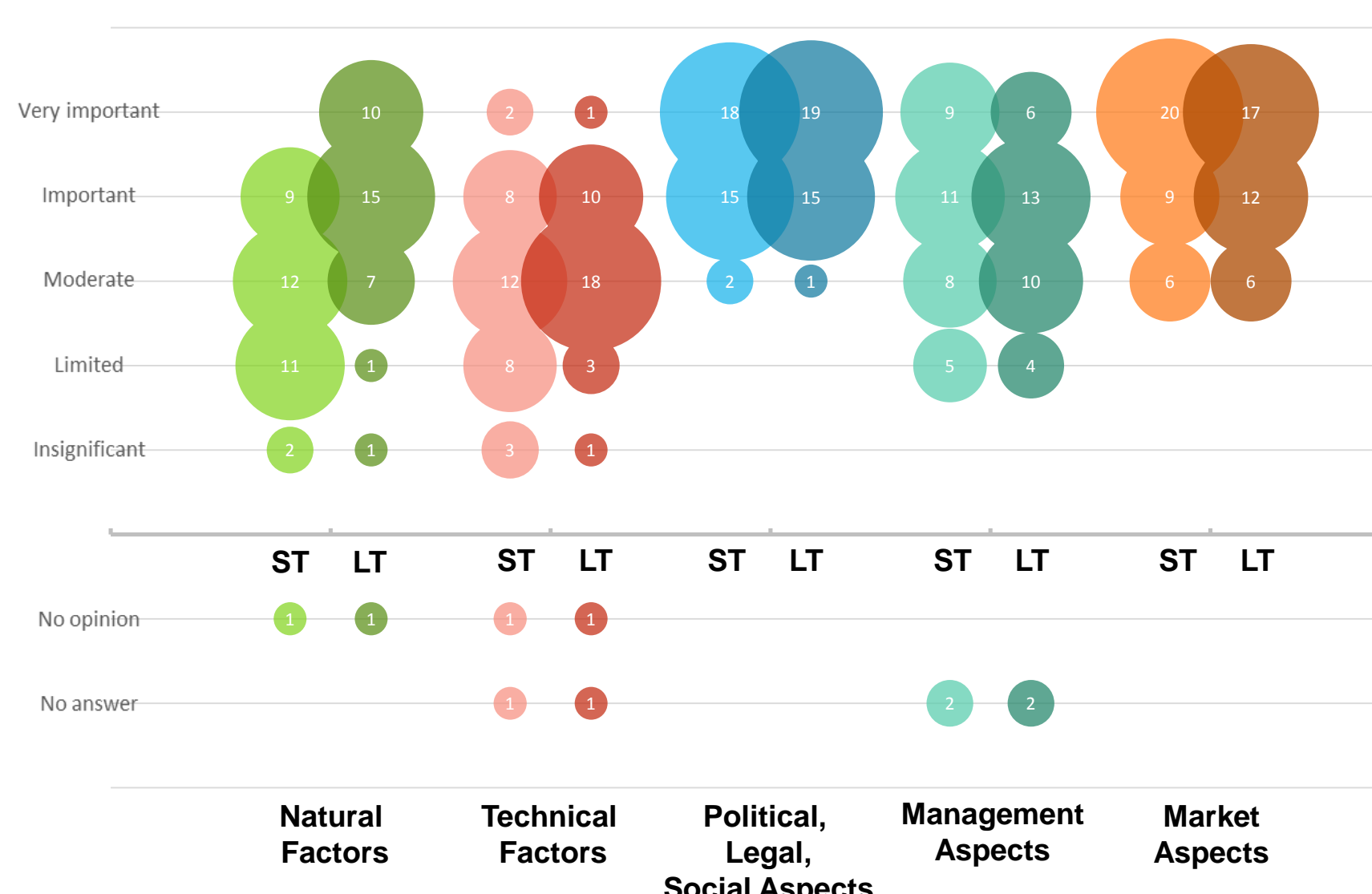
### Discussion on:

- Short-Term Challenges
- Long-Term Aspects



Main Drivers and Impacts in the HP System

## Findings:

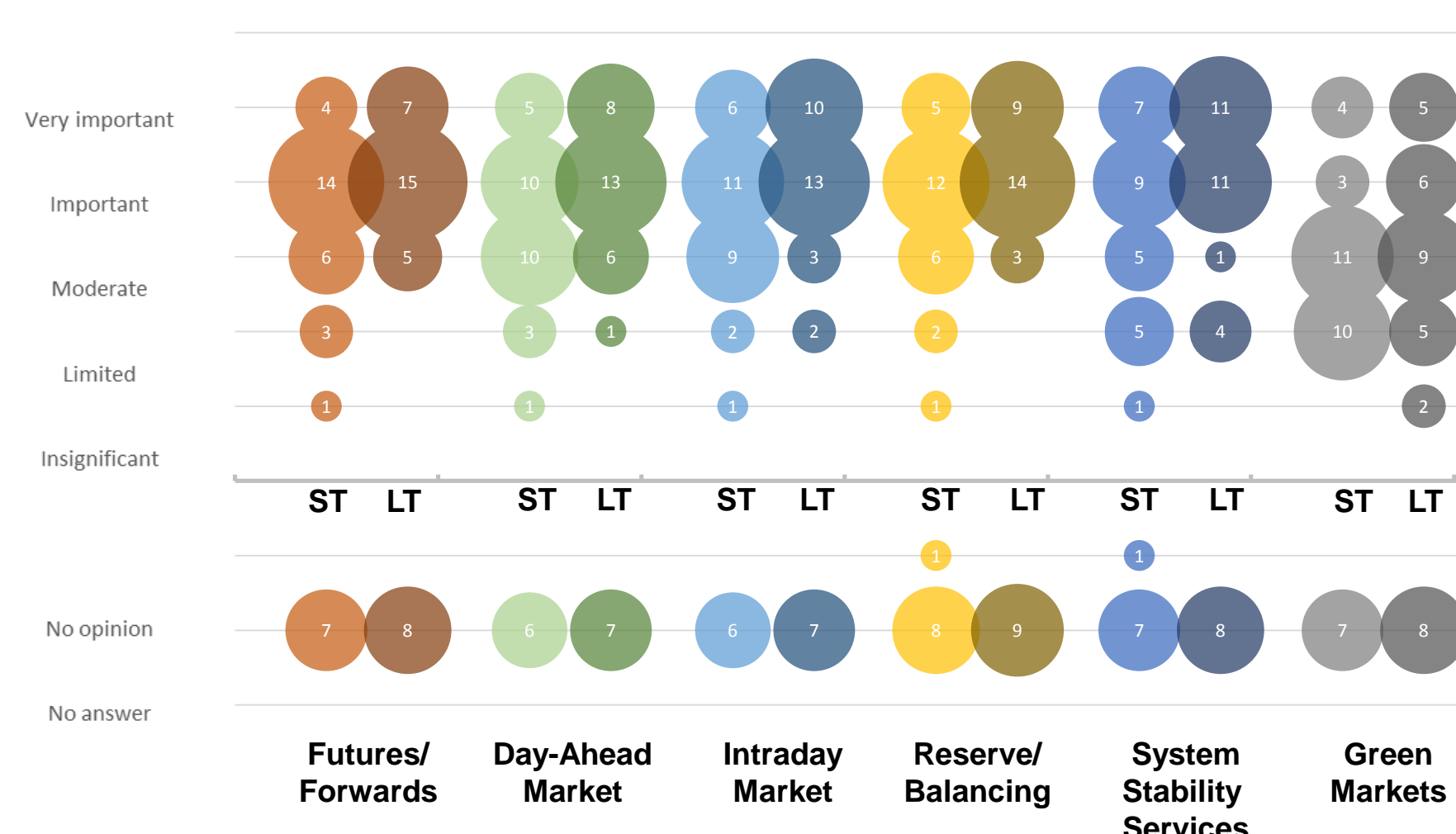


All aspects perceived as important

Market and Legal/Policy aspects most important

Natural and Technical factors less urgent

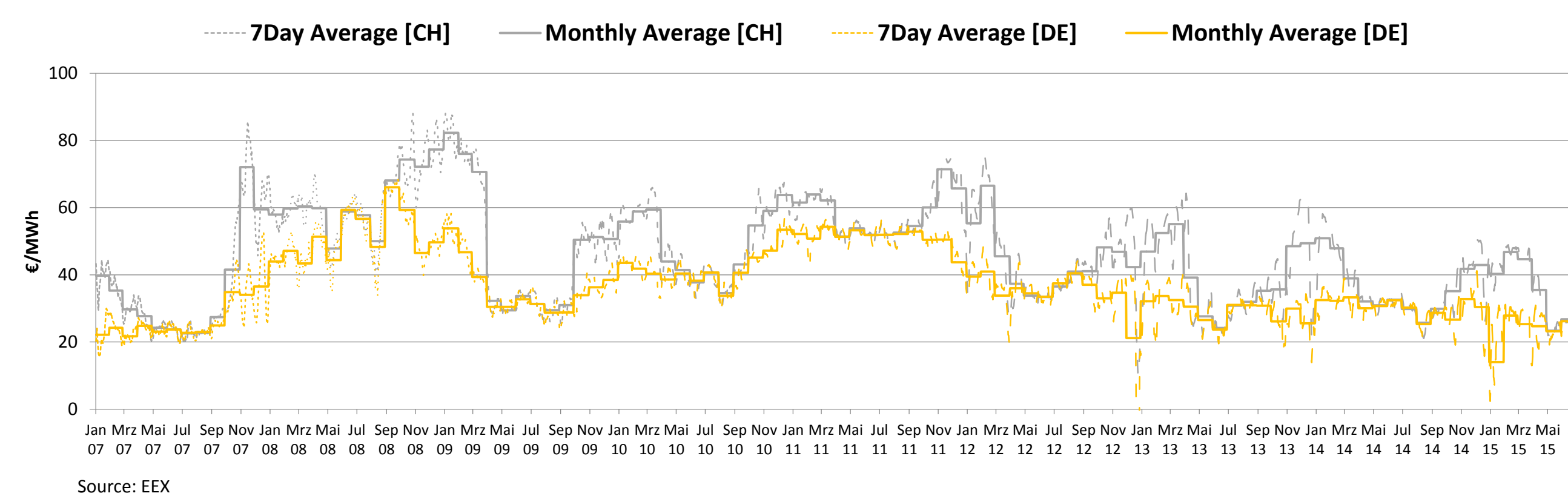
## Relative Influence of Factors on the Future of Swiss HP in the Short (ST) and Long Term (LT)



Swiss HP must take all markets opportunities into account  
Only Green Markets are seen not as important as the other

## Influence of Markets on the Future of Swiss HP in the Short (ST) and Long Term (LT)

## Market Aspects:



## Market prices are on a low level, due to:

- Low emission permit prices
- Low global coal price level
- Increase of renewable generation

→ Trends are likely to remain stable in coming years

→ Little influence possibilities

→ Swiss HP needs to adjust to market environment

## Policy Aspects:

### Investment/Financing:

- High initial investment costs
- Debt financing
- Long Lifetimes
- Linear depreciation

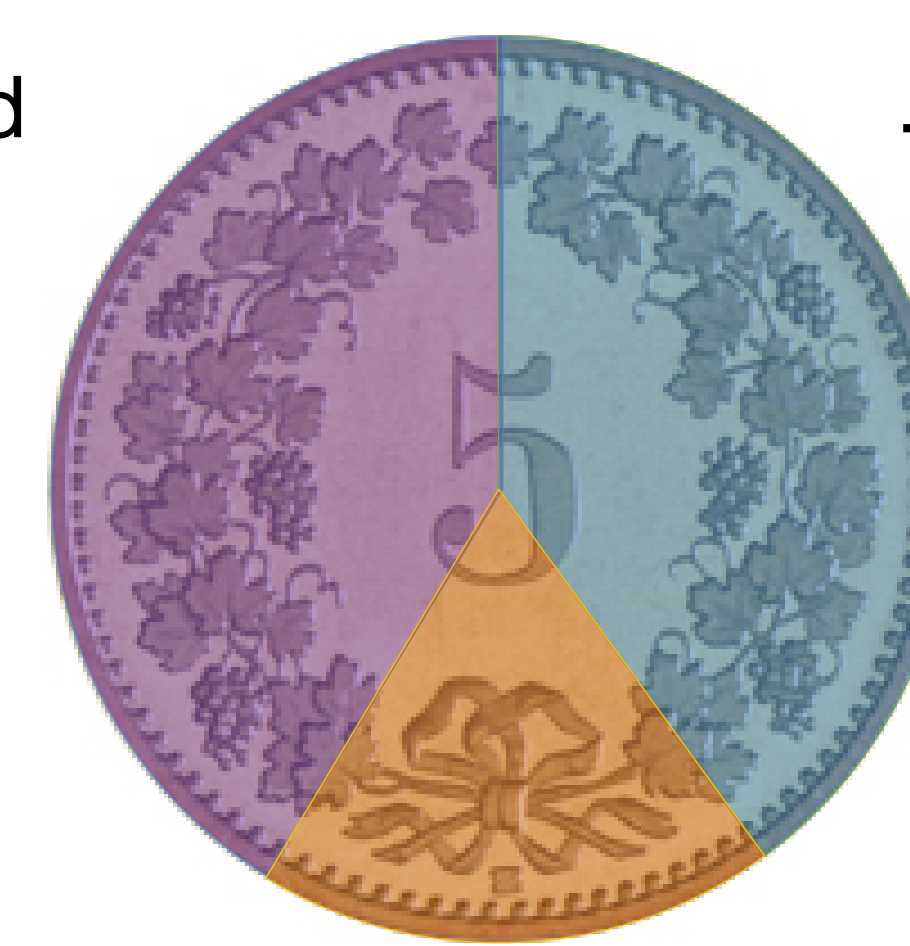
### Governance:

- Concessions
- Water fees
- Network fees
- Partnerwerke

→ Designed for non-market environment

→ Need to be adjusted for risky, cyclical dynamics of liberalized markets

→ Structure based on regulated environment  
→ Adjustment process will require agreements at federal, cantonal and local level



## Operation:

High labour costs in comparison to EU competitors

→ Further efficiency gains possible?

## Next Steps

- **Evaluation of HP Operation:** Which markets are important? How can the performance be improved?
- **Development of Long Term Evaluation Approach:** How to deal with high uncertainty in the long run (investment decision)?
- **Initiate a comprehensive stakeholder process:** to analyse the companies' internal and external regulatory framework and design new approaches, to perform an regional impact analysis, and to investigate the interplay between Switzerland and Europe

For more information visit our project homepage:

<https://fonew.unibas.ch/forschungsprojekte/projekte/hp-future/>