ENERGY STRATEGY 2050:
PROMOTION OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
OUTLOOK

1. The Swiss energy system
2. Energy and climate goals
3. The Energy Strategy 2050
   a. Energy Efficiency Measures
   b. Promotion of Renewable Energy
KEY ENERGY DATA

Energy Sector:
- Small share of industry
- Relatively high share of transport
- Low share of natural gas
- > 60% energy import dependence

Electricity Sector:
- (Almost) 100% CO2-free electricity generation
- 55-60% from hydropower
- Nuclear phase-out: no set date
CLIMATE-NEUTRAL SWITZERLAND IN 2050

- **Hydrogen production** at run-of-river sites (7 PJ)
- **38.6 TWh** from hydropower (renewable net production)
- **3.6 Mio.** battery-powered cars
- **Wind and geothermal energy** with attractive generation profile
- **34 TWh** from photovoltaic systems, 40 % of production (today 2 TWh)
- **1.5 million** heat pumps (today 0.3 million)
- **Cement and chemicals factories with CCS** (2.9 Mt CO₂ pa)
- **Well insulated buildings** with low heating demand
- **High levels of efficiency** in industrial processes
- **Biomass** for process heat
- **Expansion of heat grids** in urban areas
- **3.6 Mio.** heat pumps
- **Negative emissions technologies**: storage in Switzerland (3 million t CO₂ pa)

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LAURA ANTONINI • SWISS FEDERAL OFFICE OF ENERGY • ENERGY STRATEGY 2050 • NOVEMBER 21, 2023
1. Measures to increase energy efficiency
   - Buildings
   - Mobility
   - Industry
   - Appliances

2. Measures to increase the use of renewable energy
   - Promotion system

3. Withdrawal from nuclear energy
   - No new general licences
   - Step-by-step withdrawal – safety as sole criterion
MEASURES FOR BUILDINGS: RESPONSIBILITY OF THE CANTONS

Buildings account for almost half of overall energy consumption (mostly for heating)

Measures:

- Cantons and not the Confederation are responsible for the heating sector
- **Buildings programme of the Cantons** to improve energy-efficiency: i.e. building refurbishments, replacement of fossil heating, district heating, e-vehicle charging

Financed through **earmarking of the CO2-tax**:

- 1/3 from CO2-tax proceeds (**450 million CHF/annum**) is distributed to the Cantons for subsidies
- 2/3 of the CO2-tax proceeds are redistributed to the population and the economy
- CO2-tax is by **120 CHF/t CO2** (second highest in the world)
MEASURES FOR APPLIANCES AND INDUSTRY: COMPETITIVE TENDERS FOR ELECTRIC EFFICIENCY

Measure:
- Financial support for electric efficiency measures which would otherwise not be implemented (payback ≥ 4 years)
- Awarded by auctions to the lowest subsidy-savings ratio (average cost-effectiveness factor by 2.8 ct/kWh)
- Beneficiaries: industry, small enterprises and households

Budget: 50 millions CHF/year

Financed through the electricity grid surcharge

Types of measures: motors, pumps, ventilation, lighting, cooling/heating
INCREASE THE USE OF RENEWABLE ENERGIES

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INCREASE THE USE OF RENEWABLE ENERGY: TARGETS

- New renewables (w/o hydropower) cover today ca. 8% of the national electricity production
- **Solar PV boom**: increase in three years from ca. 300 MW capacity/year to ca. 1’500 MW installed in 2023

*possibly subject to popular referendum*
Network surcharge for promotion of electricity from renewable energy, energy efficiency and improvement of quality of bodies of water

- Budget: 1.3 billions CHF/year
- Capped surcharge: 2.3 cents/kWh
- refund to companies with high electricity consumption
**SUPPORT MEASURES FOR RENEWABLE ELECTRICITY**

Measures:

- **One-time investment aid** (20 to 60% of investment costs) and feed-in premiums
- **Auctions** for large photovoltaic plants
- Eligible technologies:
  - Solar PV: rooftop, large and alpine plants
  - Biomass (only waste): biogas, wood, waste incineration plants
  - Wind power plants
  - Hydropower: small and large, new and enlarged/refurbished plants
  - Geothermal plants: contributions seek&find
- **Beneficiaries**: house owners, enterprises, industry, public sector
- Supported electric plants size: form very small to very large
- Temporal limitation: phase out by 2030 (possibly 2035)
THANK YOU FOR YOUR ATTENTION