E3 Analytics

Analytical Brief

FITs and Stops:
Spain's New Renewable Energy Plot Twist & What It All Means

Faced with growing fiscal challenges and the specter of increasingly trigger-happy credit rating agencies, the new center-right Spanish government has acted to temporarily put a halt to awarding new feed-in tariff (FIT) contracts starting in January 2013. The move is expected to have immediate impacts on approximately 4,500 MW of wind power projects, 550MW of solar PV projects, as well as dozens of projects in other technology classes.

The sudden change was passed as part of Royal Decree-Law (RDL 1/2012) in January 2012 - it will prevent proponents of new cogeneration, renewable energy and waste-to-energy plants from receiving contracts to sell their electricity to the grid, effectively putting the domestic RE industry on hold while the government drafts a new strategy for the electricity sector.

As expected, this move has triggered a storm of debate from many within the renewable energy industry, who argue that Spain is further undermining its credibility as a stable country in which to invest. The Spanish Renewables Foundation, a leading advocacy group, has warned that the move risks wiping out hundreds of thousands of direct and indirect jobs, along with tens of billions in existing and future investments.

The main driver behind this decision is addressing the country's electricity system deficit, which stands at over €24 Billion. Compounding the problem is that electricity demand in peninsular Spain has been declining since the global financial crisis of 2008, resulting in significant excess generation capacity.

While the current changes are in many ways less dramatic than the retroactive changes put forward in 2010, there is no question that they have added yet another complex plot twist to this ongoing saga, and re-galvanized the debate around the future of renewable energy policy in Spain. (See this earlier Brief on Spain's renewable energy industry: http://e3analytics.ca/documents/Analytical_Brief_Vol3_Issue1.pdf)

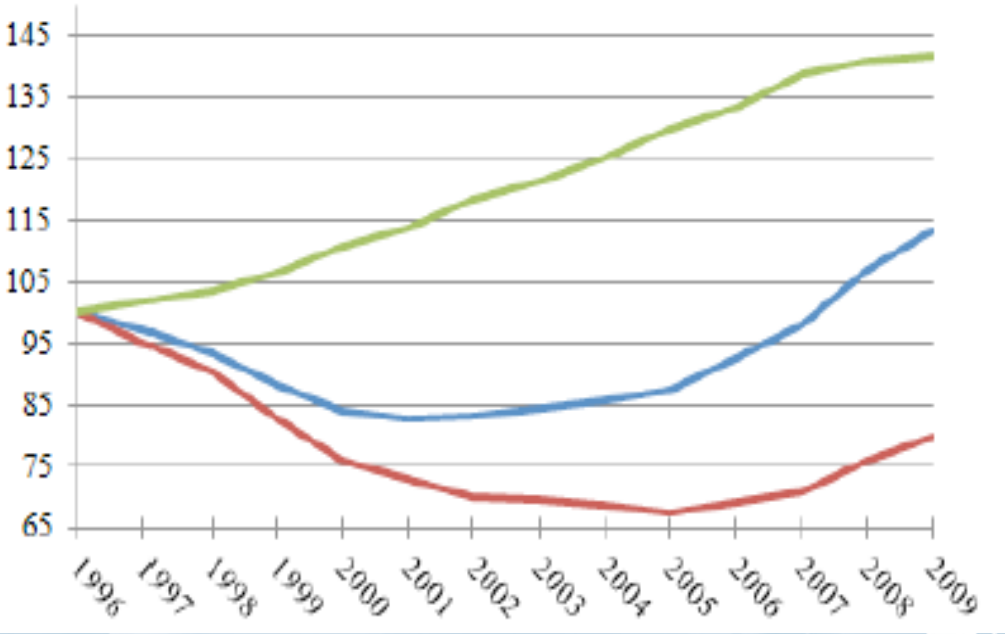
This analysis takes a closer look at the situation occurring in Spain, with a focus on the challenges facing its electricity system and the solutions being proposed to address them.

Where does the electricity system deficit come from?

For over a decade, the Spanish government has prevented utilities from charging consumers the true costs of electricity. In other words, the final price paid by most customers, including industrial customers, has been kept artificially low, in an attempt to contain inflation and protect consumers, all while maintaining the competitiveness of Spanish industry.

This put the entire Spanish electricity system on a collision course with economic reality, and made a growing tariff deficit all-but-inevitable.This can be seen by looking at the trajectory of electricity prices that took place after Spain began liberalizing -- or deregulating, in American parlance -- its electricity market in 1997.

Figure 1: Average Electricity Prices in Spain, (1996 = 100)



Green line = CPI, Blue line = Real Prices, Red line = Nominal Prices;
Source: El Observatorio, 2010.

Ironically, the liberalization of the electricity market (i.e. allowing generators to compete with one another) led to a greater political desire to control electricity rates, allegedly to protect consumers from unpredictable market gyrations.

Rather than allow utilities to increase rates every time electricity generation costs increased (due to rising coal or natural gas costs, inflation, or to changes in energy or environmental policy), the government allowed utilities to create a mechanism akin to a deferral account that allowed them to recover shortfalls in any individual year from revenues generated in subsequent years.

As pointed out above, this measure was designed to control inflation and protect ratepayers against sudden rate increases.

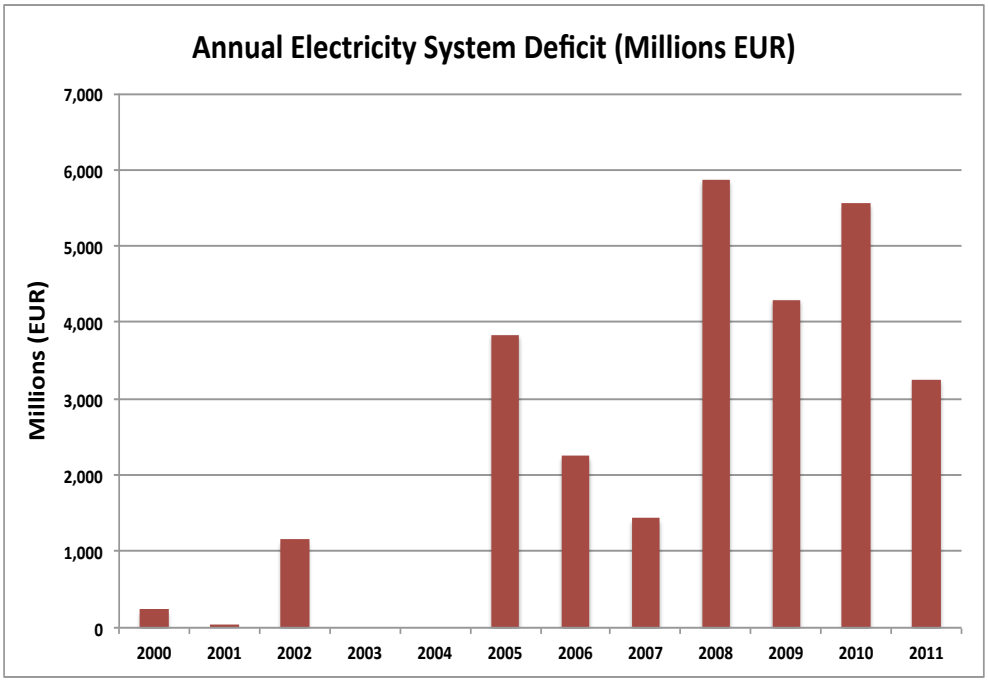
While this approach may have appeared sensible in theory, it generated a host of unintended effects in practice. As utilities faced rising costs from spiraling fossil fuel prices and the obligation to purchase costlier solar electricity in particular, they were not allowed to pass all of those costs on to ratepayers.

This created a deficit, or shortfall, in utilities' financial statements which, taken collectively, generated a growing electricity system deficit.

As the first figure on the next page shows, utilities in Spain have had to post deficits in their books during ten out of the last twelve years. Throughout this period of rising deficits, the government assured utilities (as well as their investors) that they would be able to recover this debt from within the electricity system at a future date.

Indeed, the government had always planned to recover this shortfall from within the electricity system itself – what was never clearly articulated by Spanish officials was how that would take place.

Unsurprisingly, with fossil fuel prices rising in the late 2000s and the share of renewable energy growing, the deficit grew at a rate faster than projected, increasing the pressure on the government to find a solution. While over €5 Billion of the deficit has already been paid back, the total tariff deficit remains at over €24 Billion and continues to grow.



Source: CNE 2012

Viva la liberalización

The process of liberalization of the electricity market in Spain, like in many other areas of the world, aimed to move certain components of the electricity system (namely, generation and marketing) toward competition, while other aspects would remain regulated, such as transmission, and distribution.

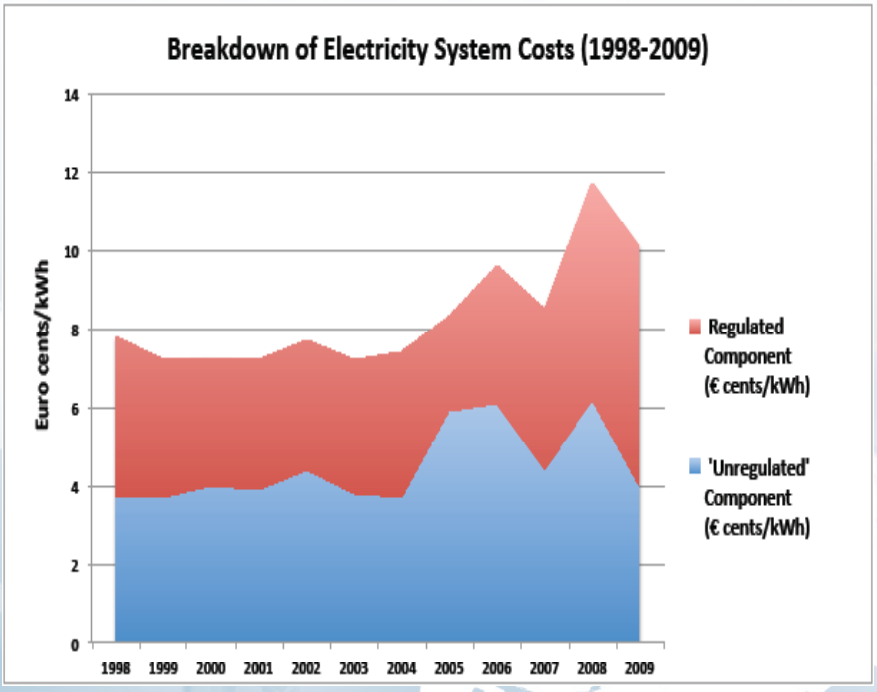
As a result, the electricity prices paid by final users came to be determined by a combination of these two costs: the wholesale market price, which resulted from the competition of different generation sources, and a price comprised of all the regulated costs such as transmission, distribution, as well as the purchases of renewable sources of electricity.

The figure below shows the breakdown of these two cost components.

Wind Pushed Spot Prices Down

It is important to note that the majority of wind power (in contrast to solar for instance) transacted in Spain (roughly 95%) is sold directly on the spot market; instead of increasing costs to ratepayers, the roughly 40TWh of wind power sold every year on the open market have actually helped lower spot market prices.

So while some renewables have put upward pressure on the costs of electricity, others sources have put downward pressure, and helped reduce price volatility in the market. The size of this reduction was calculated at approximately 0.5 cents/kWh in 2009, saving Spanish ratepayers €766 Million according to the CNE, the national energy regulator.

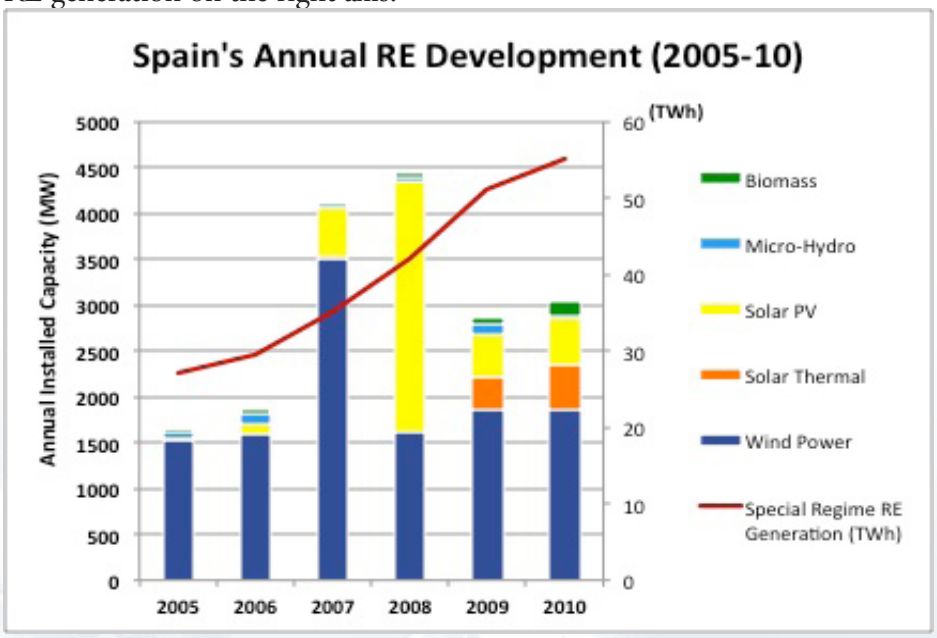


Source: El Observatorio 2010

Renewable Energy: Onward and Upward

Renewable energy only began entering the Spanish electricity market in a significant way after 1998 with the growth in the wind industry, while other renewables like solar photovoltaics (solar PV) only began to be developed in earnest after Spain's 2004 reforms. For biomass and biogas technologies, it took the 2007 reforms to generate any interest.

The figure below shows the annual additions in renewable energy capacity in recent years, along with the annual RE generation on the right axis:

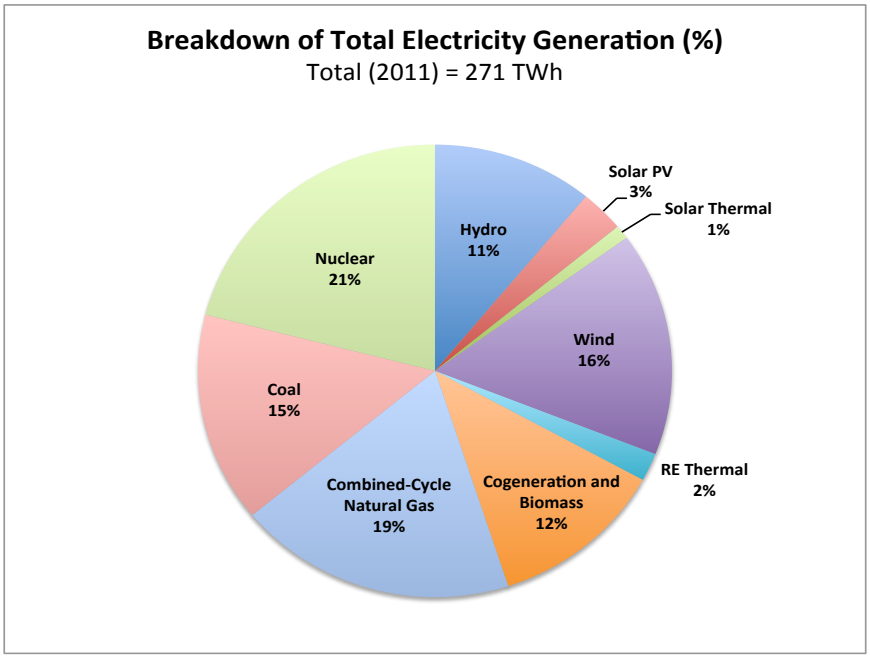


Source: IDAE 2011

Building on this picture, the subsequent graph (top of page) shows how this capacity translates into actual electricity generation, and how it relates to the total generation of the electricity system (TWh).

According to a recent analysis by PriceWaterhouseCoopers (PwC), payments to renewable energy producers represent approximately 39% of regulated system costs in 2010 (or just under €7.1 Billion).

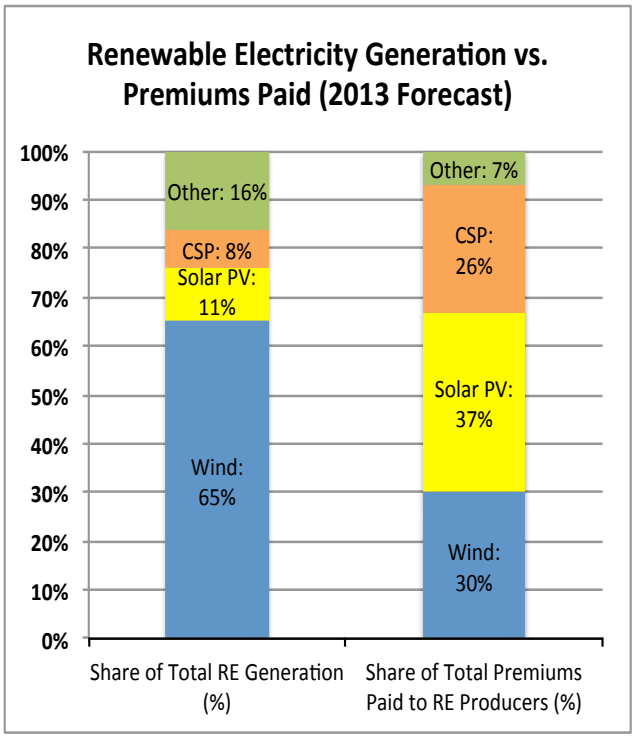
What this means in practice is that despite all the ink being poured over the impact of renewable energy on the tariff deficit, renewable energy procurement costs only represent 24% of total electricity costs. With a non-hydro share of supply at roughly 22%, renewable sources arguably fare rather well.



Source: CNE 2012

The graph on the following page shows a projection of the share of each renewable energy source as a percentage of total generation for 2013, alongside the total premium payments that will be received by that technology in the same year. This shows that while wind power will remain the largest source of RE generation (65%), it will represent less than a third of total premiums paid (30%).

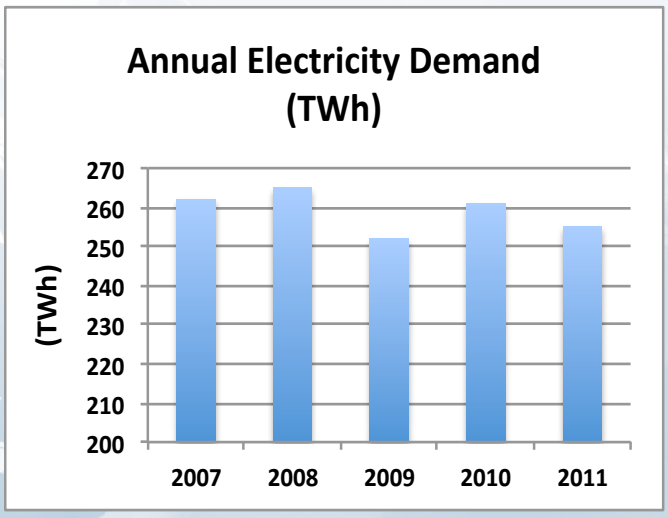
In contrast, both solar PV and concentrating solar power (CSP) will have a much larger proportional share of the total RE payments.



Source: PwC 2012

Demand and Control

As mentioned at the outset, another major factor affecting the deficit is that electricity demand in peninsular Spain has declined from its previous peak in 2008, falling 10 TWh/yr (or 2.6%) since then.



Source: CNE 2012

In an environment of decreasing load, Spain's electricity system is suddenly faced with significant excess generating capacity. While Spain still has to meet its EU targets for renewable energy development by 2020, the reality of excess capacity has significantly dampened the need for new generation. This is another crucial factor underpinning the government's decision to halt new investments in generating capacity.

El Deficit

The root cause of the electricity system deficit, and in turn of the suspension, is that revenues from electricity sales are insufficient to pay for the cost of the electricity system. As the tariff deficit began to grow in the mid-2000s, utilities started auctioning off the debt on the open market. This enabled utilities to effectively defer the liability, while providing the government with more time to resolve the underlying issue. However, when the financial crisis hit in the fall of 2008, this strategy began to fall apart, as utilities struggled to find buyers for their debt.

This prompted the government to step in during the early months of 2009 and provide sovereign backing for the tariff deficit.

Predictably, this has generated two additional sources of tension for the government: first, assuming responsibility for the deficit effectively increases its net debt; and second, these debt auctions directly compete with Spain's own bond issuance.

Since the government has provided sovereign backing for the tariff deficit, addressing it has assumed an increasing national importance.

Of Deficits and Downgrades

Compared to many of its European compatriots such as Italy and Greece, which have debt-to-GDP ratios of over 120%, Spain's ratio has only recently surpassed 60%. And despite the considerable size of the electricity system deficit, it only represents 3% of Spain's GDP. In addition, expenditures on electricity represent only 2.5% of the average citizen's annual spending, making it a relatively small part of the average household's expenses.

Moreover, it is noteworthy that in their recent downgrades of Spain's sovereign debt, none of the three major ratings agencies cited the country's electricity system deficit as a concern. The major factors cited included the negative outlook for the Euro region, increasing deficits by Spain's regional governments, as well as growing concerns over the ability of the private sector to obtain external financing.

This suggests that it is hyperbole at best, and misleading at worse, to suggest that Spain's renewable energy sector, let alone its feed-in tariff, have brought the country to its knees.

The electricity deficit is merely one component of the broader fiscal and economic challenges that Spain is facing, all of which are compounded by the ongoing instability in Greece. Moreover, it remains the case that the root cause of the problem is Spain's rate control policy, not its renewable energy policy.

As arguments fly about how renewable energy has bankrupted the Spanish government, it is important to put things into perspective: Spain has not been bankrupted by renewable energy any more than the US was bankrupted by its national highway system. The major difference is that in its drive to modernize its electricity system, Spain has prevented utilities from being able to pay for those investments, giving rise to the deficit that is now plaguing the sector.

Shedding Light?

As many commentators have pointed out, the primary proportional contributor to the system deficit among renewable energy sources has been solar PV, which was responsible for 46% (or €3.25 Billion) of the total premiums paid to renewable energy producers in 2010, despite having only produced 10% of total renewable electricity. This makes solar PV a prime candidate for criticism.
However, the most recent solar auction held in Spain demonstrates just how rapidly PV costs have fallen in recent years: the last solar auction held in the fourth quarter of 2011 saw prices drop to €0.124/kWh, bringing it well below the residential retail price paid by most households in Spain (a price that remains strictly regulated, and stood at €0.142/kWh in 2011).

This is what is called the "tariff of last resort" available to customers with a connection capacity under 10kW, representing the price paid by 93% of residential customers in 2011.

This suggests that while solar remains the largest proportional contributor to the deficit, the majority of this cost burden is due to the contracts signed between 2004-2008, locked in at a previous stage of technological development when costs were significantly higher. In fact, contracts signed during those years ranged from €0.23-0.44/kWh, or two to three-and-a-half times higher than contracts in Q4:2011.

Based on this most recent auction, solar PV is currently cheaper than the residential electricity price.

This is in no small part due to the massive "demand pull" created by countries like Spain and Germany over the last decade, as they contributed to PV's remarkable slide down the cost curve, and toward grid parity in much of Europe and parts of the US.

A further issue that has garnered a lot of attention is the over 2,500MW of solar thermal power plants currently in the pipeline. Under existing regulations, these projects will be eligible for tariffs of over €0.32/kWh, almost three times higher than the prices offered to solar PV.

As the government examines how to reverse the growth of the deficit, CSP projects are likely to face changes either to their pricing arrangements, or to their eligibility requirements.

Soluciones

In response to the mounting deficit and pressures from rating agencies, the Spanish government has discussed a variety of ways of dealing with it: at this stage, the tentative plan is that the deficit will be financed from a combination of three different sources:

1) the government itself (i.e. taxpayers), which would socialize a portion of it;

2) ratepayers, which would cover another portion through rate increases;

3) and the utilities, which would be called upon to write off a portion of the debt in exchange for greater future certainty and stability.

In the maelstrom that followed 2009's abrupt changes, the government considered a levy on large hydro and nuclear generation, a petroleum tax, as well as an increase to the grid access fees. Of the three, only the grid access fees have so far been increased.

Some other candidates that have been proposed include cutting the subsidies to domestic coal production, which continues to receive approximately EUR 0.6 Billion per year.
Leading industry bodies such as the association of small power producers (APPA) have proposed measures such as a penny tax on all petroleum products; drawing on carbon auction revenues; and reducing the number of electricity customers eligible for the 'tariff of last resort', by reducing the eligibility threshold from 10kW to 3kW.

With all of these measures and proposals competing with one another, only one thing is certain: regardless of the government's decision, the outcome is unlikely to please everyone.

Conclusion:

In a recent article, a columnist at El Paìs, a leading national newspaper, noted that the Spanish government has been practicing "surgery without anesthetics" on the Spanish energy market, arguing that with this most recent decision to suspend future renewable energy contracts, it has once again touched a nerve.

And so it has been since the fall of 2008.

However, some in the renewables industry have openly welcomed the temporary suspension, arguing that it should stabilize the electricity market, and help the government finally devise a sustainable strategy to deal with the deficit. And regardless of political stripe, there is a consensus that the sooner the government addresses the deficit, the sooner the entire electricity system can begin to move forward on a more stable foundation.

With any luck, this temporary suspension will result in a stronger, more robust electricity system, and re-introduce stability into a market that has become all-too-familiar with unexpected change.