



ISSUE 1 – SEPTEMBER 2016

Connect with the
**100% Renewable Energy
Cities and Regions Network**

Explore opportunities for cooperation and exchange



About this brochure

This brochure introduces some of the cities that are actively participating in the ICLEI Global 100% Renewable Energy Cities and Regions Network. The brief profiles provided by 8 participating cities are designed to facilitate the initial exploration of opportunities for cooperation and exchange.

- City of Aspen (Colorado), USA
- Australian Capital Territory, Australia
- Inje County, Republic of Korea
- Jeju Province, Republic of Korea
- City of Malmö, Sweden
- District of Saanich, Canada
- City of Vancouver, Canada
- City of Växjö, Sweden

Other cities that are part of this community include leading and learning cities such as the Byron Shire Council (Australia) and Tshwane Metropolitan Municipality (South Africa), among others. They are all part of a global multistakeholder movement of cities, regions, communities, islands and nations that are striving towards 100% renewable energy (RE). Further related initiatives and profiles can be found on this map: www.go100re.net/map.

Stay tuned for the next issue of city profiles showcasing the transition towards 100% RE!

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Växjö's Photos (c) Mats Samuelsson.

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About the Global 100% Renewable Energy Cities and Regions Network

The 100% RE Cities & Regions Network brings together leading cities, towns and regions that are driving the transition towards 100% Renewable Energy and a sustainable energy future. They work together in a global community of practice to facilitate peer-learning, accelerate progress and inspire others to follow.

To participate, cities must do the following:

- Approve a 100% Renewable Energy (RE) target in at least one sector or
- Demonstrate an Interest in exploring the feasibility of a 100% RE target for their territory
- And commit to engage in international exchange and cooperation in this field
- And submit the signed application form, therewith providing initial information on achievements and cooperation interests.

Benefits of engaging in the 100% Renewable Energy Cities and Regions Network include:

- Networking, learning and cooperation opportunities with other leading local and regional governments
- Thematic guidance, workshops and support
- Access to experts on renewable energy and energy efficiency
- Opportunity to globally promote local solutions and service providers
- Worldwide recognition of progress achieved locally
- Visibility and profiling of champion local and regional leaders at the global level
- Access to experiences of national, regional and municipal initiatives on 100% RE
- Quick access to latest findings and reports





City of Aspen (Colorado), USA

“We’ve prepared for the new energy economy by powering Aspen’s electric utility with 100% renewables. We’re finding our rates are among the lowest in Colorado, and that a commitment to a sustainable future is practical, profitable, and improves local quality of life.”

—Mayor Steve Skadron

RE target:	Municipally owned utility, Aspen Electric, powered by 100% RE by 2015
RE target status	Achieved: Aspen Electric has been powered by 100% RE since August 2015.
Other targets:	The city has a greenhouse gas (GHG) reduction target of 30% below 2004 levels by 2020 and 80% below those levels by 2050 for both government operations and community-wide (all sectors).
Population:	6,700 (2013); with tourism and commuting workforce reaches 50,000
Area:	20 km ²
Current RE share:	hydro (46%), wind (53%), and landfill gas (1%)
GHG emissions trend:	In 2014, -40% government operations, -7% communitywide (from 2004 baseline).

Key policies, strategies and projects to achieve RE target:

The 100% RE target was established over a decade ago. Investments in renewable energy have enabled the utility to progressively replace fossil fuels. Finally, in August of 2015 the City of Aspen's municipally owned electric utility achieved 100% renewable energy, with the signing of a contract with the Municipal Energy Agency of Nebraska, a wholesale electric energy provider.

With this accomplishment, over 6,000 customers in Aspen now receive renewable, clean energy while still paying some of the lowest electricity rates in the state of Colorado. This achievement was significant not only in the reduction of Aspen's carbon footprint, but also because it allowed the City of Aspen to catalyze RE development in the western United States.

In addition to this achievement, Aspen proudly competed in the Georgetown University Energy Prize with 50 communities, and awarded third place. This two year competition awards USD 5 million to the US town that most substantially reduces residential energy consumption. It has spurred significant investments in residential energy efficiency, especially in low-income housing sectors.

Strengths:

Progressive and forward looking community and leadership.
Municipally owned electric utility.

Challenges of the transition towards 100% RE:

- Negotiation under adverse circumstances: Aspen's energy provider is a network of 60+ municipalities of which Aspen is the only town interested in 100% renewable energy.
- Explain the meaning and significance of Renewable Energy Certificates to our customers.

Interests:

- Renewable power supply contracts.
- New opportunities to explore renewable resources.
- Best practices and new innovations in energy efficiency programming.

Other initiatives:

Committed to the Compact of Mayors

Political contact:

Ashley Perl, Climate Action Manager, Environmental Health and Sustainability, Utility Division

Technical contact:

David Hornbacher, Director of Utilities, Public Works Division





Australian Capital Territory, Australia

“The Australian Capital Territory leads Australia in mitigating climate change through its legislation, policy and on-ground works to reduce greenhouse gas emissions. This same ambition and leadership is now being focused on adapting both our environment and our lifestyle to local climate changes caused by the greenhouse gases already accumulated in the atmosphere.”

— **Deputy Chief Minister and Minister for the Environment and Climate Change, Simon Corbell MLA**

RE target:	Legislated target of 100% renewable energy (electricity) by 2020
RE target status	In progress
Other targets:	Legislated target of carbon neutrality by 2050
Population:	391,000 (2015)
Area:	2,358 km ²
Current RE share:	18.5% (2014-15)
GHG emissions trend:	Between 2010-11 and 2014-15, ACT greenhouse gas emissions fell by 11.8% to 3,934 kilotonnes CO ₂ e.

Key policies, strategies and projects to achieve RE target:

Legislated GHG reduction targets introduced in 2010 under the Climate Change and Greenhouse Gas Reduction Act, including a 40% reduction in GHG emissions on 1990 levels by 2020 and carbon neutrality by 2050.

The ACT has a renewable electricity target of 100% by 2020. This will be achieved through a series of innovative large-scale reverse auctions that will deliver renewable energy to the Territory at the lowest possible cost. Community solar, wind power and energy from waste are part of ACT's strategy.

New investments in research, education and local business development are diversifying the ACT economy and the capital of Australia, situated within the ACT, as an internationally recognised centre for renewable energy innovation and investment.

Strengths:

ACT is a progressive government that is keen on innovation. A community survey conducted in the ACT in 2013 indicated a high level of community support for the ACT Government to take action to tackle climate change.

ACT has a knowledge based economy with a highly educated community, excellent academic and research base, with three high profile tertiary institutions developing new curricula on renewable energy and sustainability.

ACT has a track record in attracting new businesses specializing in renewable energy.

Challenges of the transition towards 100% RE:

Maximizing value and minimizing pass-through costs through innovative feed-in tariff auction process, and maintaining momentum in energy efficiency measures implemented across the community to reduce the total amount of renewable energy required. Decarbonizing transport is the next big challenge.

Interests:

Innovation, transport, adaptation, further emission reductions beyond renewable electricity.

Other initiatives:

Committed to the Compact of Mayors

Political contact:

Simon Corbell MLA, Deputy Chief Minister and Minister for the Environment and Climate Change

Technical contact:

Paul Sutton, Senior Policy Officer, Environment and Planning Directorate, ACT Government





Inje County, Republic of Korea

“Establishment of the best County valuing life”

— Governor Soonsun Lee

RE target:	100% Renewable Energy (electricity) by 2045
RE target status:	Leader
Population:	33,600 (2015)
Area:	1,646 km ²
Current RE share:	The energy mix includes wind, solar thermal and solar photovoltaic, geothermal and small hydro plants.
GHG emissions trend:	Stable since 2011

Key policies, strategies and projects to achieve RE target:

In 2015, Inje County developed the strategy ‘Inje 2045 Zero Energy Independence Plan’ to transition to 100% RE by 2045. The plan aims to increase the electricity independence rate from 8% (2015) to 100% by 2045. The ‘LIFE Special County’ concept brings forest, ecology and natural environment together to support the policy goal of ‘Livable Inje, Inspiring Inje, Feasible Inje, Eternal Inje’ (LIFE) – part of the County’s vision of becoming an energy-safe city. Seventeen assignments were selected for each of the five main fields of policy: 1) expansion of new renewable energy production, 2) energy efficiency, 3) energy conservation & creation of a civic culture 4) expansion of carbon sinks, as well as 5) Building & strengthening the cooperative foundation. Some of the actions already implemented include 6 MW of wind power and 1.7 MW of mini-hydropower generation capacity which provide a stable tax revenue, respectively of USD 570,000 and USD 190,000 per year.

Strengths:

Inje County is well known for its abundant natural resources. Over 88% of Inje County consists of forest. Taking advantage of its natural resources, Inje County has set up a long-term strategy and plan with specific budget allocation to accomplish the transition to 100% RE by 2045. The plan has been strengthened by adopting the best scenario through 2015-2016 Energy-safe Cities program in cooperation with ICLEI Korea Office and other relevant organizations in Korea.

Challenges of the transition towards 100% RE:

- One of main challenges Inje County faces at the moment is to create solid partnerships among relevant stakeholders including private sector, military and residents.
- Inje shares a significant portion of the demilitarized zone (DMZ) and military installations in its area.

Political contact:

Dea-sik Lim, Head, Planning and Inspection Bureau

Technical contact:

Myung-Kyoo Lee, Planning and Inspection Division





Jeju Province, Republic of Korea

"Jeju is advancing the value of Nature, Culture and People."

— Governor Hee-ryong Won

RE target:	100% renewable electricity and transport by 2030
RE target status:	In progress
Other targets:	Carbon free island by 2030
Population:	621,500 (2014)
Area:	1,849 km ²
Current RE share:	The energy mix includes wind, solar, and small hydro plants

Key policies, strategies and projects to achieve RE target:

In 2012, Jeju developed a strategy to become a "Carbon Free Island by 2030" covering energy, electric vehicles, and smart grids. In May 2015, Jeju announced a 3-phase plan, "Global Eco-Platform Jeju", which is the masterplan for achieving the "Carbon Free Island by 2030" objectives.

This plan includes implementation of battery-based energy storage systems and fuel cell power plants in order to ensure grid stability and address intermittency of wind and solar power. Many efforts have been put in place that align with their long term vision. Success stories include the case of "Gapa Carbon Free Island", a small island with 126 households located near Jeju, the main island. Gapa island is the first in the nation to run solely on renewable energy, resulting in a reduction of 776 tons of CO₂ emissions and saving 300,000 liters of fuel every year.

Strengths:

Jeju Special Self-Governing Province has a long-term vision and plan for low carbon development and green growth focused.

The plan is being developed and implemented with the cooperation and active participation of KEPCO, the largest electric utility in the nation, as well as the private sector, including the multinational LG and Jeju-based local companies.

Testing innovative practices and technologies in Jeju will have a demonstration effect for the entire country. Implementation of measures has already begun and successful stories are being captured.

Challenges of the transition towards 100% RE:

The main challenge expected is the completion of the central government's authorization process on time. Projects with a budget above certain limits have to go through the authorized agency's feasibility study. Previous experience suggests this process could last either 6 months or up to 2 years.

Interests:

Policy support fostering the adoption of renewable energy and electric vehicles (EV). Sharing of information on new technologies that might excel our transition towards 100% RE and EV.

Political contact:

Weon-il Moon, Economic Industrial Policy Bureau

Technical contact:

Mi-Young Kim, Assistant Director, Energy Industry Division





City of Malmö, Sweden

RE target:	By 2030, the whole municipality of Malmö will run on 100% renewable energy at community-scale by 2030, including electricity, heating and transport.
RE target status:	In progress; already achieved in certain areas such as the Western Harbour
Other targets:	By 2030, Malmö will be carbon neutral at community-scale
Population:	317,000 (2014)
Area:	158,4 km²
Current RE share:	21% (2013)
GHG emissions trend:	In 2012, the most recent year with statistics, the emissions had decreased 16%, in spite of a new installation (2009) that generates significant emissions.

Key policies, strategies and projects to achieve RE target:

Malmö has integrated its ambitious climate targets into city planning and is working towards 100% RE in multiple ways. One is the establishment of pilot project areas towards 100% RE. In Western Harbour the 100% renewable energy goal has already been achieved.

The city is working on increasing the production of local solar energy, removing legislative obstacles to wind power and reducing the need for energy. Malmö is cooperating with property owners in order to facilitate energy efficiency measures in buildings and districts, through various avenues: matchmaking between owners and energy suppliers, three-part cooperation, innovative combinations of measures, testing of new business models, and coupling efficiency with other aspects of sustainability such as empowerment of vulnerable groups and job creation.

Strengths:

- Pilot projects are being implemented, delivering results and lessons learned.
- Energy efficiency is promoted actively in cooperation with property and building owners.
- District heating is in place.

Challenges of the transition towards 100% RE:

In general, all energy infrastructure is owned by a private company. This means that the City has no power to change the grid energy mix. Specific challenges:

- Electricity: There are difficulties in establishing wind power locally due to a combination of low energy prices and seemingly opposing goals.
- District heating: A large part of the district heating comes from waste incineration, which is not considered 100% renewable.
- Gas: natural gas could be fully replaced with biogas from a technical point of view. The price difference between natural gas and biogas and the shortage risk if biogas would be used both for transport and heating are challenging.

Interests:

- Models for evaluating the 100% RE target
- Practical solutions to reach the target and a better understanding of actions needed and their impacts and implications

Other initiatives:

Committed to the Compact of Mayors, Covenant of Mayors signatory

Political contact:

Katrin Stjernfeldt Jammeh, Mayor

Technical contact:

Kerstin Rubenson, Strategist, Environmental Department





District of Saanich, Canada

RE target:	100% RE target in municipal buildings by 2025 is being explored
RE target status:	The Council's work plan for 2016 includes assessment of feasibility of target
Other targets:	The district aims to reduce community GHG emissions by 33% and municipal emissions by 50% by 2020, based on 2007 levels.
Population:	113,000 (2011)
Area:	103 km ²
Current RE share:	Includes solar hot water and solar PV installations at Saanich recreation centres
GHG emissions trend:	15% reduction in municipal operations' emissions since 2007

Key policies, strategies and projects to achieve RE target:

The Saanich Official Community Plan was updated in 2008, with a significant commitment to sustainability and climate action, including the use and reuse of renewable and alternative resources. This led to the Saanich Council's 2010 adoption of the Saanich Climate Action Plan and GHG reduction targets.

Strategy 4 of the Plan (Energy Alternatives) further extended the commitment to explore renewables. Most recently, Council was presented with a building retrofit project that concluded with a proposal for 100% RE, which was strongly supported.

In 2016, the district seeks to develop an RE strategy for each municipal building, which will include several flexible options that will improve their chances of success.

Strengths:

While the Municipality has only just started to integrate renewables into facilities, we now have the financial and technological tools available to explore the 100% renewable path in detail.

The Municipality as a whole has a low growth rate, and therefore RE retrofit in municipal buildings would provide beneficial examples to the community and the Region.

Challenges of the transition towards 100% RE:

New municipal buildings are not currently scheduled for construction, so the district will look into achieving the goal primarily through retrofits.

The main challenge of the RE transition will be to complete renewable energy preparedness assessments and finance options for the different buildings in the Facilities Master Plan as they need upgrading.

Identifying the optimum RE solutions (on-site generation, RE purchases, etc.) will also provide some unique challenges.

Finance is a challenge, reason why the district submitted their project to the Transformative Actions Program (TAP), an initiative managed by ICLEI that catalyzes capital access to cities, towns and regions to accelerate low-carbon and climate-resilient development.

Interests:

Viability of heat pumps and other energy efficiency solutions for the local context, options for phasing it in to our facilities and the role of renewable energy credits.

Political contact:

Andy Laidlaw, Chief Administrative Officer, Administration

Technical contact:

Sustainability and Energy Manager, Sustainability Division





City of Vancouver, Canada

„We know it is possible [to reach a 100% RE target] and we are happy to see other cities, provinces and regions around the world joining Vancouver in setting a very ambitious pace in going renewable.“

— **Mayor Gregor Robertson**

RE target:	100% RE by 2050 at community-scale, covering all sectors
RE target status:	In progress
Other targets:	Reduce greenhouse gas emissions by at least 80% below 2007 levels before 2050
Population:	603,502 (2011)
Area:	115 km²
Current RE share:	31% (2014), mostly hydro and small percentage of biomass, biofuels, wind and solar
GHG emissions trend:	By 2015, community GHG emissions had decreased by 15% since 2007

Key policies, strategies and projects to achieve RE target:

1. Renewable City Strategy: Comprehensive strategy to transition Vancouver to 100% renewable energy use in buildings and transportation before 2050: www.vancouver.ca/renewablecity
2. Greenest City 2020 Action Plan: Comprehensive strategy to make Vancouver the greenest city in the world by 2020, covering 10 goal areas from green jobs, buildings and transportation, to clean air and water, local food and zero waste: www.vancouver.ca/greenestcity
3. Climate Adaptation Plan: Comprehensive strategy to prepare for city-wide climate change impacts: www.vancouver.ca/green-vancouver/climate-change-adaptation-strategy

Strengths:

- Strong political commitment
- Extensive engagement of citizens and community
- Local academic and business sector capacity and mobilization
- International visibility and cooperation

Challenges of the transition towards 100% RE:

- Legal mandates and finance powers: in making this transition there are important legal and institutional framework conditions that are outside of the municipal's authority, limiting the effectiveness of local climate action.
- Low utility rates: Record lows in natural gas prices and cheap electricity limit incentives to be energy efficient and constrain the business case for many energy initiatives.
- Transit funding: There is a lack of consistent, reliable and ample transit funding from other levels of government.

Interests:

- Knowledge of best practices for energy efficiency and conservation
- Policies for transforming the road transport sector
- Knowledge of optimizing commercial and freight fleets and logistics for lowering GHG emissions

Other initiatives:

Committed to the Compact of Mayors

Political contact:

Gregor Robertson, City of Vancouver, Mayor

Technical contact:

Doug Smith, City of Vancouver, Acting Director of Sustainability





City of Växjö, Sweden

As the Mayor of the City of Växjö, a city with long traditions and experience of using renewable energy, and with the ambition to achieve a fossil fuel free city in 2030, I am well aware of the possibilities and challenges for local authorities to achieve 100 % renewable energy. I believe we can do it, but we also need to work together with national and international authorities and institutions, as well as companies, in order to reach it all the way."

— **Mayor Bo Frank**

RE target:	100% RE at community-scale by 2030
RE target status:	In progress
Other targets:	Växjö aims to be a fossil fuel-free city by 2030.
Population:	88,000 (2015)
Area:	1914 km ²
Current RE share:	64% (2015)
GHG emissions trend:	Carbon dioxide emissions per capita decreased 48% between 1993 and 2014.

Key policies, strategies and projects to achieve RE target:

The goal to become a fossil fuel-free city was adopted in 1996. Building on long term planning, the city has already made significant progress with the current renewable energy share at 64% (2015). The massive expansion of district heating systems (covering about 75% of population) and the use of forest biomass enabled the city to transform its energy system and decrease its dependence on fossil fuels and provide significant benefits to the environment and quality of life. Geothermal energy use has also grown.

The environmental program states that in a fossil fuel-free Växjö, the heating, electricity, cooling and fuels will stem from renewable energy. Strategies include working with companies to make them also shift to renewable energy sources, as well as working on energy efficiency. Increased production of biogas and requirements in public tenders on high share of biofuels is also part of the strategy.

Strengths:

There is strong political unity among the council members and strong cooperation with the university and companies.

The local production of heating, electricity and cooling is already nearly 100% renewable.

Challenges of the transition towards 100% RE:

To introduce renewables in the transport sector is the biggest challenge. A smaller challenge is that we cannot produce all electricity locally and so we still depend on the national electric production, which includes nuclear energy.

Interests:

- Knowledge sharing and learning from others
- Participating in joint projects

Other initiatives:

Committed to the Compact of Mayors, Covenant of Mayors signatory

Political contact:

Bo Frank, Mayor of the City of Växjö

Technical contact:

Henrik Johansson, Environmental Coordinator, Executive Office



The 100% RE Cities & Regions Network brings together leading cities, towns and regions that are driving the transition towards 100% Renewable Energy and a sustainable energy future. They work together in a global community of practice to facilitate peer-learning, accelerate progress and inspire others to follow.

Participate now!

Explore and engage in the renewable energy transition.

The 100% Renewable Energy Cities and Regions Network is ICLEI's contribution to the Global 100% Renewable Energy Campaign. This global multistakeholder campaign builds on existing initiatives at the national, regional and local level, to bring

Contact us to learn more and participate:

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www.iclei.org/lowcarboncity/100re

together stakeholders as a coalition of the willing and committed, to advance the dialogue on a global 100% RE vision. Campaign partners include RE industry associations, research institutes, civil society organizations as well as city networks such as ICLEI.