THE INSTITUTE OF Development Leadership Dialogue

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FROM CRISIS TO ENERGY SECURITY:

HOW URUGUAY BUILT NATIONAL BACKING FOR ITS RENEWABLE ENERGY REVOLUTION

Uruguay achieved a remarkable feat in just over a decade: transitioning from an economically crippling reliance on fossil fuel imports to powering 98% of its electricity with domestic renewables. This swift, state-led shift brought not only energy security, reduced costs, and a more predictable supply, but also supported the emergence of new jobs and industries.

This case study explores the enabling factors behind this accomplishment, focusing on how the 2008 financial crisis catalyzed a national and political consensus for energy sovereignty. This broad agreement was instrumental in overcoming the common challenge of short-term thinking that often hinders complex, long-term transformations.

WHAT URUGUAY ACHIEVED

Uruguay does not have any major fossil fuel reserves and up until 2008 it relied on a mix of climate-vulnerable hydropower and imported fossil fuels to provide for its energy needs, with oil making up over half.[1] It experienced unstable supply and regular energy shortages and in years when drought struck was forced to import from its neighbours at high prices, sometimes spending as much as 2% of GDP on energy imports.[2]

In little over a decade the country has broken free of its dependence on oil imports and 90-98% of its electricity is provided by a mix of renewable energy sources: primarily wind, but also hydroelectric, biomass and solar energy (see Chart 1).

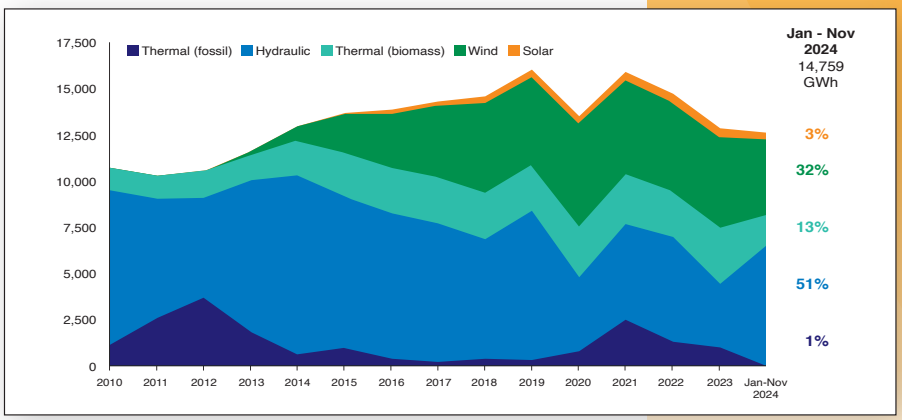

Chart 1: Uruguay electricity generation by source 2010 to 2024.[3]

POLICY QUESTIONS FOR CONSIDERATION

- **What is the priority long-term transformation in your country?**
- **What are the main obstacles to achieving this transformation? Are they political? technical? economic?**
- **How can you create national consensus in support of this transformation? What would a compelling national narrative look like?**

[1] Meadows, S. (27 December 2023) "**Uruguay's green power revolution: rapid shift to wind shows the world how it's done**". *The Guardian*

[2] ECPA (22 November 2023) "**Uruguay's Transition to Renewable Electricity**"

[3] Uruguay XXI (December 2024) "**Renewable Energies in Uruguay**"

> **Uruguay's success is proof that even grid systems reliant on intermittent sources like wind and solar can remain stable and efficient.[7]**

Electricity in Uruguay is now provided at stable prices that are lower than a decade before.[4] Supply is also stable and less vulnerable to climate, political or economic shocks. The country also now has surplus capacity and exports energy to Argentina and Brazil.

Its energy transition has supported economic, as well as energy sovereignty and 50,000 new jobs (equivalent to 3% of the country's labour force) were created during this transition.[5] The country is a world-leader in renewable energy generation alongside Denmark, Brazil, Portugal, Germany and Greece.[6]

RENEWABLE ENERGY TRANSITION HAND IN HAND WITH ECONOMIC GROWTH

Chart 2: Growth in electricity from renewables alongside growth in GDP per capita (Data sources: IMF; Ember (2025); Energy Institute – Statistical Review of World Energy (2024) with major processing by Our World in Data)

PROVING THE EXPERTS WRONG

Uruguay had policy makers with vision who were able to build a national consensus for change based on a shared narrative (see below). However, it had very limited resources and no real green energy sector to build on. When Uruguay's policy makers approached World Bank and IMF experts with their ideas for a wholesale shift to a mix of renewables they were told that a transition on the scale they were envisaging was not possible without state subsidies or the tax base to afford them – neither of which Uruguay had.[8]

How did they prove the experts wrong?

THE NUTS AND BOLTS OF URUGUAY'S TRANSITION

A plan to tackle intermittency

One of the keys to the success of Uruguay's energy transition was the sound technical planning of a new energy system that was flexible enough to use different renewable energy sources at different times to manage the challenge of intermittency. A team at the Universidad de la República used one hundred years of data to develop a sophisticated model that could predict the availability of wind, hydro and solar and would allow the system to be based on the cheapest of these (wind and solar) with hydro filling in when needed without any battery storage.[9]

A viable funding model based on long-term contracts

Similar to many small economies, Uruguay did not have the capital to finance this ambitious transition publicly. It did, however, have a well-functioning state-owned public utility – UTE – which was able to bring in the private sector to develop generation capacity while the energy generated remained under public ownership. UTE ran a competitive bidding process and then entered into long-term (20 plus year) power purchase agreements (PPAs) with the companies who would develop the energy source. UTE would have guaranteed supply, and the generating companies would have a guaranteed return on their investment in a stable currency - the US dollar. As UTE is investment grade (AAA rated), having a PPA with UTE meant investors could obtain loans at very low rates. This, coupled with Uruguay's political, regulatory and social stability, created an environment of trust and reduced risk for investors.[10] It is estimated that Uruguay attracted a total of more than US$8 billion in investment for its renewable energy transition.[11] While most of the generation infrastructure was developed by the private sector, UTE also developed some wind farms directly - working with national universities on the technology - so staff became familiar with the processes involved. Government also invested in national transmission and distribution infrastructure.

One downside of this approach is that UTE is now locked into contracts at higher prices than might otherwise have been the case because the cost of renewables has come down so rapidly. Government also redirected resources to fund other social programmes, rather than directly cutting consumer costs. This has been an unpopular decision amongst consumers who had expected their prices to come down further, however prices are lower than they would have been had the country remained dependent on fossil fuel imports.[12]

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[4] McKenzie, K. (17 April 2024) "**What we can learn from Uruguay's transition to renewable energy**" *Human Sciences Research Council*

[5] ECPA (22 November 2023) "**Uruguay's Transition to Renewable Electricity**"

[6] REN21 (2024) "Renewables 2024 Global Status Report – Energy Systems and Infrastructure"

[7] Kentish, A. (12 May 2025) "**Former Energy Ministers from Saint Lucia and Uruguay Named REN21 Renewable Energy Champions**" *Inter Press Service*

[8] Shannon, N. G. (5 October 2022) "**What does sustainable living look like? Maybe like Uruguay**" *New York Times*

[9] ECPA (22 November 2023) "**Uruguay's Transition to Renewable Electricity**"

[10] Correa, K. C., Uriona-Maldonado, M. & Rodrigues Vaz, C. (2022) "**The evolution, consolidation and future challenges of wind energy in Uruguay**" *Energy Policy*

[11] Shannon, N. G. (5 October 2022) "**What does sustainable living look like? Maybe like Uruguay**" *New York Times*

[12] Zapata, N. H. (13 March 2025) "**Going for Green: Uruguay's Renewable Energy Revolution**" *The Nation*

SUCCESS FACTORS

This section will assess the factors that contributed to Uruguay's successful energy transition, which may be relevant to other countries' contemplating long-term, complex transformations.

1. The catalyst

The roots of many profound changes lie in a crisis and this example is no exception. The 2008 global financial crisis hit Uruguay very hard. Energy supply was not meeting the demands of a rapidly growing, energy-hungry middle class and the electricity grid was insecure. In 2008 there was also a record-breaking drought which shrank rivers and reservoirs, forcing Uruguay to buy oil and gas from neighbouring Argentina and Brazil at extremely high prices. Even with these measures, supply was unstable and there were frequent blackouts. The need for an energy security strategy became a national priority. The main solution being contemplated at the time was to install a nuclear power plant. However, Ramón Méndez Galain, a nuclear physicist, began studying the challenge and wrote a paper detailing how wind, coupled with other renewables, would be a better option for Uruguay. His paper made its way to then-President Tabaré Vázquez who invited Méndez to be Energy Secretary.[13] Mendez commented, "Imagine my surprise. This was crazy. But I did something even more crazy: I accepted."

2. The story - the importance of creating a national narrative

The creation of a compelling and unifying national narrative around energy sovereignty was critical to the success of Uruguay's national transformation project. It supported the development of national political consensus (see below), which in turn enabled the government to guarantee a long-term stable environment for investors. Importantly the narrative was internally, rather than externally, driven. It was not based on the need to comply with international climate commitments or green agendas, but rather a profoundly unifying call to national energy sovereignty (reliable, cheap, domestic energy) which all stakeholders could get behind and was less prone to capture by narrow interests.

"I told people this was the best option even if they don't believe climate change exists. It's the cheapest and not dependent on crazy fluctuations in oil prices."[14]

The policy was also billed as a project to develop national energy industries, which would create jobs and so was seen as a contribution to the country's economic development and industrialisation rather than a sacrifice to be made for the sake of the planet.

3. Building national consensus

According to Méndez, who served as National Director of Energy from 2008 to 2015 under two administrations, Uruguay required not only new hard infrastructure but a "transformative ecosystem" of new laws, regulations, training, institutional change and most importantly consensus-building.[15]

Initial proposals outlining the move to renewables were backed by President Tabaré Vázquez. In 2007 the National Directorate of Energy was established and in 2008 Uruguay launched its Energy Policy 2005-2030 which outlined a long-term strategic vision focused on diversifying energy sources and incorporating renewables as well as improving energy efficiency. In 2010 when José Mujica was elected to succeed Vázquez as President, he recognised the need for continuity and long-term policymaking. He kept Méndez in post and also required a process that would ensure the Energy Policy was accepted across the political spectrum. There were negotiations with all parties represented in parliament during which some common interests were identified and trade-offs made - the result was a "long-term policy, backed by the entire Uruguayan political system".[16]

Importantly, national consensus allowed policy makers stability and longer time frames to operate within. This enabled the setting of clear long-term objectives and the establishment of the right institutional framework to support delivery without the need to resort to more authoritarian measures.[17] As noted above, it also helped to provide investors with the long-term security of returns that enabled them to deliver the necessary capital-intensive infrastructure investment.[18]

4. The State in the driving seat to ensure an inclusive transition

State planning and strategic regulation helped to ensure that the energy transition led to improvements to the whole economy and the creation of new jobs and new industries, which in turn ensured continued public support. Counter to the prevailing Washington Consensus view that advocated for the privatisation of power distribution and energy infrastructure, UTE still had effective control over Uruguay's grid, which meant they could use the bidding process to require companies to employ local workers, use local materials and invest in local infrastructure.[19] Government also introduced regulations to ensure that no private energy company could develop market dominance.[20]

Wind turbines, Maldonado outskirts, Uruguay.
Photo: Shutterstock.

The transition created around 50,000 new jobs including in construction, operations and maintenance. The inevitable closure of some fossil fuel plants was subject to negotiations with the energy workers' union and national trade union centre (PIT-CNT) who ensured that the impact on workers was minimised through a combination of early retirement and retraining.[21] This approach ensured that labour unions were supportive of the transition. Government also took steps to ensure that the needs of other important economic interest groups were taken on board. In a country where cows outnumber people by four times, cattle farming is a cornerstone of the economy and culture. Government ensured that cattle farmers were able to use their land for wind farms while retaining their cattle business and developing a secondary source of income. This inclusive approach reinforced popular support for the transition.

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[13] Meadows, S. (27 December 2023) "**Uruguay's green power revolution: rapid shift to wind shows the world how it's done**". *The Guardian*

[14] Meadows, S. (27 December 2023) "**Uruguay's green power revolution: rapid shift to wind shows the world how it's done**"

[15] ECPA (22 November 2023) "**Uruguay's Transition to Renewable Electricity**"

[16] ECPA (22 November 2023) "**Uruguay's Transition to Renewable Electricity**"

[17] Correa, K. C., Uriona-Maldonado, M. & Rodrigues Vaz, C. (2022) "**The evolution, consolidation and future challenges of wind energy in Uruguay**" *Energy Policy*

[18] Correa, K. C., Uriona-Maldonado, M. & Rodrigues Vaz, C. (2022) "**The evolution, consolidation and future challenges of wind energy in Uruguay**" *Energy Policy*

[19] Markert, S. (16 February 2024) "**The Uruguay Way: Achieving Energy Sovereignty in the Developing World**" *Earth.org*

[20] Zapata, N. H. (13 March 2025) "**Going for Green: Uruguay's Renewable Energy Revolution**" *The Nation*

[21] World Resources Institute (1 April 2021) "**Uruguay: Leveraging Partnerships to Create Green Jobs and Ensure a Just Transition**"

5. Academic collaboration

Both the modelling that underpinned the planned energy mix, as well as initial scoping of Uruguay's wind potential and first pilot project wind generator, took place in Uruguay's universities (the latter in the Faculty of Engineering at the University of the Republic).[22] Effective collaboration between academia/the scientific community and policy makers has served the country well, with the universities supplementing government capacity in technical areas.

'GREEN ENERGY STATECRAFT' IN PRACTICE

As Uruguay's energy transition is a recent process there has been relatively little academic analysis about where the experience sits within the global context of energy - and particularly 'just energy' – transitions. There are some factors that made the process simpler in Uruguay, including a favourable landscape for renewables, a small population and relatively good road and port infrastructure, but even taking these into consideration Uruguay's experience is an excellent example of what Elizabeth Thurbon calls 'Green Energy Statecraft'.[23] Her work focuses on Northeast Asia, but as this short case study demonstrates, Uruguay displays several of the key characteristics she emphasises, including: a 'new governance mindset' from political and policy makers that green energy will reduce fossil fuel dependence, boost energy and economic security and create jobs and export industries; the creation of a new 'social and political consensus' for the energy transition and for the strategic role of the state in advancing it; and the importance of equity, justice and accountability in the process to sustain that consensus.

FURTHER READING

Correa, K. C., Uriona-Maldonado, M. & Rodrigues Vaz, C. (2022) "**The evolution, consolidation and future challenges of wind energy in Uruguay**" *Energy Policy*

ECPA (22 November 2023) "**Uruguay's Transition to Renewable Electricity**"

McKenzie, K. (17 April 2024) "**What we can learn from Uruguay's transition to renewable energy**" *Human Sciences Research Council*

Mendez Galain, R. (September 2023) "**This country runs on 98% renewable electricity**" *TED talk*

Shannon, N. G. (5 October 2022) "**What does sustainable living look like? Maybe like Uruguay**" *New York Times*

Zapata, N. H. (13 March 2025) "**Going for Green: Uruguay's Renewable Energy Revolution**" *The Nation*

ABOUT SOAS DEVELOPMENT LEADERSHIP DIALOGUE

Economic and social development requires many actors: however, typically these have operated in separate spheres, not understanding each other well and even seeing each other as adversaries. In a world characterised by profound changes and heightened uncertainties, overcoming this 'silo-ization' and the lack of mutual understanding it leads to is ever more important.

DLD brings people and disciplines together to generate more creative and strategic solutions to difficult development challenges. DLD is generously supported by Hyundai Motor Group UK Ltd. and Kia UK Ltd.

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[22] Correa, K. C., Uriona-Maldonado, M. & Rodrigues Vaz, C. (2022) "**The evolution, consolidation and future challenges of wind energy in Uruguay**" *Energy Policy*

[23] Thurbon, E. et al (December 2023) "**Green Energy Statecraft for Comprehensive National Security**" *Asia-Pacific Development, Diplomacy & Defence Dialogue*