



Melanie Altenkirch

Advisor: Dr. Rockelmann
Department of German

History and the Energiewende

Germany's energy transition has been characterized by the anti-nuclear movement of the 1970s, which founded the Green Party.

- 1974: Anti-Nuclear Protests Begin
- 1991: Introduction of Feed-In Tariffs
- 2000: Renewable Energy Act
- 2000 Atomkonsens: Planned Phase-Out of Nuclear Energy for 2020
- 2009: Russia cuts off gas supply to Ukraine
- 2020: German National Hydrogen Strategy
- April 2023: Last Nuclear Plant Shuts Down



Image sourced from Anne Lund courtesy of Wikipedia Commons.

References

- "Energie." *BMWK - Energie*, Bundesministerium Für Wirtschaft Und Klimaschutz, <https://www.100.bmwi.de/BMWI100/Navigation/DE/Meilenstein-11/energie.html>. Röndigs, Dr. Uwe. *Globalisierung und europäische Integration: Der Strukturwandel des Energiesektors und die Politik der Montanunion, 1952-1962*. Nomos Verlagsgesellschaft Baden-Baden, 2000.
- Sievers, Luisa, et al. "Macroeconomic Impact of the German Energy Transition and Its Distribution by Sectors and Regions." *Ecological Economics*, vol. 160, 2019, pp. 191-204., <https://doi.org/10.1016/j.ecolecon.2019.02.017>.
- Zhu, Tong; Lei Wang. „German Practice in State Energy Transition." *State Energy Transition German and American Realities and Chinese Choices*. Springer Singapore, Singapore, 2020, doi:10.1007/978-981-32-9499-8.

Work Experience

I spent the summer working with the employees at Swagelok Stuttgart, in Reutlingen, Baden-Württemberg.

- Advancements in Hydrogen Technology in Industrial Parts Industry
- Transatlantic Relationship
- German immersion
- Contextualization of Energy Debates
 - Effects of Ukraine Crisis on Energy Supplies for the winter
 - 9-Euro Ticket Public Transportation Efforts

Technology and Economics

Research question: **Are Germany's advancements towards clean and green hydrogen fitting to their technological developments and economic needs?**

Hydrogen is a fitting solution for the sectors that are harder to decarbonize, such as:

- Heavy-Duty Transportation
- Steel and Ammonium Production
- Air Travel

- *Green Hydrogen*: Produced from electrolysis using electrical inputs from wind or solar energy
- *Blue Hydrogen*: Produced using steam-methane reforming, with carbon capture and storage (CCS) technologies to reduce emissions
- *Clean Hydrogen*: Includes Green and Blue. Most regulatory and economic planning is made with *clean hydrogen* in mind.

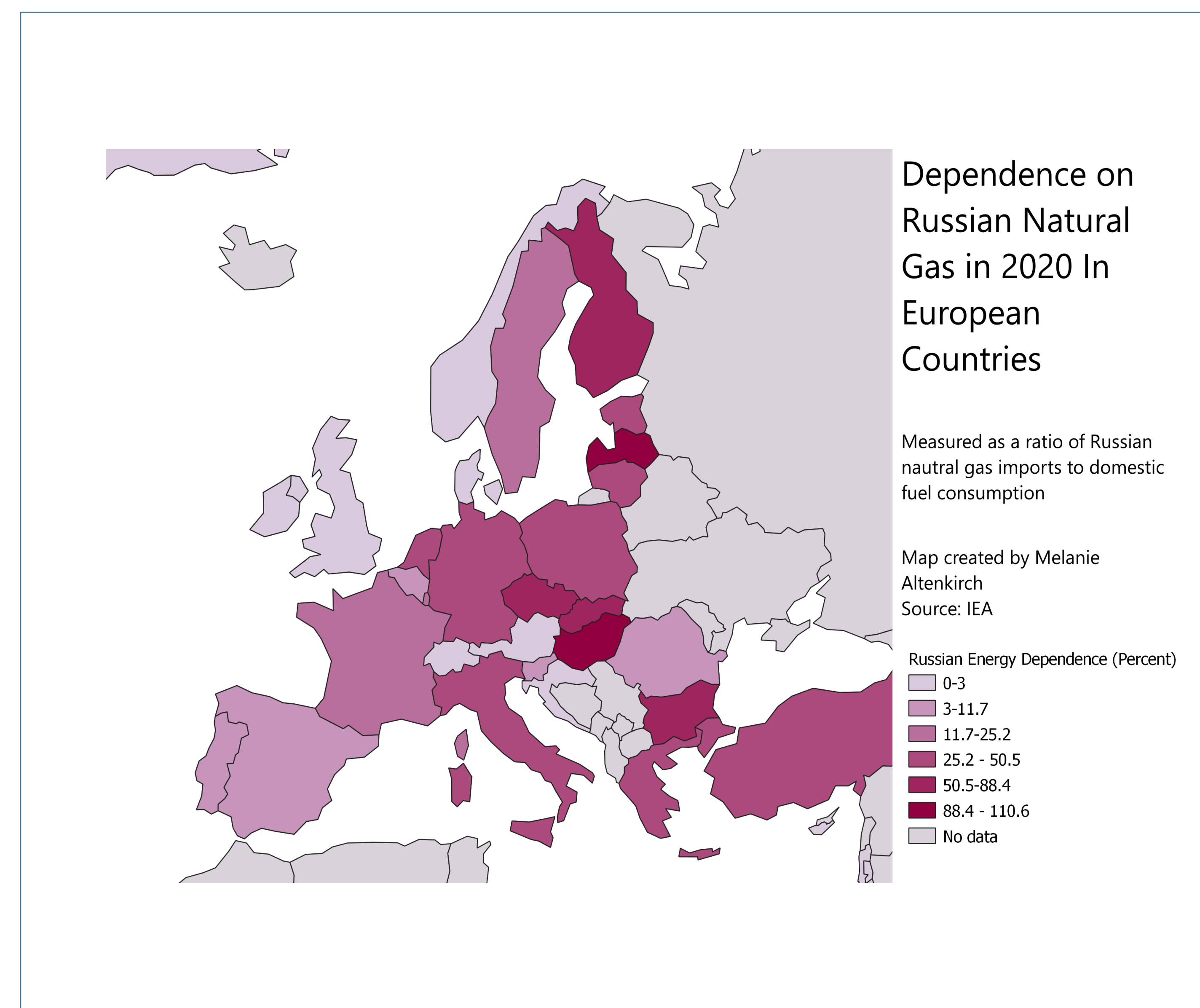


Image Courtesy of the Office of the U.S. Consulate in Munich, Germany