Popular Science Summary

This thesis sets out to advance knowledge on how a transition towards a more sustainable energy system and society can be supported by insightful and deliberate evaluation of research and policy incentives.

It does so by promoting *transformative evaluation,* which is an interdisciplinary foundation for evaluation that synthesizes key insights from transition research, evaluation theory, sociology of science, and policy analysis. Transformative evaluation, as proposed in this thesis, seeks to support rigorous knowledge creation that can provide insights into how transformative contributions of an *evaluand* - the object that is being evaluated - relate to and influence large-scale changes in society. Thus, it proposes a more holistic approach to evaluation than what is seen in traditional evaluation approaches, which are mainly oriented around programme processes and goal

attainment.

The research is oriented around the case of evaluation of research and policy incentives for energy efficiency in buildings in Sweden, which is used for identifying how current evaluations are conducted in order to outline how these can be further advanced and complemented to move towards a transformative evaluation approach. Data collection and analyses build on reviews of existing evaluation reports of both research and policy incentives, as well as information gained from representatives working with evaluation at Swedish state agencies.

A key finding is that there are many evaluations performed of incentives aimed at energy efficiency in buildings, and these are commissioned and conducted by a limited number of actors. This provides a good foundation to move towards a transformative evaluation approach. Suggestions on how to complement current practices include a need to concretely articulate the energy vision that research and policy incentives seek to support, and to assess how the evaluand supports this vision. The research also suggests that capturing experimentation and learning generated by the evaluand can be further complemented, since testing and piloting of new solutions and practices, and learning from these activities, are required to bring about changes. Evaluations can also expand the involvement of key actors, and adopt a systems perspective to a larger degree. Furthermore, in order to make rigorous assessments of the transformative contributions, one key suggestion is to apply multiple methods and criteria. This in order to facilitate validation of findings through triangulation, and to provide broader assessments that go beyond the prevalent use of programme-oriented criteria such as effectiveness and impact. The application of counterfactual assessments can also be extended to ensure that effects and impacts are indeed attributable to the evaluand and do not stem from other sources.

Furthermore, evaluations should seek to take a more holistic perspective, where the transformative contribution or potential of an incentive is put in relation to insights

generated in other evaluations. This can also support an enhanced *alignment* of research and policy evaluations, and a more comprehensive understanding of *cascading* effects, which illuminate how outcomes and effects stemming from an individual research or policy incentive in turn support or spur transformative effects from other incentives.

Another key for successful evaluations is that they are *used.* This research shows that the use of evaluations, as perceived by informants at Swedish state agencies, is mainly proactive, as use for improvement and for knowledge creation is frequently recognized, rather than use for promoting agendas or simply meeting evaluation requirements. The processes that underpin evaluation use among Swedish state agencies are reported to

build on involvement of various actors and channels, which can further support an extended use and sharing of evaluations. In all, this provides good foundations for adopting a transformative evaluation approach, but there are also challenges noted that relate to overcoming structural and institutional boundaries associated with evaluation

practices among and between Swedish state agencies.

Moving towards transformative evaluation will require a revision of current evaluation practices, mainly concerning how state agencies with mandates to govern transformative change work with acquiring and sharing knowledge. In order to promote deliberate and well-designed research and policy incentives that can address the need for supporting a transition towards a more sustainable energy system and society, evaluations must be supported to purposefully combine transformative insights with rigorous evaluation approaches.