RENEWABLE ENERGY'S ROLE IN FUTURE ENERGY SECURITY AND ITS DEPENDENCY ON POLICY SUPPORT MECHANISMS

Craig Froome The University of Queensland, Brisbane, Australia P: + 61 7 3443 3104 E: c.froome@uq.edu.au

Overview

One of the biggest problems facing Asia is how to increase the level of electricity production and increase distribution to those areas which are yet to have reliable energy supplies. For many countries this is not possible as domestic energy resources are in shorter supply and more is needed to meet demand in growing industrial sectors. This is creating growing energy security concerns which in many cases may not be able to be met by increasing energy imports

.Deployment of renewable energy is on the agenda of many Government's, but whilst how to achieve this has been discussed; in many cases there has been little action to date. Some countries have renewable energy portfolio standards already in place, whilst others are still working towards providing electricity to communities with limited energy resources. The geographical landscape of Asia varying from remote mountain ranges to thousands of inhabited islands provides a challenge for electricity providers on a far more complex scale than was experienced in Europe; however they still encountered numerous issues when implementing policy measures to increase the deployment of renewable energy.

In many countries the desire to increase levels of renewable energy has been driven by energy security fears. Historically as renewable technologies have been relatively immature; they have not been able to be commercially deployed based on accepted economic principles. This has required Government support through either ownership, grants or policy measures providing benefits to support deployment.

Renewable energy has the ability to provide electricity utilizing localized resources at no cost. The issue that must be resolved is what renewable technologies should be deployed in particular regions, which requires many assessments to be undertaken outside of just the renewable resource available.

Methods

The initial assessment that must be undertaken is what renewable resources are available in any particular area where renewable energy deployment is being considered. Resources such as wind can vary significantly over very short distances, requiring site specific measurements to be undertaken.

The most mature renewable resources, being solar and wind can be very intermittent and this intermittency can vary significantly on a seasonal basis. Once the areas of greatest resource are known, then it must be determined how to promote the uptake of renewable energy into these areas.

Asia can benefit from lessons learned in Europe in how policy measures can be implemented. There is a very large suite of options available with a large range of implications for current operators and new market entrants depending on those policies selected.

Results

Some policy measures have failed primarily because a technology was forced upon an area where there was a weak resource. This highlighted the fact that detailed resource assessments need to be undertaken in the first instance.

These assessments should be considered an 'investment' by Government as they will provide preliminary studies to project developers to allow them to determine where the best sites are to deploy their technology. These assessments will also benefit Government by reducing the risk of funding unsuccessful renewable energy plants, which will have a flow-through effect on other company's considering deployment of the same technology, further impeding future development.

One of the key results from a review of European policy history is that some of the more successful renewable energy policies are set at an individual technology basis rather than including all technologies that may be fall under the umbrella of being 'renewable'.

For example, if feed-in-tariffs are the preferred policy choice, then different tariff rates could be introduced for wind compared to solar. Similarly to take it one-step further, within the technology type, different tariff rates could be applied to different regions depending on where additional generation is required.

Policies cannot be open-ended, they need to be constantly reviewed as needs change. This needs to be communicated up-front so project developers know that early-movers will obtain a fixed level of support over a given timeframe, which will be subject to change once goals have been achieved.

Conclusions

Energy security can be strengthened through the deployment of technologies utilizing renewable resources that are most abundant in the location being considered. This will require resource mapping to be undertaken to determine the best options, noting resources vary over relatively short distances.

Policy measures supported by Government are required to meet goals set and these measures need to be reviewed on a regular basis. These policies must be flexible so that deployment of individual technologies in areas where they are most needed can be achieved. This will also provide a level of support within Government’s means.

Whilst the biggest energy problem within Asia remains providing a reliable energy supply to all communities, renewable energy does provide an option that also increases the energy security for energy poor countries.