

# EMERGING GREEN HYDROGEN ECONOMY: URUGUAY AS A CASE STUDY

*Observatory of  
Energy and  
Sustainable  
Development*



# GLOBAL HYDROGEN POTENTIAL

Figure 1.1 Estimates for global hydrogen demand in 2050

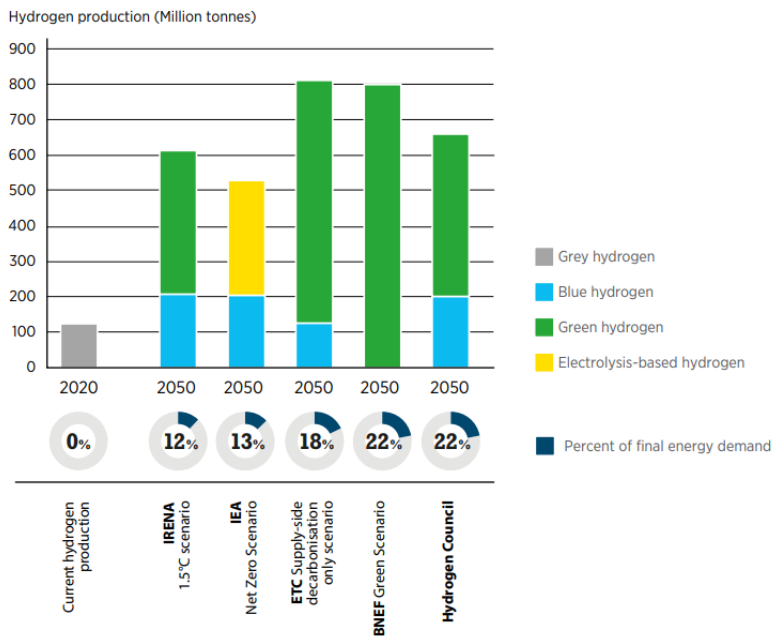
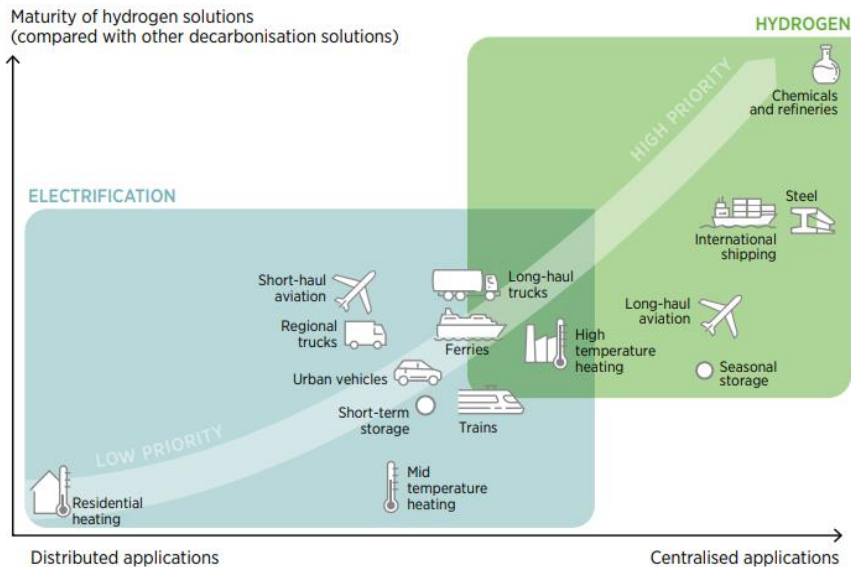


Figure S.3 Clean hydrogen policy priorities



Source: IRENA, 2022. Geopolitics of the Energy Transformation  
The Hydrogen Factor

# URUGUAY: FIRST ENERGY TRANSITION

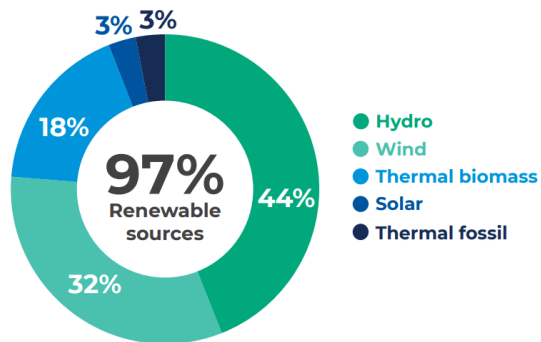


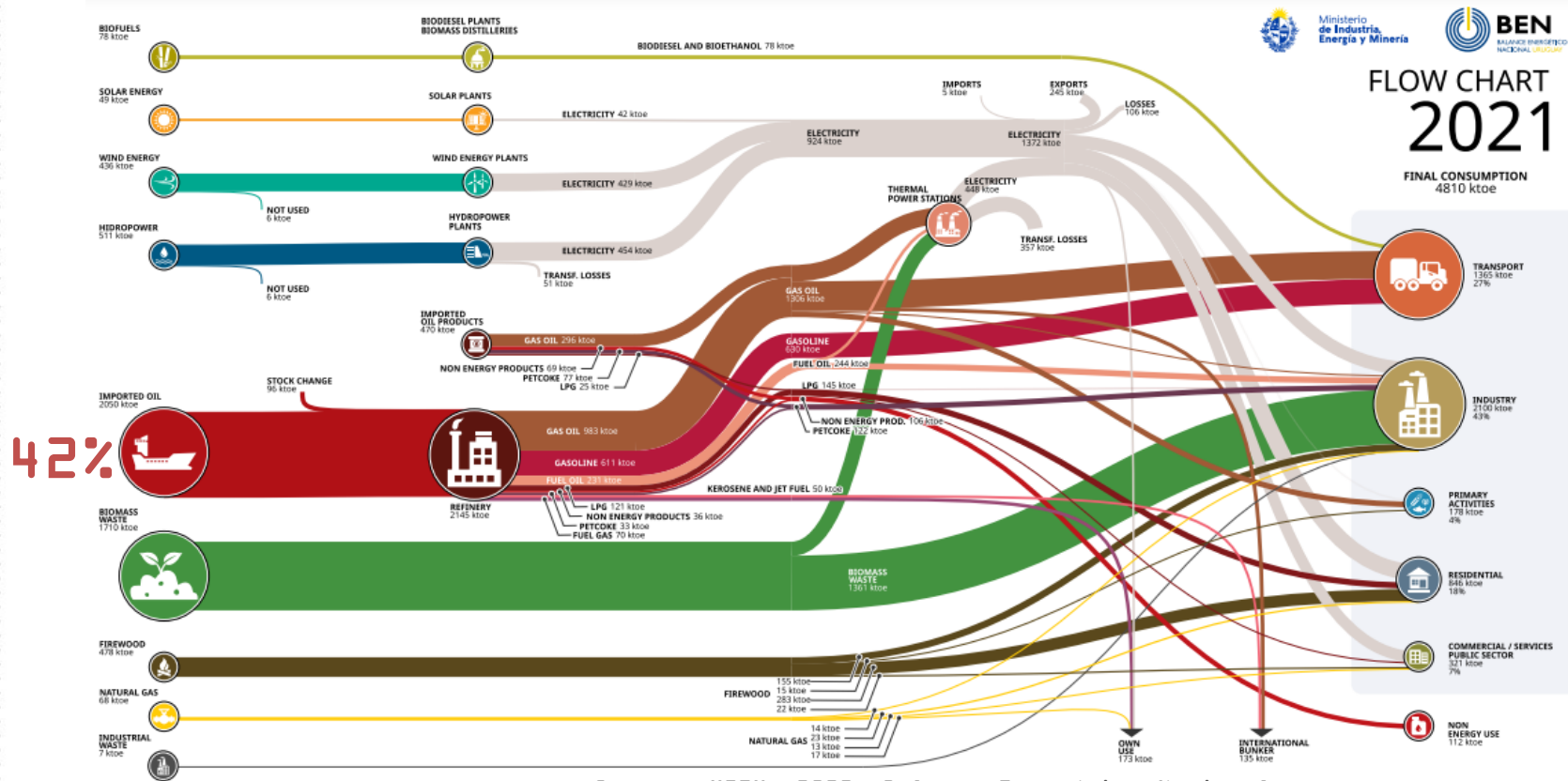
Figure 2: Electric power generation in Uruguay - Average for the years 2017 to 2020.

Source: MIEM (ben.miem.gub.uy)

	Total installed capacity (MW)	NCRE (% of total)	Hydro (% of total)	Fossil fuels (% of total)
2007	2406	7%	64%	29%
2014	3716	24%	41%	34%
2021	4912	45%	31%	24%

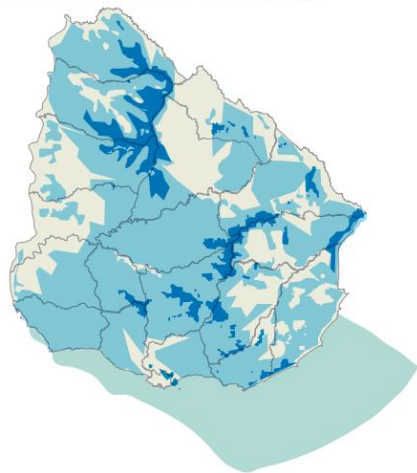
Source: MIEM, 2022. Green Hydrogen Roadmap in Uruguay. Source: own elaboration based on MIEM, 2022. Series estadísticas de energía eléctrica

# URUGUAY: SECOND ENERGY TRANSITION



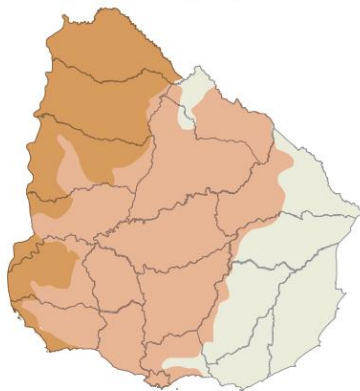
# URUGUAY: GREEN HYDROGEN ROAD

Onshore and offshore wind capacity

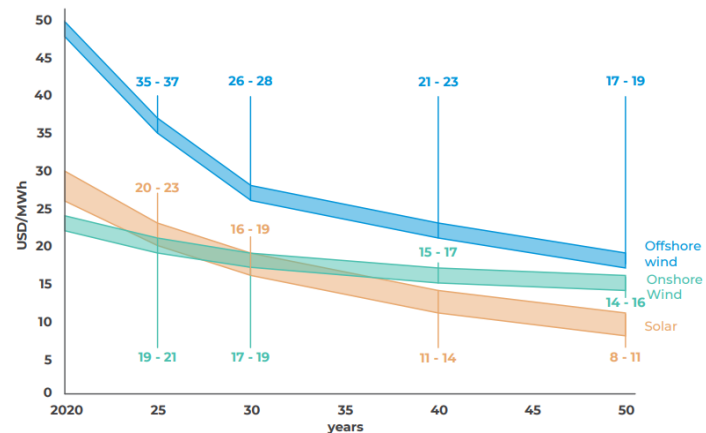


- **Level I | >8m/s | ~30 GWs | Total area = 17,500 km<sup>2</sup>**  
Assumptions: 15% of km<sup>2</sup> > ~10 MW/km<sup>2</sup>
- **Level II | >7m/s | ~50 GWs | Total area = 97,300 km<sup>2</sup>**  
Assumptions: 5% of km<sup>2</sup> > ~10 MW/km<sup>2</sup>
- **Offshore | 275 GW**  
Assumptions: 5% of km<sup>2</sup> > 20-30 MW/km<sup>2</sup>

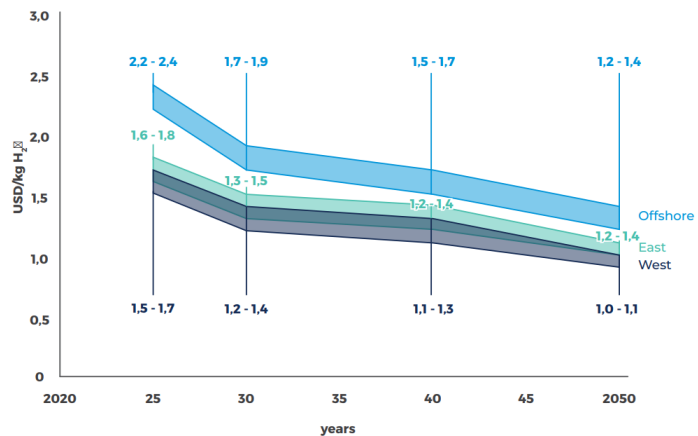
Solar photovoltaic capacity



- **Level I | ~60 GWs**  
Total area = 31,500 + 6,500 = 38,000 km<sup>2</sup>
- **Level II | ~135 GWs**  
Total area = 81,400 km<sup>2</sup>



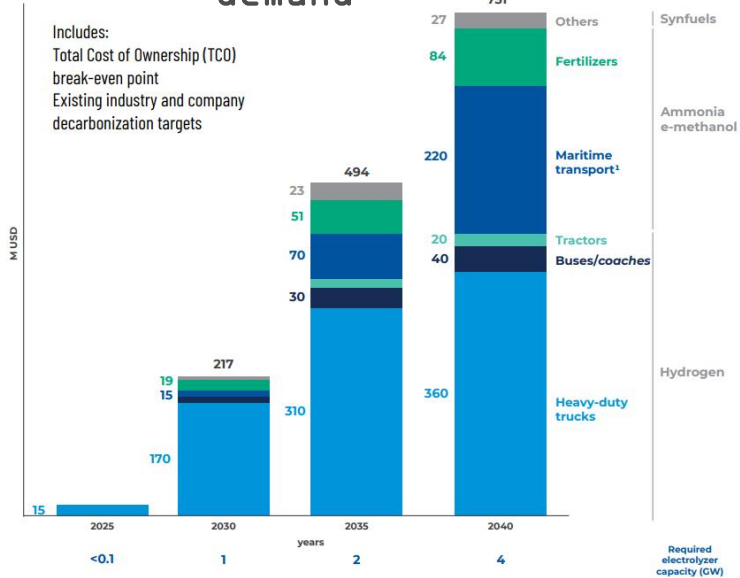
Estimates for a minimum daily production of 250 tons of H<sub>2</sub> including energy and electrolysis (CAPEX, OPEX inc. water).  
Storage, transport or transmission add 0.3 to 0.5 USD/KgH<sub>2</sub>.



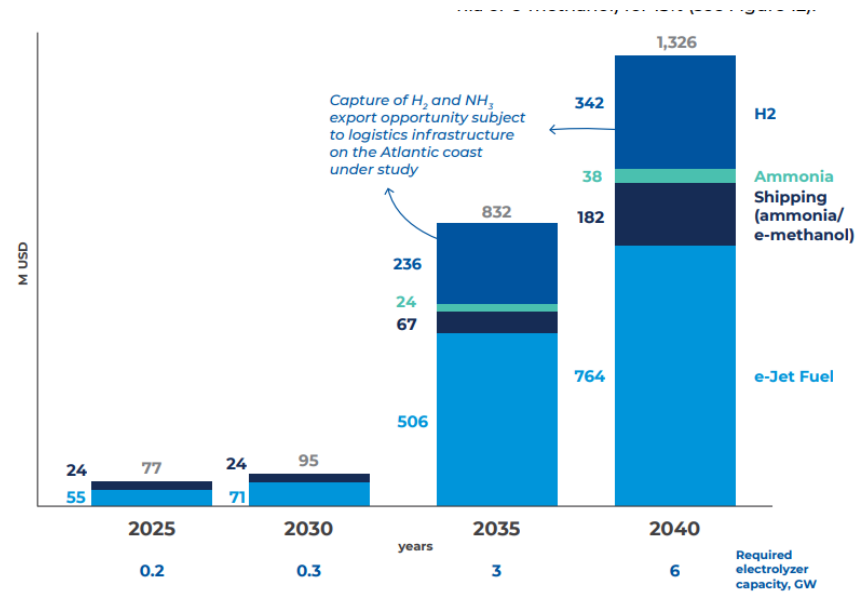
Source: MIEM, 2022. Green Hydrogen Roadmap in Uruguay

# URUGUAY: GREEN HYDROGEN ROADMAP

## Domestic demand



## Export market



Source: MIEM, 2022. Green Hydrogen Roadmap in Uruguay

# URUGUAY: GREEN HYDROGEN ROADMAP

		2030	2040
 <p><b>Lay the basis for country's long-term growth</b></p>	Annual turnover in thousands of M USD	0.3	2
	Potential turnover over projected future GDP	+0.5%	+2%
 <p><b>Create +34K skilled jobs:</b> qualified technicians, operators and engineers</p>	Jobs created in thousands	+6	+34
	Total accumulated investment in thousands of M USD	2.5	19
 <p><b>Eliminate the equivalent of Uruguay's net emissions by 2040</b></p>	MtonCO <sub>2</sub> annual emissions reduced	0.6	7

Fig. 15: Socioeconomic and environmental impact of green hydrogen sector development in Uruguay (not including DRI opportunity)..

Source: Adapted from McKinsey & Company, 2021, in accordance with contract #: C-RG-T3777-P001 concluded with the IADB.

Source: MIEM, 2022. Green Hydrogen Roadmap in Uruguay

**THANK YOU!**

**QUESTIONS?**

Felipe Bastarrica, M.Sc.

Director

Observatory of Energy and Sustainable Development (UCU)

`felipe.bastarrica@ucu.edu.uy`





[ucu.edu.uy](http://ucu.edu.uy)