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# Pathways to Sustainable Energy – Deep dive on Gas Workshop

Improved Understanding on the role of Natural Gas in Achieving  
the 2030 Agenda

24 September 2019, Geneva



# Natural Gas Displacing Competing Fuels

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**Presentation by**

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**Discussion**

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# Natural Gas Displacing Competing Fuels

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## Transition fuel or destination fuel?

The IIASA model:

As a transition fuel whose use has to be curtailed to meet the Paris targets, the P2C scenario envisages natural gas being responsible for generating 1,751 TWh in the UNECE region in 2050.

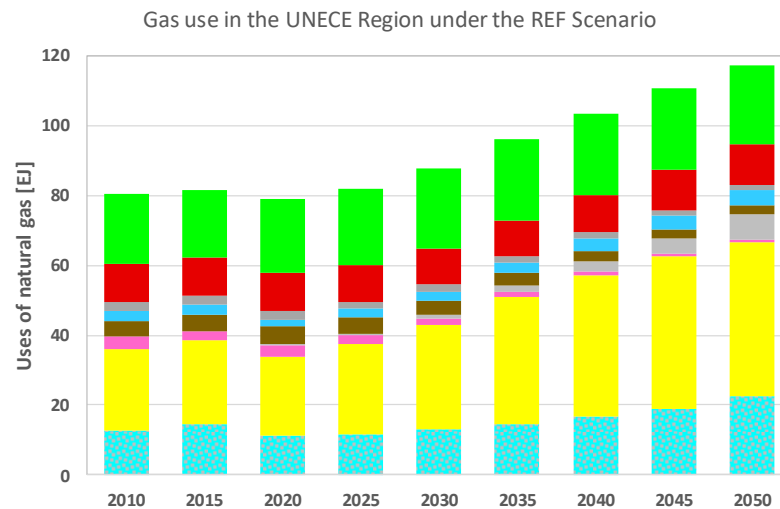
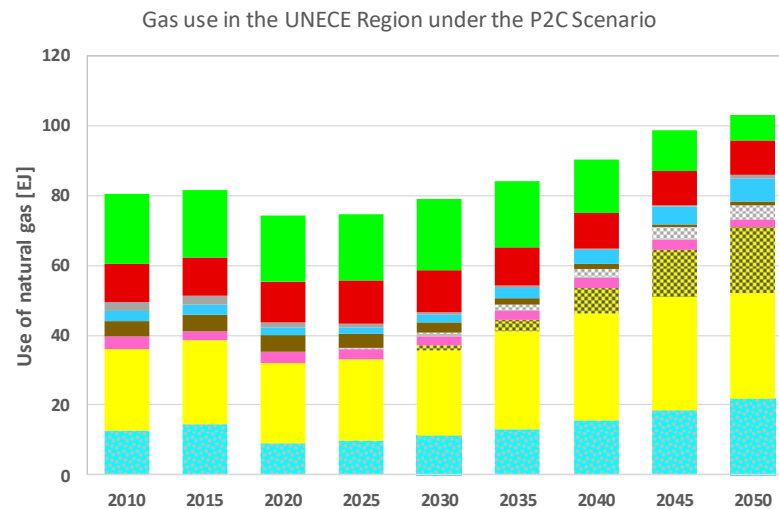
As a destination fuel, IIASA's Reference Scenario estimates it would quadruple its contribution to electricity generation in the UNECE region, reaching 7,135 TWh in 2050.

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## Gas Use in the UNECE Region 2010-2050



Exports Electricity Electricity CCS District heat Synfuels Synfuels CCS T/D losses Feedstock Transportation Industry Resident/Commercial

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## The Missing Element: CCS

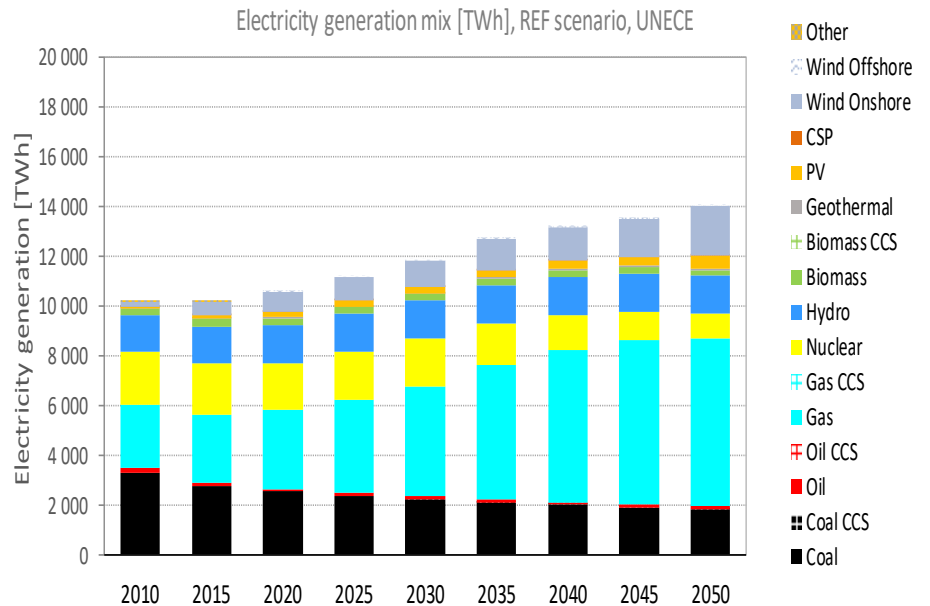
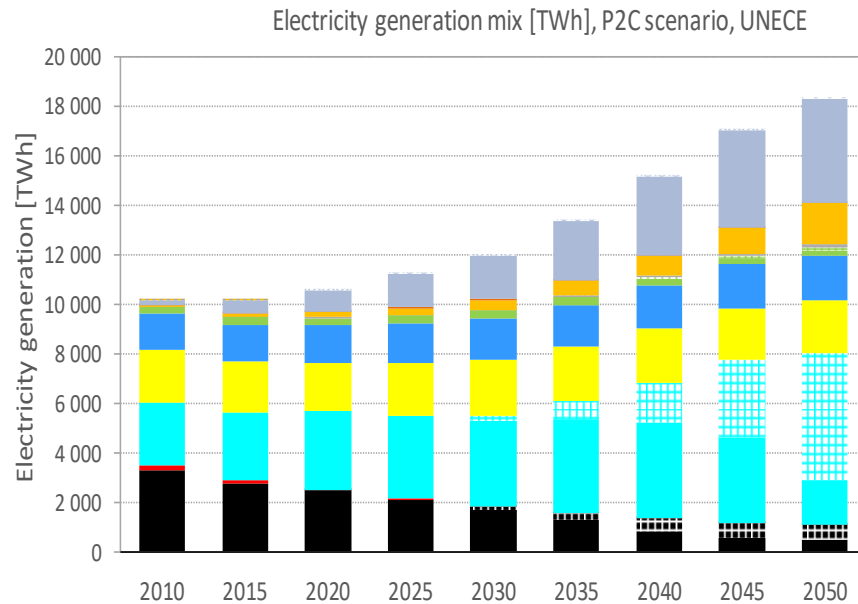
- When will CCS enter service: the late 2020s?
- The costs
- The corporate input
- The competition from renewables

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## UNECE – Fuel Mix in electricity generation 2010 – 2050

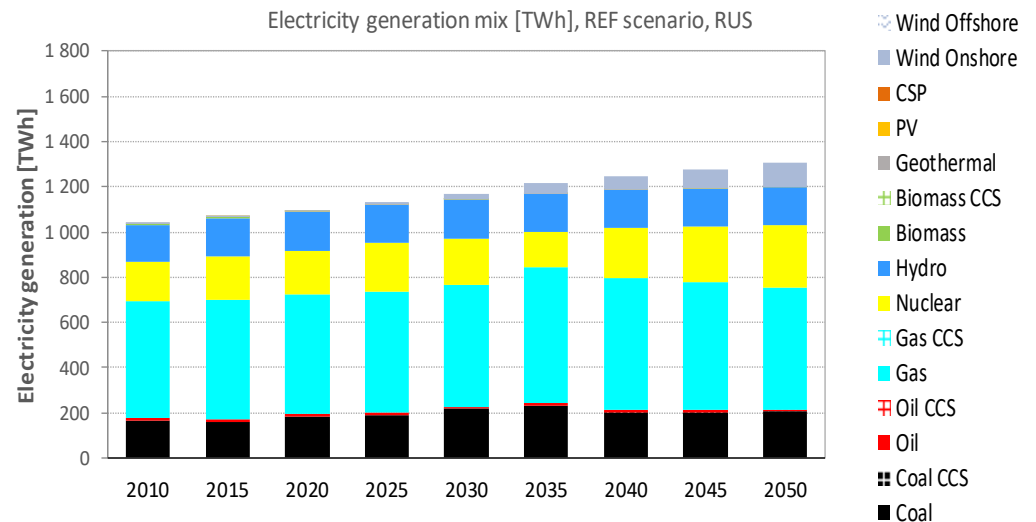
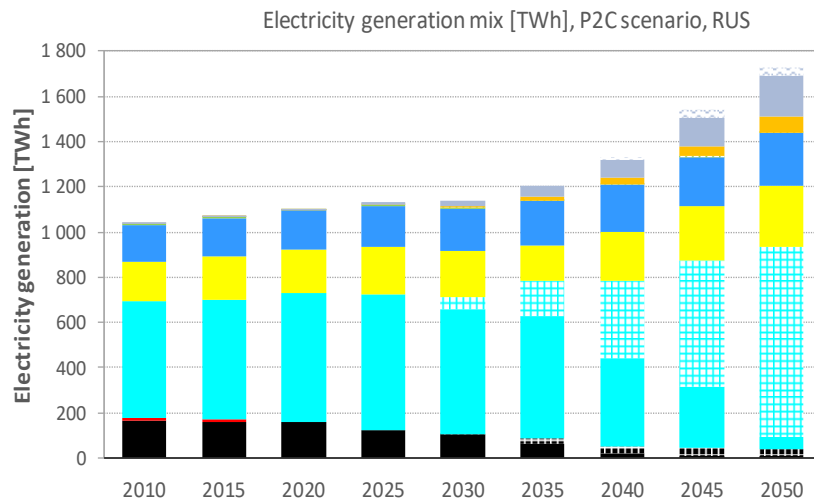


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## Russian Federation (RUS) – Fuel mix in electricity generation



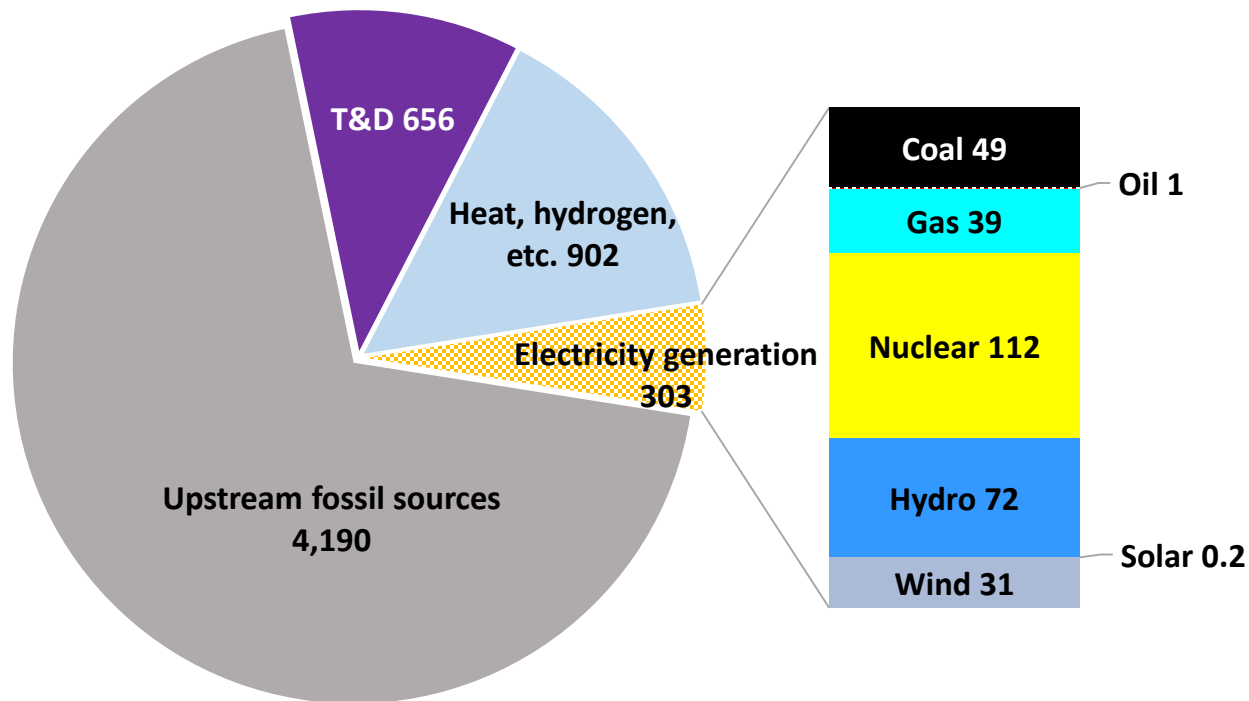
# Modeling Results: Indicators

Investment needs: Russian Federation - REF

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Cumulative investments 2020-2050: *6,051 billion US\$*  
REF – RUS Region



■ Upstream fossil sources  
■ T&D  
■ Heat, hydrogen, etc.  
■ Energy efficiency  
■ Coal  
■ Coal CCS

■ Oil  
■ Oil CCS  
■ Gas  
■ Gas CCS  
■ Nuclear  
■ Hydro

■ Biomass  
■ Biomass CCS  
■ Geothermal  
■ Solar  
■ Wind

■ T&D: transmission and distribution of electricity and district heat  
■ Investments in US\$ at 2010 prices and exchange rates



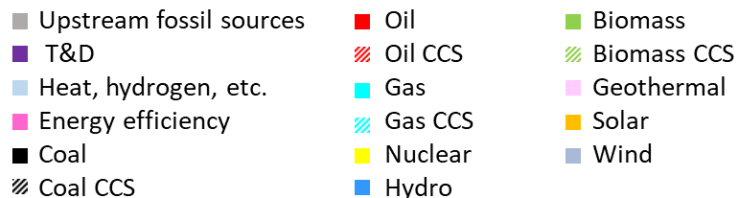
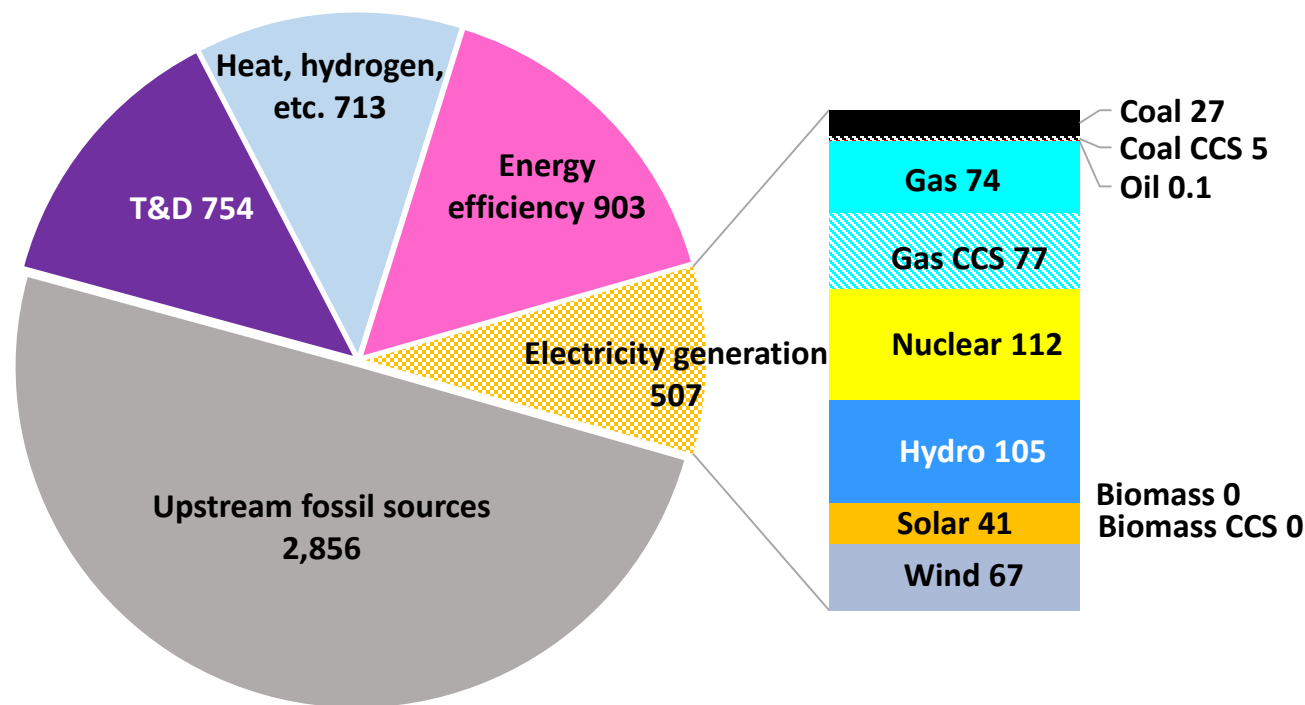
# Modeling Results: Indicators

Investment needs: Russian Federation - REF

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Cumulative investments 2020-2050: **5,734 billion US\$**  
P2C – RUS Region



- T&D: transmission and distribution of electricity and district heat
- Investments in US\$ at 2010 prices and exchange rates

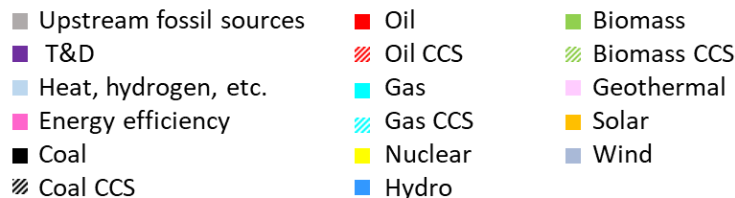
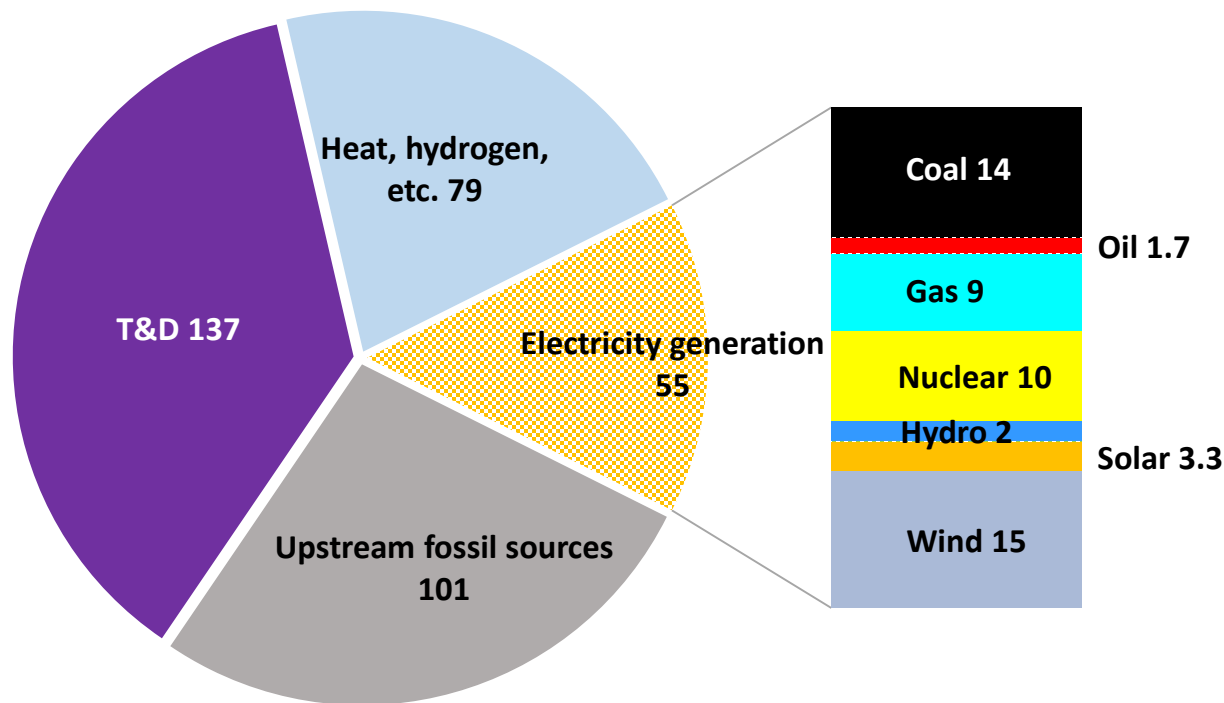
# Modeling Results: Indicators



Invest. needs: Belarus, Moldova and Ukraine - REF

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Cumulative investments 2020-2050: **372 billion US\$**  
REF – BMU Region



■ T&D: transmission and distribution of electricity and district heat  
■ Investments in US\$ at 2010 prices and exchange rates

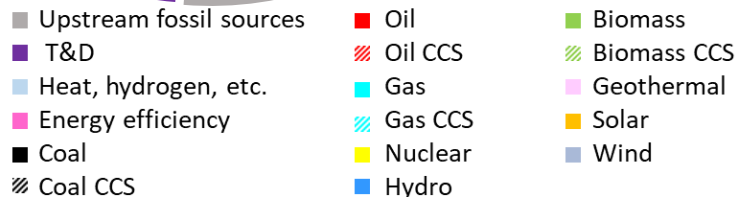
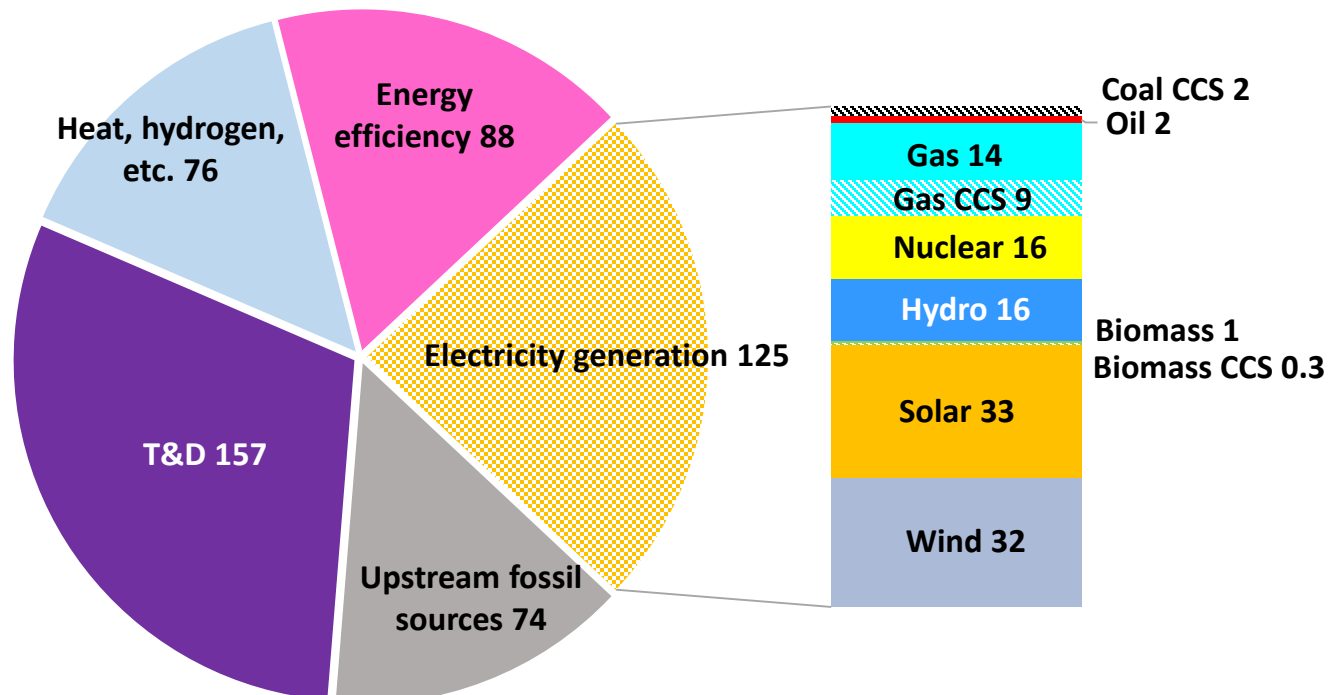
# Modeling Results: Indicators



Invest. needs: Belarus, Moldova and Ukraine – P2C

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Cumulative investments 2020-2050: *520 billion US\$*  
P2C – BMU Region



- T&D: transmission and distribution of electricity and district heat
- Investments in US\$ at 2010 prices and exchange rates



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# Thank you!

Sustainable Energy Division

**UNECE**

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