

Geopolitics of Energy in Africa

Lars Schernikau (HMS Bergbau)
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Derek Cambell (African Metals)

Moderator: Sara Vakhouri (SVB Energy Int'l)

CapeTown – 10 November 2021
Dr. Lars Schernikau | Germany/Singapore | HMS Bergbau AG



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HMS – a Global Commodity Supplier

HMS Bergbau (Germany) and Schernikau, Profile

HMS Bergbau AG – A global raw materials marketing company with focus on energy, ores, and cementitious products

- Listed in Frankfurt, majority owned by Schernikau family
 - Founded by industry veteran Mr. Heino Schernikau (Chairman), almost 5 decades in commodities & coal
- Famly with several raw material investments in Asia, Africa, Poland, and other parts of the world
 - Excellent team in Asia, Europe, Africa, India/Middle East, Americas
 - Several investment projects in Asia, Americas, Europe
 - One of first German company to investment in South Africa and in Indonesia with former coal port operations in Kalimantan
- The group markets and trades coking coal, anthracite, steam coal, petcoke, ores, cementitious and other products worldwide
 - Active in Atlantic and Pacific markets with exports to industrial operations worldwide



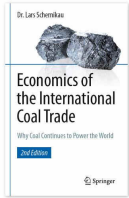
Established: 1995 in Berlin, Germany
Turnover: 300+ Mio. USD
Majority owner: Schernikau Family
CEO: Dennis Schwindt

About Lars Schernikau

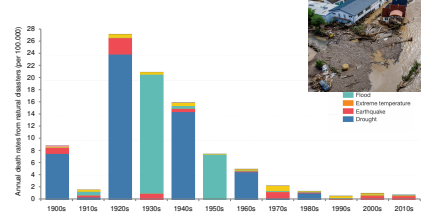


Lars Schernikau

- Lives in Switzerland & Singapore, married with 4 children
- Studied in US (NYU), France (INSEAD) and Germany (TU-Berlin)
- 6+ years at The Boston Consulting Group (M&A, start-ups)
- Joined raw materials business almost 20 years ago, today focusing on strategy and marketing HMS group's products in Asia, Africa, Americas and Middle East
- Wrote "The Renaissance of Steam Coal" published 2010, and "Why Coal Continues to Power the World" published 2017 (Springer)
- Serves and served on the board of several energy raw material producers and marketing companies in Europe, Russia, Africa, and Asia
- Regular speaker at international conferences. Has advised governments, banks and multinationals on energy policy and sustainability

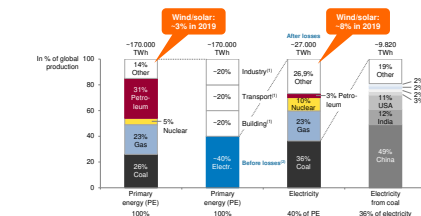


Global Annual Death Rate from Natural Disasters by Decade

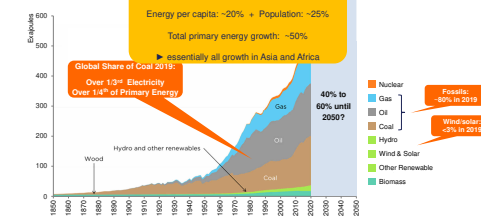


Electricity: About 40% of Global Primary Energy

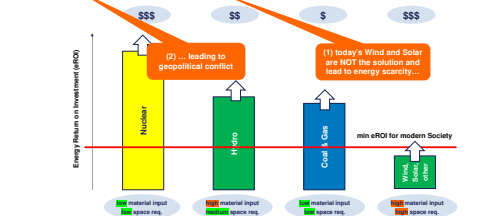
World's Primary and Electricity Energy Share



Is Life Without Fossils only Decades Away?

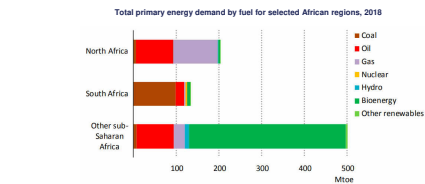


Geopolitics and Energy driven by Risk of Energy Scarcity (here focus Electricity)



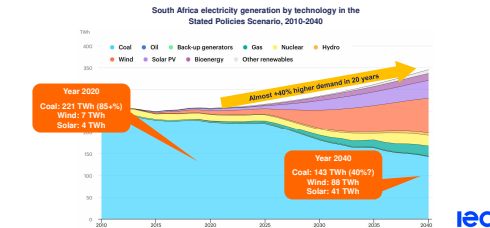
African energy supply dominated by Solid Biomass and Oil

Coal dominant in South Africa



IEA Nov 2019: With the exception of South Africa, the sub-Saharan African energy mix is dominated by solid biomass and oil

IEA Stated Policy Scenario for South Africa



China controls 75% of PV production

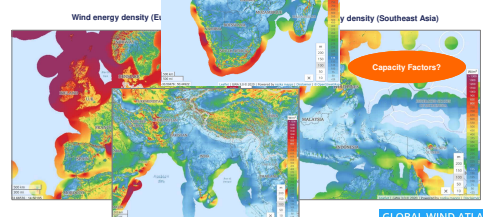


Wind Industry More Difficult to Dominate

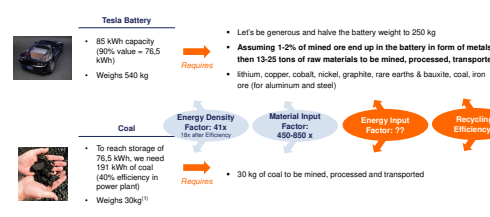


East and Southeast Asia not Suitable

... Even if One Believes That Wind is a Viable



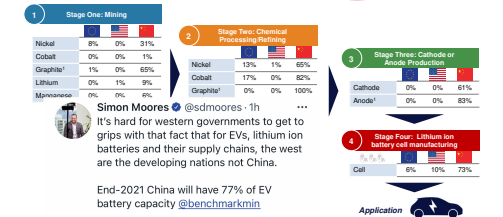
Illustrating Energy Densities (Fossil Fuel Is Storage)



June 2020: Lithium Ion – US vs China – Who is winning?



China's Control of EV Supply Chain



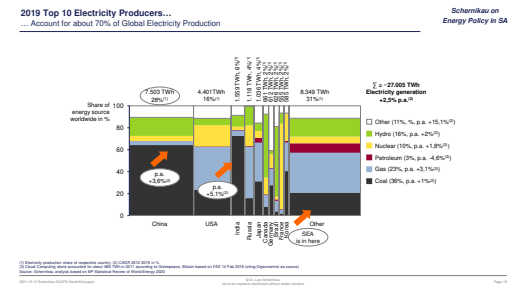
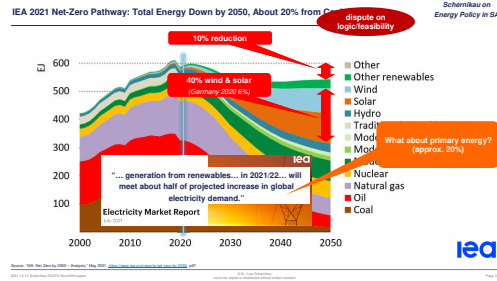
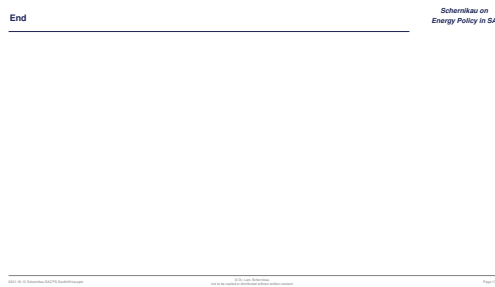
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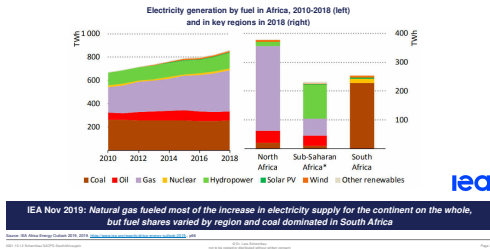
Capetown – 10 November 2021
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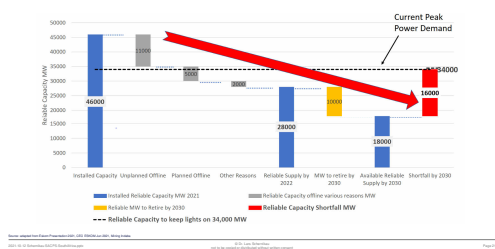
End



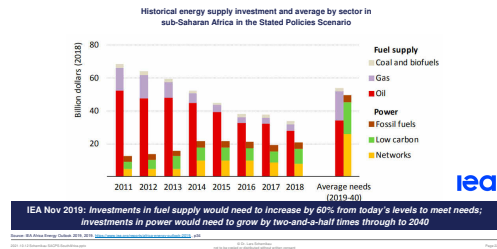
Fossil Fuels make up over 80% of African Electricity Generation



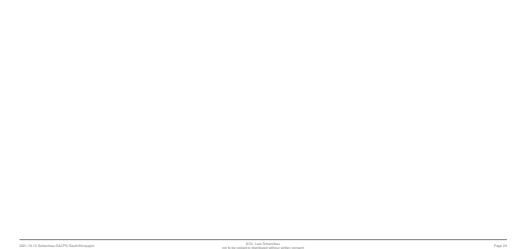
Eskom: Reliable Capacity Forecast all sources to 2030



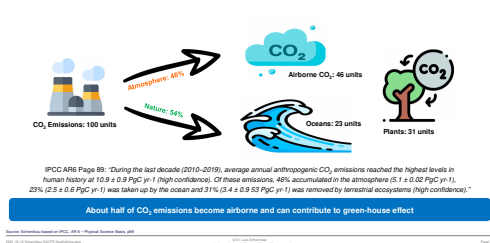
IEA states need for investment in Fuel Supply in Africa



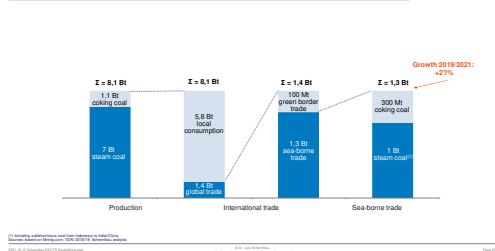
Coal



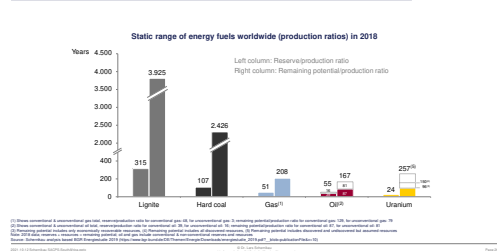
IPCC AR6 (Aug 2021): 46% of CO₂ Emissions Become Airborne... ... Remainder is Taken up by Nature



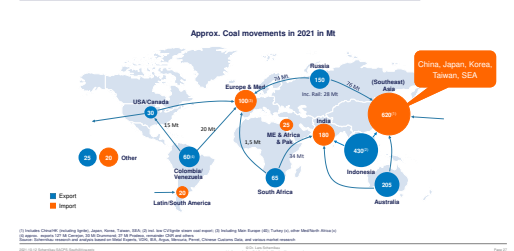
Coal Overview: About 1 Bt International Traded Steam Coal



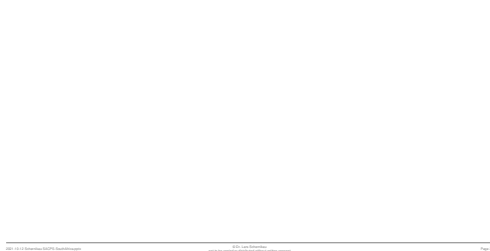
Fossil Fuel's (Primarily Coal's) Remaining Potential is Huge



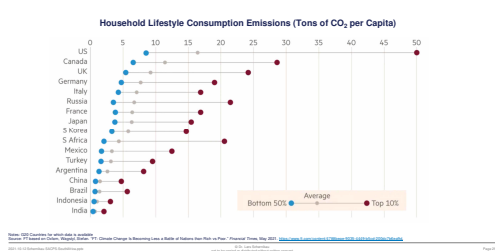
About 1 Bt Steam Coal Traded in 2021 (Schemikau) – higher than 1919?



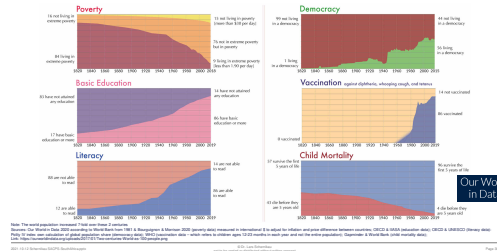
APPENDIX - BACKUP



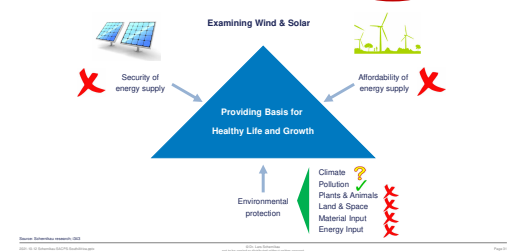
Differences in Emissions of Rich and Poor Highlight Inequalities



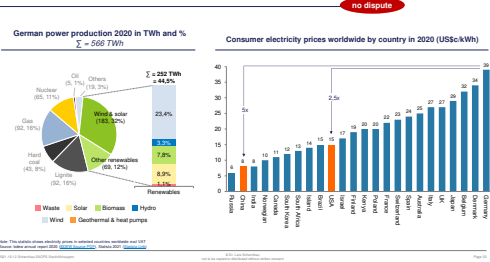
The World as 100 People Over the Last Century



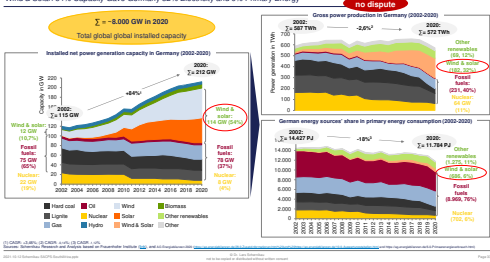
Triangle of Objectives in Energy Policy



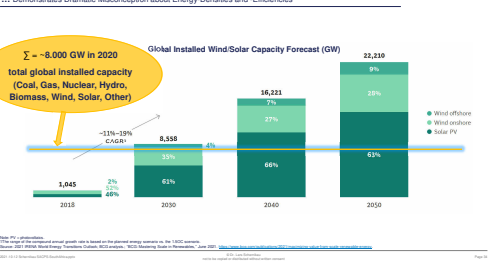
Germany is Leading Electricity Price Worldwide



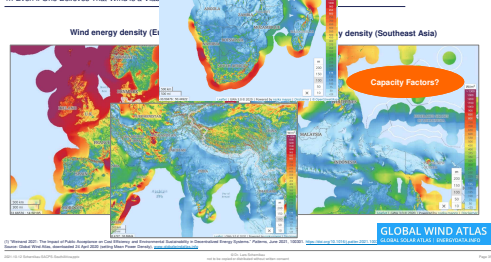
Germany: Renewable Installed Capacity vs. Power Generation and Primary Energy



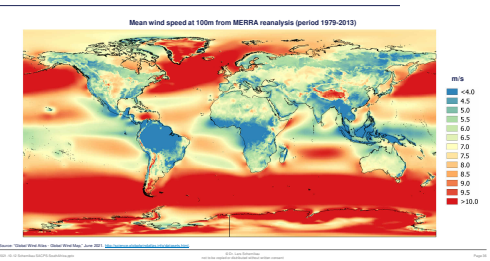
Global: Wind/Solar Capacity Forecast for 2050 to be almost 4x total (Fossil/Ren) today ...



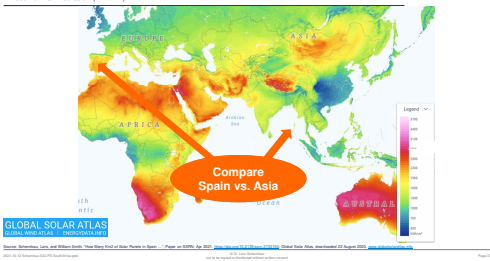
East and Southeast Asia not Suitable ... Even if One Believes That Wind is a Viable



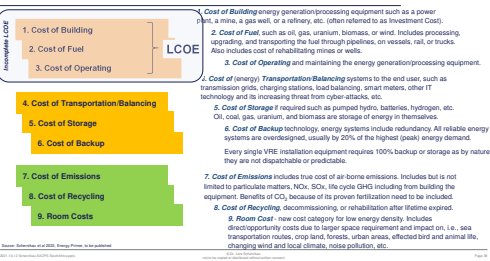
Annual Wind Speeds at 100m Height



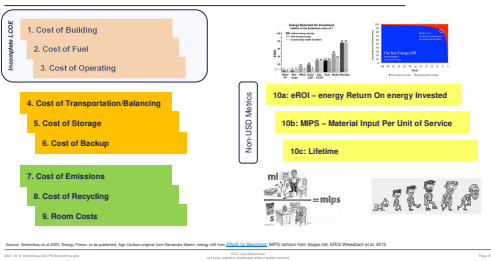
Solar Output Varies Worldwide



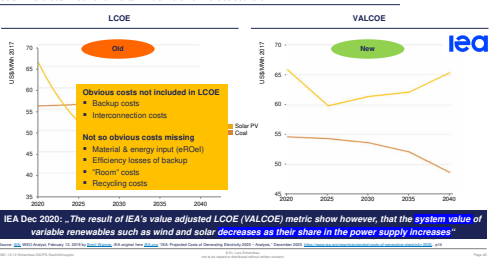
What is the cost of Energy?



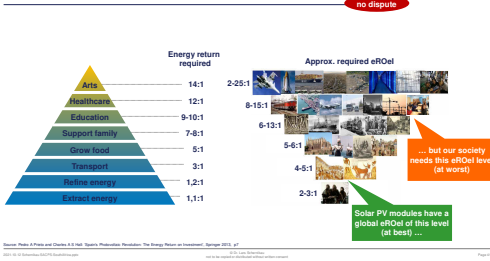
What is the cost of Energy?



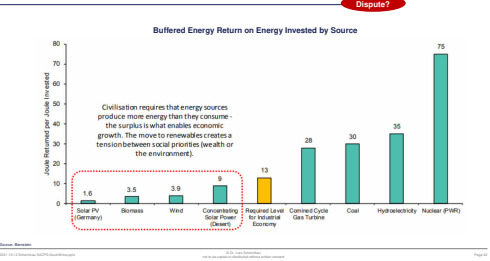
IEA: Levelized Cost of Electricity (LCOE) & Value-Adjusted LCOE (VALCOE)



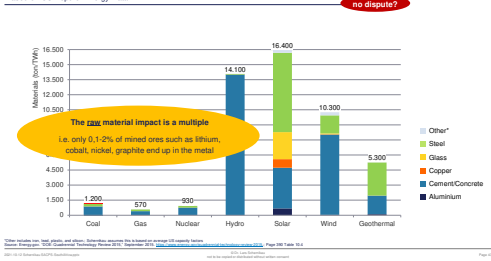
Advanced Societies Require High energy-Return-on-energy-Invested (eROEI)



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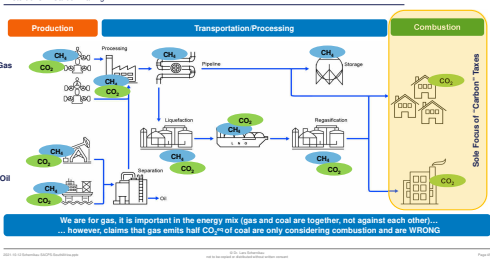
Base-Material Input per 1 TWh Generation



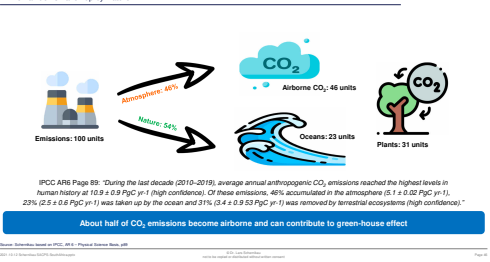
Oet 2020: Ministry for Environment -- in Germany



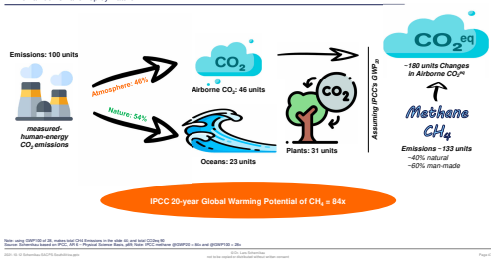
LNG and PNG, Gas Chain and GHG Emissions

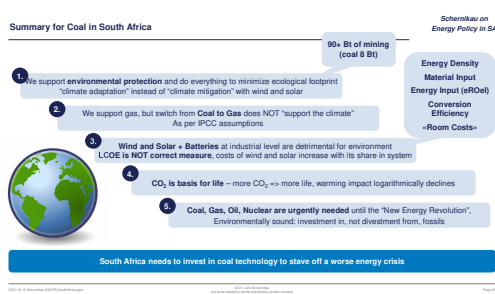
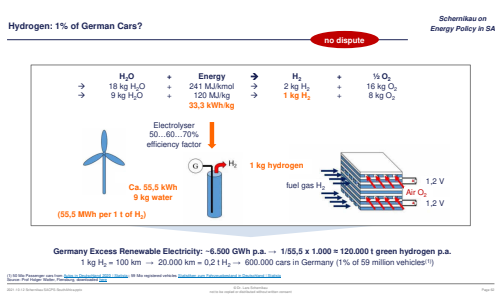
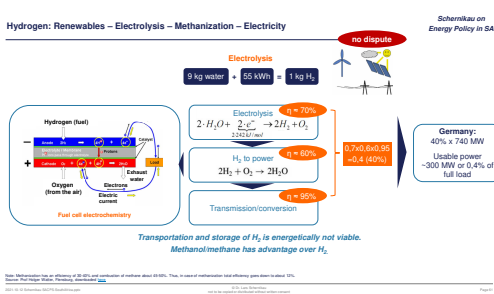
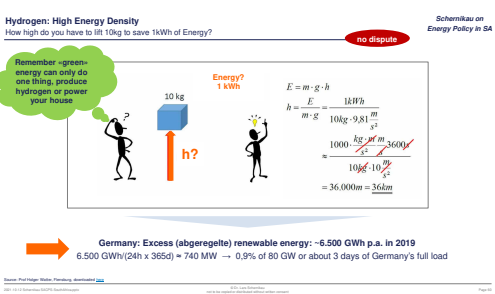
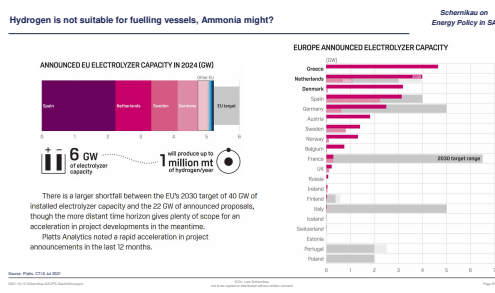
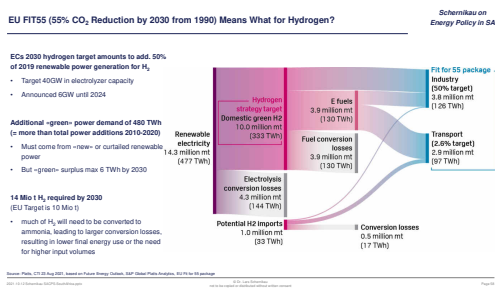
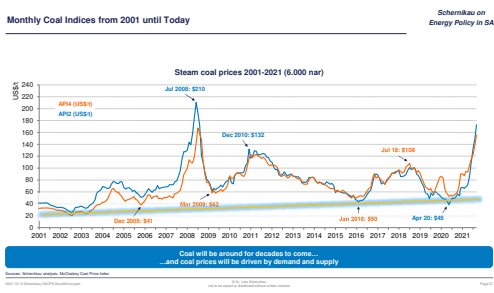
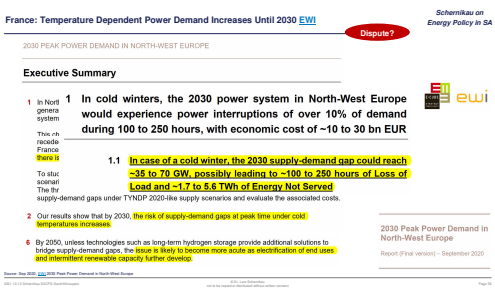
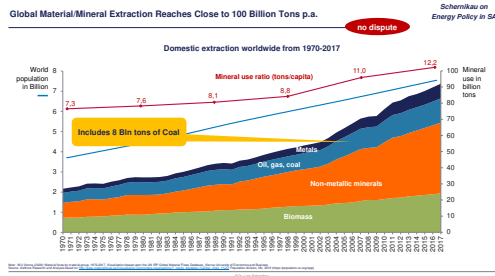
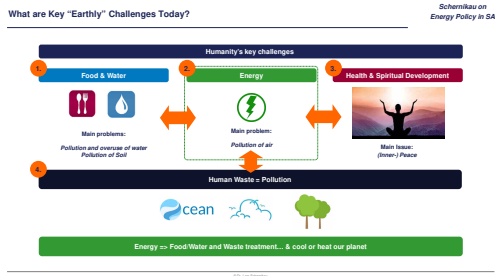
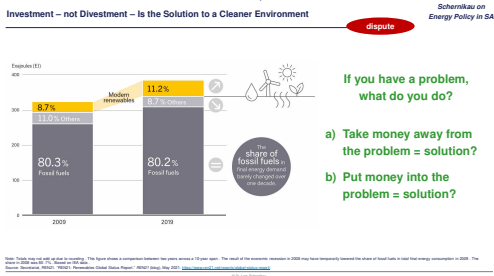
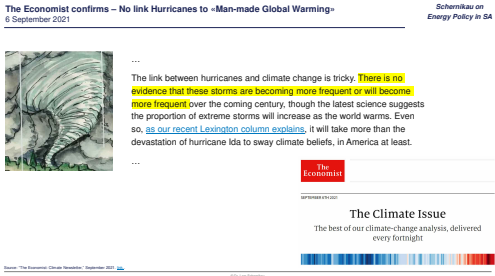
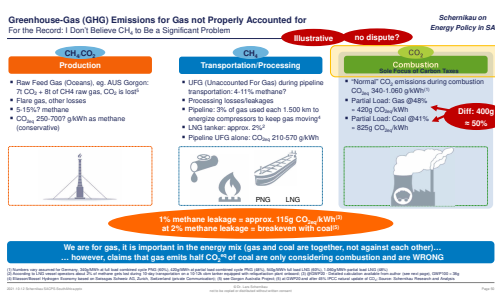
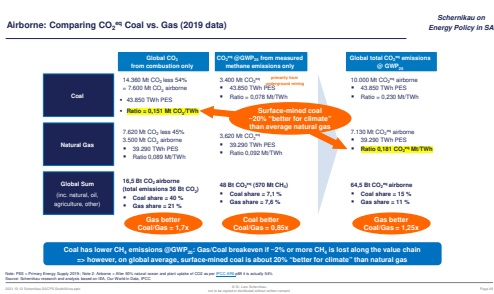
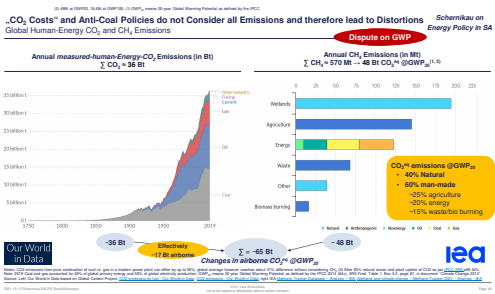


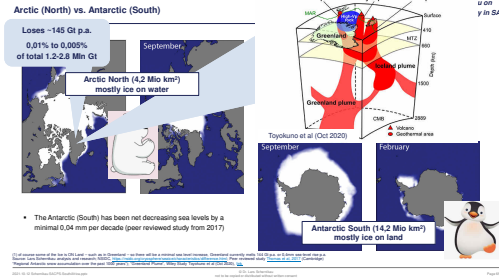
IPCC AR6 (Aug 2021): 46% of CO₂ Emissions Become Airborne...



IPCC AR6 (Aug 2021): 46% of CO₂ Emissions Remain Airborne...





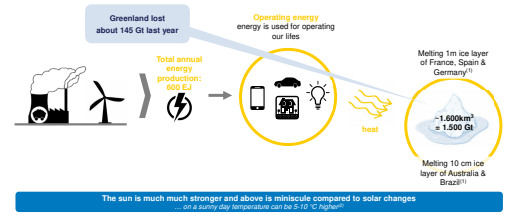


All Life on Earth Depends on One Single Formula
More CO₂ => More Life

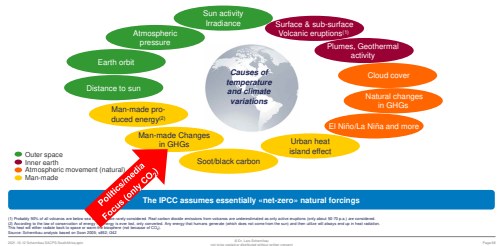
S Chernikau on
Energy Policy in SA

Humans Cause Warming
Melting Ice Causes Warming (Reduced Albedo/Reflection of Sun Rays)

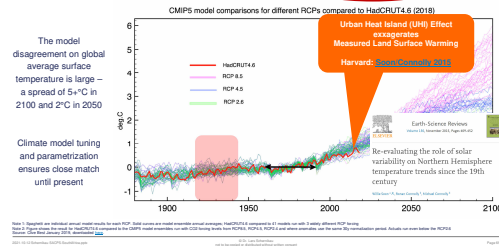
Schernikau on Energy Policy in SA



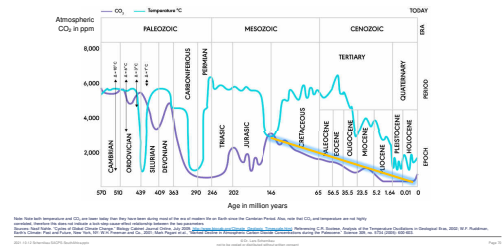
What Causes Temperature and Climate Variations? We Are Not 100% Sure!

Schernikau on
Energy Policy in SA

Surface Temperatures: Model Comparison Until 2100

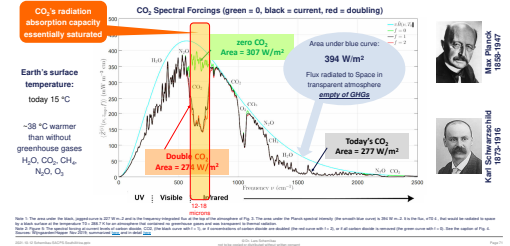
S Chernikau on
Energy Policy in SA

Global CO₂ Concentration & Temperatures Over Past 600 Million Years

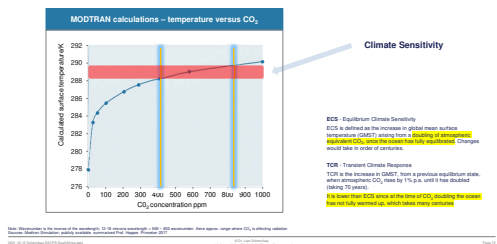
Schernikau on
Energy Policy in SA

Additional CO₂ Will Add Some (Insignificant) Energy to Atmosphere

Schernikau on Energy Policy in SA



MODTRAN Simulation – Introduction

Schernikau on
Energy Policy in SA

12 Recommended Books that Warn us of Alarmism and Remind us to Stay Calm

Schernikau on
Energy Policy in SA

12 Recommended Books That Warn Us of the Impacts of Human-Made Climate Change

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Energy Policy in SA