

Climate Neutral by 2050 – Solar Energy Policy in Berlin

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Getting Berlin climate neutral by 2050

- Coalition agreement : „Getting Berlin climate neutral by 2050“
- Berlin has to reduce its CO₂ emissions over the next years to around 4.4 million tons a year (2050)
 - Reduction by 85% compared to the base year of 1990.
 - Milestones are a 40% CO₂ reduction by 2020 and a 60% CO₂ reduction by 2030



Berlin: Quick Facts and Figures

Capital city of Germany and one of the 16 German federal states

Administration

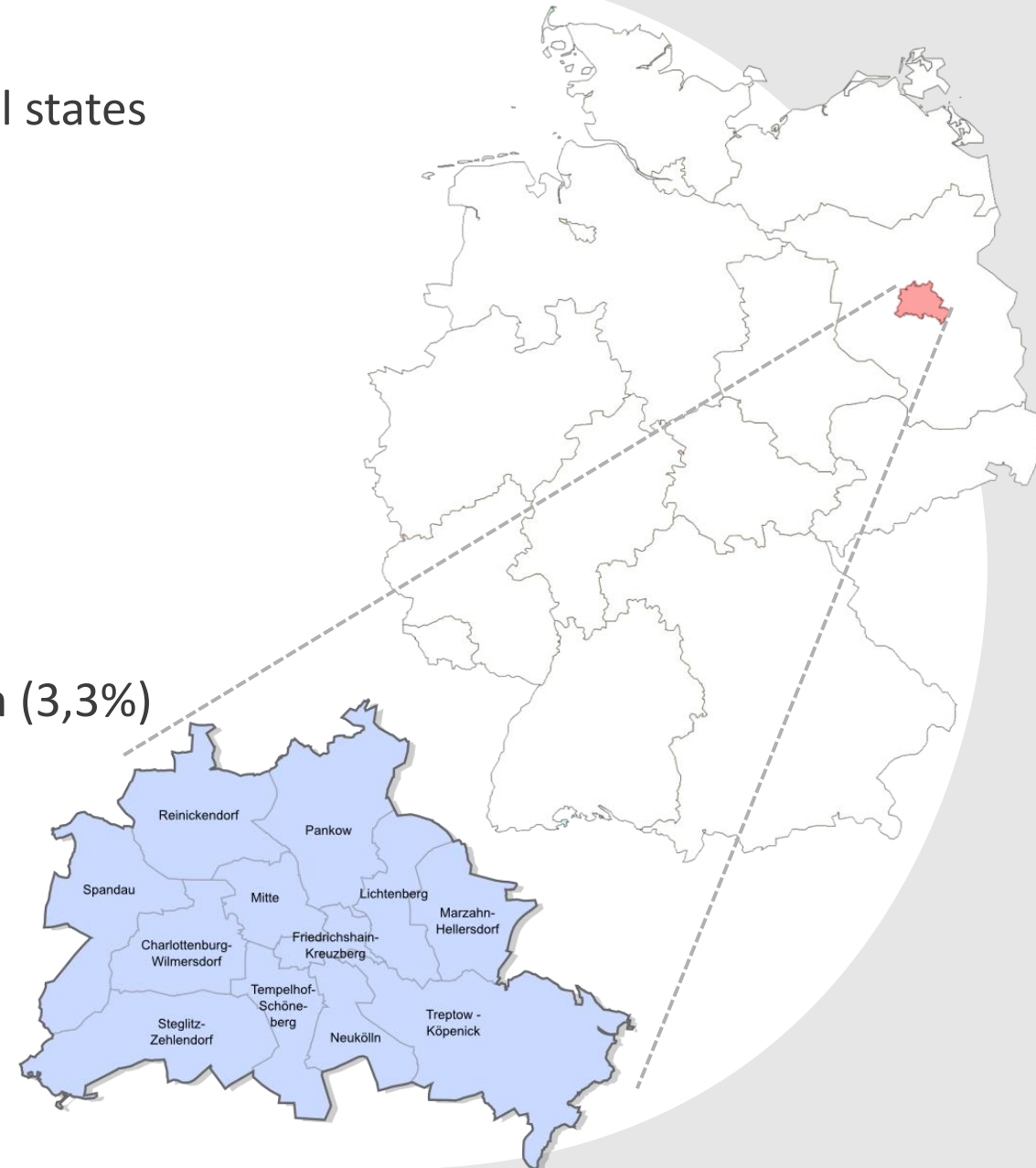
- Central administration with Senate departments and 12 districts
- Currently Left/Green Government

Population

- Population: about 3.7 million
- High population growth, forecast: 4 million by 2030

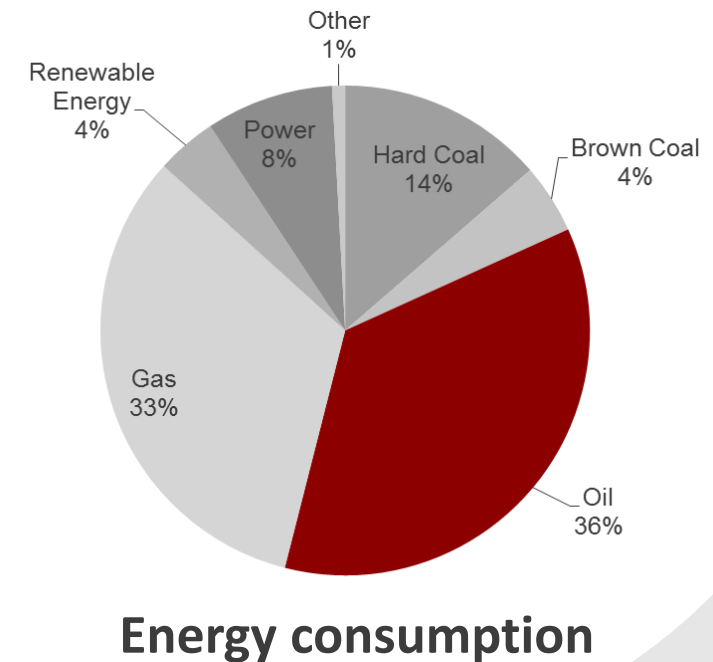
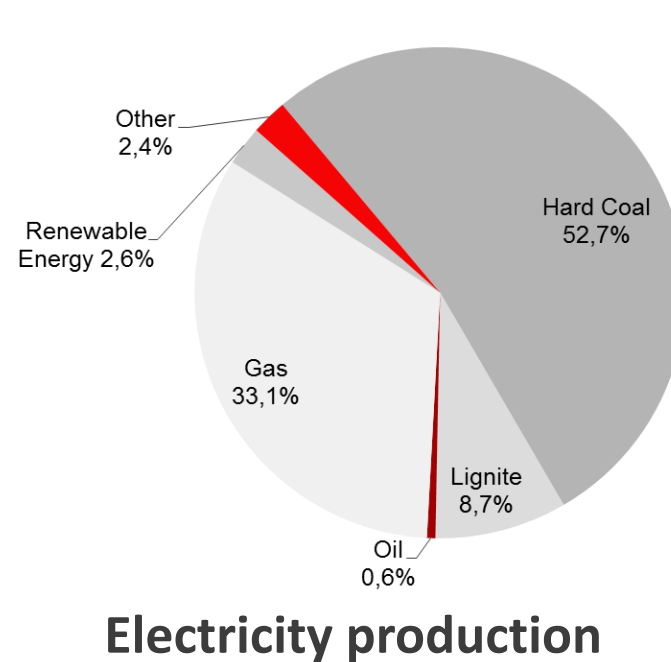
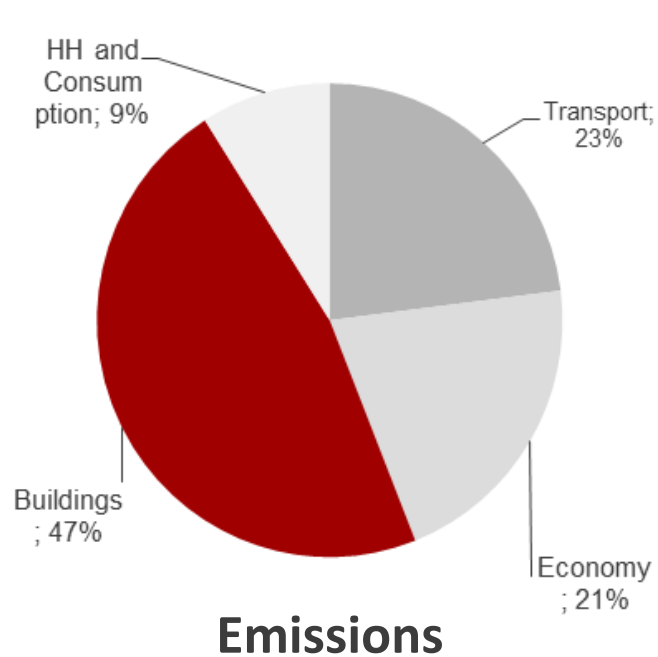
Economy

- GDP 2017 at 136.1 billion €, growth (3,3%) above German average of 2.2 %
- Mainly service sector, also creative industries, research, media and IT, tourism (9 million visitors per year)



Status-Quo of Energy Supply

- Lowest per inhabitant emission in Germany
- Central and large scale CHP (60 % of energy production)
- Substantial coal substitution since 1990, no lignite since 2017, phase-out coal till 2030
- Renewables only marginal (electricity & heat)
- Major emission source: Buildings (private, industry, services)
- The city is an energy sink in a region with >50% renewable electricity generation



Challenges and Opportunities



Challenges

- Stagnant trend of CO₂ emission reduction (-32 % since 1990 but constant since 2011)
- High percentage of fossil energies
- Urban area, limited space for expansion of renewable energies



Opportunities

- Role of cities in climate policy increasingly acknowledged
- Lot of flexibility options (e.g. heating networks, power-to-x-technologies)
- Place for innovative ideas with strong European and international ties
- High readiness for behavioural change (e.g. sharing economy)

Feasibility Study Climate-Neutral Berlin 2050 2012 - 2014



Berlin Energy and Climate Protection Programm (BEK)

→ Research study
2014-2015
→ City Parliament
Decision Jan' 2018



Energy Turnaround Law Berlin (EWG)

→ Drafting Process
2013 -2015
→ Unanimous decision
by Berlin City
Parliament in March
2016



Feasibility study: Climate-Neutral Berlin 2050

Lead interest

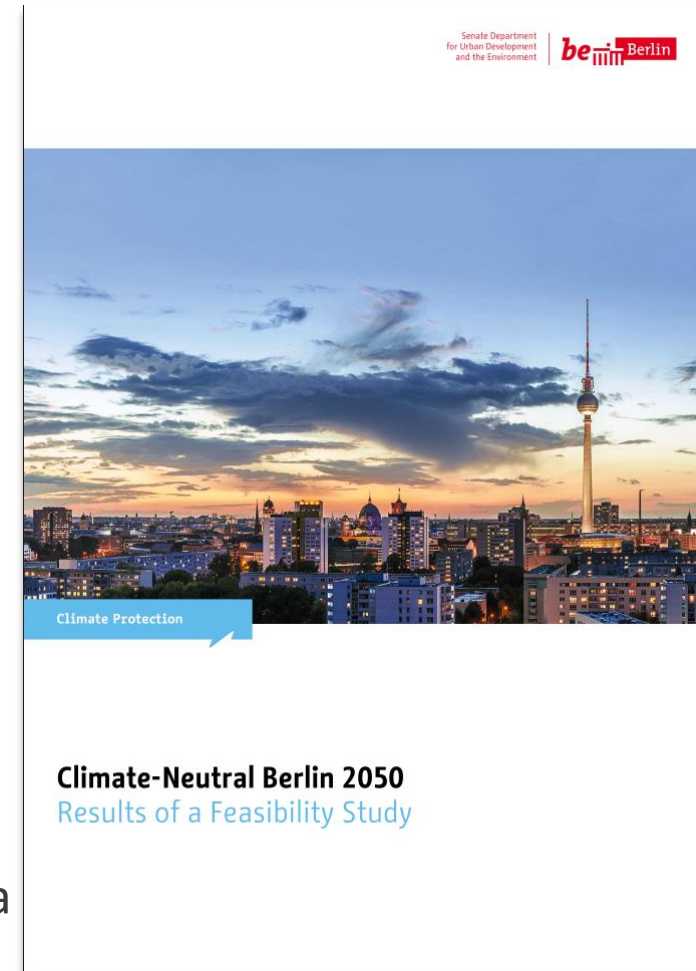
- Can Berlin become climate neutral?
- Which requirements have to be fulfilled?

Tasks

- Analysis of CO₂-emissionen & reduction potentials
- Recommendations for a climate protection path
- Measures and lead projects

Results (2014)

- 85 % Emission reduction possible
- 2 possible scenarios
- Linking electricity & heat sector by using excess electricity
- Large potential for solar energy (PV and thermal)
- Recommendations of action for each of target area
- Regional effects on the economy



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March 2016



Purpose

- Makes climate targets and their instruments **legally binding** (40 % until 2020, 60% until 2030, 85 % until 2050 compared to 1990)

Role model public authority

- **Remediation Roadmap for Public Buildings**
- Action Plan on **Carbon Neutral Administration**
- Compilation of energy and emission balances for each borough

Further content

- **Energy:** Climate friendly energy production and supply for public buildings
- **Climate Protection Agreements** with industry and companies
- Climate protection as **educational content**
- **Climate Adaption:** Developing strategies and measures, implementing climate change monitoring

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Berlin Energy and Climate Concept (BEK)

Procedure

- Based on feasibility study „Climate Neutral Berlin 2050“
- Drafting of concept is obligatory by law (§ 4 EWG)
- Thorough public participation process
- Draft of BEK by a scientific research consortium

Function

- Shows **specific strategies & measures**
- Central instrument for implementing energy turnaround law with timeframe until 2030

Elements

- Contains **100 specific measures** addressing mostly city policy and to some extent German national policy
- Cost assessment for each measure
- Details of measure implementation responsibilities and jurisdictions.



Energy



Buildings & Urban
Development



Mobility



Households &
Consumption



Economics



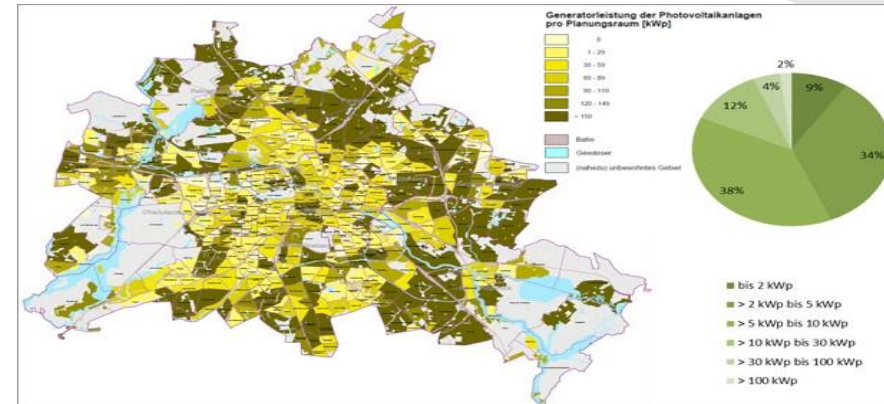
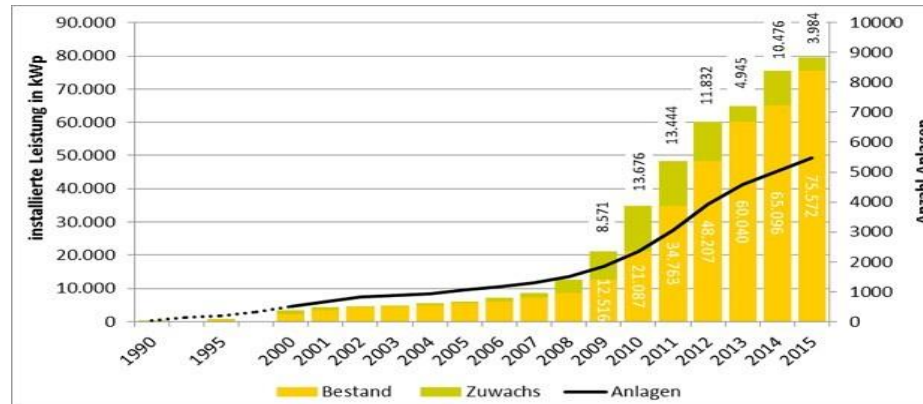
- Phase-out coal and decrease other fossil energies
 - Expand gas-fired, flexible cogeneration
 - Densification of head grids (heat storage)
 - Massive extension of solar energy
 - Expansion of heat pumps and geothermy
 - Power-to-X-technologies, virtual power plants, flexibility options
 - Promote urban business models
- Two Senate Departments on Climate Protection and Energy
 - Senate Department for Economic, Energy and Public Enterprises is responsible for several measure of the BEK, mainly in the field „energy“.
 - Primary focus on support of decentralized renewable energy generation
 - Enlarge sector coupling and flexibilization
 - Increasing availability/usability of public roofs
 - Support PV-generation on tenements with local consumption
 - Masterplan Solar City



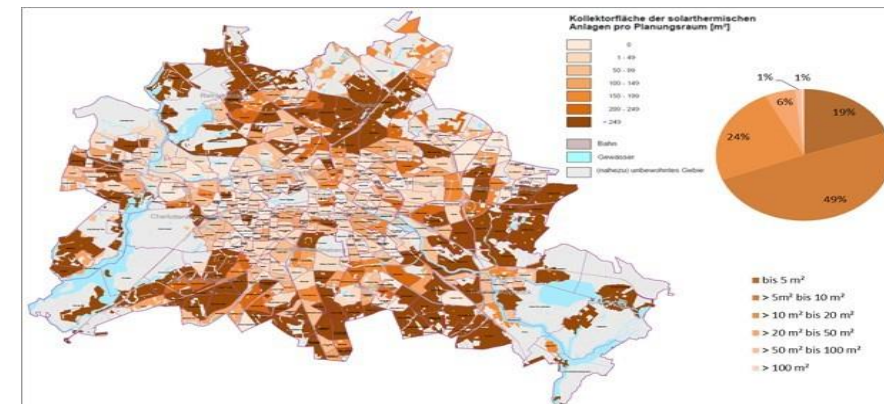
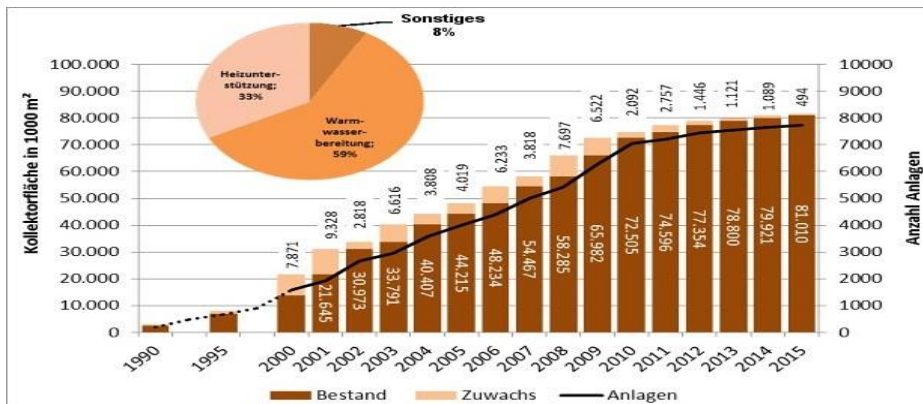
Masterplan Solarcity Berlin - A Variety of Measures to Guide Solar Growth in the Capital of Germany.

Solar Energy in the City – status quo

PV



Solar thermal

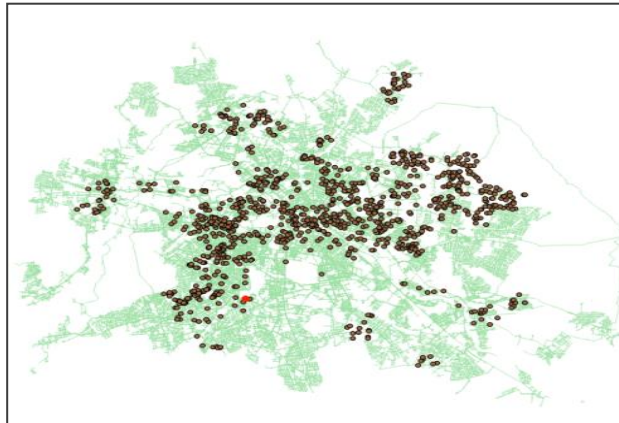


Challenges

- feed-in and energy system in Germany neglects small and decentralised photovoltaic systems and specific need of urban areas
- secure investments
- Convincing participants and mobilising financial resources
- Enable the use of self-produced energy in a city
- Tenant-Landlord-Challenges

Main tasks

- Identification of potential (public, private, sectors)
www.energieatlas.berlin.de
- participation process to involve relevant stakeholders
- Identify specific measures and targets for different stakeholder groups
- Completion until Summer 2019 (Start in November 2018)



Nut Shell

- 25% of Energy supply can come from solar
- ~ 450.000 buildings that could be used (~320.000 housing)
- Masterplan „Solar City“ with 27 measures for various actors
- Unit to control implementation, Continued monitoring
- Constant expert exchange

1. Information, Consultation, Public Relations



Increase the installation of solar energy by

- generating awareness
- improve the image of solar energy
- free consultation

Stakeholder are important partners for the implementation of measures.

Implementation of some measures have started.

Solar Center Berlin

- Opening of an information center for solar energy in May 2019
- Cooperation with the German Society on Solar Energy (DGS)
- Main tasks of the solar center Berlin will be:
 - Consultation on solar energy including on-site visits, assistance in the evaluation of offers
 - Information services for craft companies, architectures and engineers
 - Presentation of best practice examples
 - Trainings and qualification programs



Internet Platform „Solarwende Berlin“

- Launch of a new internet-platform about solar energy in May 2019
- Target group specific information, communication, education and advice
- Motivate stakeholders to invest in decentralized renewable energy generation.



https://www.solarwende-berlin.de

SOLARWENDE  BERLIN

Bild: golero via iStockPhoto

Wir machen Berlin zur Solarhauptstadt Gemeinsam den Masterplan Solarcity gestalten

Herzlich willkommen

... auf Solarwende Berlin – dem Onlineportal zur Nutzung von Solarenergie in der Hauptstadt
erfahren Sie alles zum spannenden Themenfeld der Energieproduktion aus Sonnenlicht. Das
Potenzial der Dächer Berlins für kostengünstigen, klimafreundlichen Strom und Wärme
Diese Webseite zeigt Ihnen praxisnah, wie Solarenergie funktioniert und wie auch Sie
profitieren können. Entdecken Sie die zahlreichen Vorteile, die Solarenergie für Sie
Stadt hat. Es ist einfacher, als Sie vielleicht denken!

Wir haben passgenaue Informationen für Sie aufbereitet. Verraten Sie uns, wie Sie Ihre Solaranlage machen!

2. Overcoming barriers



- Improvement of the **grid connection** process of solar systems.
- Finding solutions for installing solar systems on **buildings under monumental protection**.
- Improve the **knowledge of the employees of local authorities**, f. e. about combination of solar systems and green roofs.

3. Increasing Profitability of Solar Systems



- Improve the profitability of solar systems through **funding**, e. g. programs for power storages or “PV readiness”.
- **A funding for power storages** like battery storages or hydrogen storage systems, if they are installed with a PV system, will be implemented in 2019.

4. Supporting Market Initiatives



- **Support tenants and residential property owner associations** by finding a way to realize a solar system on their property.
- Developing a **website for supplying roofs** to companies for the installation of solar systems.

5. Strengthening Market Actors



- **Strengthening the solar industry and solar installers** in Berlin.
- **Strengthening academic programs** and academical research in renewable energy.

6. Agreements with Stakeholders



- **Agreements with companies and institutions** on supporting the Solar City Berlin.

7. Role Models



- Installing solar systems on **public buildings** (e. g. schools, governmental buildings)
- Promoting solar energy by communicating **best practices for optimal solar performance**.

8. Creating a Better Legal Framework



- Identify legal barriers and opportunities.
- Starting **federal initiatives** in the Bundesrat (Federal Council) addressing the following topics:
 - 52 GWp limit for PV growth
 - Better conditions for Landlord-to-tenant electricity
 - Taxes and tariff offsets for renewable energy, carbon-pricing
- Legal check of requirements of solar panels on new and homes and existing buildings

Next Steps

- “Expertenkreis” decides to support most of the measures in June 2019
- Last meeting of the “Expertenkreis” in August 2019 → Final decision on the concept (“Expertenempfehlung”)
- Senate decision in summer 2019
- Implementation of measures have already started



Thank You!

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