POLICY FAILURE
AND THE CASE OF SOLAR POWER
IN THE CZECH REPUBLIC

By
Ashley Quisol

Submitted to
Central European University
Department of Public Policy

in partial fulfillment for the degree of Master of Arts in Public Policy

Supervisor: Marie-Pierre F. Granger

Budapest, Hungary
2013

I, the undersigned ……Ashley Quisol……. hereby declare that I am the sole author of this thesis. To the best of my knowledge this thesis contains no material previously published by any other person except where due acknowledgement has been made. This thesis contains no material which has been accepted as part of the requirements of any other academic degree or non-degree program, in English or in any other language. This is a true copy of the thesis, including final revisions.

Date: ……May 30, 2013……

Name (printed letters): …Ashley Quisol……

Signature: ……

ABSTRACT

The Czech Republic, a Member State of the European Union since 2004, is on track to meet its 2020 target for energy consumption from renewable sources, as stipulated by the EU Directive on renewable energy. Many have lauded the rapid increase in PV installations to facilitate this target completion as the product of a successful government policy. However, the negative impact of this policy, namely immense electricity market distortion and unmanageable costs to the public budget, demonstrate that the policy has largely been a failure. In order to identify exactly where the policy went wrong, this paper examines each stage of the policy process and shows that faults within various phases, especially within the evaluation stage, account for the partial failure of solar power policy in the Czech Republic.

Table of Contents

Introduction

The functioning of the European Union is largely dependent on the incorporation of its governing legislation into the national legal frameworks of Member States, often warranting drastic policy change. For example, the EU Directive 2001/77/EC on the promotion of renewable energy has prompted EU wide changes in the way that Member states formulate national energy policies. With the goal of consuming 20% of overall energy from renewable energy sources (RES) by 2020, Member States have undertaken similar targets in order to comply with the Directive. The success of these policies has largely been judged based on formal compliance with the Directive, namely with timely achievement of target goals.

The Czech Republic, a Member State of the EU since 2004, is one of the states that is on track to meet its 2020 target for consuming 13% of its energy from RES. Though researchers previously speculated that the country would not likely meet its targets within the given timeframe (Sviek et al. 2012), a rapid influx of investment into solar installations propelled the country from 3.8% in 2004 to over 11% in 2012 (ERO 2012). This rapid increase in investment can almost entirely be attributed to the transposition of Directive 2001/77/EC through the Czech Act on the Promotion of the Use of Renewable Energy Sources [No. 180/2005 Col.]. This Act allowed for the prioritization of photovoltaic (solar) technology and offered economic incentives to encourage investment.

However, the government underestimated the drastic rate at which solar capacity would grow. Since, according to the law, the producers of solar power contracted with the Energy Regulatory Office (*Energetický regulační úřad* - ERO) at fixed subsidized rates upon installation, the price paid to solar producers did not fall as supply increased. Furthermore, the Act compelled the grid

operator and major electricity distributor in the country to purchase all electricity generated by RES, despite the fluctuation in supply and demand. Consequently, these subsidized prices resulted in losses for the state budget nearing tens of billions crowns between 2005 and 2011 (Prague Monitor 2013). In 2010, in order to cope with the sudden increase of solar electricity, the Czech Government passed a law that applied a 26% tax on solar facilities to curb production and new investment.[1] This retroactive tax has already resulted in a number of lawsuits against the Czech authorities and will no doubt add to the already enormous cost incurred by this policy. Additionally, the European Commission has referred to such policy changes that reduce the return on RES investments that had already been made as the "most critical changes…that have had a negative impact on the investment climate" since they "alter the legitimate expectations of business and clearly discourage investment, at a time when significantly more investment is needed" (European Commission 2013).

According to many reports, solar power policy in the Czech Republic has widely been reviewed as a success due to compliance (Beurskens et al. 2011; Resch et al. 2011; Morris 2012 to name a few). This discrepancy between the large negative impact of the policy and its favorable evaluation is largely due to the way in which its success was measured: these studies focused largely on target fulfillment and rarely on other outcomes of the policy.

Understanding that this policy was not fully successful, the question then is: where did it go wrong? It is important to establish exactly where failure developed in order to avoid the replication of analogous mistakes in similar policies, such as in the promotion other RES

[1] The tax only applied to ground mounted PV facilities with a 30kWp generating capacity, exempting roof-top and building integrated systems.

technologies in the Czech Republic. Indeed, these findings may also be useful for other governments considering employing similar programs to promote RES technology.

In order to determine where failure occurred within the solar power policy of the Czech Republic, this paper will use a process tracing method to examine the relevant policy agents and tasks within each stage of the policy process, eventually demonstrating that actions taken during the evaluation stage mostly account for the partial failure of the policy.

Chapter 1: Background

The European Union regards the promotion of renewable energy sources (RES) as a high priority in order to further energy security, economic cohesion and environmental protection (Directive 2001/77/EC). Directive 2001/77/EC ([2001] OJ L 283/33) on the promotion of electricity from RES of the European Parliament and Council, amended and replaced by 2009/28/CE[2] on the promotion of RES ([2009] OJ L140/16), set an overall objective that RES shall contribute to 20% of overall energy consumption within the EU by 2020, consistent with the commitments made by the EU within the Kyoto Protocol. According to Article 288 of the Treaty on the Functioning of the European Union (TFEU), such Directives from the European Commission must be individually transposed into each of the 27 Member States, meaning that each country within the EU must incorporate the individual targets set within the Directive into their national energy policy and related legislation.

Consequently, the Czech Republic, a Member State since 2004, transposed the Directive into law with the Act on the Promotion of the Use of Renewable Energy Sources [No. 180/2005 Col.] on February 23, 2005.

The Act employed several mechanisms in order to encourage investment in RES (EREC, 2009):

- Preferential connection to the power grid;
- A feed-in-tariff (FiT) program which guarantees that all electricity produced by RES can be sold to the distribution system operator at a set price;
- A feed-in-premium (FiP) program, (called a "Green Bonus" within the act) which guarantees a set premium to be paid on top of the market price for electricity.

Investors in RES must choose between the FiT and FiP incentives. The Act provided support for a number of RES; however, the support for solar was markedly larger than all others. For

[2]Directive 2009/28/EC also replaced Directive 2003/30/EC on the promotion of biofuels.

example, in 2008, the FiT and FiP programs for photovoltaic installations were set at 0.47 and 0.44 €/kWh, respectively, whereas geothermal, the second most supported RES in the Act were set at 0.16 and 0.10 €/kWh, respectively (EREC, 2009).

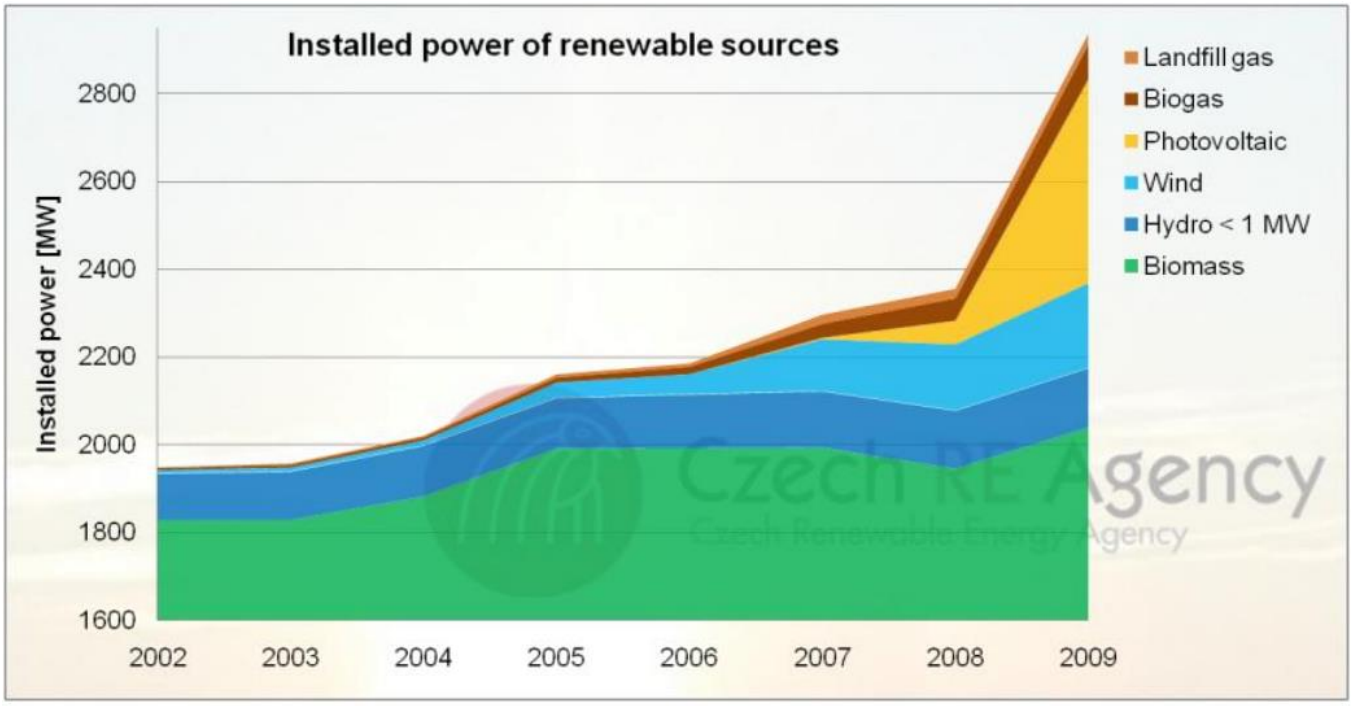
Table 1: Tariff level in 2008 [€ Cents/kWh] in the Czech Republic

	Small Hydro	Wind Onshore	Wind Offshore	Solid biomass	Biogas	PV	Geothermal
FiT	6.6-9.9	9.4-12.5	-	9.3-16.1	8.9-14.9	25.1-51.5	17.2
FiP	2.0-5.4	7.1-10.3	-	4.4-11.2	4.0-10.0	22.0-48.4	12.9

Source: Klein et al., 2008

The bill, prepared by the Ministry of Industry (MiT) and the Ministry of Energy (MoE), limited the decline in buyback prices for the Green Bonus program (premiums added) to 5% a year for up to 15 years (Spacil, 2011). Due to this extremely favorable investment environment for photovoltaics, the installed capacity of solar power in the Czech Republic had risen from only 3.4 MWp installed capacity in 2007 to nearly 1600 MW at the close of 2010 (ERO 2012).

Figure 1: Installed Capacity of RES in the CR



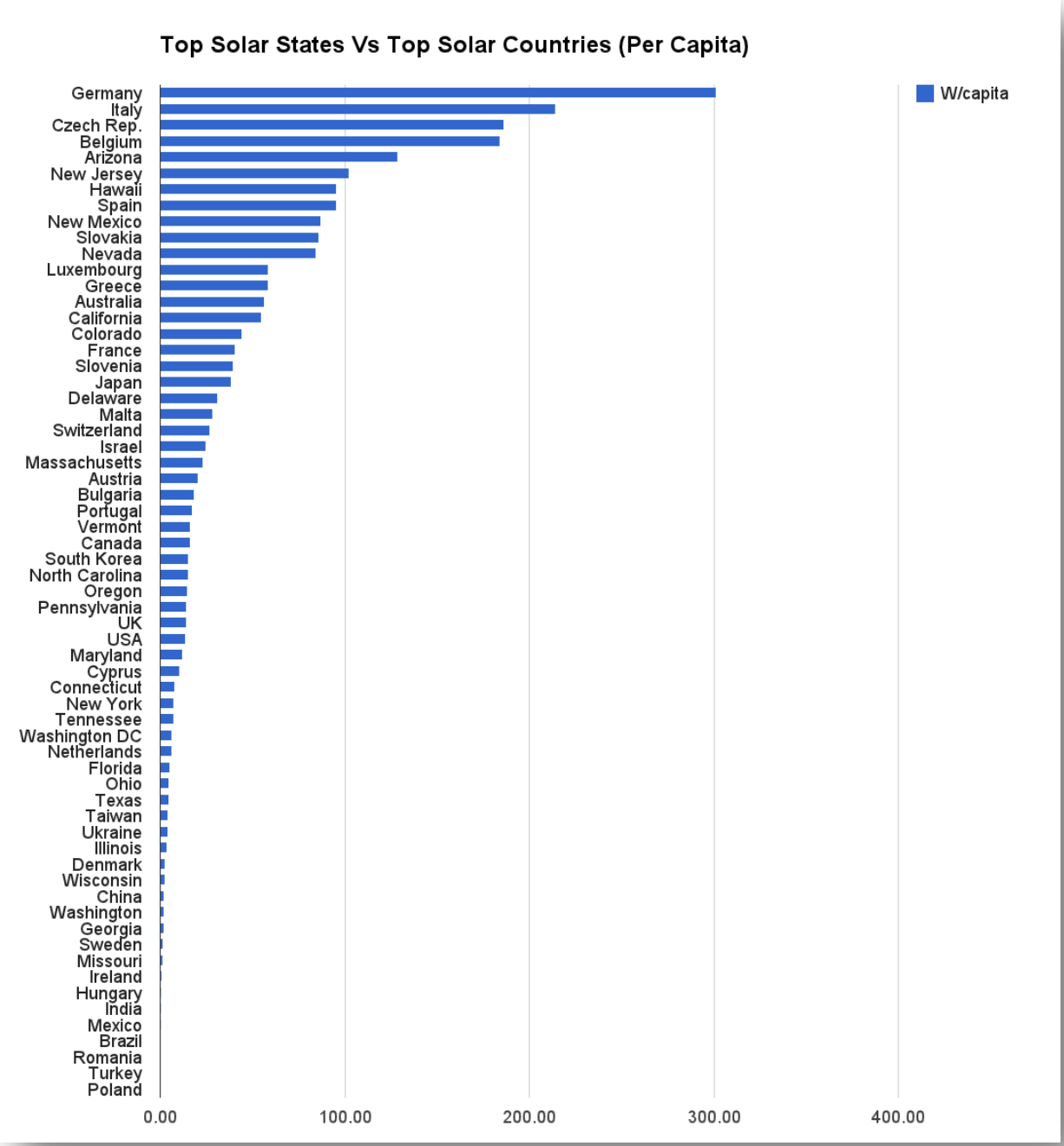
Source: Czech Renewable Energy Agency (2011)

Contrary to economic logic, the rise in the supply of electricity in the Czech Republic (demand held steady) did not lead to a corresponding decrease in prices. In fact, prices increased from .12 €/kWh in 2008 to over .15 € /kWh in 2012. The simultaneous increase in electricity supply and prices can be accounted for by the buyback prices guaranteed by the government contracts with solar electricity producers; the government was contractually obligated to continue to pay the premium on top of the market price for electricity to photovoltaic operators, despite the oversupply of electricity. Since clauses in the contracts with investors guarantee the purchase of renewable electricity produced, Czech Transmission Grid Operators (ČEPS), the state run company that operates the Czech Republic's high voltage grid, is required to purchase all solar power that is connected to the grid. Consequently, since electricity generated by the photovoltaic

panels that are used in the Czech Republic cannot be stored, ČEPS is forced to purchase excess electricity produced, for example during the summer months when production is high but demand is low (Johnstone 2010). In 2010, due to the rise in installed capacity of photovoltaics supported by state subsidies, there was speculation that this polciy would cost the state over 500 billion crowns, nearly half of the state budget (Johnstone 2010).

In addition to this market distortion, the rapid influx of electricity from photovoltaics has also largely taxed the power grid of the Czech Republic, which is not only outdated in terms of capacity, but also not designed to efficiently connect to renewable energy sources (Johnstone 2010). Since photovoltaic panels produce electricity corresponding with the amount of sunlight available at any given time, solar electricity generation fluctuates greatly among the hours of the day as well as during different seasons. In 2010, voicing concern that the surges caused by fluctuating power production could cause blackouts, ČEPS banned the interconnection of new photovoltaic plants to the grid (Johnstone 2010). Though this ban temporarily closed the market to new solar installations, in 2012 the three largest power companies in the Czech Republic (CEZ, E.On, and PRE) allowed for the interconnection of small scale solar installations (roof-top panels) to the grid (Dorda 2012).The easing of the ban eventually led to 12,000 new solar installations approved for grid connection and construction between January and June of 2012, thus continuing the trend of increasing capacity (Dorda 2010). By the end of 2012, solar generation surpassed 2GW of electricity production making the Czech Republic the third largest producer of solar power per capita behind Germany and Italy (Shahan 2013).

Figure 2: PV Installations per capita



Source: Clean Technica (2011)

As a response to the rise in electricity prices and other problems with the current solar power polices as cited by ČEPS, in December, 2010 the Czech president signed into law an amendment to the Czech RES Act which would limit the costs incurred by the state from photovoltaics. The amendment specifically provided for a 26 percent tax on solar power plants that had been in operation between 2009 and 2010, for a period of three years beginning in 2011 (CTK, 2013). Interpreting the amendment as, essentially, a retroactive tax on returns from solar power generation that had benefited from the subsidies, investors claimed that the change in policy would have negatively affect their investments and hinder them in re-financing their relevant loans (Dorda and Ali-Oettinger 2010).

In March, 2011, 22 members of the Czech Senate filed a complaint to the Supreme Court against the new tax, fearing the impending lawsuits from companies that had contracted with the government according to the economic incentives set in the solar policies (Dorda 2011). In November, 2011, solar investors sent notice to the Czech authorities indicating the initiation of arbitration procedures with regards to the retroactive solar tax (CTK, 2013). Dispute resolution between investors and the state failed in 2011 and, in May 2013, the International Photovoltaic Investors Club (IPVIC), an association of solar power plant operators and investors, officially announced that it had launched arbitration procedures against the Czech authorities (CTK 2013).

Though the Czech national policies to promote solar power moved the country closer to achieving target goals set within the EU Directive, the policy has produced undeniably negative outcomes including high electricity prices and over taxing of the electricity grid from surges in production. Furthermore, the retroactive tax policy put in place to cope with these problems has

led to a barrage of lawsuits from solar investors which will cost the Czech state a great deal in arbitration. Thus, despite meeting EU targets for RES generation, the negative effects from the solar power policy in the Czech Republic largely indicate its partial failure.

The roots of this policy failure must be identified and isolated in order to better understand during which phase this policy partially failed. This is important not only for dealing with the current status of photovoltaics in the Czech Republic, but also to apply this knowledge to the formulation of future policies that may employ economic incentives to promote RES or other policy change for that matter. If it can be determined where the policy failure took place, then attention and resources can be focused on that phase in order to mitigate future failures.

Chapter 2: Literature Review

Part 1: Policy Success

Public policy, or the decisions made by government that undertake a specific issue, is typically paired with a set of specific goals that the government wishes to achieve (Brooks 1989). Usually in the form of government decisions, public policies ultimately strive to improve conditions within a specific sphere and often embody a form of public action in order to address "an unrealized value or opportunity for improvement" (Dunn 2008). The general goal of societal betterment, in theory, lies at the heart of every public policy, thus the evaluation of such decisions is crucial to "determine the value of the interventions with relation to achieving the organization's goals" (Davidson 2005).

2.1.A Compliance as the foundation for evaluation

Much policy evaluation literature has been dedicated to defining and recognizing of successful policies. The clearest, and most often employed, evaluation of policies often equates success with compliance. Usually relating to the extent to which target population—the segment of the population to which the policy is focused— complies with a regulation (OECD 2000), success is thus measured by the degree and rate of policy adoption and implementation. With regard to the EU directives, success, and thus compliance, has been measured by the degree to which Member States (target group) comply with European Union Law [Article 288, TFEU] by transposing directives into their national legislative framework (Haverland et al. 2011).This is especially true with regard to academic literature about the New Member States, which focuses largely on the rate of transposition of Directives (Dimitrova and Rhinard 2005; Toshkov 2008), transposition effectiveness, or the rate of successful formal legal incorporation of directives (Knill and Tosun

2009), and national implementation of Directives, largely examined in terms of national enforcement and domestic target group compliance (Faulkner and Trieb 2008).

Literature that specifically reviews EU Directive 2001/77/EC within Central and Eastern European new Member States often focusing on how close, or on track, the countries are in achieving individual goals set under the Directive (Korytarova 2006; Beurskens et al. 2011). Since Member States are responsible for setting five-year targets and publishing the results of their achievements, these studies that evaluate national policies are largely driven by this data. However these reports often omit data that falls outside of the target completion, such as overall impact on the electricity sector, legitimacy costs, and implications for public budgeting, to name a few. While several authors have probed the question of the success of policies after they have been transposed from EU directives (Haas 1998; Goetz 2004; Faulkner and Trieb 2008), they also fall short of comprehensively evaluating the policies, focusing largely on implementation indicators (for example degree of policy change and enforcement) rather than outcomes.

2.1.B Compliance as an insufficient indicator of policy success

According to such literature that places compliance as the foundational indicator of success, solar power policy in the Czech Republic would be considered to be extremely successful since it has facilitated the country's completion of target goals set under the EU RES Directive. However, the negative byproducts of this policy (rise in electricity prices, taxing of the grid, etc.) have led to a widespread condemnation of this policy within the country. Therefore, the evaluations of the success of this policy seem to be in conflict: on the one hand, it has achieved stated goals and is on track to achieving goals set for the future, while on the other hand it has had serious negative consequences. In other words, while compliance is a necessary component of policy implementation, it is not sufficient in determining its overall success.

2.1.C Policy success based on complex criteria

In order to better understand the conflict between the compliance measurements of solar policy in the Czech Republic and its overall negative outcomes, this policy must be evaluated against a more sophisticated rubric of success. More complex definitions of policy success and failure are useful because they take into greater account the diverse outcomes and externalities that policies produce, assigning government decisions more responsibility beyond their stated goals and intentions.

The literature on in-depth policy evaluation generally focuses on aspects of programmatic success, or the effectiveness, efficiency and resilience of policies, and evaluates whether the steps that governments take to tackle specific issues deliver workable and sensible solutions (Peters et al. 2001; Davidson 2005; McConnell 2010). While this approach is largely similar to the evaluation of success based on goal completion, it differs in that it places emphasis on the interpreted and perceived quality of the achievements (Bovens and Hart 2004). Other authors emphasize the importance of the concept of "net damage" in the evaluation of a policy, examining the balance of benefits and losses to determine success (Nagel 1980; Bovens and Hart 2004). Similarly, Werner and Wegrich note that a successful policy would generally "contribute to problem solving, or at least to the reduction of the problem load" (2007); however this is still a narrow approach since it evaluates a single solution, while failing to address other deficiencies that may arise from the policy. According to Kerr (1976), policies are failures when they do not "achieve their intended purpose or normative justification," therefore logically policies would be successful when they do.

Since policy performance is integral to its effectiveness, the consideration of a policy's political success, or when the policy produces political benefits and enhances the reputation of

government (McConnell 2010), may be equally important as programmatic success because "perception is as important for political legitimacy as is performance" (Peters et al. 2001). Synthesizing these definitions, McConnell defines a successful policy as one that "achieves the goals that proponents set out to achieve, and attracts no criticism of any significance and/or support is virtually universal" (McConnell, 2010). Since McConnell's definition encompasses both the programmatic and political criteria for policy success, it provides the most useful rubric for the evaluation for solar power policy in the Czech Republic.

2.1.D Solar policy in the Czech Republic- success or failure?

According to this definition of policy success, solar power policy in the Czech Republic can most likely be characterized as a "precarious success" tipping toward failure (McConnell 2010). While it achieves specific targets as originally defined within legislation, it cannot be said to meet its normative justification, or rather, its purpose of existence as perceived by society. For example, while the stated goals of the solar power policy in the Czech Republic were to increase investment in solar power, one of the normative justifications for financing in the program was to decrease costs of electricity in the long run. While an economic intervention, such as that of Czech solar policy, by definition interferes with the free market, it ideally will not greatly distort the market. Therefore, though not explicitly stated in the legislation, one can assume that it was the intention of this policy to interfere with the market enough to spur initial investment without negatively impacting the electricity market, which it ultimately did (Smrcka 2011).

The passage of a retroactive tax on solar installments, despite the anticipated lawsuits that the government would face, largely indicates that the benefits of the program (increased investment in solar power) had not outweighed the enormous cost to government. Therefore, according to the logic of net damage in determining policy success, this policy can largely be characterized as

a failure. Furthermore, the proponents of the policy have experienced large opposition and criticism from the public, private and academic sphere, largely undermining the policy's legitimacy and thus its effectiveness and success. In short, though this policy has been successful with regards to compliance (target achievement), it has failed on a number of other fronts and cannot be considered wholly successful.

Part 2: Policy failure within the policy process

When a policy is deemed to be a failure, it is likely that is will not be replicated in full. Likewise, if a policy is deemed to be successful, it may be replicated or transferred to other realms of policy or states. However, if a policy is a partial failure, it is unclear which aspects of the policy can be replicated or terminated. In other words, if policymakers do not know where the policy went wrong, they cannot determine which components of future, similar policies should be reformed. Consequently, in order to determine exactly where the solar policy in the Czech Republic failed, one must dissect the stages of its formation in order to isolate the incidence of failure.

2.2.1 Origins of the Policy Process

In the 1950's, Harold Lasswell undertook a similar task of dissecting the stages of policymaking and introduced the first conceptualization of what would later become "the procedure by which a given policy is proposed, examined, carried out and perhaps terminated," known now as the policy process (Lasswell 1956; deLeon1999) The stages of the policy process are chronological, linear, and distinct, each possessing "a mannerism and process that give the individual stage a life and presence of its own" (deLeon 1999). The widely accepted model of the contemporary policy process is as follows (Werner and Wegrich 2007; Dunn 2008; Howlett 2010):

1. Agenda-setting

2. Policy Formation
3. Decision-making
4. Policy Implementation
5. Policy Evaluation

As a device to disaggregate "an otherwise seamless web of public policy transactions," (deLeon 1999) this the policy process model is a useful tool in ordering and analyzing the culmination of events related to solar policy in the Czech Republic in order to determine where it failed.

2.2.A POLICY PROCESS AS THE BEST METHOD FOR ANALYSIS OF THIS CASE

While the policy process has been widely criticized over the years, its shortfalls do not detract from its usefulness in the analysis of solar power policy in the Czech Republic. Firstly, critics question the theoretical conceptualization of the model, namely the division of stages into discrete units (Werner and Wegrich 2007). There are some tasks of policymaking that are closely intertwined (formation and decision making, for example); however, it is clear that there are certain sets of activities that belong in distinct stages of policymaking (deLeon 1999). Therefore, the analysis of solar policy in the Czech Republic within the framework of the policy process is appropriate, as long as the tasks of each policy stage are defined.

A second criticism of the policy process is that it lacks a causal explanation of how the policy moves from one stage to another (Sabatier 1998; deLeon 1999). In addition to the fact that Lasswell did not intend the policy process to determine causal relationships between stages or predict policy events, but rather to integrate different theories about the disparate steps of policymaking (deLeon 1999), this criticism is of little concern with regard to this analysis of

solar policy in the Czech Republic since it is primarily a review of past events, rather than a prediction of future policymaking.

The chronology, or sequential nature of the model is perhaps its most controversial feature, as critics point out that the institutional and linear framework presented is rarely how policy is made; the stages of policymaking are often unordered and "there is no beginning or end… just middle" (John 2000). Various alternatives to the policy process have been suggested in order to, for example, address the relationships between each stage or reevaluate when and how agenda setting and policy initiation takes place (Jenkins-Smith 1991; Kingdon 1995; Sabatier 1988; Sabatier and Weible 2006; Dunn2008), however these alternative approaches are less preferable in the evaluation of solar policy in the Czech Republic than the policy process because the problems they address are not relative to this case. For example, problem formulation in this case is quite clear: the top-down approach to policymaking (a clear origin of the policy problem and sequence of decisions that follow) that is found in the policy process seems to be quite appropriate for the case of solar policy in the Czech Republic since the policy problem was clearly identified first by EU authorities and was then followed by policy actions in the Czech Republic. Therefore, the policy process remains the best model for analysis of this case, despite its criticisms and shortfalls.

Part 3: Components of stages of the policy process

Within each stage of the policy process, various actors assume roles and make decisions that influence the eventual outcome of the policy. Therefore, in order to deeply examine solar power policy in the Czech Republic to determine where it failed, this paper will dissect each stage of the policy process into its relevant agents, tasks and outcomes.

2.3.A Agents of failure

In their examination of policy fiascos in Europe, Bovens and Hart attributed failure to, among other things, "lack of adequate and cognitive information, institutional and intellectual stalemate, and eventually 'fuzzy gambling' of policy makers, managerial folly, greed, lust for power, laziness and most of all cognitive arrogance and information pathologies" (Bovens and Hart 2004). In a similar study, Howlett attributes policy failure to a lack of political analytical capacity--the amount of basic research a government can acquire or conduct about a policy to forecast its result--and the degree to which it can communicate this policy to the relevant parties and stakeholders (Howlett, 2010). These studies of policy failure are similar in that they both find human or institutional error and shortcomings to be the main reasons for failure, rather than macroeconomic or exogenous factors. Consequently, in analyzing the failure in the solar policy in the Czech Republic, identifying those responsible (institutions and individuals) for the policy's proliferation, or the policy "agents," will be an important first step.

2.3.B Identifying agents' tasks and responsibilities

In their analysis of policy fiascos, Bovens and Hart (2004) first assessed the extent of the damage caused by the policy by weighing the relevant benefits and losses. Secondly, the developments behind the negative events and determined who, or what, could have prompted them. Finally, after identifying possible agents of failure, Bovens and Hart attempted assess the rationale behind the agents' behavior that could have caused the negative events. In essence, by determining the tasks and responsibilities to each agent, Bovens and Hart could assign "blame" to agents relevant to failure.

2.3.C Agents and tasks within the policy process

When the tasks and responsibilities of agents are clear, they can be incorporated into the policy process. For example, one task of a legislator is to adopt the policy which falls into the decision making stage of the policy process. Likewise, once tasks and responsibilities are assigned to stages of the policy process, failure within these tasks will indicate where in the process the policy failed. Since agents may have a number of tasks, and likewise tasks may be assigned to a number of agents, it is more useful to identity agent-task combinations within the policy process, rather than an individual policymaker or task, to determine where the policy failed.

Along similar lines, Howlett identifies different types of failure and more explicitly assigns them to each stage of the policy process. This classification is useful since it connects the tasks and responsibilities of agents within each stage of the policy process, with the potential failure that can originate from that stage. For example, Howlett assigns "overreaching government" as a type of policy failure that could occur within the agenda-setting stage of the policy process, tasking the government with the responsibility of clarifying its goals and resources (Howlett 2010). Since these authors had similar goals (to examine policy failure) and followed similar conceptual frameworks (examination within the policy process), this analysis will incorporate the logic of these two studies to examine the case of the partial failure of solar power policy in the Czech Republic.

Part 4: Methodology

Whereas the policy process has been shown to be a preferred model for determining where the policy failed, it is incomplete methodologically with regard to this analysis. Since agents and tasks produce failure (Bovens and Hart 2004), and these failures can then be assigned to stages of the policy process (Howlett 2010), this analysis will first assign agent-task pairs to each stage

of the policy process. Secondly, it will determine whether there is a causal relationship between agent-task pairs and failure. And finally, when failure is found, it will be assigned to the stage of the policy process in which it took place.

In order to systematically examine selected evidence, this analysis will use a method of process tracing to qualitatively examine causal relationships between observed variables (Owen 1994; Collier 2011). Within each stage of the policy process, the analysis will attempt to answer "did the way in which the relevant actors fulfilled their responsibilities produce failure?" Interviews have been conducted as supplementary evidence; however, the analysis will mainly rely on the interpretation of policy documents, news articles, academic articles and industry reports.

Chapter 3: Analysis

Part 1: Agenda Setting

During the first stage of the policy process, a policy problem is identified from a diverse set of issues presented by elected and appointed officials of the public (Werner and Wegrich 2007; Dunn 2008). Following the selection of a policy problem, it must then be put on the agenda for consideration of public action (agenda setting) to warrant serious attention of government officials as well as non-governmental actors who are closely associated with the policy issue (Kingdon 1995). Though the influence of non-governmental actors (i.e. interest groups), often account for most variables affecting agenda setting (Werner and Wegrich 2007), ultimately, it is elected officials and other policymakers who set the public agenda. Agenda setting not only encompasses the process of selecting the policy problem, but it is also a process of structuring the policy issue while weighing approaches and instruments that can shape policy development within various stages of the policy process (Werner and Wegrich 2007). Therefore, during this stage, agents are tasked with articulating the policy problem in a way that will affect the policy formation stage.

3.1.A EU sets the agenda

In the case of the Czech Republic, the policy problem and policy objectives were largely determined by the EU legislation regarding the promotion of renewable energy sources. Preceded by various community action plans that prioritized the promotion of RES, the first major piece of legislation in this sphere was Directive 2001/77/EC. In addition to setting target goals for consumption of electricity from RES by 2010, the Directive emphasized social and economic cohesion (especially fair market opportunities for RES) "without excessive financial

burdens," as justifications for the legislation. The legislation also suggested a number of mechanisms for promoting RES such as fiscal and financial incentives for new construction; however, aside from fair access to the grid for RES producers, the directive did not mandate any specific measures for promotion for RES technologies. The decision to issue the directive in 2001 was largely driven by the desire to see the Kyoto Protocol, product of the United Nations convention on climate change negotiations, enter into force before the Johannesburg world summit on sustainable development in 2002 (Europa 2011).

Upon accession to the EU in 2004, the Czech Republic was to increase the consumption of electricity from RES to 8.4% by 2010 under the provisions of the directive. Prior to, and directly following accession to the EU, the Czech Republic had very few environmental groups that maintained formal affiliations with EU-based federation groups (Hallstrom 2004). Since these larger, EU affiliated groups are crucial in influencing EU environmental policy (Hallstrom 2004), it is unlikely that the Czech Republic had any significant impact in the development of 2001/77/EC and subsequent agenda setting that followed from the Directive. Furthermore, during the policy negotiations leading up to Directive 2009/28/EC, which amended and replaced Directive 2001/77/EC, political actors and interest groups were not active in some key discussions about the legislation, such as the debate between FiT and green certificate support schemes (Ydersbond 2011). In fact, the Czech Republic's most influential lobbying group in Brussels, Czech House, did not open until 2007 and was largely concerned with preparations for the Czech EU presidency in 2009. Due to fairly weak official representation in Brussels during the time of the 2009/28/EC negotiations, it is unlikely that Czech actors significantly impacted the formation of this legislation, and thus the agenda-setting during this phase of the policy process.

Ultimately, Directive 2009/28/EC combined the Directive on Renewable Electricity [2001/77/EC] and the Directive on Biofuels [2003/30/EC] and set an EU wide goal of 20% of *overall* energy consumed from RES by 2020. Member States were again able to set national targets that differed from the treaty, within specific parameters[3]; however, whereas the national targets set within 2001/77/EC were only indicative, those set within the 2009 Directive were binding. The Czech Republic agreed with the EU on a target of 13% of overall energy consumption from RES by 2020. In establishing binding targets for RES consumption, the EU Directives essentially established the framework in which the Czech Republic could form national RES legislation. By formulating the policy issue (promotion of RES) and the targets (goals), EU authorities largely set the national agenda in the Czech Republic with regard to energy policy and can be considered the main agents of the agenda-setting phase.

3.1.B Analysis: Policy outcomes vary among EU Member States

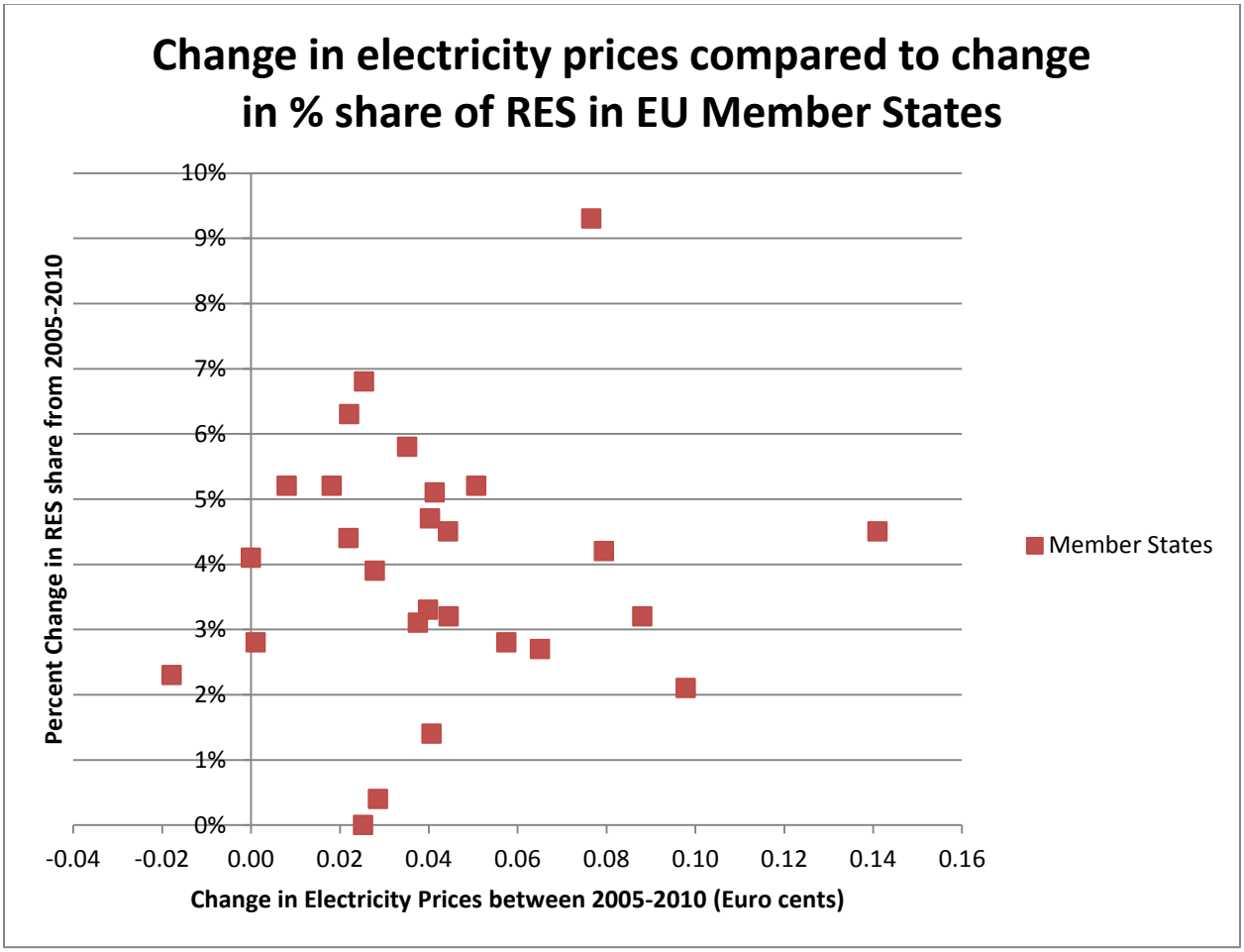
With regard to the case of solar power policy in the Czech Republic, the way in which the problem was identified can largely be ruled out as an origin of failure. Since the EU Directive applies to all Member States of the European Union, the outcomes of their implementing legislation can be compared to examine whether they had similar problems in their national policies on renewable energy resulting from the EU agenda setting measures.

A comparison of all 27 Member States by the European Commission showed mixed results: while half of the Member States had not achieved their 2010 indicative targets for renewable

[3] Individual Member State targets are based on the following criteria:
- All member states must achieve a marginal flat increase in RES final consumption of 5.75%.
- A further increase is added based on national GDP per capita
- Some account is taken of existing RES technological advances

energy in their electricity mix, others had surpassed targets by more than 2 percent (European Commission 2013). When observing each country according to renewable fuel mix, it is also clear that there is wide variation in the types of renewable technologies that countries chose to pursue and by different policy mechanisms (Eurostat 2013). Additionally, the cross country data shows that there is no correlation between an increase in the RES energy mix of a country and the increase in electricity prices [Figure 3].

Figure 3: EU electricity prices and share of RES



Source: Data from Eurostat and COM(2013) 175

From these results, it is clear that the EU Directive on the promotion of renewable energy was not instrumental in the policy failure in the Czech Republic. The EU Directive set the same parameters (and similar targets) for all Member States; however, the outcomes in each country were markedly different.

Part 2: Policy Formation and Decision Making

Following an informal process of negotiations within ministerial units and departments, officials create alternative policies and options to deal with the problem specified in the agenda setting phase (Dunn 2008). Despite the undeniable influence that outside actors can have on the policy formation process, it is ultimately government officials who have the final call on the final design and selection of policy options, since they are the ones who can submit draft legislation to the legislature. In the case of RES policy in the Czech Republic, the MiT and the Ministry of the Environment (MoE), each directed by Members of Parliament, were responsible for weighing the relevant policy options and submitting draft legislation to the legislature (Spacil 2011).

The availability of resources (both material and human) sets the parameters within which the policy must be adopted during the decision making phase thus narrowing the available options (Werner and Wegrich 2007). Though external actors can be influential in terms of policy adoption, elected officials remain the main agents within the policy decision stage, since they are ultimately responsible for the official adoption (and outcomes) of these policies. Therefore, the agents of the decision making phase in the Czech solar policy process are the legislators, and their task is to select a bundle of policy options to include in a final piece of legislation.

Since the agent-task pairs in both the policy formation and decision making stages are so similar, it is appropriate to analyze the policy events of the two stages as one phase of the policy process,

as suggested by Werner and Wegrich (2007). Moreover, since the heads of the ministries are members of parliament, they are able to participate in both the formulation of the policy and the decision making process.

3.2.A Boosting RES Generation through Investment

Having begun official accession negotiations with the EU as early as 1998, the Czech Republic preemptively began to reform its national legal framework early on in order to comply with EU standards. In order to do this, the Czech Republic would have to drastically increase the generation of energy from RES and promote a virtually non-existent sector. Since studies have shown that, in order to rapidly increase RES generation, "there should be a clear focus on the exclusive promotion of newly installed plants" no matter what policy is chosen, Czech policymakers defined the first objective as encouraging investment in RES (Held et al. 2006). Furthermore, since successful RES support schemes should be "predictable, cost efficient and adequate to deliver the targets," policymakers would have to employ policy mechanisms to ensure these qualities for successful RES promotion (Eurelectric 2011). Therefore, any policy that strives to increase RES generation should include these mechanisms.

3.2.B German RES policy as a model for Czech policymakers

The new member states that were required to comply with EU Directives engaged in a high degree of policy transfer, especially in the form of emulation of Western European policies or aspects of their legislation and institutions (Jacoby 2004; Gorton et al. 2009). In the case of Czech RES policy making, there seems to be a high degree of emulation of the German RES policy (*Erneuerbare-Energien-Gesetz* – EEG) of 2000.

The most striking evidence that suggests policy emulation from the EEG is that the Czech Renewable Energy Association had translated and distributed the act to members of parliament immediately before deliberations about a new RES policy were to occur (Bechberger and Reiche 2004). Consequently, the Czech Republic introduced an FiT system largely modeled after Germany's system in 2001. However, between 2001 and 2004, the FiT system in the Czech Republic was largely unsuccessful in spurring large scale investment in renewable technologies, many citing the lack of investment stability in the sector. Consequently, policymakers believed that, since the Czech RES policy had only borrowed aspects from the EEG (the FiT scheme) but had left out key components to its success (such at the 20 year set FiT rate as opposed to the Czech annually changing remuneration), the failure to promote wide scale investment was due to incomplete policy transfer (Bechberger and Reiche 2004).

3.2.C Czech Policymakers Develop a New Strategy

Understanding the need for a new strategy, especially upon accession to the EU, Czech policymakers began to reformulate RES policy to comply with the regulations and targets set within Directive 2001/77/EC. Having deduced some policy knowledge from the RES program of 2001, Act on Promotion of Use of Renewable Sources [Law No. 180/2005] passed in 2005, repealed and replaced all previous RES laws in the country and was an even closer copy to the German EEG. In addition to the provision that guaranteed preferential connection to the grid (pursuant Article 7(6) of Directive 2001/77/EC and thus applicable to all Member States), the new Czech RES law followed the example of the EEG's guarantee on investment and included a provision for 15 year contracted rate [Article 6, No. 180/2005]. Furthermore, though the MiT and MoE suggested a 10% maximum degression rate on FiT purchase prices, policymakers chose to include a 5% degression rate instead, following the example of the German legislation (Spacil 2011). In addition to the emulation of the German EEG, the Czech legislation drew some

provisions from the RES policy in Spain, namely provisions that allowed investors to choose between the FiT rate or a Feed in Premium (FiP or "Green Bonus") that would be paid as a premium on top of market prices [Article 6].

3.2.D Choosing Economic Incentives to Boost Investment

While the EU directive formed the framework for the law (i.e. the inclusion of targets), the choice to depend heavily on economic incentives (the FiT and FiP systems) and the degression rates to manage them were key decisions made by policymakers with regard to the promotion of renewable energy in the Czech Republic. In choosing this policy option, policymakers also chose to rule out alternatives such as the use of tariff certificates (Sweden), larger tax incentives (Poland), or voluntary measures (Europa 2011). According to industry studies, the choice of FiT and FiP systems seem to be best fit in achieving the stated goals of encouraging investment in RES since such economic incentives are the best way to ensure fast deployment of RES (Held et al. 2006) and are more cost effective, less susceptible to bureaucratic obstacles, and not as risky for investors than alternatives such as tradeable green certificates (Lemming 2003; EC 2005; Butler & Neuhoff 2008. In light of these studies, the decision to use a FiT and FiP system to promote investment in RES is logical and rational based on the available alternatives.

However, in light of the apparent influence of Western European RES policies as models, especially with regard to Germany (and, to a lesser extent, Spain), it is possible that the formation and adoption of the Czech RES policy was a product of policy emulation rather than the results of a rational, analytical decision making process. Furthermore, it is possible that the way in which Czech policymakers emulated the EEG could have led to policy failure, for several reasons. Firstly, the policy transfer could have been "inappropriate" since the political, economic, and social contexts between the two countries are decidedly different, and thus alter

the way in which the policy operates (Dolowitz and Marsh 2000). Indeed, considering the number of factors such as the cost of inputs and access to credit that should determine the initial degression rate (NREL 2010), it seems illogical that the rates for Germany and the Czech Republic would be exactly the same, considering their divergent economic indicators. Considering that the FiT policy in Germany largely applied to rooftop installations, whereas in the Czech Republic the same rates applied to all sizes of installations, the policy transfer could have also been considered to be "incomplete," an additional obstacle to policy emulation that often leads to failure (Dolowitz and Marsh 2000).

3.2.E Analysis: Similar policies, different outcomes

Since policy transfer often takes place when a government is hurriedly searching for a solution to a problem under time constraints (Dolowitz and Marsh 2000), policy emulation is prevalent in the new member states of Central and Eastern Europe, where accession of the EU is coupled with the transposition of large amounts of EU legislation (Gorton et al. 2009). It is not surprising then, that Czech policymakers likely sought a Western European policy to emulate when tasked with significantly changing the energy policy of the Czech Republic in order to fulfill the targets set by the EU RES Directive within the given timeframe.

Given the fact that the German RES policy has been lauded as a great success and an archetype for other countries that wish to promote RES (Bode and Groscurth 2006; Mendonça and Corre 2007; Fulton 2012), it is logical that Czech policy makers drew largely from the EEG. Furthermore, since policy transfer becomes more frequent between governments that engage frequently (such as in trade) (Dolowitz and Marsh 2000), Germany as the Czech Republic's neighbor and largest trading partner seems like a logical source of policy knowledge.

Given the similarities between the two policies, it is likely that the Czech Republic emulated the RES policy of Germany, albeit in an incomplete and inappropriate manner that may have been responsible for the failure of the Czech version. However, since the two policy designs were similar in design, but divergent in outcome, it is still not clear that the entirety of policy failure can be accounted for during the decision making/policy formation phase.

Part 4: Policy Implementation

Once a policy is adopted, the relevant administrative units within government mobilize resources, to comply with, or implement, the policy in the implementation[4] phase (Dunn 2008). Many of the crucial details of a policy are decided within the implementation phase. Indeed, since politicians and senior bureaucrats "are often happy to react to events, create symbolic policies and leave the harder and more controversial decisions to lower-level organizations and local authorities," the offices, agencies and other levels of government responsible for implementation often bear the brunt of the blame in the event of negative policy outcomes (John, 25).

Though the policy formation and implementation phases are closely related (John 2000), the details of the policy such as how the law should be interpreted, how the program should be executed and how financial and human resources should be allocated, are generally executed during the implementation phase (Werner and Wegrich 2007). These decisions are particularly important in the implementation of RES support schemes, since it is often, if not always, the responsibility of regulatory agencies to set purchasing prices and award contracts.

[4] While "implementation" itself describes the efforts made to execute goals with these resources, successful implementation does not describe a successful policy outcome (Weimar and Vining 2010).

3.3.A Decisions about the details of the policy

Within the Czech law on the promotion of RES, power has been delegated to the ERO to issue implementing regulations, most significantly to determine purchase prices and green bonuses (FiP) for electricity generated from RES [Article 6 (1), No. 180/2005]. When calculating these tariffs and premiums for the following year, the ERO takes into account the costs of purchase, the development of systems over time, and the different types of operation and connection requirements of each system (Resch et al. 2010). Since the ERO must consider a return on investment of 15 years and set purchasing rates at a minimum of 95% of the previous year [Article 6, No. 180/2005], there is limited flexibility in reducing these rates once they are set. Therefore, setting the correct tariff is crucial in determining the future costs to the program as it is a trade-off between promoting investment and balancing government budgets; if the tariff is too high, the producers will benefit from unnecessarily high windfall profits, whereas if it is too low, there will be little incentive for investment (Mendonça and Corre 2007).

3.3B ERO Promotes Photovoltaic Technology

Several studies that have evaluated the most effective mechanisms to increase RES investment through economic incentives, such as FiT and FiP, emphasize the need to focus resources on the promotion of one type of technology (Resch et al. 2010). In the case of RES policy in the Czech Republic, the ERO decided to most strongly back investment in photovolatics, as shown by the great divergence in tariffs and premiums for each technology [Table 1].

Since the 2005 legislation was a reaction to the 2001/77/EC Directive on the promotion of RES electricity, the ERO was tasked with choosing a technology to promote that would increase RES electricity (rather than heat generation, for example). Furthermore, since economic incentives work best when supporting RES technology that is technologically already established

(Zimmerman 1982), the choices in the Czech Republic with regard to RES support were largely limited to hydro power, wind and solar.

In an interview with Rudolf Kalkus,[5] he explained that the decision to promote photovoltaic installations was the product of more than 15 years of deliberation with regard to energy policy:

> "There are a number of hydro power plants in the country; however our small hills and few rivers cannot produce the electricity needed. There are also a few windmills, but because we're essentially in a valley between mountains, the wind doesn't blow that strongly. So policymakers decided to back solar as one of the only remaining workable options." (Kalkus, interview).

According to this logic, the support of photovoltaics seemed the most rational decision with regard to the promotion of electricity generation from RES. Additionally, in line with the theory that Czech policymakers and authorities emulated the RES policy of Germany, it is likely that the choice to promote PV was largely influenced by the example set by the EEG. [6]

3.3. C FiT RATES AND RETROACTIVE POLICIES

Intuitively, the large cost to the government that eventually prompted the retroactive tax on revenues generated from RES technology could be blamed on the high initial tariffs set for solar power. However, there does not seem to be a strong correlation between high tariffs and the implementation of retroactive policies to deal with cost control from solar policies; the five EU Member States that have enacted retroactive polices—Bulgaria, Czech Republic, Greece, Italy

[5] Rudolf Kalkus is owner of Aquares Construction Company that is one of the leading installers of RES technologies, including photovoltaic panels.

[6] Though lobbying for solar power was prevalent in other countries (Germany), there seems to be no evidence of lobbying for solar in the CZ at the time of policy formation or implementation in 2004 and 2005 since the most organize groups in the industry did not make their way to the Czech scene before the investment boom of 2009 (Slezáková 2011).

and Spain—are distributed rather evenly on the list of PV tariffs [Table 2] (Beetz 2012). Furthermore, Germany's initial FiT rate was higher in actual and relative terms than that of the Czech Republic: in 2004 Germany's initial FiT rate was €0.595/kWh, nearly five times the price of non-subsidized electricity, whereas the Czech Republic's initial FiT rate set in 2006 was €0.45 /kWh, only about three times the price of electricity in the country at the time (Mendonça and Corre 2007). Though this analysis is limited by the small amount of data that has been analyzed, a basic analysis shoes that it is unlikely that a high initial FiT rate would be able to fully account for the failure of PV policy in the Czech Republic.

Table 2: Feed in Tariffs in the EU

Member state	PV FiT €/kWh
Greece	0.55
Netherlands*	0.521
Czech Republic	0.455
Luxembourg*	0.42
Germany*	0.42
United Kingdom	0.42
Italy	0.4
Portugal*	0.38
Austria*	0.375
Bulgaria*	0.36
Slovenia*	0.3405
Cyprus	0.34
Spain*	0.33
Slovakia	0.27
Hungary	0.097
Estonia	0.051

Source: EU Energy Portal, http://www.energy.eu/; * PV FiT rates have been averaged. Highlighted cells represent countries that have enacted retroactive policies; EU MS not listed did not provide FiT information.

3.3.F Potential Corruption in Awarding Contracts

Though there does not seem to be a correlation between high purchasing prices for PV and the implementation of retroactive policies, unsurprisingly public corruption within the country does seem to play a role. Of the countries that promoted PV and later implemented retroactive policies similar to those of the Czech Republic, they all scored relatively poorly with regards to public corruption in relation to countries that promoted PV without the need for retroactive policies [Table 3]. In other words, if a country prioritizes PV and has a high level of corruption, it appears that it will be more susceptible to policy failure.

Table 3: PV FiT and Corruption

Member State	PV FiT €/kWh (2010)	Corruption Index (2010)
Greece	0.55	3.5
Bulgaria*	0.36	3.6
Italy	0.4	3.9
Slovakia	0.27	4.3
Czech Republic	0.455	4.6
Hungary	0.097	4.7
Portugal*	0.38	6
Spain*	0.33	6.1
Cyprus	0.34	6.3
Slovenia*	0.3405	6.4
Estonia	0.051	6.5
United Kingdom	0.42	7.6
Germany*	0.42	7.9
Austria*	0.375	7.9
Luxembourg*	0.42	8.5
Netherlands*	0.521	8.8

Source: *Corruption Perception Index*, 2010, where 0 is highly corrupt and 10 is perceived as clean; (for FiT rates see previous table); highlighted MS have enacted retroactive policies to counter costs to state budgets.

The consideration of corruption during the implementation phase is important since the regulatory authorities were granted great discretion in implementing the Czech RES policy. In addition to setting purchasing prices, the ERO is responsible for awarding contracts and issuing other documentation to PV investors. For example building permits required for every PV installation, are issued depending "purely on decision of the [ERO] office clerk" (Resch et al. 2010). Though EU studies have found that the ERO to be credible and independent (EC 2011), it has recently been accused of setting purchasing prices in a non-transparent manner (CTK 2013). The allegations prompted an audit of the agency in February, 2013, which revealed that ERO employees may have illegally increased prices of electricity in contracts made with solar investors (Radio CZ 2013). Furthermore, in 2010, just before there was a significant decrease in subsidies for PV, ERO reports indicate that several license applicants to operate solar plants were approved within 24 hours of the last day of the year (Radio CZ 2013).

If these allegations are true, this would show preferential treatment, since such applications and permits usually take 30-60 days to approve (Resch et al. 2010). Moreover, contracts to construct PV installations are less transparent than other RES technologies since it is uniquely exempt from the Environmental Impact Assessment (EIA) procedure, which usually takes up to one year and rigorously documents applications within the EIA database (Resch et al. 2010). Therefore, it is possible that contracts to PV investors were awarded in a non-transparent manner with illegally high prices.

3.3.G Analysis: Corrupt Contracts Could Account for Failure

According to the evidence analyzed, it is unclear to what was the main driver in choosing to promote PV over other RES technologies: while it seems to be a rational decision based on technical analyses, it is also possible that PV was chosen in line with the policy emulation of the

German EEG. Additionally, there does not seem to be a strong correlation between high FiT rates and the failure of PV policies. However, it is possible that corruption during the implementation phase may have significantly contributed to the policy's failure; if the ERO awarded contracts with inflated prices at the close of 2009, it would account for some of the costs incurred by the government.

This claim, however, is complicated due to the current political atmosphere surrounding energy generation in the Czech Republic. The facts of the case against ERO remain unclear and are complicated by political motivations: many of the accusations have come from sources that have long opposed PV subsidies due to personal investments in other energy sources (Groszkowski 2013). Therefore, until the facts of the case come to full fruition, it is still not clear that the failure of solar policy in the Czech Republic took place during the implementation phase.

Part 4: Policy Evaluation

Throughout the policy process, each stage faces a degree of evaluation; however, in order to fully assess the outcomes of a certain policy, the "policy evaluation" stage is the final level in the policy process. This stage necessarily begins with the appraisal of the policy outcomes against its intended objectives and impacts, accounting for any unintended consequences that may have developed from the policy (Werner and Wegrich 2007). The normative aspect of policy evaluation is the main obstacle at this stage, since both policy outcomes and intentions are necessarily matters of perspective and interpretation (Peters et al. 2001; Bovens and Hart 2004). Having been formulated within the framework of politics, partisanship and political posturing can greatly affect the way in which the outcomes of these policies are evaluated with proponents claiming success and opponents failure (McConnell 2010). In addition to the official (often commissioned) evaluations of whether or not a certain policy has achieved its stated goals and

outcomes, other sources such as academic publications, government press releases, as well as the media all produce informal evaluations of the policy themselves and complicate the evaluation process (McConnell 2010). The informality of these evaluations does not entirely undermine their relevance since, in most cases, these are the sources of information that largely impact public opinion of the policy, which then feeds back into the political aspect of policy evaluation, thus compounding its complexity.

3.4.A Germany RES policy evaluation

It has been shown that the RES policy of Germany is similar in policy design and implementation regulations (initial set tariffs) to that of the Czech Republic, thus it serves as a good case for comparison within the evaluation stage. In fact, the first few years of Germany's RES policy were similar to that of the Czech Republic: between 2004 and 2008 both countries experienced steady growth in investment in the PV sector. However, in 2008 Germany's RES policy underwent significant changes, while Czech RES policy remained the same. Following these changes, cost increases stabilized in Germany but, as has been shown, became uncontrollable in the Czech Republic, prompting the passage of a retroactive tax on RES revenues that Germany was able to avoid. Therefore, it is possible that variance in the actions taken during the evaluation stage can account for the differences in policy outcomes between the Czech Republic and Germany.

3.4.B Differences in Evaluation Schemes

Pursuant of Directive 2009/28/EC, both the Czech Republic and Germany include provisions within their main RES legislation for the evaluation of national RES policies and progress with relation to goal achievement at timeframes for fulfillment [Article 7 (2) of the Czech RES Act and Article 20 of the EEG, respectively]. One main difference in the RES policy evaluation

procedures of each country is in the authorities responsible for the evaluations: whereas the MiT, MoE and ERO are responsible for annual reporting in the Czech Republic, the Ministry for the Environment, Nature Conservation and Nuclear Safety, the Ministry of Food, Agriculture and Consumer Protection and the Federal Ministry of Economics and Technology are responsible for publishing a joint evaluation every four years. The difference in evaluating authorities reflects the different components that are required for inclusion in the assessment reports, and thus the information available for assessing the success or failure of a policy.

In the Czech Republic, the MoE and MiT are responsible for evaluating to what degree the country is on track to fulfilling the targets set within the EU directive, while the ERO's report focuses on the Czech electricity grid, including statistics related to the consumption of electricity, as price fluctuations, and the projected costs of electricity for the coming year in Czech Republic during that given year. In addition to this information, the report by the German ministries includes a more comprehensive view of the RES market as a whole, considering not only the costs of electricity, but changes in input costs for investors (EEG Progress Report 2007).

Additional information about RES markets beyond the costs and consumption rates of electricity is especially useful when evaluating support schemes based on economic incentives like FiT. Studies have shown that FiT systems should be regularly adjusted to accommodate the "learning curves," of investors in response to input prices (Eurelectric 2011). When a firm invests in a new energy installation (solar plant), half of the information gained from that experience is internalized by the company, but half also benefits all firms in the industry (Zimmerman 1982). This means that, as more firms invest in PV and install plants, the costs for other investors to build a plant are significantly lower. In addition to these lower costs from information sharing, increased investment in solar will subsequently increase demand for inputs (solar panels),

eventually increasing production and lowering costs. By the end of 2009, costs for solar investors had lowered significantly across the EU due to information sharing and the reduction of input cost by 30-40%; thereby creating an extremely advantageous investment climate for PV enjoying high FiT rates (Fendekova and Kohoutova 2011).

3.4.C Analysis: Germany takes action, Czech politicians are "asleep"

The progress report jointly published by the German ministries in 2007 accurately predicted the decrease in input prices and costs and suggested a .1 €/kWh reduction in the basic rate of remuneration for plants commissioned after 2009, with a further reduction in 2011 (EEG Progress Report 2007). Additionally, the report recommended increasing the possible degression rate from 5 to 7% for plants installed after January, 2009, and 8% for plants installed after 2011 (EEG Progress Report 2007). Policymakers actively reacted to the recommendations within the report and amended the EEG in 2009 to include these provisions. Having understood the importance of thorough policy evaluation in the stabilization of PV markets, the Bundestag amended the legislation again in 2011, setting the average degression rate at 9%, but allowing for an increase or decrease of this rate based on the volume of PV installed that year in Germany (BMU 2012).

While the German RES policy was being evaluated and reformed, the Czech policy remained largely unchanged. Additionally, since the costs of inputs (namely land and labor) were already lower in the Czech Republic than in neighboring Germany, the learning effects from initial investments were larger and attracted more foreign investors to build photovoltaic plants. Despite this rapid influx in investment, Czech politicians did not react and reform the policy. Inaction could be attributed to a dearth of information about the change in costs of inputs due to the limited scope of the official evaluation reports.

However, since the Czech RES policy had largely been modeled after that of Germany, it is unlikely that policymakers were not aware of the changes that had been made within their RES policy. Ing. Vladislav Blecha, owner of a 3MW solar plant in the South Bohemia Region of the Czech Republic, commented that during this time "the politicians were asleep and some businessmen took advantage of it" (Blecha, interview). Blecha installed his plant in 2009, when the costs of investment were low, FiT and FiP rates high, and the degression rate set at 5%. His claim is robustly supported but the investment decisions of CEZ, the largest electricity producer in the Czech Republic, which constructed all of its PV plants between 2009 and 2010 (CEZ 2013).

It is clear that the variance between the actions of the agents of the German and Czech evaluation phases resulted in policy success and failure, respectively. The comprehensive policy evaluation prompted policy redesign in Germany that mitigated a rapid increase of electricity costs for customers, whereas the narrow scope of the evaluation did not illicit any change in the Czech RES policy until the costs from solar were controllable only by a retroactive tax.

Conclusion

It is clear from the case of Czech solar policy that target achievement cannot be equated with overall policy success and can even, according to other definitions, be considered a partial failure. With the aim of determining where this policy failed, this analysis found that there are several stages within the policy process where failure could have occurred. In establishing legislation to promote RES, the EU authorities identified the policy issue and set the agenda. While the variance in policy outcomes indicates that this agenda setting could not have been fully responsible for the policy failure in the Czech Republic, the way in which the problem was identified and framed could have prompted the Czech Republic to engage in policy transfer from Germany; since the Czech Republic was required to make drastic changes to its energy policy in order to achieve the set targets within a relatively short period of time, policymakers were more likely to borrow policy models from Western European Countries.

Subsequent emulation of Germany's RES policy could have contributed to policy failure during the policy formation phase. The inappropriate choice of Germany as a model from which to borrow policy, and then the incomplete transfer of the policy provisions are likely factors that could have led to flawed policy design and consequent failure during the policy formation/decision making phase. However, if it is proven that the ERO engaged in illegally high price setting for PV investors, then policy failure will more significantly be accounted for during the implementation phase.

While all of these factors could have contributed to the policy's negative outcomes, failure could arguably have been avoided during the policy evaluation phase. Furthermore, the actions of the

ERO and the inaction of policymakers in 2008 largely indicate that most of the responsibility for failure with regard to solar policy in the Czech Republic lies within this phase of policy making.

Within the Czech Republic, indications that PV would become unsustainable were already apparent in 2008, when there was a large increase in applications for RES plants to connect to the network (Spacil 2011). Since it was clear that most of these applications were speculative in nature (lacking land and documentation to support their existence), the ERO in 2008 suggested a time limit that applicants could remain on the reservation list and the introduction of an application deposit (Spacil 2008). Though this could have largely reduced the number of applicants, no policy action was taken and an influx of solar installations between 2009 and 2010 largely distorted the electricity market, eventually prompting the retroactive tax on RES revenues. If the Czech policymakers had changed the purchasing prices for new installations and the degression rate in 2008, like Germany, it is likely that costs could have been significantly controlled and failure avoided.

Paralyzed Policymaking Led to Failure

The lack of action in the Czech Republic during the policy evaluation stage (while Germany was reforming the EEG) can largely be attributed to the divisive political climate within the country at the time. During the 2006 elections, the Civic Democrats (ODS) were elected with a slight victory over the Social Democrats (CSSD) and, after a number of failed negotiations, entered into an unlikely coalition with the Green Party and the Christian Democrats. In addition to the fact that the conservative ODS has always been largely anti-RES (and pro-nuclear), PM Mirek Topolanek did not include the examination of energy policy within his stated priorities for the government which largely formed their policy agenda for the coming term (CTK 2007). Thus, during the rule of ODS that lasted until 2009, little attention was paid to RES policy in the

country, despite the warnings of the ERO and policy changes in Germany. Furthermore, in March of 2009 during the Czech Republic's rotating presidency of the EU, parliament was dissolved in a vote of no confidence largely due to the way that ODS had handled the economic downturn in the country (AP 2009). Following the dissolution, a caretaker government headed by Jan Fischer was put in place until parliamentary elections of 2010, almost exactly when the PV boom took place in the Czech Republic.

The paralysis of government caused neither the solar boom in the country, nor the subsequent negative side effects. However, in determining that the greatest policy failure occurred during the evaluation phase, it is clear that the inaction of the government was highly significant in the policy's failure. While the failure identified within the policy formation/decision making phase can be attributed to lack of analytical capacity following Howlett's (2010) theory, the more likely failure of Czech solar policy during the implementation phase, and especially during the evaluation phase, is largely in line with the policy fiasco analyses of Bovens and Hart (2004) that attribute policy failure to the faults of policymakers from managerially folly, political stalemate, and other human factors.

This finding is significant because it demonstrates that the way in which individual policymakers shepherd, or abandon, RES policies can have great impact on the policy's effectiveness and success. This is especially important with regard to the development and implementation of RES policies that depend on economic incentives as support systems; market changes can drastically alter predictions, thus in order to protect the state budget, policies and policymakers must be reactive and flexible.

References

"ERÚ to publish audit of setting solar power prices by end-Feb." *The Prague Monitor*, 18th February, 2013, http://praguemonitor.com/2013/02/18/er%C3%BA-publish-audit-setting-solar-power-prices-end-feb.

"Foreign solar investors file arbitration against the Czech Republic (*Zahraniční solární investoři zahájili arbitráž proti Česku*)." *Cesky Noviny*, 9th May, 2013, http://www.ceskenoviny.cz/zpravy/zahranicni-solarni-investori-zahajili-arbitraz-proti-cesku/936318.

Associated Press. "No-confidence vote brings down Czech government." *The Guardian*, 24th March, 2009, http://www.guardian.co.uk/world/2009/mar/24/czech-coalition-vote.

Bechberger, Mischa, and Danyel Reiche. "The spread of renewable energy feed-in tariffs (REFITs) in the EU-25." In *Proceedings of the Berlin Conference on the Human Dimensions of Global Environmental Change," Green Policies-Interlinkages and Policy Integration", Berlin, Germany*. 2004.

Beetz, Becky. "EU solar industry calls for action against retroactive subsidy changes ." *PV Magazine*, 19th December, 2012, http://www.pv-magazine.com/news/details/beitrag/eu-solar-industry-calls-for-action-against-retroactive-subsidy-changes

Beurskens, L.W.M. , M. Hekkenberg and P. Vethman. "*Renewable Energy Projections as Published in the National Renewable Energy Action Plans of the European Member States*." 2011.

Blecha, Vladislav. Interview by author. Recording. Jindrichuv Hradec, May 10, 2013.

Bode, Sven, and Helmuth-Michael Groscurth. *The Effect of the German Renewable Energy Act (EEG) on" the Electricity Price"*. No. 358. HWWA Discussion Paper, 2006.

Butler, L. & Neuhoff, K. "Comparison of feed-in tariff, quota and auction mechanisms to support wind power development." (2008) Renewable Energy 33, 1854–1867.

CEZ Group. "*CEZ Group | Solar Power Plants*." 2009. http://www.cez.cz/en/power-plants-and-environment/solar-power-plants.html (accessed 28 May 2013).

Collier, David Understanding Process Tracing. *Political Science & Politics* (2011) 44: 4, 823–830.

Commission of the European Communities (EC). The Support of Electricity from Renewable Energy Sources, (Brussels: 2005)
CTK. "Topolánek představil "PPP" - pět premiérských priorit ." *Novinky*, 29th October, 2009, http://www.novinky.cz/domaci/125598-topolanek-predstavil-ppp-pet-premierskych-priorit.html.

Davidson, E. Jane. *Evaluation methodology basics*. Thousand Oaks, Calif. [u.a.]: Sage Publ, 2005
DeLeon, Peter. "The stages approach to the policy process: What has it done? Where is it going." *Theories of the policy process* 1 (1999): 19-32.

Dimitrova, Antoaneta L. and Rhinard, Marc, The Power of Norms in the Transposition of EU Directives. European Integration Online Papers, Vol. 9, No. 16, 2005.

Dorda, Jaroslav, and Shamsiah Ali-Oettinger. "Czech President approves controversial solar tax." *PV Magazine*, 16th December, 2010, http://www.pv-magazine.com/news/details/beitrag/czech-president-approves-controversial-solar-tax

Dorda, Jaroslav. "Czech Republic facing new "rooftop PV" boom." *SolarniNovinky*, 12th September, 2012, http://www.solarplaza.com/article/czech-republic-facing-new-rooftop-pv-boom.

Dorda, Jaroslav. "Czech solar tax to be reviewed by Supreme Court ." *PV Magazine*, 4th March, 2011, http://www.pv-magazine.com/news/details/beitrag/czech-solar-tax-to-be-reviewed-by-supreme-court.

Dunn, William N. "Public Policy Analysis: An Introduction- 4/E." (2008)

Eurelectric. "*National Renewable Energy Action Plans: An industry analysis*." 2013.

Europa Summaries of EU Legislation. "*Kyoto Protocol on climate change*." 2011. http://europa.eu/legislation_summaries/environment/cooperation_with_third_countries/l28060_en.htm (accessed 24 May 2013).

Europa Summaries of EU Legislation. "*Renewable energy: the promotion of electricity from renewable energy sources*." 2011. http://europa.eu/legislation_summaries/energy/renewable_energy/l27035_en.htm (accessed 24 May 2013).

Europa Summaries of EU Legislation. "*Renewable energy: White Paper laying down a Community strategy and action plan*." 2001. http://europa.eu/legislation_summaries/other/l27023_en.htm (accessed 24 May 2013).

European Commission. "*A Vision for Photovoltaic Technology*." Brussels: Office for Official Publications of the European Communities, 2005.

European Commission. "*Report From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions Renewable energy progress report*." Brussels: 2013.

Falkner, Gerda, and Oliver Treib. "Three Worlds of Compliance or Four? The EU-15 Compared to New Member States." *JCMS: Journal of Common Market Studies* 46, no. 2 (2008): 293-313.

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, (*Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit* BMU). "*Tariffs, degression and sample calculations pursuant to the new Renewable Energy Sources Act (Erneuerbare-EnergienGesetz - EEG) of 4 August 2011 ('EEG 2012')* ." Berlin: 2012.

Fulton, Mark, and Joseph Auer. "*German Feed In Tariff: recent policy changes*." 2012.

Goetz, Klaus H. . "The New Member States and the EU." Originally published in Bulmer, Simon, and Christian Lequesne. *Member States and the European Union* (New York: Oxford University Press, 2005.).

Groszkowski, Jakub. "A solar scandal in the Czech Republic and its implications."*Center for Eastern Studies*, 27th February, 2013, http://www.osw.waw.pl/en/publikacje/ceweekly/2013-02-27/a-solar-scandal-czech-republic-and-its-implications.

Haas, Peter M. "Compliance with EU directives: insights from international relations and comparative politics." *Journal of European Public Policy* 5, no. 1 (1998): 17-37.

Hallstrom, Lars K. "Eurocratising enlargement? EU elites and NGO participation in European environmental policy." *Environmental Politics* 13, no. 1 (2004): 175-193.

Haverland, M., Steunenberg, B. and Van Waarden, F., *Sectors at Different Speeds: Analysing Transposition Deficits in the European Union.* JCMS: Journal of Common Market Studies, (2011), 49: 265–291.

Howlett, M. Policy analytical capacity and evidence-based policy-making: Lessons from Canada. Canadian Public Administration, (2009) 52(2), 153-175.

Jenkins-Smith, Hank C. "Alternative theories of the policy process: Reflections on research strategy for the study of nuclear waste policy." *PS: Political science and politics* 24, no. 2 (1991): 157-166.

Johnstone, Chris. "Czech electricity grid operator seeks to brake solar power boom."*Radio Prague*, 2nd February, 2010, http://www.radio.cz/en/section/curraffrs/czech-electricity-grid-operator-seeks-to-brake-solar-power-boom.

Kalkus, Rudolf. Interview by author. Recording. Straz nad Nezarko, May 8, 2013.

Kingdon, John W. *Agendas, alternatives, and public policies (Longman classics edition)*. Longman Publishing Group, 2002.

Klein, Arne, Anne Held, Mario Ragwitz, Gustav Resch, and Thomas Faber. "Evaluation of different feed-in tariff design options: Best practice paper for the International Feed-in Cooperation." *Karlsruhe, Germany and Laxenburg, Austria: Fraunhofer Institut für Systemtechnik und Innovationsforschung and Vienna University of Technology Energy Economics Group* (2007).

Knill, Christopher and Jale Tosun. "Hierarchy, networks, or markets: how does the EU shape environmental policy adoptions within and beyond its borders?." European Union External Governance 16, no. 6 (2009): 873-894.

Lasswell, H.D. *A pre-view of the policy sciences*. (New York, NY: American Elsevier:1971).

Lemming, J. K. "Financial risks for green electricity investors and producers in a tradable green certificate market." *Energy Policy*, (2003) 31, 21-32.

McConnell, Allan. "Policy success, policy failure and grey areas in-between."*Journal of Public Policy* 30, no. 03 (2010): 345-362.

Mendonça, Miguel , and James Corre. "*Success story: Feed-In Tariffs Support renewable energy in Germany*." e-Parliament, 2013.

Morris, Chris. "Small Czech Republic is solar success."*Renewables International*, 11th June, 2012, http://www.renewablesinternational.net/small-czech-republic-is-solar-success/150/510/58341/.

Nature Conservation and Nuclear Safety (BMU) in agreement with the Federal Ministry of Food, Agriculture and Consumer Protection and the Federal Ministry of Economics and Technology. "*Renewable Energy Sources Act (EEG) Progress Report 2007* ." Berlin: 2007.

Owen, John M How Liberalism Produces Democratic Peace. *International Security,* (1994)19:2 87-125.

Resch, Gustav , Christian Panzer, Sebastian Busch, Mario Ragwitz and Daniel Rosende. "*Renewable Energy Industry Roadmap for Czech Republic*." 2012.

Sabatier, Paul A. "An advocacy coalition framework of policy change and the role of policy-oriented learning therein." *Policy sciences* 21, no. 2-3 (1988): 129-168.

Shahan, Zachary . "Czech Republic Has 35.5 Times More Solar Per Capita Than The Sunshine State (Florida)." *Clean Technica*, 11th February, 2013, http://cleantechnica.com/2013/02/11/czech-republic-has-35-5-times-more-solar-per-capita-than-the-sunshine-state/.

Slezakova, Veronika. "*Lobbying in the EU: Theoretical and Practical Aspects*." Undergraduate diss., Masaryk University, 2011.

Smrčka, Luboš. Photovoltaics in the Czech Republic – Example of a Distorted Market. Cambridge 22.02.2011 – 25.02.2011. In: *Recent Researches in Energy & Environment.* Cambridge : WSEAS Press, 2011, s. 378–383. ISBN 978-960-474-274-5. ISSN 1792-8230.

Spáčil, Aleš . "*Czech PV Market in 2011 and Outlook for 2012*." 2012.

Toshkov, Dimiter. "Embracing European Law Compliance with EU Directives in Central and Eastern Europe." *European Union Politics* 9, no. 3 (2008): 379-402.

Vachudova, Milada Anna. "Corruption and Compliance in the EU's Post-Communist Members and Candidates." *JCMS: Journal of Common Market Studies* 47 (2009): 43-62.

Weible, Christopher, M. and Paul A. Sabatier. "A Guide to the Advocacy Coalition Framework: Tips for Researchers." In Frank Fischer et al. (eds.) *Handbook of Public Policy Analysis: Theory, Politics, and Methods*. (New York: CRC Press: 2006).

Weimer, D. & Vining, A.R. Policy analysis: Concepts and practice. (London, U.K.: Longman: 2010).

Werner, Werner and Kai Wegrich, 'Theories of the policy cycle' in Frank Fisher, Gerald J. Miller and Mara S. Sidney, *Handbook of Public Policy Analysis: Theory, Politics and Methods.* (CRC Press: 2007)

Ydersbond, Inga. "Multi-level lobbying in the EU: The case of the Renewables Directive and the German energy industry." (2012).

Zimmerman, Martin B. "Learning effects and the commercialization of new energy technologies: The case of nuclear power." *The Bell Journal of Economics* (1982): 297-310.