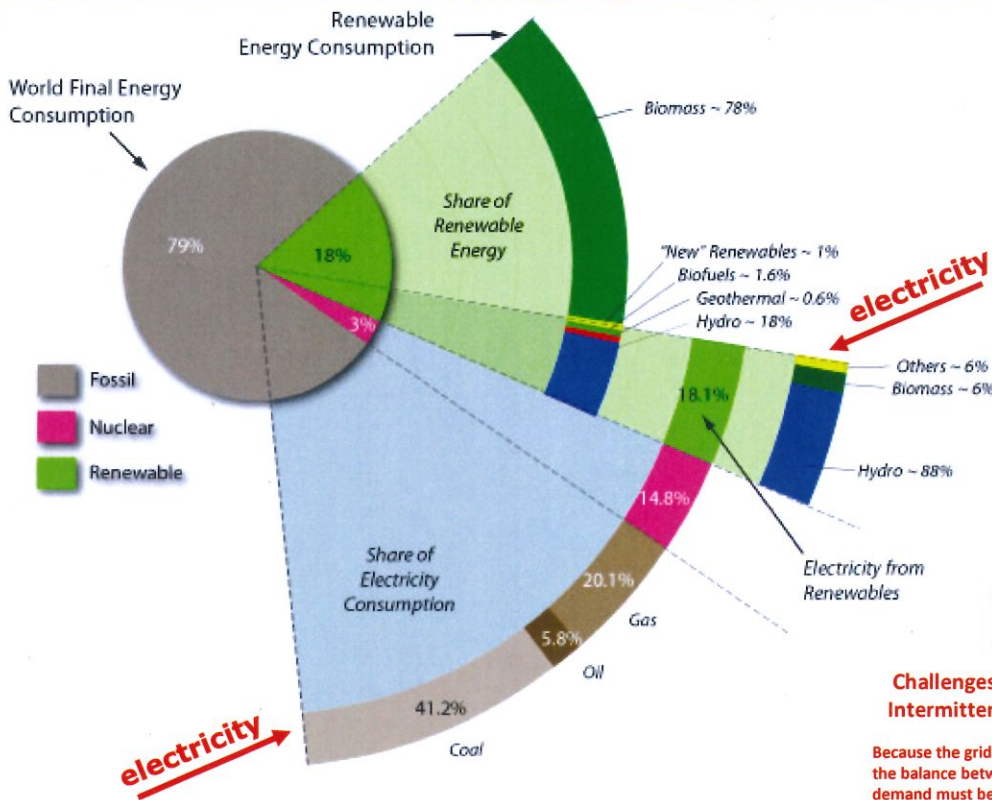


# About 20 % of the world's energy is consumed in the form of electricity



## Challenges of Renewable Energy Intermittency => storage capacity

Because the grid has very little storage capacity, the balance between electricity supply and demand must be maintained at all times to avoid a blackout or other cascading problem.

NB: electricity more than doubling its share in final energy demand by 2050 (large-scale electrification of the economy)

Source : [georges.m.vangoethem@gmail.com](mailto:georges.m.vangoethem@gmail.com) - Royal Academy for Overseas Sciences of Belgium (ARSOM-KAOW) – FABI Gr Tr En - 6 nov 2019

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## Belgium - Energy System Overview 2016 (IEA)



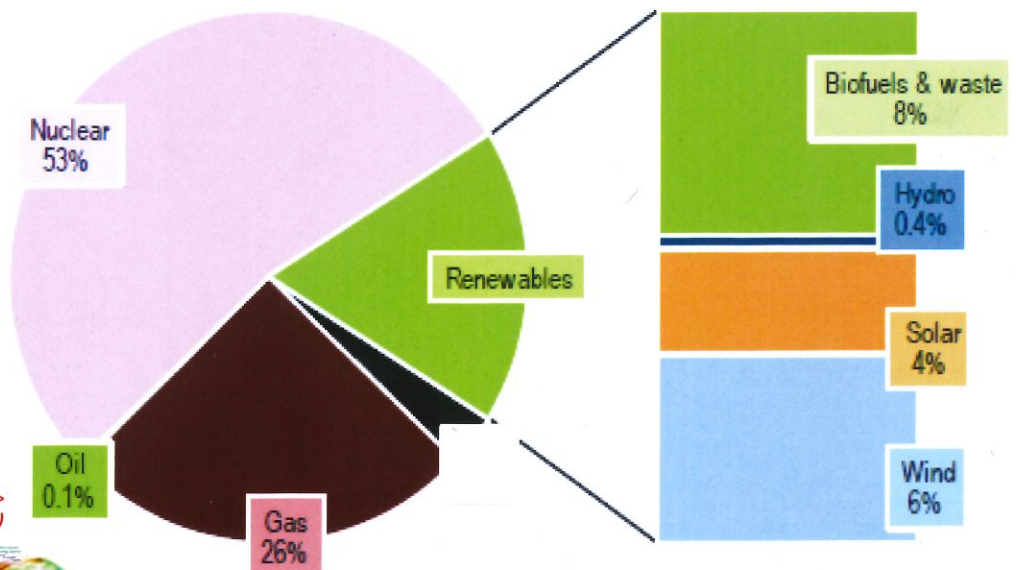
**ELECTRICITY GENERATION: 82 TWh**

18% renewables (IEA average: 24%) and 53 % nuclear



### Moyens possibles pour obtenir le niveau voulu de sécurité d'approvisionnement (BfP 2019) (sans nucléaire et sans fossiles !)

- développement de la production renouvelable
- promotion de la « demand response » (smart grids, smart meters, etc)
- promotion du stockage (couplé avec une production renouvelable)
- collaboration transfrontalière (capacité d'importation)
- promotion des mesures d'efficacité énergétique
- mécanisme de rémunération de la capacité (CRM) en remplacement de la réserve stratégique ( besoin de 3900 MW en 2025 => nouvelles OCGT et CCGT au gaz – Elia 2019)



=> Total primary energy consumption (TPES) in Belgium is 657 TWh, part of which (82 TWh) is converted into electricity (= > ratio elec/TPES = 12.5 %)



Source : "Belgium - Energy System Overview 2016", International Energy Agency (IEA, Paris, France)  
 - [https://www.iea.org/publications/freepublications/publication/Energy\\_Policies\\_of\\_IEA\\_Countries\\_Belgium\\_2016\\_Review.pdf](https://www.iea.org/publications/freepublications/publication/Energy_Policies_of_IEA_Countries_Belgium_2016_Review.pdf)  
 - <https://www.iea.org/media/countries/Belgium.pdf>

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