



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Bundesamt für Energie BFE  
Office fédéral de l'énergie OFEN  
Ufficio federale dell'energia UFE  
Swiss Federal Office of Energy SFOE

## Energy Strategy 2050: concept, status and next steps

Dr. Walter Steinmann, Director



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**BFE** Bundesamt für Energie

SSES Annual Meeting 2013, Neuchâtel, June 20 2013



## Energy Strategy 2050: objectives



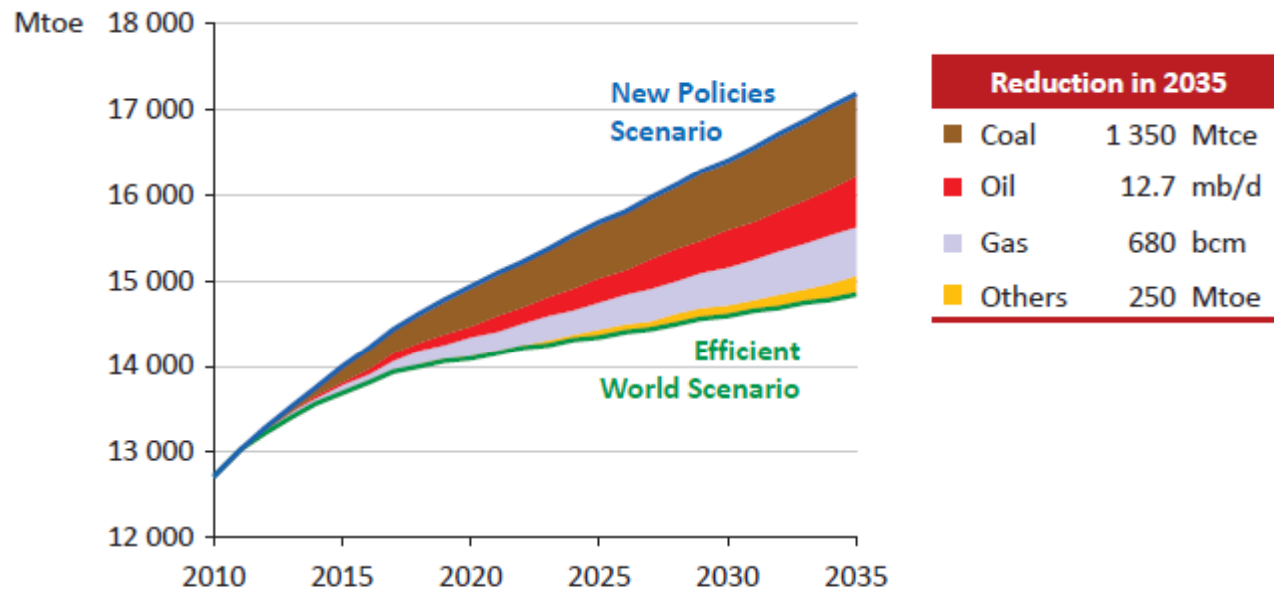


# World Energy Outlook

*The Efficient World Scenario:  
a blueprint for an efficient world*

WORLD  
ENERGY  
OUTLOOK  
2012

Total primary energy demand



*Economically viable efficiency measures can halve energy demand growth to 2035;  
oil demand savings equal the current production of Russia & Norway*

© OECD/IEA 2012

SSES Annual Meeting 2013, Neuchâtel, June 20 2013



## The challenges

- **Population growth:** Energy for more and more people
- **Infrastructure:** Power plants and networks are decades old and need to be replaced and expanded, regardless of the new energy strategy
- **Supply security:** Switzerland's integration into international cooperation mechanisms helps secure the supply of electricity, gas and oil
- **Pricing and market:** Tendency towards higher energy prices, securing free supplier choice, maintaining international competitiveness of Swiss companies
- **Climate change:** CO<sub>2</sub> emissions under control, climate change impact on domestic energy production (hydropower) after 2050
- **Environment, nature, landscape**
- **Plus a new challenge:** Post-Fukushima.  
This all has to be achieved while Switzerland simultaneously withdraws from nuclear energy on a step-by-step basis!



## Basic principles

- **Federal government specifies framework conditions** in accordance with Article 89 of the Federal Constitution.
- Energy industry is responsible for **energy supply security** (Energy Act, Article 4, paragraph 2).
- On 25.5.2011, Federal Council announces decision to withdraw from nuclear energy.
- Parliament adopts this resolution.
- SFOE is mandated to develop a new energy strategy.





# Energy Strategy 2050 (1/2)

- 1. Enhance energy efficiency**
- 2. Develop renewable energy production**
  - Hydropower: + 3.2 TWh (+ pump storage for integration of new renewable energies)
  - New renewable energy: Unlocking sustainable potentials (24.2 TWh)
- 3. Meet residual demand through:**
  - Electricity production with fossil fuels (combined heat and power, gas and steam turbines)
  - Electricity Imports





## Energy Strategy 2050 (2/2)

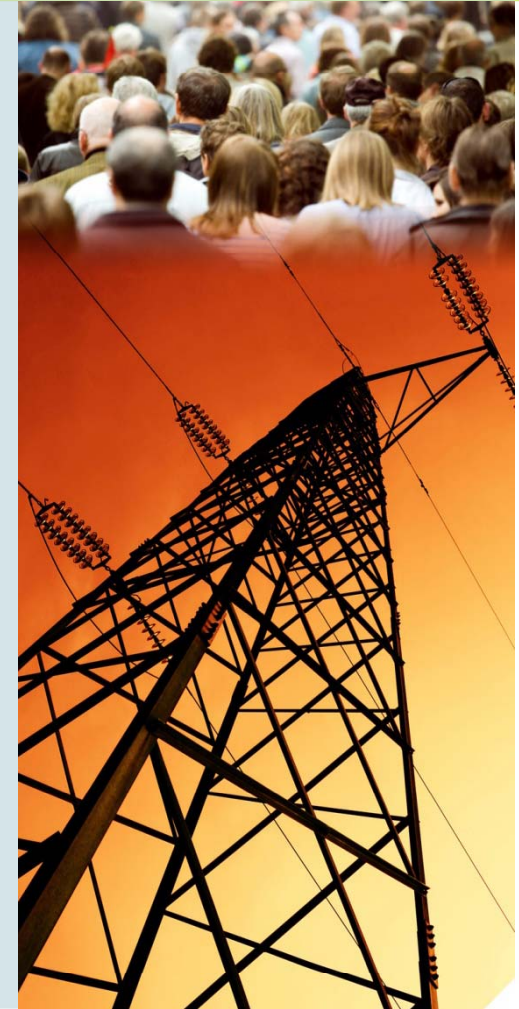
### **4. Electricity Networks**

- Expansion and Renovation
- Renovation of distribution grid in direction of smart grids

### **5. Strengthening energy research**

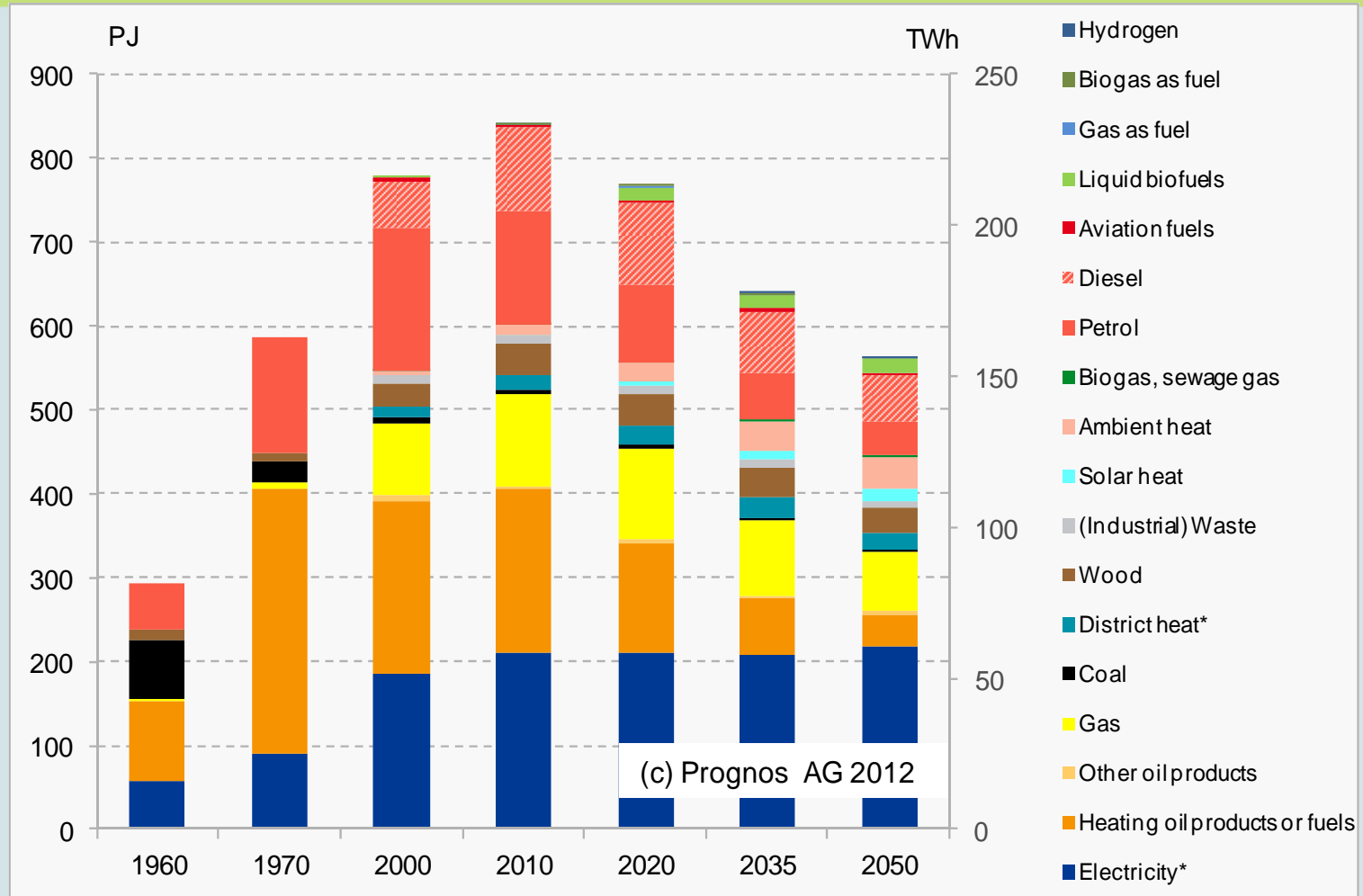
### **6. Confederation sets the example**

### **7. Encouraging international cooperation in the field of energy**





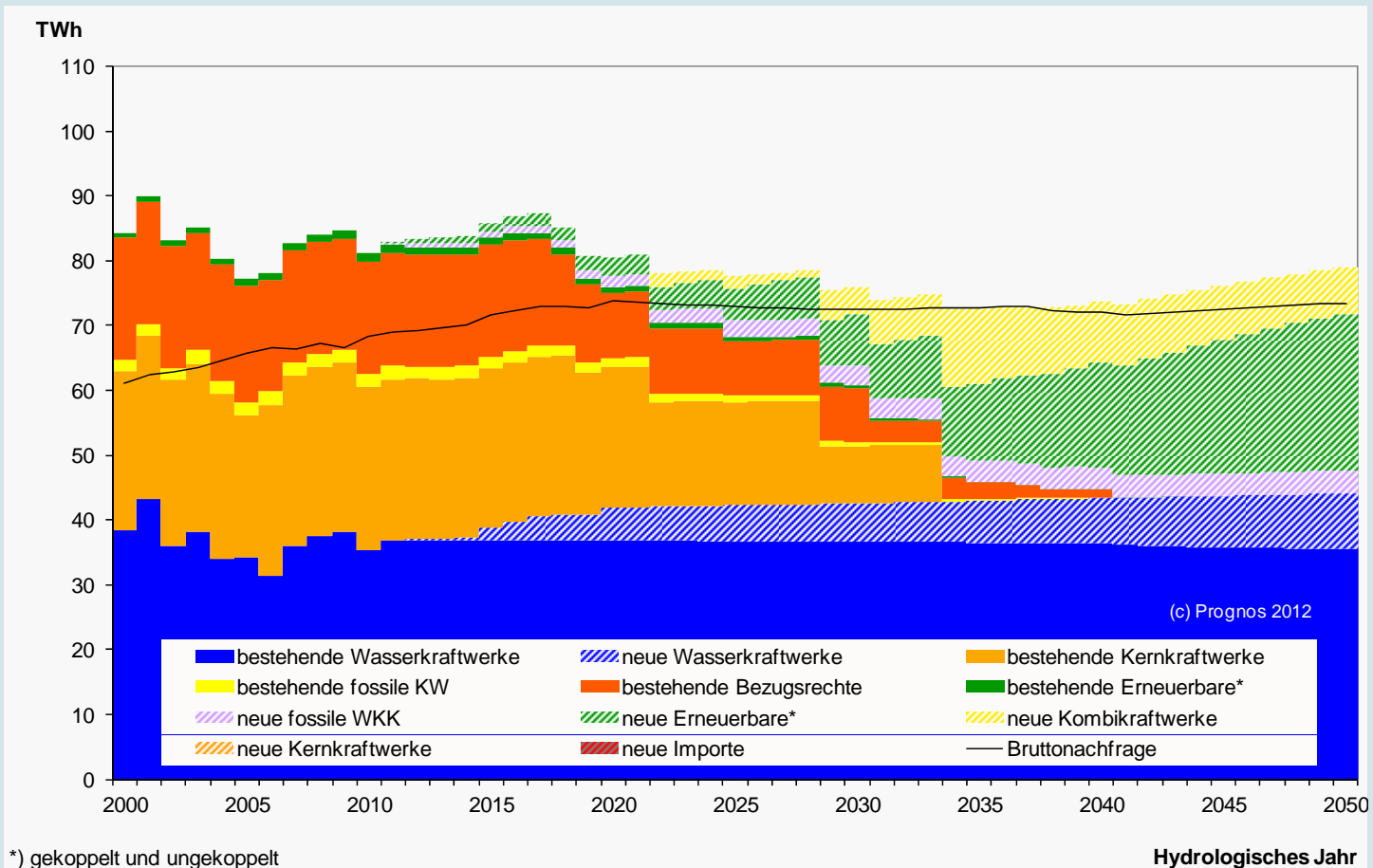
# New energy mix in the package of measures







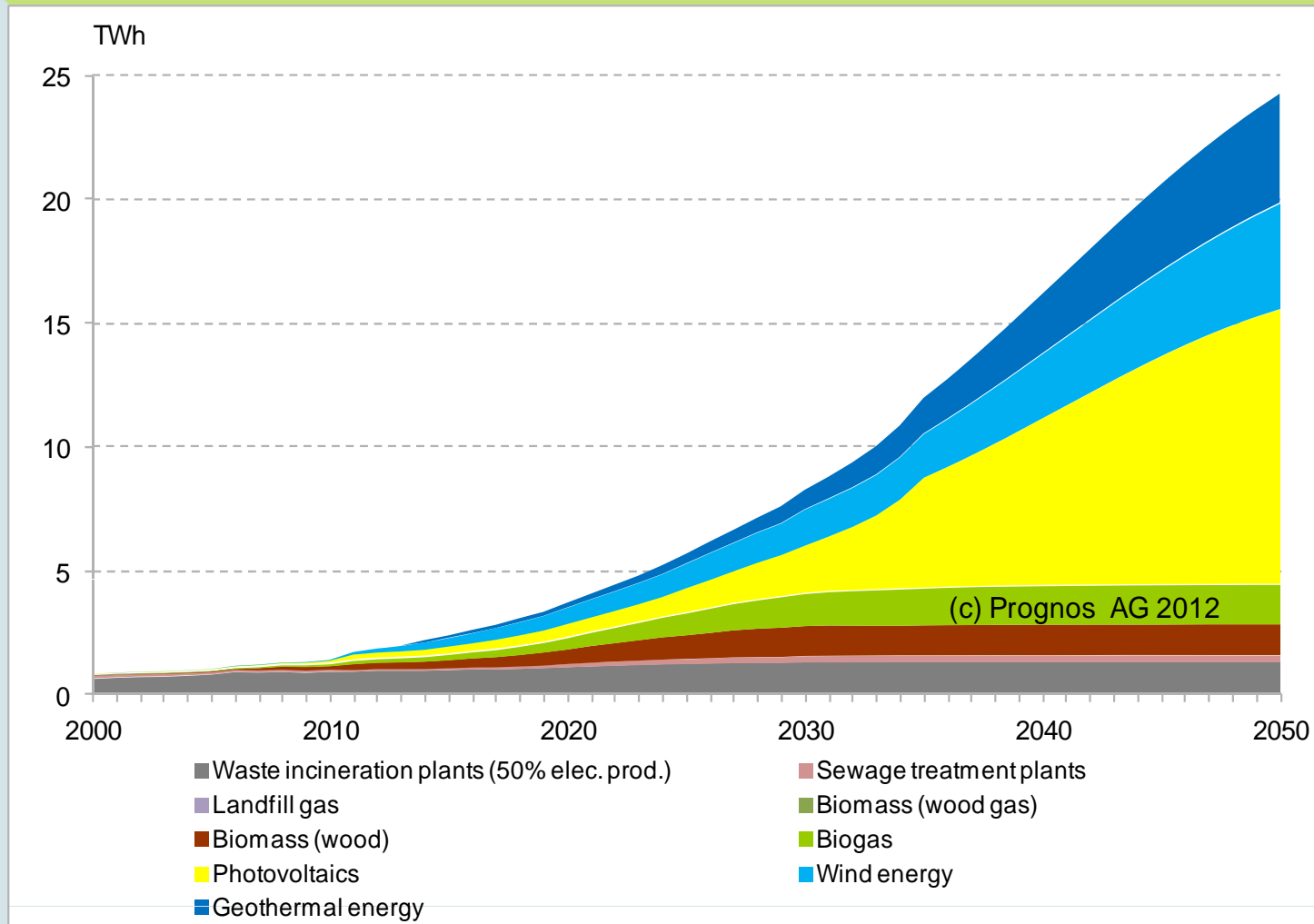
# Composition of electricity supply based on measures package is realistic



Electricity supply scenario, political measures, variant C&E

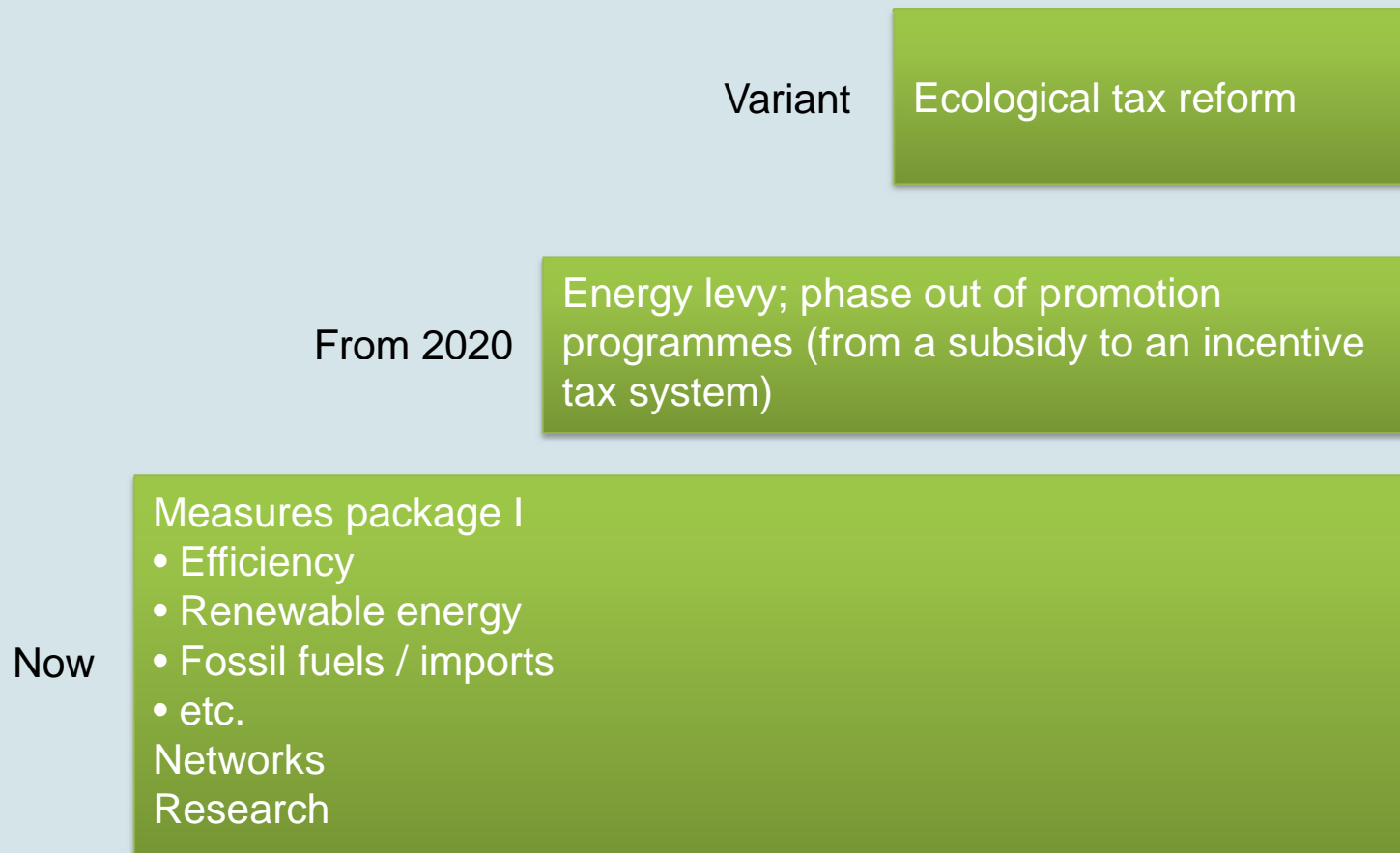


# Long-term approach to electricity production from new renewable energy sources





## Energy Strategy 2050: next steps





## Swiss coordinated energy research action plan: promotion in four main directions

- 1. Increase in capacity for energy research (32 teams by 2016)**
- 2. Development of competence centres**
  - Efficiency technologies
  - Energy systems, networks and electricity transmission
  - Energy storage
  - Electricity production (primarily renewable energy)
  - Socioeconomic and legal aspects
- 3. Competitive financial support for research projects**
- 4. Promotion activities of the SNF (NFP, NFS, promotion professorships)**



## Swiss coordinated energy research action plan: socio-economic research

### **National research programs:**

- NRP 71: Options for Controlling Final Energy Consumption
- (NRP 70: Transforming energy - socio economic aspects of supply )

### **Swiss Competence Centers for Energy Research (SCCER)**

Socio-economic and legal aspects with main research topics:

- Regulatory issues and market conditions;
- Analyses of individual and group behaviour and general trends
- Sufficiency
- incentive systems



## Socio-economic research at the SFOE [www.ewg-bfe.ch](http://www.ewg-bfe.ch)

### **Socio-economic research program: Energy-Economy-Society (EWG)**

**-> Interdisciplinary research with a focus on policy relevance**

Close linkages with:

- Energy industry
  - Political processes
  - Public administrations
  - Academics
- 
- Research project funding: from applied projects to academic research
  - National and international coordination of research activities
  - Individual project management and communication
  - Large number of completed projects



## Socio-economic research insights are needed

- **Energy markets** are evolving
  - new markets emerge
  - new agents enter markets
- **Long term investments** are needed
- The energy transition is not possible without **behavioural change**
- **Cost-efficient** and reliable policy instruments are needed

**Applied research insights are needed for the design of energy policy instruments**

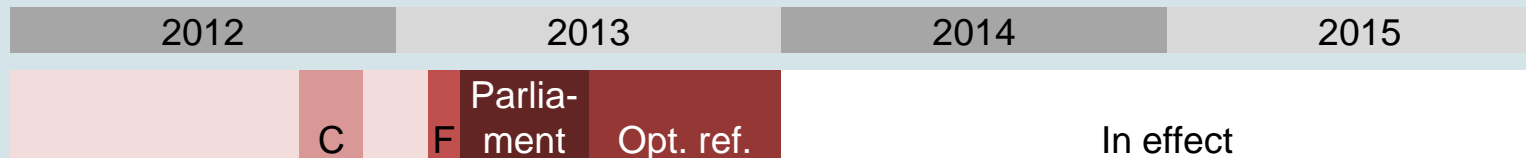


# Energy Strategy 2050: current timetable

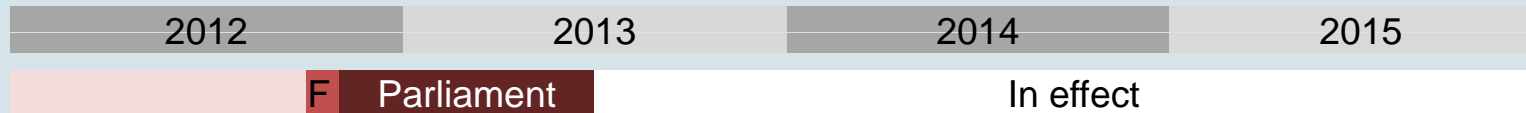
## Energy Strategy 2050: Measures package I



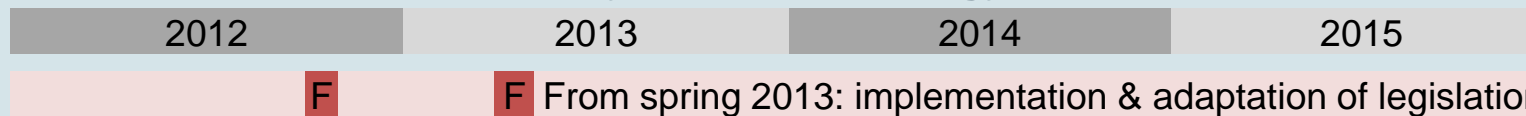
## Parl. init. 12.400 (higher feed-in rem. fee, relief for large consumers)



## Swiss coordinated energy research action plan



## Detailed concept for electricity networks strategy



Key: F = Federal Council; C = Consultation; Opt. ref. = optional referendum





This concept is feasible!  
We welcome feedback and constructive debate

[www.energiestrategie2050.ch](http://www.energiestrategie2050.ch)  
[www.bfe.admin.ch](http://www.bfe.admin.ch)

