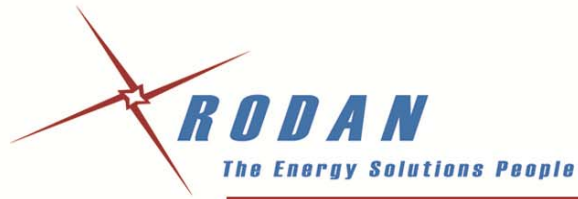




# Presentation

## Energize Your Community Conference

Presented by  
Gary Guenther  
Director – Business Development



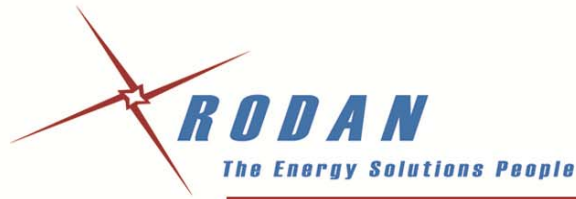
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Topic of Discussion/Presentation:

**Plan, Build, and Maintain a solar project**





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## Agenda:

- Thank you for the opportunity to speak
- About Rodan Energy Solutions Inc.
- GEA implications to LDC's and Municipalities
- Plan, Build and Maintain a Solar Project
  - Today's discussion is based on a microFIT 10KW roof top project



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### About Rodan Energy Solutions Inc.

- Private firm
- Registered MSP (Meter Service Provider)
- OPA licensed Aggregator for Peak Savers
- OPA Aggregator Administrator
- Serving over 100 + power producers, distributors and consumers
- Specialists throughout the province, Windsor, Timmins, Mississauga, Thunder Bay, Huntsville and Ottawa
- Delivery of turnkey distributed energy and demand management programs in support of LDC and OPA, RESOP and FIT programs

GEA implication to LDC's and Communities:

- Many national governments, including the Government of Canada, are taking steps to reduce greenhouse gas (GHG) emissions and these efforts will include new programs that make it more costly to emit GHGs.
- The Government of Ontario has a goal of establishing a “conservation culture” and in support of this has put in place the Green Energy Act which also establishes the framework to strongly encourage renewable electricity generation and other new business activities through LDCs.

## GEA implication to LDC's and Communities:

- Many Ontario communities have and/or are establishing Community Energy Plans that set long-term targets for sustainable use of energy calling for reductions in overall energy use, reductions in GHG emissions, greater use of distributed generation, combined heat and power and district energy. These plans also recognize the importance of focusing on all energy uses taken together rather than independent solutions for each form of energy.



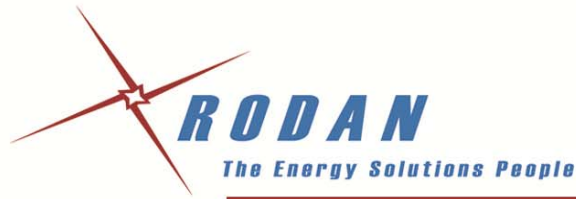
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GEA implication to LDC's and Communities Con't:

Opportunities from the act

- Distributed generation - Solar PV
- Distributed generation - Hydro (water power)
- Distributed generation – Wind
- Distributed generation - Bio-Energy.
- Conservation and Demand Side Management (CDM) and Demand Response (DR) programs
- Combined Heat and Power (CHP) and District Energy (DE)
- Energy Storage.

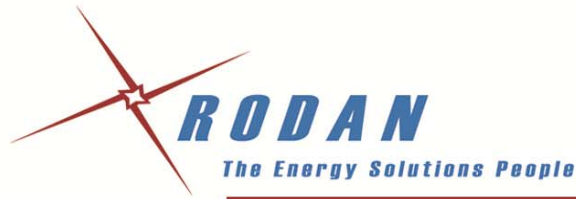


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## The Plan:

- Needs to be a willingness to go forward
- Scope out possible/multiple sites
- Engage with a third party for services to assess the project at a high level
  - Full service third party company that can provide, regulatory assistance, metering and data collection and settlement services, engineering and project management support. Technical assessment experience and maintenance capabilities.
  - Company that can provide investigative GEA opportunities

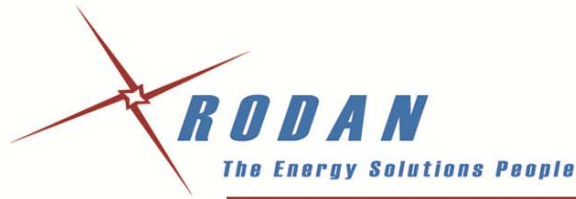


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## The High Level Assessment:

- Allocation exempt
- No CIA (connection impact assessment) required
- Looking for location acceptability
  - Structural strength issues, space, accessibility
  - Connect ability to distribution systems, physically and electrically
  - Ownership issues
  - Permit issues determined
- If a project stopper identified, determine root issue and what the resolution might be

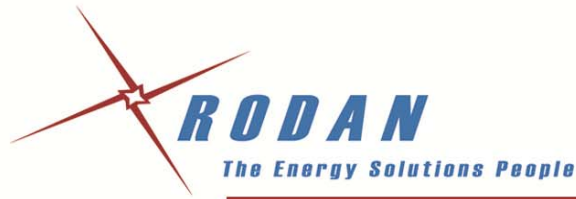


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## The Plan con't:

- Assessment identifies moving forward
  - Site is selected
  - Register with the OPA identifying the project and obtain ID
  - Obtain conditional agreement from OPA
  - Complete a detailed Engineering study
    - Assess what technology you will use, best application, research content issues
  - Discuss with local LDC your intent and identify any issues and get resolution
  - Discuss a connection agreement
  - Identify technology vender aspects, location etc.
  - Identify metering and settlement issues and resolve



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## The Plan con't:

- Technology selected
- Develop project specifications, develop an RFP
  - Write the RFP and issue
  - Assess vender responses
  - Prepare a budget estimates, to date have been \$6.50 - \$8.00 a KW
- Select a contractor(s)
- Obtain permits



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## The Build:

- Develop a schedule identifying milestones
- Obtain proper permits
- Set up meetings and a reporting structure for weekly, bi-weekly review
- Monitor progress
- Get ESA to inspect
- Complete testing and commissioning
- Continue to communicate with LDC and OPA for contract sign off.



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microFIT projects as May 7, 2010

<b>• Energy Source</b>	<b>Number of Applications</b>	<b>Capacity (kW)</b>
• Solar Photovoltaic (PV)	11,168	101,787.63
• Wind	55	428.14
• Renewable biomass	11	89.6
• Landfill Gas	4	39.41
• Water	6	27.85
• Biogas	5	48.52
• Total	11,249	102,421.15

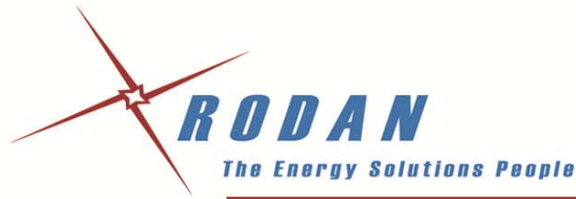
Renewable Fuel	Capacity Range	Price KWHR
• On Farm Biogas * ^	≤ 100 kW	19.5
• On Farm Biogas * ^	> 100 kW ≤ 250 kW	18.5
• Biogas * ^	≤ 500 kW	16.0
• Biogas * ^	> 500kW ≤ 10 MW	14.7
• Biogas * ^	> 10 MW	10.4
• Biomass * ^	≤ 10 MW	13.8
• Biomass * ^	> 10 MW	13.0
• Landfill gas * ^	≤ 10 MW	11.1
• Landfill gas * ^	> 10 MW	10.3



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<b>Renewable Fuel</b>	<b>Capacity Range</b>	<b>Price KWHR</b>
• Rooftop or Ground Mounted Solar PV	$\leq 10$ kW	80.2
• Rooftop Solar PV	$> 10$ kW $\leq 250$ kW	71.3
• Rooftop Solar PV	$> 250$ kW $\leq 500$ kW	63.5
• Rooftop Solar PV	$> 500$ kW	53.9
• Ground Mounted Solar PV *	$> 10$ kW $\leq 10$ MW	44.3
• Waterpower * ^	$\leq 10$ MW	13.1**
• Waterpower * ^	$> 10$ MW $\leq 50$ MW	12.2**
• Off-shore Wind *	Any size	19.0
• On-shore Wind *	Any size	13.5



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### Maintenance:

Maintenance is required for full output of the site. It could be described as :

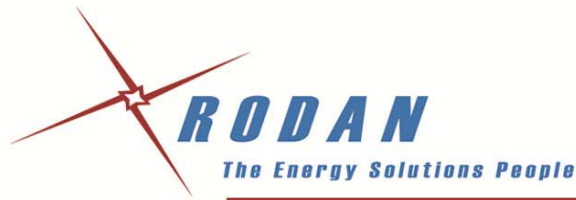
- Routine mtc.
  - Basic cell cleaning, snow removal and general observation
- Technical mtc.
  - Through meter reads determine output irregularities, component replacements as required, trouble shooting as required.
- Establish local service provider, T&M or fixed contract.

## Benefits of Solar PV:

- Solar panels do not pollute during their operating cycle, the only pollution produced as a result of solar panels is the manufacturing of these devices in factories, transportation of the goods, installation and decommissioning
- The production of energy from the use of fossil and some renewable fuels (e.g. wind turbines) can be noisy, yet solar energy produces electricity very quietly
- Solar energy is clean, renewable (unlike gas, oil and coal) and sustainable, helping to protect our environment
- It does not pollute our air by releasing carbon dioxide, nitrogen

oxide, sulphur dioxide or mercury into the atmosphere like many traditional forms of electrical generation does. It could be eligible for GHG emissions credits

- Solar energy does not contribute to global warming, acid rain or smog
- The use of solar energy to produce electricity allows the user to become less dependent on the world's fossil fuel supplies
- One of the great pros of solar energy is the ability to harness electricity in remote locations that are not linked to a national grid



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- The installation of solar panels in remote locations is usually much more cost effective than connection to the grid
- Solar energy can be utilized to offset utility supplied energy consumption
- It's generated where it is needed
- Solar panels can be installed on some existing rooftops, which eliminates the problem of finding the required space for solar panel placement
- Solar energy can assist in postponing large investments in system transmission as well as reduce losses

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- The operating cost is minimal
- Financial incentives are available from government sources to offset investment needs
- The use of solar energy reduces our dependence on foreign and/or centralized sources of energy, influenced by natural disasters or international events and so contributes to a sustainable future
- The use of solar energy indirectly reduces health costs
- Solar energy supports local job and wealth creation, fuelling local economies.

## Key Obstacles of Solar PV:

- One of the main disadvantages is the initial cost of the equipment used to harness the sun's energy. Solar energy technologies still remain a costly alternative to the use of readily available fossil fuel technologies. As the price of solar panels decreases, it is likely to see an increase in the use of solar cells to generate electricity
- A solar energy installation requires a large area for the system to be efficient in providing a source of electricity. This may be a disadvantage in areas where space is short, or expensive (such as inner cities). The use of roof mounted installations can partially offset this disadvantage

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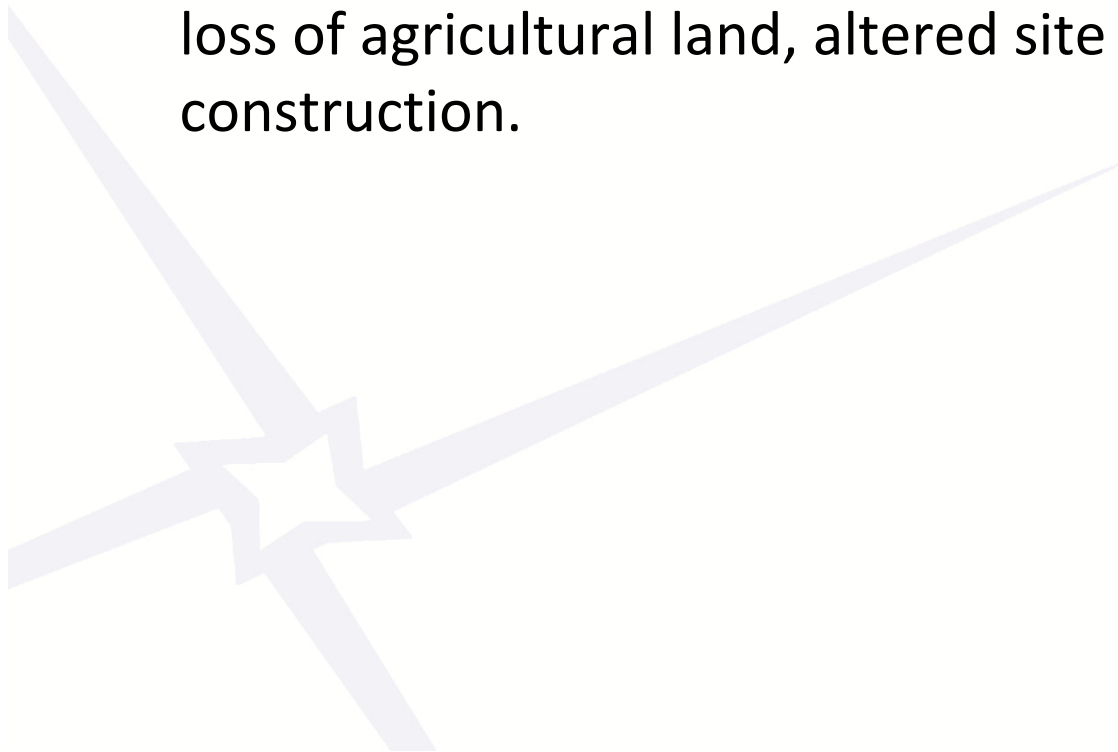
- Pollution can be a disadvantage to solar panels, as pollution can degrade the efficiency of photovoltaic cell
- Clouds can affect the output of the solar panels, as they can reduce the energy of the sun's rays. This certain disadvantage is more of an issue with older solar components, as newer designs integrate technologies to overcome the worst of these effects
- Solar energy is only received during daylight hours. During the night, production is zero, however the use of solar battery chargers can help to reduce the effects of this disadvantage

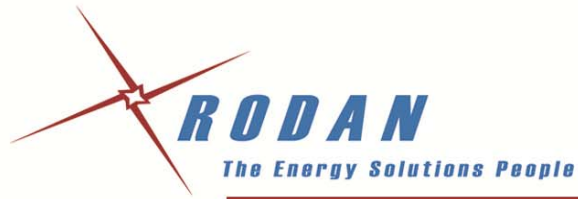


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- The location of solar panels can affect performance, due to possible obstructions from the surrounding buildings or landscape
- Utility grade ground mounted solar generation could result in loss of agricultural land, altered site aesthetics and noise during construction.





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Questions:

Thank You:

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