



HALIFAX CHAMBER  
OF COMMERCE

# Sustainable Energy for Municipal Development:

A Sustainable Energy Concept for the  
HRM Regional Municipal Planning  
Strategy  
*Discussion Paper*

Renewable Energy Sub-committee  
Business Environment Committee

November 7, 2005



## EXECUTIVE SUMMARY

The Halifax Chamber of Commerce is committed to ensuring that there will be a comprehensive regional plan developed to guide the future growth of Halifax Regional Municipality. The Working Draft of the Regional Municipal Planning Strategy, covering many important areas of municipal development, fails to adequately address sustainable energy issues, including efficient energy usage, clean/renewable energy generation, and security of power supply. At the same time the global need to work towards large-scale reduction in fossil energy consumption as well as greenhouse gas emissions makes a sustainable approach to energy supply and consumption the only viable solution for urban development.

By this submission, the Chamber aims at making the sustainable energy an integral part of HRM's regional municipal planning. The major objectives of this policy are to:

- Review each of the key theme areas of the Regional Municipal Planning Strategy for the inclusion of a clear sustainable energy dimension,
- Recommend the basic policies for the implementation of the sustainable energy concept in municipal planning.
- Reinforce that a sustainable development plan has the lowest lifetime cost and provides the greatest life cycle economic benefit.
- Promote the participation of HRM in the International Solar City Initiative – an international program to assist towns, cities and city regions in fully integrating the best international practices of using renewable energy technologies, as well as energy

conservation and efficiency measures.

Sustainable energy issues are not currently considered and addressed in detail in the key theme planning areas of the Regional Municipal Planning Strategy.

The environment section of the Working Draft of the Regional Plan, while it positions renewable energy as a prospective energy resource to improve air quality and reduce GHG emissions, limits the use of renewable energy to the development of wind energy generation industry and to the large-scale (centralized) electricity generation. Seeing bio-diesel and natural gas (“low-carbon fossil fuel”) as prospective energy sources for HRM, the Working Draft does not consider the energy cost of its transportation. Encouraging the usage of low emission wood burning appliances, the Working Draft does not recognize the stakeholders to support the technology deployment.

The section on the economy in the Working Draft limits sustainable energy approach in this key area to the implementation of the Urban Streetscape Design Guidelines. The Working Draft does not address sustainable energy issues in the Settlement and Transportation areas.

To facilitate the incorporation of sustainable energy into municipal planning, HRM should become the first Canadian participant of the International Solar City Initiative - an international program to assist cities and city regions in fully integrating renewable energy technologies, energy conservation and efficiency measures. Membership in the International Solar City Initiative will give HRM the opportunity to participate in high level leadership roles in implementing international greenhouse gas commitments

through planned, integrated sustainable development.

Energy plays the significant role in the economic well being of our municipality. For the most part, expenditures on energy are considered imports with the majority of the money being used to create wealth outside of HRM. It is the Chamber's view that HRM is well positioned to help drive the shift towards sustainable energy self-sufficiency.

HRM should aggressively promote the deployment of various proven renewable energy technologies for distributed power generation (i.e. solar photovoltaic and biomass) and heating (i.e. solar thermal and geothermal). Prospective renewable energy resources should be assessed on the proper scale to be efficiently deployed in HRM. Decision support systems should be developed to facilitate the deployment of renewable energy technologies. Each key theme planning area of the Regional Municipal Planning Strategy (settlement, environment, economy and transportation) should include/review renewable energy applications.

Sustainable/renewable energy approach should be incorporated in all three levels of planning: Regional Municipal Planning Strategies, Community Planning Strategies and Neighbourhood Planning Strategies. Active public participation in municipal decision making on the deployment of renewable energy and energy efficiency technologies and applications is critical as well as intensive public education on sustainable energy issues and approaches.

## **INTRODUCTION: SUSTAINABLE ENERGY APPROACH TO REGIONAL PLANNING**

The Halifax Chamber of Commerce is committed to ensuring that there will be a comprehensive regional plan developed to guide the future growth of Halifax Regional Municipality (HRM). The Chamber supports HRM's decision to adopt a Regional Plan that promotes healthy, vibrant, fiscally and environmentally sustainable communities.

Sustainable community development improves the quality of life in communities by investing in social and economic development that leads to environmental benefits such as clean air, clean water and clean soil. It is closely tied to economic growth and the need to find ways to expand the economy in the long term without using up natural capital for current growth at the cost of long-term growth. The importance and role of cities in achieving sustainable development is paramount, and HRM is well positioned to take a lead in Atlantic Canada by adopting an ambitious and challenging regional development plan addressing sustainability issues.

Among many important sustainability issues, energy, its supply and consumption plays a key role in urban planning. Energy is central to almost everything we do in the western world. Every sector of our economy relies upon access to (inexpensive) energy, most notably petroleum products and electricity. In a time of rising energy costs and growing concerns over energy security (that is, a reliable and uninterrupted supply of energy at reasonable prices), many national and local governments are examining alternatives to existing energy sources and ways in which energy is used.

Although Halifax Regional Municipality's Regional Plan acknowledges the importance of energy in one of its Principles:

*Manage development in a way that will make the most effective use of land, energy, infrastructure, public services and facilities and considers healthy lifestyles,<sup>1</sup>*

the Working Draft of the Regional Municipal Planning Strategy makes little reference to energy.

At the same time the global need to work towards large-scale reductions in fossil energy consumption as well as greenhouse gas emissions makes a sustainable approach to energy security the only viable solution for urban development.

## **VISION: WHERE WE WANT TO BE**

The Halifax Regional Municipality is confident in its sustainable future. HRM will use its natural and human capital to build healthy, vibrant, fiscally and environmentally sustainable communities. The municipality will make every effort to be recognized nationally and internationally for its sustainable approach to regional development. To achieve a sustainable future, adapt to climate change and limit greenhouse gases emissions, HRM will broadly apply energy efficiency practices and increase the share of renewable energy generation.

## **OBJECTIVES: WHAT THIS PAPER IS FOR**

By this submission, The Chamber aims at making sustainable energy an integral part of HRM's regional municipal planning. The major objectives of this submission are to:

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<sup>1</sup> Unless otherwise indicated all text in italics is taken from the Working Draft of the Regional Plan.

- Review each of the key theme areas of the Regional Municipal Planning Strategy: environment, settlement, economy and transportation for the inclusion of a clear sustainable energy dimension.
- Recommend the basic policies for the implementation of the sustainable energy concept in municipal planning
- Reinforce that a sustainable development plan has the lowest lifetime cost and provides the greatest life cycle economic benefit.
- Promote the participation of HRM in the International Solar City Initiative – an international program to assist towns, cities and city regions in fully integrating the best international practices of using renewable energy technologies, as well as energy conservation and efficiency measures.

## **CURRENT POSITION: WHERE WE ARE NOW**

The Working Draft of the Regional Municipal Planning Strategy recognizes the importance of energy issues by stating that *“the municipal development should be managed in a way that will make the most effective use of energy”* (HRM’s Vision, Principles and Goals for The Future, section 1.4.1.), but the major vehicles for reaching this goal - energy efficiency and renewable energy generation - are not clearly presented in its principles.

The necessity of clean energy generation is not reflected as a key element of energy development to achieve the Regional Plan’s

goals and objectives at a broader level. The Foundation Strategy (section 1.4.2), *“the backbone of Regional MPS”*, addresses the sustainable energy development only through *“design and invest for energy efficiency”*.

Sustainable energy issues are not considered and addressed in detail in the key theme planning areas of the Regional Municipal Planning Strategy, as shown below.

### **ENVIRONMENT**

The “Emissions Reduction Functional Plan” describes the contribution HRM can make to improve air quality and reduce GHG emissions, in particular, by *“...using renewable energy sources, switching to lower-carbon fossil fuels (e.g. bio-diesel and natural gas), encouraging energy efficient buildings....”* (Environment, Section 2.7)

In its description of renewable energy as a prospective energy resource for HRM, the Working Draft limits the use of renewable energy to the development of wind energy industry and to the large-scale (centralized) electricity generation (see Sections 8.4 “Wind Generated Electricity” and 8.7 “Wind Energy Functional Plan “). The Plan does not include other sources of renewable energy both for electricity generation and heating, and does not recognize distributed alternative as a prospective approach to municipal energy development.

In proposing bio-diesel and natural gas (“low-carbon fossil fuel”) as prospective energy sources for HRM, the Working draft does not consider the feedstock origin issues, the energy cost of the transportation of the feedstock for bio-diesel production, and of natural gas from the original sources to Nova Scotia. Relying on our own bio-resources (“rural forests”) and natural gas



resources (if available) is one way of mitigating these costs.

The Working Draft encourages Nova Scotia Power Inc. “to provide energy efficiency, renewable energy and mitigation for electricity sources that are powered by bunker fuel and coal” (policy proposal E-34), but does not clarify the recommended ways of mitigation. The policy proposal E-34 suggests to “encourage the Province to provide consumer rebates for conversions to low emission wood burning appliances”, but limits the promotion of low emission wood burning only to the provincial government not recognizing the other stakeholders (i.e., Federation of Canadian Municipalities) that can be approached to lobby the Federal government for legislation to address this issue.

#### **SETTLEMENT AND TRANSPORTATION**

The Working Draft does not address sustainable energy issues in these two key areas.

#### **ECONOMY**

The Working Draft limits sustainable energy approach in this key area to the implementation of the Urban Streetscape Design Guidelines, specifically “techniques for energy reduction, including district heating and solar access opportunities.” (Section 5.2.3. Regional Centre/Capital District Urban Design Plan – policy proposal EC-6)

#### **WATER, WASTEWATER, UTILITIES AND SOLID WASTE**

The Working Draft assumes HRM to be designated by NSPI as “a suitable location for the construction of wind turbines” (section 8.7 “Wind Energy Functional Plan”). This is a misinterpretation of NSPI’s two RFPs for Renewables issued in 2004.

Neither of these RFPs stated what type of renewable energy was to be used or commented on the suitability of HRM to wind energy applications.

Policy proposal SW-31 of the Working Draft states:

*With federal, provincial and industry partners HRM shall support the development of an economically and environmentally sustainable wind turbine industry through the development of a Wind Energy Generation Master plan for the HRM.*

Nova Scotia is too small a market to develop and sustain a “wind turbine industry” as a wind turbine manufacturing industry, and HRM is not likely to be a prospective centre of such an industry. However, HRM could host one or more wind turbines, and develop a wind energy generation industry; a corresponding deployment master plan should be developed.

In terms of investment policies HRM should not be hitching itself to wind energy alone, as there are other viable sources of renewable energy, such as biomass and solar, that should also be pursued.

#### **RECOMMENDATIONS: HOW TO MOVE FORWARD EFFECTIVELY**

##### **RECOMMENDATION 1**

HRM should become the first Canadian municipality to take active part in the International Solar City Initiative. This is an international program to assist towns, cities and city regions in fully integrating renewable energy technologies, as well as energy conservation and efficiency measures, in order to achieve globally sustainable greenhouse gas emission levels and lower reliance on fossil fuel.

Membership in the International Solar City Initiative will bring HRM an opportunity to participate in high level leadership roles in advancing scientifically sound yet practical approaches to implementing international greenhouse gas commitments through planned, integrated sustainable development on the local and regional level.

HRM should incorporate a “Sustainable Energy for Municipal Development” concept as an integral part of the regional municipal planning strategy. The policies recommended to form the basis of municipal planning strategies in the frames of the “Sustainable Energy for Municipal Development” concept are listed in Appendix A.

## **RECOMMENDATION 2**

HRM should aggressively promote the deployment of various proven renewable energy technologies for power generation (i.e. solar photovoltaic and biomass) and heating (i.e. solar thermal and geothermal). Prospective renewable energy resources (wind, solar, and biomass) should be assessed on the proper scale to be efficiently deployed in HRM. Decision support systems should be developed to facilitate the deployment of renewable energy technologies. Each key theme planning area of the Regional Municipal Planning Strategy (settlement, environment, economy and transportation) should include/review renewable energy applications.

### **• *SETTLEMENT***

HRM should consider policy tools, such as incentives or by-laws, that will encourage settlement and development that maximizes the solar gain of buildings, thereby helping reduce their conventional energy usage. Innovative housing models with sustainable energy component should be encouraged. The inclusion of sustainable energy

technologies to innovative housing should constitute an integral part of the Affordable Housing Functional Plan. Sustainable energy should be promoted through demonstration projects and incentives supporting housing development. Design criteria to facilitate neighbourhood stability, adaptability, vitality, character, and safety (see policy proposal S-25) should include the application of distributed power systems based on renewable resources to enhance the reliability of power supply and increase the adaptability to Climate Change.

### **• *ENVIRONMENT***

An integrated approach to energy generation and usage should be applied when developing the ways of “mitigation for electricity sources which are powered by bunker fuel and coal” (see policy proposal E-34). The final energy efficiency of the energy usage should be taken into consideration (for example, a combined heat and power station burning coal is cleaner than a series of gas turbines burning natural gas for an all-electric community).

### **• *ECONOMY***

A sustainable energy policy for business and economic growth of the Region, enhancing energy efficiency and clean energy generation should be an integral part of the priorities an Economic Development Strategy should strive to. Special attention should be paid to supporting the five main economic drivers in HRM: the universities, the hospitals and medical research facilities, the financial and insurance sector, the public administration, and defense (see section 5.2.4.2. Supporting the Economic Drivers). To sustain HRM as an exemplary location a sustainable energy strategy protecting and enhancing these major drivers should be developed and implemented.

### **• *TRANSPORTATION***

Opportunities should be explored to use renewable energy for street lighting, parking lot management and other prospective applications

### **RECOMMENDATION 3**

Sustainable energy approach should be incorporated in all three levels of planning: Regional MPS, Community Planning Strategies and Neighbourhood Planning Strategies. Energy efficiency and renewable energy resources should be assessed and inventoried on the regional level (providing the overall policy framework for guiding and directing development throughout HRM) to form a sustainable energy basis for future developments. Criteria for the inclusion of sustainable energy should be established at the community and neighbourhood levels as a priority for strategic public investments, incorporated in the regulatory framework to facilitate and encourage quality development, and integrated within HRM's business planning and budgeting process (see policy proposal IM-35). Strategies and actions required to implement the sustainable energy component of the Plan should be considered in each of the three phases of its implementation: short-term (1-5 years), medium term (6-10 years) and long-term (11 years and more).

### **RECOMMENDATION 4**

Active public participation in municipal decision-making on the deployment of renewable energy and energy efficiency is critical as well as intensive public education on sustainable energy issues and approaches. The sustainable energy dimension of municipal development presents a high value for the general public that is very positive about making the municipality "green and healthy". Implementing a sustainable energy program also creates local economic opportunities. By integrating

a sustainable energy into municipal planning, HRM will foster active citizen engagement. It will help communities further develop their local assets that is essential to building and maintaining stronger communities. It will become a major facilitating factor of "the construction of a new lens through which communities can begin to assemble their strengths into new combinations, new structures of opportunity, new sources of income and control, and new possibilities for production". (Section 10.2. Building Strong Communities)

### **CONCLUSION**

As a community, we have only begun to scratch the surface of sustainable energy issues for municipal use. The recommendations and discussion in this document are not exhaustive, e.g. implementation and life cycle costs are not addressed in detail. It is our expectation that the discussion and recommendations in this paper will serve as a catalyst to both discussion and action. Furthermore, the questions of engaging businesses and residents in making renewable energy and energy efficiency a priority, of integrating renewable energy and proposed actions into HRM's Economic Strategy, and of leveraging provincial and federal programs and investments remain a challenge.

The Chamber is excited and committed to ensuring the prosperous growth of HRM by contributing to the regional planning initiative. Regional planning is of utmost importance to the business community and the region overall, to maintain the long-term health and strength of our community. HRM is experiencing a growth phase and the business community is pleased to contribute to developing a strong foundation on which to build a vibrant and healthy community. Sustainable energy should be a corner stone



of the regional municipal development strategy. The regional planning strategy should incorporate an energy-conscious community development approach, broadly apply energy efficiency practices and increase the share of renewable energy generation, and take a stronger stand on the energy security of HRM. To be recognized nationally and internationally as a leader in sustainable municipal development and to use in full international experience in adapting to climate change and limiting greenhouse gases emissions, HRM should become the first Canadian municipality to take active part in the International Solar City Initiative.

#### **CHAMBER ADVOCACY WORK**

More information about the Chamber and its advocacy work can be accessed by contacting the office or visiting the Chamber web site:

Halifax Chamber of Commerce  
656 Windmill Road, Suite 200  
Dartmouth, NS B3B 1B8

Ph: (902) 468-7111  
Fax: (902) 468-7333

[info@halifaxchamber.com](mailto:info@halifaxchamber.com)  
[www.halifaxchamber.com](http://www.halifaxchamber.com)

#### **SUB- COMMITTEE MEMBERS**

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of Commerce (Staff Liaison)

## APPENDIX A

A “Sustainable Energy for Municipal Development” Concept: Proposed Policies and Functional Plans

The “Sustainable Energy for Municipal Development” concept proposed is based on the following principles (Droege, 1999a,b; Droege,2000):

- It focuses on the secure energy supply embedded in a total town planning and design strategy.
- It promotes a community-wide, rural and urban energy and emissions accounting system, as well as performance targets that are linked to town development and reform initiatives.
- It bases land use strategies on approaches that consider the urban-rural link and value land use and transport investment choices according to their potential contribution to long-range energy and resource self-sufficiency.

The following policies should be subject to, or form the basis of, municipal planning strategies in the frames of the “Sustainable Energy for Municipal Development” concept. These policies fall within the following five thematic areas:

- sustainable energy - focused municipal planning strategies;
- targets, baseline studies and scenario development;
- municipal energy technology, industry and business assessment;
- investigation of best practice cases;
- learning in action.

### 1. SUSTAINABLE ENERGY-FOCUSED MUNICIPAL PLANNING STRATEGIES:

to support sustainable municipal development planning and to identify local planning and development approaches that are conducive to the introduction of renewable energy technologies, within a broadly energy-conscious community development approach. To be addressed are issues of strategy, planning tools, organizational arrangements, legislation and standards, finance, pricing, taxation and incentive structures, land utilization policies, public information and exemplary municipal practice.

The functional plan for the development of sustainable energy-focused municipal planning strategies should give consideration to:

- Building a deeper understanding of municipal-wide energy supply and demand approaches that are integral to municipal development; pursue climate-stable practice in building design and construction, land-use planning and infrastructure development; advance household, community and business involvement; and describe how related changes in energy systems benefit economic development and employment.
- Contributing to climate-stable practice in the building and property development industry, land-use planning and infrastructure development by introducing improved ways of adopting renewable energy technologies.
- Promoting best practices by HRM in the following ways:

- direct legislation and standards;
  - the provision of incentives and disincentives;
  - corporate capital asset practice, power purchasing and pricing;
  - institutional reform and improved strategic and general planning practices; and
  - community action development, industry alliances, information and education.
- Investigating the ways in which better practice can be promoted in detail and developing advanced means of building improved municipal practice approaches.

**2. TARGETS, BASELINE STUDIES AND SCENARIO DEVELOPMENT:** to introduce, evaluate and enhance suitable approaches that help understand the role of renewable energy technologies in the broader municipal energy context. Means deployed will include absolute climate-stable carbon dioxide-equivalent emissions long-term targets, introduced in ways that support their quantification and translation into implementation paths along shorter-term milestones.

The functional plan for targets, baseline studies and scenario development should give consideration to:

- Building a baseline model of the performance of HRM in terms of a range of key indicators such as greenhouse gas emissions, renewable and non-renewable energy use, household consumption patterns transport mode distribution, public

facility cooling and heating, and other indicative urban systems information. A general town catchment is to be defined for emissions accounting; the existing energy and emissions situation is to be recorded and assessed; basic global indicators are to be established; and urban indicators such as annual emissions output per capita to be introduced to study the behavior of nominal resident, working and visiting populations.

- Deploying backcasting<sup>2</sup> approaches to planning methods based on energy and emissions accounting methods. This involves the development of alternative municipal development growth trajectories, maintaining sustainable CO<sub>2</sub>-emissions and fossil fuel use rate goals for 2050, then ‘backcasting’ growth milestones for emissions in order to determine workable reduction rates for each milestone period. Scenarios of anticipated emissions reduction rates are important for the determination of alternative sustainable development paths. Suitable scenario approaches are to be developed by using a physical model of the regional economy.

**3. MUNICIPAL ENERGY TECHNOLOGY, INDUSTRY AND BUSINESS ASSESSMENT:** to assess current, emerging and potentially competing technologies, in terms of their relative effectiveness in achieving maximum relative, growth-adjusted emissions and fossil fuel use reductions, but also with a view towards their institutionally appropriate settings, prospects for

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<sup>2</sup> Backcasting is a futures technique that reasons from a desired future situation and offers a number of different strategies to reach this situation.

community acceptance, commercialization, employment, social amenity and export development. This information will also help inform financial and policy strategies which are likely to boost the viability of renewable energy businesses.

The functional plan for municipal energy technology, industry and business assessment should give consideration to:

- Advancing renewable energy technologies and applications, and helping promote the renewable energy industry, in a way that can serve as model for the rest of the national urban system. The emphasis should be made on research and development work into market-led approaches of renewable energy development and deployment, through pricing, investment, electricity purchasing policies, information, model action and other means.
- Identifying and implementing options for addressing barriers to renewable energy generation, energy efficiency and demand side management.
- Developing, evaluating and implementing optional paths, suitable for the informed and broad introduction of appropriate renewable energy technologies as part of a comprehensive portfolio, for the use of municipal government, the utility, businesses, industries and households. Special emphasis should be on micro-generation and distributed low-energy production in buildings, facilities and urban systems. Current, emerging and potentially competing renewable energy technologies, systems and

related services are to be assessed for their municipal modification and introduced municipal-wide in concert with other municipal development strategies.

- Creating a comprehensive and dynamic portfolio of technology, systems and industry development options, suitable for selective and targeted implementation in general and specific action plans. The focus should be on what municipal government in collaboration with industry and local communities can do to advance the deployment of commercial and residential distributed renewable energy applications (such as stand-alone power generators, heat pumps, photovoltaics, solar hot water and solar space heating), the generation of electricity in quantity using solar power, wind, biomass, geothermal and low impact hydro, and direct use of renewable fuels for industry and transport.

**4. INVESTIGATION OF BEST PRACTICE CASES:** to make accessible and apply useful lessons from current and recent Sustainable Energy initiatives domestically and world-wide.

The functional plan for the investigation of best practice cases should include studying successful practice in integrated municipal energy planning, management and projects. The activities include an identification of scope and criteria for evaluation; information gathering and documentation; study and evaluation; analysis and description; case study development; and communication and dissemination. The scope will encompass technologies,

management practices as well as growth strategies.

**5. LEARNING IN ACTION:** to monitor, analyze and feed back experience gained from implementing renewable energy projects.

The functional plan for learning in action should develop a shared understanding of the barriers to, dynamics and impacts of community, institutional, industrial and technological change, with a view towards the planned and targeted, GHG-reductions geared phasing in of renewable energy sources on an urban and regional scale. This activity will not only be useful to the municipality, but of value in the application of lessons and methods province- and nationwide.

The key expected outcomes of the “Sustainable Energy for Municipal Development” concept for the HRM regional municipal planning strategy include reduced impediments to the uptake of renewable energy generation; a critical mass of renewable energy technologies and energy efficiency and load management measures; enhanced technology leadership in the development of renewable energy applications; and cost-reflective pricing to enable these technologies to be appropriately valued.

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## **APPENDIX B**

### **INTERNATIONAL SOLAR CITY INITIATIVE**

International Solar City Initiative is an international program to assist towns, cities and city regions in fully integrating renewable energy technologies, as well as energy conservation and efficiency measures, in order to achieve globally sustainable greenhouse gas emission levels and lower reliance on fossil fuel (Daegu, 2004).

The aim of this cutting-edge initiative is to broadly advance renewable energy technologies in cities world-wide, specifically for the purpose of long-term urban greenhouse emissions reductions. This is a collaborative, scientifically supported market development program nurtured within the framework of the International Energy Agency (IEA) and currently supported by International Solar Energy Society (ISES).

The International Solar City Initiative provides an advanced research and development support framework that helps to:

- advance whole-of-city and regional development integration strategies and methods,
- build targets and baseline model development in an objective international context and
- facilitate urban renewable energy technology integration and business development.

By not duplicating but enhancing existing and related national and local urban development programs and networks Solar City builds on a growing momentum world-wide, adding valuable intelligence, focus and an unequivocal implementation mission

nationally and locally. In seeking coordination it interfaces well with international development programs. ISCI is capable of working as a partner in multi-lateral settings of development support; it lends itself well to the construction of inter-city and town-regional support networks, with or without affiliation with international NGO or local government networks. World-wide, prospective cities and national partners are positioning themselves in Korea, Japan, Africa, Australia, North America and throughout Europe, at all levels of development and in different size categories and development stages. The participant areas range from entire city regions to individual new town settlement programs.

Solar City aims at working collaboratively in all locally relevant institutional contexts. It focuses on the energy supply and technology side, but embedded in a total town planning and design strategy that also includes institutional arrangements. It promotes a community-wide, rural and urban energy and emissions accounting system as well as performance targets that are linked to urban development and reform initiatives. Finally, it advocates land use strategies that are based on a consideration of urban-rural linkages and value land use and transport investment choices according to their potential contribution to long-range energy and resource self-sufficiency.

Participation of HRM in the International Solar City Initiative will bring an opportunity to:

- participate in high level leadership roles in advancing scientifically sound yet practical approaches to implementing international greenhouse gas commitments through planned, integrated

development on the local and regional level;

- increasingly precisely gauge total urban emissions reduction potential for the purpose of domestic policy development, international carbon trade agreements and revenue generation;
- promote sustainable energy technology knowledge, service capability and products in the municipality.

## **REFERENCES**

International Solar City Initiative – Daegu Declaration, Daegu, Korea, November 2004.

## APPENDIX C

### GUSSING, AUSTRIA – A MODEL FOR THE SUSTAINABLE ENERGY CONCEPT

Located in the southeastern area of Austria, Gussing (pop. 4000) is a rural community whose economy has traditionally been dominated by agriculture. In the late 1980's it was one of the poorest regions of the country marked with high unemployment and out-migration of youth. In 1991, a Sustainable Energy Concept was implemented to revitalize the economy. It was focused on meeting the energy needs of the region using local resources.

Through the implementation of a number of complimentary technologies, Gussing transformed itself. Now energy self sufficient from canola oil and wood scraps, Gussing is no longer reliant on the importation of electricity or fossil fuels for transportation and heating. The town hosts 250 – 400 visitors per week. Politicians, students, and experts in the field come to learn how this small town has been able to redirect expenditures on energy from outside to within the region.

The most notable outcomes and learnings of these efforts are:

- It has lowered energy costs making it easier to attract business.
- It has seen the establishment of two large flooring manufacturers and a power generation facility that employ over 650.
- More youth are staying in the community.
- Close links to colleges and universities keeps the communities informed of new innovations and

technologies and enable research to support their continued sustainable development.

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