



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

# Wind Energy in Switzerland

## Status, Objectives, Challenges



IEA Wind Task 28, German Experts Meeting, 150605  
Markus Geissmann, Swiss Federal Office of Energy

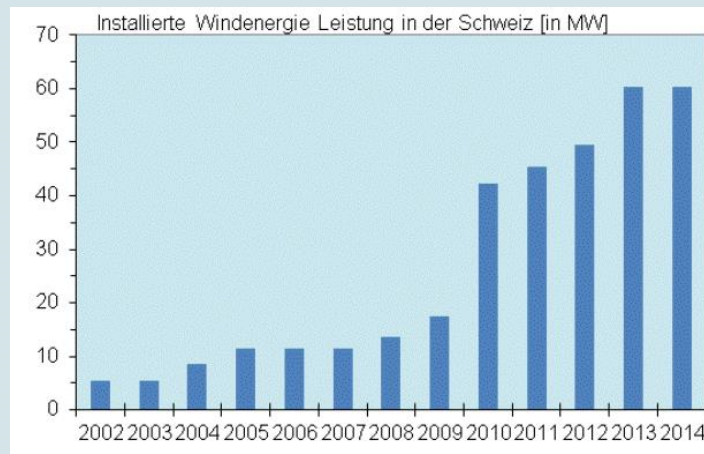


## Current Status Power installed





# Current Status Power installed



	Installed 2013	End 2013	Installed 2014	End 2014
<b>EU Capacity (MW)</b>				
Austria	308.4	1,683.8	411.2	2,095
Belgium	275.6	1,665.5	293.5	1,959
Bulgaria	7.1	681,1	9.4	690.5
Croatia	81.2	260.8	85.7	346.5
Cyprus	-	146.7	-	146.7
Czech Republic	8	268.1	14	281.5
Denmark*	694.5	4,807	67	4,845
Estonia	10.5	279.9	22.8	302.7
Finland	163.3	449	184	627
France	630	8,243	1,042	9,285
Germany	3,238,4	34,250.2	5,279,2	39,165
Greece	116.2	1,865,9	113.9	1,979.8
Hungary	-	329.2	-	329,2
Ireland	343.6	2,049.3	222.4	2,271.7
Italy	437.7	8,557.9	107.5	8,662.9
Latvia	2.2	61.8	-	61.8
Lithuania	16.2	278.8	0.5	279.3
Luxembourg	-	58.3	-	58.3
Malta	-	-	-	-
Netherlands	295	2,671	141	2,805
Poland	893.5	3,389.5	444.3	3,833.8
Portugal*	200	4,730.4	184	4,914.4
Romania	694.6	2,599.6	354	2,953.6
Slovakia	-	3.1	-	3.1
Slovenia	2.3	2.3	0.9	3.2
Spain	175.1	22,959.1	27.5	22,986.5
Sweden	689	4,381.6	1,050.2	5,424.8
UK	2,075	10,710.9	1,736.4	12,440.3
<b>Total EU-28</b>	<b>11,357.3</b>	<b>117,383.6</b>	<b>11,791.4</b>	<b>128,751.4</b>



# Swiss Energy Strategy 2050

## Main Elements

1. **No new Nuclear Power Plants to be built**  
(40% of current power production)
2. **Increase energy efficiency**
3. **Develop Renewable Energies**
  - “ Hydropower, Pump Storage Plants
  - “ New Renewable Energies
4. **If supply gap**
  - “ Fossile Power Plants
  - “ Import







# Swiss Energy Strategy 2050

## Development of Renewable Energies

### Objectives 2050:

PV

24.2 TWh

11.1 TWh

Geothermal

4.4 TWh

Wind

4.3 TWh

Biogas

1.6 TWh

Waste Incineration

1.3 TWh

Biomass

1.2 TWh

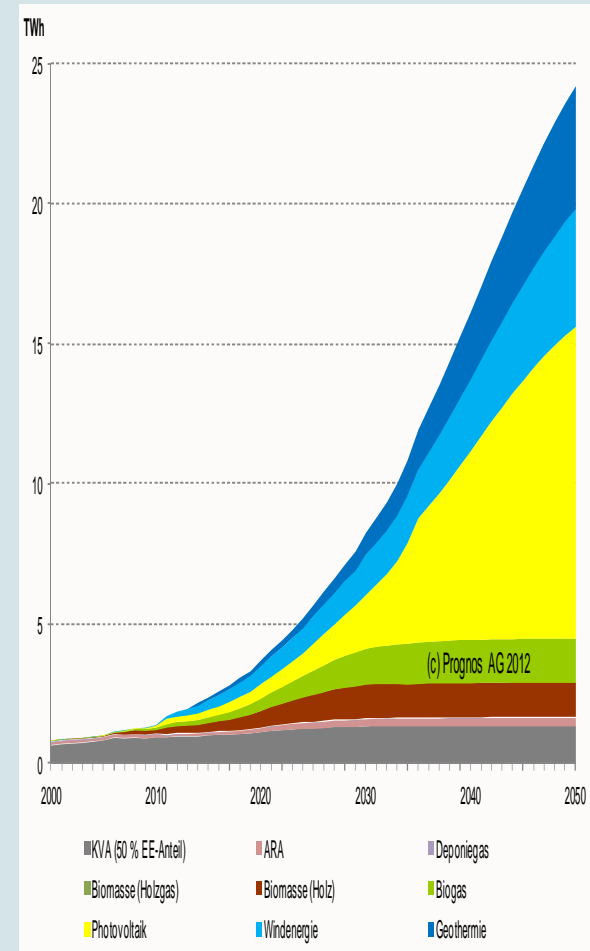
Wastewater treatment

0.3 TWh

*Cogeneration*

*~ 2 TWh*

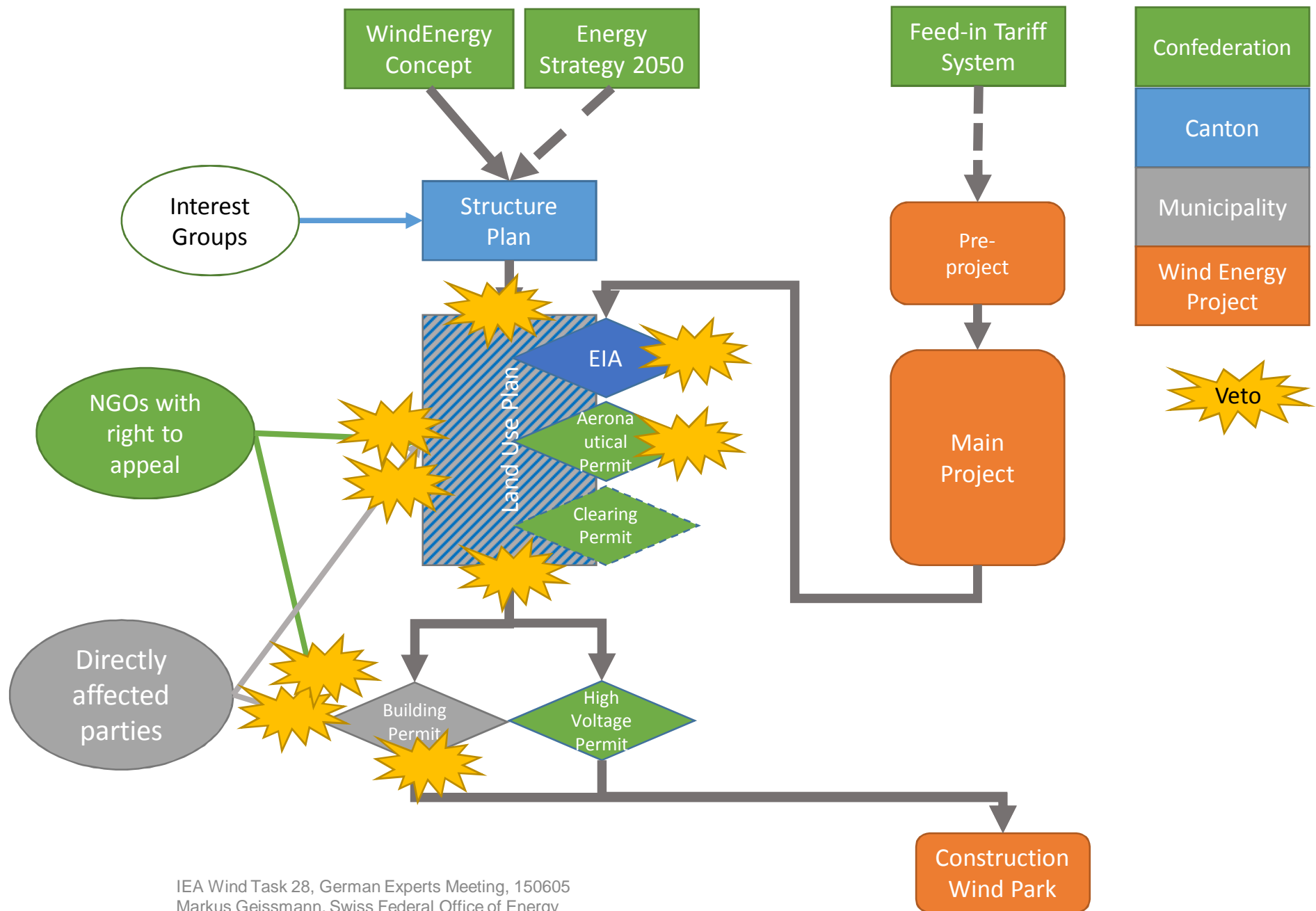
**2015: 0.1 TWh**  
**2020: 0.6 TWh**  
**2035: 1.5 TWh**  
**2050: 4.3 TWh**





# Development of Wind Energy Supportive Measures

- “ FIT System ✓
- “ Obligation for Cantons to define Wind Energy Areas ✓
- “ Renewable Energy Plants are of «National Interest» ?
- “ Fixed Deadlines for federal Experts Reports ?
- “ Federal Wind Energy Concept ?
  - “ Clarifies certain interest conflicts
  - “ Regional objectives for wind power development





# Challenges for Wind Energy Development

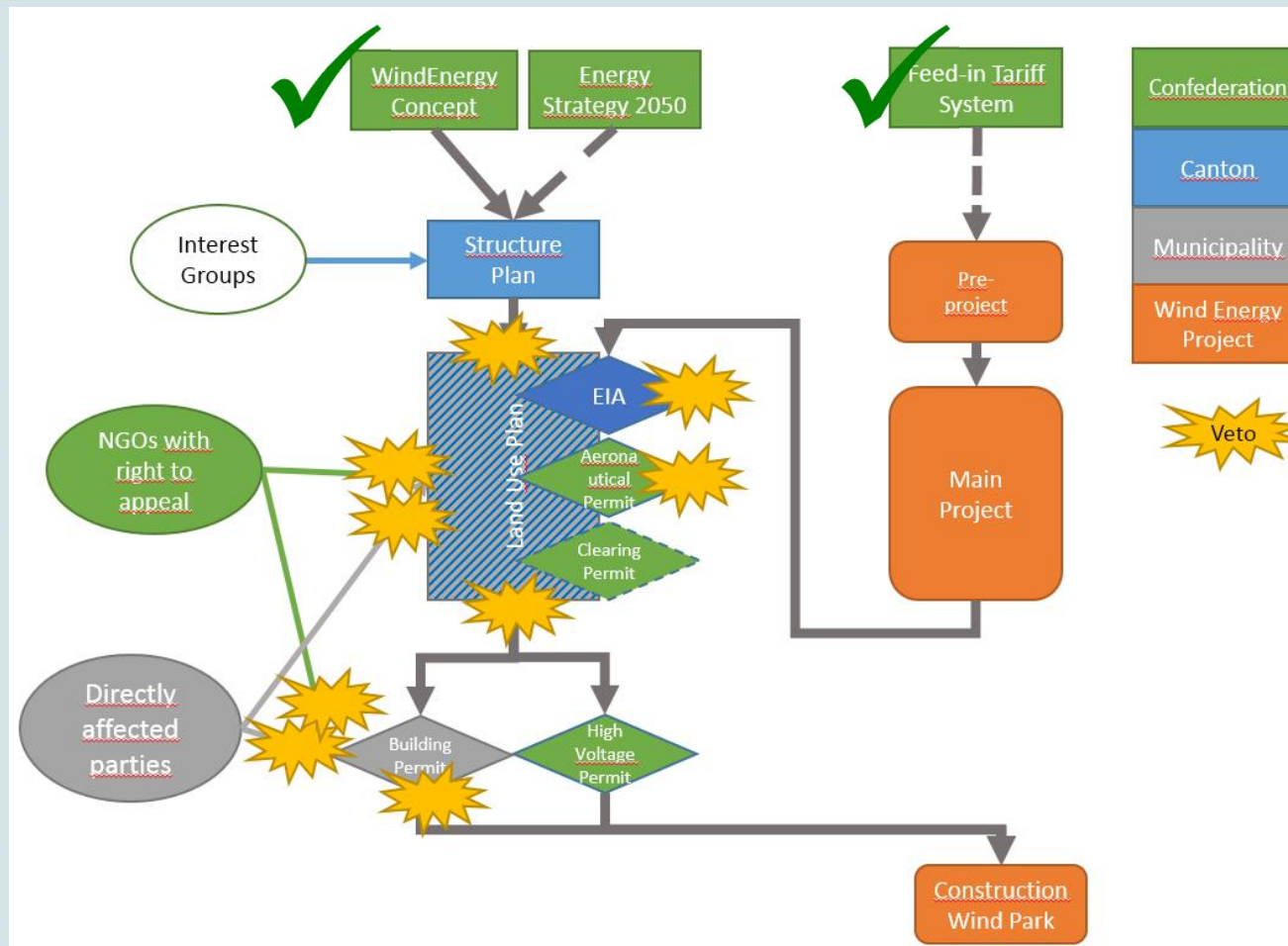
## Politics:

- “ Ambitious Goals
- “ Existing supportive Measures (FIT)
- “ Further supportive Measures planned





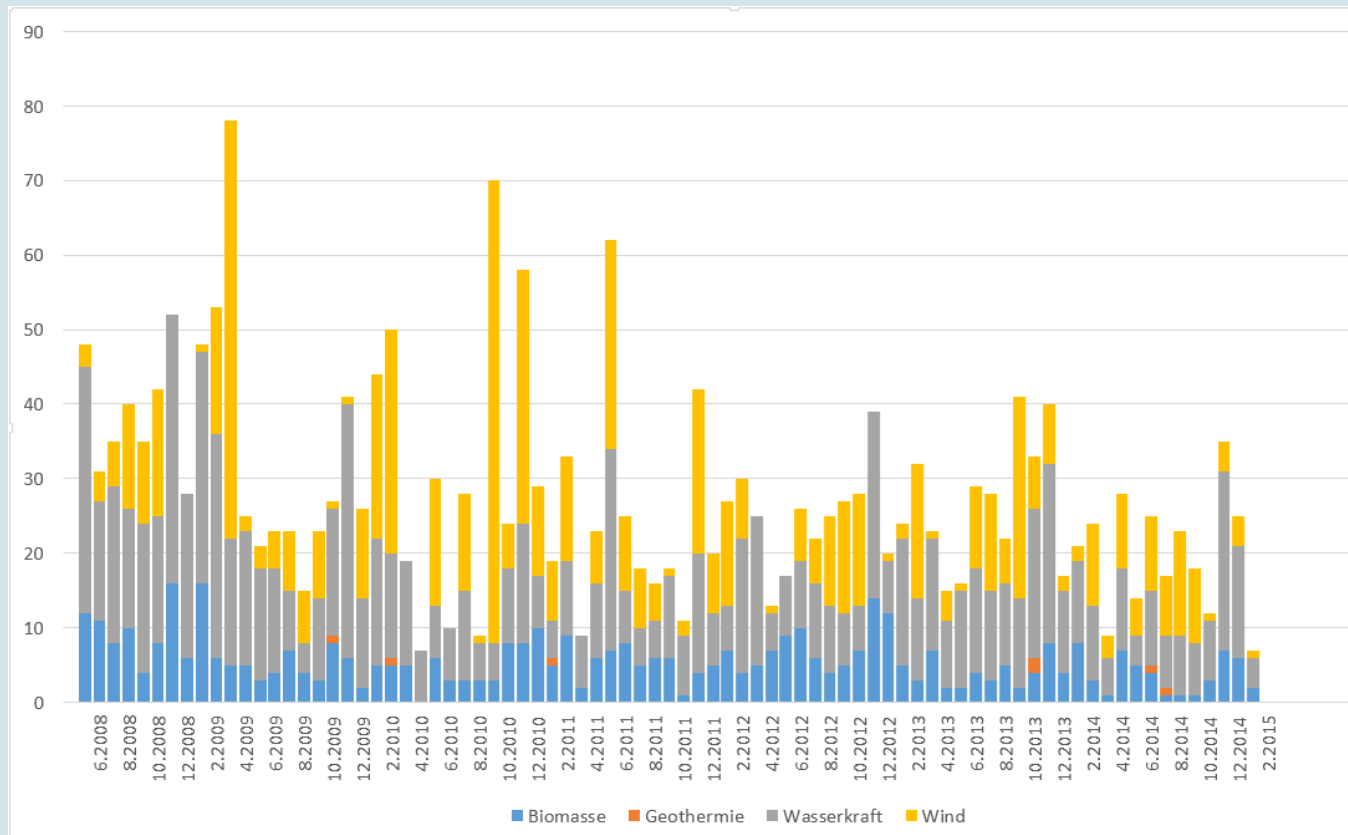
# Challenges for Wind Energy Development





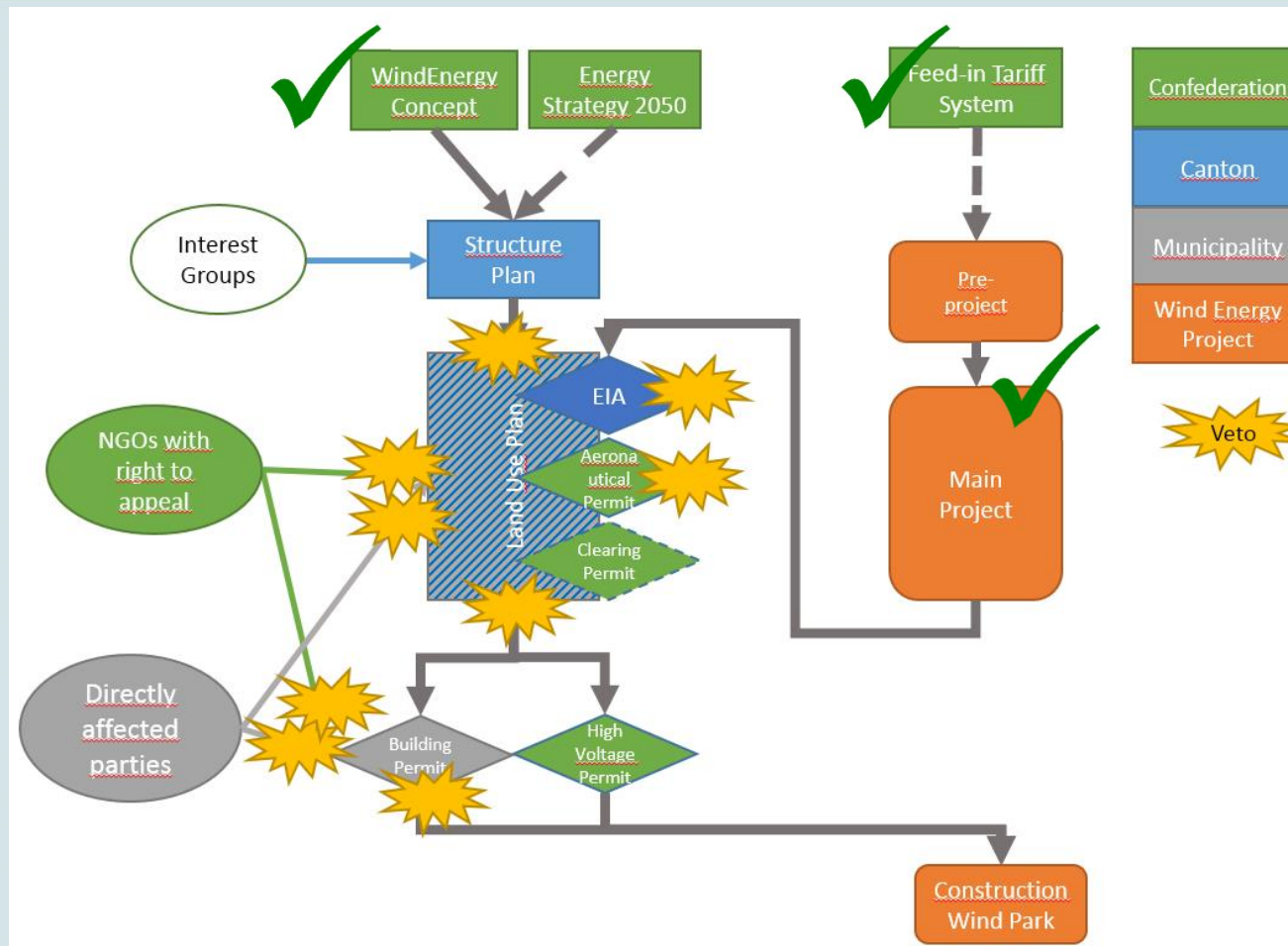
# Challenges for Wind Energy Development

## Market Situation: Number of Wind Turbines registered for FIT





# Challenges for Wind Energy Development



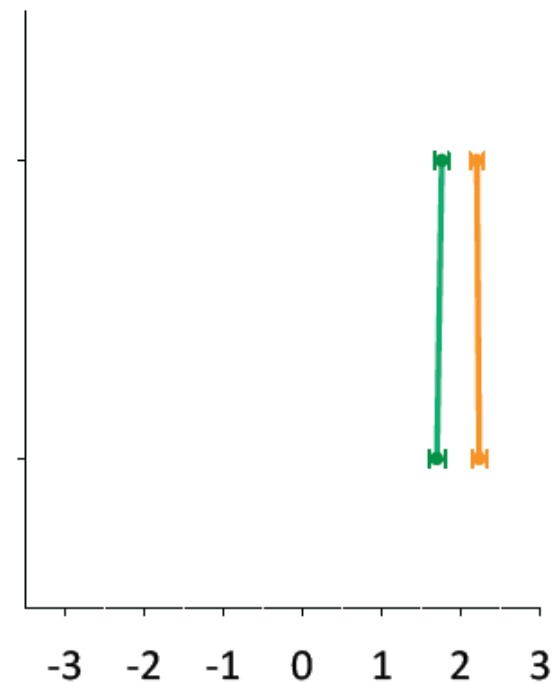


# Challenges for Wind Energy Development

## Global attitude of residents of wind parks in Switzerland

Wind energy in general

Local wind farm



— No sight of wind farm  
— In sight of wind farm

Hübner, Löffler, Hampl, Wüstenhagen, 2013



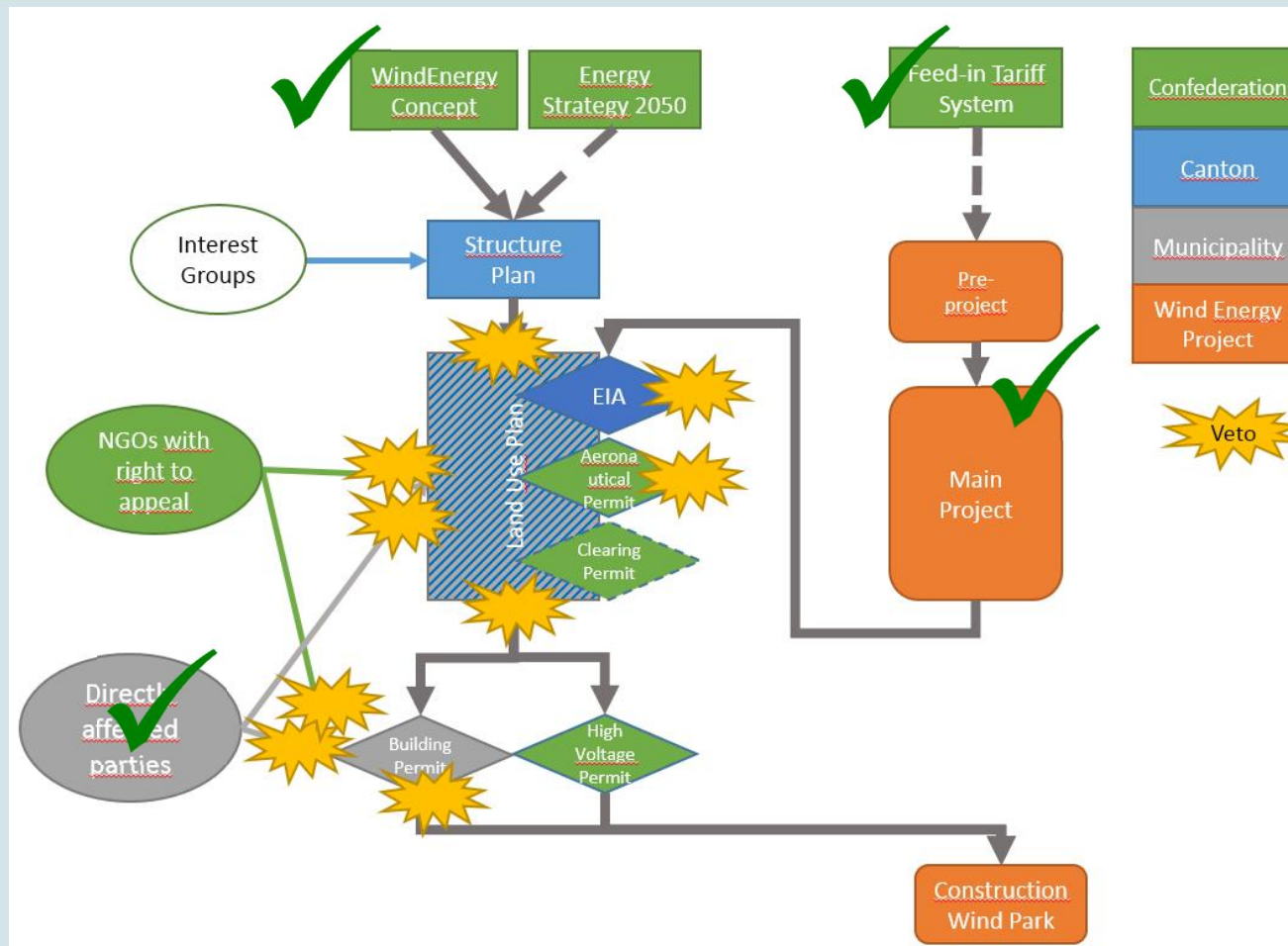
# Challenges for Wind Energy Development

## Results of recent public votations on wind energy projects

Municipality	% YES	# population	
Charrat	60	1550	Land use plan
Neuchâtel (Canton)	65	176000	Structure plan
Premier	81	190	Land use plan
Saicourt	60	610	Land use plan
Saxon	40	5000	Land use plan
Sainte-Croix	53	4760	Consultative votation
Tramelan	60	4420	Land use plan
Vallorbe	57	3610	Land use plan
Vaulion	96	460	Land use plan



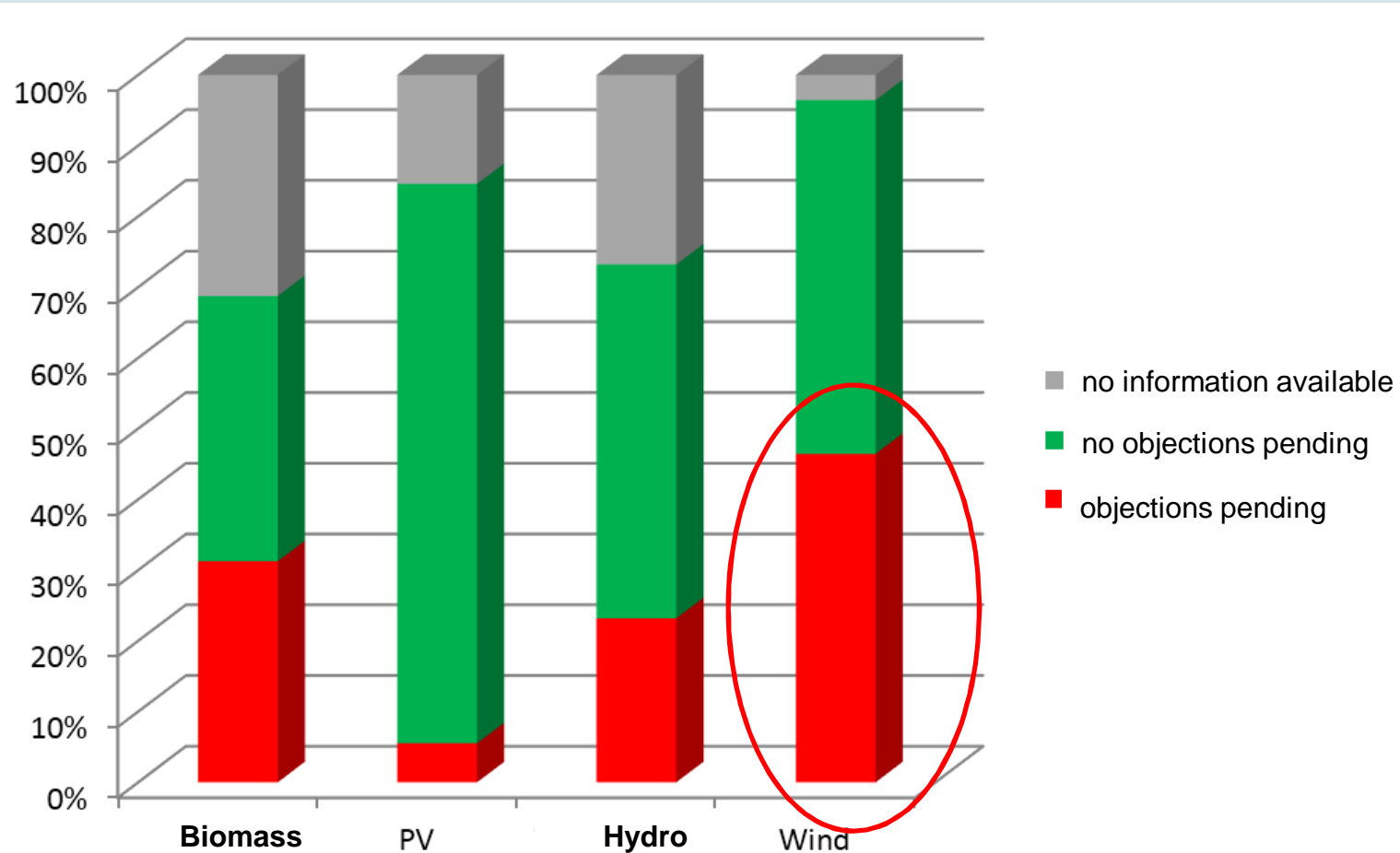
# Challenges for Wind Energy Development





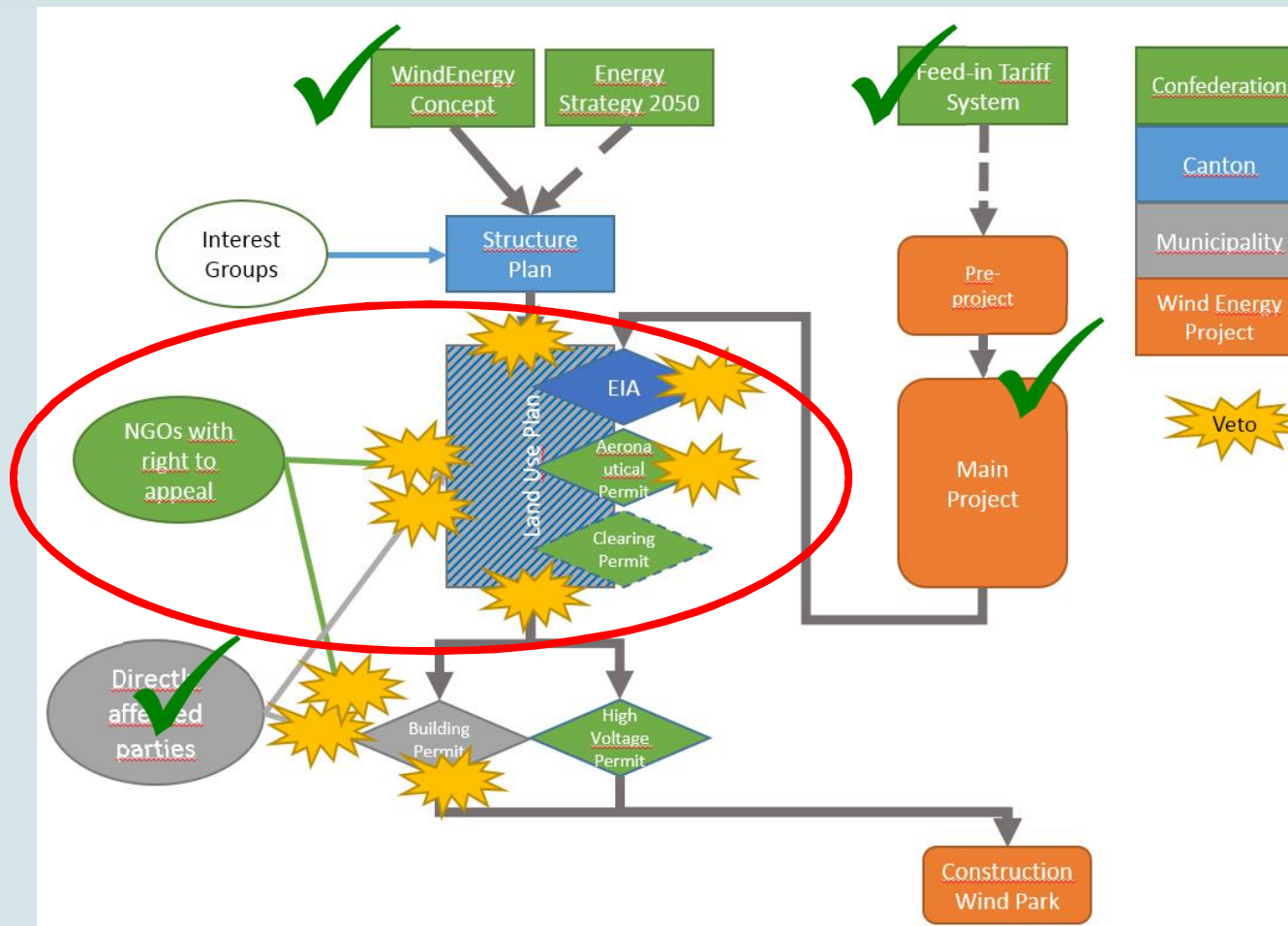


# Challenges for Wind Energy Development Survey among Developers 2013





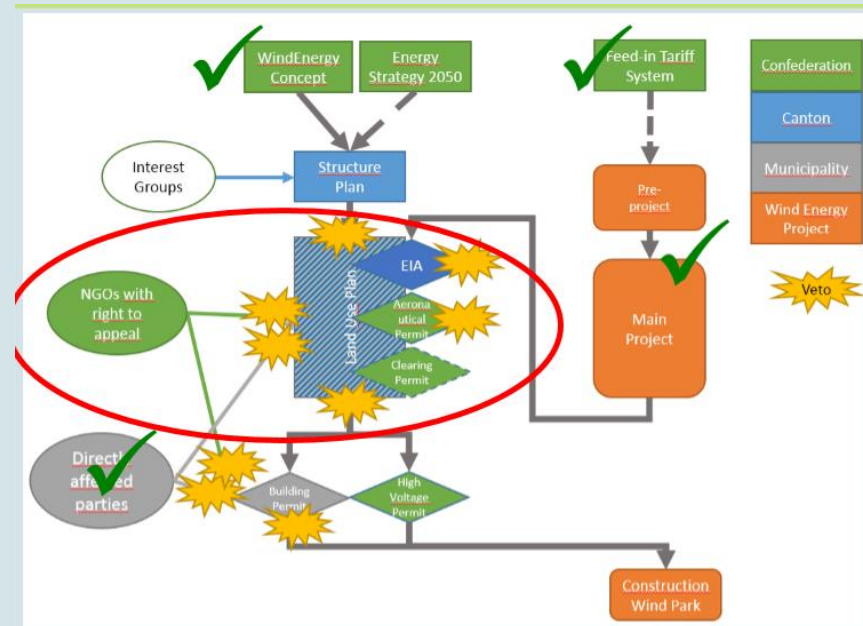
# Challenges for Wind Energy Development





# Challenges for Wind Energy Development

- “ Structure of Planning and Permitting Process
- “ Number of Veto Points
- “ Number of Parties entitled to a Veto
- “ Clarity of legal bases for Decisions
- “ Authorities Lack of Experience

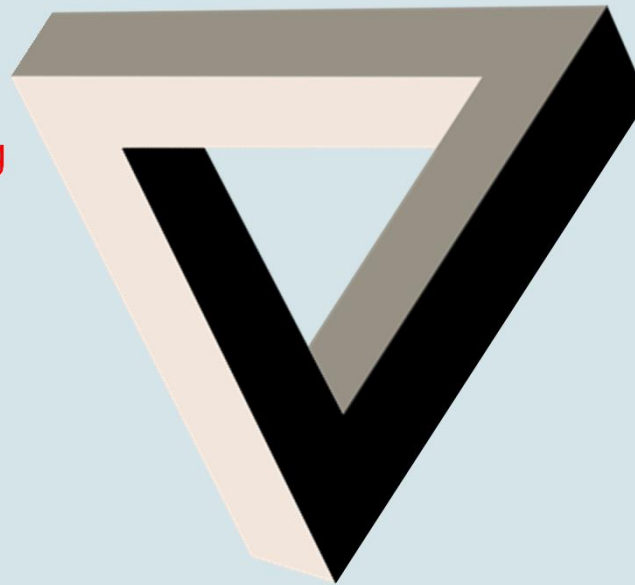




# Social Acceptance of Wind Energy in Switzerland

## Socio-political acceptance

- " of technologies and policies
- " by the public
- " by key stakeholders
- " by policy makers
- " planning and permitting
- " veto points



## Market acceptance

- " Consumers
- " Investors
- " Intra-firm



## Community acceptance

- " procedural justice
- " distributional justice
- " trust





# Thank you for your attention!

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