



National view on "whole system" is awful It's not a question of the electricity system Incentivise relief of the system from the outset Need for grid expansion should not be questioned. Grid-serving or market-serving deployment of P2G? What is the whole system? (also: Which role does carbon play?) From which perspective must optimisations take place? What is the difference between relevant necessary grid expansion and where does the Roll in the optimisation potential planning for grid connected P2G facilities start? of the entire system With which tools can the coordination of a system-serving P2G approach between necessary actors be improved? Establish the basis for joint infrastructure planning Establish new market design and price system; support flexibility Establish locally differentiated investment incentives Integrated grid planning Develop mechanism for sending market signals for grid-serving P2G locations Potential planning for allocation of P2G facilities on the basis of currently available grid construction needs & identification of demand; or if necessary development of plans with suitability for P2G and "expansion corridor" Make better use of heat extraction 95% decarbonisation strategy needs hydrogen P2G in future New platforms for coordination and exchange are needed energy system Which role can blue (turquoise) H2 play? How can we take a technology-open approach? Which will be the role of carbon in the future energy system? How can we prevent lock-in effects? Clarify goals and long-term stragies and derive concrete timetables (incl. commitment to the color discussion and specifying the relevant time periods) Support actors to work on what they are allowed to do (regulatory framework) and what they are able to do (financial support, availability of technology) Vision and next steps Set reasonable framework (for example with National Hydrogen Strategy) High level of agreement Enable cooperation between willing actors (cf. Real-laboratory approach / field tests) High need for discussion Establish new platforms for exchange and cooperation, in order to push forward implementation (from regional to international levels) Open questions Better evaluate research projects (Real-laboratory / Field-tests, Sinteg, Kopernikus etc.) Recommendations to politics Creation of a group which works on vision and dervives a roadmap from there Next steps Clarify question of timeliness and transformation pathways Identification of actual generation potential and demand International cooperation Together with workshop participants, Germanwatch will develop a possible structure for an extensive dialogue between actors

Definition of sustainability standards must be tackled at least in Europe Market and price system must be newly regulated Start-up financing makes sense from an economic point of view for scale-up; but new Renewable Energy Act (EEG) for hydrogen doesn't seem to be the option Role of blue (turquoise) H2? Prioritisation of usage? How can P2G contribute in the best possible way to sustainable development? Cost degression: Economy of scale over size or series production? Are there decentralised business models for P2G? Clear political framework in order to increase investment safety Support research and development in order to increase efficiency of the technology A reliable certification system and ambitious sustainability standard are necessary (also in order to avoid indirect effects; take into account social & governance factors) Monitoring of production chains; the entire process chain must be considered P2G in future Sustainability and economic efficiency energy system Fossil energies must become more expensive, so that P2G pays off: CO2 pricing, energy tax for fossils, reduced taxes for renewable gas To begin with, subsidise generation, as facilities currently don't fit the market; then create framework conditions, so that projects can sustain themselves Support technology with clear perspectives and time-limits Bonus-malus-financing Generate market incentives for application fields and evaluate obligatory incentives (e.g. green gas quota) Give credit for the use of hydrogen Build up strong domestic market (cost degression of the technology) and international High level of agreement market (OPEX-cost reduction) High need for discussion Early discussion and development of concepts for certification system (EU level) More efficient energy technologies in order to reduce P2G demand Open questions Raise the potential of cost reductions of P2G technologies Recommendations to politics We need new players as competitors to established energy providers, in order to create a Next steps market dynamic Use state finances to support facilities in Germany and abroad until 2030 Build up international partnerships Use the current time window for investments

Progress in P2G and energy transition are not opposites, but RES expansion and efficiency