



# Emmanuel Hache

emmanuel.hache@ifpen.fr

## Axe de recherche

Macroéconomie internationale, finance, matières premières et économétrie financière

## Thème(s)

Energie; Matières premières; Asie

HAL: [Lien](#)

## Publications

---

HAL: [Lien](#)

2026 - Fernanda Guedes, Gondia Sokhna Seck, Emmanuel Hache, Candice Roche. Rare earth elements demand and energy transition in 2050: Exploring water stress impacts. *Resources Policy*, 2026, 118, pp.105936. (10.1016/j.resourpol.2026.105936). (hal-05674663)  
<https://ifp.hal.science/hal-05674663v1>

2026 - Emmanuel Hache. Prospective et systèmes complexes : penser l'incertitude dans le secteur énergétique. *La revue internationale et stratégique*, 2026, 141 (1), pp.95-105. (hal-05572752)  
<https://ifp.hal.science/hal-05572752v1>

2026 - Carl Grekou, Emmanuel Hache, Valérie Mignon. Métaux critiques : nouvelles lignes de fracture de la puissance mondiale. Dépendances stratégiques, rivalités sino-américaines et dilemme européen. 2026. (hal-05522349)  
<https://hal.science/hal-05522349v1>

2026 - Romain Capliez, Valérie Mignon, Carl Grekou, Emmanuel Hache. What Drives Mineral Commodity Prices? A Historical Perspective on Demand and Supply Dynamics. 2026. (hal-05664063)  
<https://hal.science/hal-05664063v1>

2026 - Romain Capliez, Carl Grekou, Emmanuel Hache, Valérie Mignon. What Drives Mineral Commodity Prices? A Historical Perspective on Demand and Supply Dynamics. 2026. (hal-05663766v2)  
<https://hal.science/hal-05663766v2>

2025 - Emmanuel Hache, Vincent D'herbemont, Louis-Marie Malbec, Candice Roche. Transition énergétique. Réalités industrielles. *Annales des mines*, 2025, 18 (4), pp.12-16. (10.3917/rindu1.254.0012). (hal-05482551)  
<https://hal.science/hal-05482551v1>

2025 - Emmanuel Hache, Candice Roche. Du capitalisme de troc aux bourses émergentes : entre réponse aux sanctions et géopolitique parallèle des matières premières. *La revue internationale et stratégique*, 2025, 139 (3), pp.99-109. (10.3917/ris.139.0099). (hal-05470208)  
<https://ifp.hal.science/hal-05470208v1>

2025 - Carl Grekou, Emmanuel Hache, Valérie Mignon. Métaux critiques : les États-Unis entre impératif de souveraineté et tentation impérialiste. *La Découverte. L'économie mondiale* 2026,

pp.25-38, 2025, Repères. (hal-05295151)  
<https://hal.science/hal-05295151v1>

2025 - Emmanuel Hache, Candice Roche. Rapport Draghi : reflet d'une Europe sans puissance. La revue internationale et stratégique, 2025, 137, pp.19 à 31. (10.3917/ris.137.0019). (hal-05151485)  
<https://hal.science/hal-05151485v1>

2025 - Thibaut Feix, Emmanuel Hache. Cumulative Energy Demand and Global Warming Potential of metals and minerals production: Assessment, projections and mitigation options. Resources Policy, 2025, 102, pp.105516. (10.1016/j.resourpol.2025.105516). (hal-04989235)  
<https://ifp.hal.science/hal-04989235v1>

2025 - Pauline Bucciarelli, Emmanuel Hache, Valérie Mignon. Evaluating criticality of strategic metals: Are the Herfindahl-Hirschman Index and usual concentration thresholds still relevant?. Energy Economics, 2025, 143, pp.108208. (10.1016/j.eneco.2025.108208). (hal-04924186)  
<https://hal.science/hal-04924186v1>

2025 - Romain Capliez, Carl Grekou, Emmanuel Hache, Valérie Mignon. Lithium-Ion Batteries: Dynamic Mapping of the Value Chain and Perspectives. 2025. (hal-04910581)  
<https://hal.science/hal-04910581v1>

2025 - Romain Capliez, Carl Grekou, Emmanuel Hache, Valérie Mignon. Électrification des transports : les batteries lithium-ion au cœur d'enjeux géopolitiques majeurs. La revue de l'énergie, 2025, 676, pp.11-21. (hal-04974751)  
<https://hal.science/hal-04974751v1>

2024 - Emmanuel Hache. Matières premières : rareté, rivalités, dépassement. La revue internationale et stratégique, 2024, 136 (Hiver), pp.29-38. (hal-04916582)  
<https://ifp.hal.science/hal-04916582v1>

2024 - Emmanuel Hache, Candice Roche. Les métaux : reflets ou catalyseurs de la fragmentation mondiale ?. La revue internationale et stratégique, 2024, 136 (Hiver), pp.79-90. (10.3917/ris.136.0079). (hal-04929199)  
<https://ifp.hal.science/hal-04929199v1>

2024 - Emmanuel Hache, Émilie Normand, Candice Roche. Exploiter les fonds marins : une nouvelle frontière géopolitique ?. La revue internationale et stratégique, 2024, 136 (Hiver), pp.173-183. (hal-04916623)  
<https://ifp.hal.science/hal-04916623v1>

2024 - Romain Capliez, Carl Grekou, Emmanuel Hache, Valérie Mignon. Batteries lithium-ion : cartographie dynamique de la chaîne de valeur et perspectives. 2024. (hal-04720793)  
<https://hal.science/hal-04720793v1>

2024 - Emmanuel Hache, Emilie Normand. Quelle stratégie européenne sur les matériaux critiques ?. L'Économie politique, 2024, 101 (1), pp.52-62. (hal-04885464)  
<https://ifp.hal.science/hal-04885464v1>

2024 - Romain Capliez, Carl Grekou, Emmanuel Hache, Valérie Mignon. Matières premières critiques : vers l'autonomie stratégique européenne ?. La Découverte. L'économie mondiale 2025, La Découverte, 2024, Repères. (hal-04688287)  
<https://hal.science/hal-04688287v1>

2023 - Gondia Sokhna Seck, Emmanuel Hache, Vincent d'Herbemont, Mathis Guyot, Louis-Marie Malbec. Hydrogen Development in Europe : Estimating Material Consumption in Net Zero Emissions

Scenarios. International Economics, 2023, 176, pp.100457. (10.1016/j.inteco.2023.100457). (hal-04253822)

<https://ifp.hal.science/hal-04253822v1>

2023 - Pauline Bucciarelli, Emmanuel Hache, Valérie Mignon. Evaluating criticality of strategic metals: Are the Herfindahl-Hirschman Index and usual concentration thresholds still relevant?. 2023. (hal-04452384)

<https://hal.science/hal-04452384v1>

2023 - Emmanuel Hache. Une nouvelle ère d'insécurité énergétique mondiale. L'Année stratégique 2024, Dunod, pp.318 - 326, 2023. (hal-04389542)

<https://hal.science/hal-04389542v1>

2022 - Carl Grekou, Emmanuel Hache, Frédéric Lantz, Olivier Massol, Valérie Mignon, et al.. La dépendance de l'Europe au gaz russe : état des lieux et perspectives. Revue d'économie financière, 2022, 147 (3), pp.227-242. (10.3917/ecofi.147.0227). (hal-03955439)

<https://centralesupelec.hal.science/hal-03955439v1>

2022 - Gondia Seck, Emmanuel Hache, Jerome Sabathier, Fernanda Guedes, Gunhild Reigstad, et al.. Hydrogen and the Decarbonization of the Energy System in Europe in 2050 : A Detailed Model-Based Analysis. Renewable and Sustainable Energy Reviews, 2022, 167, pp.112779. (10.1016/j.rser.2022.112779). (hal-03777266)

<https://ifp.hal.science/hal-03777266v1>

2022 - Tanguy Bonnet, Carl Grekou, Emmanuel Hache, Valérie Mignon. Métaux stratégiques : la clairvoyance chinoise. La Lettre du CEPII, 2022, 428. (hal-04906218)

<https://hal.science/hal-04906218v1>

2022 - Carl Grekou, Emmanuel Hache, Frédéric Lantz, Olivier Massol, Valérie Mignon, et al.. Guerre en Ukraine : bouleversements et défis énergétiques en Europe. 2022. (hal-04317265)

<https://centralesupelec.hal.science/hal-04317265v1>

2022 - Gondia Sokhna Seck, Emmanuel Hache, Charlène Barnet. Potential Bottleneck in the Energy Transition: the Case of Cobalt in an Accelerating Electro-Mobility World. Resources Policy, 2022, 75, pp.102516. (10.1016/j.resourpol.2021.102516). (hal-03563296)

<https://ifp.hal.science/hal-03563296v1>

2022 - Emmanuel Hache. La guerre en Ukraine rebat les cartes de la géopolitique de l'énergie. L'Année Stratégique 2023, Dunod, 2022. (hal-03753447)

<https://hal.science/hal-03753447v1>

2022 - Emmanuel Hache. Géopolitique des Energies, Tensions d'un monde en mutation. Eyrolles, 2022. (hal-03825829)

<https://hal.science/hal-03825829v1>

2021 - Margaux Escoffier, Emmanuel Hache, Valérie Mignon, Anthony Paris. Determinants of solar photovoltaic deployment in the electricity mix : Do oil prices really matter?. Energy Economics, 2021, 97, pp.105024. (10.1016/j.eneco.2020.105024). (hal-03339134)

<https://ifp.hal.science/hal-03339134v1>

2021 - Emmanuel Hache. Un monde d'après sur les marchés énergétiques ?. L'Année Stratégique 2022, Dunod, 2021. (hal-03753449)

<https://hal.science/hal-03753449v1>

2021 - Valérie Mignon, Margaux Escoffier, Anthony Paris, Emmanuel Hache. Determinants of solar

photovoltaic deployment in the electricity mix: Do oil prices really matter?. Energy Economics, 2021, 97. (hal-02995105)

<https://hal.science/hal-02995105v1>

2020 - Gondia Sokhna Seck, Emmanuel Hache, Clement Bonnet, Marine Simoën, Samuel Carcanague. Copper at the crossroads : Assessment of the interactions between low-carbon energy transition and supply limitations. Resources, Conservation and Recycling, 2020, 163, pp.105072. (10.1016/j.resconrec.2020.105072). (hal-03118509)

<https://ifp.hal.science/hal-03118509v1>

2020 - Emmanuel Hache, Marine Simoën, Gondia Sokhna Seck, Clement Bonnet, Aymen Jabberi, et al.. The impact of future power generation on cement demand: an international and regional assessment based on climate scenarios. International Economics, 2020, 163, pp.114-133. (10.1016/j.inteco.2020.05.002). (hal-02978242)

<https://ifp.hal.science/hal-02978242v1>

2020 - Anne Bouter, Emmanuel Hache, Cyprien Ternel, Sandra Beauchet. Comparative environmental life cycle assessment of several powertrain types for cars and buses in France for two driving cycles: "worldwide harmonized light vehicle test procedure" cycle and urban cycle. International Journal of Life Cycle Assessment, 2020, 25 (8), pp.1545-1565. (10.1007/s11367-020-01756-2). (hal-03114175)

<https://ifp.hal.science/hal-03114175v1>

2020 - Emmanuel Hache. Le pétrole au cœur des préoccupations énergétiques mondiales. L'Année Stratégique 2021, Dunod, 2020. (hal-03753451)

<https://hal.science/hal-03753451v1>

2019 - Clément Bonnet, Emmanuel Hache, Gondia Sokhna Seck, Marine Simoen, Samuel Carcanague. Who's winning the low-carbon innovation race? An assessment of countries' leadership in renewable energy technologies. International Economics, 2019, 160, pp.31-42. (10.1016/j.inteco.2019.07.006). (hal-02417569)

<https://ifp.hal.science/hal-02417569v1>

2019 - Emmanuel Hache, Gondia Sokhna Seck, Marine Simoen, Clement Bonnet, Samuel Carcanague. Critical raw materials and transportation sector electrification: A detailed bottom-up analysis in world transport. Applied Energy, 2019, 240, pp.6-25. (10.1016/j.apenergy.2019.02.057). (hal-02061459)

<https://ifp.hal.science/hal-02061459v1>

2019 - Pierre Hacquard, Marine Simoën, Emmanuel Hache. Is the oil industry able to support a world that consumes 105 million barrels of oil per day in 2025?. Oil & Gas Science and Technology - Revue d'IFP Energies nouvelles, 2019, 74, pp.88. (10.2516/ogst/2019061). (hal-02415060)

<https://ifp.hal.science/hal-02415060v1>

2019 - Valérie Mignon, Margaux Escoffier, Emmanuel Hache, Anthony Paris. Determinants of solar photovoltaic deployment in the electricity mix: Do oil prices really matter?. 42nd International Association for Energy Economics (IAEE) Annual Conference, 2019, Montréal, Unknown Region. (hal-04436178)

<https://hal.science/hal-04436178v1>

2019 - Margaux Escoffier, Emmanuel Hache, Valérie Mignon, Anthony Paris. Determinants of investments in solar photovoltaic: Do oil prices really matter?. 2019. (hal-04141866)

<https://hal.science/hal-04141866v1>

2019 - Emmanuel Hache. Les dimensions énergétiques des routes de la Soie. Les nouvelles routes de

la Soie. Géopolitique d'un grand projet chinois, Presse de l'Université du Québec, 2019.  
(hal-03753458)  
<https://hal.science/hal-03753458v1>

2019 - Emmanuel Hache, Angélique Palle. Renewable energy source integration into power networks, research trends and policy implications: A bibliometric and research actors survey analysis. Energy Policy, 2019, 124, pp.23 - 35. (10.1016/j.enpol.2018.09.036). (hal-01929420)  
<https://ifp.hal.science/hal-01929420v1>

2018 - Gabriel B. Gomes, Emmanuel Hache, Valerie Mignon, Anthony Paris. On the current account-biofuels link in emerging and developing countries: do oil price fluctuations matter? \*. Energy Policy, 2018, 116, pp.60 - 67. (10.1016/j.enpol.2018.01.054). (hal-01882204)  
<https://ifp.hal.science/hal-01882204v1>

2018 - Emmanuel Hache, Anthony Paris. Market Efficiency and Optimal Hedging Strategy for the US Ethanol Market. 2018. (hal-04141799)  
<https://hal.science/hal-04141799v1>

2018 - Emmanuel Hache, Angélique Palle. Renewable energy source integration into power networks, research trends and policy implications: A bibliometric and stakeholders survey analysis. 2018. (hal-04141688)  
<https://hal.science/hal-04141688v1>

2018 - Clément Bonnet, Samuel Carcanague, Emmanuel Hache, Gondia Sokhna Seck, Marine Simoën. The nexus between climate negotiations and low-carbon innovation: a geopolitics of renewable energy patents. 2018. (hal-04141680)  
<https://hal.science/hal-04141680v1>

2017 - Anthony Paris, Emmanuel Hache. Efficiency Market Hypothesis and Optimal Hedge Ratio of the Ethanol Market. 4ème Conférence annuelle de la FAERE , 2017, Nancy, Unknown Region. (hal-01647583)  
<https://hal.science/hal-01647583v1>

2017 - Emmanuel Hache, Déborah Leboullenger, Valérie Mignon. Beyond average energy consumption in the French residential housing market: A household classification approach. Energy Policy, 2017, 107, pp.82-95. (10.1016/j.enpol.2017.04.038). (hal-01586597)  
<https://ifp.hal.science/hal-01586597v1>

2017 - Anthony Paris, Emmanuel Hache. Efficiency and Optimal Hedge Ratio of the Ethanol Market in the US. 15th European Conference of IAEE , 2017, Vienna, Unknown Region. (hal-01647564)  
<https://hal.science/hal-01647564v1>

2017 - Valérie Mignon, Emmanuel Hache, Déborah Leboullenger. Beyond average energy consumption in the French residential market: A household classification approach. Ulteřia !, 2017, 107, pp.82-95. (hal-01549810)  
<https://hal.science/hal-01549810v1>

2017 - Gabriel Gomes, Emmanuel Hache, Valérie Mignon, Anthony Paris. On the current account - biofuels link in emerging and developing countries: do oil price fluctuations matter?. 2017. (hal-04141639)  
<https://hal.science/hal-04141639v1>

2016 - Claire Nicolas, Stéphane Tchung-Ming, Emmanuel Hache. Energy transition in transportation under cost uncertainty, an assessment based on robust optimization. 2016. (hal-02475943)  
<https://ifp.hal.science/hal-02475943v1>

- 2016 - Vincent Brémond, Emmanuel Hache, Tovonony Razafindrabe. The Oil Price and Exchange Rate Relationship Revisited: A time-varying VAR parameter approach. The European Journal of Comparative Economics, 2016, 13 (1), pp.97-131. (halshs-01683809)  
<https://shs.hal.science/halshs-01683809v1>
- 2016 - Emmanuel Hache, Déborah Leboullenger, Valérie Mignon. Beyond average energy consumption in the French residential housing market: A household classification approach. 2016. (hal-02475511)  
<https://ifp.hal.science/hal-02475511v1>
- 2016 - Emmanuel Hache, Déborah Leboullenger, Valérie Mignon. Beyond average energy consumption in the French residential housing market: A household classification approach. 39th IAEE International Conference, 2016, Bergen, Sweden. (hal-01386095)  
<https://hal.parisnanterre.fr/hal-01386095v1>
- 2016 - Emmanuel Hache, Déborah Leboullenger, Valérie Mignon. Beyond average energy consumption in the French residential housing market: A household classification approach. 2016. (hal-04141605)  
<https://hal.science/hal-04141605v1>
- 2016 - Emmanuel Hache, Déborah Leboullenger, Valérie Mignon. Beyond average energy consumption in the French residential housing market: A household classification approach. 12th ICABE International Conference, 2016, Nanterre, France. (hal-01386101)  
<https://hal.parisnanterre.fr/hal-01386101v1>
- 2016 - Claire Nicolas, Stéphane Tchung-Ming, Emmanuel Hache. Energy transition in transportation under cost uncertainty- an assessment based on robust optimization. 2016. (hal-04141579)  
<https://hal.science/hal-04141579v1>
- 2015 - Vincent Brémond, Emmanuel Hache, Tovonony Razafindrabe. On the link between oil price and exchange rate : A time-varying VAR parameter approach. 2015. (hal-03206684)  
<https://ifp.hal.science/hal-03206684v1>
- 2014 - Vincent Brémond, Emmanuel Hache, Marc Joëts. On the link between oil and commodity prices: A panel VAR approach. Energy Studies Review, 2014, 20. (hal-01410606)  
<https://hal.parisnanterre.fr/hal-01410606v1>
- 2013 - Vincent Brémond, Emmanuel Hache, Marc Joëts. On the link between oil and commodity prices: a panel VAR approach. 2013. (hal-02474855)  
<https://ifp.hal.science/hal-02474855v1>
- 2012 - Vincent Brémond, Emmanuel Hache, Valérie Mignon. Does OPEC still exist as a cartel? An empirical investigation. Energy Economics, 2012, 34, pp.125 - 131. (hal-01385802)  
<https://hal.parisnanterre.fr/hal-01385802v1>
- 2011 - Vincent Brémond, Emmanuel Hache, Valerie Mignon. Does OPEC still exist as a cartel ? An empirical investigation. 2011. (hal-02469630)  
<https://ifp.hal.science/hal-02469630v1>
- 2011 - Vincent Brémond, Emmanuel Hache, Valérie Mignon. Does OPEC still exist as a cartel? An empirical investigation. 2011. (hal-04141014)  
<https://hal.science/hal-04141014v1>