TRANSFOR MING THE GLOBALAVIATION SECTOR:
EMISSIONS REDUCTIONS FROM INTERNATIONALAVIATION

FINANCING LOW EMISSIONS AVIATION MEASURES

(focus on renewable solar energy)

PRESENTED BY

LEONARD ALLEN

PRESIDENT, SOLERA SUSTAINABLE ENERGIES COMPANY LIMITED

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SOLERA SUSTAINABLE ENERGIES COMPANY LIMITED



- Award winning Canadian developers of commercial solar energy solutions since 1992
- Design, Engineering, Construction, Financing and Operational Management of generation projects
- Partner in ‘Solaribbean’, a Kingston based solar developer

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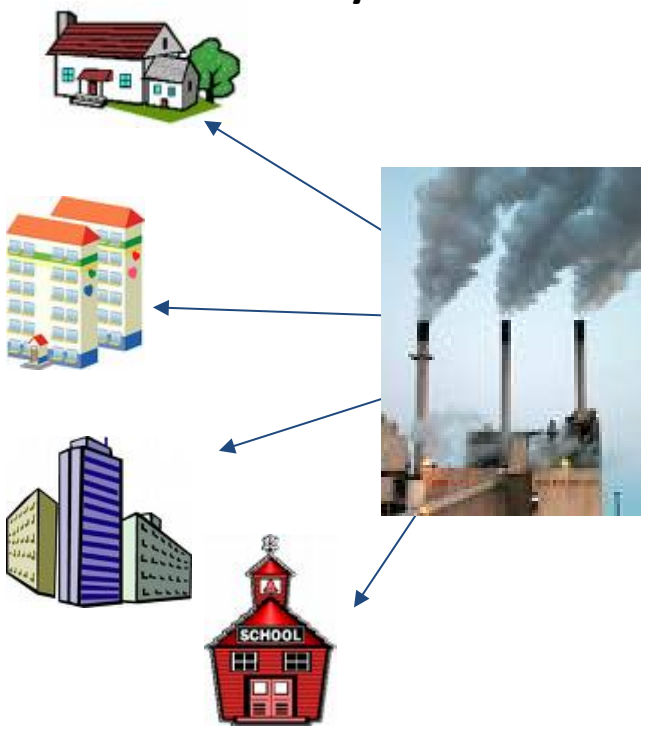
OUR PREMISE – RADICAL CHANGE AHEAD IN ENERGY GENERATION AND DISTRIBUTION, DRIVEN BY INTERSECTION OF ECONOMICS AND ECOLOGY

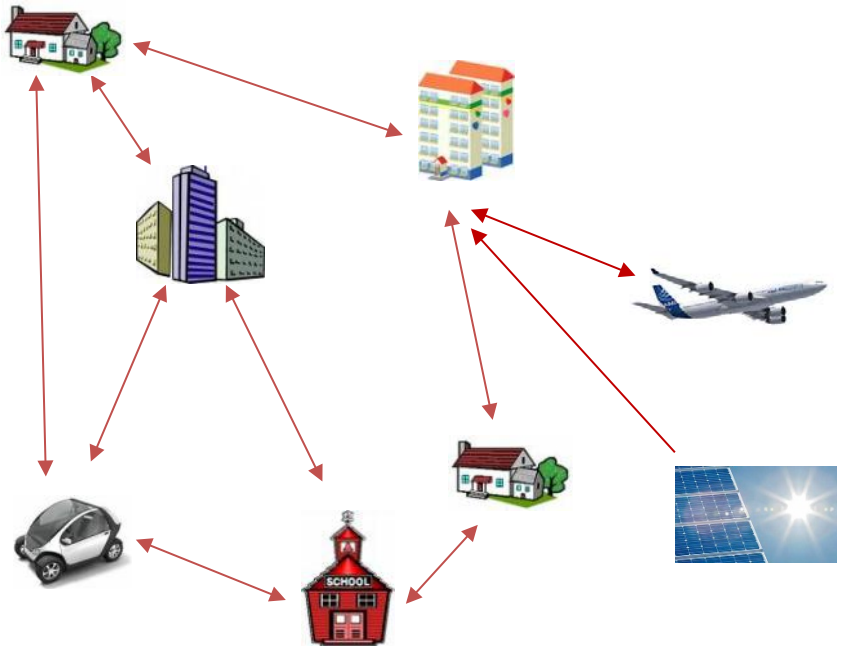
Today



Central Generation

Capital intensive, long lead time, risky, large power losses, often environmentally unfriendly

Tomorrow



Sustainable, distributed energy supply

Incremental, less risky, sustainable, scalable, fast deployment, negligible losses, can be very environmentally friendly

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SOLAR DIVERSIFIED – IMPLEMENTING UNIQUE PROJECTS

SOLAR SAIL, MUNICIPAL GOVERNMENT PROJECT 2010

SOLAR CAR PORT WITH ELECTRIC VEHICLE CHARGING STATIONS, CANADIAN PUBLIC UTILITY COMPANY 2017

SOLAR WALL, PHARMACEUTICAL MANUFACTURER., 2014

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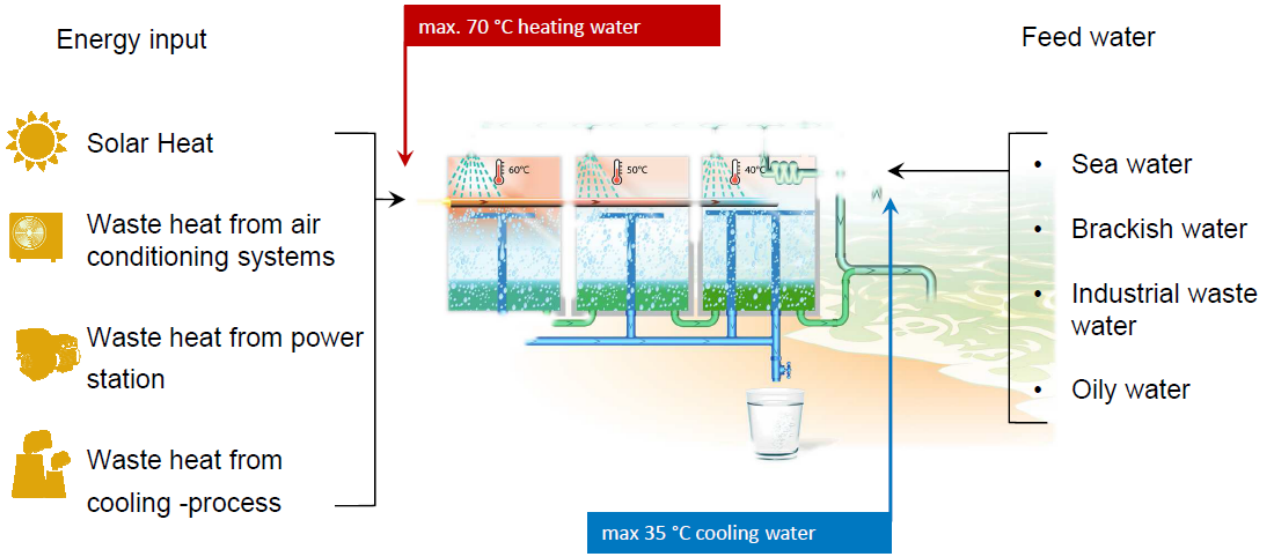
SOLAR DIVERSIFIED – CLEAN WATER TECHNOLOGY

Application overview




MED-10-4 pilot plant

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SOLARIBBEAN
RENEWABLE ENERGY PARTNERS
ENERGY MADE AFFORDABLE.

ROOFTOP SYSTEM, PETROLEM CORPORATION OF JAMAICA HEAD OFFICE

15 kW GROUND MOUNT SYSTEM, JAMAICA SOCIAL INVESTMENT FUND

1.4MW GROUND MOUNT SYSTEM, ANGLEC, ANGUILLA 2016

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PowerGen Ltd.
Energy, Commerce and Engineering

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RENEWABLE ENERGY APPLIED TO AVIATION OPERATIONS

100 KW SOLAR CAR PORT INSTALLATION AT
NORMAN MANLEY INTERNATIONAL AIRPORT, KINGSTON JAMAICA
OFFSETTING ELECTRICITY CONSUMED BY NEW PCA AND GPU EQUIPMENT

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Energy, Commerce and Engineering

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SOLAR BENEFITS

Solar energy is the fastest growing segment of the energy mix globally, for many good reasons:

- Cost point that now can be below that of other forms of generation
- Quantifiable and verifiable emissions reductions
- Energy directly from sunlight; no moving parts, no noise, negligible maintenance
- Long term highly reliable generation
- Quick deployment - 'Megawatts in Months'
- High security – power generated at site, can't be easily pilfered
- Opportunity for development of local expertise through skills transfer and local economic growth in high-tech energy systems
- Opportunity for future integration of complementary elements such as energy storage and provision of ancillary services to the grid operator (frequency and voltage stabilisation)

Fact:
150MW of solar generation was deployed globally in the year 2000. This much is now being installed EVERY DAY (about 200 million solar panels per year!). **Over half that capacity is being installed at the point of consumption.**

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BUSINESS MODELS

Because the cost of solar generation has been steadily declining and is now often competitive with traditional forms of generation, solar projects are becoming more easily financeable.

1. Customer (site owner) purchases and owns the system. However, expends capital on non-core business and takes all economic and technical risks associated with the technology and its operation and maintenance.
2. Joint venture, where the site owner has an equity stake in the project alongside the developer, but with reduced risk. The operation of the project and distribution of proceeds are governed by a JV agreement.
3. Power Purchase Agreement, where a third party energy service company develops and owns / operates the technology and assumes all technical and financial risks
4. Co-op: Renewable Energy Co-operative that owns and operates the technology. They raise capital through public bond offerings. This allows broad scope of investors to participate in the realisation of renewable energy deployment.

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SOLAR FINANCING

Long term financing is ideal and generally required for renewables projects.

- Non-recourse loans are most desirable
- Fixed interest for term of loan
- Long term and amortisation (15 – 20 yrs.)
- Chartered banks not usually the optimal lender
- Specialty lenders with a focus on finance of renewables and savings from conservation investments
- Development Banks – mezzanine financing while portfolios are being developed for takeout by senior lenders

Common considerations:

Offtaker creditworthiness; security / certainty of site; experience of project developer; quality of equipment, design and construction; political / regulatory risk; ability to adequately insure assets and business interruption / downtime; achieve adequate terms in leases / registrations; achieve non-disturbances from site owner's other mortgagees, etc.

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SOLAR FINANCING

Our completed financings have been with numerous types of lenders:

-Chartered banks, Canada and USA
-European banks with a special interest in funding clean technologies
-Credit Unions
-Canadian renewable energy co-op's (who in turn take large portfolio of projects acquired from various developers, to senior lenders)
-Public Utilities, where their ratepayer / public funds have been deployed in renewables projects that meet their threshold rates of return, strategic objectives, and risk profile.

On the horizon:

- Peer to peer energy trading
- Monetization of, and securitization by carbon value (emerging now, eg. Solarcoin cryptocurrency)

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A COMPREHENSIVE SUSTAINABLE ENERGY STRATEGY DELIVERS VALUE IN ALL KEY AREAS

Ecological Responsibility

Social Commitment

Economic Growth

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THANK YOU!

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