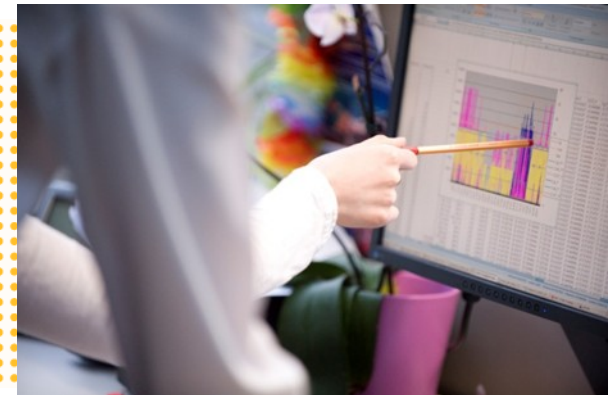


# A Russian Gas Embargo...

...and its effects on Security of Supply in Europe

2nd EU-Norway Energy Conference, Brussels 25/09/14

Prof. Dr. Felix Höffler, Department of Economics, University of Cologne



## Recent study of EWI on effects of an embargo on European security of supply with natural gas.

- **Against the background of the Ukrainian Crisis 2014:**
  - Several sanctions are already in place
  - Question: Effects of a complete stop of Russian gas to Europe (import embargo by the EU or export embargo by Russia)
- **In 2013, Russia supplied 160 bcm or 30% of Europe's gas demand**
- **Consequences of an Embargo?**
  - How would Europe compensate the Russian gas embargo?
  - Which countries would suffer from supply shortfalls?
  - What would be the effects of a cold spell during the embargo?



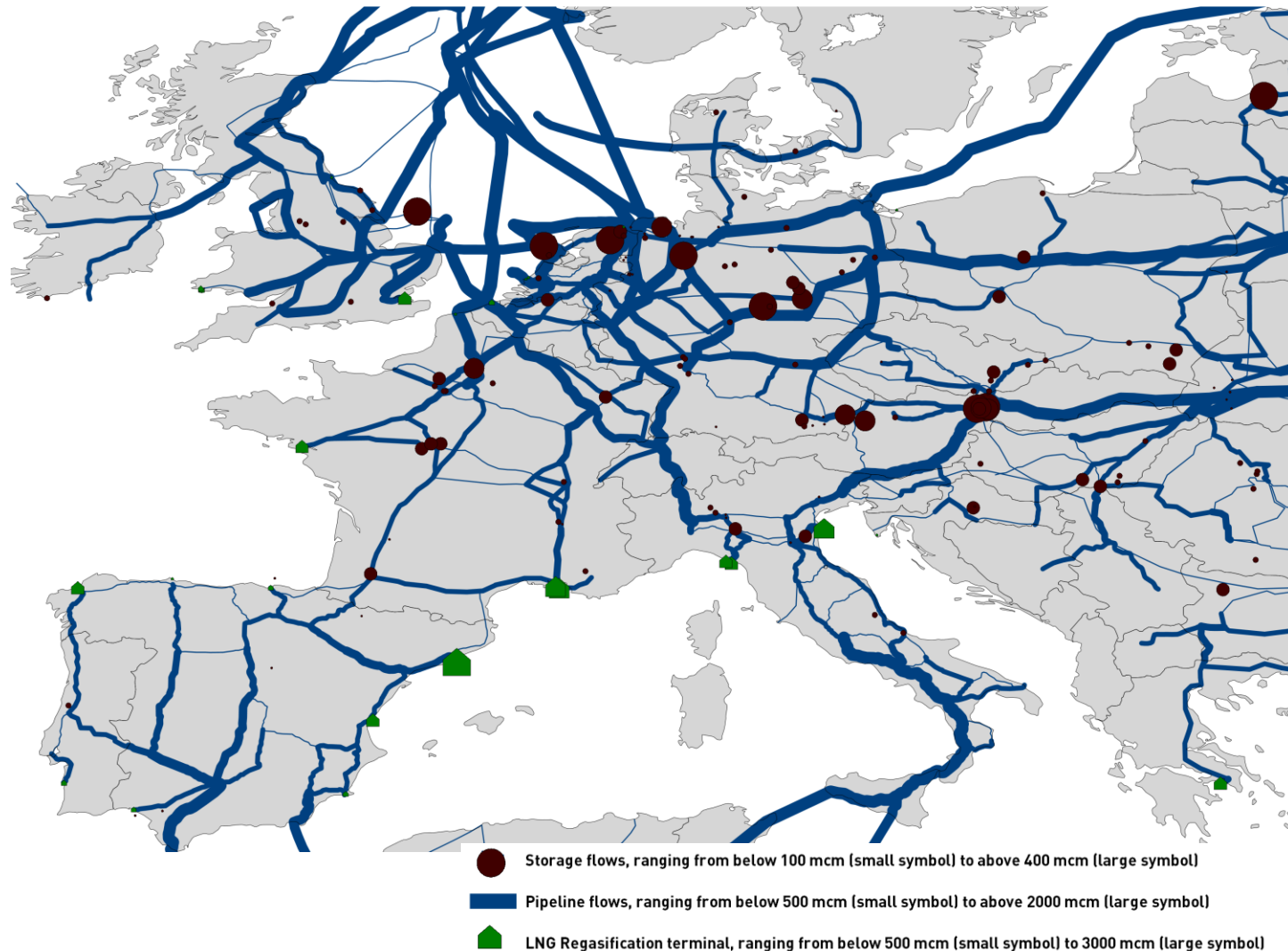
## 1. Introduction

## 2. Results

- a) **How would Europe compensate the Russian gas embargo?**
- b) Which countries would suffer from supply shortfalls?
- c) What would be the effects of a cold spell during the embargo?
- d) Key drivers and assumptions
- e) Conclusion

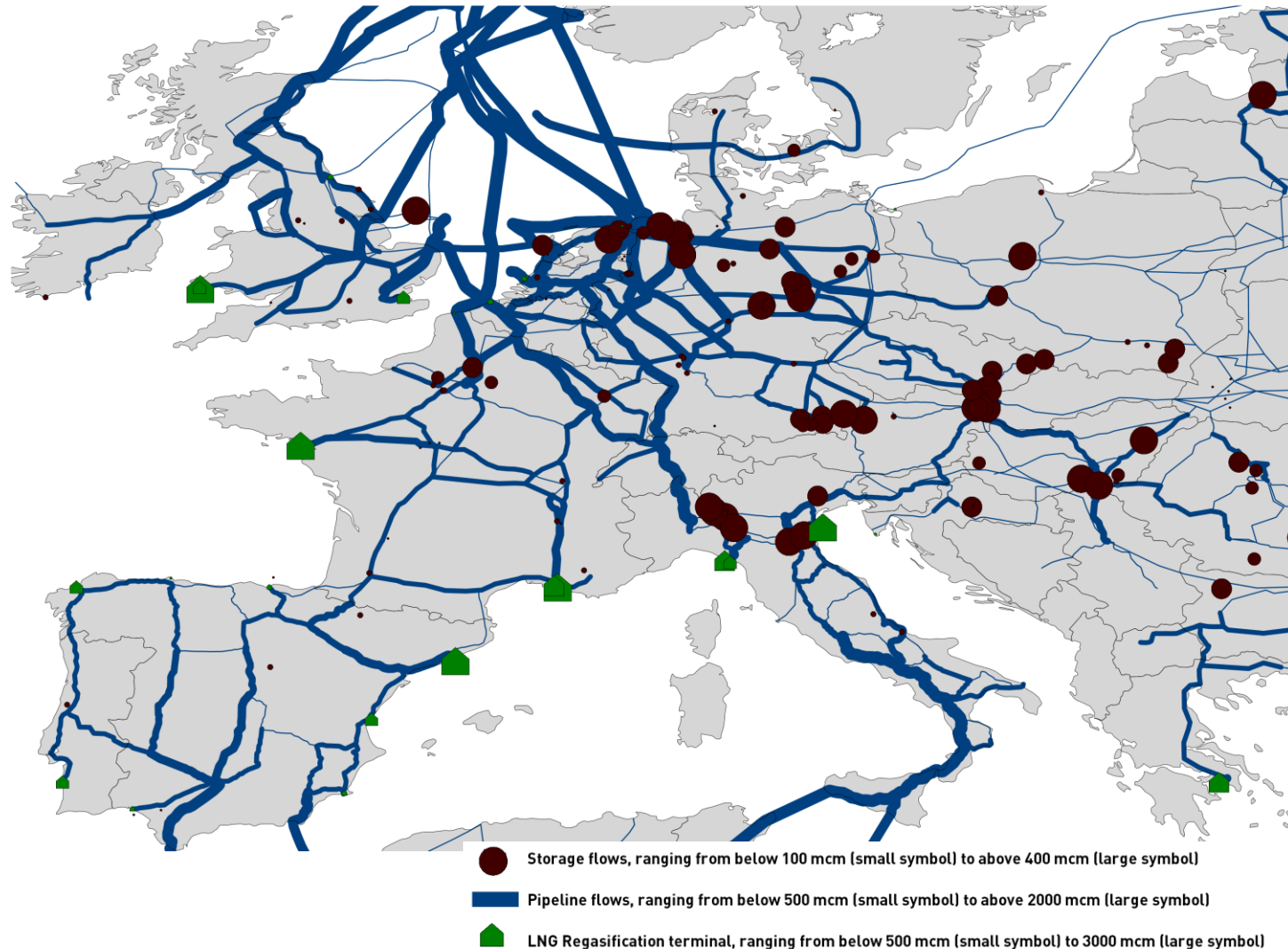
# How would Europe compensate the Russian gas embargo? ewi

## Storage, Pipeline flows and LNG Regasification (Reference)



# How would Europe compensate the Russian gas embargo? ewi

## Storage, Pipeline flows and LNG Regasification (6 month embargo)



## 1. Introduction

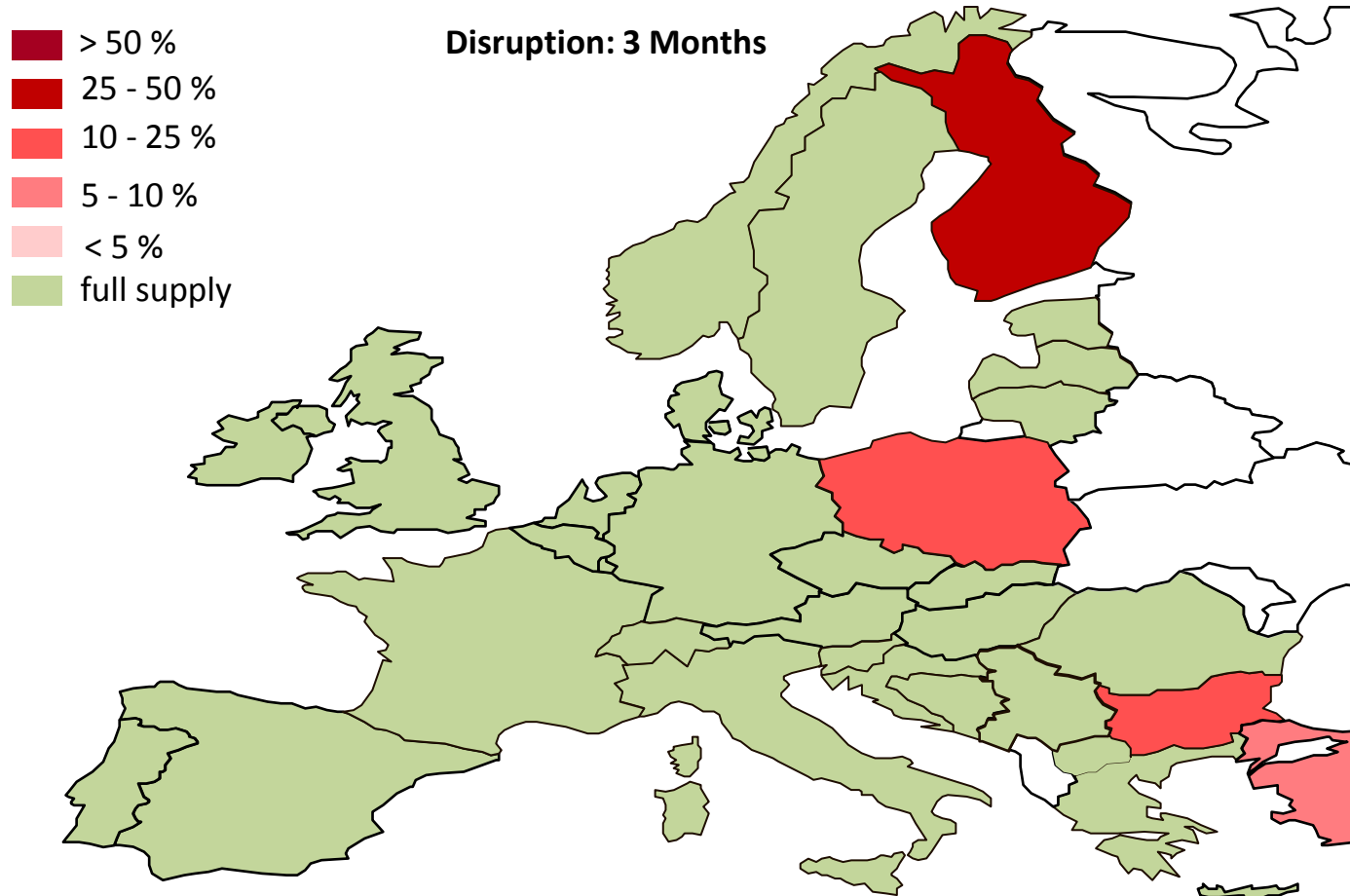
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# Which countries would suffer from supply shortfalls?

## Supply problems in case of a disruption for three months



## ewi

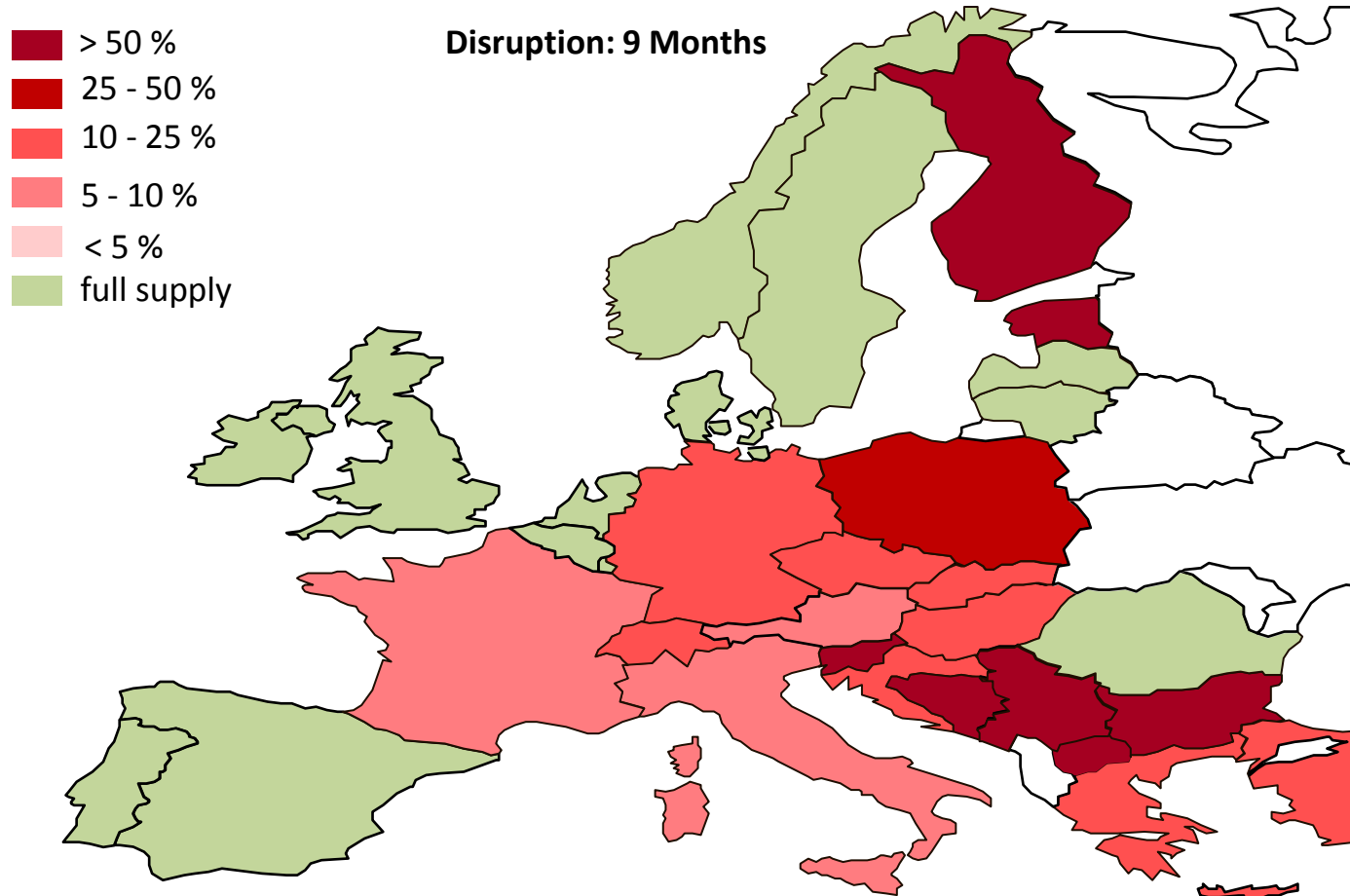
**Disruption: 6 Months**

- > 50 %
- 25 - 50 %
- 10 - 25 %
- 5 - 10 %
- < 5 %
- full supply



# Which countries would suffer from supply shortfalls?

## Supply problems in case of a disruption for nine months



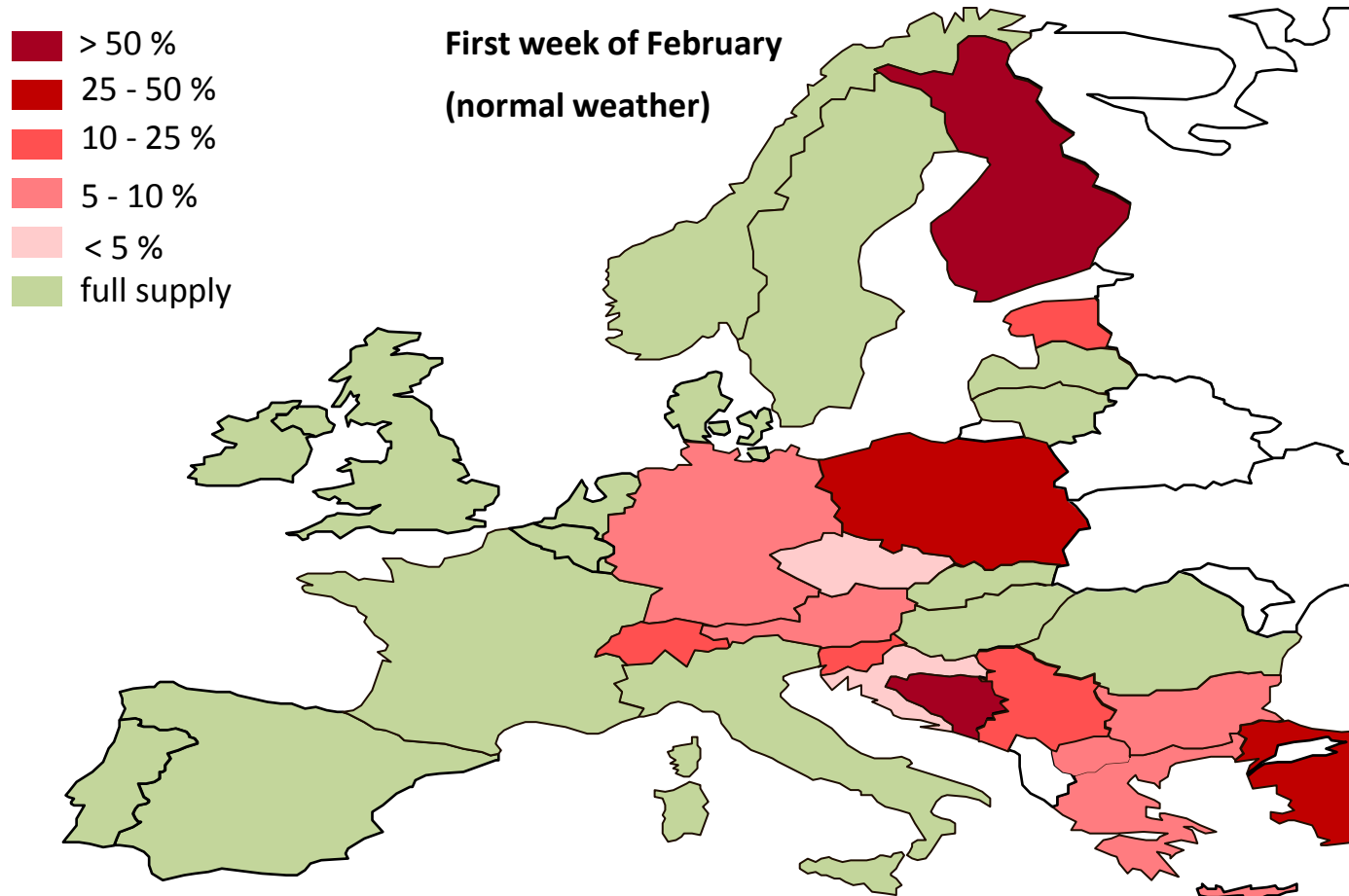
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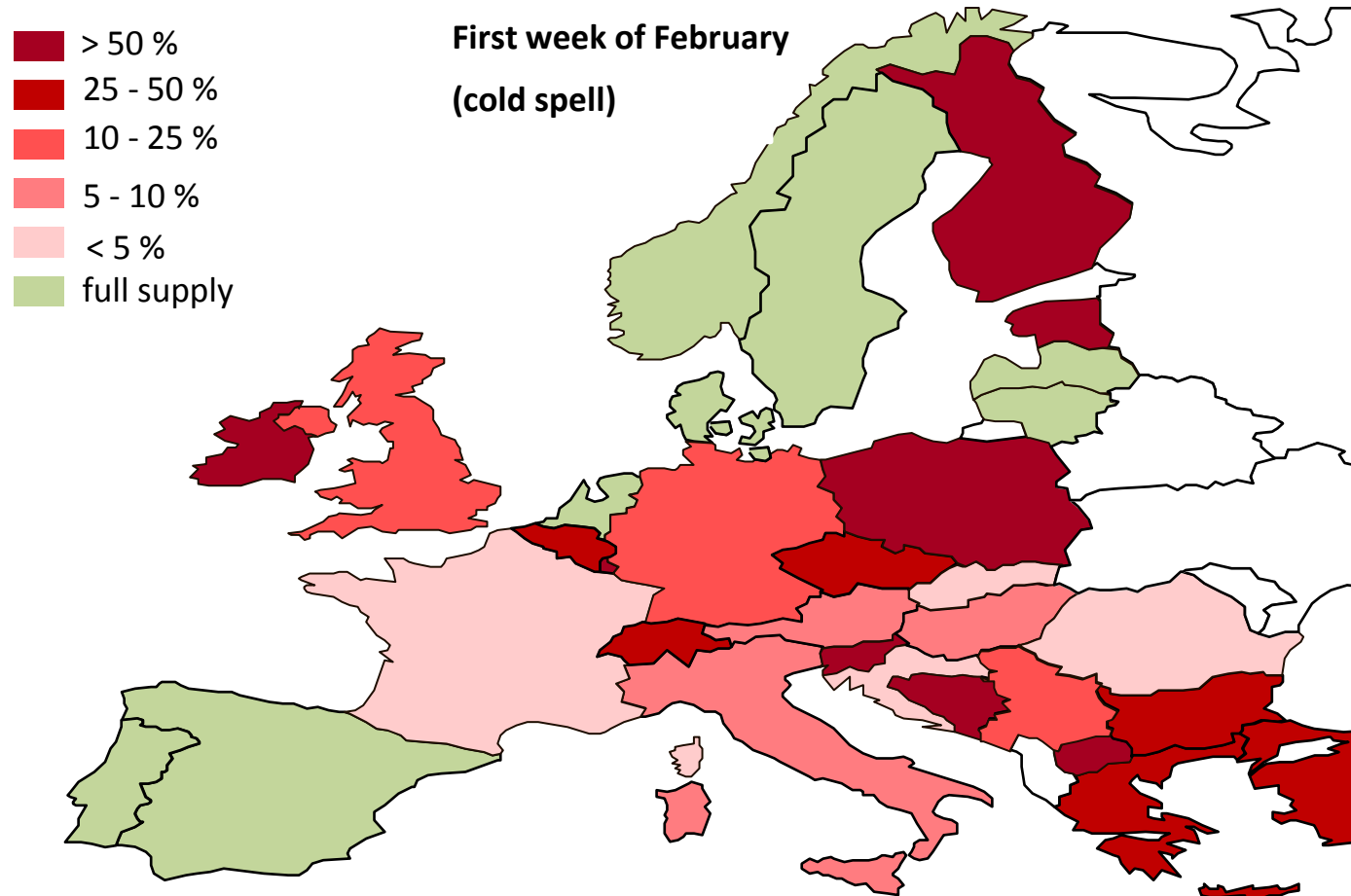
# What would be the effects of a cold spell in February?

## Supply shortfalls during a six month embargo



# What would be the effects of a cold spell in February?

## Supply shortfalls during a six month embargo and a cold spell



## 1. Introduction

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## Critical assumptions of the simulation results

- LNG: additional imports of 45 bcm possible
- Storage: Storages almost 100% filled at beginning of winter 14/15; fill level at beginning of winter 15/16 85%
- Technical constraints: (reverse) flows limited only by pipeline size (not by pipeline pressure issues)



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## Conclusion

- A short term (< 3 month) embargo has only limited effect
- Longer supply cuts will severely affect mid- and even western European countries
- Additional Norwegian supply helps reducing effects, but can not compensate longer supply cuts
- However, there are mutual dependencies due to the important role of export revenues from gas for Russia



# Thank You Very Much for Your Attention

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