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"Stimulus Bill Opportunities: Solar, Efficiency and Their Convergence"

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The American Recovery and Reinvestment Act ("ARRA," or the "Stimulus Act") lays out a series of loosely organized federal tax and funding incentives intended to both stimulate renewable energy and energy efficiency, and help create jobs. One place ARRA's potential application may be optimized is in the "convergence" of solar PV and the emerging "smart" energy efficiency technologies.

Through proper transaction structuring, these ARRA incentives can significantly improve return on projects, benefiting project companies and emerging technology firms in the marketplace. ARRA potentially provides significant long range benefits for solar PV, energy efficiency, and the "convergence" of these two technologies. It may also impact long term venture capital and the project financing opportunities for such emerging companies. It may also enable these companies to take advantage of Stimulus Act provisions by utilizing variations on traditional performance-based contracting structures. Convergence zone companies may have an enhanced appeal to venture capital and private equity investors who have had some reservations about the general asset class. In short, the resulting "convergence zone" can be a sustainable investment opportunity.

Solar/renewables

While certain mechanics of key Stimulus Act incentives remain to be fleshed out, a few critical items are already clear:

- The key public sector incentive, the new Federal Loan Guarantee program, may be applied to already-commercialized renewable technologies as opposed to just innovative technologies, which were the only subject of the first round. Developers will not be confronted with the significant credit enhancement fees which hobbled the prior program. Therefore, much greater loan leverage of appropriated Federal dollars is possible. This program's implementation is still the subject of both administrative and congressional attention.

While the Loan Guaranty authority expires in 9/30/11, construction need only be started by that date. Expedited administration is anticipated through more extensive private lender participation in both debt financing and initial vetting of proposed project financial viability.

- The key private sector incentive, the Stimulus Act's extension of several types of renewables' tax credits, including solar, is likely to be augmented significantly by the optional conversion of such tax benefits into "grants" which can be an equity surrogate. The resulting ability to separately allocate, in different ways, the grant and tax depreciation benefits, to project developers and equity investors, in both sale leasebacks and partnership flips, should widen the available pool of capital available for renewable deals.
- Other significant potential sources of capital for renewables include State Energy Programs, general RD&D, specialized bond issues, and tax-credit-qualified Clean Renewable Energy Bonds.

Energy efficiency

The ARRA mechanisms for efficiency funding differ in many respects from those for renewables. The very substantial funding, made available through the funding of efficiency components of State Energy Programs, and Efficiency and Conservation Block Grants, will place the majority of the opportunity for efficiency project funding (broadly defined to include certain energyproducing applications as well) in the hands of state and local governments. Programs of comparable dollar size are available for retrofit or efficiency investment in Federal buildings, notably GSA and DoD. Finally, major "Smart Grid" direct and matching grants may be applied to a wide range of goals including security/reliability, storage, and transmission of

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renewables from remote sources to population centers.

- Several important administrative issues also remain to be worked out in the efficiency field. It is not clear whether public recipients will choose to leverage the ARRA appropriations with private capital sources. It is also still unclear how the traditional performance contracting mechanisms for efficiency finance will be integrated with the availability of new funds, or whether alternative contracting mechanisms will become more common.
- In principle, ARRA's financial incentives should result in leverage, including combination of multiple incentives:
 - new types of public-private partnerships keyed to broadened public funding capabilities and adaptability to different stages of project development
 - new alternative contract variants to traditional energy performance contracting, which permit revenues or savings from new energy technologies to be monetized as a predicate for financing

These alternative performance contracts will receive off balance sheet treatment. In the current downturned economy where both public and private entities have seen significant degradation of their credit ratings, alternative financing structures that do not contribute to further downgrades can provide value added alternatives to end use customers, emerging technology companies, and project developers.

New technology sponsors will be able to be rewarded and their financial models validated if the long term performance contemplated by these contracts is realized. Funding can be conditional on performance contract execution and realization of resultant revenues. Monetization of performance contract back end revenues, tax benefits, and environmental credits may partially be realized by venture capitalists as well as their emerging company clients. Fueled by third party capital investments, market penetration by energy tech companies may be quicker than otherwise would be possible in the conventional environment they face, of public procurement regulations and private sector risk aversion.

- Application of the alternative contract model necessarily must concentrate on commercialized "bolt on" and isolation engineered technologies, which are past the R&D stage, and where performance results can be measured, so that savings can be quantified and allocated.

Investment considerations

Several factors have prevented renewable energy from being a preferred asset class for private equity investors: high capital requirements, risk of dilution, time to exit, resistance to perceived investor intrusions into management, and financial requirements of equity investors. Barriers thus have been both low availability of debt because of lack of company resources and difficulty in project funding with equity due to cost of capital.

ARRA Programs may offset some of these concerns by removing or mitigating project risk and increasing sources of private funding available, e.g., loan guarantees and third party credit. Resulting leverage, in turn, can reduce risk and decrease equity capital needs. Companies can also benefit from leverage provided by ARRA-enlarged potential for risk-sharing through public-private partnerships, and shared savings benefits captured through the alternative contract structure models described above.

Meeting the high hurdle for either VC or private-equity investor economics presents a challenge to cleantech projects. As with other investments, the risk may be reduced by sponsor technology being at beta stage or beyond, meeting compelling customer needs, and having market protection, notably through a strong IP position.

In sum, ARRA can trigger the desired acceleration of renewables and efficiency through faster commercialization, earlier realization of revenues, the possibility of earlier stage exit, resulting better valuations, proliferation of funding sources, and resulting increased rate of technology development. These possibilities are enhanced by blending energy efficiency with renewables in a manner that minimizes customer risk, and improves the standing of the asset class.

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Convergence Zone

- The availability of new ARRA financing tools and structures has a particularly bright opportunity in the area of “convergence” with mainstream electricity markets which are particularly ripe for integration opportunities. A prime example is the convergence of Solar PV with energy efficiency/smart grid developments.
- Solar PV production has grown 9X 2003-2008, and another 9X increase may be expected 2008-2012, as costs and prices continue to decline. This growth may particularly be expected in the US, as a result of ARRA’s 8-year extension for the 30% ITC, the removal of restrictions on utility investment, and the raising of the residential cap.
- While ARRA does not specifically promote integration, it boosts the use of complementary components and enlarges the market of financing opportunities across the spectrum. In this integrated area, opportunities are particularly ripe. It is an important component of the several distributed energies positioned for substantial growth and materially boosted by the almost \$60 billion of ARRA incentives.
- Distributed energy “convergence” investments may have complementary strengths in economics, consumer appeal and utility appeal. For example, while PV has the greatest abstract consumer appeal, storage and controls have the greatest utility appeal, and efficiency generally has great economic appeal. Projects that combine them, therefore, have a greater chance of success. A pioneer utility pilot to forestall the need for traditional distribution system upgrade requirements through the use of distributed resources provides early support for this view, as measured by its enhancement of PV sales, residential efficiency audits to residential demand response utilization (e.g., central air, electric hot water).
- Financing opportunities for convergence projects are evolving. Traditional PV financing through either commercial and industrial PPAs and energy service company (ESCO) institutional financing, or equally available public financing, is giving way to three emerging future market trends: bundling of multiple PV residential opportunities, bundling of energy efficiency with PV, and a near term shift from utility to third party financing of projects. ARRA, in turn, will help to accelerate these trends and convergence breakthroughs.