

5 What method should be used to  
imagine the energy future of our  
communities?



## OVERVIEW

This session introduces a highly generic, and therefore widely applicable, approach to planning and decision-making suited to situations of high complexity. Known as ‘backcasting’ (i.e. ‘backwards looking planning’), this planning approach begins with future success in mind and looks back from the future perspective to guide present-day decisions. Backcasting differs from the widely used technique of ‘forecasting,’ where past trends are projected into the future and problem trends ‘corrected.’ The opening presentation will introduce some keys for successful backcasting and close with applied examples from the comprehensive and award-winning sustainability planning initiative in Whistler, Canada. This experience taught that not only was backcasting a more rational approach but it was more fun and inspiring for the project managers and citizens!

## STRATEGIC DECISION-MAKING IN A COMPLEX, CHANGING WORLD

Our world is characterized by great complexity and many interacting trends that are clearly unsustainable. There is growing evidence about past and current global trends that are dramatically unsustainable when projected into the long term such as climate change (e.g. average global temperature, intensity of extreme weather events, insurance claims, etc.); a gap between rising demand for oil and the declining discoveries of oil reserves; growing insecurity of supply of oil and gas; rising uncertainty in the geopolitical landscape; etc.. These supposed ‘energy’ issues are unavoidably interconnected with our more general pursuit of attractive, liveable and sustainable local communities.

Society’s institutions – public, private and non-governmental – are responding, in various ways, with a wide range of technologies, concepts, policies, investments for strategies like energy efficiency, renewable energy, ‘clean’ technologies, Factor 4, differentiated taxes; transport, economic development, etc. This is promising. Overall, however, global environmental and societal trends remain predominantly on an unsustainable trajectory. We can be sure that the future cannot be like the past, when it comes to trends regarding energy, the environment and our communities. We can observe that all these issues and responses listed above are important. However, simply knowing these issues does not bring clarity for long-range planning and investing. Simply put: “If you don’t know where you’re going, then *any* road will do.”<sup>5</sup>

## FORECASTING VS. BACKCASTING

Large organizations – public and private – typically respond to their challenges/problems by planning based on forecasting: a method where trends are projected into the future, ‘problem trends’ are identified and then ‘corrected’ based upon what is ‘reasonable’ by today’s standards (e.g. “it is reasonable/affordable to implement 10% renewable energy by Year 2020”). Forecasting is not effective for long range planning where (1) situations of high complexity exist (where complex trends interact) and forecasted trends become more and more uncertain and where (2) basic trends are part of the problem.<sup>6</sup> Today, when it comes to creating sustainable local energy systems, both of these problems exist.

Backcasting offers an alternative. With backcasting, one begins from the perspective of envisioned ‘success’ (our ‘desired future’) and *looks back, to the present* and asks “what shall we do, back then, to start on a strategic investment pathway towards success, here, in the future.” Backcasting is a necessary and powerful approach, but is not easy to put into practice. Why?

There are at least three basic challenges with putting backcasting into practice. First, it is very difficult to arrive at consensus about a ‘desired future’; second, we cannot be ensured that a consensus about a desired future is sustainable, from a natural sciences point of view (e.g. a local community could establish their own ‘desired future’ that ignores their contribution to climate change) and third, it is likely that an organization, or local community, will want to adapt to new technologies and opportunities that appear along the way to their desired future.

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<sup>5</sup> This quote is often credited to the fictional work “Alice in Wonderland,” but is clearly relevant here.

<sup>6</sup> Dreborg, K.-H. and Sten, P. 1996. “Essence of Backcasting”. *Futures*, 28, 813-28

There are two complementary approaches that greatly contribute to successful planning by backcasting. The first is to inform the necessary conditions for success (i.e. sustainable society in the biosphere) at the principle level through the use of systems science and a whole system perspective. This has been done in a consensus process of scientists and resulted in basic principles or 'system conditions' that describe global biophysical and social constraints within which sustainable society (and therefore communities) must ultimately exist. The principles, translated to the local scale, state that in a sustainable society, communities do not contribute to systematically increasing ... (1) concentrations in nature of substances extracted from the Earth's crust (e.g. fossil-based emissions); ... (2) concentrations in nature of substances produced by society (e.g. CFCs); ... (3) degradation of nature by physical means (e.g. deforestation or topsoil/nutrient depletion); and, in that society... (4) the community does not subject people to conditions that systematically undermine their capacity to meet their needs.<sup>7 8 9 10</sup>

The second approach is to invite citizens to participate in envisioning a desired future that ultimately conforms to the basic principles (as a minimum) and also respects their own unique, local circumstances. The process of 'co-creating' a vision of the future (informed by basic principles and described in terms of shared purpose and values), can also be a great source of inspiration, innovation and pride!

### THE CASE OF WHISTLER, CANADA.

The Resort Community of Whistler, near Vancouver, Canada utilized both of these approaches to clarify its goals and engage its citizens in its "Comprehensive Sustainability Plan" entitled Whistler2020 ([www.whistler2020.ca](http://www.whistler2020.ca)). This plan governs all aspects of long range planning in Whistler for the local authority and, through partnership agreements, the entire community. By applying backcasting from both principles and their own 'description of success,' all potential actions in Whistler are now evaluated from a 'strategic state of mind' by asking: (1) does this action move Whistler toward our shared vision of success? (2) Does this action move Whistler toward our shared sustainability principles? (3) Is the action a good financial investment? (4) Does the action present a flexible platform for further movement toward Success in the future? Actions that do not rate well against these future-based questions are not chosen. Whistler's efforts are recognized with three national awards and, in 2005, an international award for "best planning for the future" by the LivCom Awards.<sup>11</sup> There are many examples of what these new questions mean to Whistler. The presentation will finish with one such example: consideration of a natural gas pipeline to carry forecasted increased energy demands to the year 2050. The result of asking different questions led to an innovative new solution to Whistler's energy challenge.

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<sup>7</sup> Holmberg, J. and Robèrt, K.-H., 2000. "Backcasting from non-overlapping sustainability principles – a framework for strategic planning". *Int. J. of Sust. Dev. and World Ecol.* 7, 1-18.

<sup>8</sup> Robèrt, K.-H., Schmidt-Bleek, B., Aloisi de Lardere, J., Basile, G., Jansen, L., Kuehr, R., Price Thomas, P., Suzuki, M., Hawken, P., and Wackernagel, M. 2002. "Strategic sustainable development – selection, design and synergies of applied tools". *Journal of Cleaner Production*, 10 (2002) 197-214.

<sup>9</sup> Ny, H., J. P. MacDonald, G. Broman, R. Yamamoto, and K.-H. Robèrt. 2006. Sustainability constraints as system boundaries: an approach to making life-cycle management strategic *Journal of Industrial Ecology* 10(1)

<sup>10</sup> The approach of "backcasting from principles" within a structured planning framework has been promoted and practiced by the international charitable organisation, The Natural Step since 1988 (see [www.naturalstep.org](http://www.naturalstep.org) or [www.tns-france.org](http://www.tns-france.org) for French version). See also [www.bth.se/ste/tmslm.nsf/pages/4cd3d9df1a9bccb4c1256de100466ac8!OpenDocument](http://www.bth.se/ste/tmslm.nsf/pages/4cd3d9df1a9bccb4c1256de100466ac8!OpenDocument) for a framework summary.

<sup>11</sup> International awards for Livable Communities, endorsed by UNEP. [www.livcomawards.com](http://www.livcomawards.com)

The Resort Community of Whistler now assesses thousands of specific actions from a backcasting perspective (backcasting from both science-based sustainability principles and citizen-based vision). The experience from Whistler and many other cases<sup>12</sup> indicates the approach to backcasting outlined above is not only an effective way to make more rational decisions about long term investments but also in engaging citizens and local project managers in a broad, shared purpose while inviting them to create surprising and more sustainable new possibilities for the future.

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<sup>12</sup> Examples of using this approach include: 'eco-communities' across Sweden; phasing out of CFC's (and HCFCs) by Electolux; product design by IKEA; product sourcing by Scandic Hotels; leading plastics research and development by Hydro Polymers and the international Master's Programme at Blekinge Institute of Technology entitled: "Strategic Leadership towards Sustainability"([www.bth.se/tmslm](http://www.bth.se/tmslm)).