

## Growth Strategies for Solar PV Industry

### Control and Differentiation

The two main thrusts of the sales and marketing strategies we propose:

- Capturing a greater share of the grid network, customer demand of kWh
- Developing a secondary market of applications, integrated with PV systems

#### Diagnosis of market & financial growth inhibitors

Growth rates for PV companies are stalling, acutely noticeable in the publicly listed stocks of major module producers.

**Grid allocation:** the regulators allocate tight quotas for PV connections to the grid, based on their perceptions of how it can match customer demand, limiting market uptake and revenue growth.

**Auctions:** competitive auctioning of the tariffs for solar projects has resulted in severe price competition, limiting the profit margins of PV suppliers.

**Usual markets:** the strategic inertia of staying on the beaten path, pursuing the same old markets, where incremental additions of solar are now slowing down.

**Usual approach:** the PV supply chain tends to be reactive, waiting for the market regulator to set the solar agenda, and then compete mainly on price against each other.

**Guggenheim Solar ETF (NYSEARCA: TAN) is nearly 30% down from the start of 016.**

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#### Remedies to boost growth rates

Supply-side improvements aren't enough, what's direly needed is more **customer-facing creativity** and aggressive sales directions.

The sales mind-set to become the main daytime electricity producer for the target market. Nascent **emerging markets** with chronic electricity shortages and high energy prices targeted in such a manner. Sell an **interactively developed, holistic electricity supply package** instead of waiting for auctions.

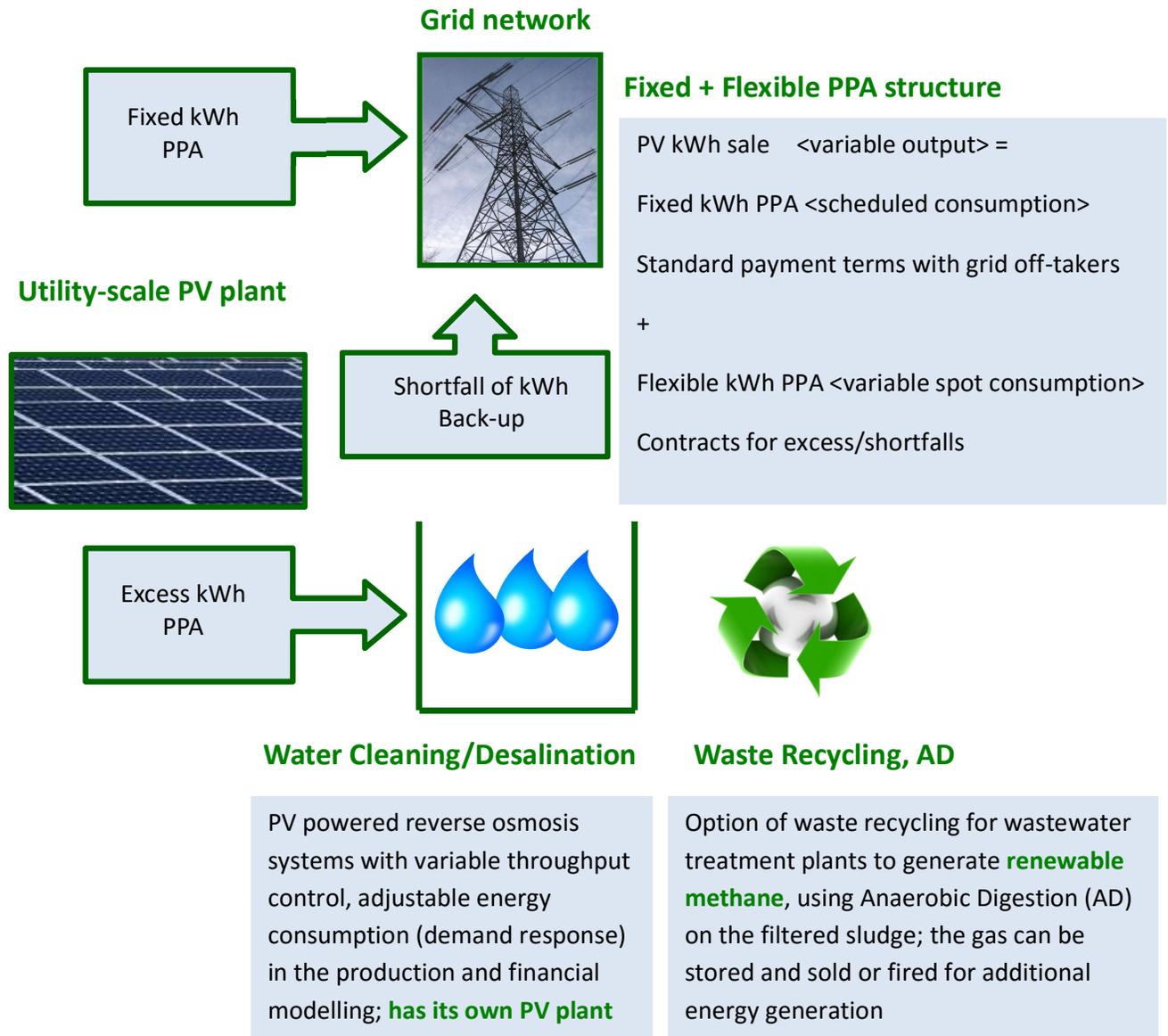
Fit the sales proposition to the daytime demand load on the grid. Secure greater control of the customer demand pattern.

An alternative set of strategies draws upon **lateral business thinking**, entails additional work in cross-industry alliances and joint offerings, but the results will open up new levels of market growth. We illustrate a strategy, below, to tackle the obstacle of **intermittency**. The outcome is greater grid penetration at favourable financial terms.

**Business Model for Intermittency →**

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Utility-scale Solar and Water Cleaning in the same Balancing Area



**Business model of Fixed + Flexible PPA structure:** Intermittency is a major concern for grid operators, viewed as the main disadvantage of renewables versus fossil fuel and nuclear electricity sources. Consequences for renewables can be unpaid grid curtailment of the excess supply, and a deterrent cost of compensating shortfalls from expensive energy storage or other sources. The proposed business model can neutralise this grid penetration constraint, to a substantial extent. Grid operators/utilities or public bodies do not have to foot the bill for unexpected weather related variances in electricity supply. As with fuel-based sources, the grid operator only bears the risk of accurately forecasting demand.

The grid operator and PV asset owner can agree to the financial terms of a standard PPA: pre-determined tariff for a fixed schedule of kWh, an agreed range of electricity output. Intra-week and intra-day deviations from the fixed kWh schedule can be compensated by coupling the PV plant to the water cleaning facility (or network of such facilities). Excess electricity is not curtailed but used and paid for by the water cleaning facility. Similarly a shortfall in electricity can be covered in the mutual arrangement, with the electricity and financial payment flowing in reversed directions.

In general, key criteria for the Flexible PPA component are: (I) an application that can operate on variable power supply, (II) the application product has elastic demand, and (III) the product can be cheaply stored to meet deferred demand.

### **Is PV powered water desalination/reclamation commercially feasible?**

Solar powered water desalination, from seawater or brackish water deposits, is based on a mature business model. The exact production cost depends on the facility scale, throughput, types and quantities of contamination, and final intended use. Energy consumption is the most critical operational cost.

Reverse osmosis (RO) systems, the market dominating membrane technology for water desalination, require electrical energy only. Therefore RO systems are neatly suited to PV deployments.

Variable Speed Drive (VSD) technology provides a versatile capability to dynamically manage the pressure pumps, used in water cleaning facilities, for adaptable operational conditions.

A hybrid Wind-PV-fuel-based system may be deployed at the water cleaning facility to diversify the local electricity supply. The electronics for seamless hybrid output is readily available.

Energy storage may also be part of the water cleaning operation, accommodated in its financial model, rather than an additional stand-alone expense for electricity balancing.

### **How does this strategy help PV market growth?**

Grid operators/electricity utilities, the typical counterparty for the PPA, are reluctant to pay for excess electricity. On the other hand, resorting to grid curtailment reduces the financial take of the PV asset. The proposed approach circumvents the trade-off between the grid-offtake buyer and the PV asset owner, increasing the financial viability of PV installations.

PV systems can be sold for the water cleaning facilities. There's a twofold boost to sales growth: more grid-connected systems and applications separately powered by PV.

### What would the sales and marketing process involve?

The sales proposition has mutually reinforcing drivers, making it easier for PV companies to pursue. Consider the typical locations for very large-scale PV projects. Barren lands with high levels of insolation. Where do people urgently need clean water? Those living in proximate areas.

For an efficient sales cycle of dual propositions, the target customer should be a single decision-making point. In underserved emerging markets, the government authority responsible for signing off on large-scale electricity and environmental projects is usually the same e.g. the Ministry of Energy and Mines, Energy and Environment, Water and Power, and so forth. Therefore the sales process for the suggested PPA structure has economies of scope, streamlining the sales and marketing costs to close the joined deal.

What if water desalination/reclamation units do not exist in the balancing area? It is fairly easy to set up these facilities from scratch, with considerable flexibility in sizing, designing, and sourcing the preferred system. The creation of the complementary water and waste recycling facilities can be legislated as part of the renewable energy policy in the customer market. Rural areas could use PV powered water cleaning facilities to reclaim water for agricultural use, while wastewater treatment is a pervasive problem for urban areas. Most industrial operations (including fuel-based energy plants) are also consumers of large quantities of water, resulting in contaminated water output. Water usage, like energy, is projected to be one of the greatest human challenges for our near future. Indeed, emerging markets face both increasing public pressure for the provision of clean water and electricity. The synergy in collateral market development is most evident.

### What are the broader strategic growth implications?

The PV industry can position itself as a platform for a variety of applications aimed at cleaner, healthier, sustainable living environments. The PV companies who take the lead in such strategies will differentiate themselves from the rest of the pack, and develop add-on income streams for their business.

*At present, there is a gap between the theoretical realisation that solar PV is the most ubiquitous source of electricity for the planet and the practical effect of commercial sales strategies. The commercial sales strategies have to quickly expand in scope, showing the way for a daytime electricity macro-system anchored by a network of large-scale PV. The PV industry needs to step out of its comfort zone, the motions of the historical sales process, and set a broader solar agenda in emerging markets.*

## Conclusion

Proven business models and technologies can be co-opted by PV companies, in forceful sales and marketing strategies, to increase their share of grid penetration and differentiate themselves from the competition.

## Mission and Services

We seek to assist the global PV industry, not merely in raising public awareness about the full potential of PV systems to address energy gaps but also to help develop and sell large-scale projects. The intention is to practically increase the sales of PV systems worldwide:

- Identify and cultivate emerging markets, the key decision-makers
- Articulate business models and sales propositions
- Maximise the financial value of assets
- Maximise the solar share in the national electricity portfolio
- Work with PV companies to develop sales pipelines and close deals

We tailor our work packages, to what best suits clients.

## Illustrations of ground-breaking PV projects, enabled by our services:

Aqaba, Jordan



Bahawalpur, Pakistan



## Contact

For further discussion of how we may be able to assist you, please message:

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