Appendix

1. Case and data description

Figure 1: The federal directive for the municipalities

Directive for the municipalities					
Climate protection concepts	Management and energy efficiency			Investments into specific measures in the municipalities	Investments into schools and sports facilities
Consultancy	Climate protection manager	Starter package for models for saving energy		Energy efficient lighting	Energy efficient lighting
Integrated Climate Protection Concepts	Selected individual measures	Models for saving energy		Efficient air conditioning	Efficient air conditioning
				Climate protection in data centers	Climate protection in data centers
				Sustainable mobility	Replacing electronic devices
Partial Climate Protection Concepts	Further measures			Climate protection on decommissioned landfills	Further measures

Table 1: Panel summary statistics for continuous variables

Variable		Mean	Std. Dev.	Min	Max	Observations	
2.	overall	.6133647	.6787342	0	3.044523	N =	3564
	between		.4399322	0	1.881888	n =	396
	within		.5172758	-1.150813	2.200437	T =	9
3.	overall	6.008035	5.703641	0	15.01771	N =	3564
	between		3.608401	0	12.72217	n =	396
	within		4.420429	-6.701477	16.86112	T =	9
7.	overall	8.316744	5.030299	0	34.375	N =	3564
	between		4.688254	0	30.20833	n =	396
	within		1.836719	-6.26659	19.42786	T =	9
10.	overall	10.12109	.9195907	8.324821	13.86119	N =	3564
	between		.920413	8.338303	13.82909	n =	396
	within		.0197257	10.02107	10.20119	T =	9
12.	overall	6.797212	.2926267	5.828004	9.170454	N =	3564
	between		.253479	6.156541	7.839399	n =	396
	within		.1467075	5.697137	8.128266	T =	9
13.	overall	47.4587	21.17075	4.648406	84.75347	N =	3564
	between		21.19456	4.648406	84.75347	n =	396
	within		0	47.4587	47.4587	T =	9
14.	overall	9.158019	9.726184	.696895	50.86722	N =	3564
	between		9.737122	.696895	50.86722	n =	396
	within		0	9.158019	9.158019	T =	9
15.	overall	86.14273	50.03326	20.4933	405.015	N =	3564
	between		50.08952	20.4933	405.015	n =	396
	within		0	86.14273	86.14273	T =	9
16a.	overall	.5020003	.1847691	.0882108	.8521964	N =	3564
	between		.1847228	.0921341	.8488385	n =	396
	within		.0096811	.2989824	.7387812	T =	9
16b.	overall	.0291917	.0405462	.0005881	.5503989	N =	3564
	between		.0398019	.0005995	.3804997	n =	396
	within		.00796	-.2277197	.2414529	T =	9
19a.	overall	6.531913	7.146153	.02907	55.6243	N =	3564
	between		5.279852	.4602309	32.972	n =	396
	within		4.822163	-21.48503	29.18421	T =	9
19b.	overall	7.594282	11.85201	0	166.86	N =	3564
	between		10.97052	0	68.89333	n =	396
	within		4.515314	-39.32794	105.5609	T =	9
19c.	overall	1.565328	3.342571	0	24.015	N =	3564
	between		3.256559	0	23.02611	n =	396
	within		.7690356	-10.51345	11.10422	T =	9

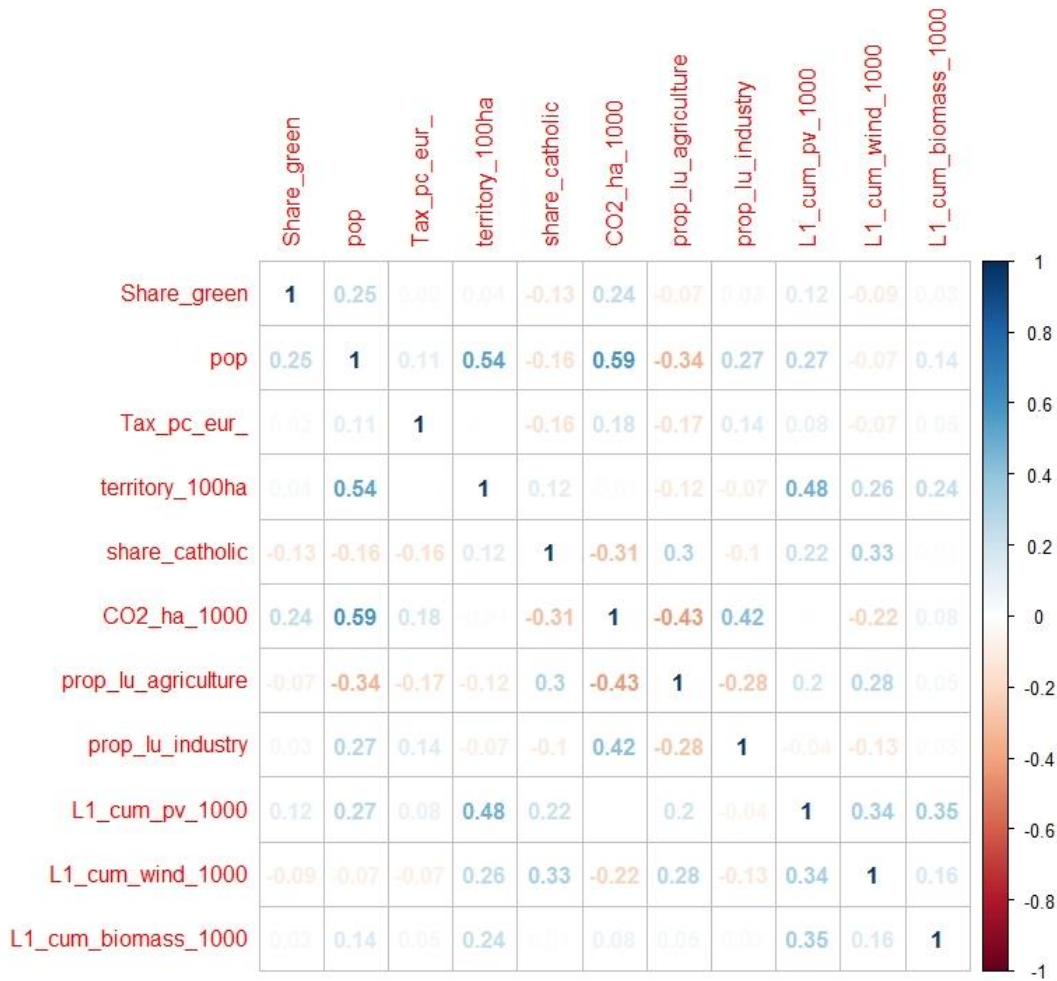**Figure 2: Correlation matrix for continuous covariates**

Table 2: Variance inflation factor (VIF) for all continuous covariates

Variable name	VIF
Proportion of Green party in local council	1.1269
Population	3.0413
Tax strengths per capita	1.0853
Territory size	2.4171
Proportion of Catholics	1.2865
CO2 emissions in vehicle transport	2.3889
Proportion land use: agriculture	1.5195
Proportion land use: industry	1.2747
Installed capacity: solar PV	1.6885
Installed capacity: wind energy	1.3416
Installed capacity: biomass	1.1696

2. Distribution of the untransformed variables for the policy output

Figure 3: Histograms of untransformed DVs
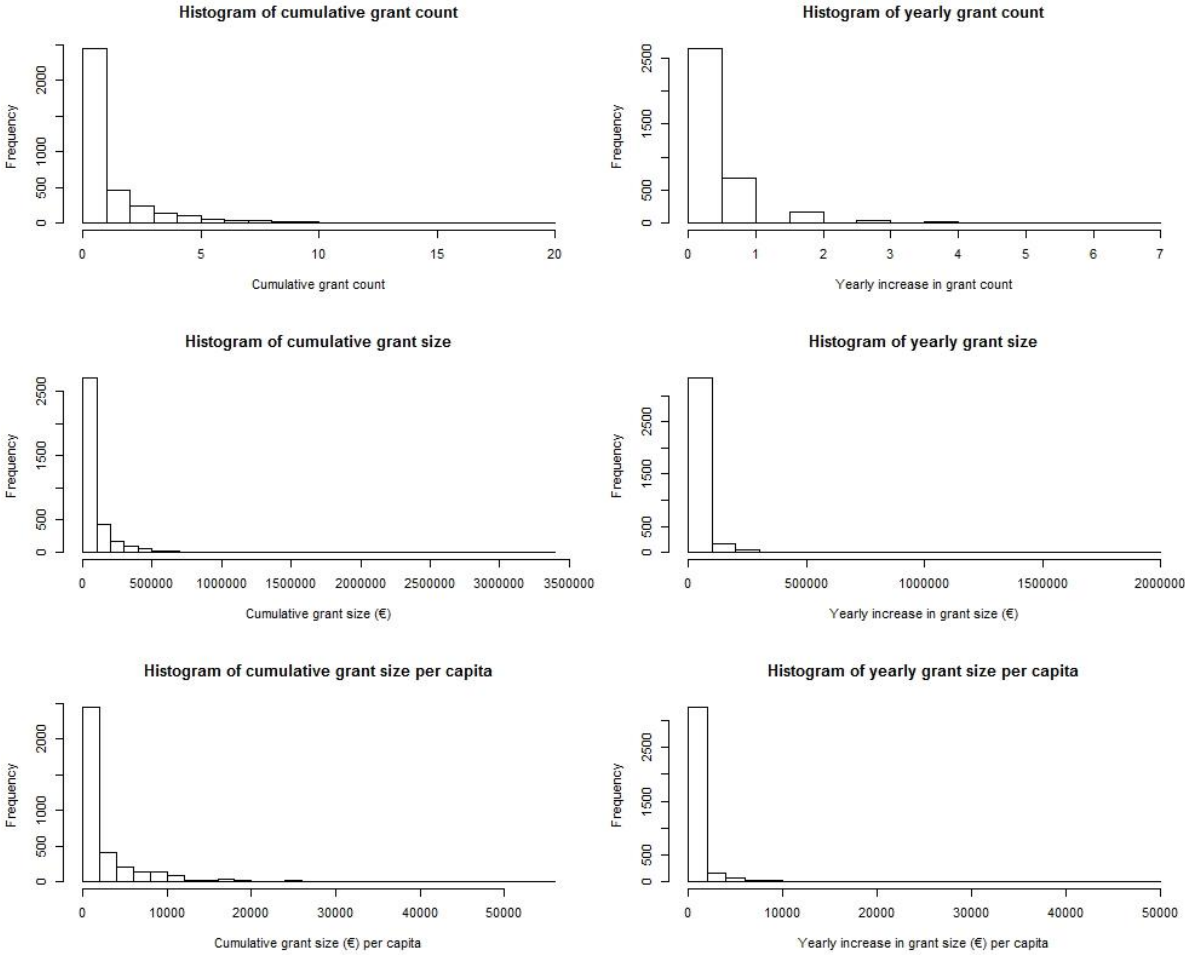
3. Event history analysis – baseline hazards and adopter characteristics
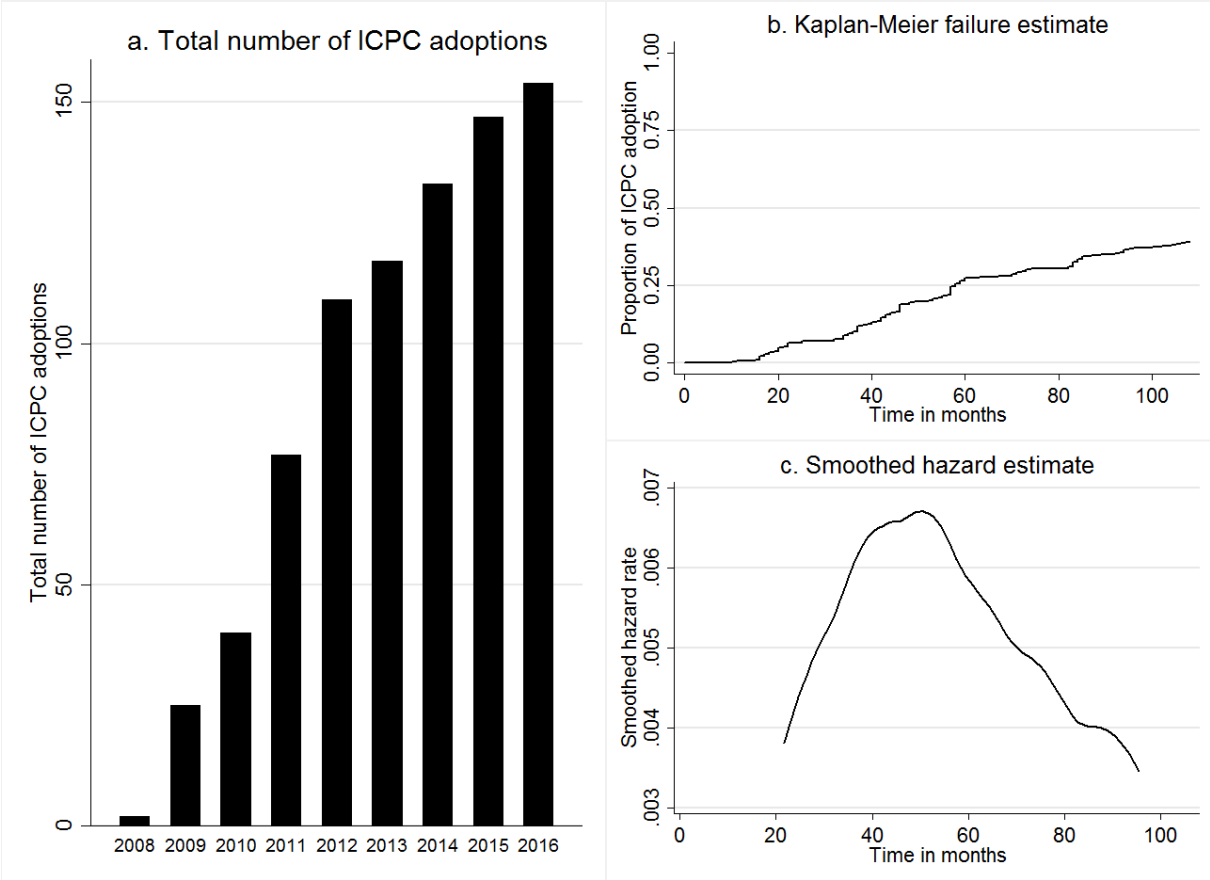
Figure 4: Descriptive statistics for the baseline model

Table 3: Selected characteristics based on adopter categories

	Pioneers	Early Adopters	Early Majority	Late Majority	Laggards	Non-adopters
n	4 (2.5%)	21 (13.5%)	52 (34%)	52 (34%)	25 (16%)	242 (100%)
Duration (months)	10-15	16-22	25-48	49-83	84-107	-
Time period of adoption	October 2008 – March 2009	April 2009 – October 2009	January 2010 – December 2011	January 2012 – November 2014	December 2014 – November 2016	-
Population mean in 2016	119,529	99,341	62,304	50,040	29,811	35,255
Membership Climate Alliance in 2016	75%	57.1%	44.2%	25%	12%	17.4%
Mean percentage of Green party in local council in 2016	11.63	10.65	10.94	9.48	8.84	8.43
Mean tax strength per capita (€) in 2016	1192.46	1097.08	1033.24	1248.69	1077.96	1085.52
Mean territory (100 ha)	169.94	101.65	85.94	90.89	84.93	82.56
Mean percentage of Catholics in 2011	45.38	42.78	46.24	41.79	43.08	49.83

4. Event history analysis – alternative specifications

Table 4: Discrete-time EHA - logit regression on ICPC adoption (models 1-4)

	(1)	(2)	(3)	(4)
Spatial diffusion $\mathbf{W}_1$	1.714*	38.325***		
	(0.782)	(7.557)		
Spatial diffusion*pop(ln)		-3.548***		
		(0.741)		
Spatial diffusion $\mathbf{W}_1$ t-1			0.426	
			(0.950)	
Pioneer neighbors $\mathbf{W}_1$				5.003***
				(1.299)
Mayor (ref: CDU)				
- Independent	0.142	0.098	0.159	0.107
	(0.280)	(0.287)	(0.278)	(0.271)
- SPD	-0.047	-0.087	-0.073	-0.159
	(0.238)	(0.239)	(0.238)	(0.241)
- Other	0.547*	0.524+	0.545*	0.568*
	(0.268)	(0.274)	(0.271)	(0.275)
Greens in local council (%)	0.059**	0.057**	0.061**	0.053**
	(0.020)	(0.021)	(0.020)	(0.021)
Transnational city network	0.543*	0.552*	0.568*	0.493*
	(0.234)	(0.233)	(0.234)	(0.234)
Environmental pioneer	0.204	0.429	0.228	0.671
	(0.779)	(0.730)	(0.759)	(0.747)
Year (ref: 2008)				
- 2009	2.435***	2.629***	2.558***	2.583***
	(0.738)	(0.731)	(0.734)	(0.734)
- 2010	1.939*	2.017**	1.969**	2.031**
	(0.758)	(0.754)	(0.759)	(0.756)
- 2011	2.911***	3.071***	3.060***	3.123***
	(0.725)	(0.721)	(0.723)	(0.723)
- 2012	3.009***	3.104***	3.108***	3.213***
	(0.728)	(0.725)	(0.730)	(0.728)
- 2013	1.772*	1.867*	1.775*	1.874*
	(0.798)	(0.793)	(0.791)	(0.796)
- 2014	2.461**	2.654***	2.525***	2.625***
	(0.762)	(0.756)	(0.759)	(0.760)
- 2015	2.442**	2.558***	2.470**	2.594***
	(0.767)	(0.762)	(0.766)	(0.770)
- 2016	1.763*	1.885*	1.788*	1.911*
	(0.809)	(0.809)	(0.811)	(0.813)
r2_p	0.108	0.127	0.104	0.118
Observations	2869	2869	2869	2869

Clustered robust standard errors in parentheses. Control variables included but not displayed: Population (ln), tax strength per capita in Euro (ln), Percentage Catholic, territory (100 ha), CO_2/1000ha, proportion land use: agriculture, proportion land use: industry, NRW-funded climate strategies, district-free city. Constant not displayed.
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 5: Discrete-time EHA - logit regression on ICPC adoption (models 5-9)

	(5)	(6)	(7)	(8)	(9)
Party network $\mathbf{W}_2$	1.268**	1.665**			
	(0.463)	(0.566)			
Network*mayor (ref: CDU)					
Network*SPD		-1.083			
		(1.011)			
Party network $\mathbf{W}_2$ t-1			1.017+		
			(0.566)		
Green network $\mathbf{W}_3$				1.149+	
				(0.604)	
Green network $\mathbf{W}_3$ t-1					0.367
					(0.815)
Mayor (ref: CDU)					
- Independent	0.251	0.286	0.198	0.157	0.162
	(0.279)	(0.281)	(0.279)	(0.279)	(0.277)
- SPD	-0.065	0.025	-0.072	-0.067	-0.075
	(0.238)	(0.254)	(0.239)	(0.237)	(0.238)
- Other	0.638*	0.679*	0.596*	0.540*	0.543*
	(0.273)	(0.278)	(0.273)	(0.272)	(0.272)
Greens in local council (%)	0.061**	0.060**	0.061**	0.058**	0.061**
	(0.020)	(0.020)	(0.020)	(0.021)	(0.020)
Transnational city network	0.560*	0.563*	0.576*	0.559*	0.570*
	(0.231)	(0.230)	(0.232)	(0.233)	(0.234)
Environmental pioneer	0.230	0.245	0.229	0.223	0.233
	(0.759)	(0.755)	(0.751)	(0.757)	(0.755)
Year (ref: 2008)					
- 2009	2.468***	2.485***	2.552***	2.460***	2.558***
	(0.735)	(0.735)	(0.735)	(0.737)	(0.734)
- 2010	1.976**	1.969**	1.920*	1.968**	1.971**
	(0.757)	(0.758)	(0.759)	(0.758)	(0.758)
- 2011	2.997***	2.981***	3.049***	2.968***	3.065***
	(0.725)	(0.726)	(0.724)	(0.723)	(0.724)
- 2012	3.069***	3.069***	3.078***	3.053***	3.114***
	(0.729)	(0.729)	(0.731)	(0.730)	(0.731)
- 2013	1.787*	1.782*	1.741*	1.791*	1.777*
	(0.797)	(0.797)	(0.795)	(0.797)	(0.795)
- 2014	2.470**	2.452**	2.511***	2.488**	2.528***
	(0.758)	(0.759)	(0.760)	(0.760)	(0.760)
- 2015	2.449**	2.449**	2.445**	2.474**	2.474**
	(0.766)	(0.765)	(0.769)	(0.768)	(0.767)
- 2016	1.764*	1.753*	1.770*	1.778*	1.794*
	(0.808)	(0.809)	(0.812)	(0.810)	(0.811)
r2_p	0.109	0.110	0.106	0.107	0.104
Observations	2869	2869	2869	2869	2869

Clustered robust standard errors in parentheses. Control variables included but not displayed: Population (ln), tax strength per capita in Euro (ln), Percentage Catholic, territory (100 ha), CO2/1000ha, proportion land use: agriculture, proportion land use: industry, NRW-funded climate strategies, district-free city. Constant not displayed.
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: EHA on ICPC adoption based on different spatial weights

Models 1-7	1st order	2nd order	Deflated 2nd	Inv. distance	25km radius	50km radius	75km radius
Spatial diffusion W_1	1.528*	2.954*	2.958*	7.555	4.622***	5.246*	5.427+
(spectral-normalization)	(0.732)	(1.481)	(1.334)	(5.282)	(1.404)	(2.460)	(3.044)
r2_p	0.039	0.039	0.040	0.038	0.044	0.040	0.039
Observations	2914	2914	2914	2914	2914	2914	2914
Models 8-14							
Spatial diffusion W_1 t-1	0.342	-1.017	-0.459	-1.877	-1.269	-0.244	-0.540
(spectral-normalization)	(0.861)	(1.537)	(1.454)	(5.256)	(1.677)	(2.540)	(3.006)
r2_p	0.037	0.037	0.037	0.037	0.037	0.036	0.037
Observations	2914	2914	2914	2914	2914	2914	2914
Models 15-21							
Spatial diffusion W_1	1.930**	3.615***	3.562***	9.827	4.232***	6.094**	7.382*
(row-normalization)	(0.602)	(1.084)	(0.979)	(6.679)	(1.029)	(2.141)	(3.183)
r2_p	0.042	0.043	0.044	0.038	0.046	0.042	0.040
Observations	2914	2914	2914	2914	2914	2914	2914
Models 22-28							
Spatial diffusion W_1 t-1	0.279	-0.669	-0.289	-1.163	-0.283	1.257	0.523
(row-normalization)	(0.829)	(1.378)	(1.287)	(6.912)	(1.374)	(2.332)	(3.317)
r2_p	0.037	0.037	0.037	0.037	0.037	0.037	0.036
Observations	2914	2914	2914	2914	2914	2914	2914

Clustered robust standard errors in parentheses. Control variables included but not displayed: Mayor, proportion Greens in council, transnational city network, environmental pioneer, population (ln), tax strength per capita in Euro (ln), Percentage Catholic, territory (100 ha), CO_2/1000ha, proportion land use: agriculture, proportion land use: industry, NRW-funded climate strategies, district-free city.
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 7: EHA on ICPC adoption excluding district-free cities (models 1-5)

	(1)	(2)	(3)	(4)	(5)
Spatial diffusion W_1	2.270**	2.146**	33.343***		
	(0.720)	(0.731)	(9.135)		
Spatial diffusion*pop(ln)			-3.085***		
			(0.912)		
Spatial diffusion W_1 t-1				0.195	
				(1.019)	
Pioneers neighbors W_1					4.573***
					(1.175)
Mayor (ref: CDU)					
- Independent	0.072	0.072	0.049	0.095	0.070
	(0.275)	(0.274)	(0.277)	(0.270)	(0.263)
- SPD	-0.209	-0.197	-0.212	-0.221	-0.271
	(0.242)	(0.241)	(0.243)	(0.242)	(0.243)
- Other	0.242	0.225	0.237	0.248	0.271
	(0.287)	(0.292)	(0.298)	(0.294)	(0.297)
Greens in local council (%)	0.064**	0.064**	0.065**	0.068**	0.058**
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Transnational city network	0.439+	3.781**	3.941**	4.115**	4.011**
	(0.233)	(1.421)	(1.387)	(1.399)	(1.419)
Environmental pioneer	1.150+	1.223+	1.200+	1.200+	1.484*
	(0.668)	(0.678)	(0.709)	(0.668)	(0.658)
District ICPC	-0.709**	-0.726**	-0.718**	-0.759**	-0.620*
	(0.254)	(0.255)	(0.255)	(0.257)	(0.261)
Time(ln)-interaction effects					
Transnational city network		-0.879*	-0.910*	-0.954**	-0.947*
		(0.371)	(0.365)	(0.366)	(0.371)
r2_p	0.055	0.058	0.065	0.053	0.061
Observations	2785	2785	2785	2785	2785

Clustered robust standard errors in parentheses. Control variables included but not displayed: Population (ln), tax strength per capita in Euro (ln), Percentage Catholic, territory (100 ha), CO_2/1000ha, proportion land use: agriculture, proportion land use: industry, NRW-funded climate strategies.

$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 8: EHA on ICPC adoption excluding district-free cities (models 6-10)

	(6)	(7)	(8)	(9)	(10)
Party network W_2	1.149*	1.592**			
	(0.473)	(0.527)			
Network*mayor (ref: CDU)					
Network*SPD		-1.475			
		(1.159)			
Party network W_2 t-1			0.799		
			(0.519)		
Green network W_3				1.148*	
				(0.580)	
Green network W_3 t-1					-0.017
					(0.827)
Mayor (ref: CDU)					
- Independent	0.181	0.226	0.124	0.092	0.096
	(0.273)	(0.276)	(0.272)	(0.272)	(0.270)
- SPD	-0.229	-0.102	-0.221	-0.219	-0.221
	(0.242)	(0.259)	(0.241)	(0.241)	(0.242)
- Other	0.336	0.386	0.285	0.230	0.250
	(0.296)	(0.301)	(0.296)	(0.295)	(0.294)
Greens in local council (%)	0.067**	0.067**	0.068**	0.064**	0.069**
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Transnational city network	3.823**	3.856**	4.035**	3.945**	4.119**
	(1.416)	(1.410)	(1.407)	(1.416)	(1.397)
Environmental pioneer	1.227+	1.229+	1.225+	1.184+	1.214+
	(0.659)	(0.660)	(0.660)	(0.668)	(0.665)
District ICPC	-0.737**	-0.735**	-0.750**	-0.738**	-0.761**
	(0.255)	(0.254)	(0.258)	(0.257)	(0.257)
Timer(ln)-interaction effects					
Transnational city network	-0.879*	-0.887*	-0.932*	-0.912*	-0.955**
	(0.372)	(0.371)	(0.369)	(0.371)	(0.366)
r2_p	0.056	0.058	0.054	0.055	0.053
Observations	2785	2785	2785	2785	2785

Clustered robust standard errors in parentheses. Control variables included but not displayed: Population (ln), tax strength per capita in Euro (ln), Percentage Catholic, territory (100 ha), CO2/1000ha, proportion land use: agriculture, proportion land use: industry, NRW-funded climate strategies.
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 9: EHA excluding municipalities with NRW-funded climate policy (models 1-5)

	(1)	(2)	(3)	(4)	(5)
Spatial diffusion W_1	1.528*	-9.713+	35.891***		
	(0.732)	(5.649)	(6.391)		
Spatial diffusion*pop(ln)			-3.337***		
			(0.628)		
Spatial diffusion W_1 t-1				0.532	
				(0.852)	
Pioneer neighbors W_1					4.573***
					(1.109)
Mayor (ref: CDU)					
- Independent	0.144	0.133	0.100	0.159	0.120
	(0.269)	(0.268)	(0.272)	(0.265)	(0.257)
- SPD	-0.040	-0.054	-0.075	-0.057	-0.132
	(0.225)	(0.219)	(0.218)	(0.218)	(0.217)
- Other	0.548*	0.501*	0.490+	0.517*	0.550*
	(0.256)	(0.253)	(0.254)	(0.256)	(0.259)
Greens in local council (%)	0.060**	0.315**	0.287*	0.301*	0.304**
	(0.020)	(0.116)	(0.117)	(0.118)	(0.118)
Transnational city network	0.507*	4.790***	4.429***	4.494***	4.562***
	(0.218)	(1.281)	(1.220)	(1.226)	(1.244)
Environmental pioneer	0.072	0.155	0.376	0.170	0.600
	(0.669)	(0.635)	(0.566)	(0.622)	(0.626)
Time(ln)-interaction effects					
Spatial diffusion W_1		2.930*			
		(1.426)			
Greens in local council (%)		-0.067*	-0.059*	-0.063*	-0.065*
		(0.030)	(0.030)	(0.031)	(0.030)
Transnational city network		-1.131***	-1.036**	-1.051**	-1.088***
		(0.338)	(0.322)	(0.323)	(0.327)
r2_p	0.036	0.046	0.058	0.042	0.051
Observations	2869	2869	2869	2869	2869

Clustered robust standard errors in parentheses. Control variables included but not displayed: Population (ln), tax strength per capita in Euro (ln), Percentage Catholic, territory (100 ha), CO2/1000ha, proportion land use: agriculture, proportion land use: industry, district-free city.
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 10: EHA excluding municipalities with NRW-funded climate policy (models 6-10)

	(6)	(7)	(8)	(9)	(10)
Party network $\mathbf{W}_2$	1.075*	1.477**			
	(0.456)	(0.556)			
Network*mayor (ref: CDU)					
Network*SPD		-1.117			
		(0.937)			
Party network $\mathbf{W}_2$ t-1			0.835+		
			(0.489)		
Green network $\mathbf{W}_3$				0.949	
				(0.581)	
Green network $\mathbf{W}_3$ t-1					0.364
					(0.733)
Mayor (ref: CDU)					
- Independent	0.242	0.281	0.192	0.162	0.162
	(0.267)	(0.269)	(0.265)	(0.266)	(0.264)
- SPD	-0.058	0.040	-0.058	-0.052	-0.058
	(0.219)	(0.235)	(0.218)	(0.218)	(0.218)
- Other	0.598*	0.641*	0.560*	0.511*	0.515*
	(0.259)	(0.265)	(0.258)	(0.257)	(0.257)
Greens in local council (%)	0.299*	0.287*	0.298*	0.297*	0.300*
	(0.118)	(0.119)	(0.118)	(0.121)	(0.118)
Transnational city network	4.216***	4.247***	4.400***	4.353***	4.475***
	(1.255)	(1.250)	(1.232)	(1.243)	(1.228)
Environmental pioneer	0.176	0.198	0.165	0.174	0.179
	(0.626)	(0.622)	(0.614)	(0.621)	(0.620)
Time(ln)-interaction effects					
Greens in local council (%)	-0.062*	-0.059+	-0.062*	-0.062*	-0.062*
	(0.031)	(0.031)	(0.030)	(0.031)	(0.031)
Transnational city network	-0.981**	-0.988**	-1.023**	-1.016**	-1.045**
	(0.331)	(0.330)	(0.325)	(0.328)	(0.324)
r2_p	0.045	0.046	0.043	0.043	0.042
Observations	2869	2869	2869	2869	2869

Clustered robust standard errors in parentheses. Control variables included but not displayed: Population (ln), tax strength per capita in Euro (ln), Percentage Catholic, territory (100 ha), CO2/1000ha, proportion land use: agriculture, proportion land use: industry, district-free city.

$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

5. Time-varying coefficients in the event history models
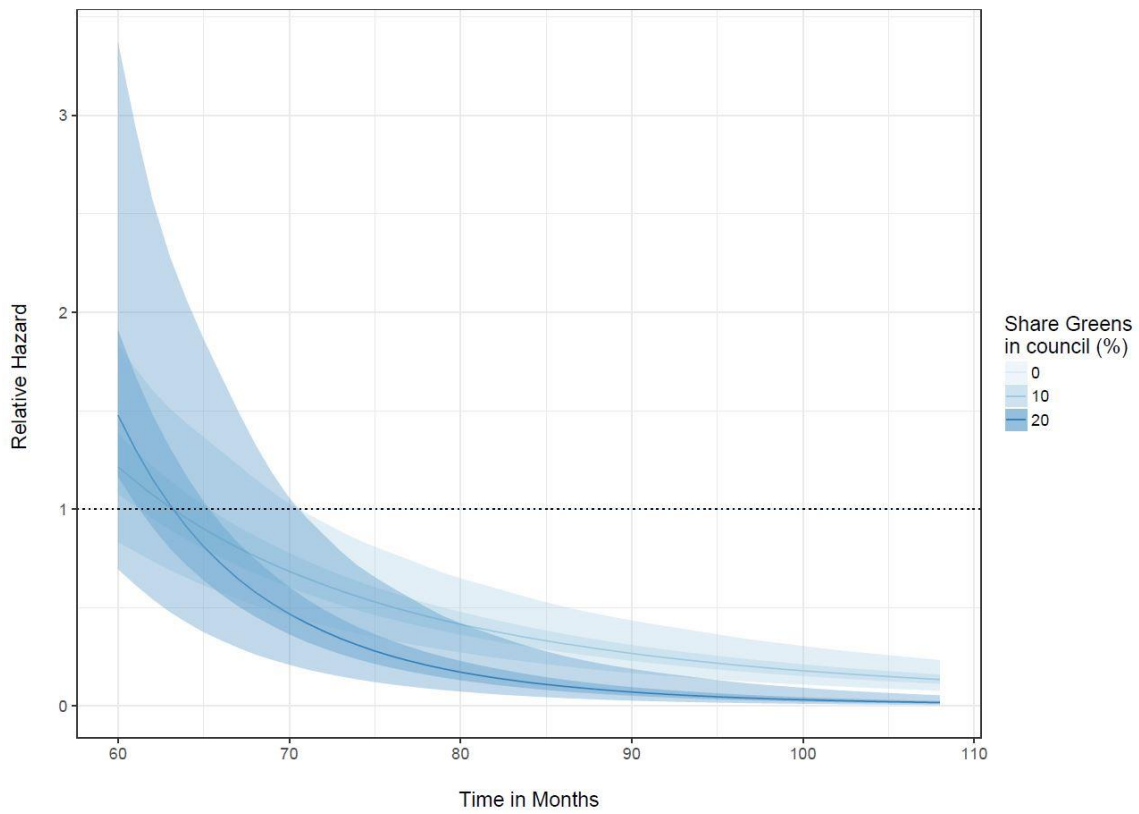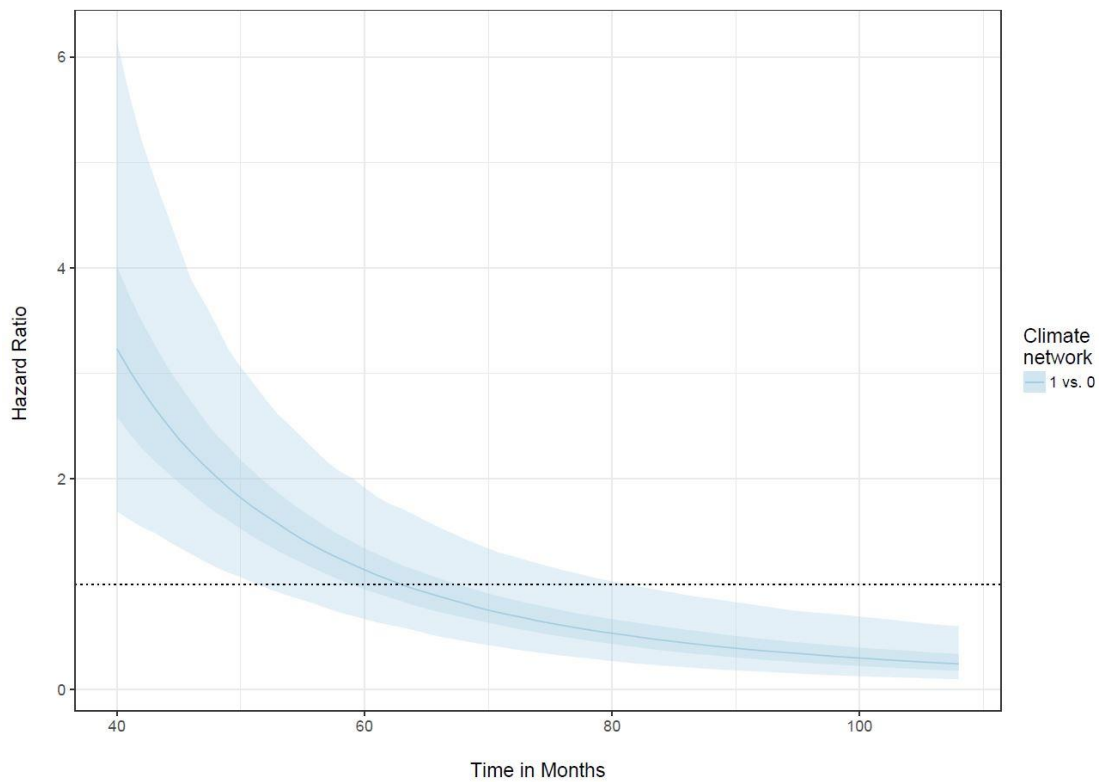**Figure 5: Non-proportional hazards for time-varying coefficients: Greens (CI: 95%)**

Figure 6: Non-proportional hazards for time-varying coefficients: Network (CI: 95%)

6. Spatial panel autoregressive models – different spatial weights

Table 11: FE models with spatial weights based on 1st order contiguity (row-normalized)

	(1) Total count (ln) FE	(2) Total size (ln) FE	(3) Total size/pop (ln) FE
Mayor (ref: CDU)			
- Independent	0.029	0.347	0.284
	(0.024)	(0.267)	(0.186)
- SPD	0.023	0.123	0.078
	(0.021)	(0.241)	(0.169)
- Other	0.056*	0.449	0.338
	(0.026)	(0.297)	(0.207)
Greens council (%)	0.000	0.052+	0.035+
	(0.002)	(0.027)	(0.019)
City network	0.008	0.495	0.370
	(0.049)	(0.554)	(0.387)
Tax strengths (ln)	0.074*	0.501	0.444+
	(0.034)	(0.375)	(0.263)
DV (t-1)	0.701***	0.518***	0.532***
	(0.012)	(0.014)	(0.014)
Spatial lags W_1 (row)			
Solar PV (t-1)	0.002	0.106***	0.085***
	(0.002)	(0.027)	(0.019)
Wind energy (t-1)	-0.002	-0.008	-0.005
	(0.002)	(0.020)	(0.014)
Biomass (t-1)	-0.038**	-0.383*	-0.274**
	(0.013)	(0.152)	(0.106)
Spatial lag DV	0.203***	0.261***	0.255***
	(0.017)	(0.020)	(0.020)
Observations	3564	3564	3564
r2_p	0.819	0.676	0.687

Standard errors in parentheses. Control variables included but not displayed: Proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1).
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 12: RE models with spatial weights based on 1st order contiguity (row-normalized)

	(4) Total count (ln) RE	(5) Total size (ln) RE	(6) Total size / pop (ln) RE
Mayor (ref: CDU)			
- Independent	0.056+	0.490+	0.400*
	(0.030)	(0.275)	(0.196)
- SPD	0.096***	0.552*	0.361*
	(0.027)	(0.250)	(0.178)
- Other	0.156***	1.201***	0.856***
	(0.034)	(0.323)	(0.229)
Greens council (%)	0.004	0.083***	0.062***
	(0.003)	(0.025)	(0.018)
City network	0.166***	1.516***	1.182***
	(0.044)	(0.393)	(0.286)
Environmental pioneer	0.537*	2.749	2.164
	(0.220)	(1.913)	(1.417)
Spatial lag W$_1$ (row)			
Environmental pioneer	-0.169	-2.904	-1.913
	(0.285)	(2.479)	(1.835)
Solar PV (t-1)	0.003	0.213***	0.174***
	(0.003)	(0.027)	(0.019)
Wind energy (t-1)	-0.001	-0.006	-0.000
	(0.002)	(0.019)	(0.014)
Biomass (t-1)	0.003	-0.188+	-0.132
	(0.012)	(0.111)	(0.080)
Spatial lag DV	0.459***	0.401***	0.400***
	(0.018)	(0.020)	(0.020)
Observations	3564	3564	3564
r2_p	0.466	0.386	0.363

Standard errors in parentheses. Controls included but not displayed: Population (ln), tax strengths (ln), territory (100ha), percentage Catholic, CO2/1000ha, proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1), districts. Constant not displayed.
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 13: FE models with spatial weights based on inverse distance (spectral)

	(1) Total count (ln) FE	(2) Total size (ln) FE	(3) Total size/pop (ln) FE
Mayor (ref: CDU)			
- Independent	0.036	0.435	0.354+
	(0.023)	(0.264)	(0.185)
- SPD	0.030	0.206	0.141
	(0.021)	(0.239)	(0.167)
- Other	0.047+	0.253	0.201
	(0.026)	(0.295)	(0.206)
Greens council (%)	-0.002	0.025	0.018
	(0.002)	(0.027)	(0.019)
City network	0.006	0.381	0.292
	(0.049)	(0.550)	(0.385)
Tax strengths (ln)	0.023	0.292	0.282
	(0.034)	(0.383)	(0.268)
DV (t-1)	0.677***	0.489***	0.505***
	(0.013)	(0.015)	(0.015)
Spatial lags W_1 (inverse distance, spectral)			
Solar PV (t-1)	-0.007	-0.194*	-0.111+
	(0.008)	(0.094)	(0.066)
Wind energy (t-1)	-0.045***	-0.185+	-0.137*
	(0.010)	(0.095)	(0.068)
Biomass (t-1)	-0.008	0.520	0.367
	(0.076)	(0.861)	(0.603)
Spatial lag DV	0.471***	0.665***	0.630***
	(0.054)	(0.057)	(0.061)
Observations	3564	3564	3564
r2_p	0.802	0.492	0.452

Standard errors in parentheses. Control variables included but not displayed: Proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1).
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 14: RE models with spatial weights based on inverse distance (spectral)

	(4) Total count (ln) RE	(5) Total size (ln) RE	(6) Total size / pop (ln) RE
Mayor (ref: CDU)			
- Independent	0.062*	0.570*	0.467*
	(0.029)	(0.268)	(0.192)
- SPD	0.105***	0.651**	0.449**
	(0.026)	(0.243)	(0.174)
- Other	0.108**	0.712*	0.508*
	(0.033)	(0.316)	(0.225)
Greens council (%)	-0.001	0.035	0.029
	(0.003)	(0.025)	(0.018)
City network	0.163***	1.352***	1.051***
	(0.042)	(0.384)	(0.280)
Environmental pioneer	0.591**	3.291+	2.443+
	(0.218)	(1.931)	(1.437)
Spatial lags W$_1$ (inverse distance, spectral)			
Environmental pioneer	-0.484	-28.453	-29.284
	(5.258)	(46.642)	(34.665)
Solar PV (t-1)	-0.029**	0.103	0.088
	(0.009)	(0.093)	(0.068)
Wind energy (t-1)	0.009	0.043	0.072
	(0.011)	(0.104)	(0.074)
Biomass (t-1)	0.152+	-0.418	-0.193
	(0.091)	(0.854)	(0.611)
Spatial lag DV	0.876***	0.776***	0.743***
	(0.036)	(0.052)	(0.057)
Observations	3564	3564	3564
r2_p	0.525	0.435	0.407

Standard errors in parentheses. Controls included but not displayed: Population (ln), tax strengths (ln), territory (100ha), percentage Catholic, CO2/1000ha, proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1), districts. Constant not displayed.
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7. Spatial panel autoregressive models – Yearly changes in DV

Table 15: FE spatial autoregressive models on yearly increase in policy output

	(1) Yearly count increase (ln) FE	(2) Yearly size increase (ln) FE	(3) Yearly size increase/pop (ln) FE
Mayor (ref: CDU)			
- Independent	0.027	0.314	0.262
	(0.034)	(0.409)	(0.281)
- SPD	0.014	0.061	0.025
	(0.030)	(0.370)	(0.255)
- Other	0.058	0.661	0.484
	(0.037)	(0.454)	(0.312)
Greens council (%)	-0.002	-0.012	-0.004
	(0.003)	(0.041)	(0.029)
City network	-0.064	-0.399	-0.148
	(0.070)	(0.849)	(0.584)
DV (t-1)	-0.057**	-0.116***	-0.125***
	(0.019)	(0.019)	(0.019)
Spatial lags W_1			
Solar PV (t-1)	0.011**	0.172***	0.134***
	(0.004)	(0.049)	(0.034)
Wind energy (t-1)	-0.003	-0.026	-0.012
	(0.003)	(0.037)	(0.025)
Biomass (t-1)	-0.033	-0.272	-0.253
	(0.023)	(0.280)	(0.193)
Spatial lag DV	0.178***	0.197***	0.186***
	(0.030)	(0.030)	(0.030)
Observations	3564	3564	3564
r2_p	0.032	0.026	0.017

Standard errors in parentheses. Control variables included but not displayed: Proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1).
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 16: RE spatial autoregressive models on yearly increase in policy output

	(4) Yearly count increase (ln) RE	(5) Yearly count increase (ln) RE	(6) Yearly size increase/pop (ln) RE	Yearly size increase/pop (ln) FE	Yearly size increase/pop (ln) FE
Mayor (ref: CDU)					
- Independent	0.043*	0.536*	0.373*		
	(0.020)	(0.239)	(0.166)		
- SPD	0.027	0.303	0.173		
	(0.018)	(0.219)	(0.152)		
- Other	0.056*	0.753*	0.522*		
	(0.026)	(0.318)	(0.220)		
Greens council (%)	0.002	0.026	0.019		
	(0.002)	(0.019)	(0.013)		
City network	0.027	0.398	0.318+		
	(0.020)	(0.245)	(0.171)		
Env pioneers	0.089	1.034	0.800		
	(0.082)	(0.987)	(0.689)		
Spatial lags W_1					
Env pioneers	-0.085	-1.509	-0.928		
	(0.146)	(1.760)	(1.228)		
Solar PV (t-1)	0.007**	0.095**	0.069***		
	(0.002)	(0.030)	(0.021)		
Wind energy (t-1)	-0.000	0.001	0.003		
	(0.002)	(0.018)	(0.013)		
Biomass (t-1)	0.001	-0.025	-0.027		
	(0.007)	(0.083)	(0.058)		
Spatial lag DV	0.136***	0.150***	0.139***		
	(0.029)	(0.029)	(0.029)		
Observations	3564	3564	3564		
r2_p	0.167	0.147	0.110		

Standard errors in parentheses. Controls included but not displayed: Population (ln), tax strengths (ln), territory (100ha), percentage Catholic, CO_2/1000ha, proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1), districts. Constant not displayed.
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

8. Spatial panel autoregressive models – DVs not transformed

Table 17: FE spatial autoregressive models on untransformed policy output

	(1) Total count FE	(2) Total size FE	(3) Total size/pop FE
Mayor (ref: CDU)			
- Independent	0.036	-7335.806	337.152+
	(0.064)	(6917.354)	(202.213)
- SPD	0.040	-774.898	187.789
	(0.058)	(6261.517)	(183.077)
- Other	0.103	-8509.635	396.359+
	(0.072)	(7676.707)	(224.498)
Greens council (%)	-0.006	191.612	7.011
	(0.007)	(702.033)	(20.533)
City network	-0.108	21189.560	1092.814**
	(0.134)	(14348.324)	(419.713)
DV (t-1)	0.935***	0.849***	0.799***
	(0.011)	(0.011)	(0.012)
Spatial lags W$_1$			
Solar PV (t-1)	0.005	250.192	57.259*
	(0.008)	(842.914)	(24.241)
Wind energy (t-1)	-0.007	-301.072	25.238
	(0.006)	(618.629)	(18.084)
Biomass (t-1)	-0.092*	-1343.183	-209.795
	(0.045)	(4860.163)	(138.494)
Spatial lag DV	0.108***	0.090***	0.108***
	(0.016)	(0.018)	(0.022)
Observations	3564	3564	3564
r2_p	0.870	0.770	0.560

Standard errors in parentheses. Control variables included but not displayed: Proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1).
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 18: RE spatial autoregressive models on untransformed policy output

	(4) Total count RE	(5) Total size RE	(6) Total size / pop RE
Mayor (ref: CDU)			
- Independent	0.139	-13840.288	722.134*
	(0.100)	(10281.372)	(287.132)
- SPD	0.312***	10940.286	613.602*
	(0.091)	(9326.447)	(260.654)
- Other	0.352**	-16011.585	984.563**
	(0.118)	(12163.238)	(331.526)
Greens council (%)	0.002	1128.772	68.720*
	(0.009)	(917.357)	(26.879)
City network	0.394**	47467.363***	2357.408***
	(0.138)	(14005.248)	(443.039)
Env pioneer	1.418*	6896.135	616.275
	(0.647)	(65390.608)	(2325.371)
Spatial lags W_1			
Env pioneers	-0.875	-306308.027**	-6573.972
	(1.128)	(114252.490)	(4033.531)
Solar PV (t-1)	-0.021+	-1732.150	114.214***
	(0.012)	(1214.479)	(32.706)
Wind energy (t-1)	-0.003	-1057.446	48.497*
	(0.008)	(853.282)	(24.491)
Biomass (t-1)	0.100*	11225.238*	-14.158
	(0.046)	(4736.046)	(147.059)
Spatial lag DV	0.490***	0.301***	0.295***
	(0.021)	(0.024)	(0.027)
Observations	3564	3564	3564
r2_p	0.439	0.422	0.185

Standard errors in parentheses. Controls included but not displayed: Population (ln), tax strengths (ln), territory (100ha), percentage Catholic, CO_2/1000ha, proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1), districts. Constant not displayed.
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 19: FE spatial models on untransformed yearly increase in policy output

	(1) Yearly count increase FE	(2) Yearly size increase FE	(3) Yearly size increase/pop FE
Mayor (ref: CDU)			
- Independent	0.041	-4509.981	243.724
	(0.065)	(7106.882)	(209.871)
- SPD	0.035	-1869.883	64.327
	(0.059)	(6433.080)	(189.962)
- Other	0.111	-6040.551	268.544
	(0.072)	(7890.262)	(233.014)
Greens council (%)	-0.004	226.610	-4.031
	(0.007)	(721.020)	(21.293)
City network	-0.135	17061.281	713.826
	(0.134)	(14745.854)	(435.510)
DV (t-1)	-0.024	-0.087***	-0.107***
	(0.019)	(0.019)	(0.019)
Spatial lags W$_1$			
Solar PV (t-1)	0.016*	1870.801*	64.066*
	(0.008)	(846.959)	(25.001)
Wind energy (t-1)	-0.008	-306.425	16.537
	(0.006)	(635.267)	(18.753)
Biomass (t-1)	-0.068	-4057.123	-293.638*
	(0.044)	(4863.061)	(143.616)
Spatial lag DV	0.132***	0.067*	0.118***
	(0.031)	(0.030)	(0.032)
Observations	3564	3564	3564
r2_p	0.032	0.012	0.000

Standard errors in parentheses. Control variables included but not displayed: Proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1).
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 20: RE spatial models on untransformed yearly increase in policy output

	(4) Yearly count increase RE	(5) Yearly size increase RE	(6) Yearly size increase/pop RE
Mayor (ref: CDU)			
- Independent	0.068+	2671.302	152.089
	(0.037)	(3833.141)	(115.079)
- SPD	0.051	925.426	-34.438
	(0.034)	(3518.996)	(105.651)
- Other	0.093+	3186.694	218.892
	(0.050)	(5179.390)	(155.526)
Greens council (%)	0.003	294.666	8.121
	(0.003)	(294.499)	(8.842)
City network	0.044	8557.486*	359.309**
	(0.038)	(3852.609)	(115.647)
Env pioneers	0.121	-10604.716	-50.183
	(0.154)	(15431.667)	(463.351)
Spatial lags W_1			
Env pioneers	-0.145	-66690.927*	-1077.966
	(0.275)	(27668.614)	(828.159)
Solar PV (t-1)	0.010*	1263.134**	21.627
	(0.005)	(478.009)	(14.274)
Wind energy (t-1)	-0.000	-184.492	0.719
	(0.003)	(293.964)	(8.820)
Biomass (t-1)	0.008	-685.011	-34.470
	(0.013)	(1299.806)	(39.025)
Spatial lag DV	0.095**	0.038	0.076*
	(0.029)	(0.029)	(0.031)
Observations	3564	3564	3564
r2_p	0.172	0.124	0.033

Standard errors in parentheses. Controls included but not displayed: Population (ln), tax strengths (ln), territory (100ha), percentage Catholic, CO_2/1000ha, proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1), districts. Constant not displayed.
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

9. Panel poisson regression on policy density

Table 21: Panel poisson with fixed effects on policy density

	(1) Panel poisson FE on total grant count	(2) Panel poisson FE on yearly count increase
Mayor (ref: CDU)		
- Independent	0.119	0.063
	(0.086)	(0.133)
- SPD	0.111	0.138
	(0.084)	(0.108)
- Other	0.219*	0.183
	(0.089)	(0.136)
Greens council (%)	0.029**	0.020**
	(0.011)	(0.007)
City network	0.114	0.165
	(0.124)	(0.111)
DV (t-1)	0.114*	0.004
	(0.045)	(0.104)
Spatial lags W$_1$		
Solar PV (t-1)	0.130***	0.036+
	(0.034)	(0.019)
Wind energy (t-1)	-0.011	-0.006
	(0.008)	(0.008)
Biomass (t-1)	-0.186**	-0.041
	(0.064)	(0.047)
Spatial lag DV	0.059+	0.354***
	(0.031)	(0.091)
Observations	3564	3564

Clustered robust standard errors in parentheses. Control variables included but not displayed: Proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1). Constant not displayed.
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

Table 22: Panel poisson with random effects on policy density

	(1) Panel poisson RE on total grant count	(2) Panel poisson RE on yearly count increase
Mayor (ref: CDU)		
- Independent	0.194+	0.213+
	(0.100)	(0.118)
- SPD	0.142+	0.092
	(0.079)	(0.112)
- Other	0.207*	0.223+
	(0.096)	(0.130)
Greens council (%)	0.030**	0.012
	(0.011)	(0.009)
City network	0.145	0.101
	(0.137)	(0.130)
Env pioneer	0.515	0.360
	(0.333)	(0.223)
Spatial lags W_1		
Env pioneer	-2.740**	-0.916
	(1.015)	(0.906)
Solar PV (t-1)	0.148***	0.049**
	(0.026)	(0.019)
Wind energy (t-1)	-0.002	0.003
	(0.009)	(0.010)
Biomass (t-1)	-0.198**	-0.029
	(0.068)	(0.060)
Spatial lag DV	0.137***	0.239*
	(0.029)	(0.121)
Observations	3564	3564

Clustered robust standard errors in parentheses. Controls included but not displayed: Population (ln), tax strengths (ln), territory (100ha), percentage Catholic, CO2/1000ha, proportion land use: agriculture, proportion land use: industry, solar PV (t-1), wind energy (t-1), biomass (t-1), districts. Constant not displayed.
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$

10. Codebook

Variable name	Indicator	Coding	Sources
Information on general variables			
Unique_ID	Unique identifier	Numerical variable allocating a unique ID to each municipality in the dataset.	
AGS	Identifier for local unit	Identifier for the local unit.	c
year	Year of observation	Date variable ranging from 2008 to 2016.	
name	Name of municipality	The name of the municipality.	
status	City status	Character variable measuring whether the municipality has city status. The levels are "Stadt" or "Gemeinde".	
district	Name of the district	Character variable reporting the district name.	
free_city	District-free status	Binary indicator measuring whether the municipality is district-free.	
_CX	X-Coordinate	Numeric variable measuring the X-coordinate of the centroid in planar projection.	c
_CY	Y-Coordinate	Numeric variable measuring the Y-coordinate of the centroid in planar projection.	c
Information on dependent variables			
ICPC_adopt	ICPC adoption	Dummy variable indicating whether a Full Integrated Climate Protection Concept (ICPC) was adopted in the given year.	a, b
ICPC_exist	ICPC existence	Binary variable indicating whether a Full Integrated Climate Protection Concept (ICPC) existed in the given year.	a, b
ICPC_tue	Time until ICPC adoption	Numeric variable measuring the number of months until adoption of ICPC ("time until exit"). Start in January 2008. The variable reports missing values for all observations t+1 after adoption.	a, b
grant_size	Amount of received grants	Numeric variable measuring the amount of received grants in the given year in Euro.	a, b
grant_count	Number of received grants	Numeric variable counting the number of received grants in the given year.	a, b
cum_grant_size	Cumulative amount of received grants	Numeric variable measuring the cumulative amount of received grants over the years in Euro.	a, b
cum_grant_count	Cumulative number of received grants	Numeric variable measuring the cumulative number of received grants over the years in Euro.	a, b
Information on independent variables			
Mayor_party	Party affiliation of mayor	Character variable measuring the party affiliation of the mayor. This variable is a detailed version measuring all parties and potential combinations of two or more	d

		parties. As elections at a local level take place throughout the year, the 30th June of each year was chosen as a cut-off point for the temporal classification. If a mayor was elected after this date, the change took effect only from the next year on.	
Mayor_1	Party affiliation of mayor	Character variable measuring the party affiliation of the mayor. This variable is the final version utilized in the analysis. The levels are "CDU", "SPD", "Independent" and "Other". All mayors from smaller parties like FDP or the Greens or where the party affiliation is ambiguous (i.e. more than one party supported the candidate in the elections) are subsumed under the category "other". As elections at a local level take place throughout the year, the 30th June of each year was chosen as a cut-off point for the temporal classification. If a mayor was elected after this date, the change took effect only from the next year on.	d
Share_green	Share of Green party in local council	Numeric variable measuring the share of the Green party in the local council in percentage points. As elections at a local level take place throughout the year, the 30th June of each year was chosen as a cut-off point for the temporal classification. If elections took place after this date, the change was recorded from the next year on.	d
CA_member	Membership of city network Climate Alliance	Binary variable indicating whether the municipality was member of the city network Climate Alliance.	f
env_pioneer	Environmental pioneer	Binary variable indicating whether the municipality is classified as an environmental pioneer. Municipalities are classified according to the European Energy Award (EEA), which is a certification system for municipalities with respect to sustainable energy and climate policy. Municipalities were considered environmental pioneers if they had joined the program in the first three years (2003-2005) of the establishment of the EEA and been awarded the highest standard – the Gold certificate.	e
pop	Population	Numeric variable measuring the number of inhabitants.	g
Tax_pc_eur_	Tax strengths per capita	Numeric variable measuring the tax strength per capita in €.	g
CO2_ha_1000	CO2 emissions	Numeric variable measuring CO_2 emissions in vehicle transport (kg in 2013 divided by 1000 ha).	h
territory_100ha	Territory size	Numeric variable measuring the territory size in 100 hectares.	g
share_catholic	Proportion of Catholics	Numeric variable measuring the proportion of inhabitants with roman-catholic	g

		religion in percentage points in 2011.	
prop_lu_agriculture	Land use: agriculture	Numeric variable measuring the proportion of land used for agriculture.	g
prop_lu_industry	Land use: industry	Numeric variable measuring the proportion of land used for industry.	g
district_ICPC	ICPC adoption on district level	Binary variable indicating whether an ICPC was adopted on the district level. Missing values for district-free cities.	a, b
NRW_IKKK	NRW-funded climate strategies	Binary variable indicating whether the municipality implemented a climate strategy based on the NRW-funding scheme "KlimaPLUS".	i
L1_cum_pv_1000	Cumulative capacity of PV	Numeric variable measuring the cumulative capacity of PV over the years in MW.	h
L1_cum_wind_1000	Cumulative capacity of wind power	Numeric variable measuring the cumulative capacity of wind power over the years in MW.	h
L1_cum_biomass_1 000	Cumulative capacity of wind energy	Numeric variable measuring the cumulative capacity of biomass energy over the years in MW.	h
L1_added_pv_1000	Added capacity of PV	Numeric variable measuring the added capacity of solar photovoltaic (PV) in the previous year in MW.	h
L1_added_wind_10 00	Added capacity of wind power	Numeric variable measuring the added capacity of wind power in the previous year in MW.	h
L1_added_biomass_ 1000	Added capacity of biomass	Numeric variable measuring the added capacity of biomass energy in the previous year in MW.	h
Spatial lag variables			
[L1_]ICPC_lag[i]	Spatially lagged ICPC_adopt	Several spatial lags of the ICPC_adopt variable. The index number at the end indicates the specification of the spatial dimension and normalization: [1] First order contiguity and spectral-normalization [2] First order contiguity and row-normalization [3] Second order contiguity and spectral-normalization [4] Second order contiguity and row-normalization [5] Deflated second order contiguity and spectral-normalization [6] Deflated second order contiguity and row-normalization [7] Inverse distance and spectral-normalization [8] Inverse distance and row-normalization [9] 25km radius and spectral-normalization [10] 50km radius and spectral-normalization [11] 75km radius and spectral-normalization	a, b, c

		[12] 25km radius and row-normalization [13] 50km radius and row-normalization [14] 75km radius and row-normalization The dataset subsequently reports the time-lags of the same variables [L1_].	
[L1_]Mayor_lag9	Spatially lagged ICPC_adopt conditional on party affiliation	This variable is a spatial lag of the ICPC_adopt variable based on first order contiguity and spectral-normalization and conditional on the party affiliation of the mayor. The weights were created for CDU- and SPD-controlled municipalities where we can expect institutionalized party networks. The values for mayors subsumed under the category "other" or "independent" are set to zero since these two groups cannot rely on an established party network. The dataset also includes a time-lagged version of the same variable [L1_].	a, b, c, d
[L1_]Green_lag1	Spatially lagged ICPC_adopt conditional on Green party representation in local council	This variable is a spatial lag of the ICPC_adopt variable based on first order contiguity and spectral-normalization and conditional on the representation of the Green party in the local council. The dataset also includes a time-lagged version of the same variable [L1_].	a, b, c, d
pioneer_lag1	Spatially lagged environmental pioneer variable	This variable is a spatial lag of the environmental pioneer variable (env_pioneer) based on first order contiguity and spectral-normalization.	c, e

Data sources:

[a] Bundesministerium für Bildung und Forschung, Förderportal des Bundes (2017): http://foerderportal.bund.de/.

[b] Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, Nationale Klimaschutzinitiative (2018): http://www.klimaschutz.de/.

[c] Bundesamt für Kartographie und Geodäsie, Dienstleistungszentrum / GeoBasis-DE (2018): http://www.geodatenzentrum.de/. Shapefiles for replication of the spatial lags are publicly available at this website.

[d] Der Landeswahlleiter des Landes Nordrhein-Westfalen, Wahlergebnisse in NRW (2017): http://www.wahlergebnisse.nrw.de/ and online search for politicians' websites.

[e] European Energy Award, Liste der eea-Kommunen (2017): http://www.european-energy-award.de/.

[f] Climate Alliance, municipalities network database (2017): http://www.climatealliance.org/.

[g] Information und Technik Nordrhein-Westfalen, Statistisches Landesamt, Landesdatenbank NRW (2017): https://www.landesdatenbank.nrw.de/.

[h] Landesamt für Natur, Umwelt und Verbraucherschutz Nordrhein-Westfalen, Klimaatlas NRW (2017): http://www.klimaatlas.nrw.de/.

[i] Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes Nordrhein-Westfalen, Klima plus, (2017):
http://www.umwelt.nrw.de/klima-energie/ausgewaehlte-projekte/klimapluskommunen/;
https://www.klimaschutz.nrw.de/fileadmin/Dateien/Download-Dokumente/Broschueren/klimaplus_final_150526.pdf.