



Shaping Our Future

THE REGIONAL DISTRICT OF NANAIMO
GROWTH STRATEGY REVIEW

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Regional Growth Strategy Review 2007-2008

A Discussion Paper on Greenhouse Gas Reduction Targets and the Regional Growth Strategy

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Preamble

The RDN initiated a comprehensive review of the Regional Growth Strategy (RGS) in 2007¹. As part of the review, discussion papers were to be prepared at two different points in the review process. The first discussion paper, released in Spring 2008, was intended to get community feedback on those sustainability challenges that could be addressed in a revised regional growth strategy. In conjunction with the release of the discussion paper, two public workshops were held and an online survey was made available. Feedback from the community was received on the important issues to be addressed in the review and on sustainability challenges to be included in a revised RGS.

During the first round of consultation for the RGS Review, many comments were provided on a wide range of sustainability issues. In terms of improvements to the RGS, these comments generally fell into four broad areas: implementation, sustainability principles, improving existing policies, and expanding the content of the RGS to address a broader range of sustainability challenges.

Implementation

Many participants commented that the RGS is only effective if it is implemented. Many people felt that there has not been enough done to implement the policies in the RGS and also that not enough has been done to explain that the RGS is only a policy document and that it must be implemented by using other tools such as zoning. The RGS should be more explicit about how it will be implemented.

Sustainability principles

With the Board direction that the RGS should be the cornerstone of the movement to a more sustainable region, many participants commented that the RGS should be based on sustainability principles. Currently, the RGS does not have a basis in sustainability principles and is generally focused on land use and development.

Broadening Sustainability

There is a need to expand the range of sustainability challenges that are in the regional growth strategy. For it to be the key document that guides the actions to becoming a more sustainable

¹ Please see www.shapingourfuture.ca for additional information on the RGS Review.

region it needs to cover a broader range of sustainability challenges. In particular, those related to social and economic sustainability.

Updating Existing Policies

Several participants commented that some of the existing RGS policies need to be improved and updated. With the RGS having a broader scope based on sustainability, there is a need to refine and possibly add to some of the policies that are already in the RGS so that they reflect the new priorities related to sustainability.

Therefore, based on the feedback received to date, a second set of four discussion papers is being prepared to address the main themes that came out of the first round of public consultation. As well, two discussion papers will deal with new provincial legislation related to regional growth strategies. The topics for the six discussion papers are:

- Implementation;
- Sustainability Principles;
- Strengthening Existing RGS Policies;
- Expanded Sustainability Policies;
- Greenhouse Gas Targets; and,
- Amending the RGS.

Each discussion paper will include: an introduction to the topic, a summary of public input; direction provided by the RDN Board; background on the topic; and, possible options for including goals/statements/policy in a revised RGS.

As stated in the first discussion paper released in Spring 2008, the challenge is to strike a balance between keeping decisions at the local level as much as possible and the need for consistent actions to achieve a liveable and sustainable region. After this phase of consultation is completed and the results of the input are compiled, a draft of a revised RGS will be developed.

Introduction

This discussion paper is based on the recognition that there is scientific consensus that increasing greenhouse gas emissions from human activities into the atmosphere are affecting the earth's climate, that the evidence of global warming is unequivocal, and that governments urgently need to take action to implement effective measures that reduce greenhouse gas (GHG) emissions.²

To make progress on reducing greenhouse gas emissions, it is imperative for local governments to set emission reduction targets for a specified period of time. The Regional Growth Strategy is the ideal place for these targets because achieving any GHG reduction target is entirely dependent on collaboration and cooperation, two activities that define a successful Regional Growth Strategy. Regional Growth Strategies also operate on a time scale in which achieving targets is both possible and necessary. By contemplating a twenty year horizon, the RGS covers a period in which significant reductions are necessary if we hope to live in a future world that is comparable to the world we live in today, but also leaves sufficient time for the necessary actions to occur without sudden social, economic or political upheaval.

Elaborating with additional reasons why greenhouse gas reduction targets should be included in a Regional Growth Strategy, this paper goes on to outline some of the practical issues that surround establishing greenhouse gas reduction targets, and how to include GHG reduction targets in a Regional Growth Strategy. The discussion is organized around the following questions:

- What do we need in order to set a target?
- How will GHG reduction targets be included in the RGS?
- How do we hit the target?

While the questions themselves are simple, the answers become very complex.

Why Include GHG Reduction Targets in the Regional Growth Strategy?

Aside from the reasons mentioned above, there are four particularly important reasons for including greenhouse gas reduction targets in an updated Regional Growth Strategy:

² Excerpted from the [BC Climate Action Charter](#), accessed January 15, 2009. The Regional District of Nanaimo is a signatory government to the Climate Action Charter.

1. The Province of BC has passed legislation requiring Regional Districts to include greenhouse gas reduction targets in regional growth strategies by May 31, 2011;
2. Setting and meeting a GHG reduction target is only possible with a standardized process for ongoing measuring, monitoring and reporting on emissions. Incorporating GHG reduction targets into the RGS ensures that there is a formal commitment from all member municipalities and the RDN to continue this essential work in the pursuit of regional GHG emissions reductions;
3. Clear direction has been given to use sustainability as the foundation for an updated RGS, and there is a strong relationship between improving regional sustainability and reducing energy consumption and emissions; and
4. There is a direct connection between implementation of the land-use and development policies expressed in an RGS and the amount of energy consumed in homes and businesses, and for transportation.

Taking each of these points in turn, firstly, the Province of British Columbia has amended the *Local Government Act* to require Regional Districts to include greenhouse gas reduction targets in Regional Growth Strategies by May 31, 2011 (*Local Government Act*, Section 850(2)(d), amended in September, 2008). While this provides a generous transition period, the amendment occurred while the Regional District of Nanaimo's RGS review was underway. Since the RDN has often worked to lead the way in establishing regional policies based on sustainability, this presents an ideal opportunity for the RDN to take early advantage of this legislation.

In addition, the importance of a standardized process for measuring, monitoring and reporting on emissions cannot be overstated. Meeting a GHG reduction target is entirely dependent on these activities as they are the only way to measure progress consistently and fairly toward whatever target is set. Since the Regional Growth Strategy contains policies that are formally and collectively endorsed by all member municipalities, and its content is reflected in municipalities' Regional Context Statements and Official Community Plans, it is the ideal place to ensure a commitment to ongoing measuring, monitoring and reporting on emissions, even if specific targets and the approaches to meet them vary from place to place.

Furthermore, local residents and elected officials have provided clear direction: the RGS must be based on building a more sustainable region. There are many characteristics of a

sustainable region; among them are air that is clean and safe to breathe, and the presence of healthy and productive ecosystems. Given that greenhouse gases are a potent form of air pollution directly related to climate change, retaining these characteristics requires stabilizing and ultimately decreasing our greenhouse gas emissions³. This in turn demands reducing our energy consumption, whether it is in the form of electricity and natural gas for our homes, businesses and industries, or fuel for the vehicles we drive.

Finally, one of the key roles of the Regional Growth Strategy is to give direction on land use, development, and settlement patterns across the region. This influences the location of different types of development (e.g. residential, commercial, industrial or parkland), and the form that development should take (e.g. high density, mixed-use residential versus rural, single-family development). The mix of uses and location of development have major effects on transportation behaviour, supporting transit with higher densities, encouraging walking with compact, mixed use neighbourhoods, or entrenching the need for a personal car with dispersed, low-density, single-use zones. The form of development affects building energy efficiency, with smaller, more compact or multi-family homes tending to need less energy for heating and cooling than larger detached homes. As a result, the direction given in the RGS will have direct implications on the amount of energy consumed and emissions produced in the region.

How will GHG reduction targets be included in the RGS?

As stated above, elected officials and regional residents have made it absolutely clear that sustainability will form the basis of an updated Regional Growth Strategy. This will shape the subject matter of the introductory sections of the RGS. Reducing GHG emissions is an essential part of our journey toward sustainability, so it is envisioned that a broad discussion about the interrelatedness of land-use, transportation, energy and emissions will occupy a prominent position in the initial sections of the RGS.

Within this discussion, specific reference will be made to targeted reductions in greenhouse gas emissions. There are two dimensions to this discussion about targets. Firstly, there must be an overall discussion about the need for dramatic reductions in emission levels as described by the scientific community. These deep reductions are global in nature, and achieving them are beyond the scope of what can be achieved using the full range of policies at the disposal of

³ Paraphrased from the Vision Statement in *Leadership in Creating Sustainable Communities: The 2006-2009 Strategic Plan*, page 11.

local governments. This sets the context for a discussion that must answer “What can a local government do?” Answering this will introduce the regional Community Climate Change Plan (forthcoming), which outlines the range of activities that the RDN and member municipalities can actually do to reduce GHGs, and the levels of reductions associated with each activity. With each member municipality and the RDN making a commitment to implement the Community Climate Change Plan, the plan itself will form a part of the Regional Growth Strategy, and the targets included in the plan will become the initial set of targets that the RDN will pursue.

What do we need to set a target?

There are two key aspects to a greenhouse gas reduction target: a reduction amount, and a target date. The reduction amount is usually expressed as a percent reduction in emissions below a known amount emitted in a given year, and the target date is the deadline for achieving the reduction. Using a well known example, the Kyoto Protocol Target for developed countries is to reduce emissions to 6% below 1990 levels by the period between 2008 and 2012.

Before actually setting a target, three important pieces of information must first be determined: a baseline level of emissions for a point in time (the base year); a trend that indicates the change in the quantity of emissions over time; and a forecast for future emissions based on that trend. Establishing these three pieces of information requires ongoing measuring and monitoring of emissions.

Baseline Emissions

A baseline level of emissions indicates the total quantity of emissions in a given year. The quantity of emissions for that base year serves as the point of comparison for all future emission levels, as well as the quantity against which the target is set. The rationale is that scientific evidence shows that emissions must be stabilized below current levels; base year emissions are generally lower than current emissions; and there is usually a reasonable understanding of the economic activities, behavioural patterns and quality of life that characterized the base year. This provides an essential frame of reference for all future measurements.

Determining a baseline level of emissions requires comprehensive data gathering and analysis, examining total community energy consumption for a specific year. Using conversion factors for different forms of energy (i.e. electricity, natural gas and vehicle fuels), total consumption can be

recalculated as a total quantity of emissions, measured in tonnes of 'carbon dioxide equivalent' (CO₂e)⁴. There is no rule defining what year communities should use as a base year, though the Intergovernmental Panel on Climate Change (IPCC), the world authority on climate change, uses 2000 as their base year and recommends reductions from those levels. To make RDN efforts comparable to work done internationally, it makes sense to use the year closest to 2000 for which reliable data exists. In the case of the RDN, this is 2002.⁵

Emissions Trend

The second essential piece of information in establishing a target is a trend that shows the change in emissions over time. This reveals the rate at which emissions are increasing. To establish a trend, consumption data for a year (or multiple years) other than the base year must be measured and analyzed, then compared to the base year. Obviously, the more years measured, the more accurate the trend, and the further apart in time the years measured, the less the trend is skewed by random variations.

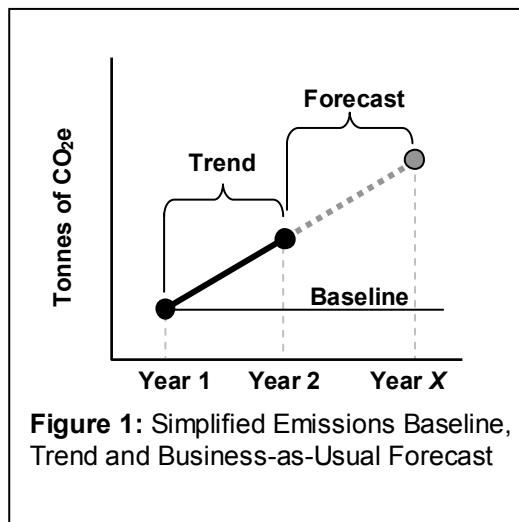


Figure 1: Simplified Emissions Baseline, Trend and Business-as-Usual Forecast

Emissions Forecast

The purpose behind establishing a trend is to generate an emissions forecast or projection, the third critical piece of information needed to specify a reduction target. (Figure 1 above shows a simplified example of a baseline, trend and forecast.) The forecast provides an estimate for emissions into the future if existing patterns in behaviour, development and population growth continue without change. This forecast is often referred to as the 'business-as-usual scenario', and for most places (including the RDN), the business-as-usual scenario forecasts a significant rise in future emissions.

⁴ CO₂e is the internationally recognized unit of measure that consolidates the effects of six main greenhouse gases (CO, CO₂, CH₄, nitrous oxides, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride) into a single unit. As emissions, CO₂e is typically measured as mass in tonnes, while in the atmosphere it is measured as concentration in parts per million.

⁵ RDN Community Climate Change Plan (forthcoming).

As a result of the measuring, monitoring, and reporting that establishes a baseline, trend, and forecast, it becomes possible to know the quantity of emissions by source, how much emissions are likely to increase if nothing is done, as well as the levels of reductions that are possible if certain specific reduction measures are undertaken. Not only does this allow the important substantive discussion concerning how much of a reduction to target by when, but it also allows local governments to gauge progress toward whatever target is set and present that progress openly to the public, justifying further actions as necessary.

The importance of a standard process for measuring, monitoring, and reporting on emissions in setting a target, as well as gauging progress toward that target makes it essential for all member municipalities and the RDN to agree to continue with that work. As a result, the Regional Growth Strategy provides an ideal place to articulate a baseline, trend and emissions forecast, as well as a policy that commits the RDN and member municipalities to work together on ongoing measuring, monitoring and reporting of emissions.

How do we set a target?

Once a commitment to monitoring, measuring and reporting emissions is in place, there are two general approaches to setting a GHG reduction target. The first approach is to identify a range of measures⁶ that result in predictable reductions in forecasted emissions, and then to select and implement those measures that can reasonably be achieved by a predetermined target date. The target becomes the level of reductions associated with the achievable measures, and the target date is generally a year that is agreed to collectively by like organizations, or is dictated by a coordinating organization, whether a non-government organization or a senior level of government.

The result of this approach is that various, if not all activities are done more efficiently. Targets of this sort are also known as intensity-based targets. As activities become more efficient, fewer GHG emissions are produced per person, per household, or per unit of economic output, thus activities have reduced energy intensity. The value to this approach is the clear connection between the activities that a Regional District or Municipality undertakes, and the reductions that are anticipated to result from those actions. The challenge with this approach is that reductions in energy intensity may not necessarily lead to absolute reductions in emissions. For example, if

⁶ Examples of measures include doubling transit service, or providing government assistance for comprehensive home energy retrofits. The cost, impact and complexity of the measures proposed dictate whether or not they are implemented.

efficiencies gained through the selected reduction measures are outpaced by population growth or economic and industrial activity, the absolute quantity of emissions will rise.

A second, very different approach is to assume that absolute reductions in GHG emissions are necessary then target an absolute reduction from baseline levels and implement the measures necessary to reach that reduction, regardless of how difficult that may be. This is a science-based approach, which makes the targets technically sound, but often presents such immense challenges for implementation that targets of this sort may be politically, economically and socially unrealistic. For example, according to the IPCC, in order to hold average global temperature increase to 2° C and sea level rise to less than 1.5m, it is thought that the global atmospheric concentration of CO₂ must remain at or slightly below current levels⁷. To achieve this, it is believed that developed countries must reduce emissions by up to 85% below 2000 levels by 2050, with emissions peaking no later than 2015.

This is an astonishing target, with little or no understanding of how it might be achieved. The value in this target, however, is that it has sparked a wider awareness that absolute reductions in emissions must form the basis for a GHG reduction target if the most significant effects of climate change are to be averted. The government of British Columbia has embraced this concept, aiming for a more politically and economically achievable interim target, calling for a 33% reduction in emissions below current levels by 2020.⁸ An important point to accept is that no level of government has the legal or political tools to achieve reductions of this magnitude alone. Collaboration across all levels of government is essential, and the active involvement of all citizens is needed.

These two very different approaches force decision-makers to contemplate a serious dilemma: what can be done versus what must be done? The first approach amounts to setting a target that can be hit, but that will not solve the problem as it is currently understood. The second approach amounts to setting a target that would begin to solve the problem, but may impossible to hit without unified purpose across all levels of government, and massive changes in public attitudes, behaviour and spending habits.

⁷ Current concentrations of atmospheric CO₂ are estimated at 379 ppm, and 350 ppm is increasingly being hailed as the necessary goal in order to minimize the effects of climate change. See <http://www.350.org/> (accessed January 15, 2009) for further discussion.

⁸ See the [BC Climate Action Plan](#). This is an interim target on the way to an 80% reduction in GHGs by 2050.

How do we hit the target we set?

In the RGS, it is envisioned that a target combining these two approaches will be necessary. This is because local governments have a finite range of tools to reduce on-the-ground energy consumption and emissions. Most implementable policies that local governments can include in a Regional Growth Strategy relate to new development, so any policies that aim to reduce emissions are most likely to focus on reducing the emissions associated with new development. This may slow the rate of increase in new emissions in the region, but will not reduce the total amount of emissions in the region. That being the case, it is critical to identify the full range of measures that local governments can take, include them as policies in the RGS, and set a target around those policies.

Examples of policies that are within the power of local governments, that fit the content for an RGS, and that will make quantifiable improvements in energy efficiency and reductions in emissions include:

- Requirements for high density, mixed-use development in designated nodes to support transit, walking and cycling, and offer alternatives to the automobile;
- Decreasing density and constraining permitted uses in outlying rural areas to discourage further sprawl and to promote local agriculture and sustainable forestry;
- Planning for infrastructure renewal emphasizing green infrastructure and renewable energy;
- Developing incentives and streamlining approval processes to encourage new low-impact development and discourage status quo construction; and
- Protecting parks and natural spaces that perform essential ecosystem services such as cleaning the air and purifying water, with no net loss of forest land.

Again, the Community Climate Change Plan will include a full range of measures that the RDN and member municipalities can take, along with the reductions associated with those measures. While these policies provide the basis for an emissions reduction target in the RGS, it is also important to acknowledge that implementation will only get part of the way to a much more dramatic target

At the same time, the RGS can include reference to a larger target, emphasizing that absolute reductions are only possible with concerted effort between federal, provincial and local

governments as well as the active involvement of all citizens. The RGS can include language that the RDN and member municipalities will be active supporters of efforts to reduce emissions undertaken by higher levels of government including, for example, supporting more stringent vehicle emissions standards, or ongoing amendments to the building code that require 'greener' buildings. One particularly important activity that is likely to emerge at the provincial and federal levels is the development of a carbon market that uses a cap and trade⁹ system for emissions. Local government support for such a scheme would involve, once again, ongoing measuring, monitoring and reporting on emissions.

At the level of the citizen, the RGS could include policy statements that commit the RDN and member municipalities to collaborate to develop creative incentives to encourage local residents to make their homes more efficient through, for example, financial mechanisms to encourage energy efficiency retrofits or by enabling renewable energy. In addition, the RGS could make reference to the importance of information and education as the foundation for a socially sustainable society, and include within that discussion, a policy that creates an obligation to make continual efforts to educate the public about the urgency of acting to mitigate the most severe consequences of climate change, emphasizing the opportunities, incentives and activities that will move the region toward eventual absolute reductions in emissions. These activities do not necessarily result in direct emissions reductions, but hand the ability to do so over to engaged, concerned citizens. In this way, the RGS can acknowledge that ultimate success rests largely on the shoulders of each individual resident, and the choices they make every day.

Conclusion

The evidence is clear: our climate is changing dramatically and quickly. The task of minimizing the scale and pace of this change is urgent if recognizable environmental, social and economic systems are to persist into the future. Success depends on timely and aggressive action to reduce greenhouse gas emissions on the part of all levels of government, as well as every business, institution and citizen in the region. In order to coordinate this action, it is critical to establish a GHG reduction target toward which collaborative effort will aim, as well as a consistent process for measuring, monitoring and reporting on progress toward that target. As a strategy document that is collectively endorsed by all member municipalities and the RDN, the

⁹ Describing the concept behind the cap and trade emissions trading scheme is beyond the scope of this paper. See [Cap and Trade 101: A Policy Primer](#) for details (accessed January 19, 2008).

Regional Growth Strategy provides an ideal place to express both. Doing so also fulfills new obligations imposed by the Provincial government, and acknowledges that achieving GHG reductions raises complex, cross-jurisdictional issues that will require the sharing of information, resources and ideas for innovative policies in order for much-needed progress to be made.