

Targets

-Issue Paper Two-

**Energy Efficiency Working Group
Energy Sector Sustainability Table**

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Preface

The Energy Sector Sustainability Table (ESST) was established in 2005 as a multi-stakeholder advisory mechanism - including senior representatives from governments, industry, and civil society – created by the Government of Canada to provide advice on how best to meet the energy needs of Canadians so as to improve the environmental and economic sustainability of energy systems in Canada and to make recommendations on short-and long-term sustainable energy objectives.

Energy efficiency was identified as key priority for the ESST so the Table established the Energy Efficiency Working Group (EEWG). The EEWG is a committee of industry, government and civil society experts mandated to provide the ESST with an expert perspective on energy efficiency in Canada. The EEWG has produced several products including its Energy Efficiency in Canada Foundation Paper, a series of issue papers, and a final report summarizing the key conclusions and recommendations that resulted from the EEWG's work.

This issue paper is one in a series of a total of eight issue papers. The paper, as well as all other EEWG products, was prepared by the EEWG in conjunction with Marbek Resource Consultants and Dr. Michael Margolick.

To access other EEWG documents or for more information about the Energy Sector Sustainability Table and its Energy Efficiency Working Group, please visit: <http://www.sst.gc.ca>

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1. INTRODUCTION

In today's discourse, the word "target" has several different connotations that can result in miscommunication or misapplication. Sometimes a descriptive word is added such as "visionary", "voluntary", "long or short term", "mandatory or hard", "internal", "stretch" or "management" to better explain the nature of the target which often leads to additional misunderstanding. Furthermore, possibly because of the attention being paid to the Kyoto targets, the application of targets is sometimes criticized. The purpose of this paper is to define the different types of targets, the appropriate use of these target types and the nature of the target setting process with the belief that, with a better understanding, the use of targets can be improved.

2. BACKGROUND

2.1 WHY ARE TARGETS USED?

The use of goals, objectives and targets has been a part of modern performance management practices of business for many years, and they are increasingly being used by governments to improve the accountability and effectiveness of departments and agencies. Targets are set by an organization to motivate, challenge, and direct the effort of its own employees (or citizens).

There is one important caveat. Merely setting targets, and then providing insufficient strategic planning and resources, weakens an organization's resolve to meet any target. Furthermore, governments can get trapped in a battle of targets with less regard for developing a strategy to meet the various targets.

2.2 THE TIME DIMENSION

In common parlance, targets have both a measurement dimension and a time dimension. In other words, something has to be reached or accomplished by a certain date. A target without the time dimension, or with a time dimension that is vague, could be called a goal or an objective.

The time dimension will vary depending on the type of target and the organization. For example, thirty years could be a reasonable period for a long term target of a government whereas ten years would be a very forward thinking target for a corporation.

Long term targets, while useful to set direction and ambition, are closer to being an end goal, giving few directions, if any, on how to reach this goal.

Short term targets can vary from days to years in length; however, anything beyond five years is well beyond the period of a short term target. Most targets, if they are effective as management or public policy tools, must have a relatively short time frame. Typically organizations work in one year time frames, budgets, performance reviews, etc. When the nature of the endeavour requires longer term targets, intermediate multi-annual targets must be set up for the relevant organizations.

For the corporate sector, most detailed planning periods cover a three to five year span with targets set within this period. However, some industries with longer lead times, such as the motor vehicle manufacturers, face important challenges in the medium term, especially in view of an uncertain market and regulatory landscape.

Rather than try to place targets in specific categories based on the time dimension, it is more useful to categorize them by their use. Short term targets are usually **tactical targets** and long term targets are commonly **visionary targets**.

3. VISIONARY VS. TACTICAL TARGETS

When a government sets a long term or visionary target such as a X% reduction in GHG emissions from current levels by the year 2030, the government is setting a goal or an objective. This is similar to President Kennedy saying in 1961 that the United States would land a man on the moon by the end of the decade. It is a challenge to the country to achieve something without a clear path to reach it. Usually the goal is set with little accuracy or few supporting details. It sets an ambition.

Visionary targets are characterized by:

- A single easily described goal with few descriptors.
- The persons setting the target may not be in office for the final result.
- There is a consensus that the goal is worth achieving.
- The time period is stated but likely a moving target. It would not upset people if the objective was not achieved until 2035 instead of 2030. In fact, the date will fade in people's mind relatively quickly as tactical targets are usually the main preoccupation.
- The level of reduction is the most important element, often selected to show how serious we are about the ambition. Somewhat as if a teenager were to state that they want to be a rock star rather than be a musician in a rock band.
- Visionary targets can also be “ultimate” end-states, such as Sweden's “Vision Zero” for no persons killed or permanently injured in road accidents.
- A visionary target should be very translatable to all sectors and areas affected by the target.
- It must be easily understood by a wide range of people.
- A long term visionary goal that challenges must have, by definition, a large gap between the deliverables using current policies and the goal. The answer to filling that gap is not clearly known.
- **Visionary targets can be set without specifying the policies required to achieve the target.**

Note: The NRTEE responded to the Federal Government's request for advice concerning the possible reduction in year 2050. This compares to some recent provincial goals for the year 2030. The problem with 2050 is that it is too far into the future to have very much credibility. The year 2030, on the other hand, is only 23 years away, but sufficient for considerable capital turnover, and the development and deployment of new technologies; in other words, far enough into the future to have the time to achieve a challenging target. The NRTEE, however, did give

some broad guidance on how the reduction could be achieved, for example, a specific percentage would come from energy efficiency, however defined.

Short term or tactical targets are designed to motivate smaller groups to deliver results very close to the set target. These tactical targets are characterized as follows:

- There can be a multitude of different target forms involving different groups all with the same long term objective.
- The shorter the term of the target the more time sensitive the target is.
- The shorter the time period, the more accountability is associated with the target and the more attention is given to setting targets that can reasonably be achieved.
- They need only be understood by the people involved who will likely be in place for the time period of the target.
- The tactical target form can be specific to the sector or department.
- The tactical target can be an indirect measure or proxy of the final objective, e.g. the number of high efficiency motors installed in an industrial sector as a proxy for improved energy efficiency.
- All the programs must be implemented within the time period to deliver the results to meet the target.
- Tactical targets should not necessarily be a complete subset of the visionary objective. The short term targets should only be the early steps in the path to the long term goal.
- **Tactical targets can only be set once the broad policies are in place, i.e. they work within a policy context**
- **Tactical targets are an output of the strategic planning process.**
- Tactical targets should not be changed in response to short-term pressures but should be reviewed at regular intervals in order to take into account the accumulation of experience and new knowledge.

4. ABSOLUTE VS. INTENSITY VS. EFFICIENCY TARGETS

The great advantage of absolute targets is that they cross all boundaries and can be easily aggregated. The same target form can be applied to all sectors and jurisdictions. Targets of energy consumption or GHG emission reduction from current levels can be measured and they need little statistical manipulation. The problem with absolute targets is that they do not by themselves indicate improved energy efficiency performance as lower energy consumption can be obtained through simply reducing production or importing materials with a high energy component. However, with additional sector information and some statistical manipulation, we can say that energy consumption between two dates changed from X to Y and that changes in energy efficiency affected this change by Z, the remainder of the change being accounted for by activity, structure and service level. Once this is done, we lose the advantage of the simple directness of the absolute target.

Intensity targets, on the other hand, by definition require a denominator, which for anything but a particular sector with a common product or service, must be some economic output such as GDP or population (per capita). A change in energy intensity using GDP as the denominator is the result of changes in efficiency, structure, and service level, or everything but activity, assuming the change in GDP is an accurate representation of the activity level (not necessarily true if there are large structural changes such as the rapid growth in the development of the tar sands). Using population as the denominator is interesting for purposes of comparing the energy use of different population segments but does not isolate any of the drivers of the change.

Intensity targets work very well for the industrial sectors with a common denominator such as tonnes of cement or steel. This removes the structural issue, and service levels usually have little effect. Targets can be very specific for an industry or a part of a sector and, as a result, be very useful for program management. In such cases, energy intensity and energy efficiency improvements are inversely linked, as one goes up, the other goes down proportionately. The problem is that intensity is not easily aggregated unless the denominator is common. A “basket of goods” can be designed to allow the combination of different product intensities into one but could become cumbersome and difficult to manage for many sectors over extended periods of time. For these reasons, intensity targets are chosen for areas where there is a common product or service.

In other sectors where service level has a large impact on the absolute level, energy efficiency must be derived from the statistical and technical data. This reduces the usefulness of the intensity targets in the non-industrial sectors.

In the non-industrial sectors (residential, commercial, transportation) specific energy efficiency targets based on the equipment or structures employed can be used. These will be very specific to the application and will move away from deriving the efficiency through statistical manipulation or analysis but rather determining the efficiency from technical measurements.

There is a widespread view that absolute targets are inherently more stringent than intensity targets. This is not the case, as both types can be set as stringently as necessary, and there are many examples of stringent intensity targets and lenient absolute targets. As noted above, the problem with intensity targets is not *stringency* but *uncertainty of outcome*. In the case of a regulated sector, the sector is allowed to produce as much as it wishes so long as it meets the mandatory intensity target. By pursuing intensity targets, the government bears the risk of greater absolute activity; for example, higher production of steel or more cars on the road. However, a regulated intensity limit allows new entrants into the sector who will likely have more efficient processes, possibly driving out the less efficient producers. A house builder can build a house without having to tear down an old one. Also, no one owns the regulated emission, preventing a sector from merely producing less (and importing) to be in a position to sell credits. Credits can only be generated by being below the regulated emissions intensity limit.

The concern about uncertainty of outcome can be remedied, at least in part, by the use of a feedback loop that adjusts the intensity target to reflect absolute results. However, this leads to *uncertainty of effort*. For example, if the intensity target for industry were to be changed every two years to reflect a greater than anticipated growth in activity (output) or structure (more high energy intensive industries), companies would find it very difficult to plan.

The use of intensity targets to regulate industry has one other important distinction. A company that cannot meet the regulated emissions intensity limit for whatever reason does not have the option of reducing production. Instead, it has only two options; to shutdown production, totally if all its production facilities operate above the limit, or to buy credits. Thus, intensity limit regulations need to be crafted carefully and they require an effective emissions trading system with the accompanying regulations for the creation of offsets, or they will risk causing some unforeseen outcomes. For example, a facility that was already world class and very efficient would have difficulty meeting an “across the board” reduction target. If there was insufficient liquidity in the Canadian emissions market, it would be forced to shut down entirely. Regulation using absolute targets can also benefit from an effective emissions trading system; however, a company can also meet the target by merely reducing a portion of its production.

5. EXAMPLE OF CRITERIA FOR SELECTION OF TARGETS

1. **Measurement feasibility and cost.** How reliable is the measurement? What is the full cost and who pays for it? A statistical sample or 100% coverage?
2. **Transparency.** Is understandable by those expected to affect the outcome? If the target is derived from a statistical manipulation, will there be confidence in the target?
3. **Degree of coverage.** Can the target cover all the necessary sectors and jurisdictions?
4. **Ability to be aggregated.** Can the target be easily aggregated across the appropriate sectors?
5. **Unintended consequences.** Will the target cause perverse unintended consequences, for example in other areas of energy consumption or negative non-energy impacts?
6. **Ownership.** Who is accountable for achieving the target? Is this target aligned with other owners/ jurisdictions?
7. **Communication.** Can the target be readily communicated to the public?
8. **Robustness over time.** How sensitive is the target to the changing environment? Will it be a useful target in 2 years? In 5 years?
9. **Match with program.** Does the target(s) measure the success of the program?
10. **Harmonization.** Are there competing targets in other jurisdictions? If the targets have different forms will they work in harmony with the others?

6. MOVING FROM VISIONARY TO TACTICAL TARGETS

Once a visionary long term target is set, there is sometimes a strong urge to start setting intermediate targets, i.e. milestones to be met in order to “land a man on the moon by the end of the decade.” In other words, to start moving backwards in time from the visionary target to medium term and short term targets. Visionary targets can be set in the absence of any detailed analysis, being done more by “gut” feel or, perhaps, for political expediency, whereas intermediate targets set without any strategic analysis and formulation are merely shorter term visionary targets. Without this step, setting intermediate targets would be an attempt to forecast the future without any idea of what policies you might implement to affect the outcomes. At best, developing intermediate targets, without the strategy formulation, would be a forecast of the outcome using the Business As Usual model. The gap would remain and become insurmountable as the time period became shorter. Any target other than a visionary target is part of the output of a strategic planning process.

The intent in this section is not to outline a specific strategic planning process as this would be impossible to do so in the abstract but rather to emphasize the need for the strategic formulation. The targets, other than visionary targets, are the output of the strategy formulation and deployment, rarely the starting point.

During the strategic development process different scenarios or “straw targets” can be created for different policy and program options. These options would be assessed in terms of cost, impact, risk, and time to implement. Focused or limited trials may be implemented to provide data for the assessment of an option where there is insufficient experience. **Program and policy choices could be made and tactical targets established.** The strategic process may identify a number of key development areas that may be required in the future to meet the visionary target. Programs in R&D or education could be created with tactical targets to fill the knowledge or capability gap. Some of these development programs may be medium term in length, suggesting that not all tactical targets are short term.

In the course of time, new strategies will be developed and new program designed and chosen along with new tactical targets. In this regard, it is an iterative, non-linear process. However, to set **short term visionary targets**, and then, to go in search of a programs to allow you to meet them can greatly increase the risk of disappointment and of inappropriately spending scarce resources.

Furthermore, there is the tendency, in some political contexts, to give overwhelming predominance to a small number of targets that are selected for their popular appeal. If this happens there is the risk that resources may be unwisely or inefficiently diverted to meeting politically imposed performance numbers that provide an incomplete view of the system. At worst, the stakes could be high enough to encourage the false reporting of baselines or outcomes.

The strategic development process typically uses the following tools:

- Market research

- Data gathering and analysis
- Benchmarking
- Understand barriers and leverage limitations
- Scenario formulation
- Modeling
- Market trials
- Identify partnerships
- Economic forecasting
- Economic/financial evaluation
- Practices and results in other jurisdictions
- Identification of critical success factors
- Identification and development of key strategic issues for each sector
- Competence knowledge

Short term strategies can be used to create momentum while longer term strategies are developed. In fact, the strategic process is never finished as new information and experiences will cause adjustments to specific strategies. New tactical targets are then created.

7. OWNERSHIP DIMENSION

One dimension that changes considerably during the shift from visionary to tactical targets is the ownership. By this we mean the group accountable for meeting the target. A long term visionary target can be owned by a country or a province; however, everyone will look to everyone else to fulfill this obligation. It is everyone's target yet it is nobody's. On the positive side, there will be an absence of jurisdictional disputes as visionary targets are set in the absence of policies. When the NRTEE published a target for GHG reduction for the year 2050, it was not a target for the NRTEE, but rather a recommended goal for Canada with little if any indication of the policies that Canada might employ.

Tactical or short term targets pose a very different problem because these targets are set in a particular policy context and must be owned by a relevant organization.

The relevant organization is the organizational element that is responsible for achieving the target and is accountable for the results. The relevant organization may delegate part or the whole target to subordinate elements which will organize their activities and resources in order to meet or surpass the target. Sometimes different organizational elements may have different but associated targets allowing them to combine their efforts and resources.

One organization can impose its own targets on other organizations over which it has leverage. An example would be the purchasing department of a company that had a quality target to meet. The department could include in its specifications requiring the suppliers to meet certain quality requirements. The purchasing department is still responsible for its quality target but has organized itself to meet the target by creating a subset of new targets for the suppliers over which it has leverage. A government that creates regulation to mandate emission reductions is using its leverage to meet its own targets.

The relevant organization with the target will likely try to change the behaviour of other target groups through its activities. Unless it has leverage (regulation or contractual or organizational) over these target groups it cannot delegate any of its targets. A company can create new marketing practices to increase its market share, but it cannot force the consumers to buy its products.

There is perhaps one exception and that is when there is a symbiotic relationship, i.e. when two different organizations have a similar goal and can support each other with common programs and policies. This could be the case of two governments where neither has jurisdiction over the other.

There is a variation to this rule: on occasion, a government could impose its own targets onto another sector by suggesting that if the sector does not “volunteer” to accept the government's targets, the government would impose regulations making it mandatory. This works with industrial or financial sectors which have a few large companies (a recent and pertinent example is the Memorandum of Understanding reached in 2005 between the motor vehicle manufacturers and Federal Government to achieve a reduction of 5.3 Mt of GHG in 2010 compared to business and usual). In any case, the government has an implied leverage.

Note that the greater the degree of stringency or obligation to meet a target the greater is the need for clarity and precision of the target form and measurement.

8. CAPABILITY DIMENSION

The relevant organization must have sufficient capability to meet its tactical target. The word “capability” in this context is a combination of inherent ability and resources. As a result of the strategic development process, certain capabilities may be identified as critical success factors for successful program implementation. The development of these critical capabilities can create its own set of tactical targets.

For example, a program to improve the energy efficiency of new buildings would likely involve new construction standards. However, it may be determined that there are an insufficient number of trained building inspectors in Canada. Developing this capability would be a critical success factor.

9. THE PROBLEM OF OVERLAPPING JURISDICTIONS

As governments develop policies and programs with their ensuing tactical targets there is a risk that they will work at cross purposes at worst and be confusing to the public in the least, unless the various jurisdictions harmonize where necessary. This does not mean that one government should control all programs but rather that governments should share strategic formulations and look for common ground where joint efforts and program alignment will provide even greater returns. This should be done prior to setting the tactical targets, i.e. during the strategic development process. In the end the tactical targets that are not aligned with other aspects of the strategy will be less effective. Leadership and, in particular, communication are essential in multi-jurisdictional environment.

10. THE OBLIGATION DIMENSION

Targets can range from contractual or regulatory to purely voluntary. A contractual target must be met or there will be legal ramifications. There is no obligation to meet a purely voluntary target. Between these two extremes, there are various degrees of obligation. A person not meeting a target set by his manager may not receive a bonus or a promotion. A company not meeting a negotiated “voluntary” target may face regulation by the government as a result. The greater the obligation is, the greater the possible reward or penalty for making or not making the target.

The greater the obligation is, the greater the risk of perverse unintended consequences since the person or organization, with a lot to lose if the target is not met, will not necessarily stop to think about other consequences.

Targets can be imposed on an organization from without or self-imposed. Even self-imposed targets may be the result of external pressures such as public opinion, shareholders expectations or corporate survival, for example.

There is one example when it is advantageous to set a medium term (10 year) target for contractual targets, i.e. compulsory targets. This gives the affected organizations the time to adjust to the future requirements with the least cost. Also it gives the party imposing the compulsory target the time to create the mechanisms required for the future regulation.

11. SECTORAL TARGETS

There appears to be a growing expectation that sectoral targets should be set partially on grounds of equity, i.e. that vigorous actions are needed on all fronts, and that the burden should be spread equitably, especially in the case of taxation or regulation. If sectoral targets are thought desirable, economic efficiency would be better served if targets are consistent across sectors so that the marginal cost-effectiveness of the targets would be equated and that other mechanisms (or policy instruments) be used if equity issues were also to be addressed. Equity could be achieved by shifting mitigation funds from sectors with higher marginal costs to those where marginal costs are lower, to gain greater reductions in energy use. As the marginal costs of efficiency improvements are expected to differ substantially among sectors, sectoral targets that are based on cost-effectiveness would call for differing proportional reductions in their energy use. Cost-effectiveness was a prime criterion in selecting measures during the National Climate Change Strategy design process.

The understanding of any real or perceived inequities and the ability of the governments to effectively shift the burden to mitigate these inequities will raise this issue to a senior level. In this regard, it is essential that costs and impacts, direct and indirect, of regulation and taxation are well studied and understood before implementation.

12. CONCLUSION

There have been a number of emissions targets or goals set by different jurisdictions in Canada looking out to the year 2030 and others to the year 2050. It matters little which one you believe in as they are all ambitious and they are by their nature visionary. Furthermore, nobody today knows exactly the road map we will use to achieve these targets as the path will lead us over uncharted territory.

We need to develop a menu of programs and policies that if chosen will move us somewhere along the path. These programs and policies are not all equal in cost or impact or time duration. Choices can then be made. Tactical targets can then be assigned to these programs. In time, new strategies will be developed and new programs chosen based on experience gained and new technologies.